

1 ENERGY AND ENVIRONMENT CABINET

2 Department of Environmental Protection

3 Division of Water

4 (Amended After Comments)

5 401 KAR 10:031. Surface water standards.

6 RELATES TO: KRS 146.200-146.360, 146.410-146.535, 146.550-146.570, 146.600-146.619,  
7 146.990, 224.1-010~~[224.01-010]~~, 224.1-400~~[224.01-400]~~, 224.16-050, 224.16-070, 224.70-100-  
8 224.70-140, 224.71-100-224.71-145, 224.73-100-224.73-120,

9 STATUTORY AUTHORITY: KRS 146.220, 146.241, 146.270, 146.410, 146.450, 146.460,  
10 146.465, 224.10-100, 224.16-050, 224.16-060, 224.70-100, 224.70-110, 40 C.F.R. Part 131, 16  
11 U.S.C. 1271-1287, 1531-1544, 33 U.S.C. 1311, 1313, 1314, 1341

12 NECESSITY, FUNCTION, AND CONFORMITY: KRS 224.10-100 requires the cabinet to  
13 develop and conduct a comprehensive program for the management of water resources and to  
14 provide for the prevention, abatement, and control of water pollution. This administrative  
15 regulation and 401 KAR 10:001, 10:026, 10:029, and 10:030 establish procedures to protect the  
16 surface waters of the Commonwealth, and thus protect water resources. This administrative  
17 regulation establishes water quality standards that consist of designated legitimate uses of the  
18 surface waters of the Commonwealth and the associated water quality criteria necessary to  
19 protect those uses. These water quality standards are minimum requirements that apply to all  
20 surface waters in the Commonwealth of Kentucky in order to maintain and protect them for  
21 designated uses. These water quality standards are subject to periodic review and revision in

1 accordance with the Clean Water Act, 33 U.S.C. 1251-1387, 40 C.F.R. 131, and KRS Chapter  
2 224.

3 Section 1. Nutrients Criterion. Nutrients shall not be elevated in a surface water to a level that  
4 results in a eutrophication problem.

5 Section 2. Minimum Criteria Applicable to All Surface Waters. (1) The ~~[following]~~ minimum  
6 water quality criteria established in this administrative regulation shall be applicable to all  
7 surface waters including mixing zones, with the exception that toxicity to aquatic life in mixing  
8 zones shall be subject to the provisions of 401 KAR 10:029, Section 4. Surface waters shall not  
9 be aesthetically or otherwise degraded by substances that:

- 10 (a) Settle to form objectionable deposits;
- 11 (b) Float as debris, scum, oil, or other matter to form a nuisance;
- 12 (c) Produce objectionable color, odor, taste, or turbidity;
- 13 (d) Injure or are chronically or acutely toxic to or produce adverse physiological or  
14 behavioral responses in humans, animals, fish, and other aquatic life;
- 15 (e) Produce undesirable aquatic life or result in the dominance of nuisance species; or
- 16 (f)~~[1.]~~ Cause fish flesh tainting.

17 ~~(2)~~~~[2.]~~ The concentration of phenol shall not exceed 300 µg/L as an instream value.

18 ~~(3)~~~~[(2)]~~ The water quality criteria for the protection of human health related to fish  
19 consumption in Table 1 of Section 6 of this administrative regulation shall apply~~[are applicable]~~  
20 to all surface water at the edge of the assigned mixing zones except for those points where water  
21 is withdrawn for domestic water supply use.

22 (a) The criteria are established to protect human health regarding ~~[from]~~ the consumption of  
23 fish tissue~~[s]~~ and shall not be exceeded.

1 (b) For those substances associated with a cancer risk, an acceptable risk level of not more  
2 than one (1) additional cancer case in a population of 1,000,000 people, or  $1 \times 10^{-6}$  shall be  
3 utilized to establish the allowable concentration.

4 Section 3. Use Designations and Associated Criteria. (1) Surface waters may be designated as  
5 having one (1) or more legitimate uses established in 401 KAR 10:026 and associated criteria  
6 protective of those uses. [~~Those uses are listed in 401 KAR 10:026.~~]Nothing in this  
7 administrative regulation shall be construed to prohibit or impair the legitimate beneficial uses of  
8 these waters. The criteria in Sections 2, 4, 6, and 7 of this administrative regulation represent  
9 minimum conditions necessary to:

10 (a) Protect surface waters for the indicated use; and

11 (b) Protect human health regarding[~~from~~] fish consumption.

12 (2) On occasion, surface water quality may be outside of the limits established to protect  
13 designated uses because of natural conditions. If this occurs during periods when stream flows  
14 are below the flow that is used by the cabinet to establish effluent limitations for wastewater  
15 treatment facilities, a discharger shall not be considered a contributor to instream violations of  
16 water quality standards, if treatment results in compliance with permit requirements.

17 (3) Stream flows for water quality-based permits. The following stream flows shall be utilized  
18 if deriving KPDES permit limitations to protect surface waters for the listed uses and purposes:

19 (a) Aquatic life protection shall be  $7Q_{10}$ ;

20 (b) Water-based recreation protection shall be  $7Q_{10}$ ;

21 (c) Domestic water supply protection shall be determined at points of withdrawal as:

22 1. The harmonic mean for cancer-linked substances; and

23 2.  $7Q_{10}$  for noncancer-linked substances;

1 (d) Human health protection regarding [~~from~~]fish consumption and for changes in  
2 radionuclides shall be the harmonic mean; and

3 (e) Protection of aesthetics shall be  $7Q_{10}$ .

4 Section 4. Aquatic Life. (1) Warm water aquatic habitat. The following parameters and  
5 associated criteria shall apply for the protection of productive warm water aquatic communities,  
6 fowl, animal wildlife, arboreous growth, agricultural, and industrial uses:

7 (a) Natural alkalinity as  $\text{CaCO}_3$  shall not be reduced by more than twenty-five (25) percent.

8 1. If natural alkalinity is below twenty (20) mg/L  $\text{CaCO}_3$ , there shall not be a reduction below  
9 the natural level.

10 2. Alkalinity shall not be reduced or increased to a degree that may adversely affect the  
11 aquatic community;

12 (b) pH shall not be less than six and zero-tenths (6.0) nor more than nine and zero-tenths (9.0)  
13 and shall not fluctuate more than one and zero-tenths (1.0) pH unit over a period of twenty-four  
14 (24) hours;

15 (c) Flow shall not be altered to a degree that will adversely affect the aquatic community;

16 (d) Temperature shall not exceed thirty-one and seven-tenths (31.7) degrees Celsius (eighty-  
17 nine (89) degrees Fahrenheit).

18 1. The normal daily and seasonal temperature fluctuations that existed before the addition of  
19 heat due to other than natural causes shall be maintained.

20 2. The cabinet may determine allowable surface water temperatures on a site-specific basis  
21 utilizing available data that shall be based on the effects of temperature on the aquatic biota that  
22 utilize specific surface waters of the commonwealth and that may be affected by person-induced  
23 temperature changes.

1 a. Effects on downstream uses shall also be considered in determining site-specific  
 2 temperatures.

3 b. Values in the following table are guidelines for surface water temperature.

Month/Date	Period		Instantaneous	
	Average		Maximum	
	(°F)	(°C)	(°F)	(°C)
January 1-31	45	7	50	10
February 1-29	45	7	50	10
March 1-15	51	11	56	13
March 16-31	54	12	59	15
April 1-15	58	14	64	18
April 16-30	64	18	69	21
May 1-15	68	20	73	23
May 16-31	75	24	80	27
June 1-15	80	27	85	29
June 16-30	83	28	87	31
July 1-31	84	29	89	32
August 1-31	84	29	89	32
September 1-15	84	29	87	31
September 16-30	82	28	86	30
October 1-15	77	25	82	28
October 16-31	72	22	77	25

November 1-30	67	19	72	22
December 1-31	52	11	57	14

1        3. A successful demonstration concerning thermal discharge limits carried out pursuant to  
2 Section 316(a) of the Clean Water Act, 33 U.S.C. 1326, shall constitute compliance with the  
3 temperature requirements of this subsection. A successful demonstration assures the protection  
4 and propagation of a balanced indigenous population of shellfish, fish, and wildlife in or on the  
5 water into which the discharge is made;

6        (e) Dissolved oxygen.

7        1.a. Dissolved oxygen shall be maintained at a minimum concentration of five and zero-tenths  
8 (5.0) mg/L as a twenty-four (24) hour average in water with WAH use;

9        b. The instantaneous minimum shall not be less than four and zero-tenths (4.0) mg/L in water  
10 with WAH use.

11       2. The dissolved oxygen concentration shall be measured at mid-depth in waters having a total  
12 depth of ten (10) feet or less and at representative depths in other waters;

13       (f) Total dissolved solids or specific conductance. Total dissolved solids or specific  
14 conductance shall not be changed to the extent that the indigenous aquatic community is  
15 adversely affected;

16       (g) Total suspended solids. Total suspended solids shall not be changed to the extent that the  
17 indigenous aquatic community is adversely affected;

18       (h) Settleable solids. The addition of settleable solids that may alter the stream bottom so as to  
19 adversely affect productive aquatic communities shall be prohibited;

20       (i) Ammonia. The concentration of the un-ionized form shall not be greater than 0.05 mg/L at  
21 any time instream after mixing. Un-ionized ammonia shall be determined from values for total

1 ammonia-N, in mg/L, pH and temperature, by means of the following equation:

2 
$$Y = 1.2 (\text{Total ammonia-N}) / (1 + 10^{\text{pK}_a - \text{pH}})$$

3 
$$\text{pK}_a = 0.0902 + (2730 / (273.2 + T_c))$$

4 Where:

5  $T_c$  = temperature, degrees Celsius.

6 Y = un-ionized ammonia (mg/L);

7 (j) Toxics.

8 1. The allowable instream concentration of toxic substances, or whole effluents containing  
9 toxic substances, which are noncumulative or nonpersistent with a half-life of less than ninety-  
10 six (96) hours, shall not exceed:

11 a. One-tenth (0.1) of the ninety-six (96) hour median lethal concentration ( $LC_{50}$ ) of  
12 representative indigenous or indicator aquatic organisms; or

13 b. A chronic toxicity unit of 1.00 utilizing the twenty-five (25) percent inhibition  
14 concentration, or  $LC_{25}$ .

15 2. The allowable instream concentration of toxic substances, or whole effluents containing  
16 toxic substances, which are bioaccumulative or persistent, including pesticides, if not specified  
17 elsewhere in this section, shall not exceed:

18 a. 0.01 of the ninety-six (96) hour median lethal concentration ( $LC_{50}$ ) of representative  
19 indigenous or indicator aquatic organisms; or

20 b. A chronic toxicity unit of 1.00 utilizing the  $IC_{25}$ .

21 3. In the absence of acute criteria for pollutants listed in Table 1 of Section 6 of this  
22 administrative regulation, for other substances known to be toxic but not listed in this  
23 administrative regulation, or for whole effluents that are acutely toxic, the allowable instream

1 concentration shall not exceed the LC<sub>1</sub> or one-third (1/3) LC<sub>50</sub> concentration derived from  
2 toxicity tests on representative indigenous or indicator aquatic organisms or exceed three-tenths  
3 (0.3) acute toxicity units.

4 4. If specific application factors have been determined for a toxic substance or whole effluent  
5 such as an acute to chronic ratio or water effect ratio, the specific application factors[they] may  
6 be used instead of the one-tenth (0.1) and 0.01 factors listed in this subsection upon  
7 demonstration by the applicant that the application factors are scientifically defensible.

8 5. Allowable instream concentrations for specific pollutants for the protection of warm water  
9 aquatic habitat are listed in Table 1 of Section 6 of this administrative regulation. These  
10 concentrations are based on protecting aquatic life from acute and chronic toxicity and shall not  
11 be exceeded; and

12 (k) Total residual chlorine. Instream concentrations for total residual chlorine shall not exceed  
13 an acute criteria value of nineteen (19) µg/L or a chronic criteria value of eleven (11) µg/L.

14 (2) Cold water aquatic habitat. The following parameters and criteria are for the protection of  
15 productive cold water aquatic communities and streams that support trout populations, whether  
16 self-sustaining or reproducing, on a year-round basis. The criteria adopted for the protection of  
17 warm water aquatic life also apply to the protection of cold water habitats with the following  
18 additions:

19 (a) Dissolved oxygen.

20 1. A minimum concentration of six and zero-tenths (6.0) mg/L as a twenty-four (24) hour  
21 average and five and zero-tenths (5.0) mg/L as an instantaneous minimum shall be maintained.

22 2. In lakes and reservoirs that support trout, the concentration of dissolved oxygen in waters  
23 below the epilimnion shall be kept consistent with natural water quality; and



1 (b) Temperature. Water temperature shall not be increased through human activities above the  
 2 natural seasonal temperatures.

3 Section 5. Domestic Water Supply Use. Maximum allowable in-stream concentrations for  
 4 specific substances, to be applicable at the point of withdrawal, as established in 401 KAR  
 5 10:026, Section 5(2)(b), Table B, for use for domestic water supply from surface water sources  
 6 are specified in Table 1 of Section 6 of this administrative regulation and shall not be exceeded.

7 Section 6. Pollutants. (1) Allowable instream concentrations of pollutants are listed as water  
 8 column values in Table 1 of this section unless otherwise indicated.

