

**PROPOSED RULEMAKING
ENVIRONMENTAL QUALITY BOARD
25 PA Code, Chapter 93**

Triennial Review of Water Quality Standards

PREAMBLE

The Environmental Quality Board (Board) proposes to amend Chapter 93 (relating to water quality standards) to read as set forth in Annex A.

This proposal was adopted by the Board at its meeting of _____.

A. Effective Date

These amendments will go into effect upon publication in the *Pennsylvania Bulletin* as final-form rulemaking, and subsequent approval by the U.S. Environmental Protection Agency (U.S. EPA) when water quality standards are used to implement the Federal Clean Water Act.

B. Contact Persons

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C. Statutory and Regulatory Authority

This proposed 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 the provisions of The Clean Streams Law (35 P.S. §§ 691.1 – 691.1001), 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 DEP. In addition, section 303 of the federal Clean Water Act (33 U.S.C.A. § 1313) sets forth requirements for water quality standards.

D. Background and Purpose

Water quality standards are in-stream water quality goals that are implemented by imposing specific regulatory requirements (such as treatment requirements, effluent limits, and best

management practices (BMPs)) on individual sources of pollution. 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. Water quality standards include designated uses, numeric and narrative criteria and antidegradation requirements for surface waters. The regulatory changes in this proposed rulemaking are the result of on-going reviews and evaluations of the water quality standards conducted by DEP. This proposed rulemaking fulfills the federally-required triennial review of water quality standards as mandated by the federal Clean Water Act.

Pennsylvania water quality standards, which are generally codified in Chapter 93, are designed to implement the requirements of Section 5 and 402 of The Clean Streams Law and Section 303 of the Federal Clean Water (33 U.S.C.A. § 1313). The water quality standards include the existing and designated 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, which prohibits degradation of waters. The water quality standards also include a policy for the special protection of the existing quality of certain waters found to be of high quality or exceptional value.

Water quality standards are an important element of the Commonwealth's water quality management program. Some type of water quality standard has been in use for over 75 years in this Commonwealth. One of the early actions after the Sanitary Water Board (SWB) was created in 1923 was to classify streams by priority for water quality management actions. In 1947, the SWB classified all streams in this Commonwealth by the degree of treatment that had to be provided before discharge could occur. Article 301 – Water Quality Control, which specifically contained water uses, general and specific water quality criteria, and designated water uses, was added to the SWB's Rules and Regulations on June 28, 1967. The SWB was then abolished on January 19, 1971 following the formation of the Pennsylvania Department of Environmental Resources (PA DER) in 1968. Responsibilities for developing and maintaining the water quality criteria and standards, and other related regulations were transferred to PA DER. New or revised specific water quality criteria and standards were developed by PA DER for all Pennsylvania surface waters, and formally adopted into 25 Pennsylvania Code, Chapter 93 – Water Quality Standards on September 10, 1971.

PA DER completed its first major review and complete overhaul of the water quality criteria and standards in 1979. After a series of public hearings and extensive public participation, revisions to the water quality criteria and uses were incorporated into Chapter 93. U.S. EPA Region III formally approved the revisions to Pennsylvania's water quality standards on January 26, 1981. 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. As such, additional reviews and revisions were made to Pennsylvania's water quality standards during 1985, 1989, and 1994. The then newly formed Department of Environmental Protection (DEP), which was created in June 1995, after splitting DER into two agencies by approval of the Conservation and Natural Resources Act (71 P.S. §§1340.101 – 1340.1103), began to conduct its first comprehensive review of water quality standards regulations, policies, and implementation procedures which became the basis for the next Triennial Review. Additional reviews and revisions were made to Pennsylvania's water quality standards during 1998, 1999, 2000, 2002,

2004, 2009 and 2013 to address amendments for the Great Lakes Initiative (GLI), Antidegradation policies, the Water Quality Standard (WQS) Regulatory Basics Initiative (RBI) Triennial, and several other corrective amendments.

The U.S. EPA urged the Department in a letter dated January 21, 2013 to include the federally recommended ammonia and recreational water quality criteria (RWQC) into the Commonwealth's water quality standards. Also, the U.S. EPA specifically recommended in their May 22, 2014 approval letter in reference to the 2013 Pennsylvania Triennial Review of WQS "that PADEP will address the issues of total dissolved solids, most notably chlorides, ammonia, and recreational criteria", in their next triennial review. These proposed amendments constitute Pennsylvania's current triennial review of its water quality standards.

On March 24, 2016, DEP's Water Resources Advisory Committee (WRAC) voted to present this rulemaking package to the Board. In addition, DEP provided to the Agricultural Advisory Board (AAB) on February 25, 2016 a regulatory review that included the triennial review of water quality standards. Also, DEP provided to the Citizens Advisory Council (CAC) on June 21, 2016, an overview of the triennial review and development of the chloride criteria.

E. Summary of Regulatory Requirements

The following is a detailed description of proposed revisions in Chapter 93, presented by Section:

Chapter 93. WATER QUALITY STANDARDS

§ 93.1. Definitions.

The Board intends to add clarification to the definition of *Outstanding National, State, regional or local resource water* to indicate this also includes waters that are protected by one or more conservation easements that are held in perpetuity by or benefits certain governmental entities. Through the existing definition of "coordinated water quality protective measures," conservation easements are included as a type of protective measure that, when applied to high quality waters, would qualify the waters as exceptional value. Due to the increased number of conservation easements submitted with petitions for stream redesignations, the Board is proposing language intended to clarify the circumstances under which such easements will be considered.

~~**§ 93.6. General water quality criteria.**~~

~~In § 93.6(a), the Board is removing the word "discharge", because it is redundant when referring to point sources, but may not reflect all non-point sources, some of which are not a true discharge in nature. This will clarify that point and non-point sources are to be included. Similar clarification is needed at § 93.8a(a).~~

§ 93.7 Specific water quality criteria. Table 3:

The Board is proposing the following changes to the Table 3 criteria:

Ammonia Criteria: The U.S. EPA released, in April 2013, final recommendations for Aquatic Life Ambient Water Quality Criteria for Ammonia – Freshwater 2013 (EPA 822-R-13-001). These recommendations are intended as guidance to states, territories, and authorized tribes in developing water quality standards to protect aquatic life from exposure to ammonia. DEP assessed the peer reviewed technical documentation for the recommended ammonia criteria and found it was scientifically sound and appropriate for the surface waters of Pennsylvania. The document can be accessed at <https://www.epa.gov/wqc/aquatic-life-criteria-ammonia>.

These recommendations consider the most recent scientific research regarding the effects of ammonia on aquatic life, and incorporate the latest toxicity information for freshwater species, including unionid mussels and gill-breathing (non-pulmonate) snails.

Freshwater unionid mussels are found in many states of the continental United States and many of these mussels are Federally-listed as endangered or threatened species. Freshwater mussels are broadly distributed across the U.S., as are freshwater non-pulmonate snails, and both of these sensitive groups are now included in the ammonia criteria dataset. There are approximately 65 species of unionid mussels in Pennsylvania, including many that are rare or endangered. The seven most sensitive genera in the acute dataset are all in the family Unionidae and all of these genera, except for *Venustaconcha*, are found in Pennsylvania. The two most sensitive genera in the chronic dataset are also unionid mussels, and are both found in Pennsylvania. These criteria are appropriate for Pennsylvania because they provide sufficient protection for Pennsylvania's most sensitive fauna.

The magnitude for both the acute (CMC) and chronic (CCC) criteria is determined by two separate equations and is given as a concentration in milligrams of total ammonia nitrogen per liter (mg TAN/L). Temperature and pH both influence the toxicity of ammonia. Temperature has little effect on the toxicity of total ammonia nitrogen (TAN) to fish, therefore the effect concentrations for fish are only normalized for pH. For invertebrates, temperature and pH both affect the toxicity of TAN, so the TAN effect concentrations are normalized for both pH and temperature. At pH = 7, the acute criterion magnitude is driven by freshwater unionid mussels at water temperatures greater than 15.7°C. The TAN effects concentrations of salmonids and other fish drive the acute criterion magnitude at lower temperatures. The 2013 chronic criterion magnitude is determined primarily by the sensitivity of freshwater mollusks, particularly unionid mussels.

