Appendix 12.4. Atkins Water Quality Monitoring, 2021

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UKAS TESTING
2183

Interim Report

Report No.:	21-33146-0
Initial Date of Issue:	
Client	WS Atkins Ireland
Client Address:	Atkins House 150 Airside House Swords Co Dublin IRELAND
Contact(s):	Avril McCollom Julie Larkin Deirdre Larkin Kieran Lynch Laura McGrath Rashaqat Ali Siddiqui
Project	5161805
Quotation No.:	Q21-23680
Order No.:	2021161
No. of Samples:	2
Turnaround (Wkdays):	5
Date Approved:	
Approved By:	

Date Received:	23-Sep-2021
Date Instructed:	23-Sep-2021
Results Due:	29-Sep-2021
Subcon Results Due:	14-Oct-2021

Details:

Please note that the interim data available has passed our Quality Control Criteria but has not been verified by an approved signatory and may be subject to amendment on approval. Chemtest cannot therefore be held responsible for decisions made on interim data sets but only for the data submitted on a final report containing an approval date and signature.

Results - Water

Project: 5161805

Client: WS Atkins Ireland			**Chemtest Job No.:**		21-33146	21-33146
Quotation No.: Q21-23680			**Chemtest Sample ID.:**		1285351	1285352
Order No.: 2021161			Client Sample Ref.:		SW1	SW2
			Client Sample ID.:		SW1	SW2
			Sample Location:		SW1	SW2
			Sample Type:		WATER	WATER
			Date Sampled:		22-Sep-2021	22-Sep-2021
Determinand	**Accred.**	**SOP**	**Units**	**LOD**		
Diuron	N	1830	mg/l	1.0	< 1.0	< 1.0
pH	U	1010		N/A	8.4	8.3
Electrical Conductivity	U	1020	µS/cm	1.0	680	680
Fats, Oils & Grease	N	1025	mg/l	10	< 10	< 10
Suspended Solids At 105C	U	1030	mg/l	5.0	17	14
Biochemical Oxygen Demand	N	1090	mg O2/l	4.0	5.0	25
Chemical Oxygen Demand	U	1100	mg O2/l	10	120	47
Alkalinity (Total)	U	1220	mg/l	10	430	450
Chloride	U	1220	mg/l	1.0	110	43
Fluoride	U	1220	mg/l	0.050	0.15	0.14
Ammonia (Free) as N	N	1220	mg/l	0.050	0.12	0.15
Ammonium	U	1220	mg/l	0.050	1.1	1.7
Ammoniacal Nitrogen	U	1220	mg/l	0.050	0.93	1.5
Nitrite	U	1220	mg/l	0.020	0.065	0.067
Nitrate	U	1220	mg/l	0.50	17	17
Phosphorus (Total)	N	1220	mg/l	0.020	< 0.020	< 0.020
Orthophosphate as PO4	U	1220	mg/l	0.050	< 0.050	< 0.050
Sulphate	U	1220	mg/l	1.0	48	33
Cyanide (Total)	U	1300	mg/l	0.050	< 0.050	< 0.050
Nitrogen (Total)	N	1340	mg/l	5.0	7.5	7.6
Calcium	U	1455	mg/l	2.00	180	170
Potassium	U	1455	mg/l	0.50	14	11
Magnesium	U	1455	mg/l	0.20	45	35
Sodium	U	1455	mg/l	1.50	130	50
Total Hardness as CaCO3	U	1270	mg/l	15	640	580
Arsenic (Dissolved)	U	1455	µg/l	0.20	1.8	1.4
Boron (Dissolved)	U	1455	µg/l	10.0	120	65
Barium (Dissolved)	U	1455	µg/l	5.00	120	110
Cadmium (Dissolved)	U	1455	µg/l	0.11	< 0.11	< 0.11
Copper (Dissolved)	U	1455	µg/l	0.50	0.84	0.70
Mercury (Dissolved)	U	1455	µg/l	0.05	< 0.05	< 0.05
Molybdenum (Dissolved)	U	1455	µg/l	0.20	11	9.4
Nickel (Dissolved)	U	1455	µg/l	0.50	0.85	< 0.50
Lead (Dissolved)	U	1455	µg/l	0.50	< 0.50	< 0.50
Antimony (Dissolved)	U	1455	µg/l	0.50	< 0.50	< 0.50
Selenium (Dissolved)	U	1455	µg/l	0.50	0.72	< 0.50
Zinc (Dissolved)	U	1455	µg/l	2.5	< 2.5	< 2.5
Arsenic (Total)	N	1455	µg/l	0.20	1.8	1.4
Boron (Total)	N	1455	µg/l	10.0	120	65

Results - Water

Project: 5161805

Client: WS Atkins Ireland			**Chemtest Job No.:**		21-33146	21-33146
Quotation No.: Q21-23680			**Chemtest Sample ID.:**		1285351	1285352
Order No.: 2021161			Client Sample Ref.:		SW1	SW2
			Client Sample ID.:		SW1	SW2
			Sample Location:		SW1	SW2
			Sample Type:		WATER	WATER
			Date Sampled:		22-Sep-2021	22-Sep-2021
Determinand	**Accred.**	**SOP**	**Units**	**LOD**		
Barium (Total)	N	1455	µg/l	5.00	120	110
Cadmium (Total)	N	1455	µg/l	0.11	< 0.11	< 0.11
Copper (Total)	N	1455	µg/l	0.50	0.84	0.70
Mercury (Total)	N	1455	µg/l	0.05	< 0.05	< 0.05
Molybdenum (Total)	N	1455	µg/l	0.20	11	9.4
Nickel (Total)	N	1455	µg/l	0.50	0.85	< 0.50
Lead (Total)	N	1455	µg/l	0.50	< 0.50	< 0.50
Antimony (Total)	N	1455	µg/l	0.50	< 0.50	< 0.50
Selenium (Total)	N	1455	µg/l	0.50	0.72	< 0.50
Zinc (Total)	N	1455	µg/l	2.5	< 2.5	< 2.5
Chromium (Trivalent)	N	1490	µg/l	20	< 20	< 20
Chromium (Hexavalent)	U	1490	µg/l	20	< 20	< 20
Total Organic Carbon	U	1610	mg/l	2.0	4.8	4.7
Aliphatic TPH >C5-C6	N	1675	µg/l	0.10	< 0.10	< 0.10
Aliphatic TPH >C6-C8	N	1675	µg/l	0.10	< 0.10	< 0.10
Aliphatic TPH >C8-C10	N	1675	µg/l	0.10	< 0.10	< 0.10
Aliphatic TPH >C10-C12	N	1675	µg/l	0.10	< 0.10	< 0.10
Aliphatic TPH >C12-C16	N	1675	µg/l	0.10	< 0.10	< 0.10
Aliphatic TPH >C16-C21	N	1675	µg/l	0.10	< 0.10	< 0.10
Aliphatic TPH >C21-C35	N	1675	µg/l	0.10	< 0.10	< 0.10
Aliphatic TPH >C35-C44	N	1675	µg/l	0.10	< 0.10	< 0.10
Total Aliphatic Hydrocarbons	N	1675	µg/l	5.0	< 5.0	< 5.0
Aromatic TPH >C5-C7	N	1675	µg/l	0.10	< 0.10	< 0.10
Aromatic TPH >C7-C8	N	1675	µg/l	0.10	< 0.10	< 0.10
Aromatic TPH >C8-C10	N	1675	µg/l	0.10	< 0.10	< 0.10
Aromatic TPH >C10-C12	N	1675	µg/l	0.10	< 0.10	< 0.10
Aromatic TPH >C12-C16	N	1675	µg/l	0.10	< 0.10	< 0.10
Aromatic TPH >C16-C21	N	1675	µg/l	0.10	< 0.10	< 0.10
Aromatic TPH >C21-C35	N	1675	µg/l	0.10	< 0.10	< 0.10
Aromatic TPH >C35-C44	N	1675	µg/l	0.10	< 0.10	< 0.10
Total Aromatic Hydrocarbons	N	1675	µg/l	5.0	< 5.0	< 5.0
Total Petroleum Hydrocarbons	N	1675	µg/l	10	< 10	< 10
Naphthalene	U	1700	µg/l	0.10	< 0.10	< 0.10
Acenaphthylene	U	1700	µg/l	0.10	< 0.10	< 0.10
Acenaphthene	U	1700	µg/l	0.10	< 0.10	< 0.10
Fluorene	U	1700	µg/l	0.10	< 0.10	< 0.10
Phenanthrene	U	1700	µg/l	0.10	< 0.10	< 0.10
Anthracene	U	1700	µg/l	0.10	< 0.10	< 0.10
Fluoranthene	U	1700	µg/l	0.10	< 0.10	< 0.10