Table 1					
Pollutant	CAS <sup>1</sup> Number	Water Quality Criteria µg/L <sup>2</sup>			
		Human Health:		Warm Water Aquatic Habitat <sup>3</sup> :	
		DWS <sup>4</sup>	Fish <sup>5</sup>	Acute <sup>6</sup>	Chronic <sup>7</sup>
Acenaphthene	83329	670	990	-	-
Acrolein	107028	190	6	3	3
Acrylonitrile	107131	0.051	0.25	-	-
Aldrin	309002	0.000049	0.000050	3.0	-
alpha-BHC	319846	0.0026	0.0049	-	-
alpha-Endosulfan	959988	62	89	0.22	0.056
Anthracene	120127	8,300	40,000	-	-
Antimony	7440360	5.6	640	-	-
Arsenic	7440382	10.0	-	340	150

Asbestos	1332214	7 million fibers/L	-	-	-
Barium	7440393	1,000	-	-	-
Benzene	71432	2.2	51	-	-
Benzidine	92875	0.000086	0.00020	-	-
Benzo(a)anthracene	56553	0.0038	0.018	-	-
Benzo(a)pyrene	50328	0.0038	0.018	-	-
Benzo(b)fluoranthene	205992	0.0038	0.018	-	-
Benzo(k)fluoranthene	207089	0.0038	0.018	-	-
Beryllium	7440417	4	-	-	-
Beta-BHC	319857	0.0091	0.017	-	-
Beta-Endosulfan	33213659	62	89	0.22	0.056
bis(chloromethyl)ether	542881	0.00010	0.00029	-	-
bis(2-chloroethyl)ether	111444	0.030	0.53	-	-
bis(2-chloroisopropyl)ether	108601	1,400	65,000	-	-
bis(2-ethylhexyl)phthalate	117817	1.2	2.2	-	-
Bromoform	75252	4.3	140	-	-
Butylbenzyl phthalate	85687	1,500	1,900	-	-
Cadmium	7440439	5	-	e(1.0166 (ln Hard*)- 3.924)	e(0.7409 (ln Hard*)- 4.719)
Carbon tetrachloride	56235	0.23	1.6	-	-

Chlordane	57749	0.00080	0.00081	2.4	0.0043
Chloride	16887006	250,000	-	1,200,000	600,000
Chlorobenzene	108907	130	1600	-	-
Chlorodibromomethane	124481	0.40	13	-	-
Chloroform	67663	5.7	470	-	-
Chloropyrifos	2921882	-	-	0.083	0.041
Chromium	N/A	100	-	-	-
Chromium (III)	16065831	-	-	e(0.8190 (ln Hard*)+ 3.7256)	e(0.8190 (ln Hard*)+ 0.6848)
Chromium (VI)	18540299	-	-	16	11
Chrysene	218019	0.0038	0.018	-	-
Color	N/A	75 Platinum Cobalt Units	-	-	-
Copper	7440508	1,300	-	e(0.9422 (ln Hard*)- 1.700)	e(0.8545 (ln Hard*)- 1.702)
Cyanide, Free	57125	140	140	22	5.2
Demeton	8065483	-	-	-	0.1
Diazinon	333415			0.17	0.17
Dibenzo(a,h)anthracene	53703	0.0038	0.018	-	-

Dichlorobromomethane	75274	0.55	17	-	-
Dieldrin	60571	0.000052	0.000054	0.24	0.056
Diethyl phthalate	84662	17,000	44,000	-	-
Dimethyl phthalate	131113	270,000	1,100,000	-	-
Di-n-butyl phthalate	84742	2,000	4,500	-	-
Dinitrophenols	25550587	69	5300	-	-
Endosulfan sulfate	1031078	62	89	-	-
Endrin	72208	0.059	0.060	0.086	0.036
Endrin aldehyde	7421934	0.29	0.30	-	-
Ethylbenzene	100414	530	2100	-	-
Fluoranthene	206440	130	140	-	-
Fluorene	86737	1,100	5,300	-	-
Fluoride	N/A	4,000	-	-	-
Guthion	86500	-	-	-	0.01
Heptachlor	76448	0.000079	0.000079	0.52	0.0038
Heptachlor epoxide	1024573	0.000039	0.000039	0.52	0.0038
Hexachlorobenzene	118741	0.00028	0.00029	-	-
Hexachlorobutadiene	87683	0.44	18	-	-
Hexachlorocyclo-hexane- Technical	319868	0.0123	0.0414	-	-
Hexachlorocyclopentadiene	77474	40	1100	-	-
Hexachloroethane	67721	1.4	3.3	-	-

Ideno(1,2,3-cd)pyrene	193395	0.0038	0.018	-	-
Iron <sup>8</sup>	7439896	300	-	4,000	1,000
Isophorone	78591	35.0	960	-	-
Lead	7439921	15	-	e(1.273 (ln Hard*)- 1.460)	e(1.273 (ln Hard*)- 4.705)
Lindane (gamma-BHC)	58899	0.98	1.8	0.95	
Malathion	121755	-	-	-	0.1
Mercury	7439976	2.0	0.051	1.4	0.77
Methylmercury	22967926		0.3 mg/Kg		
Methoxychlor	72435	100	-	-	0.03
Methylbromide	74839	47	1,500	-	-
Methylene Chloride	75092	4.6	590	-	-
Mirex	2385855	-	-	-	0.001
Nickel	7440020	610	4,600	e(0.8460 (ln Hard*)+ 2.255)	e(0.8460 (ln Hard*)+ 0.0584)
Nitrate (as N)	14797558	10,000	-	-	-
Nitrobenzene	98953	17	690	-	-
Nitrosamines, Other	N/A	0.0008	1.24	-	-
N-Nitrosodibutylamine	924163	0.0063	0.22	-	-

N-Nitrosodiethylamine	55185	0.0008	1.24	-	-
N-Nitrosodimethylamine	62759	0.00069	3.0	-	-
N-Nitrosodi-n-Propylamine	621647	0.0050	0.51	-	-
N-Nitrosodiphenylamine	86306	3.3	6.0	-	-
N-Nitrosopyrrolidine	930552	0.016	34	-	-
Nonylphenol	1044051			28	6.6
Parathion	56382	-	-	0.065	0.013
Pentachlorobenzene	608935	1.4	1.5	-	-
Pentachlorophenol	87865	0.27	3.0	<del>e(1.005(pH)- 4.869)[19- ][e(1.005 (pH)-4.869)]</del>	<del>e(1.005(pH)- 5.134)[15- ][e(1.005 (pH)-5.134)]</del>
Phenol	108952	21,000	860,000	-	-
Polychlorinated Biphenyls (PCBs)	N/A	0.000064	0.000064	-	0.014
Pyrene	129000	830	4,000	-	-
Selenium	7782492	170	4,200	[258 <sup>9</sup> ]	5.0 <sup>9</sup> 8.6 <sup>10, 11</sup> 19.3 <del>[10, 11]</del> 12 <sup>[12]</sup>

Silver	7440224	-	-	e(1.72 (ln Hard*)-6 .59)	-
Sulfate	N/A	250,000	-	-	-
Hydrogen Sulfide, Undissociated	7783064	-	-	-	2.0
Tetrachloroethylene	127184	0.69	3.3	-	-
Thallium	7440280	0.24	0.47	-	-
Toluene	108883	1300	15,000	-	-
Total Dissolved Solids	N/A	250,000	-	-	-
Toxaphene	8001352	0.00028	0.00028	0.73	0.0002
Tributyltin (TBT)				0.46	0.072
Trichloroethylene	79016	2.5	30	-	-
Vinyl Chloride	75014	0.025	2.4	-	-
Zinc	7440666	7,400	26,000	e(0.8473 (ln Hard*)+ 0.884)	e(0.8473 (ln Hard*)+ 0.884)
1,1-dichloroethylene	75354	330	7100	-	-
1,1,1-trichloroethane	71556	200	-	-	-
1,1,2-trichloroethane	79005	0.59	16	-	-
1,1,2,2-tetrachloroethane	79345	0.17	4.0	-	-
1,2-dichlorobenzene	95501	420	1300	-	-

1,2-dichloroethane	107062	0.38	37	-	-
1,2-dichloropropane	78875	0.50	15	-	-
1,2-diphenylhydrazine	122667	0.036	0.20	-	-
1,2-trans-dichloroethylene	156605	140	10,000	-	-
1,2,4-trichlorobenzene	120821	35	70	-	-
1,2,4,5-tetrachlorobenzene	95943	0.97	1.1	-	-
1,3-dichlorobenzene	541731	320	960	-	-
1,3-dichloropropene	542756	0.34	21	-	-
1,4-dichlorobenzene	106467	63	190	-	-
2-chloronaphthalene	91587	1,000	1,600	-	-
2-chlorophenol	95578	81	150	-	-
2-methyl-4,6-dinitrophenol	534521	13	280	-	-
2,3,7,8-TCDD (Dioxin)	1746016	5.0 E - 9	5.1 E - 9	-	-
2,4-D	94757	100	-	-	-
2,4-dichlorophenol	120832	77	290	-	-
2,4-dimethylphenol	105679	380	850	-	-
2,4-dinitrophenol	51285	69	5,300	-	-
2,4-dinitrotoluene	121142	0.11	3.4	-	-
2,4,5-TP (Silvex)	93721	10	-	-	-
2,4,5-trichlorophenol	95954	1,800	3,600	-	-
2,4,6-trichlorophenol	88062	1.4	2.4	-	-
3,3'-dichlorobenzidine	91941	0.021	0.028	-	-



4,4'-DDD	72548	0.00031	0.00031	-	-
4,4'-DDE	72559	0.00022	0.00022	-	-
4,4'-DDT	50293	0.00022	0.00022	1.1	0.001

1 <sup>1</sup>CAS = Chemical Abstracts Service.

2 <sup>2</sup>Water quality criteria in µg/L unless reported in different units.

3 <sup>3</sup>Metal concentrations shall be total recoverable metals to be measured in an unfiltered sample,  
4 unless it can be demonstrated that a more appropriate analytical technique is available that  
5 provides a measurement of that portion of the metal present which causes toxicity to aquatic life.

6 <sup>4</sup>DWS = Domestic Water Supply Source.

7 <sup>5</sup>Fish = protecting human health regarding fish consumption.

8 <sup>6</sup>Acute criteria = protective of aquatic life based on one (1) hour exposure that does not exceed  
9 the criterion for a given pollutant.

10 <sup>7</sup>Chronic = protective of aquatic life based on ninety-six (96) hour exposure that does not exceed  
11 the criterion of a given pollutant more than once every three (3) years on the average.

12 <sup>8</sup>The chronic criterion for iron shall not exceed three and five tenths (3.5) mg/L (thirty-five  
13 hundred µg/L) if aquatic life has not been shown to be adversely affected.

14 <sup>9</sup> If fish tissue data are available, fish tissue data shall take precedence over water column  
15 data~~[the concentration of sulfate is less than forty-four (44) mg/L, the alternate acute water~~  
16 ~~quality standard for selenium may be obtained by calculating the Criterion Maximum~~  
17 ~~Concentration (CMC) using the concentrations of selenite and selenate as follows:~~

18 ~~CMC = 1/, where CMC1 is 258 µg/L for selenite and CMC2 is e<sup>(0.5812 + 3.357)f1</sup> g/L for selenate,~~  
19 ~~and f1 is the fraction of total selenium that is selenite and f2 is the fraction of total selenium that~~  
20 ~~is selenate].~~

1 <sup>10</sup>This value is the concentration in µg/g (dry weight) of whole fish tissue.]

2 <sup>11</sup> A concentration of five and zero tenths (5.0) µg/L or greater selenium in the water column  
3 shall trigger further sampling and analysis of whole-body fish tissue or alternately of fish  
4 egg/ovary tissue.

5 <sup>12</sup>This value is the concentration in µg/g (dry weight) of fish egg/ovary tissue. <sup>[12]</sup>This value is  
6 the concentration in µg/g (dry weight) of fish egg/ovary tissue.]

7 \*Hard = Hardness as mg/L CaCO<sub>3</sub>.

8 (2) The following additional criteria for radionuclides shall apply for Domestic Water Supply  
9 use:

10 (a) The gross total alpha particle activity, including radium-226 but excluding radon and  
11 uranium, shall not exceed fifteen (15) pCi/L;

12 (b) Combined radium-226 and radium-228 shall not exceed five (5) pCi/L. Specific  
13 determinations of radium-226 and radium-228 are not necessary if dissolved gross alpha particle  
14 activity does not exceed five (5) pCi/L;

15 (c) The concentration of total gross beta particle activity shall not exceed fifty (50) pCi/L;

16 (d) The concentration of tritium shall not exceed 20,000 pCi/l;

17 (e) The concentration of total Strontium-90 shall not exceed eight (8) pCi/L; and[~~or~~]

18 (f) The concentration of uranium shall not exceed thirty (30) µg/l.

