Response-To-Comment Document

Proposed Amendments to the Water Quality Regulations, Water Code, and Comprehensive Plan to Revise the Human Health Water Quality Criteria for Protection from Carcinogenic Effects for PCBs in Zones 2 - 6 of the Delaware Estuary and Bay

and

Draft Implementation Strategy for Polychlorinated Biphenyls for Zones 2 - 6 of the Delaware River Estuary

Delaware River Basin Commission
West Trenton, New Jersey

December 2013

CONTENTS

RESPONSE-TO-COMMENT DOCUMENT

Proposed Amendments to the Water Quality Regulations, Water Code, and Comprehensive Plan to Revise the Human Health Water Quality Criteria for Protection from Carcinogenic Effects for PCBs in Zones 2 - 6 of the Delaware Estuary and Bay; and Draft Implementation Strategy for Polychlorinated Biphenyls for Zones 2 - 6 of the Delaware River Estuary

1.0 INTRODUCTION

In August 2013, the Delaware River Basin Commission ("DRBC") proposed amendments to the Commission's Water Quality Regulations, Water Code, and Comprehensive Plan to revise the Stream Quality Objectives ("Water Quality Criteria") for PCBs to protect human health from carcinogenic effects in Zones 2 - 6 of the Delaware Estuary and Bay. Notices of this proposed action were published on the Commission's website and in the Delaware Register of Regulations on August 1, 2013; New Jersey Register on August 5, 2013; New York State Register on August 14, 2013; Pennsylvania Bulletin on August 17, 2013; and Federal Register on August 5, 2013. The Commission's notice of proposed rulemaking also invited comment on a draft strategy for implementing the PCB criterion for point and non-point sources. However, no Commission action on the strategy was proposed. As DRBC's notice indicated, the U.S. EPA has said that the strategy document will be included as an Appendix to the report establishing new TMDLs ("Stage 2 TMDLs"), which will be issued jointly by EPA Regions II and III after an updated PCB criterion has been adopted. The Commission's notices advertised that comments would be received on the revised criterion and draft implementation strategy until 5:00 p.m. on September 20, 2013 and that a public hearing would take place at 1:00 p.m. on September 10, 2013 at the Commission's office building in West Trenton, New Jersey.

DRBC received written comments from four individuals or entities, two of whom also testified at the public hearing (see table below). The comments and hearing transcript have been posted on the Commission's website and remain on file with the Commission Secretary. This Response-to-Comment document presents detailed responses to the comments received. Our responses have been organized into two parts. In the first part, five major concerns (or "themes") of the collective comments are identified, and the Commission's response to each is set forth in a short essay. Taken together, the five essays address all of the major concerns identified by commenters. In the second part, individual comments have been assigned numbers and a direct response to each is provided, either by referencing the appropriate short essay or by providing additional, targeted information or both.

2.0 RESPONSE TO COMMENTERS' MAJOR THEMES

The five broad themes articulated in the public comments are addressed in this part. Each theme is presented as a question or statement, followed by the Commission's response.

Delaware River Basin Commission									
COMMENTS RECEIVED ON REVISED HUMAN HEALTH CRITERION FOR PCBs AND PCB TMDL IMPLEMENTATION STRATEGY									
September 2013									
No.	**Dated**	**Last Name**	**First Name**	**Affiliation**	**Street Address**	**City**	**State**	**Zip Code**	**Email Address**
1	14-Aug-13	Jengo	John W.	MWH Americas, Inc.	200 Lindenwood Dr., Suite 100	Malvern	PA	19355	John.Jengo@mwhglobal.com
2	9-Sep-13	Denisco	Sam	Pennsylvania Chamber of Business & Industry	417 Walnut St.	Harrisburg	PA	17111	sgood@pachamber.org
3	19-Sep-13	Katz	David A.	Philadelphia Water Department	The ARAMARK Tower 1101 Market St., 5th Floor	Philadelphia	PA	19107-2994	David.Katz@phila.gov
4	20-Sep-13	Gold	Marc	On behalf of the Delaware Estuary TMDL Coalition	401 City Ave., Suite 500	Bala Cynwyd	PA	19004	mgold@mankogold.com
ORAL TESTIMONY RECEIVED ON REVISED HUMAN HEALTH CRITERION FOR PCBs AND PCB TMDL IMPLEMENTATION STRATEGY									
September 10, 2013									
1	10-Sep-13	Gold	Marc	On behalf of the Delaware Estuary TMDL Coalition	401 City Ave., Suite 500	Bala Cynwyd	PA	19004	mgold@mankogold.com
2	10-Sep-13	Katz	David A.	Deputy Water Commissioner Philadelphia Water Department	The ARAMARK Tower 1101 Market St., 5th Floor	Philadelphia	PA	19107-2994	David.Katz@phila.gov

THEME 1

Whether the Commission should defer final action on the Proposed PCB water quality criterion and the draft implementation strategy.

The only action the Commission is proposing is to adopt a revised water quality criterion for PCBs to protect human health from carcinogenic effects.

The draft implementation strategy constitutes DRBC's understanding of how NPDES permitting authorities and co-regulators intend to implement the new criterion and corresponding TMDLs ("Stage 2 TMDLs"). The Stage 2 TMDLs are expected to be issued jointly by Regions II and III of the U.S. EPA in 2014, after the new criterion has been established. Subject to any modifications made as a result of the comments received, the draft implementation strategy is expected to be included as an appendix to the Stage 2 TMDL document. The public will have a second opportunity to comment on the strategy when EPA publishes that document in 2014.

The strategy is a product of extensive consultation among representatives of EPA Regions II and III, EPA Headquarters, the state agencies responsible for implementing the NDPES permit program under the Clean Water Act, the five DRBC Commissioners and the Commission staff (collectively "co-regulators"). Importantly, the strategy proposes an alternative to the application of numeric limits for PCBs in NPDES permits. The discussions among co-regulators were convened and facilitated by DRBC pursuant to Resolution No. 2005-19, which authorized and requested the Commission's Executive Director to convene working sessions to develop recommendations for implementing criteria for bioaccumulative toxic pollutants. That effort contributed to the publication in August 2009 of a draft TMDL Implementation Plan, together with a proposal to adopt a revised human health water quality criterion of 16 picograms per liter for PCBs in the Delaware Estuary. Action on the revised PCB human health criterion was deferred pending revision of the implementation strategy for point sources. The draft implementation strategy published in August 2013 is the product of that revision. Commission staff met with representatives of the regulated community and environmental interests in the spring of 2013 to explain the draft strategy and obtain their feedback prior to its publication.

One commenter urged the Commission to defer action on the PCB water quality criterion ("WQC") in order to allow adoption of the WQC to coincide with establishment of the corresponding Stage 2 TMDLs by the U.S. EPA. Alternatively, the commenter recommended, the Commission should adopt the WQC after EPA establishes the Stage 2 TMDLs. Neither of these alternatives is feasible, however, because in accordance with EPA regulations adoption of water quality criteria must precede issuance of TMDLs based upon the criteria. Moreover, EPA regional staff have advised the Commission that EPA will not publish a draft TMDL until the corresponding criterion is in effect. The Commission's PCB water quality criteria upon which the 2003 ("Stage 1") TMDLs were based were adopted in 1996. They differ from the current PCB criteria of the states and do not conform to current EPA guidelines. Upon adoption, the uniform criterion of 16 picograms per liter ("pg/L") will be applicable for the waters of the Estuary and Bay in all three states and all five estuary zones. The criterion will then provide a valid basis for the Stage 2 TMDLs.

