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Analytical Report Number : 15-75464

Replaces Analytical Report Number : 15-75464, issue no. 1

Project / Site name:	Wrexham	Samples received on:	16/07/2015
Your job number:	HC15016	Samples instructed on:	16/07/2015
Your order number:	HC15016/29180	Analysis completed by:	21/07/2015
Report Issue Number:	2	Report issued on:	21/07/2015
Samples Analysed:	8 soil samples		

Signed:

Rexona Rahman
Reporting Manager
For & on behalf of i2 Analytical Ltd.

Signed:

Emma Winter
Assistant Reporting Manager
For & on behalf of i2 Analytical Ltd.

Other office located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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Analytical Report Number: 15-75464

Project / Site name: Wrexham

Your Order No: HC15016/29180

Lab Sample Number				465826	465827	465828	465829	465830
Sample Reference				EX11 Base	Crush 5	Import 2	Import 3	Import 4
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				23/06/2015	01/07/2015	02/07/2015	02/07/2015	13/07/2015
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	18	1.9	1.6	1.8	0.16
Total mass of sample received	kg	0.001	NONE	0.51	0.46	0.47	0.29	0.46

General Inorganics

Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1	< 1
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Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	2.0	< 1.0	< 1.0	< 1.0	< 1.0
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	1.8	< 0.05	< 0.05	0.88	< 0.05
Acenaphthylene	mg/kg	0.1	MCERTS	1.3	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	mg/kg	0.1	MCERTS	4.6	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	mg/kg	0.1	MCERTS	4.4	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	mg/kg	0.1	MCERTS	20	< 0.10	< 0.10	1.0	< 0.10
Anthracene	mg/kg	0.1	MCERTS	5.2	< 0.10	< 0.10	< 0.10	< 0.10
Fluoranthene	mg/kg	0.1	MCERTS	13	2.0	< 0.10	< 0.10	< 0.10
Pyrene	mg/kg	0.1	MCERTS	10	1.5	< 0.10	< 0.10	< 0.10
Benzo(a)anthracene	mg/kg	0.1	MCERTS	6.0	< 0.10	< 0.10	< 0.10	< 0.10
Chrysene	mg/kg	0.05	MCERTS	4.7	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.1	MCERTS	1.5	< 0.10	< 0.10	< 0.10	< 0.10
Benzo(k)fluoranthene	mg/kg	0.1	MCERTS	2.4	< 0.10	< 0.10	< 0.10	< 0.10
Benzo(a)pyrene	mg/kg	0.1	MCERTS	2.2	< 0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	MCERTS	0.47	< 0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	1.1	< 0.05	< 0.05	< 0.05	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	1.6	MCERTS	79.2	3.43	< 1.60	1.90	< 1.60
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	4.6	27	2.5	1.7	3.1
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.5	0.2	< 0.1	< 0.1	< 0.1
Boron (water soluble)	mg/kg	0.2	MCERTS	1.3	1.6	0.4	0.3	0.5
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Chromium (III)	mg/kg	1	NONE	11	18	4.6	4.1	3.2
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	11	18	4.6	4.0	3.2
Copper (aqua regia extractable)	mg/kg	1	MCERTS	7.9	31	4.7	6.9	4.1
Lead (aqua regia extractable)	mg/kg	1	MCERTS	27	25	7.3	6.0	5.8
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	0.5	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	16	17	7.7	10	5.8
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	12	18	3.8	3.8	3.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	38	150	4.2	9.4	4.2



Analytical Report Number: 15-75464

Project / Site name: Wrexham

Your Order No: HC15016/29180

Lab Sample Number				465826	465827	465828	465829	465830
Sample Reference				EX11 Base	Crush 5	Import 2	Import 3	Import 4
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				23/06/2015	01/07/2015	02/07/2015	02/07/2015	13/07/2015
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Limit of detection	Accreditation Status		

Monoaromatics

Benzene	µg/kg	1	MCERTS	23	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/kg	1	MCERTS	76	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	18	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/kg	1	MCERTS	160	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/kg	1	MCERTS	78	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.1	MCERTS	0.8	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	14	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	130	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	330	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	330	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	810	< 10	< 10	< 10	< 10



Analytical Report Number: 15-75464

Project / Site name: Wrexham

Your Order No: HC15016/29180

Lab Sample Number				465831	465832	465833		
Sample Reference				Import 5	Clay 1	Import 6		
Sample Number				None Supplied	None Supplied	None Supplied		
Depth (m)				None Supplied	None Supplied	None Supplied		
Date Sampled				13/07/2015	13/07/2015	13/07/2015		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1		
Moisture Content	%	N/A	NONE	0.21	2.6	0.79		
Total mass of sample received	kg	0.001	NONE	0.44	0.46	0.48		

General Inorganics

Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1		
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Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Acenaphthylene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10		
Acenaphthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10		
Fluorene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10		
Phenanthrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10		
Anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10		
Fluoranthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10		
Pyrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10		
Benzo(a)anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10		
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Benzo(b)fluoranthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10		
Benzo(k)fluoranthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10		
Benzo(a)pyrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10		
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10		
Dibenz(a,h)anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10		
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	1.6	MCERTS	< 1.60	< 1.60	< 1.60		
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	3.4	8.0	5.8		
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	< 0.1	0.7	0.4		
Boron (water soluble)	mg/kg	0.2	MCERTS	< 0.2	0.2	0.7		
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2		
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0		
Chromium (III)	mg/kg	1	NONE	5.1	29	14		
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	5.1	29	14		
Copper (aqua regia extractable)	mg/kg	1	MCERTS	5.0	15	12		
Lead (aqua regia extractable)	mg/kg	1	MCERTS	7.4	10	38		
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3		
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	8.1	30	9.3		
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	3.9	30	19		
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	9.1	41	41		



Analytical Report Number: 15-75464

Project / Site name: Wrexham

Your Order No: HC15016/29180

Lab Sample Number				465831	465832	465833		
Sample Reference				Import 5	Clay 1	Import 6		
Sample Number				None Supplied	None Supplied	None Supplied		
Depth (m)				None Supplied	None Supplied	None Supplied		
Date Sampled				13/07/2015	13/07/2015	13/07/2015		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Monoaromatics								
Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
o-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1		
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1		
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1		
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0		
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0		
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0		
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10	< 10		

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1		
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1		
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1		
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0		
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	< 10	< 10		
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	< 10	< 10	< 10		
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10	< 10		



Analytical Report Number : 15-75464

Project / Site name: Wrexham

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and topsoil/loam soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
465826	EX11 Base	None Supplied	None Supplied	Brown sandy clay.
465827	Crush 5	None Supplied	None Supplied	Non Soil**
465828	Import 2	None Supplied	None Supplied	Non Soil**
465829	Import 3	None Supplied	None Supplied	Non Soil**
465830	Import 4	None Supplied	None Supplied	Non Soil**
465831	Import 5	None Supplied	None Supplied	Non Soil**
465832	Clay 1	None Supplied	None Supplied	Brown clay with vegetation.
465833	Import 6	None Supplied	None Supplied	Non Soil**

**Non MCerts Matrix



Analytical Report Number : 15-75464

Project / Site name: Wrexham

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
BTEX and MTBE in soil	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073S-PL	W	MCERTS
Cr (III) in soil	In-house method by calculation from total Cr and Cr VI.	In-house method by calculation	L080-PL	W	NONE
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method	L076-PL	W	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

**Mark Dodd**

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Analytical Report Number : 15-75457

Project / Site name: Wrexham

Samples received on: 16/07/2015

Your job number: HC15016

Samples instructed on: 16/07/2015

Your order number: HC15016/29180

Analysis completed by: 24/07/2015

Report Issue Number: 1

Report issued on: 24/07/2015

Samples Analysed: 2 water samples

Signed:

Rexona Rahman
Reporting Manager
For & on behalf of i2 Analytical Ltd.

Signed:

Emma Winter
Assistant Reporting Manager
For & on behalf of i2 Analytical Ltd.

Other office located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

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Analytical Report Number: 15-75457

Project / Site name: Wrexham

Your Order No: HC15016/29180

Lab Sample Number				465806	465807			
Sample Reference				Upstream	Downstream			
Sample Number				None Supplied	None Supplied			
Depth (m)				None Supplied	None Supplied			
Date Sampled				13/07/2015	13/07/2015			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					

General Inorganics

pH	pH Units	N/A	ISO 17025	7.2	7.7			
Ammonium as NH ₄	µg/l	15	ISO 17025	30	25			
Chemical Oxygen Demand (Total)	mg/l	2	ISO 17025	26	22			
BOD (Biochemical Oxygen Demand)	mg/l	1	ISO 17025	1.2	1.0			
Total Suspended Solids	mg/l	2	NONE	3.0	< 2.0			

Speciated PAHs

Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			

Total PAH

Total EPA-16 PAHs	µg/l	0.2	ISO 17025	< 0.20	< 0.20			
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Heavy Metals / Metalloids

Arsenic (dissolved)	µg/l	0.15	ISO 17025	0.43	0.40			
Boron (dissolved)	µg/l	10	ISO 17025	59	58			
Cadmium (dissolved)	µg/l	0.02	ISO 17025	0.02	0.03			
Chromium (dissolved)	µg/l	0.2	ISO 17025	0.4	0.3			
Copper (dissolved)	µg/l	0.5	ISO 17025	11	9.8			
Lead (dissolved)	µg/l	0.2	ISO 17025	0.7	0.9			
Manganese (dissolved)	µg/l	0.05	ISO 17025	3.9	2.7			
Mercury (dissolved)	µg/l	0.05	ISO 17025	< 0.05	< 0.05			
Nickel (dissolved)	µg/l	0.5	ISO 17025	3.1	2.1			
Selenium (dissolved)	µg/l	0.6	ISO 17025	1.0	0.9			
Zinc (dissolved)	µg/l	0.5	ISO 17025	12	8.5			

Monoaromatics

Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0			
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0			
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0			

Petroleum Hydrocarbons

TPH1 (C10 - C40)	µg/l	10	NONE	< 10	< 10			
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Analytical Report Number: 15-75457

Project / Site name: Wrexham

Your Order No: HC15016/29180

Lab Sample Number				465806	465807			
Sample Reference				Upstream	Downstream			
Sample Number				None Supplied	None Supplied			
Depth (m)				None Supplied	None Supplied			
Date Sampled				13/07/2015	13/07/2015			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					

VOCs

Chloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0			
Chloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0			
Bromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0			
Vinyl Chloride	µg/l	1	NONE	< 1.0	< 1.0			
Trichlorofluoromethane	µg/l	1	NONE	< 1.0	< 1.0			
1,1-dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/l	1	ISO 17025	< 1.0	< 1.0			
Cis-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0			
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,1-dichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0			
2,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0			
Trichloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,1,1-Trichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,2-dichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,1-Dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0			
Trans-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0			
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
Tetrachloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,2-dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0			
Trichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0			
Dibromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0			
Bromodichloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0			
Cis-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0			
Trans-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0			
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,1,2-Trichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,3-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0			
Dibromochloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0			
Tetrachloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,2-Dibromoethane	µg/l	1	ISO 17025	< 1.0	< 1.0			
Chlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,1,1,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0			
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0			
Styrene	µg/l	1	ISO 17025	< 1.0	< 1.0			
Tribromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0			
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,1,2,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0			
Isopropylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
Bromobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
N-Propylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
2-Chlorotoluene	µg/l	1	ISO 17025	< 1.0	< 1.0			
4-Chlorotoluene	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,3,5-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
Tert-Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,2,4-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
Sec-Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,3-dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
P-Isopropyltoluene	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,2-dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,4-dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,2-Dibromo-3-chloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,2,4-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
Hexachlorobutadiene	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,2,3-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0			

U/S = Unsuitable Sample I/S = Insufficient Sample



Analytical Report Number : 15-75457

Project / Site name: Wrexham

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Ammonium as NH ₄ in water	Determination of Ammonium/Ammonia/Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method. Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	ISO 17025
Biological oxygen demand of water	Determination of biochemical oxygen demand in water (5 days). Accredited matrices: SW, PW, GW.	In-house method based on standard method 5210B. Samples received > 24 hrs after sampling, data may not be valid and should be interpreted with care.	L086-PL	W	ISO 17025
Boron in water	Determination of boron by acidification followed by ICP-OES. Accredited matrices: SW PW GW	In-house method based on MEWAM	L039-PL	W	ISO 17025
BTEX in water	Determination of BTEX in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073W-PL	W	ISO 17025
Chemical Oxygen Demand in Water (Total)	Determination of total COD in water by reflux oxidation with acidified K ₂ Cr ₂ O ₇ followed by colorimetry. Accredited matrices: SW, PW, GW.	HACH DR/890 Colorimeter Procedures Manual (48470-22) (Ref 0170.2)	L065-PL	W	ISO 17025
Metals in water by ICP-MS (dissolved)	Determination of metals in water by acidification followed by ICP-MS. Accredited Matrices: SW, GW, PW except B=SW,GW, Hg=SW,PW, Al=SW,PW.	In-house method based on USEPA Method 6020 & 200.8 *for the determination of trace elements in water by ICP-MS.	L012-PL	W	ISO 17025
Monohydric phenols in water	Determination of phenols in water by continuous flow analyser. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	ISO 17025
pH in water	Determination of pH in water by electrometric measurement. Accredited matrices: SW PW GW	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	W	ISO 17025
Speciated EPA-16 PAHs in water	Determination of PAH compounds in water by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards. Accredited matrices: SW PW GW	In-house method based on USEPA 8270	L070-UK	W	ISO 17025
Suspended solids in water	Determined gravimetrically with GFC filtration papers.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L004-PL	W	NONE
TPH1 (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS.	In-house method	L070-UK	W	NONE
Volatile organic compounds in water	Determination of volatile organic compounds in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073W-PL	W	ISO 17025

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30°C.

**Mark Dodd**

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Analytical Report Number : 15-74555

Project / Site name:	Wrexham	Samples received on:	02/07/2015
Your job number:	HC15016	Samples instructed on:	02/07/2015
Your order number:	HC15016/29180	Analysis completed by:	10/07/2015
Report Issue Number:	1	Report issued on:	10/07/2015
Samples Analysed:	2 water samples		

Signed:

Dr Irma Doyle
Assistant Quality Manager
For & on behalf of i2 Analytical Ltd.

Signed:

Emma Winter
Assistant Reporting Manager
For & on behalf of i2 Analytical Ltd.

Other office located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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Analytical Report Number: 15-74555

Project / Site name: Wrexham

Your Order No: HC15016/29180

Lab Sample Number				460741	460742			
Sample Reference				Upstream 4	Downstream 4			
Sample Number				None Supplied	None Supplied			
Depth (m)				None Supplied	None Supplied			
Date Sampled				01/06/2015	01/06/2015			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					

General Inorganics

pH	pH Units	N/A	ISO 17025	7.9	7.9			
Total Cyanide	µg/l	10	ISO 17025	< 10	< 10			
Ammonium as NH ₄	µg/l	15	ISO 17025	46	43			
Chemical Oxygen Demand (Total)	mg/l	2	ISO 17025	5.4	5.3			
BOD (Biochemical Oxygen Demand)	mg/l	1	ISO 17025	< 1.0	1.5			
Total Suspended Solids	mg/l	2	NONE	2.0	2.0			

Speciated PAHs

Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			

Total PAH

Total EPA-16 PAHs	µg/l	0.2	ISO 17025	< 0.20	< 0.20			
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Analytical Report Number: 15-74555

Project / Site name: Wrexham

Your Order No: HC15016/29180

Lab Sample Number				460741	460742			
Sample Reference				Upstream 4	Downstream 4			
Sample Number				None Supplied	None Supplied			
Depth (m)				None Supplied	None Supplied			
Date Sampled				01/06/2015	01/06/2015			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Water Analysis)				Units	Limit of detection	Accreditation Status		

Heavy Metals / Metalloids

Arsenic (dissolved)	µg/l	0.15	ISO 17025	0.57	0.43			
Boron (dissolved)	µg/l	10	ISO 17025	72	71			
Cadmium (dissolved)	µg/l	0.02	ISO 17025	< 0.02	< 0.02			
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	< 5.0			
Chromium (III)	µg/l	1	NONE	< 1.0	< 1.0			
Chromium (dissolved)	µg/l	0.2	ISO 17025	0.3	1.0			
Copper (dissolved)	µg/l	0.5	ISO 17025	4.9	4.6			
Lead (dissolved)	µg/l	0.2	ISO 17025	< 0.2	< 0.2			
Manganese (dissolved)	µg/l	0.05	ISO 17025	10	8.5			
Mercury (dissolved)	µg/l	0.05	ISO 17025	< 0.05	< 0.05			
Nickel (dissolved)	µg/l	0.5	ISO 17025	3.3	3.8			
Selenium (dissolved)	µg/l	0.6	ISO 17025	1.2	0.8			
Zinc (dissolved)	µg/l	0.5	ISO 17025	< 0.5	< 0.5			

Monoaromatics

Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0			
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0			
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0			
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0			

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >C5 - C6	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aliphatic >C6 - C8	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aliphatic >C8 - C10	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10	< 10			

TPH-CWG - Aromatic >C5 - C7	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aromatic >C7 - C8	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aromatic >C8 - C10	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10	< 10			



Analytical Report Number: 15-74555

Project / Site name: Wrexham

Your Order No: HC15016/29180

Lab Sample Number				460741	460742			
Sample Reference				Upstream 4	Downstream 4			
Sample Number				None Supplied	None Supplied			
Depth (m)				None Supplied	None Supplied			
Date Sampled				01/06/2015	01/06/2015			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Water Analysis)								
	Units	Limit of detection	Accreditation Status					

VOCs

Chloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0			
Chloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0			
Bromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0			
Vinyl Chloride	µg/l	1	NONE	< 1.0	< 1.0			
Trichlorofluoromethane	µg/l	1	NONE	< 1.0	< 1.0			
1,1-dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/l	1	ISO 17025	< 1.0	< 1.0			
Cis-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0			
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,1-dichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0			
2,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0			
Trichloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,1,1-Trichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,2-dichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,1-Dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0			
Trans-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0			
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
Tetrachloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,2-dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0			
Trichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0			
Dibromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0			
Bromodichloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0			
Cis-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0			
Trans-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0			
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,1,2-Trichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,3-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0			
Dibromochloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0			
Tetrachloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,2-Dibromoethane	µg/l	1	ISO 17025	< 1.0	< 1.0			
Chlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,1,1,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0			
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0			
Styrene	µg/l	1	ISO 17025	< 1.0	< 1.0			
Tribromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0			
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,1,2,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0			
Isopropylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
Bromobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
N-Propylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
2-Chlorotoluene	µg/l	1	ISO 17025	< 1.0	< 1.0			
4-Chlorotoluene	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,3,5-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
Tert-Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,2,4-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
Sec-Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,3-dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
P-Isopropyltoluene	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,2-dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,4-dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,2-Dibromo-3-chloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,2,4-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
Hexachlorobutadiene	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,2,3-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0			

U/S = Unsuitable Sample I/S = Insufficient Sample



Analytical Report Number : 15-74555

Project / Site name: Wrexham

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Ammonium as NH ₄ in water	Determination of Ammonium/Ammonia/Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method. Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	ISO 17025
Biological oxygen demand of water	Determination of biochemical oxygen demand in water (5 days). Accredited matrices: SW, PW, GW.	In-house method based on standard method 5210B. Samples received > 24 hrs after sampling, data may not be valid and should be interpreted with care.	L086-PL	W	ISO 17025
Boron in water	Determination of boron by acidification followed by ICP-OES. Accredited matrices: SW PW GW	In-house method based on MEWAM	L039-PL	W	ISO 17025
BTEX and MTBE in water	Determination of BTEX and MTBE in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073W-PL	W	ISO 17025
Chemical Oxygen Demand in Water (Total)	Determination of total COD in water by reflux oxidation with acidified K ₂ Cr ₂ O ₇ followed by colorimetry. Accredited matrices: SW, PW, GW.	HACH DR/890 Colorimeter Procedures Manual (48470-22) (Ref 0170.2)	L065-PL	W	ISO 17025
Cr (III) in water	In-house method by calculation from total Cr and Cr VI.	In-house method by calculation	L080-PL	W	NONE
Hexavalent chromium in water	Determination of hexavalent chromium in water by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method by continuous flow analyser. Accredited Matrices SW, GW, PW.	L080-PL	W	ISO 17025
Metals in water by ICP-MS (dissolved)	Determination of metals in water by acidification followed by ICP-MS. Accredited Matrices: SW, GW, PW except B=SW,GW, Hg=SW,PW, Al=SW,PW.	In-house method based on USEPA Method 6020 & 200.8 "for the determination of trace elements in water by ICP-MS.	L012-PL	W	ISO 17025
Monohydric phenols in water	Determination of phenols in water by continuous flow analyser. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	ISO 17025
pH in water	Determination of pH in water by electrometric measurement. Accredited matrices: SW PW GW	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	W	ISO 17025
Speciated EPA-16 PAHs in water	Determination of PAH compounds in water by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards. Accredited matrices: SW PW GW	In-house method based on USEPA 8270	L070-UK	W	ISO 17025
Suspended solids in water	Determined gravimetrically with GFC filtration papers.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L004-PL	W	NONE
Total cyanide in water	Determination of total cyanide by distillation followed by colorimetry. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	ISO 17025
TPHCWG (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.	In-house method	L070-UK	W	NONE
Volatile organic compounds in water	Determination of volatile organic compounds in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073W-PL	W	ISO 17025

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30°C.