19 Section 7. Recreational Waters. (1) Primary contact recreation water. The following criteria  
20 shall apply to waters designated as primary contact recreation use during the primary contact  
21 recreation season of May 1 through October 31:

22 (a) Fecal coliform content or Escherichia coli content shall not exceed 200 colonies per 100  
23 ml or 130 colonies per 100 ml respectively as a geometric mean based on not less than five (5)

1 samples taken during a thirty (30) day period. Content also shall not exceed 400 colonies per 100  
2 ml in twenty (20) percent or more of all samples taken during a thirty (30) day period for fecal  
3 coliform or 240 colonies per 100 ml for Escherichia coli. Fecal coliform criteria listed in  
4 subsection (2)(a) of this section shall apply during the remainder of the year;~~and~~

5 (b) pH shall be between six and zero-tenths (6.0) to nine and zero-tenths (9.0) and shall not  
6 change more than one and zero-tenths (1.0) pH unit within this range over a period of twenty-  
7 four (24) hours; and~~[-]~~

8 (c) Fecal coliform content criteria listed in paragraph (a) of this subsection shall no longer  
9 apply beginning November 1, 2019.

10 (2) Secondary contact recreation water. The following criteria shall apply to waters designated  
11 for secondary contact recreation use during the entire year:

12 (a) Fecal coliform content shall not exceed 1,000 colonies per 100 ml as a thirty (30) day  
13 geometric mean based on not less than five (5) samples; nor exceed 2,000 colonies per 100 ml in  
14 twenty (20) percent or more of all samples taken during a thirty (30) day period; and

15 (b) pH shall be between six and zero-tenths (6.0) to nine and zero-tenths (9.0) and shall not  
16 change more than one and zero-tenths (1.0) pH unit within this range over a period of twenty-  
17 four (24) hours.

18 Section 8. Outstanding State Resource Waters. This designation category includes certain  
19 unique waters of the commonwealth. (1) Water for inclusion.

20 (a) Automatic inclusion. The following surface waters shall automatically be included in this  
21 category:

- 22 1. Waters designated pursuant to the Kentucky Wild Rivers Act, KRS 146.200-146.360;
- 23 2. Waters designated pursuant to the Federal Wild and Scenic Rivers Act, 16 U.S.C. 1271-

1 1287;

2 3. Waters that support federally recognized endangered or threatened species pursuant to the  
3 Endangered Species Act of 1973, as amended, 16 U.S.C. 1531-1544.

4 (b) Permissible consideration. Other surface waters shall be considered for inclusion in this  
5 category if:

6 1. The surface waters flow through or are bounded by state or federal forest land, or are of  
7 exceptional aesthetic or ecological value or are within the boundaries of national, state, or local  
8 government parks, or are a part of a unique geological, natural, or historical area recognized by  
9 state or federal designation; or

10 2. The surface water is a component part of an undisturbed or relatively undisturbed  
11 watershed that can provide basic scientific data and possess outstanding water quality  
12 characteristics, or fulfill two (2) of the following criteria:

13 a. Support a diverse or unique native aquatic flora or fauna;

14 b. Possess physical or chemical characteristics that provide an unusual and uncommon aquatic  
15 habitat; or

16 c. Provide a unique aquatic environment within a physiographic region.

17 (2) Outstanding state resource waters protection. The designation of certain waters as  
18 outstanding state resource waters shall fairly and fully reflect those aspects of the waters for  
19 which the designation is proposed. The cabinet shall determine water quality criteria for these  
20 waters as established in paragraphs (a) through (d) of this section.[follows:]

21 (a) At a minimum, the criteria of Section 2 and Table 1 of Section 6 of this administrative  
22 regulation and the appropriate criteria associated with the stream use designation assignments in  
23 401 KAR 10:026, shall be applicable to these waters.

1 (b) Outstanding state resource waters that are listed as Exceptional Waters in 401 KAR  
2 10:030, Section 1(2) shall have dissolved oxygen maintained at a minimum concentration of six  
3 and zero-tenths (6.0) mg/L as a twenty-four (24) hour average and an instantaneous minimum  
4 concentration of not less than five and zero-tenths (5.0) mg/L.

5 (c)1. If the values identified for an outstanding state resource water are dependent upon or  
6 related to instream water quality, the cabinet shall review existing water quality criteria and  
7 determine if additional criteria or more stringent criteria are necessary for protection, and  
8 evaluate the need for the development of additional data upon which to base the determination.

9 2. Existing water quality and habitat shall be maintained and protected in those waters  
10 designated as outstanding state resource waters that support federally threatened and endangered  
11 species of aquatic organisms, unless it can be demonstrated that lowering of water quality or a  
12 habitat modification will not have a harmful effect on the threatened or endangered species that  
13 the water supports.

14 (d) Adoption of more protective criteria in accordance with this section shall be listed with the  
15 respective stream segment in 401 KAR 10:026.

16 (3) Determination of designation.

17 (a) A person may present a proposal to designate certain waters pursuant to this section.  
18 Documentation requirements in support of an outstanding state resource water proposal shall  
19 contain those elements outlined in 401 KAR 10:026, Section 3(3)(a) through (h).

20 (b)1. The cabinet shall review the proposal and supporting documentation to determine if the  
21 proposed waters qualify as outstanding state resource waters within the criteria established by  
22 this administrative regulation.

23 2. The cabinet shall document the determination to deny or to propose redesignation, and a

1 copy of the decision shall be served upon the petitioner and other interested parties.

2 (c) After considering all of the pertinent data, a redesignation, if appropriate, shall be made  
3 pursuant to 401 KAR 10:026.

4 Section 9. Water Quality Criteria for the Main Stem of the Ohio River. (1) The following  
5 criteria apply to the main stem of the Ohio River from its juncture with the Big Sandy River at  
6 River Mile 317.1 to its confluence with the Mississippi River, and shall not be exceeded.

7 (2) These waters shall be subject to all applicable provisions of 401 KAR 10:001, 10:026,  
8 10:029, 10:030, and this administrative regulation, except for those criteria in paragraphs (a) and  
9 (b) of this subsection.

10 (a) Dissolved oxygen. Instream concentrations shall average at least five and zero-tenths (5.0)  
11 mg/L per calendar day and shall not be less than four and zero-tenths (4.0) mg/L except during  
12 the April 15 - June 15 spawning season when a minimum of five and one-tenth (5.1) mg/L shall  
13 be maintained.

14 (b) Maximum allowable instream concentrations for nitrite-nitrogen for the protection of  
15 human health shall be one and zero-tenths (1.0) mg/L and shall be met at the edge of the  
16 assigned mixing zone.

17 Section 10. Exceptions to Criteria for Specific Surface Waters. (1) The cabinet may grant  
18 exceptions to the criteria contained in Sections 2, 4, 6, 7, 8, and 9 of this administrative  
19 regulation for specific surface water upon demonstration by an applicant that maintenance of  
20 applicable water quality criteria is not attainable or scientifically valid but the use designation is  
21 still appropriate.

22 (2) The analysis shall show that the water quality criteria cannot be reasonably achieved,  
23 either on a seasonal or year-round basis due to natural conditions or site-specific factors differing

1 from the conditions used to derive criteria in Sections 2, 4, 6, 7, 8, and 9 of this administrative  
2 regulation.

3 (a) Site-specific criteria shall be developed by the applicant utilizing toxicity tests, indicator  
4 organisms, and application factors that shall be consistent with those outlined in Chapter 3 of  
5 Water Quality Standards Handbook, EPA, 1994.

6 (b) In addition, an applicant shall supply the documentation listed in 401 KAR 10:026,  
7 Section 3.

8 (3) An exception to criteria listed in Table 1 of Section 6 of this administrative regulation for  
9 the protection of human health from the consumption of fish tissue may be granted if it is  
10 demonstrated that natural, ephemeral, intermittent, or low flow conditions or water levels  
11 preclude the year-round support of a fishery, unless these conditions may be compensated for by  
12 the discharge of sufficient volume of effluent discharges.

13 (4) Before granting an exception to water quality criteria, the cabinet shall ensure that the  
14 water quality standards of downstream waters shall be attained and maintained.

15 (5) All exceptions to water quality criteria shall be subject to review at least every three (3)  
16 years.

17 (6) Exceptions to water quality criteria shall be adopted as an administrative regulation by  
18 listing them with the respective surface water in 401 KAR 10:026.

19 Section 11. Exceptions to Criteria for Individual Dischargers. (1) An exception to criteria may  
20 be granted to an individual discharger based on a demonstration by the discharger, that KPDES  
21 permit compliance with existing instream criteria cannot be attained because of factors specified  
22 in 401 KAR 10:026, Section 2(4)(a) through (f).

23 (2) The demonstration shall include an assessment of alternative pollution control strategies

1 and biological assessments that indicated designated uses are being met.

2 (3) Before granting an exception, the cabinet shall ensure that the water quality standards of  
3 downstream waters shall be attained and maintained.

4 (4) All exceptions shall be submitted to the cabinet for review at least every three (3) years.  
5 Upon review, the discharger shall demonstrate to the cabinet the effort the discharger made to  
6 reduce the pollutants in the discharge to levels that would achieve existing applicable water  
7 quality criteria.

8 (5) The highest level of effluent quality that can be economically and technologically  
9 achieved shall be ensured while the exception is in effect.

10 (6) The Kentucky Pollution Discharge Elimination System permitting program shall be the  
11 mechanism for the review and public notification of intentions to grant exceptions to criteria.

12 Section 12. Incorporation by Reference. (1) The following material is incorporated by  
13 reference:

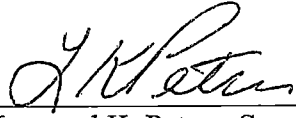
14 (a) "Water Quality Standards Handbook-Chapter 3", EPA August 1994, Publication EPA-  
15 823-B-94-005a, U.S. Environmental Protection Agency, Office of Water, Washington, D.C.; and

16 (b) "Interim Economic Guidance for Water Quality Standards Workbook", EPA March 1995,  
17 Publication EPA-823-B-95-002, U.S. Environmental Protection Agency, Office of Water,  
18 Washington, D.C.

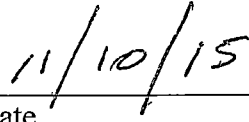
19 (2) This material may be inspected, copied, or obtained, subject to applicable copyright law,  
20 at the Division of Water, 200 Fair Oaks Lane, Frankfort, Kentucky, Monday through Friday, 8  
21 a.m. to 4:30 p.m.



401 KAR 10:031 Surface water standards (Amended After Comments) approved for filing.



\_\_\_\_\_  
Leonard K. Peters, Secretary  
Energy and Environment Cabinet



\_\_\_\_\_  
Date

## REGULATORY IMPACT ANALYSIS AND TIERING STATEMENT

Administrative Regulation #: 401 KAR 10:031      Contact Person: Peter Goodmann, Director

(1) Provide a brief summary of:

(a) What this administrative regulation does: This administrative regulation establishes water quality standards for surface waters of the Commonwealth and the associated water quality criteria necessary to protect designated uses.

(b) The necessity of this administrative regulation: This administrative regulation is necessary for the protection of public health, aquatic habitat, and designated uses of the surface waters of the Commonwealth.

(c) How this administrative regulation conforms to the content of the authorizing statutes: KRS 224.10-100 requires the Cabinet to develop and conduct a comprehensive program for the management of water resources and the prevention, abatement, and control of water pollution. This administrative regulation and 401 KAR 10:001, 10:026, 10:029, and 10:030 establish procedures to protect the surface waters of the Commonwealth, and thus manage water resources and prevent water pollution. This administrative regulation describes the criteria applied in 401 KAR 10:026 to the surface waters of the Commonwealth and establishes water quality standards that consist of designated legitimate uses of the surface waters of the Commonwealth and the associated water quality criteria necessary to protect those uses.

(d) How this administrative regulation currently assists or will assist in the effective administration of the statutes: This administrative regulation assists in the administration of the statutes by providing specific criteria and water quality standards for the protection of surface waters of the Commonwealth as required by the authorizing statutes.

(2) If this is an amendment to an existing administrative regulation, provide a brief summary of:

(a) How the amendment will change this existing administrative regulation: The amendments after comments reinsert the appropriate Pentachlorophenol values in the Warm Water Aquatic Habitat Acute and Chronic columns, and reinsert Selenium footnote 12 to distinguish the  $\mu\text{g/g}$  (dry weight) of fish egg/ovary tissue.

(b) The necessity of the amendment to this administrative regulation: The amendments after comments are necessary corrections to reflect accurate measurements of pentachlorophenol and selenium for protection of human health and aquatic habitat.

(c) How the amendment conforms to the content of the authorizing statutes: KRS 224.10-100 requires the Cabinet to develop and conduct a comprehensive program to manage water resources and provide for the prevention, abatement, and control of water pollution. This amendment updates water quality criteria for selenium and pentachlorophenol to protect designated uses of the surface waters of the Commonwealth.

(d) How the amendment will assist in the effective administration of the statutes: This amendment will assist in the administration of the statutes by providing clear and current criteria and water quality standards for the protection of surface waters of the Commonwealth in accordance with the authorizing statutes.

(3) List the type and number of individuals, businesses, organizations, or state and local governments affected by this administrative regulation: This administrative regulation applies to the surface waters of the Commonwealth. All individuals, businesses, organizations, and

governments that use the Commonwealth's surface waters may be impacted by this regulation if they apply for a new or expanded discharge permit.

(4) Provide an analysis of how the entities identified in question (3) will be impacted by either the implementation of this administrative regulation, if new, or by the change, if it is an amendment, including:

(a) List the actions that each of the regulated entities identified in question (3) will have to take to comply with this administrative regulation or amendment: The substantive requirements of the administrative regulation remain unchanged by the amendments after comments. The revised water quality criteria will be implemented when the cabinet issues a new or expanded permit. Additional costs may be incurred when criteria are more stringent than before, or when new criteria are established. Fewer costs will be incurred when criteria have been lowered.

