Sec. 22a-426-9. Environmental criteria

(a) **Surface Water Quality Criteria**

(1) Surface Waters shall meet the criteria listed in Table 1 to support the designated uses identified for their particular classification.

Table 1 - Surface Water Criteria by Classification

Parameter	Class AA	Class A	Class B	Class SA	Class SB
Aesthetics	Uniformly excellent.	Uniformly excellent.	Good to excellent.	Uniformly excellent.	Good to excellent.
Dissolved Oxygen	Not less than 5 mg/l at any time.	Not less than 5 mg/l at any time.	Not less than 5 mg/l at any time.	Acute: Not less than 3.0 mg/l. Chronic: Not less than 4.8 mg/l with cumulative periods of dissolved oxygen in the 3.0 – 4.8 mg/l range as detailed in Note 1 to this table.	Acute: Not less than 3.0 mg/l. Chronic: Not less than 4.8 mg/l with cumulative periods of dissolved oxygen in the 3.0 – 4.8 mg/l range as detailed in Note 1 to this table.
Sludge deposits-solid refuse-floating solids-oils and grease-scum	None other than of natural origin.	None other than of natural origin.	None except for small amounts that may result from the discharge from a permitted waste treatment facility and none exceeding levels necessary to protect and maintain all designated uses.	None other than of natural origin.	None except for small amounts that may result from the discharge from a grease waste treatment facility providing appropriate treatment and none exceeding levels necessary to protect and maintain all designated uses.

Color	None other than of natural origin	None other than of natural origin.	None which causes visible discoloration of the surface water outside of any designated zone of influence.	None other than of natural origin.	None resulting in obvious discoloration of the surface water outside of any designated zone of influence.
Suspended and settleable solids	None in concentrations or combinations which would impair designated uses; none aesthetically objectionable; none which would significantly alter the physical or chemical composition of the bottom; none which would adversely impact aquatic organisms living in or on the bottom substrate.	None in concentrations or combinations which would impair designated uses; none aesthetically objectionable; none which would significantly alter the physical or chemical composition of the bottom; none which would adversely impact aquatic organisms living in or on the bottom substrate.	None in concentrations or combinations which would impair the most sensitive designated use; none aesthetically objectionable; none which would significantly alter the physical or chemical composition of the bottom; and none which would adversely impact aquatic organisms living in or on the bottom sediments; shall not exceed 10 mg/l over ambient concentrations.	None other than of natural origin.	None in concentrations or combinations which would impair the designated uses; none aesthetically objectionable; none which would significantly alter the physical or chemical composition of bottom sediments; none which would adversely impact organisms living in or on the bottom sediment.

Silt or sand deposits	None other than of natural origin except as may result from normal agricultural, road maintenance, construction activity or dredging activity or discharge of dredged or fill materials provided all reasonable controls or Best Management Practices are used in such activities and all designated uses are protected and maintained.	None other than of natural origin except as may result from normal agricultural, road maintenance, construction activity, dredging activity or the discharge of dredged or fill materials provided all reasonable controls or Best Management Practices are used in such activities and all designated uses are protected and maintained.	None other than of natural origin except as may result from normal agricultural, road maintenance, construction activity, dredging activity or discharge of dredged or fill materials provided all reasonable controls or Best Management Practices are used in such activities and all designated uses are protected and maintained.	None other than of natural origin except as may result from normal agricultural, road maintenance, construction activity, dredging activity or the discharge of dredged or fill materials provided all reasonable controls or Best Management Practices are used in such activities and all designated uses are protected and maintained.	None other than of natural origin except as may result from normal agricultural, road maintenance, construction activity, dredging activity or discharge of dredged or fill materials provided all reasonable controls or Best Management Practices are used in such activities and all designated uses are protected and maintained.
Turbidity	Shall not exceed 5 NTU over ambient levels and none exceeding levels necessary to protect and maintain all designated uses. All reasonable controls or Best Management Practices are	Shall not exceed 5 NTU over ambient levels and none exceeding levels necessary to protect and maintain all designated uses. All reasonable controls or Best Management Practices are	Shall not exceed 5 NTU over ambient levels and none exceeding levels necessary to protect and maintain all designated uses. All reasonable controls or Best Management Practices are	None other than of natural origin except as may result from normal agricultural, road maintenance, or construction activity, dredging activity or discharge of dredged or fill materials	None other than of natural origin except as may result from normal agricultural, road maintenance, or construction activity, or discharge from a waste treatment facility providing