THEME 2

Two commenters expressed concern with regard to the proposed PCB water quality criterion, including specific concerns about: (a) the data, assumptions and modeling used to develop the revised criterion; and (b) whether the standard can be attained.

The revised water quality criterion for PCBs for the protection of human health from carcinogenic effects is the product of more than a decade of data-gathering, assessment, debate and consensus-building involving dischargers, regulators, scientists, policy-makers and other stakeholders from across the region.

The proposed criterion was developed under the guidance of the Commission's Toxics Advisory Committee ("TAC"), a standing committee created pursuant to Section 3.10 of the Delaware River Basin Compact and comprised of a range of stakeholders, including among others, representatives of each of the signatory states, the U.S. EPA, the U.S. Fish & Wildlife Service, public health, municipal and industrial dischargers, environmental groups, and academia. In early 2000, this committee recognized that the PCB human health water quality criteria of the states and DRBC needed revision to conform to new science and updated guidance adopted by the U.S. EPA. The science included a revised cancer slope factor and a new methodology (i.e., model) for deriving ambient water quality criteria for the protection of human health (see EPA-822-B-00-004, October 2000).

In January 2001, the TAC unanimously approved a recommendation that a field-derived bioaccumulation factor be developed as one basis for the revised human health criteria for PCBs in Zones 2 through 6 of the Delaware River. The TAC also established a subcommittee to evaluate recent data and methodologies for establishing water quality criteria for PCBs, and to develop recommendations for revisions to the criteria to reflect current science and risk assessment procedures. In February 2003, the subcommittee presented its recommendations to the TAC, which passed motions relating to development of the revised criteria, including use of the following assumptions: a 70-year exposure duration; single bioaccumulation factors ("BAFs") for trophic levels 3 and 4, respectively, for all water quality zones; and zero reduction of PCBs due to trimming or cooking of contaminated fish.

On March 19, 2003 the Commission approved Resolution No. 2003-11, authorizing and requesting the Executive Director to publish a notice of proposed rulemaking to revise the Commission's human health water quality criteria effective on or after January 1, 2004 to reflect site-specific data on fish consumption, site-specific bioaccumulation factors, and current U.S. EPA guidance on development of human health criteria. Development of the proposed criterion continued through mid-2005 under the guidance of both the TAC and a TAC subcommittee comprised of subject matter experts, including consultants engaged by the regulated community. The latest data available were used to develop a site-specific fish consumption rate and field-derived bioaccumulation factors for two trophic levels. Following additional technical effort by the TAC and its subcommittee on July 7, 2005 the TAC approved a motion with no objections and three abstentions, recommending that the Commission proceed with the public participation process for the adoption of a revised criterion of 16 picograms per liter ("pg/L") at a risk level of 10^{-6}. On December 7, 2005, the Commission approved Resolution No. 2005-19, expressly authorizing and requesting the Executive Director to publish a notice of public hearing and establish a comment period for a proposal to revise the Commission's human health water quality criteria for PCBs to a uniform value of 16 pg/L.

As stated in the Basis and Background document for the proposed criterion (DRBC, July 2013), technical staff of the Commission and Delaware DNREC agreed in 2013 to re-evaluate the criterion of 16 pg/L that had been proposed in 2009, in light of more recent data on PCB concentrations in ambient waters of the Estuary and resident fish tissue. The results of re-evaluation affirm the numeric value of 16 pg/L for the human health water quality criterion for PCBs for Zones 2 through 6 of the Estuary and Bay.

The Commission acknowledges that in light of the persistence of PCBs in the environment, whether or not 16 pg/L can be achieved is not yet known. The Commission also recognizes that tremendous reductions in PCB loadings have been and are being achieved by means of the targeted remediation of PCB-contaminated sites and the application of trackdown, removal, and best management practices by point source dischargers. The evidence of these reductions is robust (*see presentations at October 22, 2012 Workshop, http://www.state.nj.us/drbc/programs/quality/pmp.html*). As a policy matter, in light of the substantial reductions in loadings that have been made to date, the co-regulators have determined that measures for reducing PCB discharges should continue until "maximum practicable reduction," as defined by the Commission's Water Quality Standards and Water Code, is attained. The draft Implementation Strategy provides for this approach.

THEME 3

Whether, in lieu of establishing an updated criterion for PCBs in the Delaware Estuary, a Use Attainability Analysis (UAA) under the Clean Water Act (CWA) should be performed as a predicate to down-grading the approved uses of the Estuary and Bay on grounds that fish consumption is not an "existing use" under the CWA for these waters.

Federal regulations at 40 CFR Part 131.10(g) allow states to remove a designated use which is not an existing use if the state can demonstrate that attaining the use is not feasible as a result of any of six factors. Two of the factors are: (a) because "human caused conditions or sources of pollution prevent the attainment of the use and cannot be remedied or would cause more environmental damage to correct than to leave in place"; and (b) because "controls more stringent than those required by sections 301(b) and 306 of the Act would result in substantial and widespread economic and social impact. *See* 40 CFR §§ 131.10(g)(3) and (6). Scientists agree that restoring the Estuary and Bay for PCBs will take decades because even if new loadings are eliminated, contaminated sediments will continue to release PCBs to the water column for many years. In light of this decades-long horizon for restoration, the commenters propose that the cited factors be applied to remove "fishable" as a designated use of these waters.

The Commission established maintenance of resident fish and passage of anadromous fish as "Water Uses to be Protected" in 1967. [1] (*See e.g.*, WQR §3.30.2 B.2. Also see note 2.) "Uses to be protected" in each of Zones 2-6 (Delaware Estuary and Bay), added in 1996, include "maintenance and propagation of resident fish and other aquatic life …, passage of anadromous fish …, wildlife …, [and] recreation …." *See, e.g.* WQR § 3.30.2 B.2 and 3 (establishing water uses to be protected in Zone 2). The U.S. EPA has interpreted its similar "fishable" designation[2] to encompass consumption, stating that the designation refers "not only to protecting water quality so the fish and shellfish thrive, but when caught they can also be safely eaten by humans." *(See* http://water.epa.gov/scitech/swguidance/standards/criteria/health/methodology/upload/hhfaqs.pdf and http://water.epa.gov/scitech/swguidance/standards/upload/2000_10_31_standards_shellfish.pdf). Importantly, recreational and subsistence fishing and consumption of fish caught in the Estuary and Bay are documented in a 1993 fish consumption study for Zones 5 and 6 commissioned by the State of Delaware, and in a similar study for Zones 2, 3 and 4 conducted by the Penn State University Sea Grant Program in 2004. Together, these studies document fishing and consumption of fish from Zones 2 through 6 as "existing uses" *today*. The commenters, however, cite EPA regulations at 40 CFR 131.10(h) that prohibit removal of an "existing use" *as that term is defined in* 40 CFR 131.3. The cited definition provides that "existing uses" are those "actually attained in a water body on or after November 28, 1975." The commenters maintain that because the Delaware Estuary and Bay were impaired for PCBs in 1975, the "fishable" use on that date was not being *attained* and thus cannot be an "existing use" for purposes of a use attainability analysis. This conclusion is subject to debate as a matter of law, but the

[1] The Commission's Water Quality Regulations and Water Code provide that "[t]he quality of Basin waters, except intermittent streams, shall be maintained in a safe and satisfactory condition for … [among other uses] (2) wildlife, fish and other aquatic life". *See* WQR §3.10.2 B.2.

