

## Summary of Chemical Analysis

### Water Samples

Our Ref 21-18738

Client Ref 4280

Contract Title SLEMS, Former Redcar Steelworks

Lab No	1899263
Sample ID	SLEMS_AUK_SW01
Depth	0.00
Other ID	300
Sample Type	EW
Sampling Date	01/09/2021
Sampling Time	n/s

Test	Method	LOD	Units	
Isopropylbenzene	DETSC 3432	1	ug/l	< 1
1,1,2,2-tetrachloroethane	DETSC 3432	1	ug/l	< 1
Bromobenzene	DETSC 3432	1	ug/l	< 1
1,2,3-trichloropropane	DETSC 3432	1	ug/l	< 1
n-propylbenzene	DETSC 3432	1	ug/l	< 1
2-chlorotoluene	DETSC 3432	1	ug/l	< 1
1,3,5-trimethylbenzene	DETSC 3432	1	ug/l	< 1
4-chlorotoluene	DETSC 3432	1	ug/l	< 1
Tert-butylbenzene	DETSC 3432	1	ug/l	< 1
1,2,4-trimethylbenzene	DETSC 3432	1	ug/l	< 1
sec-butylbenzene	DETSC 3432	1	ug/l	< 1
p-isopropyltoluene	DETSC 3432	1	ug/l	< 1
1,3-dichlorobenzene	DETSC 3432	2	ug/l	< 2
1,4-dichlorobenzene	DETSC 3432	1	ug/l	< 1
n-butylbenzene	DETSC 3432	1	ug/l	< 1
1,2-dichlorobenzene	DETSC 3432	1	ug/l	< 1
1,2-dibromo-3-chloropropane	DETSC 3432	1	ug/l	< 1
1,2,4-trichlorobenzene	DETSC 3432	1	ug/l	< 1
Hexachlorobutadiene	DETSC 3432	1	ug/l	< 1
1,2,3-trichlorobenzene	DETSC 3432	1	ug/l	< 1
MTBE	DETSC 3432*	1	ug/l	< 1
<b>SVOCs</b>				
Aniline	DETSC 3434*	1	ug/l	< 1.0
2-Chlorophenol	DETSC 3434*	1	ug/l	< 1.0
Benzyl Alcohol	DETSC 3434*	1	ug/l	< 1.0
2-Methylphenol	DETSC 3434*	1	ug/l	< 1.0
Bis(2-chloroisopropyl)ether	DETSC 3434*	1	ug/l	< 1.0
3&4-Methylphenol	DETSC 3434*	1	ug/l	< 1.0
Bis(2-chloroethoxy)methane	DETSC 3434*	1	ug/l	< 1.0
1,2,4-Trichlorobenzene	DETSC 3434*	1	ug/l	< 1.0
2-Methylnaphthalene	DETSC 3434*	1	ug/l	< 1.0
Hexachlorocyclopentadiene	DETSC 3434*	1	ug/l	< 1.0
2,4,5-Trichlorophenol	DETSC 3434*	1	ug/l	< 1.0
2-Chloronaphthalene	DETSC 3434*	1	ug/l	< 1.0
2-Nitroaniline	DETSC 3434*	1	ug/l	< 1.0
2,4-Dinitrotoluene	DETSC 3434*	1	ug/l	< 1.0
3-Nitroaniline	DETSC 3434*	1	ug/l	< 1.0
4-Nitrophenol	DETSC 3434*	1	ug/l	< 1.0
Dibenzofuran	DETSC 3434*	1	ug/l	< 1.0

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Depth	0.00
Other ID	300
Sample Type	EW
Sampling Date	01/09/2021
Sampling Time	n/s

Test	Method	LOD	Units	
2,6-Dinitrotoluene	DETSC 3434*	1	ug/l	< 1.0
2,3,4,6-Tetrachlorophenol	DETSC 3434*	1	ug/l	< 1.0
Diethylphthalate	DETSC 3434*	1	ug/l	< 1.0
4-Chlorophenylphenylether	DETSC 3434*	1	ug/l	< 1.0
4-Nitroaniline	DETSC 3434*	1	ug/l	< 1.0
Diphenylamine	DETSC 3434*	1	ug/l	< 1.0
4-Bromophenylphenylether	DETSC 3434*	1	ug/l	< 1.0
Hexachlorobenzene	DETSC 3434*	1	ug/l	< 1.0
Bis(2-ethylhexyl)ester	DETSC 3434*	1	ug/l	< 1.0
Pentachlorophenol	DETSC 3434*	1	ug/l	< 1.0
Di-n-butylphthalate	DETSC 3434*	1	ug/l	< 1.0
Butylbenzylphthalate	DETSC 3434*	1	ug/l	< 1.0
Bis(2-ethylhexyl)phthalate	DETSC 3434*	1	ug/l	< 1.0
Di-n-octylphthalate	DETSC 3434*	1	ug/l	< 1.0
1,4-Dinitrobenzene	DETSC 3434*	1	ug/l	< 1.0
Dimethylphthalate	DETSC 3434*	1	ug/l	< 1.0
1,3-Dinitrobenzene	DETSC 3434*	1	ug/l	< 1.0
2,3,5,6-Tetrachlorophenol	DETSC 3434*	1	ug/l	< 1.0
Azobenzene	DETSC 3434*	1	ug/l	< 1.0
Carbazole	DETSC 3434*	1	ug/l	< 1.0
1-Methylnaphthalene	DETSC 3434*	1	ug/l	< 1.0

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Test	Method	LOD	Units	Lab No	.Sample ID	Depth	Other ID	Sample Type	Sampling Date	Sampling Time
<b>Metals</b>										
Antimony, Dissolved	DETSC 2306	0.17	ug/l							
Arsenic, Dissolved	DETSC 2306	0.16	ug/l							
Barium, Dissolved	DETSC 2306	0.26	ug/l							
Boron, Dissolved	DETSC 2306*	12	ug/l							
Cadmium, Dissolved	DETSC 2306	0.03	ug/l							
Calcium, Dissolved	DETSC 2306	0.09	mg/l							
Chromium, Total	DETSC 2306*	0.25	ug/l							
Chromium, Hexavalent	DETSC 2203	7	ug/l							
Copper, Dissolved	DETSC 2306	0.4	ug/l							
Iron, Dissolved	DETSC 2306	5.5	ug/l							
Lead, Dissolved	DETSC 2306	0.09	ug/l							
Manganese, Dissolved	DETSC 2306	0.22	ug/l							
Mercury, Dissolved	DETSC 2306	0.01	ug/l							
Molybdenum, Dissolved	DETSC 2306	1.1	ug/l							
Nickel, Dissolved	DETSC 2306	0.5	ug/l							
Sodium, Dissolved	DETSC 2306	0.07	mg/l							
Vanadium, Dissolved	DETSC 2306	0.6	ug/l							
Zinc, Dissolved	DETSC 2306	1.3	ug/l							
<b>Inorganics</b>										
pH	DETSC 2008		pH							
Cyanide, Total	DETSC 2130	40	ug/l							
Cyanide, Free	DETSC 2130	20	ug/l							
Thiocyanate	DETSC 2130	20	ug/l							
Dissolved Organic Carbon	DETSC 2085	2	mg/l							
Ammoniacal Nitrogen as N	DETSC 2207	0.015	mg/l							
Chloride	DETSC 2055	0.1	mg/l							
Salinity (Calculated)	DETSC 2017*	0.01	%							
Sulphate as SO4	DETSC 2076*	0.01	mg/l							
Sulphur (free)	DETSC 3049	84	ug/l							

