



Water Use

Supporting Guidance (WAT-SG-53)

Environmental Quality Standards and Standards for Discharges to Surface Waters

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Update Summary

Version	Description
v1.0	First issue for Water Use based on following UKTAG Reports: <i>UK Environmental Standards and Conditions (Phase 1 & 2)</i> <i>Proposals for Groundwater Classification System</i> <i>Proposals for Environmental Quality Standards for Annex VIII Substances</i>
v2.0	New base template applied, links to docs revised for new SEPA website, Nov 2008
v3.0	Revised to reflect <i>The Scotland River Basin District (Surface Water Typology, Environmental Standards, Condition Limits and Groundwater Threshold Values) Directions 2009</i> . Non-Statutory Standards also added
v3.1	Minor corrections to Table 1 Status & Table 4 units.
v4.0	Expired CMS links reviewed and updated
v5.1	Revised to reflect the <i>Standards Directions 2014</i>

Notes

References: Linked references to other documents have been disabled in this web version of the document. See the References section for details of all referenced documents.

Printing the Document: This document is uncontrolled if printed and is only intended to be viewed online.

If you do need to print the document, the best results are achieved using Booklet printing or else double-sided, Duplex (2-on-1) A4 printing (both four pages per A4 sheet).

Always refer to the online document for accurate and up-to-date information.

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1. Key Points

The purpose of this guidance is to provide information on, and access to, the environmental and discharge standards for surface waters. The standards are based on the latest scientific understanding of the UK Technical Advisory Group (UKTAG) for the Water Framework Directive (WFD). The surface water standards are available in the *Standards Directions 2014* as follows:

- Water Quality Standards – Rivers and Lochs: Schedule 2, Part C, Section 1 & 2
- Water Quality Standards – Coastal and Transitional Waters: Schedule 2, Part C, Section 3
- Groundwater threshold values¹: Schedule 6

Section 2 of this guidance describes how to access typology-specific standards. Section 3 of this guidance provides the numerical environmental standards for surface waters. Section 4 of this guidance provides the numerical operational standards for aquaculture discharges.

A separate SEPA guidance note provides information on morphology standards: *WAT-SG-21: Environmental Standards for River Morphology*.

¹These standards are only to be used in classifying groundwater bodies and should not be used for the regulation of point source discharges into groundwater. This is because the Water Framework Directive sets an additional objective for groundwater, that to 'prevent and limit the input of pollutants into groundwater'. This objective protects all groundwater from pollution and is assessed at a local scale whereas status mainly deals with large scale pressures on groundwater bodies. Therefore, under the Water Framework Directive it is possible to have local pollution in a groundwater body of good chemical status.

The requirements to "prevent or limit" complement those for status. Notwithstanding the time needed to enable the historical legacy of releases to degrade or disperse, if all the "prevent or limit" requirements were met everywhere within a groundwater body, it would be at good chemical status. Because of this the 'prevent and limit' objective will drive regulation of point source discharges to groundwater.

2. Typology-specific Environmental Quality Standards

Some of the environmental standards are dependent on the type of surface water, such as its altitude, alkalinity and concentration of dissolved organic carbon (DOC). The parameters requiring reference to the surface water typology include:

- Dissolved oxygen (DO) standards for rivers (and in relation to short-term and intermittent changes to DO)
- Dissolved oxygen standards for freshwater lochs
- Biochemical oxygen demand (BOD) standards for rivers (and in relation to short-term and intermittent changes to BOD)
- Ammonia standards for rivers (including standards for short-term and intermittent changes in ammonia concentration)
- pH and acid neutralising capacity (ANC) in rivers

For rivers, the standards which require reference to the typology of the river are found on SEPA's *GIS Pages* (with the exception of pH and ANC found in *WAT-SG-53-T1*. Refer to Annex 1 for instructions on how to access the standards in GIS.

WAT-SG-53-T2 contains the fundamental intermittent and short term (99th percentile) standards for DO, BOD and Ammonia. These account for short term and intermittent discharges that can occur in wet weather.

Phosphorus (P) standards for rivers are no longer type-specific; they are now location specific. To derive the P standard for a particular site, staff should contact the *Science Advice Helpdesk*.

3. Environmental Quality Standards for Surface Waters

The WFD requires environmental quality standards (EQS) for polluting substances. If these standards are exceeded, they could result in adverse effects to ecosystems. The following tables provide details of statutory and non-statutory substances. For reference purposes, the full list of substances that SEPA is required to take account of is found in *WAT-SG-53-T3*.

3.1 Priority Substances

The WFD priority substances list is a group of substances shown to be of major concern for European Waters due to their toxicity, bio-accumulating properties and/or persistence in the environment. SEPA is required to take account of these substances when assessing risks to the water environment, classifying the status of water bodies and controlling discharges. The list of WFD priority substances is found in *WAT-SG-53-T4*. This list includes Priority Hazardous Substances (PHS) and Other Pollutants (for which a European standard applies).

3.2 Specific Pollutants

Specific Pollutants are substances that may have a harmful effect on biological quality and which have been identified by UKTAG as being discharged to the water environment in significant quantities in the UK. The list of Specific Pollutants SEPA is required to take account of is found in *WAT-SG-53-T5*.

3.2.1 Application of Marine Copper Standards

Note: The policy guidance for application of marine copper standards is still under development and should be regarded as draft guidance. Please contact the national water unit if you are dealing with an application that includes a condition for marine copper.

Email: DL-WaterRegSupp@sepa.org.uk

The standards for freshwater and marine copper standards are listed in *WAT-SG-53-T5* for Specific Pollutants. The marine copper standards are designed to take account of the effect of dissolved organic carbon (DOC) on the availability of copper to aquatic biota. In high DOC environments, copper is less bioavailable and the standard is adjusted accordingly. In the absence of information on environmental background DOC (BDOC) and/or discharge derived DOC (DDOC), an EQS of 5.09µg/l will be applied (3.76µg/l if known DOC ≤ 1).

Should applicants intend to determine an adjusted site-specific EQS for the receiving water, they must provide appropriate BDOC or DDOC data to SEPA. For BDOC, the annual mean concentration of DOC for the receiving water is required. For DDOC, typical discharge concentrations for that sector will be required. This data will be developed over time in consultation with SEPA sector leads. Sector DDOC data should meet the following criteria:

- A minimum of one year's supply of data

- Derived from at least 5 sites with similar attributes. For example, for a Scottish Water discharge this would be sites with similar treatment, PE and influent composition. Other sectors for which typical discharge information may be required includes shipyards/ docks/ slipways, distilling/ brewing, landfills, aquaculture and petroleum products.

A look-up table and calculator for applying either the unadjusted or a DOC-adjusted marine copper standard is found in *WAT-SG-53-T6*. This will enable operations staff to then establish an appropriate discharge limit to apply to the licence condition.

