

6 Appendices

A1 List of water quality parameters and indicators to be investigated

The Mainland and Overseas WQOs

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A1 List of water quality parameters and indicators to be investigated

Forty-eight parameters or indicators listed below would be investigated in this review. The following information help understand the Mainland and overseas WQO values given in Tables A2 to A7 in the Appendices.

I. Nutrients-related

1. Narrative nutrient WQOs are not included in the tables as they are of little help in setting numerical standards for Hong Kong.
2. Inorganic N ($\mu\text{g/L}$) refers to the total ammonia (NH_3), nitrate and nitrite (NO_x) compounds; it is often expressed as a range in accordance with the types of waters found within a country/region.
3. Total nitrogen ($\mu\text{g/L}$) includes all inorganic and organic N compounds.
4. Total phosphorus ($\mu\text{g/L}$) also includes all inorganic and organic P compounds.
5. Chlorophyll-*a* ($\mu\text{g/L}$) – guideline values found only in Singapore and Australia.
6. Silica ($\mu\text{g/L}$) – guideline values are found only in Malaysia.
7. Turbidity is measured in Nephelometric Turbidity units (NTU) unless indicated otherwise.
8. Dissolved oxygen (DO) is expressed either as a percentage of the saturation level or in mg/L , as indicated in each table.

II. Physical and Chemical

9. Aesthetics (narrative).
10. Dangerous substances (narrative).
11. Settleable material (narrative).
12. Suspended solids (mg/L) indicate the maximum amounts allowed.
13. Dissolved oxygen (DO) is expressed either as a percentage of the saturation level or in mg/L , as indicated in each table.
14. Turbidity is measured in Nephelometric Turbidity units (NTU) unless indicated otherwise.
15. Colour is expressed as mg/LP of Pt-Co meter, unless indicated otherwise.
16. Light penetration is indicated by the depth, in metres, of visible Secchi disc.
17. pH units are expressed as a range.
18. Salinity is usually indicated as a maximum percentage of the normal range in the waters concerned, unless indicated otherwise.
19. Temperature ($^{\circ}\text{C}$) is most commonly expressed as a range of variation (\pm) with respect to the average seasonal temperature, unless indicated otherwise.
20. Arsenic ($\mu\text{g/L}$) is most commonly referred to as the total forms, but Australia and Florida have provisions for As III and As V as well, and guidelines for these are indicated separately in the tables.
21. Cadmium ($\mu\text{g/L}$).
22. Chromium ($\mu\text{g/L}$) can be expressed as the total forms, as Cr III or Cr VI, and guidelines for these forms are indicated separately in the tables.
23. Copper ($\mu\text{g/L}$).
24. Lead ($\mu\text{g/L}$).
25. Mercury ($\mu\text{g/L}$) is most commonly referred to as the total inorganic and organic forms, but because the organic mercury (i.e. methyl-mercury) is of more concern there are two separate entries in the tables.
26. Nickel ($\mu\text{g/L}$).
27. Silver ($\mu\text{g/L}$).

28. Zinc ($\mu\text{g/L}$).
29. Phenol ($\mu\text{g/L}$) is considered not a chemical but a group of chemicals, and therefore the guidelines usually specify values for particular phenolic compounds, as indicated in the footnotes of the tables.
30. Polycyclic Aromatic Hydrocarbons (PAHs in $\mu\text{g/L}$) can be considered as a total or individually for specified compounds, and this is indicated by the separate entries in the tables.
31. Tributyltin ($\mu\text{g/L}$) is referred by most countries as TBT, but in Australia there is a guideline for Sn as well. The TBT figure is usually expressed as $\mu\text{g Sn/L}$.
32. Polychlorinated biphenyls (PCBs in $\mu\text{g/L}$) indicate the total PCBs.
33. DDT ($\mu\text{g/L}$) usually refers to 1,1,1-trichloro-2,2-bis(4-chlorophenyl)ethane and its degradation forms combined (i.e. DDE and DDD).
34. Dioxins ($\mu\text{g/L}$).
35. Hexachlorobenzene (HCB in $\mu\text{g/L}$).
36. Ammonia ($\mu\text{g/L}$) is indicated separately as total N, unionised as N or unionised as NH_3 .
37. Cyanide ($\mu\text{g/L}$).
38. Sulphide ($\mu\text{g/L}$).
39. Surfactants ($\mu\text{g/L}$).
40. Oil and grease ($\mu\text{g/L}$).
41. Total petroleum hydrocarbons ($\mu\text{g/L}$) – numerical guidelines only in China and the Netherlands.
42. Total residual chlorine ($\mu\text{g/L}$).
43. Chlorination by-products ($\mu\text{g/L}$) – only reported by Canada as ‘insufficient data’.

