Appendix H: Chapter 7 Technical Reports

Appendix H1: Groundwater Laboratory Analytical Certificates

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Analytical Report Number : 14-58890

Replaces Analytical Report Number : 14-58890, issue no. 1

Project / Site name:	WTPS ESIA	**Samples received on:**	18/08/2014
Your job number:		**Samples instructed on:**	21/08/2014
Your order number:		**Analysis completed by:**	29-08-2014
Report Issue Number:	2	**Report issued on:**	12/12/2014
Samples Analysed:	7 water samples		

Dariusz Piotrowski
V-ce Dyrektor ds. Technicznych

Signed:

Dariusz Piotrowski
Technical Manager
For & on behalf of i2 Analytical Ltd.

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Agnieszka Pietrowska
Kierownik ds. jakości

Signed:

Agnieszka Pietrowska
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For & on behalf of i2 Analytical Ltd.

Other office located at: Building 19,BRE,Garston, Watford, WD25 9XX

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

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

Analytical Report Number: 14-58890

Project / Site name: WTPS ESIA

Lab Sample Number			365817	365818	365819	365820
Sample Reference			BH01	BH02	BH03	BH04
Sample Number			None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)			None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled			14/08/2014	14/08/2014	14/08/2014	14/08/2014
Time Taken			None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**				
General Inorganics						
pH	pH Units	N/A	8.0	7.8	7.5	7.8
Electrical Conductivity	µS/cm	10	37000	120000	46000	59000
Salinity	ppt	2	26.2	> 42	33.4	> 42
Total Cyanide	µg/l	10	< 10	< 10	< 10	< 10
Complex Cyanide	µg/l	10	< 10	< 10	< 10	< 10
Free Cyanide	µg/l	10	< 10	< 10	< 10	< 10
Sulphate as SO_4	µg/l	45	1330000	2470000	1220000	3020000
Chloride	mg/l	0.15	11000	45000	24000	20000
Phosphate as PO_4	µg/l	62	< 62	< 62	< 62	< 62
Phosphate as P	µg/l	20	< 20	< 20	< 20	< 20
Ammonia as NH_3	µg/l	15	1400	6000	3300	880
Total Nitrogen (Kjeldahl)	mg/l	0.1	5.3	5.2	5.4	4.2
Nitrate as N	mg/l	0.25	0.5	< 0.3	1.0	0.9
Nitrate as NO_3	mg/l	1.1	2.2	< 1.1	4.6	3.8
Nitrite as N	µg/l	25	< 25	160	540	970
Nitrite as NO_2	µg/l	82	< 82	520	1800	3200
Total Phenols						
Total Phenols (monohydric)	µg/l	10	< 10	< 10	< 10	< 10
Heavy Metals / Metalloids						
Arsenic (dissolved)	µg/l	0.15	1.88	3.57	2.65	3.40
Cadmium (dissolved)	µg/l	0.02	< 0.02	0.23	0.08	< 0.02
Chromium (hexavalent)	µg/l	5	< 5.0	< 5.0	< 5.0	< 5.0
Copper (dissolved)	µg/l	0.5	5.5	6.5	3.1	9.5
Iron (dissolved)	mg/l	0.005	0.029	0.067	0.060	0.027
Lead (dissolved)	µg/l	0.2	0.5	1.5	0.6	0.5
Manganese (dissolved)	µg/l	0.05	68	710	360	300
Mercury (dissolved)	µg/l	0.05	< 0.05	< 0.05	1.29	0.73
Nickel (dissolved)	µg/l	0.5	16	18	19	19
Tin (dissolved)	µg/l	0.2	1.2	0.62	< 0.20	< 0.20
Zinc (dissolved)	µg/l	0.5	1.9	3.1	5.7	2.6
Magnesium (dissolved)	mg/l	0.002	370	1700	1100	910
Monoaromatics						
Benzene	µg/l	1	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/l	1	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/l	1	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/l	1	< 1.0	< 1.0	< 1.0	< 1.0
Total Btex in water	µg/l	5	< 5.0	< 5.0	< 5.0	< 5.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	< 1.0	< 1.0	< 1.0	< 1.0
Petroleum Hydrocarbons						
TPH1 (C10 - C40)	µg/l	10	1120	< 10	< 10	< 10

