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Attention: Chris Evans

CERTIFICATE OF ANALYSIS

Date of report Generation: 21 November 2023
Customer: Socotec
Sample Delivery Group (SDG): 231026-21
Your Reference: NOR2046
Location: Shotton Mill
Report No: 711585
Order Number: 204344NOR

This report has been revised and directly supersedes 711236 in its entirety.

We received 2 samples on Wednesday October 25, 2023 and 2 of these samples were scheduled for analysis which was completed on Thursday November 16, 2023. 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 Laboratories (UK) Limited Hawarden.

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: 231026-21
Client Ref.: NOR2046

Report Number: 711585
Location: Shotton Mill

Superseded Report: 711236

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
28843602	W1		1.00	25/10/2023
28912471	W1		1.00	08/11/2023

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



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SDG: 231026-21
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Location: Shotton Mill

Superseded Report: 711236

Results Legend	Lab Sample No(s)		28843602		28912471		
	Customer Sample Reference		W1		W1		
	AGS Reference						
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	Depth (m)		1.00		1.00		
Container	Sample Type		0.5l glass bottle (ALE227)		Vial (ALE297)		
			HNO3 Filtered (ALE204)		250ml BOD (ALE212)		
		1000ml glass bottle (ALE220)		0.5l glass bottle (ALE227)		TE	
		TE		TE		TE	
4 - Bromodiphenyl ether (BDE-3)(W)*	All	NDPs: 2 Tests: 0	N			N	
BOD True Total	All	NDPs: 0 Tests: 1		X			
Chloralkanes C10 - C13 by GCMS	All	NDPs: 0 Tests: 1	X				
COD Unfiltered	All	NDPs: 0 Tests: 1		X			
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 1			X		
Mercury Dissolved	All	NDPs: 0 Tests: 1			X		
Organotins in Aqueous Samples	All	NDPs: 0 Tests: 1	X				
PAH Spec MS - Aqueous (W)	All	NDPs: 0 Tests: 1		X			
Pesticides (Suite I) by GCMS	All	NDPs: 0 Tests: 1	X				
Pesticides (Suite II) by GCMS	All	NDPs: 0 Tests: 1	X				
Pesticides (Suite III) by GCMS	All	NDPs: 0 Tests: 1		X			
Phenols and ethoxylates in Liquids	All	NDPs: 0 Tests: 1	X				
SVOC MS (W) - Aqueous	All	NDPs: 0 Tests: 1	X				
VOC MS (W)	All	NDPs: 0 Tests: 1				X	



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SDG: 231026-21
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Location: Shotton Mill

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Results Legend		Customer Sample Ref.	W1			
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	1.00			
M	mCERTS accredited.		Trade Effluent (TE)			
aq	Aqueous / settled sample.		25/10/2023			
diss.filt	Dissolved / filtered sample.		25/10/2023			
tot.unfilt	Total / unfiltered sample.		231026-21			
*	Subcontracted - refer to subcontractor report for accreditation status.		28843602			
**	% 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				
Chloroalkanes (C10-C13)*	µg/l	SUB	<0.4			
BOD, unfiltered	<1 mg/l	TM045	2.1	#		
COD, unfiltered	<7 mg/l	TM107	21.1	#		
Cadmium (diss.filt)	<0.08 µg/l	TM152	<0.08			
Mercury (diss.filt)	<0.01 µg/l	TM183	<0.01	#		
Dibutyl tin	<5 ng/l	TM328	<5			
Tributyl tin	<1 ng/l	TM328	<1			
Tetrabutyl tin	<2 ng/l	TM328	<2			
Triphenyl tin	<1 ng/l	TM328	<1			
Surrogate**	%	TM328	78			
Trifluralin	<0.01 µg/l	TM343	<0.05			
alpha-HCH	<0.01 µg/l	TM343	<0.05			
gamma-HCH (Lindane)	<0.01 µg/l	TM343	<0.05			
Heptachlor	<0.01 µg/l	TM343	<0.05			
Aldrin	<0.01 µg/l	TM343	<0.05			
beta-HCH	<0.01 µg/l	TM343	<0.05			
Isodrin	<0.01 µg/l	TM343	<0.05			
delta-HCH	<0.01 µg/l	TM343	<0.05			
Heptachlor epoxide	<0.01 µg/l	TM343	<0.1			
o,p'-DDE	<0.01 µg/l	TM343	<0.05			
Endosulphan I	<0.01 µg/l	TM343	<0.05			
trans-Chlordane	<0.01 µg/l	TM343	<0.1			
cis-Chlordane	<0.01 µg/l	TM343	<0.1			
p,p'-DDE	<0.01 µg/l	TM343	<0.05			
Dieldrin	<0.01 µg/l	TM343	<0.05			
o,p'-DDD (TDE)	<0.01 µg/l	TM343	<0.05			
Endrin	<0.01 µg/l	TM343	<0.05			
o,p'-DDT	<0.01 µg/l	TM343	<0.1			
p,p'-DDD (TDE)	<0.01 µg/l	TM343	<0.05			
Endosulphan II	<0.02 µg/l	TM343	<0.1			
p,p'-DDT	<0.01 µg/l	TM343	<0.25			
o,p'-Methoxychlor	<0.01 µg/l	TM343	<0.1			
p,p'-Methoxychlor	<0.01 µg/l	TM343	<0.25			



