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

Form #3

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2010 JUL 30 PM 3:41

NOTICE OF AGENCY APPROVAL OF A PROPOSED RULE
AND
FILING WITH THE LEGISLATIVE RULE-MAKING REVIEW COMMITTEE

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

CITE AUTHORITY: W. Va. Code §§ 22-11-4(a)(16) and 22-11-7(b)

AMENDMENT TO AN EXISTING RULE: YES X NO ___

IF YES, SERIES NUMBER OF RULE BEING AMENDED: 2

TITLE OF RULE BEING AMENDED: Requirements Governing Water Quality Standards

IF NO, SERIES NUMBER OF RULE BEING PROPOSED: ___

TITLE OF RULE BEING PROPOSED: ___

THE ABOVE PROPOSED LEGISLATIVE RULE HAVING GONE TO A PUBLIC HEARING OR A PUBLIC COMMENT PERIOD IS HEREBY APPROVED BY THE PROMULGATING AGENCY FOR FILING WITH THE SECRETARY OF STATE AND THE LEGISLATIVE RULE-MAKING REVIEW COMMITTEE FOR THEIR REVIEW.

Authorized Signature

Legislative Rule-Making

JUL 30 2010

Review Committee

QUESTIONNAIRE

(Please include a copy of this form with each filing of your rule: Notice of Public Hearing or Comment Period; Proposed Rule, and if needed, Emergency and Modified Rule.)

DATE: July 30, 2010

TO: LEGISLATIVE RULE-MAKING REVIEW COMMITTEE

FROM:(*Agency Name, Address & Phone No.*) DEP - Division of Water & Waste Management
601 57th Street, SE
Charleston, WV 25304

(304) 926-0440

LEGISLATIVE RULE TITLE: Requirements Governing Water Quality Standards

1. Authorizing statute(s) citation W. Va. Code §§ 22-11-4(b)(16) and 22-11-7(b)

2. a. Date filed in State Register with Notice of Hearing or Public Comment Period:

   June 4, 2010

   b. What other notice, including advertising, did you give of the hearing?

   Class I Legal Advertisement in the Charleston Gazette and Charleston Daily Mail
   DEP Mailing List
   DEP Website

   c. Date of Public Hearing(s) ***or*** Public Comment Period ended:

   July 19, 2010

   d. Attach list of persons who appeared at hearing, comments received, amendments, reasons for amendments.

   Attached X No comments received _____

e. Date you filed in State Register the agency approved proposed Legislative Rule following public hearing: (be exact)

July 30, 2010

f. **Name, title, address and phone/fax/e-mail numbers** of agency person(s) to receive all *written correspondence* regarding this rule: (Please type)

Scott G. Mandirola, Director
Division of Water & Waste Management
Department of Environmental Protection
601 57th Street, SE
Charleston, WV 25304
(304) 926-0440

g. **IF DIFFERENT FROM ITEM 'f'**, please give **Name, title, address and phone number(s)** of agency person(s) who wrote and/or has responsibility for the contents of this rule: (Please type)

Same as above.

3. If the statute under which you promulgated the submitted rules requires certain findings and determinations to be made as a condition precedent to their promulgation:

a. Give the date upon which you filed in the State Register a notice of the time and place of a hearing for the taking of evidence and a general description of the issues to be decided.

N/A

b. Date of hearing or comment period:

_____

c. On what date did you file in the State Register the findings and determinations required together with the reasons therefor?

_____

d. Attach findings and determinations and reasons:

Attached _____

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BRIEFING DOCUMENT

Rule Title:

"Requirements Governing Water Quality Standards", 47CSR2

A. AUTHORITY:

W.Va. Code §22-11-4(a)(16); 22-11-7b

B. SUMMARY OF RULE:

This rule establishes requirements governing surface water quality standards for the waters of the State and establishes standards of purity and quality consistent with public health and the enjoyment thereof, the protection of animal, aquatic and plant life and the expansion of employment opportunities, agricultural expansion and a foundation for healthy industrial development.

C. STATEMENT OF CIRCUMSTANCES WHICH REQUIRE RULE:

DEP is proposing several changes to the rule, as follows:

Additions have been made to § 47-2-3 "Conditions Not Allowable In State Waters" that include water withdrawal activities and presence of algae blooms which would alter the integrity of the waters of the State.

Section 7.2.a.2 establishes the half mile zone upstream of a drinking water supply intake and identifies an exception to the half mile zone on the Ohio River. This section has been revised to reflect the changes to the site specific exception which was filed as an emergency rule and approved by the Secretary of State on March 5, 2010. Also, an additional segment of the Ohio River from river mile points 70 to 71 was added.

Due to its expiration date, the proposed rule removes the exception for Harmon Creek.

The proposed rule also extends the exception on the Ward Hollow of Davis Creek variance from July 1, 2010 to July 1, 2014. The exception was approved by EPA in September 2006 and the status of the site and the discharge has not changed since that time. The variance will remain in effect until the next triennial review and at that time will be reevaluated.

Nutrient criteria (phosphorus and chlorophyll-a) have been revised for cool and warm water lakes. Phosphorus changed from 50 μg/l to 40 μg/l for warm water lakes and chlorophyll-a criteria has been changed from 30 μg/l to 20 μg/l for warm water lakes and from 15μg/l to 10μg/l for cool water lakes. Language has also been added to identify at what point a lake would be considered exceeding criteria.. Stream nutrient criteria was added with a site specific nutrient criteria proposed for the Greenbrier River.

A number of changes in Appendix E, Table 1 of the rule have been made. The rule updates the chronic iron criterion for trout waters from 0.5 mg/l to 1.0 mg/l which is EPA's national recommended water quality criterion for aquatic life. Total dissolved solids criteria of 500 mg/l has been added to the rule for Category A Human Health based on the secondary drinking water MCL. Footnote 4 has been revised to reflect human health protection from organoleptic as well as toxic effects. Also, several technical corrections have been made throughout the rule.

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

Although the State is required by the federal Clean Water Act to adopt water quality standards, there is no direct federal counterpart regulation. Therefore, no determination of stringency is required.

E. CONSTITUTIONAL TAKINGS DETERMINATION:

In accordance with §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 May 27, 2010, the Environmental Protection Advisory Council discussed this rule. (See minutes for Council's discussion.)

ENVIRONMENTAL PROTECTION ADVISORY COUNCIL

MEETING MINUTES
May 27, 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 1:35 p.m. on May 27, 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, Bill Raney, and Rick Roberts. Karen Price was absent, but Eli McCoy attended the meeting pursuant to her written proxy.

The meeting was also attended by the following DEP personnel: Scott G. Mandirola, Director of the Division of Water & Waste Management; Patrick V. Campbell, Assistant Director of the Division of Water & Waste Management; and Randy Sovic from the Division of Water & Waste Management.

Also in attendance were: Don Garvin of the Ohio Valley Environmental Coalition; Katherine Crockett of Spilman Thomas & Battle; Jason Bostic of the West Virginia Coal Association; David Yaussy of Robinson & McElwee; Armando Benincasa of Steptoe & Johnson; and Lewis Baker of the West Virginia Rural Water Association.

III. OLD BUSINESS

Minutes of the March 18, 2010 Meeting. The minutes were emailed and provided to Council in hard copy. Mr. Raney moved for approval of the minutes, Ms. Dooley seconded the motion, and it was carried by acclamation of Council.

IV. 2011 LEGISLATIVE RULE

This special meeting of the Advisory Council was called so that the Division of Water & Waste Management could present for Council's information and comment DWWM's proposed revisions to 47 C.S.R. 2, *Requirements Governing Water Quality Standards*. Because federal regulations require this rule to be out for public comment for 45 days, in order to meet the Secretary of State's filing deadlines, it could not be taken up at the regularly scheduled June 3 meeting.

Director Mandirola explained the proposed revisions to the rule as follows: In addition to amendments discussed at the March18, 2010 meeting, which are currently in effect as an Emergency Rule, the proposed revisions include the following: (1)

Adding "certain water withdrawal activities" and filamentous algae blooms to the State's narrative water quality standards; (2) Strikes Harmon Creek from the list of approved site-specific variances; (3) Extends Union Carbide's variance for discharge into Ward Hollow of Davis Creek until July 1, 2014; (4) Adds criteria for nutrients in lakes as follows: phosphorus shall not exceed 40µg/l for warm water lakes and 30 µg/l for cool water lakes and chlorophyll-a shall not exceed 20 µg/l for warm water lakes and 10µg/l for cool water lakes; (5) Adds criteria for nutrients in the Greenbrier River as follows: phosphorus shall not exceed 10 µg/l in the mainstem from its mouth upstream to the mouth of Beaver Creek (river mile 102.8); (6) Increases the parameter for iron from 0.5 mg/l to 1.0 mg/l; and (7) Sets a standard for TDS for human health at 500 mg/l.

V. COMMENTS FROM COUNCIL

Ms. Dooley and Mr. Roberts expressed concerns about the proposed language "certain water withdrawal activities." They were concerned that such language could affect water treatment plants. Ms. Boggs advised that she would try to revise the language to address their concerns.

Dr. Harris had a question regarding the applicability of the "Half-Mile Rule," and Director Mandirola explained that the proposed language is limited to Arcelor Mittal and Wheeling Nisshion.

Mr. Raney questioned the applicability of the proposed TDS standard to "all waters of the State," and asked why it does not just apply at the point of intake for a public drinking water supply. Director Mandirola explained that 500 mg/l is a secondary drinking water standard / human health criterion and that agency policy for approximately 40 years has been that human health criteria apply in all waters of the State.

Mr. Raney then made a motion that the Council recommend to the Secretary that the rule should be revised to state that the TDS standard shall only apply at the point of intake for a public drinking water supply. Dr. McCoy seconded the motion and it carried by a majority vote of Council. Ms. Hallinan and Dr. Harris voted against the motion.

Dr. Harris asked for justification as to why DWWM proposed to increase the iron standard from 0.5 mg/l to 1.0 mg/l. Director Mandirola explained that there is very little data supporting the current standard, and that current studies indicate that aquatic life can still live in waters with higher iron levels. Specifically, trout are unaffected in waters with an iron concentration of 1.37 mg/l. Further, 1.0 mg/l is the standard recommended by the federal Environmental Protection Agency and used by the states surrounding West Virginia that have an iron standard.

Dr. Harris then made a motion that the Council recommend to the Secretary that the TDS standard be lowered to 250 mg/l and the iron limit remain at 0.5 mg/l. Ms.

Hallinan seconded the motion. It was defeated by a majority vote of Council. Ms. Dooley, Dr. McCoy, and Mr. Raney voted against the motion, and Mr. Roberts abstained.

Mr. Roberts and Ms. Dooley then asked questions about the proposed nutrient criteria in lakes and on the Greenbrier River and expressed concerns that technology may not exist to allow POTWs to meet the proposed limits. Director Mandirola and Assistant Director Campbell answered their questions, and Assistant Director Campbell provided a picture to illustrate the extent of the algae problem on the Greenbrier River. They further explained that West Virginia needs to make a serious effort to meet the nutrient limits recommended by the EPA or not only will the regulated community be at risk of citizen suits, but EPA could exercise its right to promulgate the standards itself in place of DEP and the West Virginia Legislature.

Ms. Dooley asked about the proposed language regarding the prohibition of filamentous algae blooms, and Director Mandirola explained that, while not all algae blooms are bad, algae blooms that impair the designated use of a stream in violation of the narrative water quality standards will not be allowed.

Dr. McCoy then suggested that DEP consider implementing provisions to allow citizens to appeal a stream's inclusion on the Impaired Steams List that is promulgated pursuant to § 303(d) of the Clean Water Act.

VI. COMMENTS FROM THE PUBLIC

Mr. Garvin expressed support for Dr. Harris' position regarding the iron standard and requested more Water Quality Standards Program meetings. Director Mandirola advised him that he has scheduled those meetings once per quarter for the next year.

Mr. Sovic clarified some of the earlier expressed concerns of the Council, particularly issues pertaining to the Greenbrier River, Category A classification, and Tier 3 / anti-degradation procedures.

Mr. Baker stated that a TDS standard alone is not protective of public water supplies and suggested that the agency look into setting a standard for bromide.

Mr. Bostic responded to Mr. Sovic's comments regarding Category A classification.

Mr. Yaussy responded to Mr. Baker's statements and responded to Mr. Sovic's comments regarding Category A classification.

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 3:30 p.m.

APPENDIX B

FISCAL NOTE FOR PROPOSED RULES

Rule Title: Requirements Governing Water Quality Standards

Type of Rule: [X] Legislative [ ] Interpretive [ ] Procedural

Agency: West Virginia Department of Environmental Protection

Address: 601 57th Street SE
Charleston, WV 25301

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: Requirements Governing Water Quality Standards

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 reflect updates identified during the federally mandated triennial review of the Water Quality Standards rule. Costs of implementing the changes will be absorbed in the agency's current budget.

Date: July 30, 2010

Signature of Agency Head or Authorized Representative

TITLE 47
LEGISLATIVE RULE
DEPARTMENT OF ENVIRONMENTAL PROTECTION
WATER RESOURCES

SERIES 2
REQUIREMENTS GOVERNING WATER QUALITY STANDARDS

§47-2-1. General.

1.1. Scope. -- These rules establish requirements governing the discharge or deposit of sewage, industrial wastes and other wastes into the waters of the state and establish water quality standards for the waters of the State standing or flowing over the surface of the State. It is declared to be the public policy of the State of West Virginia to maintain reasonable standards of purity and quality of the water of the State consistent with (1) public health and public enjoyment thereof; (2) the propagation and protection of animal, bird, fish, and other aquatic and plant life; and (3) the expansion of employment opportunities, maintenance and expansion of agriculture and the provision of a permanent foundation for healthy industrial development. (See W. Va. Code §22-11-2.)

1.2. Authority. -- W. Va. Code §§22-11-4(a)(16); 22-11-7b.

1.3. Filing Date. -- ~~April 11, 2008.~~

1.4. Effective Date. -- ~~July 1, 2008.~~

§47-2-2. Definitions.

The following definitions in addition to those set forth in W. Va. Code §22-11-3, shall apply to these rules unless otherwise specified herein, or unless the context in which used clearly requires a different meaning:

2.1. "Conventional treatment" is the treatment of water as approved by the West Virginia Bureau for Public Health to assure that the water is safe for human consumption.

2.2. "Cool water lakes" are lakes managed by the West Virginia Division of Natural Resources for cool water fisheries, with summer residence times greater than 14 days.

2.3. "Cumulative" means a pollutant which increases in concentration in an organism by successive additions at different times or in different ways (bio-accumulation).

2.4. "Designated uses" are those uses specified in water quality standards for each water or segment whether or not they are being attained. (See sections 6.2 - 6.6, herein)

2.5. "Dissolved metal" is operationally defined as that portion of metal which passes through a 0.45 micron filter.

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

2.7. The "Federal Act" means the Clean Water Act (also known as the Federal Water Pollution Control Act) 33 U.S.C. §1251 - 1387.

2.8. "High quality waters" are those waters whose quality is equal to or better than the minimum levels necessary to achieve the national water quality goal uses.

2.9. "Intermittent streams" are streams which have no flow during sustained periods of no precipitation and which do not support aquatic life whose life history requires residence in flowing waters for a continuous period of at least six (6) months.

2.10. "Outstanding national resource waters" are those waters whose unique character, ecological or recreational value or

pristine nature constitutes a valuable national or State resource.

2.11. "Natural" or "naturally occurring" values or "natural temperature" shall mean for all of the waters of the state:

2.11.a. Those water quality values which exist unaffected by -- or unaffected as a consequence of -- any water use by any person; and

2.11.b. Those water quality values which exist unaffected by the discharge, or direct or indirect deposit of, any solid, liquid or gaseous substance from any point source or non-point source.

2.12. "Non-point source" shall mean any source other than a point source from which pollutants may reach the waters of the state.

2.13. "Persistent" shall mean a pollutant and its transformation products which under natural conditions degrade slowly in an aquatic environment.

2.14. "Point source" shall mean any discernible, confined and discrete conveyance, including, but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock or vessel or other floating craft, from which pollutants are or may be discharged. This term does not include agricultural stormwater discharges and return flows from irrigated agriculture.

2.15. "Representative important species of aquatic life" shall mean those species of aquatic life whose protection and propagation will assure the sustained presence of a balanced aquatic community. Such species are representative in the sense that maintenance of water quality criteria will assure both the natural completion of the species' life cycles and the overall protection and sustained propagation of the balanced aquatic community.

2.16. "Secretary" shall mean the Secretary of the Department of Environmental Protection or such other person to whom the Secretary has delegated authority or duties pursuant to W. Va. Code §§22-1-6 or 22-1-8.

2.17. The "State Act" or "State Law" shall mean the West Virginia Water Pollution Control Act, W. Va. Code §22-11-1 et seq.

2.18. "Total recoverable" refers to the digestion procedure for certain heavy metals as referenced in 40 CFR 136, as amended June 15, 1990 and March 26, 2007, Guidelines Establishing Test Procedures for the Analysis of Pollutants Under the Clean Water Act.

2.19. "Trout waters" are waters which sustain year-round trout populations. Excluded are those waters which receive annual stockings of trout but which do not support year-round trout populations.

2.20. "Water quality criteria" shall mean levels of parameters or stream conditions that are required to be maintained by these regulations. Criteria may be expressed as a constituent concentration, levels, or narrative statement, representing a quality of water that supports a designated use or uses.

2.21. "Water quality standards" means the combination of water uses to be protected and the water quality criteria to be maintained by these rules.

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

2.23. "Wet weather streams" are streams that flow only in direct response to precipitation or whose channels are at all times above the water table.

§47-2-3. Conditions Not Allowable In State Waters.

3.1. Certain characteristics of sewage, industrial wastes, ~~and~~ other wastes <u>and certain</u>

water withdrawal activities cause pollution or conditions ~~and~~ that are objectionable in all waters of the state. Therefore, the Secretary does hereby proclaim that the following general conditions are not to be allowed in any of the waters of the state.

3.2. No sewage, industrial wastes or other wastes present in any of the waters of the state or water withdrawal activities shall cause therein or materially contribute to any of the following conditions thereof:

3.2.a. Distinctly visible floating or settleable solids, suspended solids, scum, foam or oily slicks;

3.2.b. Deposits or sludge banks on the bottom;

3.2.c. Odors in the vicinity of the waters;

3.2.d. Taste or odor that would adversely affect the designated uses of the affected waters;

3.2.e. Materials in concentrations which are harmful, hazardous or toxic to man, animal or aquatic life;

3.2.f. Distinctly visible color;

3.2.g. Algae blooms or concentrations ~~Concentrations~~ of bacteria which may impair or interfere with the designated uses of the affected waters;

3.2.h. Requiring an unreasonable degree of treatment for the production of potable water by modern water treatment processes as commonly employed; and

3.2.i. Any other condition, including radiological exposure, which adversely alters the integrity of the waters of the State including wetlands; no significant adverse impact to the chemical, physical, hydrologic, or biological components of aquatic ecosystems shall be allowed.

§47-2-4. Antidegradation Policy.

4.1. It is the policy of the State of West Virginia that the waters of the state shall be maintained and protected as follows:

4.1.a. Tier 1 Protection. Existing water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected. Existing uses are those uses actually attained in a water on or after November 28, 1975, whether or not they are included as designated uses within these water quality standards.

4.1.b. Tier 2 Protection. The existing high quality waters of the state must be maintained at their existing high quality unless it is determined after satisfaction of the intergovernmental coordination of the state's continuing planning process and opportunity for public comment and hearing that allowing lower water quality is necessary to accommodate important economic or social development in the area in which the waters are located. If limited degradation is allowed, it shall not result in injury or interference with existing stream water uses or in violation of state or federal water quality criteria that describe the base levels necessary to sustain the national water quality goal uses of protection and propagation of fish, shellfish and wildlife and recreating in and on the water.

In addition, the Secretary shall assure that all new and existing point sources shall achieve the highest established statutory and regulatory requirements applicable to them and shall assure the achievement of cost-effective and reasonable best management practices (BMPs) for non-point source control. If BMPs are demonstrated to be inadequate to reduce or minimize water quality impacts, the Secretary may require that more appropriate BMPs be developed and applied.

4.1.b.1. High quality waters are those waters meeting the definition at section 2.8 herein.

4.1.b.2. High quality waters may include but are not limited to the following:

4.1.b.2.A. Streams designated by the West Virginia Legislature under the West Virginia Natural Stream Preservation Act, pursuant to W. Va. Code §22-13-5; and

4.1.b.2.B. Streams listed in West Virginia High Quality Streams, Fifth Edition, prepared by the Wildlife Resources Division, Department of Natural Resources (1986).

4.1.b.2.C. Streams or stream segments which receive annual stockings of trout but which do not support year-round trout populations.

4.1.c. Tier 3 Protection. In all cases, waters which constitute an outstanding national resource shall be maintained and protected and improved where necessary. Outstanding national resource waters include, but are not limited to, all streams and rivers within the boundaries of Wilderness Areas designated by The Wilderness Act (16 U.S.C. §1131 et seq.) within the State, all Federally designated rivers under the "Wild and Scenic Rivers Act", 16 U.S.C. §1271 et seq.; all streams and other bodies of water in state parks which are high quality waters or naturally reproducing trout streams; waters in national parks and forests which are high quality waters or naturally reproducing trout streams; waters designated under the "National Parks and Recreation Act of 1978", as amended; and pursuant to subsection 7.1 of 60CSR5, those waters whose unique character, ecological or recreational value, or pristine nature constitutes a valuable national or state resource.

Additional waters may be nominated for inclusion in that category by any interested party or by the Secretary on his or her own initiative. To designate a nominated water as an outstanding national resource water, the Secretary shall follow the public notice and hearing provisions as provided in 46 C.S.R. 6.

4.1.d. All applicable requirements of section 316(a) of the Federal Act shall apply to modifications of the temperature water quality criteria provided for in these rules.

§47-2-5. Mixing Zones.

5.1. In the permit review and planning process or upon the request of a permit applicant or permittee, the Secretary may establish on a case-by-case basis an appropriate mixing zone.

5.2. The following guidelines and conditions are applicable to all mixing zones:

5.2.a. The Secretary will assign, on a case-by-case basis, definable geometric limits for mixing zones for a discharge or a pollutant or pollutants within a discharge. Applicable limits shall include, but may not be limited to, the linear distances from the point of discharge, surface area involvement, volume of receiving water, and shall take into account other nearby mixing zones. Mixing zones shall take into account the mixing conditions in the receiving stream (i.e: whether complete or incomplete mixing conditions exist). Mixing zones will not be allowed until applicable limits are assigned by the Secretary in accordance with this section.

5.2.b. Concentrations of pollutants which exceed the acute criteria for protection of aquatic life set forth in Appendix E, Table 1 shall not exist at any point within an assigned mixing zone or in the discharge itself unless a zone of initial dilution is assigned. A zone of initial dilution may be assigned on a case-by-case basis at the discretion of the Secretary. The zone of initial dilution is the area within the mixing zone where initial dilution of the effluent with the receiving water occurs, and where the concentration of the effluent will be its greatest in the water column. Where a zone of initial dilution is assigned by the Secretary, the size of the zone shall be determined using one of the four alternatives outlined in section 4.3.3 of US EPA's Technical Support Document for Water Quality-based Toxics Control (EPA/505/2-90-001 PB91-127415, March 1991). Concentrations of pollutants shall not exceed the acute criteria at the edge of the assigned zone of initial dilution. Chronic criteria for the protection of aquatic life may be exceeded within the mixing zone but shall be met at the edge of the assigned mixing zone.

5.2.c. Concentrations of pollutants which exceed the criteria for the protection of human health set forth in Appendix E, Table 1 shall not be allowed at any point unless a mixing zone has been assigned by the Secretary after consultation with the Commissioner of the West Virginia Bureau for Public Health. Human health criteria may be exceeded within an assigned mixing zone, but shall be met at the edge of the assigned mixing zone. Mixing zones for human health criteria shall be sized to prevent significant human health risks and shall be developed using reasonable assumptions about exposure pathways. In assessing the potential human health risks of establishing a mixing zone upstream from a drinking water intake, the Secretary shall consider the cumulative effects of multiple discharges and mixing zones on the drinking water intake. No mixing zone for human health criteria shall be established on a stream which has a seven (7) day, ten (10) year return frequency of 5 cfs or less.

5.2.d. Mixing zones, including zones of initial dilution, shall not interfere with fish spawning or nursery areas or fish migration routes; shall not overlap public water supply intakes or bathing areas; cause lethality to or preclude the free passage of fish or other aquatic life; nor harm any threatened or endangered species, as listed in the Federal Endangered Species Act, 15 U.S.C. §1531 et seq.

5.2.e. The mixing zone shall not exceed one-third (1/3) of the width of the receiving stream, and in no case shall the mixing zone exceed one-half (1/2) of the cross-sectional area of the receiving stream.

5.2.f. In lakes and other surface impoundments, the volume of a mixing zone shall not affect in excess of ten (10) percent of the volume of that portion of the receiving waters available for mixing.

5.2.g. A mixing zone shall be limited to an area or volume which will not adversely alter the existing or designated uses of the receiving water, nor be so large as to adversely affect the integrity of the water.

5.2.h. Mixing zones shall not:

5.2.h.1. Be used for, or considered as, a substitute for technology-based requirements of the Act and other applicable state and federal laws.

5.2.h.2. Extend downstream at any time a distance more than five times the width of the receiving watercourse at the point of discharge.

5.2.h.3. Cause or contribute to any of the conditions prohibited in section 3, herein.

5.2.h.4. Be granted where instream waste concentration of a discharge is greater than 80%.

5.2.h.5. Overlap one another.

5.2.h.6. Overlap any 1/2 mile zone described in section 7.2.a.2 herein.

5.2.i. In the case of thermal discharges, a successful demonstration conducted under section 316(a) of the Act shall constitute compliance with all provisions of this section.

5.2.j. The Secretary may waive the requirements of subsections 5.2.e and 5.2.h.2 above if a discharger provides an acceptable demonstration of:

5.2.j.1. Information defining the actual boundaries of the mixing zone in question; and

5.2.j.2. Information and data proving no violation of subsections 5.2.d and 5.2.g above by the mixing zone in question.

5.2.k. Upon implementation of a mixing zone in a permit, the permittee shall provide documentation that demonstrates to the satisfaction of the Secretary that the mixing zone is in compliance with the provisions outlined in subsections 5.2.b, 5.2.c, 5.2.e, and 5.2.h.2, herein.

5.2.l. In order to facilitate a determination or assessment of a mixing zone

pursuant to this section, the Secretary may require a permit applicant or permittee to submit such information as deemed necessary.

§47-2-6. Water Use Categories.

6.1. These rules establish general Water Use Categories and Water Quality Standards for the waters of the State. Unless otherwise designated by these rules, at a minimum all waters of the State are designated for the Propagation and Maintenance of Fish and Other Aquatic Life (Category B) and for Water Contact Recreation (Category C) consistent with Federal Act goals. Incidental utilization for whatever purpose may or may not constitute a justification for assignment of a water use category to a particular stream segment.

6.1.a. Waste assimilation and transport are not recognized as designated uses. The classification of the waters must take into consideration the use and value of water for public water supplies, protection and propagation of fish, shellfish and wildlife, recreation in and on the water, agricultural, industrial and other purposes including navigation.

Subcategories of a use may be adopted and appropriate criteria set to reflect varying needs of such subcategories of uses, for example to differentiate between trout water and other waters.

6.1.b. At a minimum, uses are deemed attainable if they can be achieved by the imposition of effluent limits required under section 301(b) and section 306 of the Federal Act and use of cost-effective and reasonable best management practices for non-point source control. Seasonal uses may be adopted as an alternative to reclassifying a water or segment thereof to uses requiring less stringent water quality criteria. If seasonal uses are adopted, water quality criteria will be adjusted to reflect the seasonal uses; however, such criteria shall not preclude the attainment and maintenance of a more protective use in another season. A designated use which is not an existing use may be removed, or subcategories of a use may be established if it can be demonstrated that attaining the designated use is not feasible because:

6.1.b.1. Application of effluent limitations for existing sources more stringent than those required pursuant to section 301 (b) and section 306 of the Federal Act in order to attain the existing designated use would result in substantial and widespread adverse economic and social impact; or

6.1.b.2. Naturally-occurring pollutant concentrations prevent the attainment of the use; or

6.1.b.3. Natural, ephemeral, intermittent or low flow conditions of water levels prevent the attainment of the use, unless these conditions may be compensated for by the discharge of sufficient volume of effluent discharges to enable uses to be met; or

6.1.b.4. Human-caused conditions or sources of pollution prevent the attainment of the use and cannot be remedied or would cause more environmental damage to correct than to leave in place; or

6.1.b.5. Dams, diversions or other types of hydrologic modifications preclude the attainment of the use, and it is not feasible to restore the water to its original condition or to operate such modification in a way that would result in the attainment of the use; or

6.1.b.6. Physical conditions related to the natural features of the water, such as the lack of a proper substrate, cover, flow, depth, pools, riffles, and the like, unrelated to water quality, preclude attainment of aquatic life protection uses.

6.1.c. The State shall take into consideration the quality of downstream waters and shall assure that its water quality standards provide for the attainment of the water quality standards of downstream waters.

6.1.d. In establishing a less restrictive use or uses, or subcategory of use or uses, and the water quality criteria based upon such uses, the Secretary shall follow the requirements for

revision of water quality standards as required by W. Va. Code §22-11-7b and section 303 of the Federal Act and the regulations thereunder. Any revision of water quality standards shall be made with the concurrence of EPA. The Secretary's administrative procedural regulations for applying for less restrictive uses or criteria shall be followed.

6.2. Category A -- Water Supply, Public. -- This category is used to describe waters which, after conventional treatment, are used for human consumption. This category includes streams on which the following are located:

6.2.a. All community domestic water supply systems;

6.2.b. All non-community domestic water supply systems, (i.e. hospitals, schools, etc.);

6.2.c. All private domestic water systems;

6.2.d. All other surface water intakes where the water is used for human consumption. (See Appendix B for partial listing of Category A waters; see section 7.2.a.2, herein for additional requirements for Category A waters.) The manganese human health criterion shall only apply within the five-mile zone immediately upstream above a known public or private water supply used for human consumption.

6.3. Category B -- Propagation and maintenance of fish and other aquatic life. --

This category includes:

6.3.a. Category B1 -- Warm water fishery streams. -- Streams or stream segments which contain populations composed of all warm water aquatic life.

6.3.b. Category B2 -- Trout Waters. -- As defined in section 2.19, herein (See Appendix A for a representative list.)

6.3.c. Category B4 -- Wetlands. -- As defined in section 2.22, herein; certain numeric stream criteria may not be appropriate for application to wetlands (see Appendix E, Table 1).

6.4. Category C -- Water contact recreation. -- This category includes swimming, fishing, water skiing and certain types of pleasure boating such as sailing in very small craft and outboard motor boats. (See Appendix D for a representative list of category C waters.)

6.5. Category D. -- Agriculture and wildlife uses.

6.5.a. Category D1 -- Irrigation. -- This category includes all stream segments used for irrigation.

6.5.b. Category D2 -- Livestock watering. -- This category includes all stream segments used for livestock watering.

6.5.c. Category D3 -- Wildlife. -- This category includes all stream segments and wetlands used by wildlife.

6.6. Category E -- Water supply industrial, water transport, cooling and power. -- This category includes cooling water, industrial water supply, power production, commercial and pleasure vessel activity, except those small craft included in Category C.

6.6.a. Category E1 -- Water Transport. -- This category includes all stream segments modified for water transport and having permanently maintained navigation aides.

6.6.b. Category E2 -- Cooling Water. -- This category includes all stream segments having one (1) or more users for industrial cooling.

6.6.c. Category E3 -- Power production. -- This category includes all stream segments extending from a point 500 feet upstream from the intake to a point one half (1/2) mile below the wastewater discharge point. (See Appendix C for representative list.)

6.6.d. Category E4 -- Industrial. -- This category is used to describe all stream segments with one (1) or more industrial users. It does not include water for cooling.

§47-2-7. West Virginia Waters.

7.1. Major River Basins and their Alphanumeric System. All streams and their tributaries in West Virginia shall be individually identified using an alphanumeric system as identified in the "Key to West Virginia Stream Systems and Major Tributaries" (1956) as published by the Conservation Commission of West Virginia and revised by the West Virginia Department of Natural Resources, Division of Wildlife (1985).

7.1.a. J - James River Basin. All tributaries to the West Virginia - Virginia State line.

7.1.b. P - Potomac River Basin. All tributaries of the main stem of the Potomac River to the West Virginia - Maryland - Virginia State line to the confluence of the North Branch and the South Branch of the Potomac River and all tributaries arising in West Virginia excluding the major tributaries hereinafter designated:

7.1.b.1. S - Shenandoah River and all its tributaries arising in West Virginia to the West Virginia - Virginia State line.

7.1.b.2. PC - Cacapon River and all its tributaries.

7.1.b.3. PSB - South Branch and all its tributaries.

7.1.b.4. PNB - North Branch and all tributaries to the North Branch arising in West Virginia.

7.1.c. M - Monongahela River Basin. The Monongahela River Basin main stem and all its tributaries excluding the following major tributaries which are designated as follows:

7.1.c.1. MC - Cheat River and all its tributaries except those listed below:

7.1.c.1.A. MCB - Blackwater River and all its tributaries.

7.1.c.2. MW - West Fork River and all its tributaries.

7.1.c.3. MT - Tygart River and all its tributaries except those listed below:

7.1.c.3.A. MTB - Buckhannon River and all its tributaries.

7.1.c.3.B. MTM - Middle Fork River and all its tributaries.

7.1.c.4. MY - Youghigheny River and all its tributaries to the West Virginia - Maryland State line.

7.1.d. O Zone 1 - Ohio River - Main Stem. The main stem of the Ohio River from the Ohio - Pennsylvania - West Virginia state line to the Ohio - Kentucky - West Virginia State line.

7.1.e. O Zone 2 - Ohio River - Tributaries. All tributaries of the Ohio River excluding the following major tributaries:

7.1.e.1. LK - Little Kanawha River. The Little Kanawha River and all its tributaries excluding the following major tributary which is designated as follows:

7.1.e.1.A. LKH - Hughes River and all its tributaries.

7.1.e.2. K - Kanawha River Zone 1. The main stem of the Kanawha River from mile point 0, at its confluence with the Ohio River, to mile point 72 near Diamond, West Virginia.

7.1.e.3. K - Kanawha River Zone 2. The main stem of the Kanawha River from mile point 72 near Diamond, West Virginia and all its tributaries from mile point 0 to the headwaters excluding the following major tributaries which are designated as follows:

7.1.e.3.A. KP - Pocatalico River and all its tributaries.

7.1.e.3.B. KC - Coal River and all its tributaries.

7.1.e.3.C. KE - Elk River and all its tributaries.

7.1.e.3.D. KG - Gauley River. The Gauley River and all its tributaries excluding the following major tributaries which are designated as follows:

7.1.e.3.D.1. KG-19 - Meadow River and all its tributaries.

7.1.e.3.D.2. KG-34 - Cherry River and all its tributaries.

7.1.e.3.D.3. KGC - Cranberry River and all its tributaries.

7.1.e.3.D.4. KGW - Williams River and all its tributaries.

7.1.e.3.E. KN - New River. The New River from its confluence with the Gauley River to the Virginia - West Virginia State line and all tributaries excluding the following major tributaries which are designated as follows:

7.1.e.3.E.1. KNG - Greenbrier River and all its tributaries.

7.1.e.3.E.2. KNB - Bluestone River and all its tributaries.

7.1.e.3.E.3. KN-60 - East River and all its tributaries.

7.1.e.3.E.4. K(L)-81-(1) - Bluestone Lake.

7.1.e.4. OG - Guyandotte River. The Guyandotte River and all its tributaries excluding the following major tributary which is designated as follows:

7.1.e.4.1. OGM - Mud River and all its tributaries.

7.1.e.5. BS - Big Sandy River. The Big Sandy River to the Kentucky - Virginia - West Virginia State lines and all its tributaries arising in West Virginia excluding the following major tributary which is designated as follows:

7.1.e.5.1 BST - Tug Fork and all its tributaries.

7.2. Applicability of Water Quality Standards. The following shall apply at all times unless a specific exception is granted in this section:

7.2.a. Water Use Categories as described in section 6, herein.

7.2.a.1. Based on meeting those Section 6 definitions, tributaries or stream segments may be classified for one or more Water Use Categories. When more than one use exists, they shall be protected by criteria for the use category requiring the most stringent protection.

7.2.a.2. Each segment extending upstream from the intake of a water supply public (Water Use Category A), for a distance of one half (1/2) mile or to the headwater, must be protected by prohibiting the discharge of any pollutants in excess of the concentrations designated for this Water Use Category in section 8, herein. In addition, within that one half (1/2) mile zone, the Secretary may establish for any discharge, effluent limitations for the protection of human health that require additional removal of pollutants than would otherwise be provided by this rule. (If a watershed is not significantly larger than this zone above the intake, the water supply section may include the entire upstream watershed to its headwaters.) ~~Until September 1, 2010, or until action by the Secretary to revise this provision, whichever comes first,~~ The one-half (1/2) mile zone described in this section shall not apply to the Ohio River main channel (between Brown's Island and the left descending bank) between river mile points 61.0 and 63.5 and mile points 70 and 71. All mixing zone regulations found in section 5 of this rule will apply except 47 CSR 2 §5.2.h.6. Whether a mixing zone is appropriate, and the proper size of such zone, would need to

be considered on a site-specific basis in accordance with the EPA approved West Virginia mixing zone regulations in 47 CSR 2 §5. ~~for the Category A criterion for iron as set forth in §8 herein. Weirton Steel Corporation shall conduct monthly monitoring of the treated water at its drinking water plant for iron and submit the results of such monitoring to the West Virginia Bureau for Public Health and the Office of Water Resources of the West Virginia Department of Environmental Protection. In addition, Weirton Steel Corporation shall submit a written report regarding the status of its drinking water plant and the issues pertaining thereto to the Secretary on or before March 1, 2007.~~

7.2.b. In the absence of any special application or contrary provision, water quality standards shall apply at all times when flows are equal to or greater than the minimum mean seven (7) consecutive day drought flow with a ten (10) year return frequency (7Q10). NOTE: With the exception of section 7.2.c.5 listed herein exceptions do not apply to trout waters nor to the requirements of section 3, herein.

7.2.c. Exceptions: Numeric water quality standards shall not apply: (See section 7.2.d, herein, for site-specific revisions)

7.2.c.1. When the flow is less than 7Q10;

7.2.c.2. In wet weather streams (or intermittent streams, when they are dry or have no measurable flow): Provided, that the existing and designated uses of downstream waters are not adversely affected;

7.2.c.3. In any assigned zone of initial dilution of any mixing zone where a zone of initial dilution is required by section 5.2.b herein, or in any assigned mixing zone for human health criteria or aquatic life criteria for which a zone of initial dilution is not assigned; In zones of initial dilution and certain mixing zones: Provided, That all requirements described in section 5 herein shall apply to all zones of initial dilution and all mixing zones;

7.2.c.4. Where, on the basis of natural conditions, the Secretary has established a site-specific aquatic life water quality criterion that modifies a water quality criterion set out in Appendix E, Table 1 of this rule. Where a natural condition of a water is demonstrated to be of lower quality than a water quality criterion for the use classes and subclasses in section 6 of this rule, the Secretary, in his or her discretion, may establish a site-specific water quality criterion for aquatic life. This alternate criterion may only serve as the chronic criterion established for that parameter. This alternate criterion must be met at end of pipe. Where the Secretary decides to establish a site-specific water quality criterion for aquatic life, the natural condition constitutes the applicable water quality criterion. A site-specific criterion for natural conditions may only be established through the legislative rulemaking process in accordance with W. Va. Code §29A-3-1 et seq. and must satisfy the public participation requirements set forth at 40 C.F.R. 131.20 and 40 C.F.R. Part 25. Site-specific criteria for natural conditions may be established only for aquatic life criteria. A public notice, hearing and comment period is required before site-specific criteria for natural conditions are established.

Upon application or on its own initiative, the Secretary will determine whether a natural condition of a water should be approved as a site-specific water quality criterion. Before he or she approves a site-specific water quality criterion for a natural condition, the Secretary must find that the natural condition will fully protect existing and designated uses and ensure the protection of aquatic life. If a natural condition of a water varies with time, the natural condition will be determined to be the actual natural condition of the water measured prior to or concurrent with discharge or operation. The Secretary will, in his or her discretion, determine a natural condition for one or more seasonal or shorter periods to reflect variable ambient conditions; and require additional or continuing monitoring of natural conditions.

An application for a site-specific criterion to be established on the basis of natural

conditions shall be filed with the Secretary and shall include the following information:

7.2.c.4.A. A U.S.G.S. 7.5 minute map showing the stream segment affected and showing all existing discharge points and proposed discharge point;

7.2.c.4.B. The alphanumeric code of the affected stream, if known;

7.2.c.4.C. Water quality data for the stream or stream segment. Where adequate data are unavailable, additional studies may be required by the Secretary;

7.2.c.4.D. General land uses (e.g. mining, agricultural, recreation, residential, commercial, industrial, etc.) as well as specific land uses adjacent to the waters for the affected segment or stream;

7.2.c.4.E. The existing and designated uses of the receiving waters into which the segment in question discharges and the location where those downstream uses begin to occur;

7.2.c.4.F. General physical characteristics of the stream segment, including, but not limited to width, depth, bottom composition and slope;

7.2.c.4.G. Conclusive information and data of the source of the natural condition that causes the stream to exceed the water quality standard for the criterion at issue.

7.2.c.4.H. The average flow rate in the segment and the amount of flow at a designated control point and a statement regarding whether the flow of the stream is ephemeral, intermittent or perennial;

7.2.c.4.I. An assessment of aquatic life in the stream or stream segment in question and in the adjacent upstream and downstream segments; and

7.2.c.4.J. Any additional information or data that the Secretary deems necessary to make a decision on the application.

7.2.c.5. For the upper Blackwater River from the mouth of Yellow Creek to a point 5.1 miles upstream, when flow is less than 7Q10. Naturally occurring values for Dissolved Oxygen as established by data collected by the dischargers within this reach and reviewed by the Secretary shall be the applicable criteria.

7.2.d. Site-specific applicability of water use categories and water quality criteria - State-wide water quality standards shall apply except where site-specific numeric criteria, variances or use removals have been approved following application and hearing, as provided in 46 C.S.R. 6. (See section 8.4 and section 8.5, herein) The following are approved site-specific criteria, variances and use reclassifications:

7.2.d.1. James River - (Reserved)

7.2.d.2. Potomac River

7.2.d.2.1. A site-specific numeric criterion for aluminum, not to exceed 500 ug/l, shall apply to the section of Opequon Creek from Turkey Run to the Potomac River.

7.2.d.3. Shenandoah River - (Reserved)

7.2.d.4. Cacapon River - (Reserved)

7.2.d.5. South Branch - (Reserved)

7.2.d.6. North Branch - (Reserved)

7.2.d.7. Monongahela River

7.2.d.7.1. Flow in the main stem of the Monongahela River, as regulated by the Tygart and Stonewall Jackson Reservoirs, operated by the U. S. Army Corps of Engineers, is based on a minimum flow of ~~345~~ 425 cfs at Lock and Dam No. 8, river mile point 90.8. This exception does not apply to tributaries of the Monongahela River.

7.2.d.8. Cheat River

7.2.d.8.1. In the unnamed tributary of Daugherty Run, approximately one mile upstream of Daugherty Run's confluence

with the Cheat River, a site-specific numeric criterion for iron of 3.5 mg/l shall apply and the following frequency and duration requirements shall apply to the chronic numeric criterion for selenium (5ug/l): the four-day average concentration shall not be exceeded more than three times every three years (36 months), on average. Further, the following site-specific numeric criteria shall apply to Fly Ash Run of Daugherty Run: acute numeric criterion for aluminum: 888.5 ug/l and manganese: 5 mg/l.

7.2.d.9. Blackwater River - (Reserved)

7.2.d.10. West Fork River - (Reserved)

7.2.d.11. Tygart River - (Reserved)

7.2.d.12. Buckhannon River - (Reserved)

7.2.d.13. Middle Fork River - (Reserved)

7.2.d.14. Youghiogheny River - (Reserved)

7.2.d.15. Ohio River Main Stem - (Reserved)

7.2.d.16. Ohio River Tributaries.

7.2.d.16.1. Site-specific numeric criteria shall apply to the stretch of Conners Run (0-77-A), a tributary of Fish Creek, from its mouth to the discharge from Conner Run impoundment, which shall not have the Water Use Category A and may contain selenium not to exceed 62 ug/1; and iron not to exceed 3.5 mg/1 as a monthly average and 7 mg/1 as a daily maximum.

~~7.2.d.16.2. A socio-economic variance shall apply to that segment of Harmon Creek (0-97) from its confluence with the Ohio River to a point 2.2 miles upstream, which shall not have water use Category A designation, and which shall have the following instream criteria: Lead 14 ug/l, Daily Maximum, Temperature 100 degree F (monitored per Footnote 12 of the permit); Iron 4.0 mg/l, monthly average and 8.0 mg/l Daily Maximum (monitored per Footnote 12 of the permit). Weirton Steel Corporation shall continue to submit to the Secretary, on an annual basis summary reports on the water quality of the discharge from Outlet 004 and the efforts made by Weirton Steel Corporation during the previous year to improve the quality of the discharge. These exceptions shall be in effect until action by the Secretary to revise the exceptions or until July 1, 2009, whichever comes first.~~

7.2.d.17. Little Kanawha River - (Reserved)

7.2.d.18. Hughes River - (Reserved)

7.2.d.19. Kanawha River Zone 1 - Main Stem

7.2.d.19.1. For the Kanawha River main stem, Zone 1, Water Use Category A shall not apply; and

7.2.d.19.2. The minimum flow shall be 1,960 cfs at the Charleston gauge.

7.2.d.19.3. A variance pursuant to 46 CSR 6, Section 5.1, based on naturally occurring pollutant concentrations, shall apply to Union Carbide Corporation's discharge to Ward Hollow of Davis Creek, which shall have the instream criteria for chlorides of 310 mg/l for Category A and C waters and for Category B1 (chronic aquatic life protection). This exception shall be in effect until action by the Secretary to revise the exception or until July 1, ~~2010~~ 2014, whichever comes first.

7.2.d.20. Kanawha River Zone 2 and Tributaries.

7.2.d.20.1. For the main stem of the Kanawha River only, the minimum flow shall be 1,896 cfs at mile point 72.

7.2.d.20.2. The stretch between the mouth of Little Scary Creek (K-31) and the Little Scary impoundment shall not have Water Use Category A. The following site-specific

numeric criteria shall apply to that section: selenium not to exceed 62 ug/1 and copper not to exceed 105 ug/1 as a daily maximum nor 49 ug/1 as a 4-day average.

7.2.d.21. Pocatalico River - (Reserved)

7.2.d.22. Coal River - (Reserved)

7.2.d.23. Elk River - (Reserved)

7.2.d.24. Gauley River - (Reserved)

7.2.d.25. Meadow River - (Reserved)

7.2.d.26. Cherry River - (Reserved)

7.2.d.27. Cranberry River - (Reserved)

7.2.d.28. Williams River - (Reserved)

7.2.d.29. New River - (Reserved)

7.2.d.30. Greenbrier River - (Reserved)

7.2.d.31. Bluestone River - (Reserved)

7.2.d.32. Bluestone Lake - (Reserved)

7.2.d.33. East River - (Reserved)

7.2.d.34. Guyandotte River -

7.2.d.34.1. Pats Branch from its confluence with the Guyandotte River to a point 1000 feet upstream shall not have Water Use Category A and Category D1 designation.

7.2.d.35. Mud River - (Reserved)

7.2.d.36. Big Sandy River - (Reserved)

7.2.d.37. Tug Fork River - (Reserved)

§47-2-8. Specific Water Quality Criteria.

8.1. Charts of specific water quality criteria are included in Appendix E, Table 1.

8.1.a. Specific state (i.e. total, total recoverable, dissolved, valence, etc.) of any parameter to be analyzed shall follow 40 CFR 136, Guidelines Establishing Test Procedures for Analysis of Pollutants Under the Clean Water Act, as amended, June 15, 1990 and March 26, 2007. (See also 47 C.S.R. 10, section 7.3 - National Pollutant Discharge Elimination System (NPDES) Program.)

8.1.b. Compliance with aquatic life water quality criteria expressed as dissolved metal shall be determined based on dissolved metals concentrations.

8.1.b.1. The aquatic life criteria for all metals listed in Appendix E, Table 2 shall be converted to a dissolved concentration by multiplying each numerical value or criterion equation from Appendix E, Table 1 by the appropriate conversion factor (CF) from Appendix E, Table 2.

8.1.b.2. Permit limits based on dissolved metal water quality criteria shall be prepared in accordance with the U.S. EPA document "The Metals Translator: Guidance For Calculating A Total Recoverable Permit Limit From A Dissolved Criterion, EPA 823-B-96-007 June 1996.

8.1.b.3. NPDES permit applicants may petition the Secretary to develop a site-specific translator consistent with the provisions in this section. The Secretary may, on a case-by-case basis require an applicant applying for a translator to conduct appropriate sediment monitoring through SEM/AVS ratio, bioassay or other approved methods to evaluate effluent limits that prevent toxicity to aquatic life.

8.1.c. An "X" or numerical value in the use columns of Appendix E, Table 1 shall represent the applicable criteria.

8.1.d. Charts of water quality criteria in Appendix E, Table 1 shall be applied in accordance with major stream and use applications, sections 6 and 7, herein.

8.2. Criteria for Toxicants

8.2.a. Toxicants which are carcinogenic have human health criteria (Water Use Categories A and C) based upon an estimated risk level of one additional cancer case per one million persons (10^{-6}) and are indicated in Appendix E, Table 1 with an endnote ([b]).

8.2.b. A final determination on the critical design flow for carcinogens is not made in this rule, in order to permit further review and study of that issue. Following the conclusion of such review and study, the Legislature may again take up the authorization of this rule for purposes of addressing the critical design flow for carcinogens: Provided, That until such time as the review and study of the issue is concluded or until such time as the Legislature may again take up the authorization of this rule, the regulatory requirements for determining effluent limits for carcinogens shall remain as they were on the date this rule was proposed.

8.3. Criteria for Nutrients ~~in Lakes~~

8.3.a. Lakes

8.3.a.1. This subsection establishes nutrient criteria designed to protect Water Use Categories B and C. The following cool water nutrient criteria shall apply to cool water lakes. (See Appendix F for a representative list.) The following warm water nutrient criteria shall apply to all other lakes with a summer residence time greater than 14 days.

~~8.3.b.~~ 8.3.a.2. Total phosphorus shall not exceed ~~50~~ 40 µg/l for warm water lakes and 30 µg/l for cool water lakes based on an average of four or more samples collected during the period May 1 to October 31. In lieu of such sampling, impairment may be evidenced at any time by noncompliance with section 3.2, as determined by the Secretary. Chlorophyll-a shall not exceed ~~30~~ 20 µg/l for warm water lakes and ~~15~~ 10 µg/l for cool water lakes based on an average of four or more samples collected during the period May 1–October 31. In lieu of such sampling, impairment may be evidenced at any time by noncompliance with section 3.2, as determined by the Secretary.

8.3.a.3. A lake shall not be considered impaired based upon an average total phosphorus concentration in excess of the criterion established in section 8.3.a.2, unless the chlorophyll-a criterion established therein is also exceeded.

8.3.b. Streams

8.3.b.1. Greenbrier River

8.3.b.1.A. To protect Water Use Categories A and C, the thirty-day average total phosphorus concentration shall not exceed 10 µg/l in the mainstem of the Greenbrier River from its mouth upstream to the mouth of Beaver Creek (river mile 102.8), based on four or more samples collected at base flow conditions, during the period May 1 to October 31. In lieu of such sampling, impairment may be evidenced at any time by noncompliance with subsection 3.2, as determined by the Secretary.

8.4. Variances from Specific Water Quality Criteria. A variance from numeric criteria may be granted to a discharger if it can be demonstrated that the conditions outlined in paragraphs 6.1.b.1 through 6.1.b.6, herein, limit the attainment of one or more specific water quality criteria. Variances shall apply only to the discharger to whom they are granted and shall be reviewed by the Secretary at least every three years. In granting a variance, the requirements for revision of water quality standards in 46 CSR 6 shall be followed.

8.5. Site-specific numeric criteria. The Secretary may establish numeric criteria different from those set forth in Appendix E, Table 1 for a stream or stream segment upon a demonstration that existing numeric criteria are either over-protective or under-protective of the aquatic life residing in the stream or stream segment. A site-specific numeric criterion will be established only where the numeric criterion will be fully protective of the aquatic life and the

existing and designated uses in the stream or stream segment. The site-specific numeric criterion may be established by conducting a Water Effect Ratio study pursuant to the procedures outlined in US EPA's "Interim Guidance on the Determination and Use of Water-Effect Ratios for Metals" (February 1994); other methods may be used with prior approval by the Secretary. In adopting site-specific numeric criteria, the requirements for revision of water quality standards set forth in 46 CSR 6 shall be followed.

§47-2-9. Establishment Of Safe Concentration Values.

When a specific water quality standard has not been established by these rules and there is a discharge or proposed discharge into waters of the State, the use of which has been designated a Category B1, B2, B3 or B4, such discharge may be regulated by the Secretary where necessary to protect State waters through establishment of a safe concentration value as follows:

9.1. Establishment of a safe concentration value shall be based upon data obtained from relevant aquatic field studies, standard bioassay test data which exists in substantial available scientific literature, or data obtained from specific tests utilizing one (1) or more representative important species of aquatic life designated on a case-by-case basis by the Secretary and conducted in a water environment which is equal to or closely approximates that of the natural quality of the receiving waters.

9.2. In those cases where it has been determined that there is insufficient available data to establish a safe concentration value for a pollutant, the safe concentration value shall be determined by applying the appropriate application factor as set forth below to the 96-hour LC 50 value. Except where the Secretary determines, based upon substantial available scientific data that an alternate application factor exists for a pollutant, the following appropriate application factors shall be used in the determination of safe concentration values:

9.2.a. Concentrations of pollutants or combinations of pollutants that are not persistent and not cumulative shall not exceed 0.10 (1/10) of the 96-hour LC 50.

9.2.b. Concentrations of pollutants or combinations of pollutants that are persistent or cumulative shall not exceed 0.01 (1/100) of the 96-hour LC 50.

9.3. Persons seeking issuance of a permit pursuant to these rules authorizing the discharge of a pollutant for which a safe concentration value is to be established using special bioassay tests pursuant to subsection 9.1 of this section shall perform such testing as approved by the Secretary and shall submit all of the following in writing to the Secretary:

9.3.a. A plan proposing the bioassay testing to be performed.

9.3.b. Such periodic progress reports of the testing as may be required by the Secretary.

9.3.c. A report of the completed results of such testing including, but not limited to, all data obtained during the course of testing, and all calculations made in the recording, collection, interpretation and evaluation of such data.

9.4. Bioassay testing shall be conducted in accordance with methodologies outlined in the following documents: U.S. EPA Office of Research and Development Series Publication, Methods for Measuring the Acute Toxicity (EPA/600/4-90/027F, August 1993, 4th Edition) or Short Term Methods for Estimating Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms (EPA/600/4-89/001), March 1989; Standard Methods for the Examination of Water and Wastewater (18th Edition); or ASTM Practice E 729-88 for Conducting Acute Toxicity Tests with Fishes, Macroinvertebrates and Amphibians as published in Volume 11.04 of the 1988 Annual Book of ASTM Standards. Test waters shall be reconstituted according to recommendations and methodologies specified in the previously cited references or methodologies approved in writing by the Secretary.

APPENDIX A
CATEGORY B-2 - TROUT WATERS

This list contains known trout waters and is not intended to exclude any waters which meet the definition in Section 2.19.

River Basin	County	Stream
James River		
J	Monroe	South Fork Potts Creek
Potomac River		
P	Jefferson	Town Run
P	"	Rocky Marsh Run
P	Berkeley	Opequon Creek
P	"	Tuscarora Creek (Above Martinsburg)
P	"	Middle Creek (Above Route 30 Bridge)
P	"	Mill Creek
P	"	Hartland Run
P	"	Mill Run
P	"	Tillance Creek
P	Morgan	Meadow Branch
PS	Jefferson	Flowing Springs Run (Above Halltown)
PS	"	Cattail Run
PS	"	Evitt's Run
PS	"	Big Bullskin Run
PS	"	Long Marsh Run
PC	Hampshire	Cold Stream
PC	"	Edwards Run and Impoundment
PC	"	Dillons Run
PC	Hardy	Lost River
PC	"	Camp Branch
PC	"	Lower Cove Run
PC	"	Moores Run
PC	"	North River (Above Rio)
PC	"	Waites Run

PC	"	Trout Run
PC	"	Trout Pond (Impoundment)
PC	"	Warden Lake (Impoundment)
PC	"	Rock Cliff Lake (Impoundment)
PSB	Hampshire	Mill Creek
PSB	"	Mill Run
PSB	Hardy	Dumpling Creek
PSB	Grant-Pendleton	North Fork South Branch
PSB	Grant	North Fork Lunice Creek
PSB	"	South Fork Lunice Creek
PSB	"	South Mill Creek (Above Hiser)
PSB	"	Spring Run
PSB	Pendleton	Hawes Run (Impoundment)
PSB	"	Little Fork
PSB	"	South Branch (Above North Fork)
River Basin	County	Stream
Potomac River		
PSB	Pendleton	Senena Creek
PSB	"	Laurel Fork
PSB	"	Big Run
PNB	Mineral	North Fork Patterson Creek
PNB	"	Fort Ashby (Impoundment)
PNB	"	New Creek
PNB	"	New Creek Dam 14 (Impoundment)
PNB	"	Mill Creek (Above Markwood)
Monongahela River		
M	Monongalia-Marion	Whiteday Creek (Above Smithtown)
MC	Monongalia	Morgan Run
MC	"	Coopers Rock (Impoundment)
MC	"	Blaney Hollow
MC	Preston	Laurel Run
MC	"	Elsey Run
MC	"	Saltlick Creek
MC	"	Buffalo Creek

MC	"	Wolf Creek
MC	Tucker	Clover Run
MC	"	Elklick Run
MC	"	Horseshoe Run
MC	"	Maxwell Run
MC	"	Red Creek
MC	"	Slip Hill Mill Branch
MC	"	Thomas Park (Impoundment)
MC	"	Blackwater River (Above Davis)
MC	"	Blackwater River (Below Davis)
MC	Randolph	Camp Five Run
MC	"	Dry Fork (Above Otter Creek)
MC	"	Glady Fork
MC	"	Laurel Fork
MC	"	Gandy Creek (Above Whitmer)
MC	"	East Fork Glady Fork (Above C & P Compressor Station)
MC	Randolph	Shavers Fork (Above Little Black Fork)
MC	"	Three Spring Run
MC	"	Spruce Knob Lake (Impoundment)
MW	Harrison	Dog Run (Pond)
MW	Lewis	Stonecoal
MT	Barbour	Brushy Fork (Above Valley Furnace)
MT	"	Teter Creek Lake (Impoundment)
MT	"	Mill Run
MT	Taylor-Barbour	Tygart Lake Tailwaters (Above Route 119 Bridge)
MT	Preston	Roaring Creek (Above Little Lick Branch)
MT	Randolph	Tygart River (Above Huttonsville)
MT	"	Elkwater Fork
River Basin	County	Stream

Monongahela River

MT	Randolph	Big Run
MTB	Upshur-Randolph-Lewis	Right Fork Buckhannon River
MTB	Upshur	Buckhannon River (Above Beans Mill)

MTB	Upshur	French Creek
MTB	Upshur-Randolph	Left Fork Right Fork
MTN	Upshur	Right Fork Middle Fork River
MTM	Randolph	Middle Fork River (Above Cassity)
MY	Preston	Rhine Creek
Little Kanawha River		
LK	Upshur	Left Fork-Right Fork Little Kanawha River
LK	Upshur-Lewis	Little Kanawha River (Above Wildcat)
Kanawha River		
KE	Braxton	Sutton Reservoir
KE	"	Sutton Lake Tailwaters (Above Route 38/5 Bridge)
KE	Webster	Back Fork
KE	"	Desert Fork
KE	"	Fall Run
KE	"	Laurel Fork
KE	"	Left Fork Holly River
KE	"	Sugar Creek
KE	"	Elk River (Above Webster Springs)
KC	Raleigh	Stephens Lake (Impoundment)
KC	"	Marsh Fork (Above Sundial)
KG	Nicholas	Summersville Reservoir (Impoundment)
KG	"	Summersville Tailwaters (Above Collison Creek)
KG	Nicholas	Deer Creek
KG	Randolph-Webster	Gauley River (Above Moust Coal Tipple)
KG	Fayette	Glade Creek
KG	Nicholas	Hominy Creek
KG	"	Anglins Creek
KG	Greenbrier	Big Clear Creek
KG	"	Little Clear Creek and Laurel Run

KG	"	Meadow Creek
KG	Fayette	Wolf Creek
KG	Nicholas	Cherry River
KG	Greenbrier-Nicholas	Laurel Creek
KG	" "	North Fork Cherry River
KG	Greenbrier	Summit Lake (Impoundment)
KG	Greenbrier-Nicholas	South Fork Cherry River

River Basin	County	Stream
Kanawha River		
KGC	Pocahontas-Webster-Nicholas	Cranberry River
KGC	Pocahontas	South Fork Cranberry River
KGW	Pocahontas	Tea Creek
KGW	Pocahontas-Webster	Williams River (Above Dyer)
KN	Raleigh	Glade Creek
KN	Summers	Meadow Creek
KN	Fayette	Mill Creek
KN	"	Laurel Creek (Above Cotton Hill)
KN	Raleigh	Pinch Creek
KN	Monroe	Rich Creek
KN	"	Turkey Creek
KN	Fayette	Dunloup Creek (Downstream from Harvey Sewage Treatment Plant)
KN	Mercer	East River (Above Kelleysville)
KN	"	Pigeon Creek
KN	Monroe	Laurel Creek
KNG	Monroe	Kitchen Creek (Above Gap Mills)
KNG	Greenbrier	Culverson Creek
KNG	"	Milligan Creek
KNG	Greenbrier-Monroe	Second Creek (Rt. 219 Bridge to Nickell's Mill)
KNG	Greenbrier	North Fork Anthony Creek
KNG	"	Spring Creek
KNG	"	Anthony Creek (Above Big Draft)
KNG	Pocahontas	Watoga Lake

KNG	"	Beaver Creek
KNG	"	Knapp's Creek
KNG	"	Hills Creek
KNG	"	North Fork Deer Creek (Above Route 28/5)
KNG	"	Deer Creek
KNG	"	Sitlington Creek
KNG	"	Stoney Creek
KNG	"	Swago Creek
KNG	"	Buffalo Fork (Impoundment)
KNG	"	Seneca (Impoundment)
KNG	"	Greenbrier River (Above Hosterman)
KNG	"	West Fork-Greenbrier River (Above the impoundment at the tannery)
KNG	"	Little River-East Fork
KNG	"	Little River-West Fork
KNG	"	Five Mile Run
KNG	"	Mullenax Run
KNG	"	Abes Run
KNB	Mercer	Marsh Fork
KNB	"	Camp Creek
OG	Wyoming	Pinnacle creek
BST	McDowell	Dry Fork (Above Canebrake)

APPENDIX B

This list contains known waters used as public water supplies and is not intended to exclude any waters as described in Section 6.2, herein.

River Basin	County	Operating Company	Source
Shenandoah River			
S	Jefferson	Charlestown Water	Shenandoah River
Potomac River			
P	Jefferson	3-M Company	Turkey Run
P	"	Shepherdstown Water	Potomac River
P	"	Harpers Ferry Water	Elk Run
P	Berkeley	DuPont Potomac River Works	Potomac River
P	"	Berkeley County PSD	Le Feure Spring
P		Opequon PSD	Quarry Spring
P	"	Hedgesville PSD	Speck Spring
P	Morgan	Paw Paw Water	Potomac River
PSB	Hampshire	Romney Water	South Branch Potomac River
PSB	"	Peterkin Conference Center	Mill Run
PSB	Hardy	Moorefield Municipal Water	South Fork River
PSB	Pendleton	U.S. Naval Radio Sta.	South Fork River
PSB	"	Circleville Water Inc.	North Fork of South Branch, Potomac River
PSB	Grant	Mountain Top PSD	Mill Creek, Impoundment
PSB	"	Petersburg Municipal Water	South Branch, Potomac River
PNB	Grant	Island Creek Coal	Impoundment
PNB	Mineral	Piedmont Municipal Water	Savage River, Maryland
PNB	"	Keyser Water	New Creek
PNB	"	Fort Ashby PSD	Lake

Monongahela River

M	Monongalia	Morgantown Water Comm.	Colburn Creek & Monongahela River
M	"	Morgantown Ordinance Works	Monongahela River
M	Preston	Preston County PSD	Deckers Creek
M	Monongalia	Blacksville # 1 Mine	Impoundment
M	"	Loveridge Mine	Impoundment
M	"	Consolidation Coal Co.	Impoundment
M	Preston	Mason Town Water	Block Run
MC	Preston	Fibair Inc.	Impoundment
MC	Monongalia	Cheat Neck PSD	Cheat Lake
MC	"	Lakeview County Club	Cheat Lake-Lake Lynn

River Basin	County	Operating Company	Source
Monongahela River			
MC	Monongalia	Union Districk PSD	Cheat Lake-Lake Lynn
MC	"	Cooper's Rock State Park	Impoundment
MC	Preston	Kingwood Water	Cheat River
MC	Preston	Hopemount State Hosp.	Snowy Creek
MC	"	Rowlesburg Water	Keyser Run & Cheat River
MC	"	Albright	Cheat River
MC	Tucker	Parsons Water	Shavers & Elk Lick Fork
MC	"	Thomas Municipal	Thomas Reservoir
MC	"	Hamrick PSD	Dry Fork
MC	"	Douglas Water System	Long Run
MC	"	Davis Water	Blackwater River
MC	"	Hambleton Water System	Roaring Creek
MC	"	Canaan Valley State	Blackwater River Park
MC	Pocahontas	Cheat Mt. Sewer	Shavers Lake
MC	"	Snowshoe Co. Water	Shavers Fork
MC	Randolph	Womelsdorf Water	Yokum Run
MW	Harrison	Lumberport Water	Jones Run
MW	"	Clarksburg Water Bd.	West Fork River
MW	"	Bridgeport Mun. Water	Deecons & Hinkle Creek
MW	"	Salem Water Board	Dog Run

MW	"	West Milford Water	West Fork River
MW	Lewis	W.V. Water-Weston District	West Fork River
MW	"	Jackson's Mill Camp	Impoundment
MW	"	West Fork River PSD	West Fork River
MW	"	Kennedy Compresssor Station	West Fork River
MW	"	Jane Lew Water Comm.	Hackers Creek
MW	Harrison	Bel-Meadow Country Club	Lake
MW	"	Harrison Power Station	West Fork River
MW	"	Oakdale Portal	Impoundment
MW	"	Robinson Port	Impoundment
MT	Marion	Fairmont Water Comm.	Tygart River
MT	"	Mannington Water	Impoundment
MT	"	Monongah Water Works	Tygart River
MT	"	Eastern Assoc.	Coal Corp Impoundment
MT	"	Four States Water	Impoundment
MT	Harrison	Shinnston Water Dept.	Tygart River
MT	Taylor	Grafton Water	Tygart River-Lake
MT	Barbour	Phillippi Water	Tygart River
MT	"	Bethlehem Mines Corp.	Impoundment
MT	"	Belington Water Works	Tygart River & Mill Run Lake
MT	Randolph	Elkins Municipal Water	Tygart River
MT	"	Beverly Water	Tygart River
MT	"	Valley Water	Tygart River
MT	"	Huttonsville Medium Security Prison	Tygart River
MT	"	Mill Creek Water	Mill Creek
MTB	Upshur	Buckhannon Water Board	Buckhannon River

River Basin	County	Operating Company	Source
Ohio River			
O Zone 1	Hancock	Chester Water & Sewer	Ohio River
O "	Brooke	City of Weirton	Ohio River
O Zone 1	Brooke	Weirton Steel Division	Ohio River
O "	Ohio	Wheeling Water	Ohio River
O "	Tyler	Sistersville Mun. Water	Ohio River

O	"	Pleasants	Pleasants Power Station	Ohio River
O	"	Cabell	Huntington Water Corp.	Ohio River
O	"	Marshall	Mobay Chemical Co.	Ohio River
O	"	Wood	E. I. DuPont	Ohio River
O	Zone 2	Marshall	Meron Water	Glass House Hollow
O	"	"	New Urindahana Water	Wheeling Creek System
O	"	Wetzel	Pine Grove Water	North Fork, Fishing Creek
O	"	Marshall	Consolidated Coal Co.	Impoundment
O	"	Tyler	Middlebourne Water	Middle Island Creek
O	"	Doddridge	West Union Mun. Water	Middle Island Creek
O	"	Mason	Hidden Valley Country	Lake/Impoundment
O	"	Jackson	Ripley Water	Mill Creek
O	"	Wayne	Wayne Municipal Water	Twelve Pole Creek
O	"	"	East Lynn Lake	East Lynn Lake
O	"	"	Monterey Coal Co.	Impoundment
Little Kanawha				
	LK	Wood	Claywood Park PSD	Little Kanawha River
	LK	Calhoun	Grantsville Mun. Water	Little Kanawha River
	LK	Gilmer	Glenville Utility	Little Kanawha River
	LK	"	Consolidated Gas Compressor	Steer Creek
	LK	Braxton	Burnsville Water Works	Little Kanawha River
	LK	Roane	Spencer Water	Spring Creek Mile Tree Reservoir
	LK	Wirt	Elizabeth Water	Little Kanawha River
	LKH	Ritchie	Cairo Water	North Fork Hughes River
	LKH	"	Harrisville Water	North Fork Hughes River
	LKH	"	Pennsboro Water	North Fork Hughes River
Kanawha River				
	K	Putnam	Buffalo Water	Cross Creek
	K	"	Winfield Water	Poplar Fork & Crooked Creek
	K	"	South Putnam PSD	Poplar Fork & Crooked Creek
	K	Kanawha	Cedar Grove Water	Kanawha River
	K	"	Pratt Water	Kanawha River
	K	Fayette	Armstrong PSD PO-K1-CO-EL	Kanawha River & Gum Hollow

K	"	Kanawha Water Co.-	Unnamed Tributary Kanawha Beards Fork
K	Kanawha	Midland Trail School	Impoundment
K	"	Cedar Coal Co.	Impoundment
K	Fayette	Elkem Metals Co.	Kanawha River
K	Fayette	Deepwater PSD	Kanawha River

River Basin	County	Operating Company	Source
Kanawha River			
K	Fayette	Kanawha Falls PSD	Kanawha River
K	"	W.V. Water-Montgomery	Kanawha River
Pocatalico River			
KP	Kanawha	Sissonville PSD	Pocatalico River
KP	Roane	Walton PSD	Silcott Fork Dam
Coal River			
KC	Kanawha	St. Albans Water	Coal River
KC	"	Washington PSD	Coal River
KC	Lincoln	Lincoln PSD	Coal River
KC	Boone	Coal River PSD	Coal River
KC	"	Whitesville PSD	Coal River
KC	Raleigh	Armco Mine 10	Marsh Fork
KC	"	Armco Steel-Montc. Stickney	Coal River
KC	Raleigh	Peabody Coal	Coal River
KC	"	Stephens Lake Park	Lake Stephens
KC	Boone	W.V. Water-Madison Dist.	Little Coal River
KC	"	Van PSD	Pond Fork
KC	Raleigh	Consol. Coal Co.	Workmans Creek
KC	Boone	Water Ways Park	Coal River
Elk River			
KE	Kanawha	Clendenin Water	Elk River

KE	"	W.V. Water-Kanawha Valley District	Elk River
KE	Kanawha	Pinch PSD	Elk River
KE	Clay	Clay Waterworks	Elk River
KE	"	Procious PSD	Elk River
KE	Braxton	Flatwoods-Canoe Run PSD	Elk River
KE	"	Sugar Creek PSD	Elk River
KE	"	W.V. Water-Gassaway Dist.	Elk River
KE	"	W.V. Water-Sutton Dist.	Elk River
KE	Webster	W.V. Water-Webster Springs	Elk River
KE		Holly River State Park	Holly River

Gauley River

KG	Nicholas	Craigsville PSD	Gauley River
KG	"	Summersville Water	Impoundment/ Muddlety Creek
KG	"	Nettie-Leivasy PSD	Jim Branch
KG	Webster	Cowen PSD	Gauley River
KG	Nicholas	Wilderness PSD	Anglins Creek & Meadow River
KG	"	Richwood Water	North Fork Cherry River
KN	Fayette	Ames Heights Water	Mill Creek
KN	"	Mt. Hope Water	Impounded Mine (Surface)
KN	Fayette	Ansted Municipal Water	Mill Creek

River Basin	County	Operating Company	Source
New River			
KN	Fayette	Fayette Co. Park	Impoundment
KN	"	New River Gorge Campground	Impoundment
KN	"	Fayetteville Water	Wolfe Creek
KN	Raleigh	Beckley Water	Glade Creek
KN	"	Westmoreland Coal Co.	Farley Branch
Bluestone River			
KNB	Summers	Jumping Branch-Nimitz	Mt. Valley Lake
KNB	"	Bluestone Conf. Center	Bluestone Lake
KNB	"	Pipestem State Park	Impoundment
KNB	Mercer	Town of Athens	Impoundment

KNB	"	Bluewell PSD	Impoundment
KNB	"	Bramwell Water	Impoundment
KNB	"	Green Valley-Glenwood PSD	Bailey Reservoir
KNB	"	Kelly's Tank	Spring
KNB	"	W.V. Water Princeton	Impoundment/ Brusch Creek
KNB	"	Lashmeet PSD	Impoundment
KNB	"	Pinnacle Water Assoc.	Mine
KNB	"	W.V. Water Bluefield	Impoundment

Greenbrier River

KNG	Summers	W.V. Water Hinton	Greenbrier River & New River
KNG	"	Big Bend PSD	Greenbrier River
KNG	Greenbrier	Alderson Water Dept.	Greenbrier River
KNG	"	Ronceverte Water	Greenbrier River
KNG	"	Lewisburg Water	Greenbrier River
KNG	Pocahontas	Denmar State Hospital Water	Greenbrier River
KNG	"	City of Marlinton Water	Knapp Creek
KNG	"	Cass Scenic Railroad	Leatherbark Creek
KNG	"	Upper Greenbrier PSD	Greenbrier River
KNG	"	The Hermitage	Greenbrier River

Guyandotte River

OG	Cabell	Salt Rock PSD	Guyandotte River
OG	Lincoln	West Hamlin Water	Guyandotte River
OG	Logan	Logan Water Board	Guyandotte River
OG	"	Man Water Works	Guyandotte River
OG	"	Buffalo Creek PSD	Buffalo Creek/ Mine/Wells
OG	Logan	Chapmanville	Guyandotte River
OG	"	Logan PSD	Whitman Creek/ Guyandotte River
OG	Mingo	Gilbert Water	Guyandotte River
OG	Wyoming	Oceana Water	Laurel Fork
OG	"	Glen Rogers PSD	Impoundment
OG	Wyoming	Pineville Water	Pinnacle Creek
OG	Raleigh	Raleigh Co. PSD-Amigo	Tommy Creek
OMG	Cabell	Milton Water Works	Guyandotte River
OMG	"	Culloden PSD	Indian Fork Creek

River Basin	County	Operating Company	Source
Guyandotte River			
OMG	Putnam	Hurricane Municipal Water	Impoundment
OMG	Putnam	Lake Washington PSD	Lake Washington
Big Sandy River			
BS	Wayne	Kenova Municipal Water	Big Sandy River
BS	"	Fort Gay Water	Tug Fork
BST	Mingo	Kermit Water	Tug Fork
BST	"	Matewan Water	Tug Fork
BST	"	A & H Coal Co., Inc.	Impoundment
BST	"	Williamson Water	Impoundment
BST	McDowell	City of Welch	Impoundment/Wells
BST	"	City of Gary	Impoundment/Mine

APPENDIX C
CATEGORY E-3 - POWER PRODUCTION

This list contains known power production facilities and is not intended to exclude any waters as described in Section 6.6.c, herein.

River Basin	County	Station Name	Operating Company
Monongahela River			
M	Monongalia	Fort Martin Power Station	Monongahela Power
M	Marion	Rivesville Station	Monongahela Power
MC	Preston	Albright Station	Monongahela Power
Potomac	Grant	Mt. Storm Power Station	Virginia Electric & Power Company
Ohio River			
O - Zone 1	Wetzel	Hannibal (Hydro)	Ohio Power
O " "	Marshall	Kammer	Ohio Power
O " "	"	Mitchell	Ohio Power
O " "	Pleasants	Pleasants Station	Monongahela Power
O " "	"	Willow Island Station	Monongahela Power
O " "	Mason	Phillip Sporn Plant	Central Operating (AEP)
O " "	"	Racine (Hydro)	Ohio Power
O " "	"	Mountaineer	Appalachian Power Co.
K	Putnam	Winfield (Hydro)	Appalachian Power Co.
K	Kanawha	Marmet (Hydro)	Appalachian Power Co.
K	"	London (Hydro)	Appalachian Power Co.
K	"	Kanawha River	Appalachian Power Co.
K	"	John E. Amos	Appalachian Power Co.

APPENDIX D
CATEGORY C - WATER CONTACT RECREATION

This list contains waters known to be used for water contact recreation and is not intended to exclude any waters as described in section 6.4, herein.

River Basin	Stream Code	Stream	County
Shenandoah	S	Shenandoah River	Jefferson
Potomac	P	Potomac River	Jefferson
	P	" "	Hampshire
	P	" "	Berkeley
	P	" "	Morgan
	P-9	Sleepy Creek & Meadow Branch	Berkeley
	P-9-G-1	North Fork of Indian Run	Morgan
South Branch	PSB	South Branch of Potomac River	Hampshire
	PSB	" "	Hardy
	PSB	" "	Grant
	PSB-21-X	Hawes Run	Pendleton
	PSB-25-C-2	Spring Run	Grant
	PSB-28	North Fork South Branch Potomac River	Grant
North Branch	PNB	North Branch of Potomac River	Mineral
	PNB-4-EE	North Fork Patterson Creek	Grant
	PNB-7-H	Linton Creek	Grant
	PNB-17	Stoney River-Mt. Storm Lake	Grant
	PC	Cacapon River	Hampshire
Monongalia			
Cheat	MC	Cheat Lake/Cheat river	Monongalia/Preston

	MC	Alpine Lake	Preston
	MC-6	Coopers Rock Lake/ Quarry Run	Monongalia
	MC-12	Big Sandy Creek	Preston
	MSC	Shavers Fork	Randolph
	MTN	Middle Fork River	Barbour/Randolph/ Upshur
	MW	West Fork River	Harrison
	MW-18	Stonecoal Creek/ Stonecoal Lake	Lewis
River Basin	Stream Code	Stream	County
Ohio	O	Ohio River	Brooke/Cabell/ Hancock/Jackson/ Marshall/Mason/Ohio/ Pleasants/Tyler/ Wayne/Wood/Wetzel
	O-2-H	Beech Fork of Twelvepole Creek/Beech Fork Lake	Wayne
	O-2-Q	East Fork of Twelvepole Creek/East Lynn Lake	Wayne
	O-3	Fourpole Creek	Cabell
	O-21	Old Town Creek/ McClintic Ponds	Mason
	OMI	Middle Island Creek/ Crystal Lake	Doddridge
	OG	Guyandotte River	Cabell
	OG	Guyandotte River/ R. D. Bailey Lake	Wyoming
	OGM	Mud River	Cabell

Little Kanawha	LK	Little Kanawha River/ Burnsville Lake	Braxton
Kanawha	K	Kanawha River	Fayette/Kanawha/ Mason/Putnam
	K-1	Unnamed Tributary Krodel Lake	Mason
	KC	Coal River	Kanawha
	KC-45-Q	Stephens Branch/ Lake Stephens	Raleigh
	KE	Elk River	Kanawha/Clay/ Braxton/Webster/ Randolph
	KE	Sutton Lake	Braxton
	KN	New River	Fayette/Raleigh/ Summers
	KN-26-F	Little Beaver Creek	Raleigh
	KNG	Greenbrier River	Greenbrier/ Pocahontas/Summers
	KNG-23-E-1	Little Devil Creek/ Moncove Lake	Monroe
	KNG-28	Anthony Creek	Greenbrier
	KNG-28-P	Meadow Creek/ Lake Sherwood	Greenbrier
River Basin	Stream Code	Stream	County
	KNB	Bluestone River/ Bluestone Lake	Summers
	KG	Gauley River	Webster
Kanawha	KG	Gauley River/ Summersville Lake	Nicholas
	KGW	Williams River	Webster

APPENDIX E, TABLE 1

PARAMETER	USE DESIGNATION						
	AQUATIC LIFE				HUMAN HEALTH		ALL OTHER USES
	B1, B4		B2		C[3]	A[4]	
	ACUTE[1]	CHRON[2]	ACUTE[1]	CHRON[2]			
8.1 Dissolved Aluminum (ug/l)	750xCF[5]	750xCF[5]	750xCF[5]	87xCF[5]			
8.2. Acute and chronic aquatic life criteria for ammonia shall be determined using the National Criterion for Ammonia in Fresh Water[d] from USEPA's 1999 Update of Ambient Water Quality Criteria for Ammonia (EPA-822-R-99-014, December 1999)	X	X	X	X			
8.3 Antimony (ug/l)					4300	14	
8.4 Arsenic (ug/l)					10	10	100
8.4.1 Dissolved Trivalent Arsenic (ug/l)	340	150	340	150			
8.5 Barium (mg/l)						1.0	
8.6 Beryllium (ug/l)	130		130			.0077	
8.7 Cadmium (ug/l) Hardness (mg/l $CaCO_3$) — Soluble Cd 0 - 35 — 1.0 36 - 75 — 2.0 76 - 150 — 5.0 > 150 — 10.0						X	

APPENDIX E, TABLE 1

PARAMETER	USE DESIGNATION						
	AQUATIC LIFE				HUMAN HEALTH		ALL OTHER USES
	B1, B4		B2		C[3]	A[4]	
	ACUTE[1]	CHRON[2]	ACUTE[1]	CHRON[2]			
8.7.1 10 ug/l in the Ohio River (O Zone 1) main stem (see section 7.1.d, herein)						X	
8.7.2 The four-day average concentration of dissolved cadmium determined by the following equation: $Cd = e^{(0.7409[\ln(hardness)]-4.719)} \times CF^5$		X		X			
8.7.3 The one-hour average concentration of dissolved cadmium determined by the following equation: $Cd = e^{(1.0166[\ln(hardness)]-3.924)} \times CF^5$	X		X				
8.8 Chloride (mg/l)	860	230	860	230	250	250	
8.9.1 Chromium, dissolved hexavalent (ug/l):	16	11	16	7.2		50	
8.9.2 Chromium, trivalent (ug/l) The one-hour average concentration of dissolved trivalent chromium determined by the following equation: $CrIII = e^{(0.8190[\ln(hardness)]+3.7256)} \times CF^5$	X		X				
8.9.3 The four-day average concentration of dissolved trivalent chromium determined by the following concentration: $CrIII = e^{(0.8190[\ln(hardness)]+0.6848)} \times CF^5$		X		X			
8.10 Copper (ug/l)						1000	

APPENDIX E, TABLE 1

PARAMETER	USE DESIGNATION						
	AQUATIC LIFE				HUMAN HEALTH		ALL OTHER USES
	B1, B4		B2		C[3]	A[4]	
	ACUTE[1]	CHRON[2]	ACUTE[1]	CHRON[2]			
8.10.1 The four-day average concentration of dissolved copper determined by the following equation[a]: $Cu = e^{(0.8545[\ln(hardness)]-1.702)} \times CF^5$		X		X			
8.10.2 The one-hour average concentration of dissolved copper determined by the following equation[a]: $Cu = e^{(0.9422[\ln(hardness)]-1.700)} \times CF^5$	X		X				
8.11 Cyanide (ug/l) (As free cyanide $HCN+CN^-$)	22	5.0	22	5.0	5.0	5.0	
8.12 Dissolved Oxygen[c]: not less than 5 mg/l at any time.	X				X	X	X
8.12.1 Kanawha River main stem, Zone 1 - Not less than 4.0 mg/l at any time.	X						
8.12.2 Ohio River main stem - the average concentration shall not be less than 5.0 mg/l per calendar day and shall not be less than 4.0 mg/l at any time or place outside any established mixing zone - provided that a minimum of 5.0 mg/l at any time is maintained during the April 15-June 15 spawning season.	X						
8.12.3 Not less than 7.0 mg/l in spawning areas and in no case less than 6.0 mg/l at any time.			X				

APPENDIX E, TABLE 1

PARAMETER	USE DESIGNATION						
	AQUATIC LIFE				HUMAN HEALTH		ALL OTHER USES
	B1, B4		B2		C[3]	A[4]	
	ACUTE[1]	CHRON[2]	ACUTE[1]	CHRON[2]			
8.13 Fecal Coliform: Maximum allowable level of fecal coliform content for Water Contact Recreation (either MPN or MF) shall not exceed 200/100 ml as a monthly geometric mean based on not less than 5 samples per month; nor to exceed 400/100 ml in more than ten percent of all samples taken during the month.					X	X	
8.13.1 Ohio River main stem (zone 1) - During the non-recreational season (November through April only) the maximum allowable level of fecal coliform for the Ohio River (either MPN or MF) shall not exceed 2000/100 ml as a monthly geometric mean based on not less than 5 samples per month.					X	X	
8.14 Fluoride (mg/l)						1.4	
8.14.1 Not to exceed 2.0 for category D1 uses.							X
8.15 Iron[c] (mg/l)		1.5		~~0.5~~ 1.0		1.5	
8.16 Lead (ug/l)						50	
8.16.1 The four-day average concentration of dissolved lead determined by the following equation[a]: $Pb = e^{(1.273[\ln(hardness)]-4.705)} \times CF$[5]		X		X			

APPENDIX E, TABLE 1

PARAMETER	USE DESIGNATION						
	AQUATIC LIFE				HUMAN HEALTH		ALL OTHER USES
	B1, B4		B2		C[3]	A[4]	
	ACUTE[1]	CHRON[2]	ACUTE[1]	CHRON[2]			
8.16.2 The one-hour average concentration of dissolved lead determined by the following equation[a]: $Pb = e^{(1.273[\ln(hardness)]-1.46)} \times CF^5$	X		X				
8.17 Manganese (mg/l) (see §6.2.d)						1.0	
8.18 Mercury The total organism body burden of any aquatic species shall not exceed 0.5 ug/g as methylmercury.					0.5	0.5	
8.18.1 Total mercury in any unfiltered water sample (ug/l):	2.4		2.4		0.15	0.14	
8.18.2 Methylmercury (water column) (ug/l):		.012		.012			
Nickel (ug/l)					4600	510	
8.19.1 The four-day average concentration of dissolved nickel determined by the following equation[a]: $Ni = e^{(0.846[\ln(hardness)]+0.0584)} \times CF^5$		X		X			
8.19.2 The one-hour average concentration of dissolved nickel determined by the following equation[a]: $Ni = e^{(0.846[\ln(hardness)]+2.255)} \times CF^5$	X		X				
8.20 Nitrate (as Nitrate-N) (mg/l)						10	

APPENDIX E, TABLE 1

PARAMETER	USE DESIGNATION						
	AQUATIC LIFE				HUMAN HEALTH		ALL OTHER USES
	B1, B4		B2		C[3]	A[4]	
	ACUTE[1]	CHRON[2]	ACUTE[1]	CHRON[2]			
8.21 Nitrite (as Nitrite-N) (mg/l)	1.0		.060				
8.22 Nutrients							
Chlorophyll –a (µg/l) (see §47-2-8.3)							
Total Phosphorus (µg/l) (see §47-2-8.3)							
8.23 Organics							
Chlordane[b] (ng/l)	2400	4.3	2400	4.3	0.46	0.46	0.46
DDT[b] (ng/l)	1100	1.0	1100	1.0	0.024	0.024	0.024
Aldrin[b] (ng/l)	3.0		3.0		0.071	0.071	0.071
Dieldrin[b] (ng/l)	2500	1.9	2500	1.9	0.071	0.071	0.071
Endrin (ng/l)	180	2.3	180	2.3	2.3	2.3	2.3
Toxaphene[b] (ng/l)	730	0.2	730	0.2	0.73	0.73	0.73
PCB[b] (ng/l)		14.0		14.0	0.045	0.044	0.045
Methoxychlor (ug/l)		0.03		0.03	0.03	0.03	0.03
Dioxin (2,3,7,8- TCDD)[b] (pg/l)					0.014	0.013	0.014
Acrylonitrile[b] (ug/l)					0.66	0.059	
Benzene[b] (ug/l)					51	0.66	
1,2-dichlorobenzene (mg/l)					17	2.7	
1,3-dichlorobenzene (mg/l)					2.6	0.4	

APPENDIX E, TABLE 1

PARAMETER	USE DESIGNATION						
	AQUATIC LIFE				HUMAN HEALTH		ALL OTHER USES
	B1, B4		B2		C[3]	A[4]	
	ACUTE[1]	CHRON[2]	ACUTE[1]	CHRON[2]			
1,4-dichlorobenzene (mg/l)					2.6	0.4	
2,4-dinitrotoluene[b] (ug/l)					9.1	0.11	
Hexachlorobenzene[b] (ng/l)					0.77	0.72	
Carbon tetrachloride[b] (ug/l)					4.4	0.25	
Chloroform[b] (ug/l)					470	5.7	
Bromoform[b] (ug/l)					140	4.3	
Dichlorobromomethane[b] (ug/l)					17	0.55	
Methyl Bromide (ug/l)					1500	47	
Methylene Chloride[b] (ug/l)					590	4.6	
1,2-dichloroethane[b] (ug/l)					99	0.035	
1,1,1- trichloroethane[b] (mg/l)						12	
1,1,2,2-tetrachloroethane (ug/l)					11	0.17	
1,1-dichloroethylene[b] (ug/l)					3.2	0.03	
Trichloroethylene[b] (ug/l)					81	2.7	
Tetrachloroethylene[b] (ug/l)					8.85	0.8	
Toluene[b] (mg/l)					200	6.8	
Acenaphthene (ug/l)					990	670	
Anthracene (ug/l)					40,000	8,300	
Benzo(a) Anthracene[b] (ug/l)					0.018	0.0038	

PARAMETER	USE DESIGNATION						
	AQUATIC LIFE				HUMAN HEALTH		ALL OTHER USES
	B1, B4		B2		C[3]	A[4]	
	ACUTE[1]	CHRON[2]	ACUTE[1]	CHRON[2]			
Benzo(a) Pyrene[b] (ug/l)					0.018	0.0038	
Benzo(b) Fluoranthene[b] (ug/l)					0.018	0.0038	
Benzo(k) Fluoranthene[b] (ug/l)					0.018	0.0038	
Chrysene[b] (ug/l)					0.018	0.0038	
Dibenzo(a,h)Anthracene[b] (ug/l)					0.018	0.0038	
Fluorene (ug/l)					5300	1100	
Ideno(1,2,3-cd)Pyrene[b] (ug/l)					0.018	0.0038	
Pyrene (ug/l)					4000	830	
2-Chloronaphthalene (ug/l)					1600	1000	
Phthalate esters[6] (ug/l)		3.0		3.0			
Vinyl chloride[b] (chloroethene) (ug/l)					525	2.0	
alpa-BHC (alpha- Hexachloro-cyclohexane)[b] (ug/l)					0.013	.0039	
beta-BHC(beta- Hexachloro-cyclohexane)[b] (ug/l)					0.046	0.014	
gamma-BHC (gamma- Hexachloro-cyclohexane)[b] (ug/l)	2.0	0.08	2.0	0.08	0.063	0.019	
Chlorobenzene (mg/l)					21	0.68	
Ethylbenzene (mg/l)					29	3.1	
Heptachlor[b] (ng/l)	520	3.8	520	3.8	0.21	0.21	

PARAMETER	USE DESIGNATION						
	AQUATIC LIFE				HUMAN HEALTH		ALL OTHER USES
	B1, B4		B2		C[3]	A[4]	
	ACUTE[1]	CHRON[2]	ACUTE[1]	CHRON[2]			
2-methyl-4,6-Dinitrophenol (ug/l)					765	13.4	
Fluoranthene (ug/l)					370	300	
8.23.1 When the specified criteria for organic chemicals listed in §8.23 are less than the practical laboratory quantification level, instream values will be calculated from discharge concentrations and flow rates, where applicable.							
8.24 pH[c] No values below 6.0 nor above 9.0. Higher values due to photosynthetic activity may be tolerated.	X	X	X	X	X	X	X
8.25 Phenolic Materials							
8.25.1 Phenol (ug/l)					4,600,000	21,000	
8.25.2 2-Chlorophenol (ug/l)					400	120	
8.25.3 2,4-Dichlorophenol (ug/l)					790	93	
8.25.4 2,4-Dimethylphenol (ug/l)					2300	540	
8.25.5 2,4-Dinitrophenol (ug/l)					14,000	70	
8.25.6 Pentachlorophenol[b] (ug/l)					8.2	0.28	
8.25.6.a The one-hour average concentration of pentachlorophenol determined by the following equation: exp(1.005(pH)-4.869)	X		X				

APPENDIX E, TABLE 1

PARAMETER	USE DESIGNATION						
	AQUATIC LIFE				HUMAN HEALTH		ALL OTHER USES
	B1, B4		B2		C[3]	A[4]	
	ACUTE[1]	CHRON[2]	ACUTE[1]	CHRON[2]			
8.25.6.b The 4-day average concentration of pentachlorophenol determined by the following equation: exp(1.005(pH)-5.134).		X		X			
8.25.7 2,4,6-Trichlorophenol[b] (ug/l)					6.5	2.1	
8.26 Radioactivity: Gross Beta activity not to exceed 1000 picocuries per liter (pCi/l), nor shall activity from dissolved strontium-90 exceed 10 pCi/l, nor shall activity from dissolved alpha emitters exceed 3 pCi/l.	X		X		X	X	X
8.26.1 Gross total alpha particle activity (including radium-226 but excluding radon and uranium shall not exceed 15 pCi/l and combined radium-226 and radium-228 shall not exceed 5pCi/l; provided that the specific determination of radium-226 and radium-228 are not required if dissolved particle activity does not exceed 5pCi/l; the concentration of tritium shall not exceed 20,000 pCi/l; the concentration of total strontium-90 shall not exceed 8 pCi/l in the Ohio River main stem.	X		X		X	X	X
8.27 Selenium (ug/l)	20	5	20	5		50	

APPENDIX E, TABLE 1

PARAMETER	USE DESIGNATION						
	AQUATIC LIFE				HUMAN HEALTH		ALL OTHER USES
	B1, B4		B2		C[3]	A[4]	
	ACUTE[1]	CHRON[2]	ACUTE[1]	CHRON[2]			
8.28 Silver (ug/l) Hardness / Silver 0-50 / 1 51-100 / 4 101-200 / 12 >201 / 24				X		X	
8.28.1 0-50 / 1 51-100 / 4 101-200 / 12 201-400 / 24 401-500 / 30 501-600 / 43		X					
8.28.2 The one-hour average concentration of dissolved silver determined by the following equation: $Ag=e^{(1.72[\ln(hardness)]-6.59)} \times CF$[5]	X		X				

APPENDIX E, TABLE 1

PARAMETER	USE DESIGNATION						
	AQUATIC LIFE				HUMAN HEALTH		ALL OTHER USES
	B1, B4		B2		C[3]	A[4]	
	ACUTE[1]	CHRON[2]	ACUTE[1]	CHRON[2]			
8.29 Temperature Temperature rise shall be limited to no more than 5°F above natural temperature, not to exceed 87°F at any time during months of May through November and not to exceed 73°F at any time during the months of December through April. During any month of the year, heat should not be added to a stream in excess of the amount that will raise the temperature of the water more than 5°F above natural temperature. In lakes and reservoirs, the temperature of the epilimnion should not be raised more than 3°F by the addition of heat of artificial origin. The normal daily and seasonable temperature fluctuations that existed before the addition of heat due to other natural causes should be maintained.	X						
8.29.1 For the Kanawha River Main Stem (K-1): Temperature rise shall be limited to no more than 5°F above natural temperature, not to exceed 90°F in any case.	X						

PARAMETER	USE DESIGNATION						
	AQUATIC LIFE				HUMAN HEALTH		ALL OTHER USES
	B1, B4		B2		C[3]	A[4]	
	ACUTE[1]	CHRON[2]	ACUTE[1]	CHRON[2]			
8.29.2 For the Bluestone R (KNB), Bluestone Lake (KN-60) East River (KNE), New River (KN), Gauley R. (KG) and Greenbrier River (KNG): Temperature rise shall be limited to no more than 5°F above natural temperature, not to exceed 81°F at any time during the months of May through November and not to exceed 73°F at any time during December through April.			X				
8.29.3 No heated effluents will be discharged in the vicinity of spawning areas. The maximum temperatures for cold waters are expressed in the following table: Daily Mean °F / Hourly Max °F Oct-Apr 50 / 55 Sep-&May 58 / 62 Jun-Aug 66 / 70			X				

PARAMETER	USE DESIGNATION						
	AQUATIC LIFE				HUMAN HEALTH		ALL OTHER USES
	B1, B4		B2		C[3]	A[4]	
	ACUTE[1]	CHRON[2]	ACUTE[1]	CHRON[2]			
8.29.4 For Ohio River Main Stem (01) (see section 7.1.d, herein): Dates — Period Ave. — Inst. Max. Jan 1-31 — 45°F — 50°F February — 45 — 50 March 1-15 — 51 — 56 March 16-31 — 54 — 59 April 1-15 — 58 — 64 April 16-30 — 64 — 69 May 1-15 — 68 — 73 May 16-31 — 75 — 80 June 1-15 — 80 — 85 June 16-30 — 83 — 87 July 1-31 — 84 — 89 August 1-31 — 84 — 89 Sept 1-15 — 84 — 87 Sept 16-30 — 82 — 86 Oct 1-15 — 77 — 82 Oct 16-31 — 72 — 77 Nov 1-30 — 67 — 72 Dec 1-31 — 52 — 57	X						
8.30 Thallium (ug/l)					6.3	1.7	
8.31 Threshold odor[c] Not to exceed a threshold odor number of 8 at 104°F as a daily average.		X		X	X	X	
8.32 Total Dissolved Solids (mg/l)						500	

APPENDIX E, TABLE 1

PARAMETER	USE DESIGNATION						
	AQUATIC LIFE				HUMAN HEALTH		ALL OTHER USES
	B1, B4		B2		C[3]	A[4]	
	ACUTE[1]	CHRON[2]	ACUTE[1]	CHRON[2]			
~~8.32~~ 8.33 Total Residual Chlorine (ug/l - measured by amperometric or equivalent method)	19	11					
~~8.32.1~~ 8.33.1 No chlorinated discharge allowed			X				
~~8.33~~ 8.34 Turbidity No point or non-point source to West Virginia's waters shall contribute a net load of suspended matter such that the turbidity exceeds 10 NTU's over background turbidity when the background is 50 NTU or less, or have more than a 10% increase in turbidity (plus 10 NTU minimum) when the background turbidity is more than 50 NTUs. This limitation shall apply to all earth disturbance activities and shall be determined by measuring stream quality directly above and below the area where drainage from such activity enters the affected stream. Any earth disturbing activity continuously or intermittently carried on by the same or associated persons on the same stream or tributary segment shall be allowed a single net loading increase.		X		X	X	X	

APPENDIX E, TABLE 1

PARAMETER	USE DESIGNATION						
	AQUATIC LIFE				HUMAN HEALTH		ALL OTHER USES
	B1, B4		B2		C[3]	A[4]	
	ACUTE[1]	CHRON[2]	ACUTE[1]	CHRON[2]			
~~8.33.1~~ 8.34.1 This rule shall not apply to those activities at which Best Management Practices in accordance with the State's adopted 208 Water Quality Management Plan are being utilized, maintained and completed on a site-specific basis as determined by the appropriate 208 cooperative or an approved Federal or State Surface Mining Permit is in effect. This exemption shall not apply to Trout Waters.		X			X	X	
~~8.34~~ 8.35 Zinc (ug/l) The four-day average concentration of dissolved zinc determined by the following equation[a]: $Zn = e^{(0.8473[\ln(hardness)]+0.884)} \times CF$[5]		X		X			
~~8.34.1~~ 8.35.1 The one-hour average concentration of dissolved zinc determined by the following equation[a]: $Zn = e^{(0.8473[\ln(hardness)]+0.884)} \times CF$[5]	X		X				

[1] One hour average concentration not to be exceeded more than once every three years on the average, unless otherwise noted.
[2] Four-day average concentration not to be exceeded more than once every three years on the average, unless otherwise noted.
[3] These criteria have been calculated to protect human health from toxic effects through fish consumption, unless otherwise noted. Concentration not to be exceeded, unless otherwise noted.
[4] These criteria have been calculated to protect human health from toxic and/or organoleptic effects through drinking water and fish consumption, unless otherwise noted. Concentration not to be exceeded, unless otherwise noted.
[5] The appropriate Conversion Factor (CF) is a value used as a multiplier to derive the dissolved aquatic life criterion is found in Appendix E, Table 2.
[6] Phthalate esters are determined by the summation of the concentrations of Butylbenzyl Phthalate, Diethyl Phthalate, Dimethyl Phthalate, Di-n-Butyl Phthalate and Di-n-Octyl Phthalate.