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Lab No

.Sample ID

Depth

Other ID

Sample Type

Sampling Date

Sampling Time

Test	Method	LOD	Units
<b>Petroleum Hydrocarbons</b>			
Aliphatic C5-C6	DETSC 3322	0.1	ug/l
Aliphatic C6-C8	DETSC 3322	0.1	ug/l
Aliphatic C8-C10	DETSC 3322	0.1	ug/l
Aliphatic C10-C12	DETSC 3072*	1	ug/l
Aliphatic C12-C16	DETSC 3072*	1	ug/l
Aliphatic C16-C21	DETSC 3072*	1	ug/l
Aliphatic C21-C35	DETSC 3072*	1	ug/l
Aliphatic C5-C35	DETSC 3072*	10	ug/l
Aromatic C5-C7	DETSC 3322	0.1	ug/l
Aromatic C7-C8	DETSC 3322	0.1	ug/l
Aromatic C8-C10	DETSC 3322	0.1	ug/l
Aromatic C10-C12	DETSC 3072*	1	ug/l
Aromatic C12-C16	DETSC 3072*	1	ug/l
Aromatic C16-C21	DETSC 3072*	1	ug/l
Aromatic C21-C35	DETSC 3072*	1	ug/l
Aromatic C5-C35	DETSC 3072*	10	ug/l
TPH Ali/Aro Total C5-C35	DETSC 3072*	10	ug/l

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Test	Method	LOD	Units	Lab No
<b>PAHs</b>				
Naphthalene	DETSC 3304	0.05	ug/l	
Acenaphthylene	DETSC 3304	0.01	ug/l	
Acenaphthene	DETSC 3304	0.01	ug/l	
Fluorene	DETSC 3304	0.01	ug/l	
Phenanthrene	DETSC 3304	0.01	ug/l	
Anthracene	DETSC 3304	0.01	ug/l	
Fluoranthene	DETSC 3304	0.01	ug/l	
Pyrene	DETSC 3304	0.01	ug/l	
Benzo(a)anthracene	DETSC 3304*	0.01	ug/l	
Chrysene	DETSC 3304	0.01	ug/l	
Benzo(b)fluoranthene	DETSC 3304	0.01	ug/l	
Benzo(k)fluoranthene	DETSC 3304	0.01	ug/l	
Benzo(a)pyrene	DETSC 3304	0.01	ug/l	
Indeno(1,2,3-c,d)pyrene	DETSC 3304	0.01	ug/l	
Dibenzo(a,h)anthracene	DETSC 3304	0.01	ug/l	
Benzo(g,h,i)perylene	DETSC 3304	0.01	ug/l	
PAH Total	DETSC 3304	0.2	ug/l	
<b>Phenols</b>				
Phenol	DETSC 3451*	0.1	ug/l	
4-Chloro-3-methylphenol	DETSC 3451*	0.1	ug/l	
2,4-Dichlorophenol	DETSC 3451*	0.1	ug/l	
2,4-Dimethylphenol	DETSC 3451*	0.1	ug/l	
p-cresol	DETSC 3451*	0.1	ug/l	
2,6-Dimethylphenol	DETSC 3451*	0.1	ug/l	
2,6-Dichlorophenol	DETSC 3451*	0.1	ug/l	
2,4,6-Trichlorophenol	DETSC 3451*	0.1	ug/l	

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Test	Method	LOD	Units	Lab No	.Sample ID	Depth	Other ID	Sample Type	Sampling Date	Sampling Time
<b>VOCs</b>										
Dichlorodifluoromethane	DETSC 3432	1	ug/l							
Chloromethane	DETSC 3432	1	ug/l							
Vinyl Chloride	DETSC 3432	1	ug/l							
Bromomethane	DETSC 3432	1	ug/l							
Chloroethane	DETSC 3432	1	ug/l							
Trichlorofluoromethane	DETSC 3432*	1	ug/l							
1,1-dichloroethylene	DETSC 3432	1	ug/l							
Methylene Chloride	DETSC 3432*	27	ug/l							
Trans-1,2-dichloroethylene	DETSC 3432	1	ug/l							
1,1-dichloroethane	DETSC 3432	1	ug/l							
Cis-1,2-dichloroethylene	DETSC 3432	1	ug/l							
2,2-dichloropropane	DETSC 3432	2	ug/l							
Bromochloromethane	DETSC 3432	4	ug/l							
Chloroform	DETSC 3432	1	ug/l							
1,1,1-trichloroethane	DETSC 3432	1	ug/l							
1,1-dichloropropene	DETSC 3432	1	ug/l							
Carbon tetrachloride	DETSC 3432	1	ug/l							
Benzene	DETSC 3432	1	ug/l							
1,2-dichloroethane	DETSC 3432	1	ug/l							
Trichloroethylene	DETSC 3432*	1	ug/l							
1,2-dichloropropane	DETSC 3432	1	ug/l							
Dibromomethane	DETSC 3432	1	ug/l							
Bromodichloromethane	DETSC 3432	4	ug/l							
cis-1,3-dichloropropene	DETSC 3432	1	ug/l							
Toluene	DETSC 3432	1	ug/l							
trans-1,3-dichloropropene	DETSC 3432	1	ug/l							
1,1,2-trichloroethane	DETSC 3432	1	ug/l							
Tetrachloroethylene	DETSC 3432	1	ug/l							
1,3-dichloropropane	DETSC 3432	1	ug/l							
Dibromochloromethane	DETSC 3432	1	ug/l							
1,2-dibromoethane	DETSC 3432	1	ug/l							
Chlorobenzene	DETSC 3432	1	ug/l							
1,1,1,2-tetrachloroethane	DETSC 3432	1	ug/l							
Ethylbenzene	DETSC 3432	1	ug/l							
m+p-Xylene	DETSC 3432	2	ug/l							
o-Xylene	DETSC 3432	1	ug/l							
Styrene	DETSC 3432	1	ug/l							
Bromoform	DETSC 3432	1	ug/l							

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				Sample ID
				Depth
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				Sample Type
				Sampling Date
				Sampling Time
Isopropylbenzene	DETSC 3432	1	ug/l	
1,1,2,2-tetrachloroethane	DETSC 3432	1	ug/l	
Bromobenzene	DETSC 3432	1	ug/l	
1,2,3-trichloropropane	DETSC 3432	1	ug/l	
n-propylbenzene	DETSC 3432	1	ug/l	
2-chlorotoluene	DETSC 3432	1	ug/l	
1,3,5-trimethylbenzene	DETSC 3432	1	ug/l	
4-chlorotoluene	DETSC 3432	1	ug/l	
Tert-butylbenzene	DETSC 3432	1	ug/l	
1,2,4-trimethylbenzene	DETSC 3432	1	ug/l	
sec-butylbenzene	DETSC 3432	1	ug/l	
p-isopropyltoluene	DETSC 3432	1	ug/l	
1,3-dichlorobenzene	DETSC 3432	2	ug/l	
1,4-dichlorobenzene	DETSC 3432	1	ug/l	
n-butylbenzene	DETSC 3432	1	ug/l	
1,2-dichlorobenzene	DETSC 3432	1	ug/l	
1,2-dibromo-3-chloropropane	DETSC 3432	1	ug/l	
1,2,4-trichlorobenzene	DETSC 3432	1	ug/l	
Hexachlorobutadiene	DETSC 3432	1	ug/l	
1,2,3-trichlorobenzene	DETSC 3432	1	ug/l	
MTBE	DETSC 3432*	1	ug/l	
<b>SVOCs</b>				
Aniline	DETSC 3434*	1	ug/l	
2-Chlorophenol	DETSC 3434*	1	ug/l	
Benzyl Alcohol	DETSC 3434*	1	ug/l	
2-Methylphenol	DETSC 3434*	1	ug/l	
Bis(2-chloroisopropyl)ether	DETSC 3434*	1	ug/l	
3&4-Methylphenol	DETSC 3434*	1	ug/l	
Bis(2-chloroethoxy)methane	DETSC 3434*	1	ug/l	
1,2,4-Trichlorobenzene	DETSC 3434*	1	ug/l	
2-Methylnaphthalene	DETSC 3434*	1	ug/l	
Hexachlorocyclopentadiene	DETSC 3434*	1	ug/l	
2,4,5-Trichlorophenol	DETSC 3434*	1	ug/l	
2-Chloronaphthalene	DETSC 3434*	1	ug/l	
2-Nitroaniline	DETSC 3434*	1	ug/l	
2,4-Dinitrotoluene	DETSC 3434*	1	ug/l	
3-Nitroaniline	DETSC 3434*	1	ug/l	
4-Nitrophenol	DETSC 3434*	1	ug/l	
Dibenzofuran	DETSC 3434*	1	ug/l	