Results - Water

Project: 5161805

Client: WS Atkins Ireland			**Chemtest Job No.:**		21-33146	21-33146
Quotation No.: Q21-23680			**Chemtest Sample ID.:**		1285351	1285352
Order No.: 2021161			Client Sample Ref.:		SW1	SW2
			Client Sample ID.:		SW1	SW2
			Sample Location:		SW1	SW2
			Sample Type:		WATER	WATER
			Date Sampled:		22-Sep-2021	22-Sep-2021
Determinand	**Accred.**	**SOP**	**Units**	**LOD**		
Pyrene	U	1700	µg/l	0.10	< 0.10	< 0.10
Benzo[a]anthracene	U	1700	µg/l	0.10	< 0.10	< 0.10
Chrysene	N	1700	µg/l	0.10	< 0.10	< 0.10
Benzo[b]fluoranthene	U	1700	µg/l	0.10	< 0.10	< 0.10
Benzo[k]fluoranthene	U	1700	µg/l	0.10	< 0.10	< 0.10
Benzo[a]pyrene	U	1700	µg/l	0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	1700	µg/l	0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	U	1700	µg/l	0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	U	1700	µg/l	0.10	< 0.10	< 0.10
Total Of 16 PAH's	N	1700	µg/l	2.0	< 2.0	< 2.0
Dichlorodifluoromethane	U	1760	µg/l	1.0	< 1.0	< 1.0
Chloromethane	U	1760	µg/l	1.0	< 1.0	< 1.0
Vinyl Chloride	N	1760	µg/l	1.0	< 1.0	< 1.0
Bromomethane	U	1760	µg/l	5	< 5	< 5
Chloroethane	U	1760	µg/l	2.0	< 2.0	< 2.0
Trichlorofluoromethane	U	1760	µg/l	1.0	< 1.0	< 1.0
1,1-Dichloroethene	U	1760	µg/l	1.0	< 1.0	< 1.0
Trans 1,2-Dichloroethene	U	1760	µg/l	1.0	< 1.0	< 1.0
1,1-Dichloroethane	U	1760	µg/l	1.0	< 1.0	< 1.0
cis 1,2-Dichloroethene	U	1760	µg/l	1.0	< 1.0	< 1.0
Bromochloromethane	U	1760	µg/l	5	< 5	< 5
Trichloromethane	U	1760	µg/l	1.0	< 1.0	< 1.0
1,1,1-Trichloroethane	U	1760	µg/l	1.0	< 1.0	< 1.0
Tetrachloromethane	U	1760	µg/l	1.0	< 1.0	< 1.0
1,1-Dichloropropene	U	1760	µg/l	1.0	< 1.0	< 1.0
Benzene	U	1760	µg/l	1.0	< 1.0	< 1.0
1,2-Dichloroethane	U	1760	µg/l	2.0	< 2.0	< 2.0
Trichloroethene	N	1760	µg/l	1.0	< 1.0	< 1.0
1,2-Dichloropropane	U	1760	µg/l	1.0	< 1.0	< 1.0
Dibromomethane	U	1760	µg/l	10	< 10	< 10
Bromodichloromethane	U	1760	µg/l	5	< 5	< 5
cis-1,3-Dichloropropene	N	1760	µg/l	10	< 10	< 10
Toluene	U	1760	µg/l	1.0	< 1.0	< 1.0
Trans-1,3-Dichloropropene	N	1760	µg/l	10	< 10	< 10
1,1,2-Trichloroethane	U	1760	µg/l	10	< 10	< 10
Tetrachloroethene	U	1760	µg/l	1.0	< 1.0	< 1.0
1,3-Dichloropropane	U	1760	µg/l	2.0	< 2.0	< 2.0
Dibromochloromethane	U	1760	µg/l	10	< 10	< 10
1,2-Dibromoethane	U	1760	µg/l	5	< 5	< 5

Results - Water

Project: 5161805

Client: WS Atkins Ireland			**Chemtest Job No.:**		21-33146	21-33146
Quotation No.: Q21-23680			**Chemtest Sample ID.:**		1285351	1285352
Order No.: 2021161			Client Sample Ref.:		SW1	SW2
			Client Sample ID.:		SW1	SW2
			Sample Location:		SW1	SW2
			Sample Type:		WATER	WATER
			Date Sampled:		22-Sep-2021	22-Sep-2021
Determinand	**Accred.**	**SOP**	**Units**	**LOD**		
Chlorobenzene	N	1760	µg/l	1.0	< 1.0	< 1.0
1,1,1,2-Tetrachloroethane	U	1760	µg/l	2.0	< 2.0	< 2.0
Ethylbenzene	U	1760	µg/l	1.0	< 1.0	< 1.0
m & p-Xylene	U	1760	µg/l	1.0	< 1.0	< 1.0
o-Xylene	U	1760	µg/l	1.0	< 1.0	< 1.0
Styrene	U	1760	µg/l	1.0	< 1.0	< 1.0
Tribromomethane	U	1760	µg/l	1.0	< 1.0	< 1.0
Isopropylbenzene	U	1760	µg/l	1.0	< 1.0	< 1.0
Bromobenzene	U	1760	µg/l	1.0	< 1.0	< 1.0
1,2,3-Trichloropropane	N	1760	µg/l	50	< 50	< 50
N-Propylbenzene	U	1760	µg/l	1.0	< 1.0	< 1.0
2-Chlorotoluene	U	1760	µg/l	1.0	< 1.0	< 1.0
1,3,5-Trimethylbenzene	U	1760	µg/l	1.0	< 1.0	< 1.0
4-Chlorotoluene	U	1760	µg/l	1.0	< 1.0	< 1.0
Tert-Butylbenzene	U	1760	µg/l	1.0	< 1.0	< 1.0
1,2,4-Trimethylbenzene	U	1760	µg/l	1.0	< 1.0	< 1.0
Sec-Butylbenzene	U	1760	µg/l	1.0	< 1.0	< 1.0
1,3-Dichlorobenzene	N	1760	µg/l	1.0	< 1.0	< 1.0
4-Isopropyltoluene	U	1760	µg/l	1.0	< 1.0	< 1.0
1,4-Dichlorobenzene	U	1760	µg/l	1.0	< 1.0	< 1.0
N-Butylbenzene	U	1760	µg/l	1.0	< 1.0	< 1.0
1,2-Dichlorobenzene	U	1760	µg/l	1.0	< 1.0	< 1.0
1,2-Dibromo-3-Chloropropane	U	1760	µg/l	50	< 50	< 50
1,2,4-Trichlorobenzene	U	1760	µg/l	1.0	< 1.0	< 1.0
Hexachlorobutadiene	U	1760	µg/l	1.0	< 1.0	< 1.0
1,2,3-Trichlorobenzene	U	1760	µg/l	2.0	< 2.0	< 2.0
Methyl Tert-Butyl Ether	N	1760	µg/l	1.0	< 1.0	< 1.0
N-Nitrosodimethylamine	N	1790	µg/l	0.50	< 0.50	< 0.50
Phenol	N	1790	µg/l	0.50	< 0.50	< 0.50
2-Chlorophenol	N	1790	µg/l	0.50	< 0.50	< 0.50
Bis-(2-Chloroethyl)Ether	N	1790	µg/l	0.50	< 0.50	< 0.50
1,3-Dichlorobenzene	N	1790	µg/l	0.50	< 0.50	< 0.50
1,4-Dichlorobenzene	N	1790	µg/l	0.50	< 0.50	< 0.50
1,2-Dichlorobenzene	N	1790	µg/l	0.50	< 0.50	< 0.50
2-Methylphenol (o-Cresol)	N	1790	µg/l	0.50	< 0.50	< 0.50
Bis(2-Chloroisopropyl)Ether	N	1790	µg/l	0.50	< 0.50	< 0.50
Hexachloroethane	N	1790	µg/l	0.50	< 0.50	< 0.50
N-Nitrosodi-n-propylamine	N	1790	µg/l	0.50	< 0.50	< 0.50
4-Methylphenol	N	1790	µg/l	0.50	< 0.50	< 0.50