III. Microbiological

Microbiological standards are expressed as the geometric mean of the number of counts in five 100 mL water samples (cfu/100 mL) unless indicated otherwise in the respective tables.

44. *Escherichia coli*: some countries (most Asian countries and the Netherlands) do not have specific guidelines for *E. coli* but instead they have for total coliforms, in which case this has been indicated in the Tables of the Appendices.
45. Enterococci.
46. Faecal streptococci.
47. *Clostridium perfringens*.
48. Faecal coliforms.

A2 People's Republic of China

	Parameters	Units	China		
			Ecosystem	Recreational	Aquaculture
1	Nutrients	narrative			
2	Inorganic N	µg/L	200 – 500	150 – 1,000 ^a	
3	Total Nitrogen	µg/L			
4	Total Phosphorus	µg/L	15 – 45 ^b	20 – 50	1 ^c
5	Chlorophyll- <i>a</i>	µg/L			
6	Aesthetic	narrative			
7	Dangerous subst.	narrative			
8	Settleable material	narrative	nil ^d	nil ^d	nil ^d
9	Suspended solids	mg/L	10 – 150 ^e		10 ^e
10	Dissolved oxygen	mg/L	3 – 6	3 – 5	3 – 5
11	Turbidity	NTU			
12	Colour	mg/LPtCo	nil	< 25	nil
13	Light penetration	Secchi (m)		0.5 – 1.2	
14	pH		6.8 – 8.8	6.5 – 8.5	7 – 8.5
15	Salinity				
16	Temperature	°C	< 1 – 4 ^f	< 2 – 4 ^f	
17	Silica	µg/L			
18	Arsenic (total)	µg/L	20 – 50		50
18a	As III	µg/L			
18b	As V	µg/L			
19	Cadmium	µg/L	1 – 10		5
20	Chromium (total)	µg/L	50 – 500		100
20a	Cr III	µg/L			
20b	Cr VI	µg/L	5 – 50		
21	Copper	µg/L	5 – 50	10 – 100	10
22	Lead	µg/L	1 – 50		50
23	Mercury (total)	µg/L	0.05 – 0.5		0.5
23a	Mercury organic	µg/L			
24	Nickel	µg/L	5 – 50	50 – 100	50
25	Silver	µg/L			
26	Zinc	µg/L	20 – 500	100 – 1000	100
27	Phenol	µg/L	5 – 50	5 – 100	5
27a	Phenolics	µg/L			10 ^g
28	PAHs (total)	µg/L			
28a	PAHs as specified	µg/L	0.0025 ^h		
29	Tributyltin (TBT)	µg/L			
29a	TBT as Sn	µg/L			
30	PCBs	µg/L			
31	DDT	µg/L	0.05 – 0.1		1
32	Dioxins	µg/L			
33	Hexachlorobenzene (HCB)	µg/L			
34	Ammonia – total as N	µg/L		500 ⁱ	
34a	Ammonia – unionised as NH ₃	µg/L			50
34b	Ammonia – unionised as N	µg/L	20	20 – 200	20
35	Cyanide	µg/L	5 – 200		5

A2 People's Republic of China (continued)

	Parameters	Units	China		
			Ecosystem	Recreational	Mariculture
36	Sulphide (total)	µg/L	20 – 250		200
37	Surfactants	µg/L	10 – 30	200	
38	Oil & grease	µg/L			
39	Total Petroleum Hydrocarbons	µg/L	50 – 500		50
40	Chlorine – total residual	µg/L			
41	Chlorination by-products	µg/L			
42	<i>Escherichia coli</i>	cfu/100 mL	1,000	1,000	70, (50 – 500 ^j)
43	Enterococci	cfu/100 mL			
44	Faecal streptococci	cfu/100 mL			
45	<i>Clostridium perfringens</i>	cfu/100 mL			
46	Faecal coliforms	cfu/100 mL	200	200	14

- a: NO₂ only
- b: reactive phosphorous
- c: yellow phosphorous
- d: oil, foam or other floating substance
- e: above level in natural ambient
- f: range of variation above monthly average of last 10 years
- g: volatile phenols
- h: benzo[a]pyrene
- i: for temperatures above 20°C and pH>8
- j: total coliforms