[2] Section 101(a)(2) of the Clean Water Act (CWA) establishes as a national goal "water quality which provides for protection and propagation of fish, shellfish, and wildlife, and recreation in and on the water, wherever attainable." The term "fishable" is often used as shorthand for the cited CWA and Commission language.

Commission does not agree with this view as a matter of policy. The Commission instead takes the view that fishing and fish consumption are long-established and continuing uses protected by state and DRBC Water Quality Regulations as well as by federal law and that restoration of the Estuary and Bay to make fish consumption safe remains a vital resource management objective.

A 46% reduction in PCB loading from 10 facilities that contribute 90% of the PCB loading from point sources is evidence that sources of PCBs can and have been remediated using a variety of feasible controls, such as the removal of PCB-transformers and contaminated soils. Substantial load reductions also have been and are being achieved at contaminated sites through the removal or containment of contaminated soils.

Until recently, the states of Delaware and New Jersey recommended no consumption of any finfish caught in the upper portion of Zone 5 of the Estuary, waters shared by the two states. Both states recently revised their fish consumption advisories to recommend no more than one meal per year of all finfish caught from these waters. This small step in achieving the goal of eliminating fish consumption advisories is a positive sign.

As long as loading reductions continue the Commissioners do not agree as a policy matter that the goal of restoring Estuary water quality and eliminating fish consumption advisories should be abandoned by eliminating "fishable" as a designated use of the waterway. Rather, the Commissioners collectively take the view that uncertainty regarding the *rate* at which reductions can be achieved and whether the criterion can ultimately be attained make an adaptive approach based on "maximum practicable reduction" of PCB loadings the appropriate restoration strategy for the Delaware Estuary and Bay. Establishing an updated numeric water quality criterion for PCBs is a Clean Water Act requirement that the states must satisfy. The specific value of the criterion, which remains orders of magnitude below ambient PCB concentrations in the water column, is secondary, however, to continuing the policy of "maximum practicable reduction" under which loadings of PCBs to the Estuary and Bay will continue to be reduced so that the region can reduce or eliminate the need for fish consumption advisories and again profit from and enjoy fresh-caught local fish.

THEME 4

Whether data generated through use of Method 1668A, published by EPA in 1999, can properly be used as the basis for determining the "EEQ" and Action Level, which are proposed in the draft Implementation Strategy to be included in NPDES permits issued pursuant to the Clean Water Act.

Method 1668A was developed by the U.S. EPA's Office of Science and Technology (OST) to determine chlorinated biphenyl congeners in environmental samples by isotope dilution and internal standard high resolution gas chromatography/high resolution mass spectrometry (HRGC/HRMS). This method is applicable to aqueous, sediment, tissue, biosolids and other sample matrices. Unlike EPA Method 608, which measures commercial mixtures of PCB congeners commonly referred to as "Aroclors", Method 1668A identifies and quantifies all 209 PCB congeners. Notably, in response to an initial data collection request during the development of the Stage 1 PCB TMDLs, which did not specify the use of a particular analytical method, many dischargers voluntarily selected Method 1668A for evaluating their effluent discharge.

Methods published under 40 CFR Part 136 specify Method 608 for PCB Aroclors. Table 1C - List of Approved Test Procedures for Non-Pesticide Organic Compounds at 40 CFR Part 136.3(a) contains procedures only for PCB Aroclors 1016, 1221, 1232, 1242, 1248, 1254 and 1260. The regulations do not specify a method for PCB congeners. Section 122.44(i)(1)(iv) of Title 40 of the CFR provides expressly for the circumstance in which no test method for a particular pollutant has been approved. In relevant part, it states, "In the case of pollutants for which there are no approved methods under 40 CFR Part 136 or otherwise required under 40 CFR subchapters N or O, monitoring must be conducted according to a test procedure specified in the permit for such pollutants." Similarly, the NPDES permitting regulations of the State of New Jersey provide that "The permittee shall perform all analyses in accordance with the analytical test procedures specified in 40 C.F.R. 136 or, in the case of residual use or disposal, in 40 C.F.R. 136 unless otherwise specified in 40 C.F.R. 503, *or unless other test procedures have been specified in the permit*" (N.J.A.C. § 7.14A-6.5(a)2) (emphasis added). Thus, both federal regulations and New Jersey regulations authorize the use of methods not specified in 40 CFR Part 136 for purposes of the Clean Water Act NPDES program, if specified in a permit.

The Stage 1 PCB TMDLs established by EPA on December 15, 2003 provided for the use of Method 1668A to characterize the effluent from point source dischargers as part of a two-pronged effort to reduce PCB loadings to the tidal Delaware River. The second prong consisted of the development and implementation by point source dischargers of Pollutant Minimization Plans (PMPs). Testing with Method 1668A has provided effective measurement of the load reductions achieved through the PMPs.

In order to develop a consistent analytical approach, not only between point source dischargers, but for all sampling associated with the TMDLs, the TAC in early 2004 formed a Data Quality Subcommittee (DQS). Members of the DQS consisted of representatives from industry, municipalities, academia, private analytical laboratories and government agencies, and included technical experts. They were tasked with establishing data quality objectives (DQOs); and developing sampling, analytical and reporting protocols to meet the DQOs. Project-specific modifications to the sampling and analysis procedures were developed to ensure that all performance criteria were met. These included increased sample size, and use of a low calibration point and smaller sample extraction volume. These modifications provided for

reduced analytical uncertainty (detection limits for 1668A are approximately four orders of magnitude lower than for the existing Aroclor method, Method 608), analytical results for all 209 congeners, improved comparability of analytical results across dischargers and other sampled media, and greater accuracy in estimated loadings and in the temporal and spatial evaluation of the data.

Since the approval of the Stage 1 PCB TMDLs, more than 1,500 wastewater effluent samples have been collected and analyzed using Method 1668A, and the method continues to demonstrate that dischargers are achieving load reductions through implementation of their PMPs. The project-specific modifications to the Method and associated DQOs have been consistently achieved and, in many cases exceeded, to such an extent that DRBC staff is considering recommendations for revising the DQOs to reflect current practice. PCB loading reductions have been reduced by approximately half since 2005 for the largest point source dischargers. The body of data developed to date through the use of Method 1668A makes its continued use necessary, appropriate and valid for accurately measuring progress in attaining water quality standards for PCBs in the Delaware Estuary and Bay.

The draft Implementation Strategy includes the continued use of Method 1668A to measure point and non-point source PCB loadings. The strategy calls for use of the method by point sources to (a) document their progress in reducing PCB loadings; (b) measure point source loadings relative to assigned wasteload allocations; and (c) determine whether the PCB concentration of each effluent stream exceeds an established Action Level. Use of the method is not currently proposed to assess compliance with final numeric effluent limitations, since the implementation strategy does not include such limitations.

THEME 5

Commenters stated that details on how the Action Level is to be calculated and applied need to be developed and shared with stakeholders prior to implementation of this component of the Implementation Strategy. They also expressed concern that the Action Level would be used as a numeric effluent limitation.