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APPENDIX E, TABLE 1

PARAMETER	USE DESIGNATION						
	AQUATIC LIFE				HUMAN HEALTH		ALL OTHER USES
	B1, B4		B2		C[3]	A[4]	
	ACUTE[1]	CHRON[2]	ACUTE[1]	CHRON[2]			

[a] Hardness as calcium carbonate (mg/l). The minimum hardness allowed for use is this equation shall not be less than 25 mg/l, even if the actual ambient hardness is less than 25 mg/l. The maximum hardness value for use in this equation shall not exceed 400 mg/l even if the actual hardness is greater than 400 mg/l.
[b] Known or suspected carcinogen. Human health standards are for a risk level of 10^{-6}.
[c] May not be applicable to wetlands (B4) - site-specific criteria are desirable.
[d] The early life stage equation in the National Criterion shall be used to establish chronic criteria throughout the state unless the applicant demonstrates that no early life stages of fish occur in the affected water(s).

APPENDIX E
TABLE 2

Conversion Factors

Metal	Acute	Chronic
Aluminum	1.000	1.000
Arsenic (III)	1.000	1.000
Cadmium	1.136672-[(ln hardness)(0.041838)]	1.101672-[(ln hardness)(0.041838)]
Chromium (III)	0.316	0.860
Chromium(VI)	0.982	0.962
Copper	0.960	0.960
Lead	1.46203-[(ln hardness)(0.145712)]	1.46203-[(ln hardness)(0.145712)]
Nickel	0.998	0.997
Silver	0.85	N/A
Zinc	0.978	0.986

APPENDIX F
COOL WATER LAKES

This list contains lakes to be managed for cool water fisheries and is not intended to exclude any waters which meet the definition in Section 2.2.

River Basin	County	Lake
Potomac River		
PC	Hardy Lost River	Trout Pond (Impoundment)
PC	Hardy Lost River	Rock Cliff Lake (Impoundment)
PSB	Pendleton	Hawes Run (Impoundment)
PNB	Mineral	New Creek Dam 14(Impoundment)
Monongahela River		
MC	Monongalia	Coopers Rock (Impoundment)
MC	Monongalia	Cheat Lake
MC	Tucker	Thomas Park (Impoundment)
MC	Randolph	Spruce Knob Lake (Impoundment)
MT	Taylor	Tygart Lake
MW	Lewis	Stonecoal Lake
Kanawha River		
KC	Raleigh	Stephens Lake (Impoundment)
KG	Nicholas	Summersville Reservoir (Impoundment)
KG	Greenbrier	Summit Lake (Impoundment)
KNG	Pocahontas	Watoga Lake
KNG	Pocahontas	Buffalo Fork (Impoundment)
KNG	Pocahontas	Seneca (Impoundment)
KCG	Pocahontas	Handley Pond
Guyandotte River		
OG	Wyoming/Mingo	RD Bailey Lake

BEFORE THE WEST VIRGINIA DEPARTMENT
OF ENVIRONMENTAL PROTECTION

IN THE MATTER OF:

PROPOSED 2010 RULES
47CSR2, Requirements Governing
Water Quality Standards

TRANSCRIPT OF PROCEEDINGS had or testimony adduced in the above-entitled matter, on the 19th day of July, 2009, commencing at 6:05 p.m. and concluding at 6:37 p.m., at the Coopers Rock Training Room, 601 57th Street, S.E., Charleston, Kanawha County, West Virginia, pursuant to notice to all interested parties.

BEFORE: KATHY COSCO, Public Information Office

ORIGINAL

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I N D E X

Reporter's Certificate.....Page 19

1 MS. COSCO: Well, good evening. My name is
2 Kathy Cosco and I am with the Public Information Office.
3 I'd like to welcome you to the DEP and to the public
4 hearing on the agency's proposed rule changes to 47CSR2,
5 regarding *Requirements Governing Water Quality Standards*.
6 This rule was promulgated last in the 2008
7 Legislative Session. Proposed revisions to this rule
8 include adding the language, "certain water withdrawal
9 activities" and filamentous algae blooms to the State's
10 narrative water quality standards; striking Harmon Creek
11 from the list of approved site-specific variances;
12 extending Union Carbide's variance for discharge into Ward
13 Hollow of Davis Creek until July 1st, 2014; adding specific
14 criteria for nutrients in lakes; adding specific criteria
15 for nutrients in the Greenbrier River; modifying the
16 parameter for iron from one-half a milligram per liter to
17 one milligram per liter and setting a standard for total
18 dissolved solids for human health at 500 milligrams per
19 liter.
20 Please make sure that you have signed in and
21 have indicated whether you are going to make a comment. If
22 you have written comments, please provide them to me when
23 you speak or at the close of this hearing.
24 If everyone is ready, and no one has any

1 questions, we can open the floor for comments.
2 Now the first two folks who've indicated
3 have questions marks. Do you want me to come back to you
4 after I've gone by the people? Okay. So the one who is
5 certain he wants to speak is Don Garvin. Don.
6 MR. GARVIN: Thank you, Kathy. I'm Don Garvin,
7 Legislative Coordinator for the West Virginia Environmental
8 Council. I'm not going to -- let me start over. I helped
9 coordinate a set of group comments that we submitted in
10 writing to the Department, and those comments, the groups
11 that signed on to those comments, were the West Virginia
12 Rivers Coalition, the West Virginia Environmental Council,
13 West Virginia Highlands Conservancy, West Virginia Chapter
14 of the Sierra Club, League of Women Voters of West
15 Virginia, West Virginia Citizen Action Group and the
16 Mountaineer Chapter of Trout Unlimited.
17 Rather than go through those in detail,
18 since they are already on the record, I thought I would
19 just go through the things we think the DEP should do that
20 does not propose to do in this rule and the first is
21 related to the change in narrative standards regarding
22 water withdrawals and this is just not enough. We believe
23 DEP should draft legislation for immediate consideration by
24 the West Virginia Legislature to establish as guidelines

1 and a permanent process for water withdrawals. We also
2 urge the Governor to do the same, while he's still
3 Governor.
4 The nutrient criteria for rivers and
5 streams, DEP had a stakeholders group that was -- that
6 worked on developing a criteria for the lakes and
7 impoundments and then gave up just prior before -- prior to
8 -- it was actually an EQB stakeholder group, and when DEP
9 took over the water quality rules development, the
10 stakeholder group was dismantled or at least didn't meet.
11 We believe DEP should reconvene the stakeholder group on a
12 nutrient committee and move the criteria process/setting
13 process on for rivers and streams. We disparately need it,
14 and the final thing you should do that that you have not
15 done, the DEP has not done, is adopt an aquatic life
16 criterion for the conductivity and TDS issues. They are
17 closely related and an EPA guidance document that came out
18 actually too late really to be included in this tri-annual
19 review process had guidance on this, and DEP should adopt
20 an aquatic life criterion as proposed in that guidance and
21 any criteria set should be protected with streams
22 threatened by the golden algae issue.
23 That's really all I have, nothing knew
24 that's not in our comments. Thank you.

1 MS. COSCO: Thank you, Don. Don is accustomed
2 to the format. Something I failed to ask is when you come
3 speak, if you wouldn't mind to state your name. If you're
4 with an organization or at least from what city you are
5 from so that way we can make sure we have your name and
6 information correct on the sign-in sheet so. The next
7 person I have indicating a desire to speak is Don Spencer.
8 MR. SPENCER: Good afternoon, and I am the
9 Deputy Mayor of the City of Morgantown, a member of the
10 Morgantown City Council, and I think where we have come
11 from on this, the process is important as our
12 recommendations perhaps. I'd like to read the statement
13 that I have, which I think it gives you more of a sense of
14 the political process on this as far as the public is
15 concerned in the City of Morgantown.
16 Usable water for drinking, comprehensive
17 commerce and a livable environment is West Virginia's most
18 important earth natural resource. Some would say that coal
19 or natural gas are our most important natural resources.
20 Coming down in the car "Coal is West Virginia". Coal is
21 not West Virginia. West Virginia is the people and the
22 people need to be able to survive economically as well as
23 environmentally; they need to be able to have a drinking
24 water supply that works for them than to say that something

1 else, a very limited extractive industry-centered
2 perspective.
3 Dirty water is expensive water. Dirty water
4 precludes most other economic interests and jeopardizes
5 public health. If water sources are contaminated beyond
6 viable usefulness, present and future generations will have
7 to pay dearly for short-term profit-taking. Regulating the
8 protection of water must be considered to be the Department
9 of Environmental Protection's highest priority.
10 On February 3rd of 2009, the City of
11 Morgantown adopted after hearings on the issue a resolution
12 calling for the State Legislature and Department of
13 Environmental Protection to develop comprehensive standards
14 controlling TDS levels in the Monongahela River. To do
15 this Morgantown recognized that there would need to be
16 control of the source, schedule and conditions for water
17 withdrawal, specifications for water discharge detailing
18 treatment, location schedule and conditions for discharge.
19 In 2009 the City called for maintenance of
20 an in-stream, not source point, by in-stream water quality
21 TDS level of 500 parts per million in the main stem of the
22 Mon. This is not the tributaries. It's talking about the
23 main stem to protect the water quality for drinking water
24 for the 42 municipalities that use the Mon River, including

1 Morgantown. This past year, due to the algae bloom in
2 Dunkard Creek, Morgantown further called for the
3 maintenance of a TDS level of no higher than 1,000 parts
4 per million in tributaries of the Mon in its communication,
5 it did this, this communication, with its local legislative
6 delegation.
7 One thousand level is this level we were
8 told by the EPA officials has been recognized in Texas and
9 other locations as ways in smaller tributaries to protect
10 the streams from the algae bloom regardless of the
11 temperature or whatever else/other conditions may have to
12 exist locally to allow or to promote that kind of bloom.
13 The 500 parts per million seems to represent
14 the win/win level for the various economic and
15 environmental interests which utilize river water for
16 drinking, power production, fishing and commerce. It is
17 the e2 level (economics and environmental) on which
18 research has been based and which keeps "peace in the
19 valley". Dirty water is expensive water because it must be
20 treated in order to be useful for multiple uses. TDS
21 levels cannot be filtered from municipal water supplies.
22 Totally financially beyond the reach of any municipality
23 and to clean high TDS contents from the water requires
24 expensive evaporation processes which are impractical for

1 municipal drinking water systems.

2 Having an acceptable quality of water in
3 Morgantown and in any other municipality around the State
4 is necessary for all community and university uses
5 including power generation. With TDS levels in excess of
6 500 parts per million, boilers are susceptible to scale at
7 power plants and dishwashers and hot water heaters reported
8 crust up. One thousand parts per million -- at the 1,000
9 parts per million the public begins to drink bottled water
10 due to the offensive taste of high TDS due to the Marcellus
11 Shale frac fluid disposal and acid mine drainage. You can
12 imagine the City of Morgantown with its University students
13 finding the water unacceptable to drink.

14 To achieve maintenance of 500 parts per
15 million in an in-stream flow standard requires A)
16 management of water withdrawals with water quantity-
17 responsive permitting which gives priority to public water
18 supplies, a second priority for comprehensive commerce and
19 electrical power generation, and then thirdly, to
20 extractive industry activity. Protection of a viable
21 standard for TDS levels needs to also address B)
22 limitations in the use of chemical fracturing fluids and
23 other types or sources of TDS material; C) disposal of
24 contaminated water; and D) penalties for infractions which

1 include revocation of permits and fines commensurate with
2 the damages that are incurred by the public. To have a
3 token fine for a loss of a water source which enables a
4 business to continue to operate, especially a long-standing
5 business, or medical business or drug companies or other
6 operations which incur better quality of water is very
7 important to our commerce.
8 Accordingly, we urge the DEP to establish
9 in-stream flow control of West Virginia rivers and
10 tributaries by requiring: No. 1, Submission of
11 information regarding the source, schedule and conditions
12 for all major water withdrawals utilizing a priority
13 permitting procedure; 2) Disclosure of the make-up of
14 fracturing fluids and limitation of hazardous chemicals
15 such as benzene and other hazardous chemicals used in the
16 extractive industrial operations; 3) Water discharge plans
17 detailing treatment, location, schedule and conditions for
18 discharge of acid mine drainage or fracturing fluids; 4)
19 Specifying penalties for noncompliance, including
20 revocation of permits; 5) Establishment of a total
21 dissolved solids water quality standards for in-stream flow
22 in the main stem of West Virginia rivers at or below the
23 standard of 500 parts per million and water quality
24 standards for in-stream flow in tributaries of West

1 Virginia rivers at or below 1,000 parts per million, and
2 lastly; 6) All mining, drilling and other discharges within
3 any West Virginia river or tributary to be in compliance
4 with the total dissolved solids standards, even in periods
5 of low flow throughout the year.
6 We ask that the DEP adopt these standards
7 and procedures to help protect the safety of municipal
8 water supplies throughout the State as well as to protect
9 the coal and gas industries from compromising practices
10 which can result in greater numbers of inspections and to
11 being shut down. Growing public intolerance to mistakes
12 and misjudgments by fossil fuel corporations is an
13 important threat to long-term industrial sustainability.
14 Thank you very much.
15 MS. COSCO: The next individual who has
16 indicated a desire to speak is E.C. Armbrecht.
17 MR. ARMBRECHT: Can I stand here or do you prefer
18 that I come up?
19 MS. COSCO: If you wouldn't mind to come up,
20 that way the court reporter can hear you.
21 MR. ARMBRECHT: My name is Ted Armbrecht. I'm a
22 member of the Environmental Quality Board and I didn't know
23 that Don was going to speak on the nutrient requirements,
24 but I will add my remarks to his. The Environmental

1 Quality Board in the mid-2000's, early 2000's, around 2003,
2 '04, '05, was directed by DEP and the EPA to address the
3 question of nutrients and to come up with nutrient
4 criteria. Those criteria had a deadline on them of I
5 believe, and I can stand to be corrected on this, but I
6 believe is approximately three years.
7 The EQB appointed a committee; that
8 committee was very broad based, representative of all of
9 the environmental and business community and users of the
10 waters and the contributors to the nutrient question. The
11 Legislature in its wisdom took that power away from the EQB
12 when the study committee was in mid-stream. Lakes had been
13 addressed at that time and recommendations were very close
14 to being agreed to by that broad-based committee. I note
15 with great interest that now in 2010 that DEP is beginning
16 to address the question of nutrients in lakes.
17 Lakes were chosen by that committee because
18 it was the easiest part of the problem. West Virginia has
19 few lakes. Our problems for nutrients deals with questions
20 of streams and larger bodies of rivers. Lakes were minor.
21 It was a wise choice because it was something that would
22 provide the testing ground to see if we could reach
23 agreement and they were well on the way for that agreement,
24 so now we're starting over apparently.

1 I didn't hear tonight, and it's very
2 possible that work has been done on this that I'm not
3 aware, but I have not heard that the larger issues are
4 being addressed; namely, of rivers and streams.
5 West Virginia signed the Chesapeake Bay
6 Covenant. It was signed by Governor Wise during his term
7 and courts have ruled that the Maryland water regulations
8 apply in West Virginia because we are supplying them with
9 water that must meet their requirements. So that's a very
10 important factor and ads to the urgency of what DEP might
11 begin to address now.
12 My point would be that we could have been
13 years down the road to addressing the problem if DEP had
14 even picked where EQB had left off; mainly, keeping that
15 committee and carry on its work to reach a resolution. My
16 experience is that DEP addresses issues like these only
17 when they have exhausted all possible routes of delay.
18 As has been said water is the resource of
19 21st Century; we have that. If DEP will begin to
20 aggressively protect it, it will benefit not only our
21 people and our State users but, most importantly, it will
22 truly be an economic factor as we seek jobs and prosperity
23 in our State. Thank you.
24 MS. COSCO: Did you indicate that you wished

1 to speak? Are there any others on that one? Our last
2 speaker is Lewis Baker.
3 MR. BAKER: I'm Lewis Baker. I work for the
4 West Virginia Real Water Association as a source water
5 protection specialist. Source water being the source of
6 our drinking water, and I have one page of written comments
7 to submit. I'd also like to talk briefly about what those
8 comments are.
9 While the nutrient criteria are important
10 and they are going to be very important for our waste water
11 plants and drinking water plants as they become
12 established, my comments are focused more on water quality
13 impacts from another perspective; that's impacts from the
14 Marcellus Shale drilling and the proposed changes to the
15 standards that have to do with the Marcellus really are two
16 parts; that's the water withdrawal language that's inserted
17 and also total dissolved solids.
18 Total dissolved solids, if those get high
19 enough, that can be detrimental to the public supplies.
20 Although a relatively small increase in TDS can occur when
21 you have a significant brine spill because the TDS total is
22 a total of all the ions that are out there that will become
23 a solid if you evaporate the water away, and some of our
24 rivers like the Monongahela River, most of the ions that

1 are already there and already give us a TDS up around the
2 standard, they come from the mining industry; that's mostly
3 calcium and phosphate. Brine from the drilling is mostly
4 sodium and chloride. You can have a significant increase
5 in the salinity from brine spills or disposal above what we
6 use to have and see a relativity small increase in TDS at
7 the same time.
8 So in 2008, fall of 2008, when the folks in
9 the Pittsburgh area were going to bottled water because
10 there was an increase in TDS and other things, the source
11 of contamination was pointed towards the drilling industry.
12 So the oil and gas industry paid Tetratec To do a study and
13 Tetratec's conclusion was a TDS increase maybe 7 percent
14 above what it would normally be at those flows in the river
15 and therefore was no big deal. What they really didn't
16 highlight was the chlorides tripled at the same time.
17 A tripling of chloride is a significant
18 increase and that's due to the brine disposals and spills.
19 In fact the chloride loading would be equivalent to a
20 couple million gallons of brine a day disposed somewhere in
21 that Monongahela above Pittsburgh. That's about the amount
22 of water that you might get out of each and everyone of
23 those Marcellus Shale wells, so that's quite a bit and the
24 boom has only started.

1 You get a tripling of bromide, you also get
2 a tripling of other ions within the brine wastewater
3 including the bromide ion. It's about 200 times less
4 concentrated chloride in the brine. When you get an
5 increase in bromide, you get an increase in brominated
6 disinfection byproducts at the drinking water plants and
7 your brominated disinfection byproducts in the Pittsburgh
8 went up above regulatory limits.
9 At the same time we saw downstream impacts
10 on the Ohio River at Wheeling and even as far downstream as
11 Huntington. The impacts weren't quite as big because the
12 water is more dilute, but it is an increase in the
13 brominated varieties of disinfection byproducts down there,
14 so it's a regulatory issue, and according to the narrative
15 standard that's on the books and which the section that the
16 water withdrawal language was inserted into, its conditions
17 which are not allowable and those conditions that are
18 allowable include unreasonable impacts to the drinking
19 water supply of plants, to the drinking water supplies. So
20 we are already at that point.
21 TDS may be looked as something that needs to
22 be regulated because of impacts to public supplies but it's
23 a blunt instrument to do that. We need to look at bromide
24 ions and we need actually a numeric standard because

1 otherwise the DEP would be trying to enforce just a
2 negative which is also a blunt instrument to try to say
3 we've caused an impact, but if we have a numeric standard
4 for bromide, which probably ought to be somewhere in the
5 order of 250 parts per billion compared to the 250 parts
6 per billion we have for chloride that's on the books, a
7 much smaller number, then DEP has an enforceable number.
8 If we need a TMDL for bromide, for example, you could
9 actually write one based on a number. It would be very
10 difficult, I imagine, to write a TMDL on the narrative
11 standard.
12 So those are my comments, except I'd like to
13 make one further comment that ended my written statement
14 with. We really don't have much bromide data out there so
15 I would imagine DEP is not really anxious to write a
16 standard for a containment for an ion we don't have much
17 data for, so that needs to be part of their ambient
18 monitoring network. There's data collection on bromide
19 concentrations along with the chloride they're already
20 collecting and a numeric standard ought to be done as soon
21 as possible. I doubt that they'll get around to it this
22 year but as soon as possible and, you know, the first order
23 would be to collect a lot of data and I'd certainly
24 appreciate being plugged into that data collection in any

BEFORE THE WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

STATE OF WEST VIRGINIA,
COUNTY OF KANAWHA, to wit:

I, **NANCY MCNEALY**, Certified Verbatim Court Reporter and Commissioner of West Virginia, do hereby certify that the foregoing is, to the best of my skill and ability, a true and accurate transcript of all the proceedings as set forth in the caption hereof.

Given under my hand this 20th day of July, 2010.

My commission expires November 26, 2010.

Certified Verbatim Reporter
Commissioner of West Virginia

Public Hearing Sign In Sheet

Proposed Rule Change 47CSR2, Requirements Governing Water Quality Standards

July 19, 2010, 6 p.m. Charleston

The Department of Environmental Protection asks for the information below so that agency staff may provide responses and information about decisions to you. The information you voluntarily provide on this sheet becomes part of the public record related to this topic and may be released if requested under the Freedom of Information Act.

Name (please print)	Address	Organization	Phone/Fax	E-mail	Comment Yes/No
Mike Castle	131 Summit Ridge R. Hurricane WV 25526	Strategic Solutions	304 757 1334 F 304-757 2956	mccastle@suddenlink.net	
Erica Johnson	650 McDonald Rd Waterford OH 45786	WVRWA	740-678-2809	ericajohnson@citynet.net	No
Don Michael	860 Bar Run Road Ravenswood, WV 26164	WV Farm Bureau	304-872-0885	dontbgon@casinternet.net	NO
Lewis Baker	100 YOUNG ST. SCOTT DEPOT, WV 25560	WVRWA	304 201-1689	lbaker@CITYNET.NET	YES
Sarah Halstead Boland	4 Players Club Drive Charleston, WV 25311	WV GreenWorks	304.343.2880	sarah@wvgreenworks.com	

Public Hearing Sign In Sheet

Proposed Rule Change 47CSR2, Requirements Governing Water Quality Standards

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Name (please print)	Address	Organization	Phone/Fax	E-mail	Comment Yes/No
Luther Lewellen	Box 179 Alderson, WV. 24910	Town of Alderson	445-2910		yes? NO
Eric Hartwell	400 South Kanawha Road Char 25314	Dunn Engineers Inc., Charleston	304 342-3436 304 342-7823	DunnEng@Aol.com	yes? NO
✓ DON GARVIN	PO Box 666 Buckhannon, WV 26201	WVEC	304-395-0018	DSGJr@aol.com	yes
✓ Don Spencer	565 Harvard Ave Morgantown, WV 26505	Morgantown City Council	304-599-2199	dspencer36@comcast.net	yes
✓ E C Ambrecht Jr.	Box 1933, Chas. WV 25327	EQB	304-346-7463	ecajr@suddenlink	yes
Calvert Ambrecht	907 Chestnut Rd. Chas 25314	WVOHC	304-346-7463	calvert@suddenlink.net	no

Keller, Linda B

From: Cosco, Kathy on behalf of DEP Comments
Sent: Friday, July 16, 2010 2:26 PM
To: Keller, Linda B
Subject: FW: Comments: Water Quality Triennial Review

From: Marianb3 [mailto:marianb3@frontiernet.net]
Sent: Friday, July 09, 2010 6:46 PM
To: DEP Comments
Subject: Comments: Water Quality Triennial Review

Dear Sir or Madam:

Please enter my following comments into your record:

1. Proposed Narrative Water Quality Standards language. To protect both human health and aquatic life, DEP should draft legislation for immediate consideration by the West Virginia Legislature that establishes guidelines and a permit process for water withdrawals.

2. Drop provision for a Mixing Zone Variance for Weirton Stell from this rule.

3. Drop provision for new Nutrient Criteria for Lakes language that would result in lakes not being considered 'impaired" unless BOTH phosphorous and chlorophyll-a water quality standards are exceeded.

4. To move ahead on developing statewide Nutrient Criteria for Rivers and Streams, DEP should reconvene its Stakeholders Nutrient Committee and move the criteria-setting process for rivers and streams forward as expeditiously as possible.

5. Don't change the iron standard until more thorough studies are conducted that consider the unique water quality characteristics of WV's trout waters. Lowering this standard will impose major costs on West Virginia, because hundreds of existing clean-up plans (TMDLs) and NPDES discharge permits will have to be re-written.

6. Statewide water quality standard for "Total Dissolved Solids. DEP should adopt the federal standard for human health of 250mg/l. Included should be an aquatic life criterion for conductivity as proposed by EPA. Besides, any criteria for TDS/conductivity should be protective of streams threatened by golden algae.

Thank you for noting my comments.

Marian Buckner
104 Wildflower Lane
Shepherdstown, WV 25443

Keller, Linda B

From: Cosco, Kathy on behalf of DEP Comments
Sent: Monday, July 19, 2010 10:02 AM
To: Keller, Linda B
Subject: FW: Please create stronger water quality protection standards

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From: Alyssa Archer [mailto:alyssaarcher@gmail.com]
Sent: Friday, July 16, 2010 2:46 PM
To: DEP Comments
Subject: Please create stronger water quality protection standards

Hello,

I live in Wheeling, WV, and am very concerned about the Marcellus Shale drilling, particularly in Oglebay and Wheeling Parks. These parks were left for the public to enjoy, and the amount of environmental damage these projects would cause greatly outweigh any potential benefits.

Please strengthen the Water Quality Standards Rule (47CSR2) by **eliminating** the **Mixing Zone Variance for Weirton Steel**. They should have to adhere to the same standards the rest of us do, and Weirton Steel can and must correct its discharge so that it does not discharge pollutants at concentrations in excess of the "Category A" public water supply criteria.

Please make the statewide water quality standard for **"Total Dissolved Solids"** (TDS) at 250mg/l, that EPA recommends as the Human Health Standard for total dissolved solids. A) DEP should adopt the federal standard for human health of 250mg/l. B) In addition, DEP fails to propose in this rule an aquatic life standard for **conductivity**, with which TDS levels are closely associated. DEP should adopt an aquatic life criterion for conductivity as proposed by EPA. In addition, any criteria for TDS/conductivity should be protective of streams threatened by golden algae.

The Dunkard Creek accident could have been prevented. All West Virginians should have a right to clean water.

Thanks for your time,

Alyssa

Keller, Linda B

From: Cosco, Kathy on behalf of DEP Comments
Sent: Friday, July 16, 2010 2:42 PM
To: Keller, Linda B
Subject: FW: Proposed Revisions to 47CSR2

From: Chris Shockey [mailto:chris.1.shockey@gmail.com]
Sent: Thursday, July 15, 2010 7:26 PM
To: DEP Comments
Subject: Proposed Revisions to 47CSR2

On behalf of the nearly 1,400 Trout Unlimited members state-wide, I would like to submit the following comments regarding the proposed revisions to 47CSR2, "Requirements Governing Water Quality Standards".

Comments:

1. While WCTU applauds WVDEP for proposing new water quality standards for total dissolved solids, we feel that the limit of 500 mg/l is not adequate. WVCTU believes that the limit of 250 mg/l should be adopted as that is the limit that has been to be protective of aquatic life.
2. WVCTU feels that language for limits on significant withdrawals is too vague and should include language to better define what types of activities that would be a significant withdrawal such as a percentage of total flow based on 7Q10.
3. With respect to changes to the iron limit for trout streams, WVCTU feels that the proposed changes are based on limited and out of date data. WVCTU feels that the recent changes to the West Virginia anti-degradation rules must be considered, in particular when receiving streams have background levels at or above the proposed limit of 1.0 mg/l.

Thank you,
Chris Shockey
Chairman, West Virginia Council of Trout Unlimited

Keller, Linda B

From: Cosco, Kathy on behalf of DEP Comments
Sent: Friday, July 16, 2010 2:39 PM
To: Keller, Linda B
Subject: FW: water quality

From: Laurine Yates [mailto:laurinecyates@verizon.net]
Sent: Wednesday, July 14, 2010 5:23 PM
To: DEP Comments
Subject: water quality

I would like to submit a comment for the meeting on July 19th. I want to address the issue of water quality. We feel very strongly that the TDS level should be the same as the EPA standard of 250 mg/l. This is considered a human health standard and seems only fair and right that this standard should be used for all water statewide. People do end up drinking water from rivers and streams and it should be safe. Also it seems that any gas drilling businesses should be held to the same standard. Why are they not held to the Clean Water Act?? It seems obvious that they cannot comply and why is that??? Our water table is worth a lot more than gold, silver, gas or oil. What will we do when we can't drink our own water??

Thank you for taking suggestions from the people of West Virginia.

Sincerely,

Laurine Yates

Keller, Linda B

From: Cosco, Kathy on behalf of DEP Comments
Sent: Friday, July 16, 2010 2:24 PM
To: Keller, Linda B
Subject: FW: My Public Coment on revisions to 47CSR2

Linda,
This is the first of several comments we have received related to the Water Quality Standards Rule.
Kathy

Kathy Cosco
Communications Director
WV Department of Environmental Protection
601 57th St. SE
Charleston, WV 25304
Office 304-926-0499, ext. 1331
Cell 304-561-8996

From: kim shiemke [mailto:kshiemke@yahoo.com]
Sent: Tuesday, June 15, 2010 3:11 PM
To: DEP Comments
Subject: My Public Coment on revisions to 47CSR2

Our family believes that nobody has the right to degrade the quality of a water resource. The practice of regularity agencies to issue permits to pollute should be stopped.
Kim, Kyle, Adam and Andrew Shiemke PhD
Professor of Biochemistry
West Virginia University

"NOTICE OF PUBLIC HEARING – STATE WATER QUALITY STANDARDS The WV Department of Environmental Protection has scheduled a public hearing and comment
period on proposed revisions to 47CSR2, "Requirements Governing Water Quality Standards".
The hearing will be held at DEP's Charleston headquarters, 601 57th Street S.E., Charleston, WV 25304, in the Coopers Rock Training Room on July 19, 2010 at 6:00 p.m.
... the agency will accept written comments at any time up to the conclusion of the public hearing. Comments may also be e-mailed to dep.comments@wv.gov"
From: Duane330@aol.com
To: CLEAR@cheat.org
Sent: Thursday, June 10, 2010 9:52 PM
Subject: WV DEP proposes 500 ppm water quality standard

Keller, Linda B

From: Cosco, Kathy on behalf of DEP Comments
Sent: Friday, July 16, 2010 2:33 PM
To: Keller, Linda B
Subject: FW: 7CSR2 – Requirements Governing Water Quality Standards

From: Andy Willard [mailto:willard.andy@gmail.com]
Sent: Monday, July 12, 2010 2:35 PM
To: DEP Comments
Subject: 7CSR2 – Requirements Governing Water Quality Standards

To whom it may concern:

I write to comment on the proposed rule 47CSR2 – Requirements Governing Water Quality Standards.

I support the rule and are pleased to see that the West Virginia Department of Environment Protection (WV DEP) is considering more stringent regulations on water quality, as this will have a direct effect on mining practices. The proposed rule 47CSR2 is proposing a TDS of 500 mg/L, the EPA standard for TDS. I support this value and support that it should be applied "in-stream," regardless of the water source end use.

Please also consider including rules regulating hydraulic fracturing associated with the Devonian aged shales (such as Marcellus Shale formation) under a large portion of the Northern Appalachian Mountains. A large volume of water is used during the hydraulic fracturing drilling process. The water is a combination of freshwater and fluids that contain lubricating chemicals. The lubricating chemicals have been proven to have adverse affects on groundwater aquifers and surface waters.

I support the proposed TDS standard of 500 mg/L and request more stringent rules on hydraulic fracturing until appropriate regulations are in place to protect the public and the environment.

Thank you for your attention to these matters, and for the opportunity to comment on the proposed rule.

Andrew Willard

Keller, Linda B

From: Cosco, Kathy on behalf of DEP Comments
Sent: Friday, July 16, 2010 2:42 PM
To: Keller, Linda B
Subject: FW: Gas development and water quality.

From: dalumina [mailto:dalumina@vtrocket.com]
Sent: Thursday, July 15, 2010 3:27 PM
To: DEP Comments
Cc: dalumina@vtrocket.com
Subject: Gas development and water quality.

To Pam Nixon and whom it may concern,

I am a lifelong resident and current land owner in West Virginia and have recently had to witness gas wells spring up around me and had one proposed well blocked due to the immediate proximity to my spring and the efforts of myself, my friend, and DEP environmental inspector. While my spring was spared the immediate assault I am not sure if the water quality is assured due to the numerous other wells.

West Virginia has been blessed with numerous natural resources, although our economic and environmental health does not reflect this , with devastated communities and an environmental legacy that future generations will have to contend with. The most precious resource we have aside from the people is the water. Without clean water life as we know it ceases to exist! It is paramount that all other resources be secondary. Unfortunately, Dick Cheney and Haliburton do not feel the same and it was this influence that made the fracking process exempt from the clean water act and therefore is up for the states to insure that water quality be top priority.

Gas exploration is damaging to water quality for numerous reasons and they should all be taken into account when looking at regulations. First is the disturbance to the land in developing the well and the potential for erosion, sediment, and the destruction of the lands ability to filter the water. Next the drilling and fracking has an influence over the hydrology of a given water shed in ways we have yet to grasp. The drilling and fracking process have many negative influences over water quality including: the introduction of non native species from distant equipment coming into the area and equipment moving from watershed to watershed the obvious example being the golden algae bloom that cause the fish kill at Dunkards Creek. Next is the pulling of water from water ways throughout the state during drought conditions which certainly exacerbated the fish kill at Dunkards Creek.Third, The frack water can include whatever chemical soup the developers want to choose with no oversight, this is unacceptable! It is naive to assume that this does not mingle with the water table. The insufficiet treatment of the frack water and the questionable method of disposal of solids also poses risks to the water. Finally, the process of well development and the mingling of gas and oil with strata above introduces this into the water table. I can show you oil seeping from the ground around and below wells, it does not take much oil to contaminate a water way. I have numerous neighbors who have claimed ruined wells to gas development due to gas mingling with the water table.

I live on a creek that is slowly returning to life after being dead for many years due to acid mine drainage and now I fear that it may never recover from our insatiable appetite for cheap energy. It is time for West Virginians to stand up against the extractive industries to ensure a habitable environment for future generations. The DEP is in the position to do something but it is crucial that it take the needs of the citizens over the needs of industry!

Sincerely,

Dana Light

RR1 Box 306

Thornton, WV 26440

304-265-6279

Keller, Linda B

From: Cosco, Kathy on behalf of DEP Comments
Sent: Friday, July 16, 2010 2:36 PM
To: Keller, Linda B
Subject: FW: Triennial Review comments

From: Chuck Wyrostok [mailto:wyro@appalight.com]
Sent: Tuesday, July 13, 2010 11:01 PM
To: DEP Comments
Subject: Triennial Review comments

July 13, 2010

West Virginia Department of Environmental Protection

Charleston, WV

Re: Comments on the Triennial Review

Please consider the following comments on the Triennial Review required by the federal Clean Water Act to update its water quality standards.

Some of the proposed changes this year are good first steps, but do not go far enough to protect water quality. Other changes being proposed actually would weaken the state's water quality standards and are not protective of either human health or aquatic life.

- DEP's proposed "**Narrative Water Quality Standards**" language that makes "certain water withdrawal activities" not allowable in state waters, is a good first step. However, this additional language alone does not go far enough to protect West Virginia streams from water withdrawals. In order to be protective of both human health and aquatic life, DEP should draft legislation for immediate consideration by the West Virginia Legislature that establishes guidelines and a permit process for water withdrawals.

- DEP proposes to make permanent a **Mixing Zone Variance for Weirton Steel**. This would eliminate current monitoring requirements and remove any incentive for Weirton Steel to correct its discharge so that it does not discharge pollutants at concentrations in excess of the "Category A" public water supply criteria within one-half mile of a public water supply intake. This provision should be dropped from this rule.

- DEP is proposing new **Nutrient Criteria for Lakes** language that would result in lakes not being considered "impaired" unless <u>both</u> phosphorous and chlorophyll-a water quality standards are exceeded. This directly contradicts EPA guidance on the development of nutrient criteria, which recognizes that lakes might be impaired for <u>either</u> phosphorous or chlorophyll-a independently of each other. This provision should also be dropped from this rule.

- DEP is proposing a specific phosphorous standard to combat algae problems on the Greenbrier River. This is a good first step. However, the state has made no progress on developing statewide **Nutrient Criteria for Rivers and Streams**. DEP should reconvene its Stakeholders Nutrient Committee and move the criteria-setting process for rivers and streams forward as expeditiously as possible.

- DEP is proposing to weaken the water quality standard for **Iron on Trout Streams** by doubling the current limit of 0.5 parts per million of iron to 1.0 parts per million. DEP is basing its decision on studies that don't take into account the unique characteristics of West Virginia trout waters: low pH, low conductivity, low ionic strength, and low acid neutralization capacity. Lowering this standard will impose major costs on the state, because hundreds of existing clean-up plans (TMDLs) and NPDES discharge permits will have to be re-written. West Virginia's trout streams are a valuable public resource. The iron standard should not be changed until more thorough studies are conducted that consider the unique water quality characteristics of WV's trout waters.

- DEP is proposing a statewide water quality standard for **"Total Dissolved Solids"** (TDS) of 500mg/l measured in-stream. This is stronger than Pennsylvania's standard of 500mg/l which is measured only at public water supply in-takes. However, it is ***twice*** as high as the 250mg/l that EPA recommends as the Human Health Standard for total dissolved solids. A) DEP should adopt the federal standard for human health of 250mg/l. B) In addition, DEP fails to propose in this rule an aquatic life standard for **conductivity**, with which TDS levels are closely associated. DEP should adopt an aquatic life criterion for conductivity as proposed by EPA. In addition, any criteria for TDS/conductivity should be protective of streams threatened by golden algae.

I appreciate the opportunity to comment. Thank you for your time and diligence.

Sincerely,

Chuck Wyrostok

230 Griffith Run
Spencer, West Virginia 25276
T: 304 927 2978
E: wyro@appalight.com

WEST VIRGINIA
MANUFACTURERS ASSOCIATION
2001 Quarrier Street, Charleston, WV 25311
Telephone: (304) 342-2123
FAX: (304) 342-4552
wvma@wvma.com

July 19, 2010

Ms. Linda B. Keller
Water Quality Standards Program
WV Department of Environmental Protection
601 57th Street, S.E.
Charleston, WV 25304

Re: Comments of the West Virginia Manufacturers Association on West Virginia Water Quality Standards 47 CSR 2

Dear Ms. Keller:

The West Virginia Manufacturers Association (WVMA) is an organization composed of hundreds of companies, with a principal purpose of advancing manufacturing in West Virginia. Members include producers of primary materials, such as metals and chemicals, as well as the finished products made from those materials. Other members provide services to manufacturers throughout the state. Many of these members hold NPDES permits, and are affected by the decisions regarding those permits and water quality standards that are made by the West Virginia Department of Environmental Protection (DEP).

COMMENTS ON THE PROPOSED RULE

A. Total Dissolved Solids

The DEP has proposed adopting a water quality criterion for total dissolved solids (TDS) of 500 mg/L, derived from the Secondary Maximum Contaminant Level for protection against taste and odor effects. *See* 40 CFR 143.3. The criterion would be adopted for the purpose of protecting the public water supply use category, designated Category A in the water quality standards. *See* 47 CSR 2-6.2.

We question whether a criterion is needed for TDS. States adopt water quality standards to protect designated uses. 40 CFR 131.11(a)(1); *Water Quality Standards*

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Handbook, Second Edition ("Handbook"), EPA-823-B-93-002 (September 1993) Section 3.3, page 3-12. The use in question is the Category A public water supply use, and we do not know of any water supplies that have had difficulty with treating water to a safe level as a result of TDS. While we are aware of a problem at Dunkard Creek that was, at least in part, attributed to high TDS levels, and statements made about high TDS levels in Monongahela River during drought conditions, we do not believe that these isolated situations merit a state-wide standard for TDS. The DEP needs to verify that TDS is an ongoing problem, and that the chosen criteria are based on "sound scientific rationale." Handbook at 3-1. Further work should be done to determine whether a state-wide criterion is needed and is practicable.

If DEP adopts a criterion for TDS, it should apply the standard at the point of intake of a public water supply.[1] The intake is where the use occurs, and it would be appropriate to "apply the criteria for drinking water consumption . . . at the point of use." Handbook at 3-20. Applying the TDS criterion at a water supply intake would mean changing the DEP's interpretation of the public water supply use, because it would apply the Category A criteria for TDS where the use actually occurs, rather than in every location in state waters. Such an interpretation would be perfectly compatible with the way the water quality standards are written, but it is not how the DEP has applied the standards in the past.

The water quality standards expressly assign only the Category B (for protection of aquatic life) and Category C (protection of water contact recreation) uses throughout the state. *See* 40 CSR 2-6.1. Not coincidentally, these "fishable/swimmable" uses are the only statewide uses required by the Clean Water Act, 33 U.S.C.A. § 1251(a)(2). Furthermore, the definition of the public water supply use refers only to existing water supplies, not all waters of the state. If there was any question in this regard, the Environmental Quality Board (EQB) answered it in 1986, when it clarified how the Category A use was to be applied. "Above all, [the EQB] agreed that the category and criteria for public water supplies should not be applied to streams or stream segments where no one is using the waters for drinking."[2] It is hard to imagine a more explicit statement that the Category A use was meant to apply at public water supply intakes.

The DEP and the EQB (which formerly promulgated water quality standards), have tried at least twice to make a formal change and designate all state stream segments as Category A and were rebuffed each time by the Legislature. In 1999 the EQB, with the support of the DEP, attempted to revise water quality standards to reflect its belief

[1] Applying the TDS criterion at the public supply intake was recommended by a majority of the DEP Advisory Council at its May 27, 2010 meeting.
[2] State Water Resources Board, Rationale Document for Revision of Legislative Rules. January 6, 1986.

that the public water supply use should apply everywhere, even where there was no public water supply present. The regulated community opposed that change, and on March 21, 1999 the West Virginia Legislature agreed, passing House Bill 2533, which was signed into law by the Governor on April 2, 1999. The bill allowed the EQB's proposed water quality standards to remain in place only until October 1999, with the condition that:

> ...the Environmental Quality Board shall review, revise and propose, within this statutory deadline, and in accordance with the provisions of chapter twenty-nine-a of this code, emergency and legislative rules to address interpretive differences regarding the designation of Category A waters and analyze the need for distance prohibitors for the policies of public drinking water intake. . . .[3]

Following passage of House Bill 2533, the EQB promulgated an emergency rule in which it proposed classifying all waters of the State as Category A/public drinking water supplies. "The proposed amendment clarifies that all waters of the State are protected by the drinking water supply designated use category..."[4] While the EQB took the position it was clarifying existing law, it was absolutely clear to others that expanding the Category A use represented a change in water quality regulation. In February 2000 EPA acknowledged that the October 1999 emergency rule constituted a change to West Virginia's approved water quality regulations that would require EPA approval:

> The Environmental Protection Agency understands that the Environmental Quality Board has proposed to designate all waters of West Virginia as public drinking water supply. . . . We hope that this letter provides West Virginia with a better understanding of what EPA Region III would expect should West Virginia decide to pursue a statewide redesignation of Category A."[5]

After receiving EPA Region III's letter, the West Virginia Legislature refused to redesignate all state waters as Category A/public drinking water supplies. "The emergency rule relating to the environmental quality board . . . filed in the state register on the eighteenth day of October, one thousand nine hundred ninety-nine. . .is repealed and not authorized."[6]

---

[3] Enrolled Committee Substitute for House Bill 2533.
[4] October 18, 1999 Notice of an Emergency Rule filed by the EQB.
[5] Letter dated February 12, 2000 from John V. Pepino, EPA Region III Associate Director-Office of Watersheds to Senator William Wooten.
[6] Enrolled Committee Substitute for House Bill 4223.

Despite having its rule rejected by the Legislature, the DEP and the EQB continued their efforts to apply the Category A/public drinking water supply use designation to all waters of the state. In July 2001, a WV DEP representative stated that the agency "is going to continue its position [regarding Category A application in NPDES permits] unless directed to do otherwise by the [Environmental Quality] Board."[7] This time, the EQB decided not to pursue another legislative rule change that would designate all waters as Category A/public drinking water supplies. Instead, the EQB attempted to adopt the DEP's position by advancing a procedural rule that adopted Category A use removal procedures:

> The current implementation of Category A by the Division of Water Resources of the [DEP] in the [NPDES] permitting program is that the designated use [of Category A Public Water Supply] applies to all waters of the state, unless it has been removed specifically by the Board. The Board supports this interpretation and application of the Public Water Supply use.[8]

This procedural rule would not ordinarily have been reviewed by the West Virginia Legislature's Legislative Rulemaking Review Committee (LRRC), but the LRRC noted that it had the effect of a legislative rule, which does fall under its jurisdiction. Noting that the procedural rule rested on the false premise that all streams had already been designated by legislative rule as serving a Category A/public drinking water supply use, the LRRC rejected the procedural rule:

> We have reviewed 46 C.S.R. 7, "Procedural Rule Governing Reclassification of Water Designated for Public Water Supply", which was filed on January 8, 2003. This procedural rule allows the Environmental Quality Board to remove the Category A (public water supply use) that is described in the water quality standards (46 C.S.R. 1). In effect, the Board would use a procedural rule 46 C.S.R. 7 to amend a legislative rule, 46 C.S.R. 1, without legislative review. As co-chairpersons of the Legislative Rulemaking Review Committee, we must reject any procedural rule such as 46 C.S.R. 7 that functions as a legislative rule, in derogation of West Virginia Code §§29A-3-1 et seq.[9]

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[7] July 7, 2001 article appearing in the Charleston Gazette.
[8] Statement of Circumstances Requiring Proposed Rules." Filed by the EQB on September 17, 2002.
[9] March 5, 2004 2003 letter from Senator Mike Ross and Delegate Virginia Mahan, Co-Chairs, Legislative Rulemaking Review Committee to Edward Snyder, Chair, EQB.

Because of the clear defect presented by using a procedural rule to amend a legislative rule such as 47 C.S.R. 2, the EQB's procedural rule for removing the Category A/public drinking water use has never, to our knowledge, been used.

The DEP has argued that the Category A criteria must apply in all locations, in order to preserve all state streams as future water supplies. That position is without merit. All public water supplies are existing uses and therefore the Category A criteria must be applied to protect them. Future public water supplies are also protected – if a new intake is placed in a stream tomorrow, or in ten years, it will immediately create an existing public water supply use, without any action required by the DEP. Dischargers, such as those holding NPDES permits, must protect an existing public water supply use, and permit limits must be calculated accordingly. No person can discharge pollutants that would cause a public water supply to take in water that did not meet the Category A criteria, whether or not the discharger was there before the water supply intake was installed.

We believe that the current water quality standards, correctly interpreted, compel the DEP to apply Category A criteria at the point of a water supply intake. However, in light of past (mis)interpretations by the DEP, we suggest that a change to Section 6.2 be made to clarify this, by deleting Section 6.2.d and replacing it with the following:

6.2.d. – all other surface water intakes where the water is used for human consumption.

6.2.e – criteria for the protection of this use are applied at the intake for the described water systems and such distance upstream as is necessary to provide a reasonable margin of safety.

If the TDS criterion is adopted, care will be required in implementing it. Because TDS is a pollutant in state water that is present to varying degrees as a result of natural, background conditions, it is possible, even likely, that many discharges covered by WV/NPDES permits will contain some levels of naturally-occurring TDS. In the event DEP intends to adopt a water quality standard for TDS, in order to assure that a permittee is not required to treat its discharge for pollutants it has not added, we urge the agency to expressly allow for netting of TDS concentrations. One mechanism for assuring this approach would be through guidance provided to NPDES permit writers concerning the implementation of the TDS standard.

B. Water Withdrawal and Narrative Criteria

We are concerned about water withdrawal activities being added to the list of activities in Section 3.2 of the standards that can cause prohibited conditions. The

prohibited conditions that might be created are those found in Subsection 3.2.i, which refers to

> Any other condition . . . which adversely alters the integrity of the waters of the State including wetlands; no significant adverse impact to the chemical, physical, hydrologic, or biological components of aquatic eco systems, shall be allowed.

"No significant adverse effect" is difficult to quantify. For example, some streams are dry in the summer. If water is withdrawn from such a stream, causing downstream areas to become dry a day or a week sooner, is there a significant adverse impact? Is damming a withdrawal? Without some standard, water withdrawal could create unexpected liability.

We would prefer that water withdrawal activities be regulated in the context of the Water Resources Protection and Management Act, Chapter 22, Article 26. The Legislature has appointed a Joint Legislation Oversight Commission on State Water Resources, and the DEP's proposal to regulate withdrawals as narrative water quality criteria might first have been presented to it, before proposing a change to the water quality standards.

We are also concerned about the impact of the proposed rule change on riparian rights. Stream-side property owners are entitled to reasonable use of water that flows by the property, so long as there is no damage to downstream riparian owners. The proposed change would seem to deprive riparian owners of the right to make use of low flows, in derogation of the owner's common law rights. If the Legislature is to limit riparian rights, it should do so directly, not through a water quality standards change.

C. Iron

We support the change in the chronic criterion for iron from .5 mg/L to 1.0 mg/L for Category B trout waters.

D. Variances

The WVMA supports the proposed changes to Section 7.2.a. (the "Half-Mile Rule") which allows the application of a mixing zone to certain segments of the Ohio River if all criteria for establishing a mixing zone, other than the half-mile prohibition, are satisfied. As noted by WVDEP staff at the May 18, 2010, public meeting announcing its proposed changes to the water quality standards, the agency's review of this proposed change indicated there would be no adverse impact on any public water supply. The

WVMA believes that this is a practical and still protective approach to the application of the Half-Mile rule is appropriate.

We appreciate the opportunity to offer these comments, and ask that you contact us if you should have any questions about them.

Very truly yours,

Karen Price

Karen Price, President
West Virginia Manufacturers Association

KP:shb

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RECEIVED
JUL 19 2010
WATER QUALITY STDS

Linda B. Keller
Water Quality Standards Program
WV Department of Environmental Protection
601 57th Street SE
Charleston, WV 25304

July 14, 2010

Re: Proposed 2010 Revisions to 47CSR2, "Requirements Governing Water Quality Standards".

Dear Ms. Keller:

On behalf of Appalachian Power Company, I offer the following comments on the proposed changes to the West Virginia Water Quality Standards. Appalachian Power is a member of the West Virginia Manufacturers Association and we have reviewed and support WVMA's comments on the proposed amendments. We agree with WVMA that more analysis is needed before a state wide standard for Total Dissolved Solids (TDS) is applied to West Virginia Waters. We are especially concerned that , as the WVMA comments relate, DEPs interpretation of the application of Public Water Supply restrictions to all waters of the state could result in an end of pipe application for a standard of this sort. Such an interpretation could impose significant additional costs on discharges throughout the state and should not be done in the absence of a rigorous analysis by DEP that the benefits of such an action are clearly demonstrated.

We also support WVMA's analysis of the new inclusion of water withdrawal as a specified action that can be specifically relied upon to make a finding that the action causes conditions not acceptable in state waters. Until this is reviewed in light of West Virginia's long time adherence to the principle of riparian doctrine the DEQ should not attempt to make this change without legislative instruction.

We appreciate the opportunity to offer these comments and my contact information is included below if I may provide any further information.

Sincerely,

Timothy Mallan
Manager, Environmental Affairs

Cc: Alan R. Wood, AEP
Karen Price, WVMA

West Virginia Surface Owners' Rights Organization
1500 Dixie Street, Charleston, WV 25311
(304) 346-5891 - FAX: (304) 346-8981
www.wvsoro.org

July 19, 2010

Scott Mandirola
Division of Water and Waste Management
West Virginia Department of Environmental Protection
601 57th Street SE
Charleston, WV 25304

Re: Comments on Rule 47 CSR 2 Requirements Governing Water Quality Standards

Dear Mr. Mandirola,

The West Virginia Surface Owners' Rights Organization (WV-SORO) is a member-supported advocacy group for rural landowners in West Virginia who own the surface of land on which natural gas wells, pipelines, and other infrastructure is present. We submit these comments on behalf of our 700 plus members.

We have read the comments on the West Virginia Department of Environmental Protection's proposed changes to 47CSR2, Requirements Governing Water Quality Standards, submitted by the WV Rivers Coalition, the WV Environmental Council and others and we join them in their request that the WVDEP act on behalf of the citizens of West Virginia by moving to further protect their water quality.

In particular, we applaud the DEP for adding the language "certain water withdrawal activities" (Sec. 3.1 and 3.2) and "algae blooms" (Sec 3.2.g.) as conditions not allowable in state waters (§47-2-3), and we strongly support this additional language. However, we do not feel the additional language alone goes far enough to protect West Virginia streams from either water withdrawals or algae blooms. In particular, we are very concerned about water withdrawal activities associated with Marcellus Shale drilling.

The new drilling and fracturing techniques used for Marcellus wells are water intensive. Vertically drilled Marcellus wells require at least 600,000 gallons of water with chemical additives, while horizontally drilled wells require up to six million gallons of water or more.

This is an unanticipated demand on the water resources of the state and West Virginia currently has little regulation and no permit process for water withdrawals from streams, rivers and wells, to provide the water this new drilling activity will require.

We urge the DEP to draft legislation for immediate consideration by the West Virginia Legislature that will establish guidelines and a permit process for water withdrawals.

In addition, we support the establishment of a TDS standard for West Virginia. It is long past due. However, we do not support DEP's recommended standard of 500mg/l. We strongly recommend that the standard be set at 250mg/l, which is the USEPA recommended Human Health Standard for total dissolved solids. DEP has provided no explanation why West Virginia's standard should not be at least as stringent as the Federal standard.

We thank the West Virginia Department of Environmental Protection for consideration of our comments.

Sincerely,

Julie Archer
Project Manager
julie@wvsoro.org

Keller, Linda B

From: Cosco, Kathy on behalf of DEP Comments
Sent: Tuesday, July 20, 2010 2:21 PM
To: Keller, Linda B
Subject: FW: Comments on water quality standards

-----Original Message-----
From: Rebecca Hartman Huenink [mailto:rebeccach@gmail.com]
Sent: Monday, July 19, 2010 5:52 PM
To: DEP Comments
Subject: Comments on water quality standards

Dear DEP,

As a resident of Monroe County, where Marcellus Shale gas drilling is set to begin any day, I am particularly concerned about West Virginia's lack of regulation of the use of water for "fracking" in the gas drilling process. Please do everything in your power to ensure that this activity does not compromise our state's waters.
Specifically, DEP should draft legislation for immediate consideration by the West Virginia Legislature that establishes guidelines and a permit process for water withdrawals, as well as for disposal of water used for "fracking."

Thank you for your attention to this matter.

Rebecca Huenink
Sinks Grove

To: **Division of Water and Waste Management**
West Virginia Department of Environmental Protection

From: **Indian Creek Watershed Association, Board of Directors**
Monroe County, West Virginia

Date: **July 19, 2010**

RE: **Comments on Proposed Title 47 Legislative Rules Regarding Water Resources** *(Public Comment period ending July 19, 2010)*

We are writing as representatives of the Monroe County Indian Creek Watershed Association (ICWA). An active watershed organization since 1996, ICWA's focus and mission is: "The preservation and protection of Monroe County's abundant, pure water." Our website can be found at: **http://IndianCreekWatershedAssociation.org/**

We commend the West Virginia DEP for taking steps to protect West Virginia's water and water quality. This is an especially important time for new, stronger regulations to be enacted and enforced. In particular, increased Marcellus Shale gas drilling presents unique demands and dangers for our state's water levels and water quality.

We feel strongly, however, that the proposed regulations do not go far enough to create the safeguards needed to protect West Virginia's current and future water resources. Some regulations, in fact, appear to weaken existing quality standards. We make some specific comments on proposed rules below, but our overarching call is that the WVDEP needs strong regulations, as well as the funding and staff required to monitor and enforce those regulations. While Marcellus gas drilling may offer valid economic opportunities for the state and state residents, we do not believe that any West Virginia residents would knowingly agree to put at risk the waters that are used by themselves and their families, as well as their neighbors, communities, livestock and wildlife.

- **West Virginia's waters should not be sacrificed to the current "gas rush" mentality.** The potential for negative environmental impacts of deep gas drilling and its attendant activities are being exposed on a near daily basis. Clearly, the industry has not been directed to put adequate safeguards in place, and we believe that there has not been sufficient environmental impact review.
- **Regulations should protect West Virginia waters at all stages of industrial operations.** Marcellus Shale drilling requires enormous amounts of water, and presents clear dangers to water quality in the transportation and use of toxic chemicals for hydraulic fracturing as well as the "containment" or recycling of contaminated fluids. In particular, Clean Water Act standards that protect streams and watersheds should not be excluded from applying at drilling sites. What is the point of safety regulations if they are waived where they are most needed?
- **Regulations should be adequate to address the full range of West Virginia watersheds and waterways.** West Virginia enjoys a wild, wonderful and diverse set of natural resources and landscapes. Procedures and regulations that might

have served safely in other areas of the country do not necessarily apply in our mountains and valleys.

- **In Monroe County, we have a special concern: the highly vulnerable karst formations that underlie much of our county.** Karst formations – characterized by the presence of sinkholes, caves, and "lost rivers" – have been identified by the EPA as particularly sensitive high-risk aquifers, where water contamination can happen quickly, spread unpredictably, and be extremely difficult to remedy. Ginsburg and Palmer, in their 2002 EPA document, also note that karst varies significantly from region to region, so that guidelines applicable to making source-water assessments in one karst region do not necessarily apply to other karst formations. We believe that the risk of contamination *at any stage* of Marcellus Shale gas drilling operations could present immediate and potentially long-lasting dangers to the region's water quality. This danger is magnified by the fact it could be difficult for public or private parties to respond effectively to any incident, either to contain the damage or even to alert those whose drinking and agricultural water supplies might be in jeopardy.

  We feel strongly that before any gas drilling is pursued in Monroe County, there should be a thorough environmental impact study that looks at the specific issues of water supply and watershed contamination in our karst territory. In particular, the gas companies should be required to assess and report current water quality and quantity in the region where the drilling will occur as part of the permitting process before any permit is issued. This type of study would help protect not only the interests of Monroe County residents, but those of the state and gas companies as well, by avoiding what could be a disastrous, expensive, long-term liability.

With little or no local authority to provide protections, our counties must depend on the WVDEP to fulfill its mission as guardian of West Virginia's environmental resources. We urge that the strongest possible measures be put in place. At a minimum, WV regulations should meet all federal EPA and Clean Water Act standards – and they should exceed federal standards and regulations where the special needs and interests of West Virginia are at stake.

Following are comments related to specific Proposed Rules:

47CSR2 – Requirements Governing Water Quality Standards
Proposed Rule [links to WVDEP]

<u>§47-2-3. Conditions Not Allowable In State Waters</u> – The addition of "certain water withdrawal activities" not allowable in state waters is important, but should be further strengthened. To be protective of both human health and aquatic life, DEP should draft legislation for immediate consideration by the West Virginia Legislature that establishes guidelines and a permit process for water withdrawals.

§47-2-7. West Virginia Waters: 7.2 Applicability of Water Quality Standards – It is not clear that waters in karst formation areas would be adequately protected by existing or proposed standards. We recommend that specific language be added, in this section and/or wherever most appropriate, to address site-specific conditions in karst regions, recognizing that additional testing and permit procedures might be required due to the unusual vulnerability of water resources in karst topography.

§47-2-8. Specific Water Quality Criteria:
8.3.a.3. Criteria for Nutrients in Lakes. We oppose the proposed language that states the "a lake shall not be considered impaired based upon an average total phosphorous concentration in excess of the criterion established … unless the chlorophyll-a criterion established therein is also exceeded." WVDEP regulations should follow the EPA guidance and recognize that lakes might be impaired for *either* phosphorous or chlorophyll-a.

8.3.b. Criteria for Nutrients in Streams. We applaud adding specific phosphorous standards for the Greenbrier River. We also agree with the West Virginia Environmental Council (WVEC) that, in addition, the DEP should reconvene its Stakeholders Nutrient Committee and move ahead on the criteria-setting process for rivers and streams overall.

Other areas in which we advocate stronger standards:

- The water quality standard for Iron in Trout Streams should not be changed, and especially not weakened, until more thorough studies are conducted.
- With regard to a statewide quality standard for Total Dissolved Solids,
  - WVDEP should adopt the federal standard for human health of 250mg/l.
  - WVDEP should adopt an aquatic life criterion for conductivity as proposed by EPA. And any criteria for TDS/conductivity should be protective of streams threatened by golden algae.

47CSR12 – Requirements Governing Groundwater Standards
Proposed Rule

§47-12-3. Groundwater Standards
We object to regulation 3.4, which *excludes* the WVDEP groundwater quality standards from applying to geologic formations in sites specific to production or storage of crude oil or natural gas, underground injection zones, and coal extraction and earth disturbing activities. These are sites where environmental protection is most needed.

This exclusion appears especially dangerous for karst formations, since contamination at any site would likely pass quickly beyond the borders of the site in unknown directions and to considerable distances. If exploration, production and storage activities are to be permitted in areas of karst formation, adherence to groundwater quality standards should be closely monitored and controlled, not excluded.

47CSR60 – Monitoring Well Design Standards
Proposed Rule

It is not clear whether the guidelines in this regulation are applicable to the engineering requirements of deep-gas drilling and hydraulic fracking. We urge that the strongest reasonable safeguards be put in place for all drilling and groundwater monitoring, and that the unique vulnerabilities of karst formations be given special consideration.

Deep gas drilling and industrial uses of water are discretionary activities, unlike maintaining the quality of water for human and animal use. Too many times, the terms "reasonable" or "best practices" have been used as a cover for "acceptable pollution." In West Virginia, there are no barriers between the water which would be contaminated by the drilling and fracking process and the water which would be used by people and animals, and in fact, they are one and the same. Consequently, it is of paramount importance that the water quality be preserved to drinking water quality standards.

33CSR20 – Hazardous Waste Management System
Proposed Rule

We urge that WVDEP regulations meet or exceed federal guidelines for hazardous waste management. In particular, we ask WVDEP to ensure that regulations are in place to protect our citizens and waterways from the toxic chemicals and by-products that will be transported, used, stored, recycled, and otherwise introduced into the West Virginia environment in the process of Marcellus Shale drilling for natural gas.

Respectfully,
Judy Azulay, Steve Ellison, Nancy Bouldin, Jill Grace Young, Keveney Bair

Board of Directors and Staff Members, Indian Creek Watershed Association

Contact for questions or follow-up:
Nancy Bouldin, nancy_bouldin@hotmail.com

Phone: 304-527-2800

Wheeling - Nisshin

Penn & Main Streets • P.O. Box 635 • Follansbee, WV 26037

July 19, 2010

VIA ELECTRONIC MAIL

Ms. Linda B. Keller
Water Quality Standards Program
Division of Water and Waste Management
West Virginia Department of Environmental Protection
601 57th Street S.E.§
Charleston, WV 25304

Re: Comments on Proposed Revisions to 47 CSR 2

Dear Ms. Keller:

Wheeling-Nisshin, Inc. ("Wheeling-Nisshin"), is pleased to provide the following comments on the proposed revisions to the West Virginia surface water quality standards, 47 CSR 2 (the "Proposed Rule"). Wheeling-Nisshin is a hot dipped metal galvanizing operation located in Follansbee, WV. Started in 1988 with a second line built in 1993, Wheeling-Nisshin currently employs 176 people of which 116 are represented by the United Steelworkers of America. Wheeling-Nisshin has the capacity to produce over 700,000 tons of quality hot rolled product shipped throughout the United States. Our company is integral to the manufacturing sector of the Northern Panhandle of West Virginia. Wastewater from our Follansbee facility is discharged pursuant to West Virginia Water Pollution Control/NPDES Permit No. WV0004502. The terms and conditions of this permit are determined in part by the standards promulgated by the West Virginia Department of Environmental Protection at 47 CSR 2. Thus, Wheeling-Nisshin has a strong interest in the Proposed Rule.

Wheeling-Nisshin supports the proposed change to the "half-mile rule," 47 CSR 2, § 7.2.a.2. This change will allow the DEP to consider actual or likely impacts to downstream public water supplies at certain specified locations rather than following an automatic application of the half mile rule's prohibition without any consideration of potential costs and economic impact or actual or threatened harm to the environment or public health. Further information in support of the proposed change to §7.2.a.2 is provided in the attached letter to Director Scott Mandirola, dated March 26, 2010 from

Wheeling-Nisshin. This proposed change is a critical provision for our facility and we urge that it be finalized as proposed.

Wheeling-Nisshin also supports and incorporates by reference the comments on the Proposed Rule of the West Virginia Manufacturers Association and the West Virginia Chamber of Commerce.

Thank you for your consideration of these comments.

Sincerely,

Ty Lollini, Manager
Environmental Health & Safety

Phone: 304-527-2800

Wheeling - Nisshin

Penn & Main Streets • P.O. Box 635 • Follansbee, WV 26037

March 26, 2010

SENT VIA OVERNIGHT AND EMAIL

Scott G. Mandirola, Director
Division of Water and Waste Management
West Virginia Department of Environmental Protection
601 57th Street, SE
Charleston, WV 25304

RE: Exception to Half-Mile Rule for Ohio River Milepoint 70 to71
Wheeling-Nisshin, Inc.

Dear Director Mandirola:

I am writing to request consideration of a revision to the Half-Mile rule as set forth at 47 CSR 2-7.2.a.2 as a part of the upcoming triennial review of water quality standards. This request is made on behalf of Wheeling-Nisshin, Inc. ("Wheeling-Nisshin") for its steel manufacturing facility in Follansbee, West Virginia. Wheeling-Nisshin has been operating in its present location for over twenty years, and is proud of its efforts over the years to have a productive, efficient, safe, and environmentally responsible operation. The current national economic crisis, however, has had direct impacts on Wheeling-Nisshin's operations, and has resulted in reduced production, salary cuts, and even layoffs. Discharge limitations for sulfate in Wheeling-Nisshin's WV/NPDES permit (Permit No. WV0004602), which were imposed as a result of the Half-Mile Rule and are to become effective on September 30, 2010, cannot be achieved without significant expenditures, estimated to be in excess $750,000, and will yield no corresponding environmental or human health benefits.

A. Background.

WV/NPDES Permit No. WV0004602 (the "Permit") was reissued in August 2007. The Permit included final sulfate limits on the discharge from Outlet 003 of 250 mg/l daily maximum and 250 mg/l monthly average. These limits were based on a water quality standard promulgated by the Ohio River Valley Water Sanitation Commission ("ORSANCO"). Although a mixing zone typically would be available for an outlet such as Outlet 003, because Outlet 003 discharges within one-half mile of the intake for the Hooverson Heights public water supply, no mixing zone was allowed and the ORSANCO standard for sulfate was imposed as an end-of-pipe discharge limitation. An initial 24-month compliance period for achieving these limitations has been extended by permit modification until September 30, 2010.

As Wheeling-Nisshin noted in comments filed with DEP, background sulfate data in the Ohio River both upstream and downstream of Outlet 003 show sulfate levels far below 250 mg/l. with average concentrations of 68 mg/l. Further, historic data demonstrate that the discharge

from Outlet 003 has no measured impact on the Hooverson Heights drinking water intake, which is located 2,114 feet (slightly less than one half mile) downstream of the outfall. Instead, sulfate levels at the Hooverson Heights intake appear to be consistent with background sulfate levels in the Ohio River.

Second, a detailed evaluation conducted by Wheeling-Nisshin has revealed that the sulfate in its discharge is attributable primarily to background concentrations in the groundwater that is the source for process water at the Follansbee facility. After reviewing various alternatives for reducing sulfate concentrations in its discharge, Wheeling-Nisshin concluded that relocating Outlet 003 such that it is more than one half mile from the downstream drinking water intake was the most cost-effective option for achieving compliance with the final sulfate limits. This option would not reduce Wheeling-Nisshin's sulfate discharges, but would remove the "half mile" issue, thereby making a mixing zone an immediate option. Importantly, this option would only be available if Wheeling-Nisshin is able to acquire additional property for the location of the new discharge line, which may or may not be possible. The cost estimate for pursuing this option, including labor and equipment, but without any amount for property acquisition is in excess of $750,000.

Requested Action

For these reasons, Wheeling-Nisshin requests that the DEP amend the water quality standards to create an exception to the Half-Mile Rule and allow a mixing zone to be utilized in determining the appropriate sulfate discharge limitations for Outlet 003. Specifically, we requested that the following language be added to Sec. 7.2.a.2:

> The one-half (1/2) mile zone describe in this section shall not apply to the Ohio River between mile points 70 and 71. All mixing zone regulations found in section 5 of this rule will apply except 47 CSR 2 §5.2.h.6. Whether a mixing zone is appropriate, and the proper size of such zones, would need to be considered on a site-specific basis in accordance with the EPA approved West Virginia mixing zone regulations in 47 CSR 2, §5.

In addition, because of the impending compliance deadline of September 30, 2010, it is requested that this exception also be allowed under emergency rule-making procedures of W. Va. Code § 29A-3-15.

Please feel free to contact me with any questions at (304)527-4833.

Sincerely,

Ty Lollini

Ty Lollini, Manager
Environmental Health & Safety

cc: Linda B. Keller, DWWM
Yogesh Patel, DWWM

DEPARTMENT OF THE ARMY
PITTSBURGH DISTRICT, CORPS OF ENGINEERS
WILLIAM S. MOORHEAD FEDERAL BUILDING
1000 LIBERTY AVENUE
PITTSBURGH, PA 15222-4186

REPLY TO
ATTENTION OF

JULY 19 2010

RECEIVED
JUL 21 2010
WATER QUALITY STDS

Planning and Environmental Branch
Business Resource Division

Linda B. Keller
Water Quality Standards Program
West Virginia Department of Environmental Protection
601 57th Street SE
Charleston, West Virginia 25304

Dear Ms. Keller:

The US Army Corps of Engineers ("USACE"), represented by the Pittsburgh District, offers the following comments in response to the West Virginia Department of Environmental Protection's ("WVDEP") proposed revisions to 47CSR2, Title 47, Legislative Rule, Requirements Governing Water Quality Standards ("Proposed Rulemaking").

The USACE supports the Proposed Rulemaking to include water withdrawals as a source of pollution, and commends the WV DEP for taking this important step toward ensuring the continued protection of West Virginia's water quality and the safety and potability of West Virginia's drinking water supplies. The USACE also respectfully recommends that additional or more stringent water quality criteria and water withdrawal regulations be adopted to achieve their intended goals.

I. Introduction

The USACE plays a vital role in maintaining the flow, navigability, and water quality of the West Virginia's water resources. Specifically, the Pittsburgh District operates and maintains 16 reservoir projects and 23 locks and dams in the upper Ohio River basin, of which 2 reservoirs and 6 locks and dams are located in West Virginia.

The projects described above are authorized by Congress for statutory purposes including, but not limited to, flood control, low-flow augmentation, water quality, water supply, navigation, fish and wildlife protection, and recreation. The USACE reconciles these purposes to achieve an appropriate and sustainable balance between them. This balance is achieved, in part, by carefully synchronized schedules for water release from our reservoirs and water retention of our dams.

Specifically, the USACE's water quality mission arises out of various congressional authorizations, Executive Orders, and Federal laws. These authorizations direct the USACE to operate and manage their reservoirs to improve water quality both in the reservoir impoundments

and in the downstream reaches of river. More than 88% of storage in Pittsburgh District reservoirs is exclusively dedicated to water quality, approximately 8,000 linear miles of stream are controlled by these reservoirs, and over 1,030 miles of 21 major streams are directly influenced by District reservoir releases (§47-2-7 7.2.d.7.1).

The USACE also maintains robust current and historical water quality data in partnership with the U.S. Geological Survey, through a network of monitoring stations on a number of rivers and streams in proximity to these reservoirs. In order to assure operations for optimum water quality benefits, The Pittsburgh District has maintained a "grab sample" water quality monitoring program in the upper Ohio River basin in West Virginia since the late 1960's, and has also operated 8 continuously recording water quality monitors in the Monongahela River watershed since the mid-1990s. Samples are routinely analyzed for a variety of parameters (specific conductivity, solids, nutrients, metals, hardness, alkalinity, acidity, EPA priority pollutants, etc) and real-time monitors measure water temperature, dissolved oxygen, specific conductivity, pH, and/or total dissolved gas.

After four decades of demonstrable improvement in water quality, the USACE's data shows that conditions are reversing on some Monongahela River Basin rivers and streams in both West Virginia and Pennsylvania. It is becoming apparent that the assimilative capacity of some rivers to receive total dissolved solids, if not already exceeded, is close to being exceeded, and simply cannot sustain the additional loading projected as a result of natural gas exploration activities. In the last two years, evidence of degradation, based on elevated specific conductivity readings recorded at water quality monitors located on the Monongahela River at Elizabeth, PA and the West Fork River at Enterprise, WV, in addition to the recent Dunkard Creek aquatic kill, demonstrates that high TDS wastewaters threaten to undermine historical water quality improvements, posing a genuine and extreme threat to regional water quality.

II. Proposed Rulemaking

A. Section 47-2-3, 3.1 and 3.2 (proposed):

Conditions Not Allowable In State Waters.
3.1. Certain characteristics of sewage, industrial wastes, and other wastes and certain water withdrawal activities cause pollution or conditions and that are objectionable in all waters of the state. Therefore, the Secretary does hereby proclaim that the following general conditions are not to be allowed in any of the waters of the state.
3.2. No sewage, industrial wastes or other wastes present in any of the waters of the state or water withdrawal activities shall cause therein or materially contribute to any of the following conditions thereof...

COMMENT:

The USACE supports changes to the rule that acknowledge the direct relationship between water quantity and water quality. However, in order to protect streams from excessive withdrawals and also to protect USACE augmented flow authorized for non-consumptive use (water quality, navigation), the USACE recommends a separate rulemaking establishing comprehensive water withdrawal regulations.

B. Section 47-2-8, 8.3.a. 3 (proposed):

8.3.a.3. A lake shall not be considered impaired based upon an average total phosphorus concentration in excess of the criterion established in section 8.3.a.2, unless the chlorophyll-a criterion established therein is also exceeded.

COMMENT:

The USACE supports individual, statewide nutrient criterion.

C. Section 47-2-8, 8.3.b. 8.5 (Appendix E, Table 1) (proposed):

Chronic Aquatic Life total iron criterion for trout streams proposed change from 0.5 mg/l to 1.0 mg/l.

COMMENT:

The USACE respectfully disagrees with changes to this proposed rule given the growing potential for iron pollution from untreated wastewater generated from fracturing, production, field exploration, drilling, or well completion affiliated with mineral extraction activities. In light of the fact that development in the Marcellus shale is rapidly accelerating in the upper Ohio River watershed, the USACE urges WV DEP to retain its existing criterion in high quality trout streams and headwater watersheds. Less stringent criterion could compromise existing water quality conditions and undermine USACE's authorized water quality mission.

III. Additional Recommendations

The USACE submits the following additional recommendations to WV DEP for its consideration:

A. To the extent that it is not already so provided, where discharge through a publicly owned treatment works, sewage treatment plant, or other wastewater treatment facility is proposed, pretreatment must include removal of constituents comprising TDS, as well as radionuclides and radioactive materials;

B. Disposal into surface waters of wastewater generated from fracturing, production, field exploration, drilling, or well completion should be expressly prohibited;

C. Identify, resolve and eliminate the inequities created by the absence of a River Basin Commission in the Ohio River Basin. In that regard, the USACE recommends that WV DEP adopt and implement site specific natural condition TDS, chloride, and strontium criterion for aquatic life (§47-2-7 7.2.c.3), similar to the Delaware River Basin Commission's (DRBC) criteria for special protection waters. 18 C.F.R. 410; DRBC Regulations. Also, the USACE recommends watershed- based water withdrawal regulations to assess cumulative impacts of thousands of withdrawals on water quality and aquatic life.

D. Adopt and implement aquatic life and water supply TDS criterion (maximum 750 mg/l, monthly average 500 mg/l). Without TDS criterion, the cumulative effect of combined TDS discharges on streams is not being addressed (§47-2-2, 2.3 and 47-2-6, 6.1.c). The code should be revised to further limit or prohibit high TDS wastewater discharges proportional to the sensitivity of the receiving water. Factors to consider should include, but are not limited to: (1) the receiving waters' flow criteria; (2) the seasonal variations affecting the receiving water; (3) the status of the receiving water as a headwater tributary; and (4) established stream designation and uses. For example, no discharge should be permitted to High Quality or Exceptional Value streams. Moreover, no discharge should be permitted during periods of low-flow, as determined by the WV DEP (§47-2-6, 6.1.).

E. Adopt and implement relevant and appropriate daily or instantaneous aquatic life limits for bromide, arsenic, radium, benzene, sodium, strontium, boron, and magnesium.

F. Sections 47-2-7, 7.2.b. and 47-2-7, 7.2.c.1., providing for enumerated exceptions to the applicability of water quality standards during periods of low-flow, should be eliminated.

The USACE also offers Exhibits A and B, attached hereto and incorporated herein by reference, by way of supporting evidence for the recommendations set forth herein.