	to be used to control turbidity.	to be used to control turbidity.	to be used to control turbidity.	provided all reasonable controls and Best Management Practices are used to control turbidity and none exceeding levels necessary to protect and maintain all designated uses.	appropriate treatment, dredging activity or discharge of dredged or fill materials provided all reasonable controls and Best Management Practices are used to control turbidity and none exceeding levels necessary to protect and maintain all designated uses.
Indicator bacteria	See Table 2A of this section.	See Table 2A of this section.	See Table 2A of this section.	See Table 2B of this section.	See Table 2B of this section.
Taste and Odor	None other than of natural origin.	None other than of natural origin.	None that would impair any uses specifically assigned to this Class.	As naturally occurs.	As naturally occurs. None that would impair any uses specifically assigned to this Class.
pH	As naturally occurs.	As naturally occurs.	6.5 – 8.0	6.8 – 8.5	6.8 – 8.5
Allowable Temperature Increase	There shall be no changes from natural conditions that would impair any	There shall be no changes from natural conditions that would impair any	There shall be no changes from natural conditions that would impair any	There shall be no changes from natural conditions that would impair any	There shall be no changes from natural conditions that would impair any

	existing or designated uses assigned to this Class and in no case exceed 85° F, or in any case raise the temperature of surface water more than 4° F.	existing or designated uses assigned to this Class and, in no case exceed 85° F, or in any case raise the temperature of surface water more than 4° F.	existing or designated uses assigned to this Class and, in no case exceed 85° F, or in any case raise the temperature of surface water more than 4° F.	existing or designated uses assigned to this Class and, in no case exceed 83° F, or in any case raise the temperature of the receiving water more than 4 ° F. During the period including July, August and September, the temperature of the receiving water shall not be raised more than 1.5° F unless it can be shown that spawning and growth of indigenous organism will not be significantly affected. The allowable temperature increase resulting from discharges in the estuarine segments of the	existing or designated uses assigned to this Class and, in no case exceed 83° F, or in any case raise the temperature of the receiving water more than 4° F. During the period including July, August and September, the temperature of the receiving water shall not be raised more than 1.5 ° F unless it can be shown that spawning and growth of indigenous organisms will not be significantly affected. The allowable temperature increase resulting from discharges in the estuarine segments of the

				Housatonic, Connecticut and Thames Rivers shall be consistent with the criteria for the non-tidal segments.	Housatonic, Connecticut and Thames Rivers shall be consistent with the criteria for the non-tidal segments.
Chemical constituents	None in concentrations or combinations which would be harmful to designated uses. Refer to Table 3 of this section and sections 22a-426-4(a)(5); 22a-426-4(a)(9); 22a-426-4(a)(9)(B); 22a-426-4(a)(11); 22a-426-4(l); 22a-426-4(m); 22a-426-9(a)(3); 22a-426-9(a)(4) and 22a-426-9(a)(5) of the Regulations of Connecticut State Agencies.				
Nutrients	The loading of nutrients, principally phosphorus and nitrogen, to any surface water body shall not exceed that which supports maintenance or attainment of designated uses.	The loading of nutrients, principally phosphorus and nitrogen, to any surface water body shall not exceed that which supports maintenance or attainment of designated uses.	The loading of nutrients, principally phosphorus and nitrogen, to any surface water body shall not exceed that which supports maintenance or attainment of designated uses.	The loading of nutrients, principally phosphorus and nitrogen, to any surface water body shall not exceed that which supports maintenance or attainment of designated uses.	The loading of nutrients, principally phosphorus and nitrogen, to any surface water body shall not exceed that which supports maintenance or attainment of designated uses
Sodium	Not to exceed 20 mg/l.	None other than of natural origin.			
Biological condition	Sustainable, diverse biological communities of indigenous taxa shall be present. Moderate changes, from natural	Sustainable, diverse biological communities of indigenous taxa shall be present. Moderate changes, from natural	Sustainable, diverse biological communities of indigenous taxa shall be present. Moderate changes, from natural	Sustainable, diverse biological communities of indigenous taxa shall be present. Moderate changes, from natural	Sustainable, diverse biological communities of indigenous taxa shall be present. Moderate changes, from natural

	conditions, in the structure of the biological communities, and minimal changes in ecosystem function may be evident; however, water quality shall be sufficient to sustain a biological condition within the range of Connecticut Biological Condition Gradient Tiers 1-4 as assessed along a 6 tier stressor gradient of Biological Condition Gradient (See section 22a-426-5 of the Regulations of Connecticut State Agencies).	conditions, in the structure of the biological communities, and minimal changes in ecosystem function may be evident; however, water quality shall be sufficient to sustain a biological condition within the range of Connecticut Biological Condition Gradient Tiers 1-4 as assessed along a 6 tier stressor gradient of Biological Condition Gradient (See section 22a-426-5 of the Regulations of Connecticut State Agencies).	conditions, in the structure of the biological communities, and minimal changes in ecosystem function may be evident; however, water quality shall be sufficient to sustain a biological condition within the range of Connecticut Biological Condition Gradient Tiers 1-4 as assessed along a 6 tier stressor gradient of Biological Condition Gradient (See section 22a-426-5 of the Regulations of Connecticut State Agencies).	conditions, in the structure of the biological communities, and minimal changes in ecosystem function may be evident; however, water quality shall be sufficient to sustain a healthy, diverse biological community	conditions, in the structure of the biological communities, and minimal changes in ecosystem function may be evident; however, water quality shall be sufficient to sustain a healthy, diverse biological community