Therefore, U.S. EPA developed the acute and chronic criteria equations with the underlying assumption that mussels are present, and this is appropriate for Pennsylvania, as sensitive mussels are ubiquitous throughout the Commonwealth. Additionally, U.S. EPA developed an acute criteria equation that is appropriate when salmonids are present (along with the aforementioned mussels also being present). It is appropriate to use the acute criteria equation that considers the sensitive salmonids. DEP recommended that the Board consider salmonids being present when determining the statewide CMC for total ammonia nitrogen for several reasons. (1.) Salmonid fishes are common throughout Pennsylvania. (2.) This equation uses the set of conditions that generates the most stringent criteria, so the proposed CMC will most certainly be sufficiently protective. (3.) All of the proposed acute criteria values generated by

the proposed equation (regardless of the ambient pH and temperature conditions) are less restrictive than the values for the current acute criteria calculated using the same pH and temperature. Adopting this approach will not be detrimental to any current dischargers because the proposed acute standards will be less restrictive under all temperature and pH conditions. The 2013 chronic criterion magnitude is determined primarily by the sensitivity of freshwater mollusks, particularly unionid mussels, therefore the presence or absence of salmonids is inconsequential in the determination of the proposed chronic criteria.

As mentioned previously, adopting the acute criterion will not be detrimental to any current dischargers because the proposed acute standards will be less restrictive under all temperature and pH conditions. The chronic criterion becomes more stringent as pH and temperature increase just the same as the current chronic ammonia criterion does. Median summer temperature and pH were calculated using data from 235 fixed water quality sampling sites (WQN) collected between 2000 to 2015. The data is representative of all different types of streams found statewide. The new chronic criterion is typically more stringent than the existing criterion in streams with low pH and temperature. These are typically smaller headwater streams where it is less likely for a discharge. At $\text{pH} < 7$, the new criterion is more stringent being anywhere from 0.1 to 1.5 mg/l lower. It is most stringent in cold streams with pH near 6.0. At $\text{pH} > 7.8$ the proposed compared to the current criterion is less stringent by 0.2 mg/l or less. Between pH 7.5 and 7.8 the proposed criterion is typically more stringent but ninety-five percent of the time the difference is less than 0.17 mg/l and only 0.6 mg/l fifty percent of the time. Between pH of 7.0 to 7.5 mg/l half the time the proposed criterion is higher and half the time less stringent depending on the temperature. When the U.S. EPA-recommended criteria are more stringent, ninety-five percent of the time the difference is < 0.9 mg/l.

Overall, with respect to the proposed ammonia criteria we expect either no impact or minimal impact on the great majority of point source discharges in Pennsylvania. In those cases where additional treatment for ammonia may be needed, minimal cost impact is expected because ammonia is highly treatable. Treatment usually involves only time allowed for biological degradation and exposure to atmospheric oxygen.

The Board proposes to replace the current statewide aquatic life use criteria for ammonia with the new federally recommended criteria for ammonia. Statewide application of these nationally recommended water quality criteria would provide an appropriate level of protection for aquatic life from the effects of ammonia.

Bacteria Criteria: The Board is proposing changes to the bacteria criteria which will include replacing the current fecal coliform-based criteria for water contact sports (WC) during the swimming season (May 1 to September 30), with U.S. EPA's 2012 Recreational Water Quality Criteria (RWQC) in Pennsylvania's surface waters. DEP assessed the peer reviewed technical documentation for U.S. EPA's recommended recreational criteria for bacteria and found it was scientifically sound and appropriate for the surface waters of Pennsylvania. The document can be accessed at <https://www.epa.gov/sites/production/files/2015-10/documents/rwqc2012.pdf>.

Pennsylvania's current recreational use bacteria criteria have been based upon a maximum fecal coliform level of 200 colony forming units per 100 mL (cfu/100 mL) since the early 1970's. It is

now widely accepted that *Escherichia coli* (*E. coli*) levels are a better indicator of fecal contamination than fecal coliforms. This change is designed to protect those engaging in water contact sports (defined as the use of the water for swimming and related activities) from fecal contamination. There are two sets of recommendations based on two different risk paradigms (36 illnesses per 1000 swimmers and 32 illnesses per 1000 swimmers). U.S. EPA maintains, in the 2012 RWQC, that both risk paradigms are adequately protective. DEP recommends the Board adopt the *E. coli* freshwater levels associated with Recommendation 1, the 36 per 1,000 illness rate. The *E. coli* levels associated with this risk paradigm (geometric mean (GM) = 126 cfu/100 ml & statistical threshold value (STV) = 410 cfu/100ml) are most closely akin to the current Pennsylvania Department of Health (PDOH) standards at 28 Pa. Code §18.28 (which apply to bathing beaches) and the criteria that were promulgated for Lake Erie and Presque Isle under the 2004 Bacteria Rule (40 CFR 131.41), as published in the Federal Register (69 FR 67218) on November 16, 2004. The criteria values for the current PDOH standards and the criteria values that were federally promulgated for Lake Erie beaches, including Presque Isle are a geometric mean value of 126 and a single sample maximum value (SSM) of 235. This SSM feature is not part of the 2012 RWQC. The SSM has been replaced by the STV of 410, which is most similar to the SSM (409) for the 90th percentile from U.S. EPA's 1986 recommended bacteria criterion. In order to achieve the most consistent approach, the Board is favoring the criteria based on the similar geometric mean and single sample maximum values. DEP believes this will result in a more seamless transition.

DEP conducted field studies making side-by-side sample comparisons between the current Fecal Coliform and proposed *E. coli* criteria. One hundred and eighty-one sites in seven different watersheds were included in the study. Applying the proposed *E. coli* standard would impair 15% more sites for water contact recreation than the Fecal Coliform standard. This indicates the proposed standard provides a higher level of protection from waterborne diseases for the citizens of Pennsylvania. Application of the new standard will not result in a significantly higher percentage of impaired waters.

Other changes will occur in Table 3 and Drainage List X (25 Pa. Code §93.9x), which provide further clarification. First, the Board would like to emphasize the PDOH bathing beach regulations at 28 Pa. Code §18.28, apply to all regulated beaches, statewide. Therefore, the Board is proposing to delete references to the PDOH regulations found in Drainage List X since they are not limited to Lake Erie. The Board also proposes to delete the language currently found in Drainage List X, which refers to the promulgated Federal regulations (40 CFR 131.41) pertaining to Lake Erie and Presque Isle beaches. These references to 40 CFR 131.41 and 28 Pa. Code §18.28, as *Exceptions to Specific Criteria*, are no longer necessary since the new proposed *E. coli* WC criterion in Bac₁ will be applied statewide, and the PDOH regulations already apply statewide.

Bac₁ is designed to be protective of activities involving water contact sports (WC). The Bac₁ criterion is systematically applied to all surface waters in the Commonwealth unless otherwise specified in other portions of Pennsylvania's water quality standards.

Historically, the Bac₂ criterion was originally implemented as a site-specific criterion to protect the potable water supply (PWS), where the WC use was removed and has always only been

implemented in these select waters. As such, Bac₂ is currently only applicable in the outer Erie Harbor and Presque Isle Bay; specifically, in the harbor area and central channel dredged and maintained by the United States Army Corps of Engineers. Therefore, the Board proposes to remove the Bac₂ criterion from Table 3, and insert this criterion in a new table in Drainage List X, Section 93.9x, where it only applies for Lake Erie waters.

While Bac₁ criteria were not derived to protect PWS use, Bac₁ should afford a better level of use protection to drinking water than would be offered by Bac₂ since Bac₁ is based on much lower concentrations of indicator organisms and Bac₁ is applicable to all waters statewide, where WC has not been removed.

The Board proposes that the current non-swimming season fecal coliform-based numerical criterion in Bac₁, which is a geometric mean maximum value of 2,000 cfu/100 mL be retained, and should continue to be applied statewide in all surface waters from October 1 to April 30. The U.S. EPA is currently conducting research in an attempt to develop criteria that will be protective of secondary contact recreation. When the U.S. EPA finalizes and recommends these new federal secondary contact recreational criteria, DEP will conduct a thorough review and evaluate whether the recommendations are appropriate for Pennsylvania.

Chloride Criteria: Elevated levels of chloride are toxic to aquatic life in freshwater environments. DEP has developed a chloride criterion that is intended to be applied in all freshwaters of the Commonwealth for the protection of aquatic life. The existing chloride criterion was developed primarily for the protection of PWS and is only applied at the point of water supply intake, pursuant to 25 Pa. Code § 96.3(d) (relating to water quality protection requirements). Therefore, it does not provide adequate protection to aquatic life.

The proposed criterion is based on current science that shows the water hardness and sulfate concentrations affect chloride toxicity to aquatic organisms. Freshwater lakes are dominated by the cations: Ca²⁺, Mg²⁺, K⁺ and Na⁺ and the anions HCO₃⁻, SO₄²⁻ and Cl⁻. Data obtained from stream surveys confirmed that Pennsylvania waters are calcium/bicarbonate dominant. Based on this information, chloride toxicity to freshwater organisms was evaluated using tests dosed with NaCl to ensure the effect concentrations were derived from tests where effects were based on the chloride anion, not the associated cations.