Sincerely,

William H. Graham
Colonel, Corps of Engineers
District Engineer

Enclosure

Exhibit A

Monongahela River

"Worse Case" Summer Season Specific Conductivity For Period of Record (1974 - 2006), and Maximum Specific Conductivity Recorded at @ Elizabeth PA During 2008 & 2009

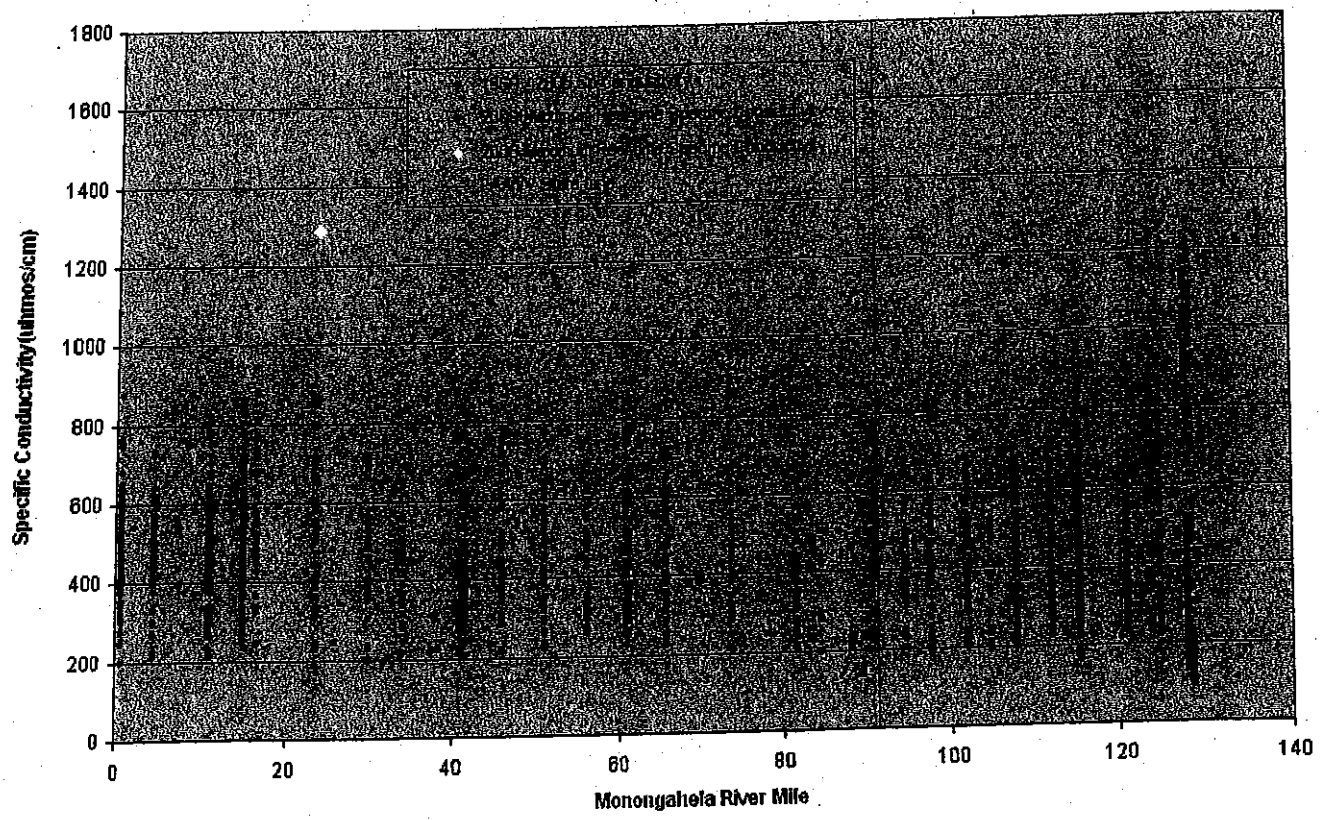
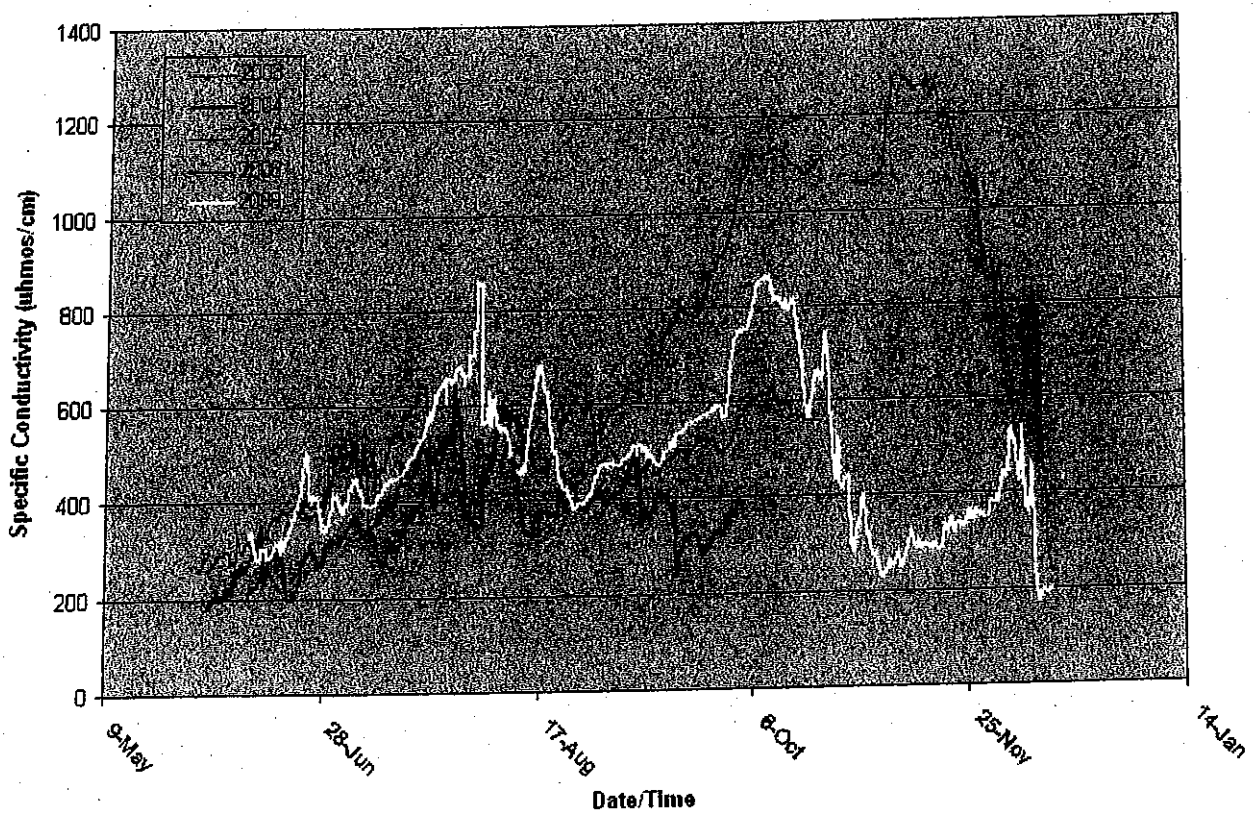


Exhibit B

Monongahela River Mile 23.8 at Elizabeth L/D
Specific Conductivity 2003, 2004, 2005, 2008, & 2009



ArcelorMittal

July 19, 2010

Via E-mail and U.S. Mail

Kathy Cosco
West Virginia Department of Environmental Protection
Public Information Office
601 57th Street SE
Charleston, WV 25304
DEP.Comments@wv.gov

Re: **ArcelorMittal Weirton, Inc.'s Comments Regarding WVDEP's 2011 Proposed Revisions to 47 CSR 2**

Dear Ms. Cosco:

On behalf of ArcelorMittal Weirton, Inc. ("ArcelorMittal Weirton"), this letter serves as a public comment on the West Virginia Department of Environmental Protection's ("WVDEP's") 2011 proposed rule revisions to 47 CSR 2, West Virginia's Water Quality Standards ("WQS") regulations. WVDEP has made these rules available for public review and comment until the scheduled public hearing on July 19, 2010. ArcelorMittal Weirton appreciates the opportunity to review the proposed rule revisions and provides the following comments.

A. ArcelorMittal Weirton Supports Final Adoption of the Half-Mile Rule Emergency Rulemaking.

ArcelorMittal Weirton supports WVDEP's proposed final adoption of the Half-Mile Rule emergency rulemaking at 47 CSR 2-7.2.a.2. The proposed rule reflects the emergency rule amendment to the Half-Mile Rule, which recognizes that the one-half mile zone between river mile points 61.0 and 63.5 (where ArcelorMittal Weirton's intake and Outlet 002 are located) shall not apply, thereby recognizing a site-specific exception for the ArcelorMittal Weirton facility. WVDEP filed the emergency rule on March 3, 2010 and the rule was signed by the West Virginia Secretary of State on March 5, 2010. A public hearing for the emergency rule was held on April 1, 2010. U.S. EPA issued its approval of the emergency rule by its letter dated June 16, 2010.

ArcelorMittal Weirton previously commented on the emergency rule in its March 12, 2010 comment letter submitted to WVDEP and that letter is incorporated herein by reference. In justifying this important emergency rule, WVDEP recognized that the West Virginia Water Quality Standards, as modified by the emergency rule, "*would still be fully protective of the public water supply use in this segment of the Ohio River while eliminating unnecessary treatment costs to the regulated community.*" ArcelorMittal Weirton concurs with WVDEP and, accordingly, supports finalization of the emergency rule change to 47 CSR 2-7.2.a.2, thereby ensuring that the site

specific exemption for the ArcelorMittal Weirton facility is reflected in a final, permanent rule promulgated by WVDEP.

B. ArcelorMittal Weirton Continues to Negotiate Issues Associated with Effluent Limits for Outlet 004 Notwithstanding the Status of the Socio-Economic Variance.

ArcelorMittal Weirton understands that the socio-economic variance originally granted to ArcelorMittal Weirton pursuant to 47 CSR 7.2.d.16.2 expired on July 1, 2009. However, ArcelorMittal Weirton continues to disagree with several effluent limits imposed by WVDEP for its Outlet 004 discharging to Harmon Creek. ArcelorMittal Weirton is raising those issues with WVDEP in the context of ongoing settlement discussions with WVDEP in ArcelorMittal Weirton's pending NPDES permit appeal. Those issues will continue to be addressed in that forum.

C. ArcelorMittal Weirton Incorporates Herein the Comments Filed by ArcelorMittal USA, Inc.

ArcelorMittal Weirton understands that ArcelorMittal USA, Inc. is submitting a comment letter to WVDEP on the 2011 proposed rule revisions to the State's Water Quality Standards. ArcelorMittal Weirton concurs with ArcelorMittal USA, Inc.'s comments, including but not limited to comments related to total dissolved solids, selenium, and iron, and incorporates them by reference as if fully restated herein.

ArcelorMittal Weirton appreciates the opportunity to comment on the 2011 proposed WQS revisions. Should you have any questions, please don't hesitate to contact me.

Sincerely,

David P. Minda

David P. Minda
Compliance Manager
ArcelorMittal Weirton, Inc.

cc: Gary Amendola, Amendola Engineering, Inc.
Christina Archer, Esq., ArcelorMittal USA, Inc.
Douglas Bley, ArcelorMittal USA, Inc.
Kendra S. Sherman, Esq., Squire, Sanders & Dempsey LLP

July 19, 2010

Public Information Office
601 57th Street, SE
Charleston, WV 25304

Honorable Representative,

National Committee for the New River (NCNR) respectfully submits the following comments on the proposed changes to the state Requirements Governing Water Quality Standards Rule (47CSR2).

Section 8.3.b.1.A. To protect Water Use Categories A and C, the thirty-day average total phosphorus concentration shall not exceed 10 µg/l in the mainstem of the Greenbrier River from its mouth upstream to the mouth of Beaver Creek (river mile 102.8), based on four or more samples collected at base flow conditions, during the period May 1 to October 31. In lieu of such sampling, impairment may be evidenced at any time by noncompliance with subsection 3.2, as determined by the Secretary.

NCNR supports this change as a good first step. The state needs to develop a statewide Nutrient Criteria for Rivers and Streams. NCNR suggests that DEP reconvene its Stakeholders Nutrient Committee and move the criteria-setting process for rivers and streams forward immediately.

Section 8.15 Chronic Iron Amounts in Trout Waters
NCNR does not support the weakening of the water quality standard for Iron in trout streams. By doubling the current limit of 0.5 parts per million of iron to 1.0 parts per million DEP will be risking the health of Category 2 trout waters.

Iron loads are delivered to the tributaries with surface runoff, subsurface flows, and direct point sources. Sediment-producing land uses and bank erosion are also sources of iron. Iron and sediment are among the most common pollutants in the state's waters.

Risking the trout health and population in state waters is not consistent with West Virginia's public policy to "maintain reasonable standards of purity and quality of the water of the state consistent with (1) public health and public enjoyment thereof; (2) the propagation and protection of animal, bird, fish, and other aquatic and plant life..." West Virginia's trout streams are a valuable public resource and the iron standard should not be changed.

8.32 Turbidity
Although NCNR supports a statewide water quality standard for "Total Dissolved Solids" (TDS), the proposed 500 mg/l is twice as high as the 250 mg/l that the EPA recommends as the Human Health Standard for total dissolved solids. We suggest that DEP adopt the federal standard for human health of

250mg/l. Also, NCNR implores DEP to adopt the EPA's aquatic life criterion for conductivity. TDS levels are closely associated with conductivity levels.

Unfortunately, the proposed changes do not establish a program to regulate water withdrawals nor mandate the creation of such a program in the future. NCNR supports the enactment of such a program in a future legislative session.

Please help ensure that the state water quality standards are protective of human health and the environment.

Sincerely,

George Santucci
Executive Director

July 15, 2010

West Virginia Department of Environmental Protection
Public Information Office
601 57th Street S.E.
Charleston, WV 25304
DEP.Comments@wv.gov

To Whom It May Concern:

I am writing to submit comments to the proposed rule 47CSR2 – Requirements Governing Water Quality Standards. In general I support the rule and I am pleased to see the West Virginia Department of Environment Protection (WV DEP) is considering more stringent regulations on water quality as this will have a direct effect on the mining practices. However, I do ask the WV DEP further consider the following items:

1) **Total Dissolved Solids (TSD) Standard**

Total dissolved solids (TDS) is a water quality standard used to measure of all inorganic and organic substances suspended in water. TDS is generally applied to freshwater as salinity can affect the measurement of TDS. The proposed rule 47CSR2 is proposing a TDS of 500 mg/L, the EPA standard forTDS. I support this value and support that it should be applied "in-stream," regardless of the water source end use.

2) **Specific Conductivity Standards**

In addition to a TDS standard, WV DEP should also consider developing a specific conductivity standard. Conductivity is a measure of the ability of water topass an electrical current. Conductivity in water is affected by the presence of inorganic dissolved solids such as chloride, nitrate, sulfate, and phosphate anions (ions that carry a negative charge) or sodium, magnesium, calcium, iron, and aluminum cations (ions that carry a positive charge). This is an important consideration in mining operations, as mining can introduce many of these inorganic compounds into water streams. These compounds in freshwaters can adversely affect the ability for plants and animals to live or consume the freshwater. This affects not only the in-water environment, but also animals that use the water for drinking water or people who use the water for irrigation or drinking. Conductivity is measured in micromhos per centimeter (µmhos/cm) ormicrosiemens per centimeter (µs/cm). According to EPA, distilled water has conductivity in the range of 0.5 to 3 µmhos/cm. The conductivity of rivers in the United States generally ranges from 50 to 1500 µmhos/cm. Studies of inland fresh waters indicate that streams supporting good mixed fisheries have a range between 150 and 500 µhos/cm. WV DEP should add a conductivity standard to the water quality parameters.

3) **Hydraulic Fracturing Regulations.**

Lastly, WV DEP should consider including rules regulating hydraulic fracturing associated with the Devonian aged shales (such as Marcellus Shale formation) under a large portion

of the Northern Appalachian Mountains. A large volume of water is used during the hydraulic fracturing drilling process. The water is a combination of freshwater and fluids that contain lubricating chemicals. The lubricating chemicals have been proven to have adverse affects on groundwater aquifers and surface waters. In January 2010 WV DEP released a four-page industry guidance document on the hydraulic fracturing drilling methods. It is not clear why WV DEP would only have four pages providing "guidance," which is not enforceable the way a "rule" is. As a comparison, the two proposed surface mining rules (199CSR1 and 38CSR2), on which WV DEP is seeking public comments, are 237 pages. To date, WV DEP has no proposed rule changes for a mining process that has resulted in numerous injuries (***including the recent June 7, 2010 explosion in Moundsville, West Virginia, which severely injured seven people)***, numerous water quality issues, numerous explosions, and numerous public concerns.

In summary; the WV DEP should maintain the proposed TDS standard of 500 mg/L, add a conductivity standard, and place a moratorium on hydraulic fracturing until appropriate regulations are in place to protect the public and the environment.

I appreciate WV DEP considering public comments. Our family has owned property in the Richwood area of Nicholas County for over 150 years, and we are very interested in the continued protection of human health and the environment in WV.

Sincerely,
Clyde E. Willard (Nicholas County. WV Landowner)
7335 Ash Brook Court
Sykesville, MD 21784

July 12, 2010

West Virginia Department of Environmental Protection
Public Information Office
601 57th Street S.E.
Charleston, WV 25304
DEP.Comments@wv.gov

To Whom It May Concern:

We are writing to submit comments to the proposed rule 47CSR2 – Requirements Governing Water Quality Standards. In general we support the rule and are pleased to see that the West Virginia Department of Environment Protection (WV DEP) is considering more stringent regulations on water quality, as this will have a direct effect on the mining practices. However, we ask that WV DEP further consider the following items: 1) total dissolved solids standard, 2) specific conductivity standards, and 3) hydraulic fracturing regulations.

Total dissolved solids (TDS) is a water quality standard used to measure of all inorganic and organic substances suspended in water. TDS is generally applied to freshwater as salinity can affect the measurement of TDS. The proposed rule 47CSR2 is proposing a TDS of 500 mg/L, the EPA standard for TDS. I support this value and support that it should be applied "in-stream," regardless of the water source end use.

In addition to a TDS standard, WV DEP should also consider developing a specific conductivity standard. Conductivity is a measure of the ability of water to pass an electrical current. Conductivity in water is affected by the presence of inorganic dissolved solids such as chloride, nitrate, sulfate, and phosphate anions (ions that carry a negative charge) or sodium, magnesium, calcium, iron, and aluminum cations (ions that carry a positive charge). This is an important consideration in mining operations, as mining can introduce many of these inorganic compounds into water streams. These compounds in freshwaters can adversely affect the ability for plants and animals to live or consume the freshwater. This affects not only the in-water environment, but also animals that use the water for drinking water or people who use the water for irrigation or drinking. Conductivity is measured in micromhos per centimeter (μmhos/cm) or microsiemens per centimeter (μs/cm). According to EPA, distilled water has conductivity in the range of 0.5 to 3 μmhos/cm. The conductivity of rivers in the United States generally ranges from 50 to 1500 μmhos/cm. Studies of inland fresh waters indicate that streams supporting good mixed fisheries have a range between 150 and 500 μhos/cm. WV DEP should add a conductivity standard to the water quality parameters.

Lastly, WV DEP should consider including rules regulating hydraulic fracturing associated with the Devonian aged shales (such as Marcellus Shale formation) under a large portion of the Northern Appalachian Mountains. A large volume of water is used during the hydraulic fracturing drilling process. The water is a combination of freshwater and fluids that contain lubricating chemicals. The lubricating chemicals have been proven to have adverse affects on groundwater aquifers and surface waters. In January 2010 WV DEP released a four-page industry guidance document on the hydraulic fracturing drilling methods. It is not clear why WV DEP would only have four pages providing "guidance," which is

not enforceable the way a "rule" is. As a comparison, the two proposed surface mining rules (199CSR1 and 38CSR2), on which WV DEP is seeking public comments, are 237 pages. To date, WV DEP has no proposed rule changes for a mining process that has resulted in numerous injuries (including the recent June 7, 2010 explosion in Moundsville, West Virginia, which severely injured seven people), numerous water quality issues, numerous explosions, and numerous public concerns.

WV DEP should maintain the proposed TDS standard of 500 mg/L, add a conductivity standard, and place a moratorium on hydraulic fracturing until appropriate regulations are in place to protect the public and the environment.

We appreciate WV DEP considering public comments. Our family has owned property in the Richwood area of Nicholas County for over 150 years, and we are very interested in the continued protection of human health and the environment in WV.

Sincerely,

Jamie Stevens and Daniel Willard
125 N 77th Street
Seattle WA, 98103

Keller, Linda B

From: Cosco, Kathy on behalf of DEP Comments
Sent: Monday, July 19, 2010 2:18 PM
To: Keller, Linda B
Subject: FW: Public Comment: Water Quality Standards

From: ChubnWV@aol.com [mailto:ChubnWV@aol.com]
Sent: Monday, July 19, 2010 12:00 PM
To: DEP Comments
Cc: dsgjr@aol.com
Subject: Public Comment: Water Quality Standards

West Virginia Department of Environmental Protection
Public Hearing: Water Quality Standards
601 57th Street S.E., Charleston, WV 25304.

My name is Paul E. Hamrick and I reside in the unincorporated community of Arlington Addition outside of Clarksburg, my mailing address is Rt 3 Box 352 Clarksburg WV 26301. I would like to make the following written comments for the record as I cannot attend the Public Hearing in Charleston tonight.

1) I would like to submit this link, http://www.sciencedaily.com/releases/2010/07/100712103331.htm and ask the WV DEP to review and comment on this study that was just released by Emory University on Combined Sewer Overflows (CSO's) promoting the spread of West Nile Virus.
The Science Daily reports that sewage overflows into urban creeks and streams during periods of heavy rain can promote the spread of West Nile Virus.

A front page story in the Clarksburg Exponent Telegram this past Saturday (July 17,2010) notes the health improvements sanitary sewer brings to the communities being served by the local PSD project, but no mention of the public health issues and stream degradation with the CSO's in the municipal collection and treatment system that they are tying into. A small Public Advisory on Combined Sewer Overflows is printed in the Legal Ads of this same issue of the same newspaper and the public is advised that during rainstorms to avoid contact with the water, cause when CSO's are discharging, there is a potential for health risks from contact with the stream. There are more than sixty (60) Combined Sewer Overflows in Clarksburg and Bridgeport discharging into the Simpson Creek, Elk Creek and the West Fork River.

2) I am also concerned about our streams being sucked dry and brine possibly being dumped into streams by all of the out of state crews drilling Marcellus Shale gas wells. It was just a few short years ago that cattle farmers were encouraged and financially assisted to build watering ponds during a drought in our state, so I don't believe we can support all of this drilling without knowing where and how much water they will take. I believe the Golden Algae came in with the water trucks and their attached hoses from Mississippi, Texas and Louisiana that we see everywhere you look anymore. I have been approached, as a part-owner of mineral rights on a 150 acre tract, by a Colorado firm that informed me they alone plan to drill 100 Marcellus wells here in Harrison County, so yes I am very concerned that we as a state have too few inspectors to monitor all of these well sites and we are going to react to problems rather than be proactive to prevent them..

Paul E. Hamrick
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July 15, 2010

WV DEP:

These remarks are in regards to the motions to be discussed at the meeting Monday night July 19, 2010.

We should have the highest water quality standards. No water STANDARDS should be lowered.

Remember that water is most important to everyone's way of life in West Virginia. Besides drinking water and drinks made with water and using water in cooking, clean water is necessary in water used in recreational uses-water sports, fishing, and the like. Water in streams and lakes need to made up clean water.

The water that comes from wells has to be kept clean and contamination kept from entering our wells.

Contaminated waters are next to impossible to clean.

All one has to do is talk to those whose wells have been ruined to learn of hardships.

West Virginians are lucky to have good water supplies. Look at western states and see them fighting for water supplies. Look at eastern states looking for water supplies. Look at the Gulf of Mexico.

Clean water is necessary for everything from tourism, farming, wildlife, to everyday activities such as just staying alive.

Water should be number one on a list of things protected in West Virginia. Water is our resource used by everybody.

Water standards should raised to the highest level and not lowered.

Thank for listening.

Bob Liebman

Bob Liebman

July 13, 2010

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WVDEP

JUL 19 2010

PUBLIC INFORMATION OFFICE

Public Information Office
601 57th Street S.E.
Charleston, WV 25304

To Whom it May Concern:

I am not only gravely concerned about streams being dewatered or brine being dumped into streams by drilling Marcellus Shale gas wells, fish kills on streams like Dunkard Creek, huge amounts of algae clogging my favorite lakes and rivers, or maintaining the highest water quality standards on all West Virginia trout stream, but I FIRMLY BELIEVE the **highest standards** for pure water preservation for **ALL** waters in West Virginia must be adopted and maintained!!!!!!

- DEP's proposed "**Narrative Water Quality Standards**" language that makes "certain water withdrawal activities" not allowable in state waters, is a good first step. However, this additional language alone does not go anywhere NEAR far enough to protect West Virginia streams from harmful water withdrawals! In order to be protective of both human health *and* aquatic life, DEP must draft legislation for immediate consideration by the West Virginia Legislature that establishes guidelines *and* a permit process for water withdrawals.

- DEP's proposal to make permanent a **Mixing Zone Variance for Weirton Steel IS AGREGIOUS BEYOND WORDS!!!** This HORRIBLE proposal would eliminate current monitoring requirements and remove any incentive for Weirton Steel to correct its discharge so that it does not discharge pollutants at concentrations in excess of the "Category A" public water supply criteria within one-half mile of a public water supply intake. This provision **MUST** be dropped from this rule!!!

- The DEP proposal of new **Nutrient Criteria for Lakes** language will result in lakes not being considered "impaired" unless both phosphorous and chlorophyll-a water quality standards are exceeded. **THIS IS TOTALLY UNACCEPTABLE!!!** This directly contradicts EPA guidance on the development of nutrient criteria, which recognizes that lakes might be impaired for either phosphorous or chlorophyll-a independently of each other! This provision **MUST ALSO** be dropped from this rule!!!

- DEP is proposing a specific phosphorous standard to combat algae problems on the Greenbrier River. While this is a good first step, the state has made no progress on developing statewide **Nutrient Criteria for Rivers and Streams**! DEP should reconvene its Stakeholders Nutrient Committee and move the criteria-setting process for rivers and streams forward as expeditiously as possible!

- DEP's proposal to weaken the water quality standard for **Iron on Trout Streams** by doubling the current limit of 0.5 parts per million of iron to 1.0 parts per million is **COMPLETELY UNACCEPTABLE!!!!!!!** DEP is basing its decision on studies that don't take into account the unique characteristics of West Virginia trout waters: low pH, low conductivity, low ionic strength, and low acid neutralization capacity. **Lowering this standard will impose major costs on the state, because hundreds of existing clean-up plans (TMDLs) and NPDES discharge permits will have to be re-written. West Virginia's trout streams are a valuable public resource.** The iron standard **MUST NOT BE CHANGED** until more thorough studies are conducted that consider the unique water quality characteristics of WV's trout waters!!!

- DEP is proposing a statewide water quality standard for **"Total Dissolved Solids"** (TDS) of 500mg/l measured in-stream. This is ***twice*** as high as the 250mg/l that EPA recommends as the Human Health Standard for total dissolved solids. I believe that : (a) DEP should adopt the federal standard for human health of 250mg/l. and (b) DEP must not fail to propose in this rule an aquatic life standard for **conductivity**, with which TDS levels are closely associated. **DEP should adopt an aquatic life criterion for conductivity as proposed by EPA. In addition, any criteria for TDS/conductivity should be protective of streams threatened by golden algae.**

Your thoughtful consideration of my concerns is greatly appreciated!

Most sincerely,

Pamela Ruediger

Pamela Ruediger
2193 Charleston Road
Spencer, WV 25276

WVONGA West Virginia Oil and Natural Gas Association

July 19, 2010

Ms. Linda B. Keller
Water Quality Standards Program
WV Department of Environmental Protection
601 57th Street, S.E.
Charleston, WV 25304

Re: Comments of the West Virginia Oil and Natural Gas Association on West Virginia Water Quality Standards 47 CSR 2

Dear Ms. Keller:

The West Virginia Oil and Natural Gas Association (WVONGA) offers the following comments with regard to the prospective changes to the West Virginia Water Quality Standards, 47 CSR 2 ("the Standards"), which were proposed for public comment on June 9, 2010.

Total dissolved solids

The DEP has proposed amending Appendix E of the Standards to set dissolved solids (TDS) water quality criteria at 500 mg/L for protection of human health. One of the justifications frequently given for adopting a TDS criterion is the alleged discharge of high levels of TDS-bearing wastewaters by oil and gas operators. In fact, the West Virginia oil and gas industry is not a significant contributor to TDS in West Virginia, because of the prohibition against direct discharges of production fluids to State streams. EPA's effluent limitation guidelines (ELGs) for the onshore oil and gas industry do not allow for any discharge of production fluids into surface waters. The ELG was described in this fashion:

> . . . there shall be no discharge of wastewater pollutants into navigable waters from any source associated with production, field exploration, drilling, well completion, or well treatment (i.e., produced water, drilling mud, drill cuttings, and produced sand).

41 *Fed. Reg.* 44943 (October 13, 1976). *See also* 40 C.F.R. §435.32(a). This is sometimes referred to as the "zero discharge" prohibition.

{R0490915.1}

In West Virginia, the zero discharge prohibition has essentially eliminated discharges of produced or flowback fluids into state streams. Instead of direct discharges, the DEP devised a permit describing how and under what circumstances fluids generated by oil and gas production could be land-applied (i.e., spread over a wide land area near the drilling site) in such a manner as to prevent any of the contaminants from migrating to streams. Some oil and gas operators use this permit to land apply, others discharge produced waters into underground injection control wells, and a few operators are reported to discharge to publicly-owned wastewater treatment plants, although that does not appear to be a common practice. Many reuse the water to drill multiple wells, a practice that is becoming increasingly common, particularly for Marcellus Shale wells, where large quantities of water are required for hydraulic fracturing. In West Virginia, some producers are recycling 80% or more of the flowback from the well.

While we are concerned about setting the record straight with regard to the oil and gas industry's contribution to TDS in state streams, we would also note that we do not see a problem with TDS in West Virginia waters, from whatever source. States adopt water quality standards to protect designated uses, in this case the Category A public water supply use, and we are not aware of any water supplies that have had difficulty with treating water to a safe level as a result of TDS. While we are aware of problems at Dunkard Creek that have, at least in part, been attributed to high TDS levels, as well as statements made about TDS levels in the Monongahela River,[1] we do not believe that this situation merits a state-wide standard for TDS entirely based on precaution, without sound science supporting the decision. Further studies should be completed to determine whether a state-wide criterion is needed and is practicable.

If a TDS criterion is proposed for protection of human health, it should be applied at the point of distribution and based on the human health toxic effects of each ionic substance in the drinking water source. The 500 mg/l criterion is a Secondary Maximum Contaminant Level under the Safe Drinking Water Act established as a guideline to assist public water systems in the management of drinking water, to prevent organoleptic problems. There is no reason to implement a TDS criterion unless that level of dissolved solids becomes a problem for the water treatment company providing potable water. Consequently, while we oppose the adoption of a 500 mg/l criterion, if it is adopted, we believe it should apply at the point of a public water supply intake. Applying the standard in this fashion is consistent with a proper interpretation of the Standards, as set forth more fully in the comments of the West Virginia Manufacturers Association. We also believe that it would correspond to the approach that is being proposed in Pennsylvania.

[1] The TDS problem in the Monongahela River in 2008 appears to have been the result of low flow conditions and the presence of sulfates. Evaluation of High TDS Concentrations in the Monongahela River, Tetra Tech (January, 2009). *See* http://marcelluscoalition.org/wp-content/uploads/2010/06Tetra_Tech_TDS_Report.pdf. As chlorides, not sulfates, predominate in produced fluids, we do not believe that discharges from gas production activities caused high TDS levels in Pennsylvania, in Dunkard Creek or on the Monongahela.

Applicability of narrative criteria to water withdrawal activities

The DEP has proposed to amend the Standards to expressly provide that water withdrawal activities can cause the prohibited conditions set forth in Subsection 3.2 of the Standards. The prohibited conditions that might be created are those found in Subsection 3.2.i, which refers to

> Any other condition . . . which adversely alters the integrity of the waters of the State including wetlands; no significant adverse impact to the chemical, physical, hydrologic, or biological components of aquatic eco system, shall be allowed.

"No significant adverse effect" is difficult to quantify. In some cases, streams run dry in the summer months. If water is withdrawn from such a stream, causing downstream areas to become dry a day or a week sooner, is there a significant adverse impact? Is damming a withdrawal? Without some standard, water withdrawal could create unexpected liability.

The Legislature has instituted a process for developing a Water Resources Management Plan. *See W. Va. Code* Chapter 22, Article 26. Furthermore, the DEP has already developed a real-time system for monitoring flows in state streams, and advising which have sufficient flow to allow withdrawals. We suggest that this Water Withdrawal Guidance Tool (http://www.dep.wv.gov/WWE/Wateruse/Pages/Waterwithdrawal.aspx) and other aspects of the Water Resources Management Plan be allowed to develop before adopting the proposed changes to the water quality standards.

We are also concerned about the impact of the proposed rule change on riparian rights. Stream-side property owners are entitled to reasonable use of water that flows by the property, so long as there is no damage to downstream riparian owners. Regulating withdrawal would seem to deprive riparian owners of the right to make use of low flows, in derogation of the owner's common law rights. If the Legislature is to limit riparian rights, it should do so directly, not through a water quality standards change.

We appreciate the opportunity to offer these comments, and hope they will be given careful consideration.

Very truly yours,

Nicholas DeMarco

Nicholas DeMarco, Executive Director
West Virginia Oil and Natural Gas Association

ND:shb

IOGA
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WATER QUALITY STDS

July 19, 2010

VIA ELECTRONIC MAIL AND U.S. MAIL
Linda B. Keller
Water Quality Standards Program
West Virginia Department of Environmental Protection
601 57th Street S.E.
Charleston, WV 25304

Re: ***Comments on Proposed Revisions to Surface Water Quality Standards - 47 CSR 2***

Dear Ms. Keller:

On behalf of the Independent Oil and Gas Association of West Virginia, Inc. ("IOGA"), I am submitting comments on the revisions that have been proposed to West Virginia surface water quality standards, 47 CSR 2 (hereinafter "the Proposed Rule"). IOGA is a statewide non-profit trade association representing companies engaged in the exploration, production and development of natural gas and oil resources in West Virginia, and the companies and individuals who support these activities. We appreciate the opportunity to offer these comments.

1. Revisions addressing water withdrawal activities

The Proposed Rule would amend Section 3 of 47 CSR 2 titled "Conditions Not Allowable in State Waters" to add a provision that includes "certain water withdrawal activities."[1] With this one, seemingly minor, change the West Virginia Department of Environmental Protection ("DEP") is proposing a major alteration in the water quality standards. For over 50 years West Virginia has had water quality standards that are intended to be used to regulate "discharges" to waters of the state. See W. Va. Code §22-11-2 and 47 CSR 2, §1.1. This regulatory scheme has evolved over the decades and has been refined with regulations that now encompass 52 pages of requirements, every provision of which was developed in the context of assuring that discharges to waters of the state are protective of the designated uses for those waters. Now, with one change that has no identified substantive support, DEP proposes to alter this regulatory scheme to address "certain water withdrawal activities."

[1] IOGA also questions what water withdrawal activities would be covered by the Proposed Rule because only "certain" activities appear to be regulated. The lack of specificity as to which activities may be covered – and the possibility for uneven application of this section of the rule from industry to industry – is yet another reason that this change should not be made.

INDEPENDENT OIL AND GAS ASSOCIATION OF WEST VIRGINIA, INC.
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What is motivating the agency to make such a dramatic and unprecedented shift in the focus of the surface water quality standards? The Proposed Rule itself provides no explanation. At a public meeting held in advance of the filing of the Proposed Rule, DEP mentioned its plan to propose this significant reconstruction of the water quality standards in a single slide. See http://www.dep.wv.gov/WWE/Programs/wqs/Documents/wqs5-19-2010post.pdf, slide 7. While the referenced slide provides no explanation of this major change, a comment offered by a DEP representative at the meeting indicated that this change was motivated by an issue of water withdrawal related to a single Marcellus Shale operation. The DEP has provided no detailed information regarding specific circumstances that led to this proposal. We are not aware of any widespread problem that water withdrawals in connection with Marcellus Shale operations – or any other oil and gas operations – have created. Indeed there is nothing in the record in this rule-making that supports such a dramatic and incongruous shift in the focus of the water quality standards from discharges to waters of the state.

In addition to the argument above that there is no basis in the record to support the extreme change in the focus of the water quality standards that is presented by the addition of the language related to water withdrawals, there is a more practical point that militates against making such a change. As a result of the Water Resources Protection and Management Act, initially adopted by the Legislature in 2004 and subsequently amended in 2008, the DEP has been directed to develop and propose for legislative approval a statewide Water Resources Management Plan ("WRMP"). Among the subjects required to be addressed in the plan are the identification of issues related to water availability or conflicts among water users and identify potential solutions to the same. See *W. Va. Code* §22-26-8. The plan is also required to consider regional and watershed water resources needs, objectives and priorities. *Id.* For all these reasons we urge that the reference to water withdrawal activities be stricken in the final version of this rule.

It is submitted that the WRMP is the proper and the legislatively-mandated vehicle for addressing water withdrawal issues. Any evaluation of impacts of water withdrawal on other water uses needs to be done on a holistic basis as contemplated with the WRMP and not on an *ad hoc* basis as would be done if the issue is addressed through the surface water quality standards. We urge the DEP not to pursue its proposal to re-fashion the surface water quality standards to deal with an issue they were never intended to address and to delete the reference to water withdrawals that appears in the Proposed Rule.

2. The Proposed Total Dissolved Solids Criterion Should Be Deleted in the Final Rule

The Proposed Rule would add a water quality criterion for Total Dissolved Solids of 500 mg/l for the protection of Human Health. See Proposed Rule, page 47.

a. The DEP's reliance on a Secondary Drinking Water Regulation as support for an instream water quality criterion for the protection of human health is not justified

In its presentation at the public meeting referenced above, DEP acknowledged that this criterion was based primarily on the Secondary Drinking Water Regulations ("SDWR") promulgated by the U. S. Environmental Protection Agency pursuant to the federal Safe Drinking Water Act. There are two significant points with regard to SDWRs that were not mentioned at the public meeting. First, limiting drinking water concentrations at these levels is not necessary for the protection of human health. SDWRs are related to aesthetic issues such as taste and odor, and in the case of TDS, concentrations in tap water above the level of 500 mg/l can result in salty taste or scaling on glassware or cooking utensils, but cannot be justified on the basis of protecting human health. U.S. Environmental Protection Agency, Secondary Drinking Water Regulations: Guidance for Nuisance Chemicals, EPA 810/K-92-001 (July 1992). Second, SDWRs have been developed with the assumption and intent that they are to be applied at the end-of-tap of a public water system after the conventional treatment that must be provided by such systems. But that is not the manner by which DEP would apply this standard. In the Proposed Rule, the DEP has extracted a standard to be applied at end-of-tap and, through the NPDES permitting process, would be applying this standard as an in-stream water quality standard which, in the vast majority of West Virginia NPDES permits, will have no relevance to the concentrations of TDS that appear at end-of-tap. Under the fiction that we should assume that humans are drinking directly from all streams in West Virginia, DEP proposes to take a standard that was developed as an end-of-tap limit (i.e., after conventional treatment that is provided by public water supply systems) and apply it in a manner that it was never intended to be applied. The result of this misapplication of a SDWR is that West Virginia will have a standard that is more stringent than is necessary for the protection of human health. This proposed change will have profound implications for those activities in this state that must develop new treatment systems and otherwise modify their operations to comply with this new standard.

b. The resources that would be consumed to comply with the proposed TDS criterion are not justified by the benefits that would result.

If the proposed TDS criterion would be adopted as a water quality standard in West Virginia, how would a discharger comply with such a standard? Recently, the Commonwealth of Pennsylvania initiated a rule-making that would have imposed a TDS standard of 500 mg/l as an end-of-pipe limit for all new discharges. After a public comment process that generated over 4,000 comments, the Commonwealth backed away from this proposal. Among the comments filed on the proposed Pennsylvania rule, it was noted that the available technologies capable of treating industrial and sanitary wastewater to the levels necessary to comply with the proposed standards were limited and because the constituents of TDS are dissolved in wastewater, they

are not readily removed by conventional precipitation and filtering technologies. This point is stated in comments filed by the Electric Power Generation Association on the proposed Pennsylvania rule:

> As a practical matter, technologies capable of achieving the proposed standards are limited to some form of nanofiltration, evaporation, solidification or a combination of the three. . . Nanofiltration essentially means reverse osmosis (RO) for these wastewaters. Evaporation could include simple evaporation or evaporation with crystallization of the resulting brine. Solidification involves mixing the wastewater with other solid materials to form a sludge for eventual landfill disposal. All these technologies involve large capital expenditures with very high annual operation and maintenance costs, use large amounts of energy that need to be made up with increased electric generation, increase the consumptive water use significantly for even moderate wastewater flows, putting additional stress on the State's water budget, and significantly increase the limited landfill space required for disposal.[2]

Assuming these comments accurately reflect the types of treatment that would be necessary to comply with the TDS criterion in the Proposed Rule – what end would this enormous dedication of resources serve? The answer is it would be dedicated to achieving a standard that is meant for aesthetic purposes only and in any event is intended to be applied at end-of-tap and not as an instream standard, as DEP has proposed. More significantly, the proposed TDS criterion would not provide any greater protection for human health. When the slight aesthetic benefits are compared with the significant adverse economic impact of the proposed TDS criterion, DEP's proposed action should not be finalized.

c. <u>The TDS criterion as proposed violates the requirements of W. Va. Code §22-1-3a.</u>

Beyond the practical considerations discussed above which would not support the proposed TDS criterion, there are fundamental legal prerequisites that have not been met in the Proposed Rule. Under W. Va. Code §22-1-3a DEP is prohibited from adopting a regulation that is more stringent that a counterpart federal standard or program unless the agency provides written reasons therefor "which demonstrate that such provisions are reasonably necessary to protect, preserve or enhance the quality of West Virginia's environment, human health or safety, taking into consideration the scientific evidence, specific environmental characteristics of West Virginia or an area thereof, or specific legislative findings, policies or purposes relied upon by the director [now secretary] in making such determination." It cannot be disputed that the federal counterpart standards do not contain a criterion for Total Dissolved Solids. See http://www.epa.gov/waterscience/criteria/wqctable. Therefore, any standard proposed by DEP in the

[2] Comments of Electric Power Generation Association on Proposed Rulemaking, [Pennsylvania] Environmental Quality Board, 25 PA. CODE 95, February 9, 2010, page 3.

absence of a counterpart federal standard would be *prima facie* more stringent than the federal program. By failing to provide the justification for this more stringent standard as a part of the Proposed Rule, DEP has violated the requirements of W. Va. Code §22-1-3a. For this reason, and the reasons stated above, the proposed TDS criterion must not be adopted.

3. The proposed expansion of "Human Health" criteria is not justified and should be deleted.

In a subtle, easily overlooked change in a footnote to Table 1 of Appendix E (the chart of water quality criteria), the proposed rule attempts to broaden the human health use designation for categories A and C by indicating that the criteria developed under those standards are intended to protect human health from toxic "and/or organoleptic" effects." See footnote 4, page 44. IOGA objects to this proposed language which distorts the intent of the human health criteria. As noted above, the criteria DEP has proposed for total dissolved solids is based upon the secondary drinking water regulations issued by USEPA under the Federal Safe Drinking Water Act. By definition, contaminants regulated under the secondary standards do not present a human health issue. Because the secondary regulations are not established for the protection of human health, EPA does not require public water systems to meet these standards. EPA has stated that the secondary standards "are established only as guidelines to assist public water systems in managing their drinking water for aesthetic considerations, such as taste, color and odor. These contaminants are not considered to present a risk to human health at the secondary contaminant level." See http://www.epa.gov/safewater/consumer/ 2ndstandards.html. Therefore, we believe it is a distortion for the WVDEP to now equate the protection of human health with these secondary standards as would be the effect of the proposed change to footnote 4 and urge the rejection of this proposal.

In addition to the above comments, IOGA also supports and incorporates herein the comments on the Proposed Rule filed on behalf of the West Virginia Chamber of Commerce and the West Virginia Manufacturers Association.

IOGA appreciates the opportunity to provide these comments and respectfully requests that they be given deliberate consideration.

Very truly yours,

Charlie Burd by [illegible]

Charlie Burd
Executive Director

ArcelorMittal

July 19, 2010

Ms. Kathy Cosco
West Virginia Department of Environmental Protection
Public Information Office
601 57th Street SE
Charleston, WV 25304
DEP.Comments@wv.gov

Re: ArcelorMittal USA Comments: 2011 Proposed Revisions to West Virginia Water Quality Standards Rule – 47 CSR 2

Dear Ms. Cosco:

ArcelorMittal USA, Inc. (ArcelorMittal) is a leading manufacturer of semi-finished and finished flat-rolled steel products in the United States. ArcelorMittal operates a steel finishing mill at Weirton, WV that employs approximately 600 people and conducts acid pickling, cold rolling and electroplating operations on flat rolled steels produced at other ArcelorMittal facilities. Treated process wastewater, non-contact cooling waters and site storm water are discharged from the Weirton mill directly to the Ohio River and to Harmon Creek, a tributary of the Ohio River. As such, the Weirton mill is regulated through its NPDES permit, in part, by federal categorical effluent limitations guidelines (technology-based effluent limits); and, in part, by water quality-based effluent limits derived from application of the West Virginia water quality standards.

ArcelorMittal is pleased to submit the following comments on proposed revisions and other aspects of the West Virginia water quality standards.

A. *Comments on West Virginia WQS for Total Dissolved Solids*

ArcelorMittal Weirton disagrees with WVDEP's addition of a human health criterion limitation of 500 mg/l for total dissolved solids ("TDS"). The proposed rule would require significant capital expenditures with little environmental benefit. None of the federal categorical effluent limitations guidelines regulate TDS as best available technology ("BAT") or as new source performance standards ("NSPS"). Membrane technologies such as reverse osmosis can be used to concentrate TDS in process wastewaters; however, additional polishing treatment of the reverse osmosis feed stream would be required as would disposal of the reverse osmosis reject stream. The reverse osmosis reject stream could range from 20% to 25% or more of the reverse osmosis feed stream volume. Disposal of the concentrated reverse osmosis reject stream could be by deep well injection or evaporation. Neither of these options are cost effective, or in many applications even cost reasonable. Requiring industrial

dischargers to invest in capital improvements to meet a limit the EPA set for purely aesthetic reasons is both unreasonable and unnecessary.

ArcelorMittal Weirton requests that WVDEP withdraw the proposed addition of the TDS human health criterion. Alternatively, consistent with comments of the West Virginia Manufacturing Association, ArcelorMittal believes that if any proposed West Virginia water quality standards are adopted for total dissolved solids (TDS), such standards should apply only at the point of water withdrawal for potable water supplies.[1]

B. *Comments on West Virginia WQS for Total Iron and Aluminum*

The West Virginia aquatic life (Category B1, B4) and human health (Category A) water quality standards for total iron of 1.5 mg/L in the water column do not appear to be based on current toxicological or human health information. The bases for establishing those standards could not be found through a search of readily available WVDEP electronic records. The West Virginia standards are not consistent with the respective iron water quality criteria recommended by U.S. EPA and not consistent with water quality standards for iron adopted by neighboring states. Furthermore, with respect to at least the upper Ohio River, there are abundant data that demonstrate the great majority of the total iron found in the Ohio River results from runoff of surface soils rich in *naturally occurring iron* and resuspension of Ohio River sediments during periods of high river flow. This is likely the case for most, if not all of the West Virginia watersheds.

Based on comparison of total and dissolved iron water quality data for the Ohio River with recommended U.S. EPA criteria for iron, the West Virginia water quality standards are unnecessarily stringent. For these reasons, and as described more fully below, WVDEP should initiate a formal review of West Virginia Category A and Category B1 and B4 water quality standards for iron, including assessments of naturally occurring iron in surface soils and river sediments in the major West Virginia watersheds. Because naturally occurring aluminum is also found at levels comparable to iron in surface soils and river sediments, and because aluminum behaves similarly with respect to fate and transport in river systems, the West Virginia water quality standards for aluminum should also be reviewed at the same time as those for iron.

1. *West Virginia's Water Quality Standards for Iron Lack Technical Support.*

There is no readily available supporting documentation regarding the technical basis for either the aquatic life (1.5 mg/L) or human health (1.5 mg/L) criteria for total iron adopted by West Virginia. U.S. EPA's recommended criterion for the protection of aquatic life (1.0 mg/L dissolved iron) has been in place since publication of U.S. EPA's 1976 *Quality Criteria for Water* (the "Red Book"). This value was chosen based primarily on field observations such as the water concentrations in which healthy aquatic life communities could be observed. As was customary at the time, a "round number" was chosen based on best professional judgment rather than based on calculations which are used currently to develop water quality criteria. U.S. EPA's subsequent document published in 1986 (the "Gold Book") recommended the same criterion. Recently, U.S. EPA has clarified that this standard is based on dissolved iron rather than total iron in order to remain consistent with the criteria developed for other metals.

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1 By way of comparison, Pennsylvania's WQS regulations provide that the criteria for TDS need only be met at the point of existing or planned surface potable water supply withdrawals 99 percent of the time. See 25 PA. Code §96.3(d).

Further, U.S. EPA's recommended human health criterion for iron (0.3 mg/L dissolved iron) is a Secondary Maximum Contaminant Level ("SMCL"), which is meant to address contaminants that "primarily affect the *aesthetic qualities* relating to the public acceptance of drinking water". This standard is applied to finished drinking water rather than source water. U.S. EPA's Red Book states that *"[t]he iron concentration to prevent objectionable tastes or laundry staining (0.3 mg/L) constitutes only a small fraction of the iron normally consumed and is of aesthetic rather than toxicological significance."*

It is not clear what technical information WVDEP relied upon in determining the West Virginia aquatic life (Category B1, B4) and human health (Category A) criteria for iron. It appears these standards have been in effect for many years and are not premised upon toxicological and human health information. In sum, there is no apparent reasonable basis for West Virginia's exceedingly low aquatic life and human health criteria.

2. ***Based Upon an Analysis of Comparable Criteria, Iron Levels Present in the Ohio River (Upper North) Do Not Pose a Threat to Human Health or Aquatic Life and Do Not Demonstrate that an Impairment Exists.***

U.S. EPA recommends a drinking water criterion of 0.3 mg/L as dissolved iron. West Virginia's criterion, 1.5 mg/L as total iron, would equate to a dissolved criterion of 0.125 mg/L based on the ratio of total to dissolved iron in the Ohio River of approximately 12 to 1 (average of dissolved to total iron concentration of July 2004 – May 2009 ORSANCO data at RM 54.4 – see Attachment A). Unlike West Virginia, three nearby states, Ohio, Pennsylvania, and Kentucky, all have adopted drinking water criteria identical to that recommended by U.S. EPA. As shown in Attachment A, all dissolved iron results collected by ORSANCO in the Ohio River (Upper North) from July 2004 to May 2009 were well below both the recommended U.S. EPA criteria (0.3 mg/L) and what would be the equivalent West Virginia dissolved criterion (0.125 mg/L). Therefore, based on U.S. EPA's recommended drinking water criterion, the iron levels present in the Ohio River (Upper North) do not pose a threat to human health.

West Virginia's chronic criterion for iron for the protection of warm water aquatic life, 1.5 mg/L total iron, is substantially more stringent than recommended by U.S. EPA. U.S. EPA recommends a chronic criterion of 1.0 mg/L dissolved iron. Because the ratio of total to dissolved iron in the Ohio River is approximately 12 to 1 (average of total to dissolved iron concentration of July 2004 – May 2009 ORSANCO data at RM 54.4 – see Attachment A), the effective standard based on the U.S. EPA criterion would be **approximately 12 mg/L** total iron. As such, West Virginia's standard of 1.5 mg/L total iron is much more stringent than that recommended by U.S. EPA for the protection of warm water aquatic life (Category B1). Therefore, based on U.S. EPA's recommended aquatic life criterion and the observed concentrations of dissolved iron in the Ohio River (Upper North), iron levels present in the Ohio River (Upper North) do not pose a threat to warm water aquatic life.

The equation for calculating human health water quality based effluent limits in Ohio is as follows:

Monthly average = 7Q10 * (Human Health Criterion - Background Pollutant Concentration) / Average Discharge Flow

Applying the above equations to a discharge flow of 10 million gallons per day (mgd) or 15.5 cubic feet per second (cfs) yields the following results:

Monthly average = 5,880 cfs * (0.3 mg/L - 0.054[2] mg/L) / 15.5 cfs = 93 mg/L dissolved iron

Therefore, if a discharge were located on the Ohio side of the Ohio River rather than the West Virginia side, the monthly average WQBEL for total iron would be calculated at 1,116 mg/L (12 x 93 mg/L), rather than the West Virginia WQBEL of 1.5 mg/L. In other words, the calculated WQBEL for iron would be over 740 times higher if the only difference is that the discharge is on the opposite bank of the river.

Finally, the Ohio River Valley Water Sanitation Commission ("ORSANCO") has not developed water quality criteria for iron. ORSANCO is a multi-state commission representing eight states (Illinois, Indiana, Kentucky, New York, Ohio, Pennsylvania, Virginia, and West Virginia) and the federal government with the purpose of operating programs to improve the water quality in the Ohio River and its tributaries. To this end, ORSANCO sets waste water discharge standards, performs biological assessments, monitors for the chemical and physical properties of the waterways, and conducts special surveys and studies. Notably, ORSANCO, which is charged with establishing water quality criteria to protect the beneficial uses of the Ohio River, has not established water quality criteria for iron for the protection of either aquatic life or human health.

3. *The Great Majority of the Iron and Aluminum in the Ohio River (Upper North) is Naturally Occurring and Due to Runoff of Surface Soils into the River*

Surface soils in the upper Ohio River basin in Ohio, Pennsylvania and West Virginia are rich in naturally occurring aluminum and iron. Runoff from surface soils accounts for the overwhelming majority of the mass of aluminum and iron found in the upper Ohio River, particularly during conditions of high river flow. Aluminum is included in this analysis because it is found in surface soils in the same range as iron in the Upper Ohio River basin and because it behaves similarly to iron with respect to runoff and fate and transport in river systems. Direct runoff of surface soils and resuspension of Ohio River and tributary stream bottom sediments under conditions of high river flow are the principal causes of Ohio River concentrations of aluminum and iron. As such, controls on point sources with NPDES permit effluent limits for aluminum or iron equivalent to the respective West Virginia water quality standards (even with consideration of the outdated West Virginia iron water quality standard) will have no material impact on attainment of those water quality standards in the Upper Ohio River. This is likely the case in other West Virginia watersheds as well.

Attachment B is a compilation of surface soil and stream sediment chemistry data for aluminum and iron from the upper Ohio River basin upstream of Weirton, WV. A summary of the data is presented in Table 1 below. Attachment B also contains charts of the mass flows (flowing loads) of aluminum and total iron based on water quality data developed by ORSANCO and stream flow data developed by the United States Army Corps of Engineers for the period July 2004 to May 2009 at New Cumberland, WV (River Mile 54.4), upstream of Weirton. The simultaneous occurrence of relatively high levels of aluminum and iron is highly correlated and demonstrates the runoff effects noted above. The flowing loads of aluminum and iron are so high (at times in the range of 1,000,000 pounds of iron per day) that any point source contributions from industrial manufacturing activities and municipal wastewater treatment plants are insignificant and essentially irrelevant. Because these massive, naturally occurring non-

[2] Average of Ohio River dissolved iron concentrations at New Cumberland, WV (July 2004 – May 2009) assuming dissolved iron is present at the reporting level – see Attachment A.

point source loadings are the principal causes of exceedances of the current West Virginia water quality standards in the Upper Ohio River, they are not readily controllable. Although to date, this type of analysis may not have been conducted for the entire West Virginia drainage area of the Ohio River and other West Virginia watersheds, the findings of such an analysis is expected to be very similar.

On the basis of the above assessments, WVDEP should conduct formal reviews of the West Virginia aquatic life and human health water quality standards for total iron and aluminum, with full consideration of the effects of naturally occurring iron and aluminum in surface soils and resuspension of river sediments under periods of high river stage.

Table 1

Abundance of Aluminum and Iron in Ohio River Basin Surface Soils and Stream Sediments
USGS National Geochemistry Database
(Data Collected Between Latitude 41.6624 and 40.2959; Longitude -81.66 and -79.58251)

	Aluminum		Iron	
	Wt. %	Equivalent mg/kg (ppm)	Wt. %	Equivalent mg/kg (ppm)
Surface Soils				
No. of Samples	94		94	
Maximum	8.21	82,100	5.7	57,000
Median	5.38	53,800	2.51	25,100
Minimum	3.50	35,000	0.69	6,900
Stream Sediments				
No. of Samples	83		83	
Maximum	7.7	77,000	7.24	72,400
Median	4.50	45,000	2.88	28,800
Minimum	1.69	16,900	1.75	17,500

C. *Comments on West Virginia WQS for Total Recoverable Selenium*

The current West Virginia Category B aquatic life water quality standards for total recoverable selenium are 5 ug/L (chronic) and 20 ug/L (acute). The Category A human health (drinking water, fish consumption) standard is 50 ug/L. ArcelorMittal recognizes that WVDEP has not proposed revisions to the West Virginia water quality standards for selenium, but requests that it consider revising the WQS to include more appropriate and less stringent selenium WQS criteria based on EPA draft freshwater aquatic life criteria.

EPA has published draft freshwater aquatic life water quality criteria for selenium in 2004 as follows, and may publish subsequent revisions this year:[3]

Chronic exposure, whole body fish tissue:	7.91 ug/g (dry weight)
Acute exposure, water column (24-hr average)	258 ug/L for selenite 417 ug/L for selenate @ 100 mg/L sulfate

The above recommended criteria are based on species of selenium that actually have aquatic life impacts rather than simple total recoverable selenium, as currently regulated by the West Virginia water quality standards. We strongly recommend that WVDEP consider the above aquatic life criteria for selenium (or the latest revisions) developed by EPA in its 2011 revisions to the West Virginia water quality standards.

ArcelorMittal appreciates the opportunity to provide comments on the West Virginia water quality standards and would welcome a dialogue with WVDEP to discuss these comments. Please call me at your convenience at 330-659-9160 if you have any questions or would like to discuss our comments in more detail.

Sincerely yours,

D. P. Bley

Douglas P. Bley
Manager, Water Programs
ArcelorMittal USA, Inc.

Enclosures

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[3] *Draft Aquatic Life Water Quality Criteria for Selenium – 2004.* United States Environmental Protection Agency, Office of Water 4304, Washington, DC. EPA-822-D-04-001. November 2004.

ATTACHMENT A

ORSANCO Dissolved Iron Monitoring Data and Ratio of Total to Dissolved Iron July 2004 - May 2009

Sampling Location	River Mile	Date	Dissolved Iron (ug/l)
New Cumberland	54.4	15-Jul-04	<50
New Cumberland	54.4	26-Sep-04	<50
New Cumberland	54.4	04-Nov-04	<50
New Cumberland	54.4	20-Jan-05	<50
New Cumberland	54.4	16-Mar-05	<50
New Cumberland	54.4	12-May-05	<50
New Cumberland	54.4	14-Jul-05	<50
New Cumberland	54.4	07-Sep-05	<50
New Cumberland	54.4	08-Nov-05	<50
New Cumberland	54.4	04-Jan-06	<50
New Cumberland	54.4	07-Mar-06	<50
New Cumberland	54.4	04-May-06	<50
New Cumberland	54.4	13-Jul-06	61.1
New Cumberland	54.4	14-Sep-06	<50
New Cumberland	54.4	01-Nov-06	50.6
New Cumberland	54.4	12-Jan-07	<50
New Cumberland	54.4	12-Mar-07	<50
New Cumberland	54.4	07-May-07	<50
New Cumberland	54.4	10-Jul-07	<50
New Cumberland	54.4	17-Sep-07	<50
New Cumberland	54.4	05-Nov-07	<50
New Cumberland	54.4	08-Jan-08	<50
New Cumberland	54.4	18-Mar-08	<50
New Cumberland	54.4	28-May-08	<50
New Cumberland	54.4	16-Jul-08	<50
New Cumberland	54.4	24-Sep-08	<50
New Cumberland	54.4	12-Nov-08	<50
New Cumberland	54.4	09-Feb-09	<50
New Cumberland	54.4	16-Mar-09	<50
New Cumberland	54.4	18-May-09	<50

Sampling Location	River Mile	Date	Dissolved Iron (ug/l) (<50 replaced with 50)	Total Iron (ug/l)	Ratio
New Cumberland	54.4	15-Jul-04	50	354	7.1
New Cumberland	54.4	26-Sep-04	50	1552	31.0
New Cumberland	54.4	04-Nov-04	50	405	8.1
New Cumberland	54.4	20-Jan-05	50	1163	23.3
New Cumberland	54.4	16-Mar-05	50	717	14.3
New Cumberland	54.4	12-May-05	50	254	5.1
New Cumberland	54.4	14-Jul-05	50	244	4.9
New Cumberland	54.4	07-Sep-05	50	152	3.0
New Cumberland	54.4	08-Nov-05	50	140	2.8
New Cumberland	54.4	04-Jan-06	50	2271	45.4
New Cumberland	54.4	07-Mar-06	50	280	5.6
New Cumberland	54.4	04-May-06	50	232	4.6
New Cumberland	54.4	13-Jul-06	61.1	60	1.0
New Cumberland	54.4	14-Sep-06	50	452	9.0
New Cumberland	54.4	01-Nov-06	50.6	1716	33.9
New Cumberland	54.4	12-Jan-07	50	1059	21.2
New Cumberland	54.4	12-Mar-07	50	692	13.8
New Cumberland	54.4	07-May-07	50	394	7.9
New Cumberland	54.4	10-Jul-07	50	200	4.0
New Cumberland	54.4	17-Sep-07	50	124	2.5
New Cumberland	54.4	05-Nov-07	50	125	2.5
New Cumberland	54.4	08-Jan-08	50	588	11.8
New Cumberland	54.4	18-Mar-08	50	810	16.2
New Cumberland	54.4	28-May-08	50	351	7.0
New Cumberland	54.4	16-Jul-08	50	383	7.7
New Cumberland	54.4	24-Sep-08	50	126	2.5
New Cumberland	54.4	12-Nov-08	50	213	4.3
New Cumberland	54.4	09-Feb-09	50	1395	27.9
New Cumberland	54.4	16-Mar-09	50	1253	25.1
New Cumberland	54.4	18-May-09	50	347	6.9
		Average	50.4		12.0

ATTACHMENT B

Soil and Stream Sediment Iron and Aluminum Content in Ohio River Drainage Basin
USGS National Geochemistry Database (http://tin.er.usgs.gov/geochem/)
Data collected between Latitude 41.6624 and 40.2959; between Longitude -81.66 and -79.58251
(1978, 2004, 2005, 2007)

Soil Content Summary

	Aluminum (Wt %)	Iron (Wt %)
No. Data Points	94	94
Maximum	8.21	5.7
Median	5.38	2.51
Average	5.41	2.66
Minimum	3.50	0.69

Stream Sediment Content Summary

	Aluminum (Wt %)	Iron (Wt %)
No. Data Points	83	83
Maximum	7.7	7.24
Median	4.50	2.88
Average	4.43	3.18
Minimum	1.69	1.75

ATTACHMENT B

USGS National Geochemistry Database (http://tin.er.usgs.gov/geochem/)
Soil and Stream Sediment Aluminum and Iron Content (1978, 2004, 2005, 2007)
Ohio River Drainage Basin

	Latitude	Longitude
Max	41.6624	-79.58251
Min	40.2959	-81.66

REC_NO	LABNO	SETTING	LATITUDE	LONGITUDE	HUC_8	MEDIUM	SOURCE	Al (Wt %) AL_ICP40	Fe (Wt %) FE_ICP40
ST011971	C-280277	meadow	40.81733	-80.70742	5030101	Sediment	Soil	4.45	2.58
ST015853	C-297943	forest, farm	40.39503	-80.84035	5030101	Sediment	Soil	4.7	1.96
ST015854	C-297963	forest	40.36441	-80.89483	5030101	Sediment	Soil	6.08	1.76
ST015853	C-297972	forest, farm	40.39503	-80.84035	5030101	Sediment	Soil	4.46	1.91
ST015854	C-297994	forest	40.36441	-80.89483	5030101	Sediment	Soil	4.85	1.61
ST015869	C-298003	meadow	40.61311	-80.79525	5030101	Sediment	Soil	4.39	0.69
ST015868	C-298012	forest	40.70807	-80.88914	5030101	Sediment	Soil	5.79	2.35
ST015867	C-298030	forest, farm	40.7085	-80.82723	5030101	Sediment	Soil	4.43	2.05
ST015869	C-298031	meadow	40.61311	-80.79525	5030101	Sediment	Soil	6.08	3.09
ST015861	C-298041	farm	40.5524	-80.78474	5030101	Sediment	Soil	6.97	3.54
ST015861	C-298049	farm	40.5524	-80.78474	5030101	Sediment	Soil	6.39	3.18
ST015862	C-298059	forest	40.49788	-80.8259	5030101	Sediment	Soil	7.04	3.37
ST015867	C-298067	forest, farm	40.7085	-80.82723	5030101	Sediment	Soil	4.61	1.99
ST015860	C-298068	forest	40.52418	-80.67191	5030101	Sediment	Soil	5.67	2.67
ST015862	C-298069	forest	40.49788	-80.8259	5030101	Sediment	Soil	6.98	3.54
ST015860	C-298076	forest	40.52418	-80.67191	5030101	Sediment	Soil	5.52	3.13
ST015868	C-298090	forest	40.70807	-80.88914	5030101	Sediment	Soil	5.82	2.67
ST015878	C-299302	meadow	40.95927	-80.76692	5030101	Sediment	Soil	5.8	3.66
ST015878	C-299307	meadow	40.95927	-80.76692	5030101	Sediment	Soil	4.92	3.15
ST015871	C-299310	meadow	40.80086	-80.55002	5030101	Sediment	Soil	5.5	3.63
ST015871	C-299340	meadow	40.80086	-80.55002	5030101	Sediment	Soil	5.54	3.96
ST010075	C-253726	woods	41.18142	-80.6123	5030102	Sediment	Soil	5.363	2.61
ST010075	C-253764	woods	41.18142	-80.6123	5030102	Sediment	Soil	4.326	2.24
ST011179	C-257346	meadow	41.38999	-80.66211	5030102	Sediment	Soil	5.053	2
ST011189	C-257354	woods	41.4576	-80.5318	5030102	Sediment	Soil	4.734	1.84
ST011189	C-257369	woods	41.4576	-80.5318	5030102	Sediment	Soil	4.914	1.75
ST011205	C-257370	woods	41.6526	-80.52988	5030102	Sediment	Soil	5.027	2.01
ST011205	C-257389	woods	41.6526	-80.52988	5030102	Sediment	Soil	5.243	2.25
ST011179	C-257431	meadow	41.38999	-80.66211	5030102	Sediment	Soil	4.811	2.21
ST010064	C-253742	meadow	41.09424	-80.57034	5030103	Sediment	Soil	4.493	2.92
ST010078	C-253750	farm	41.32739	-80.8162	5030103	Sediment	Soil	4.941	2.16
ST010104	C-253767	woods/urban	41.17969	-81.23988	5030103	Sediment	Soil	4.853	2.24
ST010078	C-253769	farm	41.32739	-80.8162	5030103	Sediment	Soil	6.628	3.62
ST010082	C-253773	urban	41.17085	-80.7057	5030103	Sediment	Soil	6.377	3.33
ST010096	C-253780	woods	41.22648	-80.95867	5030103	Sediment	Soil	4.309	1.75
ST010064	C-253794	meadow	41.09424	-80.57034	5030103	Sediment	Soil	5.4	3.34
ST010096	C-253795	woods	41.22648	-80.95867	5030103	Sediment	Soil	4.082	1.43
ST010082	C-253806	urban	41.17085	-80.7057	5030103	Sediment	Soil	7.344	3.91
ST010104	C-253815	woods/urban	41.17969	-81.23988	5030103	Sediment	Soil	4.145	1.75
ST011204	C-257350	meadow	41.4698	-80.75241	5030103	Sediment	Soil	5.774	3.18
ST011204	C-257387	meadow	41.4698	-80.75241	5030103	Sediment	Soil	4.884	2.57
ST011972	C-280234	woods	40.8273	-81.03021	5030103	Sediment	Soil	6.01	2.99
ST011972	C-280270	woods	40.8273	-81.03021	5030103	Sediment	Soil	4.41	2.17
ST015916	C-298194	marsh	41.07998	-80.82802	5030103	Sediment	Soil	4.18	1.9
ST015914	C-298216	farm	41.081	-80.90886	5030103	Sediment	Soil	5.72	3.16
ST015915	C-298247	forest	41.12282	-80.82372	5030103	Sediment	Soil	5.22	2.42
ST015914	C-298261	farm	41.081	-80.90886	5030103	Sediment	Soil	5.89	2.29
ST015916	C-298266	marsh	41.07998	-80.82802	5030103	Sediment	Soil	4.81	1.99
ST015915	C-298277	forest	41.12282	-80.82372	5030103	Sediment	Soil	4.38	1.93
ST015877	C-299268	forest	40.87645	-80.94168	5030103	Sediment	Soil	4.53	2
ST015876	C-299280	farm	40.88146	-81.21153	5030103	Sediment	Soil	5.03	3.59
ST015877	C-299291	forest	40.87645	-80.94168	5030103	Sediment	Soil	4.74	2.28
ST015876	C-299295	farm	40.88146	-81.21153	5030103	Sediment	Soil	3.85	2.21
ST015852	C-297934	forest	40.29791	-80.9688	5030106	Sediment	Soil	8.06	3.35
ST015852	C-297991	forest	40.29791	-80.9688	5030106	Sediment	Soil	5.82	2.42
ST010058	C-253735	urban	41.04132	-81.58862	5040001	Sediment	Soil	5.04	2.33
ST010058	C-253788	urban	41.04132	-81.58862	5040001	Sediment	Soil	4.669	2.26
ST011973	C-280207	meadow/farm	40.74572	-81.25691	5040001	Sediment	Soil	6.31	2.63
ST011973	C-280210	meadow/farm	40.74572	-81.25691	5040001	Sediment	Soil	5.18	1.96
ST011974	C-280223	farm	40.74373	-81.33307	5040001	Sediment	Soil	5.68	2.73
ST011976	C-280232	farm	40.68711	-81.4621	5040001	Sediment	Soil	5.63	2.96
ST011977	C-280235	meadow	40.49017	-81.5329	5040001	Sediment	Soil	6.04	2.15
ST011977	C-280236	meadow	40.49017	-81.5329	5040001	Sediment	Soil	6.03	2.16
ST011976	C-280245	farm	40.68711	-81.4621	5040001	Sediment	Soil	5.84	3.15
ST011974	C-280267	farm	40.74373	-81.33307	5040001	Sediment	Soil	6.85	3.97

ATTACHMENT B

USGS National Geochemistry Database (http://tin.er.usgs.gov/geochem/)
Soil and Stream Sediment Aluminum and Iron Content (1978, 2004, 2005, 2007)
Ohio River Drainage Basin

	Latitude	Longitude
Max	41.6624	-79.58251
Min	40.2959	-81.66

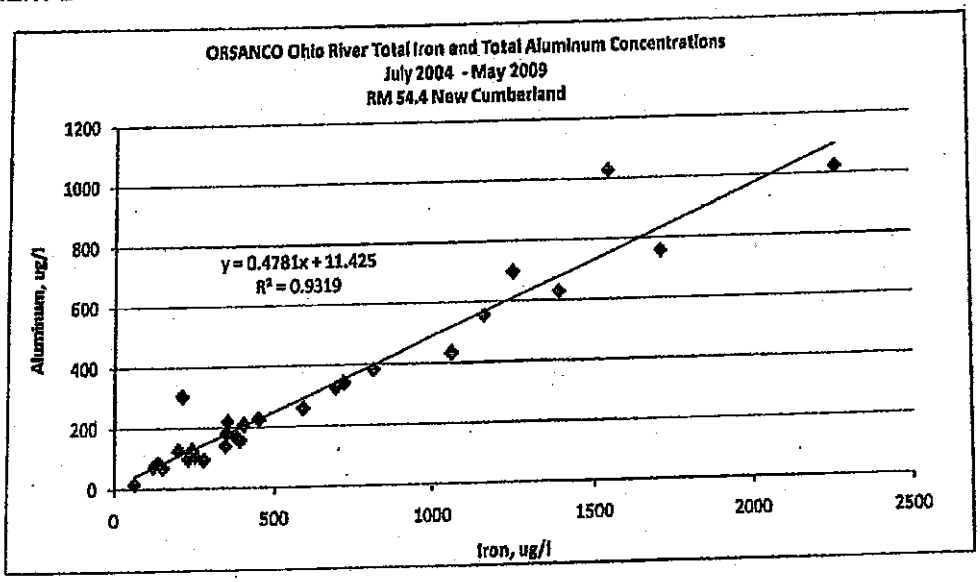
REC_NO	LABNO	SETTING	LATITUDE	LONGITUDE	HUC_8	MEDIUM	SOURCE	Al (Wt %) AL_ICP40	Fe (Wt %) FE_ICP40
ST015850	C-297908	forest	40.3114	-81.54939	5040001	Sediment	Soil	4.86	2.86
ST015851	C-297929	forest	40.32787	-81.20168	5040001	Sediment	Soil	6.91	5.03
ST015848	C-297942	forest	40.42182	-81.60813	5040001	Sediment	Soil	5.9	2.17
ST015849	C-297946	meadow, suburban	40.3735	-81.47162	5040001	Sediment	Soil	5.6	2.88
ST015849	C-297959	meadow, suburban	40.3735	-81.47162	5040001	Sediment	Soil	6.13	3.33
ST015850	C-297974	forest	40.3114	-81.54939	5040001	Sediment	Soil	5.69	3.01
ST015851	C-297975	forest	40.32787	-81.20168	5040001	Sediment	Soil	7.2	5.7
ST015848	C-297984	forest	40.42182	-81.60813	5040001	Sediment	Soil	5.47	1.89
ST015864	C-298000	forest	40.60996	-81.19429	5040001	Sediment	Soil	6.21	2.34
ST015864	C-298008	forest	40.60996	-81.19429	5040001	Sediment	Soil	7.35	2.78
ST015856	C-298020	farm	40.53707	-81.56178	5040001	Sediment	Soil	5.82	2.5
ST015857	C-298026	meadow	40.53116	-81.30374	5040001	Sediment	Soil	5.46	2.49
ST015856	C-298037	farm	40.53707	-81.56178	5040001	Sediment	Soil	6.03	2.53
ST015865	C-298042	forest	40.60101	-81.03869	5040001	Sediment	Soil	8.21	3.23
ST015866	C-298048	forest	40.64883	-81.01302	5040001	Sediment	Soil	4.97	2.15
ST015866	C-298062	forest	40.64883	-81.01302	5040001	Sediment	Soil	4.72	2.23
ST015857	C-298077	meadow	40.53116	-81.30374	5040001	Sediment	Soil	5.78	2.51
ST015859	C-298078	meadow	40.55986	-81.05928	5040001	Sediment	Soil	6.65	2.13
ST015865	C-298080	forest	40.60101	-81.03869	5040001	Sediment	Soil	6.1	2.34
ST015870	C-299262	meadow, farm, suburban	40.72382	-81.6386	5040001	Sediment	Soil	4.68	3.33
ST015872	C-299264	meadow	40.86452	-81.65653	5040001	Sediment	Soil	4.81	3.3
ST015875	C-299281	meadow	40.86987	-81.49804	5040001	Sediment	Soil	3.5	1.94
ST015875	C-299305	meadow	40.86987	-81.49804	5040001	Sediment	Soil	3.93	2.23
ST015874	C-299306	farm	40.90569	-81.41901	5040001	Sediment	Soil	4.12	2.88
ST015870	C-299308	meadow, farm, suburban	40.72382	-81.6386	5040001	Sediment	Soil	4.94	4.33
ST015873	C-299313	meadow, marsh	40.91635	-81.54489	5040001	Sediment	Soil	4.81	3.29
ST015874	C-299319	farm	40.90569	-81.41901	5040001	Sediment	Soil	4.7	2.56
ST015872	C-299345	meadow	40.86452	-81.65653	5040001	Sediment	Soil	5.71	3.85
ST015873	C-299347	meadow, marsh	40.91635	-81.54489	5040001	Sediment	Soil	4.01	1.99
ST009799	C-250446	woods/suburban	41.26107	-79.89747	5010003	Sediment	Stream	1.691	3.68
ST010397	C-255343	woods/meadow/farm/suburban	41.6624	-79.71317	5010003	Sediment	Stream	4.229	2.45
ST010421	C-255386	woods	41.29979	-79.80604	5010003	Sediment	Stream	7.698	7.24
ST011963	C-280250	woods	41.31138	-79.72319	5010003	Sediment	Stream	3.48	2.42
ST010388	C-255331	suburban	41.53661	-79.9908	5010004	Sediment	Stream	3.684	2.47
ST010408	C-255362	woods/farm/suburban	41.59279	-79.85709	5010004	Sediment	Stream	5.199	2.25
ST011569	C-258252	suburban	41.51759	-80.05941	5010004	Sediment	Stream	4.566	2.59
ST011576	C-258264	suburban	41.63847	-80.26166	5010004	Sediment	Stream	4.358	2.98
ST009818	C-250468	woods/farm/suburban	41.24726	-79.58251	5010005	Sediment	Stream	4.681	5.02
5315963	C-156543		40.9836	-79.7464	5010006	Sediment	Stream	4.846	3.33
ST009796	C-250440	woods	41.04689	-79.71561	5010006	Sediment	Stream	5.802	4.5
5315941	C-156687		40.7322	-79.8004	5010009	Sediment	Stream	2.13	2.31
5315805	C-156725		40.6437	-79.7675	5010009	Sediment	Stream	3.57	2.53
5315813	C-156815		40.5708	-79.8945	5010009	Sediment	Stream	4.186	2.43
5315905	C-156989		40.706	-79.8649	5010009	Sediment	Stream	5.225	4.72
5315819	C-157173		40.5056	-79.7629	5010009	Sediment	Stream	4.873	4.62
5315799	C-157180		40.6429	-79.9476	5010009	Sediment	Stream	3.053	2.05
ST011012	C-256619	suburban	40.76549	-79.6964	5010009	Sediment	Stream	3.135	2.72
ST011960	C-280324	meadow	40.40218	-79.68771	5020005	Sediment	Stream	5.59	4.93
ST011969	C-280347	urban	40.37452	-79.94076	5020005	Sediment	Stream	7.54	5.29
5309927	C-143181		40.6094	-80.6023	5030101	Sediment	Stream	5.345	5.72
5309635	C-156495		40.5512	-80.087	5030101	Sediment	Stream	3.96	3.33
5309718	C-156684		40.6636	-80.3886	5030101	Sediment	Stream	3.515	2.88
5309730	C-157019		40.7618	-80.4904	5030101	Sediment	Stream	5.06	2.7
5309687	C-157160		40.6338	-80.1825	5030101	Sediment	Stream	4.736	4.51
5309702	C-157215		40.6412	-80.2819	5030101	Sediment	Stream	4.51	2.94
5309858	C-157999		40.3383	-80.3321	5030101	Sediment	Stream	5.627	4.17
5309136	C-158617		40.7102	-80.8887	5030101	Sediment	Stream	4.95	4.17
5309391	C-158654		40.9577	-80.7626	5030101	Sediment	Stream	3.284	2.56
5309255	C-158670		40.3675	-80.8913	5030101	Sediment	Stream	7.7	4.21
5309135	C-158829		40.7098	-80.8273	5030101	Sediment	Stream	4.829	3.16
5309331	C-158859		40.5246	-80.6712	5030101	Sediment	Stream	6.27	4.05
5309137	C-158889		40.6139	-80.7929	5030101	Sediment	Stream	6.727	4.09
5309376	C-158929		40.4975	-80.8286	5030101	Sediment	Stream	5.577	4.56
5309344	C-158996		40.397	-80.8383	5030101	Sediment	Stream	3.609	2.21

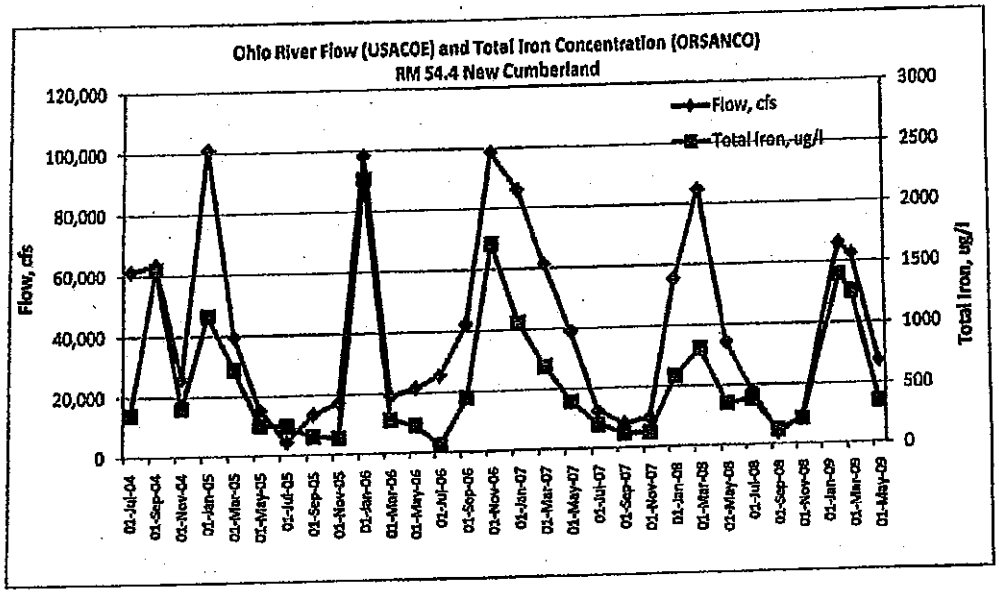
ATTACHMENT B

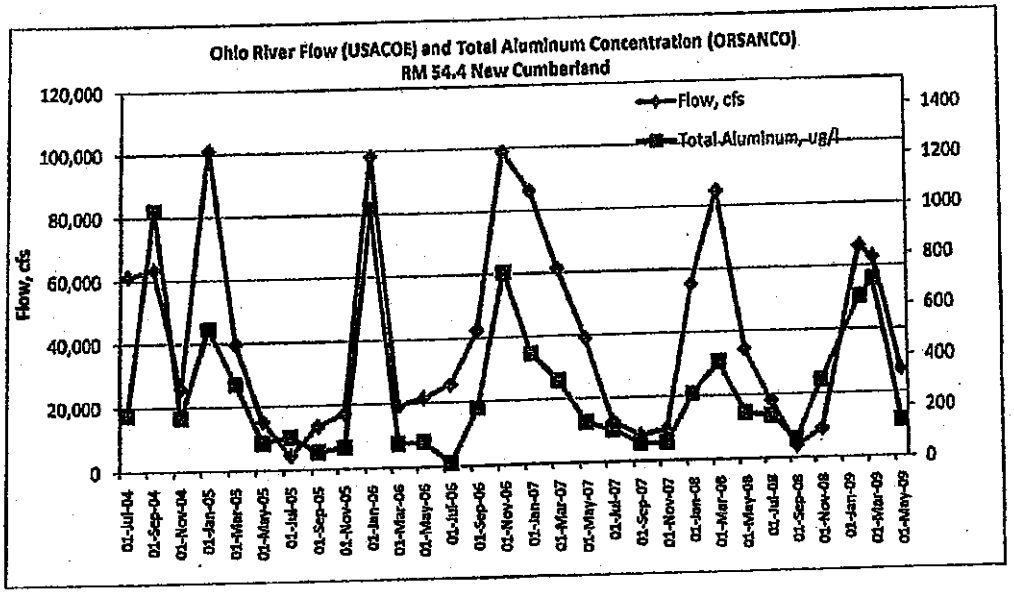
USGS National Geochemistry Database (http://tin.er.usgs.gov/geochem/)
Soil and Stream Sediment Aluminum and Iron Content (1978, 2004, 2005, 2007)
Ohio River Drainage Basin

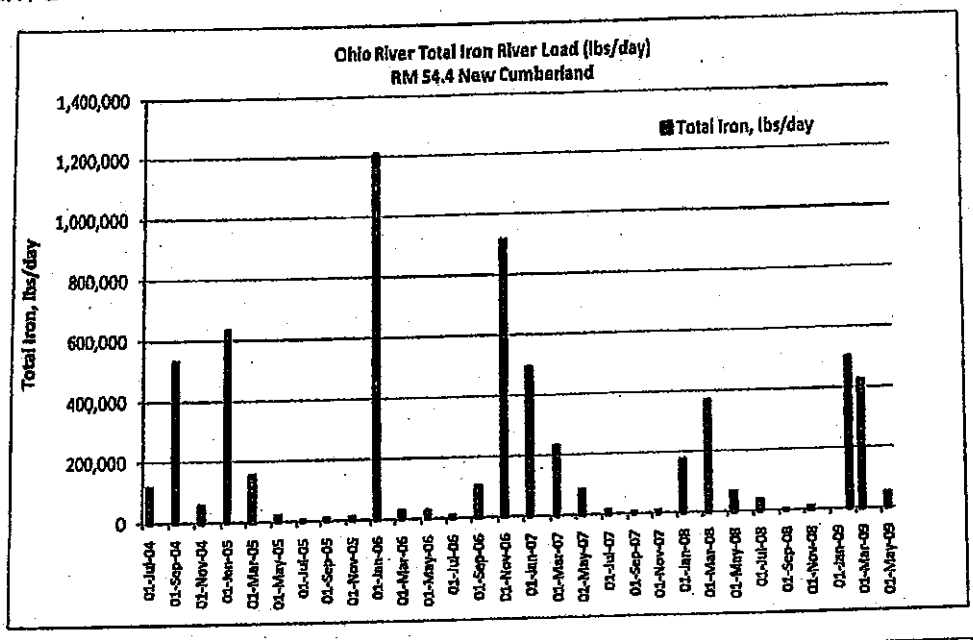
	Latitude	Longitude
Max	41.6624	-79.58251
Min	40.2959	-81.66

REC_NO	LABNO	SETTING	LATITUDE	LONGITUDE	HUC_8	MEDIUM	SOURCE	Al (Wt %) AL_ICP40	Fe (Wt %) FE_ICP40
5309372	C-159038		40.5504	-80.784	5030101	Sediment	Stream	4.219	2.66
5309082	C-159119		40.8028	-80.5488	5030101	Sediment	Stream	3.68	3.54
5309611	C-210930		40.3988	-80.1279	5030101	Sediment	Stream	6.825	4.45
5309653	C-210941		40.5474	-80.4437	5030101	Sediment	Stream	3.801	2.67
5309800	C-210966		40.9098	-80.4847	5030101	Sediment	Stream	3.26	1.9
5311056	C-157525		41.0804	-80.4332	5030102	Sediment	Stream	3.13	2.15
5311054	C-157572		41.0745	-80.3279	5030102	Sediment	Stream	3.894	2.21
ST011562	C-258244	woods/suburban	41.27887	-80.3514	5030102	Sediment	Stream	4.356	2.45
ST011563	C-258245	woods/suburban	41.33934	-80.24448	5030102	Sediment	Stream	3.694	2.16
ST011597	C-258295	woods/suburban	41.12831	-80.30396	5030102	Sediment	Stream	4.9	3.33
ST011616	C-258322	woods/suburban	41.36256	-80.13557	5030102	Sediment	Stream	5.755	3.32
ST011617	C-258323	woods/meadow/marsh/farm	41.53783	-80.35246	5030102	Sediment	Stream	5.859	3.3
ST011618	C-258325	woods/suburban	41.22789	-80.17844	5030102	Sediment	Stream	3.126	2.12
5309805	C-158237		40.9874	-80.4373	5030103	Sediment	Stream	3.119	3.05
5309095	C-158674		40.8744	-80.9388	5030103	Sediment	Stream	2.937	2.88
5310998	C-158787		41.0789	-80.9068	5030103	Sediment	Stream	5.671	3.34
5309456	C-158831		40.8757	-81.2056	5030103	Sediment	Stream	3.399	1.75
5311002	C-158909		41.0789	-80.8262	5030103	Sediment	Stream	4.703	2.79
5311001	C-159088		41.1219	-80.8223	5030103	Sediment	Stream	3.686	2.75
5309734	C-211640		40.7526	-80.4012	5030104	Sediment	Stream	4.634	2.47
5309751	C-156493		40.8231	-80.1266	5030105	Sediment	Stream	3.08	2.38
5315911	C-156746		40.772	-79.9069	5030105	Sediment	Stream	2.57	2.1
5315901	C-156814		40.6956	-79.9751	5030105	Sediment	Stream	4.675	3.48
5315890	C-157275		40.9259	-79.9967	5030105	Sediment	Stream	3.559	2.96
5309788	C-211682		40.8725	-80.1794	5030105	Sediment	Stream	5.093	3.92
ST009777	C-250412	woods	41.05202	-79.93855	5030105	Sediment	Stream	4.995	3.19
ST011567	C-258250	woods/suburban	41.11198	-80.06628	5030105	Sediment	Stream	3.647	2.42
ST011967	C-280320	woods/marsh	40.94122	-79.87488	5030105	Sediment	Stream	4.72	2.66
5309266	C-158752		40.2959	-80.9729	5030106	Sediment	Stream	4.934	3.11
5309511	C-158321		40.4236	-81.6109	5040001	Sediment	Stream	4.241	2.05
5309428	C-158322		40.7277	-81.636	5040001	Sediment	Stream	3.234	2.8
5309039	C-158406		40.5606	-81.0566	5040001	Sediment	Stream	4.494	3.09
5309424	C-158436		40.8599	-81.66	5040001	Sediment	Stream	3.361	2.68
5309065	C-158539		40.6516	-81.0174	5040001	Sediment	Stream	5.015	2.52
5309295	C-158548		40.3205	-81.1941	5040001	Sediment	Stream	4.75	3.28
5309422	C-158557		40.8767	-81.4995	5040001	Sediment	Stream	3.305	2.5
5309506	C-158580		40.3097	-81.5515	5040001	Sediment	Stream	4.555	3.99
5309504	C-158593		40.3789	-81.4719	5040001	Sediment	Stream	5.295	3.89
5309073	C-158712		40.6005	-81.0416	5040001	Sediment	Stream	4.697	3.08
5309468	C-158760		40.9178	-81.5424	5040001	Sediment	Stream	2.525	5.86
5309536	C-158776		40.5298	-81.3023	5040001	Sediment	Stream	4.587	2.86
5309463	C-158931		40.8908	-81.41	5040001	Sediment	Stream	3.317	2.72
5309054	C-158946		40.609	-81.1909	5040001	Sediment	Stream	3.46	1.89
5309524	C-159055		40.5361	-81.5624	5040001	Sediment	Stream	4.5	3.15
5309054	C-159125		40.609	-81.1909	5040001	Sediment	Stream	3.872	2.06
ST011975	C-280244	woods/meadow/farm/suburban	40.68676	-81.46156	5040001	Sediment	Stream	3.87	2.76
ST015858	C-298011	meadow	40.55988	-81.05923	5040001	Sediment	Stream	6.41	2.39
ST015858	C-298064	meadow	40.55988	-81.05923	5040001	Sediment	Stream	5.03	3.32


ORSANCO Ohio River Total Iron and Total Aluminum Concentrations
July 2004 - May 2009
RM 54.4 New Cumberland
y = 0.4781x + 11.425
R² = 0.9319
Aluminum, ug/l
Iron, ug/l
0
200
400
600
800
1000
1200
500
1000
1500
2000
2500


Ohio River Flow (USACOE) and Total Iron Concentration (ORSANCO)
RM 54.4 New Cumberland
Flow, cfs
Total Iron, ug/l
Flow, cfs
Total Iron, ug/l
0
20,000
40,000
60,000
80,000
100,000
120,000
500
1000
1500
2000
2500
3000


Ohio River Flow (USACOE) and Total Aluminum Concentration (ORSANCO)
RM 54.4 New Cumberland
Flow, cfs
Total Aluminum, ug/l
Flow, cfs
0
20,000
40,000
60,000
80,000
100,000
120,000
200
400
600
800
1000
1200
1400


Ohio River Total Iron River Load (lbs/day)
RM 54.4 New Cumberland
Total Iron, lbs/day
Total Iron, lbs/day
1,400,000
1,200,000
1,000,000
800,000
600,000
400,000
200,000
0
01-Jul-04
01-Sep-04
01-Nov-04
01-Jan-05
01-Mar-05
01-May-05
01-Jul-05
01-Sep-05
01-Nov-05
01-Jan-06
01-Mar-06
01-May-06
01-Jul-06
01-Sep-06
01-Nov-06
01-Jan-07
01-Mar-07
01-May-07
01-Jul-07
01-Sep-07
01-Nov-07
01-Jan-08
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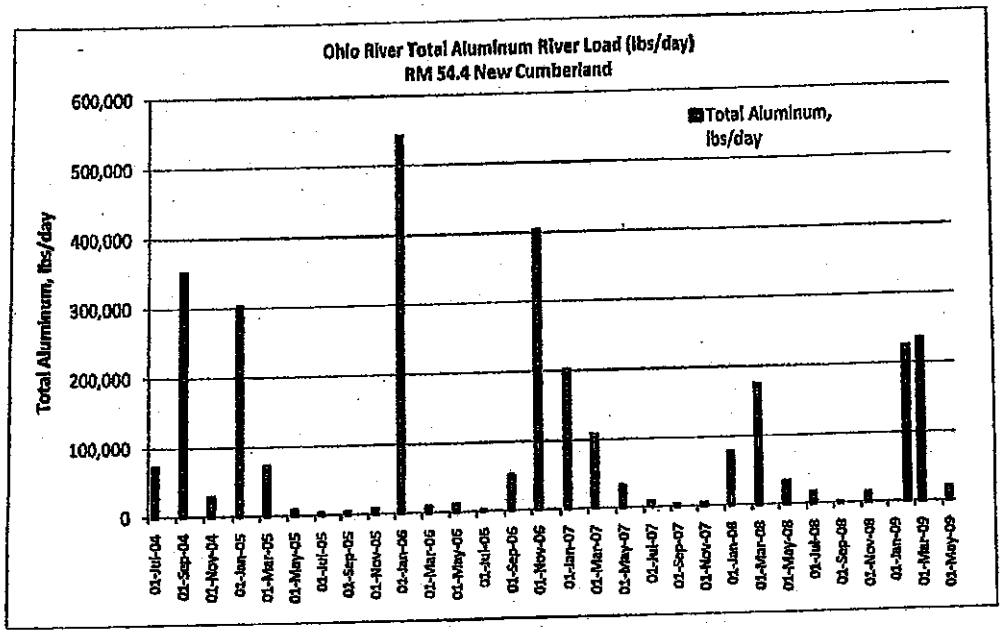
01-Sep-08
01-Nov-08
01-Jan-09
01-Mar-09
01-May-09


Ohio River Total Aluminum River Load (lbs/day)
RM 54.4 New Cumberland
Total Aluminum, lbs/day
Total Aluminum, lbs/day
600,000
500,000
400,000
300,000
200,000
100,000
0
01-Jul-04
01-Sep-04
01-Nov-04
01-Jan-05
01-Mar-05
01-May-05
01-Jul-05
01-Sep-05
01-Nov-05
01-Jan-06
01-Mar-06
01-May-06
01-Jul-06
01-Sep-06
01-Nov-06
01-Jan-07
01-Mar-07
01-May-07
01-Jul-07
01-Sep-07
01-Nov-07
01-Jan-08
01-Mar-08
01-May-08
01-Jul-08
01-Sep-08
01-Nov-08
01-Jan-09
01-Mar-09
01-May-09

Pamela F. Faggert
Vice President and Chief Environmental Officer
Dominion Resources Services, Inc.
5000 Dominion Boulevard, Glen Allen, VA 23060
Phone: 804-273-3467

Dominion

July 19, 2010

Linda B. Keller
Water Quality Standards Program
WV Department of Environmental Protection (WVDEP)
601 57th Street SE
Charleston, WV 25304

Re: Proposed Revisions to 47CSR2, Requirements Governing Water Quality Standards

Dear Ms. Keller:

Dominion appreciates the opportunity to provide comments on the above proposed rulemaking in West Virginia. While the rulemaking has several proposed changes, Dominion's interest is primarily with the new in-stream standard of 500 mg/l proposed for total dissolved solids (TDS). We understand that the new standard is based on EPA's secondary drinking water MCL and is applicable to Category A waters, the category used to designate public water supplies. WVDEP typically applies Category A standards to all surface waters in the state when determining numerical permit limits. Dominion operates two power stations in West Virginia, Mount Storm Power Station on the Stony River watershed and Morgantown Energy Facility on the Monongahela River, which potentially could be impacted by the new TDS standard.

