ATTACHMENT 4

Project 3788 - Proposed

STATE WATER CONTROL BOARD

Triennial Review

Part I

Surface Water Standards with General, Statewide Application

9VAC25-260-5. Definitions.

The following words and terms when used in this chapter shall have the following meanings unless the context clearly indicates otherwise:

"Algicides" means chemical substances, most commonly copper-based, used as a treatment method to control algae growths.

"Board" means State Water Control Board.

"Chesapeake Bay and its tidal tributaries" means all tidally influenced waters of the Chesapeake Bay; western and eastern coastal embayments and tributaries; James, York, Rappahannock and Potomac Rivers and all their tidal tributaries to the end of tidal waters in each tributary (in larger rivers this is the fall line); and includes subdivisions 1, 2, 3, 4, 5, and 6 of 9VAC25-260-390, subdivisions 1, 1b, 1d, 1f and 1o of 9VAC25-260-410, subdivisions 5 and 5a of 9VAC25-260-415, subdivisions 1 and 1a of 9VAC25-260-440, subdivisions 2, 3, 3a, 3b and 3e of 9VAC25-260-520, and subdivision 1 of 9VAC25-260-530. This definition does not include free flowing sections of these waters.

"Criteria" means elements of the board's water quality standards, expressed as constituent concentrations, levels, or narrative statements, representing a quality of water that supports a particular use. When criteria are met, water quality will generally protect the designated use.

"Department" or "DEQ" means the Virginia Department of Environmental Quality.

"Designated uses" means those uses specified in water quality standards for each ~~water body~~ waterbody or segment whether or not they are being attained.

"Drifting organisms" means planktonic organisms that are dependent on the current of the water for movement.

"Epilimnion" means the upper layer of nearly uniform temperature in a thermally stratified man-made lake or reservoir listed in 9VAC25-260-187 B.

"Existing uses" means those uses actually attained in the ~~water body~~ waterbody on or after November 28, 1975, whether or not they are included in the water quality standards.

"Lacustrine" means the zone within a lake or reservoir that corresponds to nonflowing lake-like conditions such as those near the dam. The other two zones within a reservoir are riverine (flowing, river-like conditions) and transitional (transition from river to lake conditions).

"Man-made lake or reservoir" means a constructed impoundment.

"Mixing zone" means a limited area or volume of water where initial dilution of a discharge takes place and where numeric water quality criteria can be exceeded but designated uses in the ~~water body~~ waterbody on the whole are maintained and lethality is prevented.

"Natural lake" means an impoundment that is natural in origin. There are two natural lakes in Virginia: Mountain Lake in Giles County and Lake Drummond located within the boundaries of Chesapeake and Suffolk in the Great Dismal Swamp.

"Passing organisms" means free swimming organisms that move with a mean velocity at least equal to the ambient current in any direction.

"Primary contact recreation" means any water-based form of recreation, the practice of which has a high probability for total body immersion or ingestion of water (examples include but are not limited to swimming, water skiing, canoeing and kayaking).

"Pycnocline" means the portion of the water column where density changes rapidly because of salinity and/or temperature. In an estuary the pycnocline is the zone separating deep, cooler more saline waters from the less saline, warmer surface waters. The upper and lower boundaries of a pycnocline are measured as a change in density per unit of depth that is greater than twice the change of the overall average for the total water column.

"Secondary contact recreation" means a water-based form of recreation, the practice of which has a low probability for total body immersion or ingestion of waters (examples include but are not limited to wading, boating and fishing).

"Swamp waters" means waters with naturally occurring low pH and low dissolved oxygen caused by: (i) low flow velocity that prevents mixing and reaeration of stagnant, shallow waters and (ii) decomposition of vegetation that lowers dissolved oxygen concentrations and causes tannic acids to color the water and lower the pH.

"Use attainability analysis" means a structured scientific assessment of the factors affecting the attainment of the use which may include physical, chemical, biological, and economic factors as described in 9VAC25-260-10 H.

"Water quality standards" means provisions of state or federal law which consist of a designated use or uses for the waters of the Commonwealth and water quality criteria for such waters based upon such uses. Water quality standards are to protect the public health or welfare, enhance the quality of water and serve the purposes of the State Water Control Law (§ 62.1-44.2 et seq. of the Code of Virginia) and the federal Clean Water Act (33 USC § 1251 et seq.).

"Wetlands" means those areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

9VAC25-260-50. Numerical criteria for dissolved oxygen, pH, and maximum temperature.***

CLASS	DESCRIPTION OF WATERS	DISSOLVED OXYGEN (mg/l)****		pH	Max. Temp. (°C)
		Min.	Daily Avg.		
I	Open Ocean	5.0	--	6.0-9.0	--
II	Tidal Waters in the Chowan Basin and the Atlantic Ocean Basin	4.0	5.0	6.0-9.0	--
II	Tidal Waters in the Chesapeake Bay and its tidal tributaries	see 9VAC25-260-185		6.0-9.0	
III	Nontidal Waters (Coastal and Piedmont Zones)	4.0	5.0	6.0-9.0	32
IV	Mountainous Zones Waters	4.0	5.0	6.0-9.0	31
V	Stockable Trout Waters	5.0	6.0	6.0-9.0	21
VI	Natural Trout Waters	6.0	7.0	6.0-9.0	20
VII	Swamp Waters	*	*	3.7-8.0*	**

*This classification recognizes that the natural quality of these waters may fluctuate outside of the values for D.O. and pH set forth above as water quality criteria in Class I through VI waters. The natural quality of these waters is the water quality found or expected in the absence of human-induced pollution. Water quality standards will not be considered violated when conditions are determined by the board to be natural and not due to human-induced sources. The board may develop site specific criteria for Class VII waters that reflect the natural quality of the waterbody when the evidence is sufficient to demonstrate that the site specific criteria rather than narrative criterion will fully protect aquatic life uses. Virginia Pollutant Discharge

Elimination System limitations in Class VII waters shall not cause significant changes to the naturally occurring dissolved oxygen and pH fluctuations in these waters.

**Maximum temperature will be the same as that for Classes I through VI waters as appropriate.

***The water quality criteria in this section do not apply below the lowest flow averaged (arithmetic mean) over a period of seven consecutive days that can be statistically expected to occur once every 10 climatic years (a climatic year begins April 1 and ends March 31). See 9VAC25-260-310 and 9VAC25-260-380 through 9VAC25-260-540 for site specific adjustments to these criteria.

****For a thermally stratified man-made lake or reservoir in Class III, IV, V or VI waters that are listed in 9VAC25-260-187, these dissolved oxygen and pH criteria apply only to the epilimnion of the ~~water body~~ waterbody. When these waters are not stratified, the dissolved oxygen and pH criteria apply throughout the water column.

9VAC25-260-140. Criteria for surface water.

A. Instream water quality conditions shall not be acutely[1] or chronically[2] toxic except as allowed in 9VAC25-260-20 B (mixing zones). The following are definitions of acute and chronic toxicity conditions:

"Acute toxicity" means an adverse effect that usually occurs shortly after exposure to a pollutant. Lethality to an organism is the usual measure of acute toxicity. Where death is not easily detected, immobilization is considered equivalent to death.

"Chronic toxicity" means an adverse effect that is irreversible or progressive or occurs because the rate of injury is greater than the rate of repair during prolonged exposure to a pollutant. This includes low level, long-term effects such as reduction in growth or reproduction.

B. The following table is a list of numerical water quality criteria for specific parameters.

Table of Parameters[6, 7]

PARAMETER CAS Number	USE DESIGNATION					
	AQUATIC LIFE				HUMAN HEALTH	
	FRESHWATER		SALTWATER			
	Acute[1]	Chronic[2]	Acute[1]	Chronic[2]	Public Water Supply[3]	All Other Surface Waters[4]
Acenapthene (µg/l) 83329					670	990
Acrolein (µg/l) 107028	3.0	3.0			6.1	9.3
Acrylonitrile (µg/l) 107131 Known or suspected carcinogen; human health criteria at risk level 10^{-5}.					0.51	2.5
Aldrin (µg/l) 309002 Known or suspected carcinogen; human health criteria at risk level 10^{-5}.	3.0		1.3		0.00049	0.00050
Ammonia (µg/l) 766-41-7 Chronic criterion is a 30-day average concentration not to be exceeded more than						

Table of Parameters[6, 7]						
PARAMETER CAS Number	USE DESIGNATION					
	AQUATIC LIFE				HUMAN HEALTH	
	FRESHWATER		SALTWATER		Public Water Supply[3]	All Other Surface Waters[4]
	Acute[1]	Chronic[2]	Acute[1]	Chronic[2]		
once every three ~~(3)~~ years on the average. (see 9VAC25-260-155)						
Anthracene (µg/l) 120127					8,300	40,000
Antimony (µg/l) 7440360					5.6	640
Arsenic (µg/l)[5] 7440382	340	150	69	36	10	
Bacteria (see 9VAC25-260-160 and 170)						
Barium (µg/l) 7440393					2,000	
Benzene (µg/l) 71432 Known or suspected carcinogen; human health criteria at risk level 10^{-5}.					22	510
Benzidine (µg/l) 92875 Known or suspected carcinogen; human health criteria at risk level 10^{-5}.					0.00086	0.0020
Benzo (a) anthracene (µg/l) 56553 Known or suspected carcinogen; human health criteria at risk level 10^{-5}.					0.038	0.18
Benzo (b) fluoranthene (µg/l) 205992 Known or suspected carcinogen; human health criteria at risk level 10^{-5}.					0.038	0.18

Table of Parameters[6, 7]						
PARAMETER CAS Number	USE DESIGNATION					
	AQUATIC LIFE				HUMAN HEALTH	
	FRESHWATER		SALTWATER		Public Water Supply[3]	All Other Surface Waters[4]
	Acute[1]	Chronic[2]	Acute[1]	Chronic[2]		
Benzo (k) fluoranthene (µg/l) 207089 Known or suspected carcinogen; human health criteria at risk level 10^{-5}.					0.038	0.18
Benzo (a) pyrene (µg/l) 50328 Known or suspected carcinogen; human health criteria at risk level 10^{-5}.					0.038	0.18
Bis2-Chloroethyl Ether (µg/l) 111444 Known or suspected carcinogen; human health criteria at risk level 10^{-5}.					0.30	5.3
Bis2-Chloroisopropyl Ether (µg/l) 108601					1,400	65,000
Bis2-Ethylhexyl Phthalate (µg/l) 117817 Known or suspected carcinogen; human health criteria at risk level 10^{-5}. Synonym = Di-2-Ethylhexyl Phthalate.					12	22
Bromoform (µg/l) 75252 Known or suspected carcinogen; human health criteria at risk level 10^{-5}.					43	1,400
Butyl benzyl phthalate (µg/l) 85687					1,500	1,900

Table of Parameters[6, 7]						
PARAMETER CAS Number	USE DESIGNATION					
	AQUATIC LIFE				HUMAN HEALTH	
	FRESHWATER		SALTWATER			
	Acute[1]	Chronic[2]	Acute[1]	Chronic[2]	Public Water Supply[3]	All Other Surface Waters[4]
Cadmium (µg/l)[5] 7440439 Freshwater values are a function of total hardness as calcium carbonate ($CaCO_3$) mg/l and the WER. The minimum hardness allowed for use in the equation below shall be 25 and the maximum hardness shall be 400 even when the actual ambient hardness is less than 25 or greater than 400. Freshwater acute criterion (µg/l) WER [[e {1.128[ln(hardness)] – 3.828}]] [[~~[~~e ~~{0.8407[ln(hardness)] – 3.279}~~]~~]] Freshwater chronic criterion (µg/l) WER [[e {0.7852[ln(hardness)] – 3.490}]] [[~~[~~e ~~{0.6247[ln(hardness)] – 3.384}~~]~~]] CF$_c$ WER = Water Effect Ratio = 1 unless determined otherwise under 9VAC25-260-140 F e = natural antilogarithm ln = natural logarithm [~~CF$_c$ = conversion factor (chronic)~~ ~~CF$_c$ = 1.101672-[(ln hardness)(0.041838)]~~]	[3.9] [~~1.8~~] $CaCO_3$ = 100	[1.1] [~~0.55~~] $CaCO_3$ = 100	40 X WER	8.8 X WER	5	
Carbon tetrachloride (µg/l) 56235 Known or suspected carcinogen; human health criteria at risk level 10^{-5}.					[2.3] [~~4.3~~]	[16] [~~30~~]
Carbaryl (µg/l) 63252	2.1	2.1	1.6			

Table of Parameters[6, 7]						
PARAMETER CAS Number	USE DESIGNATION					
	AQUATIC LIFE				HUMAN HEALTH	
	FRESHWATER		SALTWATER		Public Water Supply[3]	All Other Surface Waters[4]
	Acute[1]	Chronic[2]	Acute[1]	Chronic[2]		
Chlordane (µg/l) 57749 Known or suspected carcinogen; human health criteria at risk level 10^{-5}.	2.4	0.0043	0.09	0.0040	0.0080	0.0081
Chloride (µg/l) 16887006 Human ~~Health~~ health criterion to maintain acceptable taste and aesthetic quality and applies at the drinking water intake. Chloride criteria do not apply in Class II transition zones (see subsection C of this section).	860,000	230,000			250,000	
Chlorine, Total Residual (µg/l) 7782505 In DGIF class i and ii trout waters (9VAC25-260-390 through 9VAC25-260-540) or waters with threatened or endangered species are subject to the halogen ban (9VAC25-260-110).	19 See 9VAC25-260-110	11 See 9VAC25-260-110				
Chlorine Produced Oxidant (µg/l) 7782505			13	7.5		
Chlorobenzene (µg/l) 108907					130	1,600
Chlorodibromomethane (µg/l) 124481 Known or suspected carcinogen; human health criteria at risk level 10^{-5}.					4.0	130
Chloroform (µg/l) 67663					340	11,000

Table of Parameters[6, 7]						
PARAMETER CAS Number	USE DESIGNATION					
	AQUATIC LIFE				HUMAN HEALTH	
	FRESHWATER		SALTWATER		Public Water Supply[3]	All Other Surface Waters[4]
	Acute[1]	Chronic[2]	Acute[1]	Chronic[2]		
2-Chloronaphthalene (µg/l) 91587					1,000	1,600
2-Chlorophenol (µg/l) 95578					81	150
Chlorpyrifos (µg/l) 2921882	0.083	0.041	0.011	0.0056		
Chromium III (µg/l)[5] 16065831 Freshwater values are a function of total hardness as calcium carbonate $CaCO_3$ mg/l and the WER. The minimum hardness allowed for use in the equation below shall be 25 and the maximum hardness shall be 400 even when the actual ambient hardness is less than 25 or greater than 400. Freshwater acute criterion µg/l WER $[e^{\{0.8190[\ln(\text{hardness})]+3.7256\}}]$ (CF_a) Freshwater chronic criterion µg/l WER $[e^{\{0.8190[\ln(\text{hardness})]+0.6848\}}]$ (CF_c) WER = Water Effect Ratio = 1 unless determined otherwise under 9VAC25-260-140.F e = natural antilogarithm ln = natural logarithm CF = conversion factor a (acute) or c (chronic) CF_a= 0.316 CF_c=0.860	570 ($CaCO_3$ = 100)	74 ($CaCO_3$ = 100)			100 (total Cr)	
Chromium VI (µg/l)[5] 18540299	16	11	1,100	50		

Table of Parameters[6, 7]						
PARAMETER CAS Number	USE DESIGNATION					
	AQUATIC LIFE				HUMAN HEALTH	
	FRESHWATER		SALTWATER		Public Water Supply[3]	All Other Surface Waters[4]
	Acute[1]	Chronic[2]	Acute[1]	Chronic[2]		
Chrysene (µg/l) 218019 Known or suspected carcinogen; human health criteria at risk level 10^{-5}.					~~0.0038~~ 0.038	0.018

Table of Parameters[6, 7]						
PARAMETER CAS Number	USE DESIGNATION					
	AQUATIC LIFE				HUMAN HEALTH	
	FRESHWATER		SALTWATER		Public Water Supply[3]	All Other Surface Waters[4]
	Acute[1]	Chronic[2]	Acute[1]	Chronic[2]		
Copper (µg/l)[5] 7440508 Freshwater values are a function of total hardness as calcium carbonate $CaCO_3$ mg/l and the WER. The minimum hardness allowed for use in the equation below shall be 25 and the maximum hardness shall be 400 even when the actual ambient hardness is less than 25 or greater than 400. Freshwater acute criterion (µg/l) WER [$e^{\{0.9422[\ln(\text{hardness})]-1.700\}}$] ($CF_a$) Freshwater chronic criterion (µg/l) WER [$e^{\{0.8545[\ln(\text{hardness})]-1.702\}}$] ($CF_c$) WER = Water Effect Ratio = 1 unless determined otherwise under 9VAC25-260-140 F. e = natural antilogarithm ln = natural logarithm CF = conversion factor a (acute) or c (chronic) CF_a = 0.960 CF_c = 0.960 <u>Alternate copper criteria in freshwater: the freshwater criteria for copper can also be calculated using the EPA 2007 Biotic Ligand Model (See 9VAC25-260-140 G).</u> Acute saltwater criterion is a 24-hour average not to be exceeded more than once every three years on the average.	13 $CaCO_3$ = 100	9.0 $CaCO_3$ = 100	9.3 X WER	6.0 X WER	1,300	

Table of Parameters[6, 7]						
PARAMETER CAS Number	USE DESIGNATION					
	AQUATIC LIFE				HUMAN HEALTH	
	FRESHWATER		SALTWATER		Public Water Supply[3]	All Other Surface Waters[4]
	Acute[1]	Chronic[2]	Acute[1]	Chronic[2]		
Cyanide, Free (µg/l) 57125	22	5.2	1.0	1.0	[140][~~4.2~~]	[16,000] [~~480~~]
DDD (µg/l) 72548 Known or suspected carcinogen; human health criteria at risk level 10^{-5}.					0.0031	0.0031
DDE (µg/l) 72559 Known or suspected carcinogen; human health criteria at risk level 10^{-5}.					0.0022	0.0022
DDT (µg/l) 50293 Known or suspected carcinogen; human health criteria at risk level 10^{-5}. Total concentration of DDT and metabolites shall not exceed aquatic life criteria.	1.1	0.0010	0.13	0.0010	0.0022	0.0022
Demeton (µg/l) 8065483		0.1		0.1		
Diazinon (µg/l) 333415	0.17	0.17	0.82	0.82		
Dibenz (a, h) anthracene (µg/l) 53703 Known or suspected carcinogen; human health criteria at risk level 10^{-5}.					0.038	0.18
1,2-Dichlorobenzene (µg/l) 95501					420	1,300
1,3-Dichlorobenzene (µg/l) 541731					320	960
1,4 Dichlorobenzene (µg/l) 106467					63	190

Table of Parameters[6, 7]						
PARAMETER CAS Number	USE DESIGNATION					
	AQUATIC LIFE				HUMAN HEALTH	
	FRESHWATER		SALTWATER		Public Water Supply[3]	All Other Surface Waters[4]
	Acute[1]	Chronic[2]	Acute[1]	Chronic[2]		
3,3 Dichlorobenzidine (µg/l) 91941 Known or suspected carcinogen; human health criteria at risk level 10^{-5}.					0.21	0.28
Dichlorobromomethane (µg/l) 75274 Known or suspected carcinogen; human health criteria at risk level 10^{-5}.					5.5	170
1,2 Dichloroethane (µg/l) 107062 Known or suspected carcinogen; human health criteria at risk level 10^{-5}.					3.8	370
1,1 Dichloroethylene (µg/l) 75354					330	7,100
1,2-trans-dichloroethylene (µg/l) 156605					140	10,000
2,4 Dichlorophenol (µg/l) 120832					77	290
2,4 Dichlorophenoxy acetic acid (2,4-D) (µg/l) 94757					100	
1,2-Dichloropropane (µg/l) 78875 Known or suspected carcinogen; human health criteria at risk level 10^{-5}.					5.0	150
1,3-Dichloropropene (µg/l) 542756 Known or suspected carcinogen; human health criteria at risk level 10^{-5}.					3.4	210

Table of Parameters[6, 7]						
PARAMETER CAS Number	USE DESIGNATION					
	AQUATIC LIFE				HUMAN HEALTH	
	FRESHWATER		SALTWATER		Public Water Supply[3]	All Other Surface Waters[4]
	Acute[1]	Chronic[2]	Acute[1]	Chronic[2]		
Dieldrin (µg/l) 60571 Known or suspected carcinogen; human health criteria at risk level 10^{-5}.	0.24	0.056	0.71	0.0019	0.00052	0.00054
Diethyl Phthalate (µg/l) 84662					17,000	44,000
2,4 Dimethylphenol (µg/l) 105679					380	850
Dimethyl Phthalate (µg/l) 131113					270,000	1,100,000
Di-n-Butyl Phthalate (µg/l) 84742					2,000	4,500
2,4 Dinitrophenol (µg/l) 51285					69	5,300
2-Methyl-4,6-Dinitrophenol (µg/l) 534521					13	280
2,4 Dinitrotoluene (µg/l) 121142 Known or suspected carcinogen; human health criteria at risk level 10^{-5}.					1.1	34
Dioxin 2, 3, 7, 8-tetrachlorodibenzo-p-dioxin (µg/l) 1746016					5.0 E-8	5.1 E-8
1,2-Diphenylhydrazine (µg/l) 122667 Known or suspected carcinogen; human health criteria at risk level 10^{-5}.					0.36	2.0
Dissolved Oxygen (µg/l) (See 9VAC25-260-50)						

Table of Parameters[6, 7]						
PARAMETER CAS Number	USE DESIGNATION					
	AQUATIC LIFE				HUMAN HEALTH	
	FRESHWATER		SALTWATER		Public Water Supply[3]	All Other Surface Waters[4]
	Acute[1]	Chronic[2]	Acute[1]	Chronic[2]		
Alpha-Endosulfan (µg/l) 959988 Total concentration alpha and beta-endosulfan shall not exceed aquatic life criteria.	0.22	0.056	0.034	0.0087	62	89
Beta-Endosulfan (µg/l) 33213659 Total concentration alpha and beta-endosulfan shall not exceed aquatic life criteria.	0.22	0.056	0.034	0.0087	62	89
Endosulfan Sulfate (µg/l) 1031078					62	89
Endrin (µg/l) 72208	0.086	0.036	0.037	0.0023	0.059	0.060
Endrin Aldehyde (µg/l) 7421934					0.29	0.30
Ethylbenzene (µg/l) 100414					530	2,100
Fecal Coliform (see 9VAC25-260-160)						
Fluoranthene (µg/l) 206440					130	140
Fluorene (µg/l) 86737					1,100	5,300
Foaming Agents (µg/l) Criterion measured as methylene blue active substances. Criterion to maintain acceptable taste, odor, or aesthetic quality of drinking water and applies at the drinking water intake.					500	
Guthion (µg/l) 86500		0.01		0.01		

Table of Parameters[6, 7]						
PARAMETER CAS Number	USE DESIGNATION					
	AQUATIC LIFE				HUMAN HEALTH	
	FRESHWATER		SALTWATER		Public Water Supply[3]	All Other Surface Waters[4]
	Acute[1]	Chronic[2]	Acute[1]	Chronic[2]		
Heptachlor (µg/l) 76448 Known or suspected carcinogen; human health criteria at risk level 10^{-5}.	0.52	0.0038	0.053	0.0036	0.00079	0.00079
Heptachlor Epoxide (µg/l) 1024573 Known or suspected carcinogen; human health criteria at risk level 10^{-5}.	0.52	0.0038	0.053	0.0036	0.00039	0.00039
Hexachlorobenzene (µg/l) 118741 Known or suspected carcinogen; human health criteria at risk level 10^{-5}.					0.0028	0.0029
Hexachlorobutadiene (µg/l) 87683 Known or suspected carcinogen; human health criteria at risk level 10^{-5}.					4.4	180
Hexachlorocyclohexane Alpha-BHC (µg/l) 319846 Known or suspected carcinogen; human health criteria at risk level 10^{-5}.					0.026	0.049
Hexachlorocyclohexane Beta-BHC (µg/l) 319857 Known or suspected carcinogen; human health criteria at risk level 10^{-5}.					0.091	0.17
Hexachlorocyclohexane (µg/l) (Lindane) Gamma-BHC 58899 Known or suspected carcinogen; human health criteria at risk level 10^{-5}.	0.95		0.16		0.98	1.8

Table of Parameters[6, 7]						
PARAMETER CAS Number	USE DESIGNATION					
	AQUATIC LIFE				HUMAN HEALTH	
	FRESHWATER		SALTWATER		Public Water Supply[3]	All Other Surface Waters[4]
	Acute[1]	Chronic[2]	Acute[1]	Chronic[2]		
Hexachlorocyclopentadiene (µg/l) 77474					40	1,100
Hexachloroethane (µg/l) 67721 Known or suspected carcinogen; human health criteria at risk level 10^{-5}.					[14] [~~5.0~~]	[33] [~~12~~]
Hydrogen sulfide (µg/l) 7783064		2.0		2.0		
Indeno (1,2,3,-cd) pyrene (µg/l) 193395 Known or suspected carcinogen; human health criteria at risk level 10^{-5}.					0.038	0.18
Iron (µg/l) 7439896 Criterion to maintain acceptable taste, odor or aesthetic quality of drinking water and applies at the drinking water intake.					300	
Isophorone (µg/l) 78591 Known or suspected carcinogen; human health criteria at risk level 10^{-5}.					350	9,600
Kepone (µg/l) 143500		zero		zero		

Table of Parameters[6, 7]						
PARAMETER CAS Number	USE DESIGNATION					
	AQUATIC LIFE				HUMAN HEALTH	
	FRESHWATER		SALTWATER		Public Water Supply[3]	All Other Surface Waters[4]
	Acute[1]	Chronic[2]	Acute[1]	Chronic[2]		
Lead (µg/l)[5] 7439921 Freshwater values are a function of total hardness as calcium carbonate $CaCO_3$ mg/l and the water effect ratio. The minimum hardness allowed for use in the equation below shall be 25 and the maximum hardness shall be 400 even when the actual ambient hardness is less than 25 or greater than 400. Freshwater acute criterion (µg/l) WER [e $^{\{1.273[\ln(\text{hardness})]-1.084\}}$]($CF_a$) Freshwater chronic criterion (µg/l) WER [e $^{\{1.273[\ln(\text{hardness})]-3.259\}}$]($CF_c$) WER = Water Effect Ratio = 1 unless determined otherwise under 9VAC25-260-140 F e = natural antilogarithm ln = natural logarithm CF = conversion factor a (acute) or c (chronic) CF_a = 1.46203-[(ln hardness)(0.145712)] CF_c = 1.46203-[(ln hardness)(0.145712)]	~~120~~ 94 $CaCO_3$ = 100	~~14~~ 11 $CaCO_3$ = 100	[~~240~~][230] X WER	[~~9.3~~][8.8] X WER	15	
Malathion (µg/l) 121755		0.1		0.1		

Table of Parameters[6, 7]						
PARAMETER CAS Number	USE DESIGNATION					
	AQUATIC LIFE				HUMAN HEALTH	
	FRESHWATER		SALTWATER		Public Water Supply[3]	All Other Surface Waters[4]
	Acute[1]	Chronic[2]	Acute[1]	Chronic[2]		
~~Manganese (µg/l)~~ ~~7439965~~ ~~Criterion to maintain acceptable taste, odor or aesthetic quality of drinking water and applies at the drinking water intake.~~					~~50~~	
Mercury (µg/l)[5] 7439976	1.4	0.77	1.8	0.94		
Methyl Bromide (µg/l) 74839					47	1,500
Methyl Mercury (Fish Tissue Criterion mg/kg)[8] 22967926					0.30	0.30
Methylene Chloride (µg/l) 75092 Known or suspected carcinogen; human health criteria at risk level 10^{-5}. Synonym = Dichloromethane					[46] [~~170~~]	[5,900] [~~22,000~~]
Methoxychlor (µg/l) 72435		0.03		0.03	100	
Mirex (µg/l) 2385855		zero		zero		

Table of Parameters[6, 7]						
PARAMETER CAS Number	USE DESIGNATION					
	AQUATIC LIFE				HUMAN HEALTH	
	FRESHWATER		SALTWATER		Public Water Supply[3]	All Other Surface Waters[4]
	Acute[1]	Chronic[2]	Acute[1]	Chronic[2]		
Nickel (µg/l)[5] 744002 Freshwater values are a function of total hardness as calcium carbonate $CaCO_3$ mg/l and the WER. The minimum hardness allowed for use in the equation below shall be 25 and the maximum hardness shall be 400 even when the actual ambient hardness is less than 25 or greater than 400. Freshwater acute criterion (µg/l) WER [e $^{\{0.8460[\ln(\text{hardness})] + 1.312\}}$] ($CF_a$) Freshwater chronic criterion (µg/l) WER [e $^{\{0.8460[\ln(\text{hardness})] - 0.8840\}}$] ($CF_c$) WER = Water Effect Ratio = 1 unless determined otherwise under 9VAC25-260-140 F e = natural antilogarithm ln = natural logarithm CF = conversion factor a (acute) or c (chronic) CF_a = 0.998 CF_c = 0.997	180 $CaCO_3$ = 100	20 $CaCO_3$ = 100	74 X WER	8.2 X WER	610	4,600
Nitrate as N (µg/l) 14797558					10,000	
Nitrobenzene (µg/l) 98953					[17] [68]	[690] [~~2,800~~]
N-Nitrosodimethylamine (µg/l) 62759 Known or suspected carcinogen; human health criteria at risk level 10^{-5}.					0.0069	30

Table of Parameters[6, 7]						
PARAMETER CAS Number	USE DESIGNATION					
	AQUATIC LIFE				HUMAN HEALTH	
	FRESHWATER		SALTWATER		Public Water Supply[3]	All Other Surface Waters[4]
	Acute[1]	Chronic[2]	Acute[1]	Chronic[2]		
N-Nitrosodiphenylamine (µg/l) 86306 Known or suspected carcinogen; human health criteria at risk level 10^{-5}.					33	~~160~~ 60
N-Nitrosodi-n-propylamine (µg/l) 621647 Known or suspected carcinogen; human health criteria at risk level 10^{-5}.					0.050	5.1
Nonylphenol <u>(µg/l)</u> ~~1044051~~ <u>84852153</u>	28	6.6	7.0	1.7		
Parathion (µg/l) 56382	0.065	0.013				
PCB Total (µg/l) 1336363 Known or suspected carcinogen; human health criteria at risk level 10^{-5}.		0.014		0.030	0.00064	0.00064
Pentachlorophenol (µg/l) 87865 Known or suspected carcinogen; human health criteria risk level at 10^{-5}. Freshwater acute criterion (µg/l) $e^{(1.005(pH)-4.869)}$ Freshwater chronic criterion (µg/l) $e^{(1.005(pH)-5.134)}$	8.7 pH = 7.0	6.7 pH = 7.0	13	7.9	[2.7] [~~0.80~~]	[30] [~~9.1~~]
pH See 9VAC25-260-50						
Phenol (µg/l) 108952					10,000	860,000
Phosphorus Elemental (µg/l) 7723140				0.10		

Table of Parameters[6, 7]						
PARAMETER CAS Number	USE DESIGNATION					
	AQUATIC LIFE				HUMAN HEALTH	
	FRESHWATER		SALTWATER		Public Water Supply[3]	All Other Surface Waters[4]
	Acute[1]	Chronic[2]	Acute[1]	Chronic[2]		
Pyrene (µg/l) 129000					830	4,000
Radionuclides Gross Alpha Particle Activity (pCi/L) Beta Particle & Photon Activity (mrem/yr) (formerly man-made radionuclides) Combined Radium 226 and 228 (pCi/L) Uranium (µg/L)					15 4 5 30	
Selenium (µg/l)[5] 7782492 WER shall not be used for freshwater acute and chronic criteria. Freshwater criteria expressed as total recoverable.	20	5.0	290 X WER	71 X WER	170	4,200