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Test	Method	LOD	Units	Lab No
				.Sample ID
				Depth
				Other ID
				Sample Type
				Sampling Date
				Sampling Time
2,6-Dinitrotoluene	DETSC 3434*	1	ug/l	
2,3,4,6-Tetrachlorophenol	DETSC 3434*	1	ug/l	
Diethylphthalate	DETSC 3434*	1	ug/l	
4-Chlorophenylphenylether	DETSC 3434*	1	ug/l	
4-Nitroaniline	DETSC 3434*	1	ug/l	
Diphenylamine	DETSC 3434*	1	ug/l	
4-Bromophenylphenylether	DETSC 3434*	1	ug/l	
Hexachlorobenzene	DETSC 3434*	1	ug/l	
Bis(2-ethylhexyl)ester	DETSC 3434*	1	ug/l	
Pentachlorophenol	DETSC 3434*	1	ug/l	
Di-n-butylphthalate	DETSC 3434*	1	ug/l	
Butylbenzylphthalate	DETSC 3434*	1	ug/l	
Bis(2-ethylhexyl)phthalate	DETSC 3434*	1	ug/l	
Di-n-octylphthalate	DETSC 3434*	1	ug/l	
1,4-Dinitrobenzene	DETSC 3434*	1	ug/l	
Dimethylphthalate	DETSC 3434*	1	ug/l	
1,3-Dinitrobenzene	DETSC 3434*	1	ug/l	
2,3,5,6-Tetrachlorophenol	DETSC 3434*	1	ug/l	
Azobenzene	DETSC 3434*	1	ug/l	
Carbazole	DETSC 3434*	1	ug/l	
1-Methylnaphthalene	DETSC 3434*	1	ug/l	



## Information in Support of the Analytical Results

Our Ref 21-18738  
 Client Ref 4280  
 Contract SLEMS, Former Redcar Steelworks

### Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
1899263	SLEMS_AUK_SW01 0.00 WATER	01/09/21	GB 1L x2, GV, PB 1L, PU	pH/Cond/TDS (1 days)	
1899264	SLEMS_AUK_SW02 0.00 WATER	01/09/21	GB 1L x2, GV, PB 1L, PU	pH/Cond/TDS (1 days)	
1899265	SLEMS_AUK_SW03 0.00 WATER	01/09/21	GB 1L x2, GV, PB 1L, PU	pH/Cond/TDS (1 days)	
1899266	SLEMS_AUK_SW04 0.00 WATER	01/09/21	GB 1L x2, GV, PB 1L, PU	pH/Cond/TDS (1 days)	
1899267	SLEMS_AUK_SW05 0.00 WATER	01/09/21	GB 1L x2, GV, PB 1L, PU	pH/Cond/TDS (1 days)	
1899268	SLEMS_AUK_SW06 0.00 WATER	01/09/21	GB 1L x2, GV, PB 1L, PU	pH/Cond/TDS (1 days)	

Key: G-Glass P-Plastic B-Bottle V-Vial U-Tube

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

### Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-  
 Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

End of Report

# Appendix D

## Summary of Gas Monitoring

Permanent Ground Gas Monitoring Data

Well ID	Borehole Elevation	Date Monitored	Gas Flow Rate		Methane LEL		Methane (CH <sub>4</sub> )		Carbon-dioxide (CO <sub>2</sub> )		Oxygen (O <sub>2</sub> )		Carbon Monoxide (CO)	Hydrogen Sulphide (H <sub>2</sub> S)	Depth to Water (mbgl)	Depth to Base (mbgl)	Well Screening (mbgl)	Geological Unit	Q(hg) CH <sub>4</sub> (l/hr)	Q(hg) CO <sub>2</sub> (l/hr)
			Peak (l/hr)	Steady (l/hr)	Peak (%)	Steady (%)	Peak (%v/v)	Steady (%v/v)	Peak (%v/v)	Steady (%v/v)	Minimum (%v/v)	Steady (%v/v)	Peak (ppm)	Peak (ppm)						
Monitoring Round 1 (22 October 2021)																				
S3_BHA03S	9.9	22-Oct-21	0.10	NVP	<2.0	<2.0	<0.1	<0.1	0.2	0.2	20.2	20.2	1	<1.0	Dry	5.0	3.50 - 5.00	MG / GL	<0.01	<0.01
S3_BHA03D	9.9	22-Oct-21	0.1	NVP	<2.0	<2.0	<0.1	<0.1	0.2	0.1	20.1	20.1	3	<1.0	6.30	15.0	10.00 - 15.00	RMF	<0.01	<0.01
S3_BHA04S	10.02	22-Oct-21	-6.00	NVP	<2.0	<2.0	<0.1	<0.1	0.1	0.1	20.4	20.4	1	<1.0	0.73	4.0	1.00 - 4.00	MG / GL	<0.01	<0.01
S3_BHA04D	10.02	22-Oct-21	-6.4	NVP	<2.0	<2.0	<0.1	<0.1	0.1	0.1	20.4	20.4	2	<1.0	0.73	12.3	7.00 - 12.30	RMF	<0.01	<0.01
Weather	Overcast																			
Monitoring Round 2 (02 November 2021)																				
S3_BHA03S	9.9	02-Nov-21	0.10	NVP	<2.0	<2.0	<0.1	<0.1	0.1	0.1	20.3	20.3	<1.0	<1.0	5.02	5.0	3.50 - 5.00	MG / GL	<0.01	<0.01
S3_BHA03D	9.9	02-Nov-21	0.1	NVP	<2.0	<2.0	<0.1	<0.1	0.1	0.1	20.2	20.3	2	<1.0	6.34	15.0	10.00 - 15.00	RMF	<0.01	<0.01
S3_BHA04S	10.02	02-Nov-21	-4.00	NVP	<2.0	<2.0	<0.1	<0.1	0.1	0.1	20.4	20.4	1	<1.0	0.75	4.0	1.00 - 4.00	MG / GL	<0.01	<0.01
S3_BHA04D	10.02	02-Nov-21	-4.1	NVP	<2.0	<2.0	<0.1	<0.1	0.1	0.1	20.3	20.4	1	<1.0	0.76	12.3	7.00 - 12.30	RMF	<0.01	<0.01
Weather	Clear																			
Monitoring Round 3 (11 November 2021)																				
S3_BHA03S	9.9	11-Nov-21	0.10	NVP	<2.0	<2.0	<0.1	<0.1	0.2	0.1	20.2	20.3	2	<1.0	4.9	5.0	3.50 - 5.00	MG / GL	<0.01	<0.01
S3_BHA03D	9.9	11-Nov-21	0.1	NVP	<2.0	<2.0	<0.1	<0.1	0.2	0.2	20.4	20.4	2	<1.0	6.22	15.0	10.00 - 15.00	RMF	<0.01	<0.01
S3_BHA04S	10.02	11-Nov-21	-2.90	NVP	<2.0	<2.0	<0.1	<0.1	0.1	0.1	20.6	20.6	<1.0	<1.0	0.93	4.0	1.00 - 4.00	MG / GL	<0.01	<0.01
S3_BHA04D	10.02	11-Nov-21	0.1	NVP	<2.0	<2.0	<0.1	<0.1	0.1	0.1	20.4	20.5	1	<1.0	0.94	12.3	7.00 - 12.30	RMF	<0.01	<0.01
Weather	Cloudy																			
Monitoring Round 4 (28 October 2021)																				
S3_BHA02	11.16	26-Nov-21	0.00	NVP	2	2	0.1	0.1	0.2	0.2	20.7	20.7	<1.0	<1.0	1.58	5.0	2.00 - 5.00	GL / GT	<0.01	<0.01
S3_BHA03S	9.9	26-Nov-21	0.00	NVP	<2.0	<2.0	<0.1	<0.1	0.1	0.1	20.7	20.7	<1.0	<1.0	4.65	5.0	3.50 - 5.00	MG / GL	<0.01	<0.01
S3_BHA03D	9.9	26-Nov-21	0.00	NVP	<2.0	<2.0	<0.1	<0.1	0.1	0.1	20.8	20.8	<1.0	<1.0	6.36	15.0	10.00 - 15.00	RMF	<0.01	<0.01
S3_BHA04S	10.02	26-Nov-21	0.00	NVP	<2.0	<2.0	<0.1	<0.1	0.2	0.2	20.7	20.7	<1.0	<1.0	1.5	4.0	1.00 - 4.00	MG / GL	<0.01	<0.01
S3_BHA04D	10.02	26-Nov-21	0.00	NVP	<2.0	<2.0	<0.1	<0.1	0.1	0.1	20.8	20.8	<1.0	<1.0	1.53	12.3	7.00 - 12.30	RMF	<0.01	<0.01
Weather	Cloudy																			
Monitoring Round 5 (01 December 2021)																				
S3_BHA02	11.16	01-Dec-21	0.00	NVP	2	2	0.1	0.1	0.2	0.2	20.6	20.6	<1.0	<1.0	0.83	5.0	2.00 - 5.00	GL / GT	<0.01	<0.01
S3_BHA03S	9.9	01-Dec-21	0.00	NVP	<2.0	<2.0	<0.1	<0.1	0.1	0.1	20.8	20.8	<1.0	<1.0	4.6	5.0	3.50 - 5.00	MG / GL	<0.01	<0.01
S3_BHA03D	9.9	01-Dec-21	0.00	NVP	<2.0	<2.0	<0.1	<0.1	0.2	0.2	20.6	20.6	<1.0	<1.0	6.27	15.0	10.00 - 15.00	RMF	<0.01	<0.01
S3_BHA04S	10.02	01-Dec-21	0.00	NVP	<2.0	<2.0	<0.1	<0.1	0.2	0.2	20.7	20.7	<1.0	<1.0	0.62	4.0	1.00 - 4.00	MG / GL	<0.01	<0.01
S3_BHA04D	10.02	01-Dec-21	0.00	NVP	<2.0	<2.0	<0.1	<0.1	0.1	0.1	20.9	20.9	<1.0	<1.0	0.60	12.3	7.00 - 12.30	RMF	<0.01	<0.01
Weather	Cloudy																			
Monitoring Round 6 (01 December 2021)																				
S3_BHA02	11.16	10-Dec-21	0.00	NVP	<2.0	<2.0	<0.1	<0.1	0.5	0.4	20.7	20.7	1	<1.0	1.35	5.0	2.00 - 5.00	GL / GT	<0.01	<0.01
Weather	Clear																			