(b) In complying with this administrative regulation or amendment, how much will it cost each of the entities identified in question (3): The amendments after comments will not have further impact on costs. The costs to comply with this administrative regulation will vary considerably depending on the site location, type of activity, and other factors. Therefore, it is not possible to quantify costs to implement this regulation.

(c) As a result of compliance, what benefits will accrue to the entities identified in question (3): Fewer costs may be incurred when criteria are less stringent. Direct and indirect savings will be realized through reduced drinking water treatment costs, maintenance of good agricultural water, maintenance of fisheries, and healthy recreational waters.

(5) Provide an estimate of how much it will cost the administrative body to implement this administrative regulation:

(a) Initially: There are no additional initial costs to implement this administrative regulation.

(b) On a continuing basis: Costs of implementation will remain the same.

(6) What is the source of the funding to be used for the implementation and enforcement of this administrative regulation? The source of revenue is a combination of General Funds appropriated by the Kentucky General Assembly and federal funds from the U.S. Environmental Protection Agency.

(7) Provide an assessment of whether an increase in fees or funding will be necessary to implement this administrative regulation, if new, or by the change if it is an amendment: An increase in fees will not be necessary to implement this amendment.

(8) State whether or not this administrative regulation established any fees or directly or indirectly increased any fees: This administrative regulation does not establish fees or directly or indirectly increase fees.

(9) TIERING: Is tiering applied? (Explain why or why not)

Yes, tiering is applied in this administrative regulation. Water quality standards and associated criteria vary based on the designated use of the surface water.

## FISCAL NOTE ON STATE OR LOCAL GOVERNMENT

Regulation Number: 401 KAR 10:031

Contact Person: Peter Goodmann, Director  
Phone Number: (502) 564-3410

1. What units, parts or divisions of state or local government (including cities, counties, fire departments, or school districts) will be impacted by this administrative regulation? This administrative regulation will affect the wastewater treatment operations of local government if they have new or expanded discharges into surface waters of the Commonwealth.

2. Identify each state or federal statute or federal regulation that requires or authorizes the action taken by the administrative regulation: KRS 146.220, 146.241, 146.270, 146.410, 146.450, 146.460, 146.465, 224.10-100, 224.16-050, 224.16-060, 224.70-100, 224.70-110, 40 C.F.R. Part 131, 16 U.S.C. 1271-1287, 1531-1544, 33 U.S.C. 1311, 1313, 1314, and 1341.

3. Estimate the effect of this administrative regulation on the expenditures and revenues of a state or local government agency (including cities, counties, fire departments, or school districts) for the first full year the administrative regulation is to be in effect.

(a) How much revenue will this administrative regulation generate for the state or local government (including cities, counties, fire departments, or school districts) for the first year? This administrative regulation will not generate any revenue.

(b) How much revenue will this administrative regulation generate for the state or local government (including cities, counties, fire departments, or school districts) for subsequent years? This administrative regulation will not generate any revenue.

(c) How much will it cost to administer this program for the first year? The amendment to this administrative regulation will not increase administration costs.

(d) How much will it cost to administer this program for subsequent years? The amendment to this administrative regulation will not increase administration costs.

Note: If specific dollar estimates cannot be determined, provide a brief narrative to explain the fiscal impact of the administrative regulation.

Revenues (+/-):

Expenditures (+/-):

Other Explanation: Wastewater treatment costs may increase for those local governments that have new or expanded discharges into Exceptional Waters and High Quality Waters. Local governments withdrawing drinking water from these waters may have lower treatment costs because these waters should have lower pollutant loads.

## FEDERAL MANDATE ANALYSIS COMPARISON

Administrative Regulation #: 401 KAR 10:031

Contact Person: Peter Goodmann, Director

1. Federal statute or regulation constituting the federal mandate: There is no federal mandate to implement a water pollution control program. For Kentucky to maintain its delegation authority over the NPDES permit program, the Clean Water Act requires that Kentucky review its water quality standards every three years (known as the "Triennial Review") and comply with the programmatic requirements of 40 C.F.R. Part 131, including the requirement for reviewing water quality criteria for appropriate revisions.
  2. State compliance standards: KRS 146.220, 146.241, 146.270, 146.410, 146.450, 146.460, 146.465, 224.10-100, 224.16-050, 224.16-060, 224.70-100, and 224.70-110.
  3. Minimum or uniform standards contained in the federal mandate: 40 C.F.R. Part 131, 16 U.S.C. 1271-1287, 1531-1544, 33 U.S.C. 1311, 1313, 1314, and 1341.
  4. Will this administrative regulation impose stricter requirements, or additional or different responsibilities or requirements than those required by the federal mandate? No.
  5. Justification for the imposition of the stricter standard, or additional or different responsibilities or requirements: There are no stricter standards or additional or different responsibilities or requirements.
- 1

STATEMENT OF CONSIDERATION

Relating to

- 401 KAR 10:026 (Not Amended After Comments)
- 401 KAR 10:029 (Not Amended After Comments)
- 401 KAR 10:030 (Not Amended After Comments)
- 401 KAR 10:031 (Amended After Comments)

Energy and Environment Cabinet  
Department for Environmental Protection  
Division of Water

I. A public hearing on 401 KAR 10:026, 10:029, 10:030, and 10:031 was held on September 24, 2015 at 6:00 p.m. at 300 Fair Oaks Lane, Conference Room 301D, Frankfort, Kentucky. The Division of Water also received written comments during the public comment period.

II. The following people submitted comments:

<u>Name</u>	<u>Agency/Organization/Entity/Other</u>	<u>Comments</u>
Kori Andrews, Environmental Specialist Smith Mgmt Group	Kentucky Soybean Association	Written
Virgil Lee Andrews, Jr. Field Supervisor	US Fish and Wildlife Service	Written
Carol Becht		Written
Bill Bissett, President	Kentucky Coal Association	Written
Carl R. Breeding, Attorney	Kentucky League of Cities	Written
Sammie Brian		Written
Diane Casey		Written
Rafael Castro		Written
Mary Clark		Written
Alida Cornelius		Written
Lloyd R. Cress, Jr., Attorney	Kentucky Association of Manufacturers	Written
Lloyd R. Cress, Jr., Attorney	Kentucky Chemical Industry Council	Written
Mark Engler		Written
Tom FitzGerald, Director	Kentucky Resources Council	Written
Annie Godfrey, Chief Water Quality Standards Region 4	U.S. Environmental Protection Agency	Written
Hank Graddy, Attorney	Sierra Club, Cumberland Chapter	Written and Verbal
Tim Joice,		

Water Policy Director	Kentucky Waterways Alliance	Written
Jessica Kane		Written
Benjamin Luckett, Attorney	Appalachian Mountain Voices	Written
John Lyons,		
Director of Operations	Strand Associates	Written
Robert Mayton		Written
Zina Merkin		Written
Anna Murray		Written
Jana Ornstein		Written
John Ornstein		Written
Judith Petersen,		
Executive Director	Kentucky Waterways Alliance	Written and Verbal
James Pugh		Written
Kevin Sheridan,		
Regional HSE Mgr	Westlake Chemical Corporation	Written
Margaret Stewart		Written
Teresa Streza		Written
Bryan Sunderland		
Senior VP, Public Affairs	Kentucky Chamber of Commerce	Written
Perry Thomas		Written
Troy Tucker		Written
Monica Unseld		Written
Heather Varda		Written
Barbara Warner		Written
J. Weber		Written
Will Willis		Written

III. The following people from the promulgating administrative body responded to the written and verbal comments:

Name and Title

Peter Goodmann, Director, Division of Water  
 Andrea Keatley, Water Quality Branch Manager, Division of Water  
 Randall Payne, Environmental Scientist, Division of Water  
 Carole Catalfo, Internal Policy Analyst, Division of Water

IV. Summary of Comments and Responses for 401 KAR 10:026, 10:029, 10:030, and 10:031. The following comments and responses are grouped by administrative regulation. General comments related to the entire package are listed first, then comments specific to 401 KAR 10:026, 10:029, 10:030, and 10:031.

- (1) Subject Matter: 401 KAR Chapter 10, Public input
  - (a) Commenter: Lloyd Cress, Jr., Kentucky Association of Manufacturers and Kentucky Chemical Industry Council

Comment: The commenters applaud the Cabinet's proactive efforts to seek stakeholder input prior to formally filing regulations regarding the subject matter.

(b) Response: The Division acknowledges the comment.

(2) Subject Matter: 401 KAR 10:001, Definitions

(a) Commenter: Kevin Sheridan, Westlake Chemical Corporation

Comment: Add or clarify the following definitions: "Cumulative impact", "Assimilative capacity", "As soon as practicable", "Feasible", and "Zone of Attenuation".

(b) Response: While the Division appreciates the suggestion, most of the terms listed apply to permitting in 401 KAR Chapter 5 rather than Chapter 10. The Division will be reviewing 401 KAR Chapter 5 in the future and will consider changes at that time.

(3) Subject Matter: 10:026, Amendment to introductory language

(a) Commenter: Tom FitzGerald, Kentucky Resources Council

Comment: Rather than using "shall be" in the Necessity, Function, and Conformity paragraph, simply say they "are" for clarity

(b) Response: Regulatory language is prescribed by KRS 13A and the standards of the Legislative Research Commission (LRC). The use of "shall" indicates mandatory language. Current regulatory language standards required this change.

(4) Subject Matter: 10:026, Additional Outstanding State Resource Waters (OSRW)

(a) Commenter: Carol Becht, Sammie Brian, Diane Casey, Rafael Castro, Mary Clark, Alida Cornelius, Mark Engler, Jessica Kane, Robert Mayton, Zina Merkin, Anna Murray, Jana Ornstein, John Ornstein James Pugh, Margaret Stewart, Teresa Streza, Perry Thomas, Troy Tucker, Monica Unseld, Heather Varda, Barbara Warner, J. Weber, Will Willis

Comment: The additional waters added to the Outstanding waters list is applauded, but there are surely many more waters of high value around the state that should be on this list. Furthermore, at present, there are very little additional standards applied to these waters. The state should develop additional protections for these important waters.

(b) Response: The Division acknowledges the comment and encourages the public to make specific recommendations or follow the redesignation procedures contained in 10:026, Sections 2 through 4, and 10:031, Section 8.

(5) Subject Matter: 10:026, Standards applied to OSRW

(a) Commenter: Virgil Lee Andrews, Jr., U.S. Fish and Wildlife Service

Comment: The USFWS supports the additional 20 streams or stream segments added to the OSRW list. However, it is concerned that more protective standards associated with OSRW designation are not applied to waters that support federally-listed species but for which there is no documented occurrence. The USFWS would like to work with the Division of Water and federal EPA to identify stream reaches and watershed conditions where the occurrence of federally-listed species is likely but not documented, and therefore surveys for threatened or endangered species should be required prior to issuing Clean Water Act authorizations to determine the appropriate designated use for this stream reach.

(b) Response: The Division acknowledges the comment and encourages specific recommendations or following the redesignation procedures contained in 10:026, Sections 2 through 4, and 10:031, Section 8.



(6) Subject Matter: 10:026, Request for additional OSRW

(a) Commenter: Virgil Lee Andrews, Jr., U.S. Fish and Wildlife Service

Comment: The USFWS requests that Kentucky consider adding the following to its OSRWs based on federally-listed aquatic species:

Ohio River

Henderson County – Ohio River near River Mile 782.3 due to an extant population of the federally-endangered fat pocketbook (*Potamilis capax*)

Davis County – Ohio River near Rockport IL due to an extant population of the federally-endangered sheepsnose (*Plethobasus cyphus*)

Oldham County – Ohio River near 18-Mile Island due to an extant population of the federally-endangered sheepsnose (*Plethobasus cyphus*)

Campbell County – Ohio River in the reach that runs from the Beckford Powerstation (mile post 452.8) to the confluence with the Little Miami River (mile post 464) due to an extant population of the federally-endangered sheepsnose (*Plethobasus cyphus*)

Cumberland River

Bell County – Fourmile Creek of the Cumberland River between mile posts 1.7 and 2.5 due to an extant population of the federally-endangered blackside dace (*Chrosomus cumberlandensis*)

Livingston County – Cumberland river near River Mile 5.0 due to an extant population of the federally-endangered fat pocketbook (*Potamilis capax*)

Livingston County – Cumberland River north of Horseshoe Bend due to an extant population of the federally-endangered fat pocketbook (*Potamilis capax*) and spectaclecase (*Cumberlandia mondonta*)

Whitley County – Slick Shoals branch of the Cumberland River due to an extant population of the federally-endangered blackside dace (*Chrosomus cumberlandensis*)

Green River

Henderson County – Green River near River Mile 5.8 due to an extant population of the federally-endangered fat pocketbook (*Potamilis capax*)

Others

Bell County – Sugar Run due to an extant population of the federally-endangered blackside dace (*Chrosomus cumberlandensis*)

McCreary County – Wolf Creed, a direct tributary of the Big South Fork near the village of Yamacraw due to an extant population of the federally-endangered blackside dace (*Chrosomus cumberlandensis*)

(b) Response: The Division appreciates and will consider this information. The Division is not redesignating these streams and stream segments as OSRWs at this time because it will require additional information which it will seek from USFWS. The Division will examine these waters for inclusion during the next Triennial Review.