Table of Parameters[6, 7]						
PARAMETER CAS Number	USE DESIGNATION					
	AQUATIC LIFE				HUMAN HEALTH	
	FRESHWATER		SALTWATER		Public Water Supply[3]	All Other Surface Waters[4]
	Acute[1]	Chronic[2]	Acute[1]	Chronic[2]		
Silver (µg/l)[5] 7440224 Freshwater values are a function of total hardness as calcium carbonate ($CaCO_3$) mg/l and the WER. The minimum hardness allowed for use in the equation below shall be 25 and the maximum hardness shall be 400 even when the actual ambient hardness is less than 25 or greater than 400. Freshwater acute criterion (µg/l) WER [$e^{\{1.72[\ln(\text{hardness})]-6.52\}}$] ($CF_a$) WER = Water Effect Ratio = 1 unless determined otherwise under 9VAC25-260-140 F e = natural antilogarithm ln = natural logarithm CF = conversion factor a (acute) or c (chronic) CF_a = 0.85	3.4; $CaCO_3$ = 100		1.9 X WER			
Sulfate (µg/l) Criterion to maintain acceptable taste, odor or aesthetic quality of drinking water and applies at the drinking water intake.					250,000	
Temperature See 9VAC25-260-50						
1,1,2,2-Tetrachloroethane (µg/l) 79345 Known or suspected carcinogen; human health criteria at risk level 10^{-5}).					1.7	40

Table of Parameters[6, 7]						
PARAMETER CAS Number	USE DESIGNATION					
	AQUATIC LIFE				HUMAN HEALTH	
	FRESHWATER		SALTWATER		Public Water Supply[3]	All Other Surface Waters[4]
	Acute[1]	Chronic[2]	Acute[1]	Chronic[2]		
Tetrachloroethylene (µg/l) 127184 Known or suspected carcinogen; human health criteria at risk level 10^{-5}~~)~~.					[6.9] [~~130~~]	[33] [~~620~~]
Thallium (µg/l) 7440280					0.24	0.47
Toluene (µg/l) 108883					510	6,000
Total Dissolved Solids (µg/l) Criterion to maintain acceptable taste, odor or aesthetic quality of drinking water and applies at the drinking water intake.					500,000	
Toxaphene (µg/l) 8001352 Known or suspected carcinogen; human health criteria at risk level 10^{-5}.	0.73	0.0002	0.21	0.0002	0.0028	0.0028
Tributyltin (µg/l) 60105	0.46	0.072	0.42	0.0074		
1, 2, 4 Trichlorobenzene (µg/l) 120821					35	70
1,1,2-Trichloroethane (µg/l) 79005 Known or suspected carcinogen; human health criteria at risk level 10^{-5}.					5.9	160
Trichloroethylene (µg/l) 79016 Known or suspected carcinogen; human health criteria at risk level 10^{-5}.					[25] [~~7.0~~]	[300] [~~82~~]

Table of Parameters[6, 7]						
PARAMETER CAS Number	USE DESIGNATION					
	AQUATIC LIFE				HUMAN HEALTH	
	FRESHWATER		SALTWATER		Public Water Supply[3]	All Other Surface Waters[4]
	Acute[1]	Chronic[2]	Acute[1]	Chronic[2]		
2, 4, 6-Trichlorophenol (µg/l) 88062 Known or suspected carcinogen; human health criteria at risk level 10^{-5}.					14	24
2-(2, 4, 5-Trichlorophenoxy) propionic acid (Silvex) (µg/l) 93721					50	
Vinyl Chloride (µg/l) 75014 Known or suspected carcinogen; human health criteria at risk level 10^{-5}.					0.25	24

Table of Parameters[6, 7]						
PARAMETER CAS Number	USE DESIGNATION					
	AQUATIC LIFE				HUMAN HEALTH	
	FRESHWATER		SALTWATER			
	Acute[1]	Chronic[2]	Acute[1]	Chronic[2]	Public Water Supply[3]	All Other Surface Waters[4]
Zinc (µg/l)[5] 7440666 Freshwater values are a function of total hardness as calcium carbonate ($CaCO_3$) mg/l and the WER. The minimum hardness allowed for use in the equation below shall be 25 and the maximum~~,~~ hardness shall be 400 even when the actual ambient hardness is less than 25 or greater than 400. Freshwater acute criterion (µg/l) WER [$e^{\{0.8473[\ln(\text{hardness})]+0.884\}}$] ($CF_a$) Freshwater chronic criterion (µg/l) WER [$e^{\{0.8473[\ln(\text{hardness})]+0.884\}}$] ($CF_c$) WER = Water Effect Ratio = 1 unless determined otherwise under 9VAC25-260-140 F e = ~~base e exponential function.~~ natural antilogarithm ln = ~~log normal function~~ natural logarithm CF = conversion factor a (acute) or c (chronic) CF_a = 0.978 CF_c = 0.986	120 $CaCO_3$ = 100	120 $CaCO_3$ = 100	90 X WER	81 X WER	7,400	26,000

[1]One hour average concentration not to be exceeded more than once every 3 years on the average, unless otherwise noted.

[2]Four-day average concentration not to be exceeded more than once every 3 years on the average, unless otherwise noted.

[3]Criteria have been calculated to protect human health from toxic effects through drinking water and fish consumption, unless otherwise noted and apply in segments designated as PWS in 9VAC25-260-390~~-540~~ through 9VAC25-260-540.

[4]Criteria have been calculated to protect human health from toxic effects through fish consumption, unless otherwise noted and apply in all other surface waters not designated as PWS in 9VAC25-260-390~~-540~~ through 9VAC25-260-540.

[5]Acute and chronic saltwater and freshwater aquatic life criteria apply to the biologically available form of the metal and apply as a function of the pollutant's water effect ratio (WER) as defined in 9VAC25-260-140 F (WER X criterion). Metals measured as dissolved shall be considered to be biologically available, or, because local receiving water characteristics may otherwise affect the biological availability of the metal, the biologically available equivalent measurement of the metal can be further defined by determining a water effect ratio (WER) and multiplying the numerical value shown in 9VAC25-260-140 B by the WER. Refer to 9VAC25-260-140 F. Values displayed above in the table are examples and correspond to a WER of 1.0. Metals criteria have been adjusted to convert the total recoverable fraction to dissolved fraction using a conversion factor. Criteria that change with hardness have the conversion factor listed in the table above.

[6]The flows listed below are default design flows for calculating steady state ~~waste load~~ wasteload allocations unless statistically valid methods are employed which demonstrate compliance with the duration and return frequency of the water quality criteria.

Aquatic Life:	
Acute criteria	1Q10
Chronic criteria	7Q10
Chronic criteria (ammonia)	30Q10
Human Health:	
Noncarcinogens	30Q5
Carcinogens	Harmonic mean

The following are defined for this section:

"1Q10" means the lowest flow averaged over a period of ~~one~~ 1 day which on a statistical basis can be expected to occur once every 10 climatic years.

"7Q10" means the lowest flow averaged over a period of ~~seven~~ 7 consecutive days that can be statistically expected to occur once every 10 climatic years.

"30Q5" means the lowest flow averaged over a period of 30 consecutive days that can be statistically expected to occur once every ~~five~~ 5 climatic years.

"30Q10" means the lowest flow averaged over a period of 30 consecutive days that can be statistically expected to occur once every 10 climatic years.

"Averaged" means an arithmetic mean.

"Climatic year" means a year beginning on April 1 and ending on March 31.

[7]The criteria listed in this table are two significant digits. For other criteria that are referenced to other sections of this regulation in this table, all numbers listed as criteria values are significant.

[8]The fish tissue criterion for methylmercury applies to a concentration of 0.30 mg/kg as wet weight in edible tissue for species of fish ~~and/or~~ and shellfish resident in a waterbody that are commonly eaten in the area and have commercial, recreational, or subsistence value.

C. Application of freshwater and saltwater numerical criteria. The numerical water quality criteria listed in subsection B of this section (excluding dissolved oxygen, pH, temperature) shall be applied according to the following classes of waters (see 9VAC25-260-50) and boundary designations:

CLASS OF WATERS	NUMERICAL CRITERIA
I and II (Estuarine Waters)	Saltwater criteria apply
II (Transition Zone)	More stringent of either the freshwater or saltwater criteria apply
II (Tidal Freshwater), III, IV, V, VI and	Freshwater criteria apply

VII	

The following describes the boundary designations for Class II, (estuarine, transition zone and tidal freshwater waters) by river basin:

1. Rappahannock Basin. Tidal freshwater is from the fall line of the Rappahannock River to the upstream boundary of the transition zone including all tidal tributaries that enter the tidal freshwater Rappahannock River.

Transition zone upstream boundary – N38° 4' 56.59"/-W76° 58' 47.93" (430 feet east of Hutchinson Swamp) to N38° 5' 23.33"/-W76° 58' 24.39" (0.7 miles upstream of Peedee Creek).

Transition zone downstream boundary – N37° 58' 45.80"/-W76° 55' 28.75" (1,000 feet downstream of Jenkins Landing) to N37° 59' 20.07/-W76° 53' 45.09" (0.33 miles upstream of Mulberry Point). All tidal waters that enter the transition zone are themselves transition zone waters.

Estuarine waters are from the downstream boundary of the transition zone to the mouth of the Rappahannock River (Buoy 6), including all tidal tributaries that enter the estuarine waters of the Rappahannock River.

2. York Basin. Tidal freshwater is from the fall line of the Mattaponi River at N37° 47' 20.03"/W77° 6' 15.16" (800 feet upstream of the Route 360 bridge in Aylett) to the upstream boundary of the Mattaponi River transition zone, and from the fall line of the Pamunkey River at N37° 41' 22.64"/W77° 12' 50.83" (2,000 feet upstream of Totopotomy Creek) to the upstream boundary of the Pamunkey River transition zone, including all tidal tributaries that enter the tidal freshwaters of the Mattaponi and Pamunkey Rivers.

~~Mattaponni~~ Mattaponi River transition zone upstream boundary – N37° 39' 29.65"/W76° 52' 53.29" (1,000 feet upstream of Mitchell Hill Creek) to N37° 39' 24.20"/W76° 52' 55.87" (across from Courthouse Landing).

Mattaponi River transition zone downstream boundary – N37° 32' 19.76"/W76° 47' 29.41" (old Lord Delaware Bridge, west side) to N37° 32' 13.25"/W76° 47' 10.30" (old Lord Delaware Bridge, east side).

Pamunkey River transition zone upstream boundary – N37° 32' 36.63"/W76° 58' 29.88" (Cohoke Marsh, 0.9 miles upstream of Turkey Creek) to N37° 32' 36.51"/W76° 58' 36.48" (0.75 miles upstream of creek at Cook Landing).

Pamunkey River transition zone downstream boundary – N37° 31' 57.90"/W76° 48' 38.22" (old Eltham Bridge, west side) to N37° 32' 6.25"/W76° 48' 18.82" (old Eltham Bridge, east side).

All tidal tributaries that enter the transition zones of the Mattaponi and Pamunkey Rivers are themselves in the transition zone.

Estuarine waters are from the downstream boundary of the transition zones of the Mattaponi and Pamunkey Rivers to the mouth of the York River (Tue Marsh Light) including all tidal tributaries that enter the estuarine waters of the York River.

3. James Basin. Tidal ~~Freshwater~~ freshwater is from the fall line of the James River in the City of Richmond upstream of Mayo Bridge to the upstream boundary of the transition zone, including all tidal tributaries that enter the tidal freshwater James River.

James River transition zone upstream boundary – N37° 14' 28.25"/W76° 56' 44.47" (at Tettington) to N37° 13' 38.56"/W76° 56' 47.13" (0.3 miles downstream of Sloop Point).

Chickahominy River transition zone upstream boundary – N37° 25' 44.79"/W77° 1' 41.76" (Holly Landing).

Transition zone downstream boundary – N37° 12' 7.23"/W76° 37' 34.70" (near Carters Grove Home, 1.25 miles downstream of Grove Creek) to N37° 9' 17.23"/W76° 40' 13.45" (0.7 miles upstream of Hunnicutt Creek). All tidal waters that enter the transition zone are themselves transition zone waters.

Estuarine waters are from the downstream transition zone boundary to the mouth of the James River (Buoy 25) including all tidal tributaries that enter the estuarine waters of the James River.

4. Potomac Basin. Tidal ~~Freshwater~~ freshwater includes all tidal tributaries that enter the Potomac River from its fall line at the Chain Bridge (N38° 55' 46.28"/W77° 6' 59.23") to the upstream transition zone boundary near Quantico, Virginia.

Transition zone includes all tidal tributaries that enter the Potomac River from N38° 31' 27.05"/W77° 17' 7.06" (midway between Shipping Point and Quantico Pier) to N38° 23' 22.78"/W77° 1' 45.50" (one mile southeast of Mathias Point).

Estuarine waters includes all tidal tributaries that enter the Potomac River from the downstream transition zone boundary to the mouth of the Potomac River (Buoy 44B).

5. Chesapeake Bay, Atlantic Ocean, and small coastal basins. Estuarine waters include the Atlantic Ocean tidal tributaries, and the Chesapeake Bay and its small coastal basins from the Virginia state line to the mouth of the bay (a line from Cape Henry drawn through Buoys 3 and 8 to Fishermans Island), and its tidal tributaries, excluding the Potomac tributaries and those tributaries listed ~~above~~ in subdivisions 1 through 4 of this subsection.

6. Chowan River Basin. Tidal freshwater includes the Northwest River and its tidal tributaries from the Virginia-North Carolina state line to the free flowing portion, the Blackwater River and its tidal tributaries from the Virginia-North Carolina state line to the end of tidal waters at approximately state route 611 at river mile 20.90, the Nottoway River and its tidal tributaries from the Virginia-North Carolina state line to the end of tidal waters at approximately Route 674, and the North Landing River and its tidal tributaries from the Virginia-North Carolina state line to the Great Bridge Lock.

Transition zone includes Back Bay and its tributaries in the City of Virginia Beach to the Virginia-North Carolina state line.

D. Site-specific modifications to numerical water quality criteria.

1. The board may consider site-specific modifications to numerical water quality criteria in subsection B of this section where the applicant or permittee demonstrates that the alternate numerical water quality criteria are sufficient to protect all designated uses (see 9VAC25-260-10) of that particular surface water segment or body.

2. Any demonstration for site-specific human health criteria shall be restricted to a reevaluation of the bioconcentration or bioaccumulation properties of the pollutant. The exceptions to this restriction are for site-specific criteria for taste, odor, and aesthetic compounds noted by double asterisks in subsection B of this section and nitrates.

3. Procedures for promulgation and review of site-specific modifications to numerical water quality criteria resulting from subdivisions 1 and 2 of this subsection.

a. Proposals describing the details of the site-specific study shall be submitted to the board's staff for approval prior to commencing the study.

b. Any site-specific modification shall be promulgated as a regulation in accordance with the Administrative Process Act (§ 2.2-4000 et seq. of the Code of Virginia). All site-specific modifications shall be listed in 9VAC25-260-310 (Special standards and requirements).

E. Variances to water quality standards.

1. A variance from numeric criteria may be granted to a discharger if it can be demonstrated that one or more of the conditions in 9VAC25-260-10 H limit the attainment of one or more specific designated uses.

a. Variances shall apply only to the discharger to whom they are granted and shall be reevaluated and either continued, modified or revoked at the time of permit issuance. At that time the permittee shall make a showing that the conditions for granting the variance still apply.

b. Variances shall be described in the public notice published for the permit. The decision to approve a variance shall be subject to the public participation requirements of the Virginia Pollutant Discharge Elimination System (VPDES) Permit Regulation, 9VAC25-31 (Permit Regulation).

c. Variances shall not prevent the maintenance and protection of existing uses or exempt the discharger or regulated activity from compliance with other appropriate technology or water quality-based limits or best management practices.

d. Variances granted under this section shall not apply to new discharges.

e. Variances shall be submitted by the department's Division of Scientific Research or its successors to the U.S. Environmental Protection Agency for review and approval~~/~~ or disapproval.

f. A list of variances granted shall be maintained by the department's Division of Scientific Research or its successors.

2. None of the variances in this subsection shall apply to the halogen ban section (9VAC25-260-110) or temperature criteria in 9VAC25-260-50 if superseded by § 316(a) of the Clean Water Act requirements. No variances in this subsection shall apply to the criteria that are designed to protect human health from carcinogenic and noncarcinogenic toxic effects (subsection B of this section) with the exception of the metals, and the taste, odor, and aesthetic compounds noted by double asterisks and nitrates, listed in subsection B of this section.

F. Water effect ratio.

1. A water effects ratio (WER) shall be determined by measuring the effect of receiving water (as it is or will be affected by any discharges) on the bioavailability or toxicity of a metal by using standard test organisms and a metal to conduct toxicity tests simultaneously in receiving water and laboratory water. The ratio of toxicities of the metal(s) in the two waters is the WER (toxicity in receiving water divided by toxicity in laboratory water = equals WER). Once an acceptable WER for a metal is established, the numerical value for the metal in subsection B of this section is multiplied by the WER to produce an instream concentration that will protect designated uses. This instream concentration shall be utilized in permitting decisions.

2. The WER shall be assigned a value of 1.0 unless the applicant or permittee demonstrates to the department's satisfaction in a permit proceeding that another value is appropriate, or unless available data allow the department to compute a WER for the receiving waters. The applicant or permittee is responsible for proposing and conducting the study to develop a WER. The study may require multiple testing over several seasons. The applicant or permittee shall obtain the department's Division of Scientific Research or its successor approval of the study protocol and the final WER.

3. The Permit Regulation at 9VAC25-31-230 C requires that permit limits for metals be expressed as total recoverable measurements. To that end, the study used to establish the WER may be based on total recoverable measurements of the metals.

4. ~~The Environmental Protection Agency views the WER in any particular case as a site-specific criterion. Therefore, the department's Division of Scientific Research or its successor shall submit the results of the study to the Environmental Protection Agency for review and approval/disapproval within 30 days of the receipt of certification from the state's Office of the Attorney General. Nonetheless, the~~ The WER is established in a permit proceeding, shall be described in the public notice associated with the permit proceeding, and applies only to the applicant or permittee in that proceeding. The department's action to approve or disapprove a WER is a case decision, not an amendment to the present regulation.

The decision to approve or disapprove a WER shall be subject to the public participation requirements of the Permit Regulation, Part IV (9VAC25-31-260 et seq.). A list of final WERs will be maintained by the department's Division of Scientific Research or its successor.

5. A WER shall not be used for the freshwater and saltwater chronic mercury criteria or the freshwater acute and chronic selenium criteria.

G. Biotic Ligand Model for copper. On a case-by-case basis, EPA's 2007 copper criteria (EPA-822-F-07-001) biotic ligand model (BLM) for copper may be used to determine alternate copper criteria for freshwater sites. The BLM is a bioavailability model that uses receiving water characteristics to develop site-specific criteria. Site-specific data for 10 parameters are needed to use the BLM. These parameters are temperature, pH, dissolved organic carbon, calcium, magnesium, sodium, potassium, sulfate, chloride, and alkalinity. If sufficient data for these parameters are available, the BLM can be used to calculate alternate criteria values for the copper criteria. The BLM would be used instead of the hardness-based criteria and takes the place of the hardness adjustment and the WER. A WER will not be applicable with the BLM.

9VAC25-260-155. Ammonia surface water quality criteria.

[~~A. The Department of Environmental Quality, after consultation with the Virginia Department of Game and Inland Fisheries and the U.S. Fish and Wildlife Service, has determined that the majority of Virginia freshwaters are likely to contain, or have contained in the past, freshwater mussel species in the family Unionidae and contain early life stages of fish during most times of the year. Therefore, the ammonia criteria~~

~~presented in subsections B and C of this section are designed to provide protection to these species and life stages. In an instance where it can be adequately demonstrated that either freshwater mussels or early life stages of fish are not present in a specific waterbody, potential options for alternate, site-specific criteria are presented in subsection D of this section. Acute criteria are a one-hour average concentration not to be exceeded more than once every three years[1] on the average, and chronic criteria are 30-day average concentrations not to be exceeded more than once every three years on the average[2].~~]

[A.] [~~B.~~] The [one-hour average concentration of total ammonia nitrogen (in mg N/L) in freshwater shall not exceed, more than once every three years on the average[1], the] acute criteria [~~for total ammonia (in mg N/L) for freshwaters with trout absent or present are~~] below:

[Acute Ammonia Freshwater Criteria
Total Ammonia Nitrogen (mg N/L)

pH	Trout Present	Trout Absent
6.5	32.6	48.8
6.6	31.3	46.8
6.7	29.8	44.6
6.8	28.1	42.0
6.9	26.2	39.1
7.0	24.1	36.1
7.1	22.0	32.8
7.2	19.7	29.5
7.3	17.5	26.2
7.4	15.4	23.0
7.5	13.3	19.9
7.6	11.4	17.0
7.7	9.65	14.4
7.8	8.11	12.1
7.9	6.77	10.1
8.0	5.62	8.40
8.1	4.64	6.95
8.2	3.83	5.72
8.3	3.15	4.71
8.4	2.59	3.88
8.5	2.14	3.20
8.6	1.77	2.65
8.7	1.47	2.20
8.8	1.23	1.84
8.9	1.04	1.56
9.0	0.885	1.32]

1

[Acute Ammonia Freshwater Criteria
Total Ammonia Nitrogen (mg N/L)

TROUT ABSENT

Temperature (°C)																					
pH	0-10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
6.5	51	48	44	41	37	34	32	29	27	25	23	21	19	18	16	15	14	13	12	11	9.9
6.6	49	46	42	39	36	33	30	28	26	24	22	20	18	17	16	14	13	12	11	10	9.5
6.7	46	44	40	37	34	31	29	27	24	22	21	19	18	16	15	14	13	12	11	9.8	9.0
6.8	44	41	38	35	32	30	27	25	23	21	20	18	17	15	14	13	12	11	10	9.2	8.5
6.9	41	38	35	32	30	28	25	23	21	20	18	17	15	14	13	12	11	10	9.4	8.6	7.9
7.0	38	35	33	30	28	25	23	21	20	18	17	15	14	13	12	11	10	9.4	8.6	7.9	7.3
7.1	34	32	30	27	25	23	21	20	18	17	15	14	13	12	11	10	9.3	8.5	7.9	7.2	6.7
7.2	31	29	27	25	23	21	19	18	16	15	14	13	12	11	9.8	9.1	8.3	7.7	7.1	6.5	6.0
7.3	27	26	24	22	20	18	17	16	14	13	12	11	10	9.5	8.7	8.0	7.4	6.8	6.3	5.8	5.3
7.4	24	22	21	19	18	16	15	14	13	12	11	9.8	9.0	8.3	7.7	7.0	6.5	6.0	5.5	5.1	4.7
7.5	21	19	18	17	15	14	13	12	11	10	9.2	8.5	7.8	7.2	6.6	6.1	5.6	5.2	4.8	4.4	4.0
7.6	18	17	15	14	13	12	11	10	9.3	8.6	7.9	7.3	6.7	6.2	5.7	5.2	4.8	4.4	4.1	3.8	3.5
7.7	15	14	13	12	11	10	9.3	8.6	7.9	7.3	6.7	6.2	5.7	5.2	4.8	4.4	4.1	3.8	3.5	3.2	2.9
7.8	13	12	11	10	9.3	8.5	7.9	7.2	6.7	6.1	5.6	5.2	4.8	4.4	4.0	3.7	3.4	3.2	2.9	2.7	2.5
7.9	11	9.9	9.1	8.4	7.7	7.1	6.6	3.0	5.6	5.1	4.7	4.3	4.0	3.7	3.4	3.1	2.9	2.6	2.4	2.2	2.1
8.0	8.8	8.2	7.6	7.0	6.4	5.9	5.4	5.0	4.6	4.2	3.9	3.6	3.3	3.0	2.8	2.6	2.4	2.2	2.0	1.9	1.7
8.1	7.2	6.8	6.3	5.8	5.3	4.9	4.5	4.1	3.8	3.5	3.2	3.0	2.7	2.5	2.3	2.1	2.0	1.8	1.7	1.5	1.4
8.2	6.0	5.6	5.2	4.8	4.4	4.0	3.7	3.4	3.1	2.9	2.7	2.4	2.3	2.1	1.9	1.8	1.6	1.5	1.4	1.3	1.2
8.3	4.9	4.6	4.3	3.9	3.6	3.3	3.1	2.8	2.6	2.4	2.2	2.0	1.9	1.7	1.6	1.4	1.3	1.2	1.1	1.0	0.96
8.4	4.1	3.8	3.5	3.2	3.0	2.7	2.5	2.3	2.1	2.0	1.8	1.7	1.5	1.4	1.3	1.2	1.1	1.0	0.93	0.86	0.79
8.5	3.3	3.1	2.9	2.7	2.4	2.3	2.1	1.9	1.8	1.6	1.5	1.4	1.3	1.2	1.1	0.98	0.90	0.83	0.77	0.71	0.65
8.6	2.8	2.6	2.4	2.2	2.0	1.9	1.7	1.6	1.5	1.3	1.2	1.1	1.0	0.96	0.88	0.81	0.75	0.69	0.63	0.58	0.54
8.7	2.3	2.2	2.0	1.8	1.7	1.6	1.4	1.3	1.2	1.1	1.0	0.94	0.87	0.80	0.74	0.68	0.62	0.57	0.53	0.49	0.45
8.8	1.9	1.8	1.7	1.5	1.4	1.3	1.2	1.1	1.0	0.93	0.86	0.79	0.73	0.67	0.62	0.57	0.52	0.48	0.44	0.41	0.37
8.9	1.6	1.5	1.4	1.3	1.2	1.1	1.0	0.93	0.85	0.79	0.72	0.67	0.61	0.56	0.52	0.48	0.44	0.40	0.37	0.34	0.32
9.0	1.4	1.3	1.2	1.1	1.0	0.93	0.86	0.79	0.73	0.67	0.62	0.57	0.52	0.48	0.44	0.41	0.37	0.34	0.32	0.29	0.27]

[Acute Ammonia Freshwater Criteria
Total Ammonia Nitrogen (mg N/L)
TROUT PRESENT

Temperature (°C)																	
pH	0-14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
6.5	33	33	32	29	27	25	23	21	19	18	16	15	14	13	12	11	9.9
6.6	31	31	30	28	26	24	22	20	18	17	16	14	13	12	11	10	9.5
6.7	30	30	29	27	24	22	21	19	18	16	15	14	13	12	11	9.8	9.0
6.8	28	28	27	25	23	21	20	18	17	15	14	13	12	11	10	9.2	8.5
6.9	26	26	25	23	21	20	18	17	15	14	13	12	11	10	9.4	8.6	7.9
7.0	24	24	23	21	20	18	17	15	14	13	12	11	10	9.4	8.6	8.0	7.3
7.1	22	22	21	20	18	17	15	14	13	12	11	10	9.3	8.5	7.9	7.2	6.7
7.2	20	20	19	18	16	15	14	13	12	11	9.8	9.1	8.3	7.7	7.1	6.5	6.0
7.3	18	18	17	16	14	13	12	11	10	9.5	8.7	8.0	7.4	6.8	6.3	5.8	5.3
7.4	15	15	15	14	13	12	11	9.8	9.0	8.3	7.7	7.0	6.5	6.0	5.5	5.1	4.7
7.5	13	13	13	12	11	10	9.2	8.5	7.8	7.2	6.6	6.1	5.6	5.2	4.8	4.4	4.0
7.6	11	11	11	10	9.3	8.6	7.9	7.3	6.7	6.2	5.7	5.2	4.8	4.4	4.1	3.8	3.5
7.7	9.6	9.6	9.3	8.6	7.9	7.3	6.7	6.2	5.7	5.2	4.8	4.4	4.1	3.8	3.5	3.2	3.0
7.8	8.1	8.1	7.9	7.2	6.7	6.1	5.6	5.2	4.8	4.4	4.0	3.7	3.4	3.2	2.9	2.7	2.5
7.9	6.8	6.8	6.6	6.0	5.6	5.1	4.7	4.3	4.0	3.7	3.4	3.1	2.9	2.6	2.4	2.2	2.1
8.0	5.6	5.6	5.4	5.0	4.6	4.2	3.9	3.6	3.3	3.0	2.8	2.6	2.4	2.2	2.0	1.9	1.7
8.1	4.6	4.6	4.5	4.1	3.8	3.5	3.2	3.0	2.7	2.5	2.3	2.1	2.0	1.8	1.7	1.5	1.4
8.2	3.8	3.8	3.7	3.5	3.1	2.9	2.7	2.4	2.3	2.1	1.9	1.8	1.6	1.5	1.4	1.3	1.2
8.3	3.1	3.1	3.1	2.8	2.6	2.4	2.2	2.0	1.9	1.7	1.6	1.4	1.3	1.2	1.1	1.0	0.96
8.4	2.6	2.6	2.5	2.3	2.1	2.0	1.8	1.7	1.5	1.4	1.3	1.2	1.1	1.0	0.93	0.86	0.79

8.5	2.1	2.1	2.1	1.9	1.8	1.6	1.5	1.4	1.3	1.2	1.1	0.98	0.90	0.83	0.77	0.71	0.65
8.6	1.8	1.8	1.7	1.6	1.5	1.3	1.2	1.1	1.0	0.96	0.88	0.81	0.75	0.69	0.63	0.59	0.54
8.7	1.5	1.5	1.4	1.3	1.2	1.1	1.0	0.94	0.87	0.80	0.74	0.68	0.62	0.57	0.53	0.49	0.45
8.8	1.2	1.2	1.2	1.1	1.0	0.93	0.86	0.79	0.73	0.67	0.62	0.57	0.52	0.48	0.44	0.41	0.37
8.9	1.0	1.0	1.0	0.93	0.85	0.79	0.72	0.67	0.61	0.56	0.52	0.48	0.44	0.40	0.37	0.34	0.32
9.0	0.88	0.88	0.86	0.79	0.73	0.67	0.62	0.57	0.52	0.48	0.44	0.41	0.37	0.34	0.32	0.29	0.27]

The acute criteria for trout present shall apply to all Class V-Stockable Trout Waters and Class VI-Natural Trout Waters as listed in 9VAC25-260-390 through 9VAC25-260-540. [~~The acute criteria for trout absent apply to all other fresh waters.~~]

To calculate total ammonia nitrogen acute criteria values in freshwater at different pH values than those listed in this subsection, use the following [formulas] [~~equations and round the result to two significant digits~~] :

Where trout are [present] [~~absent~~]:

Acute Criterion Concentration (mg N/L) =

$$\frac{[\ 0.275}{(1 + 10^{7.204\text{-pH}})} + \frac{39.0}{(1 + 10^{\text{pH-}7.204})\ ]}$$

~~[0.7249 X ($\frac{0.0114}{1 + 10^{7.204\text{ pH}}}$ + $\frac{1.6181}{1 + 10^{\text{pH-}7.204}}$) X MIN~~

~~Where MIN = 51.93 or 23.12 X $10^{0.036\text{ X }(20\ -\ T)}$, whichever is less.~~

~~T = Temperature in °C~~]

Or where trout are [absent] [~~present, whichever of the below calculation results is less~~] :

Acute Criterion Concentration (mg N/L) =

$$\frac{[\ 0.411}{(1 + 10^{7.204\text{-pH}})} + \frac{58.4}{(1 + 10^{\text{pH-}7.204})\ ]}$$

~~[($\frac{0.275}{1 + 10^{7.204\text{-pH}}}$ + $\frac{39.0}{1 + 10^{\text{pH-}7.204}}$)~~

~~Or~~

~~0.7249 X ($\frac{0.0114}{1 + 10^{7.204\text{-pH}}}$ + $\frac{1.6181}{1 + 10^{\text{pH-}7.204}}$) X (23.12 X $10^{0.036\text{X}(20\ -\ T)}$)~~

~~T = Temperature in °C~~]

[[1]The default design flow for calculating steady state waste load allocations for the acute ammonia criterion is the 1Q10 (see 9VAC25-260-140 B footnote 10) unless statistically valid methods are employed which demonstrate compliance with the duration and return frequency of the water quality criteria.