Results - Water

Project: 5161805

Client: WS Atkins Ireland			**Chemtest Job No.:**		21-33146	21-33146
Quotation No.: Q21-23680			**Chemtest Sample ID.:**		1285351	1285352
Order No.: 2021161			Client Sample Ref.:		SW1	SW2
			Client Sample ID.:		SW1	SW2
			Sample Location:		SW1	SW2
			Sample Type:		WATER	WATER
			Date Sampled:		22-Sep-2021	22-Sep-2021
Determinand	**Accred.**	**SOP**	**Units**	**LOD**		
Nitrobenzene	N	1790	µg/l	0.50	< 0.50	< 0.50
Isophorone	N	1790	µg/l	0.50	< 0.50	< 0.50
2-Nitrophenol	N	1790	µg/l	0.50	< 0.50	< 0.50
2,4-Dimethylphenol	N	1790	µg/l	0.50	< 0.50	< 0.50
Bis(2-Chloroethoxy)Methane	N	1790	µg/l	0.50	< 0.50	< 0.50
2,4-Dichlorophenol	N	1790	µg/l	0.50	< 0.50	< 0.50
1,2,4-Trichlorobenzene	N	1790	µg/l	0.50	< 0.50	< 0.50
Naphthalene	N	1790	µg/l	0.50	< 0.50	< 0.50
4-Chloroaniline	N	1790	µg/l	0.50	< 0.50	< 0.50
Hexachlorobutadiene	N	1790	µg/l	0.50	< 0.50	< 0.50
4-Chloro-3-Methylphenol	N	1790	µg/l	0.50	< 0.50	< 0.50
2-Methylnaphthalene	N	1790	µg/l	0.50	< 0.50	< 0.50
Hexachlorocyclopentadiene	N	1790	µg/l	0.50	< 0.50	< 0.50
2,4,6-Trichlorophenol	N	1790	µg/l	0.50	< 0.50	< 0.50
2,4,5-Trichlorophenol	N	1790	µg/l	0.50	< 0.50	< 0.50
2-Chloronaphthalene	N	1790	µg/l	0.50	< 0.50	< 0.50
2-Nitroaniline	N	1790	µg/l	0.50	< 0.50	< 0.50
Acenaphthylene	N	1790	µg/l	0.50	< 0.50	< 0.50
Dimethylphthalate	N	1790	µg/l	0.50	< 0.50	< 0.50
2,6-Dinitrotoluene	N	1790	µg/l	0.50	< 0.50	< 0.50
Acenaphthene	N	1790	µg/l	0.50	< 0.50	< 0.50
3-Nitroaniline	N	1790	µg/l	0.50	< 0.50	< 0.50
Dibenzofuran	N	1790	µg/l	0.50	< 0.50	< 0.50
4-Chlorophenylphenylether	N	1790	µg/l	0.50	< 0.50	< 0.50
2,4-Dinitrotoluene	N	1790	µg/l	0.50	< 0.50	< 0.50
Fluorene	N	1790	µg/l	0.50	< 0.50	< 0.50
Diethyl Phthalate	N	1790	µg/l	0.50	< 0.50	< 0.50
4-Nitroaniline	N	1790	µg/l	0.50	< 0.50	< 0.50
2-Methyl-4,6-Dinitrophenol	N	1790	µg/l	0.50	< 0.50	< 0.50
Azobenzene	N	1790	µg/l	0.50	< 0.50	< 0.50
4-Bromophenylphenyl Ether	N	1790	µg/l	0.50	< 0.50	< 0.50
Hexachlorobenzene	N	1790	µg/l	0.50	< 0.50	< 0.50
Pentachlorophenol	N	1790	µg/l	0.50	< 0.50	< 0.50
Phenanthrene	N	1790	µg/l	0.50	< 0.50	< 0.50
Anthracene	N	1790	µg/l	0.50	< 0.50	< 0.50
Carbazole	N	1790	µg/l	0.50	< 0.50	< 0.50
Di-N-Butyl Phthalate	N	1790	µg/l	0.50	< 0.50	< 0.50
Fluoranthene	N	1790	µg/l	0.50	< 0.50	< 0.50
Pyrene	N	1790	µg/l	0.50	< 0.50	< 0.50