The draft Implementation Strategy continues the primary elements used to implement the Stage 1 TMDLs – monitoring for PCB congeners and the development and implementation of PMPs. The significant new element is the inclusion in the NPDES permit of each PCB discharger a PCB Action Level based upon existing effluent quality (EEQ). The draft strategy provides that "[i]f the Action Level is exceeded, the permittee becomes subject to additional specified monitoring, trackdown and/or BMP requirements to reduce loadings." In other words, the Action Level is intended to ensure that PCB loading reductions achieved at a facility are maintained. Exceedance of the Action Level is intended to result in an expeditious response by the permittee and the permitting authority to determine the cause of the exceedance if possible, and above all to ensure that the maximum practicable reduction of PCB loadings continues to be achieved. Monitoring data submitted by permittees as part of a DRBC request or NPDES permit requirement to date, and data submitted with PMP Annual Reports demonstrate both dramatic PCB load reductions and lower PCB effluent concentrations. In many cases, these results are sustained. A sample showing an increased level of PCBs would be indicative of a new source, a new pathway to the wastewater stream from an existing source, or a failing in the treatment system. In each instance, prompt action to identify and remediate the problem is needed. Otherwise, higher PCB concentrations may not be reported until the Annual Report is submitted, and in the interim, hard-earned load reductions may be reversed.

Detailed procedures for establishing the Action Level and the specific actions triggered by an exceedance of the level were not included in the draft Implementation Strategy because it was important to reach consensus on the approach and allow stakeholders to weigh in before developing the strategy further. Approaches to calculating the Action Level and appropriate responses when it is triggered were the focus of a meeting of the Toxics Advisory Committee (TAC) on September 4, 2013. At that meeting, a member of the TAC proposed that a workgroup be formed to evaluate options for resolving these issues. The motion did not carry, pending meetings of the co-regulators to discuss the alternatives. Two meetings of the co-regulators have already been held. Following completion of those discussions, Commission staff will convene another meeting of the TAC to facilitate discussions of the issues and recommendations with interested stakeholders.

Issues to be considered include the development of a set of specific actions that permittees must take or that permitting authorities may require when an Action Level is exceeded. The types of actions being considered include increasing the monitoring frequency to better characterize the magnitude and duration of the exceedance, obligatory prompt reporting of the exceedance, and prompt reporting of responses within a short time period. The Commissioners agree with the commenters that following an exceedance the permittee should engage in collaborative efforts with the permitting authority to determine appropriate measures.

The number of Action Level exceedances that should trigger a response will depend on several factors. One is the monitoring frequency already required of the permittee. Permittees currently monitor for PCBs only once or twice during dry weather and, if the discharge is influenced by

precipitation, in wet conditions. Waiting for multiple exceedances could mean delays of as much as a year before an exceedance is addressed. A possible approach is to establish tiers of actions, starting with increased monitoring frequency and expedited reporting.

In permits issued under the draft Implementation Strategy, the Action Level is not intended to be used either as a numeric effluent limit or as the basis for a numeric effluent limit in Part A of a NPDES permit. Rather, the Action Level is proposed as part of an approach designed to achieve PCB load reductions through adaptive management, without the use of numeric effluent limits, by requiring dischargers to achieve maximum practicable reduction of their PCB discharges. The strategy is expected to be included as an appendix to the Stage 2 TMDL document that will accompany establishment of Stage 2 TMDLs by Regions II and III of the U.S. EPA. It is recommended and expected that NPDES permits issued to PCB dischargers after the Stage 2 TMDLs are established will explicitly state that Action Levels are not final numeric effluent limits. Action Levels will remain in place until a permittee's "wasteload allocation is achieved, after which monitoring, reporting and a numeric effluent limit (consistent with the permittee's WLA and the policies of the permitting authority) will apply."

3.0 **DETAILED RESPONSE TO COMMENTS** (TABLE)

Delaware River Basin Commission RESPONSES TO COMMENTS RECEIVED ON REVISED HUMAN HEALTH CRITERION FOR PCBs AND PCB IMPLEMENTATION STRATEGY			
Comment No.	**Commenter No.**	**Comment**	**Response**
WRITTEN COMMENTS			
1	1	I highly recommend DRBC proactively discover and identify the myriad of nonpoint sources contributing what I believe to be a greater PCB loading to the Estuary than presently-identified point sources.	In developing the Stage 1 TMDLs that were established in 2003, the Commission estimated loadings from non-point sources, including contaminated sites listed by both state and federal authorities (not limited to sites on the National Priorities List), tributaries (including the main stem Delaware River, the Schuylkill and 20 smaller tributaries), air deposition, and open boundaries (including the C&D Canal and the Atlantic Ocean). The estimated loadings from these categories have varying degrees of uncertainty depending on the procedure used to calculate the loading. By far, there is less uncertainty associated with the point source loadings and more uncertainty associated with the non-point source runoff and contaminated site loadings. The Commission staff believe, however, that the relative contributions of the categories are correct.
2	1	I strongly encourage the DRBC to allocate resources to perform file reviews in all three states [of contaminated sites] because I believe you will find many unaddressed nonpoint sites that are discharging PCBs that you are not currently accounting for.	The Commission has already conducted such file reviews in preparing a series of reports on the hazardous waste sites in the Delaware River Basin as part of the Delaware River Toxics Reduction Program or DelTRiP. Reports for 2006 and 2007 are available on the DRBC web site at http://www.state.nj.us/drbc/about/public/publications/deltrip.html. DelTRiP was created in 2004 as a joint effort between the Delaware River Basin Commission, U.S. Environmental Protection Agency (USEPA), Pennsylvania Department of Environmental Protection (PADEP), New Jersey Department of Environmental Protection (NJDEP), and Delaware Department of Natural Resources and Environmental Control (DNREC). The New York State Department of Environmental Conservation (NYSDEC) joined in 2007. The goal of DelTRiP, which was funded by a grant from the U.S. EPA, is to identify, prioritize, track, and report the status of sites within the basin that significantly contribute or have the potential to significantly contribute toxic loadings to the waters of the Delaware River Basin.