B.] [~~C.~~] The [30-day average concentration of] [~~chronic criteria for~~] total ammonia nitrogen (in mg N/L) where [~~freshwater mussels and~~] early life stages of fish are present in freshwater [shall not exceed, more than once every three years on the average[2], the chronic criteria] [~~are~~] below:

[Chronic Ammonia Freshwater Criteria
Early Life Stages of Fish Present
Total Ammonia Nitrogen (mg N/L)

	Temperature (°C)									
pH	0	14	16	18	20	22	24	26	28	30
6.5	6.67	6.67	6.06	5.33	4.68	4.12	3.62	3.18	2.80	2.46
6.6	6.57	6.57	5.97	5.25	4.61	4.05	3.56	3.13	2.75	2.42
6.7	6.44	6.44	5.86	5.15	4.52	3.98	3.50	3.07	2.70	2.37
6.8	6.29	6.29	5.72	5.03	4.42	3.89	3.42	3.00	2.64	2.32

6.9	6.12	6.12	5.56	4.89	4.30	3.78	3.32	2.92	2.57	2.25
7.0	5.91	5.91	5.37	4.72	4.15	3.65	3.21	2.82	2.48	2.18
7.1	5.67	5.67	5.15	4.53	3.98	3.50	3.08	2.70	2.38	2.09
7.2	5.39	5.39	4.90	4.31	3.78	3.33	2.92	2.57	2.26	1.99
7.3	5.08	5.08	4.61	4.06	3.57	3.13	2.76	2.42	2.13	1.87
7.4	4.73	4.73	4.30	3.78	3.32	2.92	2.57	2.26	1.98	1.74
7.5	4.36	4.36	3.97	3.49	3.06	2.69	2.37	2.08	1.83	1.61
7.6	3.98	3.98	3.61	3.18	2.79	2.45	2.16	1.90	1.67	1.47
7.7	3.58	3.58	3.25	2.86	2.51	2.21	1.94	1.71	1.50	1.32
7.8	3.18	3.18	2.89	2.54	2.23	1.96	1.73	1.52	1.33	1.17
7.9	2.80	2.80	2.54	2.24	1.96	1.73	1.52	1.33	1.17	1.03
8.0	2.43	2.43	2.21	1.94	1.71	1.50	1.32	1.16	1.02	0.897
8.1	2.10	2.10	1.91	1.68	1.47	1.29	1.14	1.00	0.879	0.773
8.2	1.79	1.79	1.63	1.43	1.26	1.11	0.973	0.855	0.752	0.661
8.3	1.52	1.52	1.39	1.22	1.07	0.941	0.827	0.727	0.639	0.562
8.4	1.29	1.29	1.17	1.03	0.906	0.796	0.700	0.615	0.541	0.475
8.5	1.09	1.09	0.990	0.870	0.765	0.672	0.591	0.520	0.457	0.401
8.6	0.920	0.920	0.836	0.735	0.646	0.568	0.499	0.439	0.386	0.339
8.7	0.778	0.778	0.707	0.622	0.547	0.480	0.422	0.371	0.326	0.287
8.8	0.661	0.661	0.601	0.528	0.464	0.408	0.359	0.315	0.277	0.244
8.9	0.565	0.565	0.513	0.451	0.397	0.349	0.306	0.269	0.237	0.208
9.0	0.486	0.486	0.442	0.389	0.342	0.300	0.264	0.232	0.204	0.179]

[Chronic Ammonia Freshwater Criteria
Mussels and Early Life Stages of Fish Present

Total Ammonia Nitrogen (mg N/L)

Temperature (°C)																								
pH	0-7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
6.5	4.9	4.6	4.3	4.1	3.8	3.6	3.3	3.1	2.9	2.8	2.6	2.4	2.3	2.1	2.0	1.9	1.8	1.6	1.5	1.5	1.4	1.3	1.2	1.1
6.6	4.8	4.5	4.3	4.0	3.8	3.5	3.3	3.1	2.9	2.7	2.5	2.4	2.2	2.1	2.0	1.8	1.7	1.6	1.5	1.4	1.3	1.3	1.2	1.1
6.7	4.8	4.5	4.2	3.9	3.7	3.5	3.2	3.0	2.8	2.7	2.5	2.3	2.2	2.1	1.9	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.2	1.1
6.8	4.6	4.4	4.1	3.8	3.6	3.4	3.2	3.0	2.8	2.6	2.4	2.3	2.1	2.0	1.9	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.1	1.1
6.9	4.5	4.2	4.0	3.7	3.5	3.3	3.1	2.9	2.7	2.5	2.4	2.2	2.1	2.0	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.2	1.1	1.0
7.0	4.4	4.1	3.8	3.6	3.4	3.2	3.0	2.8	2.6	2.4	2.3	2.2	2.0	1.9	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.1	1.1	0.99
7.1	4.2	3.9	3.7	3.5	3.2	3.0	2.8	2.7	2.5	2.3	2.2	2.1	1.9	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.2	1.1	1.0	0.95
7.2	4.0	3.7	3.5	3.3	3.1	2.9	2.7	2.5	2.4	2.2	2.1	2.0	1.8	1.7	1.6	1.5	1.4	1.3	1.3	1.2	1.1	1.0	0.96	0.90
7.3	3.8	3.5	3.3	3.1	2.9	2.7	2.6	2.4	2.2	2.1	2.0	1.8	1.7	1.6	1.5	1.4	1.3	1.3	1.2	1.1	1.0	0.97	0.91	0.85
7.4	3.5	3.3	3.1	2.9	2.7	2.5	2.4	2.2	2.1	2.0	1.8	1.7	1.6	1.5	1.4	1.3	1.3	1.2	1.1	1.0	0.96	0.90	0.85	0.79
7.5	3.2	3.0	2.8	2.7	2.5	2.3	2.2	2.1	1.9	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.2	1.1	1.0	0.95	0.89	0.83	0.78	0.73
7.6	2.9	2.8	2.6	2.4	2.3	2.1	2.0	1.9	1.8	1.6	1.5	1.4	1.4	1.3	1.2	1.1	1.1	0.98	0.92	0.86	0.81	0.76	0.71	0.67
7.7	2.6	2.4	2.3	2.2	2.0	1.9	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.1	1.1	1.0	0.94	0.88	0.83	0.78	0.73	0.68	0.64	0.60
7.8	2.3	2.2	2.1	1.9	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.2	1.1	1.0	0.95	0.89	0.84	0.79	0.74	0.69	0.65	0.61	0.57	0.53
7.9	2.1	1.9	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.2	1.1	1.0	0.95	0.89	0.84	0.79	0.74	0.69	0.65	0.61	0.57	0.53	0.50	0.47
8.0	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.1	1.1	1.0	0.94	0.88	0.83	0.78	0.73	0.68	0.64	0.60	0.56	0.53	0.50	0.44	0.44	0.41

8.1	1.5	1.5	1.4	1.3	1.2	1.1	1.1	0.99	0.92	0.87	0.81	0.76	0.71	0.67	0.63	0.59	0.55	0.52	0.49	0.46	0.43	0.40	0.38	0.35
8.2	1.3	1.2	1.2	1.1	1.0	0.96	0.90	0.84	0.79	0.74	0.70	0.65	0.61	0.57	0.54	0.50	0.47	0.44	0.42	0.39	0.37	0.34	0.32	0.30
8.3	1.1	1.1	0.99	0.93	0.87	0.82	0.76	0.72	0.67	0.63	0.59	0.55	0.52	0.49	0.46	0.43	0.40	0.38	0.35	0.33	0.31	0.29	0.27	0.26
8.4	0.95	0.89	0.84	0.79	0.74	0.69	0.65	0.61	0.57	0.53	0.50	0.47	0.44	0.41	0.39	0.36	0.34	0.32	0.30	0.28	0.26	0.25	0.23	0.22
8.5	0.80	0.75	0.71	0.67	0.62	0.58	0.55	0.51	0.48	0.45	0.42	0.40	0.37	0.35	0.33	0.31	0.29	0.27	0.25	0.24	0.22	0.21	0.20	0.18
8.6	0.68	0.64	0.60	0.56	0.53	0.49	0.46	0.43	0.41	0.38	0.36	0.33	0.31	0.29	0.28	0.26	0.24	0.23	0.21	0.20	0.19	0.18	0.16	0.15
8.7	0.57	0.54	0.51	0.47	0.44	0.42	0.39	0.37	0.34	0.32	0.30	0.28	0.27	0.25	0.23	0.22	0.21	0.19	0.18	0.17	0.16	0.15	0.14	0.13
8.8	0.49	0.46	0.43	0.40	0.38	0.35	0.33	0.31	0.29	0.27	0.26	0.24	0.23	0.21	0.20	0.19	0.17	0.16	0.15	0.14	0.13	0.13	0.12	0.11
8.9	0.42	0.39	0.37	0.34	0.32	0.30	0.28	0.27	0.25	0.23	0.22	0.21	0.19	0.18	0.17	0.16	0.15	0.14	0.13	0.12	0.12	0.11	0.10	0.09
9.0	0.36	0.34	0.32	0.30	0.28	0.26	0.24	0.23	0.21	0.20	0.19	0.18	0.17	0.16	0.15	0.14	0.13	0.12	0.11	0.11	0.10	0.09	0.09	0.08]

To calculate total ammonia nitrogen chronic criteria values in freshwater when [fish] [freshwater mussels and] early life stages [~~of fish~~] are present at different pH and temperature values than those listed in this subsection, use the following [formulas] [~~equation and round the result to two significant digits~~]:

Chronic Criteria Concentration =

$$[\ (\ \frac{0.0577}{(1 + 10^{7.688\text{-pH}})} + \frac{2.487}{(1 + 10^{\text{pH-}7.688})}\ )\ \text{x MIN}$$

Where MIN = 2.85 or $1.45 \times 10^{0.028(25-T)}$, whichever is less.]

$$[\ 0.8876\ X\ (\ \frac{0.0278}{1 + 10^{7.688\text{-pH}}} + \frac{1.1994}{1 + 10^{\text{pH-}7.688}}\ )\ X\ (2.126\ X\ 10^{0.028\ X\ (20\ -\ MAX(T,7))})$$

Where MAX = 7 or temperature in degrees Celsius, whichever is greater.]

T = temperature in °C

[[2]The default design flow for calculating steady state waste load allocations for the chronic ammonia criterion where early life stages of fish are present is the 30Q10 (see 9VAC25-260-140 B footnote 10) unless statistically valid methods are employed which demonstrate compliance with the duration and return frequency of the water quality criteria.]

[~~D. Site-specific considerations and alternate criteria. If it can be adequately demonstrated that freshwater mussels or early life stages of fish are not present at a site, then alternate site-specific criteria can be considered using the information provided in this subsection. Recalculated site-specific criteria shall provide for the attainment and maintenance of the water quality standards of downstream waters.~~

~~1. Site-specific modifications to the ambient water quality criteria for ammonia to account for the absence of freshwater mussels or early life stages of fish shall be conducted in accordance with the procedures contained in this subdivision. Because the department presumes that most state waterbodies have freshwater mussels and early life stages of fish present during most times of the year, the criteria shall be calculated assuming freshwater mussels and early life stages of fish are present using subsections B and C of this section unless the following demonstration that freshwater mussels or early life stages of fish are absent is successfully completed. Determination of the absence of freshwater mussels requires special field survey methods. This determination must be made after an adequate survey of the waterbody is conducted by an individual certified by the Virginia Department of Game and Inland Fisheries (DGIF) for freshwater mussel identification and surveys. Determination of absence of freshwater mussels will be done in consultation with the DGIF. Early life stages of fish are defined in subdivision 2 of this subsection. Modifications to the ambient water quality criteria for ammonia based on the presence or absence of early life stages of fish shall only apply at temperatures below 15°C.~~

~~a. During the review of any new or existing activity that has a potential to discharge ammonia in amounts that may cause or contribute to a violation of the ammonia criteria contained in subsection B of this section, the department may examine data from the following approved sources in subdivisions 1 a (1) through (5) of this subsection or may require the gathering of data in accordance with subdivisions 1 a (1) through (5) on the presence or absence of early life stages of fish in the affected waterbody.~~

~~(1) Species and distribution data contained in the Virginia Department of Game and Inland Fisheries Wildlife Information System database.~~

~~(2) Species and distribution data contained in Freshwater Fishes of Virginia, 1994.~~

~~(3) Data and fish species distribution maps contained in Handbook for Fishery Biology, Volume 3, 1997.~~

~~(4) Field data collected in accordance with U.S. EPA's Rapid Bioassessment Protocols for Use in Streams and Wadeable Rivers, Second Edition, EPA 841-B-99-002. Field data must comply with all quality assurance and quality control criteria.~~

~~(5) The American Society for Testing and Materials (ASTM) Standard E-1241-88, Standard Guide for Conducting Early Life-Stage Toxicity Tests with Fishes.~~

~~b. If data or information from sources other than subdivisions 1 a (1) through (5) of this subsection are considered, then any resulting site-specific criteria modifications shall be reviewed and adopted in accordance with the site-specific criteria provisions in 9VAC25-260-140 D, and submitted to EPA for review and approval.~~

~~c. If the department determines that the data and information obtained from subdivisions 1 a (1) through (5) of this subsection demonstrate that there are periods of each year when no early life stages are expected to be present for any species of fish that occur at the site, the department shall issue a notice to the public and make available for public comment the supporting data and analysis along with the department's preliminary decision to authorize the site-specific modification to the ammonia criteria. Such information shall include, at a minimum:~~

~~(1) Sources of data and information.~~

~~(2) List of fish species that occur at the site as defined in subdivision 3 of this subsection.~~

~~(3) Definition of the site. Definition of a "site" can vary in geographic size from a stream segment to a watershed to an entire eco-region.~~

~~(4) Duration of early life stage for each species in subdivision 1 c (2) of this subsection.~~

(5) Dates when early life stages of fish are expected to be present for each species in subdivision 1 c (2) of this subsection.

(6) Based on subdivision 1 c (5) of this subsection, identify the dates (beginning date, ending date), if any, where no early life stages are expected to be present for any of the species identified in subdivision 1 c (2) of this subsection.

d. If, after reviewing the public comments received in subdivision 1 c of this subsection and supporting data and information, the department determines that there are times of the year where no early life stages are expected to be present for any fish species that occur at the site, then the applicable ambient water quality criteria for ammonia for those time periods shall be calculated using the table in this subsection, or the formula for calculating the chronic criterion concentration for ammonia when early life stages of fish are absent.

e. The department shall maintain a comprehensive list of all sites where the department has determined that early life stages of fish are absent. For each site the list will identify the waterbodies affected and the corresponding times of the year that early life stages of fish are absent. This list is available either upon request from the Office of Water Quality Programs at 629 East Main Street, Richmond, VA 23219, or from the department website at http://www.deq.virginia.gov/programs/water/waterqualityinformationtmdls/waterqualitystandards.aspx.

2. The duration of the "early life stages" extends from the beginning of spawning through the end of the early life stages. The early life stages include the prehatch embryonic period, the post-hatch free embryo or yolk-sac fry, and the larval period, during which the organism feeds. Juvenile fish, which are anatomically similar to adults, are not considered an early life stage. The duration of early life stages can vary according to fish species. The department considers the sources of information in subdivisions 1 a (1) through (5) of this subsection to be the only acceptable sources of information for determining the duration of early life stages of fish under this procedure.

3. "Occur at the site" includes the species, genera, families, orders, classes, and phyla that are usually present at the site; are present at the site only seasonally due to migration; are present intermittently because they periodically return to or extend their ranges into the site; or were present at the site in the past or are present in nearby bodies of water, but are not currently present at the site due to degraded conditions, and are expected to return to the site when conditions improve. "Occur at the site" does not include taxa that were once present at the site but cannot exist at the site now due to permanent physical alteration of the habitat at the site.

4. Any modifications to ambient water quality criteria for ammonia in subdivision 1 of this subsection shall not likely jeopardize the continued existence of any federal or state listed, threatened, or endangered species or result in the destruction or adverse modification of such species' critical habitats.

5. Site-specific modifications to the ambient water quality criteria for ammonia to account for the absence of freshwater mussels shall be conducted in accordance with the procedures contained in this subdivision. Because the department presumes that most state waterbodies have freshwater mussel species, the criteria shall be calculated assuming mussels are present using subsections B and C of this section unless the demonstration that freshwater mussels are absent is successfully completed and accepted by DEQ and DGIF.

6. Equations for calculating ammonia criteria for four different site-specific scenarios are provided below as follows: (i) acute criteria when mussels are absent but trout are present, (ii) acute criteria when mussels and trout are absent, (iii) chronic criteria when mussels are absent and early life stages of fish are present, and (iv) chronic criteria when mussels and early life stages of fish are absent. Additional information regarding site-specific criteria can be reviewed in appendix N (pages 225-242) of the EPA Aquatic Life Ambient Water Quality Criteria to Ammonia--Freshwater 2013 (EPA 822-R-13-001).

a. Acute criteria: freshwater mussels absent and trout present.

To calculate total ammonia nitrogen acute criteria values (in mg N/L) in freshwater with freshwater mussels absent (procedures for making this determination are in subdivisions 1 through 5 of this

subsection) and trout present, use the equations below. The acute criterion is the lesser of the calculation results below. Round the result to two significant digits.

$$(\frac{0.275}{1 + 10^{7.204-pH}} + \frac{39}{1 + 10^{pH-7.204}})$$

Or

$$0.7249 \times (\frac{0.0114}{1 + 10^{7.204-pH}} + \frac{1.6181}{1 + 10^{pH-7.204}}) \times (62.15 \times 10^{0.036(20-T)})$$

b. Acute criteria: freshwater mussels absent and trout absent.

To calculate total ammonia nitrogen acute criteria values (in mg N/L) in freshwater where freshwater mussels are absent and trout are absent, use the following equation. Round the result to two significant digits.

$$0.7249 \times (\frac{0.0114}{1 + 10^{7.204-pH}} + \frac{1.6181}{1 + 10^{pH-7.204}}) \times MIN$$

Where MIN = 51.93 or $62.15 \times 10^{0.036 \times (20-T)}$, whichever is less.

T = Temperature in °C.

c. Chronic criteria: freshwater mussels absent and early life stages of fish present.]

[C. The 30-day average concentration of] [The chronic criteria for] total ammonia nitrogen (in mg N/L) where [early life stages of fish] [freshwater mussels] are absent (procedures for making this determination are in subdivisions 1 through 4 [5] of this subsection) in freshwater shall not exceed [, more than once every three years on the average[3], the chronic criteria] [concentration values calculated using the equation] below [:][. Round the result to two significant digits.]

[Chronic Ammonia Freshwater Criteria
Early Life Stages of Fish Absent
Total Ammonia Nitrogen (mg N/L)

	Temperature (°C)									
pH	0-7	8	9	10	11	12	13	14	15	16
6.5	10.8	10.1	9.51	8.92	8.36	7.84	7.35	6.89	6.46	6.06
6.6	10.7	9.99	9.37	8.79	8.24	7.72	7.24	6.79	6.36	5.97
6.7	10.5	9.81	9.20	8.62	8.08	7.58	7.11	6.66	6.25	5.86
6.8	10.2	9.58	8.98	8.42	7.90	7.40	6.94	6.51	6.10	5.72
6.9	9.93	9.31	8.73	8.19	7.68	7.20	6.75	6.33	5.93	5.56
7.0	9.60	9.00	8.43	7.91	7.41	6.95	6.52	6.11	5.73	5.37
7.1	9.20	8.63	8.09	7.58	7.11	6.67	6.25	5.86	5.49	5.15
7.2	8.75	8.20	7.69	7.21	6.76	6.34	5.94	5.57	5.22	4.90
7.3	8.24	7.73	7.25	6.79	6.37	5.97	5.60	5.25	4.92	4.61
7.4	7.69	7.21	6.76	6.33	5.94	5.57	5.22	4.89	4.59	4.30
7.5	7.09	6.64	6.23	5.84	5.48	5.13	4.81	4.51	4.23	3.97
7.6	6.46	6.05	5.67	5.32	4.99	4.68	4.38	4.11	3.85	3.61
7.7	5.81	5.45	5.11	4.79	4.49	4.21	3.95	3.70	3.47	3.25

7.8	5.17	4.84	4.54	4.26	3.99	3.74	3.51	3.29	3.09	2.89
7.9	4.54	4.26	3.99	3.74	3.51	3.29	3.09	2.89	2.71	2.54
8.0	3.95	3.70	3.47	3.26	3.05	2.86	2.68	2.52	2.36	2.21
8.1	3.41	3.19	2.99	2.81	2.63	2.47	2.31	2.17	2.03	1.91
8.2	2.91	2.73	2.56	2.40	2.25	2.11	1.98	1.85	1.74	1.63
8.3	2.47	2.32	2.18	2.04	1.91	1.79	1.68	1.58	1.48	1.39
8.4	2.09	1.96	1.84	1.73	1.62	1.52	1.42	1.33	1.25	1.17
8.5	1.77	1.66	1.55	1.46	1.37	1.28	1.20	1.13	1.06	0.990
8.6	1.49	1.40	1.31	1.23	1.15	1.08	1.01	0.951	0.892	0.836
8.7	1.26	1.18	1.11	1.04	0.976	0.915	0.858	0.805	0.754	0.707
8.8	1.07	1.01	0.944	0.885	0.829	0.778	0.729	0.684	0.641	0.601
8.9	0.917	0.860	0.806	0.756	0.709	0.664	0.623	0.584	0.548	0.513
9.0	0.790	0.740	0.694	0.651	0.610	0.572	0.536	0.503	0.471	0.442]

[At 15°C and above, the criterion for fish early life stages absent is the same as the criterion for fish early life stages present.

To calculate total ammonia nitrogen chronic criteria values in freshwater when fish early life stages are absent at different pH and temperature values than those listed in this subsection, use the following formulas:

Chronic Criteria Concentration =

$$\left(\frac{0.0577}{(1 + 10^{7.688-pH})} + \frac{2.487}{(1 + 10^{pH-7.688})} \right) \quad x\ 1.45(10^{0.028(25-MAX)})$$

MAX = temperature in °C or 7, whichever is greater.]

~~[0.9405 X ($\frac{0.0278}{1 + 10^{7.688-pH}}$ + $\frac{1.1994}{1 + 10^{pH-7.688}}$) X MIN~~

~~Where MIN = 6.920 or 7.547 X $10^{0.028 \times (20 - T)}$ whichever is less~~

~~T = temperature in °C~~]

[[3]The default design flow for calculating steady state waste load allocations for the chronic ammonia criterion where early life stages of fish are absent is the 30Q10 (see 9VAC25-260-140 B footnote 10) unless statistically valid methods are employed that demonstrate compliance with the duration and return frequency of the water quality criteria.

1. Site-specific modifications to the ambient water quality criteria for ammonia to account for the absence of early life stages of fish shall be conducted in accordance with the procedures contained in this subdivision. Because the department presumes that most state waterbodies have early life stages of fish present during most times of the year, the criteria shall be calculated assuming early life stages of fish are present using subsection B of this section unless the following demonstration that early life stages are absent is successfully completed. Early life stages of fish are defined in subdivision 2 of this subsection. Modifications to the ambient water quality criteria for ammonia based on the presence or absence of early life stages of fish shall only apply at temperatures below 15°C.

a. During the review of any new or existing activity that has a potential to discharge ammonia in amounts that may cause or contribute to a violation of the ammonia criteria contained in subsection B of this section, the department may examine data from the following approved sources in subdivisions 1 a (1) through (5) of this subsection or may require the gathering of data in accordance with subdivisions 1 a (1) through (5) on the presence or absence of early life stages of fish in the affected waterbody.

(1) Species and distribution data contained in the Virginia Department of Game and Inland Fisheries Wildlife Information System database.

(2) Species and distribution data contained in Freshwater Fishes of Virginia, 1994.

(3) Data and fish species distribution maps contained in Handbook for Fishery Biology, Volume 3, 1997.

(4) Field data collected in accordance with U.S. EPA's Rapid Bioassessment Protocols for Use in Streams and Wadeable Rivers, Second Edition, EPA 841-B-99-002. Field data must comply with all quality assurance/quality control criteria.

(5) The American Society for Testing and Materials (ASTM) Standard E-1241-88, Standard Guide for Conducting Early Life-Stage Toxicity Tests with Fishes.

b. If data or information from sources other than subdivisions 1 a (1) through (5) of this subsection are considered, then any resulting site-specific criteria modifications shall be reviewed and adopted in accordance with the site-specific criteria provisions in 9VAC25-260-140 D, and submitted to EPA for review and approval.

c. If the department determines that the data and information obtained from subdivisions 1 a (1) through (5) of this subsection demonstrate that there are periods of each year when no early life stages are expected to be present for any species of fish that occur at the site, the department shall issue a notice to the public and make available for public comment the supporting data and analysis along with the department's preliminary decision to authorize the site-specific modification to the ammonia criteria. Such information shall include, at a minimum:

(1) Sources of data and information.

(2) List of fish species that occur at the site as defined by subdivision 3 of this subsection.

(3) Definition of the site. Definition of a "site" can vary in geographic size from a stream segment to a watershed to an entire eco-region.

(4) Duration of early life stage for each species in subdivision 1 c (2) of this subsection.

(5) Dates when early life stages of fish are expected to be present for each species in subdivision 1 c (2) of this subsection.

(6) Based on subdivision 1 c (5) of this subsection, identify the dates (beginning date, ending date), if any, where no early life stages are expected to be present for any of the species identified in subdivision 1 c (2) of this subsection.

d. If, after reviewing the public comments received in subdivision 1 c of this subsection and supporting data and information, the department determines that there are times of the year where no early life stages are expected to be present for any fish species that occur at the site, then the applicable ambient water quality criteria for ammonia for those time periods shall be calculated using the table in this subsection, or the formula for calculating the chronic criterion concentration for ammonia when fish early life stages are absent.

e. The department shall maintain a comprehensive list of all sites where the department has determined that early life stages of fish are absent. For each site the list will identify the waterbodies affected and the corresponding times of the year that early life stages are absent. This list is available either upon request from the Office of Water Quality Programs at P.O. Box 1105, Richmond, Virginia 23218 or from the department website http://www.deq.virginia.gov/wqs.

2. The duration of the "early life stages" extends from the beginning of spawning through the end of the early life stages. The early life stages include the prehatch embryonic period, the post-hatch free embryo or yolk-sac fry, and the larval period, during which the organism feeds. Juvenile fish, which are anatomically similar to adults, are not considered an early life stage. The duration of early life stages can vary according to fish species. The department considers the sources of information in subdivisions 1 a (1) through (5) of this subsection to be the only acceptable sources of information for determining the duration of early life stages of fish under this procedure.

3. "Occur at the site" includes the species, genera, families, orders, classes, and phyla that: are usually present at the site; are present at the site only seasonally due to migration; are present intermittently because they periodically return to or extend their ranges into the site; were present at the site in the

past or are present in nearby bodies of water, but are not currently present at the site due to degraded conditions, and are expected to return to the site when conditions improve. "Occur at the site" does not include taxa that were once present at the site but cannot exist at the site now due to permanent physical alteration of the habitat at the site.

4. Any modifications to ambient water quality criteria for ammonia in subdivision 1 of this subsection shall not likely jeopardize the continued existence of any federal or state listed, threatened or endangered species or result in the destruction or adverse modification of such species' critical habitat.]

[~~d. Chronic criteria: freshwater mussels absent and early life stages of fish absent.~~

~~The chronic criteria for total ammonia nitrogen (in mg N/L) where freshwater mussels are absent and early life stages of fish are absent (procedures for making this determination are in subdivisions 1 through 5 of this subsection in freshwater shall not exceed concentration values calculated using the equation below. Round the result to two significant digits.~~

$$0.9405 \times \left(\frac{0.0278}{1 + 10^{7.688 - pH}} + \frac{1.1994}{1 + 10^{pH - 7.688}} \right) \times \left(7.547 \times 10^{0.028 \times (20 - MAX(T,7))}\right)$$

~~Where MAX = 7 or temperature in degrees Celsius, whichever is greater.~~

~~T = temperature in °C~~]

[D.] [~~E.~~] The one-hour average concentration of total ammonia nitrogen (in mg N/L) in saltwater shall not exceed, more than once every three years on the average, the acute criteria below:

Acute Ammonia Saltwater Criteria
Total Ammonia Nitrogen (mg N/L)
Salinity = 10 g/kg

	Temperature °C							
pH	0	5	10	15	20	25	30	35
7.00	231.9	159.8	110.1	75.88	52.31	36.08	24.91	17.21
7.20	146.4	100.9	69.54	47.95	33.08	22.84	15.79	10.93
7.40	92.45	63.73	43.94	30.32	20.94	14.48	10.03	6.97
7.60	58.40	40.28	27.80	19.20	13.28	9.21	6.40	4.47
7.80	36.92	25.48	17.61	12.19	8.45	5.88	4.11	2.89
8.00	23.37	16.15	11.18	7.76	5.40	3.78	2.66	1.89
8.20	14.81	10.26	7.13	4.97	3.48	2.46	1.75	1.27
8.40	9.42	6.54	4.57	3.20	2.27	1.62	1.18	0.87
8.60	6.01	4.20	2.95	2.09	1.50	1.09	0.81	0.62
8.80	3.86	2.72	1.93	1.39	1.02	0.76	0.58	0.46
9.00	2.51	1.79	1.29	0.95	0.71	0.55	0.44	0.36

Salinity = 20 g/kg

	Temperature °C							
pH	0	5	10	15	20	25	30	35
7.00	247.6	170.5	117.5	80.98	55.83	38.51	26.58	18.36
7.20	156.3	107.7	74.21	51.17	35.30	24.37	16.84	11.66
7.40	98.67	68.01	46.90	32.35	22.34	15.44	10.70	7.43

7.60	62.33	42.98	29.66	20.48	14.17	9.82	6.82	4.76
7.80	39.40	27.19	18.78	13.00	9.01	6.26	4.37	3.07
8.00	24.93	17.23	11.92	8.27	5.76	4.02	2.83	2.01
8.20	15.80	10.94	7.59	5.29	3.70	2.61	1.86	1.34
8.40	10.04	6.97	4.86	3.41	2.41	1.72	1.24	0.91
8.60	6.41	4.47	3.14	2.22	1.59	1.15	0.85	0.65
8.80	4.11	2.89	2.05	1.47	1.07	0.80	0.61	0.48
9.00	2.67	1.90	1.36	1.00	0.75	0.57	0.46	0.37

Salinity = 30 g/kg

	Temperature °C							
pH	0	5	10	15	20	25	30	35
7.00	264.6	182.3	125.6	86.55	59.66	41.15	28.39	19.61
7.20	167.0	115.1	79.31	54.68	37.71	26.03	17.99	12.45
7.40	105.5	72.68	50.11	34.57	23.87	16.50	11.42	7.92
7.60	66.61	45.93	31.69	21.88	15.13	10.48	7.28	5.07
7.80	42.10	29.05	20.07	13.88	9.62	6.68	4.66	3.27
8.00	26.63	18.40	12.73	8.83	6.14	4.29	3.01	2.13
8.20	16.88	11.68	8.10	5.64	3.94	2.78	1.97	1.42
8.40	10.72	7.44	5.18	3.63	2.56	1.82	1.31	0.96
8.60	6.83	4.77	3.34	2.36	1.69	1.22	0.90	0.68
8.80	4.38	3.08	2.18	1.56	1.13	0.84	0.64	0.50
9.00	2.84	2.01	1.45	1.06	0.79	0.60	0.47	0.39

To calculate total ammonia nitrogen acute criteria values in saltwater at different pH and temperature values than those listed in this subsection, use the following formulas:

$$I = \frac{19.9273S}{(1000 - 1.005109S)}$$

Where I = molal ionic strength of water

S = Salinity ppt (g/kg)

The regression model used to relate I to pKa (negative log of the ionization constant) is

pKa = 9.245 + ~~.138I~~ 0.138(I)

pKa as defined by these equations is at 298 degrees Kelvin (25°C). T °Kelvin = °C + 273

To correct for other temperatures:

$pKa^{S}_{T} = pKa^{S}_{298}$ + ~~.0324(298 - T °Kelvin)~~ 0.0324(298 - T °Kelvin)

The unionized ammonia fraction (UIA) is given by:

$$UIA = \frac{1}{1 + 10(pKa^{S}_{T} - pH)}$$

The acute ammonia criterion in saltwater is given by:

$$\text{Acute} = \frac{\text{~~.233~~ 0.233}}{\text{UIA}}$$

Multiply the acute value by ~~.822~~ 0.822 to get the ammonia-N acute criterion.