SEPA initiated variations should be driven by the objectives of the RBMP, and not by changes of the standards. If an operator wishes to apply for an increased discharge to make use of the more relaxed standard, SEPA will determine the application by applying the standard alongside the principles of allocation of environmental capacity (found in *WAT-RM-21*).

3.3 Substances under the repealed Dangerous Substances Directive

The Dangerous Substances Directive (DSD) was repealed in 2013. *WAT-SG-53-T7* lists those former DSD substances which are no longer considered to be discharged in significant quantities, and as such no longer considered under WFD. However the standards listed for these have been determined using the rigorous process required of WFD substances and should be applied if necessary.

3.4 Non-statutory EQS

WAT-SG-53-T8 contains non-statutory EQS. These are not set out in legislation or the Directions but are the best available at this time. It should be noted that these standards may not meet the requirements of the *Technical Guidance Document on risk assessment* used to derive EQS under the WFD, so should be used with caution. If you are planning to use these standards for the regulation of a new licence please contact the *Science Advice Helpdesk* to ensure that this is still the most appropriate standard to use.

4. Operational Aquaculture Standards

WAT-SG-53-T9 contains SEPA operational standards specifically for the regulation of fish farm chemicals. These have been derived in-house for our own regulatory purposes.

Annex 1: GIS Layer

The GIS browser allows you to view the standards and typologies applicable at any given point on the map.

To view the information:

1. Start the Interactive Map application from the *GIS homepage*.
2. Zoom To a water body ID or Zoom In to a point on the map.
3. Select WFD Standards from the Themes drop-down list and press the Add button.
4. Make this the active theme by clicking the box next to its name (just above).
5. To view chemistry standards, click on the square check box next to it in the list of layers. (Top right hand corner) This will draw the intercatchment areas (on which the river sub typologies are based) on the browser map. They will appear as thin black lines.
6. Select the Identify tool from the toolbox on the left side of the browser window.
7. Click on a point on the map to display the standards applicable to it. As the standards are dependent on the intercatchment sub typology, one river water body may have more than one standard which applies to it. The typology is based on the inter-catchment area, so there is a standard for any point in Scotland.

The standards will be displayed under the map in a window with a scroll bar.

Annex 2: List of Tables

Table	Title	Ref
Table 1	pH and ANC Standards	<i>WAT-SG-53-T1</i>
Table 2	Fundamental Intermittent and 99th percentile Standards	<i>WAT-SG-53-T2</i>
Table 3	List of Substances	<i>WAT-SG-53-T3</i>
Table 4	WFD Priority Substances, Priority Hazardous Substances and Other Pollutants	<i>WAT-SG-53-T4</i>
Table 5	WFD UK Specific Pollutants	<i>WAT-SG-53-T5</i>
Table 6	Application of Marine Copper Standards	<i>WAT-SG-53-T6</i>
Table 7	Former Dangerous Substances Directive List	<i>WAT-SG-53-T7</i>
Table 8	Non-Statutory Substances	<i>WAT-SG-53-T8</i>
Table 9	Operational Standards for Aquaculture	<i>WAT-SG-53-T9</i>

Table 1 pH and Acid Neutralising Capacity Standards

Standards for pH and acid neutralising capacity² (ANC) in rivers as annual mean values				
Class	Clear waters		Humic waters	
	pH	ANC	pH	ANC
High	6.60	80	5.10	80
Good	5.95	40	4.55	50
Moderate	5.44	15	4.22	10
Poor	4.89	-10	4.03	5

Note:
 I Humic waters mean rivers with an annual average concentration of dissolved organic carbon of greater than 10mg/l. Clear waters mean rivers with an annual average concentration of dissolved organic carbon of less than or equal to 10mg/l.
 II ANC is calculated by the Cantrell method²

²K. J. Cantrell, S. M. Serkiz, and E. M. Perdue, "Evaluation of Acid Neutralizing Capacity Data for Solutions Containing Natural Organic Acids", *Geochim. Cosmochim. Acta*, **54**, 1247-1254 (1990).

Table 2 Fundamental Intermittent and Short Term Standards

Table 2a: Standards for good dissolved oxygen concentrations in rivers in relation to short-term and intermittent changes in dissolved oxygen concentrations						
	Dissolved oxygen concentration (mg/l)					
Return periods	1 hour		6 hour		24 hour	
	Salmonid	Cyprinid	Salmonid	Cyprinid	Salmonid	Cyprinid
1 month	5 + F	4 + F	5.5 + F	5 + F	6 + F	5.5 + F
3 months	4.5 + F	3.5 + F	5 + F	4.5 + F	5.5 + F	5 + F
12 months	4.0 + F	3 + F	4.5 + F	4 + F	5 + F	4.5 + F

Notes to Table C1.2:

For the purposes of this Table, "F" has the value:

- (i) "Zero" when the concurrent concentration of un-ionised ammonia is ≤ 0.02 mg/l;
- (ii) " $(0.97 \times \log_{10}(\text{concentration of NH}_3\text{-N in mg per litre}) + 3.8)$ " when the concurrent concentration of un-ionised ammonia is ≥ 0.02 mg/l and ≤ 0.15 mg/l;
- (iii) "2" when the concurrent concentration of un-ionised ammonia is ≥ 0.15 mg/l; or
- (iv) "3" for salmonid spawning grounds

Table 2b: Standards for biochemical oxygen demand (BOD) in rivers in relation to short-term and intermittent changes in BOD concentrations		
	Concentration of biochemical oxygen demand (BOD) as a 99 th percentile	
Column 1	Column 2	Column 3
	Types 1, 2, 4 and 6	Types 3, 5 and 7
High	7	9
Good	9	11
Moderate	14	14
Poor	16	19

Table 2c: Ammonia standards for rivers in relation to short-term and intermittent changes in ammonia concentrations

Column 1	Column 2	Column 3	Column 4
	Total ammonia (mg/l) as a 99 th percentile		Un-ionised ammonia (mg/l) as a 99 th percentile
	Types 1, 2, 4 and 6	Types 3, 5 and 7	All types
High	0.5	0.7	0.04
Good	0.7	1.5	
Moderate	1.8	2.6	-
Poor	2.6	6.0	-

Table 2d: Un-ionised ammonia standards for rivers in relation to short-term and intermittent changes in un-ionised ammonia concentrations

	Good					
	Un-ionised ammonia (NH ₃ -N) concentration (mg/l)					
Return periods	1 hour		6 hour		24 hour	
	Salmonid	Cyprinid	Salmonid	Cyprinid	Salmonid	Cyprinid
1 month	0.065 x F	0.150 x F	0.025 x F	0.075 x F	0.018 x F	0.030 x F
3 months	0.095 x F	0.225 x F	0.035 x F	0.125 x F	0.025 x F	0.050 x F
12 months	0.105 x F	0.250 x F	0.040 x F	0.150 x F	0.030 x F	0.065 x F