Note 1

Cumulative Dissolved Oxygen exposure parameters: Dissolved Oxygen conditions in the area affected do not readily lend themselves to a single numeric criterion. Aquatic organisms are harmed based on a combination of minimum oxygen concentration and duration of the low Dissolved Oxygen excursion. The department established exposure

allowances based upon EPA research and data, for 0.5 mg/l and 0.3 mg/l increment ranges. (See Table A in this note.) Given the environmental variability, the department has used a minimum Dissolved Oxygen criterion of 3.0 mg/l with an exposure allowance of no more than 2 days.

Table A. Dissolved Oxygen Chronic Cumulative Exposure Criteria for incremental ranges (0.5 mg/l and 0.3 mg/l) applicable to Class SA and SB waters.

Dissolved Oxygen Range (mg/l)		No. of Days Allowed
<4.8	≥ 4.5	30
<4.5	≥ 4.0	14
<4.0	≥ 3.5	7
<3.5	≥ 3.0	2

Because marine systems are variable, Dissolved Oxygen levels are unlikely to remain within one of the four incremental ranges presented in Table A. Typically, Dissolved Oxygen conditions would fall through a range to a minimum and then begin to rebound depending on weather and stratification conditions. To account for this, the number of days within each incremental Dissolved Oxygen range is pro-rated, as follows: A decimal fraction is calculated for each range, *e.g.*, 10.5 days in the 4.5 - 4.8 mg/l range would produce a decimal fraction of 0.35 (0.35 = 10.5 days/ 30 days). As long as the sum of those fractions calculated for each range is less than 1.0, resource protection goals are maintained for larval recruitment.

In cases where data collection yields continuous Dissolved Oxygen readings or more frequent sampling results, the data can be interpreted using a 0.1 mg/l interval range. The number of allowable days is determined using the following method:

$DO_i = 13.0 / (2.80 + 1.84e^{-0.10t_i})$

where:

DO_i = allowable Dissolved Oxygen concentration (mg/l)

t_i = exposure interval duration in days

i = exposure interval

However, since most sampling programs do not result in frequent readings, a greater interval (presented in Table A) is recommended. Use of a larger interval results in a larger sum of fractions and is subsequently a more conservative measure of consistency with the Connecticut Water Quality Standards.

(2) Indicator bacteria are used to detect the presence of contamination by human or animal wastes. Tables 2A and 2B below provide the criteria for indicator bacteria. Due to the inherent uncertainty involved in sampling and analytically determining bacteria levels, exceedances of water quality criteria for indicator bacteria does not always indicate a water quality problem and therefore should be investigated by means of a sanitary survey or other appropriate means to determine sources of elevated indicator bacteria levels.

Table 2A – Indicator Bacteria – Freshwater

Designated Use	Indicator	Criteria by classification

Drinking water supply[1]	Total Coliform	**AA**	**A**	**B**	**SA**	**SB**
		Monthly moving average less than 100/100 ml				
		Single sample maximum 500/100 ml				
Recreation[2][3] – Designated swimming[4]	Escherichia coli	Geometric mean less than 126/100 ml				
		Single sample maximum 235/100 ml				
Recreation[2][3] – Non Designated Swimming[5]	Escherichia coli	Geometric mean less than 126/100 ml				
		Single sample maximum 410/100 ml				
Recreation[2][3] – All other uses	Escherichia coli	Geometric mean less than 126/100 ml				
		Single sample maximum 576/100 ml				

Table 2B – Indicator Bacteria - Saltwater

Designated Use	Indicator	Criteria by classification				
		AA	A	B	SA	SB
Shell fishing[6] – Direct Consumption	Fecal coliform				Geometric mean less than 14/100 ml	
					90% of samples less than 31/100 ml	
Shell fishing[6] – Indirect consumption	Fecal coliform					Geometric mean less than 88/100 ml
						90% of samples less than 260/100 ml
Recreation - Designated swimming[4]	Enterococci				Geometric mean less than 35/100ml Single sample maximum 104/100	

					ml
Recreation – All other uses	Enterococci				Geometric mean less than 35/100 ml Single sample maximum 500/100 ml

Notes for Tables 2A and 2B

(1) Criteria applies only at the drinking water supply intake structure.

