Substance classification		Determinant	Target concentrations (µg/l)			
Groundwater receptors[5]	Surface water receptors[6]		Minimum reporting value	UK drinking water standard (or best equivalent)	EQS or best equivalent	
					Freshwater	Transitional (estuaries) and coastal waters
-	Priority substance	Lead	-	10[2]	1.2 bioavailable[6a]	1.3[6a]
Hazardous substance	**Priority hazardous substance**	Mercury	0.01[7]	1[2]	0.07[6c]	0.07[6c]
-	Priority substance	Nickel	-	20[2]	4.0 bioavailable[6a]	8.6[6a]
-	-	Selenium	-	10[2]	-	-
-	Specific pollutant	Zinc	-	3,000[8]	10.9 bioavailable[6a]	6.8 dissolved [6a]
-	Specific pollutant	Iron	-	200[2]	1000[6a]*1	1000[6a])*1
-	Specific pollutant	Manganese	-	50[2]	123 bioavailable[6a]	-
-	-	Aluminium	-	200[2]	-	-
Hazardous substance	**Priority hazardous substance**	Tributyltin compounds (Tributyltin-cation)	0.001[7]	-	0.0002[6a]	0.0002[6a]
-	-	Sodium	-	200,000[2]	-	-
-	Specific pollutant	Cyanide (Hydrogen cyanide)	-	50[2]	1[6a]	1[6a]
-	-	Total ammonia[$] (ammonium (as NH_4^+) plus ammonia (NH_3)	-	50[2]	300[6f]	-
-	Specific pollutant	Ammonia un-ionised (NH_3)	-	-	-	21[6a]
-	Specific pollutant	Chlorine	-	-	2[6a]	10[6d]
-	-	Chloride	-	250,000[2]	-	-

Substance classification		Determinant	Target concentrations (µg/l)			
Groundwater receptors[5]	Surface water receptors[6]		Minimum reporting value	UK drinking water standard (or best equivalent)	EQS or best equivalent	
					Freshwater	Transitional (estuaries) and coastal waters
-	-	Sulphate	-	250,000[2]	-	-
-	-	Nitrate (as NO_3)	-	50,000[2]	-	-
-	-	Nitrite (as NO_2)	-	100[2]	10[9]	-
Volatile organic compounds (VOC)						
Hazardous substance	Other pollutant	Tetrachloroethene (tetrachloroethylene)	0.1[7]	10[2]	10[6a]	10[6a]
Hazardous substance	Other pollutant	Trichloroethene (trichloroethylene)	0.1[7]	10[2]	10[6a]	10[6a]
Hazardous substance	Specific pollutant	Tetrachloroethane	-	-	140[6a]	-
Hazardous substance	Other pollutant	Carbon tetrachloride (tetrachloromethane)	0.1[7]	3.0[2]	12[6a]	12[6a]
Hazardous substance	Priority substance	1,2-Dichloroethane	1.0[7]	3.0[2]	10[6a]	10[6a]
Hazardous substance	-	Vinyl chloride (chloroethene)	-	0.5[2]	-	-
Hazardous substance	Priority substance	Dichloromethane	-	20[4]	20[6a]	20[6a]
Hazardous substance	Priority substance	Trichlorobenzenes	0.01[7]	-	0.4[6a]	0.4[(6a)]
Hazardous substance	-	Trihalomethanes	-	0.1[2a]	-	-

Substance classification		Determinant	Target concentrations (µg/l)			
Groundwater receptors[5]	Surface water receptors[6]		Minimum reporting value	UK drinking water standard (or best equivalent)	EQS or best equivalent	
					Freshwater	Transitional (estuaries) and coastal waters
Hazardous substance	Priority substance	Trichloromethane (Chloroform)	0.1[7]	(see "Trihalomethanes" above)	2.5[6a]	2.5[6a]
-	**Priority hazardous substance**	Di(2-ethylhexyl) phthalate (bis(2-ethylhexyl) phthalate, DEHP)	-	8[4]	1.3[6a]	1.3[6a]
-	Specific pollutant	Benzyl butyl phthalate	-	-	7.5[6a]	0.75[6e]
Hazardous substance	**Priority hazardous substance**	Hexachlorobutadiene	0.005[7]	0.6[4]	0.6[6c]	0.6[6c]
Semi-volatile organic compounds (SVOC)						
Hazardous substance	-	Acenaphthylene (C12-C16)	-	-	5.8[10]	
Hazardous substance	**Priority hazardous substance**	Anthracene (C16-C35)	-	-	0.1[6a]	0.1[6a]
Hazardous substance	Priority substance	Naphthalene (C10-C12)	-	-	2[6a]	2[6a]
Hazardous substance	Priority substance	Fluoranthene (C16-C35)	-	-	0.0063[6a]	0.0063[6a]