Delaware River Basin Commission RESPONSES TO COMMENTS RECEIVED ON REVISED HUMAN HEALTH CRITERION FOR PCBs AND PCB IMPLEMENTATION STRATEGY			
Comment No.	**Commenter No.**	**Comment**	**Response**
3	1	There remains a very strong, pervading sense of unfairness that the majority of the burden for reducing PCB loading has fallen on a small percentage of point source contributors.	Under the federal Clean Water Act, Total Maximum Daily Loads or "TMDLs" must be developed when the designated uses of a water body are impaired by a pollutant or pollutants. Zones 2 - 6 of the Delaware River (comprising the Estuary and Bay) were added to the lists of impaired waters for the states of Delaware, New Jersey and Pennsylvania in the late 1990's because (a) these water quality zones had PCB levels orders of magnitude above the criteria and (b) the states had issued fish consumption advisories for certain species caught in these waters due to high levels of PCBs in fish tissue. TMDLs for PCBs were thus required to be developed and allocated to point sources, non-point sources and a margin of safety. The Stage 1 TMDLs were developed by the DRBC and established by the U.S. EPA in 2003, and included the allocation of the point source portion of the TMDLs to individual NPDES discharges. Notably, federal regulations require point source discharges to have a water quality based effluent limit for any parameter that is being discharged or may be discharged at a level that will cause, have the reasonable potential to cause, or contribute to an exceedance of the applicable water quality criterion. Each of the point sources included in the TMDLs has such potential for total PCBs. Point sources continue to be the second largest loading of PCBs to the estuary, contributing ~24% of the total PCB loading. In contrast, contaminated sites contribute ~11% of the total PCB loading.
4	1	I believe that the DRBC would find even greater cooperation and progress will be made in restoring the Estuary if they demonstrate a concerted effort to identify all major PCB sources while at the same time challenging inattentive and unmotivated regulatory agencies such as PADEP to require impact assessments at known PCB-impacted sites	The Commission has considered all point and non-point sources of PCBs in developing the TMDLs for Zones 2 through 6. Commission staff also work cooperatively with the appropriate state agencies and the U.S. EPA to ensure consistent implementation of PMP and monitoring requirements for point sources; and to ensure that the water quality target and appropriate load allocations are considered in remedial or restoration activities for non-point sources. Examples of this interaction include coordination among Commission staff and hazardous waste site staff in determining and implementing remediation plans for PCB-contaminated sites, including, among others, the Lail site in NJ, the AMTRAK rail yard site in DE, and the Metal Bank site in PA. Commission staff also coordinate with state staff on TMDLs for the tributaries to the Estuary, such as the TMDL developed for the Schuylkill River in 2007. (Tributary loadings are treated as boundary conditions in the development of an estuary TMDL.)
5	2	How will the Delaware River Basin Commission (DRBC) and state regulatory agencies determine applicability—that is, which point source dischargers will receive national pollution discharge elimination system (NPDES) limits for PCBs?	In the Stage 1 TMDLs that were established in 2003, dischargers that had detectable concentrations of PCBs were included in one of two groups. "Group 1" consisted of those NPDES permittees for which testing detected 4 or more penta-PCB congeners in a discharge other than one consisting solely of non-contact cooling water, while "Group 2" consisted of those NPDES permittees for which testing detected fewer penta-PCB congeners in a discharge including non-contact cooling water. Details of the selection process are set forth in Appendix 3 of the Stage 1 TMDL document (http://www.epa.gov/reg3wapd/tmdl/pa_tmdl/DelawareRiver/TMDLreport.pdf). Group 1 dischargers received NPDES permit requirements consisting of monitoring with Method 1668A and development of a PMP. Group 2 dischargers were required to monitor their discharge(s) for two years to confirm the presence of PCBs. If monitoring confirmed PCB loadings, the discharger was required to develop and implement a PMP.

Delaware River Basin Commission RESPONSES TO COMMENTS RECEIVED ON REVISED HUMAN HEALTH CRITERION FOR PCBs AND PCB IMPLEMENTATION STRATEGY			
Comment No.	**Commenter No.**	**Comment**	**Response**
6	2	Who will have to implement pollution minimization plans (PMPs) and get NPDES limits for PCBs?	As noted in response to Comment No. 3, federal regulations require point source discharges to have a water quality based effluent limit for any parameter that is being discharged or may be discharged at a level that will cause, have the reasonable potential to cause, or contribute to an exceedance of the applicable water quality criterion. The response to Comment No. 5 explains which dischargers were deemed to have such potential pursuant to the Stage 1 TMDLs. In effect, these included any dischargers with the confirmed presence of PCBs in their discharge(s). The draft Implementation Strategy, subject to any changes on the basis of comments submitted during the DRBC's comment period and further input from co-regulators and the Toxics Advisory Committee ("TAC"), will be attached as an appendix to the U.S. EPA report proposing Stage 2 TMDLs. This strategy continues the imposition of PMPs and monitoring for such dischargers. In addition, the strategy as to point sources includes two elements that were not included in the previous approach – (1) the use of a numeric limit for Total Suspended Solids (TSS) where applicable; and (2) the use of an Action Level based on Existing Effluent Quality (EEQ), to ensure loading reductions are maintained once achieved and that PCB dischargers continue to meet the "maximum practicable reduction" requirement established by the Commission's PMP rule.
7	2	Have the DRBC and state regulatory agencies identified likely point sources or whole tributary streams that are at high risk or conversely no risk of PCB contributions? Or, will NPDES limits and PMP requirements be rolled out to all NPDES dischargers regardless of the presence or absence of PCBs in a discharge?	With respect to point source dischargers, please see responses to Comments 3 and 5 above. With respect to tributaries, monitoring for the Stage 1 TMDLs confirmed the presence of PCBs in more than 20. The Delaware and Schuylkill rivers (which for purposes of Estuary TMDLs are deemed tributaries) combined were found to contribute approximately 25% of all PCB loadings to the Estuary and the 20 smaller tributaries, approximately 9%. A TMDL for PCBs was established by the U.S. EPA Region III for the Schuylkill River in 2007.
8	2	Will permitted point sources be able to demonstrate that they are not a PCB source risk and therefore not be required to implement PMPs or receive NPDES limits for PCBs?	See the responses to Nos. 3 and 5 above for discussion of which point source dischargers are subject to NPDES requirements to control PCBs. Refinement and/or implementation of a PMP will continue to be required until the permittee can demonstrate that PCB concentrations in their discharge would result in loadings below their assigned wasteload allocation. Following such a demonstration, the PMP annual reporting requirement may be suspended and monitoring frequency may be reduced. In accordance with the draft implementation strategy, monitoring, reporting and a numeric effluent limit (consistent with the permittee's wasteload allocation and the policies of the permitting authority) will then apply. In addition, certain PMP activities may continue to be required to ensure ongoing attainment of the effluent limit. If a permittee demonstrates that all sources of PCBs in its discharge have been eliminated, that its discharge has ceased entirely and/or when testing of the discharge no longer detects the presence of PCBs, the discharge may be removed from the list of point sources in subsequent revisions of the TMDLs.
9	3	As a member of the Delaware Estuary TMDL Coalition ("Coalition') we fully support and adopt the Coalition's comments. To avoid redundancy, PWD's comments will therefore be brief and will highlight four issues of particular concern to PWD.	So noted.