Analytical Report Number: 14-58890

Project / Site name: WTPS ESIA

Lab Sample Number			365817	365818	365819	365820
Sample Reference			BH01	BH02	BH03	BH04
Sample Number			None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)			None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled			14/08/2014	14/08/2014	14/08/2014	14/08/2014
Time Taken			None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**				
VOCs						
Chloromethane	µg/l	1	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane	µg/l	1	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane	µg/l	1	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl Chloride	µg/l	1	< 1.0	< 1.0	< 1.0	< 1.0
Trichlorofluoromethane	µg/l	1	< 1.0	< 1.0	< 1.0	< 1.0
1,1-dichloroethene	µg/l	1	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/l	1	< 1.0	< 1.0	< 1.0	< 1.0
Cis-1,2-dichloroethene	µg/l	1	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	< 1.0	< 1.0	< 1.0	< 1.0
1,1-dichloroethane	µg/l	1	< 1.0	< 1.0	< 1.0	< 1.0
2,2-Dichloropropane	µg/l	1	< 1.0	< 1.0	< 1.0	< 1.0
Trichloromethane	µg/l	1	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane	µg/l	1	< 1.0	< 1.0	< 1.0	< 1.0
1,2-dichloroethane	µg/l	1	976	990	657	847
1,1-Dichloropropene	µg/l	1	< 1.0	< 1.0	< 1.0	< 1.0
Trans-1,2-dichloroethene	µg/l	1	< 1.0	< 1.0	< 1.0	< 1.0
Benzene	µg/l	1	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloromethane	µg/l	1	< 1.0	< 1.0	< 1.0	< 1.0
1,2-dichloropropane	µg/l	1	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethene	µg/l	1	< 1.0	< 1.0	< 1.0	< 1.0
Dibromomethane	µg/l	1	< 1.0	< 1.0	< 1.0	< 1.0
Bromodichloromethane	µg/l	1	< 1.0	< 1.0	< 1.0	< 1.0
Cis-1,3-dichloropropene	µg/l	1	< 1.0	< 1.0	< 1.0	< 1.0
Trans-1,3-dichloropropene	µg/l	1	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/l	1	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloroethane	µg/l	1	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichloropropane	µg/l	1	< 1.0	< 1.0	< 1.0	< 1.0
Dibromochloromethane	µg/l	1	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethene	µg/l	1	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromoethane	µg/l	1	< 1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene	µg/l	1	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1,2-Tetrachloroethane	µg/l	1	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/l	1	< 1.0	< 1.0	< 1.0	< 1.0
Styrene	µg/l	1	< 1.0	< 1.0	< 1.0	< 1.0
Tribromomethane	µg/l	1	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/l	1	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2,2-Tetrachloroethane	µg/l	1	< 1.0	< 1.0	< 1.0	< 1.0
Isopropylbenzene	µg/l	1	< 1.0	< 1.0	< 1.0	< 1.0
Bromobenzene	µg/l	1	< 1.0	< 1.0	< 1.0	< 1.0
N-Propylbenzene	µg/l	1	< 1.0	< 1.0	< 1.0	< 1.0
2-Chlorotoluene	µg/l	1	< 1.0	< 1.0	< 1.0	< 1.0
4-Chlorotoluene	µg/l	1	< 1.0	< 1.0	< 1.0	< 1.0
1,3,5-Trimethylbenzene	µg/l	1	< 1.0	< 1.0	< 1.0	< 1.0
Tert-Butylbenzene	µg/l	1	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trimethylbenzene	µg/l	1	< 1.0	< 1.0	< 1.0	< 1.0
Sec-Butylbenzene	µg/l	1	< 1.0	< 1.0	< 1.0	< 1.0
1,3-dichlorobenzene	µg/l	1	< 1.0	< 1.0	< 1.0	< 1.0
P-Isopropyltoluene	µg/l	1	< 1.0	< 1.0	< 1.0	< 1.0
1,2-dichlorobenzene	µg/l	1	< 1.0	< 1.0	< 1.0	< 1.0

Analytical Report Number: 14-58890

Project / Site name: WTPS ESIA

Lab Sample Number			365817	365818	365819	365820
Sample Reference			BH01	BH02	BH03	BH04
Sample Number			None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)			None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled			14/08/2014	14/08/2014	14/08/2014	14/08/2014
Time Taken			None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**				
1,4-dichlorobenzene	µg/l	1	< 1.0	< 1.0	< 1.0	< 1.0
Butylbenzene	µg/l	1	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromo-3-chloropropane	µg/l	1	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trichlorobenzene	µg/l	1	< 1.0	< 1.0	< 1.0	< 1.0
Hexachlorobutadiene	µg/l	1	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichlorobenzene	µg/l	1	< 1.0	< 1.0	< 1.0	< 1.0
SVOCs						
Aniline	µg/l	0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenol	µg/l	0.05	< 0.05	< 0.05	< 0.05	< 0.05
2-Chlorophenol	µg/l	0.05	< 0.05	< 0.05	< 0.05	< 0.05
Bis(2-chloroethyl)ether	µg/l	0.05	< 0.05	< 0.05	< 0.05	< 0.05
1,3-Dichlorobenzene	µg/l	0.05	< 0.05	< 0.05	< 0.05	< 0.05
1,2-Dichlorobenzene	µg/l	0.05	< 0.05	< 0.05	< 0.05	< 0.05
1,4-Dichlorobenzene	µg/l	0.05	< 0.05	< 0.05	< 0.05	< 0.05
Bis(2-chloroisopropyl)ether	µg/l	0.05	< 0.05	< 0.05	< 0.05	< 0.05
2-Methylphenol	µg/l	0.05	< 0.05	< 0.05	< 0.05	< 0.05
Hexachloroethane	µg/l	0.05	< 0.05	< 0.05	< 0.05	< 0.05
Nitrobenzene	µg/l	0.05	< 0.05	< 0.05	< 0.05	< 0.05
4-Methylphenol	µg/l	0.05	< 0.05	< 0.05	< 0.05	< 0.05
Isophorone	µg/l	0.05	< 0.05	< 0.05	< 0.05	< 0.05
2-Nitrophenol	µg/l	0.05	< 0.05	< 0.05	< 0.05	< 0.05
2,4-Dimethylphenol	µg/l	0.05	< 0.05	< 0.05	< 0.05	< 0.05
Bis(2-chloroethoxy)methane	µg/l	0.05	< 0.05	< 0.05	< 0.05	< 0.05
1,2,4-Trichlorobenzene	µg/l	0.05	< 0.05	< 0.05	< 0.05	< 0.05
Naphthalene	µg/l	0.01	< 0.01	< 0.01	< 0.01	< 0.01
2,4-Dichlorophenol	µg/l	0.05	< 0.05	< 0.05	< 0.05	< 0.05
4-Chloroaniline	µg/l	0.05	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobutadiene	µg/l	0.05	< 0.05	< 0.05	< 0.05	< 0.05
4-Chloro-3-methylphenol	µg/l	0.05	< 0.05	< 0.05	< 0.05	< 0.05
2,4,6-Trichlorophenol	µg/l	0.05	< 0.05	< 0.05	< 0.05	< 0.05
2,4,5-Trichlorophenol	µg/l	0.05	< 0.05	< 0.05	< 0.05	< 0.05
2-Methylnaphthalene	µg/l	0.05	< 0.05	< 0.05	< 0.05	< 0.05
2-Chloronaphthalene	µg/l	0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dimethylphthalate	µg/l	0.05	2.0	0.9	< 0.05	0.45
2,6-Dinitrotoluene	µg/l	0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	µg/l	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	< 0.01	< 0.01	< 0.01	< 0.01
2,4-Dinitrotoluene	µg/l	0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dibenzofuran	µg/l	0.05	< 0.05	< 0.05	< 0.05	< 0.05
4-Chlorophenyl phenyl ether	µg/l	0.05	< 0.05	< 0.05	< 0.05	< 0.05
Diethyl phthalate	µg/l	0.05	< 0.05	< 0.05	< 0.05	< 0.05
4-Nitroaniline	µg/l	0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	µg/l	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Azobenzene	µg/l	0.05	< 0.05	< 0.05	< 0.05	< 0.05
Bromophenyl phenyl ether	µg/l	0.05	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	µg/l	0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	µg/l	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Anthracene	µg/l	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Carbazole	µg/l	0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dibutyl phthalate	µg/l	0.05	< 0.05	< 0.05	< 0.05	< 0.05