(2) Criteria for the protection of recreational uses in Class B waters do not apply when disinfection of sewage treatment plant effluents is not required consistent with section 22a-426-4(a)(9)(E) of the Regulations of Connecticut State Agencies.

(3) See section 22a-426-9(a)(2) of the Regulations of Connecticut State Agencies.

(4) Procedures for monitoring and closure of bathing areas by state and local health authorities are specified in: *Guidelines for Monitoring Bathing Waters and Closure Protocol*, adopted jointly by the Department of Environmental Protection and the Department of Public Health, May 1989, revised April 2003 and updated December 2008.

(5) Includes areas otherwise suitable for swimming but which have not been designated by state or local authorities as bathing areas, waters which support tubing, water skiing, or other recreational activities where full body contact is likely.

(6) Criteria are based on utilizing the mTec method as specified in the U.S. Food and Drug Administration National Shellfish Sanitation Program-Model Ordinance (NSSP-MO) document *Guide for the Control of Molluscan Shellfish 2007*.

(3) Discharges to surface waters shall meet the criteria listed for chemical constituents in Table 3 of this section to ensure the particular surface waters support the uses identified for their particular classification and to assure that such discharges do not cause acute or chronic toxicity to freshwater and marine aquatic life, impair the biological integrity of freshwater and marine ecosystems, or create an unacceptable risk to human health.

(4) The Commissioner may amend the numeric criteria for the chemical constituents listed in Table 3 of this section in accordance with the provisions of Chapter 54 of the Connecticut General Statutes and the notice procedures specified in section 22a 426 of the Connecticut General Statutes on his or her own initiative, or upon request of any person or municipality that site-specific water quality criteria be adopted or amended, provided such request is supported by sound scientific and technical evidence demonstrating the following:

(A) Conditions at the specific site differ significantly from those used in establishing the statewide criteria;

(B) The proposed site-specific criteria are sufficiently stringent to protect all existing and designated uses of the water body; and

(C) The proposed site-specific criteria are derived in a manner consistent with sound scientific and technical principles, giving consideration to all applicable federal guidance.

(5) The Commissioner may adopt or amend criteria for any surface water or class of water, in accordance with the provisions of Chapter 54 of the Connecticut General Statutes and the notice procedures specified in section 22a-426 of the Connecticut General Statutes and in subparagraphs (A), (B), and (C) of subdivision (4) of this subsection, provided such change is supported by sound scientific and technical evidence, and existing and designated

uses are fully protected.

Table 3 NUMERICAL WATER QUALITY CRITERIA FOR CHEMICAL CONSTITUENTS

Numerical Water Quality Criteria for Chemical Constituents (ug/L)[1]								
		Aquatic Life Criteria [(2)(3)]				**Human health Criteria**		
		Freshwater: Class AA, A & B		**Saltwater Class SA & SB**		**Class B, SA & SB Waters**	**Class AA & A Waters**	
Chemical Constituents	**CASRN**	**Acute[4]**	**Chronic[5]**	**Acute[4]**	**Chronic[5]**	**Consumption of Fish**	**Consumption of Water & Fish**	**Health Designation[6]**
Inorganics[7]								
Antimony	7440360					640	5.6	TT
Arsenic (total)	7440382	340	150	69	36	0.021	0.011	A
Beryllium	7440417					0.13	0.0077	TT
Cadmium	7440439	1.0	0.125	40	8.8	10,769	5	TT
Chromium (hex)	18540299	16	11	1,100	50	2,019	100	TT
Chromium (tri)	16065831	323	42			1,009,615	100	TT
Copper	7440508	14.3 [8]	4.8 [9]	4.8	3.1		1,300	TT
Copper (site-specific) [10]	7440508	25.7	18.1				1,300	TT
Cyanide (Total)	57125	22	5.20	1	1	140	140	TT
Lead	7439921	30	1.2	210	8.1		15	TT
Mercury (Total)	7439976	1.4	0.77	1.8	0.94	0.051	0.050	TT-HB

Numerical Water Quality Criteria for Chemical Constituents (ug/L)[1]								
		Aquatic Life Criteria [(2)(3)]				**Human health Criteria**		
		Freshwater: Class AA, A & B		**Saltwater Class SA & SB**		**Class B, SA & SB Waters**	**Class AA & A Waters**	
Chemical Constituents	**CASRN**	**Acute[4]**	**Chronic [5]**	**Acute[4]**	**Chronic [5]**	**Consumption of Fish**	**Consumption of Water & Fish**	**Health Designation[6]**
Nickel	7440020	260.5	28.9	74	8.2	4,600	610	TT
Selenium (Total)	7782492	20	5	290	71	4,200	50	TT
Silver	7440224	1.02		1.9		107,692	175	TT
Thallium	7440280					0.47	0.24	TT
Zinc	7440666	65	65	90	81	26,000	7,400	TT
Volatiles								
Acrolein	107028	3	3			9	6	TT
Acrylonitrile	107131					0.25	0.051	C
Benzene	71432					51	1.2	A
Bromoform	75252					140	4.3	C
Carbon Tetrachloride	56235					1.6	0.23	C
Chlorobenzene	108907					1,600	100	TT
Chlorodibromomethane	124481					13	0.40	C
Chloroethane	75003							