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Analytical Report Number : 15-74543

Project / Site name:	Wrexham	Samples received on:	02/07/2015
Your job number:	HC15016	Samples instructed on:	02/07/2015
Your order number:	HC15016/29180	Analysis completed by:	06/07/2015
Report Issue Number:	1	Report issued on:	06/07/2015
Samples Analysed:	3 soil samples		

Signed:

Rexona Rahman
Reporting Manager
For & on behalf of i2 Analytical Ltd.

Signed:

Dr Irma Doyle
Assistant Quality Manager
For & on behalf of i2 Analytical Ltd.

Other office located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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Analytical Report Number: 15-74543

Project / Site name: Wrexham

Your Order No: HC15016/29180

Lab Sample Number				460683	460684	460685		
Sample Reference				EX8 Base	EX9 Base	EX10 Base		
Sample Number				None Supplied	None Supplied	None Supplied		
Depth (m)				None Supplied	None Supplied	None Supplied		
Date Sampled				25/06/2015	01/07/2015	01/07/2015		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1		
Moisture Content	%	N/A	NONE	15	19	18		
Total mass of sample received	kg	0.001	NONE	0.54	0.56	0.54		

General Inorganics

Total Cyanide	mg/kg	1	MCERTS	< 1	1	1		
Ammonium as NH ₄	mg/kg	0.5	MCERTS	14	12	14		

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Acenaphthylene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10		
Acenaphthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10		
Fluorene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10		
Phenanthrene	mg/kg	0.1	MCERTS	0.95	0.47	0.34		
Anthracene	mg/kg	0.1	MCERTS	0.29	0.18	0.15		
Fluoranthene	mg/kg	0.1	MCERTS	1.6	1.5	0.90		
Pyrene	mg/kg	0.1	MCERTS	1.6	1.6	0.99		
Benzo(a)anthracene	mg/kg	0.1	MCERTS	0.92	0.74	0.51		
Chrysene	mg/kg	0.05	MCERTS	0.74	0.63	0.48		
Benzo(b)fluoranthene	mg/kg	0.1	MCERTS	0.79	0.58	0.51		
Benzo(k)fluoranthene	mg/kg	0.1	MCERTS	0.43	0.33	0.34		
Benzo(a)pyrene	mg/kg	0.1	MCERTS	0.67	0.50	0.54		
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	MCERTS	0.31	0.20	0.26		
Dibenz(a,h)anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10		
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.32	0.30	0.28		

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	1.6	MCERTS	8.59	7.00	5.30		
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	11	14	15		
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.5	1.6	1.6		
Boron (water soluble)	mg/kg	0.2	MCERTS	1.6	1.9	1.5		
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2		
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0		
Chromium (III)	mg/kg	1	NONE	36	37	39		
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	36	37	39		
Copper (aqua regia extractable)	mg/kg	1	MCERTS	14	15	16		
Lead (aqua regia extractable)	mg/kg	1	MCERTS	38	38	35		
Manganese (aqua regia extractable)	mg/kg	1	MCERTS	400	410	430		
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3		
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	33	37	38		
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	40	45	43		
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	68	73	75		

Analytical Report Number: 15-74543

Project / Site name: Wrexham

Your Order No: HC15016/29180

Lab Sample Number	460683	460684	460685		
Sample Reference	EX8 Base	EX9 Base	EX10 Base		
Sample Number	None Supplied	None Supplied	None Supplied		
Depth (m)	None Supplied	None Supplied	None Supplied		
Date Sampled	25/06/2015	01/07/2015	01/07/2015		
Time Taken	None Supplied	None Supplied	None Supplied		
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		

Monoaromatics

Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
o-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1		
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1		
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1		
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	8.7		
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	< 8.0	44		
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	200	210	280		
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	200	210	330		

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1		
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1		
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1		
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	9.0	< 2.0	2.4		
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	63	25	39		
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	280	200	260		
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	350	230	300		



Analytical Report Number : 15-74543

Project / Site name: Wrexham

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and topsoil/loam soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
460683	EX8 Base	None Supplied	None Supplied	Brown clay.
460684	EX9 Base	None Supplied	None Supplied	Brown clay.
460685	EX10 Base	None Supplied	None Supplied	Brown clay.

Analytical Report Number : 15-74543

Project / Site name: Wrexham

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Ammonium as NH ₄ in soil	Determination of Ammonium/Ammonia/Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	MCERTS
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
BTEX and MTBE in soil	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073S-PL	W	MCERTS
Cr (III) in soil	In-house method by calculation from total Cr and Cr VI.	In-house method by calculation	L080-PL	W	NONE
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazine followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method	L076-PL	W	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

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Analytical Report Number : 15-74214

Project / Site name:	Wrexham	Samples received on:	25/06/2015
Your job number:	HC15016	Samples instructed on:	25/06/2015
Your order number:	HC15016/29180	Analysis completed by:	01/07/2015
Report Issue Number:	1	Report issued on:	02/07/2015
Samples Analysed:	1 soil sample - 3 water samples		

Signed:

Neil Donovan
Environmental Forensics Manager
For & on behalf of i2 Analytical Ltd.

Signed:

Dr Claire Stone
Quality Manager
For & on behalf of i2 Analytical Ltd.

Other office located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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Analytical Report Number: 15-74214

Project / Site name: Wrexham

Your Order No: HC15016/29180

Lab Sample Number				458393				
Sample Reference				Import 1				
Sample Number				None Supplied				
Depth (m)				None Supplied				
Date Sampled				23/06/2015				
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1				
Moisture Content	%	N/A	NONE	0.49				
Total mass of sample received	kg	0.001	NONE	0.47				

General Inorganics

Total Cyanide	mg/kg	1	MCERTS	< 1				
Ammonium as NH ₄	mg/kg	0.5	MCERTS	< 0.5				
Ammonium as NH ₄ (leachate equivalent)	mg/l	0.25	MCERTS	< 0.3				

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0				
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05				
Acenaphthylene	mg/kg	0.1	MCERTS	< 0.10				
Acenaphthene	mg/kg	0.1	MCERTS	< 0.10				
Fluorene	mg/kg	0.1	MCERTS	< 0.10				
Phenanthrene	mg/kg	0.1	MCERTS	< 0.10				
Anthracene	mg/kg	0.1	MCERTS	< 0.10				
Fluoranthene	mg/kg	0.1	MCERTS	< 0.10				
Pyrene	mg/kg	0.1	MCERTS	< 0.10				
Benzo(a)anthracene	mg/kg	0.1	MCERTS	< 0.10				
Chrysene	mg/kg	0.05	MCERTS	< 0.05				
Benzo(b)fluoranthene	mg/kg	0.1	MCERTS	< 0.10				
Benzo(k)fluoranthene	mg/kg	0.1	MCERTS	< 0.10				
Benzo(a)pyrene	mg/kg	0.1	MCERTS	< 0.10				
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	MCERTS	< 0.10				
Dibenz(a,h)anthracene	mg/kg	0.1	MCERTS	< 0.10				
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05				

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	1.6	MCERTS	< 1.60				
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0				
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	< 0.1				
Boron (water soluble)	mg/kg	0.2	MCERTS	0.2				
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.3				
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0				
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	5.6				
Copper (aqua regia extractable)	mg/kg	1	MCERTS	3.4				
Lead (aqua regia extractable)	mg/kg	1	MCERTS	8.8				
Manganese (aqua regia extractable)	mg/kg	1	MCERTS	91				
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3				
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	3.2				
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0				
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	2.9				
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	15				



Analytical Report Number: 15-74214

Project / Site name: Wrexham

Your Order No: HC15016/29180

Lab Sample Number				458393				
Sample Reference				Import 1				
Sample Number				None Supplied				
Depth (m)				None Supplied				
Date Sampled				23/06/2015				
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					

Monoaromatics

Benzene	µg/kg	1	MCERTS	< 1.0				
Toluene	µg/kg	1	MCERTS	< 1.0				
Ethylbenzene	µg/kg	1	MCERTS	< 1.0				
p & m-xylene	µg/kg	1	MCERTS	< 1.0				
o-xylene	µg/kg	1	MCERTS	< 1.0				
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0				

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.1	MCERTS	< 0.1				
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.1	MCERTS	< 0.1				
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1				
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0				
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0				
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0				
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	13				
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	13				

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.1	MCERTS	< 0.1				
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.1	MCERTS	< 0.1				
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1				
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0				
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0				
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10				
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	< 10				
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10				



Analytical Report Number: 15-74214

Project / Site name: Wrexham

Your Order No: HC15016/29180

Lab Sample Number	458394	458395	458396		
Sample Reference	Foul Sewer	Upstream	Downstream		
Sample Number	None Supplied	None Supplied	None Supplied		
Depth (m)	None Supplied	None Supplied	None Supplied		
Date Sampled	19/06/2015	19/06/2015	19/06/2015		
Time Taken	None Supplied	None Supplied	None Supplied		
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status		

General Inorganics

pH	pH Units	N/A	ISO 17025	6.8	7.8	7.9		
Total Cyanide	µg/l	10	ISO 17025	1800	< 10	< 10		
Ammonium as NH ₄	µg/l	15	ISO 17025	380	< 15	< 15		
Chemical Oxygen Demand (Total)	mg/l	2	ISO 17025	1100	11	7.6		
BOD (Biochemical Oxygen Demand)	mg/l	1	ISO 17025	68	< 1.0	1.1		
Total Suspended Solids	mg/l	2	NONE	1600	2.0	3.0		

Speciated PAHs

Naphthalene	µg/l	0.01	ISO 17025	3900	< 0.01	< 0.01		
Acenaphthylene	µg/l	0.01	ISO 17025	270	< 0.01	< 0.01		
Acenaphthene	µg/l	0.01	ISO 17025	220	< 0.01	< 0.01		
Fluorene	µg/l	0.01	ISO 17025	290	< 0.01	< 0.01		
Phenanthrene	µg/l	0.01	ISO 17025	890	< 0.01	< 0.01		
Anthracene	µg/l	0.01	ISO 17025	190	< 0.01	< 0.01		
Fluoranthene	µg/l	0.01	ISO 17025	430	< 0.01	< 0.01		
Pyrene	µg/l	0.01	ISO 17025	320	< 0.01	< 0.01		
Benzo(a)anthracene	µg/l	0.01	ISO 17025	120	< 0.01	< 0.01		
Chrysene	µg/l	0.01	ISO 17025	99	< 0.01	< 0.01		
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	92	< 0.01	< 0.01		
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	38	< 0.01	< 0.01		
Benzo(a)pyrene	µg/l	0.01	ISO 17025	80	< 0.01	< 0.01		
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	28	< 0.01	< 0.01		
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	5.0	< 0.01	< 0.01		
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	27	< 0.01	< 0.01		

Total PAH

Total EPA-16 PAHs	µg/l	0.2	ISO 17025	7020	< 0.20	< 0.20		
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Heavy Metals / Metalloids

Arsenic (dissolved)	µg/l	0.15	ISO 17025	4.45	0.34	0.39		
Boron (dissolved)	µg/l	10	ISO 17025	43	63	63		
Cadmium (dissolved)	µg/l	0.02	ISO 17025	0.06	0.03	< 0.02		
Chromium (dissolved)	µg/l	0.2	ISO 17025	0.4	0.2	0.3		
Copper (dissolved)	µg/l	0.5	ISO 17025	2.6	4.8	12		
Lead (dissolved)	µg/l	0.2	ISO 17025	5.8	0.5	0.4		
Manganese (dissolved)	µg/l	0.05	ISO 17025	1000	2.6	1.2		
Mercury (dissolved)	µg/l	0.05	ISO 17025	< 0.05	< 0.05	< 0.05		
Nickel (dissolved)	µg/l	0.5	ISO 17025	2.3	1.0	1.1		
Selenium (dissolved)	µg/l	0.6	ISO 17025	1.0	0.6	0.8		
Zinc (dissolved)	µg/l	0.5	ISO 17025	11	2.1	4.4		



Analytical Report Number: 15-74214

Project / Site name: Wrexham

Your Order No: HC15016/29180

Lab Sample Number				458394	458395	458396		
Sample Reference				Foul Sewer	Upstream	Downstream		
Sample Number				None Supplied	None Supplied	None Supplied		
Depth (m)				None Supplied	None Supplied	None Supplied		
Date Sampled				19/06/2015	19/06/2015	19/06/2015		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Water Analysis)				Units	Limit of detection	Accreditation Status		

Monoaromatics

Benzene	µg/l	1	ISO 17025	88.4	< 1.0	< 1.0		
Toluene	µg/l	1	ISO 17025	295	< 1.0	< 1.0		
Ethylbenzene	µg/l	1	ISO 17025	72.5	< 1.0	< 1.0		
p & m-xylene	µg/l	1	ISO 17025	733	< 1.0	< 1.0		
o-xylene	µg/l	1	ISO 17025	308	< 1.0	< 1.0		
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >C5 - C6	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aliphatic >C6 - C8	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aliphatic >C8 - C10	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10		

TPH-CWG - Aromatic >C5 - C7	µg/l	10	NONE	88	< 10	< 10		
TPH-CWG - Aromatic >C7 - C8	µg/l	10	NONE	300	< 10	< 10		
TPH-CWG - Aromatic >C8 - C10	µg/l	10	NONE	4500	< 10	< 10		
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	5600	< 10	< 10		
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	2500	< 10	< 10		
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	3200	< 10	< 10		
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	1000	< 10	< 10		
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	17000	< 10	< 10		



Analytical Report Number: 15-74214

Project / Site name: Wrexham

Your Order No: HC15016/29180

Lab Sample Number				458394	458395	458396		
Sample Reference				Foul Sewer	Upstream	Downstream		
Sample Number				None Supplied	None Supplied	None Supplied		
Depth (m)				None Supplied	None Supplied	None Supplied		
Date Sampled				19/06/2015	19/06/2015	19/06/2015		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Water Analysis)				Units	Limit of detection	Accreditation Status		

VOCs

Chloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Chloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Bromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Vinyl Chloride	µg/l	1	NONE	< 1.0	< 1.0	< 1.0		
Trichlorofluoromethane	µg/l	1	NONE	< 1.0	< 1.0	< 1.0		
1,1-dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Cis-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,1-dichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
2,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Trichloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,1,1-Trichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,2-dichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,1-Dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Trans-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Benzene	µg/l	1	ISO 17025	88.4	< 1.0	< 1.0		
Tetrachloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,2-dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Trichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Dibromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Bromodichloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Cis-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Trans-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Toluene	µg/l	1	ISO 17025	295	< 1.0	< 1.0		
1,1,2-Trichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,3-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Dibromochloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Tetrachloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,2-Dibromoethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Chlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,1,1,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Ethylbenzene	µg/l	1	ISO 17025	72.5	< 1.0	< 1.0		
p & m-xylene	µg/l	1	ISO 17025	733	< 1.0	< 1.0		
Styrene	µg/l	1	ISO 17025	71.2	< 1.0	< 1.0		
Tribromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
o-xylene	µg/l	1	ISO 17025	308	< 1.0	< 1.0		
1,1,2,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Isopropylbenzene	µg/l	1	ISO 17025	18.5	< 1.0	< 1.0		
Bromobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
N-Propylbenzene	µg/l	1	ISO 17025	8.2	< 1.0	< 1.0		
2-Chlorotoluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
4-Chlorotoluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,3,5-Trimethylbenzene	µg/l	1	ISO 17025	215	< 1.0	< 1.0		
Tert-Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,2,4-Trimethylbenzene	µg/l	1	ISO 17025	502	< 1.0	< 1.0		
Sec-Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,3-dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
P-Isopropyltoluene	µg/l	1	ISO 17025	20.0	< 1.0	< 1.0		
1,2-dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,4-dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,2-Dibromo-3-chloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,2,4-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Hexachlorobutadiene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,2,3-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		

Iss No 15-74214-1

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The results included within the report are representative of the samples submitted for analysis.

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Analytical Report Number: 15-74214

Project / Site name: Wrexham

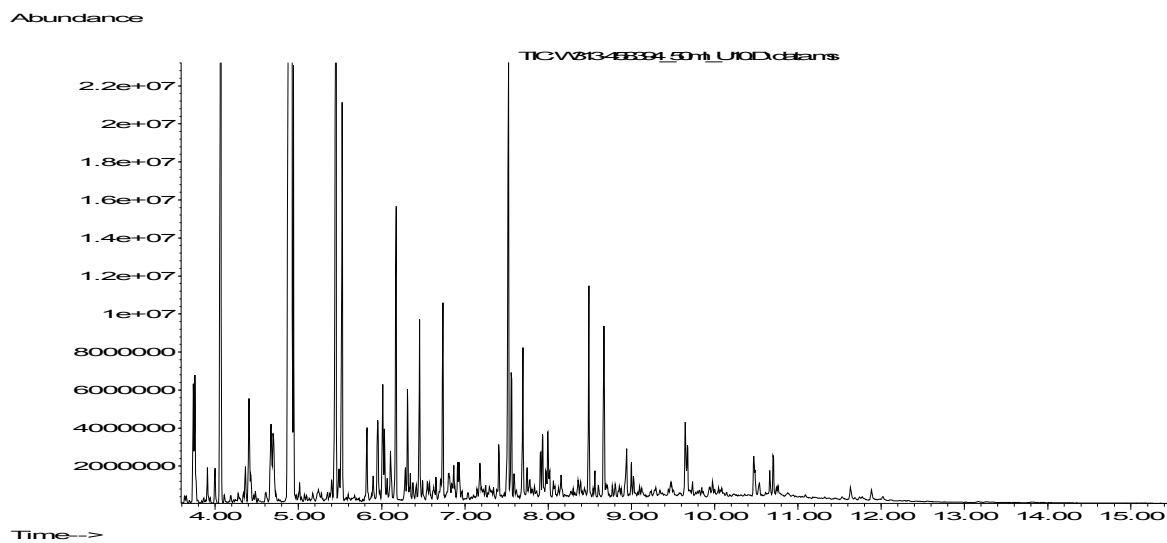
Your Order No: HC15016/29180

Lab Sample Number				458394	458395	458396		
Sample Reference				Foul Sewer	Upstream	Downstream		
Sample Number				None Supplied	None Supplied	None Supplied		
Depth (m)				None Supplied	None Supplied	None Supplied		
Date Sampled				19/06/2015	19/06/2015	19/06/2015		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					

Miscellaneous Organics

Product ID		N/A	NONE	See Attached	-	-		
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U/S = Unsuitable Sample I/S = Insufficient Sample



The sample shows a complex range of aromatic compounds with some potential aliphatics also present. The trace is not indicative of one source e.g. petrol or diesel but most likely multiple sources i.e. petrol and diesel or similar boiling point fraction like white spirit.