(7) Subject Matter: 10:026, Inadequate data to support OSRW

(a) Commenter: Kori Andrews, Kentucky Soybean Association, Bryan Sunderland, Kentucky Chamber of Commerce, Bill Bissett, Kentucky Coal Association

Comment: The supplement in support of adding OSRW stream segments merely lists the stream segment, the designated river mile points, and the threatened or endangered species. It provides no information regarding the underlying sample data, including how, when, or where it was collected. Without an opportunity to review or question the underlying data, the public and

regulated community lacks a basis to comment on the merits of an OSRW designation. On September 15, 2015 pursuant to an Open Records Request, the Kentucky Chamber of Commerce received more than 250 pages of data not included in the public record. The Division should not proceed with additional stream designations until the data can be adequately reviewed.

(b) Response: The Division agrees that sufficient information should be made available and properly evaluated before a stream is listed as OSRW. As required by 401 KAR 10:026, Sections 2 through 4, the Division presented two supplemental documents with the triennial review package of proposed updates, edits and proposals: 1) *Biological and Water Quality Characteristics of Streams Proposed for the Antidegradation Category of Exceptional Waters*; and 2) *Outstanding State Resource Water Use Designation for 20 Stream or Stream Segments in the Commonwealth*. Each of these documents followed prescribed requirements outlined in 401 KAR 10:030 and 401 KAR 10:031, respectively. All OSRWs proposed for redesignation based on the presence of federally listed threatened or endangered species were based on reports from agency or partner agency biosurveys for freshwater mussel community composition evaluation or fish community composition.

(8) Subject Matter: 10:026, Certification by Kentucky Division of Fish & Wildlife

(a) Commenter: Kevin Sheridan, Westlake Chemical Corporation

Comment: The Kentucky Division of Fish & Wildlife should be required to certify that waters categorized as OSRWs do in fact contain the organisms found in the federal listing, and be required to revisit and recertify those streams contain those organisms every 5 years.

(b) Response: The agency agrees that sufficient information should be made available and properly evaluated before a stream is listed as OSRW. Data from freshwater mussel surveys, fish surveys, and analysis of aquatic habitat and communities by professional biologists are required to verify the existence of a population of federally-listed threatened or endangered species and the habitat to support these species. If a future extirpation of a population of threatened or endangered species from an OSRW occurs, that condition does not preclude the waterbody from having the demonstrable qualities or other attributes of an OSRW. However, if that designated use is no longer supported and the waterbody lacks the physical and chemical qualities to restore the use, a Use Attainability Analysis (UAA), as required by 401 KAR 10:026, Sections 2 through 4 and 401 KAR 10:031, Section 8, may be undertaken and the data subsequently presented to the Division for consideration through the Triennial Review procedures. A copy of EPA's UAA guidance can be found at <http://www2.epa.gov/wqs-tech/use-attainability-analysis-uaa>. Any entity may petition the Cabinet to change the designated use of a waterbody through a UAA.

Additionally, The Division of Water does not have authority to compel another state or federal agency to certify that waters listed as OSRWs for the presence of threatened or endangered species do in fact contain the organisms found in the federal listing.

(9) Subject Matter: 10:026, Procedures for reconfirming OSRW

(a) Commenter: Kori Andrews, Kentucky Soybean Association, Lloyd R. Cress, Jr., Kentucky Association of Manufacturers and Kentucky Chemical Industry Council, Bryan Sunderland, Kentucky Chamber of Commerce, Bill Bissett, Kentucky Coal Association

Comment: There does not appear to be any program or regulatory process for revisiting or reconfirming stream designations as OSRWs based on the presence of threatened or endangered species, such as macroinvertebrate bioassessment index scores or other scientific

data or analyses. The Division should develop procedures for periodic review of OSRWs to determine whether the classification remains valid.

(b) Response: The agency agrees that sufficient information should be made available and properly evaluated before a stream is listed as OSRW. Data from freshwater mussel surveys, fish surveys, and analysis of aquatic habitat and communities by professional biologists are required to verify the existence of a population of federally-listed threatened or endangered species and the habitat to support these species. If a future extirpation of a population of threatened or endangered species from an OSRW occurs, that condition does not preclude the waterbody from having the demonstrable qualities or other attributes of an OSRW. However, if that designated use is no longer supported and the waterbody lacks the physical and chemical qualities to restore the use, a Use Attainability Analysis (UAA), as required by 401 KAR 10:026, Sections 2 through 4 and 401 KAR 10:031, Section 8, may be undertaken and the data subsequently presented to the Division for consideration through the Triennial Review procedures. A copy of EPA's UAA guidance can be found at <http://www2.epa.gov/wqs-tech/use-attainability-analysis-uaa>. Any entity may petition the Cabinet to change the designated use of a waterbody through a UAA.

(10) Subject Matter: 10:026, Request for redesignation analysis and confirmation of the presence of threatened or endangered species.

(a) Commenter: Lloyd R. Cress, Jr., Kentucky Association of Manufacturers and Kentucky Chemical Industry Council, Carl R. Breeding, Kentucky League of Cities, Bryan Sunderland, Kentucky Chamber of Commerce, Bill Bissett, Kentucky Coal Association

Comment: The commenters request a detailed, written analysis for redesignating or recategorizing any stream segment, and confirmation that threatened or endangered species are present in those stream segments.

(b) Response: The Division agrees that sufficient information should be made available and properly evaluated before a stream is listed as OSRW. As required by 401 KAR 10:026, Sections 2 through 4, the Division presented two supplemental documents with the triennial review package of proposed updates, edits and proposals: 1) *Biological and Water Quality Characteristics of Streams Proposed for the Antidegradation Category of Exceptional Waters*; and 2) *Outstanding State Resource Water Use Designation for 20 Stream or Stream Segments in the Commonwealth*. Each of these documents followed prescribed requirements outlined in 401 KAR 10:030 and 401 KAR 10:031, respectively. All OSRWs proposed for redesignation based on the presence of federally listed threatened or endangered species were based on reports from agency or partner agency biosurveys for freshwater mussel community composition evaluation or fish community composition. All water bodies and segments proposed for categorization under the Antidegradation Policy, Exceptional Waters, are based on the Division's biological monitoring program data. Analysis of data respective of each proposed water body resulted in water quality and biological community composition that support exceptional qualities that qualify as meeting the requirements prescribed in 401 KAR 10:030, Section 1(2)(a) for categorization.

(11) Subject Matter: 10:026, request for delay in stream designations until recently provided data is reviewed

(a) Commenter: Kevin Sheridan, Westlake Chemical Corporation, Bryan Sunderland, Kentucky Chamber of Commerce, Bill Bissett, Kentucky Coal Association

Comment: An analysis should be conducted regarding whether a particular substance and its concentration within a KPDES permit is likely to be detrimental to a listed species or habitat. The provided data does not include reports or information to support 10 of the new mussel site listings on the Ohio River, and a proposed OSRW stream segment due to blackside dace is based on a June 2012 email report of the species observed in small pools in an otherwise dry stream bed. On September 15, 2015 pursuant to an Open Records Request, the Kentucky Chamber of Commerce received more than 250 pages of data not included in the public record. The Division should not proceed with additional stream designations until the data can be adequately reviewed.

(b) Response: Water quality standards for specific substances (pollutants) are based on what is protective of water quality and habitat; water quality standards are not technology-based standards. Consideration of implementation of the water quality standard within a KPDES permit occurs as part of the permit process. As required by 401 KAR 10:026, Sections 2 through 4, the Division presented two supplemental documents with the triennial review package of proposed updates, edits and proposals: 1) *Biological and Water Quality Characteristics of Streams Proposed for the Antidegradation Category of Exceptional Waters*; and 2) *Outstanding State Resource Water Use Designation for 20 Stream or Stream Segments in the Commonwealth*. Each of these documents followed prescribed requirements outlined in 401 KAR 10:030 and 401 KAR 10:031, respectively. All OSRWs proposed for redesignation based on the presence of federally listed threatened or endangered species were based on reports from agency or partner agency biosurveys for freshwater mussel community composition evaluation or fish community composition. All water bodies and segments proposed for categorization under the Antidegradation Policy, Exceptional Waters, are based on the Division's biological monitoring program data. Analysis of data respective of each proposed water body resulted in water quality and biological community composition that support exceptional qualities that qualify as meeting the requirements prescribed in 401 KAR 10:030, Section 1(2)(a) for categorization.

(12) Subject Matter: 10:026, Fish consumption as a designated use

(a) Commenter: Tim Joice, Kentucky Waterways Alliance, Tom FitzGerald, Kentucky Resources Council, Hank Graddy, Sierra Club, Cumberland Chapter

Comment: The Division should adopt fish consumption as an official designated use, rather than an "implied" use. The EPA interprets the Clean Water Act Section 101(a)(2) to include protection of aquatic life for human consumption, and 401 KAR 10:031 conveys fish consumption as a use.

(b) Response: The Division appreciates the interest in protecting aquatic life for human consumption and has adopted water quality standards for that purpose. The Division has listed waterbodies on the Clean Water Act 303(d) list of impaired waters because of the levels of some pollutants (e.g. PCBs, dioxins, mercury) in fish tissues. Additionally, the Division of Water, the Kentucky Department of Fish and Wildlife Resources, and the Kentucky Department of Public Health have issued fish consumption advisories based on the occurrence of some pollutants in fish tissue and the potential risks posed to human health. The Division is evaluating the ramifications of adding "fish consumption" as a designated use, but declines to take the suggested action at this time. The procedures to petition the Division to designate or redesignate a new use for appropriate water bodies are established in 401 KAR 10:026, Sections 2 through 4.

(13) Subject Matter: 10:026, Additional OSRW

(a) Commenter: Hank Graddy, Sierra Club, Cumberland Chapter

Comment: The water quality of many waters is high enough to warrant elevation to OSRW as illustrated by monitoring performed by the Division of Water, USFWS, KDFWR, ORSANCO, and others.

(b) Response: The Division agrees that there are many high quality waters in Kentucky and has a demonstrated history of re-designating waterbodies as OSRWs where data demonstrates that those waterbodies support federally-listed threatened or endangered species, or where data indicates that the waterbody has exceptional and sustainable water quality or habitat. The Division encourages the public to make specific recommendations or follow the re-designation procedures contained in 10:026, Sections 2 through 4, and 10:031, Section 8.

(14) Subject Matter: 10:026, Support for additional OSRW

(a) Commenter: Tim Joice, Kentucky Waterways Alliance, Hank Graddy, Sierra Club, Cumberland Chapter

Comment: The commenters support the proposed additions to OSRW and lengthening existing OSRW.

(b) Response: The Division appreciates the support for the proposed OSRWs and will re-designate waterbodies as OSRWs where data demonstrates that those waterbodies support federally-listed threatened or endangered species, or where data indicates that the waterbody has exceptional and sustainable water quality or habitat. The Division encourages the public to make specific recommendations or follow the re-designation procedures contained in 10:026, Sections 2 through 4, and 10:031, Section 8.

(15) Subject Matter: 10:029, Variance procedures and reinstatement of mixing zones for bioaccumulative chemicals of concern (BCC)

(a) Commenter: Kevin Sheridan, Westlake Chemical Corporation

Comment: Kentucky should move to a variance procedure to reinstate mixing zones and clarify the availability of zones of initial dilution for BCC. The EPA supports variance procedures and schedules of compliance in its water quality standards amendments published in the Federal Register on August 21, 2015. Decisions made, proposed, and under consideration by ORSANCO indicate the ban on BCC mixing zones should be revisited. Comments being received by ORSANCO on this issue should be evaluated for the Triennial Review.

(b) Response: The Division agrees that the factors mentioned in the comment are factors to be considered when issuing a variance to water quality standards, including the prohibition of mixing zones for bioaccumulative contaminants of concern (BCC) in 401 KAR 10:029, Section 4(1)(h). The mixing zone prohibition was established when 401 KAR 10:029 was amended in 2003. The Division believes it is not appropriate to revisit the mixing zone prohibition for BCC. Exceptions to water quality criteria (variances), including the mixing zone prohibition for BCC are available pursuant to 401 KAR 10:031, Sections 10 and 11.

(16) Subject Matter: 10:029, New analysis required for mixing zones

(a) Commenter: Kevin Sheridan, Westlake Chemical Corporation

Comment: Mixing zone elimination was based on The Water Quality Guidance for the Great Lakes System (1995). Three critical factors require new analysis of this basis: 1/ The impact of BCC in free flowing rivers and streams is far different from static lakes; 2/ minimal economic impact was anticipated which was included in its December 2003 Statement of

Consideration and does not hold true, and 3/ the assertion that water quality standards are below analytical detection methods no longer holds true, though in some cases there is no EPA-approved method which achieves the required detection level.

(b) Response: The Division agrees that the factors mentioned in the comment are factors to be considered when issuing a variance to water quality standards, including the prohibition of mixing zones for bioaccumulative contaminants of concern (BCC) in 401 KAR 10:029, Section 4(1)(h). The mixing zone prohibition was established when 401 KAR 10:029 was amended in 2003. The Division believes it is not appropriate to revisit the mixing zone prohibition for BCC. Exceptions to water quality criteria (variances), including the mixing zone prohibition for BCC are available pursuant to 401 KAR 10:031, Sections 10 and 11.