~~E.~~ F. The 30-day average concentration of total ammonia nitrogen (in mg N/L) in saltwater shall not exceed, more than once every three years on the average, the chronic criteria below:

Chronic Ammonia Saltwater Criteria
Total Ammonia Nitrogen (mg N/L)
Salinity = 10 g/kg

	Temperature °C							
pH	0	5	10	15	20	25	30	35
7.00	34.84	24.00	16.54	11.40	7.86	5.42	3.74	2.59
7.20	21.99	15.15	10.45	7.20	4.97	3.43	2.37	1.64
7.40	13.89	9.57	6.60	4.55	3.15	2.18	1.51	1.05
7.60	8.77	6.05	4.18	2.88	2.00	1.38	0.96	0.67
7.80	5.55	3.83	2.65	1.83	1.27	0.88	0.62	0.43
8.00	3.51	2.43	1.68	1.17	0.81	0.57	0.40	0.28
8.20	2.23	1.54	1.07	0.75	0.52	0.37	0.26	0.19
8.40	1.41	0.98	0.69	0.48	0.34	0.24	0.18	0.13
8.60	0.90	0.63	0.44	0.31	0.23	0.16	0.12	0.09
8.80	0.58	0.41	0.29	0.21	0.15	0.11	0.09	0.07
9.00	0.38	0.27	0.19	0.14	0.11	0.08	0.07	0.05

Salinity = 20 g/kg

	Temperature °C							
pH	0	5	10	15	20	25	30	35
7.00	37.19	25.62	17.65	12.16	8.39	5.78	3.99	2.76
7.20	23.47	16.17	11.15	7.69	5.30	3.66	2.53	1.75
7.40	14.82	10.22	7.04	4.86	3.36	2.32	1.61	1.12
7.60	9.36	6.46	4.46	3.08	2.13	1.47	1.02	0.71
7.80	5.92	4.08	2.82	1.95	1.35	0.94	0.66	0.46
8.00	3.74	2.59	1.79	1.24	0.86	0.60	0.43	0.30
8.20	2.37	1.64	1.14	0.79	0.56	0.39	0.28	0.20
8.40	1.51	1.05	0.73	0.51	0.36	0.26	0.19	0.14
8.60	0.96	0.67	0.47	0.33	0.24	0.17	0.13	0.10
8.80	0.62	0.43	0.31	0.22	0.16	0.12	0.09	0.07
9.00	0.40	0.28	0.20	0.15	0.11	0.09	0.07	0.06

Salinity = 30 g/kg

	Temperature °C

pH	0	5	10	15	20	25	30	35
7.00	39.75	27.38	18.87	13.00	8.96	6.18	4.27	2.95
7.20	25.09	17.29	11.91	8.21	5.67	3.91	2.70	1.87
7.40	15.84	10.92	7.53	5.19	3.59	2.48	1.72	1.19
7.60	10.01	6.90	4.76	3.29	2.27	1.57	1.09	0.76
7.80	6.32	4.36	3.01	2.08	1.44	1.00	0.70	0.49
8.00	4.00	2.76	1.91	1.33	0.92	0.64	0.45	0.32
8.20	2.53	1.75	1.22	0.85	0.59	0.42	0.30	0.21
8.40	1.61	1.12	0.78	0.55	0.38	0.27	0.20	0.14
8.60	1.03	0.72	0.50	0.35	0.25	0.18	0.14	0.10
8.80	0.66	0.46	0.33	0.23	0.17	0.13	0.10	0.08
9.00	0.43	0.30	0.22	0.16	0.12	0.09	0.07	0.06

To calculate total ammonia nitrogen chronic criteria values in saltwater at different pH and temperature values than those listed in this subsection, use the following formulas:

$$I = \frac{19.9273S}{(1000 - 1.005109S)}$$

Where I = molal ionic strength of water

S = Salinity ppt (g/kg)

The regression model used to relate I to pKa (negative log of the ionization constant) is

pKa = 9.245 + ~~.138I~~ 0.138(I)

pKa as defined by these equations is at 298 degrees Kelvin (25°C). T °Kelvin = °C + 273

To correct for other temperatures:

$pKa^{S}_{T} = pKa^{S}_{298}$ + ~~0324(298 - T °Kelvin)~~ 0.0324(298 - T °Kelvin)

The unionized ammonia fraction (UIA) is given by:

$$UIA = \frac{1}{1 + 10(pKa^{S}_{T}-pH)}$$

The chronic ammonia criterion in saltwater is given by:

$$Chronic = \frac{\text{~~.035~~ } 0.035}{UIA}$$

Multiply the chronic value by ~~.822~~ 0.822 to get the ammonia-N chronic criterion.

[1]The default design flow for calculating steady state wasteload allocations for the acute ammonia criterion for freshwater is the 1Q10 (see 9VAC25-260-140 B footnote 10) unless statistically valid methods are employed which demonstrate compliance with the duration and return frequency of the water quality criteria.

[2]The default design flow for calculating steady state wasteload allocations for the chronic ammonia criterion for freshwater is the 30Q10 (see 9VAC25-260-140 B footnote 10) unless statistically valid methods are employed which demonstrate compliance with the duration and return frequency of the water quality criteria.

9VAC25-260-185. Criteria to protect designated uses from the impacts of nutrients and suspended sediment in the Chesapeake Bay and its tidal tributaries.

A. Dissolved oxygen. The dissolved oxygen criteria in the below table apply to all Chesapeake Bay waters according to their specified designated use and supersede the dissolved oxygen criteria in 9VAC25-260-50.

Designated Use	Criteria Concentration/Duration	Temporal Application
Migratory fish spawning and nursery	7-day mean ≥ 6 mg/l (tidal habitats with 0-0.5 ppt salinity)	February 1 - May 31
	Instantaneous minimum ≥ 5 mg/l	
Open water[1]	30 day mean ≥ 5.5 mg/l (tidal habitats with 0-0.5 ppt salinity)	year-round[2]
	30 day mean ≥ 5 mg/l (tidal habitats with > 0.5 ppt salinity)	
	7 day mean ≥ 4 mg/l	
	Instantaneous minimum ≥ 3.2 mg/l at temperatures < 29°C Instantaneous minimum ≥ 4.3 mg/l at temperatures ≥ 29°C	
Deep water	30 day mean ≥ 3 mg/l	June 1 - September 30
	1 day mean ≥ 2.3 mg/l	
	Instantaneous minimum ≥ 1.7 mg/l	
Deep channel	Instantaneous minimum ≥ 1 mg/l	June 1 - September 30

[1]In applying this open water instantaneous criterion to the Chesapeake Bay and its tidal tributaries where the existing water quality for dissolved oxygen exceeds an instantaneous minimum of 3.2 mg/l, that higher water quality for dissolved oxygen shall be provided antidegradation protection in accordance with 9VAC25-260-30 A 2.

[2]Open-water dissolved oxygen criteria attainment is assessed separately over two time periods: summer (June 1- September 30) and nonsummer (October 1-May 31) months.

B. Submerged aquatic vegetation and water clarity. Attainment of the shallow-water submerged aquatic vegetation designated use shall be determined using any one of the following criteria:

Designated Use	Chesapeake Bay Program Segment	SAV Acres[1]	Percent Light-Through-Water[2]	Water Clarity Acres[1]	Temporal Application
Shallow ~~Water Submerged Aquatic Vegetation Use~~ water submerged aquatic vegetation use	CB5MH	7,633	22%	14,514	April 1 - October 31
	CB6PH	1,267	22%	3,168	March 1 - November 30
	CB7PH	15,107	22%	34,085	March 1 - November 30
	CB8PH	11	22%	28	March 1 - November 30
	POTTF	2,093	13%	5,233	April 1 - October 31
	POTOH	1,503	13%	3,758	April 1 - October 31
	POTMH	4,250	22%	10,625	April 1 - October 31
	RPPTF	66	13%	165	April 1 - October 31
	RPPOH	4	13%	10	April 1 - October 31
	RPPMH	1700	22%	5000	April 1 - October 31
	CRRMH	768	22%	1,920	April 1 - October 31

	PIAMH	3,479	22%	8,014	April 1 - October 31
	MPNTF	85	13%	213	April 1 - October 31
	MPNOH	-	-	-	-
	PMKTF	187	13%	468	April 1 - October 31
	PMKOH	-	-	-	-
	YRKMH	239	22%	598	April 1 - October 31
	YRKPH	2,793	22%	6,982	March 1 - November 30
	MOBPH	15,901	22%	33,990	March 1 - November 30
	JMSTF2	200	13%	500	April 1 - October 31
	JMSTF1	1000	13%	2500	April 1 - October 31
	APPTF	379	13%	948	April 1 - October 31
	JMSOH	15	13%	38	April 1 - October 31
	CHKOH	535	13%	1,338	April 1 - October 31
	JMSMH	200	22%	500	April 1 - October 31
	JMSPH	300	22%	750	March 1 - November 30
	WBEMH	-	-	-	-
	SBEMH	-	-	-	-
	EBEMH	-	-	-	-
	ELIPH	-	-	-	-
	LYNPH	107	22%	268	March 1 - November 30
	POCOH	-	-	-	-
	POCMH	4,066	22%	9,368	April 1 - October 31
	TANMH	13,579	22%	22,064	April 1 - October 31

[1]The assessment period for SAV and water clarity acres shall be the single best year in the most recent three consecutive years. When three consecutive years of data are not available, a minimum of three years within the data assessment window shall be used.

[2]Percent ~~Light through Water~~ light-through-water = $100e^{(-KdZ)}$ where K_d is water column light attenuation coefficient and can be measured directly or converted from a measured secchi depth where K_d = 1.45/secchi depth. Z = depth at location of measurement of K_d.

C. Chlorophyll a.

Designated Use	Chlorophyll a Narrative Criterion	Temporal Application
Open ~~Water~~ water	Concentrations of chlorophyll a in free-floating microscopic aquatic plants (algae) shall not exceed levels that result in undesirable or nuisance aquatic plant life, or render tidal waters unsuitable for the propagation and growth of a balanced, indigenous population of aquatic life or otherwise result in ecologically undesirable water quality conditions such as reduced water clarity,	March 1 - September 30

	low dissolved oxygen, food supply imbalances, proliferation of species deemed potentially harmful to aquatic life or humans or aesthetically objectionable conditions.	

*See 9VAC25-260-310 special standard bb for numerical chlorophyll criteria for the tidal James River.

D. Implementation.

1. Chesapeake Bay program segmentation scheme as described in Chesapeake Bay Program, 2004 Chesapeake Bay Program Analytical Segmentation Scheme-Revisions, Decisions and Rationales: 1983–2003, CBP/TRS 268/04, EPA 903-R-04-008, Chesapeake Bay Program, Annapolis, Maryland, and the Chesapeake Bay Program published 2005 addendum (CBP/TRS 278-06; EPA 903-R-05-004) is listed below and shall be used as the spatial assessment unit to determine attainment of the criteria in this section for each designated use.

Chesapeake Bay Segment Description	Segment Name[1]	Chesapeake Bay Segment Description	Segment Name[1]
Lower Central Chesapeake Bay	CB5MH	Mobjack Bay	MOBPH
Western Lower Chesapeake Bay	CB6PH	Upper Tidal Fresh James River	JMSTF2
Eastern Lower Chesapeake Bay	CB7PH	Lower Tidal Fresh James River	JMSTF1
Mouth of the Chesapeake Bay	CB8PH	Appomattox River	APPTF
Upper Potomac River	POTTF	Middle James River	JMSOH
Middle Potomac River	POTOH	Chickahominy River	CHKOH
Lower Potomac River	POTMH	Lower James River	JMSMH
Upper Rappahannock River	RPPTF	Mouth of the James River	JMSPH
Middle Rappahannock River	RPPOH	Western Branch Elizabeth River	WBEMH
Lower Rappahannock River	RPPMH	Southern Branch Elizabeth River	SBEMH
Corrotoman River	CRRMH	Eastern Branch Elizabeth River	EBEMH
Piankatank River	PIAMH	Lafayette River	LAFMH
Upper Mattaponi River	MPNTF	Mouth of the Elizabeth River	ELIPH
Lower Mattaponi River	MPNOH	Lynnhaven River	LYNPH
Upper Pamunkey River	PMKTF	Middle Pocomoke River	POCOH
Lower Pamunkey River	PMKOH	Lower Pocomoke River	POCMH
Middle York River	YRKMH	Tangier Sound	TANMH
Lower York River	YRKPH		

[1]First three letters of segment name represent Chesapeake Bay segment description, letters four and five represent the salinity regime of that segment (TF = Tidal Fresh, OH = Oligohaline, MH = Mesohaline, and PH = Polyhaline) and a sixth space is reserved for subdivisions of that segment.

2. The assessment period shall be the most recent three consecutive years. When three consecutive years of data are not available, a minimum of three years within the data assessment window shall be used.

3. Attainment of these criteria shall be assessed through comparison of the generated cumulative frequency distribution of the monitoring data to the applicable criteria reference curve for each designated use. If the monitoring data cumulative frequency curve is completely contained inside the

reference curve, then the segment is in attainment of the designated use. The reference curves and procedures to be followed are published in the USEPA, Ambient Water Quality Criteria for Dissolved Oxygen, Water Clarity and Chlorophyll a for the Chesapeake Bay and Its Tidal Tributaries, EPA 903-R-03-002, April 2003 and the 2004 (EPA 903-R-03-002 October 2004) , 2007 (CBP/TRS 285-07, EPA 903-R-07-003), 2007 (CBP/TRS 288/07, EPA 903-R-07-005), 2008 (CBP/TRS 290-08, EPA 903-R-08-001), and 2010 (CBP/TRS 301-10, EPA 903-R-10-002) addenda. An exception to this requirement is in measuring attainment of the SAV and water clarity acres, which are compared directly to the criteria.

9VAC25-260-187. Criteria for man-made lakes and reservoirs to protect aquatic life and recreational designated uses from the impacts of nutrients.

A. The criteria in subsection B of this section apply to the man-made lakes and reservoirs listed in this section. Additional man-made lakes and reservoirs may be added as new reservoirs are constructed or monitoring data become available from outside groups or future agency monitoring.

B. Whether or not algicide treatments are used, the chlorophyll a criteria apply to all waters on the list. The total phosphorus criteria apply only if a specific man-made lake or reservoir received algicide treatment during the monitoring and assessment period of April 1 through October 31.

The 90th percentile of the chlorophyll a data collected at one meter or less within the lacustrine portion of the man-made lake or reservoir between April 1 and October 31 shall not exceed the chlorophyll a criterion for that ~~water-body~~ waterbody in each of the two most recent monitoring years that chlorophyll a data are available. For a ~~water-body~~ waterbody that received algicide treatment, the median of the total phosphorus data collected at one meter or less within the lacustrine portion of the man-made lake or reservoir between April 1 and October 31 shall not exceed the total phosphorus criterion in each of the two most recent monitoring years that total phosphorus data are available.

Monitoring data used for assessment shall be from sampling location(s) within the lacustrine portion where observations are evenly distributed over the seven months from April 1 through October 31 and are in locations that are representative, either individually or collectively, of the condition of the man-made lake or reservoir.

Man-made Lake or Reservoir Name	Location	Chlorophyll a (µg/L)	Total Phosphorus (µg/L)
~~Able~~ Abel Lake	Stafford County	35	40
Airfield Pond	Sussex County	35	40
Amelia Lake	Amelia County	35	40
Aquia Reservoir (Smith Lake)	Stafford County	35	40
Bark Camp Lake (Corder Bottom Lake, Lee/Scott/Wise Lake)	Scott County	35	40
Beaver Creek Reservoir	Albemarle County	35	40
Beaverdam Creek Reservoir (Beaverdam Reservoir)	Bedford County	35	40
Beaverdam Reservoir	Loudoun County	35	40
Bedford Reservoir (Stony Creek Reservoir)	Bedford County	35	40
Big Cherry Lake	Wise County	35	40
Breckenridge Reservoir	Prince William County	35	40
Briery Creek Lake	Prince Edward County	35	40
Brunswick Lake (County Pond)	Brunswick County	35	40
Burke Lake	Fairfax County	60	40

Carvin Cove Reservoir	Botetourt County	35	40
Cherrystone Reservoir	Pittsylvania County	35	40
Chickahominy Lake	Charles City County	35	40
Chris Green Lake	Albemarle County	35	40
Claytor Lake	Pulaski County	25	20
Clifton Forge Reservoir (Smith Creek Reservoir)	Alleghany County	35	20
Coles Run Reservoir	Augusta County	10	10
Curtis Lake	Stafford County	60	40
Diascund Creek Reservoir	New Kent County	35	40
Douthat Lake	Bath County	25	20
Elkhorn Lake	Augusta County	10	10
Emporia Lake (Meherrin Reservoir)	Greensville County	35	40
Fairystone Lake	Henry County	35	40
Falling Creek Reservoir	Chesterfield County	35	40
Fluvanna Ruritan Lake	Fluvanna County	60	40
Fort Pickett Reservoir	Nottoway/Brunswick County	35	40
Gatewood Reservoir	Pulaski County	35	40
Georges Creek Reservoir	Pittsylvania County	35	40
Goose Creek Reservoir	Loudoun County	35	40
Graham Creek Reservoir	Amherst County	35	40
Great Creek Reservoir	Lawrenceville	35	40
Harrison Lake	Charles City County	35	40
Harwood Mills Reservoir	York County	60	40
Hidden Valley Lake	Washington County	35	40
Hogan Lake	Pulaski County	35	40
Holiday Lake	Appomattox County	35	40
Hungry Mother Lake	Smyth County	35	40
Hunting Run Reservoir	Spotsylvania County	35	40
J. W. Flannagan Reservoir	Dickenson County	25	20
Kerr Reservoir, Virginia portion (Buggs Island Lake)	Halifax County	25	30
Keysville Reservoir	Charlotte County	35	40
Lake Albemarle	Albemarle County	35	40
Lake Anna	Louisa County	25	30

Lake Arrowhead	Page County	35	40
Lake Burnt Mills	Isle of Wight County	60	40
Lake Chesdin	Chesterfield County	35	40
Lake Cohoon	Suffolk City	60	40
Lake Conner	Halifax County	35	40
Lake Frederick	Frederick County	35	40
Lake Gaston, (Virginia portion)	Brunswick County	25	30
Lake Gordon	Mecklenburg County	35	40
Lake Keokee	Lee County	35	40
Lake Kilby	Suffolk City	60	40
Lake Lawson	Virginia Beach City	60	40
Lake Manassas	Prince William County	35	40
Lake Meade	Suffolk City	60	40
Lake Moomaw	Bath County	10	10
Lake Nelson	Nelson County	60	40
Lake Nottoway (Lee Lake, Nottoway Lake)	Nottoway County	35	40
Lake Orange	Orange County	60	40
Lake Pelham	Culpeper County	35	40
Lake Prince	Suffolk City	60	40
Lake Robertson	Rockbridge County	35	40
Lake Smith	Virginia Beach City	60	40
Lake Whitehurst	Norfolk City	60	40
Lake Wright	Norfolk City	60	40
Lakeview Reservoir	Chesterfield County	35	40
Laurel Bed Lake	Russell County	35	40
Lee Hall Reservoir (Newport News Reservoir)	Newport News City	60	40
Leesville Reservoir	Bedford County	25	30
Little Creek Reservoir	Virginia Beach City	60	40
Little Creek Reservoir	James City County	25	30
Little River Reservoir	Montgomery County	35	40
Lone Star Lake F (Crystal Lake)	Suffolk City	60	40
Lone Star Lake G (Crane Lake)	Suffolk City	60	40
Lone Star Lake I (Butler Lake)	Suffolk City	60	40
Lunga Reservoir	Prince William County	35	40

Lunenburg Beach Lake (Victoria Lake)	Town of Victoria	35	40
Martinsville Reservoir (Beaver Creek Reservoir)	Henry County	35	40
Mill Creek Reservoir	Amherst County	35	40
Modest Creek Reservoir	Town of Victoria	35	40
Motts Run Reservoir	Spotsylvania County	25	30
Mount Jackson Reservoir	Shenandoah County	35	40
Mountain Run Lake	Culpeper County	35	40
Ni Reservoir	Spotsylvania County	35	40
North Fork Pound Reservoir	Wise County	35	40
Northeast Creek Reservoir	Louisa County	35	40
Occoquan Reservoir	Fairfax County	35	40
Pedlar Lake	Amherst County	25	20
Philpott Reservoir	Henry County	25	30
Phelps Creek Reservoir (Brookneal Reservoir)	Campbell County	35	40
Powhatan Lakes (Upper and Lower)	Powhatan County	35	40
Ragged Mountain Reservoir	Albemarle County	35	40
Rivanna Reservoir (South Fork Rivanna Reservoir)	Albemarle County	35	40
Roaring Fork	Pittsylvania County	35	40
Rural Retreat Lake	Wythe County	35	40
Sandy River Reservoir	Prince Edward County	35	40
Shenandoah Lake	Rockingham County	35	40
Silver Lake	Rockingham County	35	40
Smith Mountain Lake	Bedford County	25	30
South Holston Reservoir	Washington County	25	20
Speights Run Lake	Suffolk City	60	40
Spring Hollow Reservoir	Roanoke County	25	20
Staunton Dam Lake	Augusta County	35	40
Stonehouse Creek Reservoir	Amherst County	60	40
Strasburg Reservoir	Shenandoah County	35	40
Stumpy Lake	Virginia Beach	60	40
Sugar Hollow Reservoir	Albemarle County	25	20
Swift Creek Lake	Chesterfield County	35	40

Swift Creek Reservoir	Chesterfield County	35	40
Switzer Lake	Rockingham County	10	10
Talbott Reservoir	Patrick County	35	40
Thrashers Creek Reservoir	Amherst County	35	40
Totier Creek Reservoir	Albemarle County	35	40
Townes Reservoir	Patrick County	25	20
Troublesome Creek Reservoir	Buckingham County	35	40
Waller Mill Reservoir	York County	25	30
Western Branch Reservoir	Suffolk City	25	20
Wise Reservoir	Wise County	25	20

C. When the board determines that the applicable criteria in subsection B of this section for a specific man-made lake or reservoir are exceeded, the board shall consult with the Department of Game and Inland Fisheries regarding the status of the fishery in determining whether or not the designated use for that ~~water body~~ waterbody is being attained. If the designated use of the subject ~~water body~~ waterbody is not being attained, the board shall assess the ~~water body~~ waterbody as impaired in accordance with § 62.1-44.19:5 of the Code of Virginia. If the designated use is being attained, the board shall assess the ~~water body~~ waterbody as impaired in accordance with § 62.1-44.19:5 of the Code of Virginia until site-specific criteria are adopted and become effective for that ~~water body~~ waterbody.

D. If the nutrient criteria specified for a man-made lake or reservoir in subsection B of this section do not provide for the attainment and maintenance of the water quality standards of downstream waters as required in 9VAC25-260-10 C, the nutrient criteria herein may be modified on a site-specific basis to protect the water quality standards of downstream waters.

Part VII
Special Standards and Scenic Rivers Listings

9VAC25-260-310. Special standards and requirements.

The special standards are shown in small letters to correspond to lettering in the basin tables. The special standards are as follows:

a. Shellfish waters. In all open ocean or estuarine waters capable of propagating shellfish or in specific areas where public or leased private shellfish beds are present, including those waters on which condemnation classifications are established by the ~~State~~ Virginia Department of Health, the following criteria for fecal coliform bacteria will apply:

The geometric mean fecal coliform value for a sampling station shall not exceed an MPN (most probable number) or MF (membrane filtration using mTEC culture media) of 14 per 100 milliliters (ml) of sample and the estimated 90th percentile shall not exceed an MPN of 43 per 100 ml for a 5-tube decimal dilution test or an MPN of 49 per 100 ml for a 3-tube decimal dilution test or MF test of 31 CFU (colony forming units) per 100 ml.

The shellfish area is not to be so contaminated by radionuclides, pesticides, herbicides, or fecal material that the consumption of shellfish might be hazardous.

b. Policy for the Potomac Embayments. At its meeting on September 12, 1996, the board adopted a policy (9VAC25-415. Policy for the Potomac Embayments) to control point source discharges of conventional pollutants into the Virginia embayment waters of the Potomac River, and their tributaries, from the fall line at Chain Bridge in Arlington County to the Route 301 bridge in King George County. The policy sets effluent limits for BOD_5, total suspended solids, phosphorus, and ammonia, to protect the water quality of these high profile waterbodies.

c. Cancelled.

d. Cancelled.

e. Cancelled.

f. Cancelled.

g. Occoquan watershed policy. At its meeting on July 26, 1971 (Minute 10), the board adopted a comprehensive pollution abatement and water quality management policy for the Occoquan watershed. The policy set stringent treatment and discharge requirements in order to improve and protect water quality, particularly since the waters are an important water supply for Northern Virginia. Following a public hearing on November 20, 1980, the board, at its December 10-12, 1980 meeting, adopted as of February 1, 1981, revisions to this policy (Minute 20). These revisions became effective March 4, 1981. Additional amendments were made following a public hearing on August 22, 1990, and adopted by the board at its September 24, 1990, meeting (Minute 24) and became effective on December 5, 1990. Copies are available upon request from the Department of Environmental Quality.

h. Cancelled.

i. Cancelled.

j. Cancelled.

k. Cancelled.

l. Cancelled.

m. The following effluent limitations apply to wastewater treatment facilities treating an organic nutrient source in the entire Chickahominy watershed above Walker's Dam (this excludes discharges consisting solely of stormwater):

CONSTITUENT	CONCENTRATION
1. Biochemical ~~Oxygen~~ oxygen demand 5-day	6 mg/l monthly average, with not more than 5% of individual samples to exceed 8 mg/l.
2. Settleable ~~Solids~~ solids	Not to exceed 0.1 ml/l monthly average.
3. Suspended ~~Solids~~ solids	5.0 mg/l monthly average, with not more than 5% of individual samples to exceed 7.5 mg/l.
4. Ammonia ~~Nitrogen~~ nitrogen	Not to exceed 2.0 mg/l monthly average as N.
5. Total ~~Phosphorus~~ phosphorus	Not to exceed 0.10 mg/l monthly average for all discharges with the exception of Tyson Foods, Inc., which shall meet 0.30 mg/l monthly average and 0.50 mg/l daily maximum.
6. Other ~~Physical~~ physical and ~~Chemical Constituents~~ chemical constituents	Other physical or chemical constituents not specifically mentioned will be covered by additional specifications as conditions detrimental to the stream arise. The specific mention of items 1 through 5 does not necessarily mean that the addition of other physical or chemical constituents will be condoned.

n. No sewage discharges, regardless of degree of treatment, should be allowed into the James River between Bosher and Williams Island Dams.

o. The concentration and total amount of impurities in Tuckahoe Creek and its tributaries of sewage origin shall be limited to those amounts from sewage, industrial wastes, and other wastes which are now present in the stream from natural sources and from existing discharges in the watershed.

p. Cancelled.

q. Cancelled.

r. Cancelled.

s. Cancelled.

t. Cancelled.

u. Maximum temperature for the New River Basin from Virginia-West Virginia state line upstream to the Giles-Montgomery County line:

The maximum temperature shall be 27°C (81°F) unless caused by natural conditions; the maximum rise above natural temperatures shall not exceed 2.8°C (5°F).

This maximum temperature limit of 81°F was established in the 1970 water quality standards amendments so that Virginia temperature criteria for the New River would be consistent with those of West Virginia, since the stream flows into that state.

v. The maximum temperature of the New River and its tributaries (except trout waters) from the Montgomery-Giles County line upstream to the Virginia-North Carolina state line shall be 29°C (84°F).

w. Cancelled.

x. Clinch River from the confluence of Dumps Creek at river mile 268 at Carbo downstream to river mile 255.4. The special water quality criteria for copper (measured as total recoverable) in this section of the Clinch River are 12.4 µg/l for protection from chronic effects and 19.5 µg/l for protection from acute effects. These site-specific criteria are needed to provide protection to several endangered species of freshwater mussels.

y. Tidal freshwater Potomac River and tidal tributaries that enter the tidal freshwater Potomac River from Cockpit Point (below Occoquan Bay) to the fall line at Chain Bridge. During November 1 through February 14 of each year the 30-day average concentration of total ammonia nitrogen (in mg N/L) shall not exceed, more than once every three years on the average, the following chronic ammonia criterion:

$$\left(\frac{0.0577}{1 + 10^{7.688-pH}} + \frac{2.487}{1 + 10^{pH-7.688}} \right) \quad x\ 1.45(10^{0.028(25-MAX)})$$

MAX = temperature in °C or 7, whichever is greater.

The default design flow for calculating steady state ~~waste load~~ wasteload allocations for this chronic ammonia criterion is the 30Q10, unless statistically valid methods are employed which demonstrate compliance with the duration and return frequency of this water quality criterion.

z. A site specific dissolved copper aquatic life criterion of 16.3 µg/l for protection from acute effects and 10.5 µg/l for protection from chronic effects applies in the following area:

Little Creek to the Route 60 (Shore Drive) bridge including Little Channel, Desert Cove, Fishermans Cove and Little Creek Cove.

Hampton Roads Harbor including the waters within the boundary lines formed by I-664 (Monitor-Merrimac Memorial Bridge Tunnel) and I-64 (Hampton Roads Bridge Tunnel), Willoughby Bay and the Elizabeth River and its tidal tributaries.

This criterion reflects the acute and chronic copper aquatic life criterion for saltwater in 9VAC25-260-140 B X a water effect ratio. The water effect ratio was derived in accordance with 9VAC25-260-140 F.

aa. The following site-specific dissolved oxygen criteria apply to the tidal Mattaponi and Pamunkey Rivers and their tidal tributaries because of seasonal lower dissolved oxygen concentration due to the natural oxygen depleting processes present in the extensive surrounding tidal wetlands. These criteria apply June 1 through September 30 to Chesapeake Bay segments MPNTF, MPNOH, PMKTF, PMKOH and are implemented in accordance with subsection D of 9VAC25-260-185. These criteria supersede the open water criteria listed in subsection A of 9VAC25-260-185.

Designated use	Criteria Concentration/ Duration	Temporal Application
Open Water	30 day mean ≥ 4.0 mg/l	June 1 - September 30
	Instantaneous minimum ≥ 3.2 mg/l at temperatures <29°C Instantaneous minimum ≥ 4.3 mg/l at temperatures ≥ 29°C	

A site-specific pH criterion of 5.0-8.0 applies to the tidal freshwater Mattaponi Chesapeake Bay segment MPNTF to reflect natural conditions.

bb. The following site specific numerical chlorophyll a criteria apply March 1 through May 31 and July 1 through September 30 as seasonal means to the tidal James River (excludes tributaries) segments JMSTF2, JMSTF1, JMSOH, JMSMH, JMSPH and are implemented in accordance with subsection D of 9VAC25-260-185.