Substance classification		Determinant	Target concentrations (µg/l)			
Groundwater receptors[5]	Surface water receptors[6]		Minimum reporting value	UK drinking water standard (or best equivalent)	EQS or best equivalent	
					Freshwater	Transitional (estuaries) and coastal waters
Hazardous substance	**Priority hazardous substance(s)**	Benzo(a)pyrene (C16-C35)	-	0.01[2]	0.00017[6a]	0.00017[6a]
Hazardous substance		Benzo(b)fluoranthene (C16-C35)	-	0.1[2]	No EQS for these substances. B(a)P should be used as the indicator compound instead.	
Hazardous substance		Benzo(k)fluoranthene (C16-C35)	-			
Hazardous substance		Benzo(g,h,i)perylene (C16-C35)	-			
Hazardous substance		Indeno(1,2,3-cd) pyrene (C16-C35)	-			
-	Specific pollutant	Phenol	0.5[7]	-	7.7[6a]	7.7[6a]
Hazardous substance	Specific pollutant	2,4-Dichlorophenol	0.1[7]	-	4.2[6a]	0.42[6a]
Hazardous substance	Priority substance	Pentachloro-phenol (PCP)	0.1[7]	9[4]	0.4[6a]	0.4[6a]
Petroleum hydrocarbons						
Hazardous substance	-	Total petroleum hydrocarbons	-	10[11]		
Hazardous substance	Priority substance	Benzene	1[7]	1[2]	10[6a]	8[6a]
Hazardous substance	Specific pollutant	Toluene	4[7]	700[4]	74[6a]	74[6a]

Substance classification		Determinant	Target concentrations (µg/l)			
Groundwater receptors[5]	Surface water receptors[6]		Minimum reporting value	UK drinking water standard (or best equivalent)	EQS or best equivalent	
					Freshwater	Transitional (estuaries) and coastal waters
Hazardous substance	-	Ethylbenzene	-	300[4]	-	-
Hazardous substance	-	Xylene	3[7]	500[4]	-	-
-	-	Methyl tertiary butyl ether (MTBE)	-	15[12]	-	
Pesticides, fungicides, insecticides and herbicides						
Hazardous substance	Other pollutant (Cyclodiene pesticides)	Aldrin	0.003[7]	0.03[2]	0.01[6a]	0.005[6a]
Hazardous substance		Dieldrin	3[7]	0.03[2]		
Hazardous substance		Endrin	0.003[7]	0.1[2b]		
Hazardous substance		Isodrin*[2]	0.003[7]	0.1[2b]		
Hazardous substance	Other pollutant	DDT (total)	0.006[7]	1[4]	0.025[6a]	0.025[6a]
Hazardous substance	-	Total pesticides	-	0.5[2]	-	-
Hazardous substance	-	Other individual pesticides	-	0.1[2]		
Hazardous substance	Specific pollutant	Carbendazim	-	-	0.15[6a]	-

Substance classification		Determinant	Target concentrations (µg/l)			
Groundwater receptors[5]	Surface water receptors[6]		Minimum reporting value	UK drinking water standard (or best equivalent)	EQS or best equivalent	
					Freshwater	Transitional (estuaries) and coastal waters
Hazardous substance	Specific pollutant	Chlorothalonil	-	-	0.035[6a]	-
Hazardous substance	Specific pollutant (until 22/12/18, after which it becomes a Priority substance)	Cypermethrin	-	-	0.0001[6a] From 22/12/18: 8.0E-5[6a]	0.0001[6a] From 22/12/18: 8.0E-6[6a]
Hazardous substance	Specific pollutant	Dimethoate	0.01[7]	-	0.48[6a]	0.48[6a]
-	Specific pollutant	Glyphosate	-	-	196[6a]	196[6a]
Hazardous substance	Specific pollutant	Linuron	0.1[7]	-	0.5[6a]	0.5[6a]
-	Specific pollutant	Mecoprop	0.04[7]	-	18[6a]	18[6a]
-	Specific pollutant	Methiocarb	-	-	0.01[6a]	-
-	Specific pollutant	Pendimethalin	-	20[4]	0.3[6a]	-
Hazardous substance	Specific pollutant	Permethrin	0.001[7]	-	0.001[6a]	0.0002[6a]
Hazardous substance	Priority substance	Alachlor	-	20[4]	0.3[6a]	0.3[6a]
Hazardous substance	Priority substance	Atrazine	0.03[7]	100[4]	0.6[6a]	0.6[6a]
Hazardous substance	Priority substance	Diuron	-	-	0.2[6a]	0.2[6a]