The value of F is dependent upon concentration of dissolved oxygen, pH and temperature. F is calculated as in i-viii below depending on the value of those variables:

- i "1" when the concurrent concentration of dissolved oxygen is ≥ 5 mg/l, pH is ≥ 7 and temperature is ≥ 5 degrees Centigrade;
- ii " $0.0003 \times (\text{pH})^{4.17}$ " when the concurrent concentration of dissolved oxygen is ≥ 5 mg/l, pH is < 7 and temperature is ≥ 5 degrees Centigrade;
- iii "0.5" when the concurrent concentration of dissolved oxygen is ≥ 5 mg/l, pH is ≥ 7 and temperature is < 5 degrees Centigrade
- iv " $0.0003 \times (\text{pH})^{4.17} \times 0.5$ " when the concurrent concentration of dissolved oxygen is ≥ 5 mg/l, pH is < 7 and temperature is < 5 degrees Centigrade;
- v " $0.0126 \times (\text{concentration of dissolved oxygen in mg/l})^{2.72}$ " when the concurrent concentration of dissolved oxygen is ≤ 5 mg/l, pH is ≥ 7 and temperature is ≥ 5 degrees Centigrade;
- vi " $0.0126 \times (\text{concentration of dissolved oxygen in mg/l})^{2.72} \times 0.0003 \times (\text{pH})^{4.17}$ " when the concurrent concentration of dissolved oxygen is < 5 mg/l, pH is < 7 and temperature is ≥ 5 degrees Centigrade;
- vii " $0.0126 \times (\text{concentration of dissolved oxygen in mg/l})^{2.72} \times 0.5$ " when the concurrent concentration of dissolved oxygen is < 5 mg/l, pH is ≥ 7 and temperature is < 5 degrees Centigrade;
- viii " $0.0126 \times (\text{concentration of dissolved oxygen in mg/l})^{2.72} \times 0.0003 \times (\text{pH})^{4.17} \times 0.5$ " when the concurrent concentration of dissolved oxygen is < 5 mg/l, pH is < 7 and temperature is < 5 degrees Centigrade

Table 3 List of Substances

Substance Name	CAS Number	Statutory Status	Table
1,1,1-Trichloroethane	71-55-6	<i>Former DSD List</i>	T7
1,1,2-Trichloroethane	79-00-5	<i>Former DSD List</i>	T7
1,2-Dichloroethane	107-06-2	<i>WFD PS/PHS/OP</i>	T4
2,4-D (2,4-Dichlorophenoxyacetic acid)	94-75-7	<i>WFD UK Specific Pollutant</i>	T5
2,4-Dichlorophenol	120-83-2	<i>WFD UK Specific Pollutant</i>	T5
2,4-Dichlorophenoxyacetic acid	94-75-7	<i>WFD UK Specific Pollutant</i>	T5
2-Chlorophenol	95-57-8	<i>Former DSD List</i>	T7
3,4-Dichloroaniline	554-00-7	<i>WFD UK Specific Pollutant</i>	T5
3-Chlorophenol	108-43-0	<i>Non-statutory</i>	T8
4-(1,1',3,3'-tetramethylbutyl)-phenol (octylphenol)	140-66-92	<i>WFD PS/PHS/OP</i>	T4
4-Chloro-3-methylphenol	59-50-7	<i>Former DSD List</i>	T7
4-Chlorophenol	106-48-9	<i>Non-statutory</i>	T8
4-Nonylphenol	25154-52-3	<i>WFD PS/PHS/OP</i>	T4
Abamectin	71751-41-2	<i>Non-statutory</i>	T8
Alachlor	15972-60-8	<i>WFD PS/PHS/OP</i>	T4
Aluminium (reactive)	7429-90-5	<i>Non-statutory</i>	T8
Ammonia (unionised)	7664-41-7	<i>WFD UK Specific Pollutant</i>	T5
AMX (active ingredient: Deltmethrin)	52918-63-5	<i>SEPA operational aquaculture</i>	T9
Anthracene	120-12-7	<i>WFD PS/PHS/OP</i>	T4
Aquagard (active ingredient: Dichlorvos)	62-73-7	<i>SEPA operational aquaculture</i>	T9
Arsenic	7440-38-2	<i>WFD UK Specific Pollutant</i>	T5
Atrazine	1912-24-9	<i>WFD PS/PHS/OP</i>	T4
Azamethiphos	35575-96-3	<i>Non-statutory</i>	T8
Azinphos-methyl	86-50-0	<i>Former DSD List</i>	T7
Bentazone	25057-89-0	<i>Former DSD List</i>	T7
Benzene	71-43-2	<i>WFD PS/PHS/OP</i>	T4
Benzo(a)pyrene	50-32-8	<i>WFD PS/PHS/OP</i>	T4
Benzo(b)fluoranthene	205-99-2	<i>WFD PS/PHS/OP</i>	T4

Benzo(ghi)perylene	191-24-2	WFD PS/PHS/OP	T4
Benzo(k)fluoranthene	207-08-9	WFD PS/PHS/OP	T4
Benzylbutylphthalate	85-68-7	WFD UK Specific Pollutant	T5
Biphenyl	92-52-4	Former DSD List	T7
Boron (total)	7440-42-8	Non-statutory	T8
Brominated diphenylether (pentaBDE only)	32534-81-9	WFD PS/PHS/OP	T4
Bromine	7726-95-6	Non-statutory	T8
Bromoxynil	1689-84-5	Non-statutory	T8
Bronopol	52-51-7	SEPA operational aquaculture	T9
C10-13 Chloroalkanes	85535-84-8	WFD PS/PHS/OP	T4
Cadmium	7440-43-9	WFD PS/PHS/OP	T4
Calicide (sediment) (active ingredient: Teflubenzeron)	83121-18-0	SEPA operational aquaculture	T9
Calicide (water) (active ingredient: Teflubenzeron)	83121-18-0	SEPA operational aquaculture	T9
Carbendazim	10605-21-7	WFD UK Specific Pollutant	T5
Carbon tetrachloride	56-23-5	WFD PS/PHS/OP	T4
Chlorfenvinphos	470-90-6	WFD PS/PHS/OP	T4
Chloride	16887-00-6	Non-statutory	T8
Chlorine	7782-50-5	WFD UK Specific Pollutant	T5
Chloroform (Trichloromethane)	67-66-3	WFD PS/PHS/OP	T4
Chloronitrotoluenes	25567-68-4	Former DSD List	T7
Chloroprotham	101-21-3	Non-statutory	T8
Chlorothalonil	1897-45-6	WFD UK Specific Pollutant	T5
Chlorotoluron	15545-48-9	Non-statutory	T8
Chlorpyrifos	2921-88-2	WFD PS/PHS/OP	T4
Chromium III	16065-83-1	WFD UK Specific Pollutant	T5
Chromium VI	18540-29-9	WFD UK Specific Pollutant	T5
Cobalt	7440-48-4	Non-statutory	T8
Copper	7440-50-8	WFD UK Specific Pollutant	T5
Coumaphos	56-72-4	Non-statutory	T8
Cyanide	57-12-5	WFD UK Specific Pollutant	T5