Designated Use	Chlorophyll a µ/l	Chesapeake Bay Program Segment	Temporal Application
Open Water	10	JMSTF2	March 1 - May 31
	15	JMSTF1	
	15	JMSOH	
	12	JMSMH	
	12	JMSPH	
	15	JMSTF2	July 1 - September 30
	23	JMSTF1	
	22	JMSOH	
	10	JMSMH	
	10	JMSPH	

cc. For Mountain Lake in Giles County, chlorophyll a shall not exceed 6 µg/L at a depth of ~~6~~ six meters and orthophosphate-P shall not exceed 8 µg/L at a depth of one meter or less.

dd. For Lake Drummond, located within the boundaries of Chesapeake and Suffolk in the Great Dismal Swamp, chlorophyll a shall not exceed 35 µg/L and total phosphorus shall not exceed 40 µg/L at a depth of one meter or less.

ee. ~~Reserved.~~ Maximum temperature for these seasonally stockable trout waters is 26°C and applies May 1 through October 31.

ff. ~~Reserved.~~ Maximum temperature for these seasonally stockable trout waters is 28°C and applies May 1 through October 31.

gg. Little Calfpasture River from the Goshen Dam to 0.76 miles above its confluence with the Calfpasture River has a stream condition index (A Stream Condition Index for Virginia Non-Coastal Streams, September 2003, Tetra Tech, Inc.) of at least 20.5 to protect the subcategory of aquatic life that exists ~~here~~ in this river section as a result of the hydrologic modification. From 0.76 miles to 0.02 miles above its confluence with the Calfpasture River, aquatic life conditions are expected to gradually recover and meet the general aquatic life uses at 0.02 miles above its confluence with the Calfpasture River.

hh. Maximum temperature for these seasonally stockable trout waters is 31°C and applies May 1 through October 31.

9VAC25-260-390. Potomac River Basin (Potomac River Subbasin).

Potomac River Subbasin

SEC.	CLASS	SP. STDS.	SECTION DESCRIPTION
1	II	a	Tidal tributaries of the Potomac River from Smith Point to Upper Machodoc Creek (Baber Point).
1a	III		All free flowing portions of tributaries to the Potomac River from Smith Point to the Route 301 Bridge in King George County unless otherwise designated in this chapter.
	VII		Swamp waters in Section 1a

			[~~Lodge Creek and its tributaries from the head of tidal waters to their headwaters.~~]
			Mattox Creek and its tributaries from the head of tidal waters to their headwaters.
			Monroe Creek and tributaries from the head of tidal waters at Route 658 to their headwaters.
			Pine Hill Creek and its tributaries from the confluence with Rosier Creek to their headwaters.
			Popes Creek and Canal Swamp (a tributary to the tidal portion of Popes Creek) and their tributaries from the head of tidal waters to their respective headwaters.
			[~~Thompson Branch and its tributaries from the head of tidal waters to their headwaters.~~]
1b	III	b	All free flowing portions of tributaries to the Potomac River from the Route 301 Bridge in King George County to, and including, Potomac Creek, unless otherwise designated in this chapter.
1c	III	PWS,b	Potomac Creek and its tributaries from the Stafford County water supply dam ~~(Able~~ (Abel Lake Reservoir) to their headwaters.
2	II	a	Tidal Upper Machodoc Creek and the tidal portions of its tributaries.
2a	III		Free flowing portions of Upper Machodoc Creek and its tributaries.
3	II	b	Tidal portions of the tributaries to the Potomac River from the Route 301 Bridge in King George County to Marlboro Point.
4	II	b~~,d~~	Tidal portions of the tributaries to the Potomac River from Marlboro Point to Brent Point (to include Aquia Creek and its tributaries).
4a	III	b~~,d~~	Free flowing portions of tributaries to the Potomac River in Section 4 up to the Aquia Sanitary District Water Impoundment.
4b	III	PWS,b~~, d~~	Aquia Creek from the Aquia Sanitary District Water Impoundment, and other tributaries into the impoundment, including Beaverdam Run and the Lunga Reservoir upstream to their headwaters.
5	II	b	Tidal portions of tributaries to the Potomac River from Brent Point to Shipping Point, including tidal portions of Chopawamsic Creek and its tidal tributaries.
5a	III	b	Free flowing portions of Chopawamsic Creek and its tributaries upstream to Quantico Marine Base water supply dam.
5b	III	PWS,b	Chopawamsic Creek and its tributaries above the Quantico Marine Base water supply intakes at the Gray and Breckenridge Reservoirs to their headwaters.
6	II	b, y	Tidal portions of tributaries to the Potomac River from Shipping Point to Chain Bridge.
7	III	b	Free flowing portions of tributaries to the Potomac River from Shipping Point to Chain Bridge, unless otherwise designated in this chapter.
7a	III	g	Occoquan River and its tributaries to their headwaters above Fairfax County Water Authority's water supply impoundment, unless otherwise designated in this chapter.

7b	III	PWS,g	The impounded waters of Occoquan River above the water supply dam of the Fairfax County Water Authority to backwater of the impoundment on Bull Run and Occoquan River, and the tributaries of Occoquan above the dam to points 5 miles above the dam.
7c	III	PWS,g	Broad Run and its tributaries above the water supply dam of the City of Manassas upstream to points 5 miles above the dam.
7d			(Deleted)
7e	III	PWS,g	Cedar Run and its tributaries from the Town of Warrenton's raw water intake to points 5 miles upstream (Fauquier County).
7f	III	PWS,g	The Quantico Marine Base Camp Upshur and its tributaries' raw water intake on Cedar Run (located approximately 0.2 mile above its confluence with Lucky Run) to points 5 miles upstream.
7g	III	PWS,g	The proposed impounded waters of Licking Run above the multiple purpose impoundment structure in Licking Run near Midland (Fauquier County) upstream to points 5 miles above the proposed impoundment.
7h	III	PWS,g	The proposed impounded waters of Cedar Run above the proposed multiple purpose impoundment structure on the main stem of Cedar Run near Auburn (Fauquier County), to points 5 miles above the impoundment.
8	III	PWS	Tributaries to the Potomac River in Virginia between Chain Bridge and the Monacacy River from their confluence with the Potomac upstream 5 miles, to include Goose Creek to the City of Fairfax's raw water intake, unless otherwise designated in this chapter.
8a	VI	PWS	Big Spring Creek and its tributaries in Loudoun County, from its confluence with the Potomac River upstream to their headwaters. (The temperature standard for natural trout water may be exceeded in the area above Big Spring and Little Spring at Routes 15 and 740 due to natural conditions). This section was given a PWS designation due to the Town of Leesburg's intake on the Potomac as referenced in Section 8b ~~below~~.
	iii		Big Spring Creek from its confluence with the Potomac River upstream to Big Spring.
8b	III	PWS	Those portions of Virginia tributaries into the Potomac River that are within a 5 mile distance upstream of the Town of Leesburg's intake on the Potomac River, unless otherwise designated in this chapter.*
8c	III	PWS	Those portions of Virginia tributaries into the Potomac River that are within a 5 mile distance upstream of the County of Fairfax's intake on the Potomac River.*
9	III		Broad Run, Sugarland Run, Difficult Run, Tuscarora Creek, ~~Sycoline~~ Sycolin Creek, and other streams tributary to streams in Section 8 from a point 5 miles above their confluence with the Potomac River to their headwaters, unless otherwise designated in this chapter.
9a	III	PWS	All the impounded water of Goose Creek from the City of Fairfax's water supply dam upstream to backwater, and its tributaries above the dam to points 5 miles above the dam.
9b	III	PWS	The Town of Round Hill's (inactive-early ~~1980's)~~ 1980s) raw water intake at the Round Hill Reservoir, and including the two spring impoundments located northwest of the town on the eastern slope of the Blue Ridge Mountains.

9c	III	PWS	Unnamed tributary to Goose Creek, from Camp Highroad's (inactive-late ~~1980's)~~ 1980s) raw water intake (Loudoun County) located in an old quarry to its headwaters.
9d	III	PWS	Sleeter Lake (Loudoun County).
10	III		Tributaries of the Potomac River from the Monacacy River to the West Virginia-Virginia state line in Loudoun County, from their confluence with the Potomac River upstream to their headwaters, unless otherwise designated in this chapter.
10a	III	PWS	North Fork Catoctin Creek and its tributaries from Purcellville's raw water intake to their headwaters.
10b	III		South Fork Catoctin Creek and its tributaries from its confluence with the North Fork Catoctin Creek to its headwaters.
11	IV	pH-6.5-9.5	Tributaries of the Potomac River in Frederick and Clarke Counties, Virginia, unless otherwise designated in this chapter.
	V		Stockable Trout Waters in Section 11
	***	pH-6.5-9.5	Back Creek (upper) from Rock Enon 4 miles upstream.
	***	pH-6.5-9.5	Back Creek (lower) from Route 600 to the mouth of Hogue Creek - 2 miles.
	***	hh	Hogue Creek from Route 679 upstream 6 miles to the Forks below Route 612.
	vi	pH-6.5-9.5	Opequon Creek (in Frederick County) from its confluence with Hoge Run upstream to the point at which Route 620 first crosses the stream.
	vi	pH-6.5-9.6	Turkey Run (Frederick County) from its confluence with Opequon Creek 3.6 miles upstream.
	VI		Natural Trout Waters in Section 11
	ii	pH-6.5-9.5	Bear Garden Run from its confluence with Sleepy Creek 3.1 miles upstream.
	iii	pH-6.5-9.5	Redbud Run from its confluence with Opequon Creek 4.4 miles upstream.
11a	IV	pH-6.5-9.5	Hot Run and its tributaries from its confluence with Opequon Creek to its headwaters.
	V		Stockable Trout Waters in Section 11a
	vi	pH-6.5-9.5	Clearbrook Run from its confluence with Hot Run 2.1 miles upstream.
12	IV	ESW-6	South Branch Potomac River and its tributaries, such as Strait Creek, and the North Fork River and its tributaries from the Virginia-West Virginia state line to their headwaters.
	V		Stockable Trout Waters in Section 12
	vi		Frank Run from its confluence with the South Branch Potomac River 0.8 mile upstream.
	vii	pH-6.5-9.5	South Branch Potomac River (in Highland County) from 69.2 miles above its confluence with the Potomac River 4.9 miles upstream.
	VI		Natural Trout Waters in Section 12

ii		Blights Run from its confluence with Laurel Fork (Highland County) upstream including all named and unnamed tributaries.
ii		Buck Run (Highland County) from its confluence with Laurel Fork upstream including all named and unnamed tributaries.
ii		Collins Run from its confluence with Laurel Fork upstream including all named and unnamed tributaries.
ii		Laurel Fork (Highland County) from 1.9 miles above its confluence with the North Fork South Branch Potomac River upstream including all named and unnamed tributaries.
iii	pH-6.5-9.5	Laurel Run (Highland County) from its confluence with Strait Creek upstream including all named and unnamed tributaries.
ii		Locust Spring Run from its confluence with Laurel Fork upstream including all named and unnamed tributaries.
ii		Lost Run from its confluence with Laurel Fork upstream including all named and unnamed tributaries.
ii		Mullenax Run from its confluence with Laurel Fork upstream including all named and unnamed tributaries.
ii		Newman Run from its confluence with Laurel Fork upstream including all named and unnamed tributaries.
ii		Slabcamp Run from its confluence with Laurel Fork upstream including all named and unnamed tributaries.
iii	pH-6.5-9.5	Strait Creek (Highland County) from its confluence with the South Branch Potomac River upstream to the confluence of West Strait Creek.

9VAC25-260-400. Potomac River Basin (Shenandoah River Subbasin).

Shenandoah River Subbasin

SEC.	CLASS	SP. STDS.	SECTION DESCRIPTION
1	IV	pH-6.5-9.5	Shenandoah River and its tributaries in Clarke County, Virginia, from the Virginia-West Virginia state line to Lockes Landing, unless otherwise designated in this chapter.
1a	IV	PWS pH-6.5-9.5	Shenandoah River and its tributaries from river mile 24.66 (latitude 39°16'19"; longitude 77°54'33") approximately 0.7 mile downstream of the confluence of the Shenandoah River and Dog Run to 5 miles above Berryville's raw water intake, unless otherwise designated in this chapter.
	V		Stockable Trout Waters in Section 1a
	vi	pH-6.5-9.5	Chapel Run (Clarke County) from its confluence with the Shenandoah River 5.7 miles upstream.
	vi	pH-6.5-9.5	Spout Run (Clarke County) from its confluence with the Shenandoah River (in the vicinity of the Ebenezer Church at Route 604) to its headwaters.
1b			(Deleted)
1c	IV	pH-6.5-9.5	Shenandoah River and its tributaries from a point 5 miles above Berryville's raw water intake to the confluence of the North and South Forks of the Shenandoah River.

	VI		Natural Trout Waters in Section 1c
	iii	pH-6.5-9.5	Page Brook from its confluence with Spout Run, 1 mile upstream.
	***	pH-6.5-9.5	Roseville Run (Clarke County) from its confluence with Spout Run upstream including all named and unnamed tributaries.
	iii	pH-6.5-9.5	Spout Run (Clarke County) from its confluence with the Shenandoah River (in the vicinity of Calmes Neck at ~~Rts~~ Routes 651 and 621), 3.9 miles upstream.
	***	pH-6.5-9.5	Westbrook Run (Clarke County) from its confluence with Spout Run upstream including all named and unnamed tributaries.
1d			(Note: Moved to ~~section~~ Section 2b).
2	IV	~~EWS-12.14.15~~ ESW-12,14,15	South Fork Shenandoah River from its confluence with the North Fork Shenandoah River, upstream to a point 5 miles above the Town of Shenandoah's raw water intake and its tributaries to their headwaters in this section, unless otherwise designated in this chapter.
	V		Stockable Trout Waters in Section 2
	vii	pH-6.5-9.5	Bear Lithia Spring from its confluence with the South Fork Shenandoah River 0.8 miles upstream.
	vi	pH-6.5-9.5	Flint Run from its confluence with the South Fork Shenandoah River 4 miles upstream.
	***	pH-6.5-9.5	Gooney Run from the mouth to its confluence with Broad Run above Browntown (in the vicinity of Route 632).
	***	pH-6.5-9.5, hh	Hawksbill Creek from Route 675 in Luray to 1 mile above Route 631.
	VI		Natural Trout Waters in Section 2
	ii	pH-6.5-9.5	Big Creek (Page County) from its confluence with the East Branch Naked Creek upstream including all named and unnamed tributaries.
	ii	pH-6.5-9.5	Big Ugly Run from its confluence with the South Branch Naked Creek upstream including all named and unnamed tributaries.
	ii		Boone Run from 4.6 miles above its confluence with the South Fork Shenandoah River (in the ~~vicinity)~~ vicinity of Route 637) upstream including all named and unnamed tributaries.
	iii	pH-6.5-9.5	Browns Run from its confluence with Big Run upstream including all named and unnamed tributaries.
	ii		Cub Run (Page County) from Pitt Spring Run upstream including all named and unnamed tributaries.
	***	pH-6.5-9.5	Cub Run from its mouth to Pitt Spring Run.
	i	pH-6.5-9.5	East Branch Naked Creek from its confluence with Naked Creek at Route 759 upstream including all named and unnamed tributaries.
	ii	pH-6.5-9.5	Fultz Run from the Park boundary (river mile 1.8) upstream including all named and unnamed tributaries.
	ii	pH-6.5-9.5	Gooney Run ~~(in~~ (Warren County) from 6.6 miles above its confluence with the South Fork Shenandoah River 3.9 miles upstream.
	ii	pH-6.5-9.5	Hawksbill Creek in the vicinity of Pine Grove at Route 624 (river mile 17.7) 1.5 miles upstream.

	ii	pH-6.5-9.5	Jeremys Run from the Shenandoah National Park boundary upstream including all named and unnamed tributaries.
	ii	pH-6.5-9.5	Lands Run from its confluence with Gooney Run upstream including all named and unnamed tributaries.
	ii	pH-6.5-9.5	Little Creek (Page County) from its confluence with Big Creek upstream including all named and unnamed tributaries.
	i	pH-6.5-9.5	Little Hawksbill Creek from Route 626 upstream including all named and unnamed tributaries.
	ii		Morgan Run (Page County) from its confluence with Cub Run upstream including all named and unnamed tributaries.
	ii	pH-6.5-9.5	Overall Run from its confluence with the South Fork Shenandoah River 4.8 miles upstream including all named and unnamed tributaries.
	ii	pH-6.5-9.5	Pass Run (Page County) from its confluence with Hawksbill Creek upstream including all named and unnamed tributaries.
	ii		Pitt Spring Run from its confluence with Cub Run upstream including all named and unnamed tributaries.
	ii		Roaring Run from its confluence with Cub Run upstream including all named and unnamed tributaries.
	ii	pH-6.5-9.5	South Branch Naked Creek from 1.7 miles above its confluence with Naked Creek (in the vicinity of Route 607) upstream including all named and unnamed tributaries.
	iv	pH-6.5-9.5	Stony Run (Page County) from 1.6 miles above its confluence with Naked Creek upstream including all named and unnamed tributaries.
	ii	pH-6.5-9.5	West Branch Naked Creek from 2.1 miles above its confluence with Naked Creek upstream including all named and unnamed tributaries.
2a	IV	PWS, pH-6.5-9.5	Happy Creek and Sloan Creek from Front Royal's raw water intake to its headwaters.
2b	IV	PWS	The South Fork Shenandoah River and its tributaries from the Town of Front Royal's raw water intake (at the State Route 619 bridge at Front Royal) to points 5 miles upstream.
2c			(Deleted)
2d			(Deleted)
	V		Stockable Trout Waters in Section 2d
	VI		Natural Trout Waters in Section 2d
3	IV	pH-6.5-9.5, ESW-16	South Fork Shenandoah River from 5 miles above the Town of Shenandoah's raw water intake to its confluence with the North and South Rivers and its tributaries to their headwaters in this section, and the South River and its tributaries from its confluence with the South Fork Shenandoah River to their headwaters, unless otherwise designated in this chapter.
	V		Stockable Trout Waters in Section 3
	vi	pH-6.5-9.5	Hawksbill Creek (Rockingham County) from 0.8 mile above its confluence with the South Fork Shenandoah River 6.6 miles

		upstream.
vi	pH-6.5-9.5	Mills Creek (Augusta County) from 1.8 miles above its confluence with Back Creek 2 miles upstream.
vi	pH-6.5-9.5	North Fork Back Creek (Augusta County) from its confluence with Back Creek 2.6 miles upstream, unless otherwise designated in this chapter.
VI		Natural Trout Waters in Section 3
i	pH-6.5-9.5	Bearwallow Run from its confluence with Onemile Run upstream including all named and unnamed tributaries.
ii	pH-6.5-9.5	Big Run (Rockingham County) from 3.3 miles above its confluence with the South Fork Shenandoah River upstream including all named and unnamed tributaries.
iii	pH-6.5-9.5	Cold Spring Branch (Augusta County) from Sengers Mountain Lake (Rhema Lake) upstream including all named and unnamed tributaries.
iv	pH-6.5-9.5	Cool Springs Hollow (Augusta County) from Route 612 upstream including all named and unnamed tributaries.
ii	pH-6.5-9.5	Deep Run (Rockingham County) from 1.8 miles above its confluence with the South Fork Shenandoah River upstream including all named and unnamed tributaries.
ii	pH-6.5-9.5	East Fork Back Creek from its confluence with the South Fork Back Creek upstream including all named and unnamed tributaries.
ii	pH-6.5-9.5	Gap Run from 1.7 miles above its confluence with the South Fork Shenandoah River upstream including all named and unnamed tributaries.
iii		Inch Branch (Augusta County) from the dam upstream including all named and unnamed tributaries.
ii		Johns Run (Augusta County) from its confluence with the South River upstream including all named and unnamed tributaries.
iv		Jones Hollow (Augusta County) from 1.1 miles above its confluence with the South River upstream including all named and unnamed tributaries.
ii		Kennedy Creek from its confluence with the South River upstream including all named and unnamed tributaries.
iv	pH-6.5-9.5	Lee Run from 0.6 mile above its confluence with Elk Run 3.3 miles upstream.
iii	pH-6.5-9.5	Loves Run (Augusta County) from 2.7 miles above its confluence with the South River upstream including all named and unnamed tributaries.
ii	pH-6.5-9.5	Lower Lewis Run (Rockingham County) from 1.7 miles above its confluence with the South Fork Shenandoah River upstream including all named and unnamed tributaries.
ii	pH-6.5-9.5	Madison Run (Rockingham County) from 2.9 miles above its confluence with the South Fork Shenandoah River upstream including all named and unnamed tributaries.
ii	pH-6.5-9.5	Meadow Run (Augusta County) from its confluence with the South

			River upstream including all named and unnamed tributaries.
	ii	pH-6.5-9.5	North Fork Back Creek (Augusta County) from river mile 2.6 (in the vicinity of its confluence with Williams Creek) upstream including all named and unnamed tributaries.
	i	pH-6.5-9.5	Onemile Run (Rockingham County) from 1.5 miles above its confluence with the South Fork Shenandoah River upstream including all named and unnamed tributaries.
	iv		Orebank Creek from its confluence with Back Creek upstream including all named and unnamed tributaries.
	ii	pH-6.5-9.5	Paine Run (Augusta County) from 1.7 miles above its confluence with the South River upstream including all named and unnamed tributaries.
	ii		Robinson Hollow (Augusta County) from the dam upstream including all named and unnamed tributaries.
	ii	pH-6.5-9.5	Rocky Mountain Run from its confluence with Big Run upstream including all named and unnamed tributaries.
	iv	pH-6.5-9.5	Sawmill Run from 2.5 miles above its confluence with the South River upstream including all named and unnamed tributaries.
	ii	pH-6.5-9.5	South Fork Back Creek from its confluence with Back Creek at Route 814 (river mile 2.1) upstream including all named and unnamed tributaries.
	ii	pH-6.5-9.5	Stony Run (Augusta County) from 3.5 miles above its confluence with the South River upstream including all named and unnamed tributaries.
	iii	pH-6.5-9.5	Stony Run (Rockingham County) from 4.1 miles above its confluence with the South Fork Shenandoah River upstream including all named and unnamed tributaries.
	iii		Toms Branch (Augusta County) from 1.1 miles above its confluence with Back Creek upstream including all named and unnamed tributaries.
	i	pH-6.5-9.5	Twomile Run from 1.4 miles above its confluence with the South Fork Shenandoah River upstream including all named and unnamed tributaries.
	iv	pH-6.5-9.5	Upper Lewis Run from 0.5 mile above its confluence with Lower Lewis Run upstream including all named and unnamed tributaries.
	iv	pH-6.5-9.5	West Swift Run (Rockingham County) from the Route 33 crossing upstream including all named and unnamed tributaries.
	ii	pH-6.5-9.5	Whiteoak Run from its confluence with Madison Run upstream including all named and unnamed tributaries.
3a	IV	pH-6.5-9.5	South River from the dam above Waynesboro (all waters of the impoundment).
3b	IV	PWS	Coles Run and Mills Creek from South River Sanitary District's raw water intake to their headwaters.
	VI	PWS	Natural Trout Waters in Section 3b
	ii		Coles Run (Augusta County) from 3.9 miles above its confluence with

			the South River Sanitary District's raw water intake (Coles Run Dam) upstream including all named and unnamed tributaries.
	ii		Mills Creek (Augusta County) from the South River Sanitary District's raw water intake (river mile 3.8) upstream including all named and unnamed tributaries.
3c	IV	PWS pH-6.5-9.5	A tributary to Coles Run from Stuarts Draft raw water intake approximately ~~one-half~~ 0.5 mile south of Stuarts Draft and just off Route 610, to its headwaters.
4	IV	pH-6.5-9.5	Middle River and its tributaries from the confluence with the North River upstream to its headwaters, unless otherwise designated in this chapter.
	V		Stockable Trout Waters in Section 4
	v	pH-6.5-9.5	Barterbrook Branch from its confluence with Christians Creek 2.8 miles upstream.
	***	pH-6.5-9.5	East Dry Branch from its confluence with the Buffalo Branch to its confluence with Mountain Run.
	vi	pH-6.5-9.5	Folly Mills Creek from 2.4 miles above its confluence with Christians Creek (in the vicinity of Route 81) 4.5 miles upstream.
	VI		Natural Trout Waters in Section 4
	iv		Buffalo Branch from Route 703 upstream including all named and unnamed tributaries.
	ii		Cabin Mill Run (Augusta County) from the Camp Shenandoah Boy Scout Lake upstream including all named and unnamed tributaries.
	iv		East Dry Branch (Augusta County) from the confluence of Mountain Run upstream including all named and unnamed tributaries.
	iv		Jennings Branch (Augusta County) from the confluence of White Oak Draft upstream including all named and unnamed tributaries.
4a	IV	PWS pH-6.5-9.5	Middle River and its tributaries from Staunton's raw water intake at Gardner Spring to points 5 miles upstream.
5	IV	pH-6.5-9.5	North River and its tributaries from its confluence with the South River upstream to its headwaters, unless otherwise designated in this chapter.
	V		Stockable Trout Waters in Section 5
	v	pH-6.5-9.5	Beaver Creek (Rockingham County) from its confluence with Briery Branch to the spring at a point 2.75 miles upstream.
	v	pH-6.5-9.5	Naked Creek (Augusta County) from 3.7 miles above its confluence with the North River at Route 696, 2 miles upstream.
	VI		Natural Trout Waters in Section 5
	iv		Big Run (Augusta County) from 0.9 mile above its confluence with Little River upstream including all named and unnamed tributaries.
	ii		Black Run (Rockingham County) from its mouth upstream including all named and unnamed tributaries.
	iii		Briery Branch (Rockingham County) from river mile 6.9 upstream including all named and unnamed tributaries.

	iv		Gum Run from its mouth upstream including all named and unnamed tributaries.
	iii		Hone Quarry Run from its confluence with Briery Branch upstream including all named and unnamed tributaries.
	iv		Little River from its confluence with the North River at Route 718 upstream including all named and unnamed tributaries.
	iv		Maple Spring Run from its mouth upstream including all named and unnamed tributaries.
	iv		Mines Run from its confluence with Briery Branch upstream including all named and unnamed tributaries.
	iv		Rocky Run (which is tributary to Briery Branch in Rockingham County) from its mouth upstream including all named and unnamed tributaries.
	iii		Rocky Run (which is tributary to Dry River in Rockingham County) from its mouth upstream including all named and unnamed tributaries.
	ii		Union Springs Run from 3 miles above its confluence with Beaver Creek upstream including all named and unnamed tributaries.
	iv		Wolf Run (Augusta County) from its confluence with Briery Branch upstream including all named and unnamed tributaries.
5a	IV	PWS pH-6.5-9.5	Silver Lake
5b	IV	PWS pH-6.5-9.5	North River and its tributaries from Harrisonburg's raw water intake at Bridgewater to points 5 miles above Bridgewater's raw water intake to include Dry River and Muddy Creek.
	V	PWS	Stockable Trout Waters in Section 5b
	v	pH-6.5-9.5	Mossy Creek from its confluence with the North River 7.1 miles upstream.
	v	pH-6.5-9.5	Spring Creek (Rockingham County) from its confluence with the North River 2 miles upstream.
5c	IV	PWS	Dry River ~~in~~ (Rockingham County) from Harrisonburg's raw water intake (approximately 11.7 miles above its confluence with the North River) to a point 5 miles upstream, unless otherwise designated in this chapter.
	V	PWS	Stockable Trout Waters in Section 5c
	viii		Raccoon Run (Rockingham County) from its confluence with Dry River to its headwaters.
	VI	PWS	Natural Trout Waters in Section 5c
	iv		Dry River (Rockingham County) from Harrisonburg's raw water intake (approximately 11.7 miles above its confluence with the North River) to a point 5 miles upstream.
	iv		Dry Run (Rockingham County) from its confluence with Dry River upstream including all named and unnamed tributaries.
	iv		Hopkins Hollow from its confluence with Peach Run upstream including all named and unnamed tributaries.
	iv		Kephart Run from its confluence with Dry River upstream including all

			named and unnamed tributaries.
5d	VI		Dry River and its tributaries from 5 miles above Harrisonburg's raw water intake to its headwaters.
	VI		Natural Trout Waters in Section 5d
	iv		Dry River (Rockingham County) from 5 miles above Harrisonburg's raw water intake upstream including all named and unnamed tributaries.
	ii		Laurel Run (Rockingham County) from its confluence with Dry River upstream including all named and unnamed tributaries.
	ii		Little Laurel Run from its confluence with Dry River upstream including all named and unnamed tributaries.
	ii		Low Place Run from its confluence with Dry River upstream including all named and unnamed tributaries.
	iv		Miller Spring Run from its confluence with Dry River upstream including all named and unnamed tributaries.
	iii		Sand Run from its confluence with Dry River upstream including all named and unnamed tributaries.
	iv		Skidmore Fork from its confluence with Dry River upstream including all named and unnamed tributaries.
5e	VI	PWS	North River and its tributaries from Staunton Dam to their headwaters.
	VI		Natural Trout Waters in Section 5e
	iv		North River from Elkhorn Dam upstream including all named and unnamed tributaries.
6	IV	pH-6.5-9.5	North Fork Shenandoah River from its confluence with the Shenandoah River to its headwaters, unless otherwise designated in this chapter.
	V		Stockable Trout Waters in Section 6
	vi	pH-6.5-9.5	Bear Run from its confluence with Foltz Creek to its headwaters.
	vi	pH-6.5-9.5	Bull Run (Shenandoah County) from its confluence with Foltz Creek to its headwaters.
	vi	pH-6.5-9.5	Falls Run from its confluence with Stony Creek to its headwaters.
	vi	pH-6.5-9.5	Foltz Creek from its confluence with Stony Creek to its headwaters.
	vi	pH-6.5-9.5	Little Passage Creek from its confluence with Passage Creek to the Strasburg Reservoir Dam.
	***	pH-6.5-9.5, hh	Mill Creek from Mount Jackson to Route 720 - 3.5 miles.
	vi	pH-6.5-9.5	Mountain Run from its mouth at Passage Creek to its headwaters.
	***	pH-6.5-9.5	Passage Creek from the U.S. Forest Service line (in the vicinity of Blue Hole and Buzzard Rock) 4 miles upstream.
	vi	pH-6.5-9.5	Passage Creek from 29.6 miles above its confluence with the North Fork Shenandoah River to its headwaters.
	vi	pH-6.5-9.5	Peters Mill Run from the mouth to its headwaters.