Substance classification		Determinant	Target concentrations (µg/l)			
Groundwater receptors[5]	Surface water receptors[6]		Minimum reporting value	UK drinking water standard (or best equivalent)	EQS or best equivalent	
					Freshwater	Transitional (estuaries) and coastal waters
Hazardous substance	**Priority hazardous substance**	Endosulphan	0.005[7]	-	0.005[6a]	0.0005[6a]
-	Priority substance	Isoproturon	-	9[4]	0.3[6a]	0.3[6a]
Hazardous substance	Priority substance	Simazine	0.03[7]	2[4]	1[6a]	1[6a]
Hazardous substance	**Priority hazardous substance**	Trifluralin	0.01[7]	20[4]	0.03[6a]	0.03[6a]
-	From 22/12/18: Priority substance	Dichlorovos	-	-	From 22/12/18: 6.0E-4[6a]	From 22/12/18: 6.0E-5[6a]
Hazardous substance	From 22/12/18: Priority substance	Heptachlor and heptachlor epoxide	-	0.03[2]	From 22/12/18: 2.0E-7[6a]	From 22/12/18: 1.0E-08[6a]
Miscellaneous						
-	Specific pollutant	Triclosan (antibacterial agent)	-	-	0.1[6a]	0.1[6a]
-	**From 22/12/18: Priority hazardous substance**	Perfluoro-octane sulfonic acid (and its derivatives) (PFOS)	-	-	From 22/12/18: 6.5E-4[6a]	From 22/12/18: 1.3E-4[6a]
-	**From 22/12/18: Priority hazardous substance**	Hexabromo cyclododecane (HBCDD)	-	-	From 22/12/18: 0.0016[6a]	From 22/12/18: 0.0016[6a]

Substance classification		Determinant	Target concentrations (µg/l)			
Groundwater receptors[5]	Surface water receptors[6]		Minimum reporting value	UK drinking water standard (or best equivalent)	EQS or best equivalent	
					Freshwater	Transitional (estuaries) and coastal waters

Note: '-' A target concentration is not available.

$Please note that total ammonia (NH_4^+ and NH_3) is equivalent to ammoniacal nitrogen in laboratory reports

*1 Please note that although iron is listed in the 2015 Direction as 1.000 µg/l, the EQS remains at 1mg/l in Scotland and it is assumed this is a mistake and should read either 1,000 or 1000µg/l.

*2 Please note that although Isodrin is not listed in name within the group of "Cyclodiene pesticides" in Table 1 of Schedule 3 Part 3 of the 2015 Direction[6], the CAS number for Isodrin (465-73-6) **is** listed and therefore it is assumed that it has been missed off the named list of substances.

"Bioavailable" in relation to copper, zinc, nickel and manganese (but not lead) is the generic EQSbioavailable[6a] derived from the Metal Bioavailability Assessment Tool (M-BAT) developed by the Water Framework Directive UK Technical Advisory Group (WFDTAG). Exceedance of this value should prompt a site-specific assessment using the M-BAT with pH, DOC and Ca to derive a site-specific EQS termed the $PNEC_{dissolved}$. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat. For zinc, if there is an exceedance of the EQSbioavailable in an initial GQRA, Tier 2 required that the EQS for zinc should also have the ambient background concentration of zinc added as well (as listed by catchment in Table 2).

References

1. Environment Agency (2013), 'Groundwater Protection: Principles and Policy (GP3) v1.1'.
2. The Water Supply (Water Quality) Regulations 2000 (SI 2000/3184), as amended by SI 2001/2885, SI 2002/2469, SI 2005/2035, SI 2007/2734 and SI 2010/991
    2a. Sum of chloroform, bromoform, dibromochloromethane and bromodichloromethane
    2b. Standard applies to individual pesticides except aldrin, dieldrin, heptachlor and heptachlor epoxide, for which a separate standard is defined.
3. The Private Water Supplies (England) Regulations 2016. SI 2016 / 618
4. WHO (2011), *Guidelines for drinking-water quality*, 4th edn
5. JAGDAG list of Substances transferred from List I & II to hazardous or non hazardous. Although currently under review, the existing list of groundwater hazardous substances and non-hazardous pollutants is largely based on the former List 1 and List 2 substances which were defined under the old (now repealed) Groundwater Directive (80/68/EEC). These have been taken to be hazardous substances and non-hazardous pollutants respectively, though these may be reviewed if new information is made available. JAGDAG has developed on a methodology for substance determination to fulfil the requirements of the WFD and the Groundwater Daughter Directive, which was finalised following consultation. The current list of substances can be found at: http://www.wfduk.org/sites/default/files/Media/Substances%20transferred%20from%20List%20I%20%26%20II%20to%20hazardous%20or%20non%20hazardous.pdf
6. The Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015.
    6a. The EQS for these substances are based on a "long term mean" or an "annual average (AA)" EQS.
    6b. For cadmium and its compounds the EQS values vary depending on the hardness of the water as specified in five class categories (Class 1: < 40 mg CaCO3/l, Class 2: 40 to < 50 mg CaCO3/l, Class 3: 50 to < 100 mg CaCO3/l, Class 4: 100 to < 200 mg CaCO3/l and Class 5: ≥ 200 mg CaCO3/l).
    6c. The EQS for Mercury and hexachlorobutadiene are based on a "maximum acceptable concentration (MAC)" EQS in absence of an "annual average (AA)" EQS.
    6d. The EQS for chlorine in saltwater is based on the 95th percentile concentration of total residual oxidant, which refers to the sum of all oxidising agents existing in water, expressed as available chlorine.
    6e. The recommended saltwater standard is derived using a safety factor of 100. Where the standard is failed, it is recommended that supporting evidence of ecological damage should be obtained before committing to expensive action.
    6f. EQS for total ammonia is as per Schedule 3, Part 1, Table 7 of of the above directions. EQS applies to river types 1, 2 and 4 and 6 (namely upland and low alkalinity). The EQS for a lowland and high alkalinity rivers (types 3, 5 and 7) is 600µg/l (0.6mg/l).