The Board had proposed updates to the chloride criteria in several earlier rulemakings, but withdrew those recommendations due to objections from commentators that suggested additional research was needed. The Board initiated a proposed rulemaking for the promulgation of the 1988 National aquatic life criteria for chloride at its March 16, 2010 meeting. The proposed aquatic life criteria (230 mg/l = chronic; 860 mg/l = acute) mirrored the National recommended aquatic life criteria that were published in February 1988 by the U.S. EPA in Ambient Water Quality Criteria for Chloride. That proposed rulemaking was published at 40 Pa.B. 2264 (May 1, 2010) with a comment period that closed on June 15, 2010. Based on comments received during the 2010 public comment period, DEP re-evaluated the science used in the determination of the chloride criterion successfully implemented by the Iowa Department of Natural Resources (IDNR), which was based on research conducted by U.S. EPA, along with the Great Lakes Environmental Center (GLEC) in Columbus, OH, and the Illinois Natural History Survey

(INHS) in Champaign, IL. That research demonstrated a strong correlation between chloride toxicity and hardness, and to a lesser degree, sulfates levels in water. The final results of this toxicity testing were published in the report "*Acute Toxicity of Chloride to Select Freshwater Invertebrates*," EPA, October 28, 2008. The Board then proposed a new equation-based criterion in 2012, which was published at 42 Pa.B. 4367 on July 7, 2012. This equation-based criterion was also later withdrawn because of requests for DEP to conduct further studies.

This proposed rulemaking reflects the results of the additional research and studies that were needed to support promulgation of chloride criteria for the protection of aquatic life. In response to these earlier rulemaking actions, DEP contracted with the Stroud Water Research Center, in Avondale, Pennsylvania to perform chloride toxicity testing. The study was designed to provide the additional information needed to support the development of a chloride criterion that is protective across the range of aquatic habitats and species found in Pennsylvania waters. Benthic macroinvertebrates were used in this eco-toxicity study of chloride because they are an ecologically important group of aquatic organisms and are common components of the Pennsylvania bio-monitoring multi-metrics used in standard water quality assessment protocols.

The following mayfly species were included in the study: *Neocloeon triangulifer*, previously classified as *Centropilum*, *Anafromtilum semirufum*, *Procloeon fragile*, *Ephemerella invaria*, *Maccaffertium modestum* and *Leptophlebia cupida*. All six species were evaluated for short-term (acute) exposures to chloride. Four species (*N. triangulifer*, *A. semirufum*, *P. fragile*, *M. modestum*) were subjected to a whole-life (chronic) toxicity test. The acute and chronic data obtained from the Stroud study was incorporated into the data set used to determine Pennsylvania-specific chloride criteria. The Stroud study was conducted in water from three Pennsylvania source water streams: Spruce Run, a soft water stream (hardness 6 mg/L) in Union County; House Run, a moderately hard water stream (hardness 94 mg/L) in Greene County; and Cedar Run, a hard water (hardness 212 mg/L) stream in Union County.

DEP staff has been monitoring sulfate and hardness levels at Water Quality Network (WQN) stations throughout Pennsylvania. These data confirm that Pennsylvania source waters have a varied amount of hardness and sulfate concentrations. The variation in the hardness and sulfate concentrations throughout the state confirms that it is appropriate to develop an equation-based criterion that includes a modification for hardness and sulfate. This relationship is incorporated into the newly developed equation used for calculating the acute and chronic numeric criteria for chloride in Pennsylvania waters.

Chlorides occur naturally in streams and are ubiquitous. Chloride concentrations were summarized using data from 2000 to 2015 at 240 fixed water quality sampling sites (WQN). The data is representative of all different types of streams found statewide. All WQN sites had chlorides present and the median was calculated for each site. The fiftieth percentile of these median concentrations was 13 mg/l and the ninetieth percentile was 44 mg/l. The median concentrations of hardness and sulfate are used to determine the criteria in the chloride equation. Hardness and sulfate concentrations occurred at all sites. The fiftieth percentile of the median sulfate concentrations calculated at each site was 18 mg/l and the ninetieth was 66 mg/l. The fiftieth percentile of the median site hardness concentrations was 50 mg/l and the ninetieth percentile was 167 mg/l.

At a hardness of 100 mg/l and sulfate of 10 mg/l, the chronic criterion is 246 mg/l. If the sulfate increases to 50 mg/l the chronic criterion is 218 mg/l, a decrease of 30 mg/l because hardness lessens the toxicity of chlorides but sulfate increases toxicity. Based on the sulfate and hardness at these WQN sites the chronic chloride criterion that would apply at each site was calculated. The median calculated chronic chloride criterion for the WQN sites was 216 mg/l. Ninety percent were less than 244 mg /l. Only ten percent had criterion less than 181 mg/l.

Discharges tend to locate on larger streams to get more dilution and these larger streams tend to have higher hardness levels. The Juniata River would have a chronic chloride criterion around 225 mg/l and the Lower Susquehanna around 211 mg/l. A stream flowing through limestone geology will have a higher hardness and hence higher criteria. The chronic chloride criterion for the Condoquent Creek would be 251 mg/l. Lower criteria are associated with low hardness streams such as Loyalsock Creek. The chronic chloride criterion there would be 181 mg/l.

A review of statewide WQN data for chloride collected since 2000 demonstrates that only one stream in western Pennsylvania (Whitely Creek) exceeds the proposed chloride criteria routinely. Several other streams have experienced episodic exceedances on occasion, most likely transient events associated with road de-icing.

In response to increasing concerns related to chloride and other dissolved solids in the Commonwealth's surface waters, the Department has instituted ongoing monitoring of all point sources with high chloride concentrations in their discharge. Also, chloride is routinely sampled at all indicator and reference WQN stations in Pennsylvania. WQN stations are located in key locations throughout the rivers and streams of this Commonwealth.

Point source discharges that contain very high concentrations of chloride may be affected by this rulemaking. The impact of the proposed criteria will depend to a large extent on site-specific factors, including comparison of the discharge flow to that of the receiving water, and the hardness and sulfate concentration of the receiving water. Typical municipal sewage plants do not contain very high concentrations of chloride and we do not expect that they will be affected by this rulemaking. Certain centralized wastewater treatment facilities that treat oil and natural gas wastewater and were exempted from the 25 Pa. Code Chapter 95 treatment requirements promulgated in 2010 would be affected, except that these facilities are all in the process of upgrading treatment to Chapter 95 standards. The treatment upgrades are sufficient to ensure that these facilities will not be impacted by the new chloride criterion. These treatment upgrades have been a direct result of documented impacts on aquatic life by DEP and the U.S. Fish and Wildlife Service (USFWS). These aquatic life impacts have demonstrated the need for the new chloride criteria.

Point sources that could be affected by this rulemaking include certain coal-fired power plants; primary metals processing facilities (electroplaters); landfill leachate discharges; oil stripper well discharges; and paper mills. Again, it is difficult to predict exactly to what extent facilities may be affected, since any impact will depend on the size, hardness, and sulfate content of the receiving water. Generally, point sources are likely to be affected only if they have very high concentrations of chloride in their discharge and discharge to a small stream where dilution and the associated assimilative capacity are limited. In some cases, the only action that may be

required is moving the discharge to allow for additional dilution in receiving waters. Municipal sewage plants receiving hauled-in or indirect discharges of industrial wastewater containing very high concentrations of chloride may have to discontinue receiving those hauled-in wastes, or otherwise require the indirect discharges to reduce their chloride loading. Certain minor discharges, such as reverse osmosis reject water, could possibly be affected if the receiving water is very small. Elevated chloride in stormwater runoff associated with salt distribution piles may require additional best management practices to reduce the chloride contamination of the stormwater runoff.

Overall, with respect to the proposed chloride criteria there is no potential for systematic or widespread impacts. Based on ambient WQN data, the concentrations of chloride in our major rivers and streams is well below the proposed chloride criteria such that large amounts of assimilative capacity are available generally. Consequently, there is no potential for watershed-wide impacts or impairments in major watersheds. Chloride is a conservative substance that will ultimately end up in the ocean where very high chloride concentrations (19,000+ mg/L) are natural. Managing the chloride load and concentration in freshwater is largely a matter of ensuring that existing and future sources do not concentrate too much chloride in one localized surface water segment -- for example, a small stream. The Department expects to be able to accomplish this task with no impact on the great majority of point sources.