Results - Water

Project: 5161805

Client: WS Atkins Ireland			**Chemtest Job No.:**		21-33146	21-33146
Quotation No.: Q21-23680			**Chemtest Sample ID.:**		1285351	1285352
Order No.: 2021161			Client Sample Ref.:		SW1	SW2
			Client Sample ID.:		SW1	SW2
			Sample Location:		SW1	SW2
			Sample Type:		WATER	WATER
			Date Sampled:		22-Sep-2021	22-Sep-2021
Determinand	**Accred.**	**SOP**	**Units**	**LOD**		
Butylbenzyl Phthalate	N	1790	µg/l	0.50	< 0.50	< 0.50
Benzo[a]anthracene	N	1790	µg/l	0.50	< 0.50	< 0.50
Chrysene	N	1790	µg/l	0.50	< 0.50	< 0.50
Bis(2-Ethylhexyl)Phthalate	N	1790	µg/l	0.50	< 0.50	< 0.50
Di-N-Octyl Phthalate	N	1790	µg/l	0.50	< 0.50	< 0.50
Benzo[b]fluoranthene	N	1790	µg/l	0.50	< 0.50	< 0.50
Benzo[k]fluoranthene	N	1790	µg/l	0.50	< 0.50	< 0.50
Benzo[a]pyrene	N	1790	µg/l	0.50	< 0.50	< 0.50
Indeno(1,2,3-c,d)Pyrene	N	1790	µg/l	0.50	< 0.50	< 0.50
Dibenz(a,h)Anthracene	N	1790	µg/l	0.50	< 0.50	< 0.50
Benzo[g,h,i]perylene	N	1790	µg/l	0.50	< 0.50	< 0.50
4-Nitrophenol	N	1790	µg/l	0.50	< 0.50	< 0.50
Demeton-O	N	1820	µg/l	0.20	< 0.20	< 0.20
Phorate	N	1820	µg/l	0.20	< 0.20	< 0.20
Demeton-S	N	1820	µg/l	0.20	< 0.20	< 0.20
Disulfoton	N	1820	µg/l	0.20	< 0.20	< 0.20
Fenthion	N	1820	µg/l	0.20	< 0.20	< 0.20
Trichloronate	N	1820	µg/l	0.20	< 0.20	< 0.20
Prothiofos	N	1820	µg/l	0.20	< 0.20	< 0.20
Fensulphothion	N	1820	µg/l	0.20	< 0.20	< 0.20
Sulprofos	N	1820	µg/l	0.20	< 0.20	< 0.20
Azinphos-Methyl	N	1820	µg/l	0.20	< 0.20	< 0.20
Coumaphos	N	1820	µg/l	0.20	< 0.20	< 0.20
Atraton	N	1830	µg/l	0.20	< 0.20	< 0.20
Prometon	N	1830	µg/l	0.20	< 0.20	< 0.20
Simazine	N	1830	µg/l	0.20	< 0.20	< 0.20
Atrazine	N	1830	µg/l	0.20	< 0.20	< 0.20
Propazine	N	1830	µg/l	0.20	< 0.20	< 0.20
Terbuthylazine	N	1830	µg/l	0.20	< 0.20	< 0.20
Secbumeton	N	1830	µg/l	0.20	< 0.20	< 0.20
Simetryn	N	1830	µg/l	0.20	< 0.20	< 0.20
Ametryn	N	1830	µg/l	0.20	< 0.20	< 0.20
Prometryn	N	1830	µg/l	0.20	< 0.20	< 0.20
Terbutryn	N	1830	µg/l	0.20	< 0.20	< 0.20
Alpha-HCH	N	1840	µg/l	0.20	< 0.20	< 0.20
Gamma-HCH (Lindane)	N	1840	µg/l	0.20	< 0.20	< 0.20
Beta-HCH	N	1840	µg/l	0.20	< 0.20	< 0.20
Delta-HCH	N	1840	µg/l	0.20	< 0.20	< 0.20
Heptachlor	N	1840	µg/l	0.20	< 0.20	< 0.20

Results - Water

Project: 5161805

Client: WS Atkins Ireland			**Chemtest Job No.:**		21-33146	21-33146
Quotation No.: Q21-23680			**Chemtest Sample ID.:**		1285351	1285352
Order No.: 2021161			Client Sample Ref.:		SW1	SW2
			Client Sample ID.:		SW1	SW2
			Sample Location:		SW1	SW2
			Sample Type:		WATER	WATER
			Date Sampled:		22-Sep-2021	22-Sep-2021
Determinand	**Accred.**	**SOP**	**Units**	**LOD**		
Aldrin	N	1840	µg/l	0.20	< 0.20	< 0.20
Heptachlor Epoxide	N	1840	µg/l	0.20	< 0.20	< 0.20
Gamma-Chlordane	N	1840	µg/l	0.20	< 0.20	< 0.20
Alpha-Chlordane	N	1840	µg/l	0.20	< 0.20	< 0.20
Endosulfan I	N	1840	µg/l	0.20	< 0.20	< 0.20
4,4-DDE	N	1840	µg/l	0.20	< 0.20	< 0.20
Dieldrin	N	1840	µg/l	0.20	< 0.20	< 0.20
Endrin	N	1840	µg/l	0.20	< 0.20	< 0.20
4,4-DDD	N	1840	µg/l	0.20	< 0.20	< 0.20
Endosulfan II	N	1840	µg/l	0.20	< 0.20	< 0.20
Endrin Aldehyde	N	1840	µg/l	0.20	< 0.20	< 0.20
4,4-DDT	N	1840	µg/l	0.20	< 0.20	< 0.20
Endosulfan Sulphate	N	1840	µg/l	0.20	< 0.20	< 0.20
Methoxychlor	N	1840	µg/l	0.20	< 0.20	< 0.20
Endrin Ketone	N	1840	µg/l	0.20	< 0.20	< 0.20
2,4-D	SN		µg/l	0.02	To Follow	To Follow
Dichlorprop	SN		µg/l	0.020	To Follow	To Follow
MCPA	SN		µg/l	0.02	To Follow	To Follow
MCPB	SN		µg/l	0.01	To Follow	To Follow
Mecoprop	SN		µg/l	0.02	To Follow	To Follow
2,4,5-T	SN		µg/l	0.02	To Follow	To Follow
SVOC TIC	N	1790	µg/l	N/A	None Detected	None Detected
VOC TIC	N	1760	µg/l	N/A	None Detected	None Detected

Test Methods

SOP	Title	Parameters included	Method summary
1010	pH Value of Waters	pH	pH Meter
1020	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Conductivity Meter
1025	Fats, Oils and Greases	Fats, Oils and Greases	Solvent extraction / Gravimetry
1030	Total Suspended Solids	Total suspended solids	Filtration of a mixed sample through a standard glass fibre filter and determination of the mass of residue retained dried at 105°C.
1090	Biochemical Oxygen Demand	Biochemical Oxygen demand (BOD)	Colorimetric determination of dissolved oxygen in seeded sample after 5 days incubation at 20°C.
1100	Chemical Oxygen Demand	Chemical Oxygen demand (COD)	Dichromate oxidation of organic matter in sample followed by colorimetric determination of residual Cr[VI].
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1270	Total Hardness of Waters	Total hardness	Calculation applied to calcium and magnesium results, expressed as mg l-1 CaCO3 equivalent.
1300	Cyanides & Thiocyanate in Waters	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Continuous Flow Analysis.
1340	Total Nitrogen in Waters	Total Nitrogen and organic Nitrogen	Persulphate digestion followed by colorimetry.
1455	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1490	Hexavalent Chromium in Waters	Chromium [VI]	Automated colorimetric analysis by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
1610	Total/Dissolved Organic Carbon in Waters	Organic Carbon	TOC Analyser using Catalytic Oxidation
1675	TPH Aliphatic/Aromatic split in Waters by GC-FID(cf. Texas Method 1006 / TPH CWG)	Aliphatics: >C5–C6, >C6–C8, >C8– C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Pentane extraction / GCxGC FID detection
1700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Waters by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)
1760	Volatile Organic Compounds (VOCs) in Waters by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics. (cf. USEPA Method 8260)	Automated headspace gas chromatographic (GC) analysis of water samples with mass spectrometric (MS) detection of volatile organic compounds.
1790	Semi-Volatile Organic Compounds (SVOCs) in Waters by GC-MS	Semi-volatile organic compounds	Solvent extraction / GCMS detection
1820	Organophosphorus (O-P) Pesticides in Waters by GC-MS	Organophosphorus pesticide representative suite including Parathion, Malathion etc, plus client specific determinands	Solvent extraction / GCMS detection
1830	Organonitrogen (O-N) Pesticides in Waters by GC-MS	Organonitrogen pesticide representative suite including Triazines etc, plus client specific determinands	Solvent extraction / GCMS detection

Test Methods

SOP	Title	Parameters included	Method summary
1840	Organochlorine (O-Cl) Pesticides in Waters by GC-MS	Organochlorine pesticide representative suite including DDT and its metabolites, ‘drins’ and HCH etc, plus client specific determinands	Solvent extraction / GCMS detection