Analytical Report Number : 15-74214

Project / Site name: Wrexham

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and topsoil/loam soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
458393	Import 1	None Supplied	None Supplied	Non Soil **

** Unaccredited Matrix.



Analytical Report Number : 15-74214

Project / Site name: Wrexham

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Ammonium as NH ₄ in soil	Determination of Ammonium/Ammonia/Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	MCERTS
Ammonium as NH ₄ in water	Determination of Ammonium/Ammonia/Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method. Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	ISO 17025
Biological oxygen demand of water	Determination of biochemical oxygen demand in water (5 days). Accredited matrices: SW, PW, GW.	In-house method based on standard method 5210B. Samples received > 24 hrs after sampling, data may not be valid and should be interpreted with care.	L086-PL	W	ISO 17025
Boron in water	Determination of boron by acidification followed by ICP-OES. Accredited matrices: SW PW GW	In-house method based on MEWAM	L039-PL	W	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
BTEX and MTBE in soil	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073S-PL	W	MCERTS
BTEX and MTBE in water	Determination of BTEX and MTBE in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073W-PL	W	ISO 17025
Chemical Oxygen Demand in Water (Total)	Determination of total COD in water by reflux oxidation with acidified K ₂ Cr ₂ O ₇ followed by colorimetry. Accredited matrices: SW, PW, GW.	HACH DR/890 Colorimeter Procedures Manual (48470-22) (Ref 0170.2)	L065-PL	W	ISO 17025
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Metals in water by ICP-MS (dissolved)	Determination of metals in water by acidification followed by ICP-MS. Accredited Matrices: SW, GW, PW except B=SW,GW, Hg=SW,PW, Al=SW,PW.	In-house method based on USEPA Method 6020 & 200.8 "for the determination of trace elements in water by ICP-MS.	L012-PL	W	ISO 17025
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Monohydric phenols in water	Determination of phenols in water by continuous flow analyser. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	ISO 17025
pH in water	Determination of pH in water by electrometric measurement. Accredited matrices: SW PW GW	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	W	ISO 17025
Product ID	Determination against standard chromatograms.	In-house method		W	NONE
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS



Analytical Report Number : 15-74214

Project / Site name: Wrexham

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Speciated EPA-16 PAHs in water	Determination of PAH compounds in water by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards. Accredited matrices: SW PW GW	In-house method based on USEPA 8270	L070-UK	W	ISO 17025
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Suspended solids in water	Determined gravimetrically with GFC filtration papers.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L004-PL	W	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total cyanide in water	Determination of total cyanide by distillation followed by colorimetry. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	ISO 17025
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method	L076-PL	W	MCERTS
TPHCWG (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.	In-house method	L070-UK	W	NONE
Volatile organic compounds in water	Determination of volatile organic compounds in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073W-PL	W	ISO 17025

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.



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Analytical Report Number : 15-73985

Replaces Analytical Report Number : 15-73985, issue no. 1

Project / Site name:	Wrexham	Samples received on:	19/06/2015
Your job number:	HC15016	Samples instructed on:	19/06/2015
Your order number:		Analysis completed by:	01/07/2015
Report Issue Number:	2	Report issued on:	01/07/2015
Samples Analysed:	17 soil samples - 3 water samples		

Signed: 

Dr Claire Stone
Quality Manager
For & on behalf of i2 Analytical Ltd.

Other office located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

Excel copies of reports are only valid when accompanied by this PDF certificate.



Signed: _____

Rexona Rahman
Reporting Manager
For & on behalf of i2 Analytical Ltd.

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Analytical Report Number: 15-73985

Project / Site name: Wrexham

Lab Sample Number	457164	457165	457166	457167	457168
Sample Reference	DIGI EX1 B	DIGI EX1 E	DIGI EX1 N	DIGI EX1 S	DIGI EX1 W
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled	17/06/2015	17/06/2015	17/06/2015	17/06/2015	17/06/2015
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		
Stone Content	%	0.1	NONE	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	23	5.4
Total mass of sample received	kg	0.001	NONE	0.53	0.63

General Inorganics

Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1	< 1
Ammonium as NH ₄	mg/kg	0.5	MCERTS	110	< 0.5	< 0.5	< 0.5	< 0.5
Ammonium as NH ₄ (leachate equivalent)	mg/l	0.25	MCERTS	55	< 0.3	< 0.3	< 0.3	< 0.3

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	0.35	< 0.05	< 0.05	0.42
Acenaphthylene	mg/kg	0.1	MCERTS	< 0.10	1.4	0.45	0.39	1.2
Acenaphthene	mg/kg	0.1	MCERTS	< 0.10	0.34	< 0.10	< 0.10	0.30
Fluorene	mg/kg	0.1	MCERTS	< 0.10	0.52	< 0.10	< 0.10	0.60
Phenanthrene	mg/kg	0.1	MCERTS	< 0.10	2.4	0.95	0.80	3.2
Anthracene	mg/kg	0.1	MCERTS	< 0.10	1.2	0.41	0.46	1.3
Fluoranthene	mg/kg	0.1	MCERTS	0.29	6.7	2.5	2.3	10
Pyrene	mg/kg	0.1	MCERTS	0.28	8.0	2.6	2.5	11
Benzo(a)anthracene	mg/kg	0.1	MCERTS	< 0.10	4.0	1.6	1.3	4.6
Chrysene	mg/kg	0.05	MCERTS	< 0.05	2.7	1.1	0.87	4.0
Benzo(b)fluoranthene	mg/kg	0.1	MCERTS	< 0.10	2.8	1.1	0.96	3.9
Benzo(k)fluoranthene	mg/kg	0.1	MCERTS	< 0.10	3.0	1.3	1.0	4.0
Benzo(a)pyrene	mg/kg	0.1	MCERTS	< 0.10	3.1	1.4	1.1	4.0
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	MCERTS	< 0.10	1.8	0.84	0.66	1.9
Dibenz(a,h)anthracene	mg/kg	0.1	MCERTS	< 0.10	0.45	< 0.10	< 0.10	0.39
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	1.9	0.84	0.61	2.0

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	1.6	MCERTS	< 1.60	40.6	15.2	13.0	52.7
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	5.0	18	11	14	21
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.0	0.6	0.6	0.5	0.7
Boron (water soluble)	mg/kg	0.2	MCERTS	1.6	0.6	0.4	0.5	0.7
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.6	0.4	< 0.2	0.2	0.6
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	23	22	13	14	14
Copper (aqua regia extractable)	mg/kg	1	MCERTS	31	33	26	26	43
Lead (aqua regia extractable)	mg/kg	1	MCERTS	87	110	68	63	95
Manganese (aqua regia extractable)	mg/kg	1	MCERTS	300	370	400	350	340
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	3.3	< 0.3	0.4	3.9
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	20	19	17	16	19
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	29	20	18	16	18
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	53	120	84	77	160

Analytical Report Number: 15-73985

Project / Site name: Wrexham

Lab Sample Number	457164	457165	457166	457167	457168
Sample Reference	DIGI EX1 B	DIGI EX1 E	DIGI EX1 N	DIGI EX1 S	DIGI EX1 W
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled	17/06/2015	17/06/2015	17/06/2015	17/06/2015	17/06/2015
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		

Monoaromatics

Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	1.9
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	68	30	21	120
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	130	53	39	220
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0	430	140	120	480
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	630	230	180	830

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	6.4
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	29	11	9.0	58
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	150	58	44	260
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	< 10	560	190	140	780
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	730	260	200	1100

Analytical Report Number: 15-73985

Project / Site name: Wrexham

Lab Sample Number				457169	457170	457171	457172	457173			
Sample Reference				DIGI EX2 B	DIGI EX2 N	DIGI EX2 S	DIGI EX2 W	DIGI EX2 E			
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied			
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied			
Date Sampled				17/06/2015	17/06/2015	17/06/2015	17/06/2015	17/06/2015			
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status								
Stone Content				%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content				%	N/A	NONE	29	11	12	9.6	9.4
Total mass of sample received				kg	0.001	NONE	0.60	0.62	0.63	0.58	0.57

General Inorganics

Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1	< 1
Ammonium as NH ₄	mg/kg	0.5	MCERTS	29	< 0.5	< 0.5	< 0.5	< 0.5
Ammonium as NH ₄ (leachate equivalent)	mg/l	0.25	MCERTS	14	< 0.3	< 0.3	< 0.3	< 0.3

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.1	MCERTS	< 0.10	0.39	< 0.10	0.60	0.23
Acenaphthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	mg/kg	0.1	MCERTS	< 0.10	1.8	0.61	2.5	1.1
Anthracene	mg/kg	0.1	MCERTS	< 0.10	0.61	0.30	1.3	0.41
Fluoranthene	mg/kg	0.1	MCERTS	0.42	3.4	2.5	7.7	3.2
Pyrene	mg/kg	0.1	MCERTS	0.37	3.4	2.6	7.3	3.4
Benzo(a)anthracene	mg/kg	0.1	MCERTS	0.21	2.3	1.5	4.5	1.5
Chrysene	mg/kg	0.05	MCERTS	0.14	1.6	1.1	4.0	1.6
Benzo(b)fluoranthene	mg/kg	0.1	MCERTS	< 0.10	1.8	0.89	3.5	1.5
Benzo(k)fluoranthene	mg/kg	0.1	MCERTS	< 0.10	1.6	1.0	3.3	1.4
Benzo(a)pyrene	mg/kg	0.1	MCERTS	0.13	1.8	1.0	3.5	1.4
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	MCERTS	< 0.10	0.90	0.59	1.7	0.62
Dibenz(a,h)anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	0.42	< 0.10
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	1.1	0.64	1.6	0.65

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	1.6	MCERTS	< 1.60	20.8	12.6	41.8	16.9
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	4.8	9.7	13	8.6	11
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.5	0.6	0.6	0.6	0.5
Boron (water soluble)	mg/kg	0.2	MCERTS	3.4	0.6	0.4	0.4	0.5
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	1.5	0.3	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	28	15	17	21	13
Copper (aqua regia extractable)	mg/kg	1	MCERTS	66	27	28	25	24
Lead (aqua regia extractable)	mg/kg	1	MCERTS	95	65	76	52	52
Manganese (aqua regia extractable)	mg/kg	1	MCERTS	330	490	380	340	310
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	0.8	< 0.3	1.5	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	30	16	18	19	15
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	1.8	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	29	17	20	19	17
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	78	76	85	67	60

Analytical Report Number: 15-73985

Project / Site name: Wrexham

Lab Sample Number				457169	457170	457171	457172	457173
Sample Reference				DIGI EX2 B	DIGI EX2 N	DIGI EX2 S	DIGI EX2 W	DIGI EX2 E
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				17/06/2015	17/06/2015	17/06/2015	17/06/2015	17/06/2015
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Monoaromatics								
Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	18	6.5	2.5	7.5	5.4
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	30	14	25	24
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0	270	140	160	210
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	18	310	150	200	240
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	7.0	8.2	< 2.0	3.1	< 2.0
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	12	41	17	36	20
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	< 10	240	110	150	130
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	19	290	130	190	150

Analytical Report Number: 15-73985

Project / Site name: Wrexham

Lab Sample Number				457174	457175	457176	457177	457178
Sample Reference				DIGI EX3 B	DIGI EX4 B	DIGI EX5 B	DIGI EX6 B	DIGI EX7 B
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				17/06/2015	17/06/2015	17/06/2015	17/06/2015	17/06/2015
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	16	17	17	21	18
Total mass of sample received	kg	0.001	NONE	0.60	0.53	0.58	0.56	0.57

General Inorganics

Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1	< 1
Ammonium as NH ₄	mg/kg	0.5	MCERTS	7.4	5.5	21	26	< 0.5
Ammonium as NH ₄ (leachate equivalent)	mg/l	0.25	MCERTS	3.7	2.8	11	13	< 0.3

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	0.22	0.44	0.64
Anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	0.11	0.13
Fluoranthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	0.59	0.82	0.40
Pyrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	0.58	0.73	0.32
Benzo(a)anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	0.36	0.50	< 0.10
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.27	0.32	< 0.05
Benzo(b)fluoranthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	0.37	0.29	< 0.10
Benzo(k)fluoranthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	0.20	0.37	< 0.10
Benzo(a)pyrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	0.26	0.36	< 0.10
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	0.20	< 0.10
Dibenz(a,h)anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.23	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	1.6	MCERTS	< 1.60	< 1.60	2.85	4.37	< 1.60
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	4.2	< 1.0	7.2	6.3	3.8
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.0	1.0	1.2	1.0	0.6
Boron (water soluble)	mg/kg	0.2	MCERTS	0.7	1.1	3.9	5.8	0.5
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.5	0.4	0.3	0.5	< 0.2
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	29	28	27	21	18
Copper (aqua regia extractable)	mg/kg	1	MCERTS	29	27	25	24	17
Lead (aqua regia extractable)	mg/kg	1	MCERTS	37	54	150	270	14
Manganese (aqua regia extractable)	mg/kg	1	MCERTS	220	240	390	240	200
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	0.5	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	30	28	27	26	20
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	29	26	32	25	19
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	69	73	87	120	40

Analytical Report Number: 15-73985

Project / Site name: Wrexham

Lab Sample Number				457174	457175	457176	457177	457178
Sample Reference				DIGI EX3 B	DIGI EX4 B	DIGI EX5 B	DIGI EX6 B	DIGI EX7 B
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				17/06/2015	17/06/2015	17/06/2015	17/06/2015	17/06/2015
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Monoaromatics								
Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	6.1
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	8.4	25	79	< 8.0	< 8.0
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	25	79	< 10	< 10
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	4.3
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	3.8	5.3	< 2.0	5.2	13
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	< 10	12	15	17
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	< 10	25	150	46	< 10
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	31	160	66	34

Analytical Report Number: 15-73985

Project / Site name: Wrexham

Lab Sample Number				457179	457180			
Sample Reference				CRUSH 3	CRUSH 4			
Sample Number				None Supplied	None Supplied			
Depth (m)				None Supplied	None Supplied			
Date Sampled				17/06/2015	17/06/2015			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1			
Moisture Content	%	N/A	NONE	0.00	7.3			
Total mass of sample received	kg	0.001	NONE	0.58	0.60			

General Inorganics

Total Cyanide	mg/kg	1	MCERTS	< 1	< 1			
Ammonium as NH ₄	mg/kg	0.5	MCERTS	0.9	3.2			
Ammonium as NH ₄ (leachate equivalent)	mg/l	0.25	MCERTS	0.4	1.6			

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0			
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	0.21	< 0.05			
Acenaphthylene	mg/kg	0.1	MCERTS	0.45	0.28			
Acenaphthene	mg/kg	0.1	MCERTS	0.41	0.12			
Fluorene	mg/kg	0.1	MCERTS	0.65	0.24			
Phenanthrene	mg/kg	0.1	MCERTS	8.1	1.7			
Anthracene	mg/kg	0.1	MCERTS	2.3	0.75			
Fluoranthene	mg/kg	0.1	MCERTS	9.5	3.7			
Pyrene	mg/kg	0.1	MCERTS	8.3	3.5			
Benzo(a)anthracene	mg/kg	0.1	MCERTS	3.5	2.2			
Chrysene	mg/kg	0.05	MCERTS	3.1	2.0			
Benzo(b)fluoranthene	mg/kg	0.1	MCERTS	2.3	2.1			
Benzo(k)fluoranthene	mg/kg	0.1	MCERTS	2.0	1.9			
Benzo(a)pyrene	mg/kg	0.1	MCERTS	2.1	2.3			
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	MCERTS	0.88	1.3			
Dibenz(a,h)anthracene	mg/kg	0.1	MCERTS	0.20	0.31			
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.95	1.4			

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	1.6	MCERTS	44.9	23.9			
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	14	7.1			
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.7	0.3			
Boron (water soluble)	mg/kg	0.2	MCERTS	2.8	2.0			
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2			
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0			
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	16	15			
Copper (aqua regia extractable)	mg/kg	1	MCERTS	20	12			
Lead (aqua regia extractable)	mg/kg	1	MCERTS	24	22			
Manganese (aqua regia extractable)	mg/kg	1	MCERTS	730	180			
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3			
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	14	8.1			
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0			
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	23	18			
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	60	27			

Analytical Report Number: 15-73985

Project / Site name: Wrexham

Lab Sample Number				457179	457180			
Sample Reference				CRUSH 3	CRUSH 4			
Sample Number				None Supplied	None Supplied			
Depth (m)				None Supplied	None Supplied			
Date Sampled				17/06/2015	17/06/2015			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)				Units	Limit of detection	Accreditation Status		
Monoaromatics								
Benzene				µg/kg	1	MCERTS	< 1.0	< 1.0
Toluene				µg/kg	1	MCERTS	< 1.0	< 1.0
Ethylbenzene				µg/kg	1	MCERTS	< 1.0	< 1.0
p & m-xylene				µg/kg	1	MCERTS	< 1.0	< 1.0
o-xylene				µg/kg	1	MCERTS	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)				µg/kg	1	MCERTS	< 1.0	< 1.0

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.1	MCERTS	< 0.1	< 0.1			
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1			
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1			
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0			
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	17	< 2.0			
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	82	11			
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	530	130			
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	630	140			
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.1	MCERTS	< 0.1	< 0.1			
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1			
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1			
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	5.4	< 1.0			
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	27	9.0			
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	120	40			
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	480	190			
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	630	240			



Analytical Report Number: 15-73985

Project / Site name: Wrexham

Lab Sample Number				457181	457182	457183		
Sample Reference				Downstream 2	Upstream 2	DIGI EX 7 GW		
Sample Number				None Supplied	None Supplied	None Supplied		
Depth (m)				None Supplied	None Supplied	None Supplied		
Date Sampled				17/06/2015	17/06/2015	17/06/2015		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Water Analysis)				Units	Limit of detection	Accreditation Status		

General Inorganics

pH	pH Units	N/A	ISO 17025	7.5	7.9	7.7		
Total Cyanide	µg/l	10	ISO 17025	< 10	< 10	29		
Ammonium as NH ₄	µg/l	15	ISO 17025	< 15	< 15	2000		
Chemical Oxygen Demand (Total)	mg/l	2	ISO 17025	8.1	4.7	45		
BOD (Biochemical Oxygen Demand)	mg/l	1	ISO 17025	< 1.0	< 1.0	2.6		
Total Suspended Solids	mg/l	2	NONE	2.0	4.0	90		

Speciated PAHs

Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	0.64		
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	0.69		
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		

Total PAH

Total EPA-16 PAHs	µg/l	0.2	ISO 17025	< 0.20	< 0.20	1.33		
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Heavy Metals / Metalloids

Arsenic (dissolved)	µg/l	0.15	ISO 17025	0.45	0.39	2.68		
Beryllium (dissolved)	µg/l	0.1	ISO 17025	< 0.1	< 0.1	< 0.1		
Boron (dissolved)	µg/l	10	ISO 17025	60	59	140		
Cadmium (dissolved)	µg/l	0.02	ISO 17025	0.03	0.02	0.08		
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	< 5.0	< 5.0		
Chromium (dissolved)	µg/l	0.2	ISO 17025	0.6	0.4	2.4		
Copper (dissolved)	µg/l	0.5	ISO 17025	6.6	7.3	7.1		
Lead (dissolved)	µg/l	0.2	ISO 17025	1.0	0.8	0.7		
Manganese (dissolved)	µg/l	0.05	ISO 17025	2.8	3.7	650		
Mercury (dissolved)	µg/l	0.05	ISO 17025	< 0.05	< 0.05	< 0.05		
Nickel (dissolved)	µg/l	0.5	ISO 17025	1.6	1.4	2.1		
Selenium (dissolved)	µg/l	0.6	ISO 17025	1.3	1.4	2.9		
Vanadium (dissolved)	µg/l	0.2	ISO 17025	0.3	0.3	4.3		
Zinc (dissolved)	µg/l	0.5	ISO 17025	6.1	3.7	3.2		



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Project / Site name: Wrexham

Lab Sample Number				457181	457182	457183		
Sample Reference				Downstream 2	Upstream 2	DIGI EX 7 GW		
Sample Number				None Supplied	None Supplied	None Supplied		
Depth (m)				None Supplied	None Supplied	None Supplied		
Date Sampled				17/06/2015	17/06/2015	17/06/2015		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Water Analysis)				Units	Limit of detection	Accreditation Status		

Monoaromatics

Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >C5 - C6	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aliphatic >C6 - C8	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aliphatic >C8 - C10	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10		

TPH-CWG - Aromatic >C5 - C7	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aromatic >C7 - C8	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aromatic >C8 - C10	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10		



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Project / Site name: Wrexham

Lab Sample Number				457181	457182	457183		
Sample Reference				Downstream 2	Upstream 2	DIGI EX 7 GW		
Sample Number				None Supplied	None Supplied	None Supplied		
Depth (m)				None Supplied	None Supplied	None Supplied		
Date Sampled				17/06/2015	17/06/2015	17/06/2015		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Water Analysis)								
	Units	Limit of detection	Accreditation Status					

VOCs

Chloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Chloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Bromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Vinyl Chloride	µg/l	1	NONE	< 1.0	< 1.0	< 1.0		
Trichlorofluoromethane	µg/l	1	NONE	< 1.0	< 1.0	< 1.0		
1,1-dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Cis-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,1-dichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
2,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Trichloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,1,1-Trichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,2-dichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,1-Dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Trans-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Tetrachloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,2-dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Trichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Dibromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Bromodichloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Cis-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Trans-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,1,2-Trichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,3-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Dibromochloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Tetrachloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,2-Dibromoethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Chlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,1,1,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Styrene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Tribromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,1,2,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Isopropylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Bromobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
N-Propylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
2-Chlorotoluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
4-Chlorotoluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,3,5-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Tert-Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,2,4-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Sec-Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,3-dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
P-Isopropyltoluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,2-dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,4-dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,2-Dibromo-3-chloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,2,4-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Hexachlorobutadiene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,2,3-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		

U/S = Unsuitable Sample I/S = Insufficient Sample

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The results included within the report are representative of the samples submitted for analysis.

