

Regulatory Analysis Form

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(1) Agency

Department of Environmental Protection

2009 FEB -6 AM 11: 39

INDEPENDENT REGULATORY
REVIEW COMMISSION

(2) I.D. Number (Governor's Office Use)

7-421

IRRC Number: 2659

(3) Short Title

Water Quality Standards – Triennial Review

(4) PA Code Cite

25 PA Code, Chapter 93 and
Chapter 16

(5) Agency Contacts & Telephone Numbers

Primary Contact: Michele Tate 783 -1303
Secondary Contact: Kelly Heffner 783-1303

(6) Type of Rulemaking (Check One)

- Proposed Rulemaking
 Final Order Adopting Regulation
 Final Order, Proposed Rulemaking Omitted

(7) Is a 120-Day Emergency Certification Attached?

- No
 Yes: By the Attorney General
 Yes: By the Governor

(8) Briefly explain the regulation in clear and nontechnical language.

Section 303(c)(1) of The Clean Water Act requires that states periodically, but at least once every 3 years, review and revise as necessary, their water quality standards. This rulemaking constitutes Pennsylvania's current triennial review of its water quality standards. The final regulation being considered will: update the water quality criteria; merge sections of Chapter 16 (Water Quality Toxics Management Strategy – Statement of Policy) into Chapter 93 (Water Quality Standards); add a definition in § 93.1 to clarify the term “conventional treatment” for potable water supply (PWS) that is used in § 93.3, Table 1; clarify in the footnote to Table 3 in § 93.7 that other sensitive “critical uses” may apply; verify current exceptions to fishable/swimmable waters; and make corrections and changes to drainage lists and other typographic and grammatical errors. In § 93.9a-93.9z, several changes to the drainage lists are proposed to clarify stream names, segment boundaries and to add MF use designations for the presence of migratory fish within the Mid-Atlantic slope basins of the Delaware, Susquehanna and Potomac Rivers.

(9) State the statutory authority for the regulation and any relevant state or federal court decisions.

These final amendments are made under authority of the following acts:
The Pennsylvania Clean Streams Law, Act of June 22, 1937 (P.L. 1987, No. 394) as amended,
35 P.S. § 691.1 et seq.

Section 1920-A of The Administrative Code of 1929, as amended, 71 P.S. § 510-20.

Section 303 of the federal Clean Water Act, 33 U.S.C. §1313.

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(10) Is the regulation mandated by any federal or state law or court order, or federal regulation? If yes, cite the specific law, case or regulation, and any deadlines for action.

Although this regulation is not specifically mandated by Federal or state law or regulations, the federal Clean Water Act and 40 CFR 131.20 requires that states review their water quality standards and modify them, as appropriate, at least once every three years. This regulation is intended to meet that three-year deadline.

(11) Explain the compelling public interest that justifies the regulation. What is the problem it addresses?

Water quality standards are an important element of the Commonwealth's water quality management program in that they set general and specific goals for the quality of Pennsylvania's surface waters. The water quality standards can affect all sources of wastewater discharge since the Department must regulate these sources to ensure that the instream water quality standards are met. The standards are used as program objectives in the control of both point and non-point sources of pollution. Section 303(c)(1) of the Clean Water Act requires that states periodically, but at least once every 3 years, review and revise as necessary, their water quality standards. This regulation constitutes Pennsylvania's current triennial review of its water quality standards.

(12) State the public health, safety, environmental or general welfare risks associated with non-regulation.

Section 303(c)(1) of The Clean Water Act requires that states periodically, but at least once every 3 years, review and revise as necessary, their water quality standards. Without this regulation, the discharge of pollutants to waters of the Commonwealth will cause environmental degradation and public health hazards. Without the amendments, the program may be administered in a manner more stringent than federal regulations, without a compelling reason, and there may be unclear or obsolete provisions in the regulations. This may have an indirect impact on public health or the environment because of the associated non-compliance stimulated by overly stringent or unclear regulations.

(13) Describe who will benefit from the regulation. (Quantify the benefits as completely as possible and approximate the number of people who will benefit.)

Overall, the citizens of the Commonwealth will benefit from the regulation since it will provide the appropriate level of water quality protection for the surface waters in Pennsylvania. The revised regulation helps to assure that pollution control actions are as cost-effective as possible and that pollution control costs are equitably distributed. The new language makes it easier for citizens to understand how water quality standards are implemented. It also assures that Pennsylvania's water quality program more closely mirrors federal requirements.

Persons required to renew an existing or obtain a new National Pollutant Discharge Elimination System (NPDES) permit may benefit because of the clarification provided in the amendments as well as increased consistency with federal regulations. This may include municipalities, municipal authorities and industries impacted by the NPDES permitting program.

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(14) Describe who will be adversely affected by the regulation. (Quantify the adverse effect as completely as possible and approximate the number of people who will be adversely affected.)

Persons proposing new or expanded activities or projects which result in discharges to waters of the Commonwealth may be adversely affected by the proposed regulations since they are required to provide waste water treatment according to the water quality criteria and designated water use. This regulation, is intended to update the water quality standards for the Commonwealth, and may result in higher design engineering, construction, and treatment costs to meet the more stringent criteria for selected parameters. This regulation will be implemented through the NPDES permitting program since the stream use designation and water quality criteria are the major bases for determining allowable stream discharge effluent limitations.

(15) List the persons, groups or entities that will be required to comply with the regulation. (Approximate the number of people who will be required to comply.)

See Question #14. Persons with proposed or existing discharges into surface waters of the Commonwealth must comply with the regulation.

(16) Describe the communications with and inputs from the public in the development and drafting of the regulation. List the persons and/or groups who were involved, if applicable.

The Department's Water Resources Advisory Committee (WRAC), provided input on the proposed regulation at its May 10, 2006, October 13, 2006, and May 9, 2007 meetings. In addition, the Department presented this rulemaking package to the Agricultural Advisory Board on August 22, 2007. This regulation was adopted by the EQB as proposed rulemaking at its October 16, 2007 meeting. The proposed rulemaking was published in the *Pennsylvania Bulletin* on January 12, 2008 (38 Pa.B. 236) with provision for a 45-day public comment period. The public comment period was extended an additional 30 days and closed on March 27, 2008, as published in the *Pennsylvania Bulletin* on February 23, 2008 (38 Pa.B. 976). The Board received public comments from 10 commentators. The EQB has considered all public comments received in developing this final regulation. The draft final regulation was also discussed with WRAC on July 22, 2008, where the committee deliberated on aspects of the rulemaking, including the adoption of state-wide criteria for molybdenum and the proposed definition "conventional treatment". Although WRAC approved the draft final rulemaking for consideration by the EQB, some members of the committee expressed their concerns with the molybdenum criteria and the health data used to create the particular criterion. WRAC also provided recommendations to further clarify the proposed definition for "conventional treatment", as it relates to the protection of the Potable Water Supply (PWS) use.

(17) Provide a specific estimate of the costs and/or savings to the regulated community associated with compliance, including any legal, accounting or consulting procedures which may be required.

Costs and savings cannot be determined because of site-specific considerations and because there is no historical accounting of costs that would enable a comparative cost analysis to be conducted.

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(18) Provide a specific estimate of the costs and/or savings to local governments associated with compliance, including any legal, accounting or consulting procedures which may be required.

No costs will be imposed directly upon state or local governments by this regulation.

(19) Provide a specific estimate of the costs and/or savings to state government associated with the implementation of the regulation, including any legal, accounting or consulting procedures which may be required.

This regulation is based on and will be implemented through existing Department programs, procedures and policies. There is no additional implementation costs associated with this regulation.

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(20) In the table below, provide an estimate of the fiscal savings and costs associated with implementation and compliance for the regulated community, local government, and state government for the current year and five subsequent years.

Year	Current FY 2008-2009	FY +1 2009-10	FY +2 2010-11	FY +3 2011-12	FY +4 2012-13	FY +5 2013-14
SAVINGS:	\$	\$	\$	\$	\$	\$
Regulated Community	Not Measurable					
Local Government	“					
State Governments	“					
Total Savings	“					
COSTS:						
Regulated Community	Not Measurable					
Local Government	“					
State Governments	“					
Total Costs	“					
REVENUE LOSSES:						
Regulated Community	Not Measurable					
Local Government	“					
State Governments	“					
Total Revenue Losses	“					

(20a) Explain how the cost estimates listed above were derived.

Not Applicable.

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(20b) Provide the past three year expenditure history for programs affected by the regulation.

Program Year	FY-3 2005-2006	FY-2 2006-2007	FY-1 2007-2008	Current FY 2008-2009
Env. Prot. Operations (160)	\$87,897,000	\$89,847,000	\$98,582,000	\$102,149,000
Env. Program Mgmt. (161)	\$37,049,000	\$36,868,000	\$39,909,000	\$41,800,000

(21) Using the cost-benefit information provided above, explain how the benefits of the regulation outweigh the adverse effects and costs.

The benefits to the citizens of the Commonwealth will accrue from protecting the surface waters of the Commonwealth at the appropriate level in accordance with the designated and existing water uses.

(22) Describe the nonregulatory alternatives considered and the costs associated with those alternatives. Provide the reasons for their dismissal.

There were no non-regulatory alternatives available to consider in this case.

(23) Describe alternative regulatory schemes considered and the costs associated with those schemes. Provide the reasons for their dismissal.

There were no alternative regulatory schemes to consider in achieving the correct level of protection for the waters of the Commonwealth.

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(24) Are there any provisions that are more stringent than federal standards? If yes, identify the specific provisions and the compelling Pennsylvania interest that demands stronger regulations.

No. This regulation is not more stringent than the companion federal standards.

(25) How does the regulation compare with those of other states? Will the regulation put Pennsylvania at a competitive disadvantage with other states?

Other states are also required to maintain water quality standards with similar requirements. Therefore, Pennsylvania will not be placed at a competitive disadvantage when comparing this regulation to those of other states.

(26) Will the regulation affect existing or proposed regulations of the promulgating agency or other state agencies? If yes, explain and provide specific citations.

No other regulations or state agencies are affected by this proposal.

(27) Will any public hearings or informational meetings be scheduled? Please provide the dates, times, and locations, if available.

See Question 16. The Environmental Quality Board held two public hearings and meetings in Harrisburg, for the purpose of accepting testimony and comments on the proposed regulation. Both meetings/hearings were held on February 14, 2008, at the Southcentral Regional Office in Harrisburg, PA.

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(28) Will the regulation change existing reporting, record keeping, or other paperwork requirements? Describe the changes and attach copies of forms or reports which will be required as a result of implementation, if available.

No additional reporting, record keeping, or other paperwork will be required.

(29) Please list any special provisions which have been developed to meet the particular needs of affected groups or persons including, but not limited to, minorities, elderly, small businesses, and farmers.

There are no such provisions in this regulation.

(30) What is the anticipated effective date of the regulation; the date by which compliance with the regulation will be required; and the date by which any required permits, licenses or other approvals must be obtained?

The regulation will become final after review and approval by the Environmental Quality Board and publication in the *Pennsylvania Bulletin* as final-form rulemaking. New or renewed NPDES permits reflected by these regulatory changes will be issued according to current timelines that apply to permit applications.

(31) Provide the schedule for continual review of the regulation.

This regulation will be reviewed in accordance with the sunset review schedule published by the Department to determine whether the regulation effectively fulfills the goals for which it was intended.

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Copy below is hereby approved as to form and legality.
Attorney General

By: _____
(Deputy Attorney General)

DATE OF APPROVAL _____

Check if applicable
Copy not approved. Objections attached.

Copy below is hereby certified to be true and
correct copy of a document issued, prescribed or
promulgated by:

DEPARTMENT OF ENVIRONMENTAL
PROTECTION
ENVIRONMENTAL QUALITY BOARD

(AGENCY)

DOCUMENT/FISCAL NOTE NO. 7-421

DATE OF ADOPTION January 20, 2009

BY John Hanger

TITLE JOHN HANGER
ACTING CHAIRPERSON

EXECUTIVE OFFICER CHAIRMAN OR SECRETARY

Copy below is hereby approved as to form and legality
Executive or Independent Agencies

BY Andrew C. Clark

DATE OF APPROVAL

FEB 5 2009
(Deputy General Counsel)
(~~Chief Counsel - Independent Agency~~)
(Strike inapplicable title)

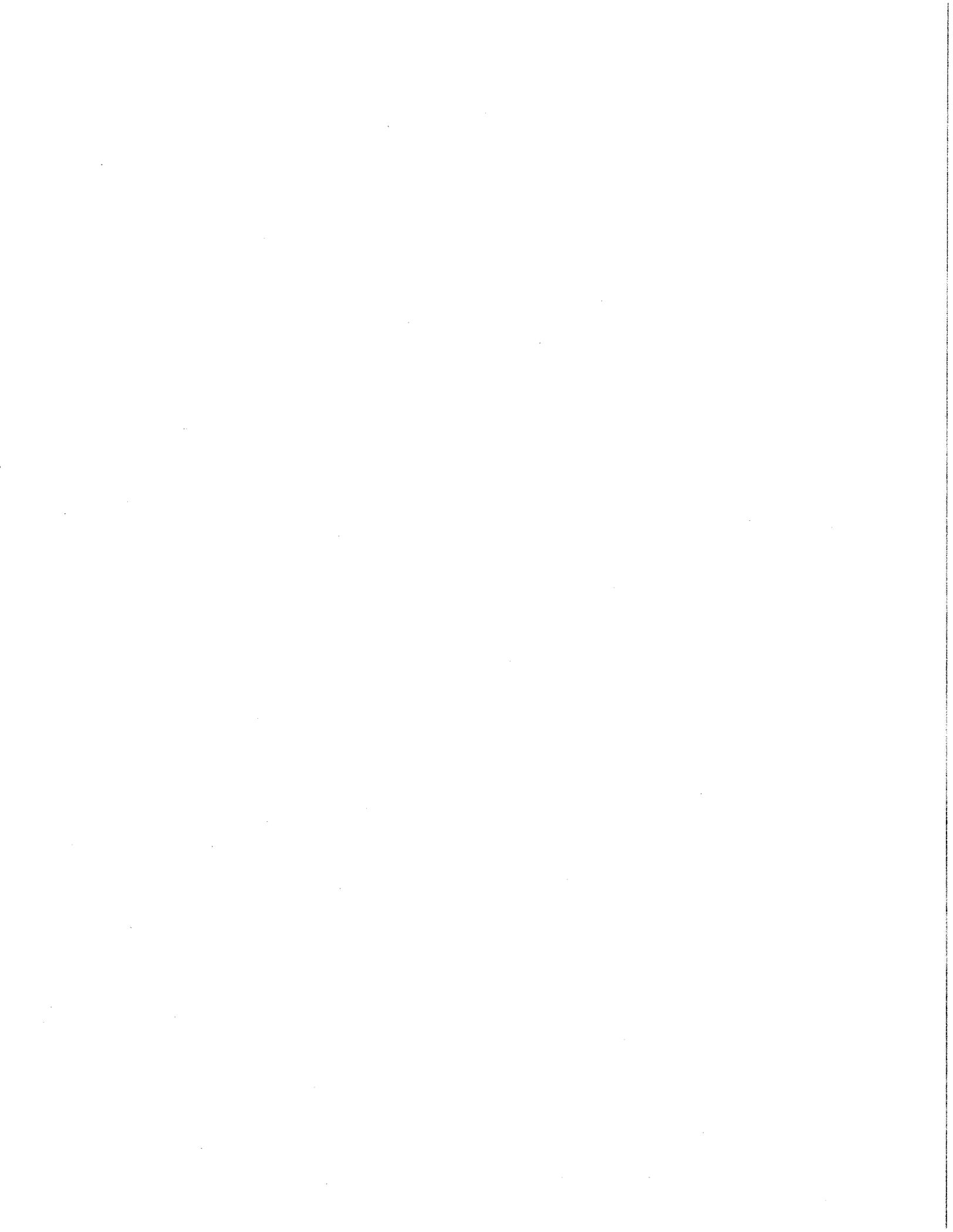
Check if applicable. No Attorney General Approval
or objection within 30 days after submission.

NOTICE OF FINAL RULEMAKING

**DEPARTMENT OF ENVIRONMENTAL PROTECTION
ENVIRONMENTAL QUALITY BOARD**

Triennial Review of Water Quality Standards

25 Pa. Code, Chapter 93



**Report to the Independent Regulatory Review Commission
Triennial Review Rulemaking for Water Quality Standards
Regulation No. 7-421 (#2659)**

Under the Regulatory Review Act, an agency has three options to respond to a disapproval of its final form regulation by the Independent Regulatory Review Commission (Commission). An agency may withdraw the regulation from further consideration, or an agency may decide to resubmit the regulation to the Commission with or without revisions. The Environmental Quality Board (Board) has decided to modify its Triennial Review Rulemaking and to resubmit it to the Commission with revisions.

In response to the Commission's Disapproval Order, dated November 20, 2008, the Department asked the Board to reconsider its earlier approval of the Triennial Review rulemaking package and to remove the molybdenum (Mo) water quality criterion at its January 20, 2009 meeting. At this meeting the Board amended its previous approval of the Triennial Review Rulemaking (dated September 16, 2008) by deleting the water quality criterion for Mo.

The Board deleted the water quality criterion for Mo to avoid further delay in final adoption of the Triennial Review Rulemaking. The Triennial Review Rulemaking package contains many other needed revisions to the Commonwealth's water quality standards. Any further delay in final publication of these other needed changes is a problem because the Department is required by EPA to complete its Triennial Review Rulemaking in a timely manner, and submission of a final Triennial Review Rulemaking package to EPA is already beyond the three-year due date. It is anticipated that removal of the Mo criterion from the package will allow the amended package to be approved as a final rulemaking under the Regulatory Review Act because this was the only issue identified by the Commission in its Disapproval Order.

The Commission's Disapproval Order determined that the Triennial Review Rulemaking is consistent with the statutory authority of the Pennsylvania Clean Streams Law and the intention of the General Assembly. The Commission, however, also found that the Mo criterion portion of the regulation is not in the public interest, based on criteria of the Regulatory Review Act. The Department would like to respond to the concerns raised by the Disapproval Order even though the statewide Mo criterion has been removed from this revised rulemaking.

It should be noted that the Triennial Review regulations were reviewed by the General Counsel, Secretary of the Budget and the Secretary of Planning and Policy, in accordance with the Governor's Executive Order dated February 6, 1996, and titled "*Regulatory Review and Promulgation*." Their review and approval of this regulation is evidence of Pennsylvania's "compelling interest" to protect human health even though the regulation may exceed federal standards.