Notes:

Q(hg)	Hazardous gas flow rate
-	Parameter not measured
--	Not calculated
	Well damaged / destroyed, unable to take readings
1.23	Groundwater resting above the slotted section of the monitoring well

# Appendix E

## GQRA – Summary of Soil Screen

Table E1: Soil GAC Protective of Human Health

Contaminant of Concern	MDL	Units	Human Health (Commercial Worker)	GAC Source	Maximum Concentration Measured
<b>Metals</b>					
Aluminium	1	mg/kg			58,000.00
Antimony	1	mg/kg	470	USEPA	16.00
Arsenic	0.2	mg/kg	640	S4UL	180.00
Barium	2	mg/kg	19,000	Arcadis	520.00
Beryllium	0.2	mg/kg	12	S4UL	5.30
Boron, Water Soluble	0.2	mg/kg	240,000	S4UL	4.80
Cadmium	0.1	mg/kg	190	S4UL	3.30
Chromium	0.15	mg/kg	8,600	S4UL	320.00
Chromium, Hexavalent	1	mg/kg	33	S4UL	<MDL
Copper	0.2	mg/kg	68,000	S4UL	500.00
Iron	25	mg/kg			200,000.00
Lead	0.3	mg/kg	2,300	C4SL	660.00
Magnesium	1	mg/kg			37,000.00
Manganese	20	mg/kg			98,000.00
Mercury	0.05	mg/kg	58*	S4UL	0.87
Molybdenum	0.4	mg/kg	5,540	Arcadis	19.00
Nickel	1	mg/kg	980	S4UL	120.00
Selenium	0.5	mg/kg	12,000	S4UL	4.50
Vanadium	0.8	mg/kg	9,000	S4UL	1,700.00
Zinc	1	mg/kg	730,000	S4UL	2,000.00
<b>Inorganics</b>					
pH		pH			11.40
Calorific Value	1	MJ/kg			8.80
Cyanide, Total	0.1	mg/kg			20.00
Cyanide, Free	0.1	mg/kg	66	DQRA	0.70
Thiocyanate	0.6	mg/kg	230	USEPA	5.80
Organic matter	0.1	%			9.40
Ammoniacal Nitrogen	0.5	mg/kg			4.80
Chloride	1	mg/kg			91.20
Sulphate Aqueous Extract as SO4	10	mg/l			1,600.00
Sulphur (free)	0.75	mg/kg			43.00
<b>Petroleum Hydrocarbons</b>					
Aliphatic C5-C6	0.01	mg/kg	3200**	S4UL	0.56
Aliphatic C6-C8	0.01	mg/kg	7800**	S4UL	0.00
Aliphatic C8-C10	0.01	mg/kg	2000**	S4UL	0.24
Aliphatic C10-C12	1.5	mg/kg	9700**	S4UL	13.00
Aliphatic C12-C16	1.2	mg/kg	59000**	S4UL	580.00
Aliphatic C16-C21	1.5	mg/kg	1,600,000	S4UL	2,300.00
Aliphatic C21-C35	3.4	mg/kg	1,600,000	S4UL	4,000.00
Aliphatic C5-C35	10	mg/kg	na		4,500.00
Aromatic C5-C7	0.01	mg/kg	26000**	S4UL	0.00
Aromatic C7-C8	0.01	mg/kg	56000**	S4UL	0.00
Aromatic C8-C10	0.01	mg/kg	3500**	S4UL	0.00
Aromatic C10-C12	0.9	mg/kg	16000**	S4UL	13.00
Aromatic C12-C16	0.5	mg/kg	36000**	S4UL	1,300.00
Aromatic C16-C21	0.6	mg/kg	28,000	S4UL	29000
Aromatic C21-C35	1.4	mg/kg	28,000	S4UL	32000
Aromatic C5-C35	10	mg/kg	na		62,000.00
TPH Ali/Aro Total	10	mg/kg	na		62,000.00
<b>PAHs</b>					
Naphthalene	0.03	mg/kg	1,900	Wood	0.76