Analytical Report Number: 14-58890

Project / Site name: WTPS ESIA

Lab Sample Number			365817	365818	365819	365820
Sample Reference			BH01	BH02	BH03	BH04
Sample Number			None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)			None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled			14/08/2014	14/08/2014	14/08/2014	14/08/2014
Time Taken			None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**				
Anthraquinone	µg/l	0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	µg/l	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Pyrene	µg/l	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Butyl benzyl phthalate	µg/l	0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)anthracene	µg/l	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	< 0.01	< 0.01	< 0.01	< 0.01

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

Analytical Report Number: 14-58890

Project / Site name: WTPS ESIA

Lab Sample Number			365821	365822	365823
Sample Reference			BH05	BH06	BH07
Sample Number			None Supplied	None Supplied	None Supplied
Depth (m)			None Supplied	None Supplied	None Supplied
Date Sampled			14/08/2014	14/08/2014	14/08/2014
Time Taken			None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**			
General Inorganics					
pH	pH Units	N/A	7.9	8.5	8.1
Electrical Conductivity	µS/cm	10	17000	34000	64000
Salinity	ppt	2	11.2	23.9	> 42
Total Cyanide	µg/l	10	< 10	< 10	< 10
Complex Cyanide	µg/l	10	< 10	< 10	< 10
Free Cyanide	µg/l	10	< 10	< 10	< 10
Sulphate as SO_4	µg/l	45	722000	1480000	2080000
Chloride	mg/l	0.15	4100	22000	29000
Phosphate as PO_4	µg/l	62	< 62	< 62	< 62
Phosphate as P	µg/l	20	< 20	< 20	< 20
Ammonia as NH_3	µg/l	15	780	1900	2300
Total Nitrogen (Kjeldahl)	mg/l	0.1	3.6	3.4	3.2
Nitrate as N	mg/l	0.25	0.8	1.2	0.7
Nitrate as NO_3	mg/l	1.1	3.5	5.4	3.1
Nitrite as N	µg/l	25	590	940	820
Nitrite as NO_2	µg/l	82	1900	3100	2700
Total Phenols					
Total Phenols (monohydric)	µg/l	10	< 10	< 10	< 10
Heavy Metals / Metalloids					
Arsenic (dissolved)	µg/l	0.15	1.05	2.07	2.60
Cadmium (dissolved)	µg/l	0.02	< 0.02	0.09	0.10
Chromium (hexavalent)	µg/l	5	< 5.0	< 5.0	< 5.0
Copper (dissolved)	µg/l	0.5	8.2	6.1	7.4
Iron (dissolved)	mg/l	0.005	0.005	0.027	0.022
Lead (dissolved)	µg/l	0.2	0.4	1.3	1.0
Manganese (dissolved)	µg/l	0.05	170	99	520
Mercury (dissolved)	µg/l	0.05	1.32	0.80	< 0.05
Nickel (dissolved)	µg/l	0.5	9.0	18	23
Tin (dissolved)	µg/l	0.2	0.54	0.29	< 0.20
Zinc (dissolved)	µg/l	0.5	2.2	1.6	3.5
Magnesium (dissolved)	mg/l	0.002	200	810	1000
Monoaromatics					
Benzene	µg/l	1	< 1.0	< 1.0	< 1.0
Toluene	µg/l	1	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/l	1	< 1.0	< 1.0	< 1.0
o-xylene	µg/l	1	< 1.0	< 1.0	< 1.0
Total Btex in water	µg/l	5	< 5.0	< 5.0	< 5.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	< 1.0	< 1.0	< 1.0
Petroleum Hydrocarbons					
TPH1 (C10 - C40)	µg/l	10	794	42	< 10