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Results Legend			Customer Sample Ref.	W1			
#	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)						
		Depth (m)		1.00			
		Sample Type		Trade Effluent (TE)			
		Date Sampled		25/10/2023			
		Sample Time					
		Date Received		25/10/2023			
		SDG Ref		231026-21			
		Lab Sample No.(s)		28843602			
		AGS Reference					
Component	LOD/Units	Method					
Endosulphan Sulphate	<0.02 µg/l	TM343	<0.1				
Permethrin I	<0.01 µg/l	TM343	<0.05				
Permethrin II	<0.01 µg/l	TM343	<0.05				
1,3,5-Trichlorobenzene	<0.01 µg/l	TM344	<0.01				
Hexachlorobutadiene	<0.01 µg/l	TM344	<0.01				
1,2,4-Trichlorobenzene	<0.01 µg/l	TM344	<0.01				
1,2,3-Trichlorobenzene	<0.01 µg/l	TM344	<0.01				
Dichlorvos	<0.01 µg/l	TM344	<0.01				
Dichlobenil	<0.01 µg/l	TM344	<0.01				
Mevinphos	<0.01 µg/l	TM344	<0.01				
Tecnazene	<0.01 µg/l	TM344	<0.01				
Hexachlorobenzene	<0.01 µg/l	TM344	<0.01				
Demeton-S-methyl	<0.01 µg/l	TM344	<0.01				
Phorate	<0.01 µg/l	TM344	<0.01				
Diazinon	<0.01 µg/l	TM344	<0.01				
Triallate	<0.01 µg/l	TM344	<0.01				
Atrazine	<0.01 µg/l	TM344	<0.01				
Simazine	<0.01 µg/l	TM344	<0.01				
Disulfoton	<0.01 µg/l	TM344	<0.01				
Propetamphos	<0.01 µg/l	TM344	<0.01				
Chlorpyrifos-methyl	<0.01 µg/l	TM344	<0.01				
Dimethoate	<0.01 µg/l	TM344	<0.01				
Pirimiphos-methyl	<0.01 µg/l	TM344	<0.01				
Fenchlorophos	<0.01 µg/l	TM344	<0.01				
Chlorpyrifos	<0.01 µg/l	TM344	<0.01				
Methyl Parathion	<0.01 µg/l	TM344	<0.01				
Malathion	<0.01 µg/l	TM344	<0.01				
Fenthion	<0.01 µg/l	TM344	<0.01				
Fenitrothion	<0.01 µg/l	TM344	<0.01				
Triadimefon	<0.01 µg/l	TM344	<0.01				
Pendimethalin	<0.01 µg/l	TM344	<0.01				
Parathion	<0.01 µg/l	TM344	<0.01				
Chlorfenvinphos	<0.01 µg/l	TM344	<0.01				