Numerical Water Quality Criteria for Chemical Constituents (ug/L)[1]								
		Aquatic Life Criteria [(2)(3)]				**Human health Criteria**		
		Freshwater: Class AA, A & B		**Saltwater Class SA & SB**		**Class B, SA & SB Waters**	**Class AA & A Waters**	
Chemical Constituents	**CASRN**	**Acute[4]**	**Chronic [5]**	**Acute[4]**	**Chronic [5]**	**Consumption of Fish**	**Consumption of Water & Fish**	**Health Designation[6]**
2-Chloroethylvinyl Ether	110758							
Chloroform	67663					470	5.7	C
Dichlorobromomethane	75274					17	0.55	C
1,1-Dichloroethane	75343							
1,2-Dichloroethane	107062					37	0.38	C
1,1-Dichloroethylene	75354					3.2	0.057	C
1,2T-Dichloroethylene	156605					10,000	100	TT
1,2-Dichloropropane	78875					15	0.50	TT
1,3-	542756					21	0.34	TT

Numerical Water Quality Criteria for Chemical Constituents (ug/L)[1]								
		Aquatic Life Criteria [(2)(3)]				**Human health Criteria**		
		Freshwater: Class AA, A & B		**Saltwater Class SA & SB**		**Class B, SA & SB Waters**	**Class AA & A Waters**	
Chemical Constituents	**CASRN**	**Acute[4]**	**Chronic [5]**	**Acute[4]**	**Chronic [5]**	**Consumption of Fish**	**Consumption of Water & Fish**	**Health Designation[6]**
Dichloropropylene								
Ethylbenzene	100414					2,100	530	TT
Methyl Bromide	74839					1,500	47	TT
Methyl Chloride	74873					470	5.7	TT
Methylene Chloride	75092					590	4.6	C
1,1,2,2-Tetrachloroethane	79345					4.0	0.17	C-HB
Tetrachloroethylene	127184					3.3	0.69	TT
Toluene	108883					15,000	1,000	TT
1,1,1-Trichloroethane	71556							
1,1,2-Trichloro	79005					16	0.59	C

Numerical Water Quality Criteria for Chemical Constituents (ug/L)[1]								
		Aquatic Life Criteria [(2)(3)]				**Human health Criteria**		
		Freshwater: Class AA, A & B		**Saltwater Class SA & SB**		**Class B, SA & SB Waters**	**Class AA & A Waters**	
Chemical Constituents	**CASRN**	**Acute[4]**	**Chronic [5]**	**Acute[4]**	**Chronic [5]**	**Consumption of Fish**	**Consumption of Water & Fish**	**Health Designation[6]**
ethane								
Trichloro ethlyene	79016					30	2.5	C
Vinyl Chloride	75014					2.4	0.025	C
GC/MS: Acid Compounds								
2-Chlorophenol	95578					150	81	TT
2,4-Dichlorophenol	120832					290	77	TT
2,4-Dimethylphenol	105679					850	380	TT
3-Methyl-4-chlorophenol	59507							
2-Methyl-4,6-Dinitrophenol	534521					280	13	TT
2,4-Dinitrophe	51285					5,300	69	TT

Numerical Water Quality Criteria for Chemical Constituents (ug/L)[1]								
		Aquatic Life Criteria [(2)(3)]				**Human health Criteria**		
		Freshwater: Class AA, A & B		**Saltwater Class SA & SB**		**Class B, SA & SB Waters**	**Class AA & A Waters**	
Chemical Constituents	**CASRN**	**Acute[4]**	**Chronic[5]**	**Acute[4]**	**Chronic[5]**	**Consumption of Fish**	**Consumption of Water & Fish**	**Health Designation[6]**
nol								
2-Nitrophenol	88755							
4-Nitrophenol	100027							
Pentachlorophenol	87865	19	15	13	7.9	3.0	0.27	C-HB
Phenol	108952					860,000	10,000	TT
2,4,6-Trichlorophenol	88062					2.4	1.4	C-HB
Base Neutral Compounds								
Acenaphthene	83329					6.1	2.7	TT-HB
Acenapthylene	208968					49.2	4.37	C-HB
Anthracene	120127					4.92	0.44	C-HB
Benzidene	92875					0.00020	0.000086	A
Benzo(a)	56553					0.018	0.003	C-HB

