

**Environmental Protection Commission [567]
Adopted and Filed**

Pursuant to the authority of Iowa Code sections 455B.105 and 455B.173, the Environmental Protection Commission hereby amends Chapter 61, "Water Quality Standards", Iowa Administrative Code.

The Notice of Intended Action (NOIA) was published in the Iowa Administrative Bulletin on April 14, 2004 as **ARC 3282B**. Four public hearings were held with notice of the hearings sent to various individuals, organizations, associations and interest groups, and to statewide news network organizations. Comments were received from 26 persons and organizations. A responsiveness summary addressing the comments can be obtained from the Department of Natural Resources.

The adopted amendments have been modified from those published under the NOIA, including changes to Chapter 61, "Water Quality Standards" and to the rule-referenced document "Cold Water Use Designation Assessment Protocol" (hereafter, "the protocol"). The modifications were made after all comments from the public hearings, the Environmental Protection Agency (EPA), and Environmental Protection Commission (EPC) were assessed.

The changes to Chapter 61 relative to the NOIA are as follows:

1) Modification of the nomenclature for cold water aquatic life stream use designations. The labels of "Tier I" and "Tier II" as proposed in the NOIA to indicate the two levels of designated uses are changed to "Type 1" and "Type 2". This change was made to avoid confusion with the EPA terms of "Tier I", "Tier II", and "Tier III" associated with their antidegradation guidance and regulations.

2) Removal of the chemical criteria for Class B(CW2). These criteria as proposed in the NOIA are no longer included in these rules based on comments from the Environmental Protection Agency. The chemical criteria for Class B(CW2) will be established under a future rule-making effort.

3) Modifications to the definition of the "Cold water aquatic life - Type 2 (Class "B(CW2)")" designated use. The revised definition reads as follows: "*Waters that include small channeled stream, headwaters, and spring runs that possess natural cold water attributes of temperature and flow. These waters usually do not support consistent populations of trout (Salmonidae family), but may support associated vertebrate and invertebrate organisms.*" The NOIA identified Class B(CW2) streams as only those streams possessing cold water attributes that contribute to the base flow of a Class B(CW1) stream and did not account for the streams that contribute to the flow of streams other than B(CW1). Thus, a Class B(CW2) stream can be so designated regardless of the classification of the water body to which it flows. Also, the term "headwaters" is included in the revised definition based on a motion passed by the EPC.

The changes to the protocol relative to the NOIA are as follows:

1) Modification to the language for the temperature criteria under Sections II.A(2) & II.B(2). The original protocol stated: "*The maximum stream water temperature during mid-May through mid-September does not exceed 75 degrees Fahrenheit, as documented by continuous monitoring during this period for three, not necessarily consecutive, years.*" The final protocol was modified to the following: "*The maximum stream water temperature during mid-May through mid-*

*September does not exceed 75 degrees Fahrenheit **under normal stream conditions**, as documented by continuous monitoring during this period for three, not necessarily consecutive, years.”* This change provides clarification for the conditions under which the temperature measurements should be taken.

2) Modification to language for the flow criterion in Section II.A(2). The original protocol stated: “*Flow: The minimum stream flow is at least 0.3 cubic feet per second*”. The protocol was modified to the following: “*Flow: The minimum stream flow is at least 0.3 cubic feet per second **during years with normal precipitation***”. This change provides clarification for the conditions under which the “minimum stream flow” should be measured.

3) Addition of a Justification for Class B(CW2) designation. The following criterion is added to Section II.B(2) of the protocol : “*A stream segment found not to be conducive to natural reproduction of trout or found to have an absence of the early life stages of trout, but has the evidence of non-aberrational populations of adult trout as determined by a qualified fisheries biologist*”. This addition is made to afford protection for non-aberrational adult trout populations not otherwise protected by B(CW1) or B(CW2) criteria.

4) Addition of language to provide administrative guidance. The protocol now includes *Section III.G. Administrative Action*. This section is added to provide general descriptions of administrative action processes the department could use to ensure protection of non-aberrational populations of adult trout.