Table E1: Soil GAC Protective of Human Health

Contaminant of Concern	MDL	Units	Human Health (Commercial Worker)	GAC Source	Maximum Concentration Measured
Acenaphthylene	0.03	mg/kg	83000**	S4UL	1.40
Acenaphthene	0.03	mg/kg	84000**	S4UL	0.25
Fluorene	0.03	mg/kg	63000**	S4UL	2.30
Phenanthrene	0.03	mg/kg	22,000	S4UL	8.40
Anthracene	0.03	mg/kg	520,000	S4UL	6.70
Fluoranthene	0.03	mg/kg	23,000	S4UL	110.00
Pyrene	0.03	mg/kg	54,000	S4UL	90.00
Benzo(a)anthracene	0.03	mg/kg	170	S4UL	46.00
Chrysene	0.03	mg/kg	350	S4UL	28.00
Benzo(b)fluoranthene	0.03	mg/kg	44	S4UL	42.00
Benzo(k)fluoranthene	0.03	mg/kg	1,200	S4UL	22.00
Benzo(a)pyrene	0.03	mg/kg	77	Wood	29.00
Indeno(1,2,3-c,d)pyrene	0.03	mg/kg	500	S4UL	12.00
Dibenzo(a,h)anthracene	0.03	mg/kg	3.5	S4UL	3.20
Benzo(g,h,i)perylene	0.03	mg/kg	3,900	S4UL	11.00
PAH - USEPA 16, Total	0.1	mg/kg		na	410.00
<b>PCBs</b>					
PCB 28 + PCB 31	0.01	mg/kg		-	<MDL
PCB 52	0.01	mg/kg		-	<MDL
PCB 101	0.01	mg/kg		-	<MDL
PCB 118	0.01	mg/kg		-	<MDL
PCB 153	0.01	mg/kg		-	<MDL
PCB 138	0.01	mg/kg		-	<MDL
PCB 180	0.01	mg/kg		-	<MDL
PCB 7 Total	0.01	mg/kg		na	<MDL
<b>Phenols</b>					
Phenol - Monohydric	0.3	mg/kg	760	S4UL	<MDL
Phenol	0.01	mg/kg	760	S4UL	0.16
4-Chloro-3-methylphenol	0.01	mg/kg	82,000	USEPA	<MDL
2,4-Dichlorophenol	0.01	mg/kg	2,500	USEPA	0.02
2,4-Dimethylphenol	0.01	mg/kg	16,000	USEPA	0.06
p-cresol	0.01	mg/kg		-	0.16
2,6-Dimethylphenol	0.01	mg/kg		-	<MDL
2,6-Dichlorophenol	0.01	mg/kg		-	0.02
2,4,6-Trichlorophenol	0.01	mg/kg	210	USEPA	<MDL
<b>Asbestos</b>					
Detected					2no. Chrysotile
Quantification		Mass %			0.032

The following GACs have been used in order of availability:

S4UL: (Commercial End Use, 1% SOM)

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C4SL: (Commercial End Use)

Department for Environment, Food and Rural Affairs (DEFRA) (2014) SP1010: Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination – Policy Companion Document, December 2014

Arcadis

Where published criteria above are not available, Arcadis has derived GAC based on EA guidance and assumptions in line with current industry standards and standard CLEA inputs for a commercial land use.

Table E1: Soil GAC Protective of Human Health

Contaminant of Concern	MDL	Units	Human Health (Commercial Worker)	GAC Source	Maximum Concentration Measured
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USEPA  
 GAC based on US Environmental Protection Agency (USEPA) Regional Screening Levels (RSL). Available at <https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables>

Wood derived GAC based on CLEA v1.07 were presented in the Wood 2019 report for benzo(a)pyrene and naphthalene. It is understood that these values were acceptable to the regulator for this site and as such they have been retained here.

**Notes**

GAC	Generic Assessment Criteria
na	Comprises multiple contaminant, no applicable GAC
123*	S4UL exceeds the vapour saturation limit
123**	S4UL exceeds the solubility saturation limit
-	No applicable GAC readily available
	Elements present naturally in soil with typically low toxicity
<MDL	Concentration less than the method detection limit
	Contaminant of Concern in excess of Human Health GAC

Table E2: Soil GAC Protective of Human Health

Contaminant of Concern	MDL	Units	Human Health (Commercial Worker)	GAC Source	Maximum Concentration Measured
<b>VOCs</b>					
Vinyl Chloride	0.01	mg/kg	0.059	S4UL	<MDL
1,1 Dichloroethylene	0.01	mg/kg	1,000	USEPA	<MDL
Trans-1,2-dichloroethylene	0.01	mg/kg	23,000	USEPA	<MDL
1,1-dichloroethane	0.01	mg/kg	16	USEPA	<MDL
Cis-1,2-dichloroethylene	0.01	mg/kg	2,300	USEPA	<MDL
2,2-dichloropropane	0.01	mg/kg	-		<MDL
Bromochloromethane	0.01	mg/kg	630	USEPA	<MDL
Chloroform	0.01	mg/kg	99	S4UL	<MDL
1,1,1-trichloroethane	0.01	mg/kg	660	S4UL	<MDL
1,1-dichloropropene	0.01	mg/kg	-		<MDL
Carbon tetrachloride	0.01	mg/kg	2.9	S4UL	<MDL
Benzene	0.01	mg/kg	27	S4UL	<MDL
1,2-dichloroethane	0.01	mg/kg	0.67	S4UL	<MDL
Trichloroethylene	0.01	mg/kg	1.2	S4UL	<MDL
1,2-dichloropropane	0.01	mg/kg	11.0	USEPA	<MDL
Dibromomethane	0.01	mg/kg	99.0	USEPA	<MDL
Bromodichloromethane	0.01	mg/kg	1.3	USEPA	<MDL
cis-1,3-dichloropropene	0.01	mg/kg	8.2	USEPA	<MDL
Toluene	0.01	mg/kg	56,000	S4UL	<MDL
trans-1,3-dichloropropene	0.01	mg/kg	8.2	USEPA	<MDL
1,1,2-trichloroethane	0.01	mg/kg	5	USEPA	<MDL
Tetrachloroethylene	0.01	mg/kg	19	S4UL	<MDL
1,3-dichloropropane	0.01	mg/kg	23,000	USEPA	<MDL
Dibromochloromethane	0.01	mg/kg	39	USEPA	<MDL
1,2-dibromoethane	0.01	mg/kg	0.16	USEPA	<MDL
Chlorobenzene	0.01	mg/kg	56	S4UL	<MDL
1,1,1,2-tetrachloroethane	0.01	mg/kg	110	S4UL	<MDL
Ethylbenzene	0.01	mg/kg	5,700	S4UL	<MDL
m+p-Xylene	0.01	mg/kg	5,900	S4UL	<MDL
o-Xylene	0.01	mg/kg	6,600	S4UL	0.01
Styrene	0.01	mg/kg	35,000	USEPA	<MDL
Bromoform	0.01	mg/kg	86	USEPA	<MDL
Isopropylbenzene	0.01	mg/kg	-		<MDL
Bromobenzene	0.01	mg/kg	1,800	USEPA	<MDL
1,2,3-trichloropropane	0.01	mg/kg	0.11	USEPA	<MDL
n-propylbenzene	0.01	mg/kg	-		<MDL
2-chlorotoluene	0.01	mg/kg	23,000	USEPA	<MDL
1,3,5-trimethylbenzene	0.01	mg/kg	1,500	USEPA	<MDL
4-chlorotoluene	0.01	mg/kg	23,000	USEPA	<MDL
Tert-butylbenzene	0.01	mg/kg	120,000	USEPA	<MDL
1,2,4-trimethylbenzene	0.01	mg/kg	1,800	USEPA	0.01
sec-butylbenzene	0.01	mg/kg	120,000	USEPA	0.01
p-isopropyltoluene	0.01	mg/kg	-		0.01
1,3-dichlorobenzene	0.01	mg/kg	30	S4UL	<MDL
1,4-dichlorobenzene	0.01	mg/kg	4,400	S4UL	<MDL
n-butylbenzene	0.01	mg/kg	58,000	USEPA	0.01
1,2-dichlorobenzene	0.01	mg/kg	2,000	S4UL	<MDL
1,2-dibromo-3-chloropropane	0.01	mg/kg	0.06	USEPA	<MDL
1,2,4-trichlorobenzene	0.01	mg/kg	220	S4UL	<MDL



Hexachlorobutadiene	0.01	mg/kg	31	S4UL	<MDL
1,2,3-trichlorobenzene	0.01	mg/kg	102	S4UL	<MDL
MTBE	0.01	mg/kg	210	USEPA	<MDL

The following GACs have been used in order of availability:

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C4SL: (Commerical End Use) Department for Environment, Food and Rural Affairs (DEFRA) (2014) SP1010: Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination – Policy Companion Document, December 2014

Arcadis Where published criteria above are not available, Arcadis has derived GAC based on EA guidance and assumptions in line with current industry standards and standard CLEA inputs for a commerical land use.