Dominion recognizes and supports WVDEP's efforts to protect drinking water supplies and aquatic life; however, the application of a TDS standard to all waters in the state may be overly restrictive in some cases and result in regulation of discharges that are not warranted. In a May 19, 2010 public presentation by WVDEP on the 2011 Triennial Review of Water Quality Standards, it appears that most surrounding states that have a TDS standard apply it only to streams and rivers designated as a public water supply. This is similar to the manganese standard which is also based on a secondary drinking water MCL. WVDEP's water quality standard regulation at 6.2.d. specifically acknowledges, "The manganese human health criterion shall only apply within the five-mile zone immediately upstream above a known public or private water supply used for human consumption." Dominion requests that the proposed TDS standard be applied only to waters designated as drinking water sources.

To avoid the inadvertent regulation of discharges, the sources of TDS should be considered and the concept of net limits be included in the implementation of any final standard. This is especially important for once-through cooling water at power stations and other industrial facilities. High TDS levels found in source water, such as the Monongahela River, could result in permit limits being applied over which the permittee has no control due to excessive TDS in the

intake water. Also, the potential regulation of storm water discharges for TDS would be potentially problematic considering offsite TDS sources that are not necessarily under control of the permittee, such as runoff from treatment of nearby roadways with salt during the winter months. Dominion requests that the sources of TDS that are beyond the control of a permittee be considered in the potential regulation of discharges associated with TDS.

If you have any questions regarding these comments, please contact Joe Tannery at 804-273-3012.

Sincerely,

Pamela F. Faggert

Pamela F. Faggert

Comments of the West Virginia Forestry Association regarding Proposed Changes to 47 CSR 2, West Virginia's Water Quality Standards

The West Virginia Forestry Association is an organization comprised of hundreds of individuals and businesses dedicated to preserving and enhancing West Virginia's forest products industry. It is the original and largest component of the State's "green economy", providing thousands of jobs and millions of dollars in revenue from sustainable silviculture. Forestry has been, and remains, a crucial element in West Virginia's economy, from lumber that is exported world-wide, to high-end furniture designed and built in this State.

Perhaps no other industry is so intrinsically tied to the natural cycles of West Virginia. Harvesting of timber occurs near streams that are subject to water quality standards, and sawmills and wood products companies operate in conformance with NPDES permits. Consequently, the WVFA follows proposed changes in water quality standards with great interest, and offers these comments on the changes proposed by the DEP in June, 2010.

Total Dissolved Solids

The DEP has proposed adopting a total dissolved solids (TDS) criterion of 500 mg/L is proposed for public water supplies. We do not see that such a standard is needed at this time, as we are not aware that there has been a state-wide problem caused by TDS that would merit adoption of the proposed criterion. While there have been well-publicized incidences of allegedly high TDS in Dunkard Creek and in the Monongalia River, it is not clear at this time whether those are isolated instances or represent ongoing problems. If the State suspects the latter, the proper way to go about adopting a standard is to go through the criteria development process, as outlined by the EPA. Merely adopting a Secondary Maximum Contaminant Level, which is intended to be applied at the faucet, not in a stream, is the wrong approach.

If the State is to adopt a TDS criterion for protection of public water supplies, then we urge it to apply the standard at the point of intake for water supplies, not everywhere in a stream. There is no reason to apply the TDS criterion in places where it could have no effect on the pubic water supplies that it is intended to protect.

Narrative Water Quality Standards

The DEP has proposed clarifying water quality standards by adding water withdrawal to the activities that can cause prohibited conditions in Section 3.2. We are concerned that the lack of any definition of what constitutes adverse effects from water withdrawal leaves those who work around smaller streams, such as timber operators, exposed to liability. Those streams that periodically run dry maintain benthic communities that are adapted to water removal under certain conditions. Establishing which are adverse conditions, and which are normal, might be difficult.

We are also concerned that the addition of water withdrawal to the list of potentially prohibited activities has the potential to infringe on riparian water rights. Riparian owners are entitled to withdraw water that runs by their property, as long as it is not done to the detriment of downstream owners. That right is not limited by water quality effects of the withdrawal. West Virginia has seen increasing attempts to infringe on the rights of stream-side owners to withdraw water, and we are concerned that this is a further encroachment on that right.

In addition to these comments, the West Virginia Forestry Association joins in those of the West Virginia Manufacturers Association and the West Virginia Chamber of Commerce.

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www.mub.org

July 19, 2010

Secretary Randy Huffman
West Virginia Department
of Environmental Protection
601 57th Street, SE
Charleston, WV 25304

RE: Requirements Governing Water Quality Standards, 47CSR2
Total Dissolved Solids
Public Comment

Dear Mr. Secretary:

This letter is respectfully submitted as formal public comment on the subject proposed revisions to 47CSR2. The particular focus of our comments relates to the proposed establishment of a 500 mg/l standard for Total Dissolved Solids (TDS).

As a utility which offers potable water service, sanitary wastewater collection and treatment, and stormwater services to its customers, the Morgantown Utility Board (MUB) is, very much like your agency, dedicated to protection of the water environment. We applaud and appreciate your continuing efforts toward this mutual goal.

Within the context of the proposed rule, MUB is strongly dedicated to protection of the quality of our two raw water sources: the Monongahela River and Cobun Creek. As a potable water provider, we support efforts to ensure source water protection. However, as a sanitary wastewater treatment operator, we find the subject rule to be troublesome.

The problem with the proposed rule is that it is applied too broadly, and it potentially restricts our combined operations more than it will protect us. Our potable water treatment and sanitary wastewater treatment processes do nothing to remove TDS. The technology necessary to remove TDS is simply not feasible for such operations. Our processes, despite being state of the art for their purposes, are essentially a pass through for TDS (sometimes even contributing a nominal increase). The TDS of our treated wastewater effluent is dictated by the TDS of our raw water intake, and is beyond our control. This is true for most, if not all, communities statewide.

The net effect of the above, is that municipal (and other public) wastewater dischargers are treated by the proposed rule as though we are the source of the problem, when in fact, we are the innocent victims. The optimum approach for regulating TDS would be to appropriately

regulate the obvious sources of significant TDS contributions which cause increases in the background levels of the parameter. Oil and gas well drilling operations are an obvious example, and we call for increased funding for your agency for the purpose of adequately regulating and inspecting such operations.

Rather than being enacted as proposed, the subject rule must be modified in such a way as to not subject municipal (and other public) wastewater discharges to the proposed 500 mg/l limit. The best and preferred approach would be an exemption, specific to this class of discharge. In the alternative, and at a minimum, a five (5) mile mixing zone should be provided without limitation based upon width of stream, background instream waste concentration, or any other such factor.

The proposed standard of 500 mg/l is based upon secondary drinking water standards. Secondary drinking water standards are voluntary and not enforceable, and in the case of TDS, have been established for aesthetics (taste and odor). However, the proposed rule would establish a very real and enforceable standard upon our wastewater discharge. The unintended consequences of this proposed rule appear to not have been fully evaluated, and we request that the rule be modified to remove the above described effects upon municipal (and other public) wastewater dischargers.

Thanks for your kind review of this letter, and for your leadership and service to West Virginia. We would appreciate an opportunity to discuss these changes with you and your Staff at your earliest convenience.

Respectfully,

MORGANTOWN UTILITY BOARD

Timothy L. Ball, P.E.
Interim General Manager

TLB/bar

cc: Scott Mandirola,
Director, DWWM
WV DEP.

Testimony to WV DEP in Support of Managing In-Stream Flow and Levels of Total Dissolved Solids in the Main-Stem of West Virginia Rivers and Their Tributaries

July 19, 2010

Usable water for drinking, comprehensive commerce and a livable environment is West Virginia's most important earth natural resource. Some would say that coal and/or natural gas are our most important natural resources. This is a very limited and extractive industry-centered perspective. Dirty water is expensive water. Dirty water precludes most other economic interests and jeopardizes public health. If water sources are contaminated beyond viable usefulness, present and future generations will have to pay dearly for short term profit-taking. Regulating the protection of water must be considered to be the Department of Environmental Protection's highest priority.

On February 3, 2009 the City of Morgantown adopted a resolution calling for the State legislature and the Department of Environmental Protection to develop comprehensive standards controlling TDS levels in the Monongahela River. To do this Morgantown recognized that there would need to be control of the source, schedule and conditions for water withdrawal, specifications of a water discharge plan detailing treatment, location schedule and conditions for discharge.

In 2009 the City called for maintenance of an in-stream water quality TDS level of 500 mg/l in the main stem of the Mon River to protect the water quality for drinking water for the 42 municipalities, including Morgantown. This past year, due to the algae bloom in Dunkard Creek, Morgantown also called for maintenance of a TDS level of no higher than 1,000 mg/l in tributaries of the Mon River in its communication with its local legislative delegation.

The 500 mg/l seems to represent the win/win level for the various economic and environmental interests which utilize river water for drinking, power production, fishing, and commerce. It is the e2 level (economics and environmental) on which research has been based and which keeps "peace in the valley". Dirty water is expensive water because it must be treated in order to be useful for multiple uses. TDS levels cannot be filtered from municipal water supplies. To clean high TDS contents from water requires expensive evaporation processes which are impractical for municipal drinking water systems.

Having an acceptable quality of water in Morgantown (and all municipalities) is necessary for all community and university uses including power generation. With TDS levels in excess of 500 mg/l, boilers are susceptible to scale at power plants, and dishwashers and hot water heaters reportedly crust–up. At the 1,000 mg/l level, the public begins to drink bottled water due to offensive taste of high TDS due to Marcellus Shale frac fluid disposal and Acid Mine Drainage.

To achieve maintenance of a 500 mg/l in-stream flow standard requires A) management of water withdrawals with a water quantity-responsive permitting system which gives priority to public water supplies, a second priority for comprehensive commerce and electrical power generation, and thirdly, to extractive industrial activity. Protection of a viable standard for TDS levels needs to also address B) limitations in the use of chemicals fracturing fluids and other types/sources of TDS material; C) disposal of contaminated water; and D) penalties for infractions which include revocation of permits and fines commensurate with the damages which are incurred by the public.

Accordingly, we urge the DEP to establish an in-stream flow control of West Virginia rivers and tributaries by requiring:

(1) Submission of information regarding the source, schedule and conditions for all major water withdrawals utilizing a priority permitting procedure;

(2) Disclosure of the make-up of fracturing fluids and limitation of hazardous chemicals such as benzene and other hazardous chemicals used in extractive industrial operations;

(3) Water discharge plans detailing treatment, location, schedule and conditions for discharge of acid mine drainage or fracturing liquids;

(4) Specifying penalties for noncompliance, including revocation of permits;

(5) Establishment of total dissolved solids water quality standards for in-stream flow in the main stem of West Virginia rivers at or below the standard of 500 mg/l and water quality standards for in-stream flow in tributaries of West Virginia rivers at or below 1,000 mg/l;

(6) All mining, drilling and other discharges within any West Virginia river or tributary to be incompliance with the total dissolved solids standard, even in periods of low flow water throughout the year.

We ask you to adopt these standards and procedures to help protect the safety of municipal water supplies throughout the state as well as to protect the coal and gas industries from compromising practices which can result in greater numbers of inspection and to being shut down. Growing public intolerance to mistakes and misjudgments by fossil fuel corporations is an important threat to long term industrial sustainability.

Don Spencer
Morgantown City Council
Deputy Mayor

West Virginia Rural Water Association

100 Young Street • Scott Depot, WV 25560 • 304/201-1689

July 19, 2010

WV DEP, Public Information Office
Attn: Kathy Cosco
601 57th Street SE
Charleston, WV 25304

Comments Regarding WVDEP's Proposed Changes to Water Quality Standards

West Virginia Rural Water Association (WVRWA) is a non-profit association whose members include most of the public water and wastewater utilities in the state. These comments are being submitted on behalf of WVRWA, in response to WVDEP's request for public comments on proposed changes to the state's water quality.

WVDEP is proposing changes to the WV Water Quality Standards, 47CSR2, partly in response to impacts of the new gas boom in Marcellus Shale exploration, development and production. In this regard, WVDEP proposes to include reference to "water withdrawal activities" in the narrative standards under 47-2-3.1 and 47-2-3.2, as well as establishing a numeric standard for Total Dissolved Solids (TDS) at 47-2-8.32.

These efforts are a step in the right direction, as Marcellus Shale gas activities can require large volumes of water, and produce large volumes of briney wastewater, both of which may negatively impact public drinking water supplies if not properly regulated. The inclusion of "water withdrawal activities" under section 47-2-3, "Conditions Not Allowable in State Waters", could help protect public supplies if excessive withdrawals require "an unreasonable degree of treatment for the production of potable water by modern treatment processes as commonly employed", under 47-2-3.2.h.

The addition of a numeric standard for TDS reflects a similar move by the Pennsylvania DEP after elevated TDS in the Monongahela River in 2008 led to use of bottled water in the Pittsburgh metropolitan area. The increased TDS was believed to be due to disposal of Marcellus Shale brines into the Monongahela. A study done on behalf of the oil and gas industry by Tetra Tech determined that the TDS in those waters had been only 7% higher than normal, based on flow modeling. This may be true, however some of the relatively minor constituents of TDS, such as chloride and bromide, tripled in their concentrations.

The tripling of bromide ions in the Monongahela River led to an increased production of brominated disinfection byproducts in the Pittsburgh area's water supply. In fact, a review of disinfection byproduct data from the water supplies for Huntington and Wheeling show an increasing trend in brominated disinfection byproducts over the past decade, with a spike in the fall of 2008, which coincides with the spike of brine at Pittsburgh. This impact should already qualify as a "Condition Not Allowable" under 47-2-3.2, however it would be difficult to enforce without a numeric bromide standard and water quality data.

WVDEP should now be proposing a numeric standard for bromide ions, as this number would be more protective of public water supplies than TDS. However, before proposing a bromide standard, WVDEP should begin testing the state's surface waters for bromide concentrations. This data is generally lacking, but it must be collected before brine disposal has increased bromides and salinity any further.

Sincerely,

Lewis Baker

Lewis Baker, WVRWA
Source Water Protection Specialist

Keller, Linda B

From: Cosco, Kathy on behalf of DEP Comments
Sent: Friday, July 16, 2010 2:32 PM
To: Keller, Linda B
Subject: FW: Marsellas Shale extraction process for natural gas

Linda,
This person doesn't reference the rule, but he mentions water quality standards. In fact, I have several that do that. I had been forwarding them to Oil and Gas, but should I be sending them to you?
Kathy

Kathy Cosco
Communications Director
WV Department of Environmental Protection
601 57th St. SE
Charleston, WV 25304
Office 304-926-0499, ext. 1331
Cell 304-561-8996

From: DWIGHT D EMRICH [mailto:casadde@verizon.net]
Sent: Saturday, July 10, 2010 3:56 PM
To: DEP Comments
Subject: Marsellas Shale extraction process for natural gas

I am writing concerning the water quality standards after the extraction processes (fracturing) of the shale layer to release the trapped gases.

This process has proven catastrophic in areas (PA) where folks have lost their water sources due to this enviornmentally destructive process of fracturing.

This type of fracturing activity is too risky when it endangers the water sources of people in the mining area. Folks will not be able to continue living on their land after they lose their water. .Please consider protecting water sources above all else. Thank You. Dwight Emrich .Hinton WV

Keller, Linda B

From: Peg Reese [pegreesewv@gmail.com]
Sent: Wednesday, July 21, 2010 7:20 PM
To: Keller, Linda B
Subject: water quality standards comment

Clean water and healthy streams are extremely important to the Mountain State. Both current residents and future generations rely on them for our very life.

Your proposal is a good start toward protecting these valuable resources, but do not go far enough to protect the water and West Virginians. Extraction industries, particularly those from other states, have a long history of taking our resources and leaving behind a blighted landscape and impoverished citizens. If coal is truly a financial boon to West Virginia, our poorest counties would not be where the coal industry is most predominant. Coal also costs citizens in infrastructure damage.

I firmly believe that it is a poor deal for West Virginia to trade (and chance) our valuable natural resources for the questionable profits and potential long-term degradation that often result from the exchange. Drilling Marcellus shale for gas may be even worse for our state than coal mining. First, the drilling requires copious amounts of water which threatens water quality and potential downstream usage. The total dissolved solids, heavy metals, and thermal pollution caused by extraction industries are an additional threat to our environment. The potential threat to our groundwater is also great. For the most part, West Virginia lacks any real means to clean up the used water before it is returned to the streams. Or to clean polluted groundwater and streams.

I urge you to create the most stringent rules you can to protect our ground and surface waters, air, soil, aquatic life, wildlife, farms and forests. If we have these highly valuable resources, we can get other, possibly more lucrative, businesses to grow or move to West Virginia. We also would save massive amount of tax dollars needed to clean up the messes that extraction industries leave behind, including unemployment benefits for people in areas that have no jobs because the extraction industry has taken their profits out-of-state and left behind poverty and degradation.

The stakes are too high to take a chance on extraction industries not having any accidents or unplanned consequences. Examples of what can go wrong include Deckers Creek in Monongalia County and BP in the Gulf of Mexico. West Virginia follow the example set by New York.

We are relying on you to do the right thing. Please support the people and the environment instead of extraction industries.

Margaret J. Reese
PO Box 105
Morgantown, WV 26505
(304) 599-5440

Keller, Linda B

From: Cosco, Kathy on behalf of DEP Comments
Sent: Monday, July 19, 2010 10:49 AM
To: Keller, Linda B
Subject: FW: Proposed WVDEP Amendments to Water Quality Standards.pdf - Adobe Reader

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From: Armando Benincasa [mailto:Armando.Benincasa@steptoe-johnson.com]
Sent: Monday, July 19, 2010 10:25 AM
To: DEP Comments
Cc: townofhillsboro@frontiernet.net; City of WSS
Subject: Proposed WVDEP Amendments to Water Quality Standards.pdf - Adobe Reader

July 19, 2010

Public Information Office
West Virginia Department of Environmental Protection
601 57th Street, SE
Charleston, West Virginia 25304

Re: Comments of the City of White Sulphur Springs and Town of Hillsboro regarding Proposed Revisions to 47 Code of State Rules, Series 2 (West Virginia Water Quality Standards).

Dear Sir or Madam,

Please accept this electronic correspondence as the written comments of the city of White Sulphur Springs and the Town of Hillsboro with regard to certain proposed amendments to West Virginia's Water Quality Standards, 47 Code of State Rules, Series 2, and more specifically those proposed amendments related to the regulation of algal growth in state waters and the control of phosphorus in the Greenbrier River (47 CSR 2-3.2.g and 47 CSR 2-8.3.b.1).

As written, the proposed modifications to the state's narrative water quality criteria makes algal growth which "may" interfere with the designated uses of a stream a violation of water quality criteria. Consistent with the previous positions of both the city and the town in that certain litigation before the West Virginia Environmental Quality Board (EQB), City of White Sulphur Springs and Town of Hillsboro v. WVDEP, Appeal Nos. 09-05-EQB and 09-06-EQB, the proposed standard is no standard at all, granting to the agency unfettered discretion to determine when a use "may" be interfered with and providing no guidance regarding algal growth and when algal growth is excessive. As you are aware, the lack of a defined standard was the very reason that the EQB determined that the actions of the agency in implementing algal growth limitations in the town's and city's permits must fail.

There is no attempt to define acceptable levels of algae in a river. There is no attempt to put forward a standard which provides a point of compliance for any of the regulated community. There has been no attempt to survey users or any person to determine an acceptable level of algal growth. There is no discussion with regard to very relevant factors as to whether an algal bloom is in fact impeding any use – such as the size and duration of a bloom.

Further, the specific phosphorus standards proposed in the amended rule for the Greenbrier river represents the most expensive means of algal control possible. The standard is not economically or technically feasible for the city or the town. The capitol costs and ongoing operation and maintenance costs which would be required to be absorbed by these small communities is huge, likely into the millions of dollars combined up and down the river, when compared

to the small benefit to be gained by the standard. The impact of such costs on customer rates to address what is an aesthetic concern which occurs in only certain stretches of the river and which are of limited time duration is not a good use of limited public dollars when other alternative means of control can be explored. Implementation of the rule would remove any and all possible flexibility.

According to the agency's own documents, algal growth in the Greenbrier river is strictly a seasonal issue of limited duration and nuisance – yet the requirements contained in these rules are of enduring consequence. Further, as the EQB noted in its Final Order, the agency, by this rule, places the entire onus of phosphorus control upon a very few wastewater treatment facilities, and even if met, the testimony was clear that algal growth may still occur.

The agency's own algal report on the Greenbrier river encourages the development of a workable algal standard, admits that no current standard exists, and even agrees that the impacts of the algae are of limited nature, including a direct finding that the impacts in and around the town of Hillsboro are minimal.

Any action by the agency in this area should be taken in concert with the impacted communities. The town and the city would strongly urge that the agency consider removing the proposed modifications to the rule cited above and work with the communities to determine what actions can be taken to address any perceived use issues. The City of White Sulphur Springs and the Town of Hillsboro appreciate the opportunity to comment on the above-referenced rule and look forward to continued dialogue regarding these issues.

Sincerely,
Armando Benincasa

Counsel to the City of White Sulphur Springs and Town of Hillsboro

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Mandirola, Scott G

From: Cosco, Kathy on behalf of DEP Comments
Sent: Monday, July 19, 2010 3:48 PM
To: Keller, Linda B; Mandirola, Scott G
Subject: FW: EPA's comments on proposed changes to West Virginia's Water Quality Standards 47CSR2, "Requirements Governing Water Quality Standards"

-----Original Message-----
From: Atkinson.Cheryl@epamail.epa.gov [mailto:Atkinson.Cheryl@epamail.epa.gov]
Sent: Monday, July 19, 2010 2:45 PM
To: DEP Comments
Cc: Merrill.Larry@epamail.epa.gov
Subject: EPA's comments on proposed changes to West Virginia's Water Quality Standards 47CSR2, "Requirements Governing Water Quality Standards"

The State is seeking comments through the West Virginia Department of Environmental Protection (WVDEP) on proposed changes to West Virginia's Water Quality Standards 47CSR2, "Requirements Governing Water Quality Standards" (WQS) from June 5 to July 19, 2010. The Environmental Protection Agency (EPA) appreciates the opportunity to provide comments for your consideration on the proposed changes to West Virginia's WQS.

Our comments on the proposed rule are as follows:

1. Additions have been made to Section 47-2-3 "Conditions Not Allowable in State Waters" that include water withdrawal activities and presence of algae blooms which would alter the integrity of the waters of the State. To ensure that narrative criteria are attained, EPA encourages the State to develop implementation procedures. Such implementation procedures should address all mechanisms to be used by the State to ensure that narrative criteria are attained.

2. Section 7.2.a.2 establishes the half-mile zone upstream of a drinking water supply intake and identifies an exception to the half-mile zone on the Ohio River. This Section has been revised to reflect the changes to the site-specific exception that was filed as an emergency rule and approved by the Secretary of State on March 5, 2010. EPA approved this emergency rule on June 16, 2010.

3. The proposed rule extends the Ward Hollow of Davis Creek variance from July 1, 2010 to July 1, 2014. This variance is based on naturally occurring pollutant concentrations and applies to Union Carbide Corporation's discharge to Ward Hollow of Davis Creek, which has an instream criteria for chlorides of 310 mg/l for Category A [water supply, public] and Category C [water contact recreation] and B1 [warm water fishery streams (chronic aquatic life protection)]. West Virginia states that "this exception was approved by EPA in September 2006 and the status of the site and the discharge has not changed since that time. The variance will remain in effect until the next triennial review and at that time will be reevaluated." EPA reminds the WVDEP that during its last triennial the State extended this variance from July 1, 2008 to July 1, 2010 and now is extending this variance from July 1, 2010 to July 1, 2014.

The State should not simply extend the expiration date of variances without any reevaluation. That is a variance is a temporary modification to the designated use and associated water quality criteria that would otherwise apply. A variance is based on an use attainability demonstration and targets achievement of the highest attainable use and associated criteria during the variance period. Since the variance was approved in 2006, what targets achievement has occurred since then and what targets and achievement does West Virginia have planned for the discharger until 2014? West Virginia must provide EPA documentation in support of the extension of this variance should show that the conditions for granting a variance still apply and that the variance provisions are consistent with 40 CFR 131.10(g). Discharger-specific variances should also include a demonstration that alternative control strategies were evaluated as part of the showing that standards were not attainable.

The WVDEP has proposed several revisions relating to nutrient criteria. These proposed revisions are in Sections 3.2.g, 8.3.a.2 & 3, and 8.3.b. Section 3.2.g is revised to include algae blooms as an unallowable condition in narrative criteria; 8.3.a.2 & 3 represent revisions to current lake nutrient criteria regulations; and 8.3.b is a new regulation for nutrient criteria in streams. Our comments on West Virginia's proposed nutrient criteria are as follows:

Algae Blooms [Section 3.2.g] The proposed change to the narrative criteria in Section 3.2.g adds algae blooms as a condition that can impair a designated use in both lakes and steams.

4. The term algae bloom is general in nature and is not defined in regulation. Growth of periphyton, phytoplankton and filamentous algae can cause different types of impairment immediately or in the future. In the case of streams, the studies performed which resulted in the proposed total phosphorus (TP) criteria for Greenbrier River was partially based on correlation between percent substrate coverage of filamentous algae and TP concentration. Without any specific guidelines, the enforcement of this narrative criterion will be very subjective. With respect to filamentous algae, EPA recommends that West Virginia include in Section8.3.b.1.A an actual response criterion such as 20% coverage of stream width with algal mats or something more specific and enforceable in addition to the algae bloom provision of Section 3.2.g.

Streams [Section 8.3.b.] The proposed criterion in this Section is new, covers only the mainstem of the Greenbrier River from its mouth to river mile 102.8, and is for the protection of Water Use Categories A and C (public water supply and water contact recreation). The new criterion is for TP and is a 30-day average not to exceed 10 µg/L during the assessment period from May 1 to October 31. It is EPA's understanding that this criterion was derived from the study "Assessment of Filamentous Algae in the Greenbrier River and Other West Virginia Streams" conducted by WVDEP in 2008.

5. Although Section 6.1.c. in the Water Use Categories section discusses taking into consideration the quality of downstream water quality, WVDEP has provided no information on how the criterion will be protective of downstream uses below the mainstem Greenbrier River. EPA recommends that West Virginia provide to EPA information on how

the criterion will be protective of downstream uses.

6. To meet 40 CFR 131.6, "Minimum requirements for water quality standards submission," WVDEP needs to provide "(b) Methods used and analyses conducted to support water quality standards revisions." EPA requests support documentation explaining how the proposed nutrient criteria were derived. The study mentioned above provided much of methods, processes and reasoning for the criterion which was chosen. However, WVDEP will need to provide formal documentation that takes us through the process it went through: data/analyses/lines of evidence you looked at, how much emphasis you gave to those various analyses and why (e.g., if an analysis was not used when calculating the criterion, explain why not), and most importantly, how you ultimately chose the proposed number. This required documentation will aid EPA in determining whether the new TP nutrient criterion for the mainstem Greenbrier River is protective.

7. Why is this TP criterion applicable only for the mainstem of Greenbrier River and does not apply to the tributary streams as well? Although the above-mentioned study notes that all of the noted impairments are below wastewater treatment plants (or where receiving streams enter the mainstem), Howard Creek, a tributary to the Greenbrier River, has high TP which might need to be addressed in this criteria development.

8. EPA encourages WVDEP to also develop total nitrogen criteria for its streams and rivers. The most current science shows both nitrogen and phosphorus can be the limiting nutrient over time and space in rivers and streams.

Lakes [Section 8.3.a.2] West Virginia is proposing TP shall not exceed 40 µg/L for warm water lakes and 30 µg/l for cool water lakes and chlorophyll-a shall not exceed 20 µg/L for warm water lakes and 10 µg/L for cool water lakes for Water Use Categories B and C (propagation and maintenance of fish and other aquatic life and water contact recreation).

9. Although Section 6.1.c. in the Water Use Categories section discusses taking into consideration the quality of downstream water quality, WVDEP should provide information on how the revised criteria will be protective of downstream uses below the reservoirs.

10. To meet 40 CFR 131.6, "Minimum requirements for water quality standards submission," WVDEP needs to provide "(b) Methods used and analyses conducted to support water quality standards revisions." EPA requests support documentation explaining how the proposed nutrient criteria were derived. Please provide documentation that takes us through the process you went through: data/analyses/lines of evidence you looked at, weight given to those various analyses and why (e.g., if an analysis was not given equal weight, explain why not), and most importantly, how you ultimately chose the proposed numbers. This required documentation will aid EPA in determining whether the new TP nutrient criteria for lakes are protective.

11. In the 2008 version of its rationale document, WVDEP provided several lines of evidence that were examined for the 2008

criteria. EPA now needs an explanation of what additional analyses were performed since then, if any; which lines of evidence were used for the 2010 criteria; and how the 2010 criteria were calculated/chosen.

12. WVDEP should include its criteria for selecting which lines of evidence to use (e.g., only correlations with R2 > x will be used) in the documentation given to EPA. This will bolster any claims by West Virginia that a particular line of evidence is not strong enough to include for criteria derivation and will help EPA and any other interested parties to reproduce the criteria calculation.

13. EPA is concerned that 40 µg/L TP and 20 µg/L chlorophyll a for warm water lakes will possibly not be protective of WV's aquatic life use for the following reasons:

. Previous analyses conducted by EPA showed that 30 µg/L TP and 10 µg/L chlorophyll a would probably be protective of aquatic life for all WV lakes (warm water and cool water) combined in one category. As proposed in Section 8.3.a.2, separate nutrient criteria are being revised for cool and warm water lakes. If WVDEP wishes to have a separate classification for warm water lakes or sport fisheries, some previous EPA analyses showed that values as high as 36 µg/L P could result in a 50% likelihood of a good/excellent fishery rating but may not protect the gamut of aquatic life expected in those lakes. EPA modeling showed the hypolimnion could have DO levels less than 2 mg/L for about half the year when TP is 30 mg/L or higher.

. EPA analyses of log10-transformed TP versus DO showed that epilimnetic DO criteria would not be met when TP concentrations exceed 26 (using WV data only, R2 = 0.17) or 32 µg/L (using WV and VA dataset, R2 = 0.24), assuming the daily dissolved oxygen fluctuation is only 1 mg/L, which may not be a sufficiently protective assumption. Using a DO flux of 1.5 mg/L resulted in maximum TP concentrations of 11-18 µg/L before DO criteria would not be met. Please provide any data showing that DO criteria are met when the TP ranges from 26-40 µg/L.

14. Although the data thus far presented to EPA did not provide a compelling basis for separating cool and warm water lakes, West Virginia can choose to differentiate between cool and warm water fisheries. However, the distinctions between cool and warm lakes that West Virginia is making appears to be based not on water temperature, but rather on the fish expected to be present or stocked. That suggests that adoption of different aquatic life subcategories might be appropriate. In either case, including a complete list of waters in both the warm water and cool water lakes categories (as opposed to a "representative list" in Appendix F) would make it clearer to the public, permit writers, and assessment/TMDL personnel which criteria are in effect for a given waterbody.

15. The 30 µg/L TP and 10 µg/L chlorophyll a criteria may be protective of aquatic life for cool water WV lakes. However, as noted above, you will need to provide documentation that takes us through the process you went through: data/analyses/lines of evidence you looked at, emphasis given to those various analyses and why

(e.g., if an analysis was not used when calculating the criteria, explain why not), and most importantly, how you ultimately chose the proposed numbers. The analysis done by EPA utilized data provided in the 2008 rationale document. New data and literature citations should be included in the analysis for deriving these numbers. Until this support document for both cool and warm water lakes is provided, EPA reserves judgment on the protectiveness of these revised lake nutrient criteria.

16. EPA encourages WVDEP to also develop total nitrogen criteria for its lakes. The most current science shows both nitrogen and phosphorus can be the limiting nutrient over time and space in lakes.

Section 8.3.a.3. West Virginia is proposing that both TP and chlorophyll a criteria to be exceeded before a lake is considered impaired.

17. EPA has a longstanding policy that each criterion in a water quality standard applies independently. EPA recommends that Section 8.3.a.3. be deleted from these proposed regulatory changes. Requiring both TP and chlorophyll a criteria to be exceeded before a lake is considered impaired could be problematic for the following reasons:

- Confounding factors may prevent an observed response in chlorophyll a (e.g., shade, sediment)

- Time lag between loading and response can cause a response at a different space and time

- Potential export of excessive nutrients downstream can cause downstream responses

- Clean Water Act 303(d)(1)(A) (for listing impaired waters) states "Each State shall identify those waters within its boundaries for which the effluent limitations required by section 301(b)(1)(A) and section 301(b)(1)(B) are not stringent enough to implement any water quality standard applicable to such waters." [emphasis added]

A number of proposed changes in Appendix E, Table 1 of the rule have been made.

- The rule updates the chronic iron criterion for trout waters from 0.5 mg/l to 1.0 mg/l which is EPA's national recommended water quality criterion for aquatic life.

- Total dissolved solids criteria of 500 mg/l has been added to the rule for Category A Human Health based on the secondary drinking water MCL.

- Footnote 4 has been revised to reflect human health protection from organoleptic as well as toxic effects.

18. EPA reminds West Virginia that WQS must be based on a sound scientific rationale and must contain sufficient parameters to protect the designated use(s). West Virginia's submission for approval to EPA for the above proposed changes must include a

discussion and rationale of new and revised criteria.

19. EPA encourages the State to evaluate whether all of its water quality criteria are still protective of designated uses, taking into consideration any new information.

20. Since West Virginia last triennial review (2007) EPA has updated its National Recommended Water Quality Criteria published pursuant to Section 304(a) of the Clean Water Act (CWA). EPA encourages West Virginia to use EPA's latest compilation of national recommended water quality criteria as guidance for updating and adopting West Virginia's water quality standards. A summary table containing recommended water quality criteria for the protection of aquatic life and human health in surface water for approximately 150 pollutants can be found at
http://www.epa.gov/waterscience/criteria/wqctable/index.html

Cheryl Atkinson
- - -
Water Quality Standards
Middle Atlantic Region
U.S. Environmental Protection Agency
215 814 3392
215 814 2318 (Fax:)

WEST VIRGINIA RIVERS COALITION

329 Davis Avenue, Suite 7 • Elkins, WV 26241 • (304) 637-7201 • www.wvrivers.org

Scott Mandirola
Division of Water and Waste Management
West Virginia Department of Environmental Protection
601 57th Street SE
Charleston, WV 25304

July 9, 2010

Re: Comments on Rule 47 CSR 2 Requirements Governing Water Quality Standards

Dear Mr. Mandirola,

West Virginia Rivers Coalition submits these comments on behalf of its 2,200 members and in collaboration with the organizations listed on the signatory page of this document. Each signatory has a vested interest in the quality of West Virginia's waters, and believes that strengthening standards are critical to the future health of our water resources and future economic development opportunities in the state.

The following comments address the West Virginia Department of Environmental Protection's proposed changes to 47CSR2, Requirements Governing Water Quality Standards. We request that the WVDEP act on behalf of the citizens of West Virginia by moving to further protect their water quality. We are supportive of the changes within these standards that move to do this, however, we have several concerns and urge the WVDEP to consider the comments on specific sections of the proposed rule that we provide below.

Section 3
Changes to Narrative Water Quality Standards

We applaud the DEP for adding the language "***certain water withdrawal activities***" (Sec. 3.1 and 3.2) and "***algae blooms***" (Sec 3.2.g.) as conditions not allowable in state waters (§47-2-3), and we strongly support this additional language.

However, we do not feel the additional language alone goes far enough to protect West Virginia streams from either water withdrawals or algae blooms. We are particularly concerned about water withdrawal activities associated with Marcellus Shale drilling (our concerns about algae appear in other sections of these comments).

West Virginia is facing an onslaught of new drilling activity aimed at producing the natural gas contained in the Marcellus shale formation. These wells utilize "slickwater" and other fracing techniques that represent a huge leap in technology, and require an exponential increase in water use.

The fracing of a conventional shallow gas well requires less than 210,000 gallons of water. The new fracing techniques that make the drilling of Marcellus shale wells possible require at least an Olympic swimming pool size impoundment of water. Vertically drilled Marcellus wells require at least 600,000 gallons of water with chemical additives, while horizontally drilled wells require up to six million gallons of water or more. The water use in this process may be even greater as it is contemplated that many of these wells will be fraced multiple times.

This is an unanticipated demand on the water resources of the state.

West Virginia currently has little regulation and no permit process for water withdrawals from streams, rivers and wells, to provide the water this new drilling activity will require. We cannot sit back and wait for the Office of Water and the state legislature to enact a statewide water resources protection plan in 2013. If we wait, streams will be de-watered and valuable resources lost.

We urge the DEP to draft legislation for immediate consideration by the West Virginia Legislature that will establish guidelines and a permit process for water withdrawals.

Section 7.2.a.2

We oppose WVDEP's proposed changes to Section 7.2.a.2 for several reasons.

WVDEP proposes to strike the 2010 expiration date and does not include a new expiration date. This would make this change permanent, and would remove any incentive for Weirton Steel to correct its discharge so that it does not discharge pollutants at concentrations in excess of the Category A criteria within one-half mile of a public water supply intake.

The original language specifically mentions Weirton Steel and iron. The new language deletes all references to Weirton Steel, and deletes the reference to iron. However, the new language presumably still applies to Weirton Steel because of the river mile points in the rule. If WVDEP is writing a specific exemption into the rule, it should mention the discharger(s) and pollutant(s) by name so that this section is transparent and understandable by the public, regulators, and the courts.

WVDEP proposes to allow mixing zones within the one-half mile above water supply intakes. Because the mixing zones do not allow this, WVDEP proposes to exempt Section 5.2.h.6 from applying. Section 5.2.h.6 specifically prohibits mixing zones that "Overlap any 1/2 mile zone described in section 7.2.a.2 herein." In other words, Section 5.2.h.6 only applies to the very specific paragraph in which WVDEP proposes exempting it! While we do not suggest that WVDEP take this action, a more direct solution would be to simply strike Section 5.2.h.6. We suspect that WVDEP has not taken this direct

approach because it would be illegal, and USEPA would not approve the change. We contend that this change, even as written, is illegal, and strongly suspect that USEPA would not approve it.

WVDEP proposes to remove the requirements for Weirton Steel to monitor its treated water at its drinking water plant and to submit a status report. Was this monitoring conducted? Please provide us with a copy of the written report that was due on or before March 1, 2007.

Section 8.3:

We support the changes to the nutrient criteria for lakes.

Section 8.3.a.3:

We do not support the addition of this paragraph that establishes the requirement for an impairment to be determined only in the case that both phosphorus and chlorophyll-a exceed standards. This proposed weakening of the rules is a slap in the face to the diverse stakeholders who met for years to reach consensus on the lake nutrient criteria in Section 8.3.a.

In addition, this new paragraph directly contradicts USEPA guidance on the development of nutrient criteria, which envisions independent criteria for causal variables (including phosphorus) and response variables (including chlorophyll-a) (See, for example, USEPA, 2000, Ambient Water Quality Criteria Recommendations, Information Supporting the Development of State and Tribal Nutrient Criteria, Lakes and Reservoirs in Nutrient Ecoregion XI, EPA 822-B-00-012, http://www.epa.gov/waterscience/criteria/nutrient/ecoregions/lakes/lakes_11.pdf).

The phosphorus criterion will help identify lakes and reservoirs that have water chemistry conditions likely to result in algae blooms, and the chlorophyll-a criterion will help identify lakes and reservoirs after which the blooms have already occurred. Both serve independent purposes and are required to protect waters from nutrient pollution.

Finally, we must note that WVDEP's new paragraph to handle the Greenbrier River (Section 8.3.b.1, discussed below) proposes to determine impairment based on phosphorus levels without the additional requirement of high chlorophyll-a levels. The agency's willingness to use this approach for the Greenbrier River is inconsistent with, and undermines the justification for, the attempt to weaken the rule for lakes and reservoirs.

Section 8.3.b.1:

We support the development of the specific phosphorous standard for the Greenbrier River, and support the WVDEP in the effort to address the serious issues of nutrients within that the river.

However, the state has made no progress on developing nutrient criteria for rivers and streams state wide. The West Virginia Rivers Coalition actively participated in DEP's Nutrient Criteria Committee meetings for several years. However, the nutrient committee has not been active on this issue since 2006. Because the far greater volume of nutrients are discharged into and carried by rivers and streams, the development of criteria for rivers and streams is critical to ongoing aquatic health within our state and beyond. West Virginia's Rivers and streams transport nutrients downstream to the Chesapeake Bay and Ohio River, and ultimately the Gulf of Mexico. Both the Bay and the Gulf are currently struggling with the environmental consequences of elevated nutrient levels. Under the Federal Clean Water Act, West Virginia has an obligation not to contribute to degradation of its downstream neighbors.

We urge the DEP to reconvene the Nutrient Committee and move the criteria-setting process for rivers and streams forward as expeditiously as possible.

Appendix E Table 1 Section 8.15 Iron:

We strongly oppose weakening the current water quality standard for iron on West Virginia's Category B-2 trout waters by increasing the current limit of 0.5 parts per million of iron to 1.0 parts per million, as proposed by DEP.

Iron is an objectionable constituent in water supplies for either domestic or industrial use. Iron can affect the taste of beverages, can stain laundered clothes, clog, coat or damage plumbing fixtures. At certain concentrations, iron can also be toxic to aquatic life. Even though dissolved iron is bioavailable and more toxic to aquatic life, particulate iron, when suspended in water, may be detrimental to fishes and other aquatic life. Particulate iron can settle to form flocculants, materials that cover stream bottoms thereby destroying bottom-dwelling invertebrates, plants, or incubating fish eggs.

Toxicity studies of iron on aquatic life are rare. DEP has cited a more than 30-year-old study by DNR fisheries biologist Ray Menendez that said trout could survive iron levels as high as 1.37 parts per million. However, these lab studies were done using city water and altering the pH levels by adding vinegar.

There are few other studies. Brandt found iron toxic to carp, *Cyprinus carpio*, at concentrations of 0.9 mg/l when the pH of the water was 5.5[1]. Pike, *Esox lucius*, and trout (species not known) died at iron concentrations of 1 to 2 mg/l[2].

Toxicity studies of iron on aquatic life that include pH levels as a variable are even rarer. This is important in West Virginia, where many of our headwater trout streams are impacted by acid precipitation and often have pH levels much lower than 8. It is also

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[1] Brandt, H.H., 1948. Intensified injurious effects on fish, especially the increased toxic effect produced by a combination of sewage poisons. Beitr. Wass. Abwass. Fischerei-chemi. 15.

[2] Doudoroff, P. and M. Katz. 1953. Critical review of literature on the toxicity of industrial wastes and their components to fish. II. The metals, as salts. Sew. Ind. Wastes, 25:802.

important because the lab study that led to EPA's recommendation of a federal standard of 1.0 parts per million, did not include pH levels as a variable.

None of the studies in the current literature take into account the unique characteristics of West Virginia trout waters: low conductivity, low ionic strength, and low acid neutralization capacity.

Another practical implication of changing the iron standard would be its effect on existing TMDLs. At least 22 TMDL reports in West Virginia have addressed iron. These reports include dozens if not hundreds of individual TMDLs for specific stream segments. If the iron criteria were to change, then the wasteload allocations in the TMDLs would no longer be valid. This would have a cascading effect on coal mine NPDES permits that have already been written to implement the TMDL. It would also significantly impact new NPDES permits for coal mines.

Here is a list of the TMDL reports that addressed iron through 2006: Buckhannon River, Cheat River, Coal River, Dunloup Creek, Elk River, Guyandotte River, Hurricane W S Rs, Little Kanawha River, Lower Kanawha River, Monongahela River, North Branch Potomac River, Paint Creek, Ridenour Lake, Stony River, Tenmile Creek, Tug Fork River, Turkey Run Lake, Tygart Valley River, Unnamed Tributary at Sharon Steel, Upper Kanawha, Upper Ohio North, and West Fork River.

As a result, this change would impose significant costs on WVDEP. The agency would need to:

- redo at least 22 TMDL reports that include dozens if not hundreds of stream segments;
- and modify numerous permits that have been written based on the existing iron criterion.

West Virginia is blessed with an abundance of high-quality trout streams that support wild and native reproducing trout populations, as well as stocked trout that survive in streams year-round. The State of West Virginia has officially recognized the importance of protecting these waters by creating a separate category of more restrictive water quality standards for trout waters.

There is ample justification for retaining an iron standard for West Virginia trout waters that is more restrictive than the federal standard. At the very least, the standard should not be changed until more thorough studies are conducted that consider the unique water quality characteristics of West Virginia's trout waters.

Appendix E Table 1 Section 8.32 Total Dissolved Solids:

We support the establishment of a TDS standard for West Virginia. It is long past due. However, we do not support DEP's recommended standard of 500mg/l. We strongly recommend that the standard be set at 250mg/l, which is the USEPA recommended

Human Health Standard for total dissolved solids.[3] DEP has provided no explanation why West Virginia's standard should not be at least as stringent as the Federal standard. We believe there is no acceptable explanation.

In addition, we believe it is imperative that DEP propose and finalize an aquatic life criteria for conductivity that is consistent with the April 1st 2010 USEPA guidance documents on TDS and Aquatic life (see attached). In addition, any TDS/conductivity criteria should be protective of streams threatened by golden algae.

We thank the West Virginia Department of Environmental Protection for consideration of our comments.

Sincerely,

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[3] USEPA, National Recommended Water Quality Criteria available at http://www.epa.gov/waterscience/criteria/wqctable/#A2

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

APR 01 2010

MEMORANDUM

SUBJECT: Detailed Guidance: Improving EPA Review of Appalachian Surface Coal Mining Operations under the Clean Water Act, National Environmental Policy Act, and the Environmental Justice Executive Order

FROM: Peter S. Silva
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TO: Shawn Garvin
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A. Stanley Meiburg
Acting Regional Administrator, EPA Region 4

Bharat Mathur
Acting Regional Administrator, EPA Region 5

I. Purpose

The purpose of this detailed memorandum is to provide further clarification of EPA's roles and expectations, in coordinating with our federal and state partners, to assure more consistent, effective, and timely compliance of Appalachian surface coal mining operations with the provisions of the Clean Water Act (CWA), National Environmental Policy Act (NEPA), and the Environmental Justice Executive Order (E.O. 12898).[1,2] This memorandum reflects reviews of past practices and emerging science to improve and strengthen permit decision-making in order

[1] This memorandum is effective immediately. Concurrent with its release, however, EPA is seeking public comment on this interim final document. We fully understand the importance of this memorandum to our federal and state partners, the coal industry, and the public, and we recognize the value in receiving their input based on experience with its implementation. The public comment period will conclude on December 1, 2010. No later than April 1, 2011, EPA will issue final guidance after consideration of public comments and the results of the Science Advisory Board (SAB) review, and consistent with our experience in implementation of this memorandum. EPA may revise the guidance sooner, as appropriate, consistent with the SAB review. EPA is publishing a notice in the *Federal Register* that provides additional details on the public comment process.

[2] In addition to this memorandum, EPA is working with other federal agency partners to develop and implement an interagency environmental justice strategy to more fully evaluate environmental justice considerations in review of Appalachian surface coal mining activities. This strategy will provide more detailed information and specific actions to avoid and mitigate adverse impacts to low-income and minority populations.

to better ensure compliance with federal environmental statutes, implementing regulations, and policies.[3] We hope this memorandum will also be helpful to our federal and state partners, the regulated public, and others in clarifying EPA's expectations regarding the need to reduce harmful impacts on public health and the environment associated with Appalachian surface coal mining and to more effectively include the voices of adversely affected communities in the Appalachian coalfields, including low-income or minority populations.[4] We expect you to begin using this interim final guidance immediately in your review of Appalachian surface coal mining activities.

II. Introduction

A. Background

The CWA entrusts EPA with overall responsibility to administer its provisions, including protection of human health, water quality, and the environment in coalfield communities throughout Appalachia. CWA protections, including water quality requirements, extend to all waters of the United States, from headwater streams to the larger downstream systems that they feed. In particular, EPA's CWA responsibility includes preserving the long-term integrity of Appalachian watersheds, which is important in protecting their ecological condition and maintaining safe, clean, and abundant water for local communities. We make every effort to fulfill these responsibilities without compromising the economic and energy benefits that coal mining provides to both the Appalachian region and the entire nation.

In recent months, the Obama Administration has worked to ensure timely review of permit applications that have faced delays in the courts for many years. It is our hope that our efforts to make responsible and expeditious decisions on these applications will reduce the likelihood of judicial challenges to the permits and thus will be seen as a demonstration of our commitment to an Appalachian coal industry that provides economic security and protects the health of Appalachian communities, without violating environmental standards established under the law.

The environmental legacy of mining operations in the Appalachian region is far-reaching. Recent studies, as well as the experiences of Appalachian coalfield communities, point to new environmental and health challenges that were largely unknown even ten years ago. Since 1992, nearly 2,000 miles of Appalachian streams have been filled at a rate of 120 miles per year by

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[3] The CWA and NEPA provisions and regulations described in this document contain legally binding requirements. This guidance does not substitute for those provisions or regulations, nor is it a regulation itself. It does not impose legally binding requirements on EPA, the U.S. Army Corps of Engineers (Corps), the States, or the regulated community, and may not apply to a particular situation depending on the circumstances. Any decisions regarding a particular permit will be based on the applicable statutes, regulations, case-specific facts and circumstances, and case law. Therefore, interested persons are free to raise questions about the appropriateness of the application of this guidance to a particular situation, and EPA and/or the Corps will consider whether or not the recommendations or interpretations of this guidance are appropriate in that situation based on the statutes, regulations, and case law.

[4] The discussion of the provisions of the CWA, NEPA, and E.O. 12898 in this memorandum focuses on their applicability to Appalachian surface coal mining operations in Kentucky, West Virginia, Virginia, Ohio, Tennessee, and Pennsylvania.

surface mining practices. A recent EPA study found that nine out of every 10 streams downstream from surface mining operations were impaired based on a genus-level assessment of aquatic life.[5] Another federal study found elevated levels of highly toxic and bioaccumulative selenium in streams downstream from valley fills.[6] These impairments are linked to contamination of surface water supplies and resulting health concerns, as well as widespread impacts to stream life in downstream rivers and streams. Further, the estimated scale of deforestation from existing Appalachian surface mining operations is equivalent in size to the state of Delaware. Appalachian deforestation has been linked to significant changes in aquatic communities as well as to modified storm runoff regimes, accelerated sediment and nutrient transport, reduced organic matter inputs, shifts in the stream's energy base, and altered thermal regimes.[7] Such impacts have placed further stresses on water quality and the ecological viability of watersheds.

It has been a high priority of this Administration – and EPA Administrator Lisa P. Jackson – to reduce the substantial environmental and human health consequences of surface coal mining in Appalachia, and minimize further impairment of already compromised watersheds. Administrator Jackson has also made working toward environmental justice a priority. EPA seeks to enhance water quality and environmental protection in close partnership with the states and other federal agencies, which have key implementation roles under the CWA, and under NEPA and E.O. 12898, respectively. As scientific evidence grows, EPA has a legal responsibility to address the environmental consequences of Appalachian surface coal mining.

In June 2009, the Department of the Army, EPA, and the Department of the Interior (DOI) signed a Memorandum of Understanding (MOU) to minimize the harmful consequences of Appalachian surface coal mining practices. The MOU reflects an agreement among the agencies to strengthen the environmental reviews of Appalachian surface coal mining projects under the CWA, NEPA, and the Surface Mining Control and Reclamation Act (SMCRA). EPA committed to improve its review of permits issued under Section 404 and to bolster coordination with states on both Section 402 permits for pollutant discharges from valley fills and state water quality certifications (Section 401) for mining operations. The Corps committed to reassess Nationwide Permit 21, a general permit used to authorize some surface coal mining activities, and to work with EPA to clarify Section 404 policies for environmental review and mitigation. DOI committed to evaluate how the Office of Surface Mining Reclamation and Enforcement (OSM) can more effectively oversee state permitting and enforcement activities under SMCRA.

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[5] Pond, G.J., M. E. Passmore, F.A. Borsuk, L. Reynolds, and C. J. Rose. 2008. Downstream effects of mountaintop coal mining: comparing biological conditions using family- and genus-level macroinvertebrate bioassessment tools. J. N. Am. Benthol. Soc. 27(3):717–737.

[6] Bryant, G., S. McPhillamy, and H. Childers. 2002. A Survey of the Water Quality of Streams in the Primary Region of Mountaintop / Valley Fill Coal Mining. Mountaintop Mining Valley Fill Programmatic Environmental Impact Statement. USEPA Region 3. Wheeling, WV. http://www.epa.gov/region03/mtntop/eis2003appendices.htm#appd

[7] Webster, J.R., S.W. Golladay, E.F. Benfield, J.L. Meyer, W.T. Swank, and J.B. Wallace. 1992. Catchment disturbance and stream response: an overview of stream research at Coweeta Hydrologic Laboratory. In P.J. Boon, P. Calow, and G.E. Petts (eds.). River Conservation. and Management. John Wiley and Sons, New York, N.Y.

B. CWA, NEPA, and E.O. 12898

The CWA, 33 U.S.C. 1251 *et seq.*, establishes a comprehensive program designed "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." 33 U.S.C. Section 1251(a). To achieve that objective, CWA Section 301(a) prohibits the "discharge of any pollutant" – defined as the addition of any pollutant to the waters of the U.S. from any point source – except "as in compliance with" specified provisions of the CWA. 33 U.S.C. Sections 1311(a), 1362(7), 1362(12). In most cases, regulated entities achieve compliance with the relevant CWA provisions by obeying the terms of a permit issued under one of the CWA's two complementary permitting programs: (1) a permit program for discharges of dredged or fill material, which is administered primarily by the Corps pursuant to Section 404 of the CWA, 33 U.S.C. 1344; or (2) the National Pollutant Discharge Elimination System (NPDES), which is administered by the EPA and authorized states pursuant to Section 402 of the CWA, 33 U.S.C. 1342. Section 401 of the CWA also applies where federal permits are issued, enabling states to certify (or waive) that discharges from permitted operations are in compliance with state environmental regulations. Typically, surface coal mining operations in the steep slopes of Central Appalachia require Section 404 permits for the discharge of mining overburden into waters of the United States (e.g., valley fills, mine-through operations), mine faceups, stream diversions, road crossings, coal process waste impoundments, and for discharges to create sediment ponds. Discharges from the sediment ponds and any other stormwater discharges require Section 402 permits. Because the Corps issues Section 404 permits in Appalachia, states have authority to condition those permits under Section 401.

In addition, NEPA requires an assessment of the environmental impacts of federal actions, including the preparation of an Environmental Impact Statement (EIS) for federal actions that have a significant effect on the quality of the human environment. For example, the Section 404 review by the Corps of a proposed mining operation with discharges into waters of the U.S. triggers review under NEPA. An EIS presents a comprehensive and transparent evaluation of the wide range of potential environmental and human health impacts associated with a federal action, as well as project alternatives that may avoid and minimize significant adverse impacts.

E.O. 12898 and the Presidential Memorandum that accompanies it also need to be addressed appropriately in the context of any federal action – such as federal permitting under the CWA and SMCRA – including federal actions that are subject to NEPA. E.O. 12898 provides that: "To the greatest extent practicable and permitted by law…each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations."

Consideration of environmental justice concerns is vital to understanding the potential human health and environmental impacts of surface coal mining during the CWA and SMCRA permitting and NEPA review processes. The Presidential Memorandum articulates the role of federal environmental statutes in securing human health and environmental protection of vulnerable populations and assuring their participation in the process.

E.O. 12898 calls for actions that can address several key environmental justice issues associated with surface coal mining. These include: conducting research, data collection, and analysis on direct, indirect and cumulative impacts; identifying patterns of subsistence consumption of fish and wildlife; and providing effective public participation and access to information. EPA will implement the E.O. by identifying and addressing, as appropriate, any adverse effects of proposed federal activities on low-income and minority populations, including ways or measures to mitigate any adverse effects.

C. Recent Program Reviews and Emerging Science

Three key considerations have motivated the Agency's development of this memorandum. First has been the collection and publication of technical information documenting the scope and significance of adverse environmental and water quality effects associated with surface coal mining practices. Second, EPA has recently completed reviews of permitting actions under CWA Sections 402 and 404 for Appalachian surface coal mining. These reviews demonstrate that current permitting practices can be more effective in addressing adverse environmental and water quality effects associated with coal mining by more robustly conducting analyses required by the CWA. Third, EPA scientific offices are conducting extensive work evaluating the relationship between pollutants in streams associated with surface coal mining and impacts from these pollutants on aquatic ecosystems. As a result of this work, EPA is poised to initiate additional independent technical review and public evaluation of potential new water quality values for conductivity based on effective science and the need to improve protection of water quality, public health, and the environment.

Numerous studies, data submitted to permitting authorities for proposed mining activities, and some state impaired waters lists published pursuant to CWA Section 303(d), have shown that high levels of conductivity, dissolved solids, and sulfates are a primary cause of water quality impairments downstream from mine discharges. These studies build upon existing research from other regions that demonstrated the toxicity of specific ions, such as sulfate, as well as the complex interplay of ionic constituents associated with coal mining operations.[8] Dissolved solids contained in waters draining from valley fills are a primary cause of biological impairment resulting from changes in benthic species richness and diversity (particularly species of mayflies, a key component of headwater stream communities). An example of these studies is Pond et al. (2008), which found evidence that mining activities have subtle to severe impacts on downstream aquatic life and the biological conditions of a stream.[9] A 2003 published study by Kennedy et al. linked elevated conductivity levels in coal effluent to impaired, sensitive aquatic fauna.[10] A 2004 Kentucky Department for Environmental Protection study found that the loss of mayflies in streams below mined sites indicates that these organisms are especially sensitive to

[8] Soucek, D.J. and A.J. Kennedy. 2005. Effects of hardness, chloride, and acclimation on the acute toxicity of sulfate to freshwater invertebrates. Environmental Toxicology and Chemistry 24:1204-1210.

[9] Pond et al. 2008.

[10] Kennedy, A.J., DS. Cherry, and R.J. Currie. Field and laboratory assessment of a coal processing effluent in the Leading Creek Watershed, Meigs County, Ohio. Archives of Environmental Contamination and Toxicology 44:324–331.

coal mine drainage.[11] A 2005 published study by Kennedy et al. linked impairment of aquatic life to elevated levels of Total Dissolved Solids (TDS).[12] Finally, a 2010 published study by Pond links specific conductance as the most strongly correlated factor to a reduction of *Ephemeroptera* in streams impacted by mining and residential development.[13]

In addition, an analysis of peer-reviewed studies recently published in the journal *Science* shows that ecological losses downstream of coal mining valley fills are associated with increased levels of TDS and conductivity, sulfates, and selenium.[14] EPA's Office of Research and Development (ORD) recently completed a review of the scientific literature on surface coal mining and found effects that included resource loss, water quality impairment, and adverse effects on aquatic ecosystems. This report is being submitted to the EPA Science Advisory Board (SAB) for review and is also publicly available.

EPA recently conducted assessments of permitting practices under CWA Sections 402 and 404 for surface coal mining projects in Appalachia. The Permit Quality Review of Section 402 permits in West Virginia, Kentucky, Tennessee and Ohio, conducted in September and October 2009, identified concerns related to effective protection of downstream water quality consistent with requirements of the CWA. The concerns focus on the interpretation of narrative and numeric criteria in CWA Section 402 permits for surface coal mining projects. In addition, the evaluation of pending coal mining projects under the EPA-Corps Section 404 Enhanced Coordination Procedures (ECP) found that many of these projects may not be consistent with EPA and Corps regulations, including the Section 404(b)(1) Guidelines. As many as 80% of these permits raised concerns with respect to compliance with state narrative water quality standards, while more than half raised concern for the potential for significant degradation of aquatic ecosystems.

The emerging science related to adverse environmental and water quality effects is based on data and analyses subjected to the rigors of peer-reviewed science and quality assurance reviews. EPA places a high priority on quality assurance and agency policy specifies necessary quality assurance activities be performed to ensure data are of sufficient quantity and adequate quality for their intended use. EPA's reviews of ambient chemical and biological data and analyses that support some permitting decisions have revealed consistent and serious issues with underlying data quality, such as erroneous field meter readings, biological samples collected outside of state index periods or during extreme low flows, and inclusion of non-endemic taxa in taxonomic lists. Analyses of these data also have demonstrated concerns, such as inappropriate aggregation of biological data from several stream types (headwater to larger river) or several

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[11] Kentucky Department for Environmental Protection, Division of Water, Water Quality Branch. Effects of Surface Mining and Residential Land Use on Headwater Stream Biotic Integrity in the Eastern Kentucky Coalfield Region.

[12] Kennedy A. J., D.S. Cherry and C.E. Zipper. Evaluation of Ionic Contribution to the Toxicity of a Coal-Mine Effluent Using *Ceriodaphnia dubia*. Archives of environmental contamination and toxicology vol. 49.2:155-162.

[13] Pond, G.J. "Patterns of *Ephemeroptera* taxa loss in Appalachian headwater streams (Kentucky, USA)." Hydrobiologia 641(1):185-201.

[14] Palmer, M.A., E.S. Bernhardt, W.H. Schlesinger, K.N. Eshleman, E. Foufoula-Georgiou, M.S. Hendryx, A.D. Lemly, G.E. Likens, O.L. Loucks, M.E. Power, P.S. White, P.R. Wilcock. 2010. Mountaintop Mining Consequences. Science 327(5962):148-149.

seasons, failing to reflect natural data variability, and inappropriately including several samples from one site as independent samples in a statistical analysis (pseudoreplication).

Regions should ensure that the environmental data supporting CWA decision-making are carefully scrutinized to ensure they are of sufficient quality to support their intended use. Regions should encourage the incorporation of Quality Assurance Project Plans (QAPPs) for sampling data and Quality Assurance/Quality Control (QA/QC) data within data submitted to EPA through the permitting process. For guidance in ensuring environmental data are of sufficient quality, Regions should consult the agency's quality assurance policy at http://www.epa.gov/quality/index.html.

EPA has made substantial progress in recent months in the development of high-quality scientific information to support new numeric water quality values for conductivity, which is regularly observed at high levels in streams downstream from Appalachian surface coal mining operations. EPA expects, consistent with the requirements of the CWA, that the use of these values and the extensive scientific information that supports these numbers will be extremely helpful to states in the development of water quality-based effluent limits for Section 402 permits. Establishing enforceable numeric limits for conductivity, selenium, and other parameters in state Section 402 permits will help to improve water quality and better protect public health and aquatic life in streams downstream from Appalachian surface coal mining operations.

III. EPA Oversight of NPDES Permitting for Surface Coal Mining Operations in Appalachia

EPA has reason to believe that discharges from surface mining activities have a significant potential to cause nonattainment of applicable water quality standards downstream from valley fills, impoundments, and sediment ponds. Discharges from Appalachian surface coal mining activities have been found to have a high potential to impact aquatic life uses.[15] Numerous studies, data submitted to permitting authorities for proposed mining activities, and some state Section 303(d) lists have shown high levels of conductivity and dissolved solids and sulfates to be a primary cause of water quality impairments downstream from such mine discharges.

The Office of Water has been working closely with Regions 3, 4, and 5 to assess the quality of state-issued CWA Section 402 (NPDES) permits for surface coal mining operations with respect to the requirements of each state's permitting program in the Appalachian states of Tennessee, Ohio, Kentucky, and West Virginia. EPA has also been assessing permits for their compliance with applicable federal requirements. The goal of this assessment is to strengthen these state-issued NPDES permits to better address the impacts discussed above.

The CWA and EPA's implementing regulations require NPDES permits to contain technology-based effluent limits and, where necessary to protect water quality, water quality-based effluent limits. All permits reviewed by EPA included appropriate technology-based

[15] Pond et al. 2008.

limits for pollutant parameters listed in the effluent limitation guidelines for coal mining (40 CFR Part 434). However, based on observations from both ongoing program oversight and a focused Permit Quality Review of permits for surface coal mining activities, including detailed discussions with state permit writers, EPA has identified certain concerns common to many of the reviewed permits that warrant immediate attention to ensure that water quality is protected. Therefore, when Regional offices exercise their authority to review draft or proposed state NPDES permits for discharges to waters of the U.S. associated with Appalachian surface coal mining operations, Regions should evaluate several aspects of those permits as detailed below.

The sections below detail requirements of the Act and issues identified during EPA's recent Permit Quality Review. Should Regions identify similar concerns when reviewing draft or proposed permits in the future, we encourage you to work with your authorized states to resolve these concerns. As noted below, however, where discussions with the state do not produce a proposed permit that, in the Region's judgment, satisfies the requirements of the Act, an objection to the issuance of the proposed permit would be an appropriate response. We encourage the Water Division Directors of the three Regions to work together to ensure a comparable level of review and response across Appalachia.

A. Completion of Required Reasonable Potential Analyses

As noted above, the CWA requires NPDES permits to contain water quality-based effluent limits when necessary to meet water quality standards (CWA Section 301(b)(1)(C); 40 CFR Section 122.44(d)(1)). In order to determine whether water quality-based effluent limits are necessary, the permitting authority is required to conduct a "reasonable potential analysis." A reasonable potential analysis determines whether a discharge will cause, or has the reasonable potential to cause or contribute to, an excursion above a numeric or narrative water quality standard. EPA's regulations, EPA's 1991 Technical Support Document (TSD) for Water Quality-based Toxics Control (EPA/505/2-90-001 PB91-127415)[16], and established state procedures explain how to conduct this analysis.

EPA's review of NPDES permit administrative records found that parameters known to be present in the effluent, based on data submitted with the permit applications, were often not assessed for the reasonable potential to cause or contribute to an excursion above water quality standards. Although each permit requires a case-specific analysis, in general, an NPDES permit that fails to show evidence of a parameter-specific reasonable potential analysis will be inconsistent with the requirements of the CWA. Furthermore, EPA expects that in many, if not most, cases the available science will demonstrate that there is a reasonable potential for these discharges to cause or contribute to an excursion above numeric or narrative water quality standards, thus making water quality-based effluent limits necessary.

To characterize the effluent, existing dischargers applying or reapplying for NPDES permit coverage should provide the permitting authority with screening data for a suite of pollutants and pollutant parameters listed in the applicable NPDES permit application form. However, for new (proposed) discharges, the application form for an individual permit requires

[16] This publication is available at http://www.epa.gov/npdes/pubs/owm0264.pdf.

only an estimate of the effluent characteristics. In addition to data specifically required by permit applications, 40 CFR Section 122.21 allows permitting authorities to request any additional data as necessary to support an assessment of potential water quality impacts (e.g., conductivity and total dissolved solids). Facilities applying for coverage under an NPDES general permit are required to submit information specifically identified in the Notice of Intent provisions of the general permit. EPA's review of permits and associated records found that states generally did not adequately document or explain how information submitted by applicants was used to characterize the nature of their actual or proposed discharges. In particular, where facilities had proposed to discharge, but had not yet begun construction or operation, the files contained little discussion of how the permitting authority projected or anticipated the types and concentrations of pollutants expected in the effluent.

Where effluent data are available (i.e., for existing discharges), EPA's expectation is that permitting authorities will use all valid and representative data to determine whether the discharge causes, has the reasonable potential to cause, or contributes to an excursion of numeric and/or narrative water quality criteria and standards. For new (proposed) discharges, the permitting authority should require the applicant to characterize the anticipated pollutant concentrations and loads using data from similar discharges and/or based on characteristics of local soils and geology. For example, these data may be from mining facilities located adjacent to or having similar geologic characteristics as the mine under review, or from ambient data collected as part of the Section 404 or SMCRA permit applications. Permitting authorities should independently seek to obtain such data if not submitted by the applicant or can reject the application as not sufficient. Ambient water quality data collected as part of the SMCRA and Section 404 permitting processes should be included in the NPDES permit development process and, where appropriate, should be incorporated as "background" conditions in reasonable potential analyses.

B. Incorporation of Numeric Water Quality Standards in Terms of NPDES Permits

Where a surface coal mining discharge is found to have reasonable potential to exceed a numeric water quality standard, the regulations require that NPDES permits include water quality-based effluent limits (WQBELs) based on the existing numeric water quality criteria in state water quality standards. While EPA's Permit Quality Review found that many permits did incorporate all relevant numeric water quality standards, some permits omitted them. As one example, all Appalachian states have adopted a chronic numeric criterion for selenium of 5 µg/l for the protection of aquatic life. Should a reasonable potential analysis indicate that the discharge of selenium (or another parameter) has the potential to cause or contribute to an excursion above any state standard and a state fails to include a WQBEL based on the existing state water quality standard, EPA expects that such a permit would not be consistent with the CWA.

It is the responsibility of the applicant to characterize the wastewater to be discharged from the permitted facility. In order to have a complete NPDES permit application, data must be presented by the applicant to properly characterize its discharge to enable a reasonable potential analysis to be completed by the permit writer at the time of permit issuance. Data may be

secured through evaluation of similarly situated facilities in adjacent watersheds or similar practices in the same ecological or geological setting.

Where there is an approved Total Maximum Daily Load (TMDL) for the receiving waterbody, the receiving waterbody is listed as impaired on the state's approved Section 303(d) list, or a downstream waterbody may be affected by the discharge, it will be important that the reasonable potential analysis include an analysis of the pollutants for which the TMDL was established or for which the waterbody is listed as impaired, or for pollutants that may affect downstream waters.

1. Specific Guidance Regarding Compliance Schedules

Compliance with all NPDES permit terms is required at the time of permit issuance. However, federal regulations at 40 CFR Section 122.47 allow for NPDES permits to include compliance schedules for the achievement of WQBELs, when determined to be appropriate under discharger-specific circumstances. When determined to be appropriate, a compliance schedule must require compliance with the WQBEL within a time determined to be "as soon as possible" based on a discharger-specific evaluation. Compliance schedules are only available for WQBELs based on water quality standards that have been newly adopted after July 1, 1977, and where the applicable water quality standards authorize the use of such schedules. For further guidance regarding considerations for Regions when evaluating compliance schedules, please see the May 10, 2007, Memorandum from James Hanlon, Director, Office of Wastewater Management to Alexis Strauss, Director, Water Division, EPA Region IX, and the November 16, 2007, Letter from Jon M. Capacasa, Director, Water Protection Division, US EPA Region III, to Lisa A. McClung, Director, Division of Water and Water Management, West Virginia DEP, and Randy Huffman, Director, Division of Mining And Reclamation, West Virginia DEP.[17]

C. Incorporation of Narrative Water Quality Standards in the Terms of NPDES Permits

In addition to those parameters for which there are numeric water quality standards, all Appalachian states have adopted narrative water quality standards. Of particular relevance here, nearly all Appalachian states do not currently have applicable numeric water quality criteria that account for the effects associated with high levels of conductivity, total dissolved solids, and sulfates. In lieu of such numeric criteria, all Appalachian states have applicable narrative water quality criteria. EPA regulations are clear that NPDES permits must contain provisions that implement both numeric water quality standards <u>and</u> narrative water quality standards and that the same reasonable potential analysis completed for numeric standards must be completed for narrative standards as well. 40 CFR Sections 122.44(d)(1) and (d)(1)(vi).

EPA's review of permits found that states did not incorporate provisions that would implement the relevant narrative water quality standards relating to discharges that increase the levels of conductivity, total dissolved solids, and sulfates. The permits do not contain limits based on whole effluent toxicity (WET) and/or a chemical-specific numeric interpretation of the

[17] These documents are available at http://www.epa.gov/owow/wetlands/guidance/mining.html

narrative criteria as required by 40 CFR Sections 122.44(d)(1)(v) and (vi). In addition, the permits' statements of basis or fact sheets do not provide information indicating that the narrative criteria were considered as part of the determination of which effluent limitations are necessary. Although EPA's review of each permit is case-specific, EPA expects that a permit that fails to include provisions implementing the narrative water quality standards and fails to explain why such omission is appropriate under the regulations will not be consistent with the requirements of the CWA.[18]

1. Documentation on How States Will Derive Effluent Limits Based on Narrative Water Quality Standards

EPA Regions should request that states provide documentation describing how the states will perform a reasonable potential analysis and, where necessary, develop effluent limits (or other permit conditions), to ensure compliance with the state's narrative water quality standards. The state should provide a detailed description of the decision-making process, including the types and sources of data used to characterize both expected effluent quality and receiving water quality with respect to narrative water quality standards. Baseline water quality analyses required for SMCRA permit applications and projected or estimated effluent concentrations characterizing expected effluent quality are expected to be used to inform each state's decisions.

In documenting how they will interpret and implement their narrative standards, the states should take into account that the NPDES regulations at 40 CFR Section 122.44(d)(1)(vi) require the consideration of relevant information pertaining to a pollutant that may cause or contribute to an excursion above an applicable state narrative water quality standard. The scientific literature is increasingly recognizing the relationship between conductivity levels in Appalachian streams and impacts to aquatic biota in streams below surface coal mining operations. Based on field measurements comparing unmined and mined watersheds in Central Appalachia, the peer-reviewed 2008 "Pond-Passmore" study concluded that aquatic life at sites with specific conductance greater than 500 µS/cm were observed to have been adversely impacted based on a genus-level multi-metric biological index.[19] In addition, EPA's draft report, *A Field-Based Aquatic Life Benchmark for Conductivity in Central Appalachian Streams*,[20] also recognizes stream-life impacts associated with conductivity. This study, which is publicly available and will undergo external peer review by the SAB, applies EPA's standard method for

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[18] In the limited cases in which a state determines that it is infeasible to calculate a numeric effluent limit to implement a narrative water quality standard, the state should include in the permit appropriate WET limits and best management practices (BMPs) to control or abate the discharge of pollutants, consistent with 40 C.F.R. Section 122.44(k)(3). In these limited circumstances, the state would need to document the basis for its determination that a numeric effluent limit for the narrative standard was infeasible to calculate, and would need to include associated provisions for monitoring the effectiveness of BMPs. Monitoring should include in-stream conditions of aquatic biota consistent with state biocriteria. Should downstream impacts exceed biocriteria, provisions for adaptive remedial action should be included.

[19] Pond et al. 2008.

[20] This methodology and benchmark were developed in a parallel but unrelated track to a literature review summary of the effects of mountaintop mining and valley fills produced by EPA that has also been issued for Science Advisory Board review and consultation.

deriving water quality criteria to field measurements and concludes that genus-level impacts to the biological community occur at conductivity levels of 300 µS/cm.[21]

During the SAB review process, EPA believes that this report should be considered by Appalachian states as relevant information per 40 CFR Section 122.44(d)(1)(vi) in implementing applicable state narrative water quality standards in NPDES permits, and by Regions in your review of these permits. Documentation of how each state will interpret and implement its narrative water quality standards (in light of the data and conclusions of this conductivity report and other relevant information) will help ensure that the public and the regulated community have a better understanding of the state's decision-making process and increased certainty that narrative water quality standards are adequately met. As a general matter, EPA expects that the conductivity impacts of projects with predicted conductivity levels below 300 µS/cm generally will not cause a water quality standard violation and that in-stream conductivity levels above 500 µS/cm are likely to be associated with adverse impacts that may rise to the level of exceedances of narrative state water quality standards.[22] If water quality modeling suggests that in-stream levels will exceed 500 µS/cm, EPA believes that reasonable potential likely exists to cause or contribute to an excursion above applicable water quality standards; unless, based on site-specific data, the state has an alternative interpretation of their water quality standards that is supported by relevant science. Similarly, if water quality monitoring suggests that in-stream levels will exceed 300 µS/cm but will be below 500 µS/cm, EPA should work with the permitting authority to ensure that the permit includes conditions that protect against conductivity levels exceeding 500 µS/cm. In circumstances where conductivity levels in waters proposed for new mining related discharges already exceed 500 µS/cm, EPA will coordinate with the permitting authority on a site-specific basis to ensure these new discharges will not cause or contribute to a violation of water quality standards. Once EPA's draft conductivity report is finalized following SAB review, we will evaluate whether changes to the conductivity benchmarks identified here are appropriate.

At a minimum, should the record indicate that a reasonable potential exists, the permitting authority must demonstrate in the administrative record, based on site- or receiving-water-specific information, how the permit implements the narrative water quality standards in a manner that is consistent with the CWA, and Regions are encouraged to review such a record carefully. For new (proposed) discharges, the permitting authority should require the applicant to characterize the anticipated pollutant concentrations and loads using data from similar discharges and/or based on the characteristics of local soils and geology. As noted above, as a general matter, EPA expects that in-stream conductivity levels above 500 µS/cm are likely to be associated with adverse impacts to water quality. The scientific literature has identified conductivity levels above this level in impaired streams below surface coal mining operations in Appalachian ecoregions 68, 69, and 70 and, therefore, it is generally likely that such surface coal mining operations will have a reasonable potential to cause or contribute to an exceedance of

[21] As described in the report, this study may be applied to all waters in the Appalachian region that are dominated by salts of SO_4^{2-} and HCO_3^- at circum-neutral pH and low levels of chloride.

[22] In certain fact-specific circumstances, conductivity levels above 500 µS/cm may not be associated with adverse aquatic impacts. EPA will work with permitting authorities on a site-specific basis to assess reasonable potential.

water quality standards.[23] Permits for discharges associated with activities other than surface coal mining should also be evaluated to determine whether they are likely to result in in-stream conductivity levels above 500 µS/cm. We believe that circumstances unique to surface coal mining, however, are principally responsible for the increase in conductivity levels observed in surface waters downstream of mining practices. Surface coal mining involves disturbing large volumes of rock and dirt, land clearing, and spoil disposal activities at a scale not typically associated with activities such as development practices or forestry. We do not have studies of other non-mining activities demonstrating a likelihood that they will have a reasonable potential to cause or contribute to an exceedance of water quality standards. EPA should coordinate with the permitting authority to consider relevant information when conducting a reasonable potential analysis for other activities on a case by case basis.

The state must provide adequate documentation in the permit fact sheet or statement of basis to demonstrate that it has assessed reasonable potential and, where necessary, developed effluent limits (or other permit conditions) adequate to protect all applicable water quality standards, including narrative water quality standards. EPA will review the adequacy of the state's explanation in its fact sheet or statement of basis, considering the available scientific and other information. Where EPA concludes that the state's explanation is not adequate, or the state fails to provide an explanation of how it has interpreted or applied its narrative water quality standards, EPA may object to the permit in accordance with the provisions of 40 CFR Section 123.44(c).

D. Completing an Appropriate Antidegradation Analysis

As EPA increases its oversight of permits associated with surface coal mining activities, EPA will also focus on ensuring that permits are issued consistent with water quality standards-related antidegradation regulations, policies and procedures. State antidegradation policies provide protection of waters from degradation. EPA will, in its oversight of NPDES permits, ensure that adequate antidegradation reviews have been conducted for the receiving water consistent with applicable state water quality standards.

Antidegradation regulations require that all permits include limits sufficient to maintain and protect existing uses (Tier 1). For outstanding national resource waters (Tier 3), antidegradation requires the maintenance and protection of ambient water quality (e.g., no lowering of water quality). For high quality waters (Tier 2), where the quality of waters exceeds the level necessary to protect the use, EPA will particularly focus on ensuring that the state has made the finding that allowing lower water quality is "necessary to accommodate important social or economic development in the area in which the waters are located." 40 CFR Section 131.12(a)(2). This amounts to a two-part test: demonstration of the extent to which the discharge is "necessary" in the manner and magnitude proposed, and of its importance for social or economic development.

[23] Ecoregions 68, 69, and 70 include portions of the six Appalachian states referenced earlier in this memorandum. A map of these ecoregions is available at http://www.epa.gov/wed/pages/ecoregions/level_iii.htm.

The finding of necessity is among the most important and useful aspects of an antidegradation program. EPA expects an alternatives analysis to evaluate whether the proposed discharge is "necessary." This analysis should include consideration of a range of less-degrading or non-degrading alternatives to the direct discharge or to the manner of discharge (e.g., non-discharging options, relocation of discharge, alternative processes, and innovative treatments). In the finding of social or economic importance of the proposed activity, EPA expects the state to analyze the social and/or economic impact associated with the lowering of water quality. The state should provide documentation to support its antidegradation analysis.

There are similar analyses of alternatives performed under CWA Sections 401, 402, and 404; NEPA; and SMCRA. To the extent that a Section 402 antidegradation analysis has been completed concurrently or in advance of analyses performed under these related authorities, Regions should encourage permitting authorities to use the Section 402 antidegradation analysis to inform similar analyses under these related authorities.

E. Conclusions Regarding Improved NPDES Permitting

Initially, we want to encourage the Regions to continue to work proactively with authorized states to improve the quality of state-issued NPDES permits for surface coal mining. In that regard, we offer eight specific suggestions:

1. Regions should request information from each state as to how that state is interpreting and incorporating applicable numeric and narrative water quality standards within its permitting decisions.

2. The permitting authority must demonstrate in the administrative record, based on site- or receiving-water-specific information, the reasonable potential determination and the basis for any limits or other permit requirements including how the permit implements the narrative water quality standards in a manner that is consistent with the CWA.

3. In recognition of the fact that during discussions with state permitting staff, some state permit writers indicated they did not have sufficient tools to interpret the narrative water quality standards for these discharges, Regions should foster additional dialogue on information and tools EPA could provide to assist the states in translating their narrative criteria into numeric effluent limits.

4. Permitting authorities should consider data from similarly situated mines in their reasonable potential analyses for new facilities. In addition, as noted in Chapter 3.2 of EPA's "Technical Support Document for Water Quality-based Toxics Control,"[24] permitting authorities may determine reasonable potential based on information other than effluent data, such as the nature of the operation and its potential impact on the receiving water. Regions should evaluate whether required and appropriate data are

[24] "Technical Support Document for Water Quality-based Toxics Control." EPA Office of Water, March 1991.

submitted with permit applications and encourage permitting authorities to consider permit applications incomplete if the data characterization is not sufficient.

5. Regions should consider objecting to permits that do not assess reasonable potential effectively or fail to implement numeric and narrative standards.

6. Regions should review, as appropriate, general permits, notices of intent, individual permits, and public participation efforts, and provide comments on eligibility, WQBELs, and antidegradation in particular.

7. In situations where an NPDES permit has already been issued, but other permits or authorizations are required before a project may proceed, we encourage Regions to work with the other permitting or authorizing authorities to address any concerns left unaddressed by the NPDES permit, as appropriate.

8. Regions should evaluate the consistency of a permit's monitoring provisions with the statutory and regulatory requirements.

When reviewing state-issued permits, we strongly encourage you to ensure that the items discussed above are addressed in a manner consistent with the CWA and EPA's implementing regulations. In instances in which the Region concludes that a proposed permit is not consistent with the CWA and EPA's implementing regulations, Regions should work closely with the state to make improvements. Historically, Regions have used several tools to try and resolve concerns regarding the sufficiency of state NPDES permits, ranging from comment letters to face-to-face meetings. We encourage Regions to continue to utilize those tools. If, however, in the Region's judgment discussions with the state do not produce a proposed permit that satisfies the requirements of the Act, an objection to the issuance of the proposed permit would be an appropriate response.[25]

1. Specific Guidance Regarding Oversight of General Permits

Some discharges at surface coal mining sites are authorized through state-issued general NPDES permits. In light of the case-specific analysis necessary to ensure that surface coal mining activities will achieve water quality standards, general permits will often be inadequate. Regions are strongly encouraged to advise the permitting authorities whether the Region agrees that general permits are appropriate for these discharges or whether the Region believes that, in light of the environmental impacts caused by these discharges and the need for tailoring permit conditions by receiving water, permitting authorities should require individual permits in all instances.

[25] Following such an objection, the state or other interested parties may request a hearing and provide additional information supporting their position. After such a hearing is held (if requested), EPA can reassert its objection, modify its objection, or withdraw its objection. If EPA continues to object (or if no hearing is requested) and if EPA's objections are not satisfactorily resolved by the state permitting authority, authority to issue the permit will pass to EPA (40 CFR Section 123.44(h)).

When reviewing a general permit, Regions should review it closely to ensure that it includes all relevant CWA requirements. Some general permits and state NPDES Memoranda of Agreement (MOAs) provide EPA with the opportunity to review notices of intent to be covered under a general permit. When you have that opportunity, we encourage you to review the notices of intent. For example, EPA and Kentucky have entered into a MOA that sets out EPA's role in reviewing both individual NPDES permits and individual NOIs to be covered under a general permit. As provided for in the MOA, EPA notified Kentucky in a June 16, 2009, letter that EPA was exercising its option to review and comment, prior to issuance or modification, on all draft NPDES individual permits, and NOIs for all proposed coverages under an NPDES general permit for proposed projects being evaluated under the ECP process. As a result, under the MOA, EPA will review the general permit NOIs and has 10 days to notify the Kentucky Division of Water of any objection to the applicant's suitability for coverage under the General Permit.

2. Specific Guidance on Environmental Justice Considerations under CWA Section 402

There are important provisions under CWA Section 402 that may be relevant to environmental justice issues stemming from surface coal mining and its impact on human health and the environment. EPA will address the adequacy of the technical and scientific aspects of the permit, as well as public participation, in reviewing NPDES draft permits. In particular, EPA will consider whether the public has been given meaningful opportunity for participation in development of the permit pursuant to 40 CFR Section 124.11.

As explained above, when EPA determines that a draft or proposed permit fails to comply with the CWA, EPA has the authority to object to the issuance of that permit. When Regions review draft or proposed permits for compliance with the Act, we encourage you to also review those permits to determine the extent to which issuing the permit may result in adverse human health or environmental effects on low-income and minority populations. For example, a Region may determine that the issuance of a permit will have adverse effects on drinking water supplies or fisheries that are relied on by subsistence fishers, or wildlife used as a subsistence food source by the local population. If EPA determines that issuing the NPDES permit may result in adverse human health or environmental effects, EPA will consider such effects when determining whether to exercise its discretion to object to a draft state permit under CWA Section 402(d) and EPA's implementing regulations.

IV. Strengthening EPA's Environmental Review Under CWA Section 404 in Coordination with the Corps of Engineers

EPA has long played a role in assessing environmental and water quality implications of proposed Section 404 permits, and is authorized to prohibit or deny projects that do not meet the criteria in the CWA and implementing regulations. While states are responsible, in coordination with EPA, for establishing state water quality standards, EPA has the critical authority under CWA Section 404(b)(1) to make independent judgments about threats to water quality. In

addition to the documented impacts from increased sediment loading, a growing body of data demonstrates that high conductivity and/or selenium levels in streams downstream from mining operations contribute to the impairment of biological diversity and ecological integrity of these streams and can lead to significant adverse impacts on the aquatic ecosystem and contamination of drinking water supplies. EPA and Corps regulations require consideration of these environmental and water quality concerns in the evaluations of applications for permits under CWA Section 404.

Under Section 404(a) of the CWA, the Corps is authorized to issue permits, after notice and opportunity for public hearings, for the discharge of dredged or fill material into waters of the U.S., including wetlands. Under Section 404(b)(1), EPA is authorized to develop guidelines, in conjunction with the Corps, to ensure that the goals of the CWA are met. These regulations are located at 40 C.F.R. Section 230. These Section 404(b)(1) Guidelines (Guidelines) are applicable to all discharges of dredged or fill material to waters of the U.S, and the Corps issues Section 404 permits after evaluating proposed discharges for consistency with the Guidelines and its own implementing regulations. 40 C.F.R. Section 230.2. EPA also reviews public notices and general permit pre-construction notifications for Section 404 permits for consistency with the Guidelines. Under Section 404(q) of the CWA, the Agencies have entered into a Memorandum of Agreement (404(q) MOA) governing the sharing of information and elevating of decisions when there is a dispute between regional and district offices over implementation of the Guidelines.[26] Finally, under Section 404(c) of the CWA, the Administrator is authorized to "veto" a permit if the Administrator determines that a discharge will have an unacceptable adverse effect.[27]

When reviewing Corps public notices and general permit pre-construction notifications for CWA Section 404 authorizations for surface coal mining-related discharges to waters of the United States in Appalachian states, Regions should be guided by the following sections.