The Commission's sole objection is the adoption of a statewide water quality criterion for molybdenum (Mo). In its Disapproval Order, The Commission asserts three reasons for the disapproval: 1) the Commission questions whether DEP has offered sufficient justification regarding the specific interest of the Commonwealth to exceed federal water quality standards; 2) the Commission states that the EQB has not sufficiently addressed the economic and fiscal impact of imposing this new water quality criterion on the regulated community; and 3) the Commission states that the EQB has not fully demonstrated the impact of the consumption of Mo on the public health.

The Department disagrees with the Commission and its basis for disapproval of the statewide water quality criterion for Mo as set forth in greater detail below. The Mo criterion was developed using sound science and the use of appropriate methodologies, and it is based on convincing scientific evidence and studies. In addition, the criterion was properly developed in accordance with the federal Clean Water Act and the PA Clean Streams Law.

First, the Department's Statement of Policy on Water Quality Toxics Management Strategy and regulation at 25 Pa. Code § 93.8a (relating to toxic substances) establish a methodology for developing water quality toxics criteria, independent of federal standards. The Department followed the regulation and policy in the development of a molybdenum standard. State-specific standards are often developed based on the types of industry, and pollutants related to those industries, that are located in Pennsylvania. Industries located in Pennsylvania that may discharge Mo include specialty steel, coal mining and coal-fired power generation. The Department is evaluating at least ten active NPDES facilities that discharge Mo.

Mo is shown to cause gout-like symptoms, characterized by pain, swelling, inflammation and deformities of the joints, and in all cases, an increase in the uric acid content of the blood. In addition, disorders of the gastrointestinal tract, liver, kidneys and the central nervous system, including brain function, have been documented. Mo is considered to be a toxic metal and has also been labeled an embryonic mammalian teratogen because it can cause developmental deformities, as described in the Toxicity Profile - Toxicity Summary for Molybdenum prepared by the Oak Ridge National Laboratory and available at the on-line *Risk Assessment Information System (RAIS)*.

Possible human exposure pathways for Mo include dermal, inhalation and ingestion. The Mo criterion was developed considering the ingestion pathway through both drinking water and fish consumption. Exposure conditions used include two liters of water per day and 17.5 grams of fish per day (as recommended by U.S. EPA) for a 70 kg adult.

In 25 Pa. Code Chapter 93, a "toxic substance" is defined as "a chemical or compound in sufficient quantity or concentration which is, or may become, harmful to human, animal¹ or plant life." Based on the scientific evidence and the fact that industries in

¹ Scientific literature shows that crops contaminated by Mo can be fatal to livestock if ingested. This condition has been documented in Pennsylvania.

Pennsylvania discharge molybdenum, it is appropriate for Pennsylvania to “exceed” federal water quality standards by adopting a standard for Mo.

Mr. Jon Capacasa, Director of U.S. EPA Region III’s Water Protection Division, provided a November 18, 2008 letter of support to Chairman Coccodrilli of the Commission, in which he states that “PADEP developed [a] numeric criterion for molybdenum to protect human health in accordance with its own state regulations (Chapter 16, Guidelines for Development of Human Health-Based Criteria), using the guidelines in PA Code §16.32 for threshold level toxic effects and EPA’s Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health (EPA-822-B-00-004, October 2000).” Mr. Capacasa went on to say that EPA Region III supports “both the methodologies and the variables that PADEP used to develop a human health criterion for molybdenum. EPA also supports PADEP’s determination that a molybdenum criteri[on] is necessary to protect Pennsylvania’s statewide potable water supply use.”

The Department coordinated its Mo criteria development effort with EPA’s regional water quality standards staff and its headquarters toxicologists. Even in the absence of a federal standard, U.S. EPA supports the numeric criterion that the Department developed for Mo.

Second, as U.S. EPA properly indicated in its comments to the Commission, “economic and technological factors may not be used to justify adoption of criteria” under the federal Clean Water Act. Water quality criteria are strictly based on science and are developed to protect water uses. Economic and technological factors are considered at the NPDES permitting stage, when the conditions are established under which a permittee may discharge.

Although the Department is not obligated or permitted to evaluate technology when developing science-based water quality criteria, in response to the Commission’s concerns, the Department provided a list of available wastewater treatment methods for Mo. The federal Clean Water Act establishes a goal of pollution elimination. See 33 U.S.C. § 1251(a). The law envisions science-based water quality standards that drive technology development to further the goal of eliminating water quality degradation.

The application of technology and the compliance time available to employ the technology are considered at the permitting stage. As stated at the Commission’s public hearing, to the extent that new treatment technology is being developed or tested, the Department will work with a discharger to provide for an appropriate time to achieve permit limits.

Finally, although the Commission asserts that there is a lack of data demonstrating adverse health impacts on Pennsylvanians, U.S. EPA and states regularly rely on national health data to support the development of water quality standards. The Department is concerned that the Commission has misapprehended or disregarded the strong scientific and supportive evidence during its review of this regulation. The Department based its

scientific review on references that rely on a compilation of approximately 680 scientific papers. The Department has the expertise in developing water quality criteria and the Commission should defer to the Department's expertise on these scientific issues.

In light of the continuing disagreement with the Commission concerning the need for and justification for a statewide Mo criterion, the Department plans to return to the Board in the near future with a new proposed rulemaking to adopt a statewide Mo water quality criterion. With this new proposed rulemaking there will be an opportunity to seek additional scientific support from the public for the criterion development. Until a future rulemaking adopts Mo as a statewide criterion, the Department will continue to exercise its existing authority to develop Mo criteria for individual permits on a case-by-case basis.

**NOTICE OF FINAL RULEMAKING
DEPARTMENT OF ENVIRONMENTAL PROTECTION
ENVIRONMENTAL QUALITY BOARD
[25 PA. Code, Chapter 93]**

Triennial Review of Water Quality Standards

Order

The Environmental Quality Board (Board) is amending 25 Pa. Code Chapter 93 (relating to water quality standards) as set forth in Annex A.

This order was adopted by the Board at its meeting of January 20, 2009.

A. Effective Date

These amendments will be effective upon publication in the *Pennsylvania Bulletin* as final-form rulemaking.

B. Contact Persons

For further information contact Richard H. Shertzer, Chief, Division of Water Quality Standards, Bureau of Water Standards and Facility Regulation, 11th Floor, Rachel Carson State Office Building, P.O. Box 8467, (717) 787-9637 or Michelle Moses, Assistant Counsel, Bureau of Regulatory Counsel, 9th Floor, Rachel Carson State Office Building, P.O. Box 8464, Harrisburg, PA 17105-8464, (717) 787-7060. Persons with a disability may use the AT&T Relay Service by calling (800) 654-5984 (TDD users) or (800) 654-5988 (voice users). This proposal is available electronically through the Department of Environmental Protection's (Department) website (<http://www.depweb.state.pa.us>).

C. Statutory Authority

The final rulemaking is being made under the authority of Sections 5(b)(1) and 402 of The Clean Streams Law (35 P.S. §§ 691.5(b)(1) and 691.402), which authorize the Board to develop and adopt rules and regulations to implement provisions of The Clean Streams Law and Section 1920-A of The Administrative Code of 1929 (71 P.S. § 510-20), which grants to the Board the power and duty to formulate, adopt and promulgate rules and regulations for the proper performance of the work of the Department. In addition, Section 303 of the Federal Clean Water Act (33 U.S.C.A. § 1313) sets forth requirements for water quality standards and the Federal regulations in 40 CFR 131.32 (relating to Pennsylvania) set forth certain requirements for portions of the Commonwealth's antidegradation program and the Federal regulation in 40 CFR 131.41 (relating to Bacteriological criteria for those states not complying with Clean Water Act section 303(i)(1)(A)) sets forth bacteria criteria for coastal recreation waters in the Commonwealth.

D. Background and Summary

Section 303(c)(1) of The Clean Water Act requires that states periodically, but at least once every three years, review and revise as necessary, their water quality standards.

Pennsylvania's water quality standards, which are codified in Chapter 93 and portions of Chapter 92, are designed to implement the requirements of Section 5 and 402 of The Clean Streams Law and Section 303 of the Federal Clean Water Act (33 U.S.C.A. § 1313). The water quality standards consist of the designated and existing uses of the surface waters of this Commonwealth, along with the specific numeric and narrative criteria necessary to achieve and maintain those uses and an antidegradation policy. Thus, water quality standards are in-stream water quality goals that are implemented by imposing specific regulatory requirements, such as treatment requirements and effluent limitations, on individual sources of pollution. This revised regulation constitutes Pennsylvania's current triennial review of its water quality standards.

It should be noted that the triennial review regulations, originally approved by the Board at its meeting of September 16, 2008, were reviewed by the General Counsel, Secretary of the Budget and the Secretary of Planning and Policy, in accordance with the Governor's Executive Order dated February 6, 1996, and titled "*Regulatory Review and Promulgation*." Their review and approval of this regulation is evidence of Pennsylvania's "compelling interest" to protect human health even though the regulation may exceed federal standards.

The Independent Regulatory Review Commission (Commission), however, met on November 20, 2008 and disapproved that final rulemaking. The Commission's sole reason for disapproval of the rulemaking focused on the addition of a water quality criterion for molybdenum, a toxic substance.

Under the Regulatory Review Act, an agency has three options to respond to a disapproval of its final form regulation by the Commission. An agency may withdraw the regulation from further consideration, or an agency may decide to resubmit the regulation to the Commission with or without revisions. The Board decided to modify its triennial review rulemaking and to resubmit it to the Commission with revisions.

In response to the Commission's Disapproval Order, dated November 20, 2008, the Department asked the Board to reconsider its earlier approval of the triennial review rulemaking package and to remove the molybdenum (Mo) water quality criterion at its January 20, 2009 meeting. At this meeting the Board amended its previous approval (dated September 16, 2008) by deleting the water quality criterion for Mo.

The Board deleted the water quality criterion for Mo to avoid further delay in final adoption of the triennial review rulemaking. The rulemaking contains many other needed revisions to the Commonwealth's water quality standards. Any further delay in final publication of these other needed changes is a problem because the Department is required by EPA to complete its triennial review in a timely manner, and submission of a final triennial review to EPA is already beyond the three-year due date. It is anticipated that removal of the Mo criterion from this rulemaking will allow the amended regulation to be approved as a final rulemaking under the Regulatory

Review Act because Mo was the only issue identified by the Commission in its Disapproval Order. The revised rulemaking otherwise remains as it was considered and approved by the Board on September 16, 2008.

In light of the continuing disagreement with the Commission concerning the need for and justification for a statewide Mo criterion, the Department plans to return to the Board in the near future with a new proposed rulemaking to adopt a statewide Mo water quality criterion. With this new proposed rulemaking there will be an opportunity to seek additional scientific support from the public for the criterion development. Until a future rulemaking adopts Mo as a statewide criterion, the Department will continue to exercise its existing authority to develop Mo criteria for individual permits on a case-by-case basis.

Regulatory revisions in this triennial review rulemaking include: updating the water quality criteria; removing the statewide criterion for molybdenum; merging sections of Chapter 16 (Water Quality Toxics Management Strategy – Statement of Policy) into Chapter 93 (Water Quality Standards); adding a definition in § 93.1 to clarify the term “conventional treatment” for potable water supply (PWS) that is used in § 93.3, Table 1; clarifying in the footnote to Table 3 in § 93.7 that other sensitive “critical uses” may apply; and correcting and changing drainage lists and other typographic and grammatical errors.

The triennial review also requires that states re-examine water body segments that do not meet the fishable or swimmable uses specified in Section 101(a)(2) of the Federal Clean Water Act. The Department evaluated the two Pennsylvania water bodies where the uses are not currently met: (1) the Harbor Basin and entrance channel to Outer Erie Harbor/Presque Isle Bay (Drainage List X, § 93.9x) and (2) several zones in the Delaware Estuary (Drainage Lists E and G, §§ 93.9e and 93.9g).

The swimmable use designation was deleted from the Harbor Basin and entrance channel demarcated by U.S. Coast Guard buoys and channel markers on Outer Erie Harbor/ Presque Isle Bay because pleasure boating and commercial shipping traffic pose a serious safety hazard in this area. This decision was further supported by a Use Attainability (UAA) study conducted by the Department in 1985. Because the same conditions and hazards exist today, no change to the designated use for Outer Erie Harbor/Presque Isle Bay is proposed.

In April 1989 the Department cooperated with the Delaware River Basin Commission (DRBC), EPA and other DRBC signatory states on a comprehensive UAA study in the lower Delaware River and Delaware Estuary. This study resulted in appropriate recommendations relating to the swimmable use, which DRBC included in water use classifications and water quality criteria for portions of the tidal Delaware River in May 1991. The appropriate DRBC standards were referenced in Sections 93.9e and 93.9g (Drainage Lists E and G) in 1994. The primary water contact use remains excluded from the designated uses for river miles 108.4 to 81.8 because of continuing significant impacts from combined sewer overflows, and hazards associated with commercial shipping and navigation.

The Department provided extensive opportunities for the public to comment on this rulemaking. The Department’s Water Resources Advisory Committee (WRAC), provided input on the proposed regulation at its May 10, 2006, October 13, 2006, and May 9, 2007. In addition, the

Department presented the proposed rulemaking package to the Agricultural Advisory Board on August 22, 2007.

The regulation was adopted by the Board as proposed rulemaking at its October 16, 2007 meeting. The proposed rulemaking was published in the *Pennsylvania Bulletin* on January 12, 2008 (38 Pa.B. 236, 248) with provision for a 45-day public comment period, including two public meetings and hearings that were held at the Department's Southcentral Regional Office in Harrisburg, PA on February 14, 2008. A correction was published in the *Pennsylvania Bulletin* on February 2, 2008 (38 Pa.B. 612) to correct the criteria for two chemicals found in the proposed Table 5, § 93.8c (relating to criteria for toxic substances). Based on a request received, the public comment period was extended an additional 30 days and closed on March 27, 2008, as published in the *Pennsylvania Bulletin* on February 23, 2008 (38 Pa.B. 976). The Board received public comments from 10 commentators including oral testimony from three witnesses at the February 14 public hearings. The comments received on the proposed regulation are summarized in Section E below.

The draft final regulation was discussed with WRAC on July 22, 2008 where the committee deliberated on aspects of the rulemaking including the adoption of state-wide criterion for molybdenum (Mo) and the proposed definition of "conventional treatment". Although WRAC approved the draft final rulemaking for consideration by the Board, some members of the committee expressed their concerns with the Mo criterion and the health data used to create the particular criterion. WRAC also provided recommendations to further clarify the proposed definition for "conventional treatment", as it relates to the protection of the Potable Water Supply (PWS) use. The valuable input from the public and the collective knowledge and experience drawn from advisory committees and others on this proposal has been utilized to develop this regulation. The Board has considered all of the public comments received on its proposed rulemaking, and all claims asserted in the November 20, 2008 Commission's Disapproval Order in preparing this final regulation.

E. Summary of Responses to Comments and Changes to the Proposed Rulemaking

Comments were received from 10 commentators, as a result of the public hearings and public comment period, including the Commission and the U.S. Environmental Protection Agency (EPA Region 3). The comments received covered four major topics: 1) the proposed statewide Mo criterion; 2) clarification of language being added to § 93.7(a) concerning intervening critical uses; 3) moving the toxics criteria from Chapter 16 to Chapter 93; and 4) clarification on how the site-specific criteria in Chapter 16, Appendix A Table 1 will be used.

Most of the comments received on the proposed rulemaking involved requests for the Board to justify the proposed statewide criterion for Mo. For those facilities currently known to discharge Mo, the biological and chemical conditions of the receiving waters are not different from the conditions for other waters within the Commonwealth. Therefore, the Department believed it would be more effective and efficient to establish consistent, statewide protection from the toxic effects of Mo. A more detailed analysis of the justification for a Mo criterion is described in section F of this Order.

Comments were received during the public comment period, and discussed during the July 22, 2008 WRAC, which suggested the Department used inappropriate data and methods to develop the proposed water quality criterion for Mo. The commentators contend that the Department did not consider the most recent and technically justifiable toxicological data in establishing the proposed Mo standard, nor did it properly calculate the standard. Commentators suggest that the Department base their determinations on another study, *Effects of molybdenum on fertility of male rats* by Pandey and Singh, (BioMetals. 15: 65-72, 2002), which they contend contains better data. Based on this study, commentators suggest the Department use the Benchmark Dose Method (BMD), which may be used in calculating human health criteria, as an alternative to calculating the reference dose (RfD). Commentators believe BMD is an improved method in comparison to using the NOAEL/LOAEL (no observed adverse effects level/lowest observed adverse effects level), which is the approach used by the Department to calculate the RfD for the Mo criterion. While U.S. EPA has approved the use of the BMD, its use must be based on the most sensitive endpoint. Data input to the BMD must be obtained from reviewing several critical studies to establish the most sensitive endpoint. This endpoint is then used to calculate the RfD.

The commentators single out one study upon which they requested the RfD be calculated. U.S. EPA's and the Department's evaluation of the request found that the study did not represent the most sensitive study population or the most sensitive endpoint. Therefore, due to insufficient data for BMD determination, U.S. EPA recommended that the Department use the NOAEL/LOAEL approach to calculate the reference dose.

The Department used information from the *U.S. EPA Integrated Risk Information System (IRIS)* to obtain supporting studies in developing a criterion for Mo. IRIS, is an electronic database containing information on human health effects that may result from exposure to various substances in the environment. IRIS is prepared and maintained by the EPA's National Center for Environmental Assessment (NCEA) within the Office of Research and Development (ORD). The Department originally developed a criterion for Mo using only toxicity data available in the IRIS data base. At the request of a commentator, U.S. EPA headquarters approved supplementing the IRIS database with additional sources of toxicity information obtained from a peer-reviewed toxicity report from the Institute of Medicine (IOM), which was published by the National Academy Press. This updated, combined dataset was then used to develop the best available scientifically calculated Mo criterion.

U.S. EPA Headquarters and U.S. EPA Region 3 staff reviewed and concurred that the Department used the appropriate data and methodologies, and developed an appropriate recommended statewide human health criterion for Mo.

Although no public comments were received regarding the proposed definition for "conventional treatment," further refinements were made to the definition on final rulemaking based on discussion and recommendations by WRAC. Conventional treatment, for the purpose of surface water protection of the Potable Water Supply (PWS) use, should reflect the treatment processes required to filter and disinfect water. The water supply treatment scheme will not have to bear the burden of removing non-conventional pollutants that should otherwise be controlled by those discharging the pollutants.