Cyclodiene pesticides (aldrin, dieldrin, endrin, isodrin)	NA	<i>WFD UK Specific Pollutant</i>	T5
Cyfluthrin	68359-37-5	<i>Non-statutory</i>	T8
Cypermethrin	52315-07-8	<i>WFD UK Specific Pollutant</i>	T5
DDT total	NA	<i>SEPA operational aquaculture</i>	T9
DEHP (Di(2-ethylhexyl)phthalate)	117-81-7	<i>WFD PS/PHS/OP</i>	T4
Demeton	919-86-8	<i>Former DSD List</i>	T7
Di(2-ethylhexyl)phthalate (DEHP)	117-81-7	<i>WFD PS/PHS/OP</i>	T4
Diazinon	333-41-5	<i>WFD UK Specific Pollutant</i>	T5
Dibutylphthalate (DBP)	84-74-2	<i>Non-statutory</i>	T8
Dichlorobenzene	25321-22-6	<i>Non-statutory</i>	T8
Dichloromethane	75-09-2	<i>WFD PS/PHS/OP</i>	T4
Dichlorvos	62-73-7	<i>Former DSD List</i>	T7
Dicyclohexylphthalate (DCHP)	84-61-7	<i>Non-statutory</i>	T8
Diethylphthalate (DEP)	84-66-2	<i>Non-statutory</i>	T8
Diflubenzuron	35367-38-5	<i>Non-statutory</i>	T8
Dimethoate	60-51-5	<i>WFD UK Specific Pollutant</i>	T5
Dimethylphthalate (DMP)	131-11-3	<i>Non-statutory</i>	T8
Diethylphthalate (DOP)	117-84-0	<i>Non-statutory</i>	T8
Dioxins	NA	<i>Non-statutory</i>	T8
Diuron	330-54-1	<i>WFD PS/PHS/OP</i>	T4
Doramectin	117704-25-3	<i>Non-statutory</i>	T8
EDTA	60-00-4	<i>Non-statutory</i>	T8
Endosulfan	115-29-7	<i>WFD PS/PHS/OP</i>	T4
Ethofumesate	26225-79-6	<i>Non-statutory</i>	T8
Ethylbenzene	100-41-4	<i>Non-statutory</i>	T8
Excis (active ingredient: cypermethrin)	52315-07-8	<i>SEPA operational aquaculture</i>	T9
Fenchlorphos	299-84-3	<i>Non-statutory</i>	T8
Fenitrothion	122-14-5	<i>Former DSD List</i>	T7
Flucofuron	370-50-3	<i>Non-statutory</i>	T8
Flumethrin	69770-45-2	<i>Non-statutory</i>	T8
Fluoranthene	206-44-0	<i>WFD PS/PHS/OP</i>	T4

Fluoride	16984-48-8	<i>Non-statutory</i>	T8
Flusilazole	85509-19-9	<i>Non-statutory</i>	T8
Formaldehyde	50-00-0	<i>Non-statutory</i>	T8
Glyphosate	38641-94-0	<i>WFD UK Specific Pollutant</i>	T5
Hexachlorobenzene (HCB)	118-74-1	<i>WFD PS/PHS/OP</i>	T4
Hexachlorobutadiene (HCBd)	87-68-3	<i>WFD PS/PHS/OP</i>	T4
Hexachlorocyclohexane (HCH)	608-73-1	<i>WFD PS/PHS/OP</i>	T4
Hydrogen cyanide	74-90-8	<i>WFD UK Specific Pollutant</i>	T5
Hydrogen sulphide	7783-06-4	<i>Non-statutory</i>	T8
Imazethapyr	81334-34-1	<i>Non-statutory</i>	T8
Indeno(123-cd)pyrene	193-39-5	<i>WFD PS/PHS/OP</i>	T4
loxynil	1689-83-4	<i>Non-statutory</i>	T8
Iron	7439-89-6	<i>WFD UK Specific Pollutant</i>	T5
Isoproturon	34123-59-6	<i>WFD PS/PHS/OP</i>	T4
Ivermectin	70288-86-7	<i>Non-statutory</i>	T8
Ivermectin (fish farm)	70288-86-7	<i>SEPA operational aquaculture</i>	T9
Lead	7439-92-1	<i>WFD PS/PHS/OP</i>	T4
Lindane (included in HCH)	608-73-1	<i>WFD PS/PHS/OP</i>	T4
Linuron	330-55-2	<i>WFD UK Specific Pollutant</i>	T5
Malachite Green	569-64-2	<i>Non-statutory</i>	T8
Malachite Green (fish farm)	569-64-2	<i>SEPA operational aquaculture</i>	T9
Malathion	121-75-5	<i>Former DSD List</i>	T7
Mancozeb	8018-01-7	<i>Non-statutory</i>	T8
Maneb	12427-38-2	<i>Non-statutory</i>	T8
Manganese	7439-96-5	<i>WFD UK Specific Pollutant</i>	T5
MCPA	94-74-6	<i>Non-statutory</i>	T8
Mecoprop	93-65-2	<i>WFD UK Specific Pollutant</i>	T5
Mercury	7439-97-6	<i>WFD PS/PHS/OP</i>	T4
Methiocarb	2032-65-7	<i>WFD UK Specific Pollutant</i>	T5
Methylphenols	NA	<i>Non-statutory</i>	T8
Mevinphos	7786-34-7	<i>Non-statutory</i>	T8