A3 Australia

	Parameters	Units	Ecosystem						Recreation	Aquaculture	Consumption
			99% species ^a	95% species ^a	90% species ^a	80% species ^a	Inshore ^j	Offshore ^j			
1	Nutrients	narrative									
2	Inorganic N	µg/L									
3	Total Nitrogen	µg/L					100	100			
4	Total Phosphorus	µg/L					15	10			
5	Chlorophyll- <i>a</i>	µg/L					0.7 - 1.4 ^k	0.5 - 0.9 ^k			
6	Aesthetic	narrative							e		
7	Dangerous substances	narrative							f		
8	Settleable material	narrative							e		
9	Suspended solids	mg/L							e	10	
10	Dissolved oxygen (DO)	% saturation					>90%	>90%	>80%	>5 ^p	
11	Turbidity	NTU					1 - 20 ¹		e		
12	Colour	mg/L Pt-Co							e	30 - 40	
13	Light penetration								e		
14	pH						8.0 - 8.4	8.2 - 8.2	6.5 - 8.5	6 - 9	
15	Salinity									33,000 - 37,000 ^f	
16	Temperature	°C							16 - 34	± 2 ^h	
17	Silica	µg/L									
18	Arsenic (total)	µg/L								30	
18a	As III	µg/L	ID ^b	ID ^b	ID ^b	ID ^b					
18b	As V	µg/L	ID ^b	ID ^b	ID ^b	ID ^b					
19	Cadmium	µg/L	0.7	5.5	14	36				0.5 - 5	
20	Chromium (total)	µg/L								20	
20a	Cr III	µg/L	8	27	50	90					
20b	Cr VI	µg/L	0.14	4.4	20	85					
21	Copper	µg/L	0.3	1.3	3	8				5	1,000
22	Lead	µg/L	2.2	4.4	6.6	12				1 - 7	
23	Mercury (total)	µg/L	0.1ⁱ	0.4	0.7	1.4				1	
23a	Mercury - organic	µg/L									
24	Nickel	µg/L	7	70	200	560				100	
25	Silver	µg/L	0.8	1.4	1.8	2.6				3	
26	Zinc	µg/L	7	15	23	43				5	5000
27	Phenol	µg/L	270	400	520	720					1,000 - 10,000
27a	Phenolics	µg/L	11 ^m	22 ^m	33 ^m	55 ^m					various
28	PAHs (total)	µg/L									
28a	PAHs as specified	µg/L	50 ⁿ	70 ⁿ	90 ⁿ	120 ⁿ					1000 ⁿ q
29	Tributyltin (TBT)	µg/L								0.01	
29a	TBT as Sn	µg/L	0.0004	0.006	0.02	0.05					
30	PCBs	µg/L	ID ^b	ID ^b	ID ^b	ID ^b				2	
31	DDT	µg/L	ID ^b	ID ^b	ID ^b	ID ^b					
32	Dioxins	µg/L	ID ^b	ID ^b	ID ^b	ID ^b					
33	Hexachlorobenzene (HCB)	µg/L	ID ^b	ID ^b	ID ^b	ID ^b					
34	Ammonia - total as N	µg/L	500 ^c	910^c	1200 ^c	1700 ^c				1,000	
34a	Ammonia - unionised as NH ₃	µg/L								100	
34b	Ammonia - unionised as N	µg/L									
35	Cyanide	µg/L	2 ^d	4^d	7 ^d	14 ^d				5 ^d	
36	Sulphide (total)	µg/L	ID ^{b,d}	ID ^{b,d}	ID ^{b,d}	ID ^{b,d}				2 ^d	

	Parameters	Units	Ecosystem						Recreation	Aquaculture	Consumption
			99% species ^a	95% species ^a	90% species ^a	80% species ^a	Inshore ^j	Offshore ^j			
37	Surfactants	µg/L	ID ^b	ID ^b	ID ^b	ID ^b			e		
38	Oil & grease	µg/L							e		
39	Total Petroleum Hydrocarbons	µg/L							e		
40	Chlorine - total residual	µg/L	ID ^b	ID ^b	ID ^b	ID ^b				3	
41	Chlorination by-products	µg/L									
42	<i>Escherichia coli</i>	cfu/100 mL									
43	Enterococci	cfu/100 mL							g		
44	Faecal streptococci	cfu/100 mL									
45	<i>Clostridium perfringens</i>	cfu/100 mL									
46	Faecal coliforms	cfu/100 mL									14 ^o

Values in bold are the trigger values applying to typical slightly-moderately disturbed systems.