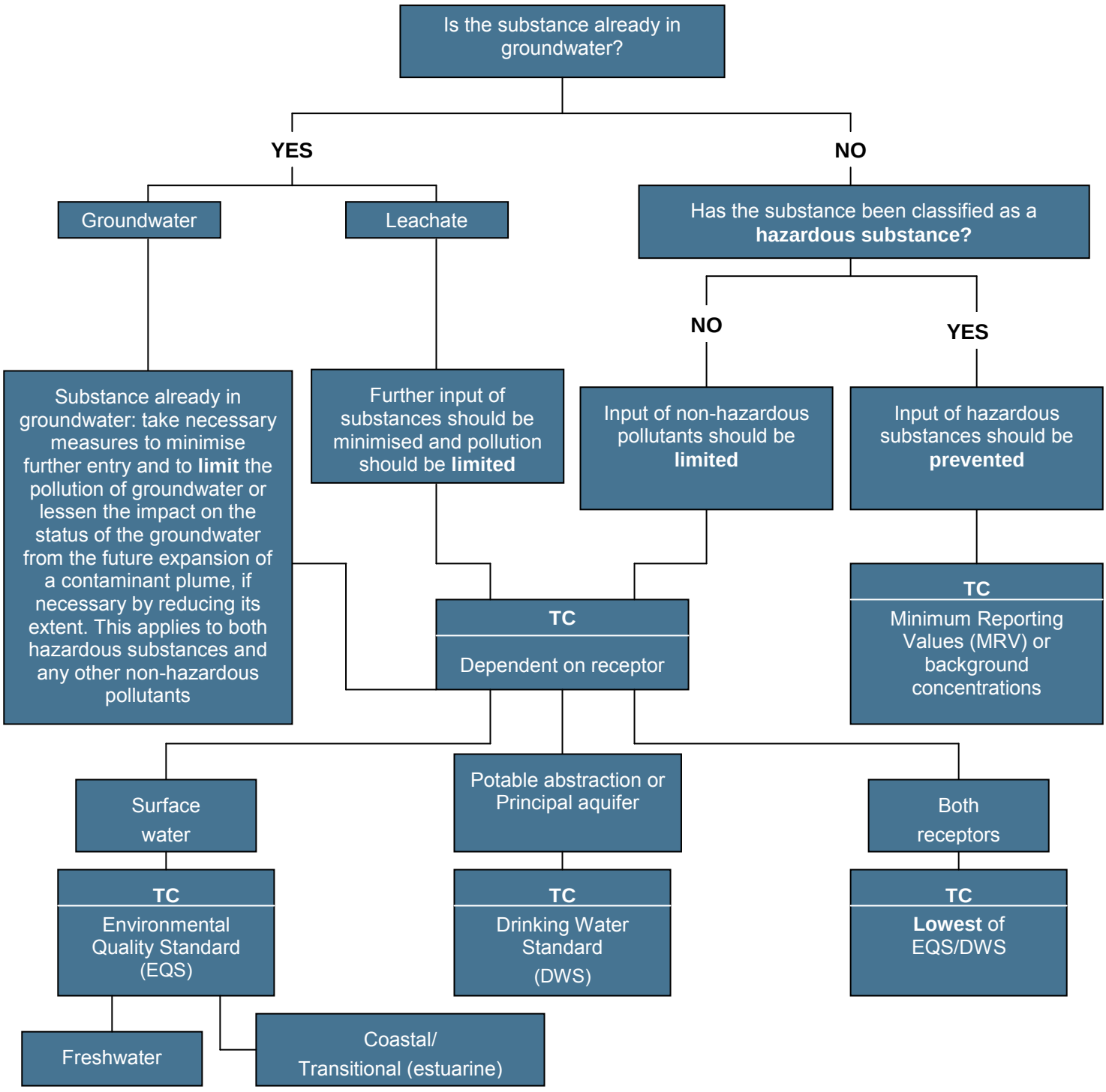
    Additional information on the Metal Bioavailability Assessment Tool (M-BAT) is available at http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat
7. Minimum reporting values listed in Annex (J) of Horizontal Guidance Note H1 (H1 Environmental Risk Assessment Framework, Environment Agency, April 2010 v2.0). Note target concentration for xylenes is 0.003mg/l each for o-xylene and m/p xylene)

8. The Surface Waters (Abstraction for Drinking Water) (Classification) Regulations 1996 (as amended). SI 1996 / 3001
9. Council Directive on the Quality of Fresh Waters Needing Protection or Improvement in Order to Support Fish Life (Freshwater Fish Directive) (78/659/EEC)
10. WRc plc (2002), R&D Technical Report P45.
11. Environment Agency (2009), 'Petroleum hydrocarbons in groundwater: supplementary guidance for hydrogeological risk assessment'.