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Results Legend		Customer Sample Ref.	W1			
# 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)		Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	1.00 Trade Effluent (TE) 25/10/2023 . 25/10/2023 231026-21 28843602			
Component	LOD/Units	Method				
trans-Chlordane	<0.01 µg/l	TM344	<0.01			
cis-Chlordane	<0.01 µg/l	TM344	<0.01			
Ethion	<0.01 µg/l	TM344	<0.01			
Carbophenothion	<0.01 µg/l	TM344	<0.01			
Triazophos	<0.01 µg/l	TM344	<0.01			
Phosalone	<0.01 µg/l	TM344	<0.01			
Azinphos methyl	<0.02 µg/l	TM344	<0.02			
Azinphos ethyl	<0.02 µg/l	TM344	<0.02			
Etridiazole	<0.01 µg/l	TM345	<0.02			
Pentachlorobenzene	<0.01 µg/l	TM345	<0.01			
Propachlor	<0.01 µg/l	TM345	<0.01			
Quintozene (PCNB)	<0.01 µg/l	TM345	<0.01			
Omethoate	<0.01 µg/l	TM345	<0.01			
Propazine	<0.01 µg/l	TM345	<0.01			
Propyzamide	<0.01 µg/l	TM345	<0.01			
Alachlor	<0.01 µg/l	TM345	<0.01			
Prometryn	<0.01 µg/l	TM345	<0.01			
Telodrin	<0.01 µg/l	TM345	<0.01			
Terbutryn	<0.01 µg/l	TM345	<0.01			
Chlorothalonil	<0.01 µg/l	TM345	<0.1			
Etrimphos	<0.01 µg/l	TM345	<0.01			
Metazachlor	<0.01 µg/l	TM345	<0.01			
Cyanazine	<0.01 µg/l	TM345	<0.01			
Trietazine	<0.01 µg/l	TM345	<0.01			
Coumaphos	<0.01 µg/l	TM345	<0.01			
Phosphamidon I	<0.01 µg/l	TM345	<0.01			
Phosphamidon II	<0.01 µg/l	TM345	<0.01			
4-tert-Octylphenol	<0.014 µg/l	TM426	<0.014			
4-tert-Nonylphenol	<0.04 µg/l	TM426	0.042			
4-n-Octylphenol	<0.014 µg/l	TM426	<0.014			
4-n-Nonylphenol	<0.04 µg/l	TM426	<0.04			
4-Nonylphenol monoethoxylate	<0.04 µg/l	TM426	<0.04			
4-Nonylphenol diethoxylate	<0.04 µg/l	TM426	<0.04			



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SVOC MS (W) - Aqueous

Results Legend		Customer Sample Ref.	W1				
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	1.00				
M	mCERTS accredited.		Trade Effluent (TE)	25/10/2023			
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					
1,2,4-Trichlorobenzene (aq)	<1 µg/l	TM176	<2				
1,2-Dichlorobenzene (aq)	<1 µg/l	TM176	<2				
1,3-Dichlorobenzene (aq)	<1 µg/l	TM176	<2				
1,4-Dichlorobenzene (aq)	<1 µg/l	TM176	<2				
2,4,5-Trichlorophenol (aq)	<1 µg/l	TM176	<2				
2,4,6-Trichlorophenol (aq)	<1 µg/l	TM176	<2				
2,4-Dichlorophenol (aq)	<1 µg/l	TM176	<2				
2,4-Dimethylphenol (aq)	<1 µg/l	TM176	<2				
2,4-Dinitrotoluene (aq)	<1 µg/l	TM176	<2				
2,6-Dinitrotoluene (aq)	<1 µg/l	TM176	<2				
2-Chloronaphthalene (aq)	<1 µg/l	TM176	<2				
2-Chlorophenol (aq)	<1 µg/l	TM176	<2				
2-Methylnaphthalene (aq)	<1 µg/l	TM176	<2				
2-Methylphenol (aq)	<1 µg/l	TM176	<2				
2-Nitroaniline (aq)	<1 µg/l	TM176	<2				
2-Nitrophenol (aq)	<1 µg/l	TM176	<2				
3-Nitroaniline (aq)	<1 µg/l	TM176	<2				
4-Bromophenylphenylether (aq)	<1 µg/l	TM176	<2				
4-Chloro-3-methylphenol (aq)	<1 µg/l	TM176	<2				
4-Chloroaniline (aq)	<1 µg/l	TM176	<2				
4-Chlorophenylphenylether (aq)	<1 µg/l	TM176	<2				
4-Methylphenol (aq)	<1 µg/l	TM176	<2				
4-Nitroaniline (aq)	<1 µg/l	TM176	<2				
4-Nitrophenol (aq)	<1 µg/l	TM176	<2				
Azobenzene (aq)	<1 µg/l	TM176	<2				
Acenaphthylene (aq)	<1 µg/l	TM176	<2				
Acenaphthene (aq)	<1 µg/l	TM176	<2				
Anthracene (aq)	<1 µg/l	TM176	<2				
bis(2-Chloroethyl)ether (aq)	<1 µg/l	TM176	<2				
bis(2-Chloroethoxy)methane (aq)	<1 µg/l	TM176	<2				
bis(2-Ethylhexyl) phthalate (aq)	<2 µg/l	TM176	<4				
Butylbenzyl phthalate (aq)	<1 µg/l	TM176	<2				
Benzo(a)anthracene (aq)	<1 µg/l	TM176	<2				