5) Addition of two appendices. The protocol now includes *Appendix D. Definitions*, which provides explanation of specific terms used throughout the protocol, and *Appendix E. Field Assessment Flow Chart*, which describes in a flow chart format how to use the protocol for use designation assessments. These appendices are added to provide additional clarity and promote better understanding of how the protocol will be implemented.

With the inclusion of the modifications described above, the final rules adopt changes to the Commission’s Water Quality Standards (WQS) as summarized below:

1. Change the current Class B(CW) use designation from a single use designation of Cold Water Aquatic Life to two use designations as follows: Cold water aquatic life – Type 1 (Class “B(CW1)”), and Cold water aquatic life – Type 2 (“Class B(CW2)”).
2. Incorporate by reference the document entitled “Cold Water Use Designation Assessment Protocol,” which describes the approach to be followed in assessing the cold water uses of water bodies.
3. Apply the Sensitive Life Stage Ammonia Chronic criteria year-round to the Class B(CW1) use designation.
4. Apply the Sensitive Life Stage Ammonia Chronic criteria seasonally (April 1 through September 30) to the Class B(CW2) use designation to protect the resident non-trout species during their spawning period.
5. Establish Dissolved Oxygen criteria for the two new use designations, Class B(CW1) and Class B(CW2), at the same levels that are associated with the existing Class B(CW) use designation.
6. Correct Table 2, Criteria for Dissolved Oxygen, which incorrectly expresses values as milligrams per liter as N, to express values as milligrams per liter.
7. Transfer the existing Class B(CW) designated waters to the new Class B(CW1) use designation.

8. Change the cold water use designation in the heading of Table 1, Criteria for Chemical Constituents, from B(CW) to B(CW1) and add a column for B(CW2).
9. Change the cold water use designation in the heading of Table 3a, Acute Criterion for Ammonia in Iowa Streams, from “Class B(CW) Cold Water” to “Class B(CW1) & B(CW2).”

Additional information on Iowa’s Water Quality Standards can be found on the Department’s web site at <http://www.state.ia.us/epd/wtresrce/wquality/index.htm>.

These amendments are intended to implement Iowa Code chapter 455B, division III, part 1, and will become effective December 15, 2004.

The following amendments are adopted.

ITEM 1. Amend subrule **61.3(1)**, paragraph “**b**,” as follows:

~~(4) Cold water aquatic life – Type 1 (Class “B(CW1)”). Waters in which temperature, and flow, and other habitat characteristics are suitable for the maintenance of a wide variety of cold water species, including reproducing and non-reproducing populations of trout (*Salmonidae* family) and associated aquatic communities.~~

(5) Cold water aquatic life - Type 2 (Class “B(CW2)”). Waters that include small, channeled streams, headwaters, and spring runs that possess natural cold water attributes of temperature and flow. These waters usually do not support consistent populations of trout (*Salmonidae* family), but may support associated vertebrate and invertebrate organisms.

~~(5) 6) High quality water (Class “HQ”). Waters with exceptionally better quality than the levels specified in Tables 1, 2, and 3 and with exceptional recreational and ecological importance. Special protection is warranted to maintain the unusual, unique or outstanding physical, chemical, or biological characteristics which these waters possess.~~

~~(6) 7) High quality resource water (Class “HQR”). Waters of substantial recreational or ecological significance which possess unusual, outstanding or unique physical, chemical, or biological characteristics which enhance the beneficial uses and warrant special protection.~~

~~(7) 8) Significant resource warm water (Class “B(WW)”). Waters in which temperature, flow and other habitat characteristics are suitable for the maintenance of a wide variety of reproducing populations of warm water fish and associated aquatic communities, including sensitive species.~~

~~(8) 9) Limited resource warm water (Class “B(LR)”). Waters in which flow or other physical characteristics limit the ability of the water body to maintain a balanced warm water community. Such waters support only populations composed of species able to survive and reproduce in a wide range of physical and chemical conditions, and are not generally harvested for human consumption.~~

~~(9) 10) Lakes and wetlands (Class “B(LW)”). These are artificial and natural impoundment’s with hydraulic retention times and other physical and chemical characteristics suitable to maintain a balanced community normally associated with lake-like conditions.~~

~~(10) 11) Drinking water supply (Class “C”). Waters which are used as a raw water source of potable water supply.~~

ITEM 2. Amend subrule **61.3(3)**, paragraph “**b**,” introductory paragraph, as follows:

b. Class “B” waters. All waters which are designated as Class B(CW1), B(CW2), B(WW), B(LR), or B(LW) are to be protected for wildlife, fish, aquatic, and semiaquatic life. The following criteria shall apply to all Class “B” waters designated in subrule 61.3(5).

ITEM 3. Amend subrule **567 - 61.3(3)**, **Table 2. Criteria for Dissolved Oxygen**, as follows:

TABLE 2. Criteria for Dissolved Oxygen
(all values expressed in milligrams per liter as-N)

	B(CW1)	B(CW2)	B(WW)	B(LR)	B(LW)
Minimum value for at least 16 hours of every 24-hour period	7.0	<u>7.0</u>	5.0	5.0	5.0*
Minimum value at any time during every 24-hour period	5.0	<u>5.0</u>	5.0	4.0	5.0*

*applies only to the upper layer of stratification in lakes

ITEM 4. Amend subparagraph **61.3(3)"b"(6)**, as follows:

(6) Early life stage for each use designation. The following seasons will be used in applying the early life stage present chronic criteria noted in Table 3b, "Chronic Criterion for Ammonia in Iowa Streams - Early Life Stages Present."

1. For all Class B(CW1) waters, the early life stage will be year-round.

2. For all Class B(CW2) waters, the early life stage will begin in April and last through September.

3. For all Class B(WW) significant resource waters, the early life stage will begin in March and last through September except the following:....

ITEM 5. Adopt new subrule **61.3(6)**, as follows:

61.3(6) Cold Water Use Designation Assessment Protocol. The department hereby incorporates by reference "Cold Water Use Designation Assessment Protocol," effective December 15, 2004. This document may be obtained on the department's Web site at <http://www.state.ia.us/epd/wtresrce/wquality/index.htm>.

ITEM 6. Amend subrule **567 - 61.3(3)**, **Table 1. Criteria for Chemical Constituents**, subrule **567 - 61.3(3)**, as follows:

Table 1: Criteria for Chemical Constituents
(all values in micrograms per liter unless noted otherwise)

Parameter		Use Designations					C
		B(CW1)	<u>B(CW2)</u>	B(WW)	B(LR)	B(LW)	
Alachlor	MCL	-	=	-	-	-	2
Aluminum	Chronic	87	=	388	773	748	-
	Acute	1106	=	4539	9035	983	-
Antimony	Human Health + - F & W	-	=	-	-	-	14
Arsenic (III)	Chronic	200	=	200	1000	200	-
	Acute	360	=	360	1800	360	-
	Human Health – Fish	50	=	50	-	50	-
	Human Health - F & W	-	=	-	-	-	.18

Parameter		Use Designations					C
		B(CW1)	B(CW2)	B(WW)	B(LR)	B(LW)	
Asbestos	Human Health - F & W	-	:	-	-	-	7 ^(a)
Atrazine	MCL	-	:	-	-	-	3
Barium	Human Health + - F & W	-	:	-	-	-	1000
Benzene	Human Health - F & W	-	:	-	-	-	12
	Human Health - Fish	712.8	:	712.8	-	712.8	-
Benzo(a)Pyrene	Human Health - F & W	-	:	-	-	-	.044
Beryllium	MCL	-	:	-	-	-	4
Cadmium	Chronic	1	:	15	25	1	-
	Acute	4	:	75	100	4	-
	Human Health + - Fish	168	:	168	-	168	-
	MCL	-	:	-	-	-	5
Carbofuran	MCL	-	:	-	-	-	40
Carbon Tetrachloride	Human Health - F & W	-	:	-	-	-	2.5
	Human Health - Fish	44.2	:	44.2	-	44.2	-
Chlordane	Chronic	.004	:	.004	.15	.004	-
	Acute	2.5	:	2.5	2.5	2.5	-
	Human Health - Fish	.006	:	.006	-	.006	-
	Human Health - F & W	-	:	-	-	-	.021
Chloride	MCL	-	:	-	-	-	250*
Chlorobenzene	Human Health + - Fish	20	:	20	-	20	-
	Human Health + - F & W	-	:	-	-	-	680
Chloropyrifos	Chronic	.041	:	.041	.041	.041	-
	Acute	.083	:	.083	.083	.083	-
Chromium (VI)	Chronic	40	:	40	200	10	-
	Acute	60	:	60	300	15	-
	Human Health + - Fish	3365	:	3365	-	3365	-
	MCL	-	:	-	-	-	100
Copper	Chronic	20	:	35	55	10	-
	Acute	30	:	60	90	20	-
	Human Health + - Fish	1000	:	1000	-	1000	-
	Human Health + - F & W	-	:	-	-	-	1300
Cyanide	Chronic	5	:	10	10	10	-
	Acute	20	:	45	45	45	-
	Human Health + - F & W	-	:	-	-	-	700
Dalapon	MCL	-	:	-	-	-	200
Dibromochloropropane	MCL	-	:	-	-	-	.2

Parameter		Use Designations					C
		B(CW1)	B(CW2)	B(WW)	B(LR)	B(LW)	
4,4-DDT ++	Chronic	.001	=	.001	.029	.001	-
	Acute	.9	=	.8	.95	.55	-
	Human Health - Fish	.0059	=	.0059	-	.0059	-
	Human Health - F & W	-	=	-	-	-	.0059
o-Dichlorobenzene	MCL	-	=	-	-	-	600
para-Dichlorobenzene	Human Health + - F & W	-	=	-	-	-	400
	Human Health + - Fish	2.6*	=	2.6*	-	2.6*	-
3,3-Dichlorobenzidine	Human Health - Fish	.2	=	.2	-	.2	-
	Human Health - F & W	-	=	-	-	-	.4
1,2-Dichloroethane	Human Health - F & W	-	=	-	-	-	3.8
	Human Health - Fish	986	=	986	-	986	-
1,1-Dichloroethylene	Human Health - F & W	-	=	-	-	-	.57
	Human Health - Fish	32	=	32	-	32	-
cis-1,2-Dichloro-ethylene	MCL	-	=	-	-	-	70
trans-1,2-Dichloroethylene	Human Health + - F & W	-	=	-	-	-	700
Dichloromethane	MCL	-	=	-	-	-	5
1,2-Dichloropropane	Human Health - F & W	-	=	-	-	-	5.2
Di(2-ethyhexyl)adipate	MCL	-	=	-	-	-	400
Di(2-ethyhexyl)phthalate	Human Health - F & W	-	=	-	-	-	18
Dieldrin	Chronic	.056	=	.056	.056	.056	-
	Acute	.24	=	.24	.24	.24	-
	Human Health - Fish	.0014	=	.0014	-	.0014	-
	Human Health - F & W	-	=	-	-	-	.0014
Dinoseb	MCL	-	=	-	-	-	7
2,3,7,8-TCDD (Dioxin)	Human Health - F & W	-	=	-	-	-	1.3 ⁻⁷
	Human Health - Fish	.00014†	=	.00014†	-	.00014†	-
Diquat	MCL	-	=	-	-	-	20
2,4,-D	Human Health + - F & W	-	=	-	-	-	100
Endosulfan	Chronic	.056	=	.15	.15	.15	-
	Acute	.11	=	.3	.3	.3	-
	Human Health + - Fish	2400	=	2400	-	2400	-
	Human Health + - F & W	-	=	-	-	-	110
Endothall	MCL	-	=	-	-	-	100

Parameter		Use Designations					
		B(CW1)	B(CW2)	B(WW)	B(LR)	B(LW)	C
Endrin	Chronic	.05	=	.036	.036	.036	-
	Acute	.12	=	.086	.086	.086	-
	Human Health + - Fish	8.1	=	8.1	-	8.1	-
	Human Health + - F & W	-	=	-	-	-	.76
Ethylbenzene	Human Health + - F & W	-	=	-	-	-	3100
Ethylene dibromide	MCL	-	=	-	-	-	.05
Fluoride	MCL	-	=	-	-	-	4000
Glyphosate	MCL	-	=	-	-	-	700
Heptachlor	Chronic	.0038	=	.0038	.01	.0038	-
	Acute	.38	=	.38	.38	.38	-
	Human Health - Fish	.002	=	.002	-	.002	-
	Human Health - F & W	-	=	-	-	-	.0021
Heptachlor epoxide	Human Health - F & W	-	=	-	-	-	.001
Hexachlorobenzene	Human Health - F & W	-	=	-	-	-	.0075
γ-Hexachloro-cyclohexane (Lindane)	Chronic	N/A	=	N/A	N/A	N/A	-
	Acute	.95	=	.95	.95	.95	-
	Human Health - Fish	.63	=	.63	-	.63	-
	Human Health - F & W	-	=	-	-	-	.19
Hexachlorocyclo-pentadiene	Human Health +- F & W	-	=	-	-	-	240
Lead	Chronic	3	=	30	80	3	-
	Acute	80	=	200	750	80	-
	MCL	-	=	-	-	-	50
Mercury (II)	Chronic	3.5	=	2.1	3.7	.91	-
	Acute	6.5	=	4.0	6.9	1.7	-
	Human Health + - Fish	.15	=	.15	-	.15	-
	Human Health + - F & W	-	=	-	-	-	.05
Methoxychlor	Human Health + - F & W	-	=	-	-	-	100
Monochlorobenzene	MCL	-	=	-	-	-	100
Nickel	Chronic	350	=	650	750	150	-
	Acute	3250	=	5800	7000	1400	-
	Human Health + - Fish	4584	=	4584	-	4584	-
	Human Health + - F & W	-	=	-	-	-	610
Nitrate as N	MCL	-	=	-	-	-	10*
Nitrate + Nitrite as N	MCL	-	=	-	-	-	10*

Parameter		Use Designations					
		B(CW1)	B(CW2)	B(WW)	B(LR)	B(LW)	C
Nitrite as N	MCL	-	=	-	-	-	1*
Oxamyl (Vydate)	MCL	-	=	-	-	-	200
Parathion	Chronic	.013	=	.013	.013	.013	-
	Acute	.065	=	.065	.065	.065	-
Pentachlorophenol (PCP)	Chronic	(d)	=	(d)	(d)	(d)	-
	Acute	(d)	=	(d)	(d)	(d)	-
	Human Health - Fish	82	=	82	-	82	-
	Human Health - F & W	-	=	-	-	-	.28
Picloram	MCL	-	=	-	-	-	500
Polychlorinated Biphenyls (PCBs)	Chronic	.014	=	.014	1	.014	-
	Acute	2	=	2	2	2	-
	Human Health - Fish	.0004	=	.0004	-	.0004	-
	Human Health - F & W	-	=	-	-	-	.0017
Polynuclear Aromatic Hydrocarbons (PAHs)**	Chronic	.03	=	.03	3	.03	-
	Acute	30	=	30	30	30	-
	Human Health - Fish	.3	=	.3	-	.3	-
	Human Health - F & W	-	=	-	-	-	.044
Phenols	Chronic	50	=	50	50	50	-
	Acute	1000	=	2500	2500	1000	-
	Human Health + - Fish	300	=	300	-	300	-
	Human Health + - F & W	-	=	-	-	-	21*
Selenium (VI)	Chronic	10	=	125	125	70	-
	Acute	15	=	175	175	100	-
	Human Health + - F & W	-	=	-	-	-	170
Silver	Chronic	N/A	=	N/A	N/A	N/A	-
	Acute	30	=	100	100	4	-
	MCL	-	=	-	-	-	50
2,4,5-TP (Silvex)	MCL	-	=	-	-	-	10
Simazine	MCL	-	=	-	-	-	4
Styrene	MCL	-	=	-	-	-	100
Tetrachloroethylene	Human Health - F & W	-	=	-	-	-	8
Thallium	Human Health + - F & W	-	=	-	-	-	1.7
Toluene	Chronic	50	=	50	150	50	-
	Acute	2500	=	2500	7500	2500	-
	Human Health + - Fish	300*	=	300*	-	300*	-
	Human Health + - F & W	-	=	-	-	-	6800

Parameter		Use Designations					
		B(CW1)	<u>B(CW2)</u>	B(WW)	B(LR)	B(LW)	C
Total Residual Chlorine (TRC)	Chronic	10	=	20	25	10	-
	Acute	35	=	35	40	20	-
Toxaphene	Chronic	.037	=	.037	.037	.037	-
	Acute	.73	=	.73	.73	.73	-
	Human Health - Fish	.0075	=	.0075	-	.0075	-
	Human Health - F & W	-	=	-	-	-	.0073
1,2,4-Trichlorobenzene	MCL	-	=	-	-	-	70
1,1,1-Trichloroethane	MCL	-	=	-	-	-	200
	Human Health + - Fish	173*	=	173*	-	173*	-
1,1,2-Trichloroethane	Human Health - F & W	-	=	-	-	-	6
Trichloroethylene (TCE)	Chronic	80	=	80	80	80	-
	Acute	4000	=	4000	4000	4000	-
	Human Health - Fish	807	=	807	-	807	-
	Human Health - F & W	-	=	-	-	-	27
Trihalomethanes (total) ^(c)	MCL	-	=	-	-	-	100
Vinyl Chloride	Human Health - F & W	-	=	-	-	-	20
	Human Health - Fish	5250	=	5250	-	5250	-
Xylenes (total)	MCL	-	=	-	-	-	10*
Zinc	Chronic	200	=	450	2000	100	-
	Acute	220	=	500	2200	110	-
	Human Health + - Fish	5000	=	5000	-	5000	-
	Human Health + - F & W	-	=	-	-	-	9100

* units expressed as milligrams/liter

** to include the sum of known and suspected carcinogenic PAHs

† expressed as nanograms/liter

+ Represents the noncarcinogenic human health parameters

++ The concentrations of 4,4-DDT or its metabolites; 4,4-DDE and 4,4-DDD, individually shall not exceed the human health criteria.

(a) units expressed as million fibers/liter (longer than 10 micrometers)

(c) total trihalomethanes includes the sum of bromodichloromethane, dibromochloromethane, tribromomethane (bromoform), and trichloromethane (chloroform)

(d) Class B numerical criteria are for pentachlorophenol a function of pH using the equation: Criterion $\mu\text{g/l} = e^{[1.005(\text{pH}) - x]}$, where e = 2.71828 and x varies according to the following table.

	B(CW1)	<u>B(CW2)</u>	B(WW)	B(LR)	B(LW)
Acute	3.869	=	4.869	4.869	4.869
Chronic	4.134	=	5.134	5.134	5.134

ITEM 7. Amend header of **Table 3a. Acute Criterion for Ammonia in Iowa Streams**, subrule **567 - 61.3(3)**, as follows:

TABLE 3a. Acute Criterion for Ammonia in Iowa Streams

Acute Criterion, mg/l as N (or Criterion Maximum Concentration, CMC)		
pH	Class B(WW), B(LR) & B(LW)	Class B(CW1) & B(CW2) Cold Water

ITEM 8. Amend subrule **61.3(5)** by striking the date of the rule-referenced document (Surface Water Classification) of “July 16, 2003” and inserting “December 15, 2004”, the effective date of this amendment.