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10	3	First, we believe there is universal agreement on the success of the current Stage 1 TMDL approach. DRBC's Pollutant Minimization Plans ("PMPs") requiring point sources to achieve the Maximum Practicable Reduction of PCBs has yielded tremendous results. Given this fact, it is unclear why we are proposing to change what we already have in place. The changes that are being proposed in the new implementation strategy do not change the mechanism by which we have achieved success.	The commenter is correct that the draft implementation strategy for the Stage 2 TMDLs continues to rely on the PMP approach. The principal new element of this strategy is the requirement for an Action Level. This addition is intended to require specific actions to be triggered if an Action Level is exceeded in order to ensure that loading reductions are not eroded and that maximum practicable reduction of PCB loadings continues to be achieved. The Action Level requirement will result in an expeditious response by the permittee and the permitting authority to address the exceedance.
11	3	Secondly, should the proposed rules continue to be considered for adoption, it must be made absolutely clear that the Action Levels proposed in these new rules are not NPDES numeric effluent limits.	The Action Level is not intended to be used as a numeric endpoint or final numeric effluent limit in Part A of a NPDES permit. Rather, it is intended to be placed in Part C of the permit, as part of a strategy that has been designed as an alternative to such final numeric effluent limits. An exceedance of the Action Level is intended to trigger specific actions such as additional monitoring, reporting, and/or investigations in an effort to return PCB levels to those previously achieved. As with any other requirement in a NPDES permit, requirements relating to the Action Level are enforceable. Key element 5 of the draft Implementation Strategy states that Action Levels will remain in place until a permittee's "wasteload allocation is achieved, after which monitoring, reporting *and a numeric effluent limit* (consistent with the permittee's WLA and the policies of the permitting authority) will apply." In accordance with federal Clean Water Act regulations, only if there continues to be reasonable potential for PCBs to be discharged at a level that will cause, have the reasonable potential to cause, or contribute to an exceedance of the applicable water quality criterion, will the discharger receive a numeric water quality-based effluent limit. The commenter also is advised that the Commission proposes only to adopt a revised water quality criterion for total PCBs for the protection of human health from carcinogenic effects, and does not propose to adopt the Implementation Strategy into its Water Quality Regulations and Water Code. The draft Implementation Strategy will be included as an appendix to the Stage 2 TMDL document that will accompany establishment of Stage 2 TMDLs by Regions II and III of the U.S. EPA, where, as with the Stage 1 TMDL document, the permit requirements will explicitly state that Action Levels are not final numeric effluent limits.
12	3	Thirdly, the proposed Implementation Rule is unclear as to what it means to exceed an Action Level. Under the Proposed Rules, Action Levels will be based on the permittee's Existing Effluent Quality ("EEQ") which will be "developed from monitoring data collected prior to reissuance of a discharge permit". Exceedances should never be based upon a single data point or short term PCB discharge average. The Proposed Implementation Rule should clearly spell out how exceedances will be determined prior to submission to the Commissioners for their review.	Please see response to Theme 5 in Part 2.0 of this document. The co-regulators, in consultation with the TAC, are working to develop the procedures for establishing the Action Level, what events constitute an "exceedance" of an Action Level, and a set of specific actions that permitting authorities can use when the Action Level is exceeded. The number of exceedances of the Action Level that will trigger these actions will depend on several factors. One is the frequency of monitoring required of the permittee. Permittees currently monitor for PCBs only once or twice during dry and, if the discharge is influenced by precipitation, wet conditions. If multiple exceedances must occur before an Action Level is deemed exceeded, then delays of a year or more are possible before any responsive action would be required. A possible approach is to establish tiers of actions, starting with confirmatory monitoring and a reporting requirement. If exceedances of the Action Level are confirmed, additional monitoring could be required to better characterize PCB concentrations, including measuring the magnitude and duration of the Action Level exceedance.

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13	3	Lastly, should an "exceedance" occur, the proposed rule states that a change to the PMP "will be re-evaluated by DRBC and/or the permitting agency and amended to require actions ....". This provision needs to be amended. First should an "exceedance" occur this should trigger a careful and collaborative review between the state permitting agency and the permittee to determine what changes, if any, may be appropriate to the PMP. Secondly, should an exceedance occur, the proper reviewing authority should be the state permitting agency only. These PMP provisions are contained in NPDES permits over which the states have the primary delegated authority to administer.	The draft implementation strategy is not a "rule" as the commenter labels it, but a statement that represents the Commission's understanding of how the updated PCB criterion and corresponding TMDLs will be implemented when established. The Commission's PMP rule adopted in 2005 provides in relevant part that when a state or EPA issues "an initial, renewed or modified NPDES permit" requiring the discharger to develop a PMP consistent with the Commission's rule, then "as to that discharger: … the NPDES permitting authority [and not the DRBC] shall apply the more stringent of Section 4.30.9 [(DRBC's PMP requirements)] or other applicable state or federal requirements" with respect to the discharge of the pollutant" (in this case, PCBs). *See* WQR § 4.30.9 I. Until a PMP requirement pursuant to the Commission's PMP rule is included in a NPDES permit for a particular PCB discharger, then, the Commission administers the requirement. In some instances, a state has asked the Commission to review a PMP and provide advice and guidance to the state. The Commission also has an assessment and coordination role. Consistent with Section 4.30.9 F. "Annual Report" of the WQR, dischargers must submit monitoring data and PMP Annual Reports to both the permitting agency and the DRBC, in order to facilitate the Commission's review and assessment of progress in reducing Estuary PCB loadings overall. In addition to providing technical support and assessing progress across the three states, DRBC oversight helps to ensure that the PMP requirement is administered consistently throughout the Estuary.
14	4	Proposed Implementation Strategy: The Coalition supports the overall, PMP-based approach set forth in the Proposed Implementation Strategy, but strongly believes that the Commission should defer final action on both the Proposed PCB WQC and the Proposed Implementation Strategy until further details are developed and vetted concerning how the "Action Level," that is the central new element of the proposed strategy, is to be calculated and applied.	The Commission appreciates the support of the Coalition regarding the approach set forth in the draft PCB Implementation Strategy. The draft implementation strategy will be included as an appendix to the Stage 2 TMDL document that will accompany establishment of Stage 2 TMDLs by Regions II and III of the U.S. EPA. Please see Theme 5 for discussion of the development of a detailed approach to the calculation and application of the Action Level. Also see the Introduction and Theme 1, explaining that the Commission has proposed only to adopt a revised water quality criterion for total PCBs for the protection of human health from carcinogenic effects. No Commission action is proposed regarding the draft Implementation Strategy.
15	4	Proposed PCB Water Quality Criterion: The Coalition also has significant concerns with regard to the Proposed PCB WQC, including the data, assumptions and modeling used to develop the revised criterion, as well as fundamental issues of attainability that the Commission acknowledges exist, but which the Commission and the Estuary States have chosen not to evaluate at this time.	Please see response to Theme 2 in Section 2.0 of this document.

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16	4	The Coalition believes that use attainability assessments should be an important part of the water quality standards setting process, both at this juncture and periodically on a going-forward basis.	Please see the response to Theme 3 in Section 2.0 of this document. The draft implementation strategy was developed with the knowledge that attainment of the current or the proposed water quality criteria for PCBs will take decades because the reservoir of PCBs in estuary sediments will continue to be released into the water column. However, the Commission takes the view that fishing and fish consumption are long-established and continuing uses protected by state and DRBC Water Quality Regulations as well as by federal law and that restoration of the Estuary and Bay to make fish consumption safe remains a vital resource management objective. PCBs are man-made pollutants, the production of which was banned in late 1970s. Elimination of PCB discharges to the estuary from existing uses of PCBs, including equipment containing PCBs, and from contaminated soils would result in time in the attainment of the designated uses. Accordingly, the strategy is based upon the premise that water quality criteria for PCBs are attainable. Recent information on substantial PCB loading reductions from point sources contributing 90% of current loadings, and the reduced PCB concentrations achieved by several NPDES permittees support this position. However, the implementation strategy also provides a mechanism for revisiting the question of attainability. First, EPA Regions II and III have proposed to evaluate the strategy no less frequently than every ten years to determine whether the results in their view support its continuation, modification or discontinuation. Second, the strategy includes a requirement for a report on progress to be prepared every 10 years, with the first report due in December 2013. These two elements ensure that an informed re-evaluation of the PMP process and the question of attainability of the water quality criterion will periodically occur.
17	4	The Commissioners should defer any final action on the Proposed PCB WQC and the Proposed Implementation Strategy until the missing details concerning the point source permitting strategy are fully developed and vetted among the regulatory agencies and interested stakeholders.	Please see the Introduction and Theme 1 of this document, explaining that the Commission has proposed only to adopt a revised water quality criterion for total PCBs for the protection of human health from carcinogenic effects. No Commission action is proposed regarding the draft Implementation Strategy. See Theme 5 concerning the development of a detailed approach to the calculation and application of the Action Level.
18	4	There may be only 45 days for the Coalition to challenge any final action of the Commission on the proposed PCB WQC and Proposed Implementation Strategy as compared to a six-year statute of limitations for direct challenges to an EPA-established TMDL.	Article 6 of the Commission's *Rules of Practice and Procedure* ("RPP") sets forth rules by which the Commission may conduct administrative hearings in "contested cases" and further provides that to be considered timely, an appeal from any final Commission action "pursuant to the provisions of this article" must be filed with an appropriate federal district court (in accordance with section 15.1(p) of the Compact), within 45 days. The term "contested case" is defined in relevant part as "a proceeding in which the legal rights … of specific parties are involved … [and expressly states that] [s]uch a proceeding … *shall not extend to the review of any proposed or adopted rule or regulation of the Commission.*" RPP § 2.6.1 B. (emphasis added). A rulemaking such as the current proposal to amend the WQR, Water Code and Comprehensive Plan to update the human health water quality criterion for PCBs is thus not a "contested case" subject to Article 6, and neither the administrative hearing provisions nor the provision allowing 45 days for a timely appeal apply in this context. The RPP does not otherwise establish a time limit for the appeal of a Commission action to a federal district court. The statute of limitations for such an appeal is limited by neither the Commission's organic statute nor its rules.