Analytical Report Number: 14-58890

Project / Site name: WTPS ESIA

Lab Sample Number			365821	365822	365823
Sample Reference			BH05	BH06	BH07
Sample Number			None Supplied	None Supplied	None Supplied
Depth (m)			None Supplied	None Supplied	None Supplied
Date Sampled			14/08/2014	14/08/2014	14/08/2014
Time Taken			None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**			
VOCs					
Chloromethane	µg/l	1	< 1.0	< 1.0	< 1.0
Chloroethane	µg/l	1	< 1.0	< 1.0	< 1.0
Bromomethane	µg/l	1	< 1.0	< 1.0	< 1.0
Vinyl Chloride	µg/l	1	< 1.0	< 1.0	< 1.0
Trichlorofluoromethane	µg/l	1	< 1.0	< 1.0	< 1.0
1,1-dichloroethene	µg/l	1	< 1.0	< 1.0	< 1.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/l	1	< 1.0	< 1.0	< 1.0
Cis-1,2-dichloroethene	µg/l	1	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	< 1.0	< 1.0	< 1.0
1,1-dichloroethane	µg/l	1	< 1.0	< 1.0	< 1.0
2,2-Dichloropropane	µg/l	1	< 1.0	< 1.0	< 1.0
Trichloromethane	µg/l	1	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane	µg/l	1	< 1.0	< 1.0	< 1.0
1,2-dichloroethane	µg/l	1	672	845	638
1,1-Dichloropropene	µg/l	1	< 1.0	< 1.0	< 1.0
Trans-1,2-dichloroethene	µg/l	1	< 1.0	< 1.0	< 1.0
Benzene	µg/l	1	< 1.0	< 1.0	< 1.0
Tetrachloromethane	µg/l	1	< 1.0	< 1.0	< 1.0
1,2-dichloropropane	µg/l	1	< 1.0	< 1.0	< 1.0
Trichloroethene	µg/l	1	< 1.0	< 1.0	< 1.0
Dibromomethane	µg/l	1	< 1.0	< 1.0	< 1.0
Bromodichloromethane	µg/l	1	< 1.0	< 1.0	< 1.0
Cis-1,3-dichloropropene	µg/l	1	< 1.0	< 1.0	< 1.0
Trans-1,3-dichloropropene	µg/l	1	< 1.0	< 1.0	< 1.0
Toluene	µg/l	1	< 1.0	< 1.0	< 1.0
1,1,2-Trichloroethane	µg/l	1	< 1.0	< 1.0	< 1.0
1,3-Dichloropropane	µg/l	1	< 1.0	< 1.0	< 1.0
Dibromochloromethane	µg/l	1	< 1.0	< 1.0	< 1.0
Tetrachloroethene	µg/l	1	< 1.0	< 1.0	< 1.0
1,2-Dibromoethane	µg/l	1	< 1.0	< 1.0	< 1.0
Chlorobenzene	µg/l	1	< 1.0	< 1.0	< 1.0
1,1,1,2-Tetrachloroethane	µg/l	1	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/l	1	< 1.0	< 1.0	< 1.0
Styrene	µg/l	1	< 1.0	< 1.0	< 1.0
Tribromomethane	µg/l	1	< 1.0	< 1.0	< 1.0
o-xylene	µg/l	1	< 1.0	< 1.0	< 1.0
1,1,2,2-Tetrachloroethane	µg/l	1	< 1.0	< 1.0	< 1.0
Isopropylbenzene	µg/l	1	< 1.0	< 1.0	< 1.0
Bromobenzene	µg/l	1	< 1.0	< 1.0	< 1.0
N-Propylbenzene	µg/l	1	< 1.0	< 1.0	< 1.0
2-Chlorotoluene	µg/l	1	< 1.0	< 1.0	< 1.0
4-Chlorotoluene	µg/l	1	< 1.0	< 1.0	< 1.0
1,3,5-Trimethylbenzene	µg/l	1	< 1.0	< 1.0	< 1.0
Tert-Butylbenzene	µg/l	1	< 1.0	< 1.0	< 1.0
1,2,4-Trimethylbenzene	µg/l	1	< 1.0	< 1.0	< 1.0
Sec-Butylbenzene	µg/l	1	< 1.0	< 1.0	< 1.0
1,3-dichlorobenzene	µg/l	1	< 1.0	< 1.0	< 1.0
P-Isopropyltoluene	µg/l	1	< 1.0	< 1.0	< 1.0
1,2-dichlorobenzene	µg/l	1	< 1.0	< 1.0	< 1.0

Analytical Report Number: 14-58890

Project / Site name: WTPS ESIA

Lab Sample Number			365821	365822	365823
Sample Reference			BH05	BH06	BH07
Sample Number			None Supplied	None Supplied	None Supplied
Depth (m)			None Supplied	None Supplied	None Supplied
Date Sampled			14/08/2014	14/08/2014	14/08/2014
Time Taken			None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**			
1,4-dichlorobenzene	µg/l	1	< 1.0	< 1.0	< 1.0
Butylbenzene	µg/l	1	< 1.0	< 1.0	< 1.0
1,2-Dibromo-3-chloropropane	µg/l	1	< 1.0	< 1.0	< 1.0
1,2,4-Trichlorobenzene	µg/l	1	< 1.0	< 1.0	< 1.0
Hexachlorobutadiene	µg/l	1	< 1.0	< 1.0	< 1.0
1,2,3-Trichlorobenzene	µg/l	1	< 1.0	< 1.0	< 1.0