(17) Subject Matter: 10:029, Extension of mixing zone phase-out

(a) Commenter: Lloyd R. Cress Jr., Kentucky Association of Manufacturers and Kentucky Chemical Industry Council, Carl R. Breeding, Kentucky League of Cities, Bryan Sunderland, Kentucky Chamber of Commerce, Bill Bissett, Kentucky Coal Association

Comment: The Division should extend the phase-out period for mixing zones related to BCCs which are currently in a state of flux. An extension would permit the process to continue without adversely impacting the regulated community or environment.

(b) Response: The Division agrees that the factors mentioned in the comment are factors to be considered when issuing a variance to water quality standards, including the prohibition of mixing zones for bioaccumulative contaminants of concern (BCC) in 401 KAR 10:029, Section 4(1)(h). The mixing zone prohibition was established when 401 KAR 10:029 was amended in 2003. The Division believes it is not appropriate to revisit the mixing zone prohibition for BCC. Exceptions to water quality criteria (variances), including the mixing zone prohibition for BCC are available pursuant to 401 KAR 10:031, Sections 10 and 11.

(18) Subject Matter: 10:029, BCC establishment and mixing zone extension

(a) Commenter: Bryan Sunderland, Kentucky Chamber of Commerce, Bill Bissett, Kentucky Coal Association

Comment: The Division should reevaluate how water column concentration criteria are established for BCCs and, in the interim, extend the availability of mixing zones for compliance with such water column-based standards by revising 10:029 Section 4.

(b) Response: Water quality standards for specific substances (pollutants) are based on what is protective of water quality and habitat; water quality standards are not technology-based standards. Consideration of implementation of the water quality standard within a KPDES permit occurs as part of the permit process. The mixing zone prohibition was established when 401 KAR 10:029 was amended in 2003. The Division believes it is not appropriate to revisit the mixing zone prohibition for BCC. Exceptions to water quality criteria (variances), including the mixing zone prohibition for BCC are available pursuant to 401 KAR 10:031, Sections 10 and 11.

(19) Subject Matter: 10:029, Mixing zone ban continuation

(a) Commenter: Tim Joice, Kentucky Waterways Alliance, Hank Graddy, Sierra Club, Cumberland Chapter

Comment: ORSANCO has proposed to remove a BCC mixing zone ban and suggests that individual states consider the ban on a case-by-case basis. The commenter strongly favors maintaining the BCC mixing zone ban to provide continuity and consistency through the Ohio

River Basin. In a recent survey, 87% of Kentuckians supported the mixing zone ban and enforcing clean water rules, rather than allowing toxic levels of mercury pollution.

(b) Response: The mixing zone prohibition was established when 401 KAR 10:029 was amended in 2003. The Division believes it is not appropriate to revisit the mixing zone prohibition for BCC. Exceptions to water quality criteria (variances), including the mixing zone prohibition for BCC are available pursuant to 401 KAR 10:031, Sections 10 and 11.

(20) Subject Matter: 10:030, Technical amendment

(a) Commenter: Lloyd R. Cress Jr., Kentucky Association of Manufacturers and Kentucky Chemical Industry Council

Comment: The commenters appreciate the correction of a technical error at Section 1(2)(a)(2).

(b) Response: The Division appreciates KAM bringing this issue to its attention and has corrected this technical error in the proposed regulation.

(21) Subject Matter: 10:030, Introductory language

(a) Commenter: Tom FitzGerald, Kentucky Resources Council, Hank Graddy, Sierra Club, Cumberland Chapter

Comment: KRS 224.70-100 “declares” the Commonwealth’s policy with respect to water quality, and the Division should not attempt to change statutory language in a regulation in violation of KRS 13A.120(2)(i).

(b) Response: Regulatory language is prescribed by KRS 13A and the standards of the Legislative Research Commission (LRC). The use of “shall” indicates mandatory language. Current regulatory language standards required this change.

(22) Subject Matter: 10:030, Designation methodology weakens Clean Water Act antidegradation mandate

(a) Commenter: Tim Joice, Kentucky Waterways Alliance, Hank Graddy, Sierra Club, Cumberland Chapter, Tom FitzGerald, Kentucky Resources Council

Comment: Changes to the “designation” methodology fail to address the more fundamental problem that the “designation” methodology weakens the Clean Water Act antidegradation mandate. The Division should replace this approach with a “parameter by parameter” approach. 10% assimilative capacity exceptions weaken antidegradation protection. The commenters oppose substitution of the Six Year Road Plan for highway project specific Clean Water Act-based antidegradation analysis which fails to provide the public with adequate notice.

(b) Response: EPA approved Kentucky’s antidegradation methodology implementation in 2005. Several environmental groups challenged EPA’s approval by filing a lawsuit in federal court (*Kentucky Waterways Alliance, et al. v. Stephen L. Johnson, et al.*, 426 F.Supp.2d [W.D. Ky. 2006]). Plaintiffs’ arguments to the district court included the issues raised in this comment. On September 3, 2008, the U.S. Court of Appeals for the Sixth Circuit upheld EPA’s approval of Kentucky’s waterbody-by-waterbody approach to classifying waters for antidegradation purposes, rather than the parameter-by-parameter approach, but remanded the approval of 401 KAR 10:030, Kentucky’s antidegradation policy implementation methodology regulation. (*Kentucky Waterways Alliance, et al. vs. Stephen L. Johnson, et al.*, 540 F.3d 466). Working with a stakeholder group, the Cabinet amended 401 KAR 10:030 to contain three of six

exceptions that were determined to be consistent with the Sixth Circuit's remand, including "a new or expanded discharge that the applicant demonstrates shall not consume more than ten (10) percent of the available assimilative capacity of the receiving stream outside of a designated mixing zone or zone of initial dilution for each new or increased pollutant in the discharge". This approach is consistent with 40 CFR 131.12, which authorizes *de minimis* degradation. It is generally accepted that a less than 10 percent consumption of available assimilative capacity is considered a *de minimis* lowering of water quality. EPA approved the amendments to 401 KAR 10:030 including the Division's determination that the alternative planning and evaluation process for projects conducted as part of the Transportation Cabinet's six-year road plan to satisfy applicable antidegradation requirements. The Division understands that the Transportation Cabinet's six-year road plan satisfies the public notice requirements for that project process.

(23) Subject Matter: 10:031, EPA recommended ammonia criteria

(a) Commenter: Annie Godfrey, U.S. EPA, Region 4

Comment: On August 22, 2013, EPA published new recommended 304(a) criteria for ammonia. This information was transmitted to the Division in a letter in January 2014. The Division has not revised its criteria in this proposed regulation. EPA requests that the Division review this latest recommendation and revise, as necessary, the current ammonia criteria in the regulation.

(b) Response: The Division appreciates EPA's request and is currently analyzing the potential regulatory impact of adopting the recommended ammonia criteria into Kentucky's water quality standards.

(24) Subject Matter: 10:031, EPA recommended ammonia criteria

(a) Commenter: Carol Becht, Sammie Brian, Diane Casey, Rafael Castro, Mary Clark, Alida Cornelius, Mark Engler, Jessica Kane, Robert Mayton, Zina Merkin, Anna Murray, Jana Ornstein, John Ornstein James Pugh, Margaret Stewart, Teresa Streza, Perry Thomas, Troy Tucker, Monica Unseld, Heather Varda, Barbara Warner, J. Weber, Will Willis, Tim Joice, Kentucky Waterways Alliance, Tom FitzGerald, Kentucky Resources Council, Hank Graddy, Sierra Club, Cumberland Chapter,

Comment: The state should adopt EPA's new ammonia criteria to better protect our aquatic species, like freshwater mussels.

(b) Response: The Division appreciates the recommendation and is currently analyzing the potential regulatory impact of adopting the recommended ammonia criteria into Kentucky's water quality standards.

(25) Subject Matter: 10:031, Foundation for adopting ammonia criteria

(a) Commenter: Tim Joice, Kentucky Waterways Alliance, Tom FitzGerald, Kentucky Resources Council, Hank Graddy, Sierra Club, Cumberland Chapter

Comment: The Division should examine OSRWs with threatened and endangered mussel species and propose to adopt ammonia criteria for those waterbodies, which will establish a foundation for adopting ammonia criteria for all waterbodies in the next Triennial Review and provide increased protection for OSRWs.

(b) Response: The Division appreciates the recommendation and is currently analyzing the potential regulatory impact of adopting the recommended ammonia criteria into Kentucky's



water quality standards.

(26) Subject Matter: 10:031, Adoption of more protective water quality criteria

(a) Commenter: Tim Joice, Kentucky Waterways Alliance

Comment: The Division should develop and adopt additional water quality criteria in addition to dissolved oxygen parameter in 401 KAR 10:031, Section 8(2) that are more protective of water quality, and should consider adopting ammonia as an additional criteria for OSRW if the ammonia criteria is not otherwise adopted.

(b) Response: The Division appreciates the recommendation and is currently analyzing the potential regulatory impact of adopting the recommended ammonia criteria into Kentucky's water quality standards.

(27) Subject Matter: 10:031, Support no ammonia criteria

(a) Commenter: Lloyd R. Cress Jr., Kentucky Association of Manufacturers and Kentucky Chemical Industry Council, Carl R. Breeding, Kentucky League of Cities

Comment: The commenters support the decision to not amend the criteria for ammonia which require additional study and analysis.

(b) Response: The Division appreciates the comment and notes that it is currently analyzing the potential regulatory impact of adopting the recommended ammonia criteria into Kentucky's water quality standards.

(28) Subject Matter: 10:031, Fecal coliform standard

(a) Commenter: Carl R. Breeding, Kentucky League of Cities, Bill Bissett, Kentucky Coal Association, Bryan Sunderland, Kentucky Chamber of Commerce

Comment: The commenters support elimination of the fecal coliform standard, but ask the Division to eliminate the standard immediately (or by January 1, 2017 – Kentucky Chamber) rather than wait until 2019.

(b) Response: The Division appreciates the support for this change. The fecal coliform standard is being phased out as the KPDES permits that contain the standard expire, with the last ones scheduled to expire in 2019. The standard is not included in KPDES permits currently being issued.

(29) Subject Matter: 10:031, Fecal coliform standard

(a) Commenter: Tim Joice, Kentucky Waterways Alliance, Hank Graddy, Sierra Club, Cumberland Chapter

Comment: The commenters support eliminating the fecal coliform criteria.

(b) Response: The Division appreciates the support for this change.

(30) Subject Matter: 10:031, Mercury criteria

(a) Commenter: Carol Becht, Sammie Brian, Diane Casey, Rafael Castro, Mary Clark, Alida Cornelius, Mark Engler, Jessica Kane, Robert Mayton, Zina Merkin, Anna Murray, Jana Ornstein, John Ornstein James Pugh, Margaret Stewart, Teresa Streza, Perry Thomas, Troy Tucker, Monica Unseld, Heather Varda, Barbara Warner, J. Weber, Will Willis

Comment: The Ohio is also being polluted by excess amounts of mercury, both in Kentucky and upriver. We should at least be reducing mercury pollution within our own borders.

(b) Response: The Division shares the concern regarding the need to remove mercury

from waterways. In that regard, the Division has established water quality criteria, including a mixing zone prohibition for BCC to protect Kentucky waters.

(31) Subject Matter: 10:031, Mercury criteria and fish tissue availability

(a) Commenter: Bryan Sunderland, Kentucky Chamber of Commerce, Bill Bissett, Kentucky Coal Association

Comment: The water quality criteria should provide that fish tissue data, when available, for methylmercury and other BCCs would take precedence over water column concentration data to determine compliance with the standard. This would ensure that existing discharges of mercury are not causing an exceedance of the human health standard for fish consumption while avoiding redesigning treatment systems to achieve an extremely stringent water column criterion as an end-of-pipe standard that has not been shown to protect the designated use.

(b) Response: The Division agrees that fish tissue data should have precedence over water column data. Many of the BCC of concern require additional research to derive criteria protective of human consumption based on tissue residue. However, the methylmercury criterion was developed to protect human consumption of fish flesh from exposure to methylmercury at a concentration ( 0.3 mg/Kg) derived as protective of human health based on a consumption rate of two eight-ounce meals per month. This criterion considers the integration of mercury into fishes from multiple sources and pathways. Additionally, the criterion accounts for both the total mercury load in a waterbody, and the rate of methylation of mercury in the waterbody. The Division appreciates the comment and plans to continue investigating the implementation of this tissue-based criterion for Clean Water Act §402 purposes.

(32) Subject Matter: 10:031, Water column translators

(a) Commenter: Tim Joice, Kentucky Waterways Alliance, Tom FitzGerald, Kentucky Resources Council, Hank Graddy, Sierra Club, Cumberland Chapter

Comment: If fish tissue is used to determine stream health while ignoring water column numbers, the agency should propose water column-based translators of a protective fish tissue number. If the Division does not adopt ORSANCO's criteria of 0.012 µg/L for mercury, it should propose a translator of the currently utilized 0.3mg/kg methylmercury standard for fish tissue.