- a: 95th percentile of monitoring data (or maximum if data set is small) is compared against the respective guideline values; values in bold recommended for slightly to moderately disturbed systems
- b: insufficient data - low reliability figures only
- c: at pH 8.0
- d: un-ionised
- e: aesthetically acceptable
- f: levels that do not cause toxic effects or irritation. If have concerns do risk assessment. Actually relates to chemical hazards/substances generally, not just “dangerous substances”.
- g: risk based assessment framework developed around results of sanitary inspection and 95th percentile levels of enterococci
- h: over 1 hour
- i: inorganic mercury

- j: default values for tropical Australia; inshore and offshore not defined; median of monitoring data is compared against guideline values
- k: the lower values are typical of clear coral dominated waters while the higher values typical of turbid macrotidal systems
- l: low values indicative of offshore coral dominated waters. Higher values for estuarine waters.
- m: values for pentachlorophenol; ID^b for other compounds
- n: values for naphthalene; ID^b for other compounds
- o: median should be below this value in units of MPN/100mL with no more than 10% of samples exceeding 43 MPN/100mL
- p: mg/L
- q: acenaphthene 20
- r: total dissolved solids (TDS)

A4 European Union

	Parameters	Units	EU		
			Ecosystem AA-EQS ^a	Ecosystem MAC-EQS ^a	Recreational
1	Nutrients	narrative	b		
2	Inorganic N	µg/L	b		
3	Total Nitrogen	µg/L	b		
4	Total Phosphorous	µg/L	b		
5	Chlorophyll- <i>a</i>	µg/L	b		
6	Aesthetic	narrative			
7	Dangerous substances	narrative			
8	Settleable material	narrative			
9	Suspended solids	mg/L	b		
10	Dissolved oxygen (DO)	% saturation	b		
11	Turbidity	NTU	b		
12	Colour	mg/L Pt scale			
13	Light penetration	Secchi (m)	b		
14	pH				
15	Salinity		b		
16	Temperature	°C	b		
17	Silica	µg/L			
18	Arsenic (total)	µg/L			
18a	As III	µg/L			
18b	As V	µg/L			
19	Cadmium	µg/L	0.2	0.45 – 1.5 ^c	
20	Chromium (total)	µg/L			
20a	Cr III	µg/L			
20b	Cr VI	µg/L			
21	Copper	µg/L			
22	Lead	µg/L	7.2		
23	Mercury (total)	µg/L	0.05 ^d	0.07 ^d	
23a	Mercury - organic	µg/L			
24	Nickel	µg/L	20		
25	Silver	µg/L			
26	Zinc	µg/L			
27	Phenol	µg/L			
27a	Phenolics	µg/L	0.01 – 0.4 ^e	1-2 ^e	
28	PAHs (total)	µg/L			
28a	PAHs as specified	µg/L	0.002 – 1.2 ^f	0.1 – 1 ^f	
29	Tributyltin (TBT)	µg/L	0.0002	0.0015	
29a	TBT as Sn	µg/L			
30	PCBs	µg/L			
31	DDT	µg/L	0.01, 0.025 ^g		
32	Dioxins	µg/L			
33	Hexachlorobenzene (HCB)	µg/L	0.01	0.05	
34	Ammonia - total as N	µg/L			
34a	Ammonia - unionised as NH ₃	µg/L			
34b	Ammonia - unionised as N	µg/L			
35	Cyanide	µg/L			

A4 European Union (continued)

	Parameters	Units	EU		
			Ecosystem AA-EQS ^a	Ecosystem MAC-EQS ^a	Recreational
36	Sulphide (total)	µg/L			
36a	Un-ionised H ₂ S	µg/L			
37	Surfactants	µg/L			
38	Oil & grease	µg/L			
39	Total Petroleum Hydrocarbons	µg/L			
40	Chlorine - total residual	µg/L			
41	Chlorination by-products	µg/L			
42	<i>Escherichia coli</i>	cfu/100 mL			h
43	Enterococci	cfu/100 mL			h
44	Faecal streptococci	cfu/100 mL			
45	<i>Clostridium perfringens</i>	cfu/100 mL			
46	Faecal coliforms	cfu/100 mL			

a: AA-EQS and MAC-EQS = annual average and maximum acceptable concentrations, respectively. EQSs for metals are dissolved metal concentrations. EQS for organic pollutants are total concentrations

b: member states to assess ecological status with respect to nutrient conditions, transparency, oxygenation conditions, salinity & thermal conditions based on findings at type-specific reference sites; reference sites may be different for artificial and heavily modified water bodies.