USEPA GAC based on US Environmental Protection Agency (USEPA) Regional Screening Levels (RSL). Available at <https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables>

#### Notes

GAC	Generic Assessment Criteria
na	Comprises multiple contaminant, no applicable GAC
123*	S4UL exceeds the vapour saturation limit
123**	S4UL exceeds the solubility saturation limit
-	No applicable GAC readily available
-	Not analysed
	Contaminant of Concern in excess of Human Health GAC

Table E3: Soil GAC Protective of Human Health

Contaminant of Concern	MDL	Units	Human Health (Commercial Worker)	GAC Source	Maximum Concentration Measured
Aniline	0.1	mg/kg	400	USEPA	<MDL
2-Chlorophenol	0.1	mg/kg	3,500	S4UL	<MDL
Benzyl Alcohol	0.1	mg/kg	82,000	USEPA	<MDL
2-Methylphenol	0.1	mg/kg	41,000	USEPA	<MDL
Bis(2-chloroisopropyl)ether	0.1	mg/kg	47,000	USEPA	<MDL
3&4-Methylphenol	0.1	mg/kg	82,000	USEPA	<MDL
Bis-(dichloroethoxy)methane	0.1	mg/kg	-		<MDL
1,2,4-Trichlorobenzene	0.1	mg/kg	110	USEPA	<MDL
2-Methylnaphthalene	0.1	mg/kg	3,000	USEPA	<MDL
Hexachlorocyclopentadiene	0.1	mg/kg	8	USEPA	<MDL
2,4,5-Trichlorophenol	0.1	mg/kg	82,000	USEPA	<MDL
2-Chloronaphthalene	0.1	mg/kg	60,000	USEPA	<MDL
2-Nitroaniline	0.1	mg/kg	8,000	USEPA	<MDL
2,4-Dinitrotoluene	0.1	mg/kg	7.4	USEPA	<MDL
3-Nitroaniline	0.1	mg/kg	-		<MDL
4-Nitrophenol	0.1	mg/kg	-		<MDL
Dibenzofuran	0.1	mg/kg	1,000	USEPA	2.90
2,6-Dinitrotoluene	0.1	mg/kg	1.50	USEPA	<MDL
2,3,4,6-Tetrachlorophenol	0.1	mg/kg	25,000	USEPA	<MDL
Diethylphthalate	0.1	mg/kg	660,000	USEPA	<MDL
4-Chlorophenylphenylether	0.1	mg/kg	-		<MDL
4-Nitroaniline	0.1	mg/kg	110	USEPA	<MDL
2-Methyl-4,6-Dinitrophenol	0.1	mg/kg	-		<MDL
Diphenylamine	0.1	mg/kg	82,000	USEPA	<MDL
4-Bromophenylphenylether	0.1	mg/kg	-		<MDL
Hexachlorobenzene	0.1	mg/kg	110	S4UL	<MDL
Pentachlorophenol	0.1	mg/kg	400	S4UL	<MDL
Di-n-butylphthalate	0.1	mg/kg	-		<MDL
Butylbenzylphthalate	0.1	mg/kg	1,200	USEPA	<MDL
Bis(2-ethylhexyl)phthalate	0.1	mg/kg	160	USEPA	<MDL
Di-n-octylphthalate	0.1	mg/kg	8,200	USEPA	<MDL
1,4-Dinitrobenzene	0.1	mg/kg	82	USEPA	<MDL
Dimethylphthalate	0.1	mg/kg	-		<MDL
1,3-Dinitrobenzene	0.1	mg/kg	82	USEPA	1.20
1,2-Dinitrobenzene	0.1	mg/kg	82	USEPA	0.10
2,3,5,6-Tetrachlorophenol	0.1	mg/kg	-		<MDL
Azobenzene	0.1	mg/kg	26	USEPA	<MDL
Carbazole	0.1	mg/kg	-		3.90

The following GACs have been used in order of availability:

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C4SL: (Commerical End Use) Department for Environment, Food and Rural Affairs (DEFRA) (2014) SP1010: Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination – Policy Companion Document, December 2014

Arcadis Where published criteria above are not available, Arcadis has derived GAC based on EA guidance and assumptions in line with current industry standards and standard CLEA inputs for a commerical land use.

USEPA

GAC based on US Environmental Protection Agency (USEPA) Regional Screening Levels (RSL). Available at <https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables>

**Notes**

GAC

Generic Assessment Criteria

na

Comprises multiple contaminant, no applicable GAC

123\*

S4UL exceeds the vapour saturation limit

123\*\*

S4UL exceeds the solubility saturation limit

-

No applicable GAC readily available

<MDL

Concentration less than the method detection limit

Contaminant of Concern in excess of Human Health GAC

# Appendix F

## GQRA – Summary of Groundwater Screen

Table F1: Groundwater GAC Protective of Human Health and Water Resources

Contaminant of Concern	MDL	Units	Human Health Inhalation GAC (On-site Commercial Worker)	Human Health Inhalation GAC (Off-site Resident)	EQS (Fresh Water)	DWS	Maximum Concentration Measured
<b>Metals</b>							
Aluminium, Dissolved	10	ug/l	NVP	NVP	-	200.00	100.00
Antimony, Dissolved	0.17	ug/l	NVP	NVP	-	5	1.20
Arsenic, Dissolved	0.16	ug/l	NVP	NVP	50	10	5.60
Barium, Dissolved	0.26	ug/l	NVP	NVP	-	1300	110.00
Beryllium, Dissolved	0.1	ug/l	NVP	NVP	-	-	<MDL
Boron, Dissolved	12	ug/l	NVP	NVP	2000	1000	1400
Cadmium, Dissolved	0.03	ug/l	NVP	NVP	0.08	5	0.04
Chromium, Total	0.25	ug/l	NVP	NVP	-	50	9.60
Chromium, Hexavalent	7	ug/l	NVP	NVP	3.4	-	<MDL
Copper, Dissolved	0.4	ug/l	NVP	NVP	1 (bio)	2000	2.3
Iron, Dissolved	5.5	ug/l	NVP	NVP	1000	200	240
Lead, Dissolved	0.09	ug/l	NVP	NVP	1.2 (bio)	10	5
Magnesium, Dissolved	0.02	mg/l	NVP	NVP	-	-	67.00
Manganese, Dissolved	0.22	ug/l	NVP	NVP	123 (bio)	50	580
Mercury, Dissolved	0.01	ug/l	NVP	9.70	0.07 (MAC)	1	0.1
Molybdenum, Dissolved	1.1	ug/l	NVP	NVP	-	70	29.00
Nickel, Dissolved	0.5	ug/l	NVP	NVP	4 (bio)	20	5.1
Vanadium, Dissolved	0.6	ug/l	NVP	NVP	20	-	16.00
Zinc, Dissolved	1.3	ug/l	NVP	NVP	10.9 (bio)	3000	14
<b>Inorganics</b>							
pH	-	pH	NVP	NVP	6 - 9 (MAC)	6.5 - 9.5	8.40
Cyanide, Total	40	ug/l	NVP	NVP	1	50	<MDL
Cyanide, Free	20	ug/l	NVP	NVP	-	-	<MDL
Thiocyanate	20	ug/l	NVP	NVP	-	-	88.00
Ammoniacal Nitrogen as N	0.015	mg/l	NVP	NVP	0.6	-	0.85
Chloride	0.1	mg/l	NVP	NVP	250	250	260
Salinity	0.01	%	NVP	NVP	-	-	1.70
Silicate as SiO2	0.1	mg/l	NVP	NVP	-	-	5.80
Sulphate as SO4	0.01	mg/l	NVP	NVP	400	250	1200
Sulphur Free	84	ug/l	NVP	NVP	-	-	<MDL
<b>Petroleum Hydrocarbons</b>							
				0.00			
Aliphatic C5-C6	0.1	ug/l	>SOL	>SOL	#	#	<MDL
Aliphatic C6-C8	0.1	ug/l	>SOL	>SOL	#	#	<MDL
Aliphatic C8-C10	0.1	ug/l	>SOL	>SOL	#	#	<MDL
Aliphatic C10-C12	1	ug/l	>SOL	>SOL	#	#	<MDL
Aliphatic C12-C16	1	ug/l	>SOL	>SOL	#	#	<MDL
Aliphatic C16-C21	1	ug/l	NR	NR	#	#	<MDL
Aliphatic C21-C35	1	ug/l	NR	NR	#	#	<MDL
Aromatic C5-C7	0.1	ug/l	57000	1010.00	10	1	<MDL
Aromatic C7-C8	0.1	ug/l	>SOL	>SOL	74	700	<MDL
Aromatic C8-C10	0.1	ug/l	>SOL	11500.00	#	#	<MDL
Aromatic C10-C12	1	ug/l	>SOL	9490.00	#	#	<MDL
Aromatic C12-C16	1	ug/l	>SOL	>SOL	#	#	<MDL
Aromatic C16-C21	1	ug/l	NR	NR	#	#	<MDL
Aromatic C21-C35	1	ug/l	NR	NR	#	#	<MDL
TPH Ali/Aro Total	10	ug/l	na	na	50*	10**	<MDL
<b>PAHs</b>							
Naphthalene	0.05	ug/l	>SOL	4110.00	2	-	1.10
Acenaphthylene	0.01	ug/l	>SOL	>SOL	-	-	0.14
Acenaphthene	0.01	ug/l	>SOL	>SOL	-	-	3.10
Fluorene	0.01	ug/l	>SOL	>SOL	-	-	0.60
Phenanthrene	0.01	ug/l	>SOL	>SOL	-	-	0.18
Anthracene	0.01	ug/l	>SOL	>SOL	0.1	-	0.05
Fluoranthene	0.01	ug/l	>SOL	>SOL	0.0063	-	0.04
Pyrene	0.01	ug/l	>SOL	>SOL	-	-	0.03
Benzo(a)anthracene	0.01	ug/l	>SOL	>SOL	-	-	0.01
Chrysene	0.01	ug/l	>SOL	>SOL	-	-	0.02
Benzo(b)fluoranthene	0.01	ug/l	>SOL	>SOL	0.0000425***	0.025	0.02
Benzo(k)fluoranthene	0.01	ug/l	>SOL	>SOL	0.0000425***	0.025	<MDL
Benzo(a)pyrene	0.01	ug/l	>SOL	>SOL	0.0000425***	0.01	<MDL
Indeno(1,2,3-c,d)pyrene	0.01	ug/l	>SOL	>SOL	0.0000425***	0.025	<MDL
Dibenzo(a,h)anthracene	0.01	ug/l	>SOL	>SOL	-	-	<MDL
Benzo(g,h,i)perylene	0.01	ug/l	>SOL	>SOL	0.0000425***	0.025	0.01
PAH Total	0.2	ug/l	>SOL	>SOL	na	na	4.20