    NOTE: EA advice in the above document should be referred to with respect to risk rankings of TPH CWG fractions. It may be possible to eliminate low risk fractions and/or those not detected above LMDL from concern

12. Drinking Water Inspectorate (London, UK). Environmental Information Request on MTBE in drinking water. Ref. DWI 1/10/18; dated 28 November 2006. Value is based on the odour threshold for MTBE, which is lower than a health-based guideline value

FLOW CHART TO ASSIST WITH SELECTION OF TARGET CONCENTRATIONS



TC = Target concentration

When leachate is being assessed the 'compliance point' is the groundwater body. Therefore dilution within the groundwater body may be applied with caution before comparing with the TC.

When directly assessing a receptor, e.g., a river, the appropriate TC should be selected.

APPENDIX P
HASWASTE ASSESSMENT

Envirolab, Sandpits Business Park, Mottram Road, Hyde, Cheshire SK14 3AR.

envirolab

Haswaste, developed by Dr. Iain Haslock.

The Hope Project
371475

TP/WS/BH		BH1	TP1	TP2	TP4	TP5	TP6	TP7	TP9	TP13a	TP14	
Depth (m)		1.10	0.70	0.50	0.60	0.50	0.80	0.35	0.40	0.30	0.20	
Envirolab reference		16/03976/1	16/04246/1	16/04010/1	16/04010/2	16/04078/1	16/04078/2	16/04167/1	16/04078/3	16/04207/1	16/04376/1	
% Moisture	%											
pH (soil)												
pH (leachate)												
Arsenic	mg/kg	13	16	19	12	20	11	9	6	9	9	
Cadmium	mg/kg	1.2	1.9	1.5	1.5	1.8	2.2	2.1	1.2	2.3	2.1	
Copper	mg/kg	115	94	75	45	84	24	39	22	25	35	
CrVI or Chromium	updated v5.4dii mg/kg	16	21	16	19	22	30	30	20	33	39	
Lead	mg/kg	300	353	501	308	928	68	218	73	110	61	
Mercury	mg/kg	0.69	1.14	1.19	0.99	1.49	0.17	0.37	0.17	0.17	0.31	
Nickel	mg/kg	22	24	22	19	20	32	24	17	31	35	
Selenium	mg/kg	1	1	1	1	1	1	1	1	1	1	
Zinc	mg/kg	84	63	60	51	74	58	70	38	62	66	
Barium	mg/kg											
Beryllium	mg/kg											
Vanadium	mg/kg											
Cobalt	mg/kg											
Manganese	mg/kg											
Molybdenum	mg/kg											
Antimony	mg/kg											
Aluminium	NEW v5.4dii mg/kg											
Bismuth	NEW v5.4dii mg/kg											
CrIII	NEW v5.4dii mg/kg											
Iron	NEW v5.4dii mg/kg											
Strontium	NEW v5.4dii mg/kg											
Tellurium	NEW v5.4dii mg/kg											
Thallium	NEW v5.4dii mg/kg											
Titanium	NEW v5.4dii mg/kg											
Tungsten	NEW v5.4dii mg/kg											
Ammoniacal N	NEW v5.4dii mg/kg											
ws Boron	NEW v5.4dii mg/kg											
PAH (Input Total PAH **OR** individual PAH results)												
Acenaphthene	mg/kg	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	
Acenaphthylene	mg/kg	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	
Anthracene	mg/kg	0.02	0.02	0.02	0.02	0.02	0.02	0.03	0.02	0.02	0.02	
Benzo(a)anthracene	mg/kg	0.04	0.04	0.04	0.06	0.08	0.04	0.04	0.04	0.04	0.04	
Benzo(a)pyrene	mg/kg	0.04	0.04	0.04	0.07	0.10	0.04	0.09	0.04	0.04	0.04	
Benzo(b)fluoranthene	mg/kg	0.05	0.05	0.05	0.09	0.12	0.05	0.12	0.05	0.05	0.05	
Benzo(ghi)perylene	mg/kg	0.05	0.05	0.05	0.06	0.05	0.05	0.05	0.05	0.05	0.07	
Benzo(k)fluoranthene	mg/kg	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.06	
Chrysene	mg/kg	0.06	0.06	0.06	0.06	0.08	0.06	0.06	0.06	0.06	0.04	
Dibenzo(ah)anthracene	mg/kg	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.08	
Fluoranthene	mg/kg	0.08	0.08	0.08	0.12	0.08	0.08	0.08	0.08	0.08	0.01	
Fluorene	mg/kg	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.03	
Indeno(123cd)pyrene	mg/kg	0.03	0.03	0.03	0.06	0.06	0.03	0.06	0.03	0.03	0.03	
Naphthalene	mg/kg	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	
Phenanthrene	mg/kg	0.03	0.03	0.03	0.05	0.03	0.03	0.03	0.03	0.03	0.07	
Pyrene	mg/kg	0.07	0.07	0.07	0.09	0.07	0.07	0.10	0.07	0.07	0.08	
Coronene	mg/kg											
Total PAHs (16 or 17)	mg/kg											
TPH												
Petrol	mg/kg											
Diesel	mg/kg											
Lube Oil	mg/kg											
White Spirit / Kerosene	mg/kg											
Creosote	mg/kg											
Unknown TPH with ID	mg/kg	10.0	10.0	10.0	10.0	10.0		10.0	10.0	10.0	10.0	
Unknown TPHCWG	mg/kg											
Total Sulphide	mg/kg											
Complex Cyanide	mg/kg											
Free (or Total) Cyanide	mg/kg											
Thiocyanate	mg/kg											
Elemental/Free Sulphur	mg/kg											
Phenols Input Total Phenols HPLC **OR** individual Phenol results.												
Phenol	mg/kg											
Cresols	mg/kg											
Xylenols	mg/kg											
Resourcinol	mg/kg											
Phenols Total by HPLC	mg/kg											
BTEX Input Total BTEX **OR** individual BTEX results.												
Benzene	mg/kg											
Toluene	mg/kg											
Ethylbenzene	mg/kg											
Xylenes	mg/kg											
Total BTEX	mg/kg											
PCBs (POPs)												
PCBs Total (eg EC7/WHO12)	mg/kg											
PBBs (POPs)												
Hexabromobiphenyl (Total or PBB153; 2,2',4,4',5,5'- if only available)	mg/kg											
POPs Dioxins and Furans Input Total Dioxins and Furans **OR** individual Dioxin and Furan results.												
2,3,7,8-TeCDD	mg/kg											
1,2,3,7,8-PeCDD	mg/kg											
1,2,3,4,7,8-HxCDD	mg/kg											
1,2,3,6,7,8-HxCDD	mg/kg											
1,2,3,7,8,9-HxCDD	mg/kg											
1,2,3,4,6,7,8-HpCDD	mg/kg											
OCDD	mg/kg											
2,3,7,8-TeCDF	mg/kg											
1,2,3,7,8-PeCDF	mg/kg											
2,3,4,7,8-PeCDF	mg/kg											
1,2,3,4,7,8-HxCDF	mg/kg											
1,2,3,6,7,8-HxCDF	mg/kg											
2,3,4,6,7,8-HxCDF	mg/kg											
1,2,3,7,8,9-HxCDF	mg/kg											
1,2,3,4,6,7,8-HpCDF	mg/kg											
1,2,3,4,7,8,9-HpCDF	mg/kg											
OCDF	mg/kg											
Total Dioxins and Furans	mg/kg											
Some Pesticides (POPs unless otherwise stated)												
Aldrin	mg/kg											