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VOC MS (W)

Results Legend		Customer Sample Ref.	W1				
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	1.00				
M	mCERTS accredited.		Trade Effluent (TE)	25/10/2023			
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)						
				25/10/2023			
			231026-21				
			28843602				
Component	LOD/Units	Method					
Dibromofluoromethane**	%	TM208	108				
Toluene-d8**	%	TM208	98.4				
4-Bromofluorobenzene**	%	TM208	96.5				
Dichlorodifluoromethane	<1 µg/l	TM208	<1	#			
Chloromethane	<1 µg/l	TM208	<1	#			
Vinyl chloride	<1 µg/l	TM208	<1	#			
Bromomethane	<1 µg/l	TM208	<1	#			
Chloroethane	<1 µg/l	TM208	<1	#			
Trichlorofluoromethane	<1 µg/l	TM208	<1	#			
1,1-Dichloroethene	<1 µg/l	TM208	<1	#			
Carbon disulphide	<1 µg/l	TM208	<1	#			
Dichloromethane	<3 µg/l	TM208	<3	#			
Methyl tertiary butyl ether (MTBE)	<1 µg/l	TM208	<1	#			
trans-1,2-Dichloroethene	<1 µg/l	TM208	<1	#			
1,1-Dichloroethane	<1 µg/l	TM208	<1	#			
cis-1,2-Dichloroethene	<1 µg/l	TM208	<1	#			
2,2-Dichloropropane	<1 µg/l	TM208	<1	#			
Bromochloromethane	<1 µg/l	TM208	<1	#			
Chloroform	<1 µg/l	TM208	<1	#			
1,1,1-Trichloroethane	<1 µg/l	TM208	<1	#			
1,1-Dichloropropene	<1 µg/l	TM208	<1	#			
Carbontetrachloride	<1 µg/l	TM208	<1	#			
1,2-Dichloroethane	<1 µg/l	TM208	<1	#			
Benzene	<1 µg/l	TM208	<1	#			
Trichloroethene	<1 µg/l	TM208	<1	#			
1,2-Dichloropropane	<1 µg/l	TM208	<1	#			
Dibromomethane	<1 µg/l	TM208	<1	#			
Bromodichloromethane	<1 µg/l	TM208	<1	#			
cis-1,3-Dichloropropene	<1 µg/l	TM208	<1	#			
Toluene	<1 µg/l	TM208	<1	#			
trans-1,3-Dichloropropene	<1 µg/l	TM208	<1	#			
1,1,2-Trichloroethane	<1 µg/l	TM208	<1	#			
1,3-Dichloropropane	<1 µg/l	TM208	<1	#			



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Report Number: 711585
Location: Shotton Mill

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VOC MS (W)