Based on the pollutant profile of chloride, high concentrations of chloride in surface waters generally are localized and highly associated with individual point sources of chloride. Therefore, where remedial action may be required to protect aquatic life, that action generally will be localized and only one or two point sources will be affected.

Although chloride generally is associated with point sources, road de-icing activities during the cold weather months constitute a large nonpoint source of chloride. De-icing activities on roads, parking lots, and sidewalks may cause temporary excursions of the chloride criteria. These de-icing activities are essential to protecting public health and safety, and several factors mitigate the possible impacts on water quality. Flows in rivers and streams during the cold weather months generally are higher than in the warm weather months, such that more assimilative capacity is available. Runoff of chloride from roads is short-term, and any associated stress on aquatic life is also short term. PENNDOT and municipalities already have greatly improved their methods of assuring that only the necessary amounts of road de-icing materials are applied. When appropriate, DEP will work with all stakeholders that apply de-icing materials to implement best management practices designed to minimize the frequency and magnitude of any episodic criteria exceedances. DEP will prioritize public safety needs when assessing short term, episodic chlorine runoff events.

Some concern has been raised by the USFWS that the proposed statewide criterion for chloride may not be protective of certain threatened and endangered (T&E) species found in some Pennsylvania streams (please refer to the discussion above on freshwater unionid mussels). As stated, the Board is proposing a statewide criterion for chlorides in this rule. There may be specific streams with habitats critical to these mussels, which are not native statewide, at which the statewide criterion needs to be more stringent than the statewide numeric value. These types of exceptions to statewide criteria would normally be included in Pennsylvania's water quality

standards in §93.9. DEP is awaiting the results of the latest study by USFWS and the United States Geological Survey (USGS). In the interim, DEP is reviewing permit applications for facilities or activities that may impact these T&E species by employing narrative criteria on a site-specific basis, aimed at protecting the most sensitive species in those known habitats.

The Board is recommending that this statewide chloride criterion be applied in all waters for the protection of aquatic life.

§ 93.8a. Toxic substances.

The Board proposes to delete reference to Appendix A, Table 1A in § 93.8a(b), since Table 1A is being deleted in 25 Pa. Code Chapter 16. DEP will now maintain an on-line table of site-specific human health and aquatic life criteria that have been recently developed or adopted by DEP based on approved methodologies and the best scientific information currently available. It should be noted that a similar update is being made in § 93.8c(a) (relating to human health and aquatic life criteria for toxic substances). Also it will be noted, in § 93.8a(b), that the approved analytical procedures and detection limits for these substances will be listed in Chapter 16, as appropriate.

The Board also proposes to delete, in § 93.3a(j)(3) (relating to antidegradation requirements for the Great Lakes System), reference to the Federal regulation in 40 CFR 131.32(a) since this federal promulgation had been removed by U.S. EPA. This reference is no longer needed, but its removal from this section was missed during the previous triennial review.

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

The Board proposes to clarify, in § 93.8c(a), that, for those aquatic life criteria that are a function of local water quality conditions and are specified as a formula, such as several of the heavy metals, the hardness and pH values used to derive the appropriate water quality criteria shall be determined by instream measurements or best estimates, representative of the median concentrations or conditions of the receiving stream for the applicable time period and design conditions.

The Board proposes to delete the current prohibition, in § 93.8c(b), and clarify that criteria in Table 5 may apply to the Great Lakes System for those substances not listed in Table 6.

The Board is proposing additions and revisions to the human health and aquatic life criteria contained in Table 5. Water quality criteria are to be based solely on the best available scientific data and scientific judgments on pollutant concentrations and their effects on human health or aquatic life. The criteria are tools used to calculate discharge limits in the NPDES program, and to support other pollution control efforts. The criteria in Table 5 have been updated to reflect the latest scientific information and implementation of existing U.S. EPA policies found in the Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health – (EPA-822-B-00-004, October 2000). These updates include new scientifically-based exposure factors for body weight (80 kg), drinking water consumption rate (2.4 liters per day) and fish consumption rate (22.0 kg per day).

On June 29, 2015, U.S. EPA announced (80 FR 36986) the final updates recommended for ninety-four pollutants. In addition to the updated exposure factors, U.S. EPA has determined pollutant-specific bioaccumulation factors and has updated available toxicity values using the data from the U.S. EPA Integrated Risk Information System (IRIS) as the primary source. DEP has reviewed the national recommendations and has determined the criteria are scientifically sound and applicable for the protection of Pennsylvania waters. The document can be accessed at <https://www.epa.gov/sites/production/files/2015-10/documents/human-health-2015-update-factsheet.pdf>.

Below are compounds that have been recommended by U.S. EPA since the completion of Pennsylvania's previous triennial review, which was finalized in August, 2013. This list contains new criteria to protect human health from toxic substances that currently are not in regulation in Table 5.

Summary of Table 5 Proposed Criteria

After a thorough review of the 94 individual recommended criteria updates, the Board is proposing to adopt the updated criteria for 73 compounds, and add 11 new human health compounds to Table 5. There are 10 U.S. EPA recommended criteria that are the same as the criteria currently in Table 5, and therefore no change is recommended for these criteria.

The Board proposes the following toxic pollutants be added to the water quality criteria for toxic substances in Table 5. The Board will also clarify which pollutants in Table 5 have human health criteria that are still based on the exposure inputs of 2 liters per day of drinking water and consumption of 22 grams of fish per day, for protection of a 70 Kg person. The regulations will also indicate which of the criteria were developed by DEP (D) or by U.S. EPA (E), for those pollutants in Table 5 without a Priority Pollutant Number (PPO NO).

1,1,1-Trichloroethane (TCE) – Currently, there are acute (3000 ug/L) and chronic (800 ug/L) aquatic life criteria for 1,1,1-TCE in Table 5, but no human health criterion for TCE. The U.S. EPA-recommended human health criterion is 10000 ug/L. Ingestion of drinking water is a potentially significant source of exposure to 1,1,1-trichloroethane. Inputs used to derive the 2015 updated human health AWQC are protective of exposure to 1,1,1-trichloroethane from consuming drinking water and eating fish and shellfish (organisms) from inland and near shore waters.

1,2-Dichloropropane - is classified as Group B2, "probable human carcinogen," under the 1986 U.S. EPA *Guidelines for Carcinogen Risk Assessment*. The major source of 1,2-dichloropropane in drinking water is discharge from industrial chemical factories. It may be released into the atmosphere or in wastewater during its production or use as an intermediate in chemical manufacture. There were also significant releases during its former use as a soil fumigant. It may also leach from municipal landfills. There are currently acute (11000 ug/L) and chronic (2200 ug/L) aquatic life criteria in Table 5. The U.S. EPA recommended cancer risk level (CRL) is 0.9 ug/L.

1,2,4,5-Tetrachlorobenzene – was historically used as an insecticide, an intermediate in the production of herbicides and defoliants, and a component of dielectric fluids. Currently, 1,2,4,5-tetrachlorobenzene is not registered for use as a pesticide. The general population could be exposed to 1,2,4,5-tetrachlorobenzene via inhalation of ambient air and drinking water. U.S. EPA is recommending a human health criterion of 0.03 ug/L.

2,4,5-Trichlorophenol – was once registered as an antimicrobial by U.S. EPA, but is not currently a registered pesticide. Chlorophenols can be formed when water containing humic substances is treated with chlorine and has a pH ranging from 7 to 8. The general population could be exposed to chlorophenols through ingestion of water and food contaminated with the compounds as well as inhalation of contaminated air. 2,4,5-Trichlorophenol has been detected in fish. The U.S. EPA recommended human health criterion is 300 ug/L.

3-Methyl-4-chlorophenol – is used as a disinfectant and a preservative in the United States. It also is registered in the United States as an antimicrobial pesticide and is currently in the re-registration process by U.S. EPA. Exposure of the general population to the chemical might occur through inhalation and dermal contact. The U.S. EPA is recommending a human health criterion of 500 ug/L.

Methoxychlor – is an insecticide that is no longer produced or used in the United States. Prior to its cancellation as an approved pesticide, the chemical was detected in fish from the Great Lakes at levels ranging from 10 to 120 go/kg wet weight. It also was detected in several species of migratory fish in Great Lakes tributaries at concentrations up to 1.4 µg/kg. In U.S. EPA's National Lake Fish Tissue Study, the chemical was detected in 1–5 percent (i.e., 9 of 468) of the predator fillets (at a maximum concentration of 370 ppb) and 5.8 percent (i.e., 23 of 395) of the bottom-dweller whole body fish samples (at a maximum concentration of 107 ppb). Thus, based on available exposure information and its high potential to bioaccumulate, ingestion of fish and shellfish is a potentially significant source of exposure to methoxychlor. The U.S. EPA recommended human health criterion is 0.02 ug/L.