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19	4	Unless due care is given to the sequence and timing of these interrelated actions, the Commission could adopt the Proposed PCB WQC and finalize the Proposed Implementation Strategy many months or even years before EPA establishes the Stage 2 PCB TMDLs - leaving the Coalition with no assurances that the Stage 2 PCB TMDLs will incorporate the point source permitting strategies set forth in the Implementation Strategy.	Please see the Introduction and Theme 1 of this document, explaining that the Commission has proposed only to adopt a revised water quality criterion for total PCBs for the protection of human health from carcinogenic effects. No Commission action is proposed regarding the draft Implementation Strategy. See Section 1.0 (Introduction) and Theme 5 of Section 2.0 of this document explaining that the Implementation Strategy will be included as an Appendix to the Stage 2 TMDL Report when it is issued by EPA.
20	4	It is our understanding that DRBC has considered deferring the effective date of any final Commission action to adopt the PCB WQC until the Stage 2 PCB TMDLs are established. In light of the Commission's 45-day appeal period, DRBC could coordinate with EPA so that any Commission action to adopt the PCB WQC and Implementation Strategy would coincide with EPA's establishment of the Stage 2 PCB TMDLs, or alternatively, the Stage 2 PCB TMDLs could be established by EPA subject to action by the Commission to adopt the proposed WQC.	Please see Theme 1, explaining why adoption of the updated water quality criterion must precede establishment of the Stage 2 TMDLs. With respect to the impact on dischargers of a new criterion pending adoption of corresponding TMDLs, it is the understanding of the DRBC that until the Stage 2 TMDLs are established, there will be no new permit requirements for NPDES permitting authorities to incorporate into permits. Accordingly, notwithstanding adoption of a revised water quality criterion for PCBs, until the Stage 2 TMDLs are established by the U.S. EPA, the existing Stage 1 TMDLs (including WLAs assigned as part of the Stage 1 TMDLs) will continue to be implemented through non-numeric BMP requirements in accordance with the procedure set forth in the Appendix to the Stage 1 TMDLs.
21	4	The Coalition endorses the continued use of non-numeric effluent limitations in the form of PMPs, and agrees with DRBC that a PMP based implementation strategy is the only effective way to achieve meaningful reductions of PCB loadings from point sources in the Delaware Estuary.	So noted. The Commission appreciates the Coalition's role in implementing the PMP-based strategy developed for the Stage 1 TMDLs, and its continued support of that strategy.
22	4	DRBC should clarify that an Action Level based on existing effluent quality is not a numeric, water quality-based effluent limitation, and cannot be applied or enforced as such.	Please see the response to Comment No. 11. The Action Level is not intended to be a final numeric effluent limitation placed in Part A of a NPDES permit. Rather, the Action Level requirement is intended to be placed in Part C of the permit, as part of a strategy that has been designed as an alternative to such final numeric effluent limits. An exceedance of the Action Level is intended to trigger additional monitoring, trackdown and or other actions that may be incorporated into a PMP. Permit requirements relating to the Action Level are enforceable to the same extent as any other requirement of Part C of the permit, such as the PCB monitoring and PMP requirements.
23	4	DRBC should clarify the respective roles of and the important distinctions between the PMP and the AL in any final Implementation Strategy adopted by the Commission, and should confirm for permit writers and the regulated community both that: (i) non-numeric PMPs are a form of "effluent limitation" under the Clean Water Act, and should continue to be used in lieu of numeric effluent limitations for PCBs in the Estuary, and (ii) it is these PMPs, not ALs, that are to serve as the applicable effluent limitations for implementing the PCB WQC and the PCB TMDLs.	Please see responses to Comments Nos. 11 and 22 regarding the relationship between the Action Level and final numeric effluent limitations for PCBs. As noted in the Introduction and emphasized throughout this document, no Commission action on the Draft PCB Implementation Strategy has been proposed. See Section 1.0 (Introduction) and Theme 5 of Section 2.0 of this document explaining that the Implementation Strategy will be included as an appendix to the Stage 2 TMDL Report when that report is issued by EPA. The section of the appendix describing the NPDES permitting requirements will include additional clarification regarding operation of the Action Level and its relationship to other components of the implementation strategy, including the PMP requirement.