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

eurofins | Chemtest
Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

UKAS TESTING
2183

Final Report

Report No.:	21-22264-1
Initial Date of Issue:	20-Jul-2021
Client	WS Atkins Ireland
Client Address:	Atkins House 150 Airside House Swords Co Dublin IRELAND
Contact(s):	Julie Larkin Avril McCollom Deirdre Larkin Kieran Lynch Laura McGrath Rashaqat Ali Siddiqui
Project	5161805 Mortarstown Carlow

Quotation No.:	Q21-23680	**Date Received:**	29-Jun-2021
Order No.:	202161	**Date Instructed:**	29-Jun-2021
No. of Samples:	2		
Turnaround (Wkdays):	5	**Results Due:**	05-Jul-2021
Date Approved:	20-Jul-2021	**Subcon Results Due:**	20-Jul-2021

Approved By:

Details: Glynn Harvey, Technical Manager

Results - Water

Project: 5161805 Mortarstown Carlow

Client: WS Atkins Ireland			**Chemtest Job No.:**		21-22264	21-22264
Quotation No.: Q21-23680			**Chemtest Sample ID.:**		1230761	1230762
Order No.: 202161			Client Sample Ref.:		SW1	SW2
			Client Sample ID.:		SW1	SW2
			Sample Location:		SW1	SW2
			Sample Type:		WATER	WATER
			Date Sampled:		28-Jun-2021	28-Jun-2021
Determinand	**Accred.**	**SOP**	**Units**	**LOD**		
Temperature	N		°C	N/A	6.0	6.0
Diuron	N	1830	mg/l	1.0	< 1.0	< 1.0
pH	U	1010		N/A	8.4	8.5
Electrical Conductivity	U	1020	µS/cm	1.0	670	680
Fats, Oils & Grease	N	1025	mg/l	10	< 10	< 10
Suspended Solids At 105C	U	1030	mg/l	5.0	12	6.0
Total Dissolved Solids	N	1020	mg/l	1.0	440	440
Biochemical Oxygen Demand	N	1090	mg O2/l	4.0	4.0	4.0
Chemical Oxygen Demand	U	1100	mg O2/l	10	< 10	< 10
Dissolved Oxygen	N	1150	mg O2/l	0.50	8.4	8.4
Alkalinity (Total)	U	1220	mg/l	10	440	440
Chloride	U	1220	mg/l	1.0	37	36
Fluoride	U	1220	mg/l	0.050	0.16	0.15
Ammonia (Free) as N	N	1220	mg/l	0.050	< 0.050	< 0.050
Ammonium	U	1220	mg/l	0.050	0.16	0.11
Ammoniacal Nitrogen	U	1220	mg/l	0.050	0.14	0.10
Nitrite	U	1220	mg/l	0.020	0.052	0.045
Nitrate	U	1220	mg/l	0.50	12	12
Phosphorus (Total)	N	1220	mg/l	0.020	< 0.020	< 0.020
Orthophosphate as PO4	U	1220	mg/l	0.050	< 0.050	< 0.050
Sulphate	U	1220	mg/l	1.0	30	28
Cyanide (Total)	U	1300	mg/l	0.050	< 0.050	< 0.050
Nitrogen (Total)	N	1340	mg/l	5.0	5.8	5.6
Calcium	U	1455	mg/l	2.00	110	110
Potassium	U	1455	mg/l	0.50	3.2	3.0
Magnesium	U	1455	mg/l	0.20	14	14
Sodium	U	1455	mg/l	1.50	18	15
Total Hardness as CaCO3	U	1270	mg/l	15	320	330
Arsenic (Dissolved)	U	1455	µg/l	0.20	0.65	0.92
Boron (Dissolved)	U	1455	µg/l	10.0	30	27
Barium (Dissolved)	U	1455	µg/l	5.00	68	68
Cadmium (Dissolved)	U	1455	µg/l	0.11	< 0.11	< 0.11
Copper (Dissolved)	U	1455	µg/l	0.50	0.55	< 0.50
Mercury (Dissolved)	U	1455	µg/l	0.05	< 0.05	< 0.05
Molybdenum (Dissolved)	U	1455	µg/l	0.20	1.5	2.1
Nickel (Dissolved)	U	1455	µg/l	0.50	0.82	0.67
Lead (Dissolved)	U	1455	µg/l	0.50	< 0.50	< 0.50
Antimony (Dissolved)	U	1455	µg/l	0.50	< 0.50	< 0.50
Selenium (Dissolved)	U	1455	µg/l	0.50	< 0.50	0.79

Results - Water

Project: 5161805 Mortarstown Carlow

Client: WS Atkins Ireland			**Chemtest Job No.:**		21-22264	21-22264
Quotation No.: Q21-23680			**Chemtest Sample ID.:**		1230761	1230762
Order No.: 202161			Client Sample Ref.:		SW1	SW2
			Client Sample ID.:		SW1	SW2
			Sample Location:		SW1	SW2
			Sample Type:		WATER	WATER
			Date Sampled:		28-Jun-2021	28-Jun-2021
Determinand	**Accred.**	**SOP**	**Units**	**LOD**		
Zinc (Dissolved)	U	1455	µg/l	2.5	< 2.5	< 2.5
Arsenic (Total)	N	1455	µg/l	0.20	0.73	0.92
Boron (Total)	N	1455	µg/l	10.0	30	27
Barium (Total)	N	1455	µg/l	5.00	68	69
Cadmium (Total)	N	1455	µg/l	0.11	< 0.11	< 0.11
Copper (Total)	N	1455	µg/l	0.50	0.60	< 0.50
Mercury (Total)	N	1455	µg/l	0.05	< 0.05	< 0.05
Molybdenum (Total)	N	1455	µg/l	0.20	1.5	2.1
Nickel (Total)	N	1455	µg/l	0.50	0.82	0.68
Lead (Total)	N	1455	µg/l	0.50	< 0.50	< 0.50
Antimony (Total)	N	1455	µg/l	0.50	< 0.50	< 0.50
Selenium (Total)	N	1455	µg/l	0.50	< 0.50	0.82
Zinc (Total)	N	1455	µg/l	2.5	< 2.5	< 2.5
Chromium (Trivalent)	N	1490	µg/l	20	< 20	< 20
Chromium (Hexavalent)	U	1490	µg/l	20	< 20	< 20
Total Organic Carbon	U	1610	mg/l	2.0	4.7	4.5
Aliphatic TPH >C5-C6	N	1675	µg/l	0.10	< 0.10	< 0.10
Aliphatic TPH >C6-C8	N	1675	µg/l	0.10	< 0.10	< 0.10
Aliphatic TPH >C8-C10	N	1675	µg/l	0.10	< 0.10	< 0.10
Aliphatic TPH >C10-C12	N	1675	µg/l	0.10	< 0.10	< 0.10
Aliphatic TPH >C12-C16	N	1675	µg/l	0.10	< 0.10	< 0.10
Aliphatic TPH >C16-C21	N	1675	µg/l	0.10	< 0.10	< 0.10
Aliphatic TPH >C21-C35	N	1675	µg/l	0.10	< 0.10	< 0.10
Aliphatic TPH >C35-C44	N	1675	µg/l	0.10	< 0.10	< 0.10
Total Aliphatic Hydrocarbons	N	1675	µg/l	5.0	< 5.0	< 5.0
Aromatic TPH >C5-C7	N	1675	µg/l	0.10	< 0.10	< 0.10
Aromatic TPH >C7-C8	N	1675	µg/l	0.10	< 0.10	< 0.10
Aromatic TPH >C8-C10	N	1675	µg/l	0.10	< 0.10	< 0.10
Aromatic TPH >C10-C12	N	1675	µg/l	0.10	< 0.10	< 0.10
Aromatic TPH >C12-C16	N	1675	µg/l	0.10	< 0.10	< 0.10
Aromatic TPH >C16-C21	N	1675	µg/l	0.10	< 0.10	< 0.10
Aromatic TPH >C21-C35	N	1675	µg/l	0.10	< 0.10	< 0.10
Aromatic TPH >C35-C44	N	1675	µg/l	0.10	< 0.10	< 0.10
Total Aromatic Hydrocarbons	N	1675	µg/l	5.0	< 5.0	< 5.0
Total Petroleum Hydrocarbons	N	1675	µg/l	10	< 10	< 10
Naphthalene	U	1700	µg/l	0.10	< 0.10	< 0.10
Acenaphthylene	U	1700	µg/l	0.10	< 0.10	< 0.10
Acenaphthene	U	1700	µg/l	0.10	< 0.10	< 0.10
Fluorene	U	1700	µg/l	0.10	< 0.10	< 0.10