A comment received expressed concern that there may be confusion if the entire section 40 CFR § 131.41 is adopted by reference at 25 Pa. Code § 93.9x (relating to Lake Erie). The commentator recommended the adoption of only paragraph (c) of the federal regulation. Upon further evaluation, 40 CFR §131.41(a) – (e) is incorporated into the state regulations on final rulemaking. Only paragraph (f) is excluded since it identifies a scheme for compliance schedules which is already addressed in 25 Pa. Code Chapter 92.

Based on comments received, revisions to the “Critical Use” footnote in § 93.7(a) regarding “other intervening, more sensitive uses” were made. Protected and statewide water uses, identified in §§ 93.3 and 93.4, will be protected using criteria in §§ 93.6, 93.7, and 93.8c and site-specific criteria developed under 93.8d. Based on activities in the watershed that require the protection of intervening uses, site-specific criteria will be developed on a case-by-case basis.

Other commentators requested clarification on why the Board was moving criteria from Chapter 16 into Chapter 93. Moving the criteria for toxic substances into Chapter 93 will give these criteria the full effect and advantage of regulation. This is appropriate since these criteria are not being changed or supplemented as frequently as originally anticipated. The original incentive for listing criteria in the Statement of Policy was to allow for flexibility in the timing of criteria development and revision.

EPA supports the movement of criteria into regulation but requested clarification in § 93.8d(e) on how the site specific criteria in Chapter 16, Appendix A Table 1 will be used. Background or natural conditions are site-specific by nature, so EPA is unsure how such criteria will be incorporated into Table 5, which appears to include only statewide criteria. A new criterion placed in Chapter 16, Appendix A Table 1 will remain a site-specific criterion as originally developed and be incorporated into the appropriate portion of §§ 93.9a – 93.3z that relates to “Exceptions to Specific Criteria” unless, during rulemaking, it is determined that the same criterion has general statewide applicability.

A detailed description of the revisions to the Chapter 93 proposal follows:

§ 93.1. Definitions.

The proposed definition for “Conventional Treatment” is revised. The definition will reflect the treatment processes required to filter and disinfect water.

Conventional treatment – for the purpose of surface water protection of the Potable Water Supply (PWS) use, conventional treatment is coagulation, followed by filtration for the removal of solids, and disinfection for the control of pathogens to produce water for drinking and other human consumption.

§ 93.7. Specific water quality criteria.

The footnote for “Critical Use” in Table 3 is revised to clarify that intervening uses on a waterbody may be protected.

* *Critical Use*: The designated or existing use the criteria are designed to protect. More stringent site-specific criteria may be developed to protect other more sensitive, intervening uses.

In paragraph (d) of § 93.7, the reference to Chapter 16, Appendix A Table 1 will not be added, as proposed, because it is not applicable to a natural quality determination.

§ 93.8c. Human health and aquatic life criteria for toxic substances.

On January 20, 2009, the Board approved an amendment to this final rulemaking by removing the molybdenum criterion from Table 5 in response to the Commission's disapproval.

§ 93.8d. Development of site-specific water quality criteria.

§ 93.8d is restructured to further clarify how site-specific water quality criteria will be developed, reviewed, and promulgated. The Department will consider a request for site-specific criteria when: (1) there exist site-specific biological or chemical conditions of receiving waters which differ from conditions upon which the statewide water quality criteria were based; (2) more stringent criteria are needed for a parameter listed in § 93.7 to protect more sensitive, intervening uses; or (3) there exists a need for a site-specific criterion for a substance not listed in Chapter 93, Table 5.

All scientific studies shall be performed in accordance with the procedures and guidance in Chapter 16 and the Water Quality Standards Handbook (EPA 1994), as amended and updated, including: "Guidance on the Determination and Use of Water-Effect Ratios for Metals" (EPA-823-B-94-001, February 1994); and the "Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health" (2000). Other guidance approved by the Department, which is based on other EPA approved or scientifically defensible methodologies, may be used. A proposed plan of study shall be submitted to the Department for review, consideration and approval prior to conducting these studies.

If the Department determines that site-specific criteria are appropriate according to one of the three conditions indicated above, and the studies were conducted according to appropriate scientific methodologies, the Department will: (1) publish the site-specific criterion in the *Pennsylvania Bulletin*, along with other special conditions under § 92.61(a)(5) (relating to public notice of permit application and public hearing) and provide for public participation and public hearing in accordance with §§ 92.61, 92.63 and 92.65; (2) maintain publicly available lists of site-specific criteria; (3) submit the methodologies used for site-specific criteria development to U.S. Environmental Protection Agency's Regional Administrator for review and approval, within 30 days of Department's final action; and (4) prepare a recommendation to the EQB in the form of proposed rulemaking, incorporating that criterion for the waterbody segment.

If the Department determines that new statewide criteria or modifications to statewide criteria are appropriate, the Department will prepare a recommendation to the EQB in the form of proposed rulemaking, incorporating the criteria into Chapter 93. The new criteria and changes to the criteria will become effective following adoption by the EQB as final rulemaking and publication in the *Pennsylvania Bulletin*.

F. Summary of Response to the Independent Regulatory Review Commission's Disapproval Order

The Commission's Disapproval Order determined that this triennial review rulemaking is consistent with the statutory authority of the Pennsylvania Clean Streams Law and the intention of the General Assembly. The Commission, however, also found that the Mo criterion portion of the proposed regulation was not in the public interest, based on criteria of the Regulatory Review Act.

The Commission's sole objection was the adoption of a statewide water quality criterion for molybdenum (Mo). In its Disapproval Order, The Commission asserted three reasons for the disapproval: 1) the Commission questioned whether DEP had offered sufficient justification regarding the specific interest of the Commonwealth to exceed federal water quality standards; 2) the Commission stated that the EQB had not sufficiently addressed the economic and fiscal impact of imposing this new water quality criterion on the regulated community; and 3) the Commission stated that the EQB had not fully demonstrated the impact of the consumption of Mo on the public health.

First, state-specific standards are often developed based on the types of industry, and pollutants related to those industries, that are located in Pennsylvania. Industries located in Pennsylvania that may discharge Mo include specialty steel, coal mining and coal-fired power generation.

Mo is shown to cause gout-like symptoms, characterized by pain, swelling, inflammation and deformities of the joints, and in all cases, an increase in the uric acid content of the blood. In addition, disorders of the gastrointestinal tract, liver, kidneys and the central nervous system, including brain function, have been documented. Mo is considered to be a toxic metal and has also been labeled an embryonic mammalian teratogen because it can cause developmental deformities, as described in the Toxicity Profile - Toxicity Summary for Molybdenum prepared by the Oak Ridge National Laboratory and available at the on-line *Risk Assessment Information System (RAIS)*.

Possible human exposure pathways for Mo include dermal, inhalation and ingestion. The Mo criterion was developed considering the ingestion pathway through both drinking water and fish consumption. Exposure conditions used include two liters of water per day and 17.5 grams of fish per day (as recommended by U.S. EPA) for a 70 kg adult.

In 25 Pa. Code Chapter 93, a "toxic substance" is defined as "a chemical or compound in sufficient quantity or concentration which is, or may become, harmful to human, animal or plant life." Scientific literature shows that crops contaminated by Mo can be fatal to livestock if ingested. This condition has been documented in Pennsylvania. Based on the scientific evidence and the fact that industries in Pennsylvania discharge molybdenum, it is appropriate for Pennsylvania to "exceed" federal water quality standards by adopting a standard for Mo.

Mr. Jon Capacasa, Director of U.S. EPA Region III's Water Protection Division, provided a November 18, 2008 letter of support to Chairman Coccodrilli of the Commission, in which he states that "*PADEP developed [a] numeric criterion for molybdenum to protect human health in*

accordance with its own state regulations (Chapter 16, Guidelines for Development of Human Health-Based Criteria), using the guidelines in PA Code §16.32 for threshold level toxic effects and EPA's Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health (EPA-822-B-00-004, October 2000).” Mr. Capacasa went on to say that EPA Region III supports “*both the methodologies and the variables that PADEP used to develop a human health criterion for molybdenum. EPA also supports PADEP's determination that a molybdenum criteri[on] is necessary to protect Pennsylvania's statewide potable water supply use.*”

The Department coordinated its Mo criteria development effort with EPA's regional water quality standards staff and its headquarters toxicologists. Even in the absence of a federal standard, U.S. EPA supports the numeric criterion that the Department developed for Mo.

Second, as U.S. EPA properly indicated in its comments to the Commission, “*economic and technological factors may not be used to justify adoption of criteria*” under the federal Clean Water Act. Water quality criteria are strictly based on science and are developed to protect water uses. Economic and technological factors are considered at the NPDES permitting stage, when the conditions are established under which a permittee may discharge.

Although the Department is not obligated or permitted to evaluate technology when developing science-based water quality criteria, in response to the Commission's concerns, the Department provided a list of available wastewater treatment methods for Mo. The federal Clean Water Act establishes a goal of pollution elimination. See 33 U.S.C. § 1251(a). The law envisions science-based water quality standards that drive technology development to further the goal of eliminating water quality degradation.

The application of technology and the compliance time available to employ the technology are considered at the permitting stage. As stated at the Commission's public hearing, to the extent that new treatment technology is being developed or tested, the Department will work with a discharger to provide for an appropriate time to achieve permit limits.

Finally, although the Commission asserts that there is a lack of data demonstrating adverse health impacts on Pennsylvanians, U.S. EPA and states regularly rely on national health data to support the development of water quality standards. The Department is concerned that the Commission has misapprehended or disregarded the strong scientific and supportive evidence during its review of this regulation. The Department based its scientific review on references that rely on a compilation of approximately 680 scientific papers. The Department has the expertise in developing water quality criteria and the Commission should defer to the Department's expertise on these scientific issues.

G. Benefits, Costs and Compliance

1. *Benefits* - Overall, the Commonwealth, its citizens and natural resources will benefit from these recommended changes because they provide the appropriate level of protection in order to preserve the integrity of existing and designated uses of surface waters in this Commonwealth. Protecting water quality provides economic values to present and future generations in the form

of clean water, recreational opportunities, and aquatic life protection. It is important that the citizens of the Commonwealth realize all of these benefits, and also to ensure that activities that depend on surface water or that may affect its chemical, biological and physical integrity can continue in a manner that is environmentally, socially and economically sound. Maintenance of water quality ensures its future availability for all uses.

2. *Compliance Costs* - These final-form amendments to Chapter 93 may impose additional compliance costs on the regulated community. These regulatory changes are necessary to improve total pollution control. The expenditures necessary to meet new compliance requirements may exceed that which is required under existing regulations.

Persons conducting or proposing activities or projects must comply with the regulatory requirements relating to designated and existing uses. Persons expanding a discharge or adding a new discharge point to a stream could be adversely affected if they need to provide a higher level of treatment to meet the more stringent criteria for selected parameters or there are changes in designated and existing uses of the stream. These increased costs may take the form of higher engineering, construction or operating cost for wastewater treatment facilities. Treatment costs are site-specific and depend upon the size of the discharge in relation to the size of the stream and many other factors. Therefore, it is not possible to precisely predict the actual change in costs. Economic impacts would primarily involve the potential for higher treatment costs for new or expanded discharges to streams that are redesignated. The initial costs from technologically improved treatments may be offset over time by potential savings from and increased value of improved water quality through these improved and possibly more effective or efficient treatments.

3. *Compliance Assistance Plan*—The final-form rulemaking has been developed as part of an established program that has been implemented by the Department since the early 1980s. The revisions are consistent with, and based on existing Department regulations.

This final-form rulemaking will be implemented through the Department's permit and approval actions. For example, the National Pollutant Discharge Elimination System (NPDES) permitting program bases effluent limitations on the water uses of the stream. Permit conditions are established to assure water quality criteria are achieved and water uses are protected. No new compliance assistance measures are anticipated. Staff is available to assist regulated entities in complying with the regulatory requirements if questions arise.

4. *Paperwork Requirements*—These regulatory revisions should have no significant paperwork impact on the Commonwealth, its political subdivisions, or the private sector. There may be some additional paperwork requirements for new or expanding dischargers to streams upgraded to "high quality" or "exceptional value." For example, NPDES general permits are not available for new or expanding discharges to these streams. Thus, an individual permit and its associated paperwork would be required. Additionally, paperwork associated with demonstrating social and economic justification may be required for discharges to certain high quality waters and consideration of nondischarge alternatives is required for discharges to these special protection waters..

H. Pollution Prevention

Water quality standards are a major pollution prevention tool because they protect water quality and designated and existing uses. The final-form rulemaking will be implemented through the Department's permit and approval actions. For example, the NPDES bases effluent limitations on the designated use of the stream and the water quality criteria necessary to achieve designated and existing uses.

I. Sunset Review

This final-form rulemaking will be reviewed in accordance with the sunset review schedule published by the Department to determine whether the regulation effectively fulfills the goals for which it was intended.

J. Regulatory Review

Under Section 5(a) of the Regulatory Review Act (71 P.S. § 745.5(a)), on December 21, 2007, the Department submitted a copy of the proposed rulemaking published at 38 Pa.B. 236, to the Independent Regulatory Review Commission and to the Chairpersons of the Senate and House Environmental Resources and Energy Committees (Standing Committees) for review and comment.

Under Section 5(c) of the Regulatory Review Act (71 P.S. § 745.5(c)), the Department provided the Commission and the Standing Committees with copies of the comments received on the proposed regulation, as well as other documentation. The Department and Board have considered all public comments in preparing this final-form rulemaking.

Under section 5.1(j.2) of the Regulatory Review Act (71 P.S. § 745.5a(j.2)), on November 19, 2008, the Board's final-form rulemaking, dated September 16, 2008, was deemed approved by the House Standing Committee. The Senate Standing Committee, however, recommended, on October 8, 2008, that the Commission disapprove the original final rulemaking, and requested additional time to review the Commission's action on that rulemaking. Under section 5.1(e) of the Regulatory Review Act (71 P.S. § 745.5a(e)), the Commission met on November 20, 2008, and disapproved the Board's final-form rulemaking dated September 16, 2008.

Under section 7(c) of the Regulatory Review Act (71 P.S. § 745.7(c)), on February 6, 2009, the Department submitted a copy of the revised final rulemaking to the Commission and the Standing Committees.

Under section 7(d) of the Regulatory Review Act (71 P.S. § 745.7(d)), on _____, this revised final-form rulemaking was deemed approved by the House and Senate Standing Committees. Under section 7(c.1) of the Regulatory Review Act (71 P.S. § 745.7(c.1)), on _____, the Commission approved this revised final-form rulemaking.

K. Findings of the Board

The Board finds that:

- (1) Public notice of proposed rulemaking was given under sections 201 and 202 of the act of July 31, 1968 (P.L. 769, No. 240) (45 P.S. §§ 1201 and 1202) and regulations promulgated thereunder at 1 Pa. Code §§ 7.1 and 7.2.
- (2) A public comment period was provided as required by law. In addition, Board hearings were held, and the public comment period was extended. All comments were considered.
- (3) This final-form rulemaking does not enlarge the purpose of the proposal published at 38 Pa.B. 236, or the correction published at 38 Pa.B. 612.
- (4) This final-form rulemaking is necessary and appropriate for administration and enforcement of the authorizing acts identified in Section C of this order.

L. Order of the Board

The Board, acting under the authorizing statutes, orders that:

- (a) The regulations of the Department, 25 PA Code Chapter 93, are amended by amending §§ 93.1, 93.3, 93.7, 93.8a, 93.8d, 93.9, 93.9a – 93.9o, 93.9q, 93.9v, 93.9x, 93.9z, by deleting § 93.8 and by adding §§ 93.8b, 93.8c and 93.8e to read as set forth in Annex A, with ellipses referring to the existing text of the regulation.
- (b) The Chairperson of the Board shall submit this order and Annex A to the Office of General Counsel and the Office of Attorney General for approval and review as to legality and form, as required by law.
- (c) The Chairperson shall submit this order and Annex A to the Independent Regulatory Review Commission and the Senate and House Environmental Resources and Energy Committees as required by the Regulatory Review Act.
- (d) The Chairperson of the Board shall certify this order and Annex A and deposit them with the Legislative Reference Bureau, as required by law.
- (e) This order shall take effect immediately upon publication in the *Pennsylvania Bulletin*.

JOHN HANGER
Acting Chairman
Environmental Quality Board

ANNEX A

TITLE 25. ENVIRONMENTAL PROTECTION
PART I. DEPARTMENT OF ENVIRONMENTAL PROTECTION
Subpart C. PROTECTION OF NATURAL RESOURCES
ARTICLE II. WATER RESOURCES

CHAPTER 93. WATER QUALITY STANDARDS

GENERAL PROVISIONS

- Sec.
93.1. Definitions.
93.2. Scope.
93.3. Protected water uses.
93.4. Statewide water uses.

ANTIDEGRADATION REQUIREMENTS

- 93.4a. Antidegradation.
93.4b. Qualifying as High Quality or Exceptional Value Waters.
93.4c. Implementation of antidegradation requirements.
93.4d. Processing of petitions, evaluations and assessments to change a designated use.
93.5. [Reserved].

WATER QUALITY CRITERIA

- 93.6. General water quality criteria.
93.7. Specific water quality criteria.
93.8. [Development of site-specific water quality criteria for the protection of aquatic life.] [Reserved].
93.8a. Water Quality Criteria for Toxic substances.
93.8b. Metals criteria.
93.8c. Human health and aquatic life criteria for toxic substances
93.8d. Development of site-specific water quality criteria.
93.8e. Special criteria for the Great Lakes System

* * * * *

§ 93.1. Definitions.

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

* * * * *

Clean Water Act—The Federal Water Pollution Control Act (33 U.S.C.A. §§ 1251-1376).

Conventional treatment – FOR THE PURPOSE OF SURFACE WATER PROTECTION OF THE POTABLE WATER SUPPLY (PWS) USE, [€]Conventional TREATMENT IS COAGULATION, FOLLOWED BY filtration [in a treatment process that uses separate, sequential units for coagulation/flocculation, clarification, and granular media filtration] FOR THE REMOVAL OF SOLIDS, AND DISINFECTION FOR THE CONTROL OF PATHOGENS to produce [finished] water for drinking AND OTHER HUMAN CONSUMPTION.

* * * * *

Toxic substance - A chemical or compound in sufficient quantity or concentration which is, or may become, harmful to human, animal or plant life. The term includes, but is not limited to, priority pollutants and those substances, which are identified in **Tables 5 and 6 of this chapter. Additional toxic substances are also described in Chapter 16 Appendix A, Table 1** (relating to site-specific water quality criteria for toxic [management] substances [strategy - statement of policy]).