Chlorophenoxy Herbicide (2,4-D) – is a herbicide used to control broad-leaved weeds in cereals, grain crops, road sides, and farm buildings. 2,4-D is currently registered as a pesticide by U.S. EPA. Human exposure to 2,4-D might occur through inhalation and ingestion of food and water. The primary exposure routes for the general public are through food residues and water ingestion. Based on its low potential for bioaccumulation, exposure to this chemical from ingestion of fish and shellfish is not considered likely. Because of the lack of data in fish and shellfish, U.S. EPA has not established bioaccumulation factors (BAFs) according to trophic levels. 2,4-D is calculated with a total BAF of 13 L/kg. U.S. EPA's recommended criterion is rounded from 1371 ug/L to 1300 ug/L. DEP disagrees with this rounding and the criterion will be rounded up to 1400 ug/L.

Chlorophenoxy Herbicide (2,4,5-TP) – is an herbicide that is no longer used in the United States. This herbicide was formerly used to control woody plants, broadleaf herbaceous weeds, and aquatic weeds. Cancellation of all registered uses in the United States was put into effect on January 2, 1985. Prior to cancellation of 2,4,5-TP, research surveys detected the chemical in large fruit samples and dairy products. Recent monitoring information on 2,4,5-TP in imported

foods could not be identified. Based on the available exposure information for 2,4,5-TP, and given that the chemical is no longer produced or used in the United States, U.S. EPA does not anticipate that there will be significant sources and routes of exposure of 2,4,5-TP other than fish and shellfish from inland and nearshore waters and water ingestion. U.S. EPA is recommending a human health criterion of 100 ug/L.

Hexachlorocyclohexane (HCH)-technical – is classified as Group B2, “probable human carcinogen”. U.S. EPA is recommending a cancer risk level (CRL) of 0.0066 ug/L.

Pentachlorobenzene – is generated as a by-product in a variety of industrial processes, such as solid waste incineration and combustion of coal. Air is likely the primary source by which the general population is exposed to pentachlorobenzene; however, water and food ingestion might also be significant. Based on the physical properties and available exposure information for pentachlorobenzene, air, fish and shellfish are potentially significant sources. U.S. EPA is recommending a human health criterion of 0.1 ug/L.

Dinitrophenols – The inputs used to calculate the criterion for dinitrophenols are identical to the inputs used to calculate 2,4-Dinitrophenol. The criterion for Dinitrophenols will be protective for all forms of dinitrophenols. (2,4-; 2,5-; and 2,6-dinitrophenol). The U.S. EPA recommended criterion for dinitrophenols is 10 ug/L.

Nonylphenol – Chapter 93 currently includes criteria for nonylphenol, which are based on guidance provided by U.S. EPA. U.S. EPA took no action, to approve or disapprove this criterion as part of the previous triennial review. Like Chlorides, concern has been raised by USFWS that the proposed statewide criterion for Nonylphenol may not be protective of certain threatened and endangered (T&E) species found in some Pennsylvania streams (please refer to the discussion above on freshwater unionid mussels). It is for this reason that U.S. EPA did not approve Pennsylvania’s final statewide criterion, which was based on U.S. EPA’s own national recommendation. Without final approval, DEP may not use the Nonylphenol standard, as a statewide criterion, to implement the Federal Clean Water Act. This triennial review retains the existing statewide water quality criterion for Nonylphenol and DEP will, again, submit the criterion to U.S. EPA for approval. Until such time as U.S. EPA approves the criterion, DEP will use site-specific water quality criteria as applicable.

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

The Board proposes to add, to §93.8d(c), that DEP may require the use of the Biotic Ligand Model (BLM) for the development of new or updated site-specific criteria for copper in freshwater systems.

The Board also proposes to clarify, in §93.8d(f)(2) that DEP has developed a new on-line resource to maintain a publicly available list of site-specific criteria that have been developed, and are being used by DEP in permitting and other pollution control measures. This list will be routinely updated as new criteria are developed or other applications and implementation of existing site-specific criteria are added.

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

As indicated previously, the Board proposes to clarify that, for any pollutant not listed in Table 6, criteria in Table 5 may be used to protect existing and designated uses in the Great Lakes System, or that criteria will be developed by DEP, as needed, in accordance with this chapter, and the methods described in Chapter 16.

Corrections to Drainage Lists – Sections 93.9a – 93.9z

The following changes to the drainage lists are proposed by the Board to clarify stream names and segment boundaries and designations.

The Board is proposing to consolidate and reformat several drainage lists to address the continual changes and updates occurring to the National Hydrography Dataset (NHD) flowline.

The NHD flowline forms the basis of DEP's Designated and Existing Use Geographic Information System (GIS) layers. The NHD flowline is established using the United States Geological Survey (USGS) Geographic Names Information System (GNIS) which is the federal and national standard for geographic nomenclature. As such, DEP strives to maintain consistency with the GNIS database and the NHD flowline.

DEP routinely receives communications, both internal and external to the agency, concerning streams that appear to be missing from Chapter 93. Often, these streams were considered unnamed at the time the drainage list was established and therefore were captured under "unnamed tributaries" entries. These streams currently have a designated use even though they do not appear as named entries in Chapter 93. In contrast, there are a number of named tributaries in Chapter 93 which are not currently recognized by the USGS and therefore are not represented by the NHD flowline. These may be unofficial local names. Consolidation within drainage lists will greatly reduce these issues.

In many parts of the drainage lists, the current format consists of a main stem entry for a stream, followed by unnamed tributaries to that stream and then individually named tributaries within the basin. Often, most of the tributaries, both named and unnamed, have the same designated use. In some cases, an entire basin is the same designated use except for a few streams. Large stream basins may take up several pages within a drainage list and can be difficult for individuals to navigate and understand. Reformatting such large basins to consolidate portions of the code that have the same designated use enables readers to view that entire basin within a page or two. In addition, a condensed drainage list reduces the likelihood that errors will occur in transcription of the code during rulemaking procedures. DEP currently has several GIS mapping tools available, including eMapPA and WAVE, to assist staff as well as members of the public and the regulated community in locating streams within Pennsylvania, and should be used in conjunction with the Pennsylvania Code and other available online mapping resources to determine official designated uses.

In addition, all river mile indexes (RMIs) in the drainage lists (Sections 93.9a to 93.9z) that are included in this triennial review will be converted to (x,y) coordinates – latitude and

longitude. All of these conversions of RMIs in all of the drainage lists will not be included in this rulemaking package. Going forward, whenever changes are proposed to the Pennsylvania Code, associated RMIs will be converted to latitude and longitude. Eventually all reference to RMIs in Sections 93.9a to 93.9z will be converted to latitude and longitude. The following additional proposed corrections do not change the current stream use designations, and only serve as clarifications and corrections:

Section 93.9b. Drainage List B.

A clarification is proposed for Section 93.9b. Currently, there are two entries in the code for the Lackawaxen River. However, the entire mainstem Lackawaxen River is designated HQ-TSF, MF (high quality-trout stocked fishes, migratory fishes) from its origin at the confluence of West Branch Lackawaxen River and Van Auken Creek downstream to where it enters the Delaware River. It is recommended that the mainstem be covered by a single entry.

Section 93.9c. Drainage List C.

The Board proposes to clarify Chapter 93.9c. This will eliminate the confusion associated with two named tributaries to the Delaware River that are currently included under two separate entries for "unnamed tributaries". Spackmans Creek and Mill Creek will each be given their own entry which identifies them as tributaries to the Delaware River.

Section 93.9d. Drainage List D.

This correction to Section 93.9d will reformat the Tobyhanna Creek basin to eliminate any issues associated with named tributaries in the basin that are currently included under an "unnamed tributaries" entry.

The proposed correction will replace a bridge reference in the zone description for the Lehigh River. The correction will replace the PA 903 bridge with GIS coordinates. The Division of Water Quality Standards was notified that the PA 903 bridge was being relocated 1000' upstream as part of a bridge replacement project.

The stream nomenclature for the Mauch Chunk Creek basin is being corrected to be consistent with the NHD Flowline. Accordingly, White Bear Creek forms the headwaters of this basin. White Bear Creek enters into Mauch Chunk Lake. Mauch Chunk Creek begins at the outlet of Mauch Chunk Lake. In addition, Beaverdam Run is being corrected to Beaver Run.