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Project / Site name: Wrexham

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and topsoil/loam soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
457164	DIGI EX1 B	None Supplied	None Supplied	Grey clay.
457165	DIGI EX1 E	None Supplied	None Supplied	Brown loam and sand with rubble.
457166	DIGI EX1 N	None Supplied	None Supplied	Brown loam and sand with rubble and brick.
457167	DIGI EX1 S	None Supplied	None Supplied	Brown loam and sand with rubble.
457168	DIGI EX1 W	None Supplied	None Supplied	Brown loam and sand with rubble.
457169	DIGI EX2 B	None Supplied	None Supplied	Black clay.
457170	DIGI EX2 N	None Supplied	None Supplied	Brown loam and sand with rubble.
457171	DIGI EX2 S	None Supplied	None Supplied	Brown loam and sand with rubble.
457172	DIGI EX2 W	None Supplied	None Supplied	Brown loam and sand with rubble.
457173	DIGI EX2 E	None Supplied	None Supplied	Brown loam and sand with rubble.
457174	DIGI EX3 B	None Supplied	None Supplied	Grey clay.
457175	DIGI EX4 B	None Supplied	None Supplied	Grey clay.
457176	DIGI EX5 B	None Supplied	None Supplied	Brown clay and sand.
457177	DIGI EX6 B	None Supplied	None Supplied	Brown clay and sand.
457178	DIGI EX7 B	None Supplied	None Supplied	Light brown clay and sand.
457179	CRUSH 3	None Supplied	None Supplied	Light grey rubble. **
457180	CRUSH 4	None Supplied	None Supplied	Brown loam and sand with brick.

** Non MCerts Matrix

Analytical Report Number : 15-73985

Project / Site name: Wrexham

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Ammonium as NH ₄ in soil	Determination of Ammonium/Ammonia/Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	MCERTS
Ammonium as NH ₄ in water	Determination of Ammonium/Ammonia/Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method. Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	ISO 17025
Biological oxygen demand of water	Determination of biochemical oxygen demand in water (5 days). Accredited matrices: SW, PW, GW.	In-house method based on standard method 5210B. Samples received > 24 hrs after sampling, data may not be valid and should be interpreted with care.	L086-PL	W	ISO 17025
Boron in water	Determination of boron by acidification followed by ICP-OES. Accredited matrices: SW PW GW	In-house method based on MEWAM	L039-PL	W	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
BTEX and MTBE in soil	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073S-PL	W	MCERTS
BTEX and MTBE in water	Determination of BTEX and MTBE in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073W-PL	W	ISO 17025
Chemical Oxygen Demand in Water (Total)	Determination of total COD in water by reflux oxidation with acidified K ₂ Cr ₂ O ₇ followed by colorimetry. Accredited matrices: SW, PW, GW.	HACH DR/890 Colorimeter Procedures Manual (48470-22) (Ref 0170.2)	L065-PL	W	ISO 17025
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazine followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Hexavalent chromium in water	Determination of hexavalent chromium in water by acidification, addition of 1,5 diphenylcarbazine followed by colorimetry.	In-house method by continuous flow analyser. Accredited Matrices SW, GW, PW.	L080-PL	W	ISO 17025
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Metals in water by ICP-MS (dissolved)	Determination of metals in water by acidification followed by ICP-MS. Accredited Matrices: SW, GW, PW except B=SW,GW, Hg=SW,PW, Al=SW,PW.	In-house method based on USEPA Method 6020 & 200.8 "for the determination of trace elements in water by ICP-MS.	L012-PL	W	ISO 17025
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Monohydric phenols in water	Determination of phenols in water by continuous flow analyser. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	ISO 17025
pH in water	Determination of pH in water by electrometric measurement. Accredited matrices: SW PW GW	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	W	ISO 17025
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS

Analytical Report Number : 15-73985

Project / Site name: Wrexham

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Speciated EPA-16 PAHs in water	Determination of PAH compounds in water by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards. Accredited matrices: SW PW GW	In-house method based on USEPA 8270	L070-UK	W	ISO 17025
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Suspended solids in water	Determined gravimetrically with GFC filtration papers.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L004-PL	W	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total cyanide in water	Determination of total cyanide by distillation followed by colorimetry. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	ISO 17025
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method	L076-PL	W	MCERTS
TPHCWG (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.	In-house method	L070-UK	W	NONE
Volatile organic compounds in water	Determination of volatile organic compounds in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073W-PL	W	ISO 17025

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

**Mark Dodd**

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Analytical Report Number : 15-73622

Project / Site name:	Wrexham	Samples received on:	16/06/2015
Your job number:	HC15016	Samples instructed on:	16/06/2015
Your order number:	HC15016-29180	Analysis completed by:	24/06/2015
Report Issue Number:	1	Report issued on:	24/06/2015
Samples Analysed:	7 soil samples - 1 water sample		

Signed: 

Dr Claire Stone
Quality Manager
For & on behalf of i2 Analytical Ltd.

Signed: 

Rexona Rahman
Reporting Manager
For & on behalf of i2 Analytical Ltd.

Other office located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Analytical Report Number: 15-73622

Project / Site name: Wrexham

Your Order No: HC15016-29180

Lab Sample Number				455011	455012	455013	455014	455015			
Sample Reference				REUSE 1	REUSE 2	REUSE 3	REUSE 4	REUSE 5			
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied			
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied			
Date Sampled				11/06/2015	11/06/2015	11/06/2015	11/06/2015	11/06/2015			
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status								
Stone Content				%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content				%	N/A	NONE	6.5	5.6	6.0	6.1	5.6
Total mass of sample received				kg	0.001	NONE	0.62	0.58	0.63	0.62	0.61

General Inorganics

Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1	< 1
Ammonium as NH ₄	mg/kg	0.5	MCERTS	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Ammonium as NH ₄ (leachate equivalent)	mg/l	0.25	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	0.15	< 0.05	< 0.05	0.19	0.20
Acenaphthylene	mg/kg	0.1	MCERTS	0.25	0.26	0.28	0.43	0.40
Acenaphthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	0.12	< 0.10
Fluorene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	0.21
Phenanthrene	mg/kg	0.1	MCERTS	1.2	0.82	1.0	1.3	2.1
Anthracene	mg/kg	0.1	MCERTS	0.48	0.37	0.43	0.60	0.77
Fluoranthene	mg/kg	0.1	MCERTS	3.0	2.6	3.0	4.7	5.2
Pyrene	mg/kg	0.1	MCERTS	3.0	2.7	3.0	4.5	5.0
Benzo(a)anthracene	mg/kg	0.1	MCERTS	2.1	1.9	1.9	3.2	3.4
Chrysene	mg/kg	0.05	MCERTS	1.6	1.5	1.6	3.1	2.6
Benzo(b)fluoranthene	mg/kg	0.1	MCERTS	1.4	1.7	1.5	3.3	2.7
Benzo(k)fluoranthene	mg/kg	0.1	MCERTS	1.3	0.94	1.2	1.9	2.0
Benzo(a)pyrene	mg/kg	0.1	MCERTS	1.4	1.3	1.4	3.0	2.6
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	MCERTS	0.60	0.57	0.58	1.3	1.1
Dibenz(a,h)anthracene	mg/kg	0.1	MCERTS	< 0.10	0.14	0.16	0.32	0.27
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.63	0.71	0.72	1.5	1.2

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	1.6	MCERTS	17.0	15.4	16.7	29.6	29.9
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	8.0	7.6	7.0	8.1	7.1
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.5	0.4	0.5	0.7	0.5
Boron (water soluble)	mg/kg	0.2	MCERTS	0.2	0.3	< 0.2	0.3	< 0.2
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.3	0.5	< 0.2	< 0.2	0.2
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	13	17	16	18	13
Copper (aqua regia extractable)	mg/kg	1	MCERTS	33	32	28	47	24
Lead (aqua regia extractable)	mg/kg	1	MCERTS	49	58	53	76	49
Manganese (aqua regia extractable)	mg/kg	1	MCERTS	370	360	400	400	330
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	1.3	2.6	3.3	3.4	1.6
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	16	18	17	23	15
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	15	23	24	27	17
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	76	89	77	130	62

Analytical Report Number: 15-73622

Project / Site name: Wrexham

Your Order No: HC15016-29180

Lab Sample Number	455011	455012	455013	455014	455015
Sample Reference	REUSE 1	REUSE 2	REUSE 3	REUSE 4	REUSE 5
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled	11/06/2015	11/06/2015	11/06/2015	11/06/2015	11/06/2015
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		

Monoaromatics

Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	34	40	78	68	77
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	34	40	78	68	77

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	3.4	2.2
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	11	< 10	< 10	27	20
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	55	59	80	140	98
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	66	59	80	170	120

Analytical Report Number: 15-73622

Project / Site name: Wrexham

Your Order No: HC15016-29180

Lab Sample Number				455016	455017			
Sample Reference				CRUSH1	CRUSH2			
Sample Number				None Supplied	None Supplied			
Depth (m)				None Supplied	None Supplied			
Date Sampled				11/06/2015	15/06/2015			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1			
Moisture Content	%	N/A	NONE	1.4	1.5			
Total mass of sample received	kg	0.001	NONE	0.46	0.50			

General Inorganics

Total Cyanide	mg/kg	1	MCERTS	8	< 1			
Ammonium as NH ₄	mg/kg	0.5	MCERTS	15	< 0.5			
Ammonium as NH ₄ (leachate equivalent)	mg/l	0.25	MCERTS	7.3	< 0.3			

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	16	< 1.0			
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	850	0.59			
Acenaphthylene	mg/kg	0.1	MCERTS	150	0.38			
Acenaphthene	mg/kg	0.1	MCERTS	40	0.20			
Fluorene	mg/kg	0.1	MCERTS	170	0.53			
Phenanthrene	mg/kg	0.1	MCERTS	740	5.0			
Anthracene	mg/kg	0.1	MCERTS	240	1.0			
Fluoranthene	mg/kg	0.1	MCERTS	700	5.4			
Pyrene	mg/kg	0.1	MCERTS	490	4.6			
Benzo(a)anthracene	mg/kg	0.1	MCERTS	310	2.2			
Chrysene	mg/kg	0.05	MCERTS	240	2.2			
Benzo(b)fluoranthene	mg/kg	0.1	MCERTS	270	2.1			
Benzo(k)fluoranthene	mg/kg	0.1	MCERTS	140	1.3			
Benzo(a)pyrene	mg/kg	0.1	MCERTS	250	1.9			
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	MCERTS	98	0.95			
Dibenz(a,h)anthracene	mg/kg	0.1	MCERTS	28	0.19			
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	110	0.99			

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	1.6	MCERTS	4840	29.7			
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	12	4.1			
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	2.8	0.3			
Boron (water soluble)	mg/kg	0.2	MCERTS	0.6	0.8			
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	1.6	0.5			
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0			
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	20	15			
Copper (aqua regia extractable)	mg/kg	1	MCERTS	300	26			
Lead (aqua regia extractable)	mg/kg	1	MCERTS	190	64			
Manganese (aqua regia extractable)	mg/kg	1	MCERTS	420	310			
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	1.6			
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	53	12			
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0			
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	18	21			
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	790	94			

Analytical Report Number: 15-73622

Project / Site name: Wrexham

Your Order No: HC15016-29180

Lab Sample Number				455016	455017			
Sample Reference				CRUSH1	CRUSH2			
Sample Number				None Supplied	None Supplied			
Depth (m)				None Supplied	None Supplied			
Date Sampled				11/06/2015	15/06/2015			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Monoaromatics								
Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0			
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0			
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0			
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0			
o-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0			
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0			

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.1	MCERTS	< 0.1	< 0.1			
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1			
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1			
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	5.3	< 1.0			
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	35	10			
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	42	32			
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	150	270			
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	230	320			
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.1	MCERTS	< 0.1	< 0.1			
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1			
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1			
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	140	< 1.0			
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	260	8.5			
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	560	41			
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	810	200			
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	1800	250			



Analytical Report Number: 15-73622

Project / Site name: Wrexham

Your Order No: HC15016-29180

Lab Sample Number				455018				
Sample Reference				BH1				
Sample Number				None Supplied				
Depth (m)				None Supplied				
Date Sampled				15/06/2015				
Time Taken				None Supplied				
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					

General Inorganics

pH	pH Units	N/A	ISO 17025	7.8				
Total Cyanide	µg/l	10	ISO 17025	14				
Ammonium as NH ₄	µg/l	15	ISO 17025	1800				
Chemical Oxygen Demand (Settled)	mg/l	2	ISO 17025	28				
BOD (Biochemical Oxygen Demand)	mg/l	1	ISO 17025	< 1.0				
Total Suspended Solids	mg/l	2	NONE	8300				

Speciated PAHs

Naphthalene	µg/l	0.01	ISO 17025	< 0.01				
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01				
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01				
Fluorene	µg/l	0.01	ISO 17025	< 0.01				
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01				
Anthracene	µg/l	0.01	ISO 17025	< 0.01				
Fluoranthene	µg/l	0.01	ISO 17025	0.40				
Pyrene	µg/l	0.01	ISO 17025	0.74				
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01				
Chrysene	µg/l	0.01	ISO 17025	< 0.01				
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01				
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01				
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01				
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01				
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01				
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01				

Total PAH

Total EPA-16 PAHs	µg/l	0.2	ISO 17025	1.14				
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Heavy Metals / Metalloids

Arsenic (dissolved)	µg/l	0.15	ISO 17025	1.08				
Beryllium (dissolved)	µg/l	0.1	ISO 17025	< 0.1				
Boron (dissolved)	µg/l	10	ISO 17025	160				
Cadmium (dissolved)	µg/l	0.02	ISO 17025	< 0.02				
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0				
Chromium (dissolved)	µg/l	0.2	ISO 17025	1.0				
Copper (dissolved)	µg/l	0.5	ISO 17025	2.8				
Lead (dissolved)	µg/l	0.2	ISO 17025	2.5				
Manganese (dissolved)	µg/l	0.05	ISO 17025	670				
Mercury (dissolved)	µg/l	0.05	ISO 17025	< 0.05				
Nickel (dissolved)	µg/l	0.5	ISO 17025	3.2				
Selenium (dissolved)	µg/l	0.6	ISO 17025	12				
Vanadium (dissolved)	µg/l	0.2	ISO 17025	1.8				
Zinc (dissolved)	µg/l	0.5	ISO 17025	2.4				



Analytical Report Number: 15-73622

Project / Site name: Wrexham

Your Order No: HC15016-29180

Lab Sample Number				455018				
Sample Reference				BH1				
Sample Number				None Supplied				
Depth (m)				None Supplied				
Date Sampled				15/06/2015				
Time Taken				None Supplied				
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					

Monoaromatics

Benzene	µg/l	1	ISO 17025	< 1.0				
Toluene	µg/l	1	ISO 17025	< 1.0				
Ethylbenzene	µg/l	1	ISO 17025	< 1.0				
p & m-xylene	µg/l	1	ISO 17025	< 1.0				
o-xylene	µg/l	1	ISO 17025	< 1.0				
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0				

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >C5 - C6	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic >C6 - C8	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic >C8 - C10	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10				

TPH-CWG - Aromatic >C5 - C7	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic >C7 - C8	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic >C8 - C10	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10				



Analytical Report Number: 15-73622

Project / Site name: Wrexham

Your Order No: HC15016-29180

Lab Sample Number				455018				
Sample Reference				BH1				
Sample Number				None Supplied				
Depth (m)				None Supplied				
Date Sampled				15/06/2015				
Time Taken				None Supplied				
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					

VOCs

Chloromethane	µg/l	1	ISO 17025	< 1.0				
Chloroethane	µg/l	1	ISO 17025	< 1.0				
Bromomethane	µg/l	1	ISO 17025	< 1.0				
Vinyl Chloride	µg/l	1	NONE	< 1.0				
Trichlorofluoromethane	µg/l	1	NONE	< 1.0				
1,1-dichloroethene	µg/l	1	ISO 17025	< 1.0				
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/l	1	ISO 17025	< 1.0				
Cis-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0				
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0				
1,1-dichloroethane	µg/l	1	ISO 17025	< 1.0				
2,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0				
Trichloromethane	µg/l	1	ISO 17025	< 1.0				
1,1,1-Trichloroethane	µg/l	1	ISO 17025	< 1.0				
1,2-dichloroethane	µg/l	1	ISO 17025	< 1.0				
1,1-Dichloropropene	µg/l	1	ISO 17025	< 1.0				
Trans-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0				
Benzene	µg/l	1	ISO 17025	< 1.0				
Tetrachloromethane	µg/l	1	ISO 17025	< 1.0				
1,2-dichloropropane	µg/l	1	ISO 17025	< 1.0				
Trichloroethene	µg/l	1	ISO 17025	< 1.0				
Dibromomethane	µg/l	1	ISO 17025	< 1.0				
Bromodichloromethane	µg/l	1	ISO 17025	< 1.0				
Cis-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0				
Trans-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0				
Toluene	µg/l	1	ISO 17025	< 1.0				
1,1,2-Trichloroethane	µg/l	1	ISO 17025	< 1.0				
1,3-Dichloropropane	µg/l	1	ISO 17025	< 1.0				
Dibromochloromethane	µg/l	1	ISO 17025	< 1.0				
Tetrachloroethene	µg/l	1	ISO 17025	< 1.0				
1,2-Dibromoethane	µg/l	1	ISO 17025	< 1.0				
Chlorobenzene	µg/l	1	ISO 17025	< 1.0				
1,1,1,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0				
Ethylbenzene	µg/l	1	ISO 17025	< 1.0				
p & m-xylene	µg/l	1	ISO 17025	< 1.0				
Styrene	µg/l	1	ISO 17025	< 1.0				
Tribromomethane	µg/l	1	ISO 17025	< 1.0				
o-xylene	µg/l	1	ISO 17025	< 1.0				
1,1,2,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0				
Isopropylbenzene	µg/l	1	ISO 17025	< 1.0				
Bromobenzene	µg/l	1	ISO 17025	< 1.0				
N-Propylbenzene	µg/l	1	ISO 17025	< 1.0				
2-Chlorotoluene	µg/l	1	ISO 17025	< 1.0				
4-Chlorotoluene	µg/l	1	ISO 17025	< 1.0				
1,3,5-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0				
Tert-Butylbenzene	µg/l	1	ISO 17025	< 1.0				
1,2,4-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0				
Sec-Butylbenzene	µg/l	1	ISO 17025	< 1.0				
1,3-dichlorobenzene	µg/l	1	ISO 17025	< 1.0				
P-Isopropyltoluene	µg/l	1	ISO 17025	< 1.0				
1,2-dichlorobenzene	µg/l	1	ISO 17025	< 1.0				
1,4-dichlorobenzene	µg/l	1	ISO 17025	< 1.0				
Butylbenzene	µg/l	1	ISO 17025	< 1.0				
1,2-Dibromo-3-chloropropane	µg/l	1	ISO 17025	< 1.0				
1,2,4-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0				
Hexachlorobutadiene	µg/l	1	ISO 17025	< 1.0				
1,2,3-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0				

U/S = Unsuitable Sample I/S = Insufficient Sample



Analytical Report Number : 15-73622

Project / Site name: Wrexham

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and topsoil/loam soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
455011	REUSE 1	None Supplied	None Supplied	Brown sandy loam with rubble and brick.
455012	REUSE 2	None Supplied	None Supplied	Brown sandy loam with rubble and brick.
455013	REUSE 3	None Supplied	None Supplied	Brown sandy loam with rubble and brick.
455014	REUSE 4	None Supplied	None Supplied	Brown sandy loam with rubble and brick.
455015	REUSE 5	None Supplied	None Supplied	Brown sandy loam with rubble and brick.
455016	CRUSH1	None Supplied	None Supplied	Grey gravel with rubble.**
455017	CRUSH2	None Supplied	None Supplied	Grey gravel with rubble.**

**Non MCERTS Matrix

Analytical Report Number : 15-73622

Project / Site name: Wrexham

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Ammonium as NH ₄ in soil	Determination of Ammonium/Ammonia/Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	MCERTS
Ammonium as NH ₄ in water	Determination of Ammonium/Ammonia/Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method. Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	ISO 17025
Biological oxygen demand of water	Determination of biochemical oxygen demand in water (5 days). Accredited matrices: SW, PW, GW.	In-house method based on standard method 5210B. Samples received > 24 hrs after sampling, data may not be valid and should be interpreted with care.	L086-PL	W	ISO 17025
Boron in water	Determination of boron by acidification followed by ICP-OES. Accredited matrices: SW PW GW	In-house method based on MEWAM	L039-PL	W	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
BTEX and MTBE in soil	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073S-PL	W	MCERTS
BTEX and MTBE in water	Determination of BTEX and MTBE in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073W-PL	W	ISO 17025
Chemical Oxygen Demand in Water (Settled)	Determination of settled COD in water by reflux oxidation with acidified K ₂ Cr ₂ O ₇ followed by colorimetry. Accredited matrices: SW, PW, GW.	HACH DR/890 Colorimeter Procedures Manual (48470-22) (Ref 0170.2)	L065-PL	W	ISO 17025
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Hexavalent chromium in water	Determination of hexavalent chromium in water by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method by continuous flow analyser. Accredited Matrices SW, GW, PW.	L080-PL	W	ISO 17025
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Metals in water by ICP-MS (dissolved)	Determination of metals in water by acidification followed by ICP-MS. Accredited Matrices: SW, GW, PW except B=SW,GW, Hg=SW,PW, Al=SW,PW.	In-house method based on USEPA Method 6020 & 200.8 "for the determination of trace elements in water by ICP-MS.	L012-PL	W	ISO 17025
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Monohydric phenols in water	Determination of phenols in water by continuous flow analyser. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	ISO 17025
pH in water	Determination of pH in water by electrometric measurement. Accredited matrices: SW PW GW	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	W	ISO 17025
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS

Analytical Report Number : 15-73622

Project / Site name: Wrexham

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Speciated EPA-16 PAHs in water	Determination of PAH compounds in water by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards. Accredited matrices: SW PW GW	In-house method based on USEPA 8270	L070-UK	W	ISO 17025
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Suspended solids in water	Determined gravimetrically with GFC filtration papers.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L004-PL	W	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total cyanide in water	Determination of total cyanide by distillation followed by colorimetry. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	ISO 17025
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method	L076-PL	W	MCERTS
TPHCWG (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.	In-house method	L070-UK	W	NONE
Volatile organic compounds in water	Determination of volatile organic compounds in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073W-PL	W	ISO 17025

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

**Harry Russell**

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Analytical Report Number : 16-15181

Project / Site name:	Wrexham	Samples received on:	12/04/2016
Your job number:	HC15016	Samples instructed on:	12/04/2016
Your order number:	HC-15016-29180	Analysis completed by:	19/04/2016
Report Issue Number:	1	Report issued on:	19/04/2016
Samples Analysed:	6 water samples		

Signed:

Rexona Rahman
Reporting Manager
For & on behalf of i2 Analytical Ltd.