Results - Water

Project: 5161805 Mortarstown Carlow

Client: WS Atkins Ireland			**Chemtest Job No.:**		21-22264	21-22264
Quotation No.: Q21-23680			**Chemtest Sample ID.:**		1230761	1230762
Order No.: 202161			Client Sample Ref.:		SW1	SW2
			Client Sample ID.:		SW1	SW2
			Sample Location:		SW1	SW2
			Sample Type:		WATER	WATER
			Date Sampled:		28-Jun-2021	28-Jun-2021
Determinand	**Accred.**	**SOP**	**Units**	**LOD**		
Phenanthrene	U	1700	µg/l	0.10	< 0.10	< 0.10
Anthracene	U	1700	µg/l	0.10	< 0.10	< 0.10
Fluoranthene	U	1700	µg/l	0.10	< 0.10	< 0.10
Pyrene	U	1700	µg/l	0.10	< 0.10	< 0.10
Benzo[a]anthracene	U	1700	µg/l	0.10	< 0.10	< 0.10
Chrysene	N	1700	µg/l	0.10	< 0.10	< 0.10
Benzo[b]fluoranthene	U	1700	µg/l	0.10	< 0.10	< 0.10
Benzo[k]fluoranthene	U	1700	µg/l	0.10	< 0.10	< 0.10
Benzo[a]pyrene	U	1700	µg/l	0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	1700	µg/l	0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	U	1700	µg/l	0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	U	1700	µg/l	0.10	< 0.10	< 0.10
Total Of 16 PAH's	N	1700	µg/l	2.0	< 2.0	< 2.0
Dichlorodifluoromethane	U	1760	µg/l	1.0	< 1.0	< 1.0
Chloromethane	U	1760	µg/l	1.0	< 1.0	< 1.0
Vinyl Chloride	N	1760	µg/l	1.0	< 1.0	< 1.0
Bromomethane	U	1760	µg/l	5	< 5	< 5
Chloroethane	U	1760	µg/l	2.0	< 2.0	< 2.0
Trichlorofluoromethane	U	1760	µg/l	1.0	< 1.0	< 1.0
1,1-Dichloroethene	U	1760	µg/l	1.0	< 1.0	< 1.0
Trans 1,2-Dichloroethene	U	1760	µg/l	1.0	< 1.0	< 1.0
1,1-Dichloroethane	U	1760	µg/l	1.0	< 1.0	< 1.0
cis 1,2-Dichloroethene	U	1760	µg/l	1.0	< 1.0	< 1.0
Bromochloromethane	U	1760	µg/l	5	< 5	< 5
Trichloromethane	U	1760	µg/l	1.0	< 1.0	< 1.0
1,1,1-Trichloroethane	U	1760	µg/l	1.0	< 1.0	< 1.0
Tetrachloromethane	U	1760	µg/l	1.0	< 1.0	< 1.0
1,1-Dichloropropene	U	1760	µg/l	1.0	< 1.0	< 1.0
Benzene	U	1760	µg/l	1.0	< 1.0	< 1.0
1,2-Dichloroethane	U	1760	µg/l	2.0	< 2.0	< 2.0
Trichloroethene	N	1760	µg/l	1.0	< 1.0	< 1.0
1,2-Dichloropropane	U	1760	µg/l	1.0	< 1.0	< 1.0
Dibromomethane	U	1760	µg/l	10	< 10	< 10
Bromodichloromethane	U	1760	µg/l	5	< 5	< 5
cis-1,3-Dichloropropene	N	1760	µg/l	10	< 10	< 10
Toluene	U	1760	µg/l	1.0	< 1.0	< 1.0
Trans-1,3-Dichloropropene	N	1760	µg/l	10	< 10	< 10
1,1,2-Trichloroethane	U	1760	µg/l	10	< 10	< 10
Tetrachloroethene	U	1760	µg/l	1.0	< 1.0	< 1.0

Results - Water

Project: 5161805 Mortarstown Carlow

Client: WS Atkins Ireland			**Chemtest Job No.:**		21-22264	21-22264
Quotation No.: Q21-23680			**Chemtest Sample ID.:**		1230761	1230762
Order No.: 202161			Client Sample Ref.:		SW1	SW2
			Client Sample ID.:		SW1	SW2
			Sample Location:		SW1	SW2
			Sample Type:		WATER	WATER
			Date Sampled:		28-Jun-2021	28-Jun-2021
Determinand	**Accred.**	**SOP**	**Units**	**LOD**		
1,3-Dichloropropane	U	1760	µg/l	2.0	< 2.0	< 2.0
Dibromochloromethane	U	1760	µg/l	10	< 10	< 10
1,2-Dibromoethane	U	1760	µg/l	5	< 5	< 5
Chlorobenzene	N	1760	µg/l	1.0	< 1.0	< 1.0
1,1,1,2-Tetrachloroethane	U	1760	µg/l	2.0	< 2.0	< 2.0
Ethylbenzene	U	1760	µg/l	1.0	< 1.0	< 1.0
m & p-Xylene	U	1760	µg/l	1.0	< 1.0	< 1.0
o-Xylene	U	1760	µg/l	1.0	< 1.0	< 1.0
Styrene	U	1760	µg/l	1.0	< 1.0	< 1.0
Tribromomethane	U	1760	µg/l	1.0	< 1.0	< 1.0
Isopropylbenzene	U	1760	µg/l	1.0	< 1.0	< 1.0
Bromobenzene	U	1760	µg/l	1.0	< 1.0	< 1.0
1,2,3-Trichloropropane	N	1760	µg/l	50	< 50	< 50
N-Propylbenzene	U	1760	µg/l	1.0	< 1.0	< 1.0
2-Chlorotoluene	U	1760	µg/l	1.0	< 1.0	< 1.0
1,3,5-Trimethylbenzene	U	1760	µg/l	1.0	< 1.0	< 1.0
4-Chlorotoluene	U	1760	µg/l	1.0	< 1.0	< 1.0
Tert-Butylbenzene	U	1760	µg/l	1.0	< 1.0	< 1.0
1,2,4-Trimethylbenzene	U	1760	µg/l	1.0	< 1.0	< 1.0
Sec-Butylbenzene	U	1760	µg/l	1.0	< 1.0	< 1.0
1,3-Dichlorobenzene	N	1760	µg/l	1.0	< 1.0	< 1.0
4-Isopropyltoluene	U	1760	µg/l	1.0	< 1.0	< 1.0
1,4-Dichlorobenzene	U	1760	µg/l	1.0	< 1.0	< 1.0
N-Butylbenzene	U	1760	µg/l	1.0	< 1.0	< 1.0
1,2-Dichlorobenzene	U	1760	µg/l	1.0	< 1.0	< 1.0
1,2-Dibromo-3-Chloropropane	U	1760	µg/l	50	< 50	< 50
1,2,4-Trichlorobenzene	U	1760	µg/l	1.0	< 1.0	< 1.0
Hexachlorobutadiene	U	1760	µg/l	1.0	< 1.0	< 1.0
1,2,3-Trichlorobenzene	U	1760	µg/l	2.0	< 2.0	< 2.0
Methyl Tert-Butyl Ether	N	1760	µg/l	1.0	< 1.0	< 1.0
N-Nitrosodimethylamine	N	1790	µg/l	0.50	< 0.50	< 0.50
Phenol	N	1790	µg/l	0.50	< 0.50	< 0.50
2-Chlorophenol	N	1790	µg/l	0.50	< 0.50	< 0.50
Bis-(2-Chloroethyl)Ether	N	1790	µg/l	0.50	< 0.50	< 0.50
1,3-Dichlorobenzene	N	1790	µg/l	0.50	< 0.50	< 0.50
1,4-Dichlorobenzene	N	1790	µg/l	0.50	< 0.50	< 0.50
1,2-Dichlorobenzene	N	1790	µg/l	0.50	< 0.50	< 0.50
2-Methylphenol (o-Cresol)	N	1790	µg/l	0.50	< 0.50	< 0.50
Bis(2-Chloroisopropyl)Ether	N	1790	µg/l	0.50	< 0.50	< 0.50