Numerical Water Quality Criteria for Chemical Constituents (ug/L)[1]								
		Aquatic Life Criteria [(2)(3)]				**Human health Criteria**		
		Freshwater: Class AA, A & B		**Saltwater Class SA & SB**		**Class B, SA & SB Waters**	**Class AA & A Waters**	
Chemical Constituents	**CASRN**	**Acute[4]**	**Chronic [5]**	**Acute[4]**	**Chronic [5]**	**Consumption of Fish**	**Consumption of Water & Fish**	**Health Designation[6]**
anthracene							8	
Benzo(a) pyrene	50328					0.018	0.0038	C-HB
Benzo(b) fluoranthene	205992					0.018	0.0038	C-HB
Benzo(ghi)perylene	191242					4.92	0.44	C-HB
Benzo(k) fluoranthene	207089					0.018	0.0038	C-HB
Bis(2-chloroethoxy)Methane	111911							
Bis(2-Chloroethyl)Ether	111444					0.53	0.030	C
Bis(2-Chloroisopropyl) Ether	108601					65,000	1,400	TT
Bis(2-Ethyl	117817					2.2	1.2	C-HB

Numerical Water Quality Criteria for Chemical Constituents (ug/L)[1]								
		Aquatic Life Criteria [(2)(3)]				**Human health Criteria**		
		Freshwater: Class AA, A & B		**Saltwater Class SA & SB**		**Class B, SA & SB Waters**	**Class AA & A Waters**	
Chemical Constituents	**CASRN**	**Acute[4]**	**Chronic [5]**	**Acute[4]**	**Chronic [5]**	**Consumption of Fish**	**Consumption of Water & Fish**	**Health Designation[6]**
hexyl)Phthalate								
4-Bromophenylether	101553							
Butyl Benzyl Phthalate	85687					1,900	1,500	TT-HB
2-Chloronapthylene	91587					1,600	1,000	TT-HB
4-Chlorophenylphenylether	7005723							
Chrysene	218019					0.018	0.0038	C-HB
Dibenzo(a,h)anthracene	53703					0.010	0.0009	C-HB
1,2-Dichlorobenzene	95501					1,300	420	TT-HB
1,3-Dichloro	541731					960	320	TT-HB

Numerical Water Quality Criteria for Chemical Constituents (ug/L)[1]								
		Aquatic Life Criteria [(2)(3)]				**Human health Criteria**		
		Freshwater: Class AA, A & B		**Saltwater Class SA & SB**		**Class B, SA & SB Waters**	**Class AA & A Waters**	
Chemical Constituents	**CASRN**	**Acute[4]**	**Chronic [5]**	**Acute[4]**	**Chronic [5]**	**Consumption of Fish**	**Consumption of Water & Fish**	**Health Designation[6]**
benzene								
1,4-Dichloro benzene	106467					190	63	TT-HB
3,3'-Dibenzidenes	91941					0.028	0.021	C-HB
Diethyl Phthalate	84662					44,000	17,000	TT
Dimethyl Phthalate	131113					1,100,000	270,000	TT
Di-n-butyl Phthlate	84742					4,500	2,000	TT-HB
Di-n-octyl Phthalate ester	117840							
2,4-Dinitro-toluene	121142					3.4	0.11	C
2,6-Dinitro-toluene	606202							
Di-n-	117840							

Numerical Water Quality Criteria for Chemical Constituents (ug/L)[1]								
		Aquatic Life Criteria [(2)(3)]				**Human health Criteria**		
		Freshwater: Class AA, A & B		**Saltwater Class SA & SB**		**Class B, SA & SB Waters**	**Class AA & A Waters**	
Chemical Constituents	**CASRN**	**Acute[4]**	**Chronic [5]**	**Acute[4]**	**Chronic [5]**	**Consumption of Fish**	**Consumption of Water & Fish**	**Health Designation[6]**
ocytyl phthalate								
1,2-Diphenylhydrazine	122667					0.20	0.036	C
Fluoranthene	206440					1.28	1.01	C-HB
Fluorene	86737					49.2	4.37	C-HB
Hexachlorobenzene	118741					0.00029	0.00028	C-HB
Hexachlorobutadiene	87683					18	0.44	C-HB
Hexachlorocyclopentadiene	77474					1,100	40	TT-HB
Hexachloroethane	67721					3.3	1.4	C-HB
Indeno (1,2,3-cd) pyrene	193395					0.018	0.0038	C-HB