Signed:

Emma Winter
Assistant Reporting Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :	soils	- 4 weeks from reporting
	leachates	- 2 weeks from reporting
	waters	- 2 weeks from reporting
	asbestos	- 6 months from reporting

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Analytical Report Number: 16-15181

Project / Site name: Wrexham

Your Order No: HC-15016-29180

Lab Sample Number				559937	559938	559939	559940	559941
Sample Reference				Upstream	Downstream	MW1	MW2	MW3
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				07/04/2016	07/04/2016	07/04/2016	07/04/2016	07/04/2016
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					

General Inorganics

pH	pH Units	N/A	ISO 17025	8.0	8.0	7.8	7.5	7.8
Total Cyanide	µg/l	10	ISO 17025	< 10	< 10	24	14	18
Ammonium as NH ₄	µg/l	15	ISO 17025	51	310	360	520	27000
Chemical Oxygen Demand (Total)	mg/l	2	ISO 17025	21	21	24	15	71
BOD (Biochemical Oxygen Demand)	mg/l	1	ISO 17025	1.4	1.2	1.5	2.7	29
Total Suspended Solids	mg/l	2	NONE	12	8.0	3.0	2.0	8.0

Speciated PAHs

Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	0.36	68.8
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	0.39	27.2
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	1.15	5.08
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	0.72	11.3
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	6.83
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	1.53
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	0.85	0.95
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	0.56	0.52
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01

Total PAH

Total EPA-16 PAHs	µg/l	0.16	NONE	< 0.16	< 0.16	< 0.16	4.03	122
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Heavy Metals / Metalloids

Arsenic (dissolved)	µg/l	0.15	ISO 17025	0.59	0.43	1.04	0.66	2.18
Beryllium (dissolved)	µg/l	0.1	ISO 17025	< 0.1	< 0.1	< 0.1	0.2	< 0.1
Boron (dissolved)	µg/l	10	ISO 17025	35	37	76	35	56
Cadmium (dissolved)	µg/l	0.02	ISO 17025	< 0.02	0.06	< 0.02	0.02	< 0.02
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chromium (dissolved)	µg/l	0.2	ISO 17025	1.1	1.3	0.5	0.2	0.2
Copper (dissolved)	µg/l	0.5	ISO 17025	4.7	6.4	5.8	3.8	1.9
Lead (dissolved)	µg/l	0.2	ISO 17025	2.3	3.3	0.2	0.2	0.3
Manganese (dissolved)	µg/l	0.05	ISO 17025	14	24	1.7	55	1100
Mercury (dissolved)	µg/l	0.05	ISO 17025	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Nickel (dissolved)	µg/l	0.5	ISO 17025	2.3	2.5	2.9	8.1	54
Selenium (dissolved)	µg/l	0.6	ISO 17025	< 0.6	0.8	2.8	4.4	5.3
Vanadium (dissolved)	µg/l	0.2	ISO 17025	0.7	0.7	1.1	0.4	< 0.2
Zinc (dissolved)	µg/l	0.5	ISO 17025	6.2	8.1	1.8	1.9	1.8



Analytical Report Number: 16-15181

Project / Site name: Wrexham

Your Order No: HC-15016-29180

Lab Sample Number				559937	559938	559939	559940	559941
Sample Reference				Upstream	Downstream	MW1	MW2	MW3
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				07/04/2016	07/04/2016	07/04/2016	07/04/2016	07/04/2016
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)				Units	Limit of detection	Accreditation Status		

Monoaromatics

Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	16.8	393
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	1.9	93.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	5.0
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	17.0	27.0
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	23.0	30.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >C5 - C6	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C6 - C8	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C8 - C10	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10

TPH-CWG - Aromatic >C5 - C7	µg/l	10	NONE	< 10	< 10	< 10	17	390
TPH-CWG - Aromatic >C7 - C8	µg/l	10	NONE	< 10	< 10	< 10	< 10	93
TPH-CWG - Aromatic >C8 - C10	µg/l	10	NONE	< 10	< 10	< 10	64	110
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10	48	120
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10	110	44
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10	88	10
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10	330	770



Analytical Report Number: 16-15181

Project / Site name: Wrexham

Your Order No: HC-15016-29180

Lab Sample Number				559937	559938	559939	559940	559941
Sample Reference				Upstream	Downstream	MW1	MW2	MW3
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				07/04/2016	07/04/2016	07/04/2016	07/04/2016	07/04/2016
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					

VOCs

Chloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl Chloride	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichlorofluoromethane	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cis-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-dichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-dichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trans-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	16.8	393
Tetrachloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromodichloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cis-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trans-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	1.9	93.4
1,1,2-Trichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromochloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromoethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	5.8
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	17.0	27.7
Styrene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tribromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	23.0	30.9
1,1,2,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Isopropylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
N-Propylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2-Chlorotoluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
4-Chlorotoluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3,5-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	1.8	4.2
Tert-Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	1.7	10.7
Sec-Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
P-Isopropyltoluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,4-dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromo-3-chloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Hexachlorobutadiene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

U/S = Unsuitable Sample I/S = Insufficient Sample

Iss No 16-15181-1 Wrexham HC15016

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The results included within the report are representative of the samples submitted for analysis.

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Analytical Report Number: 16-15181

Project / Site name: Wrexham

Your Order No: HC-15016-29180

Lab Sample Number				559942				
Sample Reference				MW4				
Sample Number				None Supplied				
Depth (m)				None Supplied				
Date Sampled				07/04/2016				
Time Taken				None Supplied				
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					

General Inorganics

pH	pH Units	N/A	ISO 17025	7.8				
Total Cyanide	µg/l	10	ISO 17025	11				
Ammonium as NH ₄	µg/l	15	ISO 17025	340				
Chemical Oxygen Demand (Total)	mg/l	2	ISO 17025	10				
BOD (Biochemical Oxygen Demand)	mg/l	1	ISO 17025	3.7				
Total Suspended Solids	mg/l	2	NONE	3.0				

Speciated PAHs

Naphthalene	µg/l	0.01	ISO 17025	0.25				
Acenaphthylene	µg/l	0.01	ISO 17025	0.33				
Acenaphthene	µg/l	0.01	ISO 17025	1.31				
Fluorene	µg/l	0.01	ISO 17025	2.07				
Phenanthrene	µg/l	0.01	ISO 17025	2.29				
Anthracene	µg/l	0.01	ISO 17025	1.18				
Fluoranthene	µg/l	0.01	ISO 17025	0.93				
Pyrene	µg/l	0.01	ISO 17025	0.81				
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01				
Chrysene	µg/l	0.01	ISO 17025	< 0.01				
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01				
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01				
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01				
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01				
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01				
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01				

Total PAH

Total EPA-16 PAHs	µg/l	0.16	NONE	9.17				
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Heavy Metals / Metalloids

Arsenic (dissolved)	µg/l	0.15	ISO 17025	0.69				
Beryllium (dissolved)	µg/l	0.1	ISO 17025	< 0.1				
Boron (dissolved)	µg/l	10	ISO 17025	110				
Cadmium (dissolved)	µg/l	0.02	ISO 17025	0.09				
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0				
Chromium (dissolved)	µg/l	0.2	ISO 17025	1.0				
Copper (dissolved)	µg/l	0.5	ISO 17025	5.2				
Lead (dissolved)	µg/l	0.2	ISO 17025	0.4				
Manganese (dissolved)	µg/l	0.05	ISO 17025	600				
Mercury (dissolved)	µg/l	0.05	ISO 17025	0.09				
Nickel (dissolved)	µg/l	0.5	ISO 17025	1.6				
Selenium (dissolved)	µg/l	0.6	ISO 17025	1.7				
Vanadium (dissolved)	µg/l	0.2	ISO 17025	< 0.2				
Zinc (dissolved)	µg/l	0.5	ISO 17025	1.9				



Analytical Report Number: 16-15181

Project / Site name: Wrexham

Your Order No: HC-15016-29180

Lab Sample Number				559942				
Sample Reference				MW4				
Sample Number				None Supplied				
Depth (m)				None Supplied				
Date Sampled				07/04/2016				
Time Taken				None Supplied				
Analytical Parameter (Water Analysis)				Units	Limit of detection	Accreditation Status		

Monoaromatics

Benzene	µg/l	1	ISO 17025	< 1.0				
Toluene	µg/l	1	ISO 17025	< 1.0				
Ethylbenzene	µg/l	1	ISO 17025	< 1.0				
p & m-xylene	µg/l	1	ISO 17025	< 1.0				
o-xylene	µg/l	1	ISO 17025	< 1.0				
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0				

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >C5 - C6	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic >C6 - C8	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic >C8 - C10	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10				

TPH-CWG - Aromatic >C5 - C7	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic >C7 - C8	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic >C8 - C10	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	80				
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	20				
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	100				



Analytical Report Number: 16-15181

Project / Site name: Wrexham

Your Order No: HC-15016-29180

Lab Sample Number				559942				
Sample Reference				MW4				
Sample Number				None Supplied				
Depth (m)				None Supplied				
Date Sampled				07/04/2016				
Time Taken				None Supplied				
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					

VOCs

Chloromethane	µg/l	1	ISO 17025	< 1.0				
Chloroethane	µg/l	1	ISO 17025	< 1.0				
Bromomethane	µg/l	1	ISO 17025	< 1.0				
Vinyl Chloride	µg/l	1	NONE	< 1.0				
Trichlorofluoromethane	µg/l	1	NONE	< 1.0				
1,1-dichloroethene	µg/l	1	ISO 17025	< 1.0				
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/l	1	ISO 17025	< 1.0				
Cis-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0				
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0				
1,1-dichloroethane	µg/l	1	ISO 17025	< 1.0				
2,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0				
Trichloromethane	µg/l	1	ISO 17025	< 1.0				
1,1,1-Trichloroethane	µg/l	1	ISO 17025	< 1.0				
1,2-dichloroethane	µg/l	1	ISO 17025	< 1.0				
1,1-Dichloropropene	µg/l	1	ISO 17025	< 1.0				
Trans-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0				
Benzene	µg/l	1	ISO 17025	< 1.0				
Tetrachloromethane	µg/l	1	ISO 17025	< 1.0				
1,2-dichloropropane	µg/l	1	ISO 17025	< 1.0				
Trichloroethene	µg/l	1	ISO 17025	< 1.0				
Dibromomethane	µg/l	1	ISO 17025	< 1.0				
Bromodichloromethane	µg/l	1	ISO 17025	< 1.0				
Cis-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0				
Trans-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0				
Toluene	µg/l	1	ISO 17025	< 1.0				
1,1,2-Trichloroethane	µg/l	1	ISO 17025	< 1.0				
1,3-Dichloropropane	µg/l	1	ISO 17025	< 1.0				
Dibromochloromethane	µg/l	1	ISO 17025	< 1.0				
Tetrachloroethene	µg/l	1	ISO 17025	< 1.0				
1,2-Dibromoethane	µg/l	1	ISO 17025	< 1.0				
Chlorobenzene	µg/l	1	ISO 17025	< 1.0				
1,1,1,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0				
Ethylbenzene	µg/l	1	ISO 17025	< 1.0				
p & m-xylene	µg/l	1	ISO 17025	< 1.0				
Styrene	µg/l	1	ISO 17025	< 1.0				
Tribromomethane	µg/l	1	ISO 17025	< 1.0				
o-xylene	µg/l	1	ISO 17025	< 1.0				
1,1,2,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0				
Isopropylbenzene	µg/l	1	ISO 17025	< 1.0				
Bromobenzene	µg/l	1	ISO 17025	< 1.0				
N-Propylbenzene	µg/l	1	ISO 17025	< 1.0				
2-Chlorotoluene	µg/l	1	ISO 17025	< 1.0				
4-Chlorotoluene	µg/l	1	ISO 17025	< 1.0				
1,3,5-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0				
Tert-Butylbenzene	µg/l	1	ISO 17025	< 1.0				
1,2,4-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0				
Sec-Butylbenzene	µg/l	1	ISO 17025	< 1.0				
1,3-dichlorobenzene	µg/l	1	ISO 17025	< 1.0				
P-Isopropyltoluene	µg/l	1	ISO 17025	< 1.0				
1,2-dichlorobenzene	µg/l	1	ISO 17025	< 1.0				
1,4-dichlorobenzene	µg/l	1	ISO 17025	< 1.0				
Butylbenzene	µg/l	1	ISO 17025	< 1.0				
1,2-Dibromo-3-chloropropane	µg/l	1	ISO 17025	< 1.0				
1,2,4-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0				
Hexachlorobutadiene	µg/l	1	ISO 17025	< 1.0				
1,2,3-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0				

U/S = Unsuitable Sample I/S = Insufficient Sample

Iss No 16-15181-1 Wrexham HC15016

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The results included within the report are representative of the samples submitted for analysis.

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Analytical Report Number : 16-15181

Project / Site name: Wrexham

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Ammonium as NH ₄ in water	Determination of Ammonium/Ammonia/Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method. Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	ISO 17025
Biological oxygen demand of water	Determination of biochemical oxygen demand in water (5 days). Accredited matrices: SW, PW, GW.	In-house method based on standard method 5210B. Samples received > 24 hrs after sampling, data may not be valid and should be interpreted with care.	L086-PL	W	ISO 17025
Boron in water	Determination of boron in water by acidification followed by ICP-OES. Accredited matrices: SW PW GW	In-house method based on MEWAM	L039-PL	W	ISO 17025
BTEX and MTBE in water (Monoaromatics)	Determination of BTEX and MTBE in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Chemical Oxygen Demand in Water (Total)	Determination of total COD in water by reflux oxidation with acidified K ₂ Cr ₂ O ₇ followed by colorimetry. Accredited matrices: SW, PW, GW.	HACH DR/890 Colorimeter Procedures Manual (48470-22) (Ref 0170.2)	L065-PL	W	ISO 17025
Hexavalent chromium in water	Determination of hexavalent chromium in water by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method by continuous flow analyser. Accredited Matrices SW, GW, PW.	L080-PL	W	ISO 17025
Metals in water by ICP-MS (dissolved)	Determination of metals in water by acidification followed by ICP-MS. Accredited Matrices: SW, GW, PW except B=SW,GW, Hg=SW,PW, Al=SW,PW.	In-house method based on USEPA Method 6020 & 200.8 "for the determination of trace elements in water by ICP-MS.	L012-PL	W	ISO 17025
Monohydric phenols in water	Determination of phenols in water by continuous flow analyser. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	ISO 17025
pH in water	Determination of pH in water by electrometric measurement. Accredited matrices: SW PW GW	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	W	ISO 17025
Speciated EPA-16 PAHs in water	Determination of PAH compounds in water by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L0102B-PL	W	NONE
Suspended solids in water	Determined gravimetrically with GFC filtration papers.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L004-PL	W	NONE
Total cyanide in water	Determination of total cyanide by distillation followed by colorimetry. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	ISO 17025
TPHCWG (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.	In-house method	L070-PL	W	NONE
Volatile organic compounds in water	Determination of volatile organic compounds in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 300°C.

Sample ID	Other_ID	Sample Type	Job	Sample Number	Sample Deviation Code	test_name	test_ref	Test Deviation code
Downstream		W	16-15181	559938	c	Ammoniacal Nitrogen as N in water	L082-PL	c
Downstream		W	16-15181	559938	c	Ammonium as NH4 in water	L082-PL	c
Downstream		W	16-15181	559938	c	Biological oxygen demand of water	L086-PL	c
Downstream		W	16-15181	559938	c	Settleable Solids in water	L004-PL	c
Downstream		W	16-15181	559938	c	Suspended solids in water	L004-PL	c
Downstream		W	16-15181	559938	c	pH in water	L005-PL	c
MW1		W	16-15181	559939	c	Ammoniacal Nitrogen as N in water	L082-PL	c
MW1		W	16-15181	559939	c	Ammonium as NH4 in water	L082-PL	c
MW1		W	16-15181	559939	c	Biological oxygen demand of water	L086-PL	c
MW1		W	16-15181	559939	c	Settleable Solids in water	L004-PL	c
MW1		W	16-15181	559939	c	Suspended solids in water	L004-PL	c
MW1		W	16-15181	559939	c	pH in water	L005-PL	c
MW2		W	16-15181	559940	c	Ammoniacal Nitrogen as N in water	L082-PL	c
MW2		W	16-15181	559940	c	Ammonium as NH4 in water	L082-PL	c
MW2		W	16-15181	559940	c	Biological oxygen demand of water	L086-PL	c
MW2		W	16-15181	559940	c	Settleable Solids in water	L004-PL	c
MW2		W	16-15181	559940	c	Suspended solids in water	L004-PL	c
MW2		W	16-15181	559940	c	pH in water	L005-PL	c
MW3		W	16-15181	559941	c	Ammoniacal Nitrogen as N in water	L082-PL	c
MW3		W	16-15181	559941	c	Ammonium as NH4 in water	L082-PL	c
MW3		W	16-15181	559941	c	Biological oxygen demand of water	L086-PL	c
MW3		W	16-15181	559941	c	Settleable Solids in water	L004-PL	c
MW3		W	16-15181	559941	c	Suspended solids in water	L004-PL	c
MW3		W	16-15181	559941	c	pH in water	L005-PL	c
MW4		W	16-15181	559942	c	Ammoniacal Nitrogen as N in water	L082-PL	c
MW4		W	16-15181	559942	c	Ammonium as NH4 in water	L082-PL	c
MW4		W	16-15181	559942	c	Biological oxygen demand of water	L086-PL	c
MW4		W	16-15181	559942	c	Settleable Solids in water	L004-PL	c
MW4		W	16-15181	559942	c	Suspended solids in water	L004-PL	c
MW4		W	16-15181	559942	c	pH in water	L005-PL	c
Upstream		W	16-15181	559937	c	Ammoniacal Nitrogen as N in water	L082-PL	c
Upstream		W	16-15181	559937	c	Ammonium as NH4 in water	L082-PL	c
Upstream		W	16-15181	559937	c	Biological oxygen demand of water	L086-PL	c
Upstream		W	16-15181	559937	c	Settleable Solids in water	L004-PL	c
Upstream		W	16-15181	559937	c	Suspended solids in water	L004-PL	c
Upstream		W	16-15181	559937	c	pH in water	L005-PL	c

**Harry Russell**

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Analytical Report Number : 16-11753

Project / Site name:	Wrexham	Samples received on:	24/02/2016
Your job number:	HC15016	Samples instructed on:	24/02/2016
Your order number:	HC15016-29180	Analysis completed by:	01/03/2016
Report Issue Number:	1	Report issued on:	01/03/2016
Samples Analysed:	6 water samples		

Signed:

Rexona Rahman
Reporting Manager
For & on behalf of i2 Analytical Ltd.