Results - Water

Project: 5161805 Mortarstown Carlow

Client: WS Atkins Ireland			**Chemtest Job No.:**		21-22264	21-22264
Quotation No.: Q21-23680			**Chemtest Sample ID.:**		1230761	1230762
Order No.: 202161			Client Sample Ref.:		SW1	SW2
			Client Sample ID.:		SW1	SW2
			Sample Location:		SW1	SW2
			Sample Type:		WATER	WATER
			Date Sampled:		28-Jun-2021	28-Jun-2021
Determinand	**Accred.**	**SOP**	**Units**	**LOD**		
Hexachloroethane	N	1790	µg/l	0.50	< 0.50	< 0.50
N-Nitrosodi-n-propylamine	N	1790	µg/l	0.50	< 0.50	< 0.50
4-Methylphenol	N	1790	µg/l	0.50	< 0.50	< 0.50
Nitrobenzene	N	1790	µg/l	0.50	< 0.50	< 0.50
Isophorone	N	1790	µg/l	0.50	< 0.50	< 0.50
2-Nitrophenol	N	1790	µg/l	0.50	< 0.50	< 0.50
2,4-Dimethylphenol	N	1790	µg/l	0.50	< 0.50	< 0.50
Bis(2-Chloroethoxy)Methane	N	1790	µg/l	0.50	< 0.50	< 0.50
2,4-Dichlorophenol	N	1790	µg/l	0.50	< 0.50	< 0.50
1,2,4-Trichlorobenzene	N	1790	µg/l	0.50	< 0.50	< 0.50
Naphthalene	N	1790	µg/l	0.50	< 0.50	< 0.50
4-Chloroaniline	N	1790	µg/l	0.50	< 0.50	< 0.50
Hexachlorobutadiene	N	1790	µg/l	0.50	< 0.50	< 0.50
4-Chloro-3-Methylphenol	N	1790	µg/l	0.50	< 0.50	< 0.50
2-Methylnaphthalene	N	1790	µg/l	0.50	< 0.50	< 0.50
Hexachlorocyclopentadiene	N	1790	µg/l	0.50	< 0.50	< 0.50
2,4,6-Trichlorophenol	N	1790	µg/l	0.50	< 0.50	< 0.50
2,4,5-Trichlorophenol	N	1790	µg/l	0.50	< 0.50	< 0.50
2-Chloronaphthalene	N	1790	µg/l	0.50	< 0.50	< 0.50
2-Nitroaniline	N	1790	µg/l	0.50	< 0.50	< 0.50
Acenaphthylene	N	1790	µg/l	0.50	< 0.50	< 0.50
Dimethylphthalate	N	1790	µg/l	0.50	< 0.50	< 0.50
2,6-Dinitrotoluene	N	1790	µg/l	0.50	< 0.50	< 0.50
Acenaphthene	N	1790	µg/l	0.50	< 0.50	< 0.50
3-Nitroaniline	N	1790	µg/l	0.50	< 0.50	< 0.50
Dibenzofuran	N	1790	µg/l	0.50	< 0.50	< 0.50
4-Chlorophenylphenylether	N	1790	µg/l	0.50	< 0.50	< 0.50
2,4-Dinitrotoluene	N	1790	µg/l	0.50	< 0.50	< 0.50
Fluorene	N	1790	µg/l	0.50	< 0.50	< 0.50
Diethyl Phthalate	N	1790	µg/l	0.50	< 0.50	< 0.50
4-Nitroaniline	N	1790	µg/l	0.50	< 0.50	< 0.50
2-Methyl-4,6-Dinitrophenol	N	1790	µg/l	0.50	< 0.50	< 0.50
Azobenzene	N	1790	µg/l	0.50	< 0.50	< 0.50
4-Bromophenylphenyl Ether	N	1790	µg/l	0.50	< 0.50	< 0.50
Hexachlorobenzene	N	1790	µg/l	0.50	< 0.50	< 0.50
Pentachlorophenol	N	1790	µg/l	0.50	< 0.50	< 0.50
Phenanthrene	N	1790	µg/l	0.50	< 0.50	< 0.50
Anthracene	N	1790	µg/l	0.50	< 0.50	< 0.50
Carbazole	N	1790	µg/l	0.50	< 0.50	< 0.50