WER - Water Effect Ratio - A factor that expresses the difference between the measures of the toxicity of a substance in laboratory water and the toxicity in site water. The WER provides a mechanism to account for that portion of a metal that is toxic under certain physical, chemical or biological conditions.

Water quality criteria - Numeric concentrations, levels or surface water conditions that need to be maintained or attained to protect existing and designated uses.

* * * * *

§ 93.3. Protected water uses.

Water uses which shall be protected, and upon which the development of water quality criteria shall be based, are set forth, accompanied by their identifying symbols, in Table 1:

TABLE 1

Symbol *Protected Use*
Aquatic Life

* * * * *

MF *Migratory Fishes*—Passage, maintenance and propagation of anadromous and catadromous fishes and other fishes which [**ascend**] **move to or from** flowing waters to complete their life cycle **in other waters.**

* * * * *

Water Supply

* * * * *

surface waters and parameters where this subsection applies, and [shall] will, from time to time, submit appropriate amendments to §§ 93.9a—93.9z.

* * * * *

§ 93.8. [Development of site-specific water quality criteria] (Reserved).

[(a) The Department will consider a request for site-specific criteria for protection of aquatic life, human health or wildlife when a person demonstrates that there exist site-specific biological or chemical conditions of receiving waters which differ from conditions upon which the water quality criteria were based. Site-specific criteria may be developed for use only in place of current Statewide or regional (such as the Great Lakes systems) criteria. The request for site-specific criteria shall include the results of scientific studies for the purpose of:

(1) Defining the areal boundaries for application of the site-specific criteria which will include the potentially affected wastewater dischargers identified by the Department, through various means, including, but not limited to, the total maximum daily load (TMDL) process described in Chapter 96 (relating to water quality standards implementation) or biological assessments.

(2) Developing site-specific criteria which protect its existing use and designated use.

(b) Scientific studies shall be performed in accordance with the procedures and guidance in the Water Quality Standards Handbook (EPA 1994), as amended and updated, guidance provided by the Department or other scientifically defensible methodologies approved by the Department.

(c) Prior to conducting studies specified in subsections (a) and (b), a proposed plan of study shall be submitted to and approved by the Department.

(d) Signed copies of all reports including toxicity test data shall be submitted to the Department within 30 days of completion of the tests.

(e) If as a result of its review of the report submitted, the Department determines that a site-specific criterion is appropriate, the Department will, for site-specific changes to criteria in § 93.7 (relating to specific water quality criteria), prepare a recommendation to the EQB in the form of proposed rulemaking, incorporating that criterion for the water body segment. The site-specific changes to the criteria will become effective for the water body segment following adoption by the EQB as final rulemaking and publication in the *Pennsylvania Bulletin*.

(f) A person challenging a Department action under this section shall have the burden of proof to demonstrate that the Department's action does not meet the requirements of this section.]

§ 93.8a. [Toxic] Water quality criteria for toxic substances.

* * * * *

(b) Water quality criteria for toxic [management] substances shall be established as described under Chapter 16 (relating to water quality toxics management strategy—statement of policy) [wherein the criteria and]. The Department will develop water quality criteria for toxic[s] SUBSTANCES not listed in Chapter 93, Table 5 in accordance with § 93.8d (relating to development of site-specific water quality criteria) and Chapter 16. Appendix A, Table 1 in Chapter 16 lists site-specific human health and aquatic life criteria that have been recently developed or adopted by the Department based on approved methodologies and the best scientific information currently available. The approved [EPA] analytical procedures and detection limits for these substances will also be listed in Chapter 16. Chapter 16, along with changes made to it, is hereby specifically incorporated by reference.

* * * * *

(h) [At intervals not exceeding 1 year, the]The Department will periodically, but at least once every 3 years, review, revise as necessary, and publish [a] new or revised water quality criteria for toxic substances, and revised procedures for criteria development in the *Pennsylvania Bulletin*.

* * * * *

(j) The requirements for discharges to and antidegradation requirements for the Great Lakes System are as follows:

* * * * *

(3) Statewide antidegradation requirements in this chapter and Chapter [95(relating to water quality standards; and wastewater treatment requirements)] 96 (relating to water quality standards implementation) and in the Federal regulation in 40 CFR 131.32(a) (relating to Pennsylvania) as applicable, apply to all surface waters of the Great Lakes System.

* * * * *

§ 93.8b. Metals criteria.

Dissolved criteria are footnoted in Table 5, and have been developed by applying the most current EPA conversion factors to the total recoverable criteria. The EPA factors are listed in the following Conversion Factors Table.

Conversion Factors Table

	<u>Chronic</u>	<u>Acute</u>	<u>Source</u>
<u>Arsenic</u>	<u>1.000 (As3+)</u>	<u>1.000 (As3+)</u>	<u>1,2</u>
<u>Cadmium</u>	<u>1.101672- (ln[H]x0.041838)</u>	<u>1.136672- (ln[H]x0.041838)</u>	<u>2</u>
<u>Chromium VI</u>	<u>0.962</u>	<u>0.982</u>	<u>1,2</u>
<u>Copper</u>	<u>0.960</u>	<u>0.960</u>	<u>1,2</u>
<u>Lead*</u>		<u>1.46203-(ln[H]x0.145712)</u>	
<u>Mercury</u>	<u>0.85</u>	<u>0.85</u>	<u>1,2</u>
<u>Nickel</u>	<u>0.997</u>	<u>0.998</u>	<u>1,2</u>

<u>Selenium</u>	<u>0.922</u>	<u>0.922</u>	<u>1</u>
<u>Silver</u>	<u>NA</u>	<u>0.85</u>	<u>2</u>
<u>Zinc</u>	<u>0.986</u>	<u>0.978</u>	<u>1,2</u>

*Conversion factor applies to both acute and chronic criteria.

Source 1—Final Water Quality Guidance for the Great Lakes System (60 FR 15366, March 23, 1995)

Source 2—Establishment of Numeric Criteria for Priority Pollutants; Revision of Metals Criteria-Interim Final Rule (60 FR 22229, May 4, 1995)

§ 93.8c. Human health and aquatic life criteria for toxic substances.

(a) Table 5 and Chapter 16, Appendix A, Table 1 (relating to site-specific water quality criteria for toxic substances) list the aquatic life and human health criteria for toxic substances which the Department uses in development of effluent limitations in NPDES Permits and for other purposes. The human health criteria, which include probable modes of exposure (such as, but not limited to ingestion from drinking water and fish consumption, inhalation, and dermal absorption), are further defined as to the specific effect (that is, cancer or threshold health effects). For those aquatic life criteria which are hardness related and specified as a formula, such as several of the heavy metals, the Department will use the specific hardness of the receiving stream after mixing with the waste discharge in calculating criteria on a case-by-case basis. The priority pollutant numbers (PP NO) used by the EPA to identify priority pollutants are included in Table 5 for reference purposes. The toxics without a PP NO are non-priority pollutants and State-derived criteria.

(b) Some of these criteria may be superseded for the Delaware Estuary, Ohio River Basin, Lake Erie Basin, and Genesee River Basin under interstate and international compact agreements with the Delaware River Basin Commission, Ohio River Valley Sanitation Commission and International Joint Commission, respectively. The criteria in Table 5 do not apply to the Great Lakes System. Water quality criteria for the Great Lakes System are contained in § 93.8e (relating to special criteria for the Great Lakes System) and Table 6 (relating to Great Lakes Aquatic Life and Human health Criteria). Criteria may be developed for the Great Lakes System for substances other than those listed in § 93.8e under the methodologies in §16.61 (relating to special provisions for the Great Lakes system).

TABLE 5

WATER QUALITY CRITERIA FOR TOXIC SUBSTANCES

<u>PP</u>	<u>Chemical Name</u>	<u>CAS</u>	<u>Fish and Aquatic Life Criteria</u>		<u>Human</u>
<u>NO</u>		<u>Number</u>	<u>Criteria Continuous</u>	<u>Criteria Maximum</u>	<u>Health</u>

		<u>Concentrations (ug/L)</u>	<u>Concentration (ug/L)</u>	<u>Criteria (ug/L)</u>	
1M	ANTIMONY	07440360 220	1100	5.6	H
2M	ARSENIC	07440382 150 (As3+)	340 (As3+)	10	H
3M	BERYLLIUM	07440417 N/A	N/A	N/A	:
4M	CADMIUM	07440439 $\ast\{1.101672-(\ln[H]x0.041838)\}x$ <u>Exp(0.7409xln[H]-4.719)</u> (ex: @H=100, CCC=0.25)	$\ast\{1.136672-(\ln[H]x0.041838)\}x$ <u>Exp(1.0166xln[H]-3.924)</u> (ex: @H=100, CMC=2.0)	N/A	:
5M	CHROMIUM III	16065831) $\ast0.860xExp(0.819xln[H]+0.6848)$ (ex: @H=100, CCC=74)	$\ast0.316xExp(0.819xln[H]+3.7256)$ (ex: @H=100, CMC=570)	N/A	:
5M	CHROMIUM VI	18540299 $\ast10$	$\ast16$	N/A	:
6M	COPPER	07440508 $\ast0.960xExp(0.8545xln[H]-1.702)$ (ex: @H=100, CCC=9.0)	$\ast0.960xExp(0.9422xln[H]-1.700)$ (ex: @H=100, CMC=13)	N/A	:
7M	LEAD	07439921 $\ast\{1.46203-(\ln[H]x0.145712)\}x$ <u>Exp(1.273xln[H]-4.705)</u> (ex: @H=100, CCC=2.5)	$\ast\{1.46203-(\ln[H]x0.145712)\}x$ <u>Exp(1.273xln[H]-1.460)</u> (ex: @H=100, CMC=65)	N/A	:
8M	MERCURY	07439976 $\ast0.77$ (Hg2+)	$\ast1.4$ (Hg2+)	0.05	H
9M	NICKEL	07440020 $\ast0.997xExp(0.846xln[H]+0.0584)$ (ex: @H=100, CCC=52)	$\ast0.998xExp(0.846xln[H]+2.255)$ (ex: @H=100, CMC=470)	610	H
10M	SELENIUM	07782492 $\ast4.6$	N/A	N/A	:
11M	SILVER	07440224 N/A	$\ast0.850xExp(1.72xln[H]-6.590)$ (ex: @H=100, CMC=3.2)	N/A	:
12M	THALLIUM	07440280 13	65	0.24	H
13M	ZINC	07440666 $\ast0.986xExp(0.8473xln[H]+0.884)$ (ex: @H=100, CCC=120)	$\ast0.978xExp(0.8473xln[H]+0.884)$ (ex: @H=100, CMC=120)	N/A	
14M	CYANIDE, FREE	00057125 5.2	22	140	H
1A	2-CHLOROPHENOL	00095578 110	560	81	H
2A	2,4-DICHLORO- PHENOL	00120832 340	1700	77	H
3A	2,4-DIMETHYL- PHENOL	00105679 130	660	380	H
4A	4,6-DINITRO-o- CRESOL	00534521 16	80	13	H
5A	2,4-DINITRO- PHENOL	00051285 130	660	69	H
6A	2-NITROPHENOL	00088755 1600	8000	N/A	:
7A	4-NITROPHENOL	00100027 470	2300	N/A	:
8A	P-CHLORO-m- CRESOL	00059507 30	160	N/A	:
9A	PENTACHLORO- PHENOL	00087865 <u>Exp(1.005x[pH]-5.134)</u> <u>@pH= 6.5 7.8 9.0</u> <u>Crit= 4.1 15 50</u>	<u>Exp(1.005x[pH]-4.869)</u> <u>@pH= 6.5 7.8 9.0</u> <u>Crit= 5.3 19 65</u>	0.27	CRL
10A	PHENOL	00108952 N/A	N/A	21000	H

11A	<u>2,4,6-TRICHLORO-PHENOL</u>	<u>00088062</u>	<u>91</u>	<u>460</u>	<u>1.4</u>	<u>CRL</u>
1V	<u>ACROLEIN</u>	<u>00107028</u>	<u>1</u>	<u>5</u>	<u>190</u>	<u>H</u>
2V	<u>ACRYLONITRILE</u>	<u>00107131</u>	<u>130</u>	<u>650</u>	<u>0.051</u>	<u>CRL</u>
3V	<u>BENZENE</u>	<u>00071432</u>	<u>130</u>	<u>640</u>	<u>1.2</u>	<u>CRL</u>
5V	<u>BROMOFORM</u>	<u>00075252</u>	<u>370</u>	<u>1800</u>	<u>4.3</u>	<u>CRL</u>
6V	<u>CARBON TETRACHLORIDE</u>	<u>00056235</u>	<u>560</u>	<u>2800</u>	<u>0.23</u>	<u>CRL</u>
7V	<u>CHLORO-BENZENE</u>	<u>00108907</u>	<u>240</u>	<u>1200</u>	<u>130</u>	<u>H</u>
8V	<u>CHLORODIBROMO-METHANE</u>	<u>00124481</u>	<u>N/A</u>	<u>N/A</u>	<u>0.40</u>	<u>CRL</u>
9V	<u>CHLOROETHANE</u>	<u>00075003</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>:</u>
10V	<u>2-CHLOROETHYL VINYL ETHER</u>	<u>00110758</u>	<u>3500</u>	<u>18000</u>	<u>N/A</u>	<u>:</u>
11V	<u>CHLOROFORM</u>	<u>00067663</u>	<u>390</u>	<u>1900</u>	<u>5.7</u>	<u>CRL</u>
12V	<u>DICHLOROBROMO-METHANE</u>	<u>00075274</u>	<u>N/A</u>	<u>N/A</u>	<u>0.55</u>	<u>CRL</u>
14V	<u>1,1-DICHLORO-ETHANE</u>	<u>00075343</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>:</u>
15V	<u>1,2-DICHLORO-ETHANE</u>	<u>00107062</u>	<u>3100</u>	<u>15000</u>	<u>0.38</u>	<u>CRL</u>
16V	<u>1,1-DICHLORO-ETHYLENE</u>	<u>00075354</u>	<u>1500</u>	<u>7500</u>	<u>33.0</u>	<u>H</u>
17V	<u>1,2-DICHLORO-PROPANE</u>	<u>00078875</u>	<u>2200</u>	<u>11000</u>	<u>N/A</u>	<u>:</u>
18V	<u>1,3-DICHLORO-PROPYLENE</u>	<u>00542756</u>	<u>61</u>	<u>310</u>	<u>0.34</u>	<u>CRL</u>
19V	<u>ETHYLBENZENE</u>	<u>00100414</u>	<u>580</u>	<u>2900</u>	<u>530</u>	<u>H</u>
20V	<u>METHYL BROMIDE</u>	<u>00074839</u>	<u>110</u>	<u>550</u>	<u>47</u>	<u>H</u>
21V	<u>METHYL CHLORIDE</u>	<u>0074873</u>	<u>5500</u>	<u>28000</u>	<u>N/A</u>	<u>:</u>
22V	<u>METHYLENE CHLORIDE</u>	<u>00075092</u>	<u>2400</u>	<u>12000</u>	<u>4.6</u>	<u>CRL</u>
23V	<u>1,1,2,2-TETRACHLOROETHANE</u>	<u>00079345</u>	<u>210</u>	<u>1000</u>	<u>0.17</u>	<u>CRL</u>
24V	<u>TETRACHLORO-ETHYLENE</u>	<u>00127184</u>	<u>140</u>	<u>700</u>	<u>0.69</u>	<u>CRL</u>
25V	<u>TOLUENE</u>	<u>00108883</u>	<u>330</u>	<u>1700</u>	<u>1300</u>	<u>H</u>
26V	<u>1,2-trans-DICHLORO-ETHYLENE</u>	<u>00156605</u>	<u>1400</u>	<u>6800</u>	<u>140</u>	<u>H</u>
27V	<u>1,1,1-TRICHLORO-ETHANE</u>	<u>00071556</u>	<u>610</u>	<u>3000</u>	<u>N/A</u>	
28V	<u>1,1,2-TRICHLORO-ETHANE</u>	<u>00079005</u>	<u>680</u>	<u>3400</u>	<u>0.59</u>	<u>CRL</u>
29V	<u>TRICHLORO-ETHYLENE</u>	<u>00079016</u>	<u>450</u>	<u>2300</u>	<u>2.5</u>	<u>CRL</u>
31V	<u>VINYL CHLORIDE</u>	<u>00075014</u>	<u>N/A</u>	<u>N/A</u>	<u>0.025</u>	<u>CRL</u>