Results Legend		Customer Sample Ref.	W1			
# 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)		Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	1.00 Trade Effluent (TE) 25/10/2023 . 25/10/2023 231026-21 28843602			
Component	LOD/Units	Method				
Tetrachloroethene	<1 µg/l	TM208	<1	#		
Dibromochloromethane	<1 µg/l	TM208	<1	#		
1,2-Dibromoethane	<1 µg/l	TM208	<1	#		
Chlorobenzene	<1 µg/l	TM208	<1	#		
1,1,1,2-Tetrachloroethane	<1 µg/l	TM208	<1	#		
Ethylbenzene	<1 µg/l	TM208	<1	#		
m,p-Xylene	<1 µg/l	TM208	<1	#		
o-Xylene	<1 µg/l	TM208	<1	#		
Styrene	<1 µg/l	TM208	<1	#		
Bromoform	<1 µg/l	TM208	<1	#		
Isopropylbenzene	<1 µg/l	TM208	<1	#		
1,1,2,2-Tetrachloroethane	<1 µg/l	TM208	<1	#		
1,2,3-Trichloropropane	<1 µg/l	TM208	<1	#		
Bromobenzene	<1 µg/l	TM208	<1	#		
Propylbenzene	<1 µg/l	TM208	<1	#		
2-Chlorotoluene	<1 µg/l	TM208	<1	#		
1,3,5-Trimethylbenzene	<1 µg/l	TM208	<1	#		
4-Chlorotoluene	<1 µg/l	TM208	<1	#		
tert-Butylbenzene	<1 µg/l	TM208	<1	#		
1,2,4-Trimethylbenzene	<1 µg/l	TM208	<1	#		
sec-Butylbenzene	<1 µg/l	TM208	<1	#		
4-iso-Propyltoluene	<1 µg/l	TM208	<1	#		
1,3-Dichlorobenzene	<1 µg/l	TM208	<1	#		
1,4-Dichlorobenzene	<1 µg/l	TM208	<1	#		
n-Butylbenzene	<1 µg/l	TM208	<1	#		
1,2-Dichlorobenzene	<1 µg/l	TM208	<1	#		
1,2-Dibromo-3-chloropropane	<1 µg/l	TM208	<1	#		
1,2,4-Trichlorobenzene	<1 µg/l	TM208	<1	#		
Hexachlorobutadiene	<1 µg/l	TM208	<1	#		
tert-Amyl methyl ether (TAME)	<1 µg/l	TM208	<1	#		
Naphthalene	<1 µg/l	TM208	<1	#		
1,2,3-Trichlorobenzene	<1 µg/l	TM208	<1	#		
1,3,5-Trichlorobenzene	<1 µg/l	TM208	<1	#		



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SDG: 231026-21
Client Ref.: NOR2046

Report Number: 711585
Location: Shotton Mill

Superseded Report: 711236

Notification of NDPs (No determination possible)

Date Received : 26/10/2023 06:28:50

Sample No	Customer Sample Ref.	Depth (m)	Test	Comment
28843602	W1	1.00	4 - Bromodiphenyl ether (BDE-3)(W)*	Insufficient sample supplied
28912471	W1	1.00	4 - Bromodiphenyl ether (BDE-3)(W)*	Sample container broken



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Table of Results - Appendix

Method No	Description
TM107	Determination of Chemical Oxygen Demand using COD Dr Lange Kit
TM178	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS in Waters
TM426	Determination of Specific Phenols and their Ethoxylates in Liquids by GC/MS/MS
TM045	Determination of BOD5 (ATU) Filtered by Oxygen Meter on liquids
TM176	Determination of SVOCs in Water by GCMS
TM343	Determination of Selected Pesticides (Suite I) in Liquids by GCMS
TM345	Determination of selected pesticides (Suite III) by GCMS
SUB	Subcontracted Test
TM152	Analysis of Aqueous Samples by ICP-MS
TM208	Determination of Volatile Organic Compounds by Headspace / GC-MS in Waters
TM328	Determination of Organotins in Aqueous Samples
TM183	Determination of Trace Level Mercury in Waters and Leachates by PSA Cold Vapour Atomic Fluorescence Spectrometry
TM344	Determination of selected pesticides (Suite II) by GCMS

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Laboratories (UK) Limited Hawarden (Method codes TM).



CERTIFICATE OF ANALYSIS

Validated

SDG: 231026-21
Client Ref.: NOR2046

Report Number: 711585
Location: Shotton Mill

Superseded Report: 711236

Test Completion Dates

Lab Sample No(s)	28843602
Customer Sample Ref.	W1
AGS Ref.	
Depth	1.00
Type	Trade Effluent

BOD True Total	02-Nov-2023
Chloralkanes C10 - C13 by GCMS	16-Nov-2023
COD Unfiltered	01-Nov-2023
Dissolved Metals by ICP-MS	01-Nov-2023
Mercury Dissolved	02-Nov-2023
Organotins in Aqueous Samples	02-Nov-2023
PAH Spec MS - Aqueous (W)	08-Nov-2023
Pesticides (Suite I) by GCMS	08-Nov-2023
Pesticides (Suite II) by GCMS	01-Nov-2023
Pesticides (Suite III) by GCMS	31-Oct-2023
Phenols and ethoxylates in Liquids	09-Nov-2023
SVOC MS (W) - Aqueous	01-Nov-2023
VOC MS (W)	31-Oct-2023