Table 3.1 of the CLP, CL Inventory, ATPs, IARC, Concawe, MSDSs, REACH + Pesticide Properties databases. Worst case REACH + MSDS's used for "" STOT + Acute Toxicity.

Envirolab, Sandpits Business Park, Mottram Road, Hyde, Cheshire SK14 3AR.

envirolab

Haswaste, developed by Dr. Iain Haslock.

The Hope Project
371475

TP/WS/BH			BH1	TP1	TP2	TP4	TP5	TP6	TP7	TP9	TP13a	TP14	
Depth (m)			1.10	0.70	0.50	0.60	0.50	0.80	0.35	0.40	0.30	0.20	
Envirolab reference			16/03976/1	16/04246/1	16/04010/1	16/04010/2	16/04078/1	16/04078/2	16/04167/1	16/04078/3	16/04207/1	16/04376/1	
α Hexachlorocyclohexane (alpha-HCH) *(leave empty if total HCH results used)*		mg/kg											
β Hexachlorocyclohexane (beta-HCH) *(leave empty if total HCH results used)*		mg/kg											
α Cis-Chlordane (alpha) ***OR*** *Total Chlordane*		mg/kg											
δ Hexachlorocyclohexane (delta-HCH) *(leave empty if total HCH results used)*		mg/kg											
Dieldrin		mg/kg											
Endrin		mg/kg											
χ Hexachlorocyclohexane (gamma-HCH) (lindane) ***OR*** *Total HCH*		mg/kg											
Heptachlor		mg/kg											
Hexachlorobenzene		mg/kg											
o,p'-DDT *(leave empty if total DDT results used)*		mg/kg											
p,p'-DDT ***OR*** *Total DDT*		mg/kg											
χ Trans-Chlordane (gamma) *(leave empty if total Chlordane results used)*		mg/kg											
Chlordecone (kepone)		mg/kg											
Pentachlorobenzene		mg/kg											
Mirex		mg/kg											
Toxaphene (camphechlor)		mg/kg											
Tin													
Tin *(leave empty if Organotin and Tin excl Organotin results used)*	updated v5.4dii	mg/kg											
Organotin													
Dibutyltin; DiBT	New v5.4dii	mg/kg											
Tributyltin; TriBT	New v5.4dii	mg/kg											
Triphenyltin; TriPT	New v5.4dii	mg/kg											
Tetrabutyltin; TeBT	New v5.4dii	mg/kg											
Tin excluding Organotin													
Tin excl Organotin	New v5.4dii	mg/kg											
Asbestos in Soil	Thresholds												
Asbestos detected in Soil (enter Y or N)	Y		N	N	N	N	N	N	N	N	N	N	
			Asbestos in Soil above is "Y", the soil is Hazardous Waste HP5 and HP7										
Asbestos % Composition in Soil (Matrix Loose Fibres or Microscopic Identifiable Pieces only)	see "Carc HP7 % Asbestos in Soil (Fibres)" below	%											
Carcinogenic HP7 % Asbestos in Soil (fibres or micro pieces)	≥0.1%		0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
			If Asbestos in Soil above is "Y", but Asbestos % above is "<0.1%", the soil is Non Hazardous Waste. You can only use Asbestos % results where loose fibres or micro pieces are only present. You cannot use Asbestos % results when visual identifiable pieces are present.									If Asbestos in Soil above is "Y", but Asbes	
Asbestos Identifiable Pieces visible with the naked eye detected in the Soil (enter Y or N)	Y												