1B	<u>ACENAPHTHENE</u>	<u>00083329</u>	<u>17</u>	<u>83</u>	<u>670</u>	<u>H</u>
2B	<u>ACENAPHTHYLENE</u>	<u>00208968</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>:</u>
3B	<u>ANTHRACENE</u>	<u>00120127</u>	<u>N/A</u>	<u>N/A</u>	<u>8300</u>	<u>H</u>
4B	<u>BENZIDINE</u>	<u>00092875</u>	<u>59</u>	<u>300</u>	<u>0.000086</u>	<u>CRL</u>
5B	<u>BENZO(a)- ANTHRACENE</u>	<u>00056553</u>	<u>0.1</u>	<u>0.5</u>	<u>0.0038</u>	<u>CRL</u>
6B	<u>BENZO(a)PYRENE</u>	<u>00050328</u>	<u>N/A</u>	<u>N/A</u>	<u>0.0038</u>	<u>CRL</u>
7B	<u>3,4-BENZO- FLUORANTHENE</u>	<u>00205992</u>	<u>N/A</u>	<u>N/A</u>	<u>0.0038</u>	<u>CRL</u>
8B	<u>BENZO(ghi)- PERYLENE</u>	<u>00191242</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>:</u>
9B	<u>BENZO(k)- FLUORANTHENE</u>	<u>00207089</u>	<u>N/A</u>	<u>N/A</u>	<u>0.0038</u>	<u>CRL</u>
10B	<u>BIS(2-CHLORO- ETHOXY)METHANE</u>	<u>00111911</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>:</u>
11B	<u>BIS(2-CHLORO- ETHYL)ETHER</u>	<u>00111444</u>	<u>6000</u>	<u>30000</u>	<u>0.030</u>	<u>CRL</u>
12B	<u>BIS(2-CHLORO- ISOPROPYL)ETHER</u>	<u>00108601</u>	<u>N/A</u>	<u>N/A</u>	<u>1400</u>	<u>H</u>
13B	<u>BIS(2-ETHYL- HEXYL)PHTHALATE</u>	<u>00117817</u>	<u>910</u>	<u>4500</u>	<u>1.2</u>	<u>CRL</u>
14B	<u>4-BROMOPHENYL PHENYL ETHER</u>	<u>00101553</u>	<u>54</u>	<u>270</u>	<u>N/A</u>	<u>:</u>
15B	<u>BUTYLBENZYL PHTHALATE</u>	<u>00085687</u>	<u>35</u>	<u>140</u>	<u>150</u>	<u>H</u>
16B	<u>2-CHLORO- NAPHTHALENE</u>	<u>00091587</u>	<u>N/A</u>	<u>N/A</u>	<u>1000</u>	<u>H</u>
17B	<u>4-CHLORO- PHENYL PHENYL ETHER</u>	<u>07005723</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>:</u>
18B	<u>CHRYSENE</u>	<u>00218019</u>	<u>N/A</u>	<u>N/A</u>	<u>0.0038</u>	<u>CRL</u>
19B	<u>DIBENZO(a,h)- ANTHRACENE</u>	<u>00053703</u>	<u>N/A</u>	<u>N/A</u>	<u>0.0038</u>	<u>CRL</u>
20B	<u>1,2-DICHLORO- BENZENE</u>	<u>00095501</u>	<u>160</u>	<u>820</u>	<u>420 for dichloro- benzene</u>	<u>H</u>
21B	<u>1,3-DICHLORO- BENZENE</u>	<u>00541731</u>	<u>69</u>	<u>350</u>	<u>See 20B</u>	<u>H</u>
22B	<u>1,4-DICHLORO- BENZENE</u>	<u>00106467</u>	<u>150</u>	<u>730</u>	<u>See 20B</u>	<u>H</u>
23B	<u>3,3-DICHLORO- BENZIDINE</u>	<u>00091941</u>	<u>N/A</u>	<u>N/A</u>	<u>0.021</u>	<u>CRL</u>
24B	<u>DIETHYL PHTHALATE</u>	<u>00084662</u>	<u>800</u>	<u>4000</u>	<u>17000</u>	<u>H</u>
25B	<u>DIMETHYL PHTHALATE</u>	<u>00131113</u>	<u>500</u>	<u>2500</u>	<u>270000</u>	<u>H</u>
26B	<u>DI-N-BUTYL PHTHALATE</u>	<u>00084742</u>	<u>21</u>	<u>110</u>	<u>2000</u>	<u>H</u>
27B	<u>2,4-DINITRO-</u>	<u>00121142</u>	<u>320</u>	<u>1600</u>	<u>0.05 for</u>	<u>CRL</u>

<u>TOLUENE</u>					<u>dinitro-</u> <u>toluene</u>	
<u>28B</u>	<u>2,6-DINITRO-</u> <u>TOLUENE</u>	<u>00606202</u>	<u>200</u>	<u>990</u>	<u>See 27B</u>	<u>CRL</u>
<u>29B</u>	<u>DI-N-OCTYL</u> <u>PHTHALATE</u>	<u>00117840</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>-</u>
<u>30B</u>	<u>1,2-DIPHENYL-</u> <u>HYDRAZINE</u>	<u>00122667</u>	<u>3</u>	<u>15</u>	<u>0.036</u>	<u>CRL</u>
<u>31B</u>	<u>FLUORANTHENE</u>	<u>00206440</u>	<u>40</u>	<u>200</u>	<u>130</u>	<u>H</u>
<u>32B</u>	<u>FLUORENE</u>	<u>00086737</u>	<u>N/A</u>	<u>N/A</u>	<u>1100</u>	<u>H</u>
<u>33B</u>	<u>HEXACHLORO-</u> <u>BENZENE</u>	<u>00118741</u>	<u>N/A</u>	<u>N/A</u>	<u>0.00028</u>	<u>CRL</u>
<u>34B</u>	<u>HEXACHLORO-</u> <u>BUTADIENE</u>	<u>00087683</u>	<u>2</u>	<u>10</u>	<u>0.44</u>	<u>CRL</u>
<u>35B</u>	<u>HEXACHLORO-</u> <u>CYCLOPENTADIENE</u>	<u>00077474</u>	<u>1</u>	<u>5</u>	<u>40</u>	<u>H</u>
<u>36B</u>	<u>HEXACHLORO-</u> <u>ETHANE</u>	<u>00067721</u>	<u>12</u>	<u>60</u>	<u>1.4</u>	<u>CRL</u>
<u>37B</u>	<u>INDENO(1,2,3-</u> <u>cd)PYRENE</u>	<u>00193395</u>	<u>N/A</u>	<u>N/A</u>	<u>0.0038</u>	<u>CRL</u>
<u>38B</u>	<u>ISOPHORONE</u>	<u>00078591</u>	<u>2100</u>	<u>10000</u>	<u>35</u>	<u>H</u>
<u>39B</u>	<u>NAPHTHALENE</u>	<u>00091203</u>	<u>43</u>	<u>140</u>	<u>N/A</u>	<u>-</u>
<u>40B</u>	<u>NITROBENZENE</u>	<u>00098953</u>	<u>810</u>	<u>4000</u>	<u>17</u>	<u>H</u>
<u>41B</u>	<u>N-NITROSO-</u> <u>DIMETHYLAMINE</u>	<u>00062759</u>	<u>3400</u>	<u>17000</u>	<u>0.00069</u>	<u>CRL</u>
<u>42B</u>	<u>N-NITROSODI-N-</u> <u>PROPYLAMINE</u>	<u>00621647</u>	<u>N/A</u>	<u>N/A</u>	<u>0.005</u>	<u>CRL</u>
<u>43B</u>	<u>N-NITROSO-</u> <u>DIPHENYLAMINE</u>	<u>00086306</u>	<u>59</u>	<u>300</u>	<u>3.3</u>	<u>CRL</u>
<u>44B</u>	<u>PHENANTHRENE</u>	<u>00085018</u>	<u>1</u>	<u>5</u>	<u>N/A</u>	<u>-</u>
<u>45B</u>	<u>PYRENE</u>	<u>00129000</u>	<u>N/A</u>	<u>N/A</u>	<u>830</u>	<u>H</u>
<u>46B</u>	<u>1,2,4-TRICHLORO-</u> <u>BENZENE</u>	<u>00120821</u>	<u>26</u>	<u>130</u>	<u>35</u>	<u>H</u>
<u>1P</u>	<u>ALDRIN</u>	<u>00309002</u>	<u>0.1</u>	<u>3</u>	<u>0.000049</u>	<u>CRL</u>
<u>2P</u>	<u>alpha-BHC</u>	<u>00319846</u>	<u>N/A</u>	<u>N/A</u>	<u>0.0026</u>	<u>CRL</u>
<u>3P</u>	<u>beta-BHC</u>	<u>00319857</u>	<u>N/A</u>	<u>N/A</u>	<u>0.0091</u>	<u>CRL</u>
<u>4P</u>	<u>gamma-BHC</u> <u>(LINDANE)</u>	<u>00058899</u>	<u>N/A</u>	<u>0.95</u>	<u>0.098</u>	<u>H</u>
<u>5P</u>	<u>delta-BHC</u>	<u>00319868</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>-</u>
<u>6P</u>	<u>CHLORDANE</u>	<u>00057749</u>	<u>0.0043</u>	<u>2.4</u>	<u>0.00080</u>	<u>CRL</u>
<u>7P</u>	<u>4,4-DDT</u>	<u>00050293</u>	<u>0.001</u>	<u>1.1</u>	<u>0.00022</u>	<u>CRL</u>
<u>8P</u>	<u>4,4-DDE</u>	<u>00072559</u>	<u>0.001</u>	<u>1.1</u>	<u>0.00022</u>	<u>CRL</u>
<u>9P</u>	<u>4,4-DDD</u>	<u>00072548</u>	<u>0.001</u>	<u>1.1</u>	<u>0.00031</u>	<u>CRL</u>
<u>10P</u>	<u>DIELDRIN</u>	<u>00060571</u>	<u>0.056</u>	<u>0.24</u>	<u>0.000052</u>	<u>CRL</u>
<u>11P</u>	<u>alpha-ENDOSUL-</u> <u>FAN</u>	<u>00959988</u>	<u>0.056</u>	<u>0.22</u>	<u>62 for</u> <u>endosulfan</u>	<u>H</u>
<u>12P</u>	<u>beta-ENDOSULFAN</u>	<u>33213659</u>	<u>0.056</u>	<u>0.22</u>	<u>See 11P</u>	<u>H</u>

13P	<u>ENDOSULFAN SULFATE</u>	<u>01031078</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>:</u>
14P	<u>ENDRIN</u>	<u>00072208</u>	<u>0.036</u>	<u>0.086</u>	<u>0.059</u>	<u>H</u>
15P	<u>ENDRIN ALDEHYDE</u>	<u>07421934</u>	<u>N/A</u>	<u>N/A</u>	<u>0.29</u>	<u>:</u>
16P	<u>HEPTACHLOR</u>	<u>00076448</u>	<u>0.0038</u>	<u>0.52</u>	<u>0.000079</u>	<u>CRL</u>
17P	<u>HEPTACHLOR EPOXIDE</u>	<u>01024573</u>	<u>0.0038</u>	<u>0.5</u>	<u>0.000039</u>	<u>CRL</u>
18P	<u>PCB</u>		<u>0.014</u>	<u>N/A</u>	<u>0.000064 for PCBs</u>	<u>CRL</u>
25P	<u>TOXAPHENE</u>	<u>08001352</u>	<u>0.0002</u>	<u>0.73</u>	<u>0.00028</u>	<u>CRL</u>
PP	<u>2,3,7,8-TCDD</u>	<u>01746016</u>	<u>N/A</u>	<u>N/A</u>	<u>5.0 E-9</u>	<u>CRL</u>
==	<u>ACETONE</u>	<u>00067641</u>	<u>86000</u>	<u>450000</u>	<u>3500</u>	<u>H</u>
==	<u>ALUMINUM</u>	<u>07429905</u>	<u>N/A</u>	<u>750</u>	<u>N/A</u>	<u>:</u>
==	<u>BARIUM</u>	<u>07440393</u>	<u>4100</u>	<u>21000</u>	<u>2400</u>	<u>H</u>
==	<u>BORON</u>	<u>07440428</u>	<u>1600</u>	<u>8100</u>	<u>3100</u>	<u>H</u>
==	<u>COBALT</u>	<u>07440484</u>	<u>19</u>	<u>95</u>	<u>N/A</u>	<u>:</u>
==	<u>p-CRESOL</u>	<u>00106445</u>	<u>160</u>	<u>800</u>	<u>N/A</u>	<u>:</u>
==	<u>DIAZINON</u>	<u>333415</u>	<u>0.17</u>	<u>0.17</u>	<u>N/A</u>	<u>:</u>
==	<u>FORMALDEHYDE</u>	<u>00050000</u>	<u>440</u>	<u>2200</u>	<u>700</u>	<u>H</u>
==	<u>2-HEXANONE</u>	<u>00591786</u>	<u>4300</u>	<u>21000</u>	<u>N/A</u>	<u>:</u>
==	<u>LITHIUM</u>	<u>07439932</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>:</u>
==	<u>METHYLETHYL KETONE</u>	<u>00078933</u>	<u>32000</u>	<u>230000</u>	<u>21000</u>	<u>H</u>
==	<u>METHYLISO-BUTYL KETONE</u>	<u>00108101</u>	<u>5000</u>	<u>26000</u>	<u>N/A</u>	<u>:</u>
==	<u>METOLACHLOR</u>	<u>51218452</u>	<u>NA</u>	<u>NA</u>	<u>69</u>	<u>H</u>
==	<u>MOLYBDENUM</u>	<u>07439987</u>	<u>NA</u>	<u>NA</u>	<u>210</u>	<u>H</u>
==	<u>1-PROPANOL</u>	<u>00071238</u>	<u>46000</u>	<u>230000</u>	<u>N/A</u>	<u>:</u>
==	<u>2-PROPANOL</u>	<u>00067630</u>	<u>89000</u>	<u>440000</u>	<u>N/A</u>	<u>:</u>
==	<u>1,2,3-TRICHLORO- PROPANE</u>	<u>00096184</u>	<u>N/A</u>	<u>N/A</u>	<u>210</u>	<u>H</u>
==	<u>VANADIUM</u>	<u>07440622</u>	<u>100</u>	<u>510</u>	<u>N/A</u>	<u>:</u>
==	<u>XYLENE</u>	<u>01330207</u>	<u>210</u>	<u>1100</u>	<u>70000</u>	<u>H</u>

Acronyms and Footnotes to Table 5

* Indicates dissolved metal criterion; others are total recoverable metals. Each listed dissolved criterion in Table 5 is equal to the corresponding total recoverable criterion before rounding (from the EPA National Ambient Water Quality Criteria Documents) multiplied by the conversion factor (from the Conversions Factors Table); a criterion that is expressed as a hardness (H)-based equation is shown in Table 5 as the conversion factor (listed) multiplied by the hardness criterion equation; an example criterion at hardness=100mg/L is included.

CAS – Chemical Abstract Service number

CRL – Cancer risk level at 1×10^{-6}

H—Threshold effect human health criterion; incorporates additional uncertainty factor for some Group C carcinogens.

ln [H]—Natural Logarithm of the Hardness of stream as mg/l CaCO₃

ug/L – Micrograms per liter

N/A—criterion not developed

PP NO – Priority Pollutant Number

§ 93.8d. Development of site-specific water quality criteria.

~~[(a) The Department will consider a request for site-specific criteria for protection of aquatic life, human health or wildlife when a person demonstrates that there exist site-specific biological or chemical conditions of receiving waters which differ from conditions upon which the water quality criteria were based. Site-specific criteria may be developed for use only in place of current Statewide or regional (such as the Great Lakes systems) criteria. The request for site-specific criteria must include the results of scientific studies for the purpose of:]~~

(A) THE DEPARTMENT WILL CONSIDER A REQUEST FOR SITE-SPECIFIC CRITERIA WHEN:

(1) THERE EXIST SITE-SPECIFIC BIOLOGICAL OR CHEMICAL CONDITIONS OF RECEIVING WATERS WHICH DIFFER FROM CONDITIONS UPON WHICH THE WATER QUALITY CRITERIA WERE BASED

(2) MORE STRINGENT CRITERIA ARE NEEDED FOR A PARAMETER LISTED IN § 93.7 TO PROTECT MORE SENSITIVE, INTERVENING USES; OR

(3) THERE EXISTS A NEED FOR A SITE-SPECIFIC CRITERION FOR A SUBSTANCE NOT LISTED IN CHAPTER 93, TABLE 5.

(B) THE REQUEST FOR SITE-SPECIFIC CRITERIA MUST INCLUDE THE RESULTS OF SCIENTIFIC STUDIES FOR THE PURPOSE OF:

(1) Defining the areal boundaries for application of the site-specific criteria which will include the potentially affected wastewater dischargers identified by the Department, through various means, including, but not limited to, the total maximum daily load (TMDL) process described in Chapter 96 (relating to water quality standards implementation) or biological assessments.

(2) Developing site-specific criteria which protect the surface water's existing and designated uses.

~~[(b)]~~ (C) Scientific studies shall be performed in accordance with the procedures and guidance in the Water Quality Standards Handbook (EPA 1994), as amended and updated, including: "Guidance on the Determination and Use of Water-Effect Ratios for Metals" (February 1994); and [with] the "Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health" (2000), [as amended and updated]. Other guidance approved by the Department, which is based on other EPA approved or scientifically defensible methodologies, may be used. [The WER study may be conducted, based on either total recoverable or dissolved criteria, depending on the form of the criterion.]

~~[(e)]~~ (D) Prior to conducting studies specified in subsections [(a) and] (b) AND (C), a proposed plan of study shall be submitted to [and approved by] the Department for review, consideration and approval.

~~[(d)]~~ (E) Signed copies of all reports including toxicity test data shall be submitted to the Department within [30] 60 days of completion of the tests.

~~[(e) If, as a result of its review of the report submitted to satisfy a request, the Department determines that a site-specific criterion for a toxic substance is appropriate, the Department will publish the site-specific criterion in the Pennsylvania Bulletin, along with other special conditions under § 92.61(a)(5) (relating to public notice of permit application and public hearing), and in Chapter 16 Appendix A, Table 1 (relating to site-specific water quality criteria for toxic substances). Changes listed in Appendix A, Table 1 will be promulgated through a formal rulemaking process as part of a triennial review or other rulemaking. If, as a result of its review of the report submitted to satisfy a request, the Department determines that a site-specific criterion for a parameter listed in § 93.7 (relating to specific water quality criteria) is appropriate, the Department will prepare a recommendation to the EQB in the form of proposed rulemaking, incorporating that criterion for the water body segment. A change to the criterion for a parameter listed in § 93.7 will become effective following adoption by the EQB as final rulemaking and publication in the Pennsylvania Bulletin.]~~

(F) IF THE DEPARTMENT DETERMINES THAT SITE-SPECIFIC CRITERIA ARE APPROPRIATE IN ACCORDANCE WITH PARAGRAPH (a), THE DEPARTMENT WILL:

(1) PUBLISH THE SITE-SPECIFIC CRITERION IN THE PENNSYLVANIA BULLETIN, ALONG WITH OTHER SPECIAL CONDITIONS UNDER § 92.61(a)(5) (RELATING TO PUBLIC NOTICE OF PERMIT APPLICATION AND PUBLIC HEARING) AND PROVIDE FOR PUBLIC PARTICIPATION AND PUBLIC HEARING IN ACCORDANCE WITH §§92.61, 92.63 AND 92.65;

(2) MAINTAIN PUBLICLY AVAILABLE LISTS OF SITE-SPECIFIC CRITERIA;

(3) SUBMIT THE METHODOLOGIES USED FOR SITE-SPECIFIC CRITERIA DEVELOPMENT TO U.S. ENVIRONMENTAL PROTECTION AGENCY'S REGIONAL ADMINISTRATOR FOR REVIEW AND APPROVAL, WITHIN 30 DAYS OF DEPARTMENT'S FINAL ACTION; AND

(4) PREPARE A RECOMMENDATION TO THE EQB IN THE FORM OF PROPOSED RULEMAKING, INCORPORATING THAT CRITERION FOR THE WATER BODY SEGMENT.