The proposed correction to the Jordan Creek basin will eliminate any confusion associated with named tributaries to Jordan Creek that are currently included under entries for "unnamed tributaries."

Section 93.9e. Drainage List E.

Proposed corrections to Section 93.9e will eliminate the confusion associated with named tributaries in the Delaware River basin that are included under the current listing of "unnamed tributaries". Rodges Run, Falls Creek, Swamp Creek, Smithtown Creek, and Biles Creek will be inserted into the Drainage List. DEP gained knowledge that these tributaries had been officially named subsequent to the inclusion of these streams under the listing of unnamed tributaries in Section 93.9e.

Section 93.9f. Drainage List F.

The proposed change will correct the hydrological order for Plum Creek and replace the RM reference with GIS coordinates. Plum Creek is a tributary to Tulpehocken Creek in Drainage List F and should have a 4 for hydrological order rather than a 5. Unnamed Tributary to Plum Creek at RM 0.45 should have a 5 for hydrological order rather than a 6.

The Manatawny Creek basin is being reformatted to be consistent with the NHD flowline and historical rulemakings. The corrections also clarify that the confluence of Pine Creek and Bieber Creek forms the Manatawny Creek basin.

Proposed corrections to Section 93.9f will eliminate the confusion associated with named tributaries in the Perkiomen Creek basin that are included under the current listing of “unnamed tributaries.” The Perkiomen Creek basin is being reformatted to incorporate Molasses Creek and Donny Brook.

Section 93.9g. Drainage List G.

The Board is proposing changes that will restore the correct designated use, as described in a rulemaking that was published as a final rule in 1985, to the waters described as “Goose Creek basin.” According to the current NHD Flowline, the zone (referred to in the 1985 rulemaking as Goose Creek basin) that was redesignated in 1985 is currently described as the Chester Creek basin from the source to East Branch Chester Creek. The 1985 WQS Triennial Review (proposed rulemaking published at 14 Pa.B. 3473 (September 22, 1984); final rulemaking at 15 Pa.B. 544 (February 16, 1985)) redesignated “Goose Creek” from TSF (trout stocked fishes) to WWF (warm water fishes). The Preamble for this rulemaking describes “Goose Creek” as originating in West Goshen Township, Chester County, Pennsylvania and flowing southeastward for approximately 5 miles to its confluence with East Branch Chester Creek. The “Goose Creek” drainage area includes portions of West Chester Borough and West Goshen, Westtown, and Thornbury Townships in Chester County and a small portion of Thornbury Township, Delaware County. The West Goshen sewage treatment plant also discharges to Goose Creek. The Corrections Package (proposed publication at August 3, 1996 (26 Pa.B. 3637); final publication at June 28, 1997 (27 Pa.B. 3050)) changed the reference in section 93.9 G from Goose Creek to Unnamed Tributary to East Branch Chester Creek at RM 0.4 (“Goose Creek”). This change was made erroneously. The 1996 Preamble stated that “*Goose Creek is not found on topos or in Gazetteer of Streams, and is a local name for an UNT (#00605, near State Rt 92*”. This change was wrong because it directly contradicts the description for Goose Creek in the Preamble of the 1985 WQS Triennial Review. Because of this change, the section that is WWF was actually switched to a different stream in the Chester Creek basin. The Blue Eye Run Package was published as a proposed rulemaking at June 20, 2009 (39 Pa.B. 3043) and the final rulemaking was published at April 3, 2010 (40 Pa.B. 1734). DEP replaced the stream name listing for UNT 00605 to East Branch Chester Creek at RM 0.4 (“Goose Creek”) with Westtown Run. This change was done to be consistent with an electronic topographical GIS map layer that named this stream Westtown Run. Westtown Run is also named as such in the 1997 topo quad. Westtown Run is not labelled on the 2010 or 2013 topo quad. Westtown Run is not named as such on the NHD Flowline. According to Chapter 93.9G, Westtown Run (stream code 00605) is currently designated WWF, MF but it should be TSF, MF.

Clarifying language is being proposed for two zone descriptions in the East Branch Brandywine Creek basin to indicate that the unnamed tributaries with mouths within East Brandywine and Uwchlan Townships are included in the HQ-TSF designation.

The Board proposes to insert the correct name for Stoney Creek. It currently appears in Section 93.9g as Stony Creek.

The Brandywine Creek basin is being reformatted to incorporate several named tributaries including Craigs Mill Run, Wilson Run, and Beaver Creek.

Section 93.9j. Drainage List J.

A clarification is proposed to Section 93.9j. Additional language is being added to the zone description for Roaring Brook to indicate that the downstream limit of the special protection portion of the basin does not include the Elmhurst Reservoir.

Section 93.9k. Drainage List K.

Newport Creek was inadvertently omitted from the code during a 1978-1979 rulemaking which reformatted a portion of Section 93.9k. The Board is proposing to correct this omission by inserting Newport Creek as a named tributary to the Susquehanna River.

Section 93.9l Drainage List L.

The Board proposes to reformat the entire drainage list to eliminate the confusion associated with named tributaries in the West Branch Susquehanna River basin that are included under current listings of “unnamed tributaries”, correct a number of misspelled streams and remove named tributaries that are, in fact, unnamed tributaries according to the GNIS database.

Section 93.9l is being updated to reflect the current NHD flowline for the headwaters of the Marsh Creek basin. The headwaters of the Marsh Creek basin originate from the confluence of Charleston Creek and Morris Branch, of which, Kelsey Creek is a tributary. Chapter 93 currently lists Charleston and Kelsey as tributaries to Marsh Creek.

Corrections are being proposed to the headwaters of Logan Branch within Bald Eagle Creek basin. Historically, UNT 23007 was considered to be a tributary to the Logan Branch (Stream Code 22997) and is currently listed as such in Section 93.9l. However, according to the NHD flowline, the headwaters of the Logan Branch is stream code 23007 and a portion of stream code 22997 from the source to confluence with 23007 is depicted as the unnamed tributary to Logan Branch. Due to the fact that the remaining portion of 22997 is still considered to be Logan Branch, UNT 23007 is being replaced with the following entry format: “Tributary at X;Y”. This format should eliminate any confusion associated with using the 5-digit stream code.

Section 93.9m. Drainage List M.

Designated uses for the lower portions of Bowersox Run and Erb Run are currently missing from Section 93.9m. Presently, Chapter 93 only lists designated use information for each stream from its source to FAS (Federal Aid Secondary Highway) 690. Bowersox and Erb are not currently recognized by GNIS as the official names of these tributaries; therefore, the names will be replaced in section 93.9m with UNT 17823 (locally known as Bowersox Run) and UNT 17821

(locally known as Erb Run). These streams were included in Comprehensive Water Quality Management Program (COWAMP) Area 6. DER published a notice of recommended revisions to Water Quality Criteria on March 4, 1978 (8 Pa.B. 511) and solicited written testimony until May 18, 1978. According to the summary of public comments received by DER (dated December 5, 1978), numerous recommendations were received to designate specific waters used for public water supply as either Exceptional Value (EV) or High Quality (HQ) waters. The headwaters of Bowersox Run and Erb Run were recommended for upgrade to EV. DER did not agree with the EV recommendation, but it did agree that the water supply segments of those waters deserved a HQ designation. Bowersox Run and Erb Run, which did not appear as named tributaries in the March 4, 1978 notice, were included as named tributaries to Middle Creek in the proposed rulemaking published on December 23, 1978 (8 Pa.B. 3665). However, only the upper HQ portions of the basin were included in the proposed rule. The lower portions of the basins from FAS 690 to the mouths were inadvertently omitted. This omission was carried over into the final rulemaking published September 8, 1979 (9 Pa.B. 3051). At the time of the March 4, 1978 publication, these streams were considered to be unnamed tributaries to Middle Creek and therefore carried a CWF designated use. The appropriate designated use for the lower portions of these two streams is currently CWF. The proposed changes will add entries for both streams for the lower segments to their mouths. The zone descriptions for the upper portions are also being updated for clarification purposes by replacing FAS 690 with T3008 (Paxtonville Road.)

Section 93.9n. Drainage List N.

The Board proposes to reformat the West Branch Juniata River basin in Section 93.9n to eliminate the confusion associated with named tributaries to the Raystown Branch of the Juniata River that are included under current listings of “unnamed tributaries.”

Section 93.9o. Drainage List O.