Signed:

Dr Irma Doyle
Assistant Quality Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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Analytical Report Number: 16-11753

Project / Site name: Wrexham

Your Order No: HC15016-29180

Lab Sample Number	540210	540211	540212	540213	540214
Sample Reference	Upstream	Downstream	MW1	MW2	MW3
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled	22/02/2016	22/02/2016	22/02/2016	22/02/2016	22/02/2016
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status		

General Inorganics

pH	pH Units	N/A	ISO 17025	8.0	8.1	11.7	8.2	7.7
Total Cyanide	µg/l	10	ISO 17025	< 10	< 10	23	23	21
Ammonium as NH ₄	µg/l	15	ISO 17025	180	160	1100	1600	20000
Chemical Oxygen Demand (Total)	mg/l	2	ISO 17025	10	9.2	29	20	46
BOD (Biochemical Oxygen Demand)	mg/l	1	ISO 17025	2.0	1.6	2.4	2.8	14
Total Suspended Solids	mg/l	2	NONE	6.0	16	460	320	7.0

Speciated PAHs

Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	33.7	1.14	4470
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	4.78	11.3	548
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	5.40	6.88	105
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	5.29	18.9	272
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	5.60	11.8	169
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	1.80	4.23	44.2
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	3.02	5.10	31.3
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	2.43	4.00	23.0
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	0.68	1.32	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	0.87	1.16	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	0.37	0.84	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	0.21	0.38	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	0.33	0.67	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01

Total PAH

Total EPA-16 PAHs	µg/l	0.16	NONE	< 0.16	< 0.16	64.5	67.7	5660
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Analytical Report Number: 16-11753

Project / Site name: Wrexham

Your Order No: HC15016-29180

Lab Sample Number	540210	540211	540212	540213	540214
Sample Reference	Upstream	Downstream	MW1	MW2	MW3
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled	22/02/2016	22/02/2016	22/02/2016	22/02/2016	22/02/2016
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status		

Heavy Metals / Metalloids

Arsenic (dissolved)	µg/l	0.15	ISO 17025	0.30	0.20	1.38	0.60	1.71
Beryllium (dissolved)	µg/l	0.1	ISO 17025	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Boron (dissolved)	µg/l	10	ISO 17025	46	46	110	89	76
Cadmium (dissolved)	µg/l	0.02	ISO 17025	0.05	< 0.02	< 0.02	0.03	< 0.02
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chromium (dissolved)	µg/l	0.2	ISO 17025	0.9	0.6	0.6	< 0.2	< 0.2
Copper (dissolved)	µg/l	0.5	ISO 17025	4.5	3.1	5.0	1.5	1.8
Lead (dissolved)	µg/l	0.2	ISO 17025	5.5	0.9	2.4	0.2	0.3
Manganese (dissolved)	µg/l	0.05	ISO 17025	50	15	1.4	72	760
Mercury (dissolved)	µg/l	0.05	ISO 17025	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Nickel (dissolved)	µg/l	0.5	ISO 17025	4.0	2.1	7.1	9.7	42
Selenium (dissolved)	µg/l	0.6	ISO 17025	< 0.6	< 0.6	4.3	5.6	4.5
Vanadium (dissolved)	µg/l	0.2	ISO 17025	0.5	0.3	1.3	0.3	< 0.2
Zinc (dissolved)	µg/l	0.5	ISO 17025	9.8	2.9	0.8	3.2	2.4

Monoaromatics

Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	32.9	458
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	6.7	81.8
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	5.2
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	5.4	35.1
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	5.3	55.2
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >C5 - C6	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C6 - C8	µg/l	10	NONE	< 10	< 10	< 10	< 10	10
TPH-CWG - Aliphatic >C8 - C10	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10	< 10	10

TPH-CWG - Aromatic >C5 - C7	µg/l	10	NONE	< 10	< 10	< 10	33	460
TPH-CWG - Aromatic >C7 - C8	µg/l	10	NONE	< 10	< 10	< 10	< 10	82
TPH-CWG - Aromatic >C8 - C10	µg/l	10	NONE	< 10	< 10	< 10	11	180
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10	< 10	190	150	10000
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10	< 10	160	210	6100
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10	< 10	180	25	270
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	540	420	17000



Analytical Report Number: 16-11753

Project / Site name: Wrexham

Your Order No: HC15016-29180

Lab Sample Number				540210	540211	540212	540213	540214
Sample Reference				Upstream	Downstream	MW1	MW2	MW3
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				22/02/2016	22/02/2016	22/02/2016	22/02/2016	22/02/2016
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)				Units	Limit of detection	Accreditation Status		

VOCs

Chloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl Chloride	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichlorofluoromethane	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cis-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-dichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-dichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trans-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	32.9	458
Tetrachloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromodichloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cis-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trans-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	6.7	81.8
1,1,2-Trichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromochloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromoethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	5.2
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	5.4	35.1
Styrene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tribromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	5.3	55.2
1,1,2,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Isopropylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	2.5
Bromobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
N-Propylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2-Chlorotoluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
4-Chlorotoluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3,5-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	5.9
Tert-Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	14.0
Sec-Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
P-Isopropyltoluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,4-dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromo-3-chloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Hexachlorobutadiene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

U/S = Unsuitable Sample I/S = Insufficient Sample

Iss No 16-11753-1 Wrexham HC15016

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The results included within the report are representative of the samples submitted for analysis.

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Analytical Report Number: 16-11753

Project / Site name: Wrexham

Your Order No: HC15016-29180

Lab Sample Number				540215				
Sample Reference				MW4				
Sample Number				None Supplied				
Depth (m)				None Supplied				
Date Sampled				22/02/2016				
Time Taken				None Supplied				
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					

General Inorganics

pH	pH Units	N/A	ISO 17025	7.8				
Total Cyanide	µg/l	10	ISO 17025	12				
Ammonium as NH ₄	µg/l	15	ISO 17025	530				
Chemical Oxygen Demand (Total)	mg/l	2	ISO 17025	18				
BOD (Biochemical Oxygen Demand)	mg/l	1	ISO 17025	3.2				
Total Suspended Solids	mg/l	2	NONE	7.0				

Speciated PAHs

Naphthalene	µg/l	0.01	ISO 17025	59.9				
Acenaphthylene	µg/l	0.01	ISO 17025	15.2				
Acenaphthene	µg/l	0.01	ISO 17025	108				
Fluorene	µg/l	0.01	ISO 17025	61.4				
Phenanthrene	µg/l	0.01	ISO 17025	85.9				
Anthracene	µg/l	0.01	ISO 17025	24.3				
Fluoranthene	µg/l	0.01	ISO 17025	16.4				
Pyrene	µg/l	0.01	ISO 17025	17.5				
Benzo(a)anthracene	µg/l	0.01	ISO 17025	4.90				
Chrysene	µg/l	0.01	ISO 17025	4.38				
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	2.37				
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	2.12				
Benzo(a)pyrene	µg/l	0.01	ISO 17025	2.24				
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01				
Dibenz(a,h)anthracene	µg/l	0.01	NONE	0.29				
Benzo(ghi)perylene	µg/l	0.01	NONE	0.90				

Total PAH

Total EPA-16 PAHs	µg/l	0.16	NONE	405				
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Analytical Report Number: 16-11753

Project / Site name: Wrexham

Your Order No: HC15016-29180

Lab Sample Number				540215				
Sample Reference				MW4				
Sample Number				None Supplied				
Depth (m)				None Supplied				
Date Sampled				22/02/2016				
Time Taken				None Supplied				
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					

Heavy Metals / Metalloids

Arsenic (dissolved)	µg/l	0.15	ISO 17025	0.50				
Beryllium (dissolved)	µg/l	0.1	ISO 17025	< 0.1				
Boron (dissolved)	µg/l	10	ISO 17025	120				
Cadmium (dissolved)	µg/l	0.02	ISO 17025	0.05				
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0				
Chromium (dissolved)	µg/l	0.2	ISO 17025	< 0.2				
Copper (dissolved)	µg/l	0.5	ISO 17025	2.3				
Lead (dissolved)	µg/l	0.2	ISO 17025	< 0.2				
Manganese (dissolved)	µg/l	0.05	ISO 17025	690				
Mercury (dissolved)	µg/l	0.05	ISO 17025	< 0.05				
Nickel (dissolved)	µg/l	0.5	ISO 17025	1.4				
Selenium (dissolved)	µg/l	0.6	ISO 17025	0.8				
Vanadium (dissolved)	µg/l	0.2	ISO 17025	< 0.2				
Zinc (dissolved)	µg/l	0.5	ISO 17025	1.4				

Monoaromatics

Benzene	µg/l	1	ISO 17025	< 1.0				
Toluene	µg/l	1	ISO 17025	< 1.0				
Ethylbenzene	µg/l	1	ISO 17025	< 1.0				
p & m-xylene	µg/l	1	ISO 17025	< 1.0				
o-xylene	µg/l	1	ISO 17025	< 1.0				
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0				

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >C5 - C6	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic >C6 - C8	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic >C8 - C10	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10				

TPH-CWG - Aromatic >C5 - C7	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic >C7 - C8	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic >C8 - C10	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	80				
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	820				
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	720				
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	220				
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	1800				



Analytical Report Number: 16-11753

Project / Site name: Wrexham

Your Order No: HC15016-29180

Lab Sample Number				540215				
Sample Reference				MW4				
Sample Number				None Supplied				
Depth (m)				None Supplied				
Date Sampled				22/02/2016				
Time Taken				None Supplied				
Analytical Parameter (Water Analysis)				Units	Limit of detection	Accreditation Status		

VOCs

Chloromethane	µg/l	1	ISO 17025	< 1.0				
Chloroethane	µg/l	1	ISO 17025	< 1.0				
Bromomethane	µg/l	1	ISO 17025	< 1.0				
Vinyl Chloride	µg/l	1	NONE	< 1.0				
Trichlorofluoromethane	µg/l	1	NONE	< 1.0				
1,1-dichloroethene	µg/l	1	ISO 17025	< 1.0				
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/l	1	ISO 17025	< 1.0				
Cis-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0				
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0				
1,1-dichloroethane	µg/l	1	ISO 17025	< 1.0				
2,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0				
Trichloromethane	µg/l	1	ISO 17025	< 1.0				
1,1,1-Trichloroethane	µg/l	1	ISO 17025	< 1.0				
1,2-dichloroethane	µg/l	1	ISO 17025	< 1.0				
1,1-Dichloropropene	µg/l	1	ISO 17025	< 1.0				
Trans-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0				
Benzene	µg/l	1	ISO 17025	< 1.0				
Tetrachloromethane	µg/l	1	ISO 17025	< 1.0				
1,2-dichloropropane	µg/l	1	ISO 17025	< 1.0				
Trichloroethene	µg/l	1	ISO 17025	< 1.0				
Dibromomethane	µg/l	1	ISO 17025	< 1.0				
Bromodichloromethane	µg/l	1	ISO 17025	< 1.0				
Cis-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0				
Trans-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0				
Toluene	µg/l	1	ISO 17025	< 1.0				
1,1,2-Trichloroethane	µg/l	1	ISO 17025	< 1.0				
1,3-Dichloropropane	µg/l	1	ISO 17025	< 1.0				
Dibromochloromethane	µg/l	1	ISO 17025	< 1.0				
Tetrachloroethene	µg/l	1	ISO 17025	< 1.0				
1,2-Dibromoethane	µg/l	1	ISO 17025	< 1.0				
Chlorobenzene	µg/l	1	ISO 17025	< 1.0				
1,1,1,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0				
Ethylbenzene	µg/l	1	ISO 17025	< 1.0				
p & m-xylene	µg/l	1	ISO 17025	< 1.0				
Styrene	µg/l	1	ISO 17025	< 1.0				
Tribromomethane	µg/l	1	ISO 17025	< 1.0				
o-xylene	µg/l	1	ISO 17025	< 1.0				
1,1,2,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0				
Isopropylbenzene	µg/l	1	ISO 17025	< 1.0				
Bromobenzene	µg/l	1	ISO 17025	< 1.0				
N-Propylbenzene	µg/l	1	ISO 17025	< 1.0				
2-Chlorotoluene	µg/l	1	ISO 17025	< 1.0				
4-Chlorotoluene	µg/l	1	ISO 17025	< 1.0				
1,3,5-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0				
Tert-Butylbenzene	µg/l	1	ISO 17025	< 1.0				
1,2,4-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0				
Sec-Butylbenzene	µg/l	1	ISO 17025	< 1.0				
1,3-dichlorobenzene	µg/l	1	ISO 17025	< 1.0				
P-Isopropyltoluene	µg/l	1	ISO 17025	< 1.0				
1,2-dichlorobenzene	µg/l	1	ISO 17025	< 1.0				
1,4-dichlorobenzene	µg/l	1	ISO 17025	< 1.0				
Butylbenzene	µg/l	1	ISO 17025	< 1.0				
1,2-Dibromo-3-chloropropane	µg/l	1	ISO 17025	< 1.0				
1,2,4-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0				
Hexachlorobutadiene	µg/l	1	ISO 17025	< 1.0				
1,2,3-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0				

U/S = Unsuitable Sample I/S = Insufficient Sample

Iss No 16-11753-1 Wrexham HC15016

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The results included within the report are representative of the samples submitted for analysis.

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Analytical Report Number : 16-11753

Project / Site name: Wrexham

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Ammonium as NH ₄ in water	Determination of Ammonium/Ammonia/Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method. Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	ISO 17025
Biological oxygen demand of water	Determination of biochemical oxygen demand in water (5 days). Accredited matrices: SW, PW, GW.	In-house method based on standard method 5210B. Samples received > 24 hrs after sampling, data may not be valid and should be interpreted with care.	L086-PL	W	ISO 17025
Boron in water	Determination of boron by acidification followed by ICP-OES. Accredited matrices: SW PW GW	In-house method based on MEWAM	L039-PL	W	ISO 17025
BTEX and MTBE in water (Monoaromatics)	Determination of BTEX and MTBE in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Chemical Oxygen Demand in Water (Total)	Determination of total COD in water by reflux oxidation with acidified K ₂ Cr ₂ O ₇ followed by colorimetry. Accredited matrices: SW, PW, GW.	HACH DR/890 Colorimeter Procedures Manual (48470-22) (Ref 0170.2)	L065-PL	W	ISO 17025
Hexavalent chromium in water	Determination of hexavalent chromium in water by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method by continuous flow analyser. Accredited Matrices SW, GW, PW.	L080-PL	W	ISO 17025
Metals in water by ICP-MS (dissolved)	Determination of metals in water by acidification followed by ICP-MS. Accredited Matrices: SW, GW, PW except B=SW,GW, Hg=SW,PW, Al=SW,PW.	In-house method based on USEPA Method 6020 & 200.8 "for the determination of trace elements in water by ICP-MS.	L012-PL	W	ISO 17025
Monohydric phenols in water	Determination of phenols in water by continuous flow analyser. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	ISO 17025
pH in water	Determination of pH in water by electrometric measurement. Accredited matrices: SW PW GW	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	W	ISO 17025
Speciated EPA-16 PAHs in water	Determination of PAH compounds in water by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L0102B-PL	W	NONE
Suspended solids in water	Determined gravimetrically with GFC filtration papers.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L004-PL	W	NONE
Total cyanide in water	Determination of total cyanide by distillation followed by colorimetry. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	ISO 17025
TPHCWG (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.	In-house method	L070-UK	W	NONE
Volatile organic compounds in water	Determination of volatile organic compounds in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30°C.

**Harry Russell**

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Analytical Report Number : 16-10235

Project / Site name: Wrexham

Samples received on: 03/02/2016

Your job number: HC15016

Samples instructed on: 03/02/2016

Your order number: HC15016-29180

Analysis completed by: 09/02/2016

Report Issue Number: 1

Report issued on: 09/02/2016

Samples Analysed: 6 water samples

Signed:

Rexona Rahman
Reporting Manager
For & on behalf of i2 Analytical Ltd.

Signed:

Emma Winter
Assistant Reporting Manager
For & on behalf of i2 Analytical Ltd.

Other office located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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Analytical Report Number: 16-10235

Project / Site name: Wrexham

Your Order No: HC15016-29180

Lab Sample Number	531629	531630	531631	531632	531633
Sample Reference	Upstream	Downstream	MW1	MW2	MW3
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled	28/01/2016	28/01/2016	28/01/2016	28/01/2016	28/01/2016
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status		

General Inorganics

pH	pH Units	N/A	ISO 17025	8.0	8.0	10.9	7.9	7.5
Total Cyanide	µg/l	10	ISO 17025	< 10	< 10	21	24	27
Ammonium as NH ₄	µg/l	15	ISO 17025	270	170	690	2600	19000
Chemical Oxygen Demand (Total)	mg/l	2	ISO 17025	16	11	21	23	54
BOD (Biochemical Oxygen Demand)	mg/l	1	ISO 17025	1.3	1.6	< 1.0	2.6	7.9
Total Suspended Solids	mg/l	2	NONE	15	6.0	7.0	5.0	6.0

Speciated PAHs

Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	406
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	1.04	17.2	136
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	1.51	5.22	24.2
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	0.63	12.5	52.7
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	8.54	27.6
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	1.89	6.52
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	0.43	1.63	6.33
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	0.39	1.14	3.85
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01

Total PAH

Total EPA-16 PAHs	µg/l	0.16	NONE	< 0.16	< 0.16	4.00	48.1	663
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Heavy Metals / Metalloids

Arsenic (dissolved)	µg/l	0.15	ISO 17025	0.40	0.20	0.89	0.57	1.27
Beryllium (dissolved)	µg/l	0.1	ISO 17025	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Boron (dissolved)	µg/l	10	ISO 17025	51	52	50	39	70
Cadmium (dissolved)	µg/l	0.02	ISO 17025	0.02	0.04	< 0.02	0.03	0.03
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chromium (dissolved)	µg/l	0.2	ISO 17025	1.2	0.9	0.5	< 0.2	0.2
Copper (dissolved)	µg/l	0.5	ISO 17025	3.1	4.6	3.4	2.6	2.8
Lead (dissolved)	µg/l	0.2	ISO 17025	1.3	0.5	0.4	0.2	0.5
Manganese (dissolved)	µg/l	0.05	ISO 17025	24	12	0.71	99	630
Mercury (dissolved)	µg/l	0.05	ISO 17025	0.30	0.22	0.21	0.15	0.45
Nickel (dissolved)	µg/l	0.5	ISO 17025	2.3	1.8	2.8	16	29
Selenium (dissolved)	µg/l	0.6	ISO 17025	0.7	1.1	4.8	5.3	6.0
Vanadium (dissolved)	µg/l	0.2	ISO 17025	0.4	0.4	1.2	0.3	< 0.2
Zinc (dissolved)	µg/l	0.5	ISO 17025	5.5	5.9	< 0.5	1.2	2.7



Analytical Report Number: 16-10235

Project / Site name: Wrexham

Your Order No: HC15016-29180

Lab Sample Number				531629	531630	531631	531632	531633
Sample Reference				Upstream	Downstream	MW1	MW2	MW3
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				28/01/2016	28/01/2016	28/01/2016	28/01/2016	28/01/2016
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)				Units	Limit of detection	Accreditation Status		

Monoaromatics

Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	50.0	387
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	6.4	18.5
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	18.6	24.5
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	23.6	50.8
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >C5 - C6	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C6 - C8	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C8 - C10	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10

TPH-CWG - Aromatic >C5 - C7	µg/l	10	NONE	< 10	< 10	< 10	50	390
TPH-CWG - Aromatic >C7 - C8	µg/l	10	NONE	< 10	< 10	< 10	< 10	19
TPH-CWG - Aromatic >C8 - C10	µg/l	10	NONE	< 10	< 10	< 10	46	110
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10	210	580
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10	410	3000
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10	270	730
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10	990	4800



Analytical Report Number: 16-10235

Project / Site name: Wrexham

Your Order No: HC15016-29180

Lab Sample Number				531629	531630	531631	531632	531633
Sample Reference				Upstream	Downstream	MW1	MW2	MW3
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				28/01/2016	28/01/2016	28/01/2016	28/01/2016	28/01/2016
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					

VOCs

Chloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl Chloride	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichlorofluoromethane	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cis-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-dichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-dichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trans-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	50.0	387
Tetrachloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromodichloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cis-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trans-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	6.4	18.5
1,1,2-Trichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromochloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromoethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	18.6	24.5
Styrene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tribromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	23.6	50.8
1,1,2,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Isopropylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	2.7
Bromobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
N-Propylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2-Chlorotoluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
4-Chlorotoluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3,5-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	1.8	2.4
Tert-Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	2.2	5.2
Sec-Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
P-Isopropyltoluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,4-dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromo-3-chloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Hexachlorobutadiene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

U/S = Unsuitable Sample I/S = Insufficient Sample

Iss No 16-10235-1 Wrexham HC15016

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The results included within the report are representative of the samples submitted for analysis.