If visual identifiable pieces of asbestos are present, you cannot use Asbestos % results and the whole soil sample is Hazardous Waste HP5 and HP7 Construction material containing Asbestos 17 06 05.
Therefore, if Asbestos in Soil above is "Y", the Asbestos % above is "<0.1%", but the Asbestos Identifiable Pieces visible with the naked eye is "Y", the soil is Hazardous Waste.

Identifiable Pieces are Cement, Fragments, Board, Rope etc. ie anything ACM that is not Loose Fibres.
All visual asbestos pieces need to be removed leaving only fibres (or micro pieces) with an Asbestos % Composition in Soil result of <0.1% for the soil to become non-hazardous waste.

Hazardous Property	Thresholds	Cut Off Value										
Corrosive HP8	≥5%	<1%	0.00479	0.00614	0.00558	0.00523	0.00686	0.00721	0.00695	0.00463	0.00752	0.00868	0.00000
Irritant HP4	≥10%	<1%	0.00172	0.00211	0.00251	0.00158	0.00264	0.00145	0.00119	0.00079	0.00119	0.00119	0.00000
Irritant HP4	≥20%	<1%	0.01745	0.01548	0.01293	0.00894	0.01355	0.00919	0.00927	0.00593	0.00910	0.01104	0.00000
Specifc Target Organ Toxicity HP5	≥1%		0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Specifc Target Organ Toxicity HP5	≥20%		0.00000	0.00000	0.00000	0.00001	0.00000	0.00000	0.00000	0.00000	0.00000	0.00001	0.00000
Specifc Target Organ Toxicity HP5	≥1%		0.00444	0.00485	0.00444	0.00384	0.00422	0.00646	0.00576	0.00384	0.00634	0.00749	0.00000
Specifc Target Organ Toxicity HP5	≥10%		0.03000	0.03530	0.05010	0.03080	0.09280	0.00725	0.02180	0.00730	0.01100	0.00825	0.00000
Aspiration Toxicity HP5	≥10%		0.00100	0.00100	0.00100	0.00100	0.00100	0.00000	0.00100	0.00100	0.00100	0.00100	0.00000
Acute Toxicity HP6	≥0.1%	<0.1%	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Acute Toxicity HP6	≥0.25%	<0.1%	0.00179	0.00223	0.00263	0.00168	0.00279	0.00147	0.00123	0.00081	0.00121	0.00122	0.00000
Acute Toxicity HP6	≥5%	<0.1%	0.00321	0.00417	0.00321	0.00379	0.00437	0.00590	0.00590	0.00398	0.00648	0.00763	0.00000
Acute Toxicity HP6	≥25%	<1%	0.05807	0.05885	0.07068	0.04627	0.11578	0.02346	0.04003	0.01811	0.02808	0.02560	0.00000
Acute Toxicity HP6	≥0.25%	<0.1%	0.00007	0.00011	0.00012	0.00010	0.00015	0.00002	0.00004	0.00002	0.00002	0.00003	0.00000
Acute Toxicity HP6	≥2.5%	<0.1%	0.00307	0.00403	0.00307	0.00365	0.00422	0.00576	0.00576	0.00384	0.00634	0.00749	0.00000
Acute Toxicity HP6	≥15%	<0.1%	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Acute Toxicity HP6	≥55%	<1%	0.00012	0.00019	0.00015	0.00015	0.00018	0.00022	0.00021	0.00012	0.00023	0.00021	0.00000
Acute Toxicity HP6	≥0.1%	<0.1%	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Acute Toxicity HP6	≥0.5%	<0.1%	0.00326	0.00434	0.00334	0.00390	0.00455	0.00600	0.00601	0.00398	0.00658	0.00773	0.00000
Acute Toxicity HP6	≥3.5%	<0.1%	0.00014	0.00014	0.00014	0.00014	0.00014	0.00014	0.00014	0.00014	0.00014	0.00014	0.00000
Acute Toxicity HP6	≥22.5%	<1%	0.04494	0.04802	0.06204	0.04101	0.10609	0.02051	0.03540	0.01548	0.02501	0.02142	0.00000
Carcinogenic HP7	≥0.1%		0.03000	0.03530	0.05010	0.03080	0.09280	0.00680	0.02180	0.00730	0.01100	0.00749	0.00000
Carcinogenic HP7	≥0.1%		0.000000000	0.000000000	0.000000000	0.000000000	0.000000000	0.000000000	0.000000000	0.000000000	0.000000000	0.000000000	0.000000000
Carcinogenic HP7	≥1%		0.00000	0.00000	0.00000	0.00001	0.00001	0.00000	0.00001	0.00000	0.00000	0.00000	0.00000
Carcinogenic HP7 Unknown TPH with ID	≥1,000mg/kg		10.00	10.00	10.00	10.00	10.00	0.00	10.00	10.00	10.00	10.00	0.00
Carcinogenic HP7 b(a)p marker test (Unknown TPH with ID only)	≥0.01%		0.40000	0.40000	0.40000	0.70000	1.00000	#DIV/0!	0.90000	0.40000	0.40000	0.40000	#DIV/0!
pH Corrosive HP8 pH (soil or leachate)	H8 ≥11.5		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
pH Corrosive HP8 pH (soil or leachate)	H8 ≤2		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Toxic for Reproduction HP10	≥0.3%		0.03000	0.03530	0.05010	0.03080	0.09280	0.00725	0.02180	0.00730	0.01100	0.00825	0.00000
Toxic for Reproduction HP10	≥3%		0.00307	0.00403	0.00307	0.00365	0.00422	0.00576	0.00576	0.00384	0.00634	0.00749	0.00000
Mutagenic HP11	≥0.1%		0.00307	0.00403	0.00307	0.00365	0.00422	0.00576	0.00576	0.00384	0.00634	0.00749	0.00000
Mutagenic HP11 Unknown TPH with ID	≥1,000mg/kg		10.00	10.00	10.00	10.00	10.00	0.00	10.00	10.00	10.00	10.00	0.00
Mutagenic HP11 b(a)p marker test (Unknown TPH with ID only)	≥0.01%		0.40000	0.40000	0.40000	0.70000	1.00000	#DIV/0!	0.90000	0.40000	0.40000	0.40000	#DIV/0!