(G) IF THE DEPARTMENT DETERMINES THAT NEW STATEWIDE CRITERIA OR MODIFICATIONS TO STATEWIDE CRITERIA ARE APPROPRIATE, THE DEPARTMENT WILL PREPARE A RECOMMENDATION TO THE EQB IN THE FORM OF PROPOSED RULEMAKING, INCORPORATING THE CRITERIA INTO THIS CHAPTER. THE NEW CRITERIA AND CHANGES TO THE CRITERIA WILL BECOME EFFECTIVE FOLLOWING ADOPTION BY THE EQB AS FINAL RULEMAKING AND PUBLICATION IN THE PENNSYLVANIA BULLETIN.

[(F)] (H) A person challenging a Department action under this section shall have the burden of proof to demonstrate that the Department's action does not meet the requirements of this section.

§ 93.8e. Special criteria for the Great Lakes System.

(a) Special criteria. The special provisions in this section apply for the Great Lakes System, which includes the streams, rivers, lakes and other bodies of surface water within the drainage basin of the Great Lakes in this Commonwealth:

(b) Water quality criteria for the Great Lakes System. Human health and aquatic life criteria for the Great Lakes System are contained in Table 6 (relating to Great Lakes aquatic life and human health criteria). For any pollutant not listed in the table, criteria to protect existing and designated uses will be developed by the Department, as needed in accordance with this chapter and [Chapter 16 (relating to water quality toxics management strategy—statement of policy)] § 16.61 (RELATING TO SPECIAL PROVISIONS FOR THE GREAT LAKES SYSTEM).

**TABLE 6
GREAT LAKES AQUATIC LIFE AND HUMAN HEALTH CRITERIA**

<i>PP</i> <i>NO</i>	<i>Chemical Name</i>	<i>CAS</i> <i>Number</i>	<i>Fish and Aquatic Life Criteria</i>		<i>Human</i> <i>Health</i> <i>Criteria</i> <i>(ug/L)</i>
			<i>Criteria Continuous</i> <i>Concentrations (ug/L)</i>	<i>Criteria Maximum</i> <i>Concentration (ug/L)</i>	
2M	Arsenic	07440382	*148 (As3+)	*340 (As3+)	N/A
			*{1.101672-(ln[H]x0.041838)}x	*{1.136672-(ln[H]x0.041838)}x	
4M	Cadmium	07440439	Exp(0.7852xln[H]-2.715) (ex: @H=100, CCC=2.24)	Exp(1.128xln[H]-3.6867) (ex: @H=100, CMC=4.26)	N/A

<u>5M</u>	<u>Chromium, III</u>	<u>16065831</u>	<u>*0.860xExp(0.819xln[H]+0.6848)</u>	<u>*0.316xExp(0.819xln[H]+3.7256)</u>	<u>N/A</u>	
			<u>(ex: @H=100, CCC=74)</u>	<u>(ex: @H=100, CMC=570)</u>		
<u>5M</u>	<u>Chromium, VI</u>	<u>18540299</u>	<u>*10.56</u>	<u>*15.73</u>	<u>N/A</u>	<u>-</u>
<u>6M</u>	<u>Copper</u>	<u>07440508</u>	<u>*0.960xExp(0.8545xln[H]-1.702)</u>	<u>*(0.960xExp(0.9422xln[H]-1.700)</u>	<u>N/A</u>	
			<u>(ex: @H=100, CCC=8.96)</u>	<u>(ex: @H=100, CMC=13.44)</u>		
<u>8M</u>	<u>Mercury</u>	<u>07439976</u>	<u>*0.77</u>	<u>*1.44</u>	<u>0.0031</u>	<u>H</u>
<u>9M</u>	<u>Nickel</u>	<u>07440020</u>	<u>*0.997xExp(0.846xln[H]+0.0584)</u>	<u>*[0.998xExp(0.846xln[H]+2.255)</u>	<u>N/A</u>	<u>H</u>
			<u>(ex: @H=100, CCC=52.01)</u>	<u>(ex: @H=100, CMC=468.24)</u>		
<u>10M</u>	<u>Selenium</u>	<u>07782492</u>	<u>*4.61</u>	<u>N/A</u>	<u>N/A</u>	<u>-</u>
<u>13M</u>	<u>Zinc</u>	<u>07440666</u>	<u>*0.986xExp(0.8473xln[H]+0.884)</u>	<u>*0.978xExp(0.8473xln[H]+0.884)</u>	<u>N/A</u>	
			<u>(ex: @H=100, CCC=118.14)</u>	<u>(ex: @H=100, CMC=117.18)</u>		
<u>14M</u>	<u>Cyanide, Free</u>	<u>00057125</u>	<u>5.2</u>	<u>22</u>	<u>600</u>	<u>H</u>
<u>3A</u>	<u>2,4-Dimethyl-phenol</u>	<u>00105679</u>	<u>N/A</u>	<u>N/A</u>	<u>450</u>	<u>H</u>
<u>5A</u>	<u>2,4-Dinitro-phenol</u>	<u>00051285</u>	<u>N/A</u>	<u>N/A</u>	<u>55</u>	<u>H</u>
<u>9A</u>	<u>Pentachlorophenol</u>	<u>00087865</u>	<u>Exp(1.005[pH]-5.134)</u>	<u>Exp(1.005[pH]-4.869)</u>	<u>N/A</u>	
			<u>@pH= 6.5 7.8 9.0</u>	<u>@pH = 6.5 7.8 9.0</u>		
			<u>Crit = 4.05 14.95 49.95</u>	<u>Crit = 5.28 19.49 65.10</u>		
<u>3V</u>	<u>Benzene</u>	<u>00071432</u>	<u>N/A</u>	<u>N/A</u>	<u>1.2</u>	<u>CRL</u>
<u>7V</u>	<u>Chloro-benzene</u>	<u>00108907</u>	<u>N/A</u>	<u>N/A</u>	<u>470</u>	<u>H</u>
<u>22V</u>	<u>Methylene Chloride</u>	<u>00075092</u>	<u>N/A</u>	<u>N/A</u>	<u>4.7</u>	<u>CRL</u>
<u>25V</u>	<u>Toluene</u>	<u>00108883</u>	<u>N/A</u>	<u>N/A</u>	<u>5600</u>	<u>H</u>
<u>29V</u>	<u>Trichloro-ethylene</u>	<u>00079016</u>	<u>N/A</u>	<u>N/A</u>	<u>2.9</u>	<u>CRL</u>
<u>33B</u>	<u>Hexachloro-benzene</u>	<u>00118741</u>	<u>N/A</u>	<u>N/A</u>	<u>0.000045</u>	<u>CRL</u>
<u>36B</u>	<u>Hexachloro-ethane</u>	<u>00067721</u>	<u>N/A</u>	<u>N/A</u>	<u>0.53</u>	<u>CRL</u>
<u>4P</u>	<u>gamma-BHC (Lindane)</u>	<u>00058899</u>	<u>N/A</u>	<u>0.95</u>	<u>0.47</u>	<u>H</u>
<u>6P</u>	<u>Chlordane</u>	<u>00057749</u>	<u>N/A</u>	<u>N/A</u>	<u>0.000025</u>	<u>CRL</u>
<u>7P</u>	<u>4,4-DDT</u>	<u>00050293</u>	<u>N/A</u>	<u>N/A</u>	<u>0.000015</u>	<u>CRL</u>
<u>10P</u>	<u>Dieldrin</u>	<u>00060571</u>	<u>0.056</u>	<u>0.24</u>	<u>0.00000065</u>	<u>CRL</u>
<u>14P</u>	<u>Endrin</u>	<u>00072208</u>	<u>0.036</u>	<u>0.086</u>	<u>N/A</u>	
<u>18P</u>	<u>PCBs</u>		<u>N/A</u>	<u>N/A</u>	<u>0.00000039</u>	<u>CRL</u>
<u>25P</u>	<u>Toxaphene</u>	<u>08001352</u>	<u>N/A</u>	<u>N/A</u>	<u>0.0000068</u>	<u>CRL</u>
<u>PP</u>	<u>2,3,7,8-TCDD</u>	<u>01746016</u>	<u>N/A</u>	<u>N/A</u>	<u>8.6 E-10</u>	<u>CRL</u>

Acronyms and Footnotes to Table 6

* Indicates dissolved metal criterion; others are total recoverable metals. Each listed dissolved criterion in Table 6 is equal to the corresponding total recoverable criterion before rounding (from the EPA National Ambient Water Quality Criteria Documents) multiplied by the conversion factor (from the Conversions Factors); a criterion that is expressed as a hardness (H)-based equation is shown in Table 6 as the conversion factor (listed) multiplied by the hardness criterion equation; an example criterion at hardness=100mg/L is included.

CAS – Chemical Abstract Service number

CRL – Cancer risk level at 1×10^{-6}

H—Threshold effect human health criterion; incorporates additional uncertainty factor for some Group C carcinogens.

ln [H]—Natural Logarithm of the Hardness of stream as mg/l CaCO₃

ug/L – Micrograms per liter

N/A—Criterion not developed

PPNO – Priority Pollutant Number

(c) Wildlife criteria. Wildlife criteria will be developed for the bioaccumulative chemicals of concern (BCCs) in the Great Lakes System using methodologies contained in the Great Lakes guidance in 40 CFR Part 132, Appendix D (relating to Great Lakes Water Quality Initiative methodology for the development of wildlife criteria). The wildlife criteria are contained in the following table:

GREAT LAKES WILDLIFE CRITERIA

TABLE 7

<u>PP</u>	<u>CHEMICAL</u>	<u>CRITERION</u>
<u>NO.</u>	<u>NAME</u>	<u>(ug/L)</u>
<u>7-9P</u>	<u>DDT & METABOLITES</u>	<u>0.000011</u>
<u>8M</u>	<u>MERCURY</u>	<u>0.0013</u>
<u>18-24P</u>	<u>PCBs (TOTAL)</u>	<u>0.00012</u>
<u>PP</u>	<u>2,3,7,8-TCDD</u>	<u>3.1 E-9</u>

DESIGNATED WATER USES AND WATER QUALITY CRITERIA

§ 93.9. Designated water uses and water quality criteria.

(a) The tables in §§ 93.9a—93.9z display designated water uses and water quality criteria in addition to the water uses and criteria specified in Tables 2 and 3. Designated uses shall be protected in accordance with Chapters 95 and 96 (relating to wastewater treatment requirements; and water quality standards implementation) and any other applicable State and Federal laws and regulations. The tables also indicate specific exceptions to Tables 2 and 3 on a stream-by-stream or segment-by-segment basis by the words “add” or “delete” followed by the appropriate symbols described elsewhere in this chapter. The county column in §§ 93.9a—93.9z indicates the county in which the mouth of the stream or the downstream limit of the zone described for that entry is located. Abbreviations used in the Stream and the “Zone” columns are as follows:

(b) When appropriate, “Exceptions to Specific Criteria” provide reference to the Delaware River Basin Commission (DRBC) water quality regulations, Orsanco (Ohio River Valley Water Sanitation Commission) pollution control standards and the Great Lakes Water Quality Agreement (GLWQA) which specify the criteria that apply if a water quality standard is more stringent than those in this title. The applicable criteria can be obtained from the following:

(Editor’s note: A basin-wide migratory fishes (MF) designation is being applied to Drainage Lists A – O and Z, unless there are specific exceptions already noted for certain waterbodies or stream segments within one of these drainage lists. These specific changes to the drainage lists, however, are not reflected in this Annex, but will be added to the regulations at final rulemaking. Drainage lists A –G are located within the Delaware River Basin. Drainage lists H – O are located within the Susquehanna River Basin. Drainage list Z is located within the Potomac River Basin.)

§93.9d. Drainage List D

**Delaware River Basin in Pennsylvania
Lehigh River**

Stream	Zone	County	Water Uses Protected	Exceptions To Specific Criteria
3—Penn Springs	Basin	Carbon	HQ-CWF	None
3—Black Creek	[Basin, Source to Beaver Creek	Carbon	HQ-CWF	None]
<u>4—Hazle Creek</u>	<u>Basin</u>	<u>Carbon</u>	<u>HQ-CWF</u>	<u>None</u>

4—Beaver Creek	Basin	Carbon	CWF	None
3—Black Creek	Main Stem, <u>Confluence of Hazle Creek and</u> Beaver Creek to Mouth	Carbon	CWF	None
4—[<u>Unnamed Tributaries</u>] UNTs to Black Creek	Basins, <u>Confluence of Hazle Creek and</u> Beaver Creek to Mouth	Carbon	HQ-CWF	None
4— <u>Koons Creek</u>	<u>Basin</u>	<u>Carbon</u>	<u>HQ-CWF</u>	<u>None</u>
4—Quakake Creek	Basin, Source to Wetzel Creek	Carbon	HQ-CWF	None
5—Wetzel Creek	Basin	Carbon	CWF	None
4—Quakake Creek	Basin, Wetzel Creek to Mouth	Carbon	CWF	None
4— <u>Brushy Hollow Run</u>	<u>Basin</u>	<u>Carbon</u>	<u>HQ-CWF</u>	<u>None</u>
3—Maple Hollow	Basin	Carbon	HQ-CWF	None

* * * * *

§93.9f. Drainage List F

Delaware River Basin in Pennsylvania
Schuylkill River

Stream	Zone	County	Water Uses Protected	Exceptions To Specific Criteria
* * * * *				
3—Monocacy Creek	Basin	Berks	WWF	None
3—UNTs to Schuylkill River	Basins, (<u>all UNT's along Montgomery County shore</u>), Berks-Chester- Montgomery County Border to Valley Creek [(except those in Spring City and Phoenixville)]	[Chester—] Montgomery	[HQ-TSF] WWF	None
<u>3—UNTs to Schuylkill River</u>	<u>Basins (all UNTs along Chester County shore except those in Spring City and Phoenixville), Berks-Chester-Montgomery County Border to Valley Creek</u>	<u>Chester</u>	<u>HQ-TSF</u>	<u>None</u>
3—UNTs to Schuylkill River	Basins, in Spring City and Phoenixville	Chester	WWF	None
* * * * *				
3—Valley Creek	Basin	Montgomery-Chester	EV	None
3—[<u>Unnamed Tributaries</u>] UNTs to Schuylkill River	Basins, Valley Creek to <u>Head of Tide</u>	[Chester-Montgomery]	WWF	None

[3—Mellshamic Creek	Basin	<u>Philadelphia</u>	WWF	None]
3—Trout Creek	Basin	Montgomery	WWF	None
		Montgomery		

§93.9i. Drainage List I

Susquehanna River Basin in Pennsylvania
Susquehanna River

Stream	Zone	County	Water Uses Protected	Exceptions To Specific Criteria

2—Mehoopany Creek	Basin, Source to North [Fork] <u>Branch Mehoopany Creek</u>	Wyoming	HQ-CWF	None
3—North [Fork] <u>Branch</u> Mehoopany Creek	Basin	Wyoming	CWF	None
2—Mehoopany Creek	Basin, North [Fork] <u>Branch Mehoopany Creek</u> to Mouth	Wyoming	CWF	None
2—Tagues Creek	Basin	Wyoming	CWF	None
2—Tunkhannock Creek	Main Stem, Source to Susquehanna-Wyoming County Border	Susquehanna-Wyoming	CWF	None
3—[<u>Unnamed Tributaries</u>] UNTs to Tunkhannock Creek	Basins, Source to Susquehanna-Wyoming County Border	Susquehanna	CWF	None
3—Bear Swamp Creek	Basin	Susquehanna	CWF	None
3—Bell Creek	Basin	Susquehanna	CWF	None
3—[<u>Leslie</u>] <u>Nine Partners</u> Creek	Basin	Susquehanna	CWF	None
3—Partners Creek	Basin	Susquehanna	CWF	None

§93.9i. Drainage List L

Susquehanna River Basin in Pennsylvania
West Branch Susquehanna River

Stream	Zone	County	Water Uses Protected	Exceptions To Specific Criteria

4—[<u>Unnamed Tributary</u>] UNT 21134	Basin, Source to Rauchtown Creek	Lycoming	CWF	None
5—Rauchtown Creek	[Basin, Source to Confluence of Rockey Run	Clinton	HQ-CWF	None]

and Gottshall Run

<u>6—Rockey Run</u>	<u>Basin</u>	<u>Clinton</u>	<u>HQ-CWF</u>	<u>None</u>
<u>6—Gottshall Run</u>	<u>Basin</u>	<u>Clinton</u>	<u>HQ-CWF</u>	<u>None</u>
5—Rauchtown Creek	Basin, Confluence of Rocky Run and Gottshall Run to Mouth	Lycoming	CWF	None

§93.9m. Drainage List M

Susquehanna River Basin in Pennsylvania
Susquehanna River

Stream	Zone	County	Water Uses Protected	Exceptions To Specific Criteria

3—Trout Run	Basin	Northumberland	CWF	None
3—[Buddys] <u>Bennys</u> Run	Basin	Northumberland	CWF	None
3—Millers Run	Basin	Northumberland	CWF	None

§93.9q. Drainage List Q

Ohio River Basin in Pennsylvania
Allegheny River

Stream	Zone	County	Water Uses Protected	Exceptions To Specific Criteria

4—Marsh Run	Basin	Crawford	CWF	None
4—Thompson Creek	Basin, <u>Source to Shirley Run</u>	Crawford	CWF	None
<u>5—Shirley Run</u>	<u>Basin</u>	<u>Crawford</u>	<u>HQ-CWF</u>	<u>None</u>
<u>4—Thompson Creek</u>	<u>Basin, Shirley Run to Mouth</u>	<u>Crawford</u>	<u>CWF</u>	<u>None</u>

5—Caldwell Creek	Basin, Source to West Branch Caldwell Creek	Warren	HQ-CWF	None
6—West Branch Caldwell Creek	Basin	[Crawford] <u>Warren</u>	EV	None
5—Caldwell Creek	Basin, West Branch Caldwell Creek to Mouth	Crawford	EV	None

§93.9v. Drainage List V

Ohio River Basin in Pennsylvania
Monongahela River

Stream	Zone	County	Water Uses Protected	Exceptions To Specific Criteria

3—Bates Run	Basin	Fayette	WWF	None
3—Tenmile Creek	Basin, Source to South Fork Tenmile Creek	Greene- Washington	TSF	None
4—South Fork Tenmile Creek	Basin, Source to Browns Creek	Greene	HQ-WWF	None
5—Browns Creek	Basin	Greene	HQ-WWF	None
4—South Fork Tenmile Creek	Basin, Browns Creek to Mouth	Greene- Washington	WWF	None
3—Tenmile Creek	Basin, South Fork Tenmile Creek to Mouth	Greene- Washington-Fayette	WWF	None

§ 93.9x. Drainage List X.