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Monochlorobenzene	108-90-7	<i>Non-statutory</i>	T8
Monochlorophenols	25167-80-0	<i>Non-statutory</i>	T8
Naphthalene	91-20-3	<i>WFD PS/PHS/OP</i>	T4
Nickel	7440-02-0	<i>WFD PS/PHS/OP</i>	T4
Nonylphenol (4-nonylphenol)	104-40-5	<i>WFD PS/PHS/OP</i>	T4
NTA	139-13-9	<i>Non-statutory</i>	T8
Octylphenol ((4-(1,1',3,3'-tetramethylbutyl)- phenol))	140-66-9	<i>WFD PS/PHS/OP</i>	T4
Omethoate	1113-02-6	<i>Former DSD List</i>	T7
Oxolinic acid	14698-29-4	<i>Non-statutory</i>	T8
Oxytetracycline	6153-64-6	<i>Non-statutory</i>	T8
para-para-DDT	50-29-3	<i>WFD PS/PHS/OP</i>	T4
PCSDs	NA	<i>Non-statutory</i>	T8
Pendimethalin	40487-42-1	<i>WFD UK Specific Pollutant</i>	T5
Pentabromodiphenylether□	32534-81-9	<i>WFD PS/PHS/OP</i>	T4
Pentachlorobenzene	608-93-5	<i>WFD PS/PHS/OP</i>	T4
Pentachlorophenol	87-86-5	<i>WFD PS/PHS/OP</i>	T4
Permethrin	52645-53-1	<i>WFD UK Specific Pollutant</i>	T5
Phenol	108-95-2	<i>WFD UK Specific Pollutant</i>	T5
Pirimicarb	23103-98-2	<i>Non-statutory</i>	T8
Pirimiphos-methyl	29232-93-7	<i>Non-statutory</i>	T8
Polyaromatic hydrocarbons (PAHs)	NA	<i>WFD PS/PHS/OP</i>	T4
Prochloraz	67747-09-5	<i>Non-statutory</i>	T8
Propetamphos	31218-83-4	<i>Non-statutory</i>	T8
Propyzamide	23950-58-5	<i>Non-statutory</i>	T8
Pyceze (active ingredient: Bronopol)	52-51-7	<i>SEPA operational aquaculture</i>	T9
Salmosan (active ingredient: Azamethiphos)	35575-96-3	<i>SEPA operational aquaculture</i>	T9
Silver	7440-22-4	<i>Non-statutory</i>	T8
Simazine	122-34-9	<i>WFD PS/PHS/OP</i>	T4
Slice (sediment) (active ingredient: Emamectin Benzoate)	137512-74-4	<i>SEPA operational aquaculture</i>	T9
Slice (water) (active ingredient: Emamectin Benzoate)	137512-74-4	<i>SEPA operational aquaculture</i>	T9

Sodium	7440-23-5	<i>Non-statutory</i>	T8
Styrene	100-42-5	<i>Non-statutory</i>	T8
Sulcofuron (sulcofuran sodium)	3567-25-7	<i>Non-statutory</i>	T8
Sulphate	NA	<i>Non-statutory</i>	T8
Tecnazene	117-18-0	<i>Non-statutory</i>	T8
Tetrachloroethane	79-34-5	<i>WFD UK Specific Pollutant</i>	T5
Tetrachloroethylene	127-18-4	<i>WFD PS/PHS/OP</i>	T4
Thiabendazole	148-79-8	<i>Non-statutory</i>	T8
Tin	7440-31-5	<i>Non-statutory</i>	T8
Toluene	108-88-3	<i>WFD UK Specific Pollutant</i>	T5
Triallate	2303-17-5	<i>Non-statutory</i>	T8
Triazophos	24017-47-8	<i>Former DSD List</i>	T7
Tributyl phosphate	126-73-8	<i>Non-statutory</i>	T8
Tributyltin	36643-28-4	<i>WFD PS/PHS/OP</i>	T4
Trichlorobenzenes	12002-48-1	<i>WFD PS/PHS/OP</i>	T4
Trichloroethylene	79-01-6	<i>WFD PS/PHS/OP</i>	T4
Trichloromethane (Chloroform)	67-66-3	<i>WFD PS/PHS/OP</i>	T4
Triclosan		<i>WFD UK Specific Pollutant</i>	T5
Trifluralin	1582-09-8	<i>WFD PS/PHS/OP</i>	T4
Triphenyltin	NA	<i>Former DSD List</i>	T7
Vanadium	7440-62-2	<i>Non-statutory</i>	T8
Xylene	1330-20-7	<i>Former DSD List</i>	T7
Zinc	7440-66-6	<i>WFD UK Specific Pollutant</i>	T5

Table 4 EQS for WFD Priority Substances (including PHS*) and Other Pollutants (EU Standards)¹

Substance	Environmental Quality Standard (µg/l)				Statutory Instrument
	Freshwater ⁱ		Marine ⁱⁱ		
	AA	MAC	AA	MAC	
Alachlor	0.3	0.7	0.3	0.7	2014 SG Direction ²
Anthracene*	0.1	0.4	0.1	0.4	2014 SG Direction
Atrazine	0.6	2.0	0.6	2.0	2014 SG Direction
Benzene	10	50	8	50	2014 SG Direction
Brominated diphenylether* ⁱⁱⁱ	0.0005	-	0.0002	-	2014 SG Direction
Cadmium (dissolved)* ^{iv,vi}	≤0.08 (class 1) 0.08 (class 2) 0.09 (class 3) 0.15 (class 4) 0.25 (class 5)	≤0.45 (class 1) 0.45 (class 2) 0.6 (class 3) 0.9 (class 4) 1.5 class 5)	0.2	-	2014 SG Direction
Carbon tetrachloride	12	-	12	-	2014 SG Direction
C10-13 Chloroalkanes*	0.4	1.4	0.4	1.4	2014 SG Direction
Chlorfenvinphos	0.1	0.3	0.1	0.3	2014 SG Direction
Chlorpyrifos (Chlorpyrifos-ethyl)	0.03	0.1	0.03	0.1	2014 SG Direction
Cyclodiene pesticides (Aldrin, Dieldrin, Endrin, Isodrin)	Σ=0.01	-	Σ=0.005	-	2014 SG Direction
DDT total ^v	0.025	-	0.025	-	2014 SG Direction
para-para-DDT	0.01	-	0.01	-	2014 SG Direction
1,2-Dichloroethane	10	-	10	-	2014 SG Direction
Dichloromethane	20	-	20	-	2014 SG Direction
Di(2-ethylhexyl)phthalate (DEHP)	1.3	-	1.3	-	2014 SG Direction
Diuron	0.2	1.8	0.2	1.8	2014 SG Direction
Endosulfan*	0.005	0.01	0.0005	0.004	2014 SG Direction
Fluoranthene	0.1	1	0.1	1	2014 SG Direction
Hexachlorobenzene*	0.01	0.05	0.01	0.05	2014 SG Direction
Hexachlorobutadiene*	0.1	0.6	0.1	0.6	2014 SG Direction
Hexachlorocyclohexane* (includes lindane)	0.02	0.04	0.002	0.02	2014 SG Direction