c: range for five different water classes

d: total Hg and its compounds

e: octylphenol, nonylphenol and pentachlorophenol

f: range for different PAHs.

g: p-p-DDT and total respectively

h: assessment and classification based on levels of enterococci and *E. coli* (as 90th & 95th percentiles), supplemented by development and regular review of the bathing water profile

A5 Canada and USA

	Parameters	Units	Canada		USA		
			Ecosystem	Recreational	Ecosystem CMC	Ecosystem CCC	Consumption
1	Nutrients	narrative	a				
2	Inorganic N [NH ₃ + NO _x]	µg/L	16,000 ^b				10,000 ^b
3	Total Nitrogen	µg/L					
4	Total Phosphorous	µg/L				0.1	
5	Chlorophyll- <i>a</i>	µg/L					
6	Aesthetic	narrative		c			
7	Dangerous substances	narrative					
8	Settleable material	narrative	c	c			
9	Suspended solids	mg/L	a		a	a	a
10	Dissolved oxygen (DO)	mg/L	>8				
11	Turbidity	NTU	a	50	a	a	a
12	Colour	Pt-Co mg/L	g	d	a	a	a
13	Light penetration	Secchi (m)		1.2			
14	pH		7.0 – 8.7	6.5 – 8.5		6.5 – 8.5	5.0 – 9.0
15	Salinity		<10% ^d				250,000
16	Temperature	°C	± 1	≤30			
17	Silica	µg/L					
18	Arsenic (total)	µg/L	12.5 ^e		69	36	0.018
18a	As III	µg/L					
18b	As V	µg/L					
19	Cadmium	µg/L	0.12		40	8.8	
20	Chromium (total)	µg/L					
20a	Cr III	µg/L	56 ^e				
20b	Cr VI	µg/L	1.5		1,100	50	
21	Copper	µg/L			4.8	3.1	1,300
22	Lead	µg/L			210	8.1	
23	Mercury - inorganic	µg/L	0.016 ^e		1.8 ^k	0.94 ^k	
23a	Mercury - organic	µg/L	0.004 ^f				0.3 ^q
24	Nickel	µg/L			74	8.2	610
25	Silver	µg/L			1.9		
26	Zinc	µg/L			90	81	7,400
27	Phenol	µg/L					21,000
27a	Phenolics	µg/L	0.7 ^m		7.0 - 13 ^s	1.7 – 7.9 ^s	0.27 – 1,800 ^v
28	PAHs (total)	µg/L	ID				670 – 8,300 ^w
28a	PAHs as specified	µg/L	1.4 ^{e,n}				0.0038 ^x
29	Tributyltin (TBT)	µg/L	0.001 ^e		0.42	0.0074	
30	PCBs	µg/L				0.03 ^p	0.000064 ^p
31	DDT	µg/L			0.13	0.001	0.00022
32	Dioxins	µg/L					5 x 10 ^{-9y}
33	Hexachlorobenzene (HCB)	µg/L	ID				0.00028

A5 Canada and USA (continued)

	Parameters	Units	Canada		USA		
			Ecosystem	Recreational	Ecosystem CMC	Ecosystem CCC	Consumption
34	Ammonia - total as N	µg/L			s,t	s,t	
34a	Ammonia - unionised as NH ₃	µg/L					
34b	Ammonia - unionised as N	µg/L					
35	Cyanide	µg/L			1	1	140
36	Sulphide – H ₂ S	µg/L				2	
37	Surfactants	µg/L					
38	Oil & grease	µg/L		nil ^g	a	a	a
39	Total Petroleum Hydrocarbons	µg/L					
40	Chlorine - total residual	µg/L	0.5 ^r		13	7.5	
41	Chlorination by-products	µg/L	ID				
42	<i>Escherichia coli</i>	cfu/100 mL		200			
43	Enterococci	cfu/100 mL		35			35 ^z
44	Faecal streptococci	cfu/100 mL					
45	<i>Clostridium perfringens</i>	cfu/100 mL					
46	Faecal coliforms	cfu/100 mL		200			