Numerical Water Quality Criteria for Chemical Constituents (ug/L)[1]								
		Aquatic Life Criteria [(2)(3)]				**Human health Criteria**		
		Freshwater: Class AA, A & B		**Saltwater Class SA & SB**		**Class B, SA & SB Waters**	**Class AA & A Waters**	
Chemical Constituents	**CASRN**	**Acute[4]**	**Chronic [5]**	**Acute[4]**	**Chronic [5]**	**Consumption of Fish**	**Consumption of Water & Fish**	**Health Designation[6]**
Isophorone	78591					960	35	TT
Napthalene	91203					20,513	677	TT
Nitrobenzene	98953					690	17	TT
N-Nitrosodimethylamine	62759					3	0.00069	C
N-Nitrosodi-N-propylamine	621647					0.51	0.005	C
N-Nitrosodiphenylamine	86306					6.0	3.3	C
Phenanthrene	85018					49.17	4.37	C-HB
Pyrene	129000					49.17	4.37	C-HB
1,2,4-Trichlorobenzene	120821					70	35	TT
Pesticides								

Numerical Water Quality Criteria for Chemical Constituents (ug/L)[1]								
		Aquatic Life Criteria [(2)(3)]				**Human health Criteria**		
		Freshwater: Class AA, A & B		**Saltwater Class SA & SB**		**Class B, SA & SB Waters**	**Class AA & A Waters**	
Chemical Constituents	**CASRN**	**Acute[4]**	**Chronic[5]**	**Acute[4]**	**Chronic[5]**	**Consumption of Fish**	**Consumption of Water & Fish**	**Health Designation[6]**
Aldrin	309002	1.50		0.65		0.00005	0.000 049	C-HB
Chlordane	57749	1.20	0.0043	0.045	0.004	0.00081	0.000 80	C-HB
DDT	50293	0.55[11]	0.001[11]	0.065[11]	0.001[11]	0.00022	0.000 22	C-HB
DDD	72548					0.00031	0.000 31	C-HB
DDE	72559					0.00022	0.000 22	C-HB
Dieldrin	60571	0.24	0.056	0.355	0.0019	0.000054	0.000 052	C
Endosulfan Alpha	959988	0.11[12]	0.056[12]	0.017[12]	0.0087[12]	89	62	TT
Endosulfan Beta	33213659	0.11[12]	0.056[12]	0.017[12]	0.0087[12]	89	62	TT
Endosulfan Sulfate	1031078					89	62	TT
Endrin	72208	0.086	0.036	0.0185	0.0023	0.060	0.059	TT
Endrin Aldehyde	7421934					0.30	0.29	TT
Hep	76448	0.26	0.0038	0.0265	0.0036	0.000079	0.000	C

Numerical Water Quality Criteria for Chemical Constituents (ug/L)[1]								
		Aquatic Life Criteria [(2)(3)]				Human health Criteria		
		Freshwater: Class AA, A & B		Saltwater Class SA & SB		Class B, SA & SB Waters	Class AA & A Waters	
Chemical Constituents	CASRN	Acute[4]	Chronic[5]	Acute[4]	Chronic[5]	Consumption of Fish	Consumption of Water & Fish	Health Designation[6]
tachlor							079	
Hetachlor epoxide	1024573	0.26	0.0038	0.0265	0.0036	0.000039	0.000039	C
Hexachlorocyclohexane alpha	319846					0.0049	0.0026	C-HB
Hexachlorocyclohexane beta	319857					0.017	0.0091	C-HB
Hexachlorocyclohexane delta	319868							
Hexachlorocyclohexane gamma (Lindane)	58899	0.95		0.08		0.063	0.019	TT-HB
Polychlorinated			0.014		0.03	0.000064	0.000064	C-HB

Numerical Water Quality Criteria for Chemical Constituents (ug/L)[1]								
		Aquatic Life Criteria [(2)(3)]				**Human health Criteria**		
		Freshwater: Class AA, A & B		**Saltwater Class SA & SB**		**Class B, SA & SB Waters**	**Class AA & A Waters**	
Chemical Constituents	**CASRN**	**Acute[4]**	**Chronic [5]**	**Acute[4]**	**Chronic [5]**	**Consumption of Fish**	**Consumption of Water & Fish**	**Health Designation[6]**
Biphenyls[13]								
2,3,7,8-TCDD (Dioxin)	1746016					0.0000000051	0.0000000005	C-HB
Toxaphene	8001352	0.73	0.0002	0.21	0.0002	0.00028	0.00028	C-HB
Other Susbstances								
Aluminum	7429905	750	87					
Ammonia	7664417	*	**	233 [15]	35 [15]			
Asbestos	1332214						7 Million fibers per liter	A
Chlorine	7782505	19	11	13	7.5			
Chloride	16887006	860,000	230,000					

*See Table Note 14-A

**See Table Notes 14B & 14C

Table 3 - Notes:

1. The minimum data necessary to determine consistency with Connecticut Water Quality Standards shall be subject to the Commissioner's discretion and may not be limited to or include chemical analysis results for all of the constituents listed in Table 3.