***	pH-6.5-9.5	Shoemaker River from 612 at Hebron Church to its junction with Route 817 at ~~the Shoemaker's~~ its confluence with Slate Lick Branch.
v	pH-6.5-9.5	Stony Creek from its confluence with the North Fork Shenandoah River to Route 682.
***	pH-6.5-9.5	Stony Creek from Route 682 above Edinburg upstream to Basye.
VI		Natural Trout Waters in Section 6
ii	pH-6.5-9.5	Anderson Run (Shenandoah County) from 1.1 miles above its confluence with Stony Creek upstream including all named and unnamed tributaries.
iv		Beech Lick Run from its confluence with the German River upstream including all named and unnamed tributaries.
iii		Bible Run from its confluence with Little Dry River upstream including all named and unnamed tributaries.
ii		Camp Rader Run from its confluence with the German River upstream including all named and unnamed tributaries.
iv		Carr Run from its confluence with Little Dry River upstream including all named and unnamed tributaries.
iv		Clay Lick Hollow from its confluence with Carr Run upstream including all named and unnamed tributaries.
iv		Gate Run from its confluence with Little Dry River upstream including all named and unnamed tributaries.
iv		German River (Rockingham County) from its confluence with the North Fork Shenandoah River ~~(~~at Route 820~~)~~ upstream including all named and unnamed tributaries.
ii		Laurel Run (Shenandoah County) from its confluence with Stony Creek upstream including all named and unnamed tributaries.
ii		Little Stony Creek from its confluence with Stony Creek upstream including all named and unnamed tributaries.
iv		Marshall Run (Rockingham County) from 1.2 miles above its confluence with the North Fork Shenandoah River upstream including all named and unnamed tributaries.
iii	pH-6.5-9.5	Mine Run (Shenandoah County) from its confluence with Passage Creek upstream including all named and unnamed tributaries.
ii	pH-6.5-9.5	Poplar Run (Shenandoah County) from its confluence with Little Stony Creek upstream including all named and unnamed tributaries.
iv	pH-6.5-9.5	Rattlesnake Run (Rockingham County) from its confluence with Spruce Run upstream including all named and unnamed tributaries.
iv		Root Run from its confluence with Marshall Run upstream including all named and unnamed tributaries.
iv		Seventy Buck Lick Run from its confluence with Carr Run upstream including all named and unnamed tributaries.
iv		Sirks Run (Spring Run) from 1.3 miles above its confluence with Crab Run upstream including all named and unnamed tributaries.
iv	pH-6.5-9.5	Spruce Run (Rockingham County) from its confluence with Capon

			Run upstream including all named and unnamed tributaries.
	iv	pH-6.5-9.5	Sumac Run from its confluence with the German River upstream including all named and unnamed tributaries.
6a	IV	PWS pH-6.5-9.5	Little Passage Creek from the Strasburg Reservoir Dam upstream to its headwaters, unless otherwise designated in this chapter.
	V	PWS	Stockable Trout Waters in Section 6a
	vi	pH-6.5-9.5	Little Passage Creek from the Strasburg Reservoir Dam upstream to its headwaters.
6b	IV	PWS pH-6.5-9.5	North Fork Shenandoah River and its tributaries from the Winchester raw water intake to points 5 miles upstream (to include Cedar Creek and its tributaries to their headwaters).
	V	PWS	Stockable Trout Waters in Section 6b
	***	pH-6.5-9.5	Cedar Creek (Shenandoah County) from Route 55 (river mile 23.56) to the U.S. Forest Service Boundary (river mile 32.0) - approximately 7 miles.
	v	PWS pH-6.5-9.5	Meadow Brook (Frederick County) from its confluence with Cedar Creek 5 miles upstream.
	VI	PWS	Natural Trout Waters in Section 6b
	iii	pH-6.5-9.5	Cedar Creek (Shenandoah County) from the U.S. Forest Service boundary (river mile 32.0) near Route 600 upstream including all named and unnamed tributaries.
	ii	pH-6.5-9.5	Duck Run from its confluence with Cedar Creek upstream including all named and unnamed tributaries.
			Paddy Run (Frederick County) from the mouth upstream including all named and unnamed tributaries.
	***		~~(~~Paddy Run (Frederick County) from its mouth (0.0) to river mile 1.8.~~)~~
	vi**		~~(~~Paddy Run (Frederick County) from river mile 1.8 to river mile 8.1 - 6.3 miles.~~)~~
	iii	pH-6.5-9.5	Sulphur Springs Gap (Shenandoah County) from its confluence with Cedar Creek 1.9 miles upstream.
6c	IV	PWS pH-6.5-9.5	North Fork Shenandoah River and its tributaries from Strasburg's raw water intake to points 5 miles upstream.
6d	IV	PWS pH-6.5-9.5	North Fork Shenandoah River and its tributaries from Woodstock's raw water intake (approximately ~~1/4~~ 0.25 mile upstream of State Route 609 bridge near Woodstock) to points 5 miles upstream.
6e	IV	PWS pH-6.5-9.5	Smith Creek and its tributaries from New Market's raw water intake to their headwaters.
			Natural Trout Waters in Section 6e
	iv	pH-6.5-9.5	Mountain Run (Fridley Branch, Rockingham County) from Route 722 upstream including all named and unnamed tributaries.
6f	IV	PWS pH-6.5-9.5	North Fork Shenandoah River and its tributaries from the Food Processors Water Coop, Inc. dam at Timberville and the Town of Broadway's intakes on Linville Creek and the North Fork Shenandoah to points 5 miles upstream.

6g	IV		Shoemaker River and its tributaries from Slate Lick Run, and including Slate Lick Run, to its headwaters.
	V		Stockable Trout Waters in Section 6g
	***		Slate Lick Run from its confluence with the Shoemaker River upstream to the 1500 foot elevation.
	VI		Natural Trout Waters in Section 6g
	iv		Long Run (Rockingham County) from its confluence with the Shoemaker River upstream including all named and unnamed tributaries.
	iv		Slate Lick Run from the 1500 foot elevation upstream including all named and unnamed tributaries.
6h	IV	PWS pH-6.5-9.5	Unnamed tributary of North Fork Shenandoah River (on the western slope of Short Mountain opposite Mt. Jackson) from the Town of Mt. Jackson's (inactive mid-1992) raw water intake (north and east dams) to its headwaters.
6i	IV	PWS pH-6.5-9.5	Little Sulfur Creek, Dan's Hollow and Horns Gully (tributaries of the North Fork Shenandoah River on the western slope of Short Mountain opposite Mt. Jackson) which served as a water supply for the Town of Edinburg until March 31, 1992, from the Edinburg intakes upstream to their headwaters.

9VAC25-260-410. James River Basin (Lower).

SEC.	CLASS	SP. STDS.	SECTION DESCRIPTION
1	II	a,z, bb, ESW-11	James River and its tidal tributaries from Old Point Comfort - Fort Wool to the end of tidal waters (fall line, Mayo's Bridge, 14th Street, Richmond), except prohibited or spoil areas, unless otherwise designated in this chapter.
1a	III		Free flowing or nontidal portions of streams in Section 1, unless otherwise designated in this chapter.
	VII		Swamp waters in Section 1a
			Gunns Run and its tributaries from the head of tide at river mile 2.64 to its headwaters.
1b	II	a,z	Eastern and Western Branches of the Elizabeth River and tidal portions of their tributaries from their confluence with the Elizabeth River to the end of tidal waters.
1c	III		Free flowing portions of the Eastern Branch of the Elizabeth River and its tributaries. Includes Salem Canal up to its intersection with Timberlake Road at N36°48'35.67"/W76°08'31.70".
1d	II	a,z	Southern Branch of the Elizabeth River from its confluence with the Elizabeth River to the lock at Great Bridge.
1e	III		Free flowing portions of the Western Branch of the Elizabeth River and of the Southern Branch of the Elizabeth River from their confluence with the Elizabeth River to the lock at Great Bridge.
1f	II	a	Nansemond River and its tributaries from its confluence with the James River to Suffolk (dam at Lake Meade), unless otherwise designated in this chapter.

1g	III		Shingle Creek from its confluence with the Nansemond River to its headwaters in the Dismal Swamp.
	VII		Swamp waters in Section 1g Shingle Creek and its tributaries from the head of tide (approximately 500 feet downstream of Route 13/337) to their headwaters.
1h	III	PWS	Lake Prince, Lake Burnt Mills and Western Branch impoundments for Norfolk raw water supply and Lake Kilby - Cahoon Pond, Lake Meade and Lake Speight impoundments for Portsmouth raw water supply and including all tributaries to these impoundments.
	VII		Swamp waters in Section 1h
			Eley Swamp and its tributaries from Route 736 upstream to their headwaters.
1i	III		Free flowing portions of the Pagan River and its free flowing tributaries.
1j			(Deleted)
1k	III	PWS	Skiffes Creek Reservoir (Newport News water impoundment).
1l	III	PWS	The Lone Star lakes and impoundments in the City of Suffolk, Chuckatuck Creek watershed which serve as a water source for the City of Suffolk.
1m	III	PWS	The Lee Hall Reservoir system, near Skiffes Creek and the Warwick River, in the City of Newport News.
1n	III	PWS	Chuckatuck Creek and its tributaries from Suffolk's raw water intake (at Godwin's Millpond) to a point 5 miles upstream.
1o	II	PWS, bb	James River from City Point (Hopewell) to a point 5 miles ~~above American Tobacco Company's raw water intake~~ upstream.
1p	III	PWS~~,~~	Free flowing tributaries to section 1o.
2	III		Free flowing tributaries of the ~~James River from Buoy 64 to Brandon and free flowing tributaries of the~~ Chickahominy River to Walkers Dam, unless otherwise designated in this chapter.
	VII		Swamp waters in Section 2
			Morris Creek and its tributaries from the head of tide at river mile 5.97 upstream to its headwaters.
2a	III	PWS	Diascund Creek and its tributaries from Newport ~~News'~~ News's raw water intake dam to its headwaters.
2b	III	PWS	Little Creek Reservoir and its tributaries from the City of Newport News impoundment dam to 5 miles upstream of the raw water intake.
3	III	m	Chickahominy River and its tributaries from Walkers Dam to Bottoms Bridge (Route 60 bridge), unless otherwise designated in this chapter.
	VII		Swamp waters in Section 3
		m	Chickahominy River from its confluence with Toe Ink Swamp at ~~river mile~~ river mile 43.07 upstream to Bottoms Bridge (Route 60).
		m	Rumley Marsh and tributaries from the confluence of an unnamed

			tributary at river mile 2.61, upstream to the confluence with Beus Swamp. Beus Swamp, Piney Branch, and Pelham Swamp above the confluence of Beus Swamp are excluded.
		m	White Oak Swamp and its tributaries from its confluence with the Chickahominy River to their headwaters.
3a	III	PWS,m	Chickahominy River and its tributaries from Walkers Dam to points 5 miles upstream.
4	III	m	Chickahominy River and its tributaries, unless otherwise designated in this chapter, from Bottoms Bridge (Route 60 bridge) to its headwaters.
	VII		Swamp waters in Section 4
		m	Chickahominy River from Bottoms Bridge (Route 60) upstream to its confluence with Stony Run at rivermile 71.03.
		m	Stony Run and tributaries from the confluence with Chickahominy River to their headwaters.
4a	III		Free flowing tributaries to the James River from Brandon to the fall line at Richmond, unless otherwise designated in this chapter.
	VII		Swamp waters in Section 4a
			Fourmile Creek and its tributaries to their headwaters.

9VAC25-260-415. James River Basin (Lower) (Appomattox River Subbasin).

SEC.	CLASS	SP. STDS.	SECTION DESCRIPTION
5	II		Appomattox River and its tidal tributaries from its confluence with the James River to the end of tidal waters.
5a	II	PWS	Appomattox River and its tidal tributaries from its mouth to 5 miles upstream of the Virginia-American Water Company's raw water intake.
5b	III	PWS	Free flowing tributaries to ~~section~~ Section 5a.
5c	III		Appomattox River from the head of tidal waters, and free flowing tributaries to the Appomattox River, to their headwaters, unless otherwise designated in this chapter.
	VII		Swamp waters in Section 5c
			Skinquarter Creek from its confluence with the Appomattox River upstream to river mile 5.27.
			Deep Creek from the confluence with Winningham Creek downstream to the confluence of Little Creek, a distance ~~of.54~~ of 5.4 river miles.
			Winticomack Creek from its confluence with the Appomattox River to its headwaters including unnamed tributaries at river miles 1.92, 3.15, 8.77, and 11.16.
5d	III		Swift Creek and its tributaries from the dam at Pocahontas State Park upstream to Chesterfield County's raw water impoundment dam.
5e	III	PWS	Swift Creek and its tributaries from Chesterfield County's raw water impoundment dam to points 5 miles upstream.
5f	III	PWS	Appomattox River and its tributaries from Appomattox River Water Authority's raw water intake located at the dam at Lake Chesdin to the headwaters of the lake.

	VII		Swamp waters in Section 5f
			~~Winticomack Creek from its confluence with the Appomattox River to its headwaters including unnamed tributaries at river miles 1.92, 3.15, 8.77, and 11.16.~~
			Winterpock Creek and its tributaries (excluding Surline Branch) from its confluence with Lake Chesdin upstream to river mile 8.47.
5g	III	PWS	The Appomattox River and its tributaries from Farmville's raw water intake (approximately 2.5 miles above the Route 15/45 bridge) to points 5 miles upstream.

9VAC25-260-440. Rappahannock River Basin.

SEC.	CLASS	SP. STDS.	SECTION DESCRIPTION
1	II	a	Rappahannock River and the tidal portions of its tributaries from Stingray and Windmill Points to Route 1 Alternate Bridge at Fredericksburg.
1a	II		Hoskins Creek from the confluence with the Rappahannock River to its tidal headwaters.
2	III		Free flowing tributaries of the Rappahannock from Stingray and Windmill Points upstream to Blandfield Point, unless otherwise designated in this chapter.
	VII		Swamp waters in Section 2
			Cat Point Creek and its tributaries, from their headwaters to the head of tide at river mile 10.54.
			Hoskins Creek and its nontidal tributaries from the head of tidal waters to their headwaters.
			[~~Mason Mill Swamp and its tributaries from the head of tidal waters to their headwaters.~~]
			Mount Landing Creek and its tributaries from the end of tidal waters at river mile 4.4 to their headwaters.
			Piscataway Creek and its tributaries from the confluence of Sturgeon Swamp to their headwaters.
3	III		The Rappahannock River from the Route 1 Alternate Bridge at Fredericksburg upstream to the low dam water intake at Waterloo (Fauquier County).
3a	III	PWS	The Rappahannock River and its tributaries from Spotsylvania County's raw water intake near Golin Run to points 5 miles upstream (excluding Motts Run and tributaries, which is in ~~section~~ Section 4c).
3b	III	PWS	The Rappahannock River and its tributaries from the low dam water intake at Waterloo~~,~~ (Fauquier County~~,~~) to points 5 miles upstream.
4	III	ESW 17,18	Free flowing tributaries of the Rappahannock from Blandfield Point to its headwaters, unless otherwise designated in this chapter.
	VII		Swamp waters in Section 4
			Goldenvale Creek from the head of tidal waters near the confluence with the Rappahannock River to its headwaters.
			Occupacia Creek and its tributaries from the end of tidal waters at river mile 8.89 on Occupacia Creek to their headwaters.

V	Stockable Trout Waters in Section 4
***	Hughes River (Madison County) from Route 231 upstream to the upper crossing of Route 707 near the confluence of Rocky Run.
***	Robinson River from Route 231 to river mile 26.7.
***	Rose River from its confluence with the Robinson River 2.6 miles upstream.
***	South River from 5 miles above its confluence with the Rapidan River 3.9 miles upstream.
VI	Natural Trout Waters in Section 4
ii	Berry Hollow from its confluence with the Robinson River upstream including all named and unnamed tributaries.
~~ii~~ ii	Bolton Branch from 1.7 miles above its confluence with Hittles Mill Stream upstream including all named and unnamed tributaries.
~~ii~~ ii	Broad Hollow Run from its confluence with Hazel River upstream including all named and unnamed tributaries.
~~i~~ i	Brokenback Run from its confluence with the Hughes River upstream including all named and unnamed tributaries.
~~i~~ i	Bush Mountain Stream from its confluence with the Conway River upstream including all named and unnamed tributaries.
~~i~~ i	Cedar Run (Madison County) from 0.8 mile above its confluence with the Robinson River upstream including all named and unnamed tributaries.
~~i~~ i	Conway River (Greene County) from the Town of Fletcher upstream including all named and unnamed tributaries.
~~ii~~ ii	Dark Hollow from its confluence with the Rose River upstream including all named and unnamed tributaries.
~~i~~ i	Devils Ditch from its confluence with the Conway River upstream including all named and unnamed tributaries.
iii	Entry Run from its confluence with the South River upstream including all named and unnamed tributaries.
iii	Garth Run from 1.9 miles above its confluence with the Rapidan River at the Route 665 crossing upstream including all named and unnamed tributaries.
ii	Hannah Run from its confluence with the Hughes River upstream including all named and unnamed tributaries.
ii	Hazel River (Rappahannock County) from the Route 707 bridge upstream including all named and unnamed tributaries.
ii	Hogcamp Branch from its confluence with the Rose River upstream including all named and unnamed tributaries.
i	Hughes River (Madison County) from the upper crossing of Route 707 near the confluence of Rocky Run upstream including all named and unnamed tributaries.
iii	Indian Run (Rappahannock County) from 3.4 miles above its confluence with the Hittles Mill Stream upstream including all named and unnamed tributaries.
ii	Jordan River (Rappahannock County) from 10.9 miles above its confluence

	with the Rappahannock River upstream including all named and unnamed tributaries.
iii	Kinsey Run from its confluence with the Rapidan River upstream including all named and unnamed tributaries.
ii	Laurel Prong from its confluence with the Rapidan River upstream including all named and unnamed tributaries.
ii	Mill Prong from its confluence with the Rapidan River upstream including all named and unnamed tributaries.
ii	Negro Run (Madison County) from its confluence with the Robinson River upstream including all named and unnamed tributaries.
ii	North Fork Thornton River from 3.2 miles above its confluence with the Thornton River upstream including all named and unnamed tributaries.
ii	Piney River (Rappahannock County) from 0.8 mile above its confluence with the North Fork Thornton River upstream including all named and unnamed tributaries.
ii	Pocosin Hollow from its confluence with the Conway River upstream including all named and unnamed tributaries.
ii	Ragged Run from 0.6 mile above its confluence with Popham Run upstream including all named and unnamed tributaries.
i	Rapidan River from Graves Mill (Route 615) upstream including all named and unnamed tributaries.
ii	Robinson River (Madison County) from river mile 26.7 to river mile 29.7.
i	Robinson River (Madison County) from river mile 29.7 upstream including all named and unnamed tributaries.
i	Rose River from river mile 2.6 upstream including all named and unnamed tributaries.
iv	Rush River (Rappahannock County) from the confluence of Big Devil Stairs (approximate river mile 10.2) upstream including all named and unnamed tributaries.
ii	Sams Run from its confluence with the Hazel River upstream including all named and unnamed tributaries.
ii	South River from 8.9 miles above its confluence with the Rapidan River upstream including all named and unnamed tributaries.
ii	Sprucepine Branch from its confluence with Bearwallow Creek upstream including all named and unnamed tributaries.
i	Staunton River (Madison County) from its confluence with the Rapidan River upstream including all named and unnamed tributaries.
ii	Strother Run from its confluence with the Rose River upstream including all named and unnamed tributaries.
iii	Thornton River (Rappahannock County) from 25.7 miles above its confluence with the Hazel River upstream including all named and unnamed tributaries.
ii	Wilson Run from its confluence with the Staunton River upstream including all named and unnamed tributaries.

4a			(Deleted)
4b	III	PWS	The Rappahannock River and its tributaries, to include the VEPCO Canal, from Fredericksburg's (inactive May 2000) raw water intake to points 5 miles upstream.
4c	III	PWS	Motts Run and its tributaries.
4d	III		Horsepen Run and its tributaries.
4e	III	PWS	Hunting Run and its tributaries.
4f	III		Wilderness Run and its tributaries.
4g	III		Deep Run and its tributaries.
4h			(Deleted)
4i	III	PWS	Mountain Run and its tributaries from Culpeper's raw water intake to points 5 miles upstream.
4j	III	PWS	White Oak Run and its tributaries from the Town of Madison's raw water intake to points 5 miles upstream.
4k	III	PWS	Rapidan River and its tributaries from Orange's raw water intake near Poplar Run to points 5 miles upstream.
4l	III	PWS	Rapidan River and its tributaries from the Rapidan Service Authority's raw water intake (just upstream of the Route 29 bridge) upstream to points 5 miles above the intake.
4m	III	PWS	Rapidan River and its tributaries from the Wilderness Shores raw water intake (Orange County - Rapidan Service Authority) to points 5 miles upstream.

9VAC25-260-450. Roanoke River Basin.

SEC.	CLASS	SP. STDS.	SECTION DESCRIPTION
1	III	PWS	Lake Gaston and the John Kerr Reservoir in Virginia and their tributaries in Virginia, unless otherwise designated in this chapter (not including the Roanoke or the Dan Rivers). The Roanoke River Service Authority's water supply intake is in this section.
1a	III		Dockery Creek and its tributaries to their headwaters.
2	III		Dan River and its tributaries from the John Kerr Reservoir to the Virginia-North Carolina state line just east of the Pittsylvania-Halifax County line, unless otherwise designated in this chapter.
2a	III	PWS	Dan River and its tributaries from South Boston's raw water intake to points 5 miles upstream.
2b	III	PWS	Banister River and its tributaries from Burlington Industries' inactive raw water intake (about 2000 feet downstream of Route 360) inclusive of the Town of Halifax intake at the Banister Lake dam upstream to the Pittsylvania-Halifax County line (designation for main stem and tributaries ends at the county ~~Line~~ line).
2c			(Deleted)
2d	III	PWS	Cherrystone Creek and its tributaries from Chatham's raw water intake upstream to their headwaters.
2e	III	PWS	Georges Creek from Gretna's raw water intake upstream to its headwaters.

2f	III	PWS	Banister River and its tributaries from point below its confluence with Bearskin Creek (at latitude 36°46'15"; longitude 79°27'08") just east of Route 703, upstream to their headwaters.
2g	III	PWS	Whitethorn Creek and its tributaries from its confluence with Georges Creek upstream to their headwaters.
3	III		Dan River and its tributaries from the Virginia-North Carolina state line just east of the Pittsylvania-Halifax County line upstream to the state line just east of Draper, ~~N.C.~~ North Carolina, unless otherwise designated in this chapter.
	III	PWS	Dan River and its tributaries from the Virginia-North Carolina state line just south of Danville to points 1.34 miles upstream and the first unnamed tributary to Hogans Creek from the Virginia-North Carolina state line to a point 0.45 mile upstream.
3a	III	PWS	Dan River and its tributaries from the Schoolfield Dam including the City of Danville's main water intake located just upstream of the Schoolfield Dam, upstream to the Virginia-North Carolina state line.
3b	IV	PWS	Cascade Creek and its tributaries.
3c	IV	PWS	Smith River and its tributaries from the Virginia-North Carolina state line to, but not including, Home Creek.
3d	VI	PWS	Smith River from DuPont's (inactive) raw water intake upstream to the Philpott Dam, unless otherwise designated in this chapter.
	VI	PWS	Natural Trout Waters in Section 3d
	ii		Smith River from DuPont's (inactive) raw water intake upstream to the Philpott Dam, unless otherwise designated in this chapter.
3e	IV		Philpott Reservoir, Fairystone Lake and their tributaries.
	V		Stockable Trout Waters in Section 3e
	v		Otter Creek from its confluence with Rennet Bag Creek (Philpott Reservoir) to its headwaters.
	v		Smith River (Philpott Reservoir portion) from the Philpott Dam (river mile 46.80) to river mile 61.14, just above the confluence with Small Creek.
	v		Rennet Bag Creek from its confluence with the Smith River to the confluence of Long Branch Creek.
	VI		Natural Trout Waters in Section 3e
	ii		Brogan Branch from its confluence with Rennet Bag Creek upstream including all named and unnamed tributaries.
	ii		Rennet Bag Creek from the confluence of Long Branch Creek upstream including all named and unnamed tributaries.
	ii		Roaring Run from its confluence with Rennet Bag Creek upstream including all named and unnamed tributaries.
3f	IV	PWS	North Mayo River and South Mayo River and their tributaries from the Virginia-North Carolina state line to points 5 miles upstream.
3g	IV		Interstate streams in the Dan River watershed above the point where the Dan crosses the Virginia-North Carolina state line just east of Draper, ~~N. C.~~ North Carolina, (including the Mayo and the Smith watersheds),

			unless otherwise designated in this chapter.
	V		Stockable Trout Waters in Section 3g
	vi		Dan River from the Virginia-North Carolina state line upstream to the Pinnacles Power House.
	***		Little Dan River from its confluence with the Dan River 7.8 miles upstream.
	v		Smith River from river mile 61.14 (just below the confluence of Small Creek), to Route 704 (river mile 69.20).
	VI		Natural Trout Waters in Section 3g
	ii		Dan River from Pinnacles Power House to Townes Dam.
	ii		Dan River from headwaters of Townes Reservoir to Talbott Dam.
	iii		Little Dan River from 7.8 miles above its confluence with the Dan River upstream including all named and unnamed tributaries.
	i		North Prong of the North Fork Smith River from its confluence with the North Fork Smith River upstream including all named and unnamed tributaries.
	ii		North Fork Smith River from its confluence with the Smith River upstream including all named and unnamed tributaries.
	iii		Smith River from Route 704 (river mile 69.20) to Route 8 (river mile 77.55).
	ii		Smith River from Route 8 (approximate river mile 77.55) upstream including all named and unnamed tributaries.
	ii		South Mayo River from river mile 38.8 upstream including all named and unnamed tributaries.
3h	IV	PWS	South Mayo River and its tributaries from the Town of Stuart's raw water intake 0.4 mile upstream of its confluence with the North Fork Mayo River to points 5 miles upstream.
	VI		Natural Trout Waters in Section 3h
	iii		Brushy Fork from its confluence with the South Mayo River upstream including all named and unnamed tributaries.
	iii		Lily Cove Branch from its confluence with Rye Cove Creek upstream including all named and unnamed tributaries.
	iii		Rye Cove Creek from its confluence with the South Mayo River upstream including all named and unnamed tributaries.
	iii		South Mayo River from river mile 33.8 upstream including all named and unnamed tributaries.
3i	IV	PWS	Hale Creek and its tributaries from the Fairy Stone State Park's raw water intake 1.7 miles from its confluence with Fairy Stone Lake upstream to its headwaters.
3j	VI	PWS	Smith River and its tributaries from the Henry County Public Service Authority's raw water intake about 0.2 mile upstream of its confluence with Town Creek to points 5 miles upstream.
4	III		Intrastate tributaries to the Dan River above the Virginia-North Carolina state line just east of Draper, North Carolina, to their headwaters, unless

	otherwise designated in this chapter.
V	Stockable Trout Waters in Section 4
vi	Browns Dan River from the intersection of Routes 647 and 646 to its headwaters.
vi	Little Spencer Creek from its confluence with Spencer Creek to its headwaters.
vi	Poorhouse Creek from its confluence with North Fork South Mayo River upstream to Route 817.
***	Rock Castle Creek from its confluence with the Smith River upstream to Route 40.
VI	Natural Trout Waters in Section 4
ii	Barnard Creek from its confluence with the Dan River upstream including all named and unnamed tributaries.
ii	Big Cherry Creek from its confluence with Ivy Creek upstream including all named and unnamed tributaries.
iii	Ivy Creek from its confluence with the Dan River upstream including all named and unnamed tributaries.
iii	Camp Branch from its confluence with Ivy Creek upstream including all named and unnamed tributaries.
iii	Haunted Branch from its confluence with Barnard Creek upstream including all named and unnamed tributaries.
ii	Hookers Creek from its confluence with the Little Dan River upstream including all named and unnamed tributaries.
iii	Ivy Creek from Coleman's Mill Pond upstream to Route 58 (approximately 2.5 miles).
iii	Little Ivy Creek from its confluence with Ivy Creek upstream including all named and unnamed tributaries.
iii	Little Rock Castle Creek from its confluence with Rock Castle Creek upstream including all named and unnamed tributaries.
ii	Maple Swamp Branch from its confluence with Round Meadow Creek upstream including all named and unnamed tributaries.
iii	Mayberry Creek from its confluence with Round Meadow Creek upstream including all named and unnamed tributaries.
ii	Mill Creek from its confluence with the Dan River upstream including all named and unnamed tributaries.
iii	North Fork South Mayo River from its confluence with the South Mayo River upstream including all named and unnamed tributaries.
vi**	Patrick Springs Branch from its confluence with Laurel Branch upstream including all named and unnamed tributaries.
iii	Polebridge Creek from Route 692 upstream including all named and unnamed tributaries.
ii	Poorhouse Creek from Route 817 upstream including all named and unnamed tributaries.

	ii		Rhody Creek from its confluence with the South Mayo River upstream including all named and unnamed tributaries.
	iii		Rich Creek from Route 58 upstream including all named and unnamed tributaries.
	ii		Roaring Creek from its confluence with the Dan River upstream including all named and unnamed tributaries.
	i		Rock Castle Creek from Route 40 upstream including all named and unnamed tributaries.
	iii		Round Meadow Creek from its confluence with the Dan River upstream including all named and unnamed tributaries.
	ii		Sawpit Branch from its confluence with Round Meadow Creek upstream including all named and unnamed tributaries.
	ii		Shooting Creek from its confluence with the Smith River upstream including all named and unnamed tributaries.
	vi**		Spencer Creek from Route 692 upstream including all named and unnamed tributaries.
	iii		Squall Creek from its confluence with the Dan River upstream including all named and unnamed tributaries.
	ii		Tuggle Creek from its confluence with the Dan River upstream including all named and unnamed tributaries.
	ii		Widgeon Creek from its confluence with the Smith River upstream including all named and unnamed tributaries.
4a	III	PWS	Intrastate tributaries (includes Beaver Creek, Little Beaver Creek, and Jones Creek, for the City of Martinsville) to the Smith River from DuPont's (inactive) raw water intake to points 5 miles upstream from Fieldcrest Cannon's raw water intake.
4b	III	PWS	Marrowbone Creek and its tributaries from the Henry County Public Service Authority's raw water intake (about ~~1/4~~ 0.25 mile upstream from Route 220) to their headwaters.
4c	III	PWS	Leatherwood Creek and its tributaries from the Henry County Public Service Authority's raw water intake 8 miles upstream of its confluence with the Smith River to points 5 miles upstream.
5	IV	PWS	Roanoke Staunton River from the headwaters of the John Kerr Reservoir to Leesville Dam unless otherwise designated in this chapter.
5a	III	PWS	Tributaries to the Roanoke Staunton River from the headwaters of the John Kerr Reservoir to Leesville Dam, unless otherwise designated in this chapter.
	V		Stockable Trout Waters in Section 5a
	vi		Day Creek from Route 741 to its headwaters.
	VI		Natural Trout Waters in Section 5a
	iii		Gunstock Creek from its confluence with Overstreet Creek upstream including all named and unnamed tributaries.
	ii		Overstreet Creek from its confluence with North Otter Creek upstream including all named and unnamed tributaries.

5b	III	PWS	Spring Creek from Keysville's raw water intake upstream to its headwaters.
5c	III	PWS	Falling River and its tributaries from a point just upstream from State Route 40 (the raw water source for Dan River, Inc.) to points 5 miles upstream and including the entire Phelps Creek watershed which contains the Brookneal Reservoir.
5d	III		Falling River and its tributaries from 5 miles above Dan River, Inc. raw water intake to its headwaters.
5e	III	PWS	Reed Creek and its tributaries from Altavista's raw water intake upstream to their headwaters.
5f	III	PWS	Big Otter River and its tributaries from Bedford's raw water intake to points 5 miles upstream, and Stony Creek and Little Stony Creek upstream to their headwaters.
	VI	PWS	Natural Trout Waters in Section 5f
	ii		Little Stony Creek from 1 mile above its confluence with Stony Creek upstream including all named and unnamed tributaries.
	ii		Stony Creek from the Bedford Reservoir upstream including all named and unnamed tributaries.
5g	III		Big Otter River and its tributaries from 5 miles above Bedford's raw water intake upstream to their headwaters.
5h	III		Ash Camp Creek and that portion of Little Roanoke Creek from its confluence with Ash Camp Creek to the Route 47 bridge.
5i	III	PWS	The Roanoke River and its tributaries from the Town of Altavista's raw water intake, 0.1 mile upstream from the confluence of Sycamore Creek, to points 5 miles upstream.
5j	III	PWS	Big Otter River and its tributaries from the Campbell County Utilities and Service Authority's raw water intake to points 5 miles upstream.
6	IV	pH-6.5-9.5	Roanoke River from a point (at latitude 37°15'53"; longitude 79°54'00") 5 miles above the headwaters of Smith Mountain Lake upstream to Salem's #1 raw water intake.
	V		Stockable Trout Waters in Section 6
	***	pH-6.5-9.5, ff	Roanoke River from its junction from Routes 11 and 419 to Salem's #1 raw water intake.
6a	III	NEW-1	Tributaries of the Roanoke River from Leesville Dam to Niagra Reservoir, unless otherwise designated in this chapter.
	V		Stockable Trout Waters in Section 6a
	vi		Gourd Creek from 1.3 miles above its confluence with Snow Creek to its headwaters.
	vi		Maggodee Creek from Boones Mill upstream to Route 862 (approximately 3.8 miles).
	vii		South Fork Blackwater River from its confluence with the Blackwater River upstream to Roaring Run.
	vi		South Prong Pigg River from its confluence with the Pigg River to its headwaters.