ID = insufficient data

a: narrative

b: NO₃⁻ only, equivalent to 3,600 µg N L⁻¹

c: aesthetically acceptable = absence of debris, scum or other matter

d: not significantly increased above natural background

e: interim guideline

f: freshwater guideline

g: not detectable by sight or smell

h: 24 h and mean for 30-d average, respectively

i: instantaneous and 30-d average, respectively

j: 30-d average and maximum limit, respectively

k: total mercury

l: proportion of total Hg

m: nonylphenol TEQ

n: naphthalene

o: benzo[a]pyrene

p: total PCBs congeners

q: µg/g wet weight in fish/shellfish

r: hypochlorous acid and monochloramine

s: pH dependent

t: range depending on temperature for 20 g/kg salinity

u: median and maximum for crustacean harvesting, respectively

v: pentachlorophenol, chlorophenols, dinitrophenols and nonylphenols

w: anthracene, pyrene, acenaphthene

x: benzo(a)pyrene, benzo(a)anthracene, benzo(a)fluoranthene, indeno(1,2,3-cd)pyrene

y: 2,3,7,8-TCDD

z: recreational guideline; maximum values should not exceed the range 104-500 cfu/100 mL depending on frequency of use

A6 World Health Organization (WHO)

	Parameters	Units	Recreational		Parameters	Units	Recreational
1	Nutrients	narrative		25	Silver	µg/L	
2	Inorganic N	µg/L		26	Zinc	µg/L	
3	Total Nitrogen	µg/L		27	Phenol	µg/L	
4	Total Phosphorous	µg/L		27a	Phenolics	µg/L	
5	Chlorophyll- <i>a</i>	µg/L		28	PAHs (total)	µg/L	
6	Aesthetic	narrative	a	28a	PAHs as specified	µg/L	
7	Dangerous substances	narrative	b	29	Tributyltin (TBT)	µg/L	
8	Settleable material	narrative	a	29a	TBT as Sn	µg/L	
9	Suspended solids	mg/L	a	30	PCBs	µg/L	
10	Dissolved oxygen (DO)	% saturation	a	31	DDT	µg/L	
11	Turbidity	NTU	a	32	Dioxins	µg/L	
12	Colour	Pt-Co units	a	33	Hexachlorobenzene (HCB)	µg/L	
13	Light penetration	Secchi (m)	a	34	Ammonia - total as N	µg/L	
14	pH			34a	Ammonia - unionised as NH ₃	µg/L	
15	Salinity			34b	Ammonia - unionised as N	µg/L	
16	Temperature	°C		35	Cyanide	µg/L	
17	Silica	µg/L		36	Sulphide (total)	µg/L	
18	Arsenic (total)			36a	Un-ionised H ₂ S	µg/L	
18a	As III	µg/L		37	Surfactants	µg/L	
18b	As V	µg/L		38	Oil & grease	µg/L	
19	Cadmium	µg/L		39	Total Petroleum Hydrocarbons	µg/L	
20	Chromium (total)	µg/L		40	Chlorine - total residual	µg/L	
20a	Cr III	µg/L		41	Chlorination by-products	µg/L	
20b	Cr VI	µg/L		42	<i>Escherichia coli</i>	cfu/100 mL	
21	Copper	µg/L		43	Enterococci	cfu/100 mL	c
22	Lead	µg/L		44	Faecal streptococci	cfu/100 mL	
23	Mercury - inorganic	µg/L		45	<i>Clostridium perfringens</i>	cfu/100 mL	
23a	Mercury - organic	µg/L		46	Faecal coliforms	cfu/100 mL	
24	Nickel	µg/L					

a: Strictly speaking no guidelines established but ideally water should be free from visible materials that will settle to form objectionable deposits, floating debris, oil, scum and other matter, substances producing objectionable colour, odour, taste or turbidity, and substances and conditions that produce undesirable aquatic life. Ideally water in swimming areas should also be clear enough to estimate depth and see subsurface hazards.

b: Strictly speaking no guidelines established but where there are potential concerns about chemical contaminants it is suggested that drinking water guidelines can be used as a starting point for deriving values that could be used to make a screening level risk assessment. This relates to chemical hazards/substances generally, not just “dangerous substances”.

c: Risk based assessment framework developed around results of sanitary inspection and 95th percentile levels of enterococci.