The Board proposes to correct an omission that occurred during the 1978-1979 rulemaking. Trout Run originates in Perry County, flows through a small portion of western Cumberland County and eventually enters the Conodoguinet Creek in Franklin County. The March 1978 proposed rulemaking (8 Pa.B. 511) lists the entire Trout Run basin as a conservation area. It also lists the Trout Run basin from the source to the water supply dam as a wilderness trout stream. The September 1979 final rulemaking (9 Pa.B. 3051) designates the Trout Run basin from the source to the water supply dam as EV. The portion of Trout Run basin which lies downstream of the dam should have been designated as HQ, but it was inadvertently omitted from Chapter 93 and has continued to be missing.

During the previous triennial review, the Board deleted DO4 from the Water Quality Standards. This standard applied to HQ-CWF streams. Since the criteria for HQ streams is based on the maintenance of existing water quality, the DO criterion for HQ-CWF streams was in contradiction to the expectation that existing quality will be protected and maintained for all High Quality streams. Chapter 93 no longer contains a DO4 criterion. However, Section 93.9o contains one exception to the criteria that references DO4, which is the Yellow Breeches Creek, main stem from LR 21012 to Mouth. The DO exception for the lower portion of the Yellow Breeches has appeared in the code since at least 1968 to protect the world-renowned trout fishery that exists in this stream. The Board recommends removing the reference to DO4 and replacing it

with equivalent language (DO = 7.0 mg/L, June 1 to Sept. 30). Since the DO1 standard was also updated during the previous triennial review to a value more protective than 7.0 mg/L during October 1 to May 31, the more protective standard of DO1 should be in place during that time period. Therefore, DO=7.0 mg/L will only apply during the time period stipulated to ensure the maximum level of protection.

Bow Creek and Boyds Run are being added to Section 93.9o as named tributaries. Bow Creek is a tributary to Swatara Creek. Boyds Run is a tributary to the Susquehanna River.

The Board is proposing corrections to the headwaters of Muddy Creek to be consistent with the NHD flowline. UNT 07784 is now the main stem of Muddy Creek and designated WWF. It was previously recognized by DEP as a tributary to Muddy Creek. The headwaters of Muddy Creek are now considered to be an unnamed tributary to Muddy Creek and designated TSF. No changes are being made to the designated uses of these streams as a result of these corrections. The stream segment protected for WWF will continue to be protected at that level, and the stream segment protected for TSF will continue to be protected for TSF.

In Section 93.9o, the Board proposes to relocate several misplaced stream entries in the Pequea Creek basin. These unnamed tributaries were referred to by river mile index and were inserted incorrectly into the drainage list. River mile index references will be removed from the entries and replaced with UNT 07451 and UNT 07452 and moved to their proper location within the code.

The Board is proposing a clarification to the zone description for the headwaters of Black Run to ensure that it is consistent with the NHD Flowline and the actual fluvial geomorphology while accurately portraying what was set forth in the Cooks Creek Package. DER's 1989 special protection report indicates "segments of Black Run flowing through Nottingham Park (basin upstream of confluence with UNT 07007)" should be redesignated EV. The mouth of UNT 07006 was originally described as being downstream of the mouth of 07007 through reference to river mile. At the time of the Cooks Creek Package, the stream directory confirmed that 07006 was downstream from 07007. Since the Cooks Creek Package, road work in the area caused movement of the mouth of the stream and the NHD Flowline now depicts 07006 as entering Black Run upstream of 07007 at RM 2.50. The correction will replace "RM 2.50" with UNT 07006.

Reynolds Run was designated as a conservation area in 1973 and thus received a designated use of HQ-CWF in the 1979 final rulemaking. Several streams in the area including Reynolds Run were subsequently re-evaluated in 1989. An October 1989 stream report produced by the DEP showed that the streams were largely affected by agriculture and were actually supporting warm-water biota. The report recommended that McCreary Run and Reynolds Run be redesignated as HQ-TSF. The streams were approved for redesignation in the Cooks Creek Package (21 Pa.B. 5511; Nov. 30, 1991.) At that time, Chapter 93 was changed to reflect the redesignation to HQ-TSF; however, a duplicate entry for Reynolds Run was also inadvertently introduced at that time. During a later rulemaking package in 1997, the duplicate entry was removed, but the designation for Reynolds Run was also changed back to HQ-CWF. Since there is no known data or reports to suggest that Reynolds Run was achieving a use of HQ-CWF at that time, it is being viewed as

an error in the code. The Board is proposing to restore the intended designation of HQ-TSF for Reynolds Run.

Section 93.9p. Drainage List P.

The entire drainage list is being reformatted to eliminate the confusion associated with named tributaries in the Allegheny River basin that are included under current listings of “unnamed tributaries” and remove named tributaries that are, in fact, unnamed tributaries according to the GNIS database.

The proposed correction to Dingman Run will remove the zone description “Main Stem” and restore it to “Basin.” Dingman Run was a place holder in the code during a previous rulemaking package (French Creek Package) to change the entry above it, which is Mill Creek. During the rulemaking process, Dingman Run erroneously picked up “Main Stem” as the zone description.

Duplicate entries for Tunungwant Creek and McCrea Run were removed from Section 93.9p.

Section 93.9q. Drainage List Q.

The entire drainage list is being reformatted to eliminate the confusion associated with named tributaries in the Allegheny River basin that are included under current listings of “unnamed tributaries” and remove named tributaries that are, in fact, unnamed tributaries according to the GNIS database.

The Board proposes to update the stream listing to include the correct name for Minister Creek. The stream is currently and incorrectly referred to as Minister Run.

Section 93.9r. Drainage List R.

The entire drainage list is being reformatted to eliminate the confusion associated with named tributaries in the Clarion River basin that are included under current listings of “unnamed tributaries” and remove named tributaries that are, in fact, unnamed tributaries according to the GNIS database.

The Board is proposing to delete an erroneous entry for Mill Run and to update the stream listing to include the correct name for Cathers Run. The stream is currently and incorrectly referred to as Cather Run.

According to the GNIS database, Lost Run is not registered as an official name for stream code 50397. Lost Run will be replaced with UNT 50397.

Section 93.9s. Drainage List S.

In Section 93.9s, the Board proposes to update the stream listing to include several named tributaries to Mahoning Creek including Jackson Run, Hamilton Run, Cave Run, and Graffius Run. These four streams were previously unnamed tributaries. Wiskey Creek, which is a named tributary to the Allegheny River, is also being added to the drainage list.

The proposed correction to the Cowanshannock Creek basin will remove “Unnamed” from the entry “Unnamed Tributaries to Cowanshannock Creek; Basins, Huskins Run to Mouth” to

incorporate several named tributaries that currently do not appear in the code (Spra Run, Mill Run and Long Run.)

Section 93.9t. Drainage List T.

In Section 93.9t, the Board proposes to update the stream listing to include several named tributaries that currently do not appear in the code including Hoffman Run, Kaufman Run and Hillside Run.

According to the GNIS database and the NHD flowline, Trout Run is not a direct tributary to the Little Conemaugh River. It is a tributary to Kane Run, which is a tributary to the Little Conemaugh. The proposed correction will remove Trout Run and insert Kane Run.

Section 93.9v. Drainage List V.

In Section 93.9v, the Board proposes to update the stream listing to include several named tributaries that currently do not appear in the code including Miller Run, Rice Run, Parsons Run and Lost Run.

Section 93.9w. Drainage List W.

The Board proposes to correct a misspelling for Shenango River in the fourth entry for unnamed tributaries to the Shenango River.

Section 93.9x. Drainage List X.

The Board proposes to update the stream listing to include the Bac₂ Bacteria criterion, which, until this rulemaking has been located in Table 3, Section 93.7. There has been confusion that the Bac₂ criterion should be applied statewide since this criterion was in Table 3 and the Critical Use is identified as PWS, which is listed as a statewide water use in Table 2. DEP's investigation has shown that the current-day Bac₂ was developed and implemented as a site-specific criterion (originally identified as f₂ in the Sanitary Water Board criteria). Dating back to the adoption of Article 301 Water Quality Criteria by the Sanitary Water Board in 1967, this criterion had been applied as an exception to select waters where water contact sport (WCS – 3.3) was removed. Originally, this coliform-based criterion applied to specific zones of the Delaware Estuary or several tributaries, and to portions of Erie Harbor and Presque Isle Bay. As a result of rulemakings through 1979 the references to Bac₂ in the lower Delaware and these tributaries was replaced by specific criteria adopted by the Delaware River Basin Commission. Therefore, since 1979 Bac₂ has exclusively only applied to the Lake Erie (Outer Erie Harbor and Presque Isle Bay) waters in the Harbor area and central channel dredged and maintained by United States Army Corps of Engineers. These proposed updates should provide that clarification.

Section 93.9z. Drainage List Z.