(b) Response: The Division shares the concern regarding the need to remove mercury from waterways. Kentucky's current water column chronic criterion for total mercury of 0.051µg/L was adopted from the EPA 304(a) national recommended human health criteria and approved by EPA. EPA subsequently promulgated a fish tissue-based methylmercury criterion. EPA adopted the fish tissue criterion for methylmercury because it was more protective of human health than using total mercury in the water column. The methylation rate of mercury in a given water body, spatial- and temporal variation in the distribution of the mercury column, and the biokinetic accumulation of mercury by fishes were important factors missing from the derived water column criterion. The Division recognizes fish tissue as the preferred medium upon which to base the human health criterion for mercury.

(33) Subject Matter: 10:031, Mercury criteria should be strengthened

(a) Commenter: Tim Joice, Kentucky Waterways Alliance, Tom FitzGerald, Kentucky Resources Council, Hank Graddy, Sierra Club, Cumberland Chapter

Comment: The Division should maintain the BCC mixing zone ban, and further

strengthen protections against toxic mercury pollution by adopting a more protective mercury water column standard, such as ORSANCO's 0.012 ug/L. This would simultaneously provide more protection for Kentucky's waters, aquatic life, and residents, while bypassing the commenter's previous concern regarding the use of mixing zones to achieve ORSANCO standards within Kentucky.

(b) Response: The Division shares the concern regarding the need to remove mercury from waterways. In that regard, the Division has established water quality criteria, including a mixing zone prohibition for BCC to protect Kentucky waters. Water column criteria for mercury are not in line with what current science indicates, tissue-based criteria, as the preferred basis to develop protective human health criteria for this bioaccumulative pollutant. The tissue-based criterion directly corresponds with and informs consumers of the potential health risks from locally-consumed fishes. Kentucky includes in its standards the EPA-recommended methylmercury criterion used to protect human health. Please see the Response to Comment 32 for additional information. With regard to protection of aquatic life, Kentucky's water quality standards contain the current national 304(a) criteria for mercury.

(34) Subject Matter: 10:031, Nutrient pollution

(a) Commenter: Carol Becht, Sammie Brian, Diane Casey, Rafael Castro, Mary Clark, Alida Cornelius, Mark Engler, Jessica Kane, Robert Mayton, Zina Merkin, Anna Murray, Jana Ornstein, John Ornstein James Pugh, Margaret Stewart, Teresa Streza, Perry Thomas, Troy Tucker, Monica Unseld, Heather Varda, Barbara Warner, J. Weber, Will Willis

Comment: The state needs to do more to address nutrient pollution, evidenced by the recent blue-green algae bloom on the Ohio River, and in Kentucky's lakes in recent years

(b) Response: The Division agrees that nutrient pollution is an important issue for Kentucky waters, as well as downstream waters. The Division is implementing a comprehensive Nutrient Reduction Strategy to reduce nutrient pollution from point sources and non-point sources. The Division is also working toward developing numeric nutrient criteria. Algal blooms are significant issues affected by many variables in addition to nutrients. The Division is working with numerous federal, state, and local partners to better understand blue-green algal blooms, their causes, monitoring strategies, remedial strategies, and communication issues.

(35) Subject Matter: 10:031, Numeric nutrient criteria

(a) Commenter: Tim Joice, Kentucky Waterways Alliance, Tom FitzGerald, Kentucky Resources Council, Hank Graddy, Sierra Club, Cumberland Chapter

Comment: The Division should propose numeric nutrient criteria, especially considering the recent rise of harmful algal blooms (HABs) in the Ohio River, and that "nutrient/biological indicators" remain a leading cause of impairment to the state's waters. The Division has spent over a decade collecting data, monitoring, and assessing streams but continues to cite incomplete data and inconclusive analyses as its rationale for postponing numeric nutrient criteria.

(b) Response: The Division agrees that nutrient pollution is an important issue for Kentucky waters, as well as downstream waters. The Division is implementing a comprehensive Nutrient Reduction Strategy to reduce nutrient pollution from point sources and non-point sources. Algal blooms are significant issues affected by many variables in addition to nutrients. The Division is working with numerous federal, state, and local partners to better understand blue-green algal blooms, their causes, monitoring strategies, remedial strategies, and communication issues.

The Division is working towards developing numeric nutrient criteria for streams, lakes, and reservoirs. It is critical in this process to recognize and account for regional differences in background nutrient levels, as well as to understand the complex responses of biological communities to nutrient gradients. Considerable resources have been and will be directed to the collection and analysis of monitoring data to that purpose, and the Division is using insights gained from these efforts to develop sound criteria to protect Kentucky's diverse waterbodies.

Since EPA's national recommended criteria were published in the early years of the last decade, there has been an overall acknowledgement that the results from that effort were premature. The broad scale of nutrient regions defined by EPA's work do not account for differences in nutrient expectations at an ecoregion scale and the coarse resolution of recommended criteria are not necessarily protective of waters in a given state or ecoregion. Therefore, the Division continues to conduct data collection and analyses to craft meaningful criteria for Kentucky.

The attention that has been devoted to HAB (photosynthetic bacteria that can fix nitrogen under certain conditions) events is a clear illustration of the complexity of water quality triggers and responses that are often thought to correspond with nutrient enrichment of waterbodies. Nutrients may be only a minor component, and not a limiting factor, in a HAB manifestation. For example, HABs occur in oligotrophic waters. Significant academic research is being conducted on how other environmental factors (e.g. turbidity, temperature, pH, season, etc.) may drive these complex events.

(36) Subject Matter: 10:031, Partial nutrient criteria

(a) Commenter: Tim Joice, Kentucky Waterways Alliance, Tom FitzGerald, Kentucky Resources Council, Hank Graddy, Sierra Club, Cumberland Chapter

Comment: Current scientific thought suggests that even if nutrient loading was significantly reduced, the sediment contains so much excess nutrients that it may take several years for cessation of algal blooms. The Division should take reference reach streams, identify benchmark nutrient levels, and begin setting stringent limits on dischargers in nearby waterways to begin reducing nutrients to more naturally-functioning levels. Many states around Kentucky have proposed partial criteria.

(b) Response: The Division agrees that nutrient pollution is an important issue for Kentucky waters, as well as downstream waters. The Division is implementing a comprehensive Nutrient Reduction Strategy to reduce nutrient pollution from point sources and non-point sources. The Division is also actively developing numeric nutrient criteria.

Accurately characterizing nutrient levels in reference streams is an important component of the Division's ongoing work in developing numeric nutrient criteria for streams. Regional differences in geology and soils contribute to considerable variation in nutrients; therefore, identifying appropriate reference conditions and collecting data at sufficient resolution is critical to understanding these patterns. However, the Division recognizes that nutrients often may be elevated above background levels with no evidence of eutrophication problems. Considerable progress has been made through focused data collection and analysis in recent years to understand regional differences in how stream biological communities respond to elevated nutrients. The Division will consider these insights along with reference conditions in the effort to develop nutrient criteria for streams.

(37) Subject Matter: 10:031, Regional nutrient criteria

(a) Commenter: Tim Joice, Kentucky Waterways Alliance, Hank Graddy, Sierra Club, Cumberland Chapter

Comment: If the Division has found enough correlation between nutrient level and aquatic life response in certain regions of the state, it should move forward with adopting numeric nutrient criteria in those regions.

(b) Response: The Division agrees that nutrient pollution is an important issue for Kentucky waters, as well as downstream waters. The Division is implementing a comprehensive Nutrient Reduction Strategy to reduce nutrient pollution from point sources and non-point sources. The Division is also actively developing numeric nutrient criteria.

Accurately characterizing nutrient levels in reference streams is an important component of the Division's ongoing work in developing numeric nutrient criteria for streams. Regional differences in geology and soils contribute to considerable variation in nutrients; therefore, identifying appropriate reference conditions and collecting data at sufficient resolution is critical to understanding these patterns. However, the Division recognizes that nutrients often may be elevated above background levels with no evidence of eutrophication problems. Considerable progress has been made through focused data collection and analysis in recent years to understand regional differences in how stream biological communities respond to elevated nutrients. The Division will consider these insights along with reference conditions in the effort to develop nutrient criteria for streams.

(38) Subject Matter: 10:031, Nutrient criteria is inadequate

(a) Commenter: Hank Graddy, Sierra Club, Cumberland Chapter

Comment: As part of the litigation regarding nutrient and selenium standards, the Cabinet provided language which appears to remove earlier language that the commenter was concerned about. Though some of the "pollution prevention" language in the earlier narrative nutrient water quality standard was restored, the nutrient standard is still inadequate.

(b) Response: There have been no changes to the narrative nutrient criterion the EPA approved on November 15, 2013. The changes the commenter refers to may be changes in the implementation language in CWA §402 permits.

(39) Subject Matter: 10:031, Pentachlorophenol

(a) Commenter: Annie Godfrey, U.S. EPA, Region 4

Comment: The proposed regulation removes the current pH based equation and replaces it with singular values for acute (19ug/L) and chronic (15ug/L). However, EPA still recommends the pH based equation as the applicable criterion. Region 4 recommends that the equation be reinstated here.

(b) Response: The Division appreciates the comment and has corrected this error.

(40) Subject Matter: 10:031, Selenium footnotes and acute criterion removal

(a) Commenter: Annie Godfrey, U.S. EPA, Region 4

Comment: In reviewing the revisions to this criteria, it appears that the cited footnotes are incorrect. Footnote 10 should be removed from the egg/ovary value and footnote 12 reinserted. Otherwise, the Division should consider removing 'of whole fish tissue' from footnote 10 for clarity. EPA notes that the KDOW proposes to remove the acute criterion for selenium. Based on our understanding of how KDOW implements water quality standards, EPA is concerned that certain facilities, especially those with non-continuous discharges, will not have limits that would

protect designated uses within the Commonwealth for this pollutant. EPA requests that KDOW outline the reasonable potential procedures that KDOW will use to assure that these facilities receive appropriate limits, where necessary, to meet water quality standards and protect designated uses.

(b) Response: The Division appreciates the comment and has corrected the footnotes accordingly in its amendments to the regulation.

Kentucky is not proposing a revised acute water column criteria because selenium is bioaccumulative and toxicity primarily occurs through dietary exposure that may cause chronic endpoint effects that are protected via the chronic water quality selenium criteria. In accordance with statements and science made available by EPA there have been few, if any, acute exposure, water column-only selenium aquatic toxicity events documented in the literature. The kinetics of selenium accumulation and depuration are sufficiently slow that attainment of the Kentucky chronic water criteria concentration by ambient 30-day averages affords protection under all conditions and will protect sensitive aquatic life species even where concentrations exhibit a high degree of variability.

Therefore, the Division believes that the reasonable potential analysis of non-continuous discharges, conducted pursuant to 40 CFR 122.44(d) is appropriately conducted with regards to whether the discharge has reasonable potential to result in sustained instream concentrations in excess of 5 µg/L.

(41) Subject Matter: Selenium standard is not protective

(a) Commenter: Carol Becht, Sammie Brian, Diane Casey, Rafael Castro, Mary Clark, Alida Cornelius, Mark Engler, Jessica Kane, Robert Mayton, Zina Merkin, Anna Murray, Jana Ornstein, John Ornstein James Pugh, Margaret Stewart, Teresa Streza, Perry Thomas, Troy Tucker, Monica Unseld, Heather Varda, Barbara Warner, J. Weber, Will Willis

Comment: The changes to the selenium standard, while needed to address previous issues, is not enough to truly protect streams from mining pollution.

(b) Response: The national chronic criterion for selenium is 5.0 µg/L. The Division believes the chronic criterion for selenium is protective. This is a matter of current litigation and the Division is optimistic that resolution of this issue will verify that the criterion is protective.

(42) Subject Matter: Selenium chronic number

(a) Commenter: Tim Joice, Kentucky Waterways Alliance, Tom FitzGerald, Kentucky Resources Council

Comment: The chronic number for selenium should likely be even lower to protect fish tissue from chronic accumulation and impact of selenium.

(b) Response: 5µg/L is the current national recommendation for selenium chronic criteria and Kentucky is proposing to re-establish this standard as a stand-alone criterion.

(43) Subject Matter: 10:031, Selenium standard is underprotective

(a) Commenter: Benjamin Luckett, Appalachian Voices

Comment: Based on most recent science, outdated data, and criticism indicating the 5 ug/L selenium standard is underprotective, the Division should instead adopt a more stringent standard.

(b) Response: 5µg/L is the current national recommendation for selenium chronic criteria and Kentucky is proposing to re-establish this standard as a stand-alone criterion.

(44) Subject Matter: 10:031, Fish tissue availability

(a) Commenter: Bryan Sunderland, Kentucky Chamber of Commerce, Bill Bissett, Kentucky Coal Association

Comment: The issue of whether fish tissue data is available is an implementation issue to be determined through the KPDES permitting process, and the commenter requests that the Division confirm that position in its Statement of Consideration.

(b) Response: The Division agrees that the availability of fish tissue for compliance with a permit is an implementation issue. However, the Division has spelled out in the criteria that if fish tissue data are available, fish tissue data shall take precedence over water column data. The Division's standard operating procedure, *Methods for the Collection of Selenium Residue in Fish Tissue Used to Determine KPDES Permit Compliance*, defines how the Division determines whether fish tissue is available for determining compliance with permitted discharges. In cases where fish tissue is available, those data take precedence over water column data.