Isoproturon	0.3	1.0	0.3	1.0	2014 SG Direction
Lead (dissolved) ^{vi}	7.2	-	7.2	-	2014 SG Direction
Mercury (dissolved) ^{vi} *	0.05	0.07	0.05	0.07	2014 SG Direction
Naphthalene	2.4	-	1.2	-	2014 SG Direction
Nickel (dissolved) ^{vi}	20	-	20	-	2014 SG Direction
Nonylphenol (4-Nonylphenol)*	0.3	2.0	0.3	2.0	2014 SG Direction
Octylphenol ((4-(1,1',3,3'-tetramethylbutyl)-phenol))	0.1	-	0.01	-	2014 SG Direction
Pentachlorobenzene*	0.007	-	0.0007	-	2014 SG Direction
Pentachlorophenol	0.4	1	0.4	1	2014 SG Direction
Polyaromatic hydrocarbons (PAHs)*:					2014 SG Direction
Benzo(a)pyrene*	0.05	0.1	0.05	0.1	2014 SG Direction
Benzo(b)fluoranthene*	Σ=0.03	-	Σ=0.03	-	2014 SG Direction
Benzo(k)fluoranthene*					2014 SG Direction
Benzo(ghi)perylene*	Σ=0.002	-	Σ=0.002	-	2014 SG Direction
Indeno(123-cd)pyrene*					2014 SG Direction
Simazine	1	4	1	4	2014 SG Direction
Tetrachloroethylene	10	-	10	-	2014 SG Direction
Trichloroethylene	10	-	10	-	2014 SG Direction
Tributyltin*	0.0002	0.0015	0.0002	0.0015	2014 SG Direction
Trichlorobenzenes	0.4	-	0.4	-	2014 SG Direction
Trichloromethane (chloroform)	2.5	-	2.5	-	2014 SG Direction
Trifluralin	0.03	-	0.03	-	2014 SG Direction

1 Directive 2008/105/EC of the European Parliament and of the Council on Environmental Quality Standards in the Field of Water Policy, amending and subsequently repealing Directives 82/176/EEC, 83/513/EEC, 84/156/EEC, 84/491/EEC and 86/280/EEC, and amending Directive 2000/60/EC, December 2008.

2 The Scotland River Basin District (Surface Water Typology, Environmental Standards, Condition Limits and Groundwater Threshold Values) Directions 2014.

i Applies to all rivers and freshwater lochs

ii Applies to all transitional waters and coastal waters

iii Applies to congeners 28, 47, 99, 100, 153 and 154 (pentabromodiphenylether)

iv For Cadmium and its compounds, the annual mean values vary dependent 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)

Supporting Guidance (WAT-SG-53)

- v DDT total comprises the sum of the isomers 1,1,1-trichloro-2,2 bis (p-chlorophenyl) ethane (CAS number 50-29-3; EU number 200-024-3); 1,1,1-trichloro-2 (o-chlorophenyl)-2-(p-chlorophenyl) ethane (CAS number 789-02-6; EU Number 212-332-5); 1,1-dichloro-2,2 bis (p-chlorophenyl) ethylene (CAS number 72-55-9; EU Number 200-784-6); and 1,1-dichloro-2,2 bis (p-chlorophenyl) ethane (CAS number 72 54-8; EU Number 200-783-0).
- vi 'Dissolved' refers to the portion remaining following filtration through a 0.45µm membrane.

Table 5 EQS for WFD UK Specific Pollutants (UK Standards)¹

Substance	Environmental Quality Standard (µg/l)				Statutory Instrument
	Freshwater ⁱ		Marine ⁱⁱ		
	AA	95%-ile	AA	95%-ile	
Ammonia (unionised)	See Section 2	-	21	-	2014 SG Direction ²
Arsenic (dissolved) ^{iv}	50	-	25	-	2014 SG Direction
Benzyl butyl phthalate	7.5	51	0.75	10	2014 SG Direction
Carbendazin	0.15	0.7	-	-	2014 SG Direction
Chlorine	2 ⁱⁱⁱ	5 ⁱⁱⁱ	-	10 ⁱⁱⁱ	2014 SG Direction
Chlorothalonil	0.035	1.2	-	-	2014 SG Direction
Chromium VI (dissolved) ^{iv}	3.4	-	0.6	32	2014 SG Direction
Chromium III (dissolved) ^{iv}	4.7	32	-	-	2014 SG Direction
Copper (bioavailable in freshwater, dissolved in marine) ^{iv,v}	1	-	3.76 where DOC ≤ 1 mg/l 3.76 + (2.677 x ((DOC/2) - 0.5)) where DOC > 1 mg/l	-	2014 SG Direction
Cyanide (hydrogen cyanide)	1	5	1	5	2014 SG Direction
Cypermethrin	0.1	0.4	0.1	0.41	2014 SG Direction
Diazinon	0.01	0.02	0.01	0.26	2014 SG Direction
2,4-Dichlorophenol	4.2	140	0.042	6	2014 SG Direction
2,4-Dichlorophenoxyacetic acid (2,4-D)	0.3	1.3	0.3	1.3	2014 SG Direction
3,4-Dichloroaniline	0.2	5.4	0.2	5.4	2014 SG Direction
Dimethoate	0.48	4	0.48	4	2014 SG Direction
Glyphosate	196	398	196	398	2014 SG Direction
Iron (dissolved) ^{iv}	1000	-	1000	-	2014 SG Direction
Linuron	0.5	0.9	0.5	0.9	2014 SG Direction
Manganese (bioavailable) ^v	123	-	-	-	2014 SG Direction
Mecoprop	18	187	18	187	2014 SG Direction
Methiocarb	0.01	0.77	-	-	2014 SG Direction
Pendimethalin	0.3	0.58	-	-	2014 SG Direction

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Permethrin	0.001	0.01	0.0002	0.001	2014 SG Direction
Phenol	7.7	46	7.7	46	2014 SG Direction
Tetrachloroethane	140	1848	-	-	2014 SG Direction
Toluene	74	-	74	-	2014 SG Direction
Triclosan	Standard to be expected in 2015				
Zinc (bioavailable in freshwater, dissolved in marine) ^{iv,v}	11.9	-	7.9	-	2014 SG Direction

- 1 *Proposals for Environmental Quality Standards for Annex VIII Substances*, UK TAG
- 2 The Scotland River Basin District (Surface Water Typology, Environmental Standards, Condition Limits and Groundwater Threshold Values) Directions 2014.
 - i Applies to all rivers and freshwater lochs.
 - ii Applies to all transitional waters and coastal waters.
 - iii Freshwater standards are for total available chlorine, marine standards are for total residual oxidant.
 - iv 'Dissolved' refers to the portion remaining following filtration through a 0.45µm membrane
 - v For copper, zinc and manganese, the annual average standards for freshwater refer to the concentration of bioavailable metal. This is the fraction of dissolved metal has the potential to contribute to toxic effects in aquatic animals or plants as determined in accordance with the method, metals bioavailability assessment tool⁽³⁾. Refer to Table 10 for application of the marine copper standard.

³ UKTAG (2014) River and Lake Assessment Method, Specific Pollutants (Metals), Metal Bioavailability Assessment Tool (M-BAT) ISBN: 978-1-906934-57-6.