A. Principles for Regional Review of Appalachian Surface Coal Mining Section 404 Permit Applications

The fundamental premise of the Guidelines is that no discharge of dredged or fill material may be permitted if: (1) it causes or contributes, after consideration of disposal site dilution and dispersion, to violations of any applicable state water quality standard; (2) a practicable alternative exists that is less damaging to the aquatic environment; or (3) the nation's waters

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[26] Clean Water Act Section 404(q): Memorandum of Agreement Between the Environmental Protection Agency and the Department of the Army (1992). Available at http://www.usace.army.mil/CECW/Documents/cecwo/reg/mou/moa_epa404q.pdf.

[27] "The Administrator is authorized to prohibit the specification (including the withdrawal of specification) of any defined area as a disposal site, and he is authorized to deny or restrict the use of any defined area for specification (including the withdrawal of specification) as a disposal site, whenever he determines, after notice and opportunity for public hearings, that the discharge of such materials into such area will have an unacceptable adverse effect on municipal water supplies, shellfish beds and fishery areas (including spawning and breeding areas), wildlife, or recreational areas. Before making such determination, the Administrator shall consult with the Secretary. The Administrator shall set forth in writing and make public his findings and his reasons for making any determination under this subsection." CWA Section 404(c).

would be significantly degraded. 40 C.F.R. Section 230.10. In addition, if the proposed discharge is associated with a non-water-dependent activity, upland alternatives are presumed to exist. 40 C.F.R. Section 230.10(a)(3). Avoidance and minimization of the direct, indirect, and cumulative adverse environmental and water quality impacts to streams, wetlands, and other aquatic resources should be required. A demonstration must first be made that there is no practicable alternative to the proposed discharge to the waters of the United States that would have less adverse impact on the aquatic ecosystem. If there is no less damaging practicable alternative, then all appropriate and practicable steps to minimize potential adverse impacts of the discharge must be taken. Finally, mitigation is required to compensate for any remaining aquatic impacts.

To better ensure that surface mining proposals meet these requirements, Regions should affirm in their review that mining projects are consistent with the following principles:

1. Mining activities will not cause or contribute to violations of water quality standards, contaminate drinking water supplies, or add toxic pollutants that kill or impair stream life. 40 C.F.R. Section 230.10(b). Mining discharges must also not result in significant degradation of the aquatic environment, including contamination of water supplies. 40 C.F.R. Section 230.10(c).

2. Applicants have evaluated a full range of potential alternatives to discharging into waters of the U.S., including off-site and/or other disposal alternatives, with clear documentation regarding practicability for each alternative. 40 C.F.R. Section 230.10(a). Alternative mining methods that reduce generation of excess spoil should also be analyzed. Practicable, modern engineering and materials handling practices should be used to reduce the size and number of valley fills or the extent of streams impacted as a result of mine-through operations that bury, eliminate, and pollute local streams.

3. Mining companies have avoided and minimized their direct, indirect, and cumulative adverse environmental impacts to streams, wetlands, watersheds, and other aquatic resources. 40 C.F.R. Sections 230.10(a) and 230.10(d).

4. Remaining mining-related aquatic impacts have been effectively mitigated by establishing, restoring, enhancing, or preserving streams and wetlands; protecting water quality, including drinking water; and reclaiming watersheds when mining is completed. 40 C.F.R. Section 230.10(d).

Water quality standards are fundamental to achieving the purposes of the CWA. EPA has a role and responsibility for ensuring that water quality standards are not exceeded because of discharges regulated under Section 404 from Appalachian surface coal mining operations. In their review to determine whether a proposed discharge will cause or contribute to an exceedance of water quality standards, Regions should be guided by the principles articulated in Sections III.B. and III.C. of this memorandum addressing implementation of both numeric and narrative water quality standards. EPA retains its responsibility for ensuring that neither numeric nor narrative water quality standards are exceeded due to discharges of fill material even if a state has issued a water quality certification under Section 401 of the CWA. State certifications of

compliance with applicable water quality standards will be considered conclusive by the Corps with respect to water quality considerations unless the Regional Administrator advises the Corps of other water quality aspects to be taken into consideration. 33 C.F.R. Section 320.4(d). Thus, Regions should convey their conclusions with respect to possible exceedances of water quality standards to the Corps and, if appropriate changes to the permit are not made in response to these water quality concerns, may proceed under the 404(q) MOA and/or Section 404(c).

Similarly, with respect to the four review principles identified in this section and the guidance for applying the Guidelines in the next section, Regions should convey the results of their reviews to the Corps, the permit applicant, and the state and, if appropriate changes to the permit are not made in response to these water quality concerns, may proceed under the 404(q) MOA and/ or Section 404(c).

B. Key Information for Evaluating Permit Applications for Appalachian Surface Coal Mining

Because of the complexity, size, and scale of surface coal mining projects, in reviewing proposed Section 404 permit applications for these activities, it is essential that federal and state agencies have appropriate data to fully review the aquatic ecosystem impacts anticipated to occur. EPA Regions should evaluate project-specific data including, but not limited to, the following information. Where such data are also required by other federal and state regulatory partners, the agencies are encouraged to collaborate in sharing this information among one another to increase efficiency and better ensure regulatory decisions are being made using the same base of technical information.

- Geospatial information – Digital geospatial boundaries for the proposed project and individual valley fills. Location of nearby, reference, or unmined tributaries in the same catchment.
- Surface area disturbed – Total acreage of surface disturbance area (mineral extraction area).
- Spoil material – Volume of overburden excavated and volume of excess spoil (in cubic yards).
- Disposal location – Detailed as on site, off site, or a combination or percentage.
- Spoil for each valley fill – In cubic yards, where applicable.
- Drainage area – Above each toe of fill and each sediment pond, whichever is further downstream (in acres).
- Impacts – Aquatic resource impacts resulting from, but not limited to, valley fills, sediment ponds, slurry ponds, in-stream mining, or other mining operation features, in linear feet by type of stream (perennial, intermittent, ephemeral) or acres for other resource types, and by type of impact (permanent or temporary).
- Baseline monitoring – Pre-mine (land disturbance) sampling data and sampling location for total suspended solids, total dissolved solids, conductivity, sulfates, bicarbonate, chloride, magnesium, potassium, calcium, sodium, pH, selenium, and list of the presence and abundance of aquatic organisms identified to the loweset

practicable taxonomic level, usually genus-level for invertebrates and species-level for vertebrates.

- Hydrology – Cumulative Hydrologic Impact Assessments (CHIAs) and Probable Hydrologic Consequences (PHC).
- Watershed condition – Any sampling data for total suspended solids, total dissolved solids, conductivity, sulfates, bicarbonate, chloride, magnesium, potassium, calcium, and macroinvertebrate presence and abundance for adjacent mines included with the CHIA or other sources.
- Geology – Geologic strata information from core samples, including analysis of selenium, pyrite, calcium carbonate, acid-producing strata, and any strata that may cause or contribute to conductivity.
- Drinking water supplies – Location of drinking water supplies that could be affected, including private wells.
- Subsistence consumption – Patterns of local consumption of fish and wildlife that may be affected by loss of waters and impacts to surface water quality.

C. Applying the 404(b)(1) Guidelines for Surface Coal Mining Activities

The Section 404(b)(1) Guidelines prohibit issuance of a permit that will cause or contribute to excursions from applicable state water quality standards or to significant degradation of the aquatic ecosystem. 40 C.F.R. Sections 230.10(b) and (c). While issuance of the Section 402 permit is required to control discharges of pollutants into waters of the United States from surface mining operations, the discharge of fill material resulting in physical modification and elimination of portions of headwater streams may have water quality impacts that are not addressed in the NPDES permit. For example, elimination of all or even part of a headwater stream may remove from the overall watershed system an important source of freshwater dilution that contributes to water quality. Accordingly, even where a NPDES permit has been issued, the Section 404 permit must independently ensure that water quality is protected. The applicant should be required to demonstrate up front, based on proposed mining techniques, best management practices, or other actions, that the project will not cause or contribute to an excursion from applicable water quality standards or to significant degradation. The permit should include a condition, pursuant to 40 C.F.R. Sections 230.10(b) and (c), prohibiting the project from causing or contributing to an excursion from applicable water quality standards or to significant degradation.

The following discussion represents EPA's expectations for the analyses necessary to ensure compliance with water quality standards, prevention of significant degradation, and full analysis of avoidance, minimization, and (where necessary) mitigation, to achieve full compliance with the 404(b)(1) Guidelines.

1. Preventing Violations of Water Quality Standards

The Section 404(b)(1) Guidelines require that Section 404 permits must not cause or contribute, after consideration of site dilution and dispersion, to violations of applicable state

water quality standards. 40 CFR Section 230.10(b)(1). As explained more fully above in Section III, Appalachian states have narrative water quality standards that protect the native aquatic community, including protection from adverse effects associated with elevated levels of in-stream conductivity. Nearly all Appalachian states, however, have not established numeric water quality criteria for conductivity or TDS and historically have not included numeric effluent limitations to address conductivity or TDS in state-issued NPDES permits. The absence of necessary WQBELs in 402 permits has meant that EPA has needed to consider whether issuance of a 404 permit would be inconsistent with the Guidelines because authorization of a particular mining project would result in exceedances of a state's narrative standards. Section III.C. of this memorandum provides specific guidance to the Regions on how to evaluate whether provisions of NPDES permits are adequate to protect against violations of water quality standards, and that guidance also applies to how Regions should conduct that evaluation for Section 404 permits. As discussed below, even where a Section 402 permit has addressed protection of water quality standards, the Guidelines establish an independent obligation to address potential violations of water quality standards associated with discharges of dredged or fill material and to protect against significant degradation.

2. Preventing Significant Degradation

In addition to the provision in the Section 404(b)(1) Guidelines requiring that Section 404 permits must not cause or contribute, after consideration of site dilution and dispersion, to violations of applicable state water quality standards (Section 230.10(b)(1)), a separate, additional provision prohibits the permitting of a discharge that will cause or contribute to significant degradation of the waters of the U.S. (Section 230.10(c)). The Corps and EPA therefore have a responsibility to ensure sufficiently protective requirements are included when reviewing mining projects in draft Section 404 permits. To date, this has involved coordination with the Corps to develop adequate numeric action triggers in 404 permits. Our general approach has been to rely on peer-reviewed studies (including those by EPA) examining the relationship between conductivity values and water quality impairment in Appalachia. These studies point to a strong relationship between conductivity values in the range of 400-500 µS/cm in headwater streams and significant degradation of benthic communities in Appalachian streams as a result of mining activity. In response to these studies, the Corps and EPA included conditions in the recent Section 404 permit for the Hobet 45 mine that trigger remedial action requirements when conductivity levels in streams associated with this mine reach the 400-500 µS/cm level.

A recently prepared EPA ORD study, which is being noticed in the Federal Register for public comment and which will be submitted for SAB review, augments existing studies and provides an additional analysis of the relationship between impairment of stream quality in Appalachia and conductivity levels. This study identifies conductivity levels of 300 µS/cm or below in Appalachian headwater streams as a benchmark for retaining 95% of native benthic species. The study also identifies substantial impacts to native invertebrate species at conductivity levels exceeding 500 µS/cm. Because the study will be reviewed by the SAB, it does not represent a final Agency position at this time. However, EPA will need to continue reviewing 404 permits while this external peer review process is underway.

For purposes of Section 230.10(c) of the Guidelines, the Regions should consider the ORD report when examining whether a draft 404 permit is likely to result in significant degradation of waters of the U.S. During this interim period, the Regions should make a case-by-case determination based upon all available relevant scientific information including the ORD report. EPA anticipates that the conductivity impacts of projects with predicted conductivity levels below 300 µS/cm generally will not cause a water quality standard violation or significant degradation of the aquatic ecosystem. On the other hand, EPA expects that in-stream conductivity levels above 500 µS/cm are likely to be associated with adverse impacts that could rise to the level of significant degradation of the aquatic ecosystem. At a minimum, should a proposed Section 404 permit allow for increases in levels of conductivity above 500 µS/cm, the administrative record for the permit should demonstrate, based on site or receiving water specific information, how the permit is consistent with the CWA and the 404(b)(1) Guidelines, and Regions are encouraged to review such a record carefully. EPA, the Corps, and individual mining operators should be coordinating, in the context of a "sequenced" permitting approach (see IV.C.4 below), or other similarly protective measures, to ensure conductivity levels remain at levels not likely to contribute to degraded water quality, as discussed above in III.C.1. Projects projected to increase conductivity levels above 300 µS/cm should include permit conditions requiring adaptive remedial action to prevent conductivity levels from rising to levels that may contribute to water quality degradation, as discussed in III.C.1. After EPA's draft conductivity report is finalized after peer review, we will reexamine this approach.

In conjunction with the conductivity threshold, ORD's review of the scientific literature on surface coal mining (as mentioned above, scheduled to be reviewed by the SAB) and *Science* magazine found effects, including resource loss, water quality impairment, and adverse effects on aquatic ecosystems, that could support a conclusion of significant degradation of waters of the U.S. under applicable regulations.

3. Ensuring Effective Monitoring

To ensure compliance with these provisions of the Guidelines, the permit should effectively require water quality and biological monitoring in streams below surface coal mining operations to ensure permit conditions are being met and to collect data to inform continued operations as described below. Monitoring should be conducted during construction and post-construction. The permittee should be required to submit baseline monitoring data for biological condition, conductivity, total dissolved solids, sulfates, bicarbonate, chloride, magnesium, potassium, calcium, sodium, pH, and selenium to help provide information necessary to assure compliance with water quality standards and prevent significant degradation. The permittee should use the methodology employed by the state for assessing its waters pursuant to Section 303(d) or other methodology utilized by the state. In addition, with respect to biological data, the permittee should identify taxa to the genus level where the state methodology does not do so. The permittee should implement a monitoring plan for the foregoing parameters at appropriate locations upstream and downstream of the project, where applicable. As set forth in more detail below, the permit should include clear requirements for remedial actions to protect water quality

in the event monitoring reveals a trend toward excursion from water quality standards or a trend toward significant degradation.

4. Ensuring Independent Water Quality Protection from Section 404 Permits

Regions should ensure that, if a Section 402 permit has already been issued and does not address current science-based values for contaminants, the Section 404 permit includes needed conditions to protect water quality and to prevent significant degradation of the aquatic ecosystem. In addition to the monitoring requirements discussed in #1 above, additional conditions should explicitly address the levels of specific contaminants that must be achieved. These conditions should also address the adaptive remedial actions that will be implemented if water quality protection values are exceeded.

5. Ensuring Adequate Cumulative Impact Assessment Consistent with the 404(b)(1) Guidelines

Regions should ensure that watershed-scale (e.g., Hydrologic Unit Code 12 (HUC-12)) cumulative impact analyses are conducted as an element of the factual determinations required by the 404(b)(1) Guidelines. 40 CFR Section 230.11(g). These analyses should assess the consequences of past, present, and reasonably foreseeable future discharges of dredged or fill material (federal and non-federal) in the affected watersheds, on water quality and the aquatic environment. To the extent the cumulative impacts to water quality and the aquatic environment also affect human use characteristics, such as water supplies or fisheries, those impacts also should be addressed. Regions are encouraged to ensure that cumulative impact assessments conducted pursuant to the Guidelines are coordinated with required NEPA evaluations described in Section VI. below.

6. Assessing and Mitigating for Affected Stream Functions

Regions should ensure that applicants or the Corps conduct functional stream impact assessments and ensure they are effectively used to quantify the environmental effects of individual mining projects on streams. Regions are encouraged to work with and provide technical assistance to the Corps and states on the development and implementation of effective assessment methods. These assessments should be used to ensure that compensatory mitigation adequately replaces lost stream functions. For example, EPA should recommend alternatives to drainageways (e.g., groin ditches) as methods of stream mitigation, as they do not replace lost stream functions and are therefore not an acceptable form of compensatory mitigation. Some additional specific expectations for compensatory mitigation consistent with the agencies mitigation regulations include:

a. <u>Timeframe</u> – An expected timeframe for success should be identified and the mitigation should be monitored for that length of time in order to ensure success.

b. Mitigation monitoring – A detailed monitoring plan outlining the observable and measureable physical, chemical and biological criteria, and expected standards to be achieved, should be incorporated into permit conditions.

c. Adaptive remedial action – Include an adaptive remedial action plan that identifies specific triggers in the performance standards and alternate plans and strategies should the desired targets not be achieved. The plan should require additional actions and/or supplemental mitigation in the event success criteria are not achieved within an appropriate timeframe.

d. Stream establishment – Created stream channels should be designed to develop good water quality, healthy and diverse biological communities, and similar hydrologic regimes as streams to be impacted by mining activities. The goal of these compensation projects is to replace the lost stream functions impacted through mining activities; therefore, they should be designed to achieve designated uses for aquatic life support.

e. Ditches – No Section 404 compensation credit should be given for sediment, groin, or other water control ditches required for mining projects under SMCRA and CWA Section 402.

7. Ensuring Environmental Justice in Section 404 Permitting

Regions should identify whether issuing a permit would result in adverse human health or environmental effects on low-income and minority populations, including impacts to water supplies and fisheries. Where such effects are likely, EPA Regions should suggest ways and measures to avoid and/or mitigate such impacts through comments to the Corps.

In addition to the principles outlined above, EPA expects that the following best management practices will help to reduce or eliminate potential increases in conductivity levels in surface waters downstream of mining-related discharges to levels consistent with meeting narrative water quality standards and preventing significant degradation, as discussed in this memo, and to minimize associated impacts to the aquatic environment.

1. Sequencing Multiple Valley Fills for Projects Proposing More Than One Fill

Many of the proposed best management practices associated with the design of mining operations are currently unproven in their effectiveness to protect water quality and to prevent significant degradation. As a general matter, an effective approach for managing this uncertainty is to sequence multiple fills on a project. The sequenced approach, or another comparably effective measure, should be employed to account for uncertainty regarding the ability of current project best management practices to address the potential adverse impacts of multiple fills. In this context, the term "sequenced" means:

a. Valley fills that are part of the same project or complex should generally be constructed one at a time, unless site-specific data suggest no potential downstream water quality concerns; and

b. The permittee should demonstrate compliance with applicable water quality standards, and that significant degradation has not occurred, at each valley fill before the permittee may begin construction of subsequent valley fills.

EPA encourages applicants to fully sequence fills (e.g., one at a time) where monitoring and watershed-specific factors suggest water quality impacts may occur. On a case-by-case basis, if available data suggest that concurrently constructing more than one initial fill would not be likely to lead to water quality concerns, such an approach may be evaluated. A trends analysis as referenced above should be performed from the conductivity monitoring data. The trends analysis should then be evaluated against two threshold conductivity values established within the permit. The first value would establish a threshold at which a trend toward causing or contributing to water quality exceedances and significant degradation is identified, and the operator would be required to implement an adaptive remedial action plan to prevent further degradation. The second value would establish a threshold at which an excursion from applicable water quality standards and/or significant degradation is likely, and the permittee would be prohibited from constructing additional valley fills until such time as the excursion from water quality standards and/or significant degradation has been remediated and the permittee has demonstrated that no further excursion from water quality standards and/or significant degradation will occur. As discussed above, for many Appalachian streams, available scientific evidence supports using thresholds of 300 and 500 uS/cm in this context, though site-specific evidence may support alternate thresholds.

2. Protecting Water Quality for Projects Proposing One Valley Fill

For operations proposing a single valley fill, the sequencing as described above is not an option. As stated above, the applicant should be required to demonstrate prior to authorization and construction, based on proposed mining techniques, best management practices, or other actions, that the project will not cause or contribute to an excursion from applicable water quality standards or to significant degradation. The permit should include a condition, pursuant to 40 CFR Sections 230.10(b) and (c), prohibiting the project from causing or contributing to an excursion from applicable water quality standards or to significant degradation. In order to carry out this requirement and to assure that the permit will not cause or contribute to an excursion from applicable state water quality standards or to significant degradation of downstream waters, a monitoring plan as described above should generally still be required. Such permit conditions are also applicable and should be required for projects proposing multiple valley fills.

3. Minimizing Spoil Generation and Water Quality Impacts Through Avoidance and Minimization

Because larger and more numerous valley fills in waters of the U.S. are associated with increasing both direct adverse impacts to streams and watersheds and indirect downstream water quality impacts, projects should incorporate cost effective and technologically feasible limits on the quantity of excess spoil being generated per ton of coal produced by conducting a robust alternatives analysis. By relying on more efficient mining practices, impacts to streams and watersheds can be reduced. High-ratio mining operations generally do not represent the least environmentally damaging alternative. Consistent with the June 2009 interagency surface coal mining MOU, applicable federal and state regulatory agencies should coordinate environmental reviews of pending permit applications under the CWA and SMCRA to require practicable mining techniques that maximize the amount of spoil returned to the mine bench and minimize the amount of excess spoil that must be disposed of in streams and other aquatic systems. For mine-through operations, stream impacts should be avoided to the maximum practicable extent and spoil placement should be controlled to reduce drainage through overburden into streams. Options for disposing of mine waste in uplands, including relying on remaining excess spoil capacity at adjacent mine sites, must be fully evaluated. "Piecemealing" of multiple small mines to replace fewer large mines should be carefully evaluated to ensure that substitution of smaller mines is not resulting in greater direct, secondary, and cumulative adverse environmental impacts, which is not consistent with the Guidelines.

Projects should also incorporate environmentally effective limits on the linear extent of stream impacts per ton of excess spoil produced through a robust alternatives analysis. Such limits provide for improved efficiencies in spoil handling to minimize impacts to streams and is applicable to most mining operations, including mine-through projects. Where valley fills are necessary to accommodate disposal of excess spoil, overburden should be configured to maximize disposal as far up the valley as is feasible from an engineering perspective. To reduce direct stream impacts, valley fill construction should generally be from the head of the valley downwards instead of beginning at a point downstream and moving back upstream.

4. Certifying Mine Plan and Ensuring Full Utilization of Fill Disposal Sites

It is EPA's experience that permitted mine plans do not always reflect the "on-the-ground" construction and operation of a mine project. For many reasons, as construction and operation of the mine is underway, it is possible that the mine plan may change and that an operation may not fully utilize authorized capacity in valley fills. To prevent under-utilization of fills and to encourage additional avoidance and minimization of impacts to waters of the United States during construction, EPA should recommend that an issued permit be conditioned to require the operator to certify the mine plan and provide such certification to the Corps and EPA prior to construction of each valley fill. The operator should also be required to provide post-mining "as-built" plans.

5. Minimizing Conductivity Impacts and In-Stream Impoundments

Projects should fully evaluate and, where feasible, incorporate the following specific aspects of effective impacts avoidance and minimization:

a. Materials handling plans – Ensure that soils and rock on the mine site have been tested for concentrations of acid-, selenium- or heavy-metals-bearing or soluble strata that are likely to lead to high conductivity concerns. Overburden with high concentrations of these pollutants should be handled to minimize exposure to rainwater and groundwater and subsequent drainage into surface waters.

b. Fill construction – To prevent infiltration of surface runoff into the fill mass whenever possible, overburden should be compacted, leaving the top six feet unconsolidated. The use of end dumps should be discouraged whenever possible.

c. Sedimentation ponds – While achieving adequate sediment control, minimize the number of sediment ponds placed in waters of the U.S. and ensure that post-mining reclamation plans remove such ponds and restore affected streams.

6. Reducing Drainage Area Flowing Through Fills

Projects should reduce the drainage area flowing through valley fills to the maximum practicable extent consistent with sound engineering and safety considerations. Recent studies have suggested that water (e.g., precipitation and groundwater) flowing through valley fills contributes significantly to downstream water quality concerns as infiltrating water accumulates metals, dissolved solids, and sulfates. Designing mines (including mine-through operations) and valley fills to minimize drainage through mining spoil can contribute significantly to protecting downstream water quality. Regions should ensure that projects evaluate and, where feasible, incorporate current best mining practices that reduce infiltration and protect water quality, such as constructing valley fills as "side-hill" fills to reduce infiltration by precipitation, incorporating drains in valley fills to intercept and divert groundwater, and designing mines to take more consistent advantage of natural drainage through coal and rock formations that divert flow away from surface waters.

D. Addressing a Broad Range of Environmental Impacts

While the Guidelines evaluation process addresses impacts to the aquatic environment and the consequences of those impacts, we recognize that issuance of Section 404 permits can have other important environmental and human health impacts that are considered by the Corps as part of the "public interest review" process (33 CFR Section 320.4(a)). The public interest review process explicitly requires a "careful weighing" of up to 21 relevant public interest factors, including economics, aesthetics, energy needs, safety, and the general "needs and welfare of the people." In that light, we recommend that Regions provide comments to the Corps that address relevant public interest factors associated with the discharge of fill material

Section 401 certifying state, the federal agency must develop measures to address the downstream jurisdictions' concerns.

Section 401(a)(1) requires that a state "establish procedures for public notice in the case of all applications for certification by it and, to the extent it deems appropriate, procedures for public hearings in connection with specific applications." 33 U.S.C. Section 401(a)(1). To enable meaningful participation by affected communities, we recommend that Regions work with the states to ensure that these public participation procedures are in place, and encourage the states to provide appropriate opportunities for public hearings on specific certifications.

VI. National Environmental Policy Act Considerations

The Regions should work with the Corps and OSM to ensure that the NEPA analyses associated with federal permit decisions provide, through an open and accountable process, a comprehensive evaluation of the potential impacts associated with proposed actions, as well as an analysis of reasonable alternatives that may avoid or minimize adverse impacts. The Corps has announced its intention to issue a notice of proposed rulemaking expanding the Corps NEPA scope of review to consider all of the effects of proposed surface coal mining "valley fills" on the aquatic environment. EPA will work with the Corps toward that objective, and furthering the purpose of NEPA to provide information to the decision maker, other federal and state agencies, and the public. In the interim, EPA will work with the Corps on a case by case basis to review permit applications and ensure that all relevant environmental information, as well as potential alternatives that may avoid or minimize the extent of the valley fills, is fully considered.

We also recommend that Regions work with the Corps and OSM to help establish opportunities for early and meaningful community input. These opportunities for increased community input may include Regions requesting that Corps Districts and OSM make draft Environmental Assessments (EAs) readily available to the public using a variety of methods, including online and print media, as early in the permitting process as possible. In addition, it is important that all agencies work with local communities, including low-income and minority populations, to identify potential adverse human health and environmental impacts and mitigation measures and improve the accessibility of meetings, crucial documents, and notices.

As discussed earlier, the NEPA process is also an effective vehicle for considering the potential cumulative effects of mining proposals. Using a watershed-scale analysis (e.g., HUC-12 analyses) would be an effective way to examine the cumulative environmental and human health impacts from past, present and reasonably foreseeable actions, including federal and non-federal actions. When working with the Corps and OSM to help define the proper scope of a NEPA cumulative impact assessment, Regions should be clear that while cumulative hydrological impact assessments (CHIAs) prepared as part of the SMCRA process can provide useful information regarding impacts to the hydrologic balance of an area, a NEPA cumulative impact assessment should consider the full suite of relevant environmental impacts.

When an agency develops and makes a commitment to require mitigation measures to avoid, minimize, rectify, reduce, or compensate for significant environmental impacts, NEPA

compliance can be accomplished with an EA, coupled with a Finding of No Significant Impact (FONSI) ("Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulations," 46 FR 18026 (March 23, 1981)). The Regions should, in evaluating permit applications and NEPA analyses, carefully evaluate any proposed mitigation measures to ensure that they will not only be effective at eliminating or reducing impacts, but also that they are clearly stated, include binding commitments and monitoring plans, and include provisions for public access to monitoring results and related documents. Recent scientific evidence referenced earlier in this memorandum, as well as field experience with surface coal mining mitigation projects, has raised technical concerns about the capacity of some forms of mitigation to reduce on-site and downstream impacts associated with Appalachian surface coal mining to below levels of significance. For example, as noted earlier, EPA believes that no mitigation credit should be given for sediment, groin, or other water control ditches. Consequently, construction of these ditches should not be used as a basis for supporting a FONSI. Moreover, mitigation measures that rely on establishing or re-establishing streams, rather than rehabilitating or enhancing existing streams, have less certainty of successfully offsetting impacts and should generally not be used to support a FONSI.

While no specific regulatory thresholds exist for determining whether a potential impact is significant under NEPA, it is EPA's general experience with surface coal mining projects in Appalachia that there are a number of factors that should be considered. First, the scale of the proposed impacts to stream habitats is of primary importance. While smaller projects should be reviewed to determine whether potential impacts warrant preparation of an EIS, it is EPA's experience that projects that involve more than one mile of stream loss or more than one valley fill are likely to result in significant adverse impacts.

Finally, consistent with EPA's *Policy and Procedures for the Review of Federal Actions Impacting the Environment*, the Regions should consult with the Office of Federal Activities (OFA) when recommending to the Corps or OSM that an EIS be prepared. OFA can also provide assistance when Regions are unable to reach agreement with Corps Districts or OSM on whether an EIS should be prepared in a particular case. Further, although the decision to prepare an EIS rests with the Corps and OSM, under EPA's Clean Air Act Section 309 authority, EPA must "refer" to CEQ matters that the Administrator finds are "unsatisfactory from the standpoint of public health or welfare or environmental quality." OFA will work with Regions to determine an appropriate course for resolving such disputes, including the potential for a referral to CEQ, if appropriate.

VII. Conclusions

EPA will continue to work with our federal regulatory partners, state agencies, the mining industry and the public to fulfill our common goals of reducing adverse impacts to water quality, aquatic ecosystems, and human health. We will also communicate effectively with local communities and mining companies to provide the transparency, consistency, and efficiency expected of government agencies in dealing with issues of such importance to health, the environment, and the economy. EPA's Regional offices will continue to be the Agency's primary field representatives to co-implementing agencies, mining companies, affected

communities, and interested members of the public as we work to respond to CWA, NEPA, and environmental justice issues associated with Appalachian surface coal mining permits. We look forward to your leadership as we coordinate to develop environmentally effective, scientifically sound, and economically responsible approaches for meeting the requirements of the law.

cc: Regional Water and Enforcement Division Directors, Regions 3, 4, and 5
Robert Sussman, Senior Policy Counsel to the Administrator
C. Scott Fulton, General Counsel

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July 19, 2010

Linda B. Keller
Water Quality Standards Program
WV Department of Environmental Protection
601 57th Street SE
Charleston, WV 25304

RE: Comments to Water Quality Standards 2011 Triennial Review

Dear Ms. Keller:

West Virginia American Water welcomes this opportunity to provide comments regarding the changes in water quality standards proposed by the West Virginia Department of Environmental Protection in the Water Quality Standards 2011 Triennial Review.

West Virginia American Water supports a number of the changes proposed to the narrative criteria as set forth in §47-2-3. This section sets forth the requirement that no sewage, industrial wastes or other wastes present in any of the waters of the state or water withdrawal activities shall cause adverse conditions as set forth in this section. As a utility dependent on withdrawal of surface water to produce public drinking water, West Virginia American Water is concerned with the language change regarding withdrawal activities. While most of our water treatment facilities currently enjoy abundant surface water supplies, future withdrawals may impact the physical characteristics of streams during low flow periods. Of greatest concern is the possibility that the supply of drinking water to our customers will be limited because of potential impacts on the benthic community.

West Virginia American Water likewise supports the proposed changes in Subsection §7.2. This Subsection includes the "Half-Mile Rule" which prohibits discharge of any pollutants in excess of the concentrations designated for Water

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Use Category A within 1/2 mile upstream from the intake of any water supply (or larger area as deemed appropriate by the Secretary); the expiration of the Harmon Creek variance; and the extension of the Ward Hollow (chloride) variance to July 1, 2014. It should be further noted that West Virginia American Water is of the opinion that institution of the Half Mile Rule, as described in this section, is an excellent vehicle for the protection of the water quality of the waters of the state that are used as potable water supplies.

West Virginia American Water further supports the changes set forth in Section §8.3.a.3, which states a lake shall not be considered impaired based upon an average total phosphorus concentration in excess of the criterion established in section 8.3.a.2 (warm water lakes = 40 micrograms/L, cool water lakes = 30 micrograms/L), unless the chlorophyll-a criterion established therein (warm water lakes = 20 micrograms/L, cool water lakes = 10 micrograms/L) is also exceeded.

Section §8.3.b sets forth the criteria for nutrients in streams. West Virginia American Water supports the WVDEP's "one size does not fit all" approach and agrees that establishing nutrient criteria for only those streams deemed impaired is the most effective way to protect water quality. West Virginia American Water further suggests that mechanisms be developed to control the non-point sources of nutrient loading of the waters of the state as these sources have tremendous impact on water quality.

Appendix E, Table 1 of §47CSR2 contain limits for a variety of parameters. Parameter 8.15 is iron, with a proposed four-day average total iron concentration not to exceed 1.0 mg/l more than once per three years on average (increase from 0.5 mg/L). This change is listed under the Chronic B2 Aquatic Life Use Designation. West Virginia American Water fully agrees with this change as numerous studies support this limit as protective of aquatic life. This increased limit aligns the WV standard with EPA limit and brings it in line with those of neighboring states.

In this same table, Parameter 8.32 establishes a Total Dissolved Solids limit of 500 mg/L under Human Health A. West Virginia American Water is concerned with the levels of Total Dissolved Solids (TDS) within state waters. Currently acid mine drainage and large volume hydraulic fracture fluids (gas

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drilling brine) have created a number of water treatment issues for drinking water utilities along the entire length of the Ohio River and elsewhere across the state.

Having expressed that concern, WVAW urges the WVDEP to proceed with caution in imposing an actual water quality standard for TDS. While easy to impose, the use of generic monitoring parameters such as TDS limits may not be the best solution to resolving this issue. Additional research is suggested to determine the specific component(s) of TDS contributing to water treatment problems and consider specific water quality standards for those contaminant(s). Two components of TDS of particular concern to water utilities are listed below.

High levels of sulfates, a component of TDS, can have a negative impact on the general health of the human population. Elevated sulfate levels in drinking water can cause cases of intestinal distress. As a result there may be an increased need for public notice warnings to the general public of possible health concerns.

Elevated bromide concentrations pose the greatest concern to drinking water utilities because they lead to higher than normal levels of brominated disinfection by-products. Drinking Water Systems must currently meet maximum contaminant levels for trihalomethanes (80 ppb) and haloacetic acids (60 ppb). The levels of brominated disinfection by-products seen at various intakes along the Ohio River and in other WV locations in the fall of 2008 and 2009 were unprecedented and caused dramatic elevations in the running annual average values water utilities had to report to the West Virginia Bureau for Public Health for compliance purposes. While drought conditions did prevail during this time, droughts over the past 30 years have occurred without elevations in the levels of brominated disinfection by-products. Since the brominated species are formed very early in the treatment process and are relatively stable, use of alternative oxidants and other conventional methods for removal are futile. It is therefore recommended that the WVDEP investigate and consider adding a standard for bromine and bromine related compounds to its Water Quality Standards. Should this problem go unchecked, water utilities will have to make significant capital investments in treatment processes to remove bromine in order to meet the current drinking water MCLs for disinfection by-products. Obviously these additional expenditures will negatively impact customer rates.

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Thank you for permitting West Virginia American Water to file these comments in response to the WVDEP Water Quality Standards 2011 Triennial Review. Please do not hesitate to contact me should you have any questions regarding the comments contained herein.

Respectfully submitted,

Christopher G. Morris
Governmental Affairs Director

CGM/BS/lsb

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DAVID C.CANNON JR.
Vice President, Environment, Health & Safety

July 19, 2010

VIA ELECTRONIC MAIL AND U.S. MAIL

Mr. Scott G. Mandirola, Director
Division of Water and Waste Management
West Virginia Department of Environmental Protection
601 57th Street S.E.
Charleston, WV 25304

Re: ***Comments on Proposed Revisions to Surface Water Quality Standards 47 CSR 2***

Dear Director Mandirola:

Allegheny Energy, Inc. ("AE") is pleased to submit the following comments to the above-referenced draft rule-making. AE is an investor-owned electric generation and distribution company headquartered in Greensburg, Pennsylvania. AE owns and operates six coal-fired generating facilities in West Virginia with a capacity of 5067 megawatts of generation, and three hydroelectric facilities with a 6 megawatt generation capacity. Our coal-fired generation facilities in West Virginia hold West Virginia Water Pollution Control/NPDES permits and can be significantly affected by the proposed revisions to the West Virginia Surface Water Quality Standards, 47 CSR 2.

1. Water Withdrawal regulation through the Surface Water Quality Standards is not appropriate

The Proposed Rule would amend Section 3 of 47 CSR 2 titled "Conditions Not Allowable in State Waters" to add a provision that includes "certain water withdrawal activities." AE concurs with comments that have been filed by the West Virginia Chamber of Commerce and others pointing out that the proposal to regulate water withdrawal activities through the surface water quality standards is unwarranted and inappropriate. The proper vehicle for addressing water withdrawal issues is through the State Water Resources Management Plan currently being developed by the West Virginia Department of Environmental Protection ("WVDEP") pursuant to the mandates of the Water Resources Protection and Management Act, W. Va. Code §§22-26-1 et seq.

2. The Proposed Total Dissolved Solids Criterion

The Proposed Rule would add a water quality criterion for Total Dissolved Solids ("TDS") of 500 mg/l for the protection of Human Health. See Proposed Rule, page 47. AE participated in a stakeholder process to address a proposed criterion for TDS by the Pennsylvania Department of Environmental Protection (PADEP). Under PADEP's initial proposal a limit of 500 mg/l would have been imposed as an end-of-pipe technology-based limit on any new discharges of TDS in Pennsylvania. This proposal was met with significant adverse comment and, as a result, has undergone significant revision as it advances to final adoption. See http://www.irrc.state.pa.us/Regulations/RegInfo.cfm?IRRCNo=2806.

Although the Proposed Rule advanced by the WVDEP would impose the TDS criterion as an "instream" standard, as opposed to an end-of-pipe limitation as was proposed in Pennsylvania, the likely negative effects of the rule would be very similar. For this reason AE is providing a copy of comments it filed on the proposed Pennsylvania rule along with a copy of comments filed by the Pennsylvania Electric Power Generation Association, and requests that the WVDEP consider these comments as a part of its current rule-making. AE also endorses and incorporates by reference the comments of the West Virginia Chamber of Commerce and the West Virginia Manufacturers Association with regard to the proposed TDS criterion.

3. Need to Update Presumption Regarding Low Flow Levels for Monongahela River

AE requests that the WVDEP give consideration to correcting a technical error that exists with regard to the low flow specified in the water quality standards for the Monongahela River. As stated in comments filed by the West Virginia Chamber of Commerce, the current low flow specified by the water quality regulations at 47 CSR 2, § 7.2.d.7.1 is an artifact of earlier times when the only artificial regulation of flow on the Monongahela River was by operation of the Tygart Valley dam which assured a minimum flow of 345 cfs. Since that time the Stonewall Jackson dam has been constructed and, through requirements implemented by the Corps of Engineers, assures that the flow from the dam will be maintained at a level of 80 cfs. For these reasons the presumption contained in the current water quality standards should be revised to reflect the added minimum flow from the Stonewall Jackson dam – with the result that the minimum presumed flow for the Monongahela River should be changed to 425 cfs.

AE appreciates the opportunity to provide these comments and trusts that they will be given deliberate consideration by your agency. Please contact Randy Cain of my staff at 724-838-6004 if you have questions.

Sincerely,

David C. Cannon Jr.

c: Public Information Office
West Virginia Department of Environmental Protection

Allegheny Energy

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DAVID C.CANNON JR.
Vice President, Environment, Health & Safety

February 11, 2010

Via E-mail and Overnight Delivery

Environmental Quality Board
Rachel Carson State Office Building
16th Floor
400 Market Street
Harrisburg, Pennsylvania 17105-2301

RE: Proposed Rulemaking to Amend 25 Pa. Code Chapter 95
Wastewater Treatment Requirements
39 *Pa. Bulletin* 6467 (Nov. 7, 2009) and 39 *Pa. Bulletin* 6547 (Nov. 14, 2009)

Dear Members of the Environmental Quality Board:

Allegheny Energy, Inc. ("AE") is pleased to submit the following comments to the above-referenced draft rulemaking to amend 25 Pa. Code Chapter 95 (the "Proposed Rulemaking"). The Proposed Rulemaking, in part, proposes to impose effluent standards for new discharges of wastewaters containing high total dissolved solids ("TDS") (the "Effluent Standards"). As stated in the November 7, 2009 *Pa. Bulletin*, the Department drafted the Proposed Rulemaking due to the Department's perception that concentrations of TDS, sulfate and chloride are increasing in the waters of the Commonwealth and with the goal of prohibiting discharges from "new sources of high-TDS wastewaters" to waters of the Commonwealth by January 1, 2011.

I. Introduction

AE is an investor-owned electric generation and distribution company headquartered in Greensburg, Pennsylvania. AE owns and operates ten generating facilities in Pennsylvania with a capacity of over 3,300 megawatts of generation, including coal, natural gas and hydroelectric units. We serve approximately 715,000 customers with low-cost, reliable electric service in twenty-three counties in the Commonwealth, and we employ approximately 2,170 people at twenty-six facilities across the state. AE also has operations in West Virginia, Maryland, and Virginia.

The Proposed Rulemaking is seriously flawed and should be withdrawn for a number of reasons, including without limitation the following:

1. There Is No Rational Nexus between the Proposed Rulemaking and the Supposed Harm
2. The Department Failed to Follow Applicable Law and Its Own Guidance in Concluding that Waters Such as the Monongahela River Are Impaired for Total Dissolved Solids
3. The Environmental and Economic Costs of the Effluent Standards Will Exceed Any Possible Benefits Associated with Them
4. The Proposed Rulemaking Should Be Withdrawn for Further Consideration and, in the Interim, the Department Should Implement Remedies in Potential Problem Areas Using Existing, Well-Established Water Quality Controls

II. Comments

1. There Is No Rational Nexus between the Proposed Rulemaking and the Supposed Harm

The Proposed Rulemaking is unreasonable and inappropriate because there is no rational nexus between it and the supposed harm. Even assuming that the Department's perception about increasing levels of TDS, sulfate, and chlorides is correct (which the Department has not demonstrated), the Department has not identified the sources of the constituents and therefore cannot know whether the controls on "*new* sources of high-TDS wastewaters" will address the perceived problem. (Emphasis added).

The Proposed Rulemaking ignores entire classes of existing municipal and industrial point source dischargers and non-traditional point and non-point source discharges, many of which are known to discharge elevated levels of TDS, sulfate, and chlorides. The Department failed to account for, or indeed even to consider, differences in the nature of TDS discharged by different classes of discharges. The sparse preamble to the Proposed Rulemaking is simply devoid of any meaningful factual or technical analysis. Given the enormous environmental and economic consequences of the Proposed Rulemaking, the Department's analysis is inadequate.

The Department should be required to take a step back and develop a well thought out process to investigate sources of TDS, sulfate, and chlorides, and then implement an equitable strategy that rationally connects the proposed remedy to the documented sources. The piecemeal "last one in pays" approach of the Proposed Rulemaking is not only inequitable and without technical merit, it may not even resolve the perceived problem.

To illustrate these points AE compiled readily available information that identifies actual and potential sources of TDS and sulfate loadings in the Monongahela River. **Exhibit A** contains four maps of the Monongahela River from the PA-WV state line to the mouth of the river at Pittsburgh. These maps were prepared by AE using the eMapPA system. The maps show locations of the following actual and potential sources of TDS along the main stem of the river and along tributaries within the areas covered by the maps:

Discharge Points

Oil & Gas, Coal Mining, Water Pollution Control Facilities

Coal Mining

Mineral Preparation Plants, Post Mining Treatment Facilities, Refuse Disposal Facilities, Refuse Reprocessing Facilities, Surface Mines, Underground Mines, Coal Pillars

Mine Drainage

Coal Refuse Pile Reclamation, Deep Mine Reclamation, Internal Monitoring Points, Mine Drainage Treatment, Oil & Gas Reclamation, Surface Mine Reclamation

Oil & Gas

Land Application, Oil & Gas Wells, Pits, Coal Pillars

There are 655 actual outfalls and numerous potential sources of TDS loadings to the Monongahela River. The Department has made no effort to assess the contribution of these sources to the perceived harm, and eliminating all "new sources of high-TDS wastewaters" will not effectively address the perceived problem.

Indeed, a comparison of the available data to the Department's explanation of the TDS issue demonstrates the lack of a persuasive causal relationship for this issue. **Exhibits B** and **C** present the Department's Monongahela River data for chloride and sulfate collected during the period October to December 2008. These charts demonstrate chloride concentrations are well below the 250 mg/l ambient water quality criterion for chloride, while sulfate concentrations are much higher than chloride concentrations. Sulfate comprises considerably more of the river TDS load than chloride. This indicates a likely more significant contribution from high-sulfate discharges such as acid mine drainage than from discharges of high-chloride brines from gas drilling operations, the source AE understands initially was targeted by the Department in the Monongahela watershed. Again, and just as important, eliminating all "new sources of high-

TDS wastewaters" will not address any of these existing sources (but will, as discussed below, wreak havoc on new development).

In addition, there is a similar population of potential sources across the border in West Virginia and, as discussed below, any control efforts by DEP should include the other major section of this watershed to our south.

The lack of a factual and technical basis for the Proposed Rulemaking was clearly apparent to the Department's own Water Resources Advisory Committee ("WRAC"), which counseled the Department not to proceed with the Proposed Rulemaking until the underlying facts were understood. WRAC reviewed the preliminary version of the Proposed Rulemaking over the course of two meetings in the Summer of 2009. At its July 15, 2009 meeting, WRAC adopted the following recommendation regarding the Rulemaking:

> WRAC recognizes and fully supports the protection of all of the Commonwealth's surface and ground waters. However, from the commentary received at WRAC's June meeting and today's discussions, it is clear that the draft Chapter 95 regulation to limit the discharge of total dissolved solids and several other pollutants affects not only the quality and uses of the Commonwealth's waters but also many different sectors of Pennsylvania's economy.
>
> WRAC believes that the ramifications of the draft Chapter 95 regulations are wide ranging and have not been adequately analyzed by the Department. Specifically, WRAC believes that the draft regulation needs to be supported by science. Among other things, the Department needs to analyze more fully the surface water impacts of existing high TDS discharges, potential water quality impacts from new high TDS discharges, the treatment technologies needed to achieve compliance, and the impacts of the regulation on energy consumption, air emissions, residual waste generation and disposal, mine-land reclamation, and the economic impacts on the development of the Marcellus Shale and other affected sectors of Pennsylvania's economy.
>
> Rather than proceeding to public notice with a proposed rule, WRAC recommends that the Department work in conjunction with WRAC to form a statewide stakeholders group to analyze the issues and develop appropriate solutions. This approach was very successful in developing the Department's "Water Quality Antidegradation Implementation Guidance," and WRAC believes that it can be successful in this instance, too.

> In the interim, WRAC encourages the Department to use the full range of regulatory resources at its disposal to ensure protection of the existing and designated uses in the Commonwealth's receiving streams.

The Department rejected WRAC's advice and proceeded with the Rulemaking.

Apparently in an attempt to mask the lack of an actual factual and technical basis for the Proposed Rulemaking, the Department references several unrelated matters. For example, the Department references the presence of certain brominated disinfection by-products ("DBPs") in drinking water systems on the Monongahela River, noting that such compounds may be carcinogens. This reference is misplaced and irrelevant, and simply cannot support the Department's action. According to the U.S. EPA's website, DBPs are:

> [F]ormed when disinfectants used in water treatment plants react with bromide and/or natural organic matter (i.e., decaying vegetation) present in the source water. Different disinfectants produce different types or amounts of disinfection byproducts. Disinfection byproducts for which regulations have been established have been identified in drinking water, including trihalomethanes, haloacetic acids, bromate, and chlorite.

(*available at* www.epa.gov/enviro/html/icr/gloss_dbp.html#dbp). TDS is not a DBP, nor does it directly contribute to DBP concentrations. Therefore a discussion of DBPs in the Proposed Rulemaking is irrelevant and should not be used to justify an otherwise unsupported rule making.

Similarly, the Department references the "potential impacts to aquatic life from these large TDS discharges" and seeks to justify the Proposed Rulemaking based on those potential impacts. Again, this reference is irrelevant and misplaced. There is no connection between such potential impacts and the numerical Effluent Standards in the Proposed Rulemaking (e.g., 500 mg/l TDS), and in public discussions during the WRAC TDS Stakeholder Subcommittee meetings Department personnel have admitted that the numerical Effluent Standards were not developed based on those potential impacts. Moreover, the Pennsylvania water quality standards already contain a criterion for Osmotic Pressure, which was expressly designed to protect against these very potential impacts. The Department should simply enforce the existing Osmotic Pressure criterion to protect against these potential impacts, rather than using them in an attempt to bolster a standard that has no independent validity.

The Proposed Rulemaking should be withdrawn and the Department should be instructed to develop an appropriate factual and technical basis such that action can be taken that is rationally connected to the perceived harm.

2. The Department Failed to Follow Applicable Law and Its Own Guidance in Concluding that Waters Such as the Monongahela River Are Impaired for Total Dissolved Solids

In the preamble to the Proposed Rulemaking the Department asserts that "[t]he Monongahela River Watershed is being adversely impacted by TDS discharges and many points in the watershed are already impaired, with TDS, sulfates and chlorides as the cause." However, the Department has ignored the applicable law and its own guidance in reaching these and similar conclusions, and has no supporting administrative record for these conclusions. The Department should be required to withdraw the Proposed Rulemaking and assess the Commonwealth's waters in accordance with the applicable law and guidance.

First, unlike most water quality criteria in Pennsylvania, the criteria for both TDS and sulfate are intended to apply at the point of all existing or planned potable water supply withdrawals. 25 Pa. Code § 96.3(d). In promulgating this regulation, the Board expressly stated its intent that certain water quality criteria (e.g., TDS and sulfate) apply only at the point of the potable water supply intake, and that "all other criteria are applicable at all points instream where a use is protected." 30 Pa.B. 6067-6068 (November 18, 2000). The Department appears to have ignored this important distinction in reaching its "impairment" decisions.

Second, the Department has not attempted to conduct a meaningful statistical assessment of the watersheds or perform any type of "segment approach" to the watersheds. Rather, it has merely compared isolated samples to the water quality criteria and concluded that the waters are impaired based on occasional exceedances of the criteria. This overly simplistic approach is contrary to the Department's own decision rules for assessing potentially impaired water bodies:

> DEP's assessment and listing methodology constitutes the "decision rules" the Department uses when assessing the quality of waters and identifying water bodies that do not meet designated and existing uses.
>
> * * * *
>
> The Department uses chemical water quality data to identify bodies of water where anthropogenic pollutant loads cause violations of water quality standards. Since these decisions rely on limited environmental data, they are subject to error. Recognizing this fact, DEP has adopted a statistical approach to these decisions, which aims to minimize decision errors.

Commonwealth of Pennsylvania, Assessment and Listing Methodology for Integrated Water Quality Monitoring and Assessment Reporting, Clean Water Act Sections 305(b)/303(D) (March 2009), pp. 1 – 2. See, also, *Commonwealth of Pennsylvania Assessment and Listing*

Methodology for Integrated Water Quality Monitoring and Assessment Reporting, Clean Water Act Sections 305(b)/303(d) (March 2007); *USEPA Guidance for 2006 Assessment, Listing and Reporting Requirements Pursuant to Sections 303(d), 305(B) and 314 of the Clean Water Act* (July 29, 2005).

Note, in this regard, that the Department's failure to conform to its own guidance is intentional. For example, in the permit documentation for an NPDES permit that recently was issued for AE's Hatfield's Ferry Power Station, the Department concluded that it does not need to follow the applicable guidance in making these decisions. When confronted with the issue by AE during the public comment period, the Department responded that "[a] statistical analysis does not need to be performed. The data cannot be interpreted in any other manner." Fact Sheet/Statement of Basis for NPDES Permit No. PA0002941-A1 (December 22, 2008), p. 37.

Third, it appears that much, if not most of the TDS data considered by DEP have been generated using an analytical method which is biased and not approved by EPA. Specifically, it appears that DEP has used a method that specifies a sample drying temperature of 105°C (USGS Method I-1749-85), as opposed to the EPA approved 40 C.F.R. Part 136 analytical method that specifies a sample drying temperature of 180°C (USGS Method I-1750-85 or Standard Method 2540 C). This difference may result in <u>over</u> reporting the amount of TDS present in any sample because of excess water weight.

USGS Method I-1749-85 calls for drying at 105°C for two hours, cooling the residue, weighing the residue, and calculating the result. USGS Method I-1750-85 calls for drying the sample at 180°C for two hours, cooling the residue, weighing the residue and calculating the result. Standard Method 2540 C calls for drying at 180°C for at least one hour, cooling the residue, weighing the residue and repeating the drying, cooling and weighing procedure until a constant weight is obtained, and then calculating the result.

The underlying documentation for the methods discusses the significance of the potential difference and the importance of using the correct method. The following is an excerpt from <u>Standard Methods</u> (20th Edition) containing the explanation (emphasis added):

> The temperature at which the residue is dried has an important bearing on results, because weight losses due to volatilization of organic matter, mechanically occluded water, water of crystallization, and gases from heat-induced chemical decomposition, as well as weight gains due to oxidation, depend on temperature and time of heating. Each sample requires close attention to desiccation after drying. Minimize opening desiccator because moist air enters. Some samples may be stronger desiccants than those used in the desiccator and may take on water.
>
> **Residues dried at 103 to 105°C may retain not only water of crystallization but also some mechanically occluded water.**

> Loss of CO_2 will result in conversion of bicarbonate to carbonate. Loss of organic matter by volatilization usually will be very slight. Because removal of occluded water is marginal at this temperature, attainment of constant weight may be very slow.
>
> **Residues dried at 180 +- 2°C will lose almost all mechanically occluded water.** Some water of crystallization may remain, especially if sulfates are present. Organic matter may be lost by volatilization, but not completely destroyed. Loss of CO_2 results from conversion of bicarbonates to carbonates and carbonates may be decomposed partially to oxides or basic salts. Some chloride and nitrate salts may be lost. In general, evaporating and drying water samples at 180°C yields values for dissolved solids closer to those obtained through summation of individually determined mineral species than the dissolved solids values secured through drying at the lower temperature.

This excerpt clearly states that the temperature at which the residue is dried can skew the results and that residue dried at 103°C to 105°C can retain more water than residue dried at 180°C. As such, the only EPA approved method for TDS analysis requires a drying temperature of 180°C.

It does not appear that <u>any</u> relevant authority supports the use of USGS Method I-1749-85 (TDS determined at 105°C) for assessing compliance with water quality criteria or the secondary drinking water standard for TDS. To the contrary, all of the relevant authorities provide for the use of USGS Method I-1750-85 or Standard Method 2540 C (TDS determined at 180°C).

- 40 CFR §143.4(b) states that "Analysis of ...TDS... to determine compliance under §143.3 [secondary maximum contaminant levels] may be conducted with ... Standard Method 2540 C...."
- EPA's table *Analytical Methods Recommended for Drinking Water Monitoring of Secondary Contaminants, Revised June 2008*, lists Standard Method 2540 C as the recommended method for TDS.
- DEP's document *Assessment and Listing Methodology for Integrated Water Quality Monitoring and Reporting, March 2007*, states that for potable water supply use attainment decisions, "*use attainment evaluations are conducted through the review of raw (intake) water quality data provided through self-monitoring efforts at drinking water facilities.*" As stated above, the method listed at 40 CFR 143.3(b) (secondary drinking water standards) which "may be used" to determine compliance with the secondary drinking water standards is Standard Method 2540 C.

- 40 CFR Part 136 lists Standard Method 2540 C (180°C) and USGS Method I-1750-85 (180°C) as approved methods for NPDES compliance determinations.

- DEP's guidance document for background water quality determinations for NPDES permitting states that "Analytical methods promulgated under 40 CFR Part 136, or other DEP approved test methods must be used where applicable." *Implementation Guidance for the Determination and Use of Background/Ambient Water Quality in the Determination of Wasteload Allocations and NPDES Effluent Limitations for Toxic Substances, Revised.*

- 25 Pa. Code § 91.42 (Analysis of Wastes) states that "in analyzing sewage, industrial wastes and other substances to determine whether their characteristics meet the requirements of this article, the methods and procedures described in the current edition of Standard Methods for the Examination of Water and Wastewater, Public Health Association, Inc, shall be used."

All of the relevant regulatory sources support the use of either Standard Method 2540 C or USGS I-1750-85 for evaluating attainment of TDS water quality criteria or the secondary TDS drinking water standard, not the lower temperature method apparently used by DEP in making its attainment determinations.

3. The Environmental and Economic Costs of the Effluent Standards Will Exceed Any Possible Benefits Associated with Them

The Proposed Rulemaking also is unreasonable and inappropriate because the environmental and economic costs of complying with the Effluent Standards will far exceed any possible benefits associated with them. The Department estimated that the cost to treat discharges to comply with the Effluent Standards "could be on the order of $0.25 per gallon." The Department did not provide any studies or calculations setting forth how this estimated treatment value was derived or what treatment technology was assumed. As discussed below, even accepting the legitimacy of this estimate, it is misleading and grossly undervalues the adverse economic and environmental impacts that the Proposed Rulemaking would have on Pennsylvania.[1]

Industries and public interest groups alike have investigated the treatment options necessary to achieve the numeric Effluent Standards. The available treatment technologies are limited, depending on the characteristics of the discharge and the nature of the industry/source.

[1] The Department's estimate of the "order of $0.25 per gallon" is itself potentially economically prohibitive. For example, a garden hose running at 4 gpm would discharge over 2,100,000 gallons per year which at DEP's estimate would cost over $525,000 to treat.

The two most readily available technologies for treating TDS concentrations greater than 2,000 mg/l are reverse osmosis ("RO") and evaporation (with or without crystallization). It is widely agreed that the installation and maintenance of such systems are labor-intensive and costly. In addition, such systems are energy intensive and generate large quantities of residual solid waste (e.g., salt), which in turn require landfilling.

While the Department has uniformly applied one estimated treatment cost to comply with the Effluent Standards, this notion of a "one size fits all" treatment technology is problematic. As such, many interest groups and trade organizations presented their industries' estimated environmental and economic costs to comply with the Effluent Standards, and the associated implementation times. The presentations include the following:

- "The Facts About Monongahela River Water Quality," Allegheny Conference on Community Development, December 2009
- "Marcellus Shale Committee's Response to PADEP's Permitting Strategy for High TDS Wastewater Discharges," Presented to WRAC November 10, 2009
- "Impact Analysis of the High TDS Strategy on the Bituminous Mining Industry," Pennsylvania Coal Association, Presented to WRAC Subcommittee, September 22, 2009 and "Testimony of the Pennsylvania Coal Association Before the PA Environmental Quality Board Regarding Proposed Amendments to 25 PA Code Chapter 95 Wastewater Treatment Requirements, 39 PA Bulletin 6467," Josie Gaskey, December 15, 2009
- "Statement for Pennsylvania Environmental Quality Board Hearing Concerning Proposed Amendments to Chapter 95 Rules – Discharge Standards for Total Dissolved Solids," Pennsylvania Chamber of Business and Industry, December 17, 2009
- "PA Electric Power Generating Industry TDS Issues," Presented to WRAC October 16, 2009
- "Impact Analysis of the Proposed TDS Strategy on the Industry Sector Group," Presented to WRAC October 16, 2009

AE wishes to incorporate these presentations into the public record for the Proposed Rulemaking, to the extent that they already are not part of the record.[2]

The Electric Power Generation Association's ("EPGA") website lists 64 coal fired electric generating stations in Pennsylvania with a total generation capacity of 27,064 MW. http://www.epga.org/GeneratingFacilities.html. If only 15 of these stations were required to comply with the numerical Effluent Standards, EPGA estimates the following economic and environmental costs to comply:

Cost	FGD Wastewater Stream	All Wastewater Streams
Capital Cost	$1 billion	$3 - 7.5 billion
O&M Costs	$70 million/year	$230 - 600 million/year
Power Consumption	60 MWh	200 - 520 MWh
Waste Solids Production	821,250 tons/year	

The scale of these costs are consistent with the estimates of other affected sectors (e.g., estimated $1.325 billion in capital costs, $133 million in annual O&M costs, and an additional 237,000 tons/year of waste solids produced for the bituminous coal industry).

Clearly, the Department failed to adequately consider the significant environmental and economic costs associated with the Proposed Rulemaking.

[2] It is difficult to accurately predict the economic and environmental costs associated with the Proposed Rulemaking due to the confusing definition of "new source." The Department's vague and potentially very broad definition stands in sharp contrast to the precisely worded and narrowly construed federal definition set forth at 40 C.F.R. §§ 122.2 and 122.29(b). However, under almost any interpretation of "new source" the Proposed Rulemaking will have significant adverse environmental and economic costs. Indeed, the Department already has acted to define modifications of existing permits as "new sources," indicating that the Department intends the economic reach of the rule to be vast.

4. The Proposed Rulemaking Should Be Withdrawn for Further Consideration and, in the Interim, the Department Should Implement Remedies in Potential Problem Areas Using Existing, Well-Established Water Quality Controls

The Department has a number of mechanisms to address TDS, sulfate, and chloride loadings in the Commonwealth's surface waters, any or all of which are more appropriate than the ill-considered Proposed Rulemaking.

a. PERFORM A TMDL ON WATERSHEDS THAT THE DEPARTMENT APPROPRIATELY DEMONSTRATES ARE "IMPAIRED"

Both the Pennsylvania and the Federal regulations contemplate the development of a Total Maximum Daily Load ("TMDL") to address point and non-point sources for impaired surface water segments. See 25 Pa. Code § 96.4 and 40 C.F.R. § 130.7. This approach would allow the Department to equitably allocate existing and new discharges of TDS, sulfate, and/or chloride in a watershed that the Department appropriately demonstrates is impaired. In fact, the Department has extensive experience with TMDLs and is actively developing and implementing them throughout the Commonwealth to address a number of different water quality issues.

b. IMPLEMENT A NON-TMDL WATERSHED-BASED APPROACH

EPA guidance clearly allows the use of watershed-based approaches that are less formal than the TMDL process, even where existing water quality standards may be impaired. Such approaches avoid the time and costs associated with a formal TMDL. "[I]n the absence of a TMDL, permitting authorities have the flexibility to use a watershed approach similar to a TMDL analysis. One such approach is watershed-based permitting, which may be valuable where a TMDL is not available as a tool to implement a TMDL." *NPDES Permit Program Basics, Frequently Asked Questions* (http://cfpub.epa.gov/npdes/faqs.cfm). EPA expressly encourages this approach, observing that "permitting authorities are encouraged to consider a watershed-based permitting approach, which allows for the coordinated reissuance of permits with applicable limits throughout a watershed and may expedite implementation of new criteria while lowering administrative burden." Id.

Indeed, the Department already has significant experience in developing a watershed-based approach for a multi-state water system. The Chesapeake Bay Watershed has long been impaired for nutrients, and many of its Pennsylvania tributaries are listed as impaired. See, e.g., *2008 Pennsylvania Integrated Water Quality Monitoring and Assessment Report*. Like the TDS and sulfate issues in the Monongahela River and the Susquehanna River, nutrient issues in the Bay are complex, involving point and non-point sources in different states. Pennsylvania,

in cooperation with other states, agreed to implement measures and meet certain long-term reduction goals prior to the deadline for establishing a TMDL in the Chesapeake Bay Watershed. Through studies, the Department determined that point sources contribute only 11 percent of the nitrogen loading and 19 percent of the phosphorus loading delivered to the Bay, with the remainder of the load attributable to non-point sources. Given the disparately low proportion of the loadings attributable to point sources, the Department has focused on management approaches for non-point sources and has recognized that focusing efforts on point sources would not result in significant nutrient reductions, even if the point source loadings were completely eliminated. A similar, holistic watershed-based approach can (and should) be taken for other Commonwealth surface waters facing TDS, sulfate, and/or chloride problems.[3]

c. CONSIDER OFFSETS OR A TRADING PROGRAM FOR TDS AND SULFATE

The Department could utilize offsets or trading as a means of addressing TDS, sulfate and/or chloride issues. "EPA is supporting innovative approaches linked to developing and implementing TMDLs, such as watershed-based trading. Trading means that pollution sources can sell or barter their ability to reduce pollution with other sources that are unable to reduce their pollutant loads economically. *EPA NPDES Permit Writers Manual*, p. 106. "EPA supports trading in unimpaired waters to maintain water quality standards, as well as in impaired waters. EPA supports both pre-TMDL trading and trading under a TMDL." *NPDES Permit Program Basics, Frequently Asked Questions* (http://cfpub.epa.gov/npdes/faqs.cfm). "[W]hen WQBELs cannot be met based on existing water quality standards, dischargers may be able to meet WQBELs based on existing water quality standard through options such as offsets from point and non-point sources (e.g., land based BMPs) and water quality trading and watershed analysis." Id.

The Department clearly has a number of existing water quality controls at its disposal, any or all of which would adequately address TDS, sulfate, and/or chloride issues in the

[3] AE notes that the estimated capital costs to comply with the Pennsylvania Chesapeake Bay Strategy were $8.2 billion, which the Department recognized at the time was "roughly equivalent to twice our entire annual budget for all environmental protection programs in the Commonwealth. And it exceeds, by several orders of magnitude, the funds we currently have available, a fact that is acknowledged in the recently published Chesapeake Bay Watershed Blue Ribbon Finance Panel report." *Pennsylvania's Chesapeake Bay Strategy* (December 2004), p. 1. The costs for the Proposed Rulemaking easily could exceed $8.2 billion, and yet the Department has not devoted anywhere near the level of assessment and resources to the TDS issues that it devoted to the Chesapeake Bay Strategy.

Commonwealth while an appropriate technically and factually justified long term solution is developed.

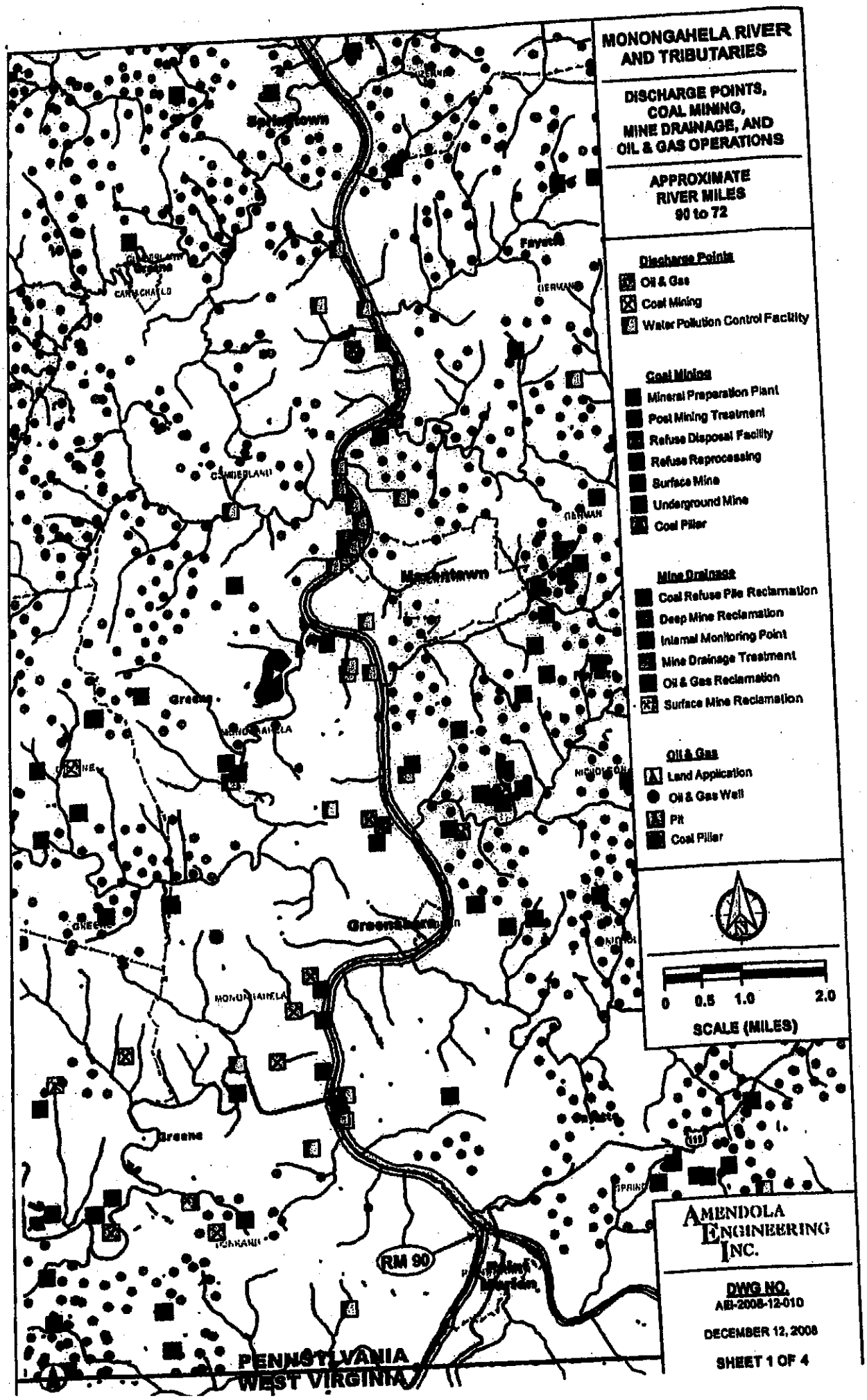
III. Conclusion

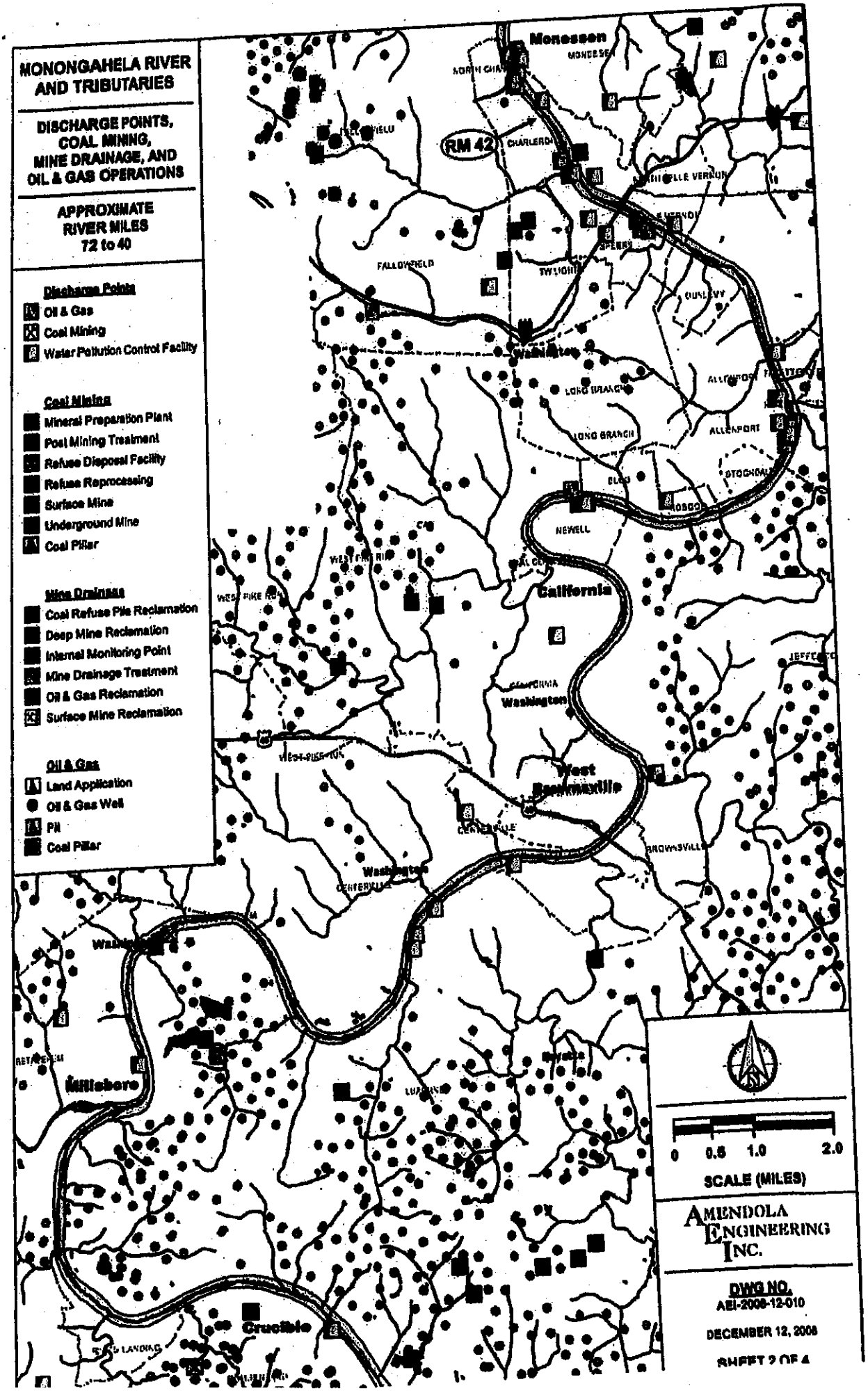
For the reasons stated above, AE strongly encourages the Environmental Quality Board to withdraw the Proposed Rulemaking and proceed under the existing regulatory framework designed to address such issues. We appreciate the opportunity to provide these comments.

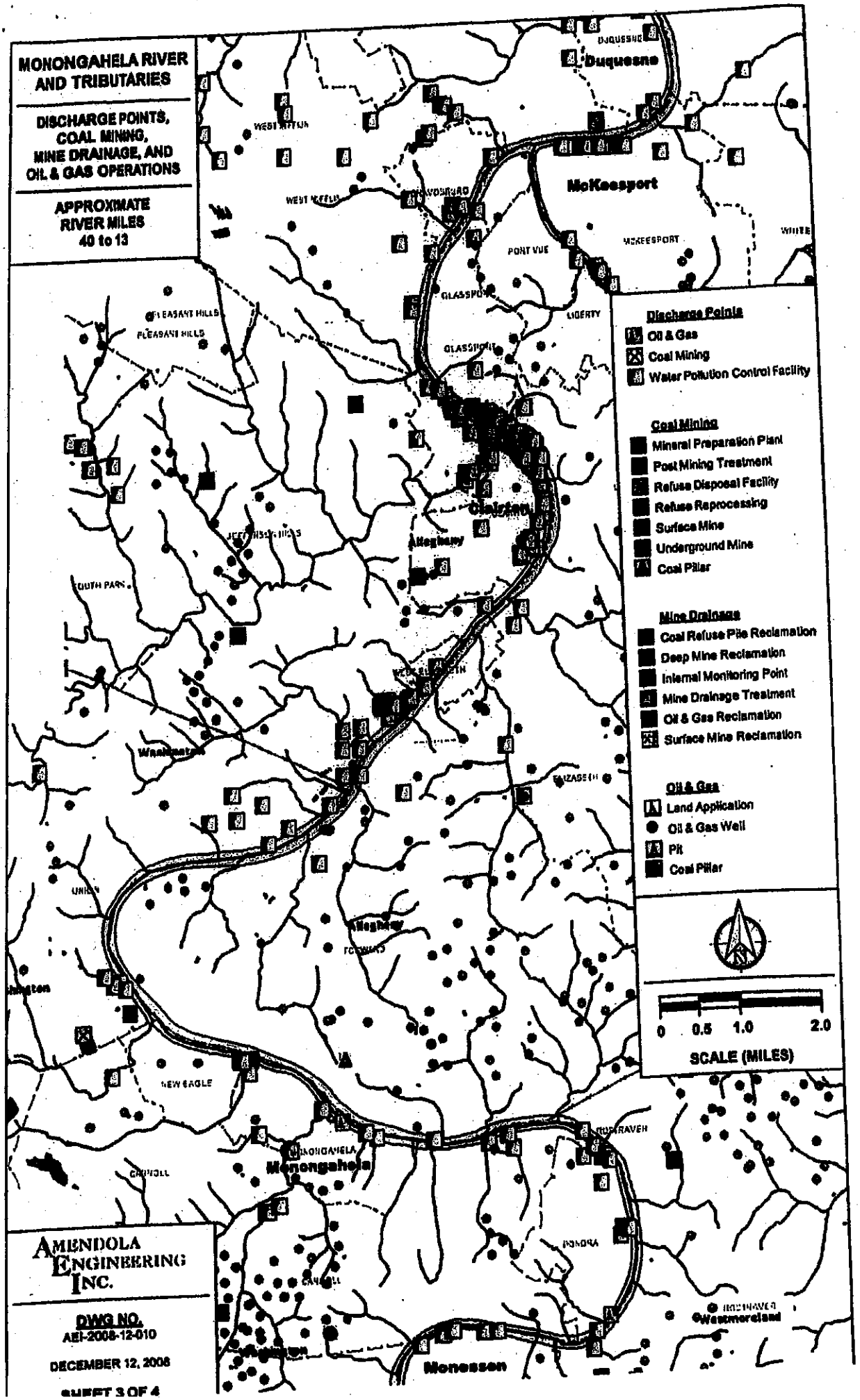
Sincerely,

David C. Cannon Jr.

EXHIBIT A


MONONGAHELA RIVER AND TRIBUTARIES
DISCHARGE POINTS, COAL MINING, MINE DRAINAGE, AND OIL & GAS OPERATIONS
APPROXIMATE RIVER MILES 90 to 72
Discharge Points
Oil & Gas
Coal Mining
Water Pollution Control Facility
Coal Mining
Mineral Preparation Plant
Post Mining Treatment
Refuse Disposal Facility
Refuse Reprocessing
Surface Mine
Underground Mine
Coal Pillar
Mine Drainage
Coal Refuse Pile Reclamation
Deep Mine Reclamation
Internal Monitoring Point
Mine Drainage Treatment
Oil & Gas Reclamation
Surface Mine Reclamation
Oil & Gas
Land Application
Oil & Gas Well
Pit
Coal Pillar
0 0.5 1.0 2.0
SCALE (MILES)
Springtown
Fayette
Greene
Maxentown
Greensboro
RM 90
PENNSYLVANIA
WEST VIRGINIA
AMENDOLA ENGINEERING INC.
DWG NO.
AEI-2008-12-01D
DECEMBER 12, 2008
SHEET 1 OF 4


MONONGAHELA RIVER AND TRIBUTARIES
DISCHARGE POINTS, COAL MINING, MINE DRAINAGE, AND OIL & GAS OPERATIONS
APPROXIMATE RIVER MILES 72 to 40
Discharge Points
Oil & Gas
Coal Mining
Water Pollution Control Facility
Coal Mining
Mineral Preparation Plant
Post Mining Treatment
Refuse Disposal Facility
Refuse Reprocessing
Surface Mine
Underground Mine
Coal Pillar
Mine Drainage
Coal Refuse Pile Reclamation
Deep Mine Reclamation
Internal Monitoring Point
Mine Drainage Treatment
Oil & Gas Reclamation
Surface Mine Reclamation
Oil & Gas
Land Application
Oil & Gas Well
Pit
Coal Pillar
Monessen
RM 42
CHARLEROI
FALLOWFIELD
Washington
LONG BRANCH
ALLENPORT
NEWELL
California
Washington
West Brownsville
BROWNSVILLE
Washington
Millsboro
Crucible
0 0.5 1.0 2.0
SCALE (MILES)
AMENDOLA ENGINEERING INC.
DWG NO. AEI-2008-12-010
DECEMBER 12, 2008
SHEET 2 OF 4


MONONGAHELA RIVER AND TRIBUTARIES
DISCHARGE POINTS, COAL MINING, MINE DRAINAGE, AND OIL & GAS OPERATIONS
APPROXIMATE RIVER MILES 40 to 13
Duquesne
McKeesport
Clairton
Allegheny
Monongahela
Monessen
Discharge Points
Oil & Gas
Coal Mining
Water Pollution Control Facility
Coal Mining
Mineral Preparation Plant
Post Mining Treatment
Refuse Disposal Facility
Refuse Reprocessing
Surface Mine
Underground Mine
Coal Pillar
Mine Drainage
Coal Refuse Pile Reclamation
Deep Mine Reclamation
Internal Monitoring Point
Mine Drainage Treatment
Oil & Gas Reclamation
Surface Mine Reclamation
Oil & Gas
Land Application
Oil & Gas Well
Pit
Coal Pillar
0 0.5 1.0 2.0
SCALE (MILES)
AMENDOLA ENGINEERING INC.
DWG NO. AEI-2008-12-010
DECEMBER 12, 2008
SHEET 3 OF 4

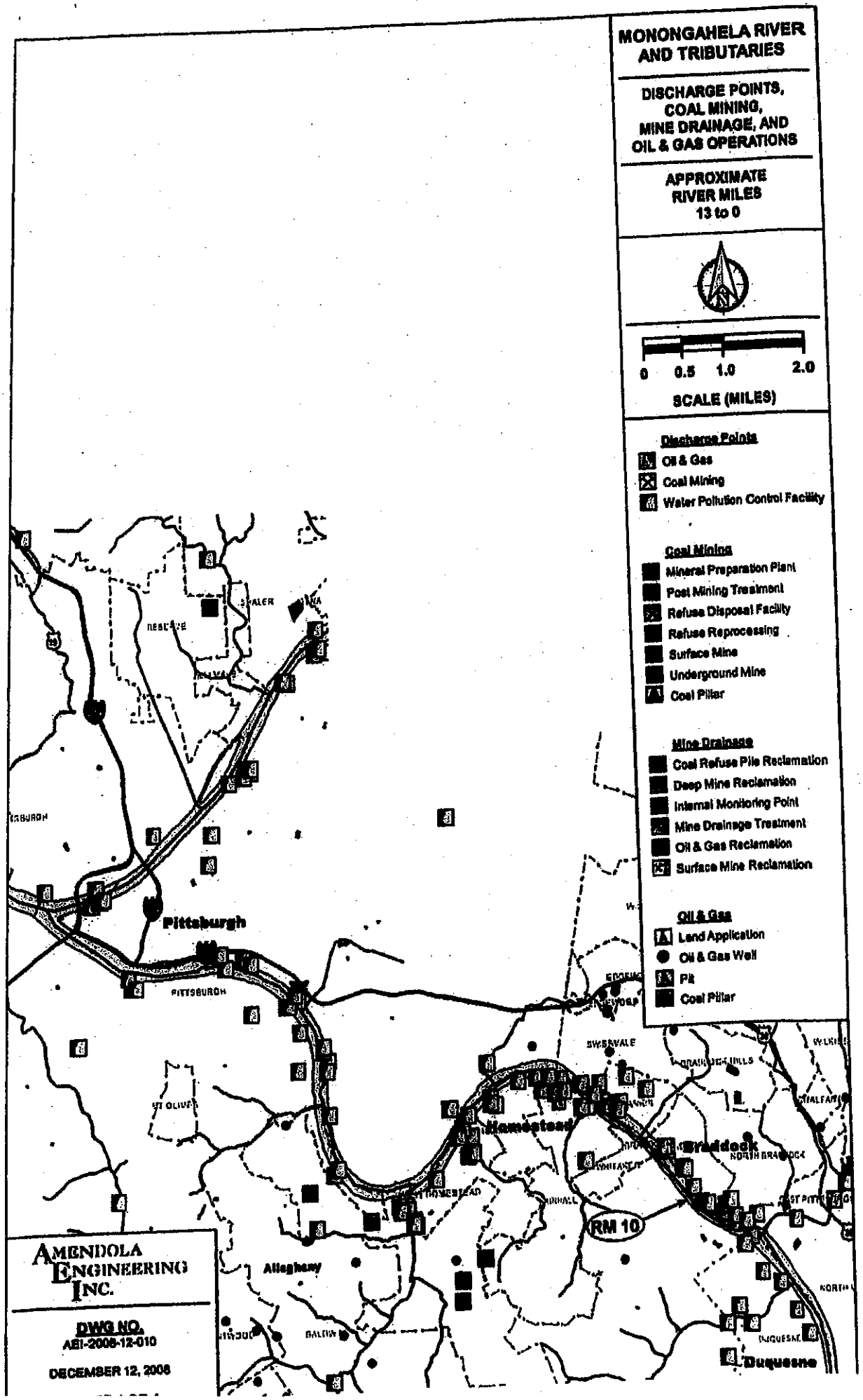

MONONGAHELA RIVER AND TRIBUTARIES
DISCHARGE POINTS, COAL MINING, MINE DRAINAGE, AND OIL & GAS OPERATIONS
APPROXIMATE RIVER MILES 13 to 0
0 0.5 1.0 2.0
SCALE (MILES)
Discharge Points
Oil & Gas
Coal Mining
Water Pollution Control Facility
Coal Mining
Mineral Preparation Plant
Post Mining Treatment
Refuse Disposal Facility
Refuse Reprocessing
Surface Mine
Underground Mine
Coal Pillar
Mine Drainage
Coal Refuse Pile Reclamation
Deep Mine Reclamation
Internal Monitoring Point
Mine Drainage Treatment
Oil & Gas Reclamation
Surface Mine Reclamation
Oil & Gas
Land Application
Oil & Gas Well
Pit
Coal Pillar
Pittsburgh
Homestead
Braddock
Allegheny
Duquesne
RM 10
AMENDOLA ENGINEERING INC.
DWG NO.
AEI-2008-12-010
DECEMBER 12, 2008

EXHIBIT B

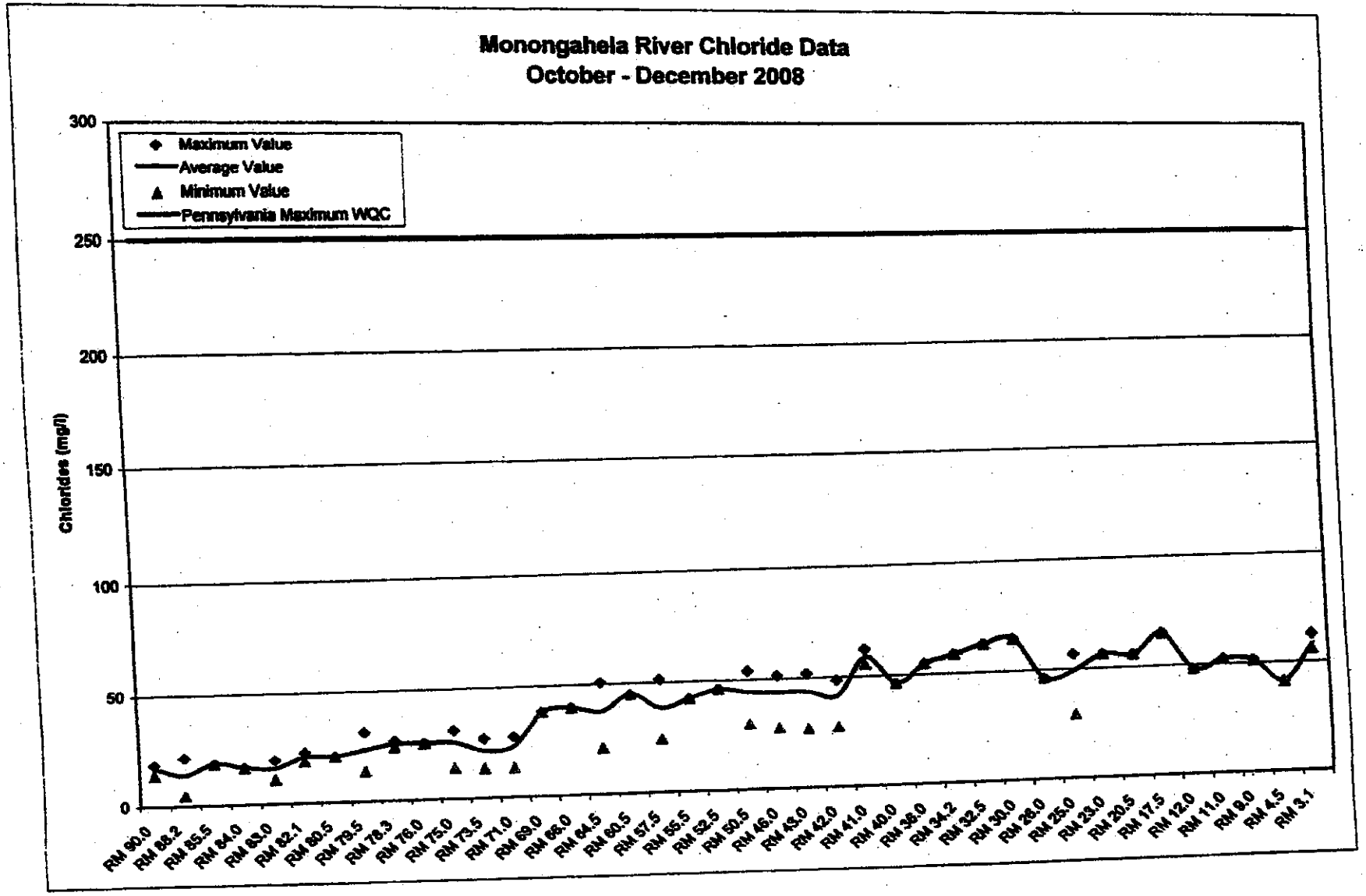
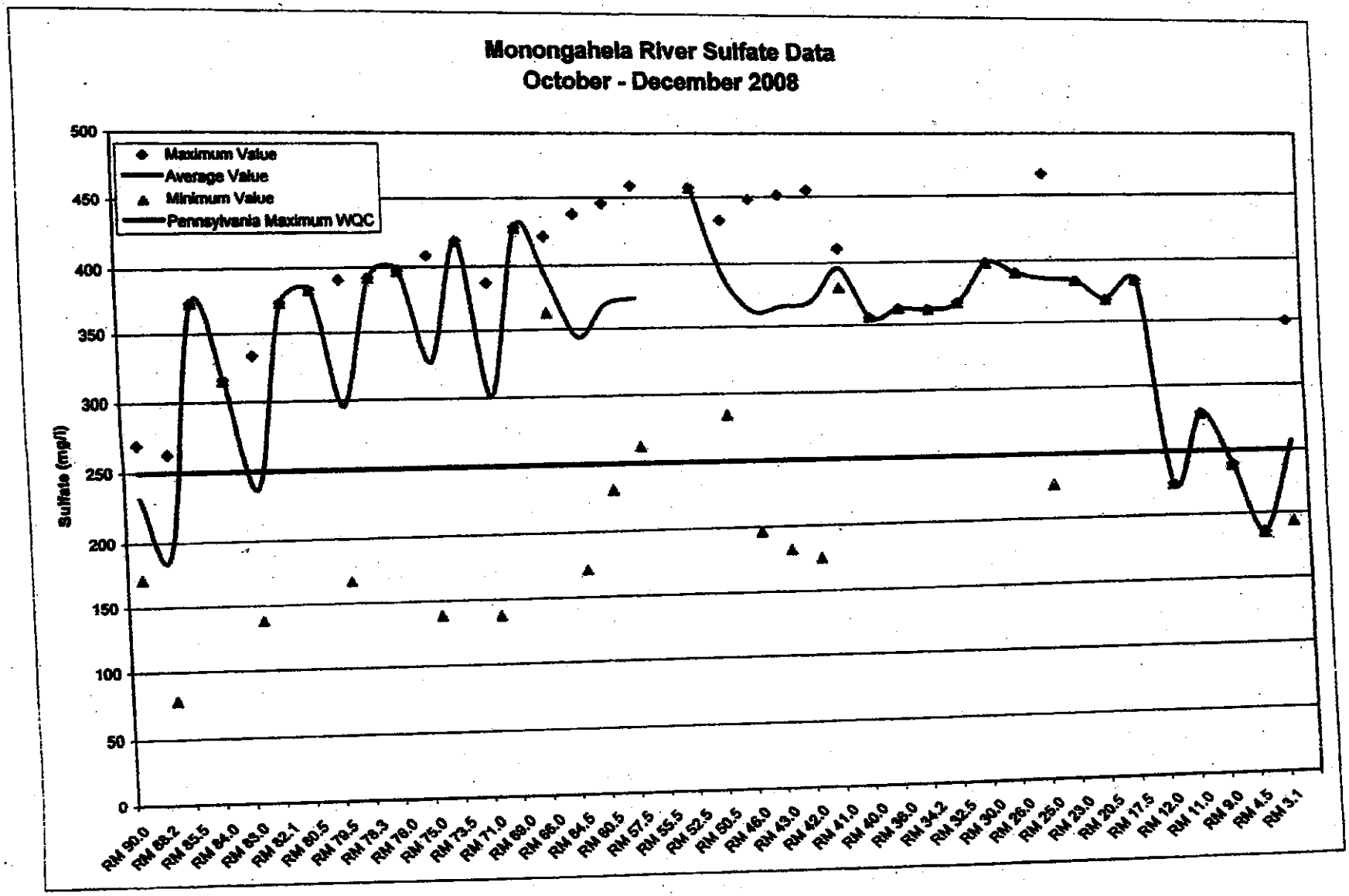

Monongahela River Chloride Data
October - December 2008
Maximum Value
Average Value
Minimum Value
Pennsylvania Maximum WQC
Chlorides (mg/l)
300
250
200
150
100
50
0
RM 90.0
RM 88.2
RM 85.5
RM 84.0
RM 83.0
RM 82.1
RM 80.5
RM 79.5
RM 78.3
RM 76.0
RM 75.0
RM 73.5
RM 71.0
RM 69.0
RM 66.0
RM 64.5
RM 60.5
RM 57.5
RM 55.5
RM 52.5
RM 50.5
RM 46.0
RM 43.0
RM 42.0
RM 41.0
RM 40.0
RM 36.0
RM 34.2
RM 32.5
RM 30.0
RM 26.0
RM 25.0
RM 23.0
RM 20.5
RM 17.5
RM 12.0
RM 11.0
RM 9.0
RM 4.5
RM 3.1

EXHIBIT C


Monongahela River Sulfate Data
October - December 2008
Maximum Value
Average Value
Minimum Value
Pennsylvania Maximum WQC
Sulfate (mg/l)
500
450
400
350
300
250
200
150
100
50
0
RM 90.0
RM 88.2
RM 85.5
RM 84.0
RM 83.0
RM 82.1
RM 80.5
RM 79.5
RM 78.3
RM 78.0
RM 75.0
RM 73.5
RM 71.0
RM 69.0
RM 66.0
RM 64.5
RM 60.5
RM 57.5
RM 55.5
RM 52.5
RM 50.5
RM 46.0
RM 43.0
RM 42.0
RM 41.0
RM 40.0
RM 36.0
RM 34.2
RM 32.5
RM 30.0
RM 26.0
RM 25.0
RM 23.0
RM 20.5
RM 17.5
RM 12.0
RM 11.0
RM 9.0
RM 4.5
RM 3.1

Allegheny Energy, Inc.
Comments to Proposed Rulemaking to Amend 25 Pa. Code Chapter 95
One Page Summary
February 11, 2010

The Proposed Rulemaking is flawed and lacks the support of a robust administrative record. It should be withdrawn for a number of reasons, including without limitation the following:

1. **There Is No Rational Nexus between the Proposed Rulemaking and the Supposed Harm**

   The Department has not identified the sources of the TDS and related constituents in the Commonwealth's waters, and it therefore cannot know whether the controls on "new sources of high-TDS wastewaters" will address the perceived problem. Indeed, the Proposed Rulemaking ignores the thousands of existing municipal and industrial point source discharges and non-traditional point and non-point source discharges, many of which are known to discharge elevated levels of TDS, sulfate, and chlorides. DEP has made no effort to assess the contribution of these sources to the perceived harm. The sparse preamble to the Proposed Rulemaking lacks a meaningful factual or technical analysis. Given the enormous environmental and economic consequences of the Proposed Rulemaking, the DEP's analysis and technical support are inadequate.