Lake Erie

Stream	Zone	County	Water Uses Protected	Exceptions To Specific Criteria
1—Lake Erie	All sections of lake in PA except Outer Erie Harbor and Presque Isle Bay	Erie	CWF	<i>Delete</i> Fe, [pH1], DO1 and Bac1 See GLWQA <u>Add E. coli per 40 CFR 131.41 (EXCEPT (F)) and See 28 Pa. Code § 18.28(b)(2) and (3)</u>
1—Lake Erie (Outer Erie Harbor and Presque Isle Bay)	Portion of lake bordered by Presque Isle on west, longitude 80°10'18" on north, except harbor area and central channel dredged and maintained by United States Army Corps of Engineers.	Erie	WWF	<i>Delete</i> pH Add pH between 7 and 9 <u>Add E. coli per 40 CFR 131.41 (EXCEPT (F)) and See 28 Pa. Code §</u>

1—Lake Erie (Outer Erie Harbor area and central channel
Harbor and Presque Isle dredged and maintained by United Erie
Bay) States Army Corps of Engineers

18.28(b)(2) and
(3)
Delete pH and
WWF, *Delete* Bac1 *Add* pH
WC between 7 and 9,
Bac2

Comment and Response Document
Triennial Review of Water Quality Standards
Amendments to 25 Pa Code Chapters 93 and 16

July 2008
(Revised January 2009)

General Comments and Support

Comment:

Commentator had no objections to the proposed rule. (1) Another commentator indicated they believed the changes generally improve 25 Pa Code Chapter 93 and will allow the Department staff to better protect and manage the Commonwealth's waters and their uses. (3)

US EPA fully supports Pennsylvania's proposal to merge sections of the Water Quality Toxics Management Strategy – Statement of Policy (Chapter 16) into Chapter 93, the Commonwealth's Water Quality Standard Regulation. EPA is also pleased that PA is proposing to modify many of the human health criteria based on EPA's 2000 *Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health*. (6)

Response:

Thank you for your supportive comments.

Specific Comments by Section or Topic

Comments Concerning Critical Use & Intervening Uses:

Comment:

It does not make sense to extend a protected water use to activities that qualify as potential pollution sources as defined in section 402 of the Commonwealth's Clean Streams Law (CSL). Both State and federal case law (Oley Twp, et al. vs. DEP; Wissahickon Spring Water, Inc EHB Docket; and PUD No. 1 of Jefferson County v. Washington Department of Ecology, 114 S. Ct. 1900 (1994)) define water pollution to include diminishment of water quantity. Therefore it is not reasonable to extend a protected water use to a water withdrawal source that may potentially pollute. You should not add "maintenance of golf courses and athletic fields and other commercial horticultural activities" to the definition of irrigation as a protected water use in 25 Pa. Code § 93.3. The commentator suggests these other irrigation uses will be protected through the protection of all other critical uses including all aquatic life, water supply, recreation and special protection uses currently in Chapter 93. Therefore, there is no need to expand the definition of irrigation beyond the agricultural uses that it presently contains. (3)

Response:

The current description of "irrigation" as a protected water use contains the undefined phrase "for growing crops." The Department interprets irrigation to include commercial watering of plants. Irrigation water, withdrawn from a stream may adversely affect these operations if elevated in-stream levels of pollutants such as chlorides and total dissolved solids (TDS) are present. Adverse impacts on the irrigation use could occur without affecting a downstream potable water supply (PWS) use at the point of intake or instream aquatic life uses.

Comment:

We disagree with the additional sentence for critical use in section 93.7(a). This sentence is vague and may lead to inconsistent interpretations across DEP regions. Who determines when "other intervening, more sensitive uses" should be applied to a waterbody? What process and criteria are used to make this determination? How will this process be uniformly applied? The term "location" is undefined. (2, 4, 10)

Response:

The Department incorporated further clarification of the intended concept into the final rule. Protected and statewide water uses, identified in §§ 93.3 and 93.4, will be protected using criteria in §§ 93.6, 93.7, and 93.8. Based on the activities in the watershed, these decisions will be made on a case-by-case basis. Where needed, site-specific criteria may be developed to protect these uses, and it will be these criteria that will determine the sensitive critical use.

Natural Conditions:

Comment:

PA is proposing modifications in § 93.7(d) to clarify that considerations of natural quality for aquatic life protection now apply to Table 5, which is being created in this proposal, and Chapter 16, Appendix A Table 1, which is being re-purposed during this triennial review. Such determinations must be based on a set procedure that is specific enough to establish natural background concentrations accurately and reproducibly. The "Protocol for the Determination and Use of Background/Ambient Water Quality in the Determination of Wasteload Allocations and NPDES Effluent Limitations" Technical Guidance 391-2000-022, which has been identified as the procedure to be used in the past by the Department, no longer appears to be available. Background conditions are site-specific by nature, so EPA is unsure how such criteria will be incorporated into Table 5, which appears to include only statewide criteria. (6, 10) The final-form regulation should include a clear explanation of the reasoning behind this amendment. (10)

Response:

The referenced "Protocol for the Determination and Use of Background/Ambient Water Quality in the Determination of Wasteload Allocations and NPDES Effluent Limitations" Technical Guidance, (DEP 391-2000-022) is still available, and the Department will continue to use this protocol to determine natural water quality conditions.

The Department will recommend to the Board that the reference to Chapter 16, Appendix A Table 1 not be added to § 93.7(d) because it is not applicable to a natural quality determination.

Moving Portions of Chapter 16 into Chapter 93:

Comment:

Why is the Department moving the criteria back to Chapter 93? The proposed rule fails to explain the history of this change, which the commentator interprets as a reversal of a change only recently effected in 2000 following the Regulatory Basics Initiative. Therefore, the Board should not approve the changes in Chapter 16 from policy to regulations in Chapter 93. Also do not change section 93.8a(h) which established that the Department will amend Chapter 16 at intervals not exceeding one year. (3)

Response:

The original incentive for listing criteria in the Statement of Policy was to allow for flexibility in the timing of criteria development and revisions. The recommendation to move the criteria for toxic substances into Chapter 93 is intended to give these criteria the full force and effect of regulation. The Department believes this is appropriate since, these criteria are not being changed or supplemented as frequently as originally anticipated.

Comment:

The conversion factor table §16.24(b) is being relocated to § 93.9b. The table includes a change to the lead conversion factor. This modification is not mentioned in the summary of issues, but appears to be a corrective action. Please confirm the basis of this modification. (6)

Response:

This does represent a corrective action, as suggested by the commentator. This conversion factor was actually effective prior to publication of the current proposal. The Legislative Reference Bureau published a corrective amendment for §16.24 (relating to metals criteria), at 35 Pa.B. 1223 on February 12, 2005, but the Department failed to update the draft Chapter 93 Annex that was already under development.

Comment:

EPA would like clarification on how the criteria in Chapter 16, Appendix A Table 1 will be considered. The Chapter 16 proposal indicates that this table will be renamed "Site-specific Water Quality Criteria for Toxic Substance" and that site-specific criteria will be housed there until a time that there is an opportunity to incorporate the criteria into Chapter 93, Table 5. (6)

Response:

A criterion placed in Chapter 16, Appendix A Table 1 will remain a site-specific criterion as originally developed and be incorporated into the appropriate portion of §§ 93.9a –

93.9z that relates to "Exceptions to Specific Criteria" unless, during rulemaking, it is determined that the same standard has general statewide applicability.

Comments Concerning Proposed Criteria Revisions:

Arsenic (As) Criterion:

Comment:

US EPA Region 3 testified at the February 14, 2008 public hearing that they are pleased to see the Commonwealth intends to adopt the current National Primary Drinking Water Standard for arsenic as the criterion for the protection of human health. (6)

Response:

Thank you for your comment.

Nutrient Criteria:

Comment:

US EPA Region 3 also testified that they would like to take this opportunity to reiterate the importance of adopting protective nutrient criteria. They recognize that it is not reasonable to expect Pennsylvania to adopt such criteria during this triennial review, but they ask that once this triennial review is considered final the Commonwealth redouble its efforts to get these key protections in place. (6)

Response:

The Department is already aggressively taking steps to develop nutrient criteria through efforts that are independent of this triennial review, and intends to proceed with the necessary steps to develop the appropriate rulemaking to adopt the criteria as soon as the studies and data analysis are complete.

Molybdenum (Mo) Criterion:

(Note: This document is updated to reflect a revised final regulation, amended by the Environmental Quality Board's on January 20, 2009, that deletes the Mo criterion. In addition to the responses below, a more detailed justification for the development of the Mo criterion is discussed in the Order published with the final regulations. In light of the continuing disagreement with the Independent Regulatory Review Commission concerning the need for and justification for a statewide Mo criterion, the Department plans to return to the Board in the near future with a new, proposed rulemaking to adopt a statewide Mo criterion.)

Comment:

There is no need to develop a statewide water quality standard (WQS) for Mo to protect drinking water, nor has the State demonstrated any such need. There is no evidence that Mo is a substance that "Is expected to be found in discharges" nor is there any basis for concluding that, to the extent there is a need to address Mo in Langeloth Metallurgical

Company's discharge, it cannot be accomplished under the regulations as they now exist. (2, 7, 9, 10)

IRRC recommends that the Board clearly provide, in the final-form regulation, the justification for the inclusion of Mo in Table 5 of this section and the rationale behind the specific Human Health Criteria. (10)

Response:

The Department's recommendation for the Board to proceed with a statewide water quality criterion for Mo in ambient waters was based on a number of water quality criteria requests received from the Department's regional offices. Other program requests for Mo discharge limits are listed below. The biological or chemical conditions of the receiving waters for these multiple locations are not expected to differ in a way that would require development of site-specific criteria. Therefore, to maintain consistency, one statewide criterion, more effectively satisfies the needs of these issues than multiple site-specific efforts

- SCRO 10/04, Molycorp (York Co., superfund cleanup site)
- SWRO 10/04, Molycorp (now Chevron Mining) Washington Co.
10/06, Langeloth Metallurgical Company (Washington Co.)
- NERO 2/08, Georgia Pacific, Dixie Consumer Products - as active ingredient within chemical additive (Northampton Co.),

At least four active major permits now require Mo monitoring.

- May Environmental Tech Inc. (Westmoreland Co.)
- OSRAM Sylvania (Bradford Co.)
- PPL - Brunner Island Steam Electric Station (York Co.)
- Molycorp - now Chevron Mining (Washington Co)

The Department has identified a number of additional facilities that discharge molybdenum; primarily coal mining, power generation and specialty steel manufacturing. Although the Department maintains that there is adequate justification for the inclusion of a Mo criterion, the regulation has been amended to remove the Mo criterion.

Comment:

Until the public is provided with an adequate, meaningful explanation as to why there exists a need for the proposals relating to Mo, the same should be tabled. Mo is not a "toxic" substance and science has clearly shown Mo to be an essential micronutrient in plants, animals and humans. There is an insufficient level of concern to human health to merit a Mo standard based on the limited available data. (2, 4, 5, 9, 10)

It would be completely unreasonable and an abuse of discretion to adopt the proposals relating to Mo even absent any explanation as to how DEP arrived at instream water quality criteria of 210 ug/L. (2, 5, 9, 10)

Response:

The Department considers Mo to be a toxic substance. A “toxic substance”, as defined in Chapter 93 is, “a chemical or compound in sufficient quantity or concentration which is, or may become, harmful to human, animal or plant life.” Based on health assessment information in the *US EPA Integrated Risk Information System (IRIS)*, the *Risk Assessment Information System (RAIS) Toxicity Profile - Toxicity Summary for Molybdenum* prepared by the Oak Ridge National Laboratory, and the Institute of Medicine’s (IOM) review of the scientific literature regarding dietary micronutrients, high concentrations of Mo are shown to cause gout-like symptoms, characterized by pain, swelling, inflammation and deformities of the joints, and in all cases, an increase in the uric acid content of the blood. This condition is often accompanied by disorders of the gastrointestinal tract, liver and kidneys. Additionally, according to above scientific sources, Mo is considered a teratogen because it can cause various developmental deformities, which are also considered toxic responses. Although the Department maintains that Mo is a toxic substance, the regulation has been amended to remove the Mo criterion.

Comment:

Mo is an essential micronutrient and EPA has chosen not to adopt National drinking water standards. The proposed Mo standard is far more stringent than those of EPA and the neighboring States, which do not have a Mo standard, and will place PA industry at a competitive disadvantage. (4, 5, 7, 9)

Response:

Although Mo is considered an essential micronutrient, as described earlier it can also be toxic at higher concentrations.

EPA has added Mo to the Drinking Water Contaminant Candidate List (CCL3), based on the contaminants potential to occur in public water systems and the potential for public health concern, (Federal Register: February 21, 2008 (Volume 73, Number 35))[Page 9627-9654]

Mo is proposed as a water quality based criterion to protect human health. Other states that have regional and statewide human health criteria for Mo include:

- Regional: - Ohio – 120 ug/L (for Lake Erie basin)
- Statewide: - Michigan – 120 ug/L
- North Carolina – 160 ug/L (provisional)
- Colorado – 35 ug/L (groundwater)

The Department continues to support the need for a Mo criterion in the Commonwealth; however, the final regulation has been amended to remove the Mo criterion.

Comment:

There is no known method for sufficiently removing Mo to such levels as to achieve an instream criterion as low as 210 ug/L. (2, 5, 9, 10)

Response:

While the Department recognizes the difficulties and complexities associated with treating for Mo, below are three possible options for wastewater treatment:

- 1) Iron co-precipitation with sand filtration
- 2) Ion exchange
- 3) Reverse osmosis.

In addition, there are waste capture, reuse, recycle and disposal options available. The feasibility of these options depend on, among other factors, the chemical form of the targeted contaminant, the flow and quality of the receiving stream, and the volume and nature of the wastewater, especially regarding other contaminants and the interferences or synergisms they may cause. However, of the available options and on a preliminary basis, iron co-precipitation with sand filtration appears to be the most feasible. It has been employed successfully in at least one application, treating molybdenum-contaminated tailings and waste rock drainage at a closed molybdenum mine. Although the Department maintains that there is sufficient treatment available for the management of Mo, the final regulation has been amended to remove the Mo criterion.

Comment:

Mo is not a carcinogen, there is no peer-reviewed science to support classifying Mo as a "Toxic Substance" for humans, and there exists a clear on-going debate among scientists as to the acceptable levels of Mo intake in humans. The "science" on the effects of Mo intake on humans is not sufficient to justify the proposed rulemaking. (2, 5, 9, 10)

Response:

The Department bases toxicity on the application as found in The Pa Code, Chapter 16, Water Quality Toxics Management Strategy – Statement of Policy, at Section 16.31: - Traditional toxicology is developed upon a theory that the "dose determines the poison". Micro nutrients in excess of recommended daily allowances can become toxic.

Mo is not a carcinogen, but, as discussed earlier, it is a teratogen based on the occurrence of developmental and skeletal deformities with exposures at higher levels, which is a toxic characteristic. DEP regulation defines 'Toxic Substance' as - A chemical or compound in sufficient quantity or concentration which is, or may become, harmful to human, animal or plant life. Although the Department maintains that the science is sufficient to justify regulating molybdenum, the final regulation has been amended to remove the Mo criterion.

Comment:

The methodology utilized by the Department to establish the uncertainty factor (UF) for calculating the health-based standard can be manipulated to achieve any desired outcome for a WQS and DEP's use of the UF of 30 times in this instance is excessive and unjustifiable. (7)

Response:

The Department develops requested criteria in accordance with policies found in 25 Pa Code Chapter 16 (Water Quality Toxics management Strategy – Statement of Policy), and more specifically in the case for molybdenum, in accordance with § 16.32 (relating to guidelines for developing human health criteria for threshold level toxic effects).

Based on provisions in § 16.32(c)(2) “If EPA criteria have been evaluated, and have been determined to be inadequate to protect designated uses, or when no criteria have been developed for a substance identified or expected in a discharge, the Department will develop criteria following EPA’s standard toxicological procedures outlined in Exhibit 3-1 of the *Water Quality Standards Handbook, Second Edition, EPA 823-0-94-005A, August, 1994*, as amended and updated.” EPA’s toxicological procedures have been updated and are reflected in the *EPA Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health – 2000*.

The Department used information from IRIS to obtain supporting studies in developing a criterion for Mo. IRIS, is EPA’s electronic database, which is prepared and maintained by the EPA’s National Center for Environmental Assessment (NCEA) within the Office of Research and Development (ORD), containing information on human health effects that may result from exposure to various substances in the environment. Additional sources of toxicity information were obtained from the IOM (Dietary Reference Intakes for Vitamin A, Vitamin K, Arsenic, Boron, Chromium, Copper, Iodine, Iron, Manganese, Molybdenum, Nickel, Silicon, Vanadium, and Zinc(2000) Food and Nutrition, National Academy of Press), at the request of Langeloth Metallurgical Co, and as recommended and approved by US EPA.

DEP’s calculation of the Mo criterion was based on the peer-reviewed toxicity data and protocols listed in an earlier response. The uncertainty factor (UF) of 30 is recommended in the IRIS toxicity report, and the report published by the National Academies Press. The UF was also approved by a senior toxicologist in the US EPA Office of Water and by a water quality standards coordinator in US EPA Region 3.

US EPA Headquarters staff reviewed and concurred that the Department used the appropriate data, and methodologies to develop the proposed recommended criterion for molybdenum. Although the Department continues to support its methodology for establishing the uncertainty factor, the final regulation has been amended to remove the Mo criterion.

Comment:

The proposed Mo standard did not consider the most recent and technically justifiable toxicological data (*Effects of molybdenum on fertility of male rats* by Pandey and Singh, (BioMetals. 15: 65-72, 2002), and was calculated improperly. (5, 7) It was also suggested the Department should use the Benchmark Dose Method (BMD), which the commentator believes EPA now recommends using as an improved way to estimate the point of departure for deriving toxicity factors This was described as an improvement

over using the NOAEL/LOAEL (no observed adverse effects level/lowest observed adverse effects level) approach used by the Department. (5)

Response:

The commentators single out one study upon which they request the reference dose (RfD) be calculated. U.S. EPA's and the Department's evaluation of the request found that the study did not represent the most sensitive study population or the most sensitive endpoint. Therefore, due to insufficient data for BMD determination, U.S. EPA recommended that the Department use the NOAEL/LOAEL approach to calculate the reference dose.