Table 6 Application of Marine Copper Standards

Copper standard applicable, depending on the information available on DOC				
Site-specific background DOC concentration estimate ("BDOC ⁱ ") (in mg/L) available?	No	No	Yes	Yes
Typical discharge-derived DOC concentration estimate ("DDOC ⁱⁱ ") (in mg/L) available?	No	Yes	No	Yes
Applicable copper standard (µg/l dissolved) ⁱⁱⁱ	5.09 ^{iv}	$3.76 + (2.677 \times (((1 + \text{DDOC})/2) - 0.5))$	$3.76 + (2.677 \times (((\text{BDOC} + 1)/2) - 0.5))$	$3.76 + (2.677 \times (((\text{BDOC} + \text{DDOC})/2) - 0.5))$

i "Background DOC concentration" (BDOC) means the annual mean concentration of dissolved organic carbon (DOC) in the receiving water body in mg/l.

ii "Discharge-derived DOC concentration" (DDOC) means the concentration of DOC at the edge of the mixing zone of a discharge in in mg/l.

iii "Dissolved" means the portion remaining following filtration through a 0.45µm membrane.

iv In the absence of site-specific data on either BDOC or DDOC, SEPA will operate on the basis that the combination of BDOC and DDCOC produces a concentration of 2 mg/l in estuaries and coastal waters in Scotland.

The standard is interpreted as follows:

- 1) In the absence of information on BDOC and DDOC, SEPA will apply the standard of 5.09 ug/l in column A when determining applications.
- 2) If applicants provide appropriate DDOC or BDOC information, SEPA will take this into account in determining application. For new discharges, the estimated DDOC concentration should be derived using measured concentrations of DDOC at existing and suitably comparable discharges. Where appropriate, SEPA may agree typical DDOC concentrations on a sector by sector basis. This document will be updated once any sector-wide estimates are in place. However, if in doubt, the coordinating officer should contact the relevant SEPA sector lead.

3) Where:

in the absence of suitable data, SEPA has to assess the risk posed by a proposal using a copper standard based on an assumed BDOC or DDOC concentration; and
 a proposal would cause that standard to be breached,
 the coordinating officer should advise the applicant that SEPA can only grant the application if (i) the applicant provides appropriate BDOC or DDOC information; and (ii) the copper standard derived using that information in accordance with Table 6 would not be breached.

Table 7 EQS for former DSD substances which are no longer considered to be discharged in significant quantities, and as such no longer considered under WFD

Substance	Environmental Quality Standard ($\mu\text{g/l}$)			
	Freshwater		Marine	
	AA	MAC	AA	MAC
Azinphos-methyl	0.01	-	0.01	-
Bentazone	500	-	500	-
Biphenyl	25	-	25	-
Chloronitrotoluenes	10	-	10	-
4-Chloro-3-methylphenol	40	-	40	-
2-Chlorophenol	50	-	50	-
Demeton	0.5	-	0.5	-
Dichlorvos	0.001	-	0.04	-
Fenitrothion	0.01	-	0.01	-
Malathion	0.01	-	0.02	-
Omethoate	0.01	-	-	-
Triazophos	0.005	-	0.005	-
1,1,1-Trichloroethane	100	-	100	-
1,1,2-Trichloroethane	400	-	300	-
Triphenyltin	0.02	-	0.008	-
Xylene	30	-	30	-

Table 8 Non-statutory EQS values for other substances

Substance	Environmental Quality Standard (µg/l)				Reference
	Freshwater ⁱ		Marine ⁱⁱ		
	AA	MAC	AA	MAC	
Abamectin	0.01	0.03	0.003	0.01	DETR (1998)
Aluminium (reactive)	15 (pH>6.5)	10 (pH≤6.5) 25 (pH>6.5)	15	25	EA/SNIFFER (1998)
Azamethiphos	0.02	0.05	0.02	0.05	DETR 1998
Boron (total)	2000	-	7000	-	HMSO (1989) (statutory in E&W)
Bromine	2 (Total residual oxidant)	5 (Total residual oxidant)	-	10 (Total residual oxidant)	EA (1997)
Bromoxynil	100	1000	100 (interim guideline)	1000 (interim guideline)	DoE (1995)
Chloride	250000	-	-	-	EA (1992 and 1999)
Chloropropham	10	40	10 (interim guideline)	40 (interim guideline)	DoE (1995)
Chlorotoluron	2 (interim guideline)	20 (interim guideline)	2 (interim guideline)	-	EA (1996)
Cobalt (dissolved)	3	100	3	100	DETR (1998)
Coumaphos	0.03	0.1	0.03	0.1	EA/SNIFFER (2000)
Cyfluthrin	-	0.001 (95%ile)	-	0.001 (95%ile)	HMSO (1989) (statutory in E&W)
Dibutylphthalate (DBP)	8	40	8	40	DETR (1998)
Dichlorobenzene (dissolved, sum of all isomers)	20	200	20	200	DETR 1998
Dicyclohexylphthalate (DCHP)	No EQS proposed	No EQS proposed	No EQS proposed	No EQS proposed	DETR (1998)
Diethylphthalate (DEP)	200	1000	200	1000	DETR (1998)
Diflubenzuron	0.001	0.015	0.005	0.1	DETR (1997)
Dimethylphthalate (DMP)	800	4000	800	4000	DETR (1998)

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Diocetylphthalate (DOP)	20	40	20	40	DETR (1998)
Dioxins	No EQS proposed	No EQS proposed	No EQS proposed	No EQS proposed	EA/SNIFFER (1999)
Doramectin	0.001	0.01	0.001	0.01	DETR (1998)
EDTA	400	4000	400	4000	DETR (1997)
Ethofumesate	No EQS proposed	No EQS proposed	No EQS proposed	No EQS proposed	DETR (1997)
Ethylbenzene	20	200	20	200	EA/SNIFFER (2001)
Fenchlorphos	0.03	0.1	0.03	0.1	EA/SNIFFER (2000)
Flucofuron	-	1 (95%ile)	-	1 (95%ile)	HMSO (1989) (statutory in E&W)
Flumethrin	No EQS proposed	No EQS proposed	No EQS proposed	No EQS proposed	EA/SNIFFER
Fluoride (dissolved)	1000 (<50 mg CaCO ₃ /l) 5000 (>50 mg CaCO ₃ /l)	3000 (<50 mg CaCO ₃ /l) 15000 (<50 mg CaCO ₃ /l)	5000	15000	EA/SNIFFER (1998)
Flusilazole	No EQS proposed	No EQS proposed	No EQS proposed	No EQS proposed	DETR (1998)
Formaldehyde	5	50	No EQS proposed	No EQS proposed	DoE (1993)
Hydrogen sulphide (undissociated)	0.25	1.0	-	10	DoE (1993)
Imazethapyr	No EQS proposed	No EQS proposed	No EQS proposed	No EQS proposed	DETR (1998)
Ioxynil	10	100	10 (interim guideline)	100 (interim guideline)	DoE (1995)
Ivermectin	0.0001	0.001	0.0001	0.001	DETR (1998)
Malachite Green	0.5	100	0.5 (interim guideline)	100 (interim guideline)	DoE (1993)
Mancozeb	2	20	2	20	DETR (1997)
Maneb	3	30	3	30	DETR (1997)
MCPA	12 (pH<7)** 80 (pH>7)	120 (pH<7)** 800 (pH>7)	80	800	DETR
Methylphenols	100	300	100	300	EA
Mevinphos	-	0.02	-	-	HMSO (1998c)