In Section 93.9z, the Board proposes to update the stream listing to include Thompson Run, which is a named tributary to Wills Creek that is presently not listed in Section 93.9z.

Exceptions for Fishable/Swimmable Waters

Part of the triennial review requires that states reexamine water body segments that do not meet the fishable or swimmable uses specified in Section 101(a)(2) of the Federal Clean Water Act.

DEP 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 Analysis (UAA) study conducted by DER 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 DER 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 its regulations for 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) of Pennsylvania's water quality standards regulations 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.

In addition, limited uses for Zones 3, 4, and upper Zone 5 of the Delaware Estuary basin were also incorporated into Sections 93.9e and 93.9g (Drainage Lists E and G), which also dates back to the original Article 301 Water Quality Criteria that were added to the Sanitary Water Board's Rules and Regulations in 1967. . These are described in Sections 93.9e and 93.9g (Drainage Lists E and G) as WWF (Maintenance Only) and MF (Passage Only) for tidal portions of the basin, from river mile 108.4 to the PA-DE State Border. The current designated uses within these Zones do not include propagation, and thus refer to DRBC's standards which were developed to protect fish maintenance and passage only.

Recent data and observations, however, suggest recovery is occurring in propagation for some species in portions of these Zones. Therefore, DRBC initiated an evaluation of available data for resident and anadromous fishes collected since 2000, in an attempt to quantify spawning and early life stages, and the extent of successful reproduction for estuarine species.

Although this review continues, DRBC found that, for all 9 fish species evaluated - Atlantic Sturgeon, American Shad, Striped Bass, White Perch, Bay Anchovy, Atlantic Silverside, Alewife, Blueback Herring, and Atlantic Menhaden - successful reproduction was clearly demonstrated in one or more of the compromised estuary zones. In addition, moderate to strong reproduction was demonstrated for multiple species in each zone indicating substantial recovery in the propagation use for Zones 3, 4, and upper Zone 5. Weak and inconsistent spawning by Atlantic Sturgeon, and limited spatial recovery in spawning and rearing by American Shad and Striped Bass, suggested that full restoration of the propagation use is not supported by the current available data for these species. It should be recognized that the demonstrated recovery in the

propagation use for these Zones has occurred under the long-term implementation of the current criteria.

DEP continues to work in cooperation with the DRBC, U.S. EPA, and other DRBC signatory states to determine the appropriate criteria that should apply in the lower Delaware River and Delaware Estuary. The parties continue to work to prepare a resolution describing the Commission's next steps for improving the recovery taking place in the lower river and estuary. The parties remain committed to enhancing the lower Delaware River and Delaware Estuary. Toward that end, the Board is requesting interested parties to submit any data on fish species recovery in the lower Delaware River and Delaware Estuary as part of the public comment process.

F. 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 to preserve the integrity of existing and designated uses of surface waters in this Commonwealth. Protecting water quality provides economic value to present and future generations in the form of a clean water supply for human consumption, wildlife, irrigation and industrial use; recreational opportunities such as fishing (also for consumption), water contact sports and boating; and aquatic life protection. It is important to realize these benefits and to ensure opportunities and activities 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** – The proposed 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.

The proposed amendments will be implemented through DEP's permit and approval actions. 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 or best management practices to meet the designated and existing uses of the stream. For example, these increased costs may take the form of higher engineering, construction or operating cost for point source discharges. Treatment costs and best management practices are site-specific and depend upon the size of the discharge in relation to the size of the stream and many other factors. It is therefore 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 to meet any new water quality standards requirements. The initial costs resulting from the installation of technologically advanced wastewater treatment processes and best management practices may be offset by potential savings from and increased value of improved water quality through more cost-effective and efficient treatment over time.

3. **Compliance Assistance Plan** - The regulatory revisions have 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 DEP regulations. The revisions extend appropriate protections to all waterbodies of this Commonwealth, and are consistent with antidegradation requirements established by the Federal Clean Water Act (33 U.S.C.A §§1251–1387) and The Clean Streams Law. All surface waters in this Commonwealth are afforded a minimum level of protection through compliance with the water quality standards, which prevent pollution and protect existing water uses.

The proposed amendments will be implemented through DEP’s permit and approval actions. For example, the National Pollutant Discharge Elimination System (NPDES) permitting program bases effluent limitations on the uses of the stream, and the water quality criteria developed to maintain those uses. These permit conditions are established to assure water quality is protected and maintained. New and expanded dischargers with water quality based effluent limitations are required to provide effluent treatment according to the water quality.

4. **Paperwork Requirements** - The proposed regulatory revisions should have no new direct paperwork impact on the Commonwealth, local governments and political subdivisions, or the private sector. These regulatory revisions are based on existing DEP regulations and simply mirror the existing use protection that is already in place for these streams.

G. Pollution Prevention

The Federal Pollution Prevention Act of 1990 (42 U.S.C.A. §§13101-13109) established a national policy that promotes pollution prevention as the preferred means for achieving state environmental protection goals. DEP encourages pollution prevention, which is the reduction or elimination of pollution at its source, through the substitution of environmentally-friendly materials, more efficient use of raw materials, and the incorporation of energy efficiency strategies. Pollution prevention practices can provide greater environmental protection with greater efficiency because they can result in significant cost savings to facilities that permanently achieve or move beyond compliance.

Water quality standards are a major pollution prevention tool because they protect water quality and designated and existing uses. The proposed amendments will be implemented through DEP’s permit and approval actions. For example, the National Pollutant Discharge Elimination System (NPDES) bases effluent limitations on the designated use of the stream and the water quality criteria necessary to achieve designated and existing uses.

H. Sunset Review

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

I. Regulatory Review

Under section 5(a) of the Regulatory Review Act (71 P.S. § 745.5(a)), on DATE, the Department submitted a copy of this proposed rulemaking and a copy of a Regulatory Analysis Form to the Independent Regulatory Review Commission (IRRC) and to the Chairpersons of the House and Senate Environmental Resources and Energy Committees. A copy of this material is available to the public upon request.

Under section 5(g) of the Regulatory Review Act, IRRC may convey any comments, recommendations or objections to the proposed rulemaking within 30 days of the close of the public comment period. The comments, recommendations or objections must specify the regulatory review criteria in section 5.2 of the Regulatory Review Act (71 P.S. § 745.5b) which have not been met. The Regulatory Review Act specifies detailed procedures for review, prior to final publication of the rulemaking, by the Department, the General Assembly and the Governor.

J. Public Comments

Interested persons are invited to submit to the Board written comments, suggestions, support or objections regarding the proposed rulemaking. Comments, suggestions, support or objections must be received by the Board by DATE. In addition to the submission of comments, interested persons may also submit a summary of their comments to the Board. The summary may not exceed one page in length and must also be received by the Board by DATE. The one-page summary will be distributed to the Board and available publicly prior to the meeting when the final-form rulemaking will be considered.

Comments including the submission of a one-page summary of comments may be submitted to the Board online, by e-mail, by mail or express mail as follows.

Comments may be submitted to the Board by accessing eComment at <http://www.ahs.dep.pa.gov/eComment>.

Comments may be submitted to the Board by e-mail at RegComments@pa.gov. A subject heading of the proposed rulemaking and a return name and address must be included in each transmission.

If an acknowledgement of comments submitted online or by e-mail is not received by the sender within 2 working days, the comments should be retransmitted to the Board to ensure receipt. Comments submitted by facsimile will not be accepted.

Written comments should be mailed to the Environmental Quality Board, P.O. Box 8477, Harrisburg, PA 17105-8477. Express mail should be sent to the Environmental Quality Board, Rachel Carson State Office Building, 16th Floor, 400 Market Street, Harrisburg, PA 17101-2301.

K. Public Hearings

The Board will hold three public hearings for the purpose of accepting comments on this proposal. The hearings will be held at ___ p.m. on the following dates:

_____ (blank)

_____ (blank)

_____ (blank)

Persons wishing to present testimony at a hearing are requested to contact the Environmental Quality Board, P.O. Box 8477, Harrisburg, PA 17105-8477, (717) 787-4526, at least one week in advance of the hearing to reserve a time to present testimony. Oral testimony is limited to five minutes for each witness. Witnesses are requested to submit three written copies of their oral testimony to the hearing chairperson at the hearing. Organizations are limited to designating one witness to present testimony on their behalf at each hearing.

Persons in need of accommodations as provided for in the Americans with Disabilities Act of 1990 should contact the Environmental Quality Board at (717) 787-4526 or through the Pennsylvania AT&T Relay Service at 1-800-654-5984 (TDD) to discuss how the Department may accommodate their needs.

PATRICK McDONNELL
Acting Chairperson