	VI		Natural Trout Waters in Section 6a
	iii		Daniels Branch from its confluence with the South Fork Blackwater River upstream including all named and unnamed tributaries.
	ii		Green Creek from Roaring Run upstream including all named and unnamed tributaries.
	ii		Pigg River from 1 mile above the confluence of the South Prong Pigg River upstream including all named and unnamed tributaries.
	ii		Roaring Run from its confluence with the South Fork Blackwater River upstream including all named and unnamed tributaries.
6b			(Deleted)
6c	III	PWS	Falling Creek Reservoir and Beaverdam Reservoir.
6d	IV		Tributaries of the Roanoke River from Niagra Reservoir to Salem's #1 raw water intake, unless otherwise designated in this chapter.
	V		Stockable Trout Waters in Section 6d
	vii	ee	Tinker Creek from its confluence with the Roanoke River north to Routes 11 and 220.
	VI		Natural Trout Waters in Section 6d
	iii		Glade Creek from its junction with Berkley Road NE to the confluence of Coyner Branch.
6e	IV	PWS	Carvin Cove Reservoir and its tributaries to their headwaters.
6f	IV	PWS, NEW-1	Blackwater River and its tributaries from the Town of Rocky Mount's raw water intake (just upstream of State Route 220) to points 5 miles upstream.
6g	IV	PWS	Tinker Creek and its tributaries from the City of Roanoke's raw water intake (about 0.4 mile downstream from Glebe Mills) to points 5 miles upstream.
6h	IV	PWS	Roanoke River from Leesville Dam to Smith Mountain Dam (Gap of Smith Mountain), excluding all tributaries to Leesville Lake.
6i	IV	PWS, NEW-1	Roanoke River from Smith Mountain Dam (Gap of Smith Mountain) upstream to a point (at latitude 37°15'53"; longitude 79°54'00" and its tributaries to points 5 miles above the 795.0 foot contour (normal pool elevation) of Smith Mountain Lake.
7	IV	pH-6.5-9.5, ESW-2	Roanoke River and its tributaries, unless otherwise designated in this chapter, from Salem's #1 raw water intake to their headwaters.
	V		Stockable Trout Waters in Section 7
	vi	pH-6.5-9.5	Elliott Creek from the confluence of Rocky Branch to its headwaters.
	vi	pH-6.5-9.5	Goose Creek from its confluence with the South Fork Roanoke River to its headwaters.
	vi	pH-6.5-9.5	Mill Creek from its confluence with Bottom Creek to its headwaters.
	***	pH-6.5-9.5	Roanoke River from 5 miles above Salem's #2 raw water intake to the Spring Hollow Reservoir intake (see ~~section~~ Section 7b).
	vi	pH-6.5-9.5	Smith Creek from its confluence with Elliott Creek to its headwaters.
	vi	pH-6.5-9.5	South Fork Roanoke River from 5 miles above the Spring Hollow

			Reservoir intake (see ~~section~~ Section 7b) to the mouth of Bottom Creek (river mile 17.1).
	VI		Natural Trout Waters in Section 7
	ii	pH-6.5-9.5	Big Laurel Creek from its confluence with Bottom Creek upstream including all named and unnamed tributaries.
	ii	pH-6.5-9.5	Bottom Creek from its confluence with the South Fork Roanoke River upstream including all named and unnamed tributaries.
	ii	pH-6.5-9.5	Lick Fork (Floyd County) from its confluence with Goose Creek upstream including all named and unnamed tributaries.
	ii	pH-6.5-9.5	Mill Creek from its confluence with the North Fork Roanoke River upstream including all named and unnamed tributaries.
	iii	pH-6.5-9.5	Purgatory Creek from Camp Alta Mons upstream including all named and unnamed tributaries.
	ii	pH-6.5-9.5	Spring Branch from its confluence with the South Fork Roanoke River upstream including all named and unnamed tributaries.
7a	IV	PWS pH-6.5-9.5	Roanoke River and its tributaries from Salem's #1 raw water intake to points 5 miles upstream from Salem's #2 raw water intake.
	V	PWS	Stockable Trout Waters in Section 7a
	***	pH-6.5-9.5, ff	Roanoke River from Salem's #1 raw water intake to a point 5 miles upstream from Salem's #2 raw water intake.
7b	IV	PWS pH-6.5-9.5	Roanoke River and its tributaries from the Spring Hollow Reservoir intake upstream to points 5 miles upstream.
	V	PWS	Stockable Trout Waters in Section 7b
	***	pH-6.5-9.5, ~~hh~~ ff	Roanoke River from the Spring Hollow Reservoir intake to the Floyd-Montgomery County line.
	vi	pH-6.5-9.5	South Fork Roanoke River from its confluence with the Roanoke River to 5 miles above the Spring Hollow Reservoir intake.

9VAC25-260-460. Yadkin River Basin.

SEC.	CLASS	SP. STDS.	SECTION DESCRIPTION
1	IV	PWS	Yadkin River Basin in Virginia including Ararat River, Johnson Creek, Little Fisher River, Lovills Creek, Pauls Creek and Stewarts Creek - the entire reach of these streams from the Virginia-North Carolina state line to their headwaters.
	V	PWS	Stockable Trout Waters in Section 1
	***		Ararat River from Route 823 upstream to Route 671.
	vi		Halls Branch from its confluence with Lovills Creek 4.5 miles upstream.
	vi		Johnson Creek from the Virginia-North Carolina state line to its headwaters.
	vii		Lovills Creek from the Virginia-North Carolina state line 1.8 miles upstream (to the Natural Resource Conservation Service dam).
	vii		Pauls Creek (at the Carroll County line at Route 690) from 6.7 miles above its confluence with Stewarts Creek 4.2 miles upstream.

VI	PWS	Natural Trout Waters in Section 1
iii		Ararat River from Route 671 upstream including all named and unnamed tributaries.
iii		East Fork Johnson Creek from its confluence with Johnson Creek upstream including all named and unnamed tributaries.
iii		Elk Spur Branch from its confluence with Lovills Creek upstream including all named and unnamed tributaries.
i		Little Fisher Creek from the Virginia-North Carolina state line upstream including all named and unnamed tributaries.
ii		Little Pauls Creek in the vicinity of Route 692 (4 miles above its confluence with Pauls Creek) upstream including all named and unnamed tributaries.
iii		Lovills Creek and its tributaries from the headwaters of the impoundment formed by the Natural Resource Conservation Service dam ~~(1.8 miles above the Virginia-North Carolina state line)~~ to ~~river mile 7.8 (at the confluence of Elk Spur and Waterfall Branch)~~ their headwaters.
ii		North Fork Stewarts Creek from its confluence with Stewarts Creek upstream including all named and unnamed tributaries.
ii		Pauls Creek (Carroll County) from 10.9 miles above its confluence with Stewarts Creek upstream including all named and unnamed tributaries.
i		South Fork Stewarts Creek from its confluence with Stewarts Creek upstream including all named and unnamed tributaries.
iii		Stewarts Creek below Lambsburg in the vicinity of Route 696 (10.4 miles above its confluence with the Ararat River) to the confluence of the North and South Forks of Stewarts Creek.
iii		Sun Run from its confluence with the Ararat River upstream including all named and unnamed tributaries.
iii		Thompson Creek from its confluence with the Ararat River upstream including all named and unnamed tributaries.
ii		Turkey Creek from its confluence with Stewarts Creek upstream including all named and unnamed tributaries.
ii		Waterfall Branch from its confluence with Lovills Creek upstream including all named and unnamed tributaries.

9VAC25-260-470. Chowan and Dismal Swamp (Chowan River Subbasin).

SEC.	CLASS	SP. STDS.	SECTION DESCRIPTION
1	II	NEW-21	Blackwater River and its tidal tributaries from the Virginia-North Carolina state line to the end of tidal waters at approximately State Route 611 at river mile 20.90; Nottoway River and its tidal tributaries from the Virginia-North Carolina state line to the end of tidal waters at approximately Route 674.
2	VII	NEW-21	Blackwater River from the end of tidal waters to its headwaters and its ~~free-flowing~~ free flowing tributaries in Virginia, unless otherwise designated in this chapter.
2a	VII	PWS	Blackwater River and its tributaries from Norfolk's auxiliary raw water intake near Burdette, Virginia, to points 5 miles above the raw water intake, to include Corrowaugh Swamp to a point 5 miles above the raw water intake.

2b	III		Nottoway River from the end of tidal waters to its headwaters and its ~~free-flowing~~ free flowing tributaries in Virginia, unless otherwise designated in this chapter.
	VII		Swamp waters in Section 2b
			Assamoosick Swamp and its tributaries from river mile 2.50 to its headwaters.
			Black Branch Swamp from its confluence with the Nottoway River to its headwaters.
			Butterwood Creek from river mile 4.65 (near Route 622) upstream to river mile 14.59 (near Route 643).
			Cabin Point Swamp from its confluence with the Nottoway River to its headwaters.
			Cooks Branch from its confluence with Butterwood Creek to river mile 1.08
			Gosee Swamp and its tributaries from its confluence with the Nottoway River to river mile 6.88.
			Gravelly Run and its tributaries from its confluence with Rowanty Creek to river mile 8.56.
			Harris Swamp and its tributaries from its confluence with the Nottoway River to river mile 8.72.
			Hatcher Run and its tributaries from its confluence with Rowanty Creek to river mile 19.27 excluding Picture Branch.
			Hunting Quarter Swamp and its tributaries from its confluence with the Nottoway River to its headwaters.
			Moores and Jones Holes Swamp and tributaries from their confluence with the Nottoway River to its headwaters.
			Nebletts Mill Run and its tributaries from its confluence with the Nottoway River to its headwaters.
			Raccoon Creek and its tributaries from its confluence with the Nottoway River to its headwaters.
			Rowanty Creek and its tributaries from its confluence with the Nottoway River to Gravelly Run.
			Southwest Swamp and its tributaries from its confluence with Stony Creek to river mile 8.55.
			Three Creek and its tributaries from its confluence with the Nottoway River upstream to its headwaters <u>at</u> Slagles Lake.
2c	III	PWS	Nottoway River and its tributaries from Norfolk's auxiliary raw water intake near Courtland, Virginia, to points 5 miles upstream unless otherwise designated in this chapter.
	VII		Swamp waters in Section 2c
			Assamoosick Swamp <u>and its tributaries</u> from its confluence with the Nottoway River to river mile 2.50.
2d			(Deleted)
2e	III	PWS	Nottoway River and its tributaries from the Georgia-Pacific and the Town of Jarratt's raw water intakes near Jarratt, Virginia, to points 5 miles above the intakes.

2f	III	PWS	Nottoway River and its tributaries from the Town of Blackstone's raw water intake to points 5 miles ~~above the raw water intake~~ upstream.
2g	III	PWS	Lazaretto Creek and its tributaries from Crewe's raw water intake to points 5 miles upstream.
2h	III	PWS	Modest Creek and its tributaries from Victoria's raw water intake to their headwaters.
2i	III	PWS	Nottoway River and its tributaries from the Town of Victoria's raw water intake at the Falls (about 200 feet upstream from State Route 49) to points 5 miles upstream.
2j	III	PWS	Big Hounds Creek from the Town of Victoria's auxiliary raw water intake (on Lunenburg Lake) to its headwaters.
3	III		Meherrin River and its tributaries in Virginia from the Virginia-North Carolina state line to its headwaters, unless otherwise designated in this chapter.
	VII		Swamp waters in Section 3
			Cattail Creek and its tributaries from its confluence with Fontaine Creek to their headwaters.
			Tarrara Creek and its tributaries from its confluence with the Meherrin River to its headwaters.
			~~Fountains~~ Fontaine Creek and its tributaries from its confluence with the Meherrin River to Route 301.
3a	III	PWS	Meherrin River and its tributaries from Emporia's water supply dam to points 5 miles upstream.
3b	III	PWS	Great Creek from Lawrenceville's raw water intake to a point 7.6 miles upstream.
3c	III	PWS	Meherrin River and its tributaries from Lawrenceville's raw water intake to points 5 miles upstream.
3d	III	PWS	Flat Rock Creek from Kenbridge's raw water intake upstream to its headwaters.
3e	III	PWS	Meherrin River and its tributaries from South Hill's raw water intake to points 5 miles upstream.
3f	III		Couches Creek from a point 1.6 miles downstream from the Industrial Development Authority discharge to its headwaters.
4	III		Free flowing tributaries to the Chowan River in Virginia unless otherwise designated in this section.
	VII		Swamp waters in Section 4
			Unnamed tributary to Buckhorn Creek from its headwaters to the Virginia-North Carolina state line.
			Somerton Creek and its tributaries from the Virginia-North Carolina state line at river mile 0.00 upstream to river mile 13.78.

9VAC25-260-510. Tennessee and Big Sandy River Basins (Holston River Subbasin).

SEC.	CLASS	SP. STDS.	SECTION DESCRIPTION
1	IV		North Fork Holston River and its tributaries, unless otherwise designated in this chapter, from the Virginia-Tennessee state line to their headwaters, and those sections of Timbertree Branch and Boozy Creek in Virginia.

V	Stockable Trout Waters in Section 1
vi	Greendale Creek from its confluence with the North Fork Holston River 4.1 miles upstream.
v	Laurel Bed Creek from its confluence with Tumbling Creek 1.8 miles upstream.
vi	Laurel Creek within the Thomas Jefferson National Forest boundaries.
***	Laurel Creek from Route 16 to its confluence with Roaring Fork.
vi	Lick Creek (Bland County) from 5.5 miles above its confluence with the North Fork Holston River 10.9 miles upstream.
vi	Little Tumbling Creek from Tannersville upstream to where the powerline crosses the stream.
vi	Lynn Camp Creek from its confluence with Lick Creek 3.9 miles upstream.
vi	Punch and Judy Creek from its confluence with Laurel Creek 3.2 miles upstream.
v	Tumbling Creek from its confluence with the North Fork Holston River ~~7.1 miles~~ upstream <u>including all named and unnamed tributaries</u>.
VI	Natural Trout Waters in Section 1
ii	Barkcamp Branch from its confluence with Roaring Fork upstream including all named and unnamed tributaries.
ii	Beartown Branch from its confluence with Sprouts Creek upstream including all named and unnamed tributaries.
ii	Beaver Creek (Smyth County) from its confluence with the North Fork Holston River 2.8 miles upstream.
~~***~~	~~Big Tumbling Creek from its confluence with the North Fork Holston River upstream including all named and unnamed tributaries.~~
ii	Brier Cove from its confluence with Tumbling Creek upstream including all named and unnamed tributaries.
	Brumley Creek from its confluence with the North Fork Holston River upstream <u>to the Hidden Valley Lake dam</u> including all named and unnamed tributaries.
***	Brumley Creek from its confluence with the North Fork Holston River (at Duncanville) 4 miles upstream.
iii	Brumley Creek from 4 miles above its confluence with the North Fork Holston River (at Duncanville) 6.9 miles upstream.
iii	Campbell Creek (Smyth County) from its confluence with the North Fork Holston River at Ellendale Ford 1 mile upstream.
ii	Coon Branch from its confluence with Barkcamp upstream including all named and unnamed tributaries.
ii	Cove Branch from its confluence with Roaring Fork upstream including all named and unnamed tributaries.
ii	Henshaw Branch from its confluence with Lick Creek upstream including all named and unnamed tributaries.
ii	Little Sprouts Creek from its confluence with Sprouts Creek upstream including all named and unnamed tributaries.
ii	Little Tumbling Creek from the powerline crossing upstream including all named

			and unnamed tributaries.
	v**		Red Creek from its confluence with Tumbling Creek upstream including all named and unnamed tributaries.
	ii		Roaring Fork (Tazewell County) from its confluence with Laurel Creek upstream including all named and unnamed tributaries.
	ii		Sprouts Creek from its confluence with the North Fork Holston River upstream including all named and unnamed tributaries.
	ii		Toole Creek from its confluence with the North Fork Holston River 5.9 miles upstream.
1a	IV		North Fork Holston River from the Olin Corporation downstream to the Virginia-Tennessee state line.
1b	IV	PWS	Big Moccasin Creek and its tributaries from Weber City's raw water intake to points 5 miles upstream from Gate City's raw water intake.
1c			(Deleted)
1d	IV	PWS	Unnamed tributary to the North Fork Holston River from Hilton's Community No. 2 public water supply raw water intake to its headwaters.
2	IV	PWS	South Holston Lake in Virginia and South Holston Lake and its tributaries from the Bristol Virginia Utilities Board's raw water intake to points 5 miles upstream.
3	IV		Tributaries of the South Holston Lake, and Sinking Creek and Nicely Branch in Virginia, unless otherwise designated in this chapter.
	V		Stockable Trout Waters in Section 3
	vi		Berry Creek from its confluence with Fifteenmile Creek (Washington County) 2 miles upstream.
	vi		Spring Creek from its confluence with the South Holston Lake to its headwaters.
	VI		Natural Trout Waters in Section 3
	ii		Cox Mill Creek from its confluence with the South Fork Holston River upstream including all named and unnamed tributaries.
3a			(Deleted)
4	IV		Steel Creek and Beaver Creek and their tributaries in Virginia.
	V		Stockable Trout Waters in Section 4
	vi		Beaver Creek (Washington County) and its tributaries from the flood control dam (near Route 11) to their headwaters.
	vi		Sinking Creek (tributary to Paperville Creek-Washington County) from the Virginia-Tennessee state line at Bristol 3.4 miles upstream.
5	IV		Middle Fork Holston River and its tributaries, unless otherwise designated in this chapter.
	V		Stockable Trout Waters in Section 5
	vi		Dry Run from its confluence with the Middle Fork Holston River 1.6 miles upstream.
	vi		Dutton Branch from its confluence with the Middle Fork Holston River 2 miles upstream.
	vi		Laurel Springs Creek from its confluence with the Middle Fork Holston River 2

			miles upstream.
	vi		Middle Fork Holston River from 5 miles above Marion's raw water intake (river mile 45.83) to the headwaters.
	vi		Preston Hollow from 0.5 mile above its confluence with the Middle Fork Holston River 1.5 miles upstream.
	vi		Staley Creek from its confluence with the Middle Fork Holston River 1 mile upstream.
	VI		Natural Trout Waters in Section 5
	iii		East Fork Nicks Creek from its confluence with Nicks Creek upstream including all named and unnamed tributaries.
	iii		Nicks Creek within the Jefferson National Forest boundary (river mile 1.6) upstream including all named and unnamed tributaries.
	iii		Staley Creek from 1 mile above its confluence with the Middle Fork Holston River upstream including all named and unnamed tributaries.
5a	IV		Middle Fork Holston River and its tributaries from Edmondson Dam upstream to the Route 91 bridge.
5b	IV		Hungry Mother Creek from the dam upstream including all named and unnamed tributaries.
5c	IV	PWS	Middle Fork Holston River and its tributaries from Marion's raw water intake to points 5 miles upstream, unless otherwise designated in this chapter.
	V		Stockable Trout Waters in Section 5c
	vi		Middle Fork Holston River from Marion's raw water intake at Mt. Carmel at river mile 45.83 to a point 5 miles upstream (river mile 50.83).
5d	IV	PWS	Middle Fork Holston River and its tributaries from Washington County Service Authority's raw water intake to points 5 miles upstream.
6	IV	ESW-10	South Fork Holston River and its tributaries in Virginia, unless otherwise designated in this chapter.
	V		Stockable Trout Waters in Section 6
	vi		Grosses Creek from its confluence with the South Fork Holston River 3.4 miles upstream.
	vi		Rush Creek (Washington County) from its confluence with the South Fork Holston River 2.2 miles upstream.
	vi		Straight Branch from its confluence with Whitetop Laurel Creek 2.5 miles upstream.
	VI		Natural Trout Waters in Section 6
	iii		Barkcamp Branch from its confluence with Rowland Creek upstream including all named and unnamed tributaries.
	iii		Beaverdam Creek (Washington County) from its confluence with Laurel Creek to the Virginia-Tennessee state line 2 miles upstream.
	iii		Bell Hollow from its confluence with Dickey Creek upstream including all named and unnamed tributaries.
	iii		Big Branch from its confluence with Big Laurel Creek upstream including all named and unnamed tributaries.

	Big Laurel Creek (Smyth County) from its confluence with Whitetop Laurel Creek upstream including all named and unnamed tributaries.
iii	Big Laurel Creek (Smyth County) from its confluence with Whitetop Laurel Creek 2.6 miles upstream.
ii	Big Laurel Creek (Smyth County) from 2.6 miles above its confluence with Whitetop Laurel Creek (at Laurel Valley Church) upstream including all named and unnamed tributaries.
iii	Brush Creek from its confluence with Rush Creek upstream including all named and unnamed tributaries.
iii	Buckeye Branch from its confluence with Green Cove Creek upstream including all named and unnamed tributaries.
ii	Charlies Branch from its confluence with Big Laurel Creek upstream including all named and unnamed tributaries.
iii	Cold Branch from its confluence with Jerrys Creek upstream including all named and unnamed tributaries.
iv	Comers Creek from its confluence with the South Fork Holston River upstream including all named and unnamed tributaries.
ii	Cressy Creek from 1.7 miles above its confluence with the South Fork Holston River at Route 16 upstream including all named and unnamed tributaries.
ii	Daves Branch from its confluence with Big Laurel Creek upstream including all named and unnamed tributaries.
iii	Dickey Creek from 0.6 mile above its confluence with the South Fork Holston River upstream including all named and unnamed tributaries.
ii	Dry Fork from 1.2 miles above its confluence with St. Clair Creek upstream including all named and unnamed tributaries.
ii	Feathercamp Branch from its confluence with Straight Branch upstream including all named and unnamed tributaries.
ii	Grassy Branch from its confluence with Big Laurel Creek upstream including all named and unnamed tributaries.
ii	Green Cove Creek from its confluence with Whitetop Laurel Creek upstream including all named and unnamed tributaries.
ii	Grindstone Branch from its confluence with Big Laurel Creek upstream including all named and unnamed tributaries.
iii	High Trestle Branch from its confluence with Buckeye Branch upstream including all named and unnamed tributaries.
iii	Hopkins Branch from its confluence with the South Fork Holston River upstream including all named and unnamed tributaries.
iii	Houndshell Branch from its confluence with Cressy Creek upstream including all named and unnamed tributaries.
ii	Hurricane Creek (Smyth County) from its confluence with Comers Creek upstream including all named and unnamed tributaries.
iii	Hutton Branch from its confluence with Dickey Creek upstream including all named and unnamed tributaries.
iii	Jerrys Creek (Smyth County) from 1.5 miles above its confluence with Rowland

	Creek upstream including all named and unnamed tributaries.
ii	Little Laurel Creek (Smyth County) from its confluence with Whitetop Laurel Creek upstream including all named and unnamed tributaries.
***	Laurel Creek from its confluence with Beaverdam Creek (Washington County) to the Virginia-North Carolina state line.
ii	London Bridge Branch from its confluence with Beaverdam Creek (Washington County) 0.6 mile upstream.
iii	Long Branch from its confluence with Jerrys Creek upstream including all named and unnamed tributaries.
ii	Mill Creek (Washington County) from its confluence with the South Fork Holston River upstream including all named and unnamed tributaries.
iii	Parks Creek from its confluence with Cressy Creek upstream including all named and unnamed tributaries.
ii	Pennington Branch from its confluence with Whitetop Laurel Creek upstream including all named and unnamed tributaries.
iii	Quarter Branch from 1.1 miles above its confluence with Cressy Creek upstream including all named and unnamed tributaries.
iii	Raccoon Branch from its confluence with Dickey Creek upstream including all named and unnamed tributaries.
ii	Rowland Creek from 2.5 miles above its confluence with the South Fork Holston River upstream including all named and unnamed tributaries.
ii	Rush Creek (Washington County) from 2.2 miles above its confluence with the South Fork Holston River upstream including all named and unnamed tributaries.
iii	Scott Branch from its confluence with Dickey Creek upstream including all named and unnamed tributaries.
iii	Slemp Creek from 2 miles above its confluence with Cressy Creek upstream including all named and unnamed tributaries.
ii	South Fork Holston River from 101.8 miles above its confluence with the Holston River to the Thomas Bridge Water Corporation's raw water intake (see ~~section~~ Section 6a).
ii	South Fork Holston River from 5 miles above the Thomas Bridge Water Corporation's raw water intake to a point 12.9 miles upstream (see ~~section~~ Section 6a).
ii	Star Hill Branch from its confluence with Green Cove Creek upstream including all named and unnamed tributaries.
ii	St. Clair Creek from 3.3 miles above its confluence with the South Fork Holston River (at Route 600) above Horseshoe Bend upstream including all named and unnamed tributaries.
ii	Sturgill Branch from its confluence with Whitetop Laurel Creek upstream including all named and unnamed tributaries.
iii	Valley Creek (Washington County) from its confluence with Whitetop Laurel Creek upstream including all named and unnamed tributaries.
	Whitetop Laurel Creek from its confluence with Laurel Creek upstream including all named and unnamed tributaries.

	ii		Whitetop Laurel Creek from its confluence with Laurel Creek 8.1 miles upstream.
	i		Whitetop Laurel Creek from 8.1 miles above its confluence with Laurel Creek 4.4 miles upstream.
	iii		Whitetop Laurel Creek from 12.5 miles above its confluence with Laurel Creek 3.8 miles upstream.
6a	IV	PWS	South Fork Holston River and its tributaries from Thomas Bridge Water Corporation's raw water intake between Route 658 and Route 656 to points 5 miles upstream.
	VI		Natural Trout Waters in Section 6a
	ii		South Fork Holston River from Thomas Bridge Water Corporation's raw water intake to a point 5 miles upstream.

9VAC25-260-520. Chesapeake Bay, Atlantic Ocean and small coastal basins.

SEC.	CLASS	SP. STDS.	SECTION DESCRIPTION
1	I	a	The Atlantic Ocean from Cape Henry Light (Latitude 36°55'06" North; Longitude 76°00'04" West) east to the three mile limit and south to the Virginia-North Carolina state line. The Atlantic Ocean from Cape Henry Light to Thimble Shoal Channel (Latitude 36°57'30" North; Longitude 76°02'30" West) from Thimble Shoal Channel to Smith Island (Latitude 37°07'04" North; Longitude 75°54'04" West) and north to the Virginia-Maryland state line.
1a	III		All free flowing portions of the streams, creeks and coves in Section 1 east of the east-west divide boundary on the Eastern Shore of Virginia.
1b	II	a	Tidal portions of streams, creeks and coves in Section 1 east of the east-west divide boundary on the Eastern Shore of Virginia.
2	II	a	Chesapeake Bay and its tidal tributaries from Old Point Comfort Tower (Latitude 37°00'00" North; Longitude 76°18'08" West) to Thimble Shoal Light (Latitude 37°00'09" North; Longitude 76°14'04" West) to and along the south side of Thimble Shoal Channel to its eastern end (Latitude 36°57'03" North; Longitude 76°02'03" West) to Smith Island (Latitude 37°07'04" North; Longitude 75°54'04" West) north to the Virginia-Maryland ~~border~~ state line following the east-west divide boundary on the Eastern Shore of Virginia, west along the Virginia-Maryland ~~border~~ state line, to the Virginia Coast, (Latitude 37°53'23" North; Longitude 76°14'25" West) and south following the Virginia Coast to Old Point Comfort Tower (previously described), unless otherwise designated in this chapter.
2a	III		Free flowing portions of streams lying on the Eastern Shore of Virginia west of the east-west divide boundary unless otherwise designated in this chapter.
2b	III		Drummonds Millpond including Coards Branch.
2c	III		The Virginia Department of Agriculture experimental station pond and its tributaries.
2d	III		The free flowing streams tributary to the western portion of the Chesapeake Bay lying between the Virginia-Maryland state line and Old Point Comfort.
	VII		Swamp waters in Section 2d Briery Swamp and tributaries from the confluence with Dragon Swamp to their headwaters. Contrary Swamp from the confluence with Dragon Swamp to its headwaters. Crany Creek from its confluence with Fox Mill Run to its headwaters.

			Dragon Run and its tributaries from the confluence with Dragon Swamp to their headwaters. Dragon Swamp and tributaries from the head of tidal waters at river mile 4.60 to their headwaters. Exol Swamp and tributaries from the confluence with Dragon Swamp to their headwaters. Fox Mill Run from the head of tidal waters to its headwaters. Holmes Swamp and its tributaries from the confluence with Exol Swamp to their headwaters. Northwest Branch Severn River from the head of tidal waters near Severn Hall Lane to its headwaters. Timber Branch Swamp and its tributaries from the confluence with Dragon Swamp to their headwaters. Yorkers Swamp and its tributaries from the confluence with Dragon Swamp to their headwaters. White Marsh and its tributaries [~~form~~] [from] the confluence with Dragon Swamp to their headwaters.
2e	III	PWS	Harwood's Mill Reservoir (in Poquoson River's headwaters - a source of water for the City of Newport News) and its tributaries.
2f	III	PWS	Brick Kiln Creek and its tributaries from Fort Monroe's raw water intake (at the Big Bethel Reservoir) to points 5 miles upstream.
2g	III	PWS	Beaverdam Swamp and its tributaries (including Beaverdam Swamp Reservoir) from the Gloucester County Water System raw water intake to its headwaters.
3	II	a	Chesapeake Bay from Old Point Comfort Tower (Latitude 37°00'00" North; Longitude 76°18'08" West) to Thimble Shoal Light (Latitude 37°00'09" North; Longitude 76°14'04" West) along the south side of Thimble Shoal Channel to Cape Henry Light (Latitude 36°55'06" North; Longitude 76°00'04" West).
3a	II	a,z	Little Creek from its confluence with Chesapeake Bay (Lynnhaven Roads) to end of navigable waters.
3b	II	a	Tidal portions of Lynnhaven watershed from its confluence with the Chesapeake Bay (Lynnhaven Roads) to and including Lynnhaven Bay, Western Branch Lynnhaven River, Eastern Branch Lynnhaven River, Long Creek, Broad Bay and Linkhorn Bay, Thalia Creek and its tributaries to the end of tidal waters. Great Neck Creek and Little Neck Creek from their confluence with Linkhorn Bay and their tidal tributaries. Rainey Gut and Crystal Lake from their confluence with Linkhorn Bay.
3c	III		Free flowing portions of streams in Section 3b, unless otherwise designated in this chapter.
3d	III	PWS	The impoundments on the Little Creek watershed including Little Creek Reservoir, Lake Smith, Lake Whitehurst, Lake Lawson, and Lake Wright.
3e	II		London Bridge Creek from its confluence with the Eastern Branch of Lynnhaven River to the end of tidal waters. Wolfsnare Creek from its confluence with the Eastern Branch Lynnhaven River to the fall line.
3f	III		Free flowing portions of London Bridge Creek and Wolfsnare Creek to the Dam Neck Road Bridge at N36°47'20.00"/W76°04'12.10" (West Neck Creek) and their free flowing tributaries.
3g	III		Lake Joyce and Lake Bradford.