CERTIFICATE OF ANALYSIS

Work Order	: PR23C5375	Issue Date	: 16-Nov-2023
Customer	: ALS Laboratories (UK) Limited	Laboratory	: ALS Czech Republic, s.r.o.
Contact	: ALS Hawarden Reporting	Contact	: Client Service
Address	: Unit 7-8 Hawarden Business Park Manor Road, Hawarden CH5 3US Deeside	Address	: Na Harfe 336/9 Prague 9 - Vysocany 190 00 Czech Republic
E-mail	: euhdsubconresults@ALSGlobal.com	E-mail	: customer.support@alsglobal.com
Telephone	: ----	Telephone	: +420 226 226 228
Project	: 231026-21	Page	: 1 of 2
Order number	: ----	Date Samples Received	: 03-Nov-2023
		Quote number	: PR2022ALSEC-GB0002 (CZ-256-18-0022)
Site	: ----	Date of test	: 03-Nov-2023 - 16-Nov-2023
Sampled by	: customer	QC Level	: ALS CR Standard Quality Control Schedule

General Comments

This report shall not be reproduced except in full, without prior written approval from the laboratory. The laboratory is not responsible for information provided by the customer.

The laboratory declares that the test results relate only to the listed samples. If "ALS" is not included in the test report in the "Sampled by" section, then the results refer to the sample as received.

Responsible for accuracy

Testing Laboratory No. 1163
Accredited by CAI according to
CSN EN ISO/IEC 17025:2018

Signatories

Lubomír Pokorný

Position

Country Manager



The company is certified according to ČSN EN ISO 14001 (Environmental management systems) and ČSN ISO 45001 (Occupational health and safety management systems)



Analytical Results

Sub-Matrix: EFFLUENT				Client sample ID		28852085		----		----	
				Laboratory sample ID		W1					
				Client sampling date / time		PR23C5375001		----		----	
						27-Oct-2023 08:59		----		----	
Parameter	Method	LOR	Unit	Result	MU	Result	MU	Result	MU		
Chlorinated Hydrocarbons											
Chlorinated Alkanes C10-C13	W-CLAGMS01	0.40	µg/L	<0.40	---	----	----	----	----		

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. Measurement uncertainty is expressed as expanded measurement uncertainty with coverage factor k = 2, representing 95% confidence level.

Key: LOR = Limit of reporting; MU = Measurement Uncertainty. The MU does not include sampling uncertainty.

Brief Method Summaries

Analytical Methods	Method Descriptions
Location of test performance: Na Harfe 336/9 Prague 9 - Vysocany Czech Republic 190 00	
W-CLAGMS01	CZ_SOP_D06_03_192.A - (CSN EN ISO 12010) Determination of chlorinated alkanes by gas chromatography method with MS/MS detection

The symbol "*" for the method indicates a test outside the scope of accreditation of the laboratory or subcontractor. If the UNICO-SUB code is stated in the method table, this only informs that the tests have been performed by a subcontractor and the results are given in an annex to the test report, including information on test accreditation. If the lab used for matrix outside the scope of accreditation or non-standard sample matrix procedure specified in the accredited method and issues non-accredited results, this fact is stated on the title page of this protocol in the section "Notes". If the test report shows the results of subcontracting, the place of performance of the test is outside the laboratories of ALS Czech Republic, s.r.o.

The method for calculating of the summation parameters is available on request in the customer service.

The end of the certificate of analysis



CERTIFICATE OF ANALYSIS

SDG: 231026-21
Client Ref: NOR2046

Report Number: 711585
Location: Shotton Mill

Superseded Report: 711236

Appendix

General

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

2. If sufficient sample is received a sub sample will be retained free of charge for 15 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 15 days 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. For dried and crushed preparations of soils volatile loss may occur e.g volatile mercury

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 Data retention. All records, communications and reports pertaining to the analysis are archived for seven years from the date of issue of the final report.

18. **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.

19. 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

20. 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 (2021), 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 and soils are obtained from supplied bulk materials and soils 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 (2021).

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.

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anorthophyllite	-
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.

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.