Table 3.1 of the CLP, CL Inventory, ATPs, IARC, Concawe, MSDSs, REACH + Pesticide Properties databases. Worst case REACH + MSDS's used for "" STOT + Acute Toxicity.

envirolab

Haswaste, developed by Dr. Iain Haslock.

The Hope Project
371475

TP/WS/BH	BH1	TP1	TP2	TP4	TP5	TP6	TP7	TP9	TP13a	TP14	
Depth (m)	1.10	0.70	0.50	0.60	0.50	0.80	0.35	0.40	0.30	0.20	
Envirolab reference	16/03976/1	16/04246/1	16/04010/1	16/04010/2	16/04078/1	16/04078/2	16/04167/1	16/04078/3	16/04207/1	16/04376/1	
Mutagenic HP11 ≥1%	0.00444	0.00485	0.00444	0.00384	0.00404	0.00646	0.00485	0.00343	0.00626	0.00707	0.00000
Produces Toxic Gases HP12 Sulphide ≥1,400mg/kg	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Produces Toxic Gases HP12 Cyanide ≥1,200mg/kg	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Produces Toxic Gases HP12 Thiocyanate ≥2,600mg/kg	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HP13 Sensitising ≥10%	0.00444	0.00485	0.00444	0.00384	0.00422	0.00646	0.00576	0.00384	0.00634	0.00749	0.00000
Ecotoxic HP14 ≥1.0 <0.1% (except CompCN + Thiocyanate + Xylene + BTEX 1%).	0.25286	0.26156	0.30666	0.20757	0.49237	0.12349	0.18926	0.09215	0.14362	0.13836	0.00000
Ecotoxic HP14 ≥25% <0.1%	0.06312	0.06529	0.07657	0.05180	0.12300	0.03088	0.04722	0.02294	0.03581	0.03450	0.00000
Ecotoxic HP14 ≥25% <0.1% (except CompCN + Thiocyanate + Xylene + BTEX 1%).	0.06411	0.06629	0.07757	0.05279	0.12399	0.03087	0.04821	0.02394	0.03681	0.03549	0.00000
Ecotoxic HP14 individual substance specific thresholds (Benzo(a)anthracene, Dibenz(ah)anthracene (or Total PAH if only used), Sn, TriPT) ≥0.0025%	0.000004	0.000004	0.000004	0.000006	0.000008	0.000004	0.000004	0.000004	0.000004	0.000008	0.000000
Ecotoxic HP14 individual substance specific thresholds (Co, γ-HCH, DiBT, TriBT) ≥0.025%	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Persistent Organic Pollutant (PCB, PBB or POP Pesticides) >0.005%	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
Persistent Organic Pollutant (Total Dioxins+Furans) >0.0000015%	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000
Persistent Organic Pollutant (Individual Dioxins+Furans) >0.0000015%	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000