2. Aquatic life criteria for freshwater may be used for saltwater if criteria for saltwater is unavailable.

3. For brackish waters, use the more restrictive of the aquatic life criteria for freshwater and for saltwater.

4. Biological integrity is impaired by an exposure of one hour or longer to a concentration which exceeds the acute criteria more frequently than once every three years on average.

5. Biological integrity is impaired when the four-day average concentration exceeds the chronic criteria more frequently than once every three years on average.

6. The commissioner shall consider the following human health designations in allocating zones of influence for discharges:

A: Class A carcinogen (known human carcinogen)
TT: Threshold Toxicant, not carcinogenic
C: Carcinogenic (probable or possible carcinogen)
HB: High potential to bioaccumulate or bioconcentrate

7. Criteria apply to the dissolved fraction of ambient waters unless otherwise noted.

8. Biological integrity is impaired when the ambient concentration exceeds this value on more than 5% of days in any year.

9. Biological integrity is impaired when the ambient concentration exceeds this value on more than 50% of days in any year.

10. Site-specific criteria for copper apply for the following waters:

Bantam River	Litchfield POTW to confluence with Shepaug River
Blackberry River	Norfolk POTW to confluence with Roaring Brook
	North Canaan POTW to confluence with Housatonic River
Factory Brook	Salisbury POTW to mouth
Five Mile River	New Canaan POTW to mouth
Hockanum River	Vernon POTW to confluence with Connecticut River
Mill Brook	Plainfield Village POTW to mouth
Naugatuck River	Torrington POTW to confluence with Housatonic River
Norwalk River	Ridgefield Brook to Branchville
Pequabuck River	Plymouth POTW to confluence with Farmington River
Pootatuck River	Newtown POTW to confluence with the Housatonic River
Quinnipiac River	Southington POTW to Broadway, North Haven
Still River	Winsted POTW to confluence with Farmington River
Still River	Limekiln Brook to confluence with Housatonic River
Williams Brook	Ledyard POTW to mouth
Willimantic River	Stafford Springs POTW to Trout Management Area (Willington)
	Eagleville Dam to confluence with Shetucket River

11. This criterion applies to DDT and its metabolites (i.e. the total concentration of DDT and its metabolites should not exceed this value).

12. This value was derived from data for endosulfan and is most appropriately applied to the sum of alpha endosulfan and beta endosulfan.

13. Criteria are applicable to total PCB's (e.g. the sum of all congeners or all isomer or homolog or Arochor analyses).

14. Criteria for ammonia, (mg/l as N) vary in response to ambient surface water

temperature (T, degrees C) and pH. Biological integrity is considered impaired when:

A The one-hour average concentration of total ammonia exceeds:

$$[0.275/(1+10^{(7.204-pH)})] + [39.0/(1+10^{(pH-7.204)})] \text{ when salmonids are present}$$

Or

$$[0.411/(1+10^{(7.204-pH)})] + [58.4/(1+10^{(pH-7.204)})] \text{ when salmonids are absent}$$

B The four-day average concentration of total ammonia exceeds 2.5 times the value obtained from the formula in 14.C. below.

C The 30-day average concentration of total ammonia exceeds:

$$[0.0577/(1+10^{(7.688-pH)})] + [2.487/(1+10^{(pH-7.688)})] \times [MIN(2.85, 1.45 \times (10^{(0.028(25-T))})]$$

when early life stages are present;

or

$$[0.0577/(1+10^{(7.688-pH)})] + [2.487/(1+10^{(pH-7.688)})] \times [1.45 \times (10^{(0.028(25-MAX(T,7))})]$$

when early life stages are absent.

15. Saltwater ammonia criteria are expressed as un-ionized ammonia (NH3). Equivalent total ammonia concentrations are dependent on receiving water temperature, pH, and salinity.

Conversion of un-unionized ammonia concentrations to total ammonia (NH3 + NH4+) may be performed using the procedure described in "Ambient Water Quality Criteria for Ammonia (Saltwater) – 1989", EPA 440/5-88-004.

(b) **Ground Water Quality Criteria**

(1) In areas classified as GAA, GAAs, and GA:

(A) dissolved oxygen, pH, and chemical constituents shall be maintained at levels as naturally occur; and

(B) oils and grease, color and turbidity, taste and odor, and coliform bacteria shall not be present unless of natural origin.

(2) In areas classified as GB, no specific ground water quality criteria apply except those that may be promulgated as part of the Site Remediation Regulations adopted pursuant to section 22a-133k of the Connecticut General Statutes.

(3) In areas classified as GC, no quantitative criteria are specifically determined until such time as a person applies to the department under section 22a-430 of the Connecticut General Statutes to discharge leachate to ground water.

(Effective October 10, 2013)