Table F1: Groundwater GAC Protective of Human Health and Water Resources

Contaminant of Concern	MDL	Units	Human Health Inhalation GAC (On-site Commercial Worker)	Human Health Inhalation GAC (Off-site Resident)	EQS (Fresh Water)	DWS	Maximum Concentration Measured
<b>Phenols</b>							
Phenol	1	ug/l	>SOL	1420000.00	7.7	7.7	<MDL
Phenol - monohydric	100	ug/l	>SOL	1420000.00	7.7	7.7	<MDL
4-Chloro-3-methylphenol	0.1	ug/l	NR	NR	40	-	<MDL
2,4-Dichlorophenol	0.1	ug/l	2,500	NR	4.2	-	<MDL
2,4-Dimethylphenol	0.1	ug/l	16,000	NR	-	-	<MDL
2,4,6-Trichlorophenol	0.1	ug/l	NR	NR	-	-	<MDL

**Notes**

GAC	Generic Assessment Criteria
DWS	Drinking Water Standard
EQS	Environmental Quality Standard (UK Freshwater)
NVP	Contaminant has low vapour phase in groundwater
>SOL	Target acceptable risk not exceeded at the theoretical solubility concentration
NR	No appropriate inhalation reference dose identified during review of toxicological data
na	Comprises multiple contaminant, no applicable GAC
(MAC)	Maximum Allowable Concentration taken in absence of annual average
-	No water quality standard identified as suitable for deriving generic assessment criteria
#	No GAC for individual TPH fractions given that the compliance criteria is for sum TPH
<0.1	Concentration less than the method detection limit
	Contaminant of Concern in excess of Human Health GAC
1.23	Contaminant of Concern in excess of DWS
1.23	Contaminant of Concern in excess of EQS
1.23	Contaminant of Concern in excess of DWS and EQS
*	EC Surface Water Directive, 1975
**	Water Supply (Water Quality) Regulation, 1989
***	Criteria of 0.00017 split between the sum of 5 PAH

Table F1: Groundwater GAC Protective of Human Health and Water Resources

Contaminant of Concern	MDL	Units	Human Health Inhalation GAC (On-site Commercial Worker)	Human Health Inhalation GAC (Off-site Resident)	EQS (Fresh Water)	DWS	Maximum Concentration Measured
<b>VOCs</b>							
Dichlorodifluoromethane	1	ug/l	NR	NR	-	-	<MDL
Chloromethane	1	ug/l	NR	NR	-	-	<MDL
Vinyl Chloride	1	ug/l	5000	108.00	-	0.5	<MDL
Bromomethane	1	ug/l	NR	NR	-	-	<MDL
Chloroethane	1	ug/l	NR	NR	-	-	<MDL
Trichlorofluoromethane	1	ug/l	NR	NR	-	-	<MDL
1,1-dichloroethylene	1	ug/l	740000	14200.00	-	140	<MDL
Methylene Chloride	27	ug/l	NR	NR	-	-	<MDL
Trans-1,2-dichloroethylene	1	ug/l	430000	7220.00	-	25 <sup>2</sup>	<MDL
1,1-dichloroethane	1	ug/l	1600000	33300.00	-	2.8	<MDL
Cis-1,2-dichloroethylene	1	ug/l	120000	2240.00	-	25 <sup>2</sup>	<MDL
2,2-dichloropropane	2	ug/l	NR	NR	-	-	<MDL
Bromochloromethane	4	ug/l	NR	NR	-	-	<MDL
Chloroform	1	ug/l	820000	15400.00	2.5	100 <sup>3</sup>	2.00
1,1,1-trichloroethane	1	ug/l	>SOL	297000.00	100	2000	<MDL
1,1-dichloropropene	1	ug/l	NR	NR	-	-	<MDL
Carbon tetrachloride	1	ug/l	NR	NR	12	3	<MDL
Benzene	1	ug/l	57000	1010.00	10	1	<MDL
1,2-dichloroethane	1	ug/l	3600	69.80	10	3	<MDL
Trichloroethylene	1	ug/l	13000	274.00	10	5 <sup>2</sup>	<MDL
1,2-dichloropropane	1	ug/l	NR	NR	-	-	<MDL
Dibromomethane	1	ug/l	NR	NR	-	-	<MDL
Bromodichloromethane	4	ug/l	NR	NR	-	25	<MDL
cis-1,3-dichloropropene	1	ug/l	NR	NR	-	-	<MDL
Toluene	1	ug/l	>SOL	>SOL	74	700	<MDL
trans-1,3-dichloropropene	1	ug/l	NR	NR	-	-	<MDL
1,1,2-trichloroethane	1	ug/l	NR	NR	400	-	<MDL
Tetrachloroethylene	1	ug/l	140000	2840.00	10	5 <sup>2</sup>	<MDL
1,3-dichloropropane	1	ug/l	NR	NR	-	-	<MDL
Dibromochloromethane	1	ug/l	NR	NR	-	25	<MDL
1,2-dibromoethane	1	ug/l	NR	NR	-	-	<MDL
Chlorobenzene	1	ug/l	130000	2850.00	-	100	<MDL
1,1,1,2-tetrachloroethane	1	ug/l	NR	NR	70	-	<MDL
Ethylbenzene	1	ug/l	>SOL	>SOL	20	300	<MDL
m+p-Xylene	2	ug/l	>SOL	>SOL	-	-	<MDL
o-Xylene	1	ug/l	>SOL	>SOL	30	500	<MDL
Styrene	1	ug/l	NR	NR	50	-	<MDL
Bromoform	1	ug/l	NR	NR	-	25	<MDL
Isopropylbenzene	1	ug/l	NR	NR	-	-	<MDL
1,1,2,2-tetrachloroethane	1	ug/l	NR	NR	70	-	<MDL
Bromobenzene	1	ug/l	NR	NR	-	-	<MDL
1,2,3-trichloropropane	1	ug/l	NR	NR	-	-	<MDL
n-propylbenzene	1	ug/l	NR	NR	-	-	<MDL
2-chlorotoluene	1	ug/l	NR	NR	-	-	<MDL
1,3,5-trimethylbenzene	1	ug/l	NR	NR	-	-	<MDL
4-chlorotoluene	1	ug/l	NR	NR	-	-	<MDL
Tert-butylbenzene	1	ug/l	NR	NR	-	-	<MDL
1,2,4-trimethylbenzene	1	ug/l	NR	NR	-	-	<MDL
sec-butylbenzene	1	ug/l	NR	NR	-	-	<MDL
p-isopropyltoluene	1	ug/l	NR	NR	-	-	<MDL
1,3-dichlorobenzene	2	ug/l	NR	NR	6.7	-	<MDL
1,4-dichlorobenzene	1	ug/l	NR	NR	6.7	-	<MDL
n-butylbenzene	1	ug/l	NR	NR	-	-	<MDL
1,2-dichlorobenzene	1	ug/l	NR	NR	6.7	-	<MDL
1,2-dibromo-3-chloropropane	1	ug/l	NR	NR	-	-	<MDL
1,2,4-trichlorobenzene	1	ug/l	NR	NR	0.4 <sup>1</sup>	-	<MDL
Hexachlorobutadiene	1	ug/l	NR	NR	0.6	-	<MDL
1,2,3-trichlorobenzene	1	ug/l	NR	NR	0.4 <sup>1</sup>	-	<MDL
MTBE	1	ug/l	24000000	400000.00	15	15	<MDL