9VAC25-260-530. York River Basin.

SEC.	CLASS	SP. STDS	SECTION DESCRIPTION
1	II	a,aa	York River and the tidal portions of its tributaries from Goodwin Neck and Sandy Point upstream to Thorofare Creek and Little Salem Creek near West Point; Mattaponi River and the tidal portions of its tributaries from Little Salem Creek to the end of tidal waters; Pamunkey River and the tidal portions of its tributaries from Thorofare Creek near West Point to the end of tidal waters.
2	III		Free flowing tributaries of the York River, free flowing tributaries of the Mattaponi River to Clifton and the Pamunkey River to Romancoke, unless otherwise designated in this chapter.
2a	III	PWS	Waller Mill Reservoir and its drainage area above Waller Mill dam which serves as a raw water supply for the City of Williamsburg.
2b	III	PWS	Jones Pond (a tributary of Queen Creek near Williamsburg which serves as the raw water supply for Cheatham Annex Naval Station) and its tributaries to points 5 miles upstream.
3	III		Free flowing portions of the Mattaponi and Pamunkey Rivers, free flowing tributaries of the Mattaponi above Clifton, and free flowing tributaries of the Pamunkey above Romancoke, unless otherwise designated in this chapter.
	VII		Swamp ~~Waters~~ waters in Section 3.
			Garnetts Creek and tributaries from the head of tidal waters upstream to include Dickeys Swamp and its tributaries.
			Herring Creek from its headwaters at river mile 17.2 downstream to the confluence with the Mattaponi River and three named tributaries: Dorrell Creek, Fork Bridge Creek and Millpond Creek from their headwaters to their confluence with Herring Creek.
			Hornquarter Creek from its confluence with the Pamunkey River to its headwaters.
			Jacks Creek and tributaries from the head of tidal waters to their headwaters.
			Matadequin Creek and its tributaries, from below an unnamed tributary to Matadequin Creek at river mile 9.93 (between ~~Rt.~~ Route 350 and Sandy Valley Creek) downstream to its confluence with the Pamunkey River.
			Mattaponi River from its confluence with Maracossic Creek at river mile 57.17 to the head of tidal waters.
			Mechumps Creek from the confluence with Slayden Creek to the Pamunkey River, Slayden Creek and its tributaries to their headwaters, and Campbell Creek from the unnamed tributary at river mile 3.86 downstream to the confluence with Mechumps Creek.
			[~~Mehixen Creek and its tributaries from its confluence with the Pamunkey River to their headwaters.~~]
			Monquin (Moncuin) Creek and its tributaries from the head of tidal waters to their headwaters.
			Reedy Creek from its headwaters to its confluence with Reedy Millpond at river mile 1.06.
			Totopotomoy Creek from its confluence with the Pamunkey River to its headwaters.

3a	III	PWS	South Anna River and its tributaries from Ashland's raw water intake to a point 5 miles upstream.
3b	III	PWS	Northeast Creek and its tributaries from the Louisa County Water Authority's impoundment dam (approximately ~~1/8~~ 0.125 mile upstream of Route 33) to their headwaters.
3c	III		South Anna River from Route 15 upstream to a point 1.5 miles below the effluent from the Gordonsville Sewage Treatment Plant.
3d	III	PWS	Ni River and its tributaries from Spotsylvania's raw water intake near Route 627 to their headwaters.
3e	III	PWS	The North Anna River and its tributaries from Hanover County's raw water intake near Doswell (approximately ~~1/2~~ 0.5 mile upstream from State Route 30) to points 5 miles upstream.
3f	III	PWS	Stevens Mill Run from the Lake Caroline water impoundment~~,~~ and other tributaries into the impoundment upstream to their headwaters.

9VAC25-260-540. New River Basin.

SEC.	CLASS	SP. STDS	SECTION DESCRIPTION
1	IV	u	New River and its tributaries, unless otherwise designated in this chapter, from the Virginia-West Virginia state line to the Montgomery-Giles County line.
	V		Stockable Trout Waters in Section 1
	***		Laurel Creek (a tributary to Wolf Creek in Bland County) from Rocky Gap to the Route 613 bridge one mile west of the junction of Routes 613 and 21.
	viii		Laurel Creek (Bland County) from its confluence with Hunting Camp Creek 3.2 miles upstream.
	viii		Little Wolf Creek (Bland County) from its confluence with Laurel Creek 2.6 miles upstream.
	v		Sinking Creek from 5.1 miles above its confluence with the New River 10.8 miles upstream (near the Route 778 crossing).
	vi		Sinking Creek from the Route 778 crossing to the Route 628 crossing.
	vi		Spur Branch from its confluence with Little Walker Creek to its headwaters.
	v		Walker Creek from the Route 52 bridge to its headwaters.
	***		Wolf Creek (Bland County) from Grapefield to its headwaters.
	VI		Natural Trout Waters in Section 1
	ii		Bear Spring Branch from its confluence with the New River upstream including all named and unnamed tributaries.
	iii		Clear Fork (Bland County) from river mile 8.5 upstream including all named and unnamed tributaries.
	ii		Cove Creek (Tazewell County) from its confluence with Clear Fork upstream including all named and unnamed tributaries.
	ii		Cox Branch from its confluence with Clear Fork to Tazewell's raw water intake (river mile 1.6).
	iii		Ding Branch from its confluence with Nobusiness Creek upstream including all named and unnamed tributaries.
	ii		Dry Fork (Bland County) from 4.8 miles above its confluence with Laurel Creek

			upstream including all named and unnamed tributaries.
	ii		East Fork Cove Creek (Tazewell County) from its confluence with Cove Creek upstream including all named and unnamed tributaries.
			Hunting Camp Creek from its confluence with Wolf Creek upstream including all named and unnamed tributaries.
	***		Hunting Camp Creek from its confluence with Wolf Creek 8.9 miles upstream.
	iii		Hunting Camp Creek from 8.9 miles above its confluence with Wolf Creek 3 miles upstream.
	ii		Laurel Creek (tributary to Wolf Creek in Bland County) from Camp Laurel in the vicinity of Laurel Fork Church, upstream including all named and unnamed tributaries.
	ii		Laurel Creek from a point 0.7 mile from its confluence with Sinking Creek upstream including all named and unnamed tributaries.
	ii		Little Creek (Tazewell County) from 1.5 miles above its confluence with Wolf Creek above the Tazewell County Sportsmen's Club Lake upstream including all named and unnamed tributaries.
	ii		Mercy Branch from its confluence with Mill Creek upstream including all named and unnamed tributaries.
	ii		Mill Creek from the Narrows Town line upstream including all named and unnamed tributaries.
	ii		Mudley Branch from its confluence with the West Fork Cove Creek upstream including all named and unnamed tributaries.
			Nobusiness Creek from its confluence with Kimberling Creek upstream including all named and unnamed tributaries.
	***		~~(~~Nobusiness Creek from its confluence with Kimberling Creek 4.7 miles upstream.~~)~~
	iii		~~(~~Nobusiness Creek from 4.7 miles above its confluence with Kimberling Creek upstream including all named and unnamed tributaries.~~)~~
	ii		Oneida Branch from its confluence with the West Fork Cove Creek upstream including all named and unnamed tributaries.
	iii		Panther Den Branch from its confluence with Nobusiness Creek upstream including all named and unnamed tributaries.
	ii		Piney Creek from its confluence with the New River upstream including all named and unnamed tributaries.
	ii		Wabash Creek from its confluence with Walker Creek upstream including all named and unnamed tributaries.
	ii		West Fork Cove Creek from its confluence with Cove Creek upstream including all named and unnamed tributaries.
1a			(Deleted)
1b	IV	u	Wolf Creek and its tributaries in Virginia from its confluence with Mill Creek upstream to the Giles-Bland County line.
1c			(Deleted)
1d	IV	u	Stony Creek and its tributaries, unless otherwise designated in this chapter, from its confluence with the New River upstream to its headwaters, and Little

			Stony Creek and its tributaries from its confluence with the New River to its headwaters.
	V		Stockable Trout Waters in Section 1d
	vi		Stony Creek (Giles County) from its confluence with the New River to its confluence with Laurel Branch.
	VI		Natural Trout Waters in Section 1d
	iii		Dismal Branch from its confluence with Stony Creek upstream including all named and unnamed tributaries.
	ii		Dixon Branch from its confluence with North Fork Stony Creek upstream including all named and unnamed tributaries.
	ii		Hemlock Branch from its confluence with Little Stony Creek upstream including all named and unnamed tributaries.
	ii		Laurel Branch from its confluence with Stony Creek upstream including all named and unnamed tributaries.
	ii		Laurel Creek from its confluence with Little Stony Creek upstream including all named and unnamed tributaries.
	ii		Little Stony Creek from its confluence with the New River upstream including all named and unnamed tributaries.
	ii		Maple Flats Branch from its confluence with Little Stony Creek upstream including all named and unnamed tributaries.
	ii		Meredith Branch from its confluence with Little Stony Creek upstream including all named and unnamed tributaries.
	iii		Nettle Hollow from its confluence with Little Stony Creek upstream including all named and unnamed tributaries.
	ii		North Fork Stony Creek from its confluence with Stony Creek upstream including all named and unnamed tributaries.
	iii		Pine Swamp Branch from its confluence with Stony Creek upstream including all named and unnamed tributaries.
	ii		Pond Drain from its confluence with Little Stony Creek upstream including all named and unnamed tributaries.
	iii		Stony Creek (Giles County) from the confluence of Laurel Branch at Olean upstream including all named and unnamed tributaries.
	ii		White Rock Branch from its confluence with Stony Creek upstream including all named and unnamed tributaries.
	ii		Wildcat Hollow from its confluence with Stony Creek upstream including all named and unnamed tributaries.
1e	IV	PWS,u	Kimberling Creek and its tributaries from Bland Correctional Farm's raw water intake to points 5 miles upstream.
	VI	PWS	Natural Trout Waters in Section 1e
	iii		Dismal Creek from its confluence with Kimberling Creek upstream including all named and unnamed tributaries.
	iii		Pearis Thompson Branch from its confluence with Dismal Creek upstream including all named and unnamed tributaries.

	iii		Standrock Branch from its confluence with Dismal Creek upstream including all named and unnamed tributaries.
1f			(Deleted)
1g	IV	u	Bluestone River and its tributaries, unless otherwise designated in this chapter, from the Virginia-West Virginia state line upstream to their headwaters.
1h	IV	PWS,u	Bluestone River and its tributaries from Bluefield's raw water intake upstream to its headwaters.
	VI	PWS	Natural Trout Waters in Section 1h
	iii		Bluestone River from a point adjacent to the Route 650/460 intersection to a point 5.7 miles upstream.
1i	IV	PWS	Big Spring Branch from the Town of ~~Pochahontas'~~ Pocahontas's intake, from the Virginia-West Virginia state line, including the entire watershed in Abbs Valley (the Town of ~~Pochahontas'~~ Pocahontas's intake is located in West Virginia near the intersection of West Virginia State Route 102 and Rye Road.
1j			(Deleted)
1k	IV	PWS	Walker Creek and its tributaries from the Wythe-Bland Water and Sewer Authority's raw water intake (for Bland) to points 5 miles upstream.
1l	VI ii	PWS	Cox Branch and its tributaries from Tazewell's raw water intake at the Tazewell Reservoir (river mile 1.6) to headwaters.
2	IV	v, NEW-5	New River and its tributaries, unless otherwise designated in this chapter, from the Montgomery-Giles County line upstream to the Virginia-North Carolina state line (to include Peach Bottom Creek from its confluence with the New River to the mouth of Little Peach Bottom Creek).
	V		Stockable Trout Waters in Section 2
	v		Beaverdam Creek from its confluence with the Little River to its headwaters.
	v		Big Indian Creek from its confluence with the Little River to a point 7.4 miles upstream.
	vi		Boyd Spring Run from its confluence with the New River to its headwaters.
	***		Brush Creek from the first bridge on Route 617 south of the junction of Routes 617 and 601 to the Floyd County line.
	vi		Camp Creek from its confluence with the Little River to its headwaters.
	vi		Cove Creek (Wythe County) from Route 77, 8.1 miles above its confluence with Reed Creek, 10.5 miles upstream.
			Dodd Creek from its confluence with the West Fork Little River to its headwaters.
	***		Dodd Creek from its confluence with the West Fork Little River 4 miles upstream.
	vi		Dodd Creek from 4 miles above its confluence with the West Fork Little River to its headwaters.
	vi		East Fork Stony Fork from its confluence with Stony Fork 4 miles upstream.
	***		Elk Creek from its confluence with Knob Fork Creek to the junction of State Routes 611 and 662.

vi	Gullion Fork from its confluence with Reed Creek 3.3 miles upstream.
vi	Little Brush Creek from its confluence with Brush Creek 1.9 miles upstream.
vi	Lost Bent Creek from its confluence with the Little River to its headwaters.
vi	Middle Creek from its confluence with Little River to its headwaters.
vi	Middle Fox Creek from its confluence with Fox Creek 4.1 miles upstream.
vi	Mill Creek (Wythe County) from its confluence with the New River 3.7 miles upstream.
v	North Fork Greasy Creek from its confluence with Greasy Creek to its headwaters.
vi	Oldfield Creek from its confluence with the Little River to its headwaters.
vi	Peach Bottom Creek from the mouth of Little Peach Bottom Creek to its headwaters.
vi	Pine Branch from its confluence with the Little River to its headwaters.
vi	Pine Creek (Carroll County) from its confluence with Big Reed Island Creek to its headwaters.
vi	Piney Fork from its confluence with Greasy Creek to its headwaters.
vi	Poor Branch from its confluence with the New River to its headwaters.
vi	Poverty Creek (Montgomery County) from its confluence with Toms Creek to its headwaters.
vi	Reed Creek (Wythe County) within the Jefferson National Forest from 57 miles above its confluence with the New River 6.8 miles upstream, unless otherwise designated in this chapter.
vi	Shady Branch from its confluence with Greasy Creek to its headwaters.
vi	Shorts Creek from 6.2 miles above its confluence with the New River in the vicinity of Route 747, 3 miles upstream.
vi	South Fork Reed Creek from river mile 6.8 (at Route 666 below Groseclose) 11.9 miles upstream.
vi	St. Lukes Fork from its confluence with Cove Creek 1.4 miles upstream.
vi	Stony Fork (Wythe County) from 1.9 miles above its confluence with Reed Creek at the intersection of Routes 600, 682, and 21/52 at Favonia 5.7 miles upstream.
***	Toms Creek from its confluence with the New River to its headwaters.
vi	West Fork Big Indian Creek from its confluence with Big Indian Creek to its headwaters.
vi	Wolf Branch from its confluence with Poor Branch 1.2 miles upstream.
VI	Natural Trout Waters in Section 2
ii	Baker Branch from its confluence with Cabin Creek upstream including all named and unnamed tributaries.
ii	Baldwin Branch from 0.2 mile above its confluence with Big Horse Creek at the ~~Grayson County - Ashe County~~ Virginia-North Carolina state line upstream including all named and unnamed tributaries.
ii	Bear Creek (Carroll County) from its confluence with Laurel Fork upstream

	including all named and unnamed tributaries.
iii	Beaver Creek from its confluence with the Little River upstream including all named and unnamed tributaries.
iii	Beaverdam Creek (Carroll County) from its confluence with Crooked Creek upstream including all named and unnamed tributaries.
ii	Big Branch from its confluence with Greasy Creek upstream including all named and unnamed tributaries.
iii	Big Horse Creek from 12.8 miles above its confluence with the North Fork New River (above the Virginia-North Carolina state line below Whitetop) upstream including all named and unnamed tributaries.
ii	Big Indian Creek from a point 7.4 miles upstream of its confluence with the Little River upstream including all named and unnamed tributaries.
ii	Big Laurel Creek from its confluence with the Little River upstream including all named and unnamed tributaries.
iii	Big Laurel Creek from its confluence with Pine Creek upstream including all named and unnamed tributaries.
iii	Big Reed Island Creek from Route 221 upstream including all named and unnamed tributaries.
iii	Big Run from its confluence with the Little River upstream including all named and unnamed tributaries.
	Big Wilson Creek from its confluence with the New River upstream including all named and unnamed tributaries.
***	Big Wilson Creek from its confluence with the New River 8.8 miles upstream.
ii	Big Wilson Creek from 8.8 miles above its confluence with the New River 6.6 miles upstream.
iii	Blue Spring Creek from its confluence with Cripple Creek upstream including all named and unnamed tributaries.
ii	Boothe Creek from its confluence with the Little River upstream including all named and unnamed tributaries.
ii	Bournes Branch from its confluence with Brush Creek upstream including all named and unnamed tributaries.
iii	Brannon Branch from its confluence with Burks Fork upstream including all named and unnamed tributaries.
ii	Brier Run from its confluence with Big Wilson Creek upstream including all named and unnamed tributaries.
ii	Buffalo Branch from its confluence with Laurel Fork upstream including all named and unnamed tributaries.
iii	Burgess Creek from its confluence with Big Horse Creek upstream including all named and unnamed tributaries.
iii	Burks Fork from the Floyd-Carroll County line upstream including all named and unnamed tributaries.
ii	Byars Creek from its confluence with Whitetop Creek upstream including all named and unnamed tributaries.
	Cabin Creek from its confluence with Helton Creek upstream including all

	named and unnamed tributaries.
ii	Cabin Creek from its confluence with Helton Creek 3.2 miles upstream.
i	Cabin Creek from 3.2 miles above its confluence with Helton Creek upstream including all named and unnamed tributaries.
ii	Cherry Creek from its confluence with Big Reed Island Creek upstream including all named and unnamed tributaries.
ii	Chisholm Creek from its confluence with Laurel Fork upstream including all named and unnamed tributaries.
iv	Crigger Creek from its confluence with Cripple Creek upstream including all named and unnamed tributaries.
***	Cripple Creek from the junction of the stream and U.S. Route 21 in Wythe County upstream including all named and unnamed tributaries.
iii	Crooked Creek (Carroll County) from Route 707 to Route 620.
ii	Crooked Creek from Route 620 upstream including all named and unnamed tributaries.
iii	Daniel Branch from its confluence with Crooked Creek upstream including all named and unnamed tributaries.
iii	Dobbins Creek from its confluence with the West Fork Little River upstream including all named and unnamed tributaries.
iv	Dry Creek from 1.9 miles above its confluence with Blue Spring Creek upstream including all named and unnamed tributaries.
iii	Dry Run (Wythe County) from its confluence with Cripple Creek upstream including all named and unnamed tributaries.
iii	Earls Branch from its confluence with Beaver Creek upstream including all named and unnamed tributaries.
iii	East Fork Crooked Creek from its confluence with Crooked Creek upstream including all named and unnamed tributaries.
ii	East Fork Dry Run from its confluence with Dry Run upstream including all named and unnamed tributaries.
ii	East Prong Furnace Creek from its confluence with Furnace Creek upstream including all named and unnamed tributaries.
ii	Elkhorn Creek from its confluence with Crooked Creek upstream including all named and unnamed tributaries.
ii	Fox Creek from its junction ~~of the Creek and~~ with Route 734 upstream including all named and unnamed tributaries.
iii	Francis Mill Creek from its confluence with Cripple Creek upstream including all named and unnamed tributaries.
ii	Furnace Creek from its confluence with the West Fork Little River upstream including all named and unnamed tributaries.
***	Glade Creek (Carroll County) from its confluence with Crooked Creek upstream including all named and unnamed tributaries.
iii	Grassy Creek (Carroll County) from its confluence with Big Reed Island Creek at Route 641, upstream including all named and unnamed tributaries.

vi**	Grassy Creek (Carroll County) from its confluence with Little Reed Island Creek at Route 769, upstream including all named and unnamed tributaries.
iii	Greasy Creek from the Floyd-Carroll County line upstream including all named and unnamed tributaries.
iii	Greens Creek from its confluence with Stone Mountain Creek upstream including all named and unnamed tributaries.
iii	Guffey Creek from its confluence with Fox Creek upstream including all named and unnamed tributaries.
ii	Helton Creek from the Virginia-North Carolina state line upstream including all named and unnamed tributaries.
ii	Howell Creek from its confluence with the West Fork Little River upstream including all named and unnamed tributaries.
ii	Jerry Creek (Grayson County) from its confluence with Middle Fox Creek upstream including all named and unnamed tributaries.
iii	Jones Creek (Wythe County) from its confluence with Kinser Creek upstream including all named and unnamed tributaries.
ii	Killinger Creek from its confluence with Cripple Creek and White Rock Creek upstream including all named and unnamed tributaries.
iii	Kinser Creek from 0.4 mile above its confluence with Crigger Creek above the Mount Rogers National ~~Forest~~ Recreation Area Boundary at Groseclose Chapel upstream including all named and unnamed tributaries.
iii	Laurel Branch (Carroll County) from its confluence with Staunton Branch upstream including all named and unnamed tributaries.
iii	Laurel Creek (Grayson County) from its confluence with Fox Creek upstream including all named and unnamed tributaries.
ii	Laurel Fork from the Floyd-Carroll County line upstream including all named and unnamed tributaries.
iii	Laurel Fork (Carroll County) from its confluence with Big Reed Island Creek to the Floyd-Carroll County line.
i	Lewis Fork from its confluence with Fox Creek upstream including all named and unnamed tributaries.
iii	Little Cranberry Creek from its confluence with Crooked Creek upstream including all named and unnamed tributaries.
ii	Little Helton Creek from the ~~Grayson County-Ashe County~~ Virginia-North Carolina state line upstream including all named and unnamed tributaries.
***	Little Reed Island Creek from ~~the~~ its junction ~~of the stream and~~ with State Routes 782 and 772 upstream including all named and unnamed tributaries, unless otherwise designated in this chapter.
***	Little River from its junction with Route 706 upstream including all named and unnamed tributaries.
ii	Little Snake Creek from its confluence with Big Reed Island Creek upstream including all named and unnamed tributaries.
ii	Little Wilson Creek from its confluence with Wilson Creek (at Route 16 at Volney) upstream including all named and unnamed tributaries.

ii	Long Mountain Creek from its confluence with Laurel Fork upstream including all named and unnamed tributaries.
iii	Meadow Creek (Floyd County) from its confluence with the Little River upstream including all named and unnamed tributaries.
iii	Meadow View Run from its confluence with Burks Fork upstream including all named and unnamed tributaries.
iii	Middle Creek from its confluence with Crigger Creek upstream including all named and unnamed tributaries.
ii	Middle Fork Helton Creek from its confluence with Helton Creek 2.2 miles upstream.
i	Middle Fork Helton Creek from 2.2 miles above its confluence with Helton Creek upstream including all named and unnamed tributaries.
iii	Middle Fox Creek from 4.1 miles above its confluence with Fox Creek upstream including all named and unnamed tributaries.
iii	Mill Creek (Carroll County) from its confluence with Little Reed Island Creek upstream including all named and unnamed tributaries.
ii	Mill Creek (Grayson County) from its confluence with Fox Creek upstream including all named and unnamed tributaries.
iii	Mira Fork from its confluence with Greasy Creek upstream including all named and unnamed tributaries.
ii	North Branch Elk Creek from its confluence with Elk Creek upstream including all named and unnamed tributaries.
iii	North Prong Buckhorn Creek from its confluence with Buckhorn Creek upstream including all named and unnamed tributaries.
ii	Oldfield Creek from its confluence with Laurel Fork upstream including all named and unnamed tributaries.
ii	Opossum Creek from its confluence with Fox Creek upstream including all named and unnamed tributaries.
iii	Payne Creek from its confluence with the Little River upstream including all named and unnamed tributaries.
iii	Peak Creek from 19 miles above its confluence with the New River above the Gatewood Reservoir upstream including all named and unnamed tributaries.
iii	Pine Creek (Carroll County) from its confluence with Big Reed Island Creek upstream including all named and unnamed tributaries.
iii	Pine Creek (Floyd County) from its confluence with Little River upstream including all named and unnamed tributaries.
iii	Pipestem Branch from its confluence with Big Reed Island Creek upstream including all named and unnamed tributaries.
i	Quebec Branch from its confluence with Big Wilson Creek upstream including all named and unnamed tributaries.
iv	Raccoon Branch from its confluence with White Rock Creek upstream including all named and unnamed tributaries.
***	Reed Creek (Wythe County) from 5 miles above Wytheville's raw water intake upstream including all named and unnamed tributaries.

ii	Ripshin Creek from its confluence with Laurel Creek upstream including all named and unnamed tributaries.
iii	Road Creek (Carroll County) from its confluence with Big Reed Island Creek upstream including all named and unnamed tributaries.
ii	~~Roads~~ Road Creek (Carroll County) from its confluence with Laurel Fork upstream including all named and unnamed tributaries.
iv	Rock Creek from its confluence with Big Reed Island Creek upstream including all named and unnamed tributaries.
iii	Silverleaf Branch from its confluence with the Little River upstream including all named and unnamed tributaries.
iii	Snake Creek from Route 670 (3.2 miles above its confluence with Big Reed Island Creek) upstream including all named and unnamed tributaries.
ii	Solomon Branch from its confluence with Fox Creek upstream including all named and unnamed tributaries.
vi**	South Branch Elk Creek from its confluence with Elk Creek upstream including all named and unnamed tributaries.
iii	Spurlock Creek from its confluence with the West Fork Little River upstream including all named and unnamed tributaries.
iii	Staunton Branch from its confluence with Crooked Creek upstream including all named and unnamed tributaries.
iii	Stone Mountain Creek from its confluence with Big Reed Island Creek upstream including all named and unnamed tributaries.
iii	Straight Branch (Carroll County) from its confluence with Greens Creek upstream including all named and unnamed tributaries.
ii	Sulphur Spring Branch from its confluence with Big Reed Island Creek upstream including all named and unnamed tributaries.
iii	Tory Creek from its confluence with Laurel Fork upstream including all named and unnamed tributaries.
iii	Tract Fork from the confluence of Fortnerfield Branch upstream including all named and unnamed tributaries.
ii	Trout Branch from its confluence with Little Reed Island creek upstream including all named and unnamed tributaries.
iii	Turkey Fork from 2.6 miles above its confluence with Elk Creek upstream including all named and unnamed tributaries.
ii	Venrick Run from its confluence with Reed Creek upstream including all named and unnamed tributaries.
iii	West Fork Comers Rock Branch from its confluence with Comers Rock Branch upstream including all named and unnamed tributaries.
iii	West Fork Dodd Creek from its confluence with Dodd Creek upstream including all named and unnamed tributaries.
iii	West Fork Dry Run from its confluence with Dry Run 2 miles upstream.
iii	West Fork Little Reed Island Creek (Carroll County) from its confluence with Little Reed Island Creek upstream including all named and unnamed tributaries.

	***		West Fork Little River from its confluence with Little River upstream including all named and unnamed tributaries.
	iii		West Prong Furnace Creek from its confluence with Furnace Creek upstream including all named and unnamed tributaries.
			White Rock Creek from its confluence with Cripple Creek upstream including all named and unnamed tributaries.
	***		White Rock Creek from its confluence with Cripple Creek 1.9 miles upstream.
	iv		White Rock Creek from 1.9 miles above its confluence with Cripple Creek upstream including all named and unnamed tributaries.
	ii		Whitetop Creek from its confluence with Big Horse Creek upstream including all named and unnamed tributaries.
	i		Wilburn Branch from its confluence with Big Wilson Creek upstream including all named and unnamed tributaries.
2a	IV	PWS,v	New River from Radford Army Ammunition Plant's raw water intake (that intake which is the further downstream), upstream to a point 5 miles above the ~~Blacksburg- Christiansburg, V.P.I.~~ NRV Water Authority's raw water intake and including tributaries in this area to points 5 miles above the respective raw water intakes.
2b	IV	PWS,v	New River from Radford's raw water intake upstream to Claytor Dam and including tributaries to points 5 miles above the intake.
2c	IV	v, NEW-4	New River and its tributaries, except Peak Creek above Interstate Route 81, from Claytor Dam to Big Reed Island Creek (Claytor Lake).
	V		Stockable Trout Waters in Section 2c
	vi		Chimney Branch from its confluence with Big Macks Creek to its headwaters.
	vi		White Oak Camp Branch from its confluence with Chimney Branch to its headwaters.
	VI		Natural Trout Waters in Section 2c
	ii		Bark Camp Branch from its confluence with Big Macks Creek upstream including all named and unnamed tributaries.
	ii		Big Macks Creek from Powhatan Camp upstream including all named and unnamed tributaries.
	iii		Little Macks Creek from its confluence with Big Macks Creek upstream including all named and unnamed tributaries.
	ii		Puncheoncamp Branch from its confluence with Big Macks Creek upstream including all named and unnamed tributaries.
2d	IV	PWS,v,NEW-5	Peak Creek and its tributaries from Pulaski's raw water intake upstream, including Hogan Branch to its headwaters and Gatewood Reservoir.
	V		Stockable Trout Waters in Section 2d
	***		(West Fork) Peak Creek from the Forest Service Boundary to its headwaters.
2e			(Deleted)
2f	IV	PWS,v	Little Reed Island Creek and its tributaries from Hillsville's upstream raw water intake near Cranberry Creek to points 5 miles above Hillsville's upstream raw water intake, including the entire watershed of the East Fork Little Reed Island Creek.

	VI	PWS	Natural Trout Waters in Section 2f
	iii		East Fork Little Reed Island Creek from its confluence with West Fork Little Reed Island Creek upstream including all named and unnamed tributaries.
	***		Little Reed Island Creek from Hillsville's upstream raw water intake to a point 5 miles upstream.
	Iii		Mine Branch from its confluence with the East Fork Little Reed Island Creek 2 miles upstream.
2g	IV	PWS,v	Reed Creek and its tributaries from Wytheville's raw water intake to points 5 miles upstream.
	VI	PWS,v	Natural Trout Waters in Section 2g
	***		Reed Creek from the western town limits of Wytheville to 5 miles upstream.
2h	IV	PWS,v	Chestnut Creek and its tributaries from Galax's raw water intake upstream to their headwaters or to the Virginia-North Carolina state line.
	VI	PWS	Natural Trout Waters in Section 2h
	***		Coal Creek from its confluence with Chestnut Creek upstream including all named and unnamed tributaries.
	ii		East Fork Chestnut Creek (Grayson County) from its confluence with Chestnut Creek upstream including all named and unnamed tributaries.
	iii		Hanks Branch from its confluence with the East Fork Chestnut Creek upstream including all named and unnamed tributaries.
	iii		Linard Creek from its confluence with Hanks Branch upstream including all named and unnamed tributaries.
2i	IV		Fries Reservoir section of the New River from river mile 141.36 to river mile 144.29.
2j	IV	PWS	Eagle Bottom Creek from ~~Fries'~~ Fries's raw water intake upstream to its headwaters.
2k	IV		~~Stuart Reservoir section of the New River~~ New River from Stuart Dam at N36°36'08"/W81°18'40" upstream 2.29 miles.
2l	IV	PWS	New River and its tributaries inclusive of the Wythe County Water Department's Austinville intake near the Route 636 bridge, and the Wythe County Water Department's Ivanhoe intake on Powder Mill Branch just upstream of the Wythe-Carroll County line to points 5 miles above the intakes.
	V	PWS	Stockable Trout Waters in Section 2l
	vi		Powder Mill Branch (from 0.6 mile above its confluence with the New River) 2.1 miles upstream.
2m	IV	PWS, NEW-4,5	New River (Claytor Lake) from the Klopman Mills raw water intake to the Pulaski County Public Service Authority's raw water intake and tributaries to points 5 miles upstream of each intake.
2n			(Deleted)