The Department used information from the *U.S. EPA Integrated Risk Information System (IRIS)* to obtain supporting studies in developing a criterion for Mo. IRIS, is an electronic database containing information on human health effects that may result from exposure to various substances in the environment. IRIS is prepared and maintained by the EPA's National Center for Environmental Assessment (NCEA) within the Office of Research and Development (ORD).

The Department originally developed a criterion for Mo using only toxicity data available in the IRIS data base. At the request of a commentator, U.S. EPA headquarters approved supplementing the IRIS database with additional sources of toxicity information obtained from a peer-reviewed toxicity report from the Institute of Medicine (IOM), which was published by the National Academy Press. This updated, combined dataset was then used to develop the best available scientifically calculated Mo criterion.

U.S. EPA Headquarters and U.S. EPA Region 3 staff reviewed and concurred that the Department used the appropriate data and methodologies to develop the recommended statewide human health criterion for Mo. Although the Department maintains that the BMD is not the appropriate approach for determining the point of departure for deriving toxicity factors, the final regulation has been amended to remove the Mo criterion.

Comment:

If adopted, the Mo standard should apply at the point of existing or planned surface potable water supply withdrawal, per 25 Pa. Code section 96.3(d) (5, 7)

Response:

The potable water supply use is protected statewide. Moving the point of regulation for Mo to the water supply intake will leave the intervening stream reach vulnerable to the human health toxic effects associated with this pollutant. Since the final regulation has been amended to remove the Mo criterion, no further evaluation of this recommendation is required.

Site-Specific Criteria Development:

Comment:

Commentator recommended that section 93.8d(2) specify that, when the waters in question contain federally-listed, threatened or endangered species, the Department will coordinate with the US Fish and Wildlife Service from the study phase through to the final decision making process, to ensure the listed species are protected. (1)

Response:

The Department currently coordinates this consultation with the US Fish and Wildlife Service through the US Environmental Protection Agency and will continue to do so.

Comment:

PA is proposing to add language to the new § 93.8d(2)(b) to provide reference to various other procedures and guidances that may be considered when developing site-specific criteria. EPA is recommending that PA only refer generally to "PADEP and EPA procedures and guidances" in this section, and to refer the reader to Chapter 16, where a more inclusive list of acceptable methods, and an explanation of their intended applications, can be maintained. (6)

Response:

The references in § 93.8d(b) to specific US EPA and PADEP guidance or acceptable methods is not intended to be limiting. As such, this section also indicates that other guidance approved by the Department, which is based on other EPA approved or scientifically defensible methodologies, may be used. Section 93.8d(c) also indicates that a proposed plan of study is to be submitted to the Department prior to conducting these studies.

Section 93.9 and Stream Drainage Lists:

Comment:

In section 93.9(b) change the word "standard" to "criterion" in the amendment that indicates "if a water quality standard is more stringent than those in this title," to insure use of comparative numeric criteria rather than qualitative or narrative standards. (2, 4)

Response:

In this context, the Department is referring specifically to the larger concept of the water quality standards, which includes the protected uses, the narrative and specific numeric criteria to protect the uses, and antidegradation provisions that apply to shared or downstream waters.

Comment:

US EPA noted in their comments that Newtown Creek, which is in Drainage List E (§ 93.9e), is spelled incorrectly, and is described as being in Berks rather than Bucks County. They note that corrections have not been proposed in this action, but they are bringing it to the Board's attention for consideration. (10)

Response:

Thank you for your comment. The Department has notified the Legislative Reference Bureau, which has agreed to publish a corrective amendment since the error was generated following codification of revisions to this portion of the Code that resulted during a previous rulemaking. Therefore, the Board is not required to take any further action on this correction.

Comment:

In § 93.9x, the Board is adopting by reference the Federal water quality standards regulation at 40 CFR 131.41, as applicable to the water contact use in Lake Erie. EPA understands that this will incorporate the criteria listed at 40 CFR 131.41(c). We recommend that the Board specifically reference 40 CFR 131.41(c). This would avoid confusion which could arise from seeming to adopt 40 CFR 131.41 (c) and 131.41(d). To include 40 CFR 131.4(d) would appear to contradict the effort of the State itself adopting the criteria and the language in 40 CFR 131.41 limiting the application of the Federal criteria upon EPA's approval of such adoption. (6)

Response:

The Department reviewed the concern that there may be confusion if the entire section 40 CFR 131.41 is adopted by reference. The recommendation to only adopt paragraph (c) of that section will add to confusion regarding implementation of the new standard and will not incorporate the definitions for the categories of use (high, moderate, light and infrequent). The regulation in paragraph (d) clearly articulates when state-adopted criteria apply and its incorporation does not appear to contradict any future state effort to develop criteria. On final rulemaking, the Department will recommend to the Board that section 40 CFR 131.41 (except paragraph (f)) be incorporated by reference. The requirements for schedules of compliance referenced in paragraph (f) are addressed in 25 Pa Code Chapter 92.

Comments Regarding Chapter 16

Comment:

In §§ 16.11(b), 16.32(c)(2) and 16.33(f)(2) the Board is proposing to add citations to clarify that EPA has added new methodologies for the development of human health criteria. This section mentions the *National Recommended Water Quality Criteria: 2002*. EPA suggests that the structure of the sentence could imply that this document is guidance for developing criteria, whereas it actually housed EPA's specific criteria recommendations. Also note that this document has been updated by EPA to reflect published information issued in 2002 and 2003. EPA recommends the sentence be modified to read: "The EPA has updated the criteria or issued new criteria since 1980 based on new data, and more recently, new methodologies for developing human health criteria as summarized in the *Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health* (EPA-822-B-00-004, October 2000). EPA's current criteria recommendations can be found in the *National Recommended Water Quality Criteria* (EPA-822-H-04-001, 2004), as amended and updated." (6)

Response:

Thank you for your comment. This change will be recommended in the final rulemaking.

Comment:

In § 16.32(b), Pennsylvania is proposing to replace “bioaccumulation” with “bioconcentration.” It should be noted that EPA now recommends the use of bioaccumulation factors (BAFs) in the 2000 *Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health*, although until BAFs can be developed, EPA continues to accept the use of bioconcentration factors (BCFs). (6)

Response:

Thank you for your comment. The Department intends to follow EPA’s recommendations to use BAF’s, but if not available, will use BCF’s until the BAF is developed.

Comment:

The Department needs to clarify what will be included in Appendix A, Table 1. In § 16.51(a) it is stated that this Appendix will list site-specific human health and aquatic life criteria that have been developed or reviewed and approved by the Department. However, the Summary of Amendments for Chapter 16 indicates that “site-specific criteria that are developed or approved by the Department will be housed in Appendix A, Table 1 until a time that there is an opportunity for a final rulemaking by the Board that incorporates the criteria into Chapter 93, Table 5.” EPA would support the permanent placement of site-specific criteria in Appendix A, Table 1 of Chapter 16, but does not believe that Chapter 93, Table 5 is an appropriate location for site-specific criteria. Please provide clarification on how DEP intends to use Appendix A, Table 1. (6, 10)

Response:

The Department provided additional clarification in Chapter 16, as well as Chapter 93. Appendix A, Table 1 will be used as a temporary location for newly developed site-specific criteria. These new site-specific criteria will be incorporated, through rulemaking actions, into the appropriate portion of §§ 93.9a – 93.9z that relates to “Exceptions to Specific Criteria”.

Other Comments

Comments Regarding Chapter 96:

Comment:

Why are PWS water quality standards applied differently for different parameters with no explanation? Six of the 10 WQS (identified for PWS use) listed in Chapter 93 are listed in section 96.3. There is no explanation why color, iron, manganese and bacteria are not listed in section 96.3. Was it arbitrary for those selected, or are the non-listed parameters excluded in error? (4)

Response:

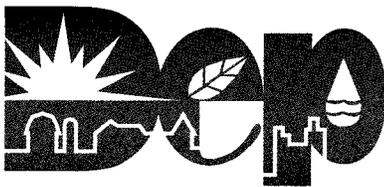
Since 1985 (15 Pa.B. 551), the Environmental Quality Board differentiated between the points of application for the criteria associated with TDS, nitrite-nitrate nitrogen, phenolics and fluoride. The points of application for these specific pollutants were identified as the point of withdrawal of potable water supply systems for protection of the statewide potable water use. The Board also indicated that the point of application for other uses (such as fish and aquatic life) is the point of wastewater discharge.

In 2002 (32 Pa.B. 6101), the Board added sulfates and chlorides to this list because there are no adverse human health effects from these substances at the levels they are regulated. The Board further states that effluent limitations required for discharges of these substances are calculated using critical (or stringent) conditions that include a requirement that the criteria be met 99% of the time, even at the low-flow condition known as Q7-10 (that is, the lowest 7-day consecutive flow in a 10-year period), a condition that is seldom reached, even in drought conditions. This provides an additional margin of safety built into the effluent limitations to protect the potable water supplies, prior to withdrawal. In addition, other surface water uses will be protected by application of general criteria and other criteria listed in §§ 93.6 and 93.7 (relating to general water quality criteria; and specific water quality criteria).

The Department is currently evaluating this provision as part of a comprehensive review of 25 Pa Code Chapter 96.

List of Commentators
Triennial Review of Water Quality Standards
May 2008

ID	Name/Address	Submitted 1-Page Summary	Provided Testimony	Requested Final Rulemaking
1.	David Densmore US Department of the Interior Fish and Wildlife Service Pennsylvania Field Office State College, PA			
2.	Gene Barr, Vice President Government and Public Affairs Pennsylvania Chamber of Business and Industry Harrisburg, PA			
3.	Douglas J. Austen, Ph.D., Executive Director Pennsylvania Fish and Boat Commission Harrisburg, PA 17106	X		
4.	George Ellis, President Pennsylvania Coal Association Harrisburg, PA 17101			
5.	Carmen Venezia Manager, Safety and Environment Osram Sylvania Towanda, PA 18848	X		
6.	Denise P. Hakowski Water Quality Standards Specialist Office of Standards, Assessment & Information Mgmt Water Protection Division U.S. Environmental Protection Agency, Region III Philadelphia, PA 19103		X	
7.	Robert R. Dorfler Vice President and General Manager Langeloth Metallurgical Company Langeloth, PA 15054			
8.	Cheryl Hicks, Legislative Director (on behalf of) Senator J. Barry Stout 46 th Senatorial District Eighty Four, PA 15330		X	
9.	Thomas Ondrejko Metallurgical Engineer Langeloth Metallurgical Company Langeloth, PA 15054		X	
10.	Independent Regulatory Review Commission Harrisburg, PA 17101			



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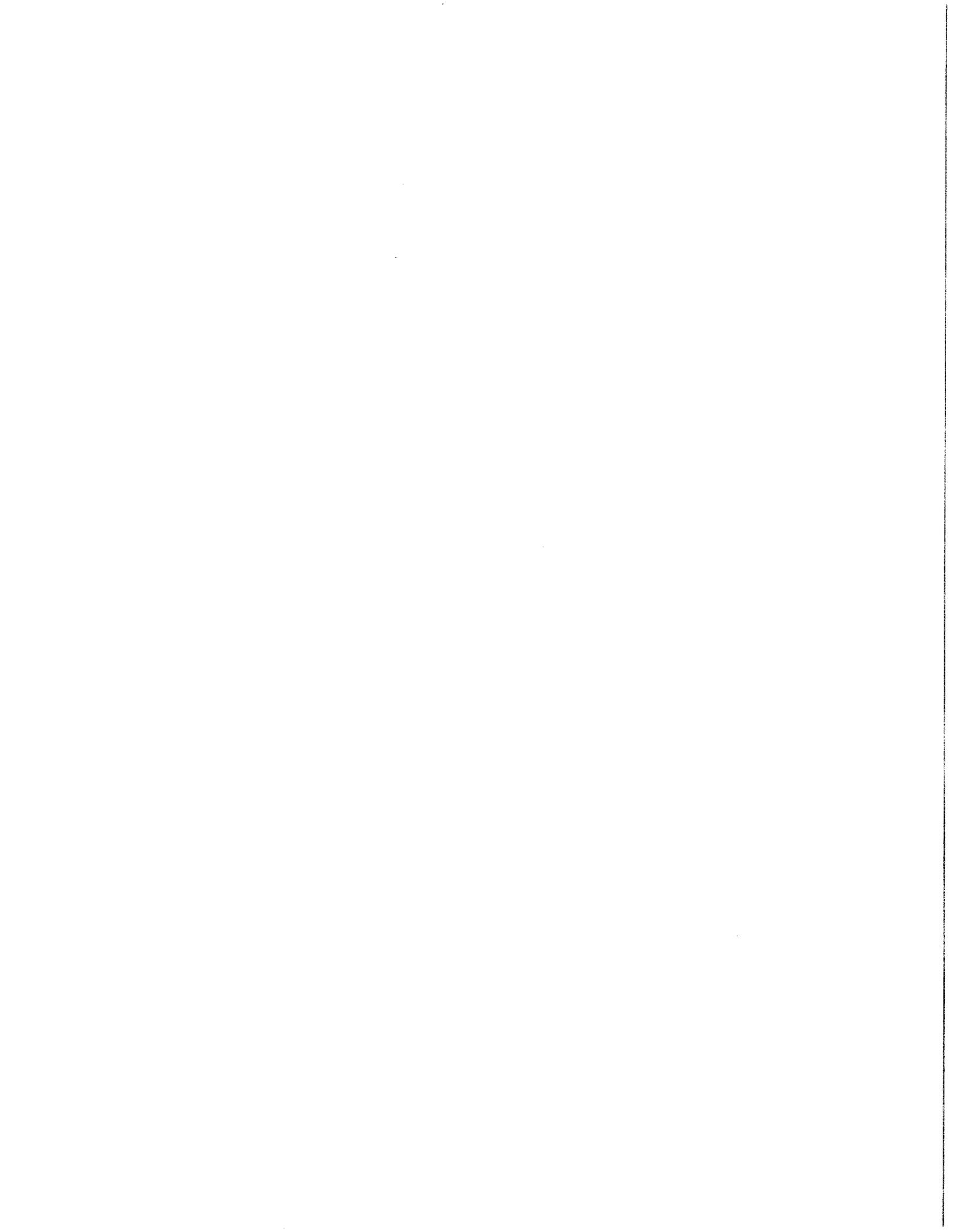
RE: Final – Form Rulemaking (Revised) – Triennial Review of Water Quality Standards (#7-421)

Dear Mr. Kaufmann:

On November 20, 2008, the Independent Regulatory Review Commission (Commission) disapproved the final Triennial Review of Water Quality Standards rulemaking. Under Section 7 of the Regulatory Review Act, an agency has three options to respond to the Commission's disapproval of its final form regulation, including withdrawing the regulation from further consideration, or resubmitting the regulation to the Commission and Standing Committees with or without revisions. On January 20, 2009, the Environmental Quality Board unanimously voted to modify the final rulemaking to address the Commission's concerns. The enclosed documents include the revised final-form rulemaking for review and comment by the Independent Regulatory Review Commission, as well as the Department of Environmental Protection's (Department) report, which responds to the Commission's Order.

The enclosed final-form rulemaking includes amendments that remove molybdenum (Mo) as a water quality criterion in 25 PA Code, Chapter 93. Although the Commission determined that the Triennial Review Rulemaking is consistent with the statutory authority of the Pennsylvania Clean Streams Law and the intention of the General Assembly, it found that the Mo criterion portion of the regulation is not in the public interest, based on criteria of the Regulatory Review Act. In its Disapproval Order, dated November 20, 2008, the Commission asserted three reasons for the disapproval: 1) the Commission questions whether DEP has offered sufficient justification regarding the specific interest of the Commonwealth to exceed federal water quality standards; 2) the Commission states that the EQB has not sufficiently addressed the economic and fiscal impact of imposing this new water quality criterion on the regulated community; and 3) the Commission states that the EQB has not fully demonstrated the impact of the consumption of Mo on the public health.

Although the Department disagrees with the Commission and its basis for disapproval of the statewide water quality criterion for Mo, the Board, based upon the Department's recommendation, unanimously voted to amend the final-form rulemaking to avoid further delay in final adoption of the Triennial Review Rulemaking since the package contains many other needed revisions to the Commonwealth's water quality standards. Any further delay in final publication of these other needed changes is problematic, as the Department is required by EPA to complete its Triennial Review.



Rulemaking in a timely manner, and submission of a final Triennial Review Rulemaking package to EPA is already beyond the three-year deadline.

In light of the continuing disagreement with the Commission concerning the need for and justification for a statewide Mo criterion, the Department plans to return to the Board in the near future with a new proposed rulemaking to adopt a statewide Mo water quality criterion. With this new proposed rulemaking there will be an opportunity to seek additional scientific support from the public for the criterion development. Until a future rulemaking adopts Mo as a statewide criterion, the Department will continue to exercise its existing authority to develop Mo criteria for individual permits on a case-by-case basis.

The Department will provide assistance as necessary to facilitate the Commission's review of the amended Triennial Review of Water Quality standards final rulemaking. Please contact me at 717-783-8727 if you have any questions or need additional information.

Sincerely,



Michele L. Tate
Regulatory Coordinator

Enclosures





**TRANSMITTAL SHEET FOR REGULATIONS SUBJECT TO
 THE REGULATORY REVIEW ACT**

I.D. NUMBER: 7-421
 SUBJECT: Triennial Review of Water Quality Standards
 AGENCY: DEPARTMENT OF ENVIRONMENTAL PROTECTION

TYPE OF REGULATION

- Proposed Regulation
- Final Regulation
- Final Regulation with Notice of Proposed Rulemaking Omitted
- 120-day Emergency Certification of the Attorney General
- 120-day Emergency Certification of the Governor
- Delivery of Tolled Regulation
 - a. With Revisions
 - b. Without Revisions

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 INDEPENDENT REGULATORY
 REVIEW COMMISSION

FILING OF REGULATION

DATE	SIGNATURE	DESIGNATION
2-6-09		Majority Chair, HOUSE COMMITTEE ON ENVIRONMENTAL RESOURCES & ENERGY
2-6-09		Minority Chair, HOUSE COMMITTEE ON ENVIRONMENTAL RESOURCES & ENERGY
2-6-09		Majority Chair, SENATE COMMITTEE ON ENVIRONMENTAL RESOURCES & ENERGY
2-6-09		Minority Chair, SENATE COMMITTEE ON ENVIRONMENTAL RESOURCES & ENERGY
2/6/09		INDEPENDENT REGULATORY REVIEW COMMISSION
_____	_____	ATTORNEY GENERAL (for Final Omitted only)
_____	_____	LEGISLATIVE REFERENCE BUREAU (for Proposed only)