Results - Water

Project: 5161805 Mortarstown Carlow

Client: WS Atkins Ireland			**Chemtest Job No.:**		21-22264	21-22264
Quotation No.: Q21-23680			**Chemtest Sample ID.:**		1230761	1230762
Order No.: 202161			Client Sample Ref.:		SW1	SW2
			Client Sample ID.:		SW1	SW2
			Sample Location:		SW1	SW2
			Sample Type:		WATER	WATER
			Date Sampled:		28-Jun-2021	28-Jun-2021
Determinand	**Accred.**	**SOP**	**Units**	**LOD**		
Di-N-Butyl Phthalate	N	1790	µg/l	0.50	< 0.50	< 0.50
Fluoranthene	N	1790	µg/l	0.50	< 0.50	< 0.50
Pyrene	N	1790	µg/l	0.50	< 0.50	< 0.50
Butylbenzyl Phthalate	N	1790	µg/l	0.50	< 0.50	< 0.50
Benzo[a]anthracene	N	1790	µg/l	0.50	< 0.50	< 0.50
Chrysene	N	1790	µg/l	0.50	< 0.50	< 0.50
Bis(2-Ethylhexyl)Phthalate	N	1790	µg/l	0.50	< 0.50	< 0.50
Di-N-Octyl Phthalate	N	1790	µg/l	0.50	< 0.50	< 0.50
Benzo[b]fluoranthene	N	1790	µg/l	0.50	< 0.50	< 0.50
Benzo[k]fluoranthene	N	1790	µg/l	0.50	< 0.50	< 0.50
Benzo[a]pyrene	N	1790	µg/l	0.50	< 0.50	< 0.50
Indeno(1,2,3-c,d)Pyrene	N	1790	µg/l	0.50	< 0.50	< 0.50
Dibenz(a,h)Anthracene	N	1790	µg/l	0.50	< 0.50	< 0.50
Benzo[g,h,i]perylene	N	1790	µg/l	0.50	< 0.50	< 0.50
4-Nitrophenol	N	1790	µg/l	0.50	< 0.50	< 0.50
Demeton-O	N	1820	µg/l	0.20	< 0.20	< 0.20
Phorate	N	1820	µg/l	0.20	< 0.20	< 0.20
Demeton-S	N	1820	µg/l	0.20	< 0.20	< 0.20
Disulfoton	N	1820	µg/l	0.20	< 0.20	< 0.20
Fenthion	N	1820	µg/l	0.20	< 0.20	< 0.20
Trichloronate	N	1820	µg/l	0.20	< 0.20	< 0.20
Prothiofos	N	1820	µg/l	0.20	< 0.20	< 0.20
Fensulphothion	N	1820	µg/l	0.20	< 0.20	< 0.20
Sulprofos	N	1820	µg/l	0.20	< 0.20	< 0.20
Azinphos-Methyl	N	1820	µg/l	0.20	< 0.20	< 0.20
Coumaphos	N	1820	µg/l	0.20	< 0.20	< 0.20
Atraton	N	1830	µg/l	0.20	< 0.20	< 0.20
Prometon	N	1830	µg/l	0.20	< 0.20	< 0.20
Simazine	N	1830	µg/l	0.20	< 0.20	< 0.20
Atrazine	N	1830	µg/l	0.20	< 0.20	< 0.20
Propazine	N	1830	µg/l	0.20	< 0.20	< 0.20
Terbuthylazine	N	1830	µg/l	0.20	< 0.20	< 0.20
Secbumeton	N	1830	µg/l	0.20	< 0.20	< 0.20
Simetryn	N	1830	µg/l	0.20	< 0.20	< 0.20
Ametryn	N	1830	µg/l	0.20	< 0.20	< 0.20
Prometryn	N	1830	µg/l	0.20	< 0.20	< 0.20
Terbutryn	N	1830	µg/l	0.20	< 0.20	< 0.20
Alpha-HCH	N	1840	µg/l	0.20	< 0.20	< 0.20
Gamma-HCH (Lindane)	N	1840	µg/l	0.20	< 0.20	< 0.20

Results - Water

Project: 5161805 Mortarstown Carlow

Client: WS Atkins Ireland			**Chemtest Job No.:**		21-22264	21-22264
Quotation No.: Q21-23680			**Chemtest Sample ID.:**		1230761	1230762
Order No.: 202161			Client Sample Ref.:		SW1	SW2
			Client Sample ID.:		SW1	SW2
			Sample Location:		SW1	SW2
			Sample Type:		WATER	WATER
			Date Sampled:		28-Jun-2021	28-Jun-2021
Determinand	**Accred.**	**SOP**	**Units**	**LOD**		
Beta-HCH	N	1840	µg/l	0.20	< 0.20	< 0.20
Delta-HCH	N	1840	µg/l	0.20	< 0.20	< 0.20
Heptachlor	N	1840	µg/l	0.20	< 0.20	< 0.20
Aldrin	N	1840	µg/l	0.20	< 0.20	< 0.20
Heptachlor Epoxide	N	1840	µg/l	0.20	< 0.20	< 0.20
Gamma-Chlordane	N	1840	µg/l	0.20	< 0.20	< 0.20
Alpha-Chlordane	N	1840	µg/l	0.20	< 0.20	< 0.20
Endosulfan I	N	1840	µg/l	0.20	< 0.20	< 0.20
4,4-DDE	N	1840	µg/l	0.20	< 0.20	< 0.20
Dieldrin	N	1840	µg/l	0.20	< 0.20	< 0.20
Endrin	N	1840	µg/l	0.20	< 0.20	< 0.20
4,4-DDD	N	1840	µg/l	0.20	< 0.20	< 0.20
Endosulfan II	N	1840	µg/l	0.20	< 0.20	< 0.20
Endrin Aldehyde	N	1840	µg/l	0.20	< 0.20	< 0.20
4,4-DDT	N	1840	µg/l	0.20	< 0.20	< 0.20
Endosulfan Sulphate	N	1840	µg/l	0.20	< 0.20	< 0.20
Methoxychlor	N	1840	µg/l	0.20	< 0.20	< 0.20
Endrin Ketone	N	1840	µg/l	0.20	< 0.20	< 0.20
2,4-D	SN		µg/l	0.02	< 0.02	< 0.02
Dichlorprop	SN		µg/l	0.020	< 0.020	< 0.020
MCPA	SN		µg/l	0.02	< 0.02	< 0.02
MCPB	SN		µg/l	0.01	< 0.02	< 0.02
Mecoprop	SN		µg/l	0.02	< 0.02	< 0.02
2,4,5-T	SN		µg/l	0.02	< 0.02	< 0.02
SVOC TIC	N	1790	µg/l	N/A	None Detected	None Detected
VOC TIC	N	1760	µg/l	N/A	None Detected	None Detected

Test Methods

SOP	Title	Parameters included	Method summary
1010	pH Value of Waters	pH	pH Meter
1020	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Conductivity Meter
1025	Fats, Oils and Greases	Fats, Oils and Greases	Solvent extraction / Gravimetry
1030	Total Suspended Solids	Total suspended solids	Filtration of a mixed sample through a standard glass fibre filter and determination of the mass of residue retained dried at 105°C.
1090	Biochemical Oxygen Demand	Biochemical Oxygen demand (BOD)	Colorimetric determination of dissolved oxygen in seeded sample after 5 days incubation at 20°C.
1100	Chemical Oxygen Demand	Chemical Oxygen demand (COD)	Dichromate oxidation of organic matter in sample followed by colorimetric determination of residual Cr[VI].
1150	Dissolved Oxygen	Dissolved Oxygen (DO)	Electrometric determination (on site preferred), using oxygen sensitive membrane electrode.
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1270	Total Hardness of Waters	Total hardness	Calculation applied to calcium and magnesium results, expressed as mg l-1 CaCO3 equivalent.
1300	Cyanides & Thiocyanate in Waters	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Continuous Flow Analysis.
1340	Total Nitrogen in Waters	Total Nitrogen and organic Nitrogen	Persulphate digestion followed by colorimetry.
1455	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1490	Hexavalent Chromium in Waters	Chromium [VI]	Automated colorimetric analysis by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
1610	Total/Dissolved Organic Carbon in Waters	Organic Carbon	TOC Analyser using Catalytic Oxidation
1675	TPH Aliphatic/Aromatic split in Waters by GC-FID(cf. Texas Method 1006 / TPH CWG)	Aliphatics: >C5–C6, >C6–C8, >C8– C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Pentane extraction / GCxGC FID detection
1700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Waters by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)
1760	Volatile Organic Compounds (VOCs) in Waters by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics. (cf. USEPA Method 8260)	Automated headspace gas chromatographic (GC) analysis of water samples with mass spectrometric (MS) detection of volatile organic compounds.
1790	Semi-Volatile Organic Compounds (SVOCs) in Waters by GC-MS	Semi-volatile organic compounds	Solvent extraction / GCMS detection
1820	Organophosphorus (O-P) Pesticides in Waters by GC-MS	Organophosphorus pesticide representative suite including Parathion, Malathion etc, plus client specific determinands	Solvent extraction / GCMS detection

Test Methods

SOP	Title	Parameters included	Method summary
1830	Organonitrogen (O-N) Pesticides in Waters by GC-MS	Organonitrogen pesticide representative suite including Triazines etc, plus client specific determinands	Solvent extraction / GCMS detection
1840	Organochlorine (O-Cl) Pesticides in Waters by GC-MS	Organochlorine pesticide representative suite including DDT and its metabolites, 'drins' and HCH etc, plus client specific determinands	Solvent extraction / GCMS detection

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com