(45) Subject Matter: 10:031, Fish tissue sampling

(a) Commenter: Benjamin Lockett, Appalachian Voices

Comment: In order to be protective, water column elements must be given primacy in all waters that lack adequate numbers of fish to regularly collect large tissue samples without adversely affecting resident populations, not just in waters that completely lack fish. The Division must also account for "survivor bias" inherent in any fish tissue sampling. To be truly protective of aquatic life, the Division's water column elements need to be given primacy in all waters in which sensitive species could be supported but have been extirpated.

(b) Response: The Division implements its selenium criteria on a tiered approach; fish tissue selenium residue overrides the water column concentration when available. As described in the Division of Water's SOP, *Methods for the Collection of Selenium Residue in Fish Tissue Used to Determine KPDES Permit Compliance*, the presence of fish tissue is determined through procedures of that implementation guidance.

The Division's fish tissue selenium criterion was developed by incorporating the four most sensitive species found in Kentucky, or closely related surrogate species, to selenium toxicity as prescribed by EPA's methods for developing aquatic life toxic criteria. Therefore, the most sensitive species to the toxicity effects of selenium were incorporated to derive the final criterion value. The Division incorporated more stringent parameters used to identify harmful effects from selenium than those minimum guidelines in the EPA guidance document, *Guidelines for deriving numerical national water quality criteria for the protection of aquatic organisms and their uses*. These mentioned elements incorporated in the criterion derivation procedures taken by the Division assures that whatever species comprise a given fish community, the tissue residue criterion provides protection across all fish communities in the Commonwealth.

(46) Subject Matter: 10:031, Water column elements

(a) Commenter: Benjamin Lockett, Appalachian Voices

Comment: Water column elements must be given precedence in both fishless waters and in waters with "new or increased inputs of selenium from a specific source until equilibrium is reached" pursuant to the EPA criterion.

(b) Response: The Division believes that the availability of fish tissue for compliance

with a permit is a preferred approach to determining compliance with a KPDES permit. As such, the Division has spelled out in the criteria that if fish tissue data are available, fish tissue data shall take precedence over water column data.

The Division believes that giving precedence to water column data in waters with “new or increased inputs of selenium from a specific source until equilibrium is reached” establishes a permitting approach based on undefined conditions. Discharges considered “new or increased inputs of selenium” are not defined as to the magnitude, frequency, or duration. The concept of “equilibrium” is also not defined by aquatic condition or by duration. As such, implementing this approach in permits would create legal jeopardy for the Division and the permittee. The Division believes that the most appropriate approach is to rely on the scientifically defensible and reliable use of fish tissue data when available. Selenium is bioaccumulative and toxicity primarily occurs through dietary exposure that may cause chronic endpoint effects that are protected via the chronic water quality selenium criteria. The kinetics of selenium accumulation and depuration are sufficiently slow that attainment of the Kentucky chronic water criteria concentration by ambient 30-day averages affords protection under all conditions and is protective of sensitive aquatic life species even where concentrations exhibit a high degree of variability.

(47) Subject Matter: 10:031, Support for selenium criterion

(a) Commenter: Lloyd R. Cress Jr., Kentucky Association of Manufacturers and Kentucky Chemical Industry Council, Carl R. Breeding, Kentucky League of Cities, Bryan Sunderland, Kentucky Chamber of Commerce, Bill Bissett, Kentucky Coal Association

Comment: The commenters support deletion of the acute criterion for selenium and the amendment to the chronic criterion clarifying that fish tissue data shall take precedence over water column data.

(b) Response: The Division appreciates the support for this approach.

(48) Subject Matter: Support for selenium criteria and request for scientific translator

(a) Commenter: Hank Graddy, Sierra Club, Cumberland Chapter

Comment: The commenter supports the modification to the selenium water quality criteria. The change allows the chronic standard to take precedence when fish are not present for testing. For the next Triennial Review, the state should propose a more scientifically accurate translator of the fish tissue standard to the water column standard.

(b) Response: The Division appreciates the support for this approach. The Division believes the chronic criterion for selenium is protective. This is a matter of current litigation and the Division is optimistic that resolution of this issue will verify that the criterion is protective.

(49) Subject Matter: 10:031, Total residual chlorine

(a) Commenter: Lloyd R. Cress Jr., Kentucky Association of Manufacturers and Kentucky Chemical Industry Council

Comment: The criteria for TRC are inappropriately low and should be revised to reflect field measurability.

(b) Response: The Division appreciates this concern for implementing water quality criteria. The Kentucky total residual chlorine criteria are adopted from EPA national recommended criteria. Water quality standards are developed and established to protect aquatic life even though a criterion may be below instrumentation or method detection limit. The



Division considers that an applicable criterion is met when the EPA-approved, sufficiently sensitive method analytical results of a pollutant measurement occur at an amount above a criterion, but is at the reporting limit, or instrumentation/method detection limit. For example, if a total residual chlorine of 20 µg/L is determined by an EPA-approved test methodology, the water quality criteria for total residual chlorine (19 µg/L and 11 µg/L) are considered to be in compliance with the criteria.

(50) Subject Matter: 10:031, Hydraulic fracturing requires additional water quality protection

(a) Commenter: Carol Becht, Sammie Brian, Diane Casey, Rafael Castro, Mary Clark, Alida Cornelius, Mark Engler, Jessica Kane, Robert Mayton, Zina Merkin, Anna Murray, Jana Ornstein, John Ornstein James Pugh, Margaret Stewart, Teresa Streza, Perry Thomas, Troy Tucker, Monica Unseld, Heather Varda, Barbara Warner, J. Weber, Will Willis

Comment: The recent surge in interest for hydraulic fracturing in Kentucky needs to be addressed in additional water quality protections for our streams and lakes. We can't let the fracking industry take advantage of our waterways the way the coal industry has done.

(b) Response: The Division agrees that all activities, including fracking, should meet water quality criteria. The Division has adopted criteria that it believes is protective of pollutants from fracking operations.

(51) Subject Matter: 10:031, Water quality standards for fracking wastewater

(a) Commenter: Tim Joice, Kentucky Waterways Alliance, Tom FitzGerald, Kentucky Resources Council, Hank Graddy, Sierra Club, Cumberland Chapter

Comment: The Division should consider water quality standards for various constituents in fracking wastewater, or flowback/produced water from hydraulic fracturing operations. Hydraulic fracturing is a more recent process in Kentucky and hydrologic and wastewater impacts are of a magnitude greater than nitrogen fracturing. Developing additional water quality standards provides better protections for aquatic life and human health.

(b) Response: The Division agrees that all activities, including fracking, should meet water quality criteria. The Division has adopted criteria that it believes protects from pollutants from fracking operations. However, if additional water quality criteria are necessary for a given pollutant in order to be protective of aquatic life and human health, the commenters should petition the agency to develop or adopt criteria for that pollutant.

(52) Subject Matter: 10:031, Amendment to 401 KAR 5:090 regarding water well sampling and hydraulic fracturing

(a) Commenter: Tim Joice, Kentucky Waterways Alliance, Tom FitzGerald, Kentucky Resources Council, Hank Graddy, Sierra Club, Cumberland Chapter

Comment: 401 KAR 5:090 should be amended to require oil and gas facilities to sample water wells before, during, and after drilling activities within one-half mile of new oil and gas wells, with parameters consistent with fracking wastewater. Colorado and Pennsylvania have similar requirements. If the Division is unwilling to propose such a requirement as part of its regulatory authority, it should be actively and publicly engaged with the Division of Oil and Gas on water sampling requirements.

(b) Response: The Division appreciates the comment, however, the issue is not germane to 401 KAR Chapter 10 (Water Quality Standards) which are the subject of Triennial Review. The Division is engaged with the industry, the Department for Natural Resources, and

environmental interest groups through the Secretary's Oil and Gas workgroup, on these and related issues.

(53) Subject Matter: 10:031, Human health criteria

(a) Commenter: Annie Godfrey, U.S. EPA, Region 4

Comment: In June 2015, EPA published new recommended 304(a) criteria for human health for 94 chemicals. EPA requests that the Division review these latest recommendations and revise, as necessary, the current human health criteria in the regulation

(b) Response: The Division had commenced its Triennial Review and held three pre-promulgation public meetings in May 2015, prior to the publication of the new recommended criteria. The Division understands that the EPA would not require those states that had already begun the Triennial Review process at the time of final publication to consider adopting the recommendations. The Division will consider the final recommendations in its next Triennial Review.

(54) Subject Matter: 10:031, Method detection limits

(a) Commenter: Kevin Sheridan, Westlake Chemical Corporation, Bryan Sunderland, Kentucky Chamber of Commerce, Bill Bissett, Kentucky Coal Association

Comment: Certain proposed or existing water quality standards reflect limits which are below method detection limits of EPA-approved laboratory methods. Such limits should not be adopted into regulation or permits. The Division should develop a clear and consistent approach to reporting and enforcement that assures the regulated community that it is, and will remain, in compliance with its permitted discharge regardless of changes to EPA-approved detection methods. The Division should establish a means of treating all facilities consistently regarding permit limits, especially when approved detection will not determine compliance with water quality standards, and should ensure it can support permitting decisions with adequate and consistent data.

(b) Response: Even though a criterion may be below instrumentation, method detection, or reporting limit, water quality standards are nevertheless developed and established to protect aquatic life. If water quality results indicate the pollutant concentration is at a method detection, below reporting limit or instrument detection limit, the applicable water quality standard is considered met.

(55) Subject Matter: 10:031, Variance availability

(a) Commenter: Kevin Sheridan, Westlake Chemical Corporation

Comment: The Division of Water indicated in an August 2015 presentation that variances are located within 401 KAR 10:031, Section 11 and there is flexibility under both ORSANCO and EPA guidance (40 CFR 131.13). The Division should seek approval of a general variance from EPA via 401 KAR 10:031, Sections 10 and 11, to allow flexibility in changing standards and the ability to meet them.

(b) Response: The Division agrees that practicality and flexibility are important factors in implementing water quality standards. However, water quality standards for specific substances (pollutants) are based on what is protective of water quality and habitat; water quality standards are not technology-based standards. Consideration of implementation of the water quality standards within a KPDES permit occurs as part of the permit process. While there is no process for the state to seek a federal variance to a state regulation/water quality standard, nor is

there authority for a federal agency to grant a variance based on a state regulation, exceptions to water quality criteria (variances) are available pursuant to 401 KAR 10:031, Sections 10 and 11.

(56) Subject Matter: 10:031, Variance availability explanation

(a) Commenter: Bryan Sunderland, Kentucky Chamber of Commerce, Bill Bissett, Kentucky Coal Association

Comment: The Division should explain the availability of exceptions/variances under Kentucky's current water quality standards which have been underutilized by the Division. EPA's recent water quality standard revisions make clear that variance provisions are an important part of state water quality standards, and the Division should consider developing implementation guidance for the regulated community.

(b) Response: The Division agrees that variance provisions are an important factor in implementing water quality standards. Exceptions to water quality criteria (variances) are available pursuant to 401 KAR 10:031, Sections 10 and 11.

(57) Subject Matter: 10:031, Variance availability

(a) Commenter: Lloyd R. Cress Jr., Kentucky Association of Manufacturers and Kentucky Chemical Industry Council

Comment: Kentucky's program for granting variances and exceptions to criteria in 10:031 has been in place for several years. Recent EPA documents endorse states' use of water quality standard variances when economic or technical infeasibility is established. The commenters look forward to future discussions with the Cabinet regarding implementation of existing regulatory mechanisms for variances and exceptions to criteria.

(b) Response: The Division agrees that practicality and flexibility are important factors in implementing water quality standards. Exceptions to water quality criteria (variances) are available pursuant to 401 KAR 10:031, Sections 10 and 11.

(58) Subject Matter: 10:031, Prior suggested changes

(a) Commenter: John Lyons, Strand Associates

Comment: It appears that the Division of water is not advancing any of the suggested changes to 10:031 that were proposed. The existing criteria should be revisited and updated to reflect the wide range of surface waters across the Commonwealth and be structured to more reasonably accommodate intermittent conditions such as rain events. The commenter requests that the Division convene a formal workgroup to review 401 KAR 10:031, Section 7 to evaluate alternative approaches and, if appropriate, develop proposed revisions to the criteria for future promulgation.

(b) Response: The Division did not have adequate time to consider and evaluate the proposed suggested changes to 401 KAR 10:031, Section 7, proffered by the commenter. However, the Division will convene a workgroup of stakeholders in early 2016 to evaluate alternative approaches and, if appropriate, develop proposed revisions to the criteria for future promulgation.

#### IV. Summary of Action Taken by Promulgating Agency

The Division of Water reviewed the comments and, as a result, is not amending 401 KAR 10:026, 10:029, or 10:030. The Division is amending 401 KAR 10:031 as follows:

**Page 14**

**Section 6(1)**

**Table 1**

**Row Relating to “Pentachlorophenol”**

In the fifth column (which is the Warm Water Aquatic Habitat Acute column), insert “e(1.005(pH)-4.869)”.

Delete “19-”.

In the last column (which is the Warm Water Aquatic Habitat Chronic column), insert “e(1.005(pH)-5.134)”.

Delete “15-”.

**Page 14**

**Section 6(1)**

**Table 1**

**Row relating to “Selenium”**

In the last column, after “19.3”, delete “<sup>10</sup>”.

After “11”, insert “<sup>12</sup>”.

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**Section 6(1)**

**Line 5**

Insert the following:

<sup>12</sup>This value is the concentration in µg/g (dry weight) of fish egg/ovary tissue.