2. **The Department Failed to Follow Applicable Law and Its Own Guidance in Concluding that Waters Such as the Monongahela River Are Impaired for Total Dissolved Solids**

   The DEP has not attempted to conduct a meaningful statistical assessment of the watersheds or perform any type of "segment approach" for the watersheds. Rather, it has merely compared isolated samples to the water quality criteria and concluded that the waters are impaired based on occasional exceedances of the criteria. This overly simplistic approach is contrary to the applicable law and DEP's own decision rules for assessing potentially impaired water bodies.

3. **The Environmental and Economic Costs of the Effluent Standards Will Exceed Any Possible Benefits Associated with Them**

   The DEP's estimate of the "order of $0.25 per gallon" is misleading and itself potentially economically prohibitive. Submissions from various affected sectors estimate an economic cost that could be in the billions of dollars, and will have significant environmental costs in the forms of dramatically increased energy demand and solid waste generation. Clearly, the DEP failed to adequately consider the significant environmental and economic costs associated with the Proposed Rulemaking.

4. **The Proposed Rulemaking Should Be Withdrawn for Further Consideration and, in the Interim, the Department Should Implement Remedies in Potential Problem Areas Using Existing, Well-Established Water Quality Controls**

   The DEP has a number of mechanisms to address TDS, sulfate, and chloride loadings in the Commonwealth's surface waters:
   a. Perform a TMDL on watersheds that the DEP appropriately demonstrates are impaired
   b. Implement a non-TMDL watershed-based approach
   c. Consider offsets or a trading program for TDS, chlorides, and sulfate

For these reasons, Allegheny Energy, Inc. strongly encourages the EQB to withdraw the Proposed Rulemaking and proceed under the existing regulatory framework designed to address such issues.

2806

Electric Power Generation Association

800 North Third Street, Suite 303
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Telephone (717) 909-3742
Fax (717) 909-1941
www.epga.org

RECEIVED
FEB 19 2010
INDEPENDENT REGULATORY REVIEW COMMISSION

February 9, 2010

Environmental Quality Board
P.O. Box 8477
Harrisburg, PA 17105-8477

Subject: Proposed Rulemaking, Environmental Quality Board [25 PA. CODE 95], Wastewater Treatment Requirements [39 Pa.B. 6467] [Saturday, November 7, 2009]

Environmental Quality Board:

Following are comments of the Electric Power Generation Association (EPGA) on the Environmental Quality Board Proposed Rulemaking Wastewater Treatment Requirements which appeared in the Pennsylvania Bulletin on November 7, 2009.

EPGA is a trade association of electric generating companies with headquarters in Harrisburg, Pa. Collectively, our members own and operate more than 145,000 megawatts of electric generating capacity, approximately half of which is located in Pennsylvania and surrounding states. Our members include:

AES Beaver Valley, LLC
Cogentrix Energy, Inc.
Dynegy Inc.
Exelon Generation
LS Power Associates, L.P.
RRI Energy, Inc.
Tenaska, Inc.
Allegheny Energy Supply
Constellation Energy
Edison Mission Group
FirstEnergy Generation Corp
PPL Generation
Sunbury Generation
UGI Development Company

These comments represent the views of EPGA as an association of electric generating companies, not necessarily the view of any individual member company with respect to any specific issue.

The PA Department of Environmental Protection (DEP) recently proposed amendments to 25 Pa Code Chapter 95 that includes new effluent standards for new sources of wastewaters containing high Total Dissolved Solids (TDS), chlorides and sulfates. The

DEP chose limits set at the current National Secondary Drinking Water standards in 40 CFR Chapter 143 as end-of-pipe concentrations for all new "High-TDS" wastewater discharges. The term "new discharge" includes an additional discharge, an expanded discharge or an increased discharge from a facility in existence prior to April 1, 2009.

The DEP has not provided an adequate basis for the new standards in the proposed rule. Simply adopting a secondary drinking water standard meant for aesthetics as an instream water quality criteria to protect aquatic life has no basis and cannot be supported as a basis for the rulemaking. Neither can it be used as a level for human health. Any data used as a basis for a new standard must be properly evaluated as to its scientific validity. There is considerable disagreement on the interpretation of the data provided in recent studies used by the DEP as the basis for the proposed rulemaking. These studies require further evaluation, particularly with respect to the application of these standards across the State. Even providing that evaluation, the studies do not constitute an adequate basis for the standards or the way they are being applied.

It does not appear that DEP evaluated the available technologies for each different type of wastewater discharge that will potentially be affected. Part of the evaluation required by the DEP for a technology-based standard is the cost of the technology and whether or not the technology is commonly used for that purpose. More research should be conducted to determine if treatment methodologies are available and whether or not they can achieve effective treatment of TDS, sulfates and chlorides for all types of discharges including complex systems such as high-volume users and high-flow discharges. Available technologies capable of treating industrial and sanitary wastewater to the levels necessary to comply with the proposed standards are limited and are restricted to unique applications. These constituents are dissolved in the wastewater and are not readily removed by conventional precipitation and filtering technologies. As a practical matter, technologies capable of achieving the proposed standards are limited to some form of nanofiltration, evaporation, solidification or a combination of the three.

Nanofiltration essentially means reverse osmosis (RO) for these wastewaters. Evaporation could include simple evaporation or evaporation with crystallization of the resulting brine. Solidification involves mixing the wastewater with other solid materials to form a sludge for eventual landfill disposal. All of these technologies require large capital expenditures with very high annual operation and maintenance costs, use large amounts of energy that need to be made up with increased electric generation, increase the consumptive water use significantly for even moderate wastewater flows, putting additional stress on the State's water budget, and significantly increase the limited landfill space required for disposal.

An RO unit recently evaluated for treating abandoned mine discharge (AMD) exceeded $22 million in capital costs. Annual operating and maintenance cost estimates exceeded $60 million when considering offsite disposal of the purge waste. Costs to construct an RO unit sized to treat landfill leachate were estimated at nearly $10 million, with an annual operating cost of nearly $12 million. RO technology generates a concentrated brine in the process, and typically results in a 30% to 40% consumptive

use of the wastewater volume being treated. In these two examples, base flow to the receiving stream could be reduced by as much as 150,000 to nearly 900,000 gallons per day.

Evaporative technologies could cost three to four times the cost of RO units. Recent estimates developed for treatment of wastewater from power plant air pollution control equipment exceeded $60 million in construction costs, over $6 million dollars in annual operation and maintenance costs, consumed over 50,000 cubic yards of landfill space per year and consumed all of the 400 gpm of wastewater flow. This example of evaporative technologies also will require 4,000 kilowatt hours to operate, or up to 35 million kilowatt hours of electric energy per year.

Existing treatment technologies capable of complying with the proposed limits will result in billions of dollars of both construction and operating costs. These technologies will reduce the base flow of our waterways by a volume equivalent to 30% to 100% of the wastewater flows being treated. Thousands of cubic yards of landfill space will be consumed. The DEP has not offered any justification for such extreme financial cost to consumers. The DEP has not offered any review or justification for the environmental costs these treatment technologies create. And the DEP has not presented any evaluation of why these controls are needed to protect water quality or aquatic life.

The DEP appears to have justified the new technology-based standards on the high TDS condition in the Monongahela River during the summer of 2008. However, a scientific study conducted on the Monongahela River during the high TDS event provided a mass balance of TDS loading to the river. The study showed industrial discharges contributed a relatively minor percentage of the total TDS loading to the river. Rather, the study showed the high TDS condition in the river was the result of extremely low river flow and pollution from acid mine drainage (AMD) sources. The proposed standards on industrial sources along the Monongahela River would not have prevented the high TDS conditions in 2008 from occurring.

The EPGA member companies support sound regulation to protect the natural resources of the Commonwealth, and we respect the DEP's role in establishing those regulations. However, it appears the DEP failed to evaluate the potential social and economic costs of this proposal as well as the potential environmental impacts that will result. Also, the Chapter 95 proposed effluent limitations should be developed to obtain successful and realistic cross-departmental permitting within the DEP and minimize conflict that may exist with federal standards. Efforts by a facility to meet requirements in one permitting program should not result in unintended negative permit implications in another program. For example, many of the recent or proposed changes in air quality regulations will require facilities to upgrade or install new air pollution control technologies. Subsequently, the installation of these air pollution control technologies has the potential to impact TDS concentrations, therefore making it difficult for facilities to meet or project the cost of all of its compliance obligations. This level of regulatory uncertainty threatens future capital investments in pollution control technologies.

Review of all of these factors is required by the very laws that give the DEP its authority to regulate wastewater discharges to the waters of the Commonwealth. The DEP

Electric Power Generation Association

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www.epga.org

February 9, 2010

Subject: Proposed Rulemaking, Environmental Quality Board [25 PA. CODE 95], Wastewater Treatment Requirements [39 Pa.B. 6467] [Saturday, November 7, 2009]

Following is a one-page summary of the Electric Power Generating Association's comments to the Department of Environmental Protection (DEP) on the above referenced rulemaking:

The DEP has not provided an adequate basis for the new standards in the proposed rule. Simply adopting a secondary drinking water standard meant for aesthetics as an instream water quality criteria to protect aquatic life has no scientific basis and cannot be supported as a basis for the rulemaking. Any data used as a basis for a new standard must be properly evaluated as to its scientific validity.

It does not appear that DEP evaluated the available technologies for each different type of wastewater discharge that will potentially be affected. Part of the evaluation required by the DEP for a technology-based standard is the cost of the technology and whether or not the technology is commonly used for that purpose. More research should be conducted to determine if treatment methodologies are available and whether or not they can achieve effective treatment of TDS, sulfates and chlorides for all types of discharges including complex systems such as high-volume users and high-flow discharges. Available technologies capable of treating industrial and sanitary wastewater to the levels necessary to comply with the proposed standards are limited and are restricted to unique applications.

Existing treatment technologies capable of complying with the proposed limits will result in billions of dollars of construction and operating costs. These technologies will reduce the base flow of our waterways by a volume equivalent to 30% - 100% of the wastewater flows being treated, since the only options for treatment are highly water consumptive. Thousands of cubic yards of landfill space will be consumed. The DEP has not offered any justification for such extreme financial cost to consumers. The DEP has not offered any review or justification for the environmental costs these treatment technologies create. And the DEP has not presented any evaluation of why these controls are needed to protect water quality or aquatic life.

The DEP appears to have justified the new technology-based standards on the high TDS condition in the Monongahela River during the summer of 2008. However, a scientific study conducted on the Monongahela River during the high TDS event provided a mass balance of TDS loading to the river. The study showed industrial discharges contributed a relatively minor percentage of the total TDS loading to the river. Rather, the study showed the high TDS condition in the river was the result of extremely low river flow and pollution from AMD sources. The proposed standards on industrial sources along the Monongahela River would not have prevented the high TDS conditions in 2008 from occurring.

The Chapter 95 proposed effluent limitations should be developed to obtain successful and realistic cross-departmental permitting within the DEP and minimize conflict that may exist with federal standards. Efforts by a facility to meet requirements in one permitting program should not result in unintended negative permit implications in another program. As proposed, these regulations have the potential to impact many different industries and produce unintended consequences.

The DEP proposal should be tabled until all of these issues can be fully examined and re-proposed after all of the relevant facts have been considered through the WRAC stakeholder process, which EPGA supports.

WEST VIRGINIA MUNICIPAL WATER QUALITY ASSOCIATION
515 W. Main St.
P.O. Box 1310
Bridgeport, West Virginia 26330
304-842-8231

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Thrasher Engineering, Inc.
URS Corporation
GENERAL COUNSEL
AQUALAW

July 19, 2010

Via First Class and Electronic Mail

Ms. Linda B. Keller
Water Quality Standards Program
WV Department of Environmental Protection
601 57th Street SE
Charleston, WV 25304

Re: Triennial Review of Water Quality Standards

Dear Ms. Keller:

I am writing on behalf of the West Virginia Municipal Water Quality Association regarding the pending triennial review of water quality standards regulation. Our members serve approximately 90 percent of the sewered population in the State and provide drinking water to hundreds of thousands of State residents on public water systems.

Thank you for your consideration of the following comments:

Application of Narrative Criteria. We are unclear about the changes proposed to the narrative criteria as set forth in §47-2-3. Specifically, we do not understand how "water withdrawal activities" would cause the prohibited conditions in Section 3.2. We believe the Department should provide an explanation of the types of water withdrawal activities that could trigger these conditions, mindful that water withdrawals for public water supply must be given priority over all other uses, including instream uses.

Category A Designations. Section 6-2 describes the Category A drinking water use designation. We believe this section should be revised to specify an upstream segment above the intakes described in this section.

Just because a water intake is located on a river or stream does not justify designating the entire river/stream as a Category A water.

Half-Mile Rule. Section 7.2 clarifies the application of the half-mile rule which prohibits the discharge of any pollutant in concentrations above the applicable WQS within one-half mile upstream from the intake of any water supply. We support this clarification and the one-half mile rule in general.

Nutrients – Lakes. Section 8.3.a.3 clarifies that for a lake to be designated as being impaired, it must exceed both the applicable phosphorous concentrations in Section 8.3.a.2 and a chlorophyll-a criterion (warm water lakes = 20 ug/L, cool water lakes = 10 ug/L). We think applying both criteria before making an impairment decision is the technically correct approach. Accordingly, we support this change.

Nutrients – Rivers and Streams. Section §8.3.b has been amended to establish the framework for setting criteria for nutrients in streams. We support DEP's intention to develop stream-specific nutrient criteria. Given the daunting water quality infrastructure needs that we already face in West Virginia, particularly with sewer overflow and storm water control requirements, we are convinced that a stream specific approach is both necessary and technically warranted. Accordingly, we support DEP's proposed approach.

Appendix E, Table 1

Iron. We question the basis for keeping the iron criterion, particularly for aquatic life. We note that several states have removed this criterion due to issues with background concentrations. We suggest that DEP also consider the removal of this criterion.

Freshwater Copper. Regarding freshwater copper, we recommend that a footnote be added to allow the criteria to be calculated using the procedures in document EPA-822-R-007, often referred to as the biotic ligand model.

Total Dissolved Solids. Parameter 8.32 proposes a TDS limit of 500 mg/L applicable to discharges to Category A waters.

Our members are in both the drinking and wastewater businesses. Accordingly, it is with great caution that we express concern about criteria proposed to protect public water supplies. However, we question the science behind this human health criterion. We believe the issue of a TDS standard should be studied and reconsidered with the next triennial review.

Alternatively, because public wastewater facilities do not create TDS, we believe TDS standards should be applied first to facilities discharging FRAC water wastes. After further study of the issue, a future decision could be made whether to impose the standard on other dischargers, such as pass through entities like publicly-owned treatment works (not accepting FRAC water).

If DEP is determined to adopt this unnecessary aesthetic based criterion at this time, it should clarify that this is an instream (rather than end-of-pipe) 500 mg/L monthly average criterion.

Rather than an indicator parameter (TDS), we encourage DEP to evaluate the possible adoption of bromide criteria. We understand that bromide concentrations in source water present the real challenge to public water suppliers rather than TDS levels.

E.coli. We urge the DEP to adopt EPA's 1986 criteria for E.coli for freshwater streams in lieu of the current 1956 fecal coliform criteria. EPA is on record that fecal coliform levels do not correlate with swimmer illness levels while e.coli does. This makes e.coli a far superior criterion to protect public health and to make steam impairment decisions. We recommend that the criteria be set at the 126 CFU/100 ML level and be implemented through monthly effluent limits in NPDES permits.

Again, thank you for considering the Water Quality Association's comments on the triennial review proposal. We would welcome the opportunity to meet with DEP to discuss our views on the proposed rule. In the meantime, please contact me with any questions.

Sincerely,

F. Paul Calamita
General Counsel

C: MWQA Members

Keller, Linda B

From: Cosco, Kathy on behalf of DEP Comments
Sent: Friday, July 16, 2010 2:35 PM
To: Keller, Linda B
Subject: FW: water quality standards.

From: Cynthia D. Ellis [mailto:cdellis@wildblue.net]
Sent: Tuesday, July 13, 2010 3:26 PM
To: DEP Comments
Subject: water quality standards.

Rural Route 1, Box 163
Red House, West Virginia
25168
July 12, 2010

Public Information Office
601 57th Street SE
Charleston, West Virginia
25304

Compiler, DEP Comments:

As a veteran birder in West Virginia, I often pursue sightings of resident and migratory birds near our state's streams, rivers, and lakes. Similarly I advise other in-state and visiting birders of productive waterside areas. Therefore I have concerns regarding water quality related to avian usage and wish to make these comments in the matter of the Triennial Review.

Marcellus Shale drilling poses threats to birds here due to compromising quality and quantity of available water. It would be helpful if DEP would formulate, for legislative consideration, established guidelines and a permit process for water withdrawals within "Narrative Water Quality Standards."

Under "Nutrient Criteria for Lakes," EPA guidance should be followed and either phosphorus or chlorophyll-a should be listed for consideration of "impaired" status.

The Greenbrier River area earned its own section in the "Birding Guide to West Virginia." It follows then that birders support the phosphorous standard to combat problematic algae there. In addition, with consideration to other rivers and streams, it would be helpful if the Stakeholders Nutrient Committee would be reconvened by DEP and advance the statewide criteria-setting process.

Where trout thrive, birds may also. The water quality standard for "Iron on Trout Streams" should be maintained at 0.5 parts per million, in no small measure due to the imposition of increased costs to the state for re-writing of existing clean-up plans and discharge permits if the standard were changed.

Louisiana Waterthrush, Northern Waterthrush, Spotted Sandpiper, and Swainson's Warbler are some of the birds that come to mind when concerned with water quality of streams. The EPA recommends a TDS standard of 250mg/l. That standard and an aquatic life standard for conductivity should be considered to ensure the continuance of these streamside birds here.

Finally, in the matter of a "Mixing Zone Variance for Weirton Steel," the variance should not be made permanent. The wildlife-sustaining area of Tomlinson Run State Park is nearby, although upriver. However birders and all the general public deserve protection of public water supply intakes.

Thank you.

Sincerely,

Cynthia D. Ellis

Keller, Linda B

From: Cosco, Kathy on behalf of DEP Comments
Sent: Friday, July 16, 2010 2:35 PM
To: Keller, Linda B
Subject: FW: Comments on proposed changes to Water Quality Rule (47CSR2)

From: Carol Warren [mailto:peacelovemom@gmail.com]
Sent: Tuesday, July 13, 2010 12:13 PM
To: DEP Comments
Subject: Comments on proposed changes to Water Quality Rule (47CSR2)

Dear friends,

West Virginia's waters are an extremely precious resource. It is becoming evident just how precious when ones looks at the situation out West, when in drought years the Rio Grande and the Colorado Rivers no longer flow all they way to the sea. And we don't have to look nearly that far. Florida and Georgia have had recent disputes about who gets water first from rivers crossing those states' borders. In West Virginia, we are blessed with abundant water, but that may not always be the case. Who would have believed that half the Ogalala Aquifer has already been pumped out of the Great Plains? We must use our waters judiciously, and with an eye to our safety, health, and the clean drinking water supply that none of us can survive without.

DEP's proposed "Narrative Water Quality Standards" language is a positive addition. The water belongs to all the people of the state, and neither individuals nor companies should be allowed to simply tap our water resources without limit. However, this additional language alone does not go far enough to protect West Virginia streams from water withdrawals. We should do more to protect both human health and aquatic life. DEP should draft legislation for immediate consideration by the West Virginia Legislature that establishes guidelines and a permit process for water withdrawals. Activities such as the new Marcellus shale gas drilling, and proposed coal-to-liquid facilities require enormous amounts of water. The water in our streams does vary seasonally, and these aspects should be taken into consideration before permission is given for withdrawals. A specific and stringent permitting process would allow for adequate time and study so that all potential withdrawals are thoroughly examined.

DEP is proposing new Nutrient Criteria for Lakes language that would result in lakes not being considered "impaired" unless both phosphorous and chlorophyll-a water quality standards are exceeded. This directly contradicts EPA guidance on the development of nutrient criteria, which recognizes that lakes might be impaired for <u>either</u> phosphorous or chlorophyll-a independently of each other. Our lakes deserve the strongest possible protection, so I must question why DEP would not choose to use both these standards. This provision should be dropped from this rule, and the EPA guidance followed. DEP should proceed immediately to develop Nutrient Criteria for Rivers and Streams as well, and have those in place as soon as possible.

DEP is proposing to weaken the water quality standard for Iron on Trout Streams by doubling the current limit of 0.5 parts per million of iron to 1.0 parts per million. DEP is basing its decision on studies that don't take into account the unique characteristics of West Virginia trout waters: low pH, low conductivity, low ionic strength, and low acid neutralization capacity. There seems to be no particular reason for the lowering of the standard, which will impose major costs on the state. Hundreds of existing clean-up plans (TMDLs) and NPDES discharge permits will also have to be re-

written. West Virginia's trout streams are an extremely valuable public resource, which draw large numbers of visitors to our state each year. The iron standard should not be changed until more thorough studies are conducted that consider the unique water quality characteristics of WV's trout waters.

DEP is proposing a statewide water quality standard for "Total Dissolved Solids" (TDS) of 500mg/l measured in-stream. This is two times the 250mg/l that EPA recommends as the Human Health Standard for total dissolved solids. I find this very disturbing, particularly with the large amounts of Marcellus shale gas drilling that we know are going to be taking place in West Virginia in the coming years. DEP should adopt the federal standard for human health of 250mg/l. In addition, DEP fails to propose in this rule an aquatic life standard for conductivity, with which TDS levels are closely associated. DEP should adopt an aquatic life criterion for conductivity as proposed by EPA.

Thank you for the opportunity to comment on these proposed changes. And thank you for your commitment to keeping West Virginia's waters clean and safe for all our citizens.

Carol Warren

P.O. Box 652

Webster Springs, WV 26288

(304)847-5121

Keller, Linda B

From: Cosco, Kathy on behalf of DEP Comments
Sent: Friday, July 16, 2010 2:32 PM
To: Keller, Linda B
Subject: FW: Water Quality Standards Rule (47CSR2)

From: Robert A. Mertz [mailto:ramertz@mountain.net]
Sent: Sunday, July 11, 2010 10:04 PM
To: DEP Comments
Subject: Water Quality Standards Rule (47CSR2)

West Virginia Department of Environmental Protection,

As someone who has a great personal interest in our aquatic environments, and has taught classes in stream ecology for many years in public high schools, and summer science camp I have some concerns regarding the update of water quality regulations in our state.

Please accept my comments and concerns with regard to Water Quality Standards.

DEP's proposed "Narrative Water Quality Standards", DEP should draft legislation for immediate consideration by the West Virginia Legislature that establishes guidelines and a permit process for water withdrawals.

The Mixing Zone Variance for Weirton Steel must not be made permanent. This would eliminate current monitoring requirements and remove any incentive for Weirton Steel to correct its discharge.

The Nutrient Criteria for Lakes language would result in lakes not being considered "impaired" unless <u>both</u> phosphorous and chlorophyll-a water quality standards are exceeded. This contradicts EPA guidance on nutrient criteria. This provision should also be dropped from this rule.

DEP should recall its Stakeholders Nutrient Committee and get moving on the criteria-setting process for rivers and streams.

Do not increase the allowable Iron on Trout Streams from the current limit of 0.5 parts per million of iron to 1.0 parts per million. West Virginia's trout streams are a valuable public resource. The iron standard should not be changed until more thorough studies are conducted that consider the unique water quality characteristics of WV's trout waters.

Total Dissolved Solids should be set at the federal standard for human health of 250mg/l. DEP should adopt an aquatic life criterion for conductivity as proposed by EPA,

and any criteria for TDS/conductivity should be protective of streams threatened by golden algae.

Our streams and lakes are very important parts of the natural infrastructure that supports our wealth, health and mental wellbeing. Please make rules that improve the water quality, rather than making compromises made to facilitate short term financial gains.

Robert A. Mertz
1205 Mulberry Ridge
Spencer, WV 25276-8561
ramertz@mountain.net

Keller, Linda B

From: Cosco, Kathy on behalf of DEP Comments
Sent: Tuesday, July 20, 2010 2:21 PM
To: Keller, Linda B
Subject: FW: Comments regarding proposed revisions to 47 Code of State Rules, Series 2 (WV Water Quality Standards)

From: Pamela Stevens [mailto:administrator@roncevertewv.com]
Sent: Monday, July 19, 2010 6:00 PM
To: DEP Comments
Subject: Comments regarding proposed revisions to 47 Code of State Rules, Series 2 (WV Water Quality Standards)

TOWN OF RONCEVERTE

P.O. Box 417
Ronceverte, West Virginia 24970
(304) 647-5455

July 19, 2010

Public Information Office
West Virginia Department of Environmental Protection
601 57th Street, S.E.
Charleston, WV 25304

Re: Comments of the City of Ronceverte regarding proposed revisions to 47 Code of State Rules, Series 2 (WV Water Quality Standards)

Dear Sir or Madam:

Please accept this e-mail correspondence as my written comments with regard to certain proposed amendments to West Virginia's Water Quality Standards, 47 Code of State Rules, Series 2, and more specifically those proposed amendments related to the regulation of algal growth in state waters and the control of phosphorus in the Greenbrier River (47 CSR 2-3.2.g and 47 CSR 2-8.3.b.1).

I respectfully submit my objections to the proposed amendments. In the proposed amendments there is no attempt to define acceptable levels of algae in a river. There is no standard for which to measure impairment or use interference from algae blooms on the Greenbrier River. There is not even a determination as to what constitutes impairment for the use of the river.

The WVDEP's position to control the algae by effluent discharge limitations on phosphorus is cause for concern to municipalities along the river. The proposed phosphorus limitations are not financially, nor technologically feasible for any of the communities on the Greenbrier River. Algae are not merely dependent upon phosphorus. There are several other naturally occurring factors, including river flow,

shade, water temperature, and weather conditions. None of the other factors have been acknowledged or addressed.

The City of Ronceverte would be interested in discussing the condition of the river and ways to protect and improve it. Open dialogue is the most advantageous solution to this issue, not unsubstantiated limitations for phosphorus, which create an undue burden on the citizens receiving services from public utilities. Before such a financial strain is put upon the communities for an unappealing aesthetic quality of the river, more information needs to be provided and more research needs to be evaluated.

I strongly urge the agency to consider removing the proposed amendments and work with the Greenbrier River communities to determine what actions can be taken to address the perceived use issues that will be mutually beneficial for all.

I appreciate the opportunity to submit these comments.

Sincerely,

Gail White, Mayor
City of Ronceverte

Keller, Linda B

From: Cosco, Kathy on behalf of DEP Comments
Sent: Tuesday, July 20, 2010 2:14 PM
To: Keller, Linda B
Subject: FW: comments on proposed revisions WVDEP amenments to water wuality standards

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From: John Manchester [mailto:jmanchester@lewisburg-wv.com]
Sent: Monday, July 19, 2010 4:32 PM
To: DEP Comments
Subject: comments on proposed revisions WVDEP amenments to water wuality standards

July 19, 2010

Public Information Office
West Virginia Department of Environmental Protection
601 57th Street, SE
Charleston, West Virginia 25304

Re: Comments regarding Proposed Revisions to 47 Code of State Rules, Series 2 (West Virginia Water Quality Standards).

Dear Sir or Madam,

Please accept this e-mail correspondence as my written comments with regard to certain proposed amendments to West Virginia's Water Quality Standards, 47 Code of State Rules, Series 2, and more specifically those proposed amendments related to the regulation of algal growth in state waters and the control of phosphorus in the Greenbrier River (47 CSR 2-3.2.g and 47 CSR 2-8.3.b.1).

As written, the proposed modifications to the state's narrative water quality criteria are arbitrary and prescriptive—they assume that by severely restricting the amount of phosphorus exiting several sewer plants that algae growth in various places below the treatment plant will be reduced to a level where there will not be significant impairment of water resource use in the areas of the Greenbrier River where algae growth now exists. This is a very long lasting, very expensive solution to a localized problem in certain areas of the river. And once you go down the path of investing the money on this one "solution" which may or may not actually fix the problem, you will always have this embedded cost and you may then need to look at other alternatives at additional cost.

I suggest now is the time to test the theory that excessive phosphate dumped into the Greenbrier River at several sewer plants is the chief cause of periodic algae blooms in certain sections of the river and not after significant monies have been invested in this technology. If the science at this point does not indicate clearly that sewer plant discharges are the principal culprit and that by reducing the discharge to a specific standard will clearly eliminate the algae problem and at a cost less than other suitable solutions, then now is the time to do the research, not the time to set an arbitrary standard at great up-front and ongoing expense to sewer customers.

I suggest that any action by the agency regarding phosphate standards and addressing algae growth in the river should be taken in concert with the impacted communities. I urge the agency to remove the proposed modifications to the rule cited above and work with the communities to determine what actions can be taken to address any perceived use issues. I appreciate the opportunity to comment on the above-referenced rule and look forward to continued dialogue regarding these issues.

Sincerely,

John Manchester
Mayor
City of Lewisburg, West Virginia

WEST VIRGINIA CHAMBER

July 19, 2010

Mr. Scott Mandirola, Director
Division of Water and Waste Management
WV Department of Environmental Protection
601 57th Street, SE
Charleston, WV 25304

Re: Comments on Proposed Water Quality Standards Revisions

Dear Mr. Mandirola:

These comments are filed on behalf of the West Virginia Chamber of Commerce ("the Chamber"). The Chamber is West Virginia's largest, most influential general business organization, representing all business sectors in every region of the State. Members range from small business enterprises to mid-sizes manufacturers to tourism destinations to energy companies to Fortune 500 corporations. However, small businesses are the core of our membership - making up 85 percent of the Chamber's companies and firms.

The Chamber appreciates the opportunity to provide comments on the proposed revisions to the regulations governing water quality standards. The following comments are offered with regard to the specific revisions as proposed:

1. **Conditions Not Allowable In State Waters.**

   A. **Water Withdrawal Activities.** DEP is proposing to amend W. Va. C.S.R. §§ 47-2-3.1 and 3.2 to expand the scope of "conditions not allowable in state waters" to include "certain water withdrawal activities" that cause pollution or objectionable conditions in state waters.

   The water quality standards rule regulates the discharge of pollutants to waters. *See* W. Va. C.S.R. § 47-2-1.1. By proposing to add the proposed "withdrawal activities" language, the agency is clearly seeking to fundamentally change both the nature and scope of West Virginia's water quality standards rule. The Chamber opposes such an expansion of the rule, and questions the authority of the agency to so expand its water quality standards program to include water withdrawal activities. As noted below, the Legislature has been actively addressing issues relating to water quantity every year since 2004, including the formation of the Joint Legislative Oversight Commission on State Water Resources. The DEP has been included in that ongoing work, and is fully aware of

that work by the Committee. It seems that any effort to affirmatively regulate "certain water withdrawal activities" would be handled under the authorities of the Water Resources Protection Act.

Further, the WV Chamber questions the necessity of the proposed language. The agency has been collecting water use data for the past five years pursuant to the Water Resources Protection and Management Act (W.Va. Code § 22-26-1 et.seq.), but fails to offer any such data in support of a conclusion that water withdrawal activities are contributing to any water quality issues. Although the Water Pollution Control Act declares it a public policy that, "the water resources of this State with respect to the quantity thereof are available for reasonable use by all of the citizens of this State," the West Virginia Legislature concluded that it needed to develop legislation to address water use and related reporting separate and apart from the statutes and regulations governing water quality.

The Chamber does not support the use of the state water quality standards program for the intended goal of regulating water withdrawal. To the extent new water use restrictions are proposed by DEP, they should be appropriately promulgated within the context of a statute or regulation specifically designed for that purpose.

B. **Algae blooms or concentrations of bacteria**. DEP is proposing to amend W. Va. C.S.R. § 47-2-3.2.g to expand the "conditions not allowable in state waters" to include algae blooms. At the May 19, 2010 public meeting in which DEP officially released the proposed revisions, the agency offered anecdotal instances of algae blooms presenting certain recreational use concerns on a very limited number of streams. DEP has not provided any other justification for this proposed revision. The DEP should have a well-documented regulatory justification for expanding the scope of the current water quality standards program. The section proposed to be modified to add this new "algae bloom" language is based in part on a federal rule, but the proposed change arguably renders the State rule more stringent than the federal counterpart. DEP has not provided a sufficient justification, as required by W. Va. Code § 22-1-3a, to make this State standard more stringent than federal law. Additionally, DEP has not demonstrated that this revision is necessary for its regulatory authority.

2. **Site Specific Exception on the Ohio River**. DEP proposes to finalize a site specific exception in W. Va. C.S.R. §47-2-7.2.a.2 to the "one-half mile rule" applicable to discharges within one-half mile of a public water supply intake. The Chamber supports the application of the agency's authority to grant site specific exceptions.

3. **Variance for Ward Hollow**. DEP proposes to extend a variance for chloride for Union Carbide Corporation's discharge to Ward Hollow of Davis Creek set forth in W. Va. C.S.R. § 47-2-7.2.d.19.3 until July 1, 2014. The Chamber supports this application of the agency's authority to grant variances.

4. **Nutrient Criteria**. The Chamber has concerns about the nutrient criteria for cool and warm water lakes as set forth in W. Va. C.S.R. § 47-2-8.3.a. These criteria were developed and

adopted as part of an extensive stakeholder process. The WV Chamber is concerned, though, that after that extensive work, the DEP is proposing to make the lakes criteria more stringent, without sufficient rationale for the departure from the previously-adopted and broadly supported values. We further caution the agency on developing nutrient criteria for flowing streams. Presently, DEP only proposes nutrient criteria for one stream - the Greenbrier River. It appears DEP acknowledges that nutrient criteria are not appropriate for all streams, and the Chamber concurs with that determination.

5. **Iron.** DEP proposes to revise the current "cold water" chronic iron water quality standard in W. Va. C.S.R. § 47-2-8.15 from the existing 0.5 mg/l to the federal Environmental Protection Agency's recommended standard of 1.0 mg/l. The Chamber applauds the move away from an unduly stringent and unsupported criterion and appreciates the agency's effort to develop a database to support its proposed revision to the chronic iron criterion for trout waters. The Chamber supports this proposed revision and would hope the iron example would set a precedent for the state water quality standards program.

6. **Total Dissolved Solids ("TDS").** DEP proposes to adopt a water quality standard for TDS of 500 mg/l applicable to "Category A" waters of the State in what would be W. Va. C.S.R. § 47-2-8.32[1]. The Chamber strongly opposes this proposal for a number of reasons, as set forth below, and strongly urges the agency to reconsider this proposal.

   A. **Lack of Scientific Justification.** The Chamber urges caution regarding the hasty adoption of water quality criteria for total dissolved solids. The Chamber supports the use of best available science in environmental decision-making. The use of generic monitoring parameters, such as TDS and conductivity, are counter to the best available science.

   TDS is a collective term used for all inorganic and organic substances contained in the water that are capable of passing through a two micron filter. These substances may be in a molecular, ionized or suspended form. The presence of TDS in and of itself at any particular level does not equate to toxicity. Indeed, the 500 mg/l TDS criterion being considered as a human health criterion relates to a secondary drinking water standard developed to address aesthetic qualities.

   TDS levels may or may not indicate the presence of elevated concentrations of pollutants that are harmful to human health. Without an investigation into the individual parameters that comprise the TDS, one cannot determine whether the various constituents that make up the "TDS" have the potential to be harmful to human health.

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[1] We note that the DEP's Advisory Council had recommended that if a TDS standard is to be adopted by the agency, it be applied at the point of intake to a public water supply. In the proposed rule the agency has rejected that recommendation without explanation.

The TDS criteria identified in the 2010 Review notice are derived from the National Secondary Drinking Water Regulations promulgated by EPA under the federal Safe Drinking Water Act as "non-mandatory" drinking water quality standards. EPA expressly acknowledges that it does not enforce these "secondary maximum contaminant levels" ("SMCLs"). Rather, SMCLs "are established only as guidelines to assist public water systems in managing their drinking water for aesthetic considerations, such as taste, color and odor. These contaminants are not considered to present a risk to human health at the SMCL." U.S. Environmental Protection Agency, Secondary Drinking Water Regulations: Guidance for Nuisance Chemicals, EPA 810/K-92-001 (July 1992). As noted above, DEP is considering incorporating the SMCL for TDS based on "elevated levels of total dissolved solids on the upper Ohio River the past two years." Not knowing the data relied upon by DEP for this statement, we presume that this reference is to concentrations of TDS observed in recent years in the Monongahela River. However, an in-depth study in this area has demonstrated that those concentrations occurred during drought conditions and that a statistical trend analysis indicated that there was not a statistically significant difference in TDS mass loadings to the Monongahela River over the last seven years. See Evaluation of High TDS Concentrations in the Monongahela River, Tetra Tech NUS, Inc. (January 2009).

The Chamber has spent a considerable amount of time reviewing the science regarding TDS, as well as the efforts regarding TDS in our surrounding States. These efforts clearly indicate the scientific problems associated with the adoption of TDS criteria. In particular, the Chamber urges DEP to evaluate the public comment record for the proposed adoption of TDS criteria by Pennsylvania, including but not limited to the comments of the Pennsylvania Chamber of Business and Industry in opposition to Pennsylvania's proposed TDS criteria. We have included a copy of the Pennsylvania Chamber's comments as an attachment to our letter, and adopt them herein as responsive to DEP's proposed TDS criteria.

B. **Application of TDS Standard to All Waters of the State.** An additional consideration in the adoption of water quality criteria that are derived from SMCLs is the fact that the federal drinking water standards are applied at the point that the water is delivered to an end user. Accordingly, it makes no sense to incorporate a SMCL as a part of general water quality standards without considering the point at which the SMCL is to be applied. Therefore, if despite the available science related to TDS the DEP persists in seeking to impose TDS criteria, the DEP at a minimum should take into account the location of the nearest public water supply system and any treatment that would be applied by that system.

As the agency confirmed during the May 19, 2010 public meeting on the proposed revisions to the water quality standards, DEP maintains an interpretation of its regulations that *all* waters of the State are designated as drinking water sources, and therefore governed by water quality standards applicable under Category A, unless specifically exempted from that designation by regulation. As a consequence of this interpretation, the proposed TDS criterion would presumably be applied to all waters of the State regardless of the proximity or existence of a public drinking water intake.

The Chamber and other representatives of the regulated community have repeatedly commented that DEP lacks legal authority and a scientific justification for its interpretation that all State waters are considered to be Category A. West Virginia's water quality standards create a presumption of only two uses that apply to all waters of the State: propagation and maintenance of aquatic life (Category B) and water contact recreation (Category C). W. Va. C.S.R. § 47-2-6.1. Except for these two presumptive uses, only "existing uses" are protected. "Existing uses" are only those uses "actually attained in a water on or after November 28, 1975." W. Va. C.S.R. § 47-2-4.1.a.

No provision of West Virginia's water quality standards designates all waters of the State as Category A waters, and DEP has not demonstrated that all waters of the State have been used as drinking water sources at some time since November 28, 1975. Moreover, the West Virginia Legislature has repeatedly rejected attempts by the Environmental Quality Board, which previously had authority over water quality standards, to amend the water quality standards regulations to officially designate all waters of the State as Category A waters. This reflects the desire of the West Virginia Legislature that all waters of the State should *not* be presumed to be drinking water sources. Yet, the agency still persists in implementing by policy an interpretation that is not supported by either the existing regulations or the Legislature.

If DEP adopts a TDS standard, the consequence of DEP's erroneous interpretation of Category A waters would be to apply that standard to all waters of the State, instead of only those waters that actually serve as drinking water sources While those who discharge to rivers or other large water bodies may able to obtain mixing zones to aid in achieving compliance, entities that discharge into small water bodies will effectively have to comply with the TDS standard at end of pipe. As a result, the scope of adverse impacts caused by a TDS water quality standard discussed below would be greatly magnified.

C. **Need for a TDS Criterion.** DEP has not identified a State-wide "TDS problem." The agency's concern with TDS appears to be limited to isolated incidents in the Monongahela River during extreme low flow conditions, and even then any problems attributed to TDS concentrations were short-lived and not serious. Additionally, DEP has not identified any concern with adverse effects on human health associated with TDS concentrations in State waters. Rather than propose a narrowly tailored approach to addressing the problems identified, DEP seeks to impose a State-wide "remedy" to address a limited or non-existent problem for most of the State with no corresponding benefit.

D. **Impact of the Proposed TDS Criterion.** DEP has not sufficiently considered how implementation of a TDS standard would impact various sectors of West Virginia businesses and government entities. Any discharge from human activities will contain some amount of TDS. This includes electric generation, oil and gas development, chemicals manufacturing, iron and steel manufacturing, agriculture and food processing, mining, municipal wastewater treatment, and others. Additionally, storm water runoff from construction, runoff from roads especially during winter de-icing season, and other non-point sources contain TDS. Each of these sectors would face unique challenges in

dealing with a TDS standard - especially in light of the limited availability of technology and the tremendous expense associated with treatment for TDS discussed below.

The technological challenges for treatment of TDS are staggering. Currently, there are only three primary technologies for treating TDS: (1) reverse osmosis; (2) evaporation; and (3) evaporation with crystallization. Each of these technologies is energy intensive - requiring a substantial amount of electricity or fossil fuels with the attendant associated costs. Each of these technologies is extremely expensive. For example, the cost to build a reverse osmosis system capable of treating 100,000 gallons per day (gpd) is estimated at $5,300,000, with annual operating and maintenance costs of approximately $81.00 per 1,000 gallons treated, or around $2,956,500 per year.[2] Each of these technologies creates a substantial amount of waste - a concentrated "brine" fluid/filter backwash or treatment sludge - for which there is no feasible means of disposal. There are also additional logistical challenges regarding installation of such technologies that would be unique to each industry. For additional details on the technological challenges, we refer the agency to the attached comments submitted by the Pennsylvania Chamber of Business and Industry to the Pennsylvania Environmental Quality Board concerning TDS treatment.

E. **Regulations Adopted by Other States.** As the agency acknowledged during the May 19, 2010 public meeting, no other State in the nation has implemented a TDS standard as stringent as what DEP proposes. Some States, such as Kentucky and Pennsylvania, apply TDS standards only at the "point of intake" for drinking water sources. Other States do not have a TDS standard at all. In light of the tremendous expense and substantial technological challenges associated with TDS treatment, imposing a State-wide TDS standard -- with no clear benefit and very costly results --would place West Virginia businesses at a monumental competitive disadvantage with other states, and would greatly diminish West Virginia's ability to attract future investment.

For all the reasons stated above, the Chamber urges DEP not to include the TDS water quality standard in its proposed revisions to the regulations governing water quality standards for consideration by the West Virginia Legislature.

7. **Correction of Presumed Low Flow for Monongahela River.** We request that the DEP correct a technical defect that currently exists in the water quality standards with respect to the presumed low flow in the Monongahela River. We believe that the currently specified flow for the Monongahela River flow of 345 cfs specified in the regulation is in error. The basis for this value is outdated. The following language appears at 47 CSR 2-7.2.d.7.1:

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[2] While these numbers are staggering for local businesses, it is important to keep in mind that the costs would also be borne by virtually all citizens served by sewer utilities, a number of which discharge ***millions*** of gallons a day. In a state with infrastructure needs far exceeding any ability to pay, the voluntary imposition of such unnecessary expense by the DEP is inconceivable.

"Flow in the main stem of the Monongahela River, as regulated by the Tygart Reservoir, operated by the US Army Corps of Engineers, is based on a minimum flow of 345 cfs at Lock and Dam No. 8 at river mile point 90.8. This exception does not apply to tributaries of the Monongahela River."

The Monongahela River is formed by the confluence of the Tygart River and the West Fork River. Flow to the Monongahela River is regulated by the Tygart Dam on the Tygart River (completed in 1938) and the Stonewall Jackson Dam on the West Fork River (completed in 1990). Both dams are operated by the United States Army Corps of Engineers. The minimum release from the Tygart Dam is 340 cfs and the minimum release from the Stonewall Jackson Dam is 80 cfs.[3] These releases provide a minimum low flow of 420 cfs at the Opekiska Lock and Dam on the Monongahela River at River Mile 115.4. We presume that the low flow value of 345 cfs contained in 47 CSR 2-7.2.d.7.1 is based upon conditions in the river at the time this provision was initially adopted, and does not account for the minimum release from the Stonewall Jackson Dam. As such, the value of 345 cfs should not be considered representative of low flow conditions on the Monongahela River in West Virginia. We suggest that low flow specified for the Monongahela River in 47 CSR 2-7.2.d.1 be updated to 420 cfs to incorporate the minimum contribution from the Stonewall Jackson dam.

The Chamber appreciates the opportunity to offer these written comments. The Chamber reserves the right to present additional comments at the July 19, 2010 public hearing. If you have any questions, please feel free to contact me.

Sincerely,

Thomas M. Boggs
Vice President

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[3] Water Management/Water Quality Reservoir Operational Summaries, U.S. Army Engineers, District, Pittsburg, Corps of Engineers, Pittsburg, PA, 1996. Pages 13 and 15.

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Harrisburg, PA 17101-1902
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Attachment
T.M.Boggs to Scott Mandirola, Director
Re: Comments on the Proposed WQS Rev.
July 19, 2010

February 12, 2010

Environmental Quality Board
Rachel Carson State Office Building, 16th Floor
400 Market Street
P.O. Box 8477
Harrisburg, PA 17105

Re: Proposed Amendments to 25 Pa. Code Ch. 95; TDS, Chlorides and Sulfates Effluent Standards, 39 Pa. Bulletin 6467 (Nov. 7, 2009)

Members of the Board:

On behalf of its membership comprising thousands of businesses of all sizes and across all industry sectors, the Pennsylvania Chamber of Business and Industry ("Chamber") respectfully offers the following comments concerning the proposal to amend Ch. 95 to establish across-the-board treatment and effluent standards for Total Dissolved Solids (TDS), chlorides and sulfates applicable to new or increased TDS dischargers, irrespective of watershed, location, impact or need.

Since April of this year, the Chamber and its Water Work Group has worked in a task force with our members and a number of other industry organizations, including the Electric Power Generation Association, Pennsylvania Coal Association, Pennsylvania Chemical Industry Council, Pennsylvania Waste Industry Association, and others, in attempting to evaluate the potential applicability and impact of this proposal. Based on the inputs we have received, in June 2009, we prepared and presented to the Water Resources Advisory Committee a lengthy "working paper" which identified in some detail the concerns and questions from a broad spectrum of the regulated community concerning the Department's TDS Strategy and the "one size fits all" treatment standard approach embodied in the Ch. 95 proposal now before the EQB.

Since that time, we have continued to work with that task force to gather additional information from various impacted sectors. Concurrently, our representatives have participated in the Department's TDS Stakeholders Group process in an effort to better understand the potential TDS concerns and challenges that may arise in various watersheds, the impacts of this proposal, and potential alternative approaches to addressing possible TDS concerns. Those efforts have served to confirm many of the concerns that we expressed back in June regarding this particular regulatory proposal, and emphasized that we must, indeed, find another path.

The Department's TDS Strategy and these proposed Ch. 95 regulations have broad, substantial, and far reaching impacts upon a broad spectrum of Pennsylvania manufacturing and commercial operations, but those consequences and effects appear not to have been accorded appropriate assessment, consideration and balancing. We believe that irrespective of the worthiness of its objectives, these Ch. 95 standards, coupled with its fast-track deadlines, are ill-advised and unworkable, generating what will become an impending crisis in wastewater management that threatens the ongoing viability of a number of key sectors and enterprises. As we stated in June, it is essential that the Department work with all affected sectors and stakeholders to: (1) develop a better understanding of the real TDS challenges, in terms of affected streams and conditions, constituents, and related causes; (2) evaluate the options for addressing those TDS challenges; (3) carefully evaluate the technical and economic feasibility and effectiveness of each of the treatment technologies that might be used for various types of TDS constituents, including key issues regarding management and disposition of their resulting residuals; and (4) reframe a strategy and approach to more effectively address the real TDS challenges in a common sense and cost-effective manner.

Summary and Key Points

We have provided below detailed comments on the proposed Ch. 95 amendments. The following are the six (6) key points of the Chamber's comments:

(1) To be effective, Pennsylvania's strategy must be developed with a much more focused and accurate understanding of the specific streams evidencing TDS challenges, the specific constituents and hydrologic conditions that lead to TDS issues, and the primary sources of those constituents and loadings. The primary rationale for the new statewide end-of-pipe treatment standard proposed in Ch. 95 appears to be the observation of TDS challenges in a limited number of streams (such as the Monongahela River) many of which are predominantly impacted by drainage from mines abandoned decades ago, and the observations of elevated TDS conditions were limited to extreme and extended low flow conditions. The studies and surveys cited in the TDS Strategy and shared with the TDS Stakeholders Group do not evidence that we face a statewide TDS "***problem,***" but rather suggest an issue that affects specific streams and stream reaches under certain hydrologic conditions. A close examination of those studies further indicates that the sources and challenges in each watershed are different, and one across-the-board "solution" will not be efficient or effective.

(2) Before adopting and implementing the type of treatment limits as set forth in the proposed Ch. 95, DEP must develop an accurate understanding of the numerous sectors affected by the limits, and evaluate the technical and economic feasibility of implementing the proposed TDS limits in each of those sectors. The proposed definition of "High-TDS sources" sweeps in a wide range of industrial enterprises, far beyond those mentioned in the TDS Strategy, including electric

power generation, petroleum refining, chemicals manufacturing, iron and steel manufacturing, pharmaceuticals, meat packing, food processing, and others.

(3) In each of these affected sectors, the technologies available to address high-TDS wastewaters are limited, subject to varying capabilities depending on the matrix of constituents in individual wastewaters, and pose significant technical and economic feasibility issues. As detailed in the Pennsylvania Chamber's June 2009 Working Paper, the primary technologies proffered to meet the limits mandated by this proposal – reverse osmosis (RO), evaporation, and crystallization – are energy intensive and thereby engender significant generation of greenhouse gasses, very expensive from both a capital and operating cost standpoint, and leave a significant volume of residuals (concentrated brine or salt cake) which pose unresolved management and disposal challenges. Moreover, none of these technologies can be engineered, pilot tested, permitted and installed in anything like the 18-month timeframe envisioned by the TDS Strategy and the proposed Ch. 95 rules.

As just one example, an evaporation/crystallization facility designed to handle 1,000,000 gallons per day of brines would require some 87 million kilowatt hours of electricity annually (the equivalent electric demand of some 11,300 households); plus 262,800,000 cubic feet of natural gas annually, and would generate nearly 60,000 tons of greenhouse gas CO_2 emissions per year.

As another example, for just one power plant, the estimated cost of a brine concentrator and crystallizer to handle air scrubber wastewater is $62 million in capital, plus $4.5 million per year for O&M. Multiplied across the fleet of electric generating stations with current and planned scrubber units, and including other plant wastewater streams that may need treated (e.g. cooling tower blowdown, etc.) the proposed Chapter 95 rule would engender a demand for ***approximately 1 billion*** dollars in investment for FGD wastewaters alone. If the balance of power plant wastewaters are required to be treated, that cost escalates to $3 – 7.5 billion.

(4) All potentially available TDS treatment technologies present a substantial, unresolved challenge concerning management of resulting treatment residuals – whether they be concentrated brines in RO reject water or the salt cake/sludges from crystallization units. The sheer volume of residuals associated with implementing these proposed rules – which equates to literally thousands of tons of salt cake per year – should alone be cause for careful review and reconsideration.

(5) The 18-month timeframe for implementation of TDS treatment is wholly unrealistic and unachievable. Given the design, pilot-testing, permitting, equipment lead time, and construction steps outlined both in the Chamber's

comments and in presentations from various sectors provided to the TDS Stakeholders Group, a minimum of a 36-month timeframe is involved in development of high-TDS treatment facilities – and that assumes that all design and testing prove that the technology is feasible and that the residuals challenge can be met.

(6) The draft Ch. 95 leaves a number of serious and unresolved questions in terms of applicability and implementation, including (a) how the rules apply to facilities with multiple existing sources and outfalls; (b) situations involving high-TDS source water; (c) the impacts of the strategy on water conservations; and (d) the process for determining baselines and increases in TDS concentrations and loadings.

As a bottom line, the Chamber believes that water quality management should realistically address the instream needs and requirements of Pennsylvania streams, based on the best scientific information available. Given the unique TDS challenges for some streams, we believe the Department should adopt a more flexible approach to regulating TDS and its constituents in discharges, considering assimilative capacity under differing flow conditions. We believe that some of the options discussed by the TDS Stakeholders Group, particularly the watershed-based approach to TDS management, offer a more realistic and rationale approach to addressing those TDS challenges that may affect some streams – with actions that can be implemented before we confront the prospect of impaired instream quality.

Detailed Comments

1. **To be effective, Pennsylvania's strategy must be developed with a much more focused and accurate understanding of the specific streams evidencing TDS challenges, the specific constituents and hydrologic conditions that lead to TDS issues, and the primary sources of those constituents and loadings.**

The TDS Strategy and the proposed Ch. 95 regulations are based on an overly-generalized, incomplete and inaccurate assessment of the TDS issues in Pennsylvania streams.

On the one hand, the TDS Strategy and the preamble to the proposed rulemaking package start out with the correct observation that TDS is a parameter that is actually made up of many different constituents in water, including inorganic salts, organic matter, and other dissolved materials. Each of these constituents have different effects in terms of impacts on aquatic life and other water uses. Moreover, the sources of these constituents are many and varied, and include natural materials derived from local geology, constituents from atmospheric precipitation, and a wide range of anthropomorphic sources.

The primary rationale for adopting a new statewide end-of-pipe treatment standard, however, appears to be the observation of TDS challenges on only a few streams – specifically (i) the submission of multiple applications for treating TDS wastewaters in the watershed of the

West Branch Susquehanna River; and (ii) some high TDS readings on the Monongahela River and its tributaries during a period of extreme and extended low flow conditions. The studies and surveys cited in the TDS Strategy and the data provided to the TDS Stakeholders Group are sparse in terms of characterizing the situations. From what we can discern, these documents do not evidence that we face a statewide TDS "***problem***," but rather suggest an issue that affects specific streams and stream reaches under certain hydrologic conditions.

Studies that evaluated Monongahela River's water quality conditions in late 2008 during the time period when TDS levels were elevated, indicate that the majority of the TDS challenge is associated with acid mine drainage ("AMD") from abandoned coal mines, including high concentrations of both sulfates and TDS entering Pennsylvania from West Virginia. The detailed and well-documented study conducted by Tetra Tech NUS, Inc, entitled "*Evaluation of High TDS Concentrations in the Monongahela River*" (January 2009), found that (i) drought conditions were occurring in the Monongahela River basin in October and November 2008, which decreased the amount of water in the river for dilution and increased concentrations of constituents such as TDS, sulfates, and chlorides; (ii) the main chemical component detected in the TDS concentrations and mass loadings was sulfates, most likely associated with mine drainage; (iii) chlorides accounted for less than 10 percent of the total TDS concentrations detected in the Monongahela River from October to December 2008; (iv) TDS and sulfate concentrations in the river were near the maximum allowable levels upon entering Pennsylvania from West Virginia in October and November 2008; (v) samples taken from October through December indicated that the relative percent of chlorides in TDS did not change significantly after the oil and gas exploration and production companies ceased or significantly reduced disposal of flowback and produced water at POTWs; (vi) while sulfate and TDS levels were elevated, concentrations of chlorides did not exceed DEP and EPA water quality criteria throughout the period; and (vii) long-term statistical trend analyses indicate that there is not a statistically significant difference in TDS mass loadings to the Monongahela River over the last seven years. The Tetra Tech study evidences that the predominant challenge for the Monongahela watershed was most likely the result of acid mine drainage, particularly from abandoned coal mines.

DEP has separately pointed to a few other streams that appear to have TDS assimilative capacity challenges in low flow conditions, such as the West Branch Susquehanna River. Again, the challenged stream reaches are predominantly impacted by historic sources of AMD; and the obvious solutions must include efforts to remediate those AMD sources.

The Allegheny Conference has prepared a detailed review of the history of TDS conditions in the Monongahela and other streams in Pennsylvania. What that data shows is that spikes in TDS values over the past 30 years have periodically occurred, but those conditions are relatively rare and that the pattern of TDS values does not indicate any particular upward trend.

The information available to date leads to two key observations.

First, the TDS challenge is one that is focused on a limited number of streams that are currently impacted predominantly by acid mine drainage, primarily from abandoned mine lands. The studies cited in the TDS Strategy and the data shared with the TDS Stakeholders Group do not show a "widespread" TDS problem. Rather, they indicate that the TDS challenges are watershed specific, and vary in terms of both the nature of the sources involved and the degree of potential intensity and duration. Instead of framing a focused, targeted and cost-effective approach to address the challenges faced by particular watersheds, this Ch. 95 proposal frames a broad and sweeping effort to impose, via Chapter 95, a new "one-size-fits-all" effluent limitation on all new or increased "high-TDS sources."

Second, the TDS assimilative capacity issue observed in the streams mentioned in the TDS Strategy and the Ch. 95 preamble is one that arises during severe low flow conditions, but is not a year round issue. Indeed, during most flow conditions, concentrations of TDS and its constituents are well below levels of concern. Yet the TDS Strategy and Ch. 95 proposal seeks to impose a statewide effluent treatment limitation aimed at addressing assimilative capacity on the most challenged streams under short-term, extreme low flow conditions. Instead, we would suggest, the Department should consider other possibilities and options for more watershed focused approaches, including dynamic management, that promise to be both more cost-effective and avoid the type of environmental and energy concerns discussed below.

2. An accurate understanding of the numerous sectors affected by the proposed treatment limits, and an evaluation of the technical and economic feasibility of implementing the proposed TDS limits, are critical.

The proposed Ch. 95 regulations would adopt and implement by January 1, 2011, a new treatment standard for high TDS sources. The proposed Ch. 95 amendments would impose a new end-of-pipe treatment "technology based" standard to be inserted into 25 Pa. Code Ch. 95 for all "high TDS sources." The term "high TDS sources" is defined by the proposed Ch. 95 to mean new or expanded sources of pollutants that includes a TDS concentration that exceeds 2,000 mg/l or a TDS loading that exceeds 100,000 pounds per day. Effective January 1, 2011, DEP is proposing that such high TDS sources would be subject to effluent limits of 500 mg/l of TDS, 250 mg/l of Total Chlorides, and 250 mg/l of Total Sulfates (in each case, stated as a monthly average).

At its April 15th briefing on the TDS Strategy, DEP stated that the rationale for this approach is to "set a level playing field" by requiring all high TDS sources to treat to a particular level. No further explanation has been provided supporting the selection and imposition of such across-the-board limitations. The Department appears not to have considered the technological issues of achieving the target concentrations. Rather, DEP chose concentrations that simply mirror current secondary drinking water standards.

In adopting regulations and taking other actions under the Clean Streams Law, including setting such treatment standards, DEP is explicitly obligated to consider a number of factors, including: (1) water quality management and pollution control in the watershed as a whole; (2)

the present and possible future uses of particular waters; (3) the feasibility of combined or joint treatment facilities; (4) the state of scientific and technological knowledge; and (5) the immediate and long-range economic impact upon the Commonwealth and its citizens. 35 P.S. §691.5(a).

The TDS Strategy and the preamble to the proposed Ch. 95 regulations do not reveal any consideration or analysis of these factors. Most particularly, the materials provided by the Department in support of the Ch. 95 proposal do not reflect a careful evaluation of the technical and economic feasibility of the proposed treatment standards as applied to various industrial and other wastewater sectors.

The Chamber, in conjunction with other industry associations, has sought to gather information concerning the impacts of the proposed treatment standards on various enterprises. As outlined in the following sections of these comments, the responses we have received indicate a series of technical and feasibility concerns that merit serious attention and evaluation before the Department moves forward with this Strategy.

3. The proposed definition of "High-TDS sources" sweeps in a wide range of industrial enterprises.

The TDS Strategy and proposed Ch. 95 preamble focus almost all of their discussion of "High-TDS sources" upon flowback water and produced brines from Marcellus Shale and other oil and gas well development, and AMD sources. However, these are far from the only sources of TDS that are swept into regulation under the standards reflected in the proposed Chapter 95. The Chamber's outreach and the information submitted by various industry sectors to the TDS Stakeholders Group has revealed that the proposed Ch. 95 regulations would directly and significantly affect a number of sectors, including electric power generation, petroleum refining, chemicals manufacturing, iron and steel manufacturing, pharmaceuticals, meat packing, food processing, and others. At the same time, the Ch. 95 rules would impact a number of industrial and commercial enterprises using larger publicly-owned treatment works (POTWs) that already have relatively high TDS loads (measured in pounds), particularly as POTWs in areas such as the Susquehanna and Delaware River Basins implement phosphorus reductions (where chemical treatment processes increase TDS levels).

Electric Power Generation. Many, if not most, Pennsylvania electric generating plants will likely be subject to the High-TDS source limits. A survey of power generators found a variety of current and anticipated "high-TDS" sources, including flue gas desulphurization ("FGD") wastewaters, ash storage runoff, boiler water makeup resin regeneration, cooling tower blowdown and related water treatment, ash landfill leachate, and other operations. Many of these units currently are not subject to TDS limitations, although a few have NPDES permits which either require monitoring only or impose a wide range of TDS limits based on various factors (including limits based on DRBC standards). For example, one station in western Pennsylvania has an FGD treated wastewater limit (measured at an internal monitoring point) for TDS of 40,000 mg/l monthly average based on "best professional judgment." One station

discharging in the Delaware Basin has limits of 1,000 mg/l monthly average from certain low volume wastewaters and 3,500 mg/l monthly average from other sources, while another Delaware Basin generating facility has a limit of 15,000 mg/l as a monthly average and 30,000 mg/l daily maximum. A station in the Susquehanna River Basin equipped with an FGD scrubber system has a TDS monitoring only requirement.

Although §95.10 is cast as applying only to new or increased high-TDS sources, that formulation will, in fact, trigger TDS limits at many facilities. Generation facility owners are undertaking a variety of improvements to their stations – in many cases driven by other environmental imperatives – which will result in increased TDS concentrations, if not increased TDS poundage loadings. For example, as the result of the Clean Air Interstate Rule and other air regulations, many stations that have not already done so are planning the installation or upgrade of FGD systems, which generate wastewaters with TDS (primarily in the form of sulfates).

At the same time, many stations are dealing with more stringent thermal limits and/or mandates associated with Clean Water Act §316(b) intake entrainment/impingement requirements, leading to installation of recirculating cooling towers that reduce the volume of cooling water intake and discharge, but increase the concentration of TDS in the water due to evaporation of part of the water, leaving behind TDS from the source water. Currently, stations equipped with recirculating cooling towers report concentrations of TDS in incoming water of 50-650 parts per million (ppm), with 2-6 cycles of concentration. If these cooling tower discharges are classified as high-TDS waters, either because of their concentration/loadings alone or because they are from facilities that have other high-TDS loadings, the result will be to require substantial treatment to remove TDS that is, in fact, derived from the incoming source water.

Coal Mining and Processing. As recognized in the TDS Strategy, the coal mining and processing industry engenders several sources of TDS, from both process and stormwater discharges. Even the best state-of-the-art and properly operated mine drainage treatment plants (including those designed and operated by the Department at various sites) involve TDS in the treated effluent. Although the proposed Ch. 95 purports to apply its new end-of-pipe treatment limits only to "new discharges," the definition of "new discharge" in proposed §95.10(a) would appear to trigger for most existing mines, since additional, expanded or increased discharges are common at existing surface and deep mine operations as mines develop over the course of the active life of a mine. Thus, existing mines could quickly be considered "new discharges" under the proposed rule.

Food Processing. The food processing sector, which includes fruit and vegetable canning, meat packing, potato chip and snack manufacturing, similarly engenders significant TDS concentrations in some wastewaters. For example, one food processing facility in eastern Pennsylvania has noted that its TDS concentrations exceed the concentrations that define a high-TDS source, with a current NPDES permit that sets a limit in excess of 3000 mg/l as a monthly average. The facility has an on-site water supply well in which the measured TDS concentrations in the groundwater already exceed 500 mg/l. Using the supply well for on-site

industrial processes requires softening of that water, and when used, the associated water softening process generates a noteworthy amount of TDS in a wastewater stream equating to approximately 800,000 gallons per day (gpd). The facility ceased using the on-site water supply well, partly as a result of the background TDS concentrations in the groundwater, and now it must purchase supply water from the municipal system. The concentrations of TDS in facility wastewater are expected to increase in the near term as a result of wastewater treatment upgrades designed to address nutrients, where the chemical treatment to remove phosphorus has the collateral effect of elevating TDS concentrations.

Petroleum Refining and Chemicals. Chemical manufacturing facilities, both large and small, likewise generate some significant TDS concentrations in typical wastewaters. One chemical facility in western Pennsylvania, for instance, generates approximately 100,000 gallons per day of high-TDS wastewater, which currently is conveyed to a POTW. Refineries, on the other hand, generate much higher volumes of what the proposed Ch. 95 rule classifies as high-TDS wastewaters. Petroleum refineries have various sources of TDS in their wastewater streams. Like the electric power generation sector, one of these sources is the air pollution control devices, such as wet gas scrubbers, that these refineries have or will be installing in the near future. These scrubber wastewaters have significant TDS and sulfate concentrations and are either processed through on-site wastewater treatment plants or conveyed to POTWs for additional treatment. Permits having limits greater than the proposed 500 mg/l and 250 mg/l limits have been issued or are in the approval process for these wastewaters based on assimilative capacity and the chemical, flow, biological, and use designation characteristics of the receiving waters. Current TDS technologies are polishing unit operations and require considerable wastewater treatment upstream of TDS removal. Requiring additional treatment of refinery or chemical plant TDS streams is not feasible since the current TDS technologies have not been demonstrated to be applicable to these wastewaters and prior to any TDS unit operations significant additional treatment upstream of TDS removal would be required. Besides the lack of demonstrated success of TDS technologies for typical refinery & chemical plant wastewater streams, costs of the existing technologies would be excessive and prohibitive.

In addition, recirculating cooling towers are utilized throughout the chemical and refining industry and would result in the same 316b issues and concerns as detailed previously in the electric power generation sector section.

Pharmaceuticals. Pharmaceutical and vaccine research and manufacturing operations are subject to strict Food and Drug Administration (FDA) requirements to ensure safe and effective medicines are discovered and delivered to the public. Good Manufacturing Practices (GMP) and Good Laboratory Practices (GLP) regulations require the highest levels of purity and cleanliness in every step of the pharmaceutical and vaccine process. The use of strong acids and bases are necessary to achieve cleanliness requirements, and subsequent neutralization of these chemicals to meet environmental discharge limits results in generation of high TDS effluent. Requirements for process area and laboratory conditions result in increased heating, air conditioning, and ventilation (HVAC) loadings to maintain extremely rigid temperature and humidity ranges and high levels of once-through ventilation rates. Increased building HVAC

loadings translate ultimately to increased cooling tower evaporation and blowdown rates. TDS levels in cooling tower blowdown often exceed 3500 mg/l. One pharmaceutical research and manufacturing facility in eastern Pennsylvania generates approximately 1,500,000 gpd of high-TDS wastewater which is conveyed to a POTW.

Other Sectors. Outreach to Chamber members found that a number of other sectors, including paper and packaging, produce potentially high TDS wastewaters. This issue arises even in sectors where industrial processes are not the primary wastewater source. For example, one container manufacturer noted that its groundwater well sources at two plants were naturally high in hardness and TDS ranging from 700-900 ppm (*e.g.*, exceeding the proposed §95.10 discharge standard), and efforts to produce softer and purer water for manufacturing require use of RO water treatment units engendering investments approaching $1 million. These water supply treatment facilities, however, leave a reject stream that is high in TDS, which is currently handled by a POTW.

4. The technologies available to address high-TDS wastewaters are limited, and pose significant technical and economic feasibility issues.

In most plants, the source of TDS in industrial and commercial discharges is from the use of process-essential chemicals. Source reduction is therefore not an available alternative for achieving the proposed -TDS effluent limits. Segregating and disposal by transporting high-TDS wastewater streams off-site to a location where they can be treated and discharged is also not a feasible option for most industries and businesses. Therefore, desalination of effluents to achieve the proposed Chapter 95 TDS technology-based limits will be the only available alternative if a company wishes to add a new process or expand an existing process that would generate high-TDS wastewater.

The proposal to adopt Ch. 95 in its current form appears to assume, without any discussion or assessment, that technologies exist to address and treat high-TDS wastewaters, and that such technologies apply to and are feasibly implemented in all industrial sectors. Nothing could be further from reality.

In fact, the technologies available to remove TDS from wastewaters are limited and subject to varying capabilities depending on the matrix of constituents in individual wastewaters. At the same time, even when technically capable of addressing TDS in certain wastewaters, such technologies are energy intensive, very expensive from both a capital and operating cost standpoint, and leave a significant volume of residuals (concentrated brine or salt cake) which pose unresolved management and disposal challenges. Moreover, none of these technologies can be engineered, pilot tested, permitted and installed in anything like the timeframe envisioned by the TDS Strategy and the proposed Ch. 95 rules.

(a) The limited technical options for TDS treatment.

There are very few technical options for removal or reduction of TDS in high-TDS wastewaters, and the few technical methods available have serious limitations and complicated feasibility issues.

Unlike western jurisdictions, pond evaporation is simply not a feasible option in the humid northeastern United States, where rainfall rates equal or exceed evaporation rates.

Although the Department has expressed willingness to support underground injection of some wastewaters, the fact is that only five or six Class II underground injection wells have been permitted in all of Pennsylvania, and those wells have very limited wastewater acceptance rates. For example, one of the more significant wells can only accept 600,000 gallons in a month – hardly enough to form a feasible option of the millions of gallons per day of high-TDS wastewater generated in our mines, oil and gas well development, industries, and power plants.

Conventional treatment technologies, such as pH adjustment, metals precipitation, sand and membrane filtration and oil/water separation do nothing to address the TDS or chlorides challenge, and in fact contribute to the TDS discharge levels in some cases.

Thus, for most high-TDS wastewater, that leaves only three options: (i) reverse osmosis; (ii) evaporation; and (iii) evaporation coupled with crystallization.

Reverse Osmosis. Reverse osmosis ("RO") is a technology that utilizes pressure to force a solution through a membrane, retaining the solute (salt laden solution) on one side and allowing the pure solvent (water) to pass to the other side. TDS reduction via RO is effective for certain wastewaters up to a TDS concentration of approximately 40,000 ppm. RO membranes are prone to fouling and premature failure if wastewaters contain any of a variety of interfering constituents. Hence, in a typical industrial wastewater matrix which includes a variety of constituents, RO must be preceded by a variety of pre-treatment methods to remove the constituents that would interfere with or ruin the RO units. Pretreatment required for RO systems includes organic chemicals removal (to prevent fouling of the membranes), removal of certain inorganics that can foul membranes (calcium compounds), and removal of suspended solids.

Direct dischargers with existing biological treatment systems will typically have to install cartridge filters/microscreens, microfiltration and an ultrafiltration membrane filter upstream of the RO unit. Activated carbon absorption may also be required if the biologically treated effluent has residual total organic carbon that can foul the membranes.

Membrane fouling by organics, silica, calcium carbonate and calcium sulfate is a common problem with RO systems. Anti-scaling agents are used to minimize scaling and cleaning chemicals must be used regularly to maintain membrane efficiency. However, even with the use of these chemicals, the RO membranes eventually plug and the membranes must be replaced. For example, pilot testing of an RO system on a brackish groundwater resulted in a permanent loss of permeate production capacity (resulting in higher volumes of reject brine) over

time in spite of use of a pretreatment system, regular cleaning of the RO membranes, and use of anti-scaling and anti-fouling chemicals.[1] Thus, RO membrane replacement is a recurring maintenance cost for these systems. When RO is applied to wastewater rather than brackish groundwater, membrane fouling and degradation is typically more pronounced.

RO treatment results in recovery of only 30-60% of the incoming water volume in the form of a treated water effluent containing less than 500 ppm of TDS. Conversely, 40-70% of the incoming wastewater is left in the form of a more concentrated, higher-TDS "brine" – often referred to as "reject" water. The TDS salts do not go away; they are only more concentrated in a somewhat smaller volume of wastewater.

Evaporation. TDS reduction via evaporation has been espoused as another available technology. Basically, the technology requires heating volumes of high-TDS water to evaporate a portion of the water, converting it to steam which may then be recovered through condensation, while leaving behind more concentrated brine solutions. Heat sources for evaporation systems may involve either electricity or fossil-fuel (using oil or natural gas and various heat transfer systems).

Evaporation systems require in almost all cases pretreatment to remove various constituents, such as inorganic chemicals, ammonia, and suspending solids, which will cause fouling of the process, and to prevent scaling.

Direct discharging plants with biological treatment systems will typically require additional solids removal by membrane filtration before the water is sent to the evaporator. Other pretreatment may be required including activated carbon for organics removal. Fouling of heat exchanger surfaces can greatly reduce distillation efficiency — calcium sulfate and calcium carbonate are the most common cause of such fouling.[2] If this type of fouling will potentially occur, calcium removal by chemical precipitation will be required upstream of the membrane filtration system. Sulfates in the wastewater will also pose a particular issue, as efforts must be undertaken to prevent sulfates from fouling the evaporative process.

Similar to RO technology, evaporation units leave significant volumes of residuals. A typical evaporation facility will recover 60-65% of the wastewater in the form of distilled water, leaving 40% of the volume as saturated TDS wastewater.

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[1] G. Juby, *Reverse Osmosis Recovery Maximization*, Desalination and Water Purification Research and Development Program Report No. 119, Bureau of Reclamation, Department of the Interior, Denver, CO (2006)

[2] J. E. Miller, "Review of Water Resources and Desalination Technologies," SAND 2003-0800, Sandia National Laboratories, Albuquerque, NM (2003).

Evaporation/Crystallization. Evaporation/crystallization takes the process one step further to evaporate the concentrated brine to produce a salt cake. Influent feed to the crystallizer is further heated through a heat exchanger to promote flash boiling of the brine, with the resulting vapor passing through a heat exchanger/condenser system. If the system works as desired, the resulting concentrate produces salt crystals and cake, which are removed and dewatered through a centrifuge system.

Often referred to as "zero liquid discharge" ("ZLD"), evaporation/crystallization does not destroy the TDS, it only changes it into a different type of residual posing a somewhat different dispositional challenge.

Such evaporation/crystallization technology has been tried in certain applications, but has not been proven as a universal cure. For example, the feasibility of a ZLD treatment system on electric generating plant FGD waste streams has not been proven. Our understanding is that only six ZLD systems have been installed for FGD wastewater streams, all in Italy. Kansas Power & Light is attempting to start up a ZLD, but it is not yet operational. Yet DEP seems poised to require every power plant in Pennsylvania planning near term installation of FGD systems to reduce air emissions to immediately move to install such unproven ZLD systems.

While equipment vendors may espouse that they can solve every problem, such technology must be proven in the wide range of sectors to which the Strategy would regulate. A far reaching public policy that imposes high capital and operating costs, energy impacts, and environmental challenges should not be based on marketing claims and sales pitches. Hard evidence of technical and economic feasibility must be provided.

(b) TDS treatment technologies are energy intensive; and related air pollutant and greenhouse gas emissions associated with that energy use should be seriously considered.

Each of the potential available treatment technologies involves significant energy inputs, and related increases in greenhouse gas emissions. While there certainly remains serious debate as to the appropriate approaches to climate change and greenhouse gas emissions at both the national and state level, the Rendell Administration and Department leadership have repeatedly expressed concerns about both conserving energy and reducing CO_2 and other greenhouse emissions. Thus, we certainly need to examine with care the impact of any new regulatory actions on the energy consumption and air emission. If wise environmental decisions are to be made, we cannot manage the environment on the basis of one medium at a time.

RO treatment is moderately energy intensive. The energy requirement for the RO membrane system (not including the necessary pretreatment units) treating brackish wastewater averages 9.6 kWh/1000 gallons of produced water. Expressed as the power requirements for

treating the influent flow,[3] the average energy use is 13.7 kWh/1000 gallons. Based on a Department of Energy/EPA report,[4] electrical energy generation in the U.S. results in approximately 1.341 lb of carbon dioxide per kWh.[5] Thus, a 100,000 gpd RO plant would consume 500,050 kilowatt hours per year, equating to 335 tons of CO_2 emissions per year.

Evaporation (also known as thermal distillation) is moderate to high energy intensive. The literature indicates that energy requirements for all three thermal processes (multi-stage flash distillation, multi-effect distillation, and mechanical vapor compression) are essentially independent of the influent salt concentration[6] and are high — the average energy use for the most efficient thermal process (thermal or mechanical vapor compression) is 43.2 kwh/1000 gallons of product water (39 kWh/1000 gallons influent water). Thus, a plant that generates 100,000 gallons/day (gpd) of wastewater will require about 3,900 kWh of thermal/electrical energy to remove TDS. In the typical thermal distillation system, steam generated from combustion of natural gas or another fossil fuel (coal, fuel oil) provides most of the energy required. In most installations, electrical energy is a small component of the total energy use.

Evaporation/crystallization is a highly energy intensive method of treatment. The power consumption of a 1,000,000 gallon per day facility handling brines from Marcellus Shale wells, for example, has been projected at 10 megawatts plus more than 30,000 cubic feet of natural gas per hour. Thus, to treat 1,000,000 gallons per day of wastewater would require some 87,600,000 kilowatt hours of electricity annually (the equivalent electric demand of some 11,300 households[7]); plus 262,800,000 ft^3 of natural gas annually. Using EPA's emissions factor of 1.341 pounds of carbon dioxide emissions per kwh, the annual electric demand for just one such evaporation/crystallization facility equates to nearly 60,000 tons of CO_2 emissions per year.

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[3] Assuming 30% reject flow.

[4] Department of Energy and Environmental Protection Agency, Carbon Dioxide Emissions from the Generation of Electric Power in the United States (July 2000).

[5] This value reflects an average of electrical generation from all sources: coal, natural gas, nuclear, wind, etc. If all electrical energy was from coal, the carbon dioxide generation rate is 2.095 lb/kWh.

[6] J. E. Miller, *supra*.

[7] Based on the U.S. Department of Energy, Energy Information Administration's *Middle Atlantic Household Electricity Report* (December 22, 2005) using 2001 data, electric consumption in 15 million Mid-Atlantic region households totaled 116 billion kwh, or an average of 7,733 kwh annually per household. (http://www.eia.doe.gov/emeu/reps/enduse/er01_mid-atl.html (last visited June 6, 2009)).

(c) The only potentially available TDS treatment technologies pose high capital and O&M costs.

RO and evaporation systems engender both high capital and O&M costs.

According to one study, the total capital cost of a brackish water RO system including pretreatment (but not biological treatment or brine concentration and disposal) costs an average of $8 per gallon of capacity.[8] Thus, the capital cost of a 100,000 gpd RO treatment system might be calculated at approximately $800,000.

The values reflected in that study, however, appear to understate RO system costs. One Chamber member who recently completed and commissioned an RO system to handle their wastewaters reports that for a 100,000 gpd wastewater system that included requisite pretreatment plus RO, total equipment and construction cost exceeded $5.3 million.

The biggest annual operating costs for RO are electrical power, membrane replacement, consumables, and labor costs. An actual case study for one Pennsylvania RO facility found operating costs (based on a 100,000 gpd capacity) were on the order of $81 per 1000 gallons, or around $2,956,500 per year.

Extremely high cost and multiple operating issues have lead the U.S. Environmental Protection Agency to reject reverse osmosis as defining "Best Available Technology" for treating wastewater from certain sectors. For example, in its analysis of the technologies available to treat landfill leachate, EPA evaluated RO and concluded that it was not more efficient in removing significantly more pounds of toxic pollutants than other treatment options, that is was "very expensive," and that potential operating and disposal problems weighed against defining BAT on the basis of RO implementation.[9] The factors that EPA has considered in evaluating RO technology should likewise be weighed by DEP before it embarks on setting a state technology-based treatment standard – particularly one that sweepingly applies to every industry sector across the Commonwealth with significant sources of TDS wastewater.

The projected cost of ZLD treatment is even higher, both for capital construction and operation. For one power plant, the estimated cost of a brine concentrator and crystallizer to handle FGD wastewater having a design flow rate of 400 gallons per minute (576,000 gallons per day) is $62 million in capital, plus $4.5 million per year for O&M. Multiplied across the fleet of electric generating stations with current and planned FGD scrubber units, the Strategy would engender a demand for ***several billion*** dollars in investment – and one that is being mandated to be expended on a "crisis basis" within a mere 18-month period. Given the current

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[8] J. E. Miller, *supra* (costs adjusted to 2009 values).

[9] *See* 65 Fed. Reg. 3008, 3019-3020 (January 19, 2000).

status of the capital and lending markets, the ability of power generators to raise the funds for such a large new and costly investment is in serious question.

Cost estimates for centralized wastewater treatment facilities utilizing evaporation/crystallization for oil and gas brines are similarly very high, with capital cost estimates ranging from $90-100 million for a 1 MGD facility. O&M costs for such a facility are estimated at approximately $15-20 million annually.

We note that some analyses or expressions of costs offered in support of the proposed Ch. 95 rules have attempted to state those costs in terms of cents per gallon, apparently suggesting that such values are low and inconsequential. However, the volumes of water used daily in Pennsylvania's manufacturing and agricultural sectors are large – measured at individual facilities in hundreds of thousands to millions of gallons per day. A value such as $.25/gallon, thus, translates to millions of dollars per year for a facility. These are ***not***, as suggested by some, inconsequential, but rather major cost impositions that threaten the economic competitiveness and viability of Pennsylvania mining, manufacturing, and commercial facilities.

(d) All potentially available TDS treatment technologies present a substantial, unresolved challenge concerning management of resulting treatment residuals.

All of the available TDS treatment methods leave one significant issue – what to do with the remaining concentrated TDS reject wastewaters, salt cake or other residuals. At present, the TDS Strategy does not offer a solution – indeed, it does not seem to even consider the problem.

RO Residuals

As noted above, RO technology recovers approximately 30-60% of the wastewater, leaving concentrated reject water equating to 40-70% of the influent volume.

Today we have landfills in Pennsylvania utilizing RO units for onsite pretreatment of leachate, but those units leave substantial volumes of reject high-TDS residuals which are trucked some distance to large municipally-owned sewage treatment plants. The TDS Strategy would apparently cut off the avenue for disposition of the reject wastewaters, leaving the conundrum that there appears to be no place in Pennsylvania where the Strategy would provide for such residuals to be managed. The challenge will multiply if other facilities are forced to utilize RO, evaporation or crystallization treatment.

For example, one typical chemical plant that generates 100,000 gpd of wastewater, if equipped with an RO unit, would generate approximately 30,000 gallons per day of reject water. This translates into 10,950,000 gallons, or 91,323,000 pounds, of reject water requiring disposal each year. Because this waste stream would itself be a high-TDS wastewater, it could not be discharged to any surface water in Pennsylvania. The only remaining management option would be to haul the reject water to an out-of-state industrial wastewater facility (in a jurisdiction that has less stringent TDS controls) or to some type of solid waste facility that would provide for

solidification and disposal. There are a number of logistical difficulties, however, which make this option impractical. The chemical company would first need to construct storage tanks and loading facilities for the wastewater. At least three 250,000 gallon storage tanks (fabricated of stainless steel because of the corrosive characteristics of high salt waters) would be needed in order to provide the required storage capacity and operational flexibility for the wastewater treatment facility and would require a capital outlay well in excess of $15,000,000. Such a storage facility would consume significant land acreage, whose availability would pose significant hurdles.

In order to prevent an accumulation of wastewater at the facility, water would need to be hauled out in tanker trucks at the same rate it is generated. Because many disposal facilities do not accept waste on the weekends, or do so only in limited quantities, transportation would need to take place on a five-day or six-day schedule. Disposal of all the waste generated in one calendar week would require seven to nine 5,000-gallon tank trucks being shipped from the facility each weekday.

The transportation of reject water to a waste management location hypothetically just 75 miles from the chemical plant would result in roughly 328,500 additional tanker truck miles traveled consuming approximately 54,750 gallons of diesel fuel. This would generate 99 tons of nitrogen oxide emissions, 21 tons of carbon monoxide emissions, 7 tons of fine particulate matter emissions, and 3,690 tons of greenhouse gas emissions. In many cases, the trucking distance to out-of-state treatment facilities would be much greater, with attendant greater fossil fuel consumption and air emission implications.

Multiplied across Pennsylvania, it is clear that such an approach poses significant logistical, economic and environmental challenges.

Evaporation Residuals

Evaporation systems result in somewhat higher recovery rates, but still leave approximately 40% of the wastewater in the form of a concentrated brine. Thus, in a situation, such as a power plant or oil and gas produced water treatment plant, involving 1,000,000 gallons of influent wastewater, the resulting concentrated brine would equate to 400,000 gallons per day. That equates to 80+ tanker trucks per day of saturated wastewater from just one plant to be taken to some as yet unidentified location for ultimate disposition, with all associated transportation-related fuel use and air emissions as previously discussed.

Crystallization Residuals

Like the other technologies, crystallization ZLD does not make TDS go away, but instead leaves a large quantity of residuals to be managed. Depending on the influent chlorides concentration, a 1,000,000 gpd crystallization plant handling Marcellus Shale brines is anticipated to produce some ***400-520 tons per day (146,000-190,000 tons/year)*** of salt cake.

ZLD technology applied to other industrial wastewater streams would result in various volumes of solids and semi-solids containing salts, sulfates, and other constituents.

What is the Plan for Managing Residuals?

The residual challenge is substantial. Where can it go?

At this point, limited information or analysis is available as to the nature and characterization of such residuals, or whether and how such residuals might be managed. Although there has been some discussion of perhaps PennDOT or other highway organizations taking some of the salt volumes generated from oil and gas brine treatment facilities, to date the composition and characterization of the salt cake has not been fully developed, nor has its suitability for road application been evaluated and confirmed.