Page 4 of 8



Analytical Report Number: 16-10235

Project / Site name: Wrexham

Your Order No: HC15016-29180

Lab Sample Number				531634				
Sample Reference				MW4				
Sample Number				None Supplied				
Depth (m)				None Supplied				
Date Sampled				28/01/2016				
Time Taken				None Supplied				
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					

General Inorganics

pH	pH Units	N/A	ISO 17025	7.7				
Total Cyanide	µg/l	10	ISO 17025	12				
Ammonium as NH ₄	µg/l	15	ISO 17025	620				
Chemical Oxygen Demand (Total)	mg/l	2	ISO 17025	34				
BOD (Biochemical Oxygen Demand)	mg/l	1	ISO 17025	< 1.0				
Total Suspended Solids	mg/l	2	NONE	7.0				

Speciated PAHs

Naphthalene	µg/l	0.01	ISO 17025	20.6				
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01				
Acenaphthene	µg/l	0.01	ISO 17025	114				
Fluorene	µg/l	0.01	ISO 17025	57.4				
Phenanthrene	µg/l	0.01	ISO 17025	62.9				
Anthracene	µg/l	0.01	ISO 17025	18.6				
Fluoranthene	µg/l	0.01	ISO 17025	6.84				
Pyrene	µg/l	0.01	ISO 17025	6.62				
Benzo(a)anthracene	µg/l	0.01	ISO 17025	1.31				
Chrysene	µg/l	0.01	ISO 17025	1.17				
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01				
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01				
Benzo(a)pyrene	µg/l	0.01	ISO 17025	0.41				
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01				
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01				
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01				

Total PAH

Total EPA-16 PAHs	µg/l	0.16	NONE	290				
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Heavy Metals / Metalloids

Arsenic (dissolved)	µg/l	0.15	ISO 17025	1.29				
Beryllium (dissolved)	µg/l	0.1	ISO 17025	< 0.1				
Boron (dissolved)	µg/l	10	ISO 17025	110				
Cadmium (dissolved)	µg/l	0.02	ISO 17025	0.06				
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0				
Chromium (dissolved)	µg/l	0.2	ISO 17025	< 0.2				
Copper (dissolved)	µg/l	0.5	ISO 17025	1.7				
Lead (dissolved)	µg/l	0.2	ISO 17025	< 0.2				
Manganese (dissolved)	µg/l	0.05	ISO 17025	700				
Mercury (dissolved)	µg/l	0.05	ISO 17025	0.26				
Nickel (dissolved)	µg/l	0.5	ISO 17025	0.8				
Selenium (dissolved)	µg/l	0.6	ISO 17025	< 0.6				
Vanadium (dissolved)	µg/l	0.2	ISO 17025	< 0.2				
Zinc (dissolved)	µg/l	0.5	ISO 17025	1.6				



Analytical Report Number: 16-10235

Project / Site name: Wrexham

Your Order No: HC15016-29180

Lab Sample Number				531634				
Sample Reference				MW4				
Sample Number				None Supplied				
Depth (m)				None Supplied				
Date Sampled				28/01/2016				
Time Taken				None Supplied				
Analytical Parameter (Water Analysis)				Units	Limit of detection	Accreditation Status		

Monoaromatics

Benzene	µg/l	1	ISO 17025	< 1.0				
Toluene	µg/l	1	ISO 17025	< 1.0				
Ethylbenzene	µg/l	1	ISO 17025	< 1.0				
p & m-xylene	µg/l	1	ISO 17025	< 1.0				
o-xylene	µg/l	1	ISO 17025	2.3				
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0				

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >C5 - C6	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic >C6 - C8	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic >C8 - C10	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10				

TPH-CWG - Aromatic >C5 - C7	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic >C7 - C8	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic >C8 - C10	µg/l	10	NONE	18				
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	400				
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	6100				
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	3600				
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	180				
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	10000				



Analytical Report Number: 16-10235

Project / Site name: Wrexham

Your Order No: HC15016-29180

Lab Sample Number				531634				
Sample Reference				MW4				
Sample Number				None Supplied				
Depth (m)				None Supplied				
Date Sampled				28/01/2016				
Time Taken				None Supplied				
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					

VOCs

Chloromethane	µg/l	1	ISO 17025	< 1.0				
Chloroethane	µg/l	1	ISO 17025	< 1.0				
Bromomethane	µg/l	1	ISO 17025	< 1.0				
Vinyl Chloride	µg/l	1	NONE	< 1.0				
Trichlorofluoromethane	µg/l	1	NONE	< 1.0				
1,1-dichloroethene	µg/l	1	ISO 17025	< 1.0				
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/l	1	ISO 17025	< 1.0				
Cis-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0				
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0				
1,1-dichloroethane	µg/l	1	ISO 17025	< 1.0				
2,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0				
Trichloromethane	µg/l	1	ISO 17025	< 1.0				
1,1,1-Trichloroethane	µg/l	1	ISO 17025	< 1.0				
1,2-dichloroethane	µg/l	1	ISO 17025	< 1.0				
1,1-Dichloropropene	µg/l	1	ISO 17025	< 1.0				
Trans-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0				
Benzene	µg/l	1	ISO 17025	< 1.0				
Tetrachloromethane	µg/l	1	ISO 17025	< 1.0				
1,2-dichloropropane	µg/l	1	ISO 17025	< 1.0				
Trichloroethene	µg/l	1	ISO 17025	< 1.0				
Dibromomethane	µg/l	1	ISO 17025	< 1.0				
Bromodichloromethane	µg/l	1	ISO 17025	< 1.0				
Cis-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0				
Trans-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0				
Toluene	µg/l	1	ISO 17025	< 1.0				
1,1,2-Trichloroethane	µg/l	1	ISO 17025	< 1.0				
1,3-Dichloropropane	µg/l	1	ISO 17025	< 1.0				
Dibromochloromethane	µg/l	1	ISO 17025	< 1.0				
Tetrachloroethene	µg/l	1	ISO 17025	< 1.0				
1,2-Dibromoethane	µg/l	1	ISO 17025	< 1.0				
Chlorobenzene	µg/l	1	ISO 17025	< 1.0				
1,1,1,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0				
Ethylbenzene	µg/l	1	ISO 17025	< 1.0				
p & m-xylene	µg/l	1	ISO 17025	< 1.0				
Styrene	µg/l	1	ISO 17025	< 1.0				
Tribromomethane	µg/l	1	ISO 17025	< 1.0				
o-xylene	µg/l	1	ISO 17025	2.3				
1,1,2,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0				
Isopropylbenzene	µg/l	1	ISO 17025	< 1.0				
Bromobenzene	µg/l	1	ISO 17025	< 1.0				
N-Propylbenzene	µg/l	1	ISO 17025	< 1.0				
2-Chlorotoluene	µg/l	1	ISO 17025	< 1.0				
4-Chlorotoluene	µg/l	1	ISO 17025	< 1.0				
1,3,5-Trimethylbenzene	µg/l	1	ISO 17025	2.2				
Tert-Butylbenzene	µg/l	1	ISO 17025	< 1.0				
1,2,4-Trimethylbenzene	µg/l	1	ISO 17025	3.3				
Sec-Butylbenzene	µg/l	1	ISO 17025	< 1.0				
1,3-dichlorobenzene	µg/l	1	ISO 17025	< 1.0				
P-Isopropyltoluene	µg/l	1	ISO 17025	< 1.0				
1,2-dichlorobenzene	µg/l	1	ISO 17025	< 1.0				
1,4-dichlorobenzene	µg/l	1	ISO 17025	< 1.0				
Butylbenzene	µg/l	1	ISO 17025	< 1.0				
1,2-Dibromo-3-chloropropane	µg/l	1	ISO 17025	< 1.0				
1,2,4-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0				
Hexachlorobutadiene	µg/l	1	ISO 17025	< 1.0				
1,2,3-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0				

U/S = Unsuitable Sample I/S = Insufficient Sample

Iss No 16-10235-1 Wrexham HC15016

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The results included within the report are representative of the samples submitted for analysis.

Page 7 of 8



Analytical Report Number : 16-10235

Project / Site name: Wrexham

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Ammonium as NH ₄ in water	Determination of Ammonium/Ammonia/Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method. Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	ISO 17025
Biological oxygen demand of water	Determination of biochemical oxygen demand in water (5 days). Accredited matrices: SW, PW, GW.	In-house method based on standard method 5210B. Samples received > 24 hrs after sampling, data may not be valid and should be interpreted with care.	L086-PL	W	ISO 17025
Boron in water	Determination of boron by acidification followed by ICP-OES. Accredited matrices: SW PW GW	In-house method based on MEWAM	L039-PL	W	ISO 17025
BTEX and MTBE in water	Determination of BTEX and MTBE in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Chemical Oxygen Demand in Water (Total)	Determination of total COD in water by reflux oxidation with acidified K ₂ Cr ₂ O ₇ followed by colorimetry. Accredited matrices: SW, PW, GW.	HACH DR/890 Colorimeter Procedures Manual (48470-22) (Ref 0170.2)	L065-PL	W	ISO 17025
Hexavalent chromium in water	Determination of hexavalent chromium in water by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method by continuous flow analyser. Accredited Matrices SW, GW, PW.	L080-PL	W	ISO 17025
Metals in water by ICP-MS (dissolved)	Determination of metals in water by acidification followed by ICP-MS. Accredited Matrices: SW, GW, PW except B=SW,GW, Hg=SW,PW, Al=SW,PW.	In-house method based on USEPA Method 6020 & 200.8 "for the determination of trace elements in water by ICP-MS.	L012-PL	W	ISO 17025
Monohydric phenols in water	Determination of phenols in water by continuous flow analyser. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	ISO 17025
pH in water	Determination of pH in water by electrometric measurement. Accredited matrices: SW PW GW	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	W	ISO 17025
Speciated EPA-16 PAHs in water	Determination of PAH compounds in water by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L0102B-PL	W	NONE
Suspended solids in water	Determined gravimetrically with GFC filtration papers.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L004-PL	W	NONE
Total cyanide in water	Determination of total cyanide by distillation followed by colorimetry. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	ISO 17025
TPHCWG (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.	In-house method	L070-UK	W	NONE
Volatile organic compounds in water	Determination of volatile organic compounds in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

**Harry Russell**

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Analytical Report Number : 15-84550

Project / Site name:	Wrexham	Samples received on:	09/12/2015
Your job number:	HC15016	Samples instructed on:	15/12/2015
Your order number:	HC15016-29180	Analysis completed by:	22/12/2015
Report Issue Number:	1	Report issued on:	22/12/2015
Samples Analysed:	6 water samples		

Signed:

Rexona Rahman
Reporting Manager
For & on behalf of i2 Analytical Ltd.

Signed:

Dr Irma Doyle
Assistant Quality Manager
For & on behalf of i2 Analytical Ltd.

Other office located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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Analytical Report Number: 15-84550

Project / Site name: Wrexham

Your Order No: HC15016-29180

Lab Sample Number				517862	517863	517864	517865	517866
Sample Reference				Upstream	Downstream	MW1	MW2	MW3
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				08/12/2015	08/12/2015	08/12/2015	08/12/2015	08/12/2015
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					

General Inorganics

pH	pH Units	N/A	ISO 17025	7.4	7.7	11.2	8.5	8.1
Total Cyanide	µg/l	10	ISO 17025	< 10	< 10	49	120	140
Ammonium as NH ₄	µg/l	15	ISO 17025	230	140	940	7800	19000
Chemical Oxygen Demand (Total)	mg/l	2	ISO 17025	15	15	40	44	47
BOD (Biochemical Oxygen Demand)	mg/l	1	ISO 17025	1.1	4.8	< 1.0	6.3	4.0
Total Suspended Solids	mg/l	2	NONE	5.0	< 2.0	22	19	3.0

Speciated PAHs

Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	52.9	89.1
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	2.08	62.7	66.9
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	3.34	12.5	12.8
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	1.87	30.2	24.5
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	0.90	24.0	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	0.40	5.10	2.46
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	1.47	2.89	2.09
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	1.10	2.00	1.25
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01

Total PAH

Total EPA-16 PAHs	µg/l	0.16	NONE	< 0.16	< 0.16	11.2	192	199
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Heavy Metals / Metalloids

Arsenic (dissolved)	µg/l	0.15	ISO 17025	0.63	0.60	1.64	0.80	0.75
Beryllium (dissolved)	µg/l	0.1	ISO 17025	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Boron (dissolved)	µg/l	10	ISO 17025	49	48	49	49	82
Cadmium (dissolved)	µg/l	0.02	ISO 17025	0.03	0.05	< 0.02	< 0.02	0.05
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chromium (dissolved)	µg/l	0.2	ISO 17025	1.0	1.2	0.8	< 0.2	< 0.2
Copper (dissolved)	µg/l	0.5	ISO 17025	4.2	5.0	5.1	1.3	3.0
Lead (dissolved)	µg/l	0.2	ISO 17025	0.8	0.7	< 0.2	< 0.2	< 0.2
Manganese (dissolved)	µg/l	0.05	ISO 17025	6.8	6.1	0.46	280	490
Mercury (dissolved)	µg/l	0.05	ISO 17025	0.16	0.11	0.18	0.20	0.29
Nickel (dissolved)	µg/l	0.5	ISO 17025	2.2	2.6	6.1	19	62
Selenium (dissolved)	µg/l	0.6	ISO 17025	0.7	1.0	15	45	27
Vanadium (dissolved)	µg/l	0.2	ISO 17025	0.5	0.7	2.9	0.4	0.2
Zinc (dissolved)	µg/l	0.5	ISO 17025	6.7	3.8	0.7	2.8	3.1



Analytical Report Number: 15-84550

Project / Site name: Wrexham

Your Order No: HC15016-29180

Lab Sample Number				517862	517863	517864	517865	517866
Sample Reference				Upstream	Downstream	MW1	MW2	MW3
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				08/12/2015	08/12/2015	08/12/2015	08/12/2015	08/12/2015
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)				Units	Limit of detection	Accreditation Status		

Monoaromatics

Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	114	100
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	7.6	4.8
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	31.0	35.2
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	75.9	23.1
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >C5 - C6	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C6 - C8	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C8 - C10	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C5 - C7	µg/l	10	NONE	< 10	< 10	< 10	110	100
TPH-CWG - Aromatic >C7 - C8	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C8 - C10	µg/l	10	NONE	< 10	< 10	< 10	160	110
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10	200	150
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10	< 10	35	1300	960
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10	< 10	61	130	32
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	96	1900	1400



Analytical Report Number: 15-84550

Project / Site name: Wrexham

Your Order No: HC15016-29180

Lab Sample Number				517862	517863	517864	517865	517866
Sample Reference				Upstream	Downstream	MW1	MW2	MW3
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				08/12/2015	08/12/2015	08/12/2015	08/12/2015	08/12/2015
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					

VOCs

Chloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl Chloride	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichlorofluoromethane	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cis-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-dichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-dichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trans-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	114	100
Tetrachloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromodichloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cis-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trans-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	7.6	4.8
1,1,2-Trichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromochloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromoethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	31.0	35.2
Styrene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tribromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	75.9	23.1
1,1,2,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Isopropylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	1.2
Bromobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
N-Propylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2-Chlorotoluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
4-Chlorotoluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3,5-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	14.5	5.9
Tert-Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	12.3
Sec-Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
P-Isopropyltoluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,4-dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromo-3-chloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Hexachlorobutadiene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

U/S = Unsuitable Sample I/S = Insufficient Sample

Iss No 15-84550-1

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The results included within the report are representative of the samples submitted for analysis.

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Analytical Report Number: 15-84550

Project / Site name: Wrexham

Your Order No: HC15016-29180

Lab Sample Number				517867				
Sample Reference				MW4				
Sample Number				None Supplied				
Depth (m)				None Supplied				
Date Sampled				08/12/2015				
Time Taken				None Supplied				
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					

General Inorganics

pH	pH Units	N/A	ISO 17025	7.9				
Total Cyanide	µg/l	10	ISO 17025	14				
Ammonium as NH ₄	µg/l	15	ISO 17025	480				
Chemical Oxygen Demand (Total)	mg/l	2	ISO 17025	13				
BOD (Biochemical Oxygen Demand)	mg/l	1	ISO 17025	1.0				
Total Suspended Solids	mg/l	2	NONE	< 2.0				

Speciated PAHs

Naphthalene	µg/l	0.01	ISO 17025	< 0.01				
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01				
Acenaphthene	µg/l	0.01	ISO 17025	32.3				
Fluorene	µg/l	0.01	ISO 17025	17.4				
Phenanthrene	µg/l	0.01	ISO 17025	14.3				
Anthracene	µg/l	0.01	ISO 17025	3.98				
Fluoranthene	µg/l	0.01	ISO 17025	1.36				
Pyrene	µg/l	0.01	ISO 17025	1.60				
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01				
Chrysene	µg/l	0.01	ISO 17025	< 0.01				
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01				
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01				
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01				
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01				
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01				
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01				

Total PAH

Total EPA-16 PAHs	µg/l	0.16	NONE	70.9				
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Heavy Metals / Metalloids

Arsenic (dissolved)	µg/l	0.15	ISO 17025	0.43				
Beryllium (dissolved)	µg/l	0.1	ISO 17025	< 0.1				
Boron (dissolved)	µg/l	10	ISO 17025	130				
Cadmium (dissolved)	µg/l	0.02	ISO 17025	0.02				
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0				
Chromium (dissolved)	µg/l	0.2	ISO 17025	< 0.2				
Copper (dissolved)	µg/l	0.5	ISO 17025	2.8				
Lead (dissolved)	µg/l	0.2	ISO 17025	< 0.2				
Manganese (dissolved)	µg/l	0.05	ISO 17025	830				
Mercury (dissolved)	µg/l	0.05	ISO 17025	0.16				
Nickel (dissolved)	µg/l	0.5	ISO 17025	2.3				
Selenium (dissolved)	µg/l	0.6	ISO 17025	1.2				
Vanadium (dissolved)	µg/l	0.2	ISO 17025	< 0.2				
Zinc (dissolved)	µg/l	0.5	ISO 17025	0.8				



Analytical Report Number: 15-84550

Project / Site name: Wrexham

Your Order No: HC15016-29180

Lab Sample Number				517867				
Sample Reference				MW4				
Sample Number				None Supplied				
Depth (m)				None Supplied				
Date Sampled				08/12/2015				
Time Taken				None Supplied				
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					

Monoaromatics

Benzene	µg/l	1	ISO 17025	< 1.0				
Toluene	µg/l	1	ISO 17025	< 1.0				
Ethylbenzene	µg/l	1	ISO 17025	< 1.0				
p & m-xylene	µg/l	1	ISO 17025	< 1.0				
o-xylene	µg/l	1	ISO 17025	< 1.0				
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0				

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >C5 - C6	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic >C6 - C8	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic >C8 - C10	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic >C5 - C7	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic >C7 - C8	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic >C8 - C10	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	23				
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	340				
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	110				
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	470				



Analytical Report Number: 15-84550

Project / Site name: Wrexham

Your Order No: HC15016-29180

Lab Sample Number				517867				
Sample Reference				MW4				
Sample Number				None Supplied				
Depth (m)				None Supplied				
Date Sampled				08/12/2015				
Time Taken				None Supplied				
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					