SVOCs

Aniline	µg/l	0.05	< 0.05	< 0.05	< 0.05
Phenol	µg/l	0.05	< 0.05	< 0.05	< 0.05
2-Chlorophenol	µg/l	0.05	< 0.05	< 0.05	< 0.05
Bis(2-chloroethyl)ether	µg/l	0.05	< 0.05	< 0.05	< 0.05
1,3-Dichlorobenzene	µg/l	0.05	< 0.05	< 0.05	< 0.05
1,2-Dichlorobenzene	µg/l	0.05	< 0.05	< 0.05	< 0.05
1,4-Dichlorobenzene	µg/l	0.05	< 0.05	< 0.05	< 0.05
Bis(2-chloroisopropyl)ether	µg/l	0.05	< 0.05	< 0.05	< 0.05
2-Methylphenol	µg/l	0.05	< 0.05	< 0.05	< 0.05
Hexachloroethane	µg/l	0.05	< 0.05	< 0.05	< 0.05
Nitrobenzene	µg/l	0.05	< 0.05	< 0.05	< 0.05
4-Methylphenol	µg/l	0.05	< 0.05	< 0.05	< 0.05
Isophorone	µg/l	0.05	< 0.05	< 0.05	< 0.05
2-Nitrophenol	µg/l	0.05	< 0.05	< 0.05	< 0.05
2,4-Dimethylphenol	µg/l	0.05	< 0.05	< 0.05	< 0.05
Bis(2-chloroethoxy)methane	µg/l	0.05	< 0.05	< 0.05	< 0.05
1,2,4-Trichlorobenzene	µg/l	0.05	< 0.05	< 0.05	< 0.05
Naphthalene	µg/l	0.01	< 0.01	< 0.01	< 0.01
2,4-Dichlorophenol	µg/l	0.05	< 0.05	< 0.05	< 0.05
4-Chloroaniline	µg/l	0.05	< 0.05	< 0.05	< 0.05
Hexachlorobutadiene	µg/l	0.05	< 0.05	< 0.05	< 0.05
4-Chloro-3-methylphenol	µg/l	0.05	< 0.05	< 0.05	< 0.05
2,4,6-Trichlorophenol	µg/l	0.05	< 0.05	< 0.05	< 0.05
2,4,5-Trichlorophenol	µg/l	0.05	< 0.05	< 0.05	< 0.05
2-Methylnaphthalene	µg/l	0.05	0.84	0.49	0.2
2-Chloronaphthalene	µg/l	0.05	< 0.05	< 0.05	< 0.05
Dimethylphthalate	µg/l	0.05	0.29	< 0.05	0.17
2,6-Dinitrotoluene	µg/l	0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	µg/l	0.01	< 0.01	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	< 0.01	< 0.01	< 0.01
2,4-Dinitrotoluene	µg/l	0.05	< 0.05	< 0.05	< 0.05
Dibenzofuran	µg/l	0.05	< 0.05	< 0.05	< 0.05
4-Chlorophenyl phenyl ether	µg/l	0.05	< 0.05	< 0.05	< 0.05
Diethyl phthalate	µg/l	0.05	< 0.05	< 0.05	0.13
4-Nitroaniline	µg/l	0.05	< 0.05	< 0.05	< 0.05
Fluorene	µg/l	0.01	< 0.01	< 0.01	< 0.01
Azobenzene	µg/l	0.05	< 0.05	< 0.05	< 0.05
Bromophenyl phenyl ether	µg/l	0.05	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	µg/l	0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	µg/l	0.01	< 0.01	< 0.01	< 0.01
Anthracene	µg/l	0.01	< 0.01	< 0.01	< 0.01
Carbazole	µg/l	0.05	< 0.05	< 0.05	< 0.05
Dibutyl phthalate	µg/l	0.05	< 0.05	< 0.05	< 0.05

Analytical Report Number: 14-58890

Project / Site name: WTPS ESIA

Lab Sample Number			365821	365822	365823
Sample Reference			BH05	BH06	BH07
Sample Number			None Supplied	None Supplied	None Supplied
Depth (m)			None Supplied	None Supplied	None Supplied
Date Sampled			14/08/2014	14/08/2014	14/08/2014
Time Taken			None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**			
Anthraquinone	µg/l	0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	µg/l	0.01	< 0.01	< 0.01	< 0.01
Pyrene	µg/l	0.01	< 0.01	< 0.01	< 0.01
Butyl benzyl phthalate	µg/l	0.05	< 0.05	< 0.05	< 0.05
Benzo(a)anthracene	µg/l	0.01	< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	< 0.01	< 0.01	< 0.01

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

Analytical Report Number: 14-58890

Project / Site name: WTPS ESIA

Sampling

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Date Sampled	Time Taken	Sample type	Sample state (odour, color etc)	Sampling personel	Sampling plan No.	Reference document
365817	BH01	None Supplied	None Supplied	14/08/2014	None Supplied	water	None Supplied	As specified by the client	As specified by the client	As specified by the client
365818	BH02	None Supplied	None Supplied	14/08/2014	None Supplied	water	None Supplied	As specified by the client	As specified by the client	As specified by the client
365819	BH03	None Supplied	None Supplied	14/08/2014	None Supplied	water	None Supplied	As specified by the client	As specified by the client	As specified by the client
365820	BH04	None Supplied	None Supplied	14/08/2014	None Supplied	water	None Supplied	As specified by the client	As specified by the client	As specified by the client
365821	BH05	None Supplied	None Supplied	14/08/2014	None Supplied	water	None Supplied	As specified by the client	As specified by the client	As specified by the client
365822	BH06	None Supplied	None Supplied	14/08/2014	None Supplied	water	None Supplied	As specified by the client	As specified by the client	As specified by the client
365823	BH07	None Supplied	None Supplied	14/08/2014	None Supplied	water	None Supplied	As specified by the client	As specified by the client	As specified by the client

Uncertainty	10%
Samples were collected and delivered to the laboratory by the client	

Analytical Report Number: 14-58890

Project / Site name: WTPS ESIA

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Ammonia as NH3 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
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
Chloride in water	Determination of Chloride in water by Gallery Discrete Analyser based on reaction with mercury (II) thiocyanate and acid solution with iron (III) nitrate to form a red/brown iron (III) thiocyanate complex; followed by spectrophotometrice measurementat a wavelenght of 480 nm.	Methods for the Examination of Water and Associated Materials Chloride in Waters, Sewage and Effluents 1981.ISBN 0117516260 Accredited matrices: SW, PW, GW.	L082 B	W	ISO 17025
Complex cyanide in water	Determination of complex 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	NONE
Electrical conductivity of water	Determination of electrical conductivity in water by electrometric measurement.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L031-PL	W	NONE
Free cyanide in water	Determination of free 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	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
Kjeldahl nitrogen in water	Determination of total nitrogen using the Kjeldahl-digestion method and colorimetric determination.	In house method based on BS 7755-3.7:1995 & ISO 11261:1995.	L087-PL	W	NONE
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 MEWAM 1986 Methods for the Determination of Metals in Soil""	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
Nitrate in water	Determination of nitrate in water by colorimetric assay. Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L078-PL	W	ISO 17025
Nitrite in water	Determination of nitrite in water by addition of sulphanilamide and NED followed by colorimetry.Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L077-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
Salinity	Determination of salinity of water by electrometric measurement.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L031-PL	W	NONE
Semi-volatile organic compounds in water	Determination of semi-volatile organic compounds in leachate by extraction in dichloromethane followed by GC-MS.	In-house method based on USEPA 8270	L070-PL	W	NONE

Analytical Report Number: 14-58890

Project / Site name: WTPS ESIA

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate in water	Determination of sulphate in water by acidification followed by ICP-OES. Accredited matrices: SW PW GW	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Sulphate in water	for the Determination of Metals in Soil""	In-house method based on MEWAM 1986 Methods	L039-PL		ISO 17025
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
Total Phosphate in water	Determination of phosphate in water by addition of ammonium molybdate, potassium antimonyl tartrate and ascorbic acid followed by colorimetry.Accredited matrices: SW, PW, GW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton, analysis by discreet analyser.	L048-PL	W	ISO 17025
TPH1 (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS.	In-house method	L070-PL	W	ISO 17025
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

Appendix H2: Surface Water Laboratory Analytical Certificates

David Wells
Earth & Marine Enviromental Consultants
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e: david.wells@eame.co.uk

i2 Analytical Ltd.
ul.Pionierów 39,
41-711 Ruda Slaska,
Poland

t: 004832 3426011
f: 004832 3426012

Analytical Report Number : 14-60552B

Project / Site name:	WTPS ESIA	**Samples received on:**	29/09/2014
Your job number:		**Samples instructed on:**	29/09/2014
Your order number:		**Analysis completed by:**	10-10-2014
Report Issue Number:	1	**Report issued on:**	10-10-2014
Samples Analysed:	10 water samples		

Dariusz Piotrowski
V-ce Dyrektor ds. Technicznych

Signed:

Dariusz Piotrowski
Technical Manager
For & on behalf of i2 Analytical Ltd.

i2 Analytical Limited Sp. z o.o.
Oddział w Polsce
ul. Pionierów 39
41-711 Ruda Śląska
NIP 2050000762

Agnieszka Pietrowska
Kierownik ds. jakości

Signed:

Agnieszka Pietrowska
Quality Manager
For & on behalf of i2 Analytical Ltd.

Other office located at: Building 19,BRE,Garston, Watford, WD25 9XX

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

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

Analytical Report Number: 14-60552B

Project / Site name: WTPS ESIA

Lab Sample Number			376266	376267	376268	376269
Sample Reference			SWO1	SWO1	SWO2	SWO2
Sample Number			None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)			1.0	12.7	1.0	13.3
Date Sampled			13/09/2014	13/09/2014	13/09/2014	13/09/2014
Time Taken			None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**				
General Inorganics						
pH	pH Units	N/A	7.8	7.9	7.9	7.9
Electrical Conductivity	µS/cm	10	59000	50000	56000	52000
Salinity	ppt	2	> 42	36.7	41.7	38.4
Total Cyanide	µg/l	10	< 10	< 10	< 10	< 10
Complex Cyanide	µg/l	10	< 10	< 10	< 10	< 10
Free Cyanide	µg/l	10	< 10	< 10	< 10	< 10
Sulphate as SO_4	µg/l	45	3850000	3810000	4950000	4510000
Chloride	mg/l	0.15	17000	16000	15000	15000
Phosphate as PO_4	µg/l	62	< 62	62	< 62	< 62
Phosphate as P	µg/l	20	< 20	20	< 20	< 20
Total Nitrogen (Kjeldahl)	mg/l	0.1	7.3	5.3	4.6	2.9
Nitrate as N	mg/l	0.25	< 0.3	< 0.3	0.4	< 0.3
Nitrate as NO_3	mg/l	1.1	< 1.1	< 1.1	1.9	< 1.1
Nitrite as N	µg/l	25	< 25	< 25	< 25	< 25
Nitrite as NO_2	µg/l	82	< 82	< 82	< 82	< 82
Total Phenols						
Total Phenols (monohydric)	µg/l	10	< 10	< 10	< 10	< 10
Speciated PAHs						
Naphthalene	µg/l	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthylene	µg/l	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fluorene	µg/l	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Phenanthrene	µg/l	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Anthracene	µg/l	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fluoranthene	µg/l	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Pyrene	µg/l	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)anthracene	µg/l	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Total PAH						
Total EPA-16 PAHs	µg/l	0.2	< 0.2	< 0.2	< 0.2	< 0.2

Analytical Report Number: 14-60552B

Project / Site name: WTPS ESIA

Lab Sample Number			376266	376267	376268	376269
Sample Reference			SWO1	SWO1	SWO2	SWO2
Sample Number			None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)			1.0	12.7	1.0	13.3
Date Sampled			13/09/2014	13/09/2014	13/09/2014	13/09/2014
Time Taken			None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**				
Heavy Metals / Metalloids						
Arsenic (dissolved)	µg/l	0.15	5.04	4.69	4.45	3.70
Cadmium (dissolved)	µg/l	0.02	0.02	0.02	0.05	< 0.02
Chromium (hexavalent)	µg/l	5	< 5.0	< 5.0	< 5.0	< 5.0
Copper (dissolved)	µg/l	0.5	15	18	14	19
Iron (dissolved)	mg/l	0.005	0.021	0.020	0.019	0.016
Lead (dissolved)	µg/l	0.2	0.9	0.8	0.7	0.7
Manganese (dissolved)	µg/l	0.05	0.75	0.81	0.36	0.31
Mercury (dissolved)	µg/l	0.05	1.45	1.30	1.28	1.16
Nickel (dissolved)	µg/l	0.5	3.7	3.8	4.9	4.5
Tin (dissolved)	µg/l	0.2	0.60	< 0.20	< 0.20	< 0.20
Zinc (dissolved)	µg/l	0.5	4.5	5.2	3.2	4.0
Magnesium (dissolved)	mg/l	0.002	1700	1700	1800	1700
Petroleum Hydrocarbons						
TPH1 (C10 - C40)	µg/l	10	< 10	< 10	< 10	< 10

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

Analytical Report Number: 14-60552B

Project / Site name: WTPS ESIA

Lab Sample Number			376270	376271	376272	376273
Sample Reference			SWO3	SWO3	SWO4	SWO4
Sample Number			None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)			1.0	15.1	1.0	10.0
Date Sampled			13/09/2014	13/09/2014	13/09/2014	13/09/2014
Time Taken			None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**				
General Inorganics						
pH	pH Units	N/A	7.9	7.9	7.9	7.9
Electrical Conductivity	µS/cm	10	74000	57000	63000	65000
Salinity	ppt	2	> 42	> 42	> 42	> 42
Total Cyanide	µg/l	10	< 10	< 10	< 10	< 10
Complex Cyanide	µg/l	10	< 10	< 10	< 10	< 10
Free Cyanide	µg/l	10	< 10	< 10	< 10	< 10
Sulphate as SO_4	µg/l	45	3940000	4090000	4950000	5020000
Chloride	mg/l	0.15	17000	16000	11000	16000
Phosphate as PO_4	µg/l	62	< 62	< 62	< 62	< 62
Phosphate as P	µg/l	20	< 20	< 20	< 20	< 20
Total Nitrogen (Kjeldahl)	mg/l	0.1	2.3	1.8	1.7	1.4
Nitrate as N	mg/l	0.25	< 0.3	< 0.3	0.3	< 0.3
Nitrate as NO_3	mg/l	1.1	< 1.1	< 1.1	1.2	< 1.1
Nitrite as N	µg/l	25	< 25	< 25	< 25	< 25
Nitrite as NO_2	µg/l	82	< 82	< 82	< 82	< 82
Total Phenols						
Total Phenols (monohydric)	µg/l	10	< 10	< 10	< 10	< 10
Speciated PAHs						
Naphthalene	µg/l	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthylene	µg/l	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fluorene	µg/l	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Phenanthrene	µg/l	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Anthracene	µg/l	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fluoranthene	µg/l	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Pyrene	µg/l	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)anthracene	µg/l	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Total PAH						
Total EPA-16 PAHs	µg/l	0.2	< 0.2	< 0.2	< 0.2	< 0.2

Analytical Report Number: 14-60552B

Project / Site name: WTPS ESIA

Lab Sample Number			376270	376271	376272	376273
Sample Reference			SWO3	SWO3	SWO4	SWO4
Sample Number			None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)			1.0	15.1	1.0	10.0
Date Sampled			13/09/2014	13/09/2014	13/09/2014	13/09/2014
Time Taken			None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**				
Heavy Metals / Metalloids						
Arsenic (dissolved)	µg/l	0.15	4.57	3.42	4.39	3.35
Cadmium (dissolved)	µg/l	0.02	< 0.02	0.02	< 0.02	0.03
Chromium (hexavalent)	µg/l	5	< 5.0	< 5.0	< 5.0	< 5.0
Copper (dissolved)	µg/l	0.5	11	12	13	11
Iron (dissolved)	mg/l	0.005	0.021	0.015	0.019	0.018
Lead (dissolved)	µg/l	0.2	0.7	0.6	0.7	0.7
Manganese (dissolved)	µg/l	0.05	1.0	0.58	0.94	1.3
Mercury (dissolved)	µg/l	0.05	1.15	1.18	1.05	1.09
Nickel (dissolved)	µg/l	0.5	3.9	2.9	4.6	3.6
Tin (dissolved)	µg/l	0.2	< 0.20	< 0.20	< 0.20	< 0.20
Zinc (dissolved)	µg/l	0.5	4.8	3.2	3.1	3.4
Magnesium (dissolved)	mg/l	0.002	1800	1800	1700	1800
Petroleum Hydrocarbons						
TPH1 (C10 - C40)	µg/l	10	< 10	< 10	< 10	< 10

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

Analytical Report Number: 14-60552B

Project / Site name: WTPS ESIA

Lab Sample Number			376274	376275
Sample Reference			SWO5	SWO5
Sample Number			None Supplied	None Supplied
Depth (m)			1.0	11.0
Date Sampled			13/09/2014	13/09/2014
Time Taken			None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**		
General Inorganics				
pH	pH Units	N/A	7.8	7.9
Electrical Conductivity	µS/cm	10	68000	53000
Salinity	ppt	2	> 42	39.2
Total Cyanide	µg/l	10	< 10	< 10
Complex Cyanide	µg/l	10	< 10	< 10
Free Cyanide	µg/l	10	< 10	< 10
Sulphate as SO_4	µg/l	45	4810000	4670000
Chloride	mg/l	0.15	17000	15000
Phosphate as PO_4	µg/l	62	< 62	< 62
Phosphate as P	µg/l	20	< 20	< 20
Total Nitrogen (Kjeldahl)	mg/l	0.1	1.5	1.8
Nitrate as N	mg/l	0.25	< 0.3	< 0.3
Nitrate as NO_3	mg/l	1.1	< 1.1	< 1.1
Nitrite as N	µg/l	25	< 25	< 25
Nitrite as NO_2	µg/l	82	< 82	< 82
Total Phenols				
Total Phenols (monohydric)	µg/l	10	< 10	< 10
Speciated PAHs				
Naphthalene	µg/l	0.01	< 0.01	< 0.01
Acenaphthylene	µg/l	0.01	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	< 0.01	< 0.01
Fluorene	µg/l	0.01	< 0.01	< 0.01
Phenanthrene	µg/l	0.01	< 0.01	< 0.01
Anthracene	µg/l	0.01	< 0.01	< 0.01
Fluoranthene	µg/l	0.01	< 0.01	< 0.01
Pyrene	µg/l	0.01	< 0.01	< 0.01
Benzo(a)anthracene	µg/l	0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	< 0.01	< 0.01
Total PAH				
Total EPA-16 PAHs	µg/l	0.2	< 0.2	< 0.2

Analytical Report Number: 14-60552B

Project / Site name: WTPS ESIA

Lab Sample Number			376274	376275
Sample Reference			SWO5	SWO5
Sample Number			None Supplied	None Supplied
Depth (m)			1.0	11.0
Date Sampled			13/09/2014	13/09/2014
Time Taken			None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**		
Heavy Metals / Metalloids				
Arsenic (dissolved)	µg/l	0.15	5.00	4.71
Cadmium (dissolved)	µg/l	0.02	< 0.02	< 0.02
Chromium (hexavalent)	µg/l	5	< 5.0	< 5.0
Copper (dissolved)	µg/l	0.5	19	19
Iron (dissolved)	mg/l	0.005	0.020	0.026
Lead (dissolved)	µg/l	0.2	5.9	0.5
Manganese (dissolved)	µg/l	0.05	1.3	1.2
Mercury (dissolved)	µg/l	0.05	1.02	1.03
Nickel (dissolved)	µg/l	0.5	4.9	4.2
Tin (dissolved)	µg/l	0.2	< 0.20	< 0.20
Zinc (dissolved)	µg/l	0.5	13	8.0
Magnesium (dissolved)	mg/l	0.002	1800	1700
Petroleum Hydrocarbons				
TPH1 (C10 - C40)	µg/l	10	< 10	< 10

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

Analytical Report Number: 14-60552B

Project / Site name: WTPS ESIA

Sampling

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Date Sampled	Time Taken	Sample type	Sample state (odour, color etc)	Sampling personel	Sampling plan No.	Reference document
376266	SWO1	None Supplied	1.0	13/09/2014	None Supplied	Water	None Supplied	As specified by the client	As specified by the client	As specified by the client
376267	SWO1	None Supplied	12.7	13/09/2014	None Supplied	Water	None Supplied	As specified by the client	As specified by the client	As specified by the client
376268	SWO2	None Supplied	1.0	13/09/2014	None Supplied	Water	None Supplied	As specified by the client	As specified by the client	As specified by the client
376269	SWO2	None Supplied	13.3	13/09/2014	None Supplied	Water	None Supplied	As specified by the client	As specified by the client	As specified by the client
376270	SWO3	None Supplied	1.0	13/09/2014	None Supplied	Water	None Supplied	As specified by the client	As specified by the client	As specified by the client
376271	SWO3	None Supplied	15.1	13/09/2014	None Supplied	Water	None Supplied	As specified by the client	As specified by the client	As specified by the client
376272	SWO4	None Supplied	1.0	13/09/2014	None Supplied	Water	None Supplied	As specified by the client	As specified by the client	As specified by the client
376273	SWO4	None Supplied	10.0	13/09/2014	None Supplied	Water	None Supplied	As specified by the client	As specified by the client	As specified by the client
376274	SWO5	None Supplied	1.0	13/09/2014	None Supplied	Water	None Supplied	As specified by the client	As specified by the client	As specified by the client
376275	SWO5	None Supplied	11.0	13/09/2014	None Supplied	Water	None Supplied	As specified by the client	As specified by the client	As specified by the client

Uncertainty	10%

Samples were collected and delivered to the laboratory by the client

Analytical Report Number: 14-60552B

Project / Site name: WTPS ESIA

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
Chloride in water	Determination of Chloride in water by Gallery Discrete Analyser based on reaction with mercury (II) thiocyanate and acid solution with iron (III) nitrate to form a red/brown iron (III) thiocyanate complex; followed by spectrophotometrice measurementat a wavelenght of 480 nm.	Methods for the Examination of Water and Associated Materials Chloride in Waters, Sewage and Effluents 1981.ISBN 0117516260 Accredited matrices: SW, PW, GW.	L082 B	W	ISO 17025
Electrical conductivity of water	Determination of electrical conductivity in water by electrometric measurement.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L031-UK	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
Kjeldahl nitrogen in water	Determination of total nitrogen using the Kjeldahl-digestion method and colorimetric determination.	In house method based on BS 7755-3.7:1995 & ISO 11261:1995.	L087-PL	W	NONE
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	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 MEWAM 1986 Methods for the Determination of Metals in Soil""	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
Nitrate in water	Determination of nitrate in water by colorimetric assay. Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L078-PL	W	ISO 17025
Nitrite in water	Determination of nitrite in water by addition of sulphanilamide and NED followed by colorimetry.Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L077-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
Salinity	Determination of salinity of water by electrometric measurement.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L031-PL	W	NONE
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	L070-PL	W	NONE
Sulphate in water	Determination of sulphate in water by acidification followed by ICP-OES. Accredited matrices: SW PW GW	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Sulphate in water	for the Determination of Metals in Soil""	In-house method based on MEWAM 1986 Methods	L039-PL		ISO 17025
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

Analytical Report Number: 14-60552B

Project / Site name: WTPS ESIA

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
Total Phosphate in water	Determination of phosphate in water by addition of ammonium molybdate, potassium antimonyl tartrate and ascorbic acid followed by colorimetry.Accredited matrices: SW, PW, GW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton, analysis by discreet analyser.	L048-PL	W	ISO 17025
TPH1 (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS.	In-house method	L070-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.