For all of the other industries in Pennsylvania, the residuals management issue is even murkier. For RO and evaporator reject water, the Strategy would apparently leave no in-state option. Unless a breakthrough occurs in the development of high-capacity underground injection wells (which seems unlikely), the solution which DEP apparently is assuming is to send it elsewhere – to another state.

As to the solid and semi-solid residuals from crystallization units, one cannot presume that treatment residuals can be readily processed and accepted into existing Pennsylvania landfills. The crystallized TDS cakes and sludges generated by ZLD treatment will themselves be highly soluble, and the potential for the salt in such residuals to re-dissolve when stored, transported, or introduced into landfills (that is, when they may be exposed to precipitation before they are permanently covered) presents a substantial concern to waste management facilities.

The sheer volume of residuals associated with implementing this Strategy should alone be cause for careful review. The Department has provided estimates that some 20 million gallons per day of water will be generated from development of Marcellus Shale wells (although some have noted that value will probably not be approached until fuller development of this formation is forthcoming). Given the estimate that a 1 mgd ZLD facility will generate some 400-520 tons per day of salt cake, the extrapolated production of salt waste from facilities needed to address just the wastewater from full-scale Marcellus Shale development is some 8,000-10,400 tons per day. According to landfill operators, that would be equivalent to almost 20-25% more Pennsylvania generated waste – and that is without counting the TDS residuals produced from treating any other industry's wastewaters.

Landfills already face considerable TDS challenges of their own in their existing leachate management programs. The prospect of thousands of tons of leachable salts being deposited per day may be beyond the tolerance of our existing landfill facilities.

5. The timeframe for implementation of TDS treatment is wholly unrealistic and unachievable.

Apart from the technical and economic feasibility concerns with TDS treatment technology, which are substantial, the timeframe set forth in the TDS Strategy – mandating implementation of such technology for all new or expanded high-TDS sources by January 1, 2011, is unreasonable, arbitrary, and unachievable. Furthermore, applying a new or expanded discharge blanket applicability date of April 1, 2009 is also unreasonable for wastewater generating projects recently completed or in the midst of engineering and/or construction.

Design and Pilot Testing

The wastewater treatment systems required to address the effluent limits listed in the TDS Strategy involve complex and time-consuming design, engineering, pilot testing, and permitting issues. These are not small, off-the-shelf systems. Each system must be custom designed and pilot-tested to ascertain and assure (1) its capability of handling the specific wastewater stream and its constituents (including the range and variation in those constituent concentrations over time); (2) the requirements for pre-treatment to avoid fouling, scaling, or breakdown of the main TDS treatment components (*e.g.*, RO membranes, evaporator tube heat exchanger); (3) the durability of the system components (including any requirements for use of special materials to deal with the corrosive effects of high-salinity or other constituents); (4) an accurate understanding of residuals quantities and characteristics and (5) verification of pretreatment chemistry. Such design and pilot testing work is required as a pre-requisite to developing a basis for design that can be reflected in required permit applications, and equally critical, developing plans for residuals storage, management and ultimate disposition.

Pre-Construction Permitting

The pre-construction permitting of such facilities is also multi-faceted and complicated. Far beyond "wastewater" issues, TDS-treatment facilities engender a myriad of permit requirements at the local, state and federal level. The permitting matrix for a typical evaporator/crystallization plant, for example, involves some thirty or more possible permits, many with significant processes and timeframes. Some typical timeframes for major permits are presented below. These timeframes assume no significant opposition or permit appeals.

(a) Zoning and land development approvals. Timeframes depend on local ordinances, and whether the proposed use in the applicable zoning district is a permitted use or requires either special exception or conditional use hearings. (3-9 months) (*Note: Under PaDEP land use policy, zoning approvals must typically be procured or evidence of consistence obtained prior to submission of PaDEP permits covered by the policy.*)

(b) NPDES permits. (6-12 months, more if TMDLs or load allocations)[10]

(c) Water Quality Management Part II construction permit. Application typically must follow issuance of NPDES Permit. (90-120 days)

(d) Air Quality Plan Approval. Construction permit required for facility involving air emissions or air pollution control equipment, except sources of minor significance. Depending on the heat source for the evaporation/crystallization processes, such a plan approval may well be required. (6-12 months; plus potentially 12 months of pre-application studies if PSD background monitoring and modeling required)

(e) Erosion and sedimentation control plan approvals/NPDES permits for stormwater associated with construction activities, including post-construction stormwater management plans (90-120 days)

(f) Water obstructions and encroachments permits / Clean Water Act §404 permit for stream crossings, outfalls, intakes, and other stream encroachments (180-270 days)

(g) Residual waste

- Beneficial use general permits – *e.g.*, for salt use (200 days for new general permits; 60 days for eligibility determination under existing general permits)
- Residual waste facility disposal permits for landfill or disposal impoundments (24 months or more)

Procurement, Fabrication and Construction

Equipment procurement, fabrication, and facility construction is also time-consuming for such facilities. Due to the special materials required in some key equipment, including corrosive-resistant steel, long lead times are involved in equipment fabrication and delivery. For ZLD evaporation/crystallization, a typical project schedule would involve 12-month equipment manufacturing, followed by 9-12 months for installation and startup commissioning.

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[10] Time frames for permits issued by PaDEP are primarily based on PaDEP's published processing timeframes assuming submission of a complete application. In most instances, technical questions or requests for additional information will extend such a permit review timeframe. *See* PaDEP, *Guide to DEP Permits and Other Authorizations* (2007), available at: http://www.depweb.state.pa.us/dep/cwp/view.asp?a=3&q=461114&depNav=|

Total time

Given the foregoing considerations, realistically, a minimum 30 to 36-month timeframe is involved in development of high-TDS treatment facilities – and that assumes that all design and testing prove that the technology is feasible and that the residuals challenge can be met. That 2.5 to 3-year timeframe has been borne out by the experience of one of the Chamber's members, which recently completed an RO pretreatment unit for one of its facilities; and has been reflected in engineering estimates for other facilities in several industries.

The Environmental Quality Board cannot arbitrarily ignore the realities of such design, testing, fabrication and construction timeframes. A regulatory wand cannot be waved to sweep these issues away. The proposed Ch. 95 rules call for a schedule that appears destined to create a regulatory train wreck.

6. The TDS Strategy leaves a number of serious and unresolved questions in terms of applicability and implementation.

Chamber members who have reviewed the TDS Strategy have posed a number of questions and concerns as to applicability and implementation – issues as to which the Strategy is largely silent. The following are some of those concerns:

(a) Facilities with Multiple Wastewater Streams and Discharges.

The proposed Ch. 95 amendments are unclear on whether high-TDS discharges are determined on an outfall-by-outfall or facility basis. A number of generation and manufacturing facilities have multiple wastewater streams and outfalls, some which may qualify as high-TDS under the definition contained in §95.10 (*e.g.*, greater than 2,000 ppm or 100,000 pounds per day of TDS). How does the rule apply in such situations? Does one add up the total loading of the entire facility (all outfalls), or consider each outfall separately? What happens if a facility has a number of existing high-TDS sources via several existing outfall, and then adds a new separate source (say an FGD-wastewater stream) – do §95.10 limits apply to every outfall at the facility, or only to the new wastewater stream?

(b) High TDS Source Water.

In a number of cases, incoming source water (drawn from streams or regional groundwater) is already high in TDS. Some manufacturing and generation facilities report TDS in source water of greater than the 500 ppm limit imposed by the proposed §95.10. The proposed Ch. 95 rules offer no relief considering such situations – that is, there is no consideration of "net" additions to TDS loading, but rather only a flat concentration based limit.

(c) Penalizing Water Conservation.

As manufacturing facilities pursue increased efficiency in water use, including recirculating cooling systems and recycling of water within manufacturing processes, TDS

concentrations in effluent water are likely to increase. As currently cast, the proposed 95.10 would apparently consider any such increase in TDS concentrations to be a "new or increased" TDS source, triggering application of requirements for TDS treatment. Such an approach that focuses on concentrations, rather than total TDS loading, effectively penalizes those who engage in beneficial water conservation.

(d) Determining Baselines and "Increases" in TDS Concentrations and Loadings.

The proposed Ch. 95 rules do not indicate how DEP will determine the current baseline of TDS concentrations and loadings, or how the Department will ascertain whether a facility has triggered being a "new or increased" high-TDS source. For a range of facilities, data regarding TDS, total chloride and/or total sulfate concentrations and loadings are simply not available, as monitoring and reporting of such constituents is not currently required in many NPDES permits. This situation is similar to the challenge in the Chesapeake Bay watershed, where many industries have historically not been required to monitor for nutrient constituents of total nitrogen and phosphorus. As with the Chesapeake Bay program, without a clear definition and determination of the baseline, facilities cannot know if they trigger the requirements of the Strategy.

This issue is compounded by the present severe recession conditions in our national and global economy. Such economic conditions result in current production levels that are low. Such decreased production, in a number of instances, will result in lower constituent loading as opposed to full-scale production conditions.

Clearly, data will need to be generated and evaluated in order to determine the applicability of any strategy, and these issues must be tackled upfront before the Strategy is put into implementation. Economic conditions resulting in lower production capacity must be considered, and existing facilities should not be penalized (or prevented from returning to normal production) by any such policy. Variations in production levels must be taken into consideration in defining the baselines.

(e) Stormwater Runoff Considerations.

Stormwater runoff (both point and non-point sources) may be a source of high TDS in the Monongahela River and other streams. However, the proposed regulations do not discuss how stormwater will be accounted for and addressed.

7. As significant changes in the proposal are inevitable, the process for moving forward should include a re-publication of proposed rulemaking or at least an advanced notice of final rulemaking.

The Department has indicated in meetings with the TDS Stakeholders Group that any final TDS rule may well be different than the current proposal, potentially significantly different. The Chamber, therefore recommends that DEP consider either re-issuing a proposed

rule for public comment, or publishing an Advanced Notice of Final Rulemaking ("ANFR") for a 30-day public comment period. While the Chamber fully recognizes that the Department is under no legal requirement to provide opportunity for comment on final rules if no substantive changes are made, it appears that this will not be one of those situations. Since the proposed Chapter 95 rule has gone through a substantive stakeholder review and input process, and there is considerable statewide interest in this rule and the TDS issue overall, the Chamber believes that it would best serve the public interest to publish an ANFR, if not a revised proposed rulemaking, so the regulated and environmental communities have an opportunity to review and provide feedback on DEP's changes.[11]

8. TDS management should realistically address the instream needs and requirements of particular Pennsylvania streams, adopting a targeted watershed approach.

The Chamber believes that the more appropriate way to address the "TDS issue" is to focus on the instream and downstream uses to be protected, and to establish a framework for developing management arrangements that consider particular conditions on watersheds that face a potential TDS challenge. One size does not fit all streams.

The Chamber believes that a watershed-based approach, including many of the concepts discussed by the TDS Stakeholders Group, warrants serious consideration. That approach would identify target watersheds based on a scientifically valid evaluation of actual and projected loadings from point and non-point sources, and their impact on the assimilative capacity of watersheds. That evaluation would include a combination of information from the water quality monitoring network together with NPDES permits, DMR data, permit applications and other information sources. Where baseline plus trend data indicate that TDS, Sulfate and/or Chloride loadings are anticipated to exceed a trigger percentage of the watershed's assimilative capacity under low flow ($Q_{7\text{-}10}$) conditions, the watershed would be identified as a "Target Watershed." In each Target Watershed, the Department would develop and implement a Watershed TDS/Sulfates/Chlorides Management Plan ("Watershed Management Plan") that (i) would identify the significant sources and loadings of TDS and/or Chlorides (as applicable); and (ii) provide coordinated, targeted and timely actions to avoid exceedance of the assimilative capacity. Working with stakeholders in each watershed, the Department would develop a plan that could consider and utilize a variety of "tools" to address the particular TDS challenges in each such watershed.

In framing such a watershed-based approach, the Department should consider a more flexible approach to regulating TDS and constituent discharges, considering assimilative capacity under differing flow conditions. It appears that certain types of discharges to potential

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[11] The Department recently embraced this approach when it published an ANFR for changes to the Administration of the Water and Wastewater Systems Operators' Certification Program in the January 23, 2010 Pennsylvania Bulletin (40 Pa. Bulletin 560).

Target Watersheds may be interruptible or significantly curtailed. That is, the wastewater generating activities are of a type that can be reduced or suspended for a period of time, or wastewaters may be held in storage or diverted to other watersheds, when the Target Watershed is experiencing low-flow conditions and attendant TDS concerns. Examples of potentially interruptible or managed discharges include (i) discharges from some deep mines, where AMD may be held back and stored in mine pools; (ii) certain oil and gas produced fluids, which may be stored in tanks or impoundments at or near the well drilling site or diverted to other treatment facilities for some time period; and (iii) some power plant scrubber operations. We believe that a process that allows for such managed discharges would provide a more cost-effective and efficient means of protecting a number of the potential Target Watersheds.

Again, the concepts discussed at the TDS Stakeholders Group merit serious attention, as they offer opportunities to address the TDS issues in a much more focused and effective manner. We look forward to continuing to work with the Department in examining, refining and pursuing such better approaches.

Sincerely,

Gene Barr,
Vice President, Government & Public Affairs

Cc: The Honorable Camille George
The Honorable Scott Hutchinson
The Honorable Mary Jo White
The Honorable Ray Musto
Independent Regulatory Review Commission

West Virginia Coal Association
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July 19, 2010

Ms. Kathy Cosco
West Virginia Department of Environmental Protection
Public Information Office
601 57th Street SE
Charleston, WV 25304
Via electronic mail: Comments@wv.gov.

Re: Comments on 2011 Proposed Revisions to Water Quality Standards Rule

Dear Ms. Cosco:

Pursuant to the notice published in the State Register by the West Virginia Department of Environmental Protection (WV DEP), the West Virginia Coal Association (WVCA) offers the following comments and observations regarding the agency's proposed revision of water quality standards rule.

The West Virginia Coal Association (WVCA) is a non-profit state coal trade association representing the interests of the West Virginia coal industry on policy and regulation issues before various state and federal agencies that regulate coal extraction, processing, transportation and consumption. WVCA's producing members account for 85 percent of the Mountain State's underground and surface coal production. WVCA also represents associate members that supply an array of services to the mining industry in West Virginia. These include coal transportation companies, engineering firms,

mining equipment manufacturers, coal consumers and land holding companies. WVCA's primary goal is to enhance the viability of the West Virginia coal industry by supporting efficient and environmentally responsible coal removal and processing through reasonable, equitable and achievable state and federal policy and regulation.

WVCA appreciates the opportunity to provide these comments regarding contemplated changes to the state's water quality standards rule to the WV DEP.

GENERAL COMMENTS

With this most current rulemaking initiative, WV DEP has continued a long, frustrating tradition of adopting water quality standards and limits that have no parallel in surrounding states. Worse still, the agency has continued its long-standing, illegal regulatory treatment of all waters of the state as public drinking water supplies, despite multiple legislative reprimands that such a designation DOES NOT exist within the State of West Virginia. Accordingly, the bulk of our comments will focus on the agency's proposed Total Dissolved Solids (TDS) standard for public drinking water supplies.

Additionally, WVCA remains convinced there is valid, convincing rationale to revise other standards, yet WV DEP has chosen to pursue unjustified, misplaced measures like the above-referenced TDS proposal. WVCA also offers comments and

observations on the interpretation and implementation of the current version of West Virginia's narrative water quality standard.

SPECIFIC COMMENTS

Proposed TDS Standard for Drinking Water Sources

WV DEP has proposed to include a TDS limit of 500 mg/L for all "Category A" waters. While innocent enough at first glance (although totally lacking the adequate justification necessary to justify a water quality standard), the agency's persistent and unsanctioned designation of all waters of the state as public drinking water supplies transforms this proposal to a *de facto* aquatic life use standard that would cripple development and industry within our borders. Further, as the agency itself has admitted, no other state nor the federal Environmental Protection Agency (EPA) has chosen to adopt a TDS standard as stringent as the one currently proposed by WV DEP.

TDS is not a parameter in and of itself. It is instead a collective measure of all substances that can be passed through a certain size filter. Because of its "collective nature", TDS cannot predict toxicity to human or aquatic life- that requires an analysis of the individual parameters of the TDS. Measurements of TDS cannot necessarily predict impacts to the aesthetic qualities of drinking water which are the very basis for the EPA recommended secondary, non-enforceable federal standards. The very fact that TDS

measurements cannot indicate impacts argues against its adoption as a set water quality standard and for the parameter specific approach needed to identify the possible impact causing constituents of the TDS. Perhaps this is why so many other states and the federal government have not adopted TDS standards. Limits for TDS act as nothing more than surrogates for other parameters. If water quality could be regulated through the adoption of such surrogates, then there would be no need for the water quality standards program of West Virginia at all, we could simply adopt the surrogate number and dispense with the measurement of individual parameters.

WV DEP's sole justifications for proposing the TDS standard are derived from National Secondary Drinking Water Act Regulations maintained by EPA coupled with one-time, drought induced occurrences of extremely high TDS in certain West Virginia waters. Regarding EPA's regulations, WV DEP has chosen to ignore the reality that these regulations are established by EPA to address constituents "that primarily affect the aesthetic qualities relating to the public acceptance of drinking water."[1] EPA's regulations also provide the states with the clear latitude to adopt other TDS standards, or as most other states have done, adopt no regulations at all:

[1] *See generally* 40 CFR 143.1

> these levels represent reasonable goals for drinking water quality. The States may establish higher or lower levels which may be appropriate based dependent on local conditions...[2]

Additionally, EPA's Secondary Drinking Water Regulations at 40 CFR 143.1 explicitly state that "the regulations are not federally enforceable but are intended as guidelines for the states." Thus, there is NO federal mandate from EPA requiring West Virginia to adopt the TDS limit proposed in the current rulemaking initiative.

WV DEP's other motivation to adopt this TDS standard is apparently based on recent, drought-induced high TDS levels observed in the Monongahela River. Unfortunately, instead of seeking to address the SPECIFIC instances related to these occurrences, WV DEP has taken its typical, knee-jerk response to any water quality issue and rushed to propose a statewide water quality standard. The agency has done so without any consideration of the specific circumstances surrounding these occurrences such as severe drought conditions. Proof of this point can be found in none other than the conditions that apparently warranted the TDS in the first place. The TDS conditions that raised concerns along the Monongahela River have apparently been corrected by a return to more normal rainfall amounts and tributary flows, not by the imposition of a hastily-devised, draconian water quality threshold.

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[2] *See generally* 40 CFR 143.3

The proposal of the TDS is particularly perplexing when considered along with the agency's illegal treatment of all waters of the state as public drinking water supplies. As we noted in earlier statements and will address detail in subsequent paragraphs, there is NO legal, regulatory or legislative basis for the agency to look on all waters of the state as though they serve as drinking water supplies. However, the agency has elected to proceed down that path and the practical implications of the TDS standard based on that presumption must be addressed.

By virtue of its warped interpretation of West Virginia's Category A use designation, WV DEP's proposed TDS standard will apply everywhere, to all "waters of the State", regardless of how remote and flow-inhibited those waters may be. By extension, the TDS would apply to all activities, regardless of how distant they are from a true public drinking water intake, or how remote the possibility that, no matter how high of a TDS load is discharged from that activity, any impacts could ever be observed from that discharge on a drinking water intake. Consequently, the agency must adequately consider the economic impacts of such a standard, which would devastating. Elevated TDS concentrations are routinely observed below all man-induced and some natural occurrences that result in earth disturbance. From construction, development, underground and surface mining to natural erosion and landslides, TDS levels will

increase downstream of these activities and likely above the agency's proposed standard. If adopted, the proposed standard would require the installation of treatment technologies to address these above-mentioned discharges. Such treatment solutions DO NOT exist from either a practical application or economic feasibility standpoint. This is precisely the reason that federal categorical effluent limitations guidelines DO NOT contain Best Available Technology or New Source Performance Standards relative to TDS. While novel, capital and energy intensive technologies such as reverse osmosis could theoretically address TDS, these "solutions" carry with them their own set of complications relative to water quality and waste stream handling and are remarkably expensive to install and operate. Requiring a discharge, no matter how small or large in nature, to meet a secondary, non-enforceable standard that is being advocated for adoption based on isolated, natural drought conditions to install this technology is ludicrous. The only way to insure protection of the TDS standard proposed by the agency is not to disturb rock and soil. In the steeply-sloped terrain of West Virginia, if economic activity is to be sustained or increased, land will have to be developed, roads constructed, minerals extracted and public infrastructure installed. All of these activities will result in increased TDS loads. Given the practical and economic realities of TDS "treatment", it is safe to assume that most prospective projects would simply be cancelled

rather than seeking to conform to the TDS standard through the application of costly and complicated TDS treatment technology. Thus, the proposed TDS standard, if adopted and applied to all waters of the state as proposed by the agency, would chill prosperity within West Virginia.

The economic and practical effects of the agency's proposed TDS standard deserve even more consideration in light of the confines on the agency's rulemaking authority. In the authorizing statute for WV DEP, the West Virginia Legislature has established "thresholds" for the agency as it regards promulgation of rules and regulations:

> ...legislative rules promulgated by the Director...may include provisions which are more stringent than the counterpart federal rule or program to the extent that such provisions are reasonably necessary to protect, preserve or enhance the quality of West Virginia's environment or human health or safety, taking into consideration the scientific evidence, specific environmental characteristics of West Virginia or an area thereof, or stated legislative findings, policies or purposes relied upon by the director in making such determination. In the case of specific rules which have a technical basis, the director shall also provide the specific technical basis upon which the director has relied. [3]

The proposed TDS standard FAILS to satisfy this legislative restriction on several levels. First, the agency has not, beyond the specific instances in one water course, demonstrated

[3] West Virginia Code 22-1-3a.

why such a restrictive standard should apply to all waters, flunking the first threshold that such provisions are "necessary" to protect all West Virginia waters. Second, WV DEP has neglected to provide a "specific technical basis" for the imposition of the TDS standard.

Beyond the existence of a non-binding, non-enforceable secondary federal standard and the previously-mentioned drought induced conditions on the Monongahela River, WV DEP has not even attempted to address this portion of the legislative restriction on its rulemaking ability. WVCA believes this is because no "technical basis" exists that could ever justify the imposition of a limit for TDS or any parameter that would result in such economic and industrial turmoil for virtually no environmental or health and safety benefit.

The overly restrictive nature of the proposed TDS standard also violates the very intent of the statute under which it is being proposed, the West Virginia Water Pollution Control Act (WVWPCA). In creating the Act, the West Virginia Legislature observed in its Declaration of Policy:

> It is declared to be the public policy of the state of West Virginia to maintain reasonable standards of purity and quality of the water the state consistent (1) public health and public enjoyment thereof; (2) the propagation and protection of animal, bird fish, aquatic and plant life; and (3) the expansion of employment opportunities, maintenance and expansion

> of agriculture and the provision of a permanent foundation for healthy industrial development.[4]

The TDS standard proposed in the current rulemaking initiative is not a "reasonable standard of purity and quality" and certainly will not promote "healthy industrial development" that is necessary or consistent with "the expansion of employment opportunities." Instead, it is the very antithesis of these stated goals and policy- one that is not necessary to protect or enhance the public health and welfare and at the same time will needlessly discourage development and investment. The TDS standard CANNOT comport with the Legislature's stated Policy in the WVWPCA. The proposed TDS limit cannot factually satisfy the thresholds applied to the WV DEP's rulemaking authority, even if the agency had bothered to try to address those restrictions at all. For these reasons alone, the TDS standard as proposed should be deleted from the proposed rulemaking initiative.

The WV DEP Advisory Council, statutorily charged with reviewing rules proposed by the agency, recognized the adverse impacts that could result from the adoption of the TDS standard that would apply to all waters. At a meeting of the Advisory Council on May 27, 2010 to specifically discuss the proposed water quality standards rule, members of the Council voted to formally recommend the agency revise

[4] West Virginia Code 22-11-2.

the proposed standard so it applied ONLY at the point of intake for a public drinking water supply.[5] The recommendation by the Advisory Council is supported by the regulatory and administrative history of water use designation in West Virginia. More appropriately stated, the current status of use designation in West Virginia makes the Advisory Council's recommendation the only legal, legislatively-supported interpretation the agency can take relative to the application of human health criteria. Application of human health criteria, including secondary, non-enforceable standards is routinely done at the point of intake for a public drinking supply as demonstrated by the standards adopted by surrounding states.

Use Designation in West Virginia and the Proposed TDS Standard

West Virginia's water quality standards, like those of virtually all other states, establish allowable in-stream concentrations of various criteria depending on the "use" served by a given water body. These standards also recognize and define allowable "uses" to which the criteria apply. West Virginia's federally approved water quality standards, codified as 47 CSR 2, provide that all waters of the state are considered to serve as Category B/aquatic life use and Category C/water contact recreation use. Simply put, West Virginia's water quality standards default all

[5] *See generally* Environmental Protection Advisory Council Meeting Minutes- May 27, 2010.

streams to Category B/aquatic life use or Category C/water contact recreation use. The historical intent of these regulations is crystal clear when the rulemaking history of the West Virginia Environmental Quality Board (EQB), which once had rulemaking responsibilities for water quality standards, is examined along with the legislative history of the EQB's proposals. Despite the actions of WV DEP with respect to assigning Category A/public drinking water supply effluent limits to all state streams, the approved regulations are clear and unambiguous:

> These rules establish general Water Use Categories and Water Quality Standards for the waters of the State. Unless otherwise designated by these rules...all waters of the State are designated for the Propagation and Maintenance of Fish and Other Aquatic Life (Category B) and for Water Contact Recreation (Category C) consistent with Clean Water Act goals...[6]
>
> Category A-- Water Supply, Public. – This category is used to describe waters which, after conventional treatment, are used for human consumption...[7]

The intent of the above-cited provisions was clearly articulated by the EQB in its 1986 rational document supporting the current language regarding use designations: [a]bove all, [the EQB members] agreed that **the category and criteria for public water supplies**

[6] WV 47 CSR 2-6.1
[7] WV 47 CSR 2-6.2.

should not be applied to stream or stream segments where no one is using the waters for drinking.[8]

In response to the regulatory confusion created by WV DEP's flawed belief that all waters of the state are Category A/public drinking water supplies, On March 21, 1999 the West Virginia Legislature passed House Bill 2533. Signed into law by the Governor on April 2, 1999, the bill authorized the EQB's water quality standards to remain in place until October 1999, with the condition that:

> ...the Environmental Quality Board shall review, revise and propose, within this statutory deadline, and in accordance with the provisions of chapter twenty-nine-a of this code, emergency and legislative rules to address interpretive differences regarding the designation of category A waters and analyze the need for distance prohibitors for the policies of public drinking water intake...[9]

In response to the directive of House Bill 2533, the EQB promulgated an emergency rule in October 1999 in which it proposed classifying all waters of the State as Category A/public drinking water supplies. "The proposed amendment clarifies that all waters of the State are protected by the drinking water supply

[8] State Water Resources Board of West Virginia, Rationale Document for Revision of Legislative Rules. January 6, 1986.
[9] Enrolled Committee Substitute for House Bill 2533.

designated use category..."[10] The emergency rule was filed with the Secretary of State and was effective pending approval or disapproval by the West Virginia Legislature.

In February 2000 EPA responded to an inquiry from Senate Judiciary Chair William Wooten regarding statewide designation of Category A/public drinking water supply use as proposed in the October 1999 emergency rule that was know being considered by the Legislature. The federal agency acknowledged that the October 1999 emergency rule constituted a change to West Virginia's approved water quality regulations that would require EPA approval:

> The Environmental Protection Agency understands that the Environmental Quality Board has **proposed** to designate all waters of West Virginia as public drinking water supply... We hope that this letter provides West Virginia with a better understanding of what EPA Region III would expect **should West Virginia decide to pursue a statewide re-designation of Category A.**[11]

Shortly after receiving EPA Region III's letter, the West Virginia Legislature rejected the re-designation of all waters as Category A/public drinking water supplies: "The emergency rule relating to the environmental quality board...filed in the state

[10] October 18, 1999 Notice of an Emergency Rule filed by the EQB.
[11] Letter dated February 12, 2000 from John V. Pepino, EPA Region III Associate Director- Office of Watersheds to Senator William Wooten.

register on the eighteenth day of October, one thousand nine hundred ninety-nine...is repealed and not authorized".[12]

Ignoring the mandates of the democratically-elected Legislature, WV DEP and the EQB continued their efforts to bootstrap the Category A/public drinking water supply use designation to all waters of the state. In July 2001, a WV DEP representative stated that his agency "is going to continue its position [regarding Category A application in NPDES permits] unless directed to do otherwise by the [Environmental Quality] Board."[13] Subsequently, the EQB declined to again pursue a rule change that would designate all waters as Category A/public drinking water supplies. Instead the EQB advanced a procedural rule regarding Category A use removal procedures that endorsed WV DEP's illegal position regarding Category A/public water supply:

> The current implementation of Category A by the Division of Water Resources of the [DEP] in the [NPDES] permitting program is that the designated use [of Category A Public Water Supply] applies to all waters of the state, unless it has been removed specifically by the Board. The Board supports this interpretation and application of the Public Water Supply use.[14]

Properly noting that the procedural rule rested on the false premise that all streams had already been designated by legislative rule as serving a Category A/public drinking water

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[12] Enrolled Committee Substitute for House Bill 4223.
[13] *See generally* July 7, 2001 article appearing in the Charleston Gazette.
[14] See "Statement of Circumstances Requiring Proposed Rules." Filed by the EQB on September 17, 2002.

supply use, the West Virginia Legislature Rulemaking Review Committee rejected the procedural rule.[15]

Perversely, WV DEP continues to thumb its nose at the will and intent of the Legislature by designating all West Virginia streams as Category A/public drinking water supplies. The inherent danger of this flagrant disregard has never been more clearly demonstrated than it is by the current proposal regarding TDS. The agency presents a proposed standard to the public via the rulemaking process that is described to apply to public drinking water intakes. Yet, by way of the agency's own illegal actions with respect to use designation, the TDS standard will actually become applicable everywhere and to virtually every activity. Conveniently, WV DEP omitted any discussion of the agency's application of Category A limits to all state waters in its rulemaking proposals and only admitted as much in response to direct questions at Advisory Council and public meetings. WVCA maintains that such actions by the agency represent a clear willingness to disguise from the public and the Legislature the true applicability and risk related to adoption of the TDS standard. As we already described, the impacts to the West Virginia economy that will result from the adoption of a standard that cannot even be justified for public intake protection, much less all waters of the state, will be devastating.

[15] See generally 2003 letter from Legislative Rulemaking Review Committee to Edward Snyder, Chair, EQB.

To adopt such a standard knowing that it will apply everywhere and severely alter the economic future of West Virginia is nothing short of regulatory recklessness. If WV DEP does not modify application of the TDS standard as recommended by the Advisory Council or delete it entirely, WVCA believes the agency is required by statute to initiate an entirely new rulemaking that truthfully and accurately describes the applicability and reach of the TDS standard to all waters and virtually all activities.

Further evidence of the preposterous nature of WV DEP's proposed TDS standard can be found by reviewing the application of human health water quality standards in other states. The Ohio River Valley Water Sanitation Commission (ORSANCO), which establishes water quality standards for the Ohio River, recently reviewed the manner in which EPA-approved state water quality standards addressed or defined public drinking water uses. It found as follows:

> In Ohio, designated uses are provided in Chapter 3745-1-07 of the Ohio Administrative Code. Section (B)(3)(a) designates that all surface waters within <u>five hundred yards of an existing public water supply surface water</u> shall be classified as 'Public Water Supply.'
>
> All streams in Kentucky (401 Kentucky Administrative Regulations 5:026) are designated for warm water aquatic habitat and primary and secondary contact recreation. The designation for domestic water supply is applicable <u>only at points of intake</u>.

The Illinois Administrative Code (Title 35, Section 303.202) dictates that 'waters of the State shall meet the public and food processing water supply standards . . . at any point at which water is withdrawn for treatment and distribution as a potable supply or for food processing.'

Indiana proscribes definitions very similar to those in Illinois. The Indiana Administrative Code (327 IAC 2-1-3 states: 'Surface waters of the state are designated for full-body contact recreation . . . (and) All waters . . . (except where exempt) will be capable of supporting a well-balanced, warm water aquatic community . . . All waters which are used for public or industrial water supply must meet the standards for those uses at the points where the water is withdrawn

With respect to the proposed TDS standard, WVCA believes, as illustrated in the proceeding comments that the scientific justification for adopting such a standard only for public drinking water intakes is lacking. Even if the adoption of such a standard was defensible, the practical reality of its application will reach beyond just drinking water intakes and apply to all waters of the State, becoming a *de facto* aquatic life use standard for which there is absolutely NO justification. This practical application results from the agency's distorted interpretation of use designation in West Virginia and its continued disregard for the will and intent of the Legislature. Additionally, WV DEP has purposely omitted a discussion of the proposed TDS standards' applicability under the agency's selective interpretation of Category A use designation, effectively shielding the dramatic impacts of the TDS standard from public and legislative scrutiny. Disguising a proposed rule to be something it is not betrays the very purpose of a public comment and review process and deprives the Legislature of its reserved right to review agency-proposed rules as part of rulemaking review. For these reasons, WVCA believes deletion of the proposed TDS standard is the only resolution of the proposed limit that is reasonable, faithful to the statutes governing WV DEP's rulemaking authority, consistent with the Legislature's statement of public policy as articulated in the WVWPCA and that body's clearly articulated statements relative to application of Category A use designation. Absent deletion of the proposed

TDS standard in its entirety, the only workable modification for West Virginia's economy and environment would be to modify the proposed standard as recommended by the Advisory Council on May 27, 2020 so that it applies ONLY at the point of intake for a public drinking water supply.

Water Withdrawal Activities

WV DEP has proposed to modify the rule governing "conditions not allowable in state waters" to include within its scope "certain water withdrawal activities." Such a revision would expand the scope and applicability of the water quality standards program in such a way that was never intended by the Legislature. For example, the state's water quality standards rule regulates ***DISCHARGES*** to waters of the state:

> **These rules establish requirements governing the discharge** or deposit of sewage, industrial wastes and other wastes into the waters of the state and establish water quality standards for the waters of the State standing or flowing over the surface of the State (emphasis added).[16]

Further proof the Legislature intended the water quality standards program to apply to discharges is provided by the passage of legislation to specifically address water withdrawals. Several years ago the Legislature established the Water Resources Protection and Management Act and WV DEP has been actively collecting data relative to water consumption pursuant to that statute for several

[16] 47 CSR 2.1.1

years. Rather than proposing to regulate water withdrawal under the terms and conditions of the statute specifically written to address those issues, WV DEP proposes in this rulemaking to expand the scope of the water quality standards program. Further, the agency has failed to make the required demonstration required under West Virginia Code 22-1-3a for new rules and regulations. Such a demonstration would be particularly noteworthy in this instance since the agency has ignored a statute specifically designed to address water withdrawal activities in favor of revising the water quality standards rule.

WVCA believes this proposed revision is yet another example, much like their uses of the Category A use designation, of the agency substituting its own philosophy and judgment for that of the Legislature and recommends the agency delete the proposed language from the current rulemaking proposal.

Algae Blooms

WV DEP has proposed to further extend the scope of "conditions not allowable" to include algae blooms. Just as it has with many of the proposed revisions in the current rulemaking initiative, the agency has not adequately justified the need for this provision beyond the existence of certain site and condition specific instances. The agency has also failed to demonstrate how its current water quality standards program does not provide it with the regulatory tools necessary to address these instances, leaving one to conclude it is rulemaking only for rulemaking's sake in violation of limits of its authority under West

Virginia Code 22-1-3a. WVCA recommends the agency delete the proposed revision.

Narrative Criteria Interpretation

While the agency has not proposed revisions in the current rulemaking effort regarding interpretation and application of the narrative criteria, WV DEP is in the process of developing a policy on this issue. While WVCA has previously provided comments during a "public input" period on this interpretative policy, this issue is of such paramount importance to mining industry in West Virginia that WVCA is compelled to restate some of its concerns during this public comment period.

The WVCA has a significant interest in the issue of narrative criteria as a result of what it believes to be an ongoing effort by EPA to impose a number of its own new interpretations of long-existing federal law to existing state laws – clearly an exercise in over-reaching by a federal agency. In the WVCA's view, EPA is pressing West Virginia to impose limitations that we believe it would have no legal basis to impose itself.[17] And EPA presses forward, impeding all coal permitting in the State, to the detriment of each and every WVCA member, their employees, and to the economy of the State.

[17] Indeed – a quick review of permits issued by the EPA (in jurisdictions where the EPA is the permitting authority instead of a state) reflect direct inconsistencies with what EPA is insisting be adopted by WVDEP to implement narrative criteria.

WVCA believes that EPA, as expressed in its many letters to the WVDEP and the United States Army Corps of Engineers (Corps) related to permitting matters for coal mining, has incorrectly and inappropriately used its own interpretation of West Virginia's narrative standards. In many letters to the Corps, for example, EPA used an unapproved benthic macroinvertebrate review method – not used in West Virginia – as well as an *ad hoc* conductivity level of 500 uS/cm or less as a basis to conclude that water quality standards were not being met. The letters represent not only a new interpretation by the EPA, but a wrong application of state law by the EPA. As you know, the EPA cannot simply impose its own preferred biological threshold to interpret a state's narrative standard. As EPA has conceded in connection with the standards and listing litigation in Florida, doing so would be a *de facto* change in standards subject to the full-blown CWA 303(c) process. As the WV DEP knows, this process governs the review and revision of water quality standards by States and, where necessary, EPA. Neither West Virginia nor EPA has established numeric criteria for conductivity or biological translator procedures for the existing narrative standard. If EPA believes that such criteria or procedures are necessary to meet the requirements of the Clean Water Act, then the federal agency's only recourse is to prepare and publish proposed regulations under CWA 303((c)(4). Unless and until such steps are taken, it remains the duty of the WV DEP to interpret and apply its own statutes and rules.

Instead of following this statutory mandate, EPA has spent the better part of 2009 relying on its own staff study – the full data for which has yet to be provided to the public pursuant to Federal Freedom of Information Act requests - and has simply demanded that the Corps and WV DEP make regulatory findings and decisions – including the use of its macroinvertebrate and conductivity conclusions – without use or consideration of other available data and information that would surely be considered in any of the required regulatory processes.

WVCA strongly disagrees with this approach being taken by the EPA to date. State rule interpretation is the singular role of the state and its appointed agency – and NOT the EPA or any other federal agency. The WV DEP must "run its program," including interpretation and implementation of its EPA-approved narrative criteria.

As previously noted in our comments regarding the proposed TDS standard, the West Virginia Legislature, in passing the WVWPCA, recognized that environmental protection must be balanced with the need to promote and facilitate industrial development:

> It is declared to be the public policy of the State of West Virginia to maintain reasonable standards of purity and quality of the waters of the State consistent with (1) public health and public enjoyment thereof; (2) the propagation and protection of animal, bird, fish, aquatic and plant life; and (3) the expansion of employment opportunities, maintenance and expansion of agriculture and the

> provision of a permanent foundation for healthy industrial development.[18]

From this statutory mandate and declaration of public policy, WV DEP has developed designated uses and established narrative and numeric standards to protect those designated uses consistent with the federal Clean Water Act and regulations promulgated EPA:

> 47 CSR 2-3 Conditions Not Allowable in State Waters[19]
>
> No sewage, industrial wastes or other wastes present in any waters of the state shall cause or materially contribute to any of the following conditions thereof:
>
> ****
>
> 3.2.i. Any other condition...which adversely alters the integrity of waters of the State including wetlands; no significant adverse impact to the chemical, physical, hydrologic, or biological components of the aquatic ecosystem shall be allowed.

The Legislature's statement of public policy in the WVWPCA should serve as the basis for any interpretative/implementation policy for the narrative standards, as well as guidance from EPA and prior policy statements of WV DEP.

First, implementation and interpretation of the state's narrative standards must be faithful to the previously-cited intent of the Legislature as expressed through passage of the WVWPCA- that environmental protection be balanced against the need to promote "industrial development and the "expansion of employment opportunities" through "**reasonable standards of purity and**

[18] W.Va. Code 22-11-1(a).
[19] The full section on narrative criteria is set forth at 47 CSR 2-3.

quality". The policy statement on its face clearly contemplates that industrial development and employment opportunities are desired and expected to occur, and that standards of quality and purity are to be balanced such that those activities can occur. Implicit is the notion that these human activities will result in some level of impact to the environment – thus the need for a proper balance.

Consistent with the State's express policy, WVCA believes that a reasonable interpretation of the narrative criteria must start with the premise that conditions within a stream (or other water) may change, either naturally or as a result of human impacts. Further, changes can and will occur from industrial and other human activities that do not necessarily represent water impairment or failure to attain a stream's designated use. Changes will also occur within a stream due to natural influences.

To give proper effect to state law and maintain consistency with the federal CWA, an interpretation of narrative criteria should start by defining what it means to protect aquatic life, and more specifically aquatic ecosystems. The definitions must balance quality with the preservation and expansion of agriculture, jobs, and industry in order to achieve a "reasonable standard of purity and quality." A narrative standard of purity and quality that requires protection of aquatic life at

the expense of jobs, industry and agriculture – absent a specific federal ***law requiring it***[20] – fails to achieve this balance.

The WVDEP has in the recent past expressed its interpretation of certain aspects of the state's narrative standards. In June 2009, for example, during a hearing before the U.S. Senate Committee on Environment and Public Works, Subcommittee on Water and Wildlife, WVDEP Secretary Randy Huffman testified that:

> [w]ithout evidence of any significant impact on the rest of the ecosystem beyond the diminished numbers of certain genus of mayflies, the State cannot say that there has been a violation of its narrative standard. [21]

In July 2009, WVDEP stated as follows:

> The WVDEP understands that [EPA] found a shift in the benthic macro invertebrate community downstream from mining activity but did not otherwise correlate this finding with any significant or adverse impairment of the ecosystem. Where the only impacts to this component of the ecosystem are diminished numbers of certain genera of mayflies, without evidence that this has had any adverse impact of any significance on the rest of the ecosystem, the State cannot say there has been a violation of its narrative standards. [22]

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[20] Here, we recognize that the EPA – as well as numerous environmental groups – have made many pronouncements, demands, suggestions, and comments regarding conductivity and "benthic macroinvertebrates," or bugs. Such pronouncements, comments, and "bluster," though, are not federal laws – and will not be found in either the CWA or promulgated regulations. Further, no state or federal criteria for conductivity exists, and efforts to develop an "advisory criteria" appear to have absolutely no legal basis.

[21] See Testimony of Randy C. Huffman, Cabinet Secretary, West Virginia Department of Environmental Protection, to U.S. Senate Committee on Environmental and Public Works, Water and Wildlife Subcommittee, June 25, 2009.

[22] See letter dated July 10, 2009 from Randy C. Huffman, West Virginia Department of Environmental Protection to Colonel Dana R. Hurst, U.S. Army Corps of Engineers, Huntington District.

WVCA would anticipate that any interpretative or implementation policy developed by the agency would be consistent with these statements and seek to protect the aquatic ecosystem as a whole, incorporating all of its components. Such an approach would be consistent with both state and federal requirements for protection of designated uses.

WVDEP has used biological assessment tools, specifically the West Virginia Stream Condition Index (WVSCI), in making determinations of water quality "impairment" under Section 303(d) of the federal CWA. EPA and others have, or likely will point to the existence of this assessment tool and determinations of impairment as an appropriate method for interpretation and implementation of the state's narrative standards. We disagree.

The WVSCI has been the source of complaints and concerns for as many years as it has been in use by the WVDEP, and it is of particular concern that the WVDEP seems to have slowly expanded its uses of and reliance on the WVSCI. The WVCA does not believe that the WVSCI is an appropriate basis for measuring the protection of aquatic life or of aquatic ecosystems. Evaluation of an aquatic ecosystem must include evaluation of various components – not simply a single look at benthic macroinvertebrates. While the WVSCI may be useful as an assessment tool, it is NOT a "biological criteria" and has never been adopted by the West Virginia Legislature as such. Any reliance on this assessment tool as if

promulgated as a State water quality standard is in error. This indisputable fact has been acknowledged by WV DEP in official communications to EPA regarding the narrative standards of West Virginia. Addressing the use of WVSCI, which the agency refers to as a "tool", WVDEP has stated:

> ...these tools are just that, tools. They are not stand alone determinants of compliance with the narrative criterion. Any application of these assessment tools in determining compliance with the narrative criterion must faithfully apply the language of the standard itself, which prohibits significant adverse impacts on the biologic component of the aquatic ecosystem.[23]

WVSCI cannot serve as a "stand alone determinant of compliance with the narrative criterion." The WVDEP, consistent with Legislative intent, must instead consider impacts to the aquatic ecosystem as a whole.[24]

For this, the WVSCI is inadequate. Among other limitations, the WVSCI does not consider habitat, is not suitable for use in very high-gradient streams and is not designed for use in non-flowing streams. While the WVSCI may be a useful "tool" to WV DEP[25], it does not and cannot be the sole consideration of compliance with the narrative standard.

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[23] See letter dated July 10, 2009 from Randy C. Huffman, West Virginia Department of Environmental Protection to Colonel Dana R. Hurst, U.S. Army Corps of Engineers, Huntington District.

[24] [24] See Testimony of Randy C. Huffman, Cabinet Secretary, West Virginia Department of Environmental Protection, to U.S. Senate Committee on Environmental and Public Works, Water and Wildlife Subcommittee, June 25, 2009.

[25] Improper use and application of the WV SCI, particularly with respect to stream listing decisions undertaken by WV DEP pursuant to Section 303(d) of the CWA, has generated significant concerns regarding the assessment tool. These concerns have resulted in a Notice of Intent to Sue WV DEP by the West Virginia Coal Association regarding the agency's continued reliance on the WV SCI.

Selenium Criteria

Although it is not part of the current rulemaking initiative, WVCA believes the agency should contemplate revisions to the current standards for selenium. An ever-growing body of scientific evidence and data confirms that continued application of the current selenium criteria to West Virginia waters is misplaced and offers no measurable improvement to environmental protection while causing widespread regulatory compliance confusion. The West Virginia Legislature has previously concluded the current federally-recommended selenium limits may not be appropriate for West Virginia:

> The Legislature finds that there are concerns within West Virginia regarding the applicability of the research underlying the federal selenium criteria to a state such as West Virginia which has high precipitation rates and free-flowing streams and that the alleged environmental impacts that were documented in applicable federal research have not been observed in West Virginia... [26]

WVCA recommends the agency actively pursue revisions to West Virginia's water quality standard for selenium.

Iron Criteria

WV DEP has proposed to revise the chronic iron criterion for trout waters. This proposed revision follows an extensive effort by the agency to collect and assemble data to justify the revision. WVCA supports this revision and the scientific analysis that underlies its proposal. Similar efforts should be undertaken

[26] West Virginia Code 22-11-6.

with respect to other water quality revisions. With respect to the iron criteria, WVCA would encourage the agency to further consider the basis and justification for adopting and maintaining the current iron standard in light of considerable research and data collected on this parameter and its occurrence in the region.

Aluminum Criteria

While West Virginia has made great strides in revising its water quality standards for aluminum to more appropriately reflect the true environmentally protective conditions within the state's waters, we would again encourage the agency to monitor and continuously evaluate this particular water quality standard as we believe that research is being conducted in other states that would have a direct bearing on West Virginia's standards.

CONCLUSION

WVCA appreciates the opportunity to offer these comments and observations regarding the agency's current water quality standards rulemaking proposal. As we have noted in our detailed comments, for the most part we believe the proposed revisions are simply unnecessary and do not satisfy the purpose and goals of the WVWPCA nor do they satisfy the restrictions placed on the agency's rulemaking authority by the Legislature. With respect to the TDS standard, its proposal has remarkable ramifications for the economic future of West Virginia yet the agency has shielded that reality from the public and the Legislature by failing to disclose its misplaced interpretation and application of the

Category A use designation in West Virginia. WVCA considers this a serious omission and one that demands, at the very least revision of the proposed standard to apply only at the point of intake for a public drinking water supply, if not its deletion entirely.

Finally, WVCA is convinced that other water quality standards should be revised, or at least considered for revision based on the current level of understanding with respect to these parameters.

Respectfully Submitted,

Jason D. Bostic
Vice-President

Keller, Linda B

From: Cosco, Kathy on behalf of DEP Comments
Sent: Tuesday, July 20, 2010 2:21 PM
To: Keller, Linda B
Subject: FW: Proposed Water Quality Rule

From: Ray Canterbury [mailto:rcanter1@mail.wvnet.edu]
Sent: Monday, July 19, 2010 6:21 PM
To: DEP Comments
Subject: Proposed Water Quality Rule

Gentlemen:

Due to my legislative obligations, I may not be able to attend this evening's public hearing regarding the proposed water quality standard. However, I have some very grave concerns regarding the proposed rule, and I wish to express them in this e-mail. I am including my comments in the form of questions since I have just recently been made aware of this problem and have had relatively little time to do adequate background research on the subject.

First, your proposed rule includes a very low phosphorus loading standard of 10 micrograms per liter for the Greenbrier River. My research suggests that this level is very low when compared to other regions of the country. Specifically, I found a chart that illustrated Minnesota's phosphorus criteria by region, and their allowable levels of P varied from caps of 15 micrograms per liter for drinking water in the Northern LAkes and Forests region to 40 micrograms of P for drinking water in the Western region. Likewise, their allowable levels for swimming varied from 30 micrograms of P to 90 micrograms of P depending on the region of the state. I have inferred from this variation that the state must have some discretion in setting their water quality standards, and so I would assume that we do as well. Is this correct? I can also see that even the most stringent of Minnesota's standards, for the pristine waters in the Northern part of the state, allow significantly higher loading levels than the one you have proposed for the Greenbrier River. How do you justify this?

I hope that you understand that under Federal Water Quality standards municipal waste water treatment facilities are treated as point source polluters. If the water quality standard is set to such a low level, then the result will be more stringent restrictions on municipal wastewater treatment facilities. These restrictions, of course, will place an incredible financial burden on the affected service districts and the people who rely on the wastewater services. Under our present economic circumstances, which show no sign of improving under the misdirection of the current administration, this is simply unacceptable.

I will finish this brief letter by saying that it appears to me that you put very little if any thought into this rule, and that you certainly have not given any thought to the devastating economic affect that this will have on an already stressed region.

Delegate Ray Canterbury

Cosco, Kathy

From: Senator John Shott [john.shott@wvsenate.gov]
Sent: Monday, July 19, 2010 3:38 PM
To: DEP Comments
Subject: Public Hearing regarding Proposed Changes to Water Quality Standards

Recently I was informed of the public hearing tonight to obtain comments regarding the proposed changes to the "Requirements Governing Water Quality Standards" 47CSR2. It is my intention to appear for the hearing, but the Senate is scheduled to reconvene at 5 p.m. this evening, so it is possible I won't be able to attend the start of the hearing. Therefore, I wanted to convey my concerns regarding the affect of the proposed changes to the standards governing the Greenbrier River.

It is my understanding that the proposed reduction of phosphorous concentrations would likely impose substantial costs upon the towns along the Greenbrier River whose waste water treatment systems discharge into the river. Unless there is a significant public health risk that mandates the reduction or there are sufficient funds available to the affected towns to satisfy the costs of compliance without imposing any financial burden on the towns, this change should not be made. Hopefully, we will be able to obtain satisfactory answers to our questions regarding the reason(s) for the proposed changes and the cost/benefit analysis that has been undertaken before any changes were recommended.

Sincerely,
John H. Shott
Senator -- 10th Senatorial District
State Capitol Complex
Building 1 Room 200=W
Charleston, WV 25305-0800
Phone: (304) 357-7843

1 Virginia rivers at or below 1,000 parts per million, and
2 lastly; 6) All mining, drilling and other discharges within
3 any West Virginia river or tributary to be in compliance
4 with the total dissolved solids standards, even in periods
5 of low flow throughout the year.
6 We ask that the DEP adopt these standards
7 and procedures to help protect the safety of municipal
8 water supplies throughout the State as well as to protect
9 the coal and gas industries from compromising practices
10 which can result in greater numbers of inspections and to
11 being shut down. Growing public intolerance to mistakes
12 and misjudgments by fossil fuel corporations is an
13 important threat to long-term industrial sustainability.
14 Thank you very much.
15 MS. COSCO: The next individual who has
16 indicated a desire to speak is E.C. Armbrecht.
17 MR. ARMBRECHT: Can I stand here or do you prefer
18 that I come up?
19 MS. COSCO: If you wouldn't mind to come up,
20 that way the court reporter can hear you.
21 MR. ARMBRECHT: My name is Ted Armbrecht. I'm a
22 member of the Environmental Quality Board and I didn't know
23 that Don was going to speak on the nutrient requirements,
24 but I will add my remarks to his. The Environmental

1 Quality Board in the mid-2000's, early 2000's, around 2003,
2 '04, '05, was directed by DEP and the EPA to address the
3 question of nutrients and to come up with nutrient
4 criteria. Those criteria had a deadline on them of I
5 believe, and I can stand to be corrected on this, but I
6 believe is approximately three years.
7 The EQB appointed a committee; that
8 committee was very broad based, representative of all of
9 the environmental and business community and users of the
10 waters and the contributors to the nutrient question. The
11 Legislature in its wisdom took that power away from the EQB
12 when the study committee was in mid-stream. Lakes had been
13 addressed at that time and recommendations were very close
14 to being agreed to by that broad-based committee. I note
15 with great interest that now in 2010 that DEP is beginning
16 to address the question of nutrients in lakes.
17 Lakes were chosen by that committee because
18 it was the easiest part of the problem. West Virginia has
19 few lakes. Our problems for nutrients deals with questions
20 of streams and larger bodies of rivers. Lakes were minor.
21 It was a wise choice because it was something that would
22 provide the testing ground to see if we could reach
23 agreement and they were well on the way for that agreement,
24 so now we're starting over apparently.

1 I didn't hear tonight, and it's very
2 possible that work has been done on this that I'm not
3 aware, but I have not heard that the larger issues are
4 being addressed; namely, of rivers and streams.
5 West Virginia signed the Chesapeake Bay
6 Covenant. It was signed by Governor Wise during his term
7 and courts have ruled that the Maryland water regulations
8 apply in West Virginia because we are supplying them with
9 water that must meet their requirements. So that's a very
10 important factor and ads to the urgency of what DEP might
11 begin to address now.
12 My point would be that we could have been
13 years down the road to addressing the problem if DEP had
14 even picked where EQB had left off; mainly, keeping that
15 committee and carry on its work to reach a resolution. My
16 experience is that DEP addresses issues like these only
17 when they have exhausted all possible routes of delay.
18 As has been said water is the resource of
19 21st Century; we have that. If DEP will begin to
20 aggressively protect it, it will benefit not only our
21 people and our State users but, most importantly, it will
22 truly be an economic factor as we seek jobs and prosperity
23 in our State. Thank you.
24 MS. COSCO: Did you indicate that you wished

47 CSR 2. REQUIREMENTS GOVERNING WATER QUALITY STANDARDS

RESPONSE TO COMMENTS

On June 4, 2010, the Division of Water & Waste Management (DWWM) commenced a thirty-day public comment period and subsequently held a public hearing on July 19, 2010 to accept oral comments on proposed revisions to legislative rule 47 CSR 2. Written comments were also accepted through 7:00 p.m. on Monday, July 19, 2010. Fourty seven commenters submitted written comments regarding proposed revisions to 47 CSR 2, and four commenters provided verbal comments, three of which supplemented their written comments. DWWM addresses these comments below.

1. COMMENTER: Ms. Marian Buckner

COMMENT A. *Narrative Language*

The commenter believes the DEP should draft legislation that establishes guidelines and a permit process for water withdrawals.

RESPONSE A. The DEP has been exploring the issues related to surface water withdrawal since passage of the Water Resources Protection and Management Act in 2004 (amended in 2008). Neither this Act nor the Water Pollution Control Act grants the DEP water withdrawal permitting authority. The Legislature would have to amend the West Virginia Code to give DEP the authority to permit water withdraws; such authority cannot be granted in an administrative rule.

COMMENT B. *Half Mile Zone*

The commenter states the revision for a mixing zone variance for Weirton Steel should be eliminated.

RESPONSE B. The proposed revision allows the consideration of a mixing zone in accordance with West Virginia mixing zone regulations on the specified stretches of the Ohio River, which include drinking water intakes. Whether a mixing zone is appropriate for a particular pollutant in that particular segment of the Ohio River and what would be the proper size for such a zone would be determined by DEP in accordance with the EPA-approved mixing zone regulations found in 47CSR2. The mixing zone regulations require that the mixing zones be sized to prevent significant human health risks, considering the exposure pathways. By allowing this mixing zone, DEP requires that the human health criteria be met the edge of the mixing zone prior to the drinking water intake which will assure that the public water supply use will be fully protected.

COMMENT C. *Nutrient Criteria*

The commenter believes the DEP should eliminate the revision that would result in lakes not being considered "impaired" unless BOTH phosphorus and chlorophyll-a water quality standards are exceeded. Also move the nutrient criteria-setting process for rivers and streams forward as expeditiously as possible.

RESPONSE C. See Response to 34.P.

COMMENT D. *Iron*

The commenter states that the DEP should eliminate revisions to the iron standard until more thorough studies are conducted that consider the unique water characteristics of WV trout waters.

RESPONSE D. DEP recognizes there are understandable concerns whenever a criterion is proposed to be relaxed. The driving force behind the proposed change to the iron criterion for trout streams was the fact that the modeled TMDL endpoint of 0.5 mg/l total iron could not be achieved in certain watersheds even if all of the sources of iron were eliminated. This problem led to a re-evaluation of the 0.5 mg/l criterion. The DEP has done thorough research on the effects of iron on aquatic life and last year conducted its own study of two native brook trout streams. Despite the fact that iron regularly exceeded 1.0 mg/l in one of the streams, the stream had a thriving native brook trout population. The DNR also has conducted toxicity tests which indicated that native brook trout fry are unaffected by iron levels as high as 1.37 mg/l. In addition, EPA's recommended criteria for iron to protect all freshwater aquatic life, including coldwater species, is 1.0 mg/l. Further West Virginia's dated trout water criterion appears to be more stringent than all other states in the nation. In its research, the DEP has found little justification for the current 0.5 mg/l iron criterion for trout streams.

Re-evaluation of this criterion was long overdue. Increasing the allowable iron in trout streams from 0.5 mg/l to 1.0 mg/l will enable the TMDL endpoints to be met with reasonable controls and will also be protective of cold water fish and aquatic life. This action is supported by DEP's recent efforts, DNR's previous work, and EPA's current national recommended criteria.

COMMENT E. *Total Dissolved Solids*

The commenter recommends the DEP should adopt the federal standard for human health of 250 mg/l and also include an aquatic life criterion for conductivity

RESPONSE E. DEP recognizes that EPA has TDS criterion of 250 mg/l, although the recommendation is somewhat misleading. EPA's Gold Book recommended TDS criterion states "250 mg/L for chlorides and sulfates in domestic water supplies (welfare)" http://www.epa.gov/waterscience/criteria/library/goldbook.pdf. Additionally EPA offers a secondary Maximum Contaminant Level (MCL) of 500 mg/l TDS. http://www.epa.gov/safewater/contaminants/index.html.

While it is not entirely uncommon for EPA MCL's to be less stringent than recommended waterbody criteria, it does demonstrate inconsistencies in their recommendations.

DEP believes a 250 mg/l TDS criterion is overprotective and would cause an unnecessary burden on dischargers in the State. Conversely DEP believes that when dissolved solids begin to exceed 500 mg/l, drinking water does become impacted. This was clearly demonstrated in the Pennsylvania segment of the Monongahela River during the fall of 2008. In this instance TDS

exceeded 500 mg/l and there was a myriad of complaints related to the drinking water and industrial uses. We know of no complaints when the water source was between 250 mg/l and 500 mg/l.

The commenter also suggested DEP adopt an Aquatic Life Criterion for conductivity. DEP is aware of the negative effects of elevated ionic strength on certain aquatic organisms although the level at which the effects occur are uncertain. EPA has recently offered a Benchmark conductivity value, but the value has not yet undergone a full public review. At this time EPA has not finalized the Benchmark value, nor have they provided recommendations for exposure duration or allowable exceedance frequency, both necessary components of water quality standards. DEP provided comments to this effect on EPA's Benchmark document. We expect further developments in ionic strength science and criteria in the future.

2. COMMENTER: Ms. Alyssa Archer

COMMENT A. *Half Mile Zone*

The commenter states that the DEP should eliminate revision for a mixing zone variance for Weirton Steel

RESPONSE A. See response to Comment 1.B.

COMMENT B. *Total Dissolved Solids*

The commenter believes the DEP should adopt the federal standard for human health of 250 mg/l and also include an aquatic life criterion for conductivity

RESPONSE B See Response to Comment 1.E.

3. COMMENTER: West Virginia Council of Trout Unlimited

COMMENT A. *Total Dissolved Solids*

WCTU believes the limit of 500 mg/l is not adequate and 250 mg/l should be adopted to protect aquatic life.

RESPONSE A. See Response to Comment 1.E.

COMMENT B. *Narrative Language*

WCTU states that the language for limits on significant water withdrawals is too vague and should better define what types of activities would be considered a significant withdrawal.

RESPONSE B. The DEP views any water withdrawal activity that will cause a significant adverse impact to the chemical, physical, hydrologic, or biological components of the aquatic ecosystem as a potential violation of the narrative water quality standard. Alteration of a stream flow as a

consequence of withdrawing water prevents the achievement and protection of the appropriate water uses as required by the Clean Water Act.

COMMENT C. *Iron*

WCTU feels the proposed changes are based on limited and out of date data and the recent changes to the WV anti-degradation rules must be considered.

RESPONSE C. See response to Comment 1.D.

4. COMMENTER: Ms. Laurine Yates

COMMENT A. *Total Dissolved Solids*

The commenter recommends that the EPA standard of 250 mg/l should be adopted

RESPONSE A. See Response to Comment 1.E.

5. COMMENTER: Kim, Kyle, Adam and Andrew Shiemke PhD

COMMENT A. *Water Quality Standards*

The commenter believes the practice of regulatory agencies issuing permits to pollute should be stopped.

RESPONSE A. The CWA established the National Pollutant Discharge Elimination System, which specifically authorizes states to issue permits to point source dischargers of pollutants. NPDES permits are required to contain limits on the concentration of pollutants that may be discharged in order to ensure that state water quality standards are met. The CWA and the State Water Pollution Control Act implicitly acknowledge that the discharge of a certain amount of pollutants is permissible and does not interfere with waters uses, including human consumption, support of aquatic life, and recreation.

6. COMMENTER: Mr. Andy Willard

COMMENT A. *Total Dissolved Solids*

The commenter supports the proposed TDS standard of 500 mg/l and it should be applied "in-stream"

RESPONSE A. The DEP acknowledges the comment and appreciates the support of the commenter.

COMMENT B. *Hydraulic Fracturing*

The commenter request more stringent rules on hydraulic fracturing until appropriate regulations are in place to protect the public and the environment

RESPONSE B. DEP appreciates the comment; however, the comment involves language that is beyond the scope of proposed revisions and, therefore, requires no response. It is important to note however the Agency is in the midst of a comprehensive review of its Oil and Gas regulatory program. The review of hydraulic fracturing and any proposed regulation changes will be resultant from that process.

7. COMMENTER: Dana Light

COMMENT A. *Hydraulic Fracturing*

The commenter request more stringent rules on hydraulic fracturing and insure that water quality be a top priority

RESPONSE A. See Response to Comment 6.B.

8. COMMENTER: Mr. Chuck Wyrostok

COMMENT A. *Narrative Language*

The commenter states that the DEP should go a step further than the proposed language and draft legislation for immediate consideration that establishes guidelines and a permit process for water withdrawals.

RESPONSE A. See response to Comment 1.A.

COMMENT B. *Half Mile Zone*

Eliminate revision for a mixing zone variance for Weirton Steel

RESPONSE B. See response to Comment 1. B.

COMMENT C. *Nutrient Criteria*

The commenter states the need to eliminate the revision that would result in lakes not being considered "impaired" unless BOTH phosphorus and chlorophyll-a water quality standards are exceeded. Also DEP should reconvene its Stakeholders Nutrient Committee and move the nutrient criteria-setting process for rivers and streams forward as expeditiously as possible.

RESPONSE C. See Response to Comment 34.P.

COMMENT D. *Iron*

The commenter states the need to eliminate revisions to the iron standard until more thorough studies are conducted that consider the unique water characteristics of WV trout waters.

RESPONSE D. See response to Comment 1.D.

COMMENT E. *Total Dissolved Solids*

The commenter believes the DEP should adopt the federal standard for human health of 250 mg/l and also include an aquatic life criterion for conductivity

RESPONSE. E See response to Comment 1.E.

9. COMMENTER: West Virginia Manufacturers' Association

COMMENT A. *Total Dissolved Solids*

WVMA states the DEP needs to verify that TDS is an ongoing problem and that the chosen criteria are based on "sound scientific rationale." Further work should be done to determine whether a state-wide criterion is needed and is practicable. If a criterion is adopted, it should apply at the point of intake of a public water supply. We believe that the current water quality standards, correctly interpreted, compel the DEP to apply Category A criteria at the point of a water supply intake. We suggest a change to Section 6.2 be made to clarify this. Because TDS is a pollutant in state water in varying degrees as a result of natural background conditions, care will be required in implementing it and urge the agency to expressly allow for netting of TDS concentrations.

RESPONSE A. The Agency announced its intentions to study TDS in May 2009, accepted comments, brought forth a formal proposal in May 2010 (again accepting comments), and will now advance the proposal to the West Virginia Legislature. Considerable thought has gone into this proposal and the Agency understands the potential effects of this proposal on select dischargers in the State. The effects on some dischargers may be significant; however, the protection of our State's waters for safe drinking is of paramount importance now and in the future. The Agency has spent a considerable amount of time assimilating the science regarding TDS, while familiarizing itself with the efforts of surrounding states and the referenced Pennsylvania Chamber of Business & Industry comments. In fact, DEP has learned that West Virginia's border states, with the exception of Maryland, all have a TDS criterion for protection of drinking water supplies. Kentucky recently adopted a 250 mg/l TDS value applicable to domestic water supply sources.

The commenter implies that Agency action is being taken based on an isolated incidence during low flow periods in 2008 in the Monongahela Watershed. While conditions on the Mon in 2008 were one factor the Agency considered, it has also observed increasing TDS trends in the Coal, Tug, Ohio, and Big Sandy watersheds as well. Each of these watersheds has public drinking water supplies which rely on surface water.

DEP believes it would be irresponsible to not at least advance a proposal to the Legislature for consideration given the importance of drinking water and the evidence in front of us. The Secretary is assigned various powers and duties in the West Virginia Water Pollution Control Act, not the least of which is to adopt, modify, repeal and enforce rules to prevent, control and abate pollution while implementing and making effective the declaration of policy contained in the Act. Absent TDS regulation, if everything remains the same, more and more waters could receive increased TDS loading, causing values to be at or above the proposed criteria for longer periods of time and at higher concentrations. Doing nothing would be inconsistent with the Agency's charge to protect for the existing and future uses of the State's waters. Netting of a parameter in a permit is addressed with in a separate legislative rule, 47 CSR 10.

COMMENT B. *Narrative Language*

The WVMA is concerned about water withdrawal activities being added to the list of activities that can cause prohibited conditions. They would prefer that water withdrawal activities be regulated in the context of the Water Resources Protection and Management Act. They are also concerned about the impact of the proposed rule change on riparian rights. The proposed change would seem to deprive riparian owners the right to make use of low flow, in derogation of the owner's common law rights.

RESPONSE. B The addition of "water withdrawal activities" to the narrative water quality criteria is intended to address potential negative impacts on water quality due to the withdrawal of water. The proposed rule does not prohibit the withdrawal of water wholesale, it prohibits the withdrawal of water if it causes or contributes to the conditions not allowable in State waters listed in 47 CSR 2 §3. The proposed change merely establishes that, in addition to the discharge of sewage, industrial wastes, and other types of waste, the withdrawal of water can also cause or contribute to these prohibited conditions and may therefore be considered a violation of state water quality standards. Also see Response to Comment 36.A.

Riparian owners have a right to enjoy the flow of a natural watercourse through or adjacent to their property without disturbance, interference, or material diminution by any other proprietor. Each proprietor may make any use of the water flowing over his premises which does not essentially or materially diminish the quantity, corrupt the quality or detain it so as to deprive other proprietors or the public of a fair and reasonable participation in its benefits. *Snyder v. Callaghan*, 168 W.Va. 265, 271-72, 284 S.E.2d 241, 246 (1981). Therefore, a property owner's riparian rights do not extend to withdrawing quantities of water that cause a degradation of water quality to an extent that the uses of that water body are not maintained.

COMMENT C. *Iron*

The WVMA supports the change in the chronic criterion for iron for Category B trout waters.

RESPONSE C. The DEP agrees with the commenter and believes the proposed rule will continue to protect West Virginia's trout streams.

COMMENT D. *Half Mile Zone*

The WVMA supports the proposed changes to the "Half-Mile Rule" which allows the application of a mixing zone to certain segments of the Ohio River if the criteria for establishing a mixing zone are satisfied.

RESPONSE D. The DEP acknowledges the comment and believes the proposed rule will continue to protect the public water supply use.

10. COMMENTER: Appalachian Power

COMMENT A. *Total Dissolved Solids*

Appalachian Power believes more analysis is needed before a state wide standard for TDS is applied to WV waters and are concerned that DEP's interpretation of the application of Public Water Supply restrictions to all waters of the state could result in an end of pipe application for a standard of this sort. This should not be done without a rigorous analysis by DEP that the benefits are clearly demonstrated.

RESPONSE A. See Response to Comment 9.A.

COMMENT B. *Narrative Language*

Appalachian Power is concerned about water withdrawal activities being added to the list of activities that can cause prohibited condition and are also concerned about the impact of the proposed rule change on riparian rights. The DEP should not attempt to make this change without legislative instruction.

RESPONSE B. See Responses to Comment 9.B. and Comment 36.A.

11. COMMENTER: West Virginia Surface Owners' Rights Organization

COMMENT A. *Narrative Language*

WV-SORO strongly supports the DEP for adding the language "certain water withdrawal activities" and "algae blooms" as conditions not allowable in state waters. However, we do not feel the additional language alone goes far enough to protect West Virginia streams from either water withdrawals or algae blooms. In particular, we are very concerned about water withdrawal activities associated with Marcellus Shale drilling. We urge the DEP to draft legislation for immediate consideration by the West Virginia Legislature that will establish guidelines and a permit process for water withdrawals.

RESPONSE A. See response to Comment 1.A.

COMMENT B. *Total Dissolved Solids*

WV-SORO does not support DEP's recommended standard of 500 mg/l. We strongly recommend that the standard be set at 250 mg/l, which is the USEPA recommended Human Health Standard for total dissolved solids.

RESPONSE B. See response to Comment 1.E.

12. COMMENTER: Ms. Rebecca Huenink

COMMENT A. *Narrative Language*

The commenter believes the DEP should draft legislation for immediate consideration by the West Virginia Legislature that establishes guidelines and a permit process for water withdrawals, as well as for disposal of water used for "fracking."

RESPONSE A. See Response to Comment 1.A. See also Response to Comment 6.B.

13. COMMENTER: Indian Creek Watershed Association, Board of Directors

COMMENT A. *Narrative Language*

ICWA believes the addition of "certain water withdrawal activities" not allowable in state waters is important, but should be further strengthened. To be protective of both human health and aquatic life, DEP should draft legislation for immediate consideration by the West Virginia Legislature that establishes guidelines and a permit process for water withdrawals.

RESPONSE A. See response to Comment 1.A.

COMMENT B. *Applicability of Water Quality Standards*

ICWA states it is not clear that waters in karst formation areas would be adequately protected by existing or proposed standards. We recommend that specific language be added to address site-specific conditions in karst regions, recognizing that additional testing and permit procedures might be required due to the unusual vulnerability of water resources in karst topography.

RESPONSE B. The DEP acknowledges the comment, however this proposed rule establishes requirements governing surface water quality standards for the surface waters of the State. The standards proposed in this rule should be protective in all areas of the State.

COMMENT C. *Nutrients*

ICWA opposes the proposed language and feel WVDEP regulations should follow the EPA guidance and recognize that lakes might be impaired for either phosphorous or chlorophyll-a. We applaud adding specific phosphorous standards for the Greenbrier River. In addition, the DEP should

reconvene its Stakeholders Nutrient Committee and move ahead on the criteria-setting process for rivers and streams overall.

RESPONSE C. See Response to Comment 34.P. In addition to analyzing existing data, the DEP has been routinely collecting nutrient data on select streams during the past three years. The Agency has developed a list of nutrient sensitive streams on which to concentrate its efforts. Initial studies were conducted on the Greenbrier and Tygart rivers. Monitoring is continuing in 2010 on these two streams, as well as the South Branch and Cacapon Rivers. The DEP believes that nutrient criteria in streams must be established on a stream-by-stream basis. Due to the unique nature of stream water chemistry and physical characteristics, there is no "one size fits all" approach to developing stream criteria. Proposing one criterion for all streams statewide is not appropriate.

COMMENT D. *Iron*

ICWA believes the water quality standard for Iron in Trout Streams should not be changed, and especially not weakened, until more thorough studies are conducted

RESPONSE D. See response to Comment 1.D.

COMMENT E. *Total Dissolved Solids*

ICWA *states the DEP should adopt the federal standard for human health of 250mg/l and adopt an aquatic life criterion for conductivity as proposed by EPA.*

RESPONSE E. See response to Comment 1.E.

14. COMMENTER: Wheeling-Nisshin

COMMENT A. *Half Mile Zone*

Wheeling-Nisshin supports the proposed change to the "half-mile rule." This change will allows the DEP to consider actual or likely impacts to downstream public water supplies at certain specified locations rather than following an automatic application of the half mile rule's prohibition without consideration of potential costs and economic impact or actual or threatened harm to the environment or public health.

RESPONSE A. The DEP acknowledges the comment and believes the proposed rule will continue to protect the public water supply use.

15. COMMENTER: United States Army Corps of Engineers, Pittsburg District

COMMENT A. *Narrative Language*

The USACE supports changes to the rule that acknowledge the direct relationship between water quantity and water quality. However, in order to protect streams from excessive withdrawals and also to protect USACE augmented flow authorized for non-consumptive use (water quality,

navigation), the USACE recommends a separate rulemaking establishing comprehensive water withdrawal regulations.

RESPONSE A. See response to Comment 1.A.

COMMENT B. *Nutrients*

The USACE supports individual, statewide nutrient criterion.

RESPONSE B. The DEP acknowledges the comment and believes the proposed rule will continue the process of adopting nutrient criteria for the States waters. The process of developing stream criteria will continue as we continue to collect scientific information for additional watersheds.

COMMENT C. *Iron*

The USACE respectfully disagrees with changes to this proposed rule given the growing potential for iron pollution from untreated wastewater generated from fracturing, production, field exploration, drilling, or well completion affiliated with mineral extraction activities. In light of the fact that development in the Marcellus shale is rapidly accelerating in the upper Ohio River watershed, the USACE urges WV DEP to retain its existing criterion in high quality trout streams and headwater watersheds. Less stringent criterion could compromise existing water quality conditions and undermine USACE's authorized water quality mission.

RESPONSE C. See response to Comment 1.D.

COMMENT D. *Total Dissolved Solids*

The USACE recommends the adoption and implementation of aquatic life and water supply TDS criterion (maximum 750 mg/l, monthly average 500 mg/l). Without TDS criterion, the cumulative effect of combined TDS discharges on streams is not being addressed. The code should be revised to further limit or prohibit high TDS wastewater discharges proportional to the sensitivity of the receiving water.

RESPONSE D. See Response to Comment 1.E.

COMMENT E. *Water Pretreatment*

To the extent that it is not already so provided, the USACE recommends where discharge through a publicly owned treatment works, sewage treatment plant, or other wastewater treatment facility is proposed, pretreatment must include removal of constituents comprising TDS, as well as radionuclides and radioactive materials;

RESPONSE E. DEP appreciates the comment; however, the comment involves language that is beyond the scope of proposed revisions (pretreatment requirements are covered in legislative rule 47CSR10) and, therefore, no response is required.

COMMENT F. *Water Disposal*

The USACE recommends disposal into surface waters of wastewater generated from fracturing, production, field exploration, drilling, or well completion should be expressly prohibited;

RESPONSE F. See Response to Comment 6.B.

COMMENT G. *Site Specific Conditions*

The USACE recommends that the DEP identify, resolve and eliminate the inequities created by the absence of a River Basin Commission in the Ohio River Basin. In that regard, the USACE recommends that WV DEP adopt and implement site specific natural condition TDS, chloride, and strontium criterion for aquatic life. Also, the USACE recommends watershed- based water withdrawal regulations to assess cumulative impacts of thousands of withdrawals on water quality and aquatic life.

RESPONSE G. West Virginia is a member of the Ohio River Valley Water Sanitation Commission (ORSANCO). State counterparts serving on various committees as part of this Commission regularly meet and communicate to identify, resolve, and eliminate (to the greatest degree possible) inequities created by varying State requirements. The proposal for TDS criteria is one of many issues identified and the incorporation of WQS proposed criteria will eliminate the current border inequity. At the same time, Pennsylvania is affecting similar chloride criterion with its WQS rules with strontium an issue yet to be evaluated. With respect to adopting site specific natural condition criteria, DEP will pursue criteria development in the normal manner of understanding pollutants effects on the aquatic life use, then proposing a protective criterion. Holding all waters to natural condition of pollutants is a provision reserved for waters designated for Tier 3 anti-degradation status. Also see Response to Comment 1.A.

COMMENT H. *Aquatic Life Criteria*

The USACE recommends that the DEP adopt and implement relevant and appropriate daily or instantaneous aquatic life limits for bromide, arsenic, radium, benzene, sodium, strontium, boron, and magnesium.

RESPONSE H. DEP appreciates the comment; however, the comment involves language that is beyond the scope of proposed revisions. Therefore it would be inappropriate for the agency to make any changes to the rule related to this issue at this point in time. However, the DEP has an aquatic life criterion for trivalent arsenic of 340 µg/l acute and 150 µg/l chronic. Also see Response to Comment 30.B.

COMMENT I. *Low Flow*

The USACE recommends that the DEP eliminates Sections 47-2-7, 7.2.b. and 47-2-7, 7.2.c.1., providing for enumerated exceptions to the applicability of water quality standards during periods of low-flow.

RESPONSE I. DEP appreciates the comment; however, the comment involves language that is beyond the scope of proposed revisions and, therefore, it would be inappropriate for the agency to make any changes to the rule related to this issue at this point in time.

16. COMMENTER: ArcelorMittal Weirton

COMMENT A. *Half Mile Zone*

ArcelorMittal Weirton supports the emergency rule amendment to the Half-Mile Rule.

RESPONSE A. The DEP appreciate the support and believes the proposed rule will continue to fully protect the public water supply use.

COMMENT B. *Harmon Creek Variance*

ArcelorMittal Weirton understands that the variance expired on July 1, 2009 but will continue to negotiate issues associated with effluent limits for Outlet 004 notwithstanding the status of the socio-economic variance.

RESPONSE B. The DEP acknowledges the comment and is willing to review any additional information submitted concerning the Harmon Creek variance.

17. COMMENTER: National Committee for the New River

COMMENT A. *Nutrients*

NCNR supports Section 8.3.b.1.A. as a good first step. The state needs to develop a statewide Nutrient Criteria for Rivers and Streams. NCNR suggests that DEP reconvene its Stakeholders Nutrient Committee and move the criteria-setting process for rivers and streams forward immediately.

RESPONSE A. See Response to Comment 35.E.

COMMENT B. *Iron*

NCNR does not support the weakening of the water quality standard for Iron in trout streams. By doubling the current limit of 0.5 parts per million of iron to 1.0 parts per million DEP will be risking the health of Category 2 trout waters.

RESPONSE B. See response to Comment 1.D.

COMMENT C. Total Dissolved Solids

Although NCNR supports a statewide water quality standard for "Total Dissolved Solids" (TDS), the proposed 500 mg/l is twice as high as the 250 mg/l that the EPA recommends as the Human

Health Standard for total dissolved solids. We suggest that DEP adopt the federal standard for human health of 250mg/l. Also, NCNR implores DEP to adopt the EPA's aquatic life criterion for conductivity. TDS levels are closely associated with conductivity levels.

RESPONSE C. See response to Comment 1.E.

COMMENT D. *Narrative Language*

NCNR believes the proposed changes do not establish a program to regulate water withdrawals nor mandate the creation of such a program in the future. NCNR supports the enactment of such a program in a future legislative session.

RESPONSE D. See response to Comment 1.A.

18. COMMENTER: Mr. Clyde Willard

COMMENT A. *Total Dissolved Solids*

The commenter supports the proposed value of 500 mg/l and support that it should be applied "in-stream," regardless of the water source end use. In addition to a TDS standard, WV DEP should also consider developing a specific conductivity standard.

RESPONSE A. See Response to Comment 1.E.

COMMENT B. *Hydraulic Fracturing*

The commenter believes the DEP should place a moratorium on hydraulic fracturing until appropriate regulations are in place to protect the public and the environment.

RESPONSE B. See Response to Comment6.B.

19. COMMENTER: Jamie Stevens and Daniel Willard

COMMENT A. *Total Dissolved Solids*

The commenter's supports the proposed value of 500 mg/l and support that it should be applied "in-stream," regardless of the water source end use. In addition to a TDS standard, WV DEP should also consider developing a specific conductivity standard.

RESPONSE A. See response to Comment 1.E.

COMMENT B. *Hydraulic Fracturing*

The commenter's believes the DEP should place a moratorium on hydraulic fracturing until appropriate regulations are in place to protect the public and the environment.

RESPONSE B. See Response to Comment6.B.

20. COMMENTER: Mr. Paul Hamrick

COMMENT A. *Combined Sewer Overflows*

The commenter would like the WV DEP to review and comment on the study that was just released by Emory University on Combined Sewer Overflows (CSO's) promoting the spread of West Nile Virus.

RESPONSE A. The DEP acknowledges the comment and appreciates the commenter providing this scientific study for review.

COMMENT B. *Marcellus Shale*

The commenter is concerned about the impact to our streams by the Marcellus Shale gas wells and feels that we as a state have too few inspectors to monitor all of these well sites.

RESPONSE B. See Response to Comment 6.B.

21. COMMENTER: Mr. Bob Liebman

COMMENT A. *Water Quality Standards*

The commenter states the WV water standards should be raised to the highest level and not lowered.

RESPONSE A. The DEP acknowledges the comment and appreciates the commenter's concerns. The rule changes being proposed are intended to protect the designated uses of WV waters.

22. COMMENTER: Ms. Pamela Ruediger

COMMENT A. *Narrative Language*

The commenter states the DEP must draft legislation for immediate consideration by the WV Legislature that establishes guidelines and a permit process for water withdrawals.

RESPONSE A. See response to Comment 1.A.

COMMENT B. *Half Mile Zone*

The commenter states the mixing zone variance must be removed from the rule to prevent Weirton Steel from discharging pollutants at concentrations in excess of the Category A public water supply criteria within one-half mile of a public water supply intake.

RESPONSE B. See response to Comment 1. B.

COMMENT C. *Nutrients*

The commenter states the new nutrient criteria for lakes language will result in lakes not being considered impaired unless both phosphorus and chlorophyll-a water quality standards are exceeded. This directly contradicts EPA guidance on the development of nutrient criteria, which recognizes that lakes might be impaired for either phosphorus or chlorophyll-a independently. The nutrient criteria proposed for the Greenbrier River is a good first step, but the state has made no progress on developing statewide nutrient criteria for rivers and streams. DEP should reconvene its stakeholders nutrient committee and move the criteria-setting process for rivers and streams forward.

RESPONSE C. See Responses to Comment 13.C. and Comment 34.P.

COMMENT D. *Iron*

The commenter states the iron standard must not be changes until more thorough studies are conducted that consider the unique water quality characteristics of WV's trout waters.

RESPONSE D. See Response to Comment 1.D.

COMMENT E. *Total Dissolved Solids*

The commenter believes that the DEP should adopt the TDS federal standard for human health of 250 mg/l and propose an aquatic life standard for conductivity as proposed by EPA.

RESPONSE E. See Response to Comment 1.E.

23. COMMENTER: West Virginia Oil and Natural Gas Association

COMMENT A. *Narrative Language*

WVONGA suggest that the DEP allow the Water Resources Management Plan to develop concerning water withdrawal activities before adopting the proposed changes to the water quality standards. WVONGA is also concerned about the proposed rule change on riparian rights. Regulating withdrawal would seem to deprive riparian owners of the right to make use of low flows, in derogation of the owner's common law rights.

RESPONSE A. See Response to Comment 9.B.

COMMENT B. *Total Dissolved Solids*

WVONGA believes there is not a problem with TDS in WV waters and are not aware of any water supplies that have had difficulty with treating water to a safe level as a result of TDS. While WVONGA opposes the adoption of a 500 mg/l criterion, if it is adopted, we believe it should apply at the point of a public water supply intake.

RESPONSE B. See Response to Comment 9.A.

24. COMMENTER: Independent Oil and Gas Association of West Virginia
COMMENT A. *Narrative Language*

IOGA urges the DEP not to pursue its proposal to re-fashion the surface water quality standards to deal with water withdrawal activities, an issue they were never intended to address. The DEP has been directed to develop and propose for legislative approval a statewide Water Resources Management Plan which is required to address identification of issues related to water availability or conflicts among water users and identify potential solutions to the same. This plan is the proper and legislatively-mandated vehicle for addressing water withdrawal issues.

RESPONSE A. The Water Resources Protection & Management Act is concerned primarily with the conservation of water resources and does not provide a mechanism for the State to deal with the degradation of water quality due to water withdrawal. The purpose of adding water withdrawal activities to State water quality standards is not to address water quantity, but rather to address water quality issues that may arise as a result of water withdrawals. As stated in the WRPMA, no provisions of that Act are intended to limit other statutory remedies that exist. *W. Va. Code* §22-26-3(a). The Water Pollution Control Act states that it is the public policy of the State that water resources with respect to the quantity thereof be available for reasonable use. *W. Va. Code* §22-11-2(b). 47 CSR 2 §1.1 states that "these rules establish requirements governing the discharge or deposit of [wastes] into the waters of the state **and** establish water quality standards for the waters of the State standing or flowing over the surface of the State." (Emphasis added.) These rules do not only establish requirements for discharges, but also establish standards that the waters in the State must maintain in order to protect the uses of that water. It is within DEP's authority to regulate water withdrawal if it will negatively impact water quality. The simple intent of this narrative criteria addition is to make it clear a withdrawal of water, not the presence of wastes in water, causing use impacts, is not allowable.

COMMENT B. *Total Dissolved Solids*

IOGA believes the proposed TDS criterion should be deleted in the final rule because of several points. First, the DEP's reliance on a Secondary Drinking Water Regulation as support for an instream water quality criterion for the protection of human health is not justified. Second, the resources that would be consumed to comply with the proposed TDS criterion are no justified by the benefits that would result. Lastly, the TDS criterion as proposed violates the requirements of W. Va. Code §22-1-3a. IOGA also urges the rejection of the proposed expansion of "Human Health" criteria found in footnote 4 of Table 1. We believe it is a distortion for the DEP to now equate the protection of human health with these secondary standards as would be the effect of the change to footnote 4 and urge the rejection of this proposal.

RESPONSE B. W. Va. Code §22-1-3a states that DEP can promulgate legislative rules that are more stringent than the counterpart federal rule or program if DEP first provides specific written reasons that demonstrate such provisions are reasonably necessary to protect the environment. This statute clearly states that in the absence of a federal rule, the adoption of a State rule shall not be construed to be more stringent than a federal rule, unless the absence of a federal rule is the result of

a specific federal exemption. At issue here is a proposed State water quality standard for total dissolved solids. There are no federal rules setting a water quality standard for total dissolved solids. In the absence of a federal rule, the State rule shall not be construed to be "more stringent," so the requirements of §22-1-3a do not apply.

25. COMMENTER: ArcelorMittal USA

COMMENT A. *Total Dissolved Solids*

ArcelorMittal Weirton disagrees with the DEP's addition of human health criterion limitation of 500 mg/l for TDS. The proposed rule would require significant capital expenditures with little environmental benefit. If the proposed WV water quality standards are adopted for TDS, such standards should apply only at the point of water withdrawal for potable water supplies.

RESPONSE A. See Response to Comment 9.A.

COMMENT B. *Iron and Aluminum*

ArcelorMittal Weirton states there is no readily available supporting documentation regarding the technical basis for either the aquatic life or human health criteria for total iron adopted by West Virginia. It appears these standards have been in effect for many years and there is no apparent reasonable basis for the exceedingly low aquatic and human health iron criteria. Based upon an analysis of comparable criteria, ArcelorMittal Weirton believes iron levels present in the Ohio River do not pose a threat to human health or aquatic life and do not demonstrate that an impairment exists. The great majority of the iron and aluminum in the Ohio River is naturally occurring and due to runoff of surface soils into the river.

RESPONSE B. DEP's current proposal only relates to the iron criteria for trout waters and as such, changes to the warm water criteria cannot be made at this time. DEP does not dispute that much of the iron and aluminum in our State's water is "from runoff of surface soils into rivers." To what extent the loadings are natural, and what the effects on aquatic life or human health are, can be debated. Concerns relative to the current warm water criteria for iron, and basis, will need to be discussed in future Water Quality Standards Program public forums.

COMMENT C. *Selenium*

ArcelorMittal Weirton requests that the DEP consider revising the standards to include more appropriate and less stringent selenium WQS criteria based on EPA draft freshwater aquatic life criteria. We recommend that the DEP consider placing the aquatic life selenium criteria developed by EPA in its 2011 revision to the WV water quality standards.

RESPONSE C. The DEP acknowledges the commenter's request, however the proposed rule filed on June 4, 2010 did not address adopting alternate aquatic life criteria for selenium. Therefore, it would be inappropriate for the agency to make changes to the rule related to this criterion at this point in time. EPA is currently in the process of publishing new draft selenium criteria. Once EPA

finalizes its revised national selenium criteria and DEP reviews it, DEP may reconsider its current selenium criterion.

26. COMMENTER: Dominion Resources

COMMENT A. *Total Dissolved Solids*

Dominion recognizes and support DEP's efforts to protect drinking water supplies and aquatic life; however the application of a TDS standard to all waters in the state may be overly restrictive in some cases and result in regulation of discharges that are not warranted. Dominion requests that the proposed TDS standard be applied only to waters designated as drinking water sources. Also to avoid the inadvertent regulation of discharges, the sources of TDS should be considered and the concept of net limits be included in the implementation of any final standard. Dominion requests that the sources of TDS that are beyond the control of a permitee be considered in the potential regulation of discharges associated with TDS.

RESPONSE A. See Response to Comment 9.A.