Table F1: Groundwater GAC Protective of Human Health and Water Resources

Contaminant of Concern	MDL	Units	Human Health Inhalation GAC (On-site Commercial Worker)	Human Health Inhalation GAC (Off-site Resident)	EQS (Fresh Water)	DWS	Maximum Concentration Measured
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**Notes**

GAC	Generic Assessment Criteria
DWS	Drinking Water Standard
EQS	Environmental Quality Standard (UK Freshwater)
NVP	Contaminant has low vapour phase in groundwater
>SOL	Target acceptable risk not exceeded at the theoretical solubility concentration
NR	No appropriate inhalation reference dose identified during review of toxicological data
na	Comprises multiple contaminant, no applicable GAC
-	No water quality standard identified as suitable for deriving generic assessment criteria
#	No GAC for individual TPH fractions given that the compliance criteria is for sum TPH
<0.1	Concentration less than the method detection limit
	Contaminant of Concern in excess of Human Health GAC
1.23	Contaminant of Concern in excess of DWS
1.23	Contaminant of Concern in excess of EQS
1.23	Contaminant of Concern in excess of DWS and EQS
*	EC Surface Water Directive, 1975
**	Water Supply (Water Quality) Regulation, 1989
1	Based on values of 0.4µg/l for sum trichlorobenzene
2	Based on values of 10µg/l combined for TCE and PCE and 50µg/l combined for cis-DCE and trans-DCE
3	Total value for trihalomethanes (chloroform, bromoform, dibromochloromethane and bromodichloromethane).



Table F1: Groundwater GAC Protective of Human Health and Water Resources

Contaminant of Concern	MDL	Units	Human Health Inhalation GAC (On-site Commercial Worker)	Human Health Inhalation GAC (Off-site Resident)	EQS (Fresh Water)	DWS	Maximum Concentration Measured
<b>SVOCs</b>							
Aniline	1	ug/l	NR	NR	-	-	<MDL
2-Chlorophenol	1	ug/l	NR	NR	50	-	<MDL
Benzyl Alcohol	1	ug/l	NR	NR	-	-	<MDL
2-Methylphenol	1	ug/l	NR	NR	-	-	<MDL
Bis(2-chloroisopropyl)ether	1	ug/l	NR	NR	-	-	<MDL
3&4-Methylphenol	1	ug/l	NR	NR	-	-	<MDL
Bis(2-chloroethoxy)methane	1	ug/l	NR	NR	-	-	<MDL
1,2,4-Trichlorobenzene	1	ug/l	NR	NR	0.13	-	<MDL
2-Methylnaphthalene	1	ug/l	NR	NR	-	-	<MDL
Hexachlorocyclopentadiene	1	ug/l	NR	NR	-	-	<MDL
2,4,5-Trichlorophenol	1	ug/l	NR	NR	-	-	<MDL
2-Chloronaphthalene	1	ug/l	NR	NR	-	-	<MDL
2-Nitroaniline	1	ug/l	NR	NR	-	-	<MDL
2,4-Dinitrotoluene	1	ug/l	NR	NR	-	-	<MDL
3-Nitroaniline	1	ug/l	NR	NR	-	-	<MDL
4-Nitrophenol	1	ug/l	NR	NR	-	-	<MDL
Dibenzofuran	1	ug/l	NR	NR	-	-	<MDL
2,6-Dinitrotoluene	1	ug/l	NR	NR	-	-	<MDL
2,3,4,6-Tetrachlorophenol	1	ug/l	NR	NR	-	-	<MDL
Diethylphthalate	1	ug/l	NR	NR	200	-	<MDL
4-Chlorophenylphenylether	1	ug/l	NR	NR	-	-	<MDL
4-Nitroaniline	1	ug/l	NR	NR	-	-	<MDL
Diphenylamine	1	ug/l	NR	NR	-	-	<MDL
4-Bromophenylphenylether	1	ug/l	NR	NR	-	-	<MDL
Hexachlorobenzene	1	ug/l	NR	NR	0.05	-	<MDL
Bis(2-ethylhexyl)ester	1	ug/l	NR	NR	-	-	<MDL
Pentachlorophenol	1	ug/l	NR	NR	0.4	-	<MDL
Di-n-butylphthalate	1	ug/l	NR	NR	8	-	<MDL
Butylbenzylphthalate	1	ug/l	NR	NR	7.5	-	<MDL
Bis(2-ethylhexyl)phthalate	1	ug/l	NR	NR	1.3	-	<MDL
Di-n-octylphthalate	1	ug/l	NR	NR	20	-	<MDL
1,4-Dinitrobenzene	1	ug/l	NR	NR	-	-	<MDL
Dimethylphthalate	1	ug/l	NR	NR	800	-	<MDL
1,3-Dinitrobenzene	1	ug/l	NR	NR	-	-	<MDL
2,3,5,6-Tetrachlorophenol	1	ug/l	NR	NR	-	-	<MDL
Azobenzene	1	ug/l	NR	NR	-	-	<MDL
Carbazole	1	ug/l	NR	NR	-	-	<MDL
1-Methylnaphthalene	1	ug/l	NR	NR	-	-	<MDL

**Notes**

GAC	Generic Assessment Criteria
DWS	Drinking Water Standard
EQS	Environmental Quality Standard (UK Freshwater)
NVP	Contaminant has low vapour phase in groundwater
>SOL	Target acceptable risk not exceeded at the theoretical solubility concentration
NR	No appropriate inhalation reference dose identified during review of toxicological data
na	Comprises multiple contaminant, no applicable GAC
-	No water quality standard identified as suitable for deriving generic assessment criteria
#	No GAC for individual TPH fractions given that the compliance criteria is for sum TPH
<0.1	Concentration less than the method detection limit
	Contaminant of Concern in excess of Human Health GAC
1.23	Contaminant of Concern in excess of DWS
1.23	Contaminant of Concern in excess of EQS
1.23	Contaminant of Concern in excess of DWS and EQS
*	EC Surface Water Directive, 1975
**	Water Supply (Water Quality) Regulation, 1989

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