Monochlorobenzene	No EQS proposed	No EQS proposed	No EQS proposed	No EQS proposed	DoE (1989)
Monochlorophenols (3-chlorophenol, 4-chlorophenol)	50	250	50	250	EA/SNIFFER 1997
NTA	1000	10000	3000	30000	DETR (1997)
Oxolinic acid	No EQS proposed	No EQS proposed	No EQS proposed	No EQS proposed	DoE (1994)
Oxytetracycline	No EQS proposed	No EQS proposed	No EQS proposed	No EQS proposed	DoE (1994)
PCSDs	-	0.05 (95%ile)	-	0.05 (95%ile)	HMSO (1989) (statutory in E&W)
Pendimethalin	1.5	6	1.5	6	DETR (1997)
Pirimicarb	1	5	1 (interim guideline)	5 (interim guideline)	DoE (1996)
Pirimiphos-methyl	0.015	0.05	0.015	0.05	DETR (1997)
Prochloraz	4	40	4	40	DETR (1998)
Propetamphos	0.03	0.1	0.03	0.1	EA/SNIFFER (2000)
Propyzamide	100	1000	100	1000	DETR (1998)
Silver (dissolved)	0.05	0.1	0.5 (interim guideline)	1 (interim guideline)	DoE (1996)
Sodium	No EQS proposed	No EQS proposed	No EQS proposed	No EQS proposed	EA (1999)
Styrene	50	500	50 (interim guideline)	500 (interim guideline)	EA (1995)
Sulcofuron	-	25 (95%ile)	-	25 (95%ile)	HMSO (1989) (statutory in E&W)
Sulphate	400000	-	No EQS proposed	-	EA (1999)
Tecnazene (i)	1	10	1 (interim guideline)	10 (interim guideline)	DoE (1995)
Thiabendazole	5	50	5 (interim guideline)	50 (interim guideline)	DoE (1995)
Tin (total for freshwater, dissolved for marine)	25	-	10	-	DoE (1989)
Triallate	0.25	5	0.25	5	DETR (1998)
Tributyl phosphate	50	500	50	500	DETR (1998)

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Vanadium (total) (ii)	20 (class 1) 60 (class 2)	-	100	-	HMSO (1989) (statutory in E&W)
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Notes:

- i Sum of tecnazene, 2, 3, 5, 6-tetrachloroaniline (TCA) and 2, 3, 5, 6-tetrachlorothioanisole (TCTA).
- ii For Vanadium, the annual mean values vary dependent on the hardness of the water as specified in two class categories (Class 1: 0 - 200 mg CaCO₃/l, Class 2: >200 mg CaCO₃/l).

Table 9 Operational Standards for Aquaculture

Table 9a: Operational Water Quality Standards used by SEPA for regulating the use of chemicals in aquaculture					
Substance	Environmental Quality Standard (µg/l – except for AMX which is ng/l)				Reference
	Freshwater		Marine		
	AA	MAC	AA	MAC	
Salmosan (active ingredient: Azamethiphos)	-	-	-	0.25 (after 3 hrs) 0.15 (after 24 hrs) 0.04 (after 72 hrs)	SEPA Policy 17 (1998)
Pyceze (active ingredient: Bronopol)	-	70	-	-	SEPA Guidance (2002)
Excis (active ingredient: Cypermethrin)	-	-	0.00005	0.016 (after 3 hrs) 0.0005 (after 24 hrs)	SEPA Policy 30 (1998)
Aquaguard (active ingredient: Dichlorvos)	Use not permitted				DoE (1991)
Slice (active ingredient: Emamectin Benzoate)	-	-	-	0.00022	SEPA Recommendation (1999)
Ivermectin	Use not permitted				-
Malachite Green	Use not permitted				SEPA Guidance (2002)
AMX (active ingredient: Deltmethrin)	-	-	0.3 ng/l	9.0 (after 3 hrs) 6.0 (after 6 hrs) 4.0 (after 12 hrs) 2.0 (after 24 hrs) 1.0 (after 48 hrs)	SEPA Guidance (2008)
Calicide (active ingredient: Teflubenzuron)	-	-	0.006	0.03	SEPA Policy 29 (1999)

Table 9b Operational Sediment Quality Standards used by SEPA for regulating the use of chemicals in aquaculture

Substance	Sediment Quality Standard				Reference
	Freshwater		Marine		
	AA	MAC	AA	MAC	
Slice (active ingredient: Emamectin Benzoate)	-	-	-	0.763 µg/kg-wet weight (5cm core depth outside zone of effects area. 100m from edge of cages, increased up to 150m where strong directional currents exist)	SEPA Recommendation (1999)
Calicide (active ingredient: Teflubenzeron)	-	-	10.0 mg/kg-dry weight (5cm core depth applied within the immediate under cage impact zone, up to 25m from cage edges)	2.0 µg/kg-dry weight (5cm core depth outside zone of effects area. 100m from edge of cages, increased up to 150m where strong directional currents exist)	SEPA Policy 29 (1999)

References

NOTE: Linked references to other documents have been disabled in this web version of the document.

See the Water >Guidance pages of the SEPA website for Guidance and other documentation (www.sepa.org.uk/water/water_regulation/guidance.aspx).

All references to external documents are listed on this page along with an indicative URL to help locate the document. The full path is not provided as SEPA can not guarantee its future location.

Key Documents

- *GIS Pages* SEPA Intranet
- *Science Advice Helpdesk* details on *Science Advice* page SEPA Intranet
- *Standards Directions 2014*
 - The Scotland River Basin District (Surface Water Typology, Environmental Standards, Condition Limits and Groundwater Threshold Values) Directions 2014
 - The Solway Tweed River Basin District (Surface Water Typology, Environmental Standards, Condition Limits and Groundwater Threshold Values) (Scotland) Directions 2014

NOTE: This link provides access to the documents via a managed SEPA intranet page. The full set of Standards Directions for each river basin district in Scotland can also be found via the Publications page of the Scottish Government website (www.scotland.gov.uk/Publications/)

- *WAT-SG-21: Environmental Standards for River Morphology*

European Legislation

- *Annex X of the Water Framework Directive* CELEX: 32001D2455 (<http://eur-lex.europa.eu/homepage.html>)
- *Technical Guidance Document on risk assessment*
In support of : Commission Directive 93/67/EEC on risk assessment for new notified substances, Commission Regulation (EC) No 1488/94 on risk assessment for existing substances, Directive 98/8/EC of the European Parliament and of the Council concerning the placing of biocidal products on the market Part II, 2003
Cat. No. LB-NB-20418-EN-C (<https://bookshop.europa.eu/en/home/>)

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