27. COMMENTER: West Virginia Forestry Association

COMMENT A. *Total Dissolved Solids*

The commenter feels a TDS standard is not needed at this time as it does not appear there has been a state-wide problem caused by TDS that would merit adoption of the proposed criterion. If the agency feels a standard is warranted, the proper way to go about adopting a standard is to go through the criteria development process, as outlined by the EPA. Merely adopting a secondary maximum contaminant level is the wrong approach. If a TDS criterion is adopted, than we urge that it applies at the point of intake for water supplies.

RESPONSE A. See Response to Comment 9.A.

COMMENT B. *Narrative Language*

The commenter is concerned that the lack of any definition of what constitutes adverse effects from water withdrawal leaves those who work around smaller streams exposed to liability. They are also concerned that the addition of water withdrawal has the potential to infringe on riparian water rights.

RESPONSE B. See response to Comment 9.B.

28. COMMENTER: Morgantown Utility Board

COMMENT A. *Total Dissolved Solids*

The commenter appreciates DEP continuing efforts toward protection of the water environment but find the proposed TDS standard to be troublesome. The proposed rule is applied too broadly and we believe the optimum approach for regulating TDS would be to appropriately regulate the obvious

sources of significant TDS contributions which cause increases in the background levels of the parameter. The rule must be modified in such a way as to not subject municipal wastewater discharges to the proposed 500 mg/l limit.

RESPONSE A. See Response to Comment 9.A.

29. COMMENTER: Morgantown City Council

COMMENT A. *Total Dissolved Solids*

The commenter urges the DEP to establish a TDS standard for in-stream flow in the main stem of WV rivers at or below the standard of 500 mg/l and for in-stream flow in tributaries of WV rivers at or below 1,000 mg/l and all dischargers to be in compliance even in periods of low flow throughout the year. We also request procedures regarding water withdrawal information and water discharge plans for acid mine drainage and fracturing liquids be put in place to help protect the safety of municipal water supplies throughout the state.

RESPONSE A. See Response to Comment 1.E.

30. COMMENTER: West Virginia Rural Water Association

COMMENT A. *Narrative Language*

WVRWA believes the inclusion of "water withdrawal activities" could help protect public supplies if excessive withdrawals require "an unreasonable degree of treatment for the production of potable water by modern treatment processes as commonly employed" (47-2-3.2h).

RESPONSE A. The DEP agrees with the commenter and believes the proposed rule will be beneficial in protecting the public water system use.

COMMENT B. *Bromide*

WVRWA suggests that due to the increase of brominated disinfection byproducts, the DEP should now be proposing a numeric standard for bromide ions. However, before proposing a bromide standard, the DEP should begin testing the state's surface waters for bromide concentration.

RESPONSE B. The DEP acknowledges the comment; however, the proposed rule filed on June 4, 2010 did not address adopting bromide ions criteria. Therefore, it would be inappropriate for the Agency to make any changes to the rule related to this issue at this point in time.

31. COMMENTER: Mr. Dwight Emrich

COMMENT A. *Water Quality Standards*

The commenter states concerns of the quality and quantity of water sources due to the extraction processes of the shale layer to release trapped gases. Also request the protection of water sources above all else.

RESPONSE A. The DEP acknowledges the commenter concerns and believes the proposed rule will be beneficial in protecting West Virginia's waters.

32. COMMENTER: Ms. Margaret Reese

COMMENT A. *Water Quality Standards*

The commenter urges the creation of the most stringent rules to protect WV ground and surface waters, air, soil, aquatic life, wildlife, farms, and forests. She requests the support of the WV people and environment instead of extraction industries.

RESPONSE A. The DEP believes the proposed rule will be beneficial in protecting the designated and existing uses of West Virginia's waters.

33. COMMENTER: City of White Sulphur Springs and Town of Hillsboro

COMMENT A. *Narrative criteria for algae*

The proposed standard is no standard at all, granting to the agency unfettered discretion to determine when a use "may" be interfered with and providing no guidance regarding algal growth and when algal growth is excessive.

RESPONSE A. Just as there is no numeric standard set forth in 47 CSR 2 §3 for other conditions not allowable (distinctly visible foam, color, etc.), no numeric value is proposed in this section of the rule for how much algae is acceptable or unacceptable. Rather, the new language is inserted as a general clarification that an algae bloom which impairs the designated use of a stream is indeed a condition not allowable in State waters. Maintenance of a stream's designated use is the standard. It is prudent to leave the Agency some discretion to determine impairment, due to the variety of stream uses, types of algal growth, and physical conditions that exist in streams across the State. Similar to what has been done in regards to determining biological impairments (47CSR 2 §3.2.i), the Agency anticipates developing an index and/or interpretive rule in the future which would appropriately address these complexities. The Agency agrees that user surveys would be an important component of such an interpretive rule or index.

The Agency agrees that factors such as size and duration of an algae bloom are relevant to determining whether a stream is impaired – just as they are relevant for floating solids or foam. But again, no standards for such relevant factors are set forth in 47 CSR 2 §3 for other conditions prohibited in this section. Historically, there has been a degree of both ambiguity and flexibility in the "Conditions Not Allowable in State Waters."

COMMENT B. *Acceptable levels of algae*

There is no attempt to define acceptable levels of algae in a river. There is no attempt to put forward a standard which provides a point of compliance for any of the regulated community.

RESPONSE B. See Response to Comment 33.A.

COMMENT C. *User surveys*

There has been no attempt to survey users or any person to determine an acceptable level of algal growth. There is no discussion with regard to very relevant factors as to whether an algal bloom is in fact impeding any use--such as the size and duration of a bloom.

RESPONSE C. See Response to Comment 33.A.

COMMENT D. *Economic feasibility*

The standard is not economically or technically feasible for the city or the town. The capitol costs of ongoing operation and maintenance costs which would be required to be absorbed by these small communities is huge, likely into the millions of dollars combined up and down the river, when compared to the small benefit to be gained by the standard.

RESPONSE D. Technology does exist that will enable compliance with the proposed Greenbrier River phosphorus criterion. Economic impact is not listed in W. Va. Code § 22-11-7(b) among the factors the Agency can consider in developing water quality standards.. However, municipalities have the option to apply for a variance from the standard if it is economically infeasible to meet. The DEP believes that elimination or significant reduction of severe algae blooms on the Greenbrier River will be a tremendous benefit to recreational use of the river.

COMMENT E. *Impact of costs*

The impact of such costs on consumer rates to address what is an aesthetic concern which occurs only in certain stretches of the river and which are of limited time duration is not a good use of public dollars when other alternative means of control can be explored. Implementation of the rule would remove any and all possible flexibility.

RESPONSE E. In any given year, 30-60 miles of the Greenbrier River are impacted by algae bloom. This amounts to about one-third to one-half of the river's length below Marlinton. Large sections of the river are undesirable for swimming or fishing. Drinking water odors associated with the algae bloom necessitate additional treatment of the river water by drinking water suppliers. The conditions commonly continue for around three months. The Agency does not agree that algae blooms are simply an "aesthetic concern."

The algal blooms occur over such a large area of the river that algaecides or enzymes designed for small scale application, such as farm ponds, would not be appropriate to use in a large flowing river

system. Large-scale addition of such chemical or biological agents would, in itself, seem to be a violation of water quality standards.

COMMENT F. *Phosphorus control placed on very few wastewater treatment facilities*

As the EQB noted in its Final Order, the agency, by this rule, places the entire onus of phosphorus control upon a very few wastewater treatment facilities, and even if met, the testimony was clear that algal growth may still occur.

RESPONSE F. The proposed phosphorus criterion for the Greenbrier River is set at a level which data indicate will prevent major algae blooms that impair the river's uses. There are no special provisions attached to the Greenbrier River phosphorus criterion which would make it apply only to a very few wastewater treatment facilities. As it does all other water quality standards and criteria, the Agency will work through the programs and means within its purview to implement this criterion.

COMMENT G. *Any action by agency should involve impacted communities*

Any action by the agency in this area should be taken in concert with the impacted communities. The Town and the City would strongly urge that the agency consider removing the proposed modifications to the rule cited above and work with the communities to determine what actions can be taken to address any perceived use issues.

RESPONSE G. The "perceived use issues" associated with algae blooms on the Greenbrier River are very real and have been a longstanding annual occurrence. The commenters refer to the problem as only an "aesthetic concern" and convey that the "small benefit" gained by phosphorus removal is "not a good use of public dollars." The Agency has been given the responsibility by the people of West Virginia to ensure that the waters of the State remain usable, and it cannot assume that voluntary initiative alone - without any regulatory requirements - will be adequate to alleviate the problem on the Greenbrier River.

34. COMMENTER: U.S.EPA Region III

COMMENT A. *Implementation procedures for narrative criteria*

To ensure that narrative criteria are attained, EPA encourages the State to develop implementation procedures for the added "Conditions Not Allowable in State Waters" (i.e., water withdrawal activities and presence of algae blooms that would alter the integrity of waters of the State). Such implementation procedures should address all mechanisms to be used by the State to ensure that narrative criteria are attained.

RESPONSE A. Once the proposed rule has received final approval from both the Legislature and the EPA, the DEP is open to developing implementation procedures for the narrative criteria where necessary.

COMMENT B. *Ward Hollow Variance*

The proposed rule extends the Ward Hollow of Davis Creek variance for chlorides from July 1, 2010 to July 1, 2014. EPA reminds the state that during its last triennial review the State extended the Ward Hollow variance from July 1, 2008 to July 1, 2010 and is now extending this variance from July 1, 2010 to July 1, 2014. The State should not simply extend the expiration date of variances without any reevaluation. A variance is based on a use attainability demonstration and targets achievement of the highest attainable use and associated criteria during the variance period. Since the variance was approved in 2006, what targets and achievement has occurred since then and what targets and achievement does West Virginia have planned for the discharger until 2014? West Virginia must provide EPA documentation in support of the extension of this variance should show that the conditions for granting a variance still apply and that the variance provisions are consistent with 40 CFR 131.10(g). Discharger-specific variances should also include a demonstration that alternative control strategies were evaluated as part of the showing that standards were not attainable.

RESPONSE B. The DEP acknowledges the comment and understands that the documentation showing that the conditions for granting the variance still apply and will need to be provided at the time of final EPA approval.

COMMENT C. *Algae bloom not defined*

The term algae bloom is general in nature and is not defined in regulation. Growth of periphyton, phytoplankton and filamentous algae can cause different types of impairment immediately or in the future. In the case of streams, the studies performed which resulted in the proposed total phosphorus (TP) criteria for Greenbrier River was partially based on correlation between percent substrate coverage of filamentous algae and TP concentration. Without any specific guidelines, the enforcement of this narrative criterion will be very subjective. With respect to filamentous algae, EPA recommends that West Virginia include in Section8.3.b.1.A an actual response criterion such as 20% coverage of stream width with algal mats or something more specific and enforceable in addition to the algae bloom provision of Section 3.2.g.

RESPONSE C. By this proposal DEP is seeking to clarify that algae, like bacteria, can interfere with designated use attainment. Algal blooms are common on some of the State's most popular recreational streams and have resulted in numerous complaints to the Agency during the past few years. The Agency will consider incorporating an actual percent bottom coverage or other quantifiable guidelines for excessive algae in future rulemaking. None of the other narrative criteria approved in the past (e.g., foam, sludge banks, oily slicks, etc.) specify volumes or percent coverage. Until this occurs, the Agency has the burden of proof to demonstrate that the narrative criteria are being violated to the point that designated uses are being impaired.

COMMENT D. *Protection of downstream uses*

Although Section 6.1.c. in the Water Use Categories section discusses taking into consideration the quality of downstream water quality, WVDEP has provided no information on how the criterion will be protective of downstream uses below the mainstem Greenbrier River. EPA recommends that

West Virginia provide to EPA information on how the criterion will be protective of downstream uses.

RESPONSE D. The DEP acknowledges the comment and understands that the documentation showing that criteria will be protective of downstream uses will need to be provided at the time of final EPA approval. The total phosphorus criterion proposed for the Greenbrier River is 10 μg/l, which is consistent with EPA's eco-regional criteria which presumably have taken into consideration downstream uses.

COMMENT E. *Supporting documentation for stream nutrient criteria*

To meet 40 CFR 131.6, "Minimum requirements for water quality standards submission," WVDEP needs to provide "(b) Methods used and analyses conducted to support water quality standards revisions." EPA requests support documentation explaining how the proposed nutrient criteria were derived. The study mentioned above provided much of methods, processes and reasoning for the criterion which was chosen. However, WVDEP will need to provide formal documentation that takes us through the process it went through: data/analyses/lines of evidence you looked at, how much emphasis you gave to those various analyses and why (e.g., if an analysis was not used when calculating the criterion, explain why not), and most importantly, how you ultimately chose the proposed number. This required documentation will aid EPA in determining whether the new TP nutrient criterion for the mainstem Greenbrier River is protective.

RESPONSE E. Draft rationale was submitted to EPA on July 14, 2010. Final rationale will be submitted to EPA once the proposed rule receives Legislative approval.

COMMENT F. *Greenbrier tributary nutrient criteria*

Why is this TP criterion applicable only for the mainstem of Greenbrier River and does not apply to the tributary streams as well? Although the above-mentioned study notes that all of the noted impairments are below wastewater treatment plants (or where receiving streams enter the mainstem), Howard Creek, a tributary to the Greenbrier River, has high TP which might need to be addressed in this criteria development.

RESPONSE F. The TP criterion is stream specific and is only meant to apply to the section of the mainstem Greenbrier River where algae blooms have occurred in problematic levels. Algae blooms on Howard Creek have been very limited and have not risen to the level of impact evidenced on the Greenbrier River. DEP believes Differing combinations of stream shading and water chemistry are responsible for this lack of algal growth in Howard Creek, despite elevated TP concentrations. This further supports the need for a waterbody-by-waterbody approach, when algal growth is excessive.

COMMENT G. *Total nitrogen criteria*

EPA encourages WVDEP to also develop total nitrogen criteria for its streams and rivers. The most current science shows both nitrogen and phosphorus can be the limiting nutrient over time and space in rivers and streams.

RESPONSE G. The DEP believes that nutrient criteria development in West Virginia will need to be stream specific. There are many variables (e.g., alkalinity, hardness, temperature, pH, turbidity) that affect response to nutrient pollution. The DEP has developed a list of nutrient sensitive streams on which to concentrate its criteria development. The limiting nutrients will be evaluated for each stream. In the case of the Greenbrier River, the limiting nutrient was determined to be phosphorus. If further research reveals that nitrogen is a limiting nutrient in other streams, then appropriate criteria will be considered.

COMMENT H. *Downstream water quality (reservoirs)*

Although Section 6.1.c. in the Water Use Categories section discusses taking into consideration the quality of downstream water quality, WVDEP should provide information on how the revised criteria will be protective of downstream uses below the reservoirs.

RESPONSE H. In general, reservoirs are much more sensitive to nutrient impairment than streams. While algae blooms are somewhat common in reservoirs, they are very uncommon in streams. Controlling nutrients in reservoirs to the point that algae blooms do not occur should protect downstream uses. With respect to nutrients, one major component of protecting downstream uses will be implementation of the Chesapeake Bay TMDL (currently being finalized) in the Potomac River drainage of Wes Virginia. In addition, it is likely that future load allocations for nutrients in the Ohio River drainage of West Virginia will be developed to address the Gulf of Mexico hypoxia issue.

COMMENT I. *Supporting documentation for lake nutrient criteria*

To meet 40 CFR 131.6, "Minimum requirements for water quality standards submission," WVDEP needs to provide "(b) Methods used and analyses conducted to support water quality standards revisions." EPA requests support documentation explaining how the proposed nutrient criteria were derived. Please provide documentation that takes us through the process you went through: data/analyses/lines of evidence you looked at, weight given to those various analyses and why (e.g., if an analysis was not given equal weight, explain why not), and most importantly, how you ultimately chose the proposed numbers. This required documentation will aid EPA in determining whether the new TP nutrient criteria for lakes are protective.

RESPONSE I. See Response to Comment 34. E.

COMMENT J. *Additional lines of evidence for 2010 proposed nutrient criteria*

In the 2008 version of its rationale document, WVDEP provided several lines of evidence that were examined for the 2008 criteria. EPA now needs an explanation of what additional analyses were performed since then, if any; which lines of evidence were used for the 2010 criteria; and how the 2010 criteria were calculated/chosen.

RESPONSE J. See Response to Comment 34. E.

COMMENT K. *Selecting lines of evidence for proposed nutrient criteria*

WVDEP should include its criteria for selecting which lines of evidence to use (e.g., only correlations with R2 > x will be used) in the documentation given to EPA. This will bolster any claims by West Virginia that a particular line of evidence is not strong enough to include for criteria derivation and will help EPA and any other interested parties to reproduce the criteria calculation.

RESPONSE K. See Response to Comment 34. E.

COMMENT L. *Warmwater nutrient criteria may not be protective enough*

EPA is concerned that 40 µg/L TP and 20 µg/L chlorophyll a for warm water lakes will possibly not be protective of WV's aquatic life use for the following reasons:

Previous analyses conducted by EPA showed that 30 µg/L TP and 10 µg/L chlorophyll a would probably be protective of aquatic life for all WV lakes (warm water and cool water) combined in one category. As proposed in Section 8.3.a.2, separate nutrient criteria are being revised for cool and warm water lakes. If WVDEP wishes to have a separate classification for warm water lakes or sport fisheries, some previous EPA analyses showed that values as high as 36 µg/L P could result in a 50% likelihood of a good/excellent fishery rating but may not protect the gamut of aquatic life expected in those lakes. EPA modeling showed the hypolimnion could have DO levels less than 2 mg/L for about half the year when TP is 30 mg/L or higher.

EPA analyses of log10-transformed TP versus DO showed that epilimnetic DO criteria would not be met when TP concentrations exceed 26 (using WV data only, R2 = 0.17) or 32 µg/L (using WV and VA dataset, R2 = 0.24), assuming the daily dissolved oxygen fluctuation is only 1 mg/L, which may not be a sufficiently protective assumption. Using a DO flux of 1.5 mg/L resulted in maximum TP concentrations of 11-18 µg/L before DO criteria would not be met. Please provide any data showing that DO criteria are met when the TP ranges from 26-40 µg/L.

RESPONSE L. See Response to Comment 34. E. Further, DEP reminds EPA that a dissolved oxygen criteria exists which is applicable to all West Virginia lakes regardless of a lakes phosphorus criterion. Dissolved oxygen concentrations below the criterion would result in a regulatory action.

COMMENT M. *Listing of warm and cool water lakes*

Although the data thus far presented to EPA did not provide a compelling basis for separating cool and warm water lakes, West Virginia can choose to differentiate between cool and warm water fisheries. However, the distinctions between cool and warm lakes that West Virginia is making appears to be based not on water temperature, but rather on the fish expected to be present or stocked. That suggests that adoption of different aquatic life subcategories might be appropriate. In either case, including a complete list of waters in both the warm water and cool water lakes categories (as opposed to a "representative list" in Appendix F) would make it clearer to the public, permit writers, and assessment/TMDL personnel which criteria are in effect for a given waterbody.

RESPONSE M. The DEP does not believe that a different aquatic life subcategory is necessary to implement the cool and warm water lakes criteria. All cool water lakes will be included in the final version of Appendix F. All other lakes by default will be considered warm water.

COMMENT N. *Process for determining cool water lake nutrient criteria*

The 30 µg/L TP and 10 µg/L chlorophyll a criteria may be protective of aquatic life for cool water WV lakes. However, as noted above, you will need to provide documentation that takes us through the process you went through: data/analyses/lines of evidence you looked at, emphasis given to those various analyses and why (e.g., if an analysis was not used when calculating the criteria, explain why not), and most importantly, how you ultimately chose the proposed numbers. The analysis done by EPA utilized data provided in the 2008 rationale document. New data and literature citations should be included in the analysis for deriving these numbers. Until this support document for both cool and warm water lakes is provided, EPA reserves judgment on the protectiveness of these revised lake nutrient criteria.

RESPONSE N. See Response to Comment 34. E.

COMMENT O. *Total nitrogen criteria for lakes*

EPA encourages WVDEP to also develop total nitrogen criteria for its lakes. The most current science shows both nitrogen and phosphorus can be the limiting nutrient over time and space in lakes.

RESPONSE O. After a very thorough process of lake water quality data analysis, the Nutrient Criteria Committee (NCC) determined that West Virginia lakes are limited by phosphorus and that controlling nitrogen would not result in any appreciable improvement in water quality. At this time, the DEP does not believe that it is advantageous or necessary to implement total nitrogen criteria for lakes.

COMMENT P. *Independent application of water quality criteria*

EPA has a longstanding policy that each criterion in a water quality standard applies independently. EPA recommends that Section 8.3.a.3. be deleted from these proposed regulatory changes. Requiring both TP and chlorophyll a criteria to be exceeded before a lake is considered impaired could be problematic for the following reasons:

- *Confounding factors may prevent an observed response in chlorophyll a (e.g., shade, sediment);*
- *Time lag between loading and response can cause a response at a different space and time;*
- *Potential export of excessive nutrients downstream can cause downstream responses.*

RESPONSE P. When considering the application of specific water quality criteria, the fundamental issue is whether or not designated uses are being protected. In the case of reservoirs, the presence of phosphorus alone is not going to cause impairment unless there is a corresponding algae bloom and increase in chlorophyll-a. For example, if turbidity is preventing a bloom from occurring, it makes no difference what the level of phosphorus is in the water column; the designated use is not being impaired by phosphorus. If the turbidity diminishes to the point where a bloom occurs, then a corresponding exceedance of the chlorophyll-a criterion would lead to an impaired condition. Thus,

chlorophyll-a should be the parameter that ultimately determines whether or not there is nutrient impairment in lakes. The high chlorophyll-a would then be controlled through phosphorus reduction. If sedimentation is the fundamental problem, then reductions in sediment loadings would be in order. High phosphorus alone will not necessarily lead to a designated use impairment in a reservoir, thus the DEP believes that phosphorus and chlorophyll-a criteria should be applied jointly rather than independently to determine whether the designated use is being met.

COMMENT Q. *Rationale for proposed water quality criteria*

EPA reminds West Virginia that WQS must be based on a sound scientific rationale and must contain sufficient parameters to protect the designated use(s). West Virginia's submission for approval to EPA for the above proposed changes must include a discussion and rationale of new and revised criteria.

RESPONSE Q. DEP acknowledges its responsibility and will submit a discussion and rational of its new and revised criteria when the proposed rule receives Legislative approval.

COMMENT R. *Evaluation of current water quality criteria*

EPA encourages the State to evaluate whether all of its water quality criteria are still protective of designated uses, taking into consideration any new information.

RESPONSE R. DEP acknowledges its responsibility to evaluate its water quality criteria to ensure that they are protective of designated uses.

COMMENT S. *Use of EPA's latest national recommended water quality criteria*

Since West Virginia's last triennial review (2007) EPA has updated its National Recommended Water Quality Criteria published pursuant to Section 304(a) of the Clean Water Act (CWA). EPA encourages West Virginia to use EPA's latest compilation of national recommended water quality criteria as guidance for updating and adopting West Virginia's water quality standards.

RESPONSE S. The DEP will consider EPA's latest national recommended water quality criteria as a guideline when revising criteria during the triennial review process.

35. COMMENTER: West Virginia Rivers Coalition

COMMENT A. *Regulation of water withdrawals*

West Virginia currently has little regulation and no permit process for water withdrawals from streams, rivers and wells, to provide the water this new drilling activity (Marcellus wells) will require. We cannot sit back and wait for the Office of Water and the state legislature to enact a statewide water resources protection plan in 2013. If we wait, streams will be de-watered and valuable resources lost.

We urge the DEP to draft legislation for immediate consideration by the West Virginia

Legislature that will establish guidelines and a permit process for water withdrawals.

RESPONSE A. See Response to Comment 1.A.

COMMENT B. *Proposed changes to Section 7.2.a.2 of water quality standards*

We oppose WVDEP's proposed changes to Section 7.2.a.2 for several reasons:

WVDEP proposes to strike the 2010 expiration date and does not include a new expiration date. This would make this change permanent, and would remove any incentive for Weirton Steel to correct its discharge so that it does not discharge pollutants at concentrations in excess of the Category A criteria within one-half mile of a public water supply intake.

The original language specifically mentions Weirton Steel and iron. The new language deletes all references to Weirton Steel, and deletes the reference to iron. However, the new language presumably still applies to Weirton Steel because of the river mile points in the rule. If WVDEP is writing a specific exemption into the rule, it should mention the discharger(s) and pollutant(s) by name so that this section is transparent and understandable by the public, regulators, and the courts.

WVDEP proposes to allow mixing zones within the one-half mile above water supply intakes. Because the mixing zones do not allow this, WVDEP proposes to exempt Section 5.2.h.6 from applying. Section 5.2.h.6 specifically prohibits mixing zones that "Overlap any 1/2 mile zone described in section 7.2.a.2 herein." In other words, Section 5.2.h.6 only applies to the very specific paragraph in which WVDEP proposes exempting it! While we do not suggest that WVDEP take this action, a more direct solution would be to simply strike Section 5.2.h.6. We suspect that WVDEP has not taken this direct approach because it would be illegal, and USEPA would not approve the change. We contend that this change, even as written, is illegal, and strongly suspect that USEPA would not approve it.

WVDEP proposes to remove the requirements for Weirton Steel to monitor its treated water at its drinking water plant and to submit a status report. Was this monitoring conducted? Please provide us with a copy of the written report that was due on or before March 1, 2007.

RESPONSE B. See response to Comment 1.B. The West Virginia water quality standards rule, 47 CSR 2 §7.2.a.2, establishes a segment extending upstream from the intake of a water supply public (Water Use Category A) for a distance of one-half (1/2) mile that must be protected by prohibiting the discharge of any pollutants in excess of the concentrations designated for this Water Use Category in section 8 of the rule. This rule ("Half-Mile Rule") prohibits a mixing zone being granted for any discharge within one-half mile of a public water supply intake and was created as an additional protective zone for public drinking water supplies. The purpose of the Half-Mile Rule was to avoid placing a drinking water supplier in the unfair position of having additional water treatment costs due to discharges by unrelated point sources. 47 CSR 2 §7.2.a.2 also provides a temporary exception to the one-half mile zone until September 1, 2010 for the Ohio River main channel between river mile points 61.0 and 63.5 for the Category A water quality criterion for total iron.

The DEP proposes the revision to make a site-specific exception to the Half-Mile Rule so that it shall not apply to the Ohio River main channel (between Brown's Island and the left descending bank) between river mile points 61.0 and 63.5. All mixing zone regulations found in section 5 of this rule will apply except 47 CSR 2 §5.2.h.6. The result of this exception is that it allows consideration of mixing zones in the identified section of the Ohio River in accordance with West Virginia mixing zone regulations found in Section 5, and as established in a permit by the Director of the West Virginia Division of Water and Waste Management. Additionally, because the use would be fully attained at the edge of the mixing zone, which would not be allowed to overlap the drinking water intake, this site-specific exemption from the Half-Mile Rule maintains protection of the designated and existing drinking water use by meeting the protective criteria before the intake, thereby ensuring the protection of the designated water uses as set forth in 40 CFR Part 131.

Although the State, through the submittal of this revision, is exempting particular dischargers from the half-mile zone, the approval of the revision does not imply that any mixing zones should be permitted. Whether a mixing zone is appropriate, and the proper size of such zones would need to be considered on a site-specific basis in accordance with the EPA-approved West Virginia mixing zone regulation in 47 CSR 2 §5. These regulations require that the mixing zones for human health criteria be sized to prevent significant human health risks, considering the exposure pathway, as per 47 CSR 2 §5.2.c; see also "Water Quality Handbook, Chapter 5, General Policies" pages 5-7, EPA Office of Water, EPA 823-B-94-005a (August 1994). In general, this means that a drinking water intake should not be within a mixing zone, but rather the human health criteria should be met before the intake. Based on the above-referenced documents, the State can clearly allow - through a permit - a limited mixing zone prior to a drinking water intake that meets the conditions of the exception, which would require that the human health criteria be met before the intake. Therefore, the West Virginia WQS regulations, as modified by this revision, would still be fully protective of the public water supply use in this segment of the Ohio River while eliminating unnecessary treatment costs to the regulated community.

COMMENT C. *Independent application of water quality criteria*

We do not support the addition of this paragraph that establishes the requirement for an impairment to be determined only in the case that both phosphorus and chlorophyll-a exceed standards. This proposed weakening of the rules is a slap in the face to the diverse stakeholders who met for years to reach consensus on the lake nutrient criteria in Section 8.3.a. In addition, this new paragraph directly contradicts USEPA guidance on the development of nutrient criteria, which envisions independent criteria for causal variables (including phosphorus) and response variables (including chlorophyll-a).

RESPONSE C. See Response to Comment 34.P.

COMMENT D. *Chlorophyll A levels in Greenbrier River*

Finally, we must note that WVDEP's new paragraph to handle the Greenbrier River (Section 8.3.b.1, discussed below) proposes to determine impairment based on phosphorus levels without the additional requirement of high chlorophyll-a levels. The agency's willingness to use this approach

for the Greenbrier River is inconsistent with, and undermines the justification for, the attempt to weaken the rule for lakes and reservoirs.

RESPONSE D. The planktonic species of algae that causes problems in lakes typically leads to high chlorophyll levels in the water column and subsequent algae die-off, which leads to dissolved oxygen (D.O.) depletion. Thus chlorophyll-a can serve as a surrogate parameter for nutrient pollution in lakes. This type of problem is unique to lakes and rarely manifests itself in streams. The type of algae that is problematic in streams is the filamentous variety that essentially can cover the stream bottom and sometimes forms thick mats on the surface.

The primary designated use affected by the high chlorophyll-a and low D.O. in lakes is the aquatic life use. The primary designated use affected by filamentous algae in streams is the recreational use. Low D.O. has not been found to be problematic in streams with nutrient impairment. Thus, chlorophyll-a is a poor surrogate for determining impairment in streams. Lakes criteria and stream criteria are based on the protection of different designated uses and should not be directly compared to one another.

COMMENT E. *Reconvening the Nutrient Criteria Committee*

The state has made no progress on developing nutrient criteria for rivers and streams state wide. The West Virginia Rivers Coalition actively participated in DEP's Nutrient Criteria Committee meetings for several years. However, the nutrient committee has not been active on this issue since 2006. Because the far greater volume of nutrients are discharged into and carried by rivers and streams, the development of criteria for rivers and streams is critical to ongoing aquatic health within our state and beyond. West Virginia's Rivers and streams transport nutrients downstream to the Chesapeake Bay and Ohio River, and ultimately the Gulf of Mexico. Both the Bay and the Gulf are currently struggling with the environmental consequences of elevated nutrient levels. Under the Federal Clean Water Act, West Virginia has an obligation not to contribute to degradation of its downstream neighbors.

We urge the DEP to reconvene the Nutrient Committee and move the criteria-setting process for rivers and streams forward as expeditiously as possible.

RESPONSE E. During the development of lakes nutrient criteria by the Nutrient Criteria Committee (NCC), the Legislature transferred the responsibility for promulgating water quality standards from the Environmental Quality Board (EQB) to the DEP. This transition was significant and it took a great deal of time for DEP to assemble a staff and determine how to implement this brand new program. During this transition period, the NCC proposed lake water quality criteria to the DEP. Development of these criteria was a multi-year process and involved a tremendous amount of resources, as well as a great deal of difficulty reaching consensus among committee members. The criteria that were agreed upon by the NCC were proposed to the Legislature in 2007 and were not acted upon. DEP proposed the criteria again in 2008 and they were passed by Legislature, but EPA did not approve them. Instead, EPA took no action on the nutrients and approved the remainder of the rule. Since EPA's rejection of the NCC-recommended criteria, the DEP has been working with the EPA and collecting additional data in an effort to propose criteria that are scientifically

supportable. The additional data and analysis supports the lake nutrient criteria currently being proposed.

With respect to streams, the DEP believes that development of a single Statewide criterion would not be appropriate. Due to the unique physical and chemical nature of individual streams, criteria will need to be developed on a stream-by-stream basis. Even under ideal circumstances, it will take years to accumulate and analyze data for this purpose. At this point, the DEP does not believe it would be advantageous to reconvene the NCC. However, the DEP remains open to the possibility of reconvening the NCC in the future when a body of stream nutrient and algal data is available.

COMMENT F. *Proposed Iron criterion*

We strongly oppose weakening the current water quality standard for iron on West Virginia's Category B-2 trout waters by increasing the current limit of 0.5 parts per million of iron to 1.0 parts per million, as proposed by DEP.

Toxicity studies of iron on aquatic life are rare. DEP has cited a more than 30-year-old study by DNR fisheries biologist Ray Menendez that said trout could survive iron levels as high as 1.37 parts per million. However, these lab studies were done using city water and altering the pH levels by adding vinegar.

Toxicity studies of iron on aquatic life that include pH levels as a variable are even rarer. This is important in West Virginia, where many of our headwater trout streams are impacted by acid precipitation and often have pH levels much lower than 8. It is also important because the lab study that led to EPA's recommendation of a federal standard of 1.0 parts per million, did not include pH levels as a variable.

None of the studies in the current literature take into account the unique characteristics of West Virginia trout waters: low conductivity, low ionic strength, and low acid neutralization capacity.

RESPONSE F. See Response 1.D.

COMMENT G. *Effect of proposed Iron criterion on TMDL's*

Another practical implication of changing the iron standard would be its effect on existing TMDLs. At least 22 TMDL reports in West Virginia have addressed iron. These reports include dozens if not hundreds of individual TMDLs for specific stream segments. If the iron criteria were to change, then the wasteload allocations in the TMDLs would no longer be valid. This would have a cascading effect on coal mine NPDES permits that have already been written to implement the TMDL. It would also significantly impact new NPDES permits for coal mines.

As a result, this change would impose significant costs on WVDEP. The agency would need to redo at least 22 TMDL reports that include dozens, if not hundreds, of stream segments and modify numerous permits that have been written based on the existing iron criterion.

There is ample justification for retaining an iron standard for West Virginia trout waters that is more restrictive than the federal standard. At the very least, the standard should not be changed

until more thorough studies are conducted that consider the unique water quality characteristics of West Virginia's trout waters.

RESPONSE G. When a water quality standard is found to be either overprotective or underprotective of the use it is intended to protect, it should be corrected. The fact that changing a standard may affect a permit or a TMDL should have little bearing on the decision to make a standard more accurate and scientifically defensible. Additionally, since the majority of the existing TMDLs have been done on warm water streams, these TMDLs would not be impacted by the proposed change.

COMMENT H. *Proposed TDS standard*

We support the establishment of a TDS standard for West Virginia. It is long past due. However, we do not support DEP's recommended standard of 500 mg/l. We strongly recommend that the standard be set at 250mg/l, which is the USEPA recommended Human Health Standard for total dissolved solids.

DEP has provided no explanation why West Virginia's standard should not be at least as stringent as the Federal standard. We believe there is no acceptable explanation.

In addition, we believe it is imperative that DEP propose and finalize an aquatic life criteria for conductivity that is consistent with the April 1st 2010 USEPA guidance documents on TDS and Aquatic life (see attached). In addition, any TDS/conductivity criteria should be protective of streams threatened by golden algae.

RESPONSE H. See Response to Comment 1.E.

36. COMMENTER: West Virginia American Water

COMMENT A. *Water withdrawals*

As a utility dependent on withdrawal of surface water to produce public drinking water, West Virginia American Water is concerned with the language change regarding withdrawal activities. While most of our water treatment facilities currently enjoy abundant surface water supplies, future withdrawals may impact the physical characteristics of streams during low flow periods. Of greatest concern is the possibility that the supply of drinking water to our customers will be limited because of potential impacts on the benthic community.

RESPONSE A. The DEP has been exploring the issues related to surface water withdrawal since passage of the Water Resources Protection and Management Act in 2004 (amended in 2008). This Act did not grant the DEP water withdrawal permitting authority. Surface water withdrawals are typically either from a permanent structure to supply a nearby permanent facility or relatively short term, temporary withdrawals, where the water is trucked to another location for use. The Corp of Engineers section 404 and corresponding State section 401 certification permitting processes required for permanent withdrawal locations have generally insured such withdrawals will not adversely impact stream habitat quality, except possibly during the most severe drought

conditions. The short term, temporary withdrawals may pose a greater risk to stream habitat quality, as well as affecting the quantity available for more conventional permanent intakes.

The DEP is attempting to address these issues by contracting with the United States Geological Survey (USGS) and cooperating with the West Virginia Division of Natural Resources on a study aimed at quantifying the relationship between stream flow and habitat quality. The DEP has developed a water withdrawal guidance tool, which may be found on the DEP's Water Use Section web site to aid in maintaining adequate flows in streams.

COMMENT B. *Stream nutrient criteria*

Section 8.3.b sets forth the criteria for nutrients in streams. West Virginia American Water supports the WVDEP's "one size does not fit all" approach and agrees that establishing nutrient criteria for only those streams deemed impaired is the most effective way to protect water quality. West Virginia American Water further suggests that mechanisms be developed to control the non-point sources of nutrient loading of the waters of the state as these sources have tremendous impact on water quality.

RESPONSE B. When evaluating streams for nutrient impairment, the DEP considers all sources of contamination, including non-point sources. TMDLs that are developed always consider inputs from both point and non-point sources, with wasteload allocations given to the point sources and load allocations given to the non-point sources. Outside of the TMDL process, the DEP has no authority over non-point sources through the NPDES program, but works closely with the non-point community through the non-point program within the Division of Water and Waste Management.

COMMENT C. *TDS criteria*

West Virginia American Water is concerned with the levels of Total Dissolved Solids (TDS) within state waters. Currently acid mine drainage and large volume hydraulic fracture fluids (gas drilling brine) have created a number of water treatment issues for drinking water utilities along the entire length of the Ohio River and elsewhere across the state.

Having expressed that concern, WVAW urges the WVDEP to proceed with caution in imposing an actual water quality standard for TDS. While easy to impose, the use of generic monitoring parameters such as TDS limits may not be the best solution to resolving this issue. Additional research is suggested to determine the specific component(s) of TDS contributing to water treatment problems and consider specific water quality standards for those contaminant(s).

High levels of sulfates, a component of TDS, can have a negative impact on the general health of the human population. Elevated sulfate levels in drinking water can cause cases of intestinal distress. As a result there may be an increased need for public notice warnings to the general public of possible health concerns.

RESPONSE C. See Responses to Comment 1.E. and Comment 9.A.

COMMENT D. *Bromide*

Elevated bromide concentrations pose the greatest concern to drinking water utilities because they lead to higher than normal levels of brominated disinfection by-products. Drinking Water Systems must currently meet maximum contaminant levels for trihalomethanes (80 ppb) and haloacetic acids (60 ppb). The levels of brominated disinfection by-products seen at various intakes along the Ohio River and in other WV locations in the fall of 2008 and 2009 were unprecedented and caused dramatic elevations in the running annual average values water utilities had to report to the West Virginia Bureau for Public Health for compliance purposes. While drought conditions did prevail during this time, droughts over the past 30 years have occurred without elevations in the levels of brominated disinfection by-products. Since the brominated species are formed very early in the treatment process and are relatively stable, use of alternative oxidants and other conventional methods for removal are futile. It is therefore
recommended that the WVDEP investigate and consider adding a standard for bromine and bromine related compounds to its Water Quality Standards. Should this problem go unchecked, water utilities will have to make significant capital investments in treatment processes to remove bromine in order to meet the current drinking water MCLs for disinfection by-products. Obviously these additional expenditures will negatively impact customer rates.

RESPONSE D. See Response to Comment 30.B.

37. COMMENTER: Allegheny Energy

COMMENT A. *Water withdrawal regulation*

Water Withdrawal regulation through the Surface Water Quality Standards is not appropriate The Proposed Rule would amend Section 3 of 47 CSR 2 titled "Conditions Not Allowable in State Waters" to add a provision that includes "certain water withdrawal activities." AE concurs with comments that have been filed by the West Virginia Chamber of Commerce and others pointing out that the proposal to regulate water withdrawal activities through the surface water quality standards is unwarranted and inappropriate. The proper vehicle for addressing water withdrawal issues is through the State Water Resources Management Plan currently being developed by the West Virginia Department of Environmental Protection ("WVDEP") pursuant to the mandates of the Water Resources Protection and Management Act, W. Va. Code § 22-26-1 et seq.

RESPONSE A. See Response to Comment 24.A.

COMMENT B. *Overlap of mixing zones*

The commenter feels the prohibition on the overlap of mixing zones is not necessary to protect designated human health or aquatic life uses of water bodies and has the effect of truncating mixing zones based solely on the location of an upstream or downstream discharge point. The commenter believes Section 5.2.h.5 should be deleted from the water quality standards rule. Additionally, the commenter believes a blanket prohibition on the overlap of mixing zones in which the same pollutant is not being discharged, is unnecessary to protect designated human health or aquatic life uses of water. Also, the commenter recommends that Category A designations should be reevaluated and

that Category A designations and standards should only be applied for discharges within one-half mile of a drinking water intake.

RESPONSE B. The DEP appreciates the comment; however, the comment is outside the scope of proposed revisions and, therefore, requires no response.

COMMENT C. *TDS criteria*

Although the Proposed Rule advanced by the WVDEP would impose the TDS criterion as an "instream" standard, as opposed to an end-of-pipe limitation as was proposed in Pennsylvania, the likely negative effects of the rule would be very similar. For this reason AE is providing a copy of comments it filed on the proposed Pennsylvania rule along with a copy of comments filed by the Pennsylvania Electric Power Generation Association, and requests that the WVDEP consider these comments as a part of its current rule-making. AE also endorses and incorporates by reference the comments of the West Virginia Chamber of Commerce and the West Virginia Manufacturers Association with regard to the proposed TDS criterion.

RESPONSE C. See Response to Comment 9. A.

COMMENT D. *Low flow levels for Monongahela River*

AE requests that the WVDEP give consideration to correcting a technical error that exists with regard to the low flow specified in the water quality standards for the Monongahela River. As stated in comments filed by the West Virginia Chamber of Commerce, the current low flow specified by the water quality regulations at 47 CSR 2, §7.2.d.7.1 is an artifact of earlier times when the only artificial regulation of flow on the Monongahela River was by operation of the Tygart Valley dam which assured a minimum flow of 345 cfs. Since that time the Stonewall Jackson dam has been constructed and, through requirements implemented by the Corps of Engineers, assures that the flow from the dam will be maintained at a level of 80 cfs. For these reasons the presumption contained in the current water quality standards should be revised to reflect the added minimum flow from the Stonewall Jackson dam - with the result that the minimum presumed flow for the Monongahela River should be changed to 425 cfs.

RESPONSE D. DEP acknowledges the comment and has revised 47 CSR 2 §7.2.d.7.1 accordingly.

38. COMMENTER: West Virginia Municipal Water Quality Association

COMMENT A. *Narrative Criteria-water withdrawal activities*

We are unclear about the changes proposed to the narrative criteria as set forth in 47-2-3. Specifically, we do not understand how "water withdrawal activities" would cause the prohibited conditions in Section 3.2. We believe the Department should provide an explanation of the types of water withdrawal activities that could trigger these conditions, mindful that water withdrawals for public water supply must be given priority over all other uses, including instream uses.

RESPONSE A. See Response to Comment 36.A.

COMMENT B. *Category A designation*

Section 6-2 describes the Category A drinking water use designation. We believe this section should be revised to specify an upstream segment above the intakes described in this section. Just because a water intake is located on a river or stream does not justify designating the entire river/stream as a Category A water.

RESPONSE B. The DEP appreciates the comment; though, the comment involves language that is outside the scope of the proposed revisions. W.Va. Code §22-11-4(a)(16) and §22-11-7b mandates the DEP protect all surface waters for the present and prospective future used of the waters for domestic, industrial, recreational, scenic, and other legitimate beneficial uses. Public policy reasons for protecting all State waters in this manner include:

- Protecting water supplies for future use;
- Preventing the possibility that public drinking water plants will shoulder the burden of treating water negatively affected by industrial users;
- Ensuring that people who are not conected to a public water supply can still receive safe drinking water;
- Assuring safe drinking water supplies for homeland security purposes; and

Assuring drinking water supplies for future warming/drought conditions

COMMENT C. *Iron criteria*

We question the basis for keeping the Iron criterion, particularly for aquatic life. We note that several states have removed this criterion due to issues with background concentrations. We suggest that DEP also consider the removal of this criterion.

RESPONSE C. See Response to Comment 1.D.

COMMENT D. *Copper criteria*

Regarding freshwater copper, we recommend that a footnote be added to allow the criteria to be calculated using the procedures in document EPA-822-R-007, often referred to as the biotic ligand model.

RESPONSE D. The DEP appreciates the comment; however, the comment involves language that is outside the scope of the proposed revisions and, therefore, requires no response. The DEP may consider the commenter's suggestion in the next water quality standards rule proposal.

COMMENT E. *TDS: Application of criteria*

Our members are in both the drinking and wastewater businesses. Accordingly, it is with great caution that we express concern about criteria proposed to protect public water supplies. However,

we question the science behind this human health criterion. We believe the issue of a TDS standard should be studied and reconsidered with the next triennial review.

Alternatively, because public wastewater facilities do not create TDS, we believe TDS standards should be applied first to facilities discharging FRAC water wastes. After further study of the issue, a future decision could be made whether to impose the standard on other dischargers, such as pass through entities like publicly-owned treatment works (not accepting FRAC water).

If DEP is determined to adopt this unnecessary aesthetic based criterion at this time, it should clarify that this is an instream (rather than end-of-pipe) 500 mg/L monthly average criterion.

RESPONSE E. See Response to Comment 9. A.

COMMENT F. *TDS: Bromide criteria*

Rather than an indicator parameter (TDS), we encourage DEP to evaluate the possible adoption of bromide criteria. We understand that bromide concentrations in source water present the real challenge to public water suppliers rather than TDS levels.

RESPONSE F. See Response to Comment 30.B.

COMMENT G. *E. coli criteria*

We urge the DEP to adopt EPA's 1986 criteria for E.coli for freshwater streams in lieu of the current 1956 fecal coliform criteria. EPA is on record that fecal coliform levels do not correlate with swimmer illness levels while e.coli does. This makes e.coli a far superior criterion to protect public health and to make stream impairment decisions. We recommend that the criteria be set at the 126 CFU/100 ML level and be implemented through monthly effluent limits in NPDES permits.

RESPONSE G. The DEP appreciates the comment; however, the comment involves language that is outside the scope of the proposed revisions and, therefore, requires no response. The DEP may consider the commenter's suggestion in the next water quality standards rule proposal.

39. COMMENTER: Cynthia D. Ellis

COMMENT A. *Marcellus shale drilling*

Marcellus Shale drilling poses threats to birds here due to compromising quality and quantity of available water. It would be helpful if DEP would formulate, for legislative consideration, established guidelines and a permit process for water withdrawals within "Narrative Water Quality Standards."

RESPONSE A. See Response to Comment 1.A.

COMMENT B. *Lake nutrient criteria*

Under "Nutrient Criteria for Lakes," EPA guidance should be followed and either phosphorus or chlorophyll-a should be listed for consideration of "impaired" status.

RESPONSE B. See Response to Comment 34.P.

COMMENT C. *Nutrient Criteria Committee*

The Greenbrier River area earned its own section in the "Birding Guide to West Virginia." It follows then that birders support the phosphorous standard to combat problematic algae there. In addition, with consideration to other rivers and streams, it would be helpful if the Stakeholders Nutrient Committee would be reconvened by DEP and advance the statewide criteria-setting process.

RESPONSE C. DEP appreciates the commenter's support on the proposed Greenbrier phosphorus standard. See Response to Comment 35.E.

COMMENT D. *Iron criteria*

Where trout thrive, birds may also. The water quality standard for "Iron on Trout Streams" should be maintained at 0.5 parts per million, in no small measure due to the imposition of increased costs to the state for re-writing of existing clean-up plans and discharge permits if the standard were changed.

RESPONSE D. See Response to Comment 1.D.

COMMENT E. *TDS and conductivity standards*

Louisiana Waterthrush, Northern Waterthrush, Spotted Sandpiper, and Swainson's Warbler are some of the birds that come to mind when concerned with water quality of streams. The EPA recommends a TDS standard of 250mg/l. That standard and an aquatic life standard for conductivity should be considered to ensure the continuance of these streamside birds here.

RESPONSE E. See Response to Comment 1.E.

COMMENT F. *Weirton Steel variance*

Finally, in the matter of a "Mixing Zone Variance for Weirton Steel," the variance should not be made permanent. The wildlife-sustaining area of Tomlinson Run State Park is nearby, although upriver. However birders and all the general public deserve protection of public water supply intakes.

RESPONSE F. See Response to Comment 1.B.

40. COMMENTER: Carol Warren

COMMENT A. *Permit process for water withdrawals*

DEP's proposed "Narrative Water Quality Standards" language is a positive addition. The water belongs to all the people of the state, and neither individuals nor companies should be allowed to simply tap our water resources without limit. However, this additional language alone does not go far enough to protect West Virginia streams from water withdrawals. We should do more to protect both human health and aquatic life. DEP should draft legislation for immediate consideration by the West Virginia Legislature that establishes guidelines and a permit process for water withdrawals. Activities such as the new Marcellus shale gas drilling, and proposed coal-to-liquid facilities require enormous amounts of water. The water in our streams does vary seasonally, and these aspects should be taken into consideration before permission is given for withdrawals. A specific and stringent permitting process would allow for adequate time and study so that all potential withdrawals are thoroughly examined.

RESPONSE A. See Responses to Comment 1.A. and 36.A.

COMMENT B. *Iron*

DEP is proposing to weaken the water quality standard for iron on Trout Streams by doubling the current limit of 0.5 parts per million of iron to 1.0 parts per million. DEP is basing its decision on studies that don't take into account the unique characteristics of West Virginia trout waters: low pH, low conductivity, low ionic strength, and low acid neutralization capacity. There seems to be no particular reason for the lowering of the standard, which will impose costs on the state. Hundreds of existing clean-up plans (TMDL's) and NPDES discharge permits will also have to be re-written. West Virginia's trout streams are an extremely valuable public resource, which draw large numbers of visitors to our state each year. The iron standard should not be changed until more thorough studies are conducted that consider the unique water quality characteristics of WV's trout waters.

RESPONSE B. See Response to Comment 1.D.

COMMENT C. *Lake nutrient criteria*

DEP is proposing new Nutrient Criteria for Lakes language that would result in lakes not being considered "impaired" unless both phosphorous and chlorophyll-a water quality standards are exceeded. This directly contradicts EPA guidance on the development of nutrient criteria, which recognizes that lakes might be impaired for either phosphorous or chlorophyll-a independently of each other. Our lakes deserve the strongest possible protection, so I must question why DEP would not choose to use both these standards. This provision should be dropped from this rule, and the EPA guidance followed. DEP should proceed immediately to develop Nutrient Criteria for Rivers and Streams as well, and have those in place as soon as possible.

RESPONSE C. See Response 34.P.

COMMENT D. *TDS and conductivity standards*

DEP is proposing a statewide water quality standard for "Total Dissolved Solids" (TDS) of 500mg/l measured in-stream. This is two times the 250mg/l that EPA recommends as the Human Health Standard for total dissolved solids. I find this very disturbing, particularly with the large amounts of Marcellus shale gas drilling that we know are going to be taking place in West Virginia in the coming years. DEP should adopt the federal standard for human health of 250mg/l. In addition, DEP fails to propose in this rule an aquatic life standard for conductivity, with which TDS levels are closely associated. DEP should adopt an aquatic life criterion for conductivity as proposed by EPA.

RESPONSE D. See Response to Comment 1.E.

41. COMMENTER: Robert A. Mertz

COMMENT A. *Permit process for water withdrawals*

DEP's proposed "Narrative Water Quality Standards," DEP should draft legislation for immediate consideration by the West Virginia Legislature that establishes guidelines and a permit process for water withdrawals.

RESPONSE A. See Response to Comment 1.A.

COMMENT B. *Weirton Steel variance*

The Mixing Zone Variance for Weirton Steel must not be made permanent. This would eliminate current monitoring requirements and remove any incentive for Weirton Steel to correct its discharge.

RESPONSE B. See Response to Comment 1.B.

COMMENT C. *Lake nutrient criteria*

The Nutrient Criteria for Lakes language would result in lakes not being considered "impaired" unless both phosphorous and chlorophyll-a water quality standards are exceeded. This contradicts EPA guidance on nutrient criteria. This provision should also be dropped from this rule.

RESPONSE C. See Response to Comment 34.P.

COMMENT D. *Nutrient Criteria Committee*

DEP should recall its Stakeholders Nutrient Committee and get moving on the criteria-setting process for rivers and streams.

RESPONSE D. See Response to Comment 35.E.

COMMENT E. *Iron Criteria*

Do not increase the allowable Iron on Trout Streams from the current limit of 0.5 parts per million of iron to 1.0 parts per million. West Virginia's trout streams are a valuable public resource. The iron standard should not be changed until more thorough studies are conducted that consider the unique water quality characteristics of WV's trout waters.

RESPONSE E. See Response to Comment 1.D.

COMMMENT F. *TDS and conductivity standards*

Total Dissolved Solids should be set at the federal standard for human health of 250mg/l. DEP should adopt an aquatic life criterion for conductivity as proposed by EPA and any criteria for TDS/conductivity should be protective of streams threatened by golden algae.

RESPONSE F. See Response to Comment 1.E.

42. COMMENTER: Town of Ronceverte

COMMENT A. *Impairment from algae in Greenbrier River*

I respectfully submit my objections to the proposed amendments. In the proposed amendments there is no attempt to define acceptable levels of algae in a river. There is no standard for which to measure impairment or use interference from algae blooms on the Greenbrier River. There is not even a determination as to what constitutes impairment for the use of the river.

RESPONSE A. See Response to Comments 33.A.

COMMENT B. *Feasibility of controlling algae*

The WVDEP's position to control the algae by effluent discharge limitations on phosphorus is cause for concern to municipalities along the river. The proposed phosphorus limitations are not financially, nor technologically feasible for any of the communities on the Greenbrier River. Algae are not merely dependent upon phosphorus. There are several other naturally occurring factors, including river flow, shade, water temperature, and weather conditions. None of the other factors have been acknowledged or addressed.

RESPONSE B. See Responses to Comment 33.D. and Comment E.

COMMENT C. *Open dialogue with community*

The City of Ronceverte would be interested in discussing the condition of the river and ways to protect and improve it. Open dialogue is the most advantageous solution to this issue, not unsubstantiated limitations for phosphorus, which create an undue burden on the citizens receiving services from public utilities. Before such a financial strain is put upon the communities for an

unappealing aesthetic quality of the river, more information needs to be provided and more research needs to be evaluated.

I strongly urge the agency to consider removing the proposed amendments and work with the Greenbrier River communities to determine what actions can be taken to address the perceived use issues that will be mutually beneficial for all.

RESPONSE C. See Responses to Comment 33.G and Comment 43.B.

43. COMMENTER: City of Lewisburg

COMMENT A. *Greenbrier River algae*

As written, the proposed modifications to the state's narrative water quality criteria are arbitrary and prescriptive—they assume that by severely restricting the amount of phosphorus exiting several sewer plants that algae growth in various places below the treatment plant will be reduced to a level where there will not be significant impairment of water resource use in the areas of the Greenbrier River where algae growth now exists. This is a very long lasting, very expensive solution to a localized problem in certain areas of the river. And once you go down the path of investing the money on this one "solution" which may or may not actually fix the problem, you will always have this embedded cost and you may then need to look at other alternatives at additional cost.

I suggest now is the time to test the theory that excessive phosphate dumped into the Greenbrier River at several sewer plants is the chief cause of periodic algae blooms in certain sections of the river and not after significant monies have been invested in this technology. If the science at this point does not indicate clearly that sewer plant discharges are the principal culprit and that by reducing the discharge to a specific standard will clearly eliminate the algae problem and at a cost less than other suitable solutions, then now is the time to do the research, not the time to set an arbitrary standard at great up-front and ongoing expense to sewer customers.

RESPONSE A. The DEP has performed very thorough water quality monitoring on the Greenbrier River and it is very obvious that severe algae blooms are occurring below wastewater treatment plant discharges. Scientific studies have revealed that phosphorus is the limiting nutrient causing the blooms to occur. The criteria proposed by the DEP are not arbitrary; they are supported by scientific research. The DEP realizes that there will be costs involved to control the algae blooms in the river. However, the State has an obligation to protect streams from impairment and it began its investigation and research after it received numerous complaints from people who use the river for recreation. In addition to impairment of recreational use, algae blooms have caused taste and odor issues with some water treatment plants, which in some instances has increased treatment costs. The DEP does not believe that additional study is necessary before the problem is corrected.

COMMENT B. *Work with community*

I suggest that any action by the agency regarding phosphate standards and addressing algae growth in the river should be taken in concert with the impacted communities. I urge the agency to remove the proposed modifications to the rule cited above and work with the communities to determine what

actions can be taken to address any perceived use issues. I appreciate the opportunity to comment on the above-referenced rule and look forward to continued dialogue regarding these issues.

RESPONSE B. The Agency conducted public meetings regarding this issue prior to proposing these revisions and is always open to discuss the concerns of the local citizens and government. However, studies and research have shown that phosphorus controls from waste water treatment plants are necessary to prevent severe algae blooms.

44. COMMENTER: West Virginia Chamber of Commerce

COMMENT A. *Regulation of water withdrawals*

It seems that any effort to affirmatively regulate "certain water withdrawal activities" would be handled under the authorities of the Water Resources Protection Act. Further, the WV Chamber questions the necessity of the proposed language. The agency has been collecting water use data for the past five years pursuant to the Water Resources Protection and Management Act (W.Va. Code § 22-26-1 et.seq.), but fails to offer any such data in support of a conclusion that water withdrawal activities are contributing to any water quality issues. Although the Water Pollution Control Act declares it a public policy that, "the water resources of this State with respect to the quantity thereof are available for reasonable use by all of the citizens of this State," the West Virginia Legislature concluded that it needed to develop legislation to address water use and related reporting separate and apart from the statutes and regulations governing water quality.

The Chamber does not support the use of the state water quality standards program for the intended goal of regulating water withdrawal. To the extent new water use restrictions are proposed by DEP, they should be appropriately promulgated within the context of a statute or regulation specifically designed for that purpose.

RESPONSE A. See Responses to Comment 9.B., Comment 24.A. and Comment 36.A.

COMMENT B. *Algae bloom language*

At the May 19, 2010 public meeting in which DEP officially released the proposed revisions, the agency offered anecdotal instances of algae blooms presenting certain recreational use concerns on a very limited number of streams. DEP has not provided any other justification for this proposed revision. The DEP should have a well documented regulatory justification for expanding the scope of the current water quality standards program. The section proposed to be modified to add this new "algae bloom" language is based in part on a federal rule, but the proposed change arguably renders the State rule more stringent than the federal counterpart. DEP has not provided a sufficient justification, as required by W. Va. Code § 22-1-3a, to make this State standard more stringent than federal law. Additionally, DEP has not demonstrated that this revision is necessary for its regulatory authority.

RESPONSE B. W. Va. Code § 22-1-3a states that DEP can promulgate legislative rules that are more stringent than the counterpart federal rule or program if DEP first provides specific written reasons that demonstrate such provisions are reasonably necessary to protect the environment. This

statute clearly states that, in the absence of a federal rule, the adoption of a State rule shall not be construed to be more stringent than a federal rule, unless the absence of a federal rule is the result of a specific federal exemption.

At issue here is a proposed State water quality standard for algae blooms. There are no federal rules setting a water quality standard for algae blooms. In the absence of a federal rule, the State rule shall not be construed to be "more stringent," so the requirements of W. Va. Code §22-1-3a do not apply.

COMMENT C. *Nutrient criteria*

The Chamber has concerns about the nutrient criteria for cool and warm water lakes as set forth in W. Va. C.S.R. § 47-2-8.3.a. These criteria were developed and adopted as part of an extensive stakeholder process. The WV Chamber is concerned, though, that after that extensive work, the DEP is proposing to make the lakes criteria more stringent, without sufficient rationale for the departure from the previously-adopted and broadly supported values. We further caution the agency on developing nutrient criteria for flowing streams. Presently, DEP only proposes nutrient criteria for one stream - the Greenbrier River. It appears DEP acknowledges that nutrient criteria are not appropriate for all streams, and the Chamber concurs with that determination.

RESPONSE C. The DEP proposed lake nutrient criteria as part of its water quality standards rule in 2008. However, EPA did not approve the proposed criteria, stating it did not believe the new criteria were protective enough. EPA felt that the criteria, particularly the numbers for warm water lakes, were set too close to the brink of impairment. The DEP acknowledges that the criteria selected by the Nutrient Criteria Committee (NCC) were a compromise, and that the final recommendations were actually on the high end of the range that was being considered. EPA performed its own analysis of the State's nutrient data prior to making its determination that the proposed criteria may not be protective enough of warm water aquatic life. The EPA actually recommended that the cool water criteria be adopted for all lakes. However, the DEP felt that was too stringent and has proposed a compromise. The criteria the DEP is proposing for total phosphorus (40 µg/l warm water, 30 µg/l cool water) and chlorophyll-a (20 µg/l warm water, 10 µg/l cool water) were within the range being formerly considered the NCC.

COMMENT D. *TDS criteria-lack of scientific justification*

The Chamber urges caution regarding the hasty adoption of water quality criteria for total dissolved solids. The Chamber supports the use of best available science in environmental decision-making. The use of generic monitoring parameters, such as TDS and conductivity, are counter to the best available science.

TDS is a collective term used for all inorganic and organic substances contained in the water that are capable of passing through a two micron filter. These substances may be in a molecular, ionized or suspended form. The presence of TDS in and of itself at any particular level does not equate to toxicity. Indeed, the 500 mg/l TDS criterion being considered as a human health criterion relates to a secondary drinking water standard developed to address aesthetic qualities.

TDS levels may or may not indicate the presence of elevated concentrations of pollutants that are harmful to human health. Without an investigation into the individual parameters that comprise the TDS, one cannot determine whether the various constituents that make up the "TDS" have the potential to be harmful to human health.

The TDS criteria identified in the 2010 Review notice are derived from the National Secondary Drinking Water Regulations promulgated by EPA under the federal Safe Drinking Water Act as "non-mandatory" drinking water quality standards. EPA expressly acknowledges that it does not enforce these "secondary maximum contaminant levels" ("SMCLs"). Rather, SMCLs "are established only as guidelines to assist public water systems in managing their drinking water for aesthetic considerations, such as taste, color and odor. These contaminants are not considered to present a risk to human health at the SMCL." U.S. Environmental Protection Agency, Secondary Drinking Water Regulations: Guidance for Nuisance Chemicals, EPA 810/K-92-001 (July 1992). As noted above, DEP is considering incorporating the SMCL for TDS based on "elevated levels of total dissolved solids on the upper Ohio River the past two years." Not knowing the data relied upon by DEP for this statement, we presume that this reference is to concentrations of TDS observed in recent years in the Monongahela River. However, an in-depth study in this area has demonstrated that those concentrations occurred during drought conditions and that a statistical trend analysis indicated that there was not a statistically significant difference in TDS mass loadings to the Monongahela River over the last seven years. See Evaluation of High TDS Concentrations in the Monongahela River, Tetra Tech NUS, Inc. (January 2009).

The Chamber has spent a considerable amount of time reviewing the science regarding TDS, as well as the efforts regarding TDS in our surrounding States. These efforts clearly indicate the scientific problems associated with the adoption of TDS criteria. In particular, the Chamber urges DEP to evaluate the public comment record for the proposed adoption of TDS criteria by Pennsylvania, including but not limited to the comments of the Pennsylvania Chamber of Business and Industry in opposition to Pennsylvania's proposed TDS criteria. We have included a copy of the Pennsylvania Chamber's comments as an attachment to our letter, and adopt them herein as responsive to DEP's proposed TDS criteria.

RESPONSE D. See Response to Comment 9.A.

COMMENT E. *<u>TDS-application of criteria to all waters of the state</u>*

An additional consideration in the adoption of water quality criteria that are derived from SMCLs is the fact that the federal drinking water standards are applied at the point that the water is delivered to an end user. Accordingly, it makes no sense to incorporate a SMCL as a part of general water quality standards without considering the point at which the SMCL is to be applied. Therefore, if despite the available science related to TDS the DEP persists in seeking to impose TDS criteria, the DEP at a minimum should take into account the location of the nearest public water supply system and any treatment that would be applied by that system.

As the agency confirmed during the May 19, 2010 public meeting on the proposed revisions to the water quality standards, DEP maintains an interpretation of its regulations that all waters of the State are designated as drinking water sources, and therefore governed by water quality standards

applicable under Category A, unless specifically exempted from that designation by regulation. As a consequence of this interpretation, the proposed TDS criterion would presumably be applied to all waters of the State regardless of the proximity or existence of a public drinking water intake.

The Chamber and other representatives of the regulated community have repeatedly commented that DEP lacks legal authority and a scientific justification for its interpretation that all State waters are considered to be Category A. West Virginia's water quality standards create a presumption of only two uses that apply to all waters of the State: propagation and maintenance of aquatic life (Category B) and water contact recreation (Category C). W. Va. C.S.R. § 47-2-6.1. Except for these two presumptive uses, only "existing uses" are protected. "Existing uses" are only those uses "actually attained in a water on or after November 28, 1975." W. Va. C.S.R. § 47-2-4.1.a.

No provision of West Virginia's water quality standards designates all waters of the State as Category A waters, and DEP has not demonstrated that all waters of the State have been used as drinking water sources at some time since November 28, 1975. Moreover, the West Virginia Legislature has repeatedly rejected attempts by the Environmental Quality Board, which previously had authority over water quality standards, to amend the water quality standards regulations to officially designate all waters of the State as Category A waters. This reflects the desire of the West Virginia Legislature that all waters of the State should not be presumed to be drinking water sources. Yet, the agency still persists in implementing by policy an interpretation that is not supported by either the existing regulations or the Legislature.

If DEP adopts a TDS standard, the consequence of DEP's erroneous interpretation of Category A waters would be to apply that standard to all waters of the State, instead of only those waters that actually serve as drinking water sources While those who discharge to rivers or other large water bodies may able to obtain mixing zones to aid in achieving compliance, entities that discharge into small water bodies will effectively have to comply with the TDS standard at end of pipe. As a result, the scope of adverse impacts caused by a TDS water quality standard discussed below would be greatly magnified.

RESPONSE E. See Response to Comment 38.B.

COMMENT F. *TDS-need for criteria*

DEP has not identified a State-wide "TDS problem." The agency's concern with TDS appears to be limited to isolated incidents in the Monongahela River during extreme low flow conditions, and even then any problems attributed to TDS concentrations were short-lived and not serious. Additionally, DEP has not identified any concern with adverse effects on human health associated with TDS concentrations in State waters. Rather than propose a narrowly tailored approach to addressing the problems identified, DEP seeks to impose a State-wide "remedy" to address a limited or non-existent problem for most of the State with no corresponding benefit.

RESPONSE F. See Response to Comment 9.A.

COMMENT G. *TDS-Impact of proposed criteria*

DEP has not sufficiently considered how implementation of a TDS standard would impact various sectors of West Virginia businesses and government entities. Any discharge from human activities will contain some amount of TDS. This includes electric generation, oil and gas development, chemicals manufacturing, iron and steel manufacturing, agriculture and food processing, mining, municipal wastewater treatment, and others. Additionally, storm water runoff from construction, runoff from roads especially during winter de-icing season, and other non-point sources contain TDS. Each of these sectors would face unique challenges in dealing with a TDS standard - especially in light of the limited availability of technology and the tremendous expense associated with treatment for TDS discussed below.

The technological challenges for treatment of TDS are staggering. Currently, there are only three primary technologies for treating TDS: (1) reverse osmosis; (2) evaporation; and (3) evaporation with crystallization. Each of these technologies is energy intensive - requiring a substantial amount of electricity or fossil fuels with the attendant associated costs. Each of these technologies is extremely expensive. For example, the cost to build a reverse osmosis system capable of treating 100,000 gallons per day (gpd) is estimated at $5,300,000, with annual operating and maintenance costs of approximately $81.00 per 1,000 gallons treated, or around $2,956,500 per year.2 Each of these technologies creates a substantial amount of waste - a concentrated "brine" fluid/filter backwash or treatment sludge - for which there is no feasible means of disposal. There are also additional logistical challenges regarding installation of such technologies that would be unique to each industry. For additional details on the technological challenges, we refer the agency to the attached comments submitted by the Pennsylvania Chamber of Business and Industry to the Pennsylvania Environmental Quality Board concerning TDS treatment.

RESPONSE G. See Response to Comment 9.A.

COMMENT H. *TDS-regulations adopted by other states*

As the agency acknowledged during the May 19, 2010 public meeting, no other State in the nation has implemented a TDS standard as stringent as what DEP proposes. Some States, such as Kentucky and Pennsylvania, apply TDS standards only at the "point of intake" for drinking water sources. Other States do not have a TDS standard at all. In light of the tremendous expense and substantial technological challenges associated with TDS treatment, imposing a State-wide TDS standard -- with no clear benefit and very costly results --would place West Virginia businesses at a monumental competitive disadvantage with other states, and would greatly diminish West Virginia's ability to attract future investment.

RESPONSE H. See Response to Comment 9.A.)

COMMENT I. *Correction of presumed low flow for Monongahela River*

Correction of Presumed Low Flow for Monongahela River. We request that the DEP correct a technical defect that currently exists in the water quality standards with respect to the presumed low flow in the Monongahela River. We believe that the currently specified flow for the Monongahela

River flow of 345 cfs specified in the regulation is in error. The basis for this value is outdated. The following language appears at 47 CSR 2-7.2.d.7.1:

"Flow in the main stem of the Monongahela River, as regulated by the Tygart Reservoir, operated by the US Army Corps of Engineers, is based on a minimum flow of 345 cfs at Lock and Dam No. 8 at river mile point 90.8. This exception does not apply to tributaries of the Monongahela River."

The Monongahela River is formed by the confluence of the Tygart River and the West Fork River. Flow to the Monongahela River is regulated by the Tygart Dam on the Tygart River (completed in 1938) and the Stonewall Jackson Dam on the West Fork River (completed in 1990). Both dams are operated by the United States Army Corps of Engineers. The minimum release from the Tygart Dam is 340 cfs and the minimum release from the Stonewall Jackson Dam is 80 cfs. These releases provide a minimum low flow of 420 cfs at the Opekiska Lock and Dam on the Monongahela River at River Mile 115.4. We presume that the low flow value of 345 cfs contained in 47 CSR 2-7.2.d.7.1 is based upon conditions in the river at the time this provision was initially adopted, and does not account for the minimum release from the Stonewall Jackson Dam. As such, the value of 345 cfs should not be considered representative of low flow conditions on the Monongahela River in West Virginia. We suggest that low flow specified for the Monongahela River in 47 CSR 2-7.2.d.1 be updated to 420 cfs to incorporate the minimum contribution from the Stonewall Jackson dam.

RESPONSE I. See response to Comment 37.D.

45. COMMENTER: *West Virginia Coal Association*

COMMENT A. *TDS: Designation of all state waters as public water supplies*

WV DEP has proposed to include a TDS limit of 500 mg/L for all "Category A" waters. While innocent enough at first glance (although totally lacking the adequate justification necessary to justify a water quality standard), the agency's persistent and unsanctioned designation of all waters of the state as public drinking water supplies transforms this proposal to a de facto aquatic life use standard that would cripple development and industry within our borders. Further, as the agency itself has admitted, no other state nor the federal Environmental Protection Agency (EPA) has chosen to adopt a TDS standard as stringent as the one currently proposed by WV DEP.

RESPONSE A. See Responses to Comment 9.A. and Comment 38.B.

COMMENT B. *TDS: Surrogate for other parameters*

TDS is not a parameter in and of itself. It is instead a collective measure of all substances that can be passed through a certain size filter. Because of its "collective nature," TDS cannot predict toxicity to human or aquatic life - that requires an analysis of the individual parameters of the TDS. Measurements of TDS cannot necessarily predict impacts to the aesthetic qualities of drinking water which are the very basis for the EPA recommended secondary, non-enforceable federal standards.

The very fact that TDS measurements cannot indicate impacts argues against its adoption as a set water quality standard and for the parameter specific approach needed to identify the possible

impact causing constituents of the TDS. Perhaps this is why so many other states and the federal government have not adopted TDS standards. Limits for TDS act as nothing more than surrogates for other parameters. If water quality could be regulated through the adoption of such surrogates, then there would be no need for the water quality standards program of West Virginia at all, we could simply adopt the surrogate number and dispense with the measurement of individual parameters.

RESPONSE B. The DEP appreciates the comment; however, the comment involves concepts that are outside the scope of the proposed revisions and, therefore, require no response. To the extent the commenter is objecting to the proposed TDS standard per se, please see Responses to Comments 1.E. and 9.A. for the DEP's justification of the proposal.

COMMENT C. *TDS: EPA secondary drinking water standards*

WV DEP's sole justifications for proposing the TDS standard are derived from National Secondary Drinking Water Act Regulations maintained by EPA coupled with one-time, drought induced occurrences of extremely high TDS in certain West Virginia waters. Regarding EPA's regulations, WV DEP has chosen to ignore the reality that these regulations are established by EPA to address constituents "that primarily affect the aesthetic qualities relating to the public acceptance of drinking water."' EPA's regulations also provide the states with the clear latitude to adopt other TDS standards, or as most other states have done, adopt no regulations at all:

"these levels represent reasonable goals for drinking water quality. The States may establish higher or lower levels which may be appropriate based dependent on local conditions..."

Additionally, EPA's Secondary Drinking Water Regulations at 40 CFR 143.1 explicitly state that "the regulations are not federally enforceable but are intended as guidelines for the states." Thus, there is NO federal mandate from EPA requiring West Virginia to adopt the TDS limit proposed in the current rulemaking initiative.

RESPONSE C. See Response to Comment 9.A.

COMMENT D. *TDS: Monongahela River drought conditions*

WV DEP's other motivation to adopt this TDS standard is apparently based on recent, drought-induced high TDS levels observed in the Monongahela River. Unfortunately, instead of seeking to address the SPECIFIC instances related to these occurrences, WV DEP has taken its typical, knee-jerk response to any water quality issue and rushed to propose a statewide water quality standard. The agency has done so without any consideration of the specific circumstances surrounding these occurrences such as severe drought conditions. Proof of this point can be found in none other than the conditions that apparently warranted the TDS in the first place. The TDS conditions that raised concerns along the Monongahela River have apparently been corrected by a return to more normal rainfall amounts and tributary flows, not by the imposition of a hastily devised, draconian water quality threshold.

RESPONSE D. See Response to Comment 9.A.

COMMENT E. *TDS: Implications of classifying all waters of the state as public water supplies*

The proposal of the TDS is particularly perplexing when considered along with the agency's illegal treatment of all waters of the state as public drinking water supplies. As we noted in earlier statements and will address detail in subsequent paragraphs, there is NO legal, regulatory or legislative basis for the agency to look on all waters of the state as though they serve as drinking water supplies. However, the agency has elected to proceed down that path and the practical implications of the TDS standard based on that presumption must be addressed.

By virtue of its warped interpretation of West Virginia's Category A use designation, WV DEP's proposed TDS standard will apply everywhere, to all "waters of the State", regardless of how remote and flow-inhibited those waters may be. By extension, the TDS would apply to all activities, regardless of how distant they are from a true public drinking water intake, or how remote the possibility that, no matter how high of a TDS load is discharged from that activity, any impacts could ever be observed from that discharge on a drinking water intake.

RESPONSE E. See Response to Comment 38.B.

COMMENT F. *TDS: Economic impact of proposed standard*

The agency must adequately consider the economic impacts of such a standard, which would be devastating. Elevated TDS concentrations are routinely observed below all man-induced and some natural occurrences that result in earth disturbance. From construction, development, underground and surface mining to natural erosion and landslides, TDS levels will increase downstream of these activities and likely above the agency's proposed standard. If adopted, the proposed standard would require the installation of treatment technologies to address these above-mentioned discharges. Such treatment solutions DO NOT exist from either a practical application or economic feasibility standpoint. This is precisely the reason that federal categorical effluent limitations guidelines DO NOT contain Best Available Technology or New Source Performance Standards relative to TDS. While novel, capital and energy intensive technologies such as reverse osmosis could theoretically address TDS, these "solutions" carry with them their own set of complications relative to water quality and waste stream handling and are remarkably expensive to install and operate. Requiring a discharge, no matter how small or large in nature, to meet a secondary, non-enforceable standard that is being advocated for
adoption based on isolated, natural drought conditions to install this technology is ludicrous.

The only way to insure protection of the TDS standard proposed by the agency is not to disturb rock and soil. In the steeply-sloped terrain of West Virginia, if economic activity is to be sustained or increased, land will have to be developed, roads constructed, minerals extracted and public infrastructure installed. All of these activities will result in increased TDS loads. Given the practical and economic realities of TDS "treatment", it is safe to assume that most prospective projects would simply be cancelled rather than seeking to conform to the TDS standard through the application of costly and complicated TDS treatment technology. Thus, the proposed TDS standard, if adopted and

applied to all waters of the state as proposed by the agency, would chill prosperity within West Virginia.

RESPONSE F. Appropriate best management practices (BMPs) exist that will enable compliance with the proposed TDS standard. Economic impact is not listed in W. Va. Code § 22-11-7(b) among the factors the Agency can consider in developing water quality standards. However, DEP does not believe the proposed standard will have the devastating economic impact the commenter fears. First, best management practices exist that will enable compliance with the proposed TDS standard. Further, the proposed standard is also protective of industry. Many industrial make-up and cooling processes require source waters with limited amounts of dissolved solids. Maintaining this level of water quality with regard to TDS is not inconsistent with healthy industrial development. In fact, the availability of clean water throughout the State promotes healthy industrial development and the expansion of employment opportunities.

COMMENT G. *TDS: Legislative rule restrictions*

In the authorizing statute for WV DEP, the West Virginia Legislature has established "thresholds" for the agency as it regards promulgation of rules and regulations:

". . .legislative rules promulgated by the Director. . .may include provisions which are more stringent than the counterpart federal rule or program to the extent that such provisions are reasonably necessary to protect, preserve or enhance the quality of West Virginia's environment or human health or safety, taking into consideration the scientific evidence, specific environmental characteristics of West Virginia or an area thereof, or stated legislative findings, policies or purposes relied upon by the director in making such determination. In the case of specific rules which have a technical basis, the director shall also provide the specific technical basis upon which the director has relied."

The proposed TDS standard FAILS to satisfy this legislative restriction on several levels. First, the agency has not, beyond the specific instances in one water course, demonstrated why such a restrictive standard should apply to all waters, flunking the first threshold that such provisions are "necessary" to protect all West Virginia waters. Second, WV DEP has neglected to provide a "specific technical basis" for the imposition of the TDS standard.

Beyond the existence of a non-binding, non-enforceable secondary federal standard and the previously-mentioned drought induced conditions on the Monongahela River, WV DEP has not even attempted to address this portion of the legislative restriction on its rulemaking ability. WVCA believes this is because no "technical basis" exists that could ever justify the imposition of a limit for TDS or any parameter that would result in such economic and industrial turmoil for virtually no environmental or health and safety benefit.

RESPONSE G. W. Va. Code § 22-1-3a states that DEP can promulgate legislative rules that are more stringent than the counterpart federal rule or program if DEP first provides specific written reasons that demonstrate such provisions are reasonably necessary to protect the environment. This statute clearly states that, in the absence of a federal rule, the adoption of a State rule shall not be

construed to be more stringent than a federal rule, unless the absence of a federal rule is the result of a specific federal exemption.

At issue here is a proposed State water quality standard for total dissolved solids. There are no federal rules setting a water quality standard for total dissolved solids. In the absence of a federal rule, the State rule shall not be construed to be "more stringent," so the requirements of §22-1-3a do not apply.

COMMENT H. *TDS: West Virginia Water Pollution Control Act*

The overly restrictive nature of the proposed TDS standard also violates the very intent of the statute under which it is being proposed, the West Virginia Water Pollution Control Act (WVWPCA). In creating the Act, the West Virginia Legislature observed in its Declaration of Policy:

"It is declared to be the public policy of the state of West Virginia to maintain reasonable standards of purity and quality of the water the state consistent (1) public health and public enjoyment thereof; (2) the propagation and protection of animal, bird fish, aquatic and plant life; and (3) the expansion of employment opportunities, maintenance and expansion of agriculture and the provision of a permanent foundation for healthy industrial development."

The TDS standard proposed in the current rulemaking initiative is not a "reasonable standard of purity and quality" and certainly will not promote "healthy industrial development" that is necessary or consistent with "the expansion of employment opportunities." Instead, it is the very antithesis of these stated goals and policy- one that is not necessary to protect or enhance the public health and welfare and at the same time will needlessly discourage development and investment. The TDS standard CANNOT comport with the Legislature's stated Policy in the WVWPCA. The proposed TDS limit cannot factually satisfy the thresholds applied to the WV DEP's rulemaking authority, even if the agency had bothered to try to address those restrictions at all. For these reasons alone, the TDS standard as proposed should be deleted from the proposed rulemaking initiative.

RESPONSE H. DEP is required to impose water quality standards that are protective of designated uses. The TDS standard proposed is intended to be protective of the Category A, Water Supply, Public use. Also see Response to Comment 45.F.

COMMENT I. *TDS-WVDEP Advisory Council recommendation*

The WV DEP Advisory Council, statutorily charged with reviewing rules proposed by the agency, recognized the adverse impacts that could result from the adoption of the TDS standard that would apply to all waters. At a meeting of the Advisory Council on May 27,2010 to specifically discuss the proposed water quality standards rule, members of the Council voted to formally recommend the agency revise the proposed standard so it applied ONLY at the point of intake for a public drinking water supply.

The recommendation by the Advisory Council is supported by the regulatory and administrative history of water use designation in West Virginia. More appropriately stated, the current status of use designation in West Virginia makes the Advisory Council's recommendation the only legal,

legislatively-supported interpretation the agency can take relative to the application of human health criteria. Application of human health criteria, including secondary, non-enforceable standards is routinely done at the point of intake for a public drinking supply as demonstrated by the standards adopted by surrounding states.

RESPONSE I. See Response to Comment 45.B.

COMMENT J. *Water withdrawal activities*

WV DEP has proposed to modify the rule governing "conditions not allowable in state waters" to include within its scope "certain water withdrawal activities." Such a revision would expand the scope and applicability of the water quality standards program in such a way that was never intended by the Legislature. For example, the state's water quality standards rule regulates DISCHARGES to waters of the state:

"These rules establish requirements governing the discharge or deposit of sewage, industrial wastes and other wastes into the waters of the state and establish water quality standards for the waters of the State standing or flowing over the surface of the State."

Further proof the Legislature intended the water quality standards program to apply to discharges is provided by the passage of legislation to specifically address water withdrawals. Several years ago the Legislature established the Water Resources Protection and Management Act and WV DEP has been actively collecting data relative to water consumption pursuant to that statute for several years.

Rather than proposing to regulate water withdrawal under the terms and conditions of the statute specifically written to address those issues, WV DEP proposes in this rulemaking to expand the scope of the water quality standards program. Further, the agency has failed to make the required demonstration required under West Virginia Code 22-1-3a for new rules and regulations. Such a demonstration would be particularly noteworthy in this instance since the agency has ignored a statute specifically designed to address water withdrawal activities in favor of revising the water quality standards rule.

WVCA believes this proposed revision is yet another example, much like their uses of the Category A use designation, of the agency substituting its own philosophy and judgment for that of the Legislature and recommends the agency delete the proposed language from the current rulemaking proposal.

RESPONSE J. See Responses to Comment 24.A. W. Va. Code §22-1-3a states that DEP can promulgate legislative rules that are more stringent than the counterpart federal rule or program if DEP first provides specific written reasons that demonstrate such provisions are reasonably necessary to protect the environment. This statute clearly states that, in the absence of a federal rule, the adoption of a State rule shall not be construed to be more stringent than a federal rule, unless the absence of a federal rule is the result of a specific federal exemption.

At issue here is a proposed State water quality standard change to the narrative criteria to make it clear a withdrawal of water causing use impacts is not allowable. There are no federal rules setting a

water quality standard for water withdrawal. In the absence of a federal rule, the State rule shall not be construed to be "more stringent," so the requirements of §22-1-3a do not apply.

COMMENT K. *Conditions not allowable: Algae blooms*

WV DEP has proposed to further extend the scope of "conditions not allowable" to include algae blooms. Just as it has with many of the proposed revisions in the current rulemaking initiative, the agency has not adequately justified the need for this provision beyond the existence of certain site and condition specific instances. The agency has also failed to demonstrate how its current water quality standards program does not provide it with the regulatory tools necessary to address these instances, leaving one to conclude it is rulemaking only for rulemaking's sake in violation of limits of its authority under West Virginia Code 22-1-3a. WVCA recommends the agency delete the proposed revision.

RESPONSE K. DEP agrees with the commenter that the Agency currently has the authority to limit the discharge of pollutants that may cause or contribute to algae blooms that interfere with designated uses. However, the Agency's authority to do so has been challenged. In the interest of clarifying State water quality standards, the Agency believes it would be prudent to specifically include algae blooms that interfere with designated uses among those conditions that are not allowable in State waters. Also see Response to Comment 44.B.

COMMENT L. *Selenium criteria*

Although it is not part of the current rulemaking initiative, WVCA believes the agency should contemplate revisions to the current standards for selenium. An ever-growing body of scientific evidence and data confirms that continued application of the current selenium criteria to West Virginia waters is misplaced and offers no measurable improvement to environmental protection while causing widespread regulatory compliance confusion. The West Virginia Legislature has previously concluded the current federally-recommended selenium limits may not be appropriate for West Virginia:

The Legislature finds that there are concerns within West Virginia regarding the applicability of the research underlying the federal selenium criteria to a state such as West Virginia which has high precipitation rates and free-flowing streams and that the alleged environmental impacts that were documented in applicable federal research have not been observed in West Virginia..."

WVCA recommends the agency actively pursue revisions to West Virginia's water quality standard for selenium.

RESPONSE L. See Response to Comment 25.C.

COMMENT M. *Iron criteria*

With respect to the iron criteria, WVCA would encourage the agency to further consider the basis and justification for adopting and maintaining the current iron standard in light of considerable research and data collected on this parameter and its occurrence in the region.

RESPONSE M. The DEP has done a considerable amount of research with respect to iron and its effects on aquatic life and the current proposal is to increase the trout stream criterion from 0.5 mg/l to 1.0 mg/l. This action is supported by DEP's recent efforts, DNR's previous work, and EPA's current recommended national criteria. Based on this, the DEP believes the new number is better justified and will be protective of trout waters.

COMMENTS N. *Aluminum criteria*

While West Virginia has made great strides in revising its water quality standards for aluminum to more appropriately reflect the true environmentally protective conditions within the state's waters, we would again encourage the agency to monitor and continuously evaluate this particular water quality standard as we believe that research is being conducted in other states that would have a direct bearing on West Virginia's standards.

RESPONSE N. The DEP routinely collects and evaluates aluminum data and is always interested in research conducted by other states and EPA. Setting water quality standards is a dynamic process and new research often leads to a re-evaluation of current criteria.

46. COMMENTER: Honorable Ray Canterbury, West Virginia House of Delegates

COMMENT A. *Justification of low phosphorus criterion in Greenbrier River*

Your proposed rule includes a very low phosphorus loading standard of 10 micrograms per liter for the Greenbrier River. My research suggests that this level is very low when compared to other regions of the country. I have inferred from this variation that the state must have some discretion in setting their water quality standards, and so I would assume that we do as well. Is this correct? I can also see that even the most stringent of Minnesota's standards, for the pristine waters in the Northern part of the state, allow significantly higher loading levels than the one you have proposed for the Greenbrier River. How do you justify this?

RESPONSE A. The State does have discretion in settings its own water quality standards. In doing so, the State takes into consideration criteria recommended by the EPA and criteria applied in other states. Nutrients are unique in that they can have a highly localized effect on streams depending upon a variety of factors, including temperature, pH, alkalinity, hardness, and turbidity. The DEP believes that stream-specific criteria are necessary to protect the State's waters from nutrient pollution. A number of streams have been identified as nutrient-sensitive based upon their response to nutrients. The Greenbrier River, due to its unique water chemistry, appears to be one of the most nutrient-sensitive streams in the State and cannot tolerate much phosphorus without experiencing severe algae blooms.

COMMENT B. *Financial burden on affected service districts*

Under Federal Water Quality standards, municipal waste water treatment facilities are treated as point source polluters. If the water quality standard is set to such a low level, then the result will be more stringent restrictions on municipal wastewater treatment facilities. These restrictions, of

course, will place an incredible financial burden on the affected service districts and the people who rely on the wastewater services. Under our present economic circumstances, which show no sign of improving under the misdirection of the current administration, this is simply unacceptable.

RESPONSE B. See Responses to Comments 33.D – G.

COMMENT C. *Thought put into rule regarding economic effects on region*

It appears to me that you put very little if any thought into this rule, and that you certainly have not given any thought to the devastating economic affect that this will have on an already stressed region.

RESPONSE C. See Response to Comment 43.A.

47. COMMENTER: Honorable John H. Shott, West Virginia Senate

COMMENT A. *Cost/Benefit of phosphorus reduction in Greenbrier River*

Unless there is a significant public health risk that mandates the reduction or there are sufficient funds available to the affected towns to satisfy the costs of compliance without imposing any financial burden on the towns, this change should not be made. Hopefully, we will be able to obtain satisfactory answers to our questions regarding the reason(s) for the proposed changes and the cost/benefit that has been undertaken before any changes are recommended.

RESPONSE A. See Response to Comments33D - G.

48. COMMENTER: Ted Armbrecht

COMMENT A. *Rivers and streams nutrient criteria*

The commenter states that he is uncertain that work has been done to address the issue of developing rivers and streams nutrient criteria.

RESPONSE A. See Response to Comment 35.E.

COMMENT B. *Chesapeake Bay Covenant*

West Virginia signed the Chesapeake Bay Covenant. It was signed by Governor Wise during his term and courts have ruled that the Maryland water regulations apply in West Virginia because we are supplying them with water that must meet their requirements. So that's a very important factor and adds to the urgency of what DEP might begin to address now.

RESPONSE B. On July 1, 2010, West Virginia received its capload allocations for nitrogen and phosphorus as part of the Chesapeake Bay TMDL. The State is now in the process of determining how it will comply with these caploads. This will involve issuing load allocations for non-point sources and wasteload allocations for point source discharges in the Potomac watershed. West

Virginia is aware of its responsibility as a Chesapeake Bay Compact state and is prepared to fulfill its obligation.

COMMENT C. *Nutrient Criteria Committee*

The commenter makes the point that we could have been years down the road toward addressing the nutrient criteria problem if DEP had picked up where EQB had left off; mainly, keeping the committee to carry on its work to reach a solution. The commenter stated that it is his experience that the DEP addresses issues like these only when they have exhausted all possible routes of delay.

RESPONSE C. See Response to Comment 35. E.