VOCs

Chloromethane	µg/l	1	ISO 17025	< 1.0				
Chloroethane	µg/l	1	ISO 17025	< 1.0				
Bromomethane	µg/l	1	ISO 17025	< 1.0				
Vinyl Chloride	µg/l	1	NONE	< 1.0				
Trichlorofluoromethane	µg/l	1	NONE	< 1.0				
1,1-dichloroethene	µg/l	1	ISO 17025	< 1.0				
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/l	1	ISO 17025	< 1.0				
Cis-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0				
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0				
1,1-dichloroethane	µg/l	1	ISO 17025	< 1.0				
2,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0				
Trichloromethane	µg/l	1	ISO 17025	< 1.0				
1,1,1-Trichloroethane	µg/l	1	ISO 17025	< 1.0				
1,2-dichloroethane	µg/l	1	ISO 17025	< 1.0				
1,1-Dichloropropene	µg/l	1	ISO 17025	< 1.0				
Trans-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0				
Benzene	µg/l	1	ISO 17025	< 1.0				
Tetrachloromethane	µg/l	1	ISO 17025	< 1.0				
1,2-dichloropropane	µg/l	1	ISO 17025	< 1.0				
Trichloroethene	µg/l	1	ISO 17025	< 1.0				
Dibromomethane	µg/l	1	ISO 17025	< 1.0				
Bromodichloromethane	µg/l	1	ISO 17025	< 1.0				
Cis-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0				
Trans-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0				
Toluene	µg/l	1	ISO 17025	< 1.0				
1,1,2-Trichloroethane	µg/l	1	ISO 17025	< 1.0				
1,3-Dichloropropane	µg/l	1	ISO 17025	< 1.0				
Dibromochloromethane	µg/l	1	ISO 17025	< 1.0				
Tetrachloroethene	µg/l	1	ISO 17025	< 1.0				
1,2-Dibromoethane	µg/l	1	ISO 17025	< 1.0				
Chlorobenzene	µg/l	1	ISO 17025	< 1.0				
1,1,1,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0				
Ethylbenzene	µg/l	1	ISO 17025	< 1.0				
p & m-xylene	µg/l	1	ISO 17025	< 1.0				
Styrene	µg/l	1	ISO 17025	< 1.0				
Tribromomethane	µg/l	1	ISO 17025	< 1.0				
o-xylene	µg/l	1	ISO 17025	< 1.0				
1,1,2,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0				
Isopropylbenzene	µg/l	1	ISO 17025	< 1.0				
Bromobenzene	µg/l	1	ISO 17025	< 1.0				
N-Propylbenzene	µg/l	1	ISO 17025	< 1.0				
2-Chlorotoluene	µg/l	1	ISO 17025	< 1.0				
4-Chlorotoluene	µg/l	1	ISO 17025	< 1.0				
1,3,5-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0				
Tert-Butylbenzene	µg/l	1	ISO 17025	< 1.0				
1,2,4-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0				
Sec-Butylbenzene	µg/l	1	ISO 17025	< 1.0				
1,3-dichlorobenzene	µg/l	1	ISO 17025	< 1.0				
P-Isopropyltoluene	µg/l	1	ISO 17025	< 1.0				
1,2-dichlorobenzene	µg/l	1	ISO 17025	< 1.0				
1,4-dichlorobenzene	µg/l	1	ISO 17025	< 1.0				
Butylbenzene	µg/l	1	ISO 17025	< 1.0				
1,2-Dibromo-3-chloropropane	µg/l	1	ISO 17025	< 1.0				
1,2,4-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0				
Hexachlorobutadiene	µg/l	1	ISO 17025	< 1.0				
1,2,3-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0				

U/S = Unsuitable Sample I/S = Insufficient Sample

Iss No 15-84550-1

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Analytical Report Number : 15-84550

Project / Site name: Wrexham

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Ammonium as NH ₄ in water	Determination of Ammonium/Ammonia/Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method. Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	ISO 17025
Biological oxygen demand of water	Determination of biochemical oxygen demand in water (5 days). Accredited matrices: SW, PW, GW.	In-house method based on standard method 5210B. Samples received > 24 hrs after sampling, data may not be valid and should be interpreted with care.	L086-PL	W	ISO 17025
Boron in water	Determination of boron by acidification followed by ICP-OES. Accredited matrices: SW PW GW	In-house method based on MEWAM	L039-PL	W	ISO 17025
BTEX and MTBE in water	Determination of BTEX and MTBE in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Chemical Oxygen Demand in Water (Total)	Determination of total COD in water by reflux oxidation with acidified K ₂ Cr ₂ O ₇ followed by colorimetry. Accredited matrices: SW, PW, GW.	HACH DR/890 Colorimeter Procedures Manual (48470-22) (Ref 0170.2)	L065-PL	W	ISO 17025
Hexavalent chromium in water	Determination of hexavalent chromium in water by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method by continuous flow analyser. Accredited Matrices SW, GW, PW.	L080-PL	W	ISO 17025
Metals in water by ICP-MS (dissolved)	Determination of metals in water by acidification followed by ICP-MS. Accredited Matrices: SW, GW, PW except B=SW,GW, Hg=SW,PW, Al=SW,PW.	In-house method based on USEPA Method 6020 & 200.8 "for the determination of trace elements in water by ICP-MS.	L012-PL	W	ISO 17025
Monohydric phenols in water	Determination of phenols in water by continuous flow analyser. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	ISO 17025
pH in water	Determination of pH in water by electrometric measurement. Accredited matrices: SW PW GW	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	W	ISO 17025
Speciated EPA-16 PAHs in water	Determination of PAH compounds in water by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L0102B-PL	W	NONE
Suspended solids in water	Determined gravimetrically with GFC filtration papers.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L004-PL	W	NONE
Total cyanide in water	Determination of total cyanide by distillation followed by colorimetry. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	ISO 17025
TPHCWG (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.	In-house method	L070-UK	W	NONE
Volatile organic compounds in water	Determination of volatile organic compounds in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

**Harry Russell**

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Analytical Report Number : 15-82881

Project / Site name: Wrexham

Samples received on: 19/11/2015

Your job number: HC15016

Samples instructed on: 20/11/2015

Your order number: HC15016/29180

Analysis completed by: Not complete

Report Issue Number: 1

Report issued on: 27/11/2015

Samples Analysed: 6 water samples

Signed:

Rexona Rahman
Reporting Manager
For & on behalf of i2 Analytical Ltd.

Signed:

Emma Winter
Assistant Reporting Manager
For & on behalf of i2 Analytical Ltd.

Other office located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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Analytical Report Number: 15-82881

Project / Site name: Wrexham

Your Order No: HC15016/29180

Lab Sample Number				508671	508672	508673	508674	508675
Sample Reference				Upstream	Downstream	MW1	MW2	MW3
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				12/11/2015	12/11/2015	12/11/2015	12/11/2015	12/11/2015
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					

General Inorganics

pH	pH Units	N/A	ISO 17025	8.9	8.6	11.2	8.5	8.2
Total Cyanide	µg/l	10	ISO 17025	< 10	< 10	64	85	230
Ammonium as NH ₄	µg/l	15	ISO 17025	< 15	< 15	1300	11000	29000
Chemical Oxygen Demand (Total)	mg/l	2	ISO 17025	15	16	33	40	72
BOD (Biochemical Oxygen Demand)	mg/l	1	ISO 17025	< 1.0	1.4	< 1.0	2.9	8.5
Total Suspended Solids	mg/l	2	NONE	4.0	2.0	18	22	28

Speciated PAHs

Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	0.40	2.6	470
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	1.5	32	59
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	4.1	9.5	14
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	2.8	20	19
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	0.69	13	0.74
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	0.39	3.3	3.2
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	2.1	4.3	2.9
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	1.7	3.1	1.7
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	1.1	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	1.2	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	0.57	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	0.21	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	0.45	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01

Total PAH

Total EPA-16 PAHs	µg/l	0.2	ISO 17025	< 0.20	< 0.20	13.6	92.3	574
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Analytical Report Number: 15-82881

Project / Site name: Wrexham

Your Order No: HC15016/29180

Lab Sample Number	508671	508672	508673	508674	508675
Sample Reference	Upstream	Downstream	MW1	MW2	MW3
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled	12/11/2015	12/11/2015	12/11/2015	12/11/2015	12/11/2015
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status		

Heavy Metals / Metalloids

Arsenic (dissolved)	µg/l	0.15	ISO 17025	0.51	0.57	1.88	1.00	1.87
Beryllium (dissolved)	µg/l	0.1	ISO 17025	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Boron (dissolved)	µg/l	10	ISO 17025	58	56	37	70	92
Cadmium (dissolved)	µg/l	0.02	ISO 17025	< 0.02	0.03	0.03	0.05	0.08
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chromium (dissolved)	µg/l	0.2	ISO 17025	0.4	0.4	1.3	0.3	0.5
Copper (dissolved)	µg/l	0.5	ISO 17025	6.4	5.7	6.0	3.6	5.8
Lead (dissolved)	µg/l	0.2	ISO 17025	0.6	0.4	5.0	0.9	11
Manganese (dissolved)	µg/l	0.05	ISO 17025	14	10	1.4	450	690
Mercury (dissolved)	µg/l	0.05	ISO 17025	< 0.05	< 0.05	0.10	0.15	0.21
Nickel (dissolved)	µg/l	0.5	ISO 17025	4.4	4.5	13	27	39
Selenium (dissolved)	µg/l	0.6	ISO 17025	1.1	1.0	36	68	45
Vanadium (dissolved)	µg/l	0.2	ISO 17025	0.4	0.4	1.9	0.4	0.5
Zinc (dissolved)	µg/l	0.5	ISO 17025	4.1	5.7	0.9	3.5	5.6

Monoaromatics

Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	142	90.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	27.7	7.4
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	50.7	131
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	81.0	62.7
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >C5 - C6	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C6 - C8	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C8 - C10	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10

TPH-CWG - Aromatic >C5 - C7	µg/l	10	NONE	< 10	< 10	< 10	140	90
TPH-CWG - Aromatic >C7 - C8	µg/l	10	NONE	< 10	< 10	< 10	28	< 10
TPH-CWG - Aromatic >C8 - C10	µg/l	10	NONE	< 10	< 10	< 10	220	300
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10	88	800
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10	< 10	33	130	210
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10	24	< 10
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	33	630	1400



Analytical Report Number: 15-82881

Project / Site name: Wrexham

Your Order No: HC15016/29180

Lab Sample Number				508671	508672	508673	508674	508675
Sample Reference				Upstream	Downstream	MW1	MW2	MW3
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				12/11/2015	12/11/2015	12/11/2015	12/11/2015	12/11/2015
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)				Units	Limit of detection	Accreditation Status		

VOCs

Chloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl Chloride	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichlorofluoromethane	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cis-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-dichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-dichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trans-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	142	90.0
Tetrachloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromodichloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cis-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trans-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	27.7	7.4
1,1,2-Trichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromochloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromoethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	50.7	131
Styrene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tribromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	81.0	62.7
1,1,2,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Isopropylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
N-Propylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2-Chlorotoluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
4-Chlorotoluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3,5-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	20.7	13.6
Tert-Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	2.0	28.8
Sec-Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
P-Isopropyltoluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,4-dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromo-3-chloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Hexachlorobutadiene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

U/S = Unsuitable Sample I/S = Insufficient Sample

Iss No 15-82881-1

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The results included within the report are representative of the samples submitted for analysis.

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Analytical Report Number: 15-82881

Project / Site name: Wrexham

Your Order No: HC15016/29180

Lab Sample Number				508676				
Sample Reference				MW4				
Sample Number				None Supplied				
Depth (m)				None Supplied				
Date Sampled				12/11/2015				
Time Taken				None Supplied				
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					

General Inorganics

pH	pH Units	N/A	ISO 17025	7.9				
Total Cyanide	µg/l	10	ISO 17025	11				
Ammonium as NH ₄	µg/l	15	ISO 17025	220				
Chemical Oxygen Demand (Total)	mg/l	2	ISO 17025	42				
BOD (Biochemical Oxygen Demand)	mg/l	1	ISO 17025	6.7				
Total Suspended Solids	mg/l	2	NONE	6.0				

Speciated PAHs

Naphthalene	µg/l	0.01	ISO 17025	5.3				
Acenaphthylene	µg/l	0.01	ISO 17025	10				
Acenaphthene	µg/l	0.01	ISO 17025	190				
Fluorene	µg/l	0.01	ISO 17025	85				
Phenanthrene	µg/l	0.01	ISO 17025	92				
Anthracene	µg/l	0.01	ISO 17025	22				
Fluoranthene	µg/l	0.01	ISO 17025	11				
Pyrene	µg/l	0.01	ISO 17025	10				
Benzo(a)anthracene	µg/l	0.01	ISO 17025	2.1				
Chrysene	µg/l	0.01	ISO 17025	3.4				
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	0.98				
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	0.84				
Benzo(a)pyrene	µg/l	0.01	ISO 17025	0.94				
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01				
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01				
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01				

Total PAH

Total EPA-16 PAHs	µg/l	0.2	ISO 17025	432				
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Analytical Report Number: 15-82881

Project / Site name: Wrexham

Your Order No: HC15016/29180

Lab Sample Number				508676				
Sample Reference				MW4				
Sample Number				None Supplied				
Depth (m)				None Supplied				
Date Sampled				12/11/2015				
Time Taken				None Supplied				
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					

Heavy Metals / Metalloids

Arsenic (dissolved)	µg/l	0.15	ISO 17025	2.20				
Beryllium (dissolved)	µg/l	0.1	ISO 17025	< 0.1				
Boron (dissolved)	µg/l	10	ISO 17025	120				
Cadmium (dissolved)	µg/l	0.02	ISO 17025	0.05				
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0				
Chromium (dissolved)	µg/l	0.2	ISO 17025	0.3				
Copper (dissolved)	µg/l	0.5	ISO 17025	3.9				
Lead (dissolved)	µg/l	0.2	ISO 17025	0.3				
Manganese (dissolved)	µg/l	0.05	ISO 17025	710				
Mercury (dissolved)	µg/l	0.05	ISO 17025	0.05				
Nickel (dissolved)	µg/l	0.5	ISO 17025	4.1				
Selenium (dissolved)	µg/l	0.6	ISO 17025	1.4				
Vanadium (dissolved)	µg/l	0.2	ISO 17025	< 0.2				
Zinc (dissolved)	µg/l	0.5	ISO 17025	1.8				

Monoaromatics

Benzene	µg/l	1	ISO 17025	< 1.0				
Toluene	µg/l	1	ISO 17025	< 1.0				
Ethylbenzene	µg/l	1	ISO 17025	< 1.0				
p & m-xylene	µg/l	1	ISO 17025	< 1.0				
o-xylene	µg/l	1	ISO 17025	< 1.0				
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0				

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >C5 - C6	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic >C6 - C8	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic >C8 - C10	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10				

TPH-CWG - Aromatic >C5 - C7	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic >C7 - C8	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic >C8 - C10	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	1000				
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	2200				
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	210				
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	3400				



Analytical Report Number: 15-82881

Project / Site name: Wrexham

Your Order No: HC15016/29180

Lab Sample Number				508676				
Sample Reference				MW4				
Sample Number				None Supplied				
Depth (m)				None Supplied				
Date Sampled				12/11/2015				
Time Taken				None Supplied				
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					

VOCs

Chloromethane	µg/l	1	ISO 17025	< 1.0				
Chloroethane	µg/l	1	ISO 17025	< 1.0				
Bromomethane	µg/l	1	ISO 17025	< 1.0				
Vinyl Chloride	µg/l	1	NONE	< 1.0				
Trichlorofluoromethane	µg/l	1	NONE	< 1.0				
1,1-dichloroethene	µg/l	1	ISO 17025	< 1.0				
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/l	1	ISO 17025	< 1.0				
Cis-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0				
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0				
1,1-dichloroethane	µg/l	1	ISO 17025	< 1.0				
2,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0				
Trichloromethane	µg/l	1	ISO 17025	< 1.0				
1,1,1-Trichloroethane	µg/l	1	ISO 17025	< 1.0				
1,2-dichloroethane	µg/l	1	ISO 17025	< 1.0				
1,1-Dichloropropene	µg/l	1	ISO 17025	< 1.0				
Trans-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0				
Benzene	µg/l	1	ISO 17025	< 1.0				
Tetrachloromethane	µg/l	1	ISO 17025	< 1.0				
1,2-dichloropropane	µg/l	1	ISO 17025	< 1.0				
Trichloroethene	µg/l	1	ISO 17025	< 1.0				
Dibromomethane	µg/l	1	ISO 17025	< 1.0				
Bromodichloromethane	µg/l	1	ISO 17025	< 1.0				
Cis-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0				
Trans-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0				
Toluene	µg/l	1	ISO 17025	< 1.0				
1,1,2-Trichloroethane	µg/l	1	ISO 17025	< 1.0				
1,3-Dichloropropane	µg/l	1	ISO 17025	< 1.0				
Dibromochloromethane	µg/l	1	ISO 17025	< 1.0				
Tetrachloroethene	µg/l	1	ISO 17025	< 1.0				
1,2-Dibromoethane	µg/l	1	ISO 17025	< 1.0				
Chlorobenzene	µg/l	1	ISO 17025	< 1.0				
1,1,1,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0				
Ethylbenzene	µg/l	1	ISO 17025	< 1.0				
p & m-xylene	µg/l	1	ISO 17025	< 1.0				
Styrene	µg/l	1	ISO 17025	< 1.0				
Tribromomethane	µg/l	1	ISO 17025	< 1.0				
o-xylene	µg/l	1	ISO 17025	< 1.0				
1,1,2,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0				
Isopropylbenzene	µg/l	1	ISO 17025	< 1.0				
Bromobenzene	µg/l	1	ISO 17025	< 1.0				
N-Propylbenzene	µg/l	1	ISO 17025	< 1.0				
2-Chlorotoluene	µg/l	1	ISO 17025	< 1.0				
4-Chlorotoluene	µg/l	1	ISO 17025	< 1.0				
1,3,5-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0				
Tert-Butylbenzene	µg/l	1	ISO 17025	< 1.0				
1,2,4-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0				
Sec-Butylbenzene	µg/l	1	ISO 17025	< 1.0				
1,3-dichlorobenzene	µg/l	1	ISO 17025	< 1.0				
P-Isopropyltoluene	µg/l	1	ISO 17025	< 1.0				
1,2-dichlorobenzene	µg/l	1	ISO 17025	< 1.0				
1,4-dichlorobenzene	µg/l	1	ISO 17025	< 1.0				
Butylbenzene	µg/l	1	ISO 17025	< 1.0				
1,2-Dibromo-3-chloropropane	µg/l	1	ISO 17025	< 1.0				
1,2,4-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0				
Hexachlorobutadiene	µg/l	1	ISO 17025	< 1.0				
1,2,3-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0				

U/S = Unsuitable Sample I/S = Insufficient Sample

Iss No 15-82881-1

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The results included within the report are representative of the samples submitted for analysis.

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Analytical Report Number : 15-82881

Project / Site name: Wrexham

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Ammonium as NH ₄ in water	Determination of Ammonium/Ammonia/Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method. Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	ISO 17025
Biological oxygen demand of water	Determination of biochemical oxygen demand in water (5 days). Accredited matrices: SW, PW, GW.	In-house method based on standard method 5210B. Samples received > 24 hrs after sampling, data may not be valid and should be interpreted with care.	L086-PL	W	ISO 17025
Boron in water	Determination of boron by acidification followed by ICP-OES. Accredited matrices: SW PW GW	In-house method based on MEWAM	L039-PL	W	ISO 17025
BTEX and MTBE in water	Determination of BTEX and MTBE in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073W-PL	W	ISO 17025
BTEX in water	Determination of BTEX in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073W-PL	W	ISO 17025
Chemical Oxygen Demand in Water (Total)	Determination of total COD in water by reflux oxidation with acidified K ₂ Cr ₂ O ₇ followed by colorimetry. Accredited matrices: SW, PW, GW.	HACH DR/890 Colorimeter Procedures Manual (48470-22) (Ref 0170.2)	L065-PL	W	ISO 17025
Hexavalent chromium in water	Determination of hexavalent chromium in water by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method by continuous flow analyser. Accredited Matrices SW, GW, PW.	L080-PL	W	ISO 17025
Metals in water by ICP-MS (dissolved)	Determination of metals in water by acidification followed by ICP-MS. Accredited Matrices: SW, GW, PW except B=SW,GW, Hg=SW,PW, Al=SW,PW.	In-house method based on USEPA Method 6020 & 200.8 "for the determination of trace elements in water by ICP-MS.	L012-PL	W	ISO 17025
Monohydric phenols in water	Determination of phenols in water by continuous flow analyser. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	ISO 17025
pH in water	Determination of pH in water by electrometric measurement. Accredited matrices: SW PW GW	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	W	ISO 17025
Speciated EPA-16 PAHs in water	Determination of PAH compounds in water by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards. Accredited matrices: SW PW GW	In-house method based on USEPA 8270	L070-UK	W	ISO 17025
Suspended solids in water	Determined gravimetrically with GFC filtration papers.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L004-PL	W	NONE
Total cyanide in water	Determination of total cyanide by distillation followed by colorimetry. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	ISO 17025
TPHCWG (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.	In-house method	L070-UK	W	NONE
Volatile organic compounds in water	Determination of volatile organic compounds in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073W-PL	W	ISO 17025

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

**Mark Dodd**

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Analytical Report Number : 15-78732

Project / Site name:	Wrexham	Samples received on:	11/09/2015
Your job number:	HC15016	Samples instructed on:	11/09/2015
Your order number:	HC15016/29180	Analysis completed by:	21/09/2015
Report Issue Number:	1	Report issued on:	21/09/2015
Samples Analysed:	6 water samples		

Signed:

Rexona Rahman
Reporting Manager
For & on behalf of i2 Analytical Ltd.

Other office located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

Excel copies of reports are only valid when accompanied by this PDF certificate.

Signed:

Emma Winter
Assistant Reporting Manager
For & on behalf of i2 Analytical Ltd.

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting