

**WEST VIRGINIA
SECRETARY OF STATE
NATALIE E. TENNANT
ADMINISTRATIVE LAW DIVISION**

Form #1

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2010 JUN 11 AM 9:57

OFFICE WEST VIRGINIA
SECRETARY OF STATE

NOTICE OF A PUBLIC HEARING ON A PROPOSED RULE

AGENCY: Water Resources DEP- Division of Water & Waste Management TITLE NUMBER: 47

RULE TYPE: Legislative CITE AUTHORITY: 22-12-4

AMENDMENT TO AN EXISTING RULE: YES NO

IF YES, SERIES NUMBER OF RULE BEING AMENDED: 12

Requirements Governing Groundwater Standards
TITLE OF RULE BEING AMENDED: _____

IF NO, SERIES NUMBER OF RULE BEING PROPOSED: _____

TITLE OF RULE BEING PROPOSED: _____

DATE OF PUBLIC HEARING: Thursday, July 15, 2010 TIME: 6:00 pm

LOCATION OF PUBLIC HEARING: Coopers Rock Training Room (Room No. 1203 and 1204)

WV Department of Environmental Protection

601 57th Street SE
Charleston, WV 25304

COMMENTS LIMITED TO: ORAL WRITTEN BOTH

DATE WRITTEN COMMENT PERIOD ENDS: July 19, 2010 TIME: 11:59 pm

WRITTEN COMMENTS MAY BE MAILED TO:
The Department requests that persons wishing to make
comments at the hearing make an effort to submit written
comments in order to facilitate the review of these comments.

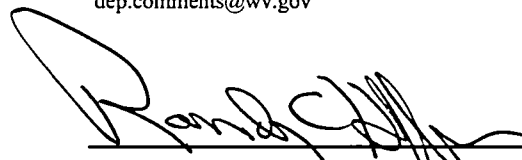
Public Information Office
WV Department of Environmental Protection

601 57th Street SE

Charleston, WV 25304
dep.comments@wv.gov

The issues to be heard shall be limited to the proposed rule.

ATTACH A **BRIEF** SUMMARY OF YOUR PROPOSAL


Authorized Signature

\$8.60

**DEPARTMENT OF ENVIRONMENTAL PROTECTION
BRIEFING DOCUMENT**

Rule Title: 47CSR12 Requirements Governing Groundwater Standards

A. AUTHORITY: W. Va. Code 22-12-14

B. SUMMARY OF RULE:

The purpose of this Legislative rule is to update the established minimum standards of purity and quality for groundwater located within this State.

C. STATEMENT OF CIRCUMSTANCES WHICH REQUIRE RULE:

The proposed revisions to the Requirements Governing Groundwater Standards Rule reflect updates/additions made to the United States Environmental Protection Agency's 2009 Edition of the Drinking Water Standards and Health Advisories. Costs of implementing the changes will be absorbed in the agency's current budget.

D. FEDERAL COUNTERPART REGULATIONS – INCORPORATION BY REFERENCE / DETERMINATION OF STRINGENCY:

A federal counterpart to the proposed rule exists. Because proposed revisions are consistent with the federal counterpart regulation, no determination of stringency is required.

E. CONSTITUTIONAL TAKINGS DETERMINATION

In accordance with W. Va. Code §§ 22-1A-1 and 3(c), the Secretary has determined that this rule will not result in taking of private property within the meaning of the Constitutions of West Virginia and the United States of America.

F. CONSULTATION WITH THE ENVIRONMENTAL PROTECTION ADVISORY COUNCIL:

At its meeting on June 3, 2010, the Environmental Protection Advisory Council discussed the proposed rule. See attached minutes for Council's discussion.

APPENDIX B

FISCAL NOTE FOR PROPOSED RULES

Requirements Governing Groundwater Standards, 47CSR12

Rule Title: _____

Type of Rule: Legislative Interpretive Procedural

Agency: West Virginia Department of Environmental Protection

Address: 601 57th Street, SE
Charelston, WV 25304

Phone Number: (304) 926-0495 Email: Scott.G.Mandirola@wv.gov

Fiscal Note Summary

Summarize in a clear and concise manner what impact this measure will have on costs and revenues of state government.

No fiscal impacts on state government are anticipated.

Fiscal Note Detail

Show over-all effect in Item 1 and 2 and, in Item 3, give an explanation of Breakdown by fiscal year, including long-range effect.

FISCAL YEAR			
Effect of Proposal	Current Increase/Decrease (use "-")	Next Increase/Decrease (use "-")	Fiscal Year (Upon Full Implementation)
1. Estimated Total Cost	0.00	0.00	0.00
Personal Services	0.00	0.00	0.00
Current Expenses	0.00	0.00	0.00
Repairs & Alterations	0.00	0.00	0.00
Assets	0.00	0.00	0.00
Other	0.00	0.00	0.00
2. Estimated Total Revenues	0.00	0.00	0.00

Rule Title: _____

Rule Title: _____

3. Explanation of above estimates (including long-range effect):

Please include any increase or decrease in fees in your estimated total revenues.

None anticipated

MEMORANDUM

Please identify any areas of vagueness, technical defects, reasons the proposed rule **would not** have a fiscal impact, and/or any special issues **not** captured elsewhere on this form.

The proposed revisions to the Requirement Governing Groundwater Standards Rule reflect updates/additions made to the United States Environmental Protection's Agency's 2009 Edition of the Drinking Water Standards and Health Advisories. Costs of implementing the changes will be absorbed in the agency's current budget.

Date: June 3, 2010

Signature of Agency Head or Authorized Representative



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TITLE 47
LEGISLATIVE RULE
DEPARTMENT OF ENVIRONMENTAL PROTECTION
WATER RESOURCES

OFFICE WEST VIRGINIA
SECRETARY OF STATE

SERIES 12
REQUIREMENTS GOVERNING GROUNDWATER STANDARDS

§47-12-1. General.

1.1. Scope. -- The purpose of this Legislative rule is to establish minimum standards of purity and quality for groundwater located within this State.

1.2. Authority. -- W. Va. Code § 22-12-4

1.3. Filing Date. -- April 22, 2010

1.4. Effective Date. -- July 1, 2010

§47-12-2. Definitions.

As used in this rule:

2.1. "Act" means the Groundwater Protection Act, W. Va. Code §22-12-1, et seq.

2.2. "Constituent" means any chemical or biological substance found in groundwater due to either natural or man-made conditions.

2.3. "Groundwater" means the water occurring in the zone of saturation beneath the seasonal high water table, or any perched water zones.

2.4. "Person" means any industrial user, public or private corporation, institution, association, firm or company organized or existing under the laws of this or any other state or country; the State of West Virginia and any of its political subdivisions, including any county commission or municipal corporation; any governmental agency, including federal facilities; industry; sanitary district; public service district; soil conservation district; watershed improvement district; partnership; trust; estate; person or individual;

group of persons or individuals acting individually or as a group; or any legal entity whatever.

§47-12-3. Groundwater Standards.

3.1. Except as provided in subsections 3.2 and 3.3 below, the standards of purity and quality for groundwater in the state shall be the constituent concentrations found in Appendix A of this rule.

3.2. Concentration of a constituent in excess of otherwise applicable groundwater quality standards shall be governed as follows:

3.2.a. Where the concentration of a constituent exceeds an otherwise applicable groundwater quality standards as a result of natural conditions, the naturally occurring level of that constituent shall become the groundwater quality standard for the affected area.

3.2.b. Where the concentration of a certain constituent exceeds an otherwise applicable groundwater quality standard due to human-induced contamination, no further contamination by that constituent shall be allowed and every reasonable effort shall be made to identify, remove or mitigate the source of such contamination and to strive, where practical, to reduce the level of contamination over time to support drinking water use.

3.3. Constituents in groundwater shall not cause a violation of the standards found at 47CSR2 in any surface water.

3.4. Groundwater quality standards do not apply:

3.4.a. Within areas of geologic formations

that are site-specific to site production or storage zones of crude oil or natural gas and that are utilized for the exploration, development or production of crude oil or natural gas permitted pursuant to W.Va. Code §§ 22-6-1, et seq., 22-7-1, et seq., 22-8-1, et seq., 22-9-1, et seq., or 22-10-1, et seq.; and

3.4.b. Within areas of geologic formations that are site-specific to the injection zones of Class II or III or wells permitted pursuant to the statutes and regulations governing the underground injection control program.

3.4.c. To any constituent or any class of activities for which a variance from groundwater quality standards has been granted by the Secretary pursuant to W. Va. Code § 22-12-5(l).

3.4.d. To coal extraction and earth disturbing activities directly involved in coal extraction that are subject to either or both W. Va. Code §§ 22-3-1, et seq. or 22-11-1, et seq.

3.5. Measurement of inorganic constituents

3.5.a. Compliance with groundwater protection standards for inorganic constituents shall be determined in terms of dissolved concentrations rather than total concentrations, except as specified in subdivision 3.5.b below.

3.5.b. Any groundwater regulatory agency as specified in the Act may determine compliance with groundwater protection standards for inorganic constituents utilizing total concentration values only as necessary to protect human health or the environment. Appropriate situations for utilizing total concentrations values include, but are not limited to, the following:

3.5.b.1. The sample is from a carbonate formation in an area of karst terrane;

3.5.b.2. The sample is from a collection point for groundwater used for private or public water supply;

3.5.b.3. The sample is from a spring

or seep; or

3.5.b.3. The sample is one for which State or Federal regulations require that total inorganic concentrations be measured.

§47-12-4. Hazardous Waste Treatment, Storage or Disposal Facilities.

4.1. Nothing in this rule prohibits the Division of Water and Waste Management, acting in accordance with federal regulations, from using criteria other than the standards specified in this rule for purposes of determining the need for corrective action at hazardous waste treatment, storage or disposal facilities, as provided in 40 C.F.R. Parts 264 and 265, Subpart F.

APPENDIX A

Organic Compounds

<u>Constituent</u>	<u>Limit (mg/L)</u> (except where noted)
Alachlor	0.002
Aldicarb	0.003
Aldicarb sulfone	0.002
Aldicarb sulfoxide	0.004
Atrazine	0.003
Benzene	0.005
Benzo (a) pyrene (PAH)	0.0002
Bromodichloromethane (THM) ¹	0.08
Bromoform (THM) ¹	0.08
Carbofuran	0.04
Carbon tetrachloride	0.005
Chlordane	0.002
Chloroform (THM) ¹	0.08
2, 4-D	0.07
Dalapon	0.2
Di(2-ethylhexyl)adipate	0.4
Di(2-ethylhexyl)phthalate	0.006
Dibromochloromethane (THM) ¹	0.08
Dibromochloropropane (DBCP)	0.0002
Dichloroacetic acid	0.06
Dichlorobenzene p-	0.075
Dichlorobenzene o-	0.6
Dichlorobenzene m-	0.6
Dichloroethane (1, 2)	0.005
Dichloroethylene (1, 1-)	0.007
Dichloroethylene (cis-1, 2-)	0.07
Dichloroethylene (trans-1, 2-)	0.1
Dichloromethane	0.005
Dichloropropane (1, 2-)	0.005
Dinoseb	0.007
Diquat	0.02
Endothall	0.1
Endrin	0.002
Ethylbenzene	0.7
Ethylene dibromide (EDB)	0.00005
Glyphosate	0.7
Heptachlor	0.0004
Heptachlor epoxide	0.0002
Hexachlorobenzene	0.001

Hexachlorocyclopentadiene	0.05
Lindane	0.0002
Methoxychlor	0.04
Monochloroacetic acid ²	0.06
Monochlorobenzene	0.1
Oxamyl (Vydate)	0.2
Pentachlorophenol	0.001
Picloram	0.5
Polychlorinated biphenyls	0.0005
Simazine	0.004
Styrene	0.1
2, 3, 7, 8-TCDD (Dioxin)	0.00000003
Tetrachlorethylene	0.005
Toluene	1.0
Toxaphene	0.003
2, 4, 5-TP (Silvex)	0.05
Trichloroacetic acid ²	0.06
Trichlorobenzene (1, 2, 4-)	0.07
Trichloroethane (1, 1, 1-)	0.2
Trichloroethane (1, 1, 2-)	0.005
Trichloroethylene	0.005
Vinyl Chloride	0.002
Xylenes (Total)	10

Inorganic Compounds

<u>Constituent</u>	<u>Limit (mg/L)</u> (except where noted)
Arsenic	0.01
Asbestos	7 MFL ³
Barium	2.0
Beryllium	0.004
Bromate	0.01
Cadmium	0.005
Chloramine	4.0
Chlorine	4.0
Chlorine dioxide	0.8
Chlorite	1.0
Chromium (Total)	0.1
Copper	1.3
Cyanide	0.2
Fluoride	4.0
Lead	0.015
Mercury (Inorganic)	0.002

Nitrate (as N)	10
Nitrite (as N)	1.0
Total Nitrate and Nitrite (both as N)	10
Selenium	0.05
Thallium	0.002

Radionuclides

Beta particle and photon activity	4 mrem ⁴
Gross alpha particle activity	15 pCi/L ⁵
Combined Radium 226 and 228	5 pCi/L
Radon	300 pCi/L
Uranium	30 µg/L ⁶

- 1 – The total of the trihalomethanes (THM) is 0.08 mg/L
- 2 – The total of the haloacetic acids is 0.06 mg/L
- 3 – MFL = million fibers per liter
- 4 – mrem = millirem (rem = roentgen – equivalent – man)
- 5 – pCi = picocurie
- 6 – µg/L = microgram per liter

2009 Edition of the Drinking Water Standards and Health Advisories



2009 Edition of the Drinking Water Standards and Health Advisories

EPA 822-R-09-011

**Office of Water
U.S. Environmental Protection Agency
Washington, DC**

Fall 2009
Date of update: October, 2009

Recycled/Recyclable
Printed on paper that contains
at least 50% recycled fiber.



The *Drinking Water Standards and Health Advisories* Tables are revised periodically by EPA's Office of Water in order to update RfD and Cancer values so that they are consistent with the most current Agency assessments of chemical contaminants that may occur in drinking water and to introduce new Health Advisories. The following information should be kept in mind when using the 2009 Edition of the Tables:

Reference dose (RfD) values are updated to reflect the values in the Integrated Risk Information System (IRIS) and the Office of Pesticide Programs (OPP) Reregistration Eligibility Decisions (RED) Documents. The Drinking Water Equivalent Level (DWEL) has been adjusted accordingly. Thus, both the RfD and DWEL in the Tables differ from the values in the Health Advisory document when the IRIS or OPP RfD is more recent than the Health Advisory document value. RfD values from IRIS that differ from the values in the Health Advisory documents are presented in **BOLD** type. Values derived from the REDs are given in **BOLD** italics. For unregulated chemicals with a recent IRIS or OPP RfD, the lifetime Health Advisory is calculated from the DWEL using the relative source contribution value published in the Health Advisory document. For regulated chemicals, no lifetime value is provided in the Tables when the revised lifetime value would differ from the Maximum Contaminant Level Goal (MCLG).

The cancer group designation or cancer classification and 10^{-4} cancer risk values reflect those presently in IRIS or in the OPP RED. New IRIS cancer designations and 10^{-4} cancer risk values are presented in **BOLD** type and those derived from the REDs are in **BOLD** italics.

The IRIS Toxicological Reviews can be accessed at: <http://www.epa.gov/IRIS>. The OPP REDs can be accessed at: <http://cfpub.epa.gov/oppref/rereg/status.cfm?show=rereg>

In some cases there is a Health Advisory value for a contaminant but there is no reference to a Health Advisory document. These Health Advisory values can be found in the Drinking Water Criteria Document for the contaminant.

With a few exceptions, the RfDs, Health Advisory, and cancer risk values have been rounded to one significant figure following the convention adopted by IRIS.

The *Drinking Water Standards and Health Advisories* Tables may be reached from the Water Science home page at: <http://www.epa.gov/waterscience>. The Tables are accessed under the Drinking Water icon.

Copies the Tables may be ordered free of charge from

SAFE DRINKING WATER HOTLINE
1-800-426-4791
Monday thru Friday, 9:00 AM to 5:30 PM EST

DEFINITIONS

The following definitions for terms used in the Tables are not all-encompassing, and should not be construed to be “official” definitions. They are intended to assist the user in understanding terms found on the following pages.

Action Level: The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow. It is the level of lead or copper which, if exceeded in over 10% of the homes tested, triggers treatment for corrosion control.

Cancer Classification: A descriptive weight-of-evidence judgment as to the likelihood that an agent is a human carcinogen and the conditions under which the carcinogenic effects may be expressed. Under the 2005 EPA *Guidelines for Carcinogen Risk Assessment*, descriptive terms for carcinogenicity replace the earlier alpha numeric Cancer Group designations (US EPA 1986 guidelines). The suggested descriptive terms are as follows:

- Carcinogenic to humans (H)
- Likely to be carcinogenic to humans (L)
- Likely to be carcinogenic above a specified dose but not likely to be carcinogenic below that dose because a key event in tumor formation does not occur below that dose (L/N)
- Suggestive evidence of carcinogenic potential (S)
- Inadequate information to assess carcinogenic potential (I)
- Not likely to be carcinogenic to humans (N)

The letter abbreviations provided parenthetically above are now used in the Tables in place of the prior alpha numeric identifiers for chemicals that have been evaluated under the new guidelines (the 2005 guidelines or the 1996 and 1999 draft guidelines).

Cancer Group: A qualitative weight-of-evidence judgment as to the likelihood that a chemical may be a carcinogen for humans. Each chemical was placed into one of the following five categories (US EPA 1986 guidelines). The Cancer Group designations are given in the Tables for chemicals that have not yet been evaluated under the new guidelines.

Group Category

- A Human carcinogen
- B Probable human carcinogen:
 - B1 indicates limited human evidence
 - B2 indicates sufficient evidence in animals and inadequate or no evidence in humans
- C Possible human carcinogen
- D Not classifiable as to human carcinogenicity
- E Evidence of noncarcinogenicity for humans

10⁻⁴ Cancer Risk: The concentration of a chemical in drinking water corresponding to an excess estimated lifetime cancer risk of 1 in 10,000.

Drinking Water Advisory: A nonregulatory concentration of a contaminant in water that is likely to be without adverse effects on health and aesthetics.

DWEL: Drinking Water Equivalent Level. A lifetime exposure concentration protective of adverse, non-cancer health effects, which assumes that all of the exposure to a contaminant is from drinking water.

HA: Health Advisory. An estimate of acceptable drinking water levels for a chemical substance based on health effects information; a Health Advisory is not a legally enforceable Federal standard, but serves as technical guidance to assist Federal, State, and local officials.

One-Day HA: The concentration of a chemical in drinking water that is not expected to cause any adverse noncarcinogenic effects for up to one day of exposure. The One-Day HA is normally designed to protect a 10-kg child consuming 1 liter of water per day.

Ten-Day HA: The concentration of a chemical in drinking water that is not expected to cause any adverse noncarcinogenic effects for up to ten days of exposure. The Ten-Day HA is also normally designed to protect a 10-kg child consuming 1 liter of water per day.

Lifetime HA: The concentration of a chemical in drinking water that is not expected to cause any adverse noncarcinogenic effects for a lifetime of exposure. The Lifetime HA is based on exposure of a 70-kg adult consuming 2 liters of water per day. The Lifetime HA for Group C carcinogens includes an adjustment for possible carcinogenicity.

MCLG: Maximum Contaminant Level Goal. A non-enforceable health goal which is set at a level at which no known or anticipated adverse effect on the health of persons occurs and which allows an adequate margin of safety.

MCL: Maximum Contaminant Level. The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLG as feasible using the best available analytical and treatment technologies and taking cost into consideration. MCLs are enforceable standards.

RfD: Reference Dose. An estimate (with uncertainty spanning perhaps an order of magnitude) of a daily oral exposure to the human population (including sensitive subgroups) that is likely to be without an appreciable risk of deleterious effects during a lifetime.

SDWR: Secondary Drinking Water Regulations. Non-enforceable Federal guidelines regarding cosmetic effects (such as tooth or skin discoloration) or aesthetic effects (such as taste, odor, or color) of drinking water.

TT: Treatment Technique. A required process intended to reduce the level of a contaminant in drinking water.

ABBREVIATIONS

D	Draft
F	Final
I	Interim
NA	Not Applicable
NOAEL	No-Observed-Adverse-Effect Level
OPP	Office of Pesticide Programs
P	Proposed
Pv	Provisional
Reg	Regulation
TT	Treatment Technique

Drinking Water Standards and Health Advisories

Chemicals	CASRN Number	Standards			Status HA Document	Health Advisories						Cancer Descriptor ¹		
		Status Reg.	MCLG (mg/L)	MCL (mg/L)		10-kg Child			DWEL (mg/L)	Life-time (mg/L)	mg/L at 10 ⁻⁴ Cancer Risk			
						One-day (mg/L)	Ten-day (mg/L)	RfD (mg/kg/day)						
ORGANICS														
Acenaphthene	83-32-9	-	-	-	F '88	-	-	-	0.06	2	-	-	-	-
Acifluorfen (sodium)	62476-59-9	-	-	-	F '88	2	-	-	0.01	0.4	-	-	0.1	L/N
Acrylamide	79-06-1	F	zero	TT ²	F '87	1.5	0.3	0.0002	0.0002	0.007	-	-	0.0008	B2
Acrylonitrile	107-13-1	-	-	-	-	-	-	-	-	-	-	-	0.006	B1
Alachlor	15972-60-8	F	zero	0.002	F '88	0.1	0.1	0.01	0.01	0.4	-	-	0.04	B2
Aldicarb ³	1116-06-3	F ⁴	0.001	0.003	F '95	0.01	0.01	0.001	0.001	0.035	0.007	-	-	D
Aldicarb sulfone ³	1646-88-4	F ⁴	0.001	0.002	F '95	0.01	0.01	0.001	0.001	0.035	0.007	-	-	D
Aldicarb sulfoxide ³	1646-87-3	F ⁴	0.001	0.004	F '95	0.01	0.01	0.001	0.001	0.035	0.007	-	-	D
Aldrin	309-00-2	-	-	-	F '92	0.0003	0.0003	0.0003	0.0003	0.001	-	-	0.0002	B2
Armetryn	834-12-8	-	-	-	F '88	9	9	0.009	0.009	0.3	0.06	-	-	D
Ammonium sulfamate	7773-06-0	-	-	-	F '88	2.0	2.0	0.2	0.2	8	2	-	-	D
Anthracene (PAH) ⁵	120-12-7	-	-	-	-	-	-	0.3	0.3	10	-	-	-	D
Atrazine	1912-24-9	F	0.003	0.003	F '88	-	-	0.02	0.02	0.7	-	-	-	N
Baygon	114-26-1	-	-	-	F '88	0.04	0.04	0.004	0.004	0.1	0.003	-	-	C
Benazon	25057-89-0	-	-	-	F '99	0.3	0.3	0.03	0.03	1	0.2	-	-	E
Benz[a]anthracene (PAH)	56-55-3	-	-	-	-	-	-	-	-	-	-	-	-	B2
Benzene	71-43-2	F	zero	0.005	F '87	0.2	0.2	0.004	0.004	0.1	-	-	0.1	H
Benzo[a]pyrene (PAH)	50-32-8	F	zero	0.0002	-	-	-	-	-	-	-	-	0.0005	B2
Benzo[b]fluoranthene (PAH)	205-99-2	-	-	-	-	-	-	-	-	-	-	-	-	B2
Benzo[g,h,i]perylene (PAH)	191-24-2	-	-	-	-	-	-	-	-	-	-	-	-	D
Benzo[k]fluoranthene (PAH)	207-08-9	-	-	-	-	-	-	-	-	-	-	-	-	B2
bis-2-Chloroisopropyl ether	39638-32-9	-	-	-	F '89	4	4	0.04	0.04	1	0.3	-	-	D
Bromacil	314-40-9	-	-	-	F '88	5	5	0.1	0.1	3.5	0.07	-	-	C
Bromobenzene	108-86-1	-	-	-	D '86	4	4	0.008	0.008	0.3	0.07	-	-	I

¹ Chemicals evaluated under the 2005 Cancer Guidelines or the 1996 or 1999 drafts are denoted by an abbreviation for their weight-of-the-evidence descriptor (see page iii). If the agency has not completed a new assessment for the chemical, the 1986 Guidelines Group designation (see page iii) is given in the Cancer Descriptor column.

² When Acrylamide is used in drinking water systems, the combination (or product) of dose and monomer level shall not exceed that equivalent to a polyacrylamide polymer containing 0.05% monomer dosed at 1 mg/L.

³ The MCL value for any combination of two or more of these three chemicals should not exceed 0.007 mg/L because of a similar mode of action.

⁴ Administrative stay of the effective date.

⁵ PAH = Polycyclic aromatic hydrocarbon.

Drinking Water Standards and Health Advisories

Chemicals	CASRN Number	Standards			Status HA Document	Health Advisories						Cancer Descriptor
		Status Reg.	MCLG (mg/L)	MCL (mg/L)		10-kg Child			DWEL (mg/L)	Life-time (mg/L)	mg/L at 10 ⁻⁵ Cancer Risk	
						One-day (mg/L)	Ten-day (mg/L)	RFI (mg/kg/day)				
Bromochloromethane	74-97-5	-	-	-	F '89	50	1	0.01	0.5	0.09	-	D
Bromodichloromethane (THM)	75-27-4	F	zero	0.08 ¹	-	1	0.6	0.003	0.1	-	0.1	L
Bromoform (THM)	75-25-2	F	zero	0.08 ¹	-	5	0.2	0.03	1	-	0.8	L
Bromomethane	74-83-9	-	-	-	D '89	0.1	0.1	0.001	0.05	0.01	-	D
Butyl benzyl phthalate	85-68-7	-	-	-	-	-	-	0.2	7	-	-	C
Butylate	2008-41-5	-	-	-	F '89	2	2	0.05	2	0.4	-	D
Carbaryl	63-25-2	-	-	-	F '88	1	1	0.01	0.4	-	4	L
Carbofuran	1563-66-2	F	0.04	0.04	F '87	-	-	0.00006	-	-	-	N
Carbon tetrachloride	56-23-5	F	zero	0.005	F '87	4	0.2	0.0007	0.03	-	0.03	B2
Carboxin	5234-68-4	-	-	-	F '88	1	1	0.1	3.5	0.7	-	D
Chloramben	133-90-4	-	-	-	F '88	3	3	0.015	0.5	0.1	-	D
Chlordane	57-74-9	F	zero	0.002	F '87	0.06	0.06	0.0005	0.02	-	0.01	B2
Chloroform (THM)	67-66-3	F	0.07	0.08 ¹	-	4	4	0.01	0.35	0.07	-	LN
Chloromethane	74-87-3	-	-	-	F '89	9	0.4	0.004	0.1	0.03	-	D
Chlorophenol (2-)	95-57-8	-	-	-	D '94	0.5	0.5	0.005	0.2	0.04	-	D
Chloroethanol	1897-45-6	-	-	-	F '88	0.2	0.2	0.015	0.5	-	0.15	B2
Chlorotoluene o-	95-49-8	-	-	-	F '89	2	2	0.02	0.7	0.1	-	D
Chlorotoluene p-	106-43-4	-	-	-	F '89	2	2	0.02	0.7	0.1	-	D
Chlorpyrifos	2921-88-2	-	-	-	F '92	0.03	0.03	0.0003	0.01	0.002	-	D
Chrysene (PAH)	218-01-9	-	-	-	-	-	-	-	-	-	-	D
Cyanazine	21725-46-2	-	-	-	D '96	0.1	0.1	0.002	0.07	0.001	-	B2

1 1998 Final Rule for Disinfectants and Disinfection By-products: The total for trihalomethanes (THM) is 0.08 mg/L.

Drinking Water Standards and Health Advisories

Chemicals	CASRN Number	Standards			Status HA Document	Health Advisories					Cancer Descriptor	
		Status Reg.	MCLG (mg/L)	MCL (mg/L)		10-kg Child						
						One-day (mg/L)	Ten-day (mg/L)	RfD (mg/kg/day)	DWEL (mg/L)	Life-time (mg/L)		mg/L at 10 ⁻⁴ Cancer Risk
Cyanogen chloride ¹	506-77-4	-	-	-	-	0.05	0.05	0.05	2	-	-	D
2,4-D (2,4-dichlorophenoxyacetic acid)	94-75-7	F	0.07	0.07	F '87	1	0.3	0.005	0.2	-	-	D
DCPA (Dacthal)	1861-32-1	-	-	-	F '08	2	2	0.01	0.35	0.07	-	C
Dalapon (sodium salt)	75-99-0	F	0.2	0.2	F '89	3	3	0.03	0.9	0.2	-	D
Di(2-ethylhexyl)adipate	103-23-1	F	0.4	0.4	-	20	20	0.6	20	0.4	3	C
Di(2-ethylhexyl)phthalate	117-81-7	F	zero	0.006	-	-	-	0.02	0.7	-	0.3	B2
Diazinon	333-41-5	-	-	-	F '88	0.02	0.02	0.0002	0.007	0.001	-	E
Dibromochloromethane (THM)	124-48-1	F	0.06	0.08 ²	-	0.6	0.6	0.02	0.7	0.06	0.08	S
Dibromochloropropane (DBCP)	96-12-8	F	zero	0.0002	F '87	0.2	0.05	-	-	-	0.003	B2
Dibutyl phthalate	84-74-2	-	-	-	-	-	-	0.1	4	-	-	D
Dicamba	1918-00-9	-	-	-	F '88	-	-	0.5	18	4	-	N
Dichloroacetic acid	76-43-6	F	zero	0.06 ³	-	5	5	0.004	0.1	-	0.07	L
Dichlorobenzene o-	95-50-1	F	0.6	0.6	F '87	9	9	0.09	3	0.6	-	D
Dichlorobenzene m-	541-73-1	-	-	-	F '87	9	9	0.09	3	0.6	-	D
Dichlorobenzene p-	106-46-7	F	0.075	0.075	F '87	11	11	0.1	4	0.075	-	C
Dichlorodifluoromethane	75-71-8	-	-	-	F '89	40	40	0.2	5	1	-	D
Dichloroethane (1,2-)	107-06-2	F	zero	0.005	F '87	0.7	0.7	-	-	-	0.04	B2
Dichloroethylene (1,1-)	75-35-4	F	0.007	0.007	F '87	2	1	0.05	2	-	0.006	S
Dichloroethylene (cis-1,2-)	156-59-2	F	0.07	0.07	F '90	4	1	0.01	0.35	0.07	-	D
Dichloroethylene (trans-1,2-)	156-60-5	F	0.1	0.1	F '87	20	1	0.02	0.7	0.1	-	D
Dichloromethane	75-09-2	F	zero	0.005	D '93	10	2	0.06	2	-	0.5	B2
Dichlorophenol (2,4-)	120-83-2	-	-	-	D '94	0.03	0.03	0.003	0.1	0.02	-	E
Dichloropropane (1,2-)	78-87-5	F	zero	0.005	F '87	-	0.09	-	-	-	0.06	B2
Dichloropropene (1,3-)	542-75-6	-	-	-	F '88	0.03	0.03	0.03	1	-	0.04	L
Dieldrin	60-57-1	-	-	-	F '88	0.0005	0.0005	0.00005	0.002	-	0.0002	B2
Diethyl phthalate	84-66-2	-	-	-	-	-	-	0.8	30	-	-	D

¹ Under review.

² 1998 Final Rule for Disinfectants and Disinfection By-products: The total for trihalomethanes is 0.08 mg/L.

³ 1998 Final Rule for Disinfectants and Disinfection By-products: The total for five haloacetic acids is 0.06 mg/L.

⁴ The values for m-dichlorobenzene are based on data for o-dichlorobenzene.

Drinking Water Standards and Health Advisories

Chemicals	CASRN Number	Standards			Status HA Document	Health Advisories						Cancer Descriptor
		Status Reg.	MCLG (mg/L)	MCL (mg/L)		10-kg Child			DWEL (mg/L)	Life-time (mg/L)	mg/L at 10 ⁻⁴ Cancer Risk	
						One-day (mg/L)	Ten-day (mg/L)	RfD (mg/kg/day)				
Diisopropyl methylphosphonate	1445-75-6	-	-	-	F '89	8	8	0.08	3	0.6	-	D
Dimethrin	70-38-2	-	-	-	F '88	10	10	0.3	10	2	-	D
Dimethyl methylphosphonate	756-79-6	-	-	-	F '92	2	2	0.2	7	0.1	0.7	C
Dimethyl phthalate	131-11-3	-	-	-	-	-	-	-	-	-	-	D
Dinitrobenzene (1,3-)	99-65-0	-	-	-	F '91	0.04	0.04	0.0001	0.005	0.001	-	D
Dinitrobenzene (2,4-)	121-14-2	-	-	-	F '08	0.5	0.5	0.002	0.1	-	0.005	L
Dinitrotoluene (2,6-)	606-20-2	-	-	-	F '08	0.4	0.4	0.001	0.04	-	0.005	L
Dinitrotoluene (2,6 & 2,4) ¹		-	-	-	F '92	-	-	-	-	-	0.005	B2
Dinoseb	88-85-7	F	0.007	0.007	F '88	0.3	0.3	0.001	0.035	0.007	-	D
Dioxane p-	123-91-1	-	-	-	F '87	4	4	-	-	-	0.3	B2
Diphenamid	957-51-7	-	-	-	F '88	0.3	0.3	0.03	1	0.2	-	D
Diquat	85-00-7	F	0.02	0.02	-	-	-	0.005	0.02	-	-	E
Disulfoton	298-04-4	-	-	-	F '88	0.01	0.01	0.0001	0.0035	0.0007	-	E
Dithiane (1,4-)	505-29-3	-	-	-	F '92	0.4	0.4	0.01	0.4	0.08	-	D
Diuron	330-54-1	-	-	-	F '88	1	1	0.003	0.1	-	0.2	L
Endothall	145-73-3	F	0.1	0.1	F '88	0.8	0.8	0.007	0.25	0.05	-	N
Endrin	72-20-8	F	0.002	0.002	F '87	0.02	0.005	0.0003	0.01	0.002	-	D
Epichlorohydrin	106-89-8	F	zero	TT ²	F '87	0.1	0.1	0.002	0.07	-	0.3	B2
Ethylbenzene	100-41-4	F	0.7	0.7	F '87	30	3	0.1	3	0.7	-	D
Ethylene dibromide (EDB) ³	106-93-4	F	zero	0.00005	F '87	0.008	0.008	0.009	0.3	-	0.002	L
Ethylene glycol	107-21-1	-	-	-	F '87	20	6	2	70	14	-	D
Ethylene Thiourea (ETU)	96-45-7	-	-	-	F '88	0.3	0.3	0.0002	0.007	-	0.06	B2
Fenamiphos	22224-92-6	-	-	-	F '88	0.009	0.009	0.0001	0.0035	0.0007	-	E

¹ Technical grade.

² When epichlorohydrin is used in drinking water systems, the combination (or product) of dose and monomer level shall not exceed that equivalent to an epichlorohydrin-based polymer containing 0.01% monomer dosed at 20 mg/L.

³ 1,2-dibromoethane.

Drinking Water Standards and Health Advisories

Chemicals	CAS Number	Standards			Status HA Standards	Health Advisories					Cancer Descriptor	
		Status Reg.	MCLG (mg/L)	MCL (mg/L)		10-kg Child		RD (mg/kg/day)	DWEL (mg/L)	Life-time (mg/L)		mg/L at 10 ⁻⁴ Cancer Risk
						One-day (mg/L)	Ten-day (mg/L)					
Fluometuron	2164-17-2	-	-	-	F '88	2	2	0.01	0.5	0.09	-	D
Fluorene (PAH)	86-73-7	-	-	-	F '88	-	-	0.04	1	-	-	D
Fonofos	944-22-9	-	-	-	D '93	10	5	0.02	0.07	0.01	-	D
Formaldehyde	50-00-0	-	-	-	F '88	20	20	0.2	7	1	-	B1 ¹
Glyphosate	1071-83-6	F	0.7	0.7	F '87	0.01	0.01	0.0005	0.02	-	0.0008	D
Heptachlor	76-44-8	F	zero	0.0004	F '87	0.01	-	0.00001	0.0004	-	0.0004	B2
Heptachlor epoxide	1024-57-3	F	zero	0.0002	F '87	0.05	0.05	0.0008	0.03	-	0.002	B2
Hexachlorobenzene	118-74-1	F	zero	0.001	-	0.3	0.3	0.0003	0.01	-	0.09	L
Hexachlorobutadiene ²	87-68-3	-	-	-	-	-	-	0.006	0.2	-	-	N
Hexachlorocyclopentadiene	77-47-4	F	0.05	0.05	F '91	5	5	0.001	0.04	0.001	0.3	C
Hexachloroethane	67-72-1	-	-	-	F '87	10	4	-	-	-	-	I
Hexane (n-)	110-54-3	-	-	-	F '96	3	2	0.05	2	0.4	-	D
Hexazinone	51235-04-2	-	-	-	F '88	5	5	0.05	2	0.4	-	D
HMX ³	2691-41-0	-	-	-	-	-	-	-	-	-	-	D
Indeno[1,2,3-c,d]pyrene (PAH)	193-39-5	-	-	-	-	-	-	-	-	-	-	B2
Isophorone	78-59-1	-	-	-	F '92	15	15	0.2	7	0.1	4	C
Isopropyl methylphosphonate	1832-54-8	-	-	-	F '92	30	30	0.1	3.5	0.7	-	D
Isopropylbenzene (cumene)	98-82-8	-	-	-	D '87	11	11	0.1	4	-	-	D
Lindane ⁴	58-89-9	F	0.0002	0.0002	F '87	1	1	0.005	0.2	-	-	S
Malathion	121-75-5	-	-	-	F '92	0.2	0.2	0.07	2	0.5	-	S
Maleic hydrazide	123-33-1	-	-	-	F '88	10	10	0.5	20	4	-	D
MCPA ⁵	94-74-6	-	-	-	F '88	0.1	0.1	0.004	0.14	0.03	-	N
Methomyl	16752-77-5	-	-	-	F '88	0.3	0.3	0.025	0.9	0.2	-	E
Methoxychlor	72-43-5	F	0.04	0.04	F '87	0.05	0.05	0.005	0.2	0.04	-	D
Methyl ethyl ketone	78-93-3	-	-	-	F '87	75	7.5	0.6	20	4	-	D
Methyl parathion	298-00-0	-	-	-	F '88	0.3	0.3	0.0002	0.007	0.001	-	N

¹ Carcinogenicity based on inhalation exposure.

² Regulatory Determination Health Effects Support Document for Hexachlorobutadiene

(http://www.epa.gov/safewater/ccl/pdfs/reg_determine/support_ccl_hexachlorobutadiene_healtheffects.pdf).

³ HMX = octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine.

⁴ Lindane = γ-hexachlorocyclohexane.

⁵ MCPA = 4 (chloro-2-methoxyphenoxy) acetic acid.

Drinking Water Standards and Health Advisories

Chemicals	CASRN Number	Standards			Status HA Document	Health Advisories						Cancer Descriptor
		Status Reg.	MCLG (mg/L)	MCL (mg/L)		10-kg Child		RD (mg/kg/day)	DWEL (mg/L)	Life-time (mg/L)	mg/L at 10 ⁻⁴ Cancer Risk	
						One-day (mg/L)	Ten-day (mg/L)					
Metalachlor	51218-45-2	-	-	-	F '88	2	2	0.1	3.5	0.7	-	C
Metribuzin	21087-64-9	-	-	-	F '88	5	5	0.01	0.35	0.07	-	D
Mono chloroacetic acid	79-11-8	F	0.03	0.06 ¹	-	0.2	0.2	0.01	0.35	0.07	-	I
Mono chlorobenzene	108-90-7	F	0.1	0.1	F '87	4	4	0.02	0.7	0.1	-	D
Naphthalene	91-20-3	-	-	-	F '90	0.5	0.5	0.02	0.7	0.1	-	I
Nitrocellulose ²	9004-70-0	-	-	-	F '88	-	-	-	-	-	-	-
Nitroguanidine	536-88-7	-	-	-	F '90	10	10	0.1	3.5	0.7	-	D
Nitrophenol p-	100-02-7	-	-	-	F '92	0.8	0.8	0.008	0.3	0.06	-	D
N-nitrosodimethylamine	-	-	-	-	-	-	-	-	-	-	0.7	B ₂
Oxamyl (Vydate)	23135-22-0	F	0.2	0.2	F '05	0.01	0.01	0.001	0.035	-	-	N
Paraquat	1910-42-5	-	-	-	F '88	0.1	0.1	0.0045	0.2	0.03	-	E
Pentachlorophenol	87-86-5	F	zero	0.001	F '87	1	0.3	0.03	1	-	0.03	B ₂
PFOA ³	335-67-1	-	-	-	Pv '09	-	-	-	-	-	-	-
PFOS ⁴	1763-23-1	-	-	-	Pv '09	-	-	-	-	-	-	-
Phenanthrene (PAH)	85-01-8	-	-	-	-	-	-	-	-	-	-	-
Phenol	108-95-2	-	-	-	D '92	6	6	0.3	11	2	-	D
Picloram	1918-02-1	F	0.5	0.5	F '88	20	20	0.02	0.7	-	-	D
Polychlorinated biphenyls (PCBs)	1336-36-3	F	zero	0.0005	D '93	-	-	-	-	-	0.01	B ₂
Prometon	1610-18-0	-	-	-	F '88	0.2	0.2	0.05	2	0.4	-	N
Pronamide	23950-58-5	-	-	-	F '88	0.8	0.8	0.08	3	-	0.1	B ₂
Propachlor	1918-16-7	-	-	-	F '88	0.5	0.5	0.05	2	-	0.1	L
Propazine	139-40-2	-	-	-	F '88	-	-	0.02	0.7	0.01	-	N
Proptham	122-42-9	-	-	-	F '88	5	5	0.02	0.6	0.1	-	D
Pyrene (PAH)	129-00-0	-	-	-	-	-	-	0.03	-	-	-	D
RDX ⁵	121-82-4	-	-	-	F '88	0.1	0.1	0.003	0.1	0.002	0.03	C
Simazine	122-34-9	F	0.004	0.004	F '88	-	-	0.02	0.7	-	-	N
Styrene	100-42-5	F	0.1	0.1	F '87	20	2	0.2	7	0.1	-	C
2,4,5-T (Trichlorophenoxy-acetic acid)	93-76-5	-	-	-	F '88	0.8	0.8	0.01	0.35	0.07	-	D

¹ 1998 Final Rule for Disinfectants and Disinfection By-products: the total for five haloacetic acids is 0.06 mg/L.
² The Health Advisory Document for nitrocellulose does not include HA values and describes this compound as relatively nontoxic.
³ Perfluorooctanoic Acid. Provisional short-term value 0.0004 mg/L.
⁴ Perfluorooctane Sulfonate. Provisional short-term value 0.0002 mg/L.
⁵ RDX = hexahydro -1,3,5-trinitro-1,3,5-triazine.

Drinking Water Standards and Health Advisories

Chemicals	CASRN Number	Standards			Status HA Document	Health Advisories					Cancer Risk Descriptor	
		Status Reg.	MCLG (mg/L)	MCL (mg/L)		10-kg Child		RD (mg/kg/day)	DWEL (mg/L)	Life-time (mg/L)		mg/L at 10 ⁻⁴ Cancer Risk
						One-day (mg/L)	Ten-day (mg/L)					
2,3,7,8-TCDD (Dioxin)	1746-01-6	F	zero	3E-08	F '87	1E-06	1E-07	1E-09	4E-08	-	2E-08	B2
Tebufluron	34014-18-1	-	-	-	F '88	3	3	0.07	2	0.5	-	D
Terbacil	5902-51-2	-	-	-	F '88	0.3	0.3	0.01	0.4	0.09	-	E
Terbufos	13071-79-9	-	-	-	F '88	0.005	0.005	0.0005	0.002	0.0004	-	D
Tetrachloroethane (1,1,1,2-)	630-20-6	-	-	-	F '89	2	2	0.03	1	0.07	0.1	C
Tetrachloroethane (1,1,2,2-)	79-34-5	-	-	-	F '08	3	3	0.01	0.4	-	0.02	L
Tetrachloroethylene ¹	127-18-4	F	zero	0.005	F '87	2	2	0.01	0.5	0.01	-	-
Tetrachloroterephthalic acid	236-79-0	-	-	-	F '08	100	100	-	-	-	-	I
Trichlorofluoromethane	75-69-4	-	-	-	F '89	7	7	0.3	10	2	-	D
Toluene	108-88-3	F	1	1	D '93	20	2	0.08	3	-	-	I
Toxaphene	8001-35-2	F	zero	0.003	F '96	0.004	0.004	0.0004	0.01	-	0.003	B2
2,4,5-TP (Silvex)	93-72-1	F	0.05	0.05	F '88	0.2	0.2	0.008	0.3	0.05	-	D
Trichloroacetic acid	76-03-9	F	0.02	0.06 ²	-	3	3	0.03	1	0.02	-	S
Trichlorobenzene (1,2,4-)	120-82-1	F	0.07	0.07	F '89	0.1	0.1	0.01	0.35	0.07	-	D
Trichlorobenzene (1,3,5-)	108-70-3	-	-	-	F '89	0.6	0.6	0.006	0.2	0.04	-	D
Trichloroethane (1,1,1-)	71-55-6	F	0.2	0.2	F '87	100	40	2	70	-	-	I
Trichloroethane (1,1,2-)	79-00-5	F	0.003	0.005	F '89	0.6	0.4	0.004	0.1	0.003	0.06	C
Trichloroethylene ¹	79-01-6	F	zero	0.005	F '87	-	-	0.007	0.2	-	0.3	B2
Trichlorophenol (2,4,6-)	88-06-2	-	-	-	D '94	0.03	0.03	0.0003	0.01	-	0.3	B2
Trichloropropane (1,2,3-)	96-18-4	-	-	-	F '89	0.6	0.6	0.004	0.1	-	-	L
Trifluralin	1582-09-8	-	-	-	F '90	0.08	0.08	0.02	0.7	0.01	0.4	C
Trimethylbenzene (1,2,4-)	95-63-6	-	-	-	D '87	-	-	-	-	-	-	D
Trimethylbenzene (1,3,5-)	108-67-8	-	-	-	D '87	10	-	-	-	-	-	D
Trinitroglycerol	55-63-0	-	-	-	F '87	0.005	0.005	-	-	0.005	0.2	-
Trinitrotoluene (2,4,6-)	118-96-7	-	-	-	F '89	0.02	0.02	0.0005	0.02	0.002	0.1	C
Vinyl chloride	75-01-4	F	zero	0.002	F '87	3	3	0.003	0.1	-	0.002	H
Xylenes	1330-20-7	F	10	10	D '93	40	40	0.2	7	-	-	I

¹ Under review.

² 1998 Final Rule for Disinfectants and Disinfection By-products: The total for five haloacetic acids is 0.06 mg/L.

Drinking Water Standards and Health Advisories

Chemicals	CASRN Number	Standards			Status IIA Document	Health Advisories					Cancer Descriptor		
		Status Reg.	MCLG (mg/L)	MCL (mg/L)		10-kg Child		RD (mg/kg/day)	DWEL (mg/L)	Life-time (mg/L)		mg/L at 10 ⁻⁴ Cancer Risk	
						One-day (mg/L)	Ten-day (mg/L)						
INORGANICS													
Ammonia	7664-41-7	-	0.006	-	D '92	0.01	0.01	-	0.0004	-	30	-	D
Antimony	7440-36-0	F	zero	0.01	F '92	-	0.0003	0.01	0.0003	-	0.006	-	D
Arsenic	7440-38-2	F	7 MFL ¹	7 MFL	-	-	-	-	-	-	-	0.002	A
Asbestos (fibers/1 >10µm length)	1332-21-4	F	2	2	D '93	0.7	0.7	7	0.2	-	-	700-MFL	A ²
Barium	7440-39-3	F	0.004	0.004	F '92	30	30	0.07	0.002	-	-	-	N
Beryllium	7440-41-7	F	-	-	F '08	3	3	7	0.2	-	6	-	-
Boron	7440-42-8	-	zero	0.01	D '98	0.2	0.2	0.14	0.004	-	-	0.005	B2
Bromate	7789-38-0	F	0.005	0.005	F '87	0.04	0.04	0.02	0.0005	-	0.005	-	D
Cadmium	7440-43-9	F	4 ⁴	4 ⁴	D '95	-	-	0.1	0.1	-	3.0	-	-
Chloramine ³	10599-90-3	F	4 ⁴	4 ⁴	D '95	3	3	5	0.1	-	4	-	-
Chlorine	7782-50-5	F	0.8 ⁴	0.8 ⁴	D '98	0.8	0.8	1	0.03	-	0.8	-	D
Chlorine dioxide	10049-04-4	F	0.8	1	D '98	0.8	0.8	1	0.03	-	0.8	-	D
Chlorite	7758-19-2	F	0.1	0.1	F '87	1	1	0.1	0.003 ⁵	-	-	-	D
Chromium (total)	7440-47-3	F	1.3	TT ⁶	D '98	-	-	-	-	-	-	-	D
Copper (at tap)	7440-50-8	F	0.2	0.2	F '87	0.2	0.2	0.2	0.02 ⁷	-	0.2	-	D
Cyanide	143-33-9	F	4	4	-	-	-	-	0.06 ⁹	-	-	-	-
Fluoride	7681-49-4	F	zero	TT ⁶	-	-	-	-	-	-	-	-	B2
Lead (at tap)	7439-92-1	F	0.02	0.02	F '04	1	1	1.6	0.14 ¹⁰	-	0.3	-	D
Manganese	7439-96-5	-	0.002	0.002	F '87	0.002	0.002	0.01	0.0003	-	0.002	-	D
Mercury (inorganic)	7487-94-7	-	-	-	D '93	0.08	0.08	0.2	0.005	-	0.04	-	D
Molybdenum	7439-98-7	F	-	-	F '95	1	1	0.7	0.02	-	0.1	-	-

¹ MFL = million fibers per liter.
² Carcinogenicity based on inhalation exposure.
³ Monochloramine; measured as free chlorine.
⁴ 1998 Final Rule for Disinfectants and Disinfection By-products: MRDLG=Maximum Residual Disinfection Level Goal; and MRDL=Maximum Residual Disinfection Level.
⁵ IRIS value for chromium VI.
⁶ Copper action level 1.3 mg/L; lead action level 0.015 mg/L.
⁷ This RD is for hydrogen cyanide.
⁸ In case of overfeed of the fluoridation chemical see CDC Guidelines in Engineering and Administrative Recommendations on Water Fluoridation www.cdc.gov/mmwr/preview/mmwrhtml/00039178.htm. Elevated F levels ≥ 10mg/L require action by the water system operator.
⁹ Based on dental fluorosis in children, a cosmetic effect. MCLG based on skeletal fluorosis.
¹⁰ Dietary manganese. The lifetime health advisory includes a 3 fold modifying factor to account for increased bioavailability from drinking water.

Drinking Water Standards and Health Advisories

Chemicals	CASRN Number	Standards			Status HA Document	Health Advisories						Cancer Descriptor	
		Status Reg.	MCLG (mg/L)	MCL (mg/L)		10-kg Child			Life-time (mg/L)	mg/L at 10 ⁻⁴ Cancer Risk			
						One-day (mg/L)	Ten-day (mg/L)	RID (mg/kg/day)			DWEL (mg/L)		
Nitrate (as N) Nitrite (as N) Nitrate + Nitrite (both as N) Perchlorate ² Selenium Silver Strontium Thallium White phosphorous Zinc RADIONUCLIDES Beta particle and photon activity (formerly man-made radionuclides) Gross alpha particle activity Combined Radium 226 & 228 Radon Uranium	14797-55-8	F	10	10	D '93	10 ¹	10 ¹	1.6	-	-	-	-	-
	14797-65-0	F	1	1	D '93	1 ¹	1 ¹	0.16	-	-	-	-	-
	14797-73-0	F	10	10	D '93	-	-	-	-	-	-	-	-
	7782-49-2	-	-	-	1 '08	-	-	0.007	0.025	0.015	-	-	L/N
	7440-22-4	F	0.05	0.05	-	-	-	0.005	0.2	0.05	-	-	D
	7440-24-6	-	-	-	F '92	0.2	0.2	0.005 ³	0.2	0.1 ³	-	-	D
	7440-28-0	F	0.0005	0.002	D '93	25	25	0.6	20	4	-	-	D
	7723-14-0	-	-	-	F '92	0.007	0.007	-	-	-	0.0001	-	I
	7440-66-6	-	-	-	F '90	-	-	0.00002	0.0005	0.0001	-	-	D
					D '93	6	6	0.3	10	2	-	-	I
		F	zero	4 mrem/yr	-	-	-	-	-	-	4 mrem/yr	-	A
		F	zero	15 pCi/L	-	-	-	-	-	-	15 pCi/L	-	A
	7440-14-4	F	zero	5 pCi/L	-	-	-	-	-	-	-	-	A
	10043-92-2	P	zero	300 pCi/L AMCL ⁴ 4000 pCi/L	-	-	-	-	-	-	-	-	A
	7440-61-1	F	zero	0.03 pCi/L	-	-	-	0.0006 ⁵	0.02	-	-	150 pCi/L	A

¹ These values are calculated for a 4-kg infant and are protective for all age groups.

² Subchronic value for pregnant women.

³ Based on a cosmetic effect.

⁴ AMCL = Alternative Maximum Contaminant Level.

⁵ Soluble uranium salts. Radionuclide Rule.

Drinking Water Standards and Health Advisories

Secondary Drinking Water Regulations

Chemicals	CAS Number	Status	SDWR
Aluminum	7429-90-5	F	0.05 to 0.2 mg/L
Chloride	7647-14-5	F	250 mg/L
Color	NA	F	15 color units
Copper	7440-50-8	F	1.0 mg/L
Corrosivity	NA	F	non-corrosive
Fluoride	7681-49-4	F	2.0 mg/L
Foaming agents	NA	F	0.5 mg/L
Iron	7439-89-6	F	0.3 mg/L
Manganese	7439-96-5	F	0.05 mg/L
Odor	NA	F	3 threshold odor numbers
pH	NA	F	6.5 – 8.5
Silver	7440-22-4	F	0.1 mg/L
Sulfate	7757-82-6	F	250 mg/L
Total dissolved solids (TDS)	NA	F	500 mg/L
Zinc	7440-66-6	F	5 mg/L

Microbiology

	Status Reg.	Status HA Document	MCLG	MCL	Treatment Technique
<i>Cryptosporidium</i>	F	F 01	-	TT	Systems that filter must remove 99% of <i>Cryptosporidium</i>
<i>Giardia lamblia</i>	F	F 98	-	TT	99.9% killed/inactivated
<i>Legionella</i>	F ¹	F 01	zero	TT	No limit; EPA believes that if <i>Giardia</i> and viruses are inactivated, <i>Legionella</i> will also be controlled
Heterotrophic Plate Count (HPC)	F ¹	-	NA	TT	No more than 500 bacterial colonies per milliliter.
Mycobacteria	-	F 99	-	-	-
Total Coliforms	F	-	zero	5%	No more than 5.0% samples total coliform-positive in a month. Every sample that has total coliforms must be analyzed for fecal coliforms; no fecal coliforms are allowed.
Turbidity	F	-	NA	TT	At no time can turbidity go above 5 NTU (nephelometric turbidity units)
Viruses	F ¹	-	zero	TT	99.99% killed/inactivated

¹ Regulated under the surface water treatment rule.

Drinking Water Advisory Table

Summer 2009

Page 12

Chemicals	Status	Health-based Value	Taste Threshold	Odor Threshold
Ammonia	D '92	Not Available	30 mg/L	
Methyl tertiary butyl ether (MtBE)	F '98	Not Available	40 µg/L	20 µg/L
Sodium	F '03	20 mg/L (for individuals on a 500 mg/day restricted sodium diet).	30-60 mg/L	
Sulfate	F '03	500 mg/L	250 mg/L	

Taste Threshold: Concentration at which the majority of consumers do not notice an adverse taste in drinking water; it is recognized that some sensitive individuals may detect a chemical at levels below this threshold.

Odor Threshold: Concentration at which the majority of consumers do not notice an adverse odor in drinking water; it is recognized that some sensitive individuals may detect a chemical at levels below this threshold.

ENVIRONMENTAL PROTECTION ADVISORY COUNCIL

MEETING MINUTES

June 3, 2010

I. CALL TO ORDER

Kristin A. Boggs, Ex Officio Chair designated by Secretary Randy Huffman, called to order a special meeting of the DEP Advisory Council at 1:40 p.m. on June 3 2010 at the headquarters of the West Virginia Department of Environmental Protection, 601 57th Street Southeast, Charleston, West Virginia. Agendas were distributed.

II. ROLL CALL

Members present: Lisa Dooley, Jackie Hallinan, Larry Harris, Karen Price, Bill Raney, and Rick Roberts.

The meeting was also attended by the following DEP personnel: Randy C. Huffman, DEP Cabinet Secretary; Lisa McClung, DEP Deputy Cabinet Secretary; Kathy Cosco, DEP Chief Communication Officer; Daniel T. Arnold, Division of Water and Waste Management; Bill Timmermeyer, Division of Water and Waste Management; Charles Sturey, Division of Mining and Reclamation; Dave Vandelinde, Division of Mining and Reclamation, Office of Explosives and Blasting; Yvonne Anderson, Division of Mining and Reclamation; Ken Holliday, Division of Water and Waste Management; Yogesh Patel, Division of Water and Waste Management; Fred Durham, Division of Air Quality; Jim Mason, Division of Air Quality; Lewis Halstead, Division of Mining and Reclamation.

Also in attendance were: Don Garvin of the Ohio Valley Environmental Coalition; Katherine Crockett and Emily Moy of Spilman Thomas & Battle; and Lewis Baker of the West Virginia Rural Water Association.

III. OLD BUSINESS

Minutes of the May 27, 2010 Meeting. The minutes were emailed and provided to Council in hard copy. Ms. Dooley moved for approval of the minutes, Mr. Raney seconded the motion, and it was carried by acclamation of Council.

IV. PROPOSED 2011 LEGISLATIVE RULES

Because the Advisory Council had received summaries of the rule two weeks prior to the meeting, he suggested that Ms. Boggs simply read the title of the rule and allow Council members to ask questions, rather than read the summaries to Council. The suggestion was well taken. Summaries of the proposed rules are set forth herein for completeness of the record, and so the minutes will reflect the complete information provided to Council.

Division of Air Quality

- ❖ 45 C.S.R. 8 – *Ambient Air Quality Standards*. Promulgated last in the 2010 Session. Revisions to the rule include a change in format to incorporation by reference, rather than reiterating the NAAQS in the rule. The rule now incorporates by reference the NAAQS promulgated by EPA under 40 C.F.R. § 50 and the ambient air monitoring reference methods and equivalent methods under 40 C.F.R. § 53, which become effective June 1, 2010. EPA has established a new primary one-hour NO₂ standard at a level of 100 parts per billion, based on the three-year average of the 98th percentile of the yearly distribution of one-hour daily maximum concentrations, to supplement the existing primary annual standard of 53 parts per million. This new NO₂ primary standard is incorporated by reference in this rule.

Section 2, titled *Anti-Degradation Policy*, has been stricken for two reasons. First, the new incorporation by reference format incorporates the federal significant deterioration of air quality provisions under 40 C.F.R. § 50.2(c). Second, because West Virginia adopted the federal Prevention of Significant Deterioration program under 45 C.S.R. 14 in the early 1980s, the State has more than satisfied the intent of the relic language in Section 2 to protect the air quality in areas that were in attainment of the NAAQS. Section 2 was authored in the early 1970s as a placeholder in anticipation of the future PSD program and its provisions for best available control technology.

- ❖ 45 C.S.R. 14 – *Permits for Construction and Major Modification of Major Stationary Sources of Air Pollution for the Prevention of Significant Deterioration*. Promulgated last in the 2010 Session. Revisions to the rule include deletion of federally stayed provisions for fugitive emissions and clarification of affected facilities at large coal prep plants. EPA is now reconsidering inclusion of fugitive emissions and will issue a final rule in the future. Fugitive emissions from stockpiles (now an affected source under 40 C.F.R. § 60, Subpart Y) are now counted for large coal prep plants (but haul roads are still excluded). Other minor revisions ensure consistency with federal counterpart language.
- ❖ 45 C.S.R. 16 – *Standards of Performance for New Stationary Sources*. Promulgated last in the 2010 Session. Revisions to this rule are the annual incorporate-by-reference amendments to the NSPS, including Standards of Performance for Coal Preparation and Processing Plants. These final amendments include revisions to the emission limits for particulate matter and opacity standards for thermal dryers, pneumatic coal cleaning equipment, and coal handling equipment located at coal preparation and processing plants.
- ❖ 45 C.S.R. 18 – *Combustion of Solid Waste*. Promulgated last in the 2008 Session. Revisions to the rule include new federal emission guidelines for existing hospital/medical/infectious waste incinerators (HMIWI). The revised rule has been restructured to better comport to respective federal counterpart language. The stricken provisions in Section 12, *Compliance Dates*, have been moved to respective sections for existing HMIWI and commercial and industrial solid waste incinerators. The revisions

strike obsolete language regarding repealed provisions, as well as add new definitions to the rule. Other miscellaneous revisions are included that improve the clarity and accuracy of existing rule language.

- ❖ 45 C.S.R. 19 – *Permits for Construction and Major Modification of Major Stationary Sources of Air Pollution Which Cause or Contribute to Nonattainment*. Promulgated last in the 2010 Session. Revisions to the rule include a new subsection 1.5, which provides that references to the federal counterpart will be construed as the version that was in effect as of June 1, 2010. Also, the term “affected facilities” has been clarified. Fugitive emissions from stockpiles (now an affected facility under 40 C.F.R. § 60, Subpart Y) are now counted for large coal prep plants (but haul roads are still excluded). Other minor revisions ensure consistency with federal counterpart language to date.
- ❖ 45 C.S.R. 25 – *Control of Air Pollution from Hazardous Waste Treatment, Storage and Disposal Facilities*. Promulgated last in the 2010 Session. Revisions to the rule include annual incorporation-by-reference updates. Definitions that are not used in the rule have been stricken and requirements pertaining to ignitable, reactive or incompatible wastes have been updated to reference a federal counterpart. The fee schedule for hazardous waste management facilities has been simplified.
- ❖ 45 C.S.R. 34 – *Emission Standards for Hazardous Air Pollutants*. Promulgated last in the 2010 Session. Revisions to this rule include the annual incorporation-by-reference revisions to the Hazardous Air Pollutant rule that include the following source categories of new or revised NESHAP standards promulgated as of June 1, 2010 for non-major area sources: Chemical Manufacturing Area Sources. The revised rule also incorporates by reference the following source categories of new or revised NESHAP standards promulgated as of June 1, 2010 for major sources: Petroleum Refineries and Reciprocating Internal Combustion Engines.
- ❖ The following source categories of newly promulgated NESHAPS affecting non-major area sources of hazardous air pollutants are being excluded from incorporation by reference: Prepared Feeds Manufacturing; Aluminum, Copper, and Other Non-Ferrous Foundries; Asphalt Processing and Asphalt Roofing Manufacturing, Paints and Allied Products Manufacturing; and Chemical Preparations Industry. EPA has not provided any additional funding to implement these new federal area source air toxics rules. Further, DAQ considers these standards to be resource-intensive and costly to implement as a practical matter, without achieving commensurate air quality benefits. For these reasons, West Virginia is one of Several States in Region III that are adopting some, but not all, of these standards. EPA Regional Offices will be implementing those standards not adopted by the States, thereby providing a measure of regulatory certainty and consistency.

Division of Water & Waste Management

- ❖ 33 C.S.R. 20 – *Hazardous Waste Management System*. Promulgated last in the 2010 Session. Revisions to this rule include striking “Expansion to RCRA Comparable Fuel Exclusion” from exclusion from incorporation by reference of the federal rule.

- ❖ 47 C.S.R. 12 – *Requirements Governing Groundwater Standards*. Promulgated last in the 2010 Session. The proposed revision to this rule is technical cleanup from last year’s revision. Last year’s amendment incorrectly set a numeric standard for radon, which the EPA proposed in draft language in 2009 but has not yet finalized. Therefore, West Virginia’s adoption of a radon standard for groundwater was premature.
- ❖ 47 C.S.R. 60 – *Monitoring Well Design Standards*. Promulgated last in the 2010 Session. Revisions to this rule are needed to correct requirements for documentation submittals to DEP. The current version requires reporting of all borehole abandonment, which is unenforceable and unnecessary. Revisions to this rule will require abandonment documentation for “high risk” boreholes and permanent monitoring wells, as was the original intention of the 2010 amendments recommended by the Monitoring Well Advisory Council.

Secretary’s Office

- ❖ 60 C.S.R. 2 – *Rules on Freedom of Information Act Requests*. Promulgated last in 1997. Revisions to this rule include changing the fee structure for searching for and reproducing requested records to bring it in line with other State agencies by setting a flat search fee of \$20.00 per hour (or a quarter fraction thereof) for a Division’s time spent in locating, duplicating or compiling the requested records providing and a cost of \$10.00 if the information is produced on diskette, tape or other storage media.

Division of Mining & Reclamation

- ❖ 38 C.S.R. 2 – *West Virginia Surface Mining Reclamation Rule*. Promulgated last in the 2009 Session. In addition to the amendments discussed at the December 9, 2009 meeting, which are currently in effect as an Emergency Rule, the proposed revisions include the following: (1) Clarification of the format and information necessary for complete application submittal and clarification on the renewal process to take into account DEP’s electronic filing processes; (2) Provision for advertisement of the application when it is technically complete, as opposed to administratively complete; (3) Provision for reopening of the public comment period; (4) Provision that pre-subsidence surveys shall be confidential and only used for evaluating damage relating to subsidence; (5) Clarification of when an operator is considered to be in compliance with applicable environmental performance standards; (6) Provision that the Secretary has the authority to initiate bond release in lieu of the permittee; (7) Clarification that bonding for a permit in inactive status shall remain in effect for the life of the operation; and (8) Provision that the Secretary shall provide email notice of the issuance of a show cause order to members of the public who have subscribed to the Secretary’s email notification service and otherwise provide notice to any person whose Citizen Complaint has resulted in the issuance of any violation that led to the issuance of a show cause order.

- ❖ 199 C.S.R. 1 – *Surface Mining Blasting Rule*. Promulgated last in the 2008 Session Revisions to this rule include modifying the definitions of “other structure” and “structure” to provide for dams as defined in 38 C.S.R. 4 § 2.7 and to provide that those dams will be exempt from the maximum air blast and ground vibration standards of the rule.

V. COMMENTS FROM COUNCIL

Ms. Dooley moved that Council recommend to the Secretary that the Air Quality rules contain language in their sections entitled “Inconsistency Between Rules” to read as follows: “In the event of any inconsistency between this rule and any other rule of the West Virginia Department of Environmental Protection, the inconsistency shall be resolved by the determination of the Secretary and the determination shall be based upon the application of the more stringent provision, term, condition, method, or rule using sound scientific information.” See, 45 C.S.R. 8 proposed § 4.1. Ms. Dooley pointed out that DEP uses this language in some of its other Divisions’ rules and some states surrounding West Virginia also use this language or similar language. Mr. Raney seconded the motion and discussion ensued. Ms. Hallinan pointed out that the proposed language is vague and may cause *Daubert*-related problems for attorneys arguing before boards and the courts using these rules. A vote was taken, and Ms. Dooley’s motion passed by a majority vote of Council; Ms. Hallinan voted no and Dr. Harris abstained.

Regarding 45 C.S.R. 8, Dr. Harris asked about removing the anti-degradation section. He expressed concern about how many areas of the State are in attainment and asked if West Virginia does not still need the policy in order to stay in attainment. He was also concerned that removing the specific reference to “anti-degradation” might lead the public to believe that DEP does not enforce any such policy anymore. Mr. Mason explained that the anti-degradation was meant as a placeholder back when the rule was originally promulgated in the 1970s until the states could get their own programs up and running. Because West Virginia adopted the federal Prevention of Significant Deterioration program under 45 C.S.R. 14 in the early 1980s, the State has more than satisfied the intent of the relic “anti-degradation” language in Section 2 to protect the air quality in areas that were in attainment of the NAAQS. “Prevention of significant deterioration” in Rule 14 means the same thing as “anti-degradation.”

Regarding 45 C.S.R. 14, Dr. Harris inquired about the justification for the proposed changes to the rule. Mr. Mason explained why the rule is being amended and a discussion ensued about fugitive emissions.

In relation to 45 C.S.R. 25, Mr. Roberts asked how many hazardous waste treatment, storage, and disposal facilities are in West Virginia, and Mr. Mason advised Council that he would have to research those numbers and report back.

Finally, regarding 45 C.S.R. 34, Dr. Harris asked for a definition of “area sources” and whether the federal EPA would enforce those provisions. Mr. Mason explained what area sources are and that EPA will enforce those standards.

In relation to 33 C.S.R. 20, Ms. Dooley inquired whether hazardous waste fees were being changed, and Ms. Boggs explained that, while fees are regurgitated in this rule, the statutory authority to change the fees was set forth in the statute; there are no changes to the fee structure proposed in this rule.

Dr. Harris asked the record to reflect that the Groundwater Standards rule was not submitted by the deadline, so Council had not yet had an opportunity to review the text or a summary of the rule prior to the Council meeting. Mr. Timmermeyer was on hand and did answer questions regarding why the rule had to be promulgated this year.

Regarding 60 C.S.R. 2, Ms. Dooley inquired about the language “shall furnish copies,” and Ms. Boggs explained that the language for § 7.2 is in the disjunctive: the agency shall furnish copies or advise the requester when he or she can come in and review documents or deny the request. Ms. Dooley then inquired about the new exemptions, and Ms. Boggs explained that the exemptions mirror the West Virginia Freedom of Information Act, which is set forth at W. Va. Code 29B-1-1 et seq., and the federal Freedom of Information Act. Finally, Ms. Dooley asked whether the proposed fee changes would be sufficient to cover the agency’s costs in responding to FOIA requests, and Ms. Cosco affirmed that they would.

Finally, regarding 38 C.S.R. 2, Dr. Harris inquired about the provisions relating to the addition of a trust account as an approved form of bond. Specifically, he asked whether the proposed trust account would cover perpetual treatment. Mr. Clarke explained that the proposed trust account is intended to be another form of bonding, not be a replacement for the Special Reclamation Fund. Dr. Harris then inquired as to how the cost of perpetual treatment is calculated. Mr. Clarke explained that the federal Office of Surface Mining Reclamation & Enforcement (OSM) has developed a computer model that estimates cost by developing a formula based on a mechanism that allows treatment for 40 or more years.

VI. COMMENTS FROM THE PUBLIC

Mr. Garvin asked for clarification on the trust account proposed by the Division of Mining and Reclamation. Mr. Clarke answered his questions.

Mr. Garvin then had several questions for Mr. Mason and Mr. Durham regarding the proposed Air Quality rules, which were duly answered.

VII. ADJOURNMENT

Mr. Raney moved that the meeting be adjourned, Ms. Dooley seconded the motion, and it carried by acclamation of Council. The meeting was adjourned at 3:05 p.m.