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24	4	Because Action Levels are not numeric effluent limitations, the Clean Water Act's anti-backsliding prohibition does not apply, and permit writers should be afforded the flexibility to modify a discharger's Action Level as circumstances may warrant.	We agree that the Action Levels are not numeric effluent limitations subject to the anti-backsliding provisions of Section 402(o) of the Clean Water Act. At the same time, we note that increased levels of PCBs resulting in exceedance of an Action Level would be indicative of a new source, a new pathway to the wastewater stream from an existing source, or failings in the treatment system. Each of these conditions requires immediate action to identify and remediate the problem. Increasing the Action Level should be a last resort and not a short-term response. In addition, one principle in establishing an Action Level is that the level will incorporate the variability in the data set used to establish the level, and will be set near the extremes of the data distribution (such as the 5th percentile).
25	4	The Coalition suggests that the Proposed Implementation Strategy expressly recognize that at permit renewal, an AL can be reset either higher or lower based upon an analysis of the discharger's EEQ at that time.	For the reasons discussed in the response to Comment No. 24, we do not agree that increasing an Action Level should routinely be considered upon permit renewal. The adaptive management principle embodied in the PCB Implementation Strategy requires, in lieu of numeric effluent limitations for PCBs, continued efforts by a permittee to achieve either its assigned wasteload allocation (WLA) or the maximum practicable reduction of PCBs *short of* attainment of the WLA. Exceedance of an Action Level (AL) will occur only when previously attained reductions in PCB effluent concentrations or loadings are reversed.
26	4	The potential consequences of exceeding an Action Level must be clearly defined, and must reflect both the features and functions of an Action Level, and the potential causes of an exceedance.	Please see response to Theme 5 in Section 2.0. The methodology to calculate the Action Level and prescribed actions will be fully developed and proposed as an attachment to the Stage 2 TMDLs Report.
27	4	The Coalition maintains that in the event of an AL exceedance, the proper response, and the response that the Proposed Implementation Strategy should specifically endorse, is a collaborative reassessment or revaluation of the discharger's PMP by the permittee and the permitting authority, for the purpose of identifying whether any modifications to the PMP can be implemented to reduce loadings, or whether additional sampling should be performed to determine if the exceedance was a false positive, or if modifications are necessary or appropriate. The consequences of an AL exceedance, as outlined in the Proposed Implementation Strategy, appear to generally align with this position.	The commenter is correct. Also see the responses to Theme 5 in section 2.0 of this document and Comment No. 12 above.
28	4	The Proposed Implementation Strategy indicates that, in the event of an AL exceedance, the NPDES permitting authority may require the permittee to take certain actions, or may unilaterally impose additional specified controls in the permit. The Coalition objects to the suggestion that a permitting authority can unilaterally require a permittee to amend its PMP.	Please see the response to Theme 5 in section 2.0 above. The purpose of the Action Level is to require a prompt response when monitoring detects an increased concentration of PCBs in a wastewater discharge. The types of response actions being considered include increasing the monitoring frequency to better characterize the magnitude and duration of the exceedance, obligatory prompt reporting of the exceedance, and prompt reporting of responses within a short time period. The Commissioners agree with the commenters that following an exceedance, the permittee should engage in collaborative efforts with the permitting authority to determine appropriate measures.

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29	4	The Proposed Implementation Strategy also states that in the event that effluent data fail to show a reduction in PCB loading, "the discharger's PMP will be re-evaluated by DRBC and/or the permitting agency and amended to require actions or impose controls designed to achieve further reductions or more aggressive implementation of BMPs already included in the PMP. The Coalition objects to this condition of the Proposed Implementation Strategy because it is inconsistent with the PMP Rule, which expressly vests the states with the sole authority to implement the PMP program once the PMP requirement is incorporated into a discharger's permit.	The Coalition's objection is misplaced. The Commission's PMP rule adopted in 2005 provides in relevant part that when a state or EPA issues "an initial, renewed or modified NPDES permit" requiring the discharger to develop a PMP consistent with the Commission's rule, then "as to that discharger: … the NPDES permitting authority [and not the DRBC] shall apply the more stringent of Section 4.30.9 [(DRBC's PMP requirements)] or other applicable state or federal requirements" with respect to the discharge of the pollutant" (in this case, PCBs). *See* WQR § 4.30.9 I. As the Coalition acknowledges, *until a PMP requirement pursuant to the Commission's PMP rule is included in a NPDES permit for a particular PCB discharger, then, the Commission administers the requirement.* Consistent with this provision, the DRBC continues to administer 37 PMPs. Moreover, in some instances, a state has asked the Commission to review a PMP and provide advice and guidance to the state. The Commission also has an assessment and coordination role. Consistent with Section 4.30.9 F. "Annual Report" of the WQR, dischargers must submit monitoring data and PMP Annual Reports to both the permitting agency and the DRBC, in order to facilitate the Commission's review and assessment of progress in reducing Estuary PCB loadings overall. In addition to providing technical support and assessing progress across the three states, DRBC oversight helps to ensure that the PMP requirement is administered consistently throughout the Estuary.
30	4	EEQ-based Action Levels must be based on sound science, and must be established and applied consistently.	We agree that Action Levels must be based upon sound science with a goal of eliciting a rapid response to the observation of a reversal in PCB reductions previously achieved in a wastewater effluent.
31	4	The Coalition has serious questions about the technical bases and procedures that will be used to set ALs in the first instance, as well the technical bases and procedures that will be used to determine if an AL is exceeded. As DRBC recognizes, the nature of PCB loadings to the Estuary is highly variable and influenced by many factors.	See responses to Themes 4 and 5 in Section 2.0. Also, see response to Comments Nos. 12 and 28.

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32	4	Draft Method 1668 cannot be used to assess compliance, and data generated through use of this analytical method cannot be used in any enforcement context.	See response to Theme 4 in Section 2.0 of this document. Method 1668A was developed by the EPA's Office of Science and Technology (OST) to determine chlorinated biphenyl congeners in environmental samples by isotope dilution and internal standard high resolution gas chromatography/high resolution mass spectrometry (HRGC/HRMS). This method is applicable to aqueous, sediment, tissue, biosolids and other sample matrices; and provides a more accurate identification and quantification of all 209 PCB congeners than the existing EPA Method 608 for Aroclors. As part of an initial data collection request during the development of the Stage 1 PCB TMDL which did not specify the use of a particular analytical method, many dischargers voluntarily selected Method 1668A for evaluating their effluent discharge. On December 15, 2003 EPA approved the Stage 1 PCB TMDLs, which specifically required the use of EPA Method 1668A for the characterization of effluent from point source dischargers. Characterization of effluent loadings using 1668A is part of a two-pronged effort – monitoring and the use of PMPs -- to reduce PCB loading to the tidal Delaware River. Method 1668A in part provides a basis for determining the effectiveness of pollutant reduction measures undertaken pursuant to a PMP. In order to develop a consistent analytical approach, not only between dischargers, but for all sampling associated with the TMDLs, the TAC formed a Data Quality Subcommittee (DQS). Members of the DQS consisted of industrial, municipal, academic, and governmental representatives and included representatives of private analytical laboratories. They were tasked with the development of sampling, analytical and reporting protocols to meet the data quality objectives set forth by the DQS. Given the performance-based approach of the method, project-specific modifications to the sampling and analysis were developed to ensure that all performance criteria were met. These included increased sample size, use of a low calibration point and smaller sample extraction volume. These modifications provided for reduced analytical uncertainty (detection limits for 1668A are approximately four orders of magnitude lower than for Method 608, the approved Aroclor method); analytical results for all 209 congeners; improved comparability of analytical results across dischargers and other sampled media; and greater accuracy in estimated loadings and in the temporal and spatial evaluation of the data. Since the approval of the Stage 1 PCB TMDLs, more than 1,500 discharger effluent samples have been collected and analyzed using Method 1668A. Dischargers continue to implement PMPs and to sample their effluent and accurately report loadings, including substantial loading reductions. Project-specific modifications to the Method and associated data quality objectives (DQOs) have been consistently achieved and, in many cases significantly exceeded, in these samples to the extent that DRBC staff is considering recommendations to revise the DQOs to reflect current practice. Data collected using Method 1668A show that PCB loadings have been reduced by approximately half since 2005 for the largest dischargers. The body of data developed using 1668A makes its continued use appropriate for characterizing loadings and providing benchmarks by which to determine the achievement of the PMP objectives in the Delaware Estuary and Bay.
33	4	Method 1668A, published by EPA in 1999, is not one of the methods approved for use under 40 C.F.R Part 136 to determine NPDES compliance, and as a matter of law, can only be used for limited purposes.	Please see the responses to Theme 4 of section 2.0 and Comment No. 11 of this document.

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34	4	The use of EPA Method 1668 for determining compliance with any effluent limitations or load reduction requirements would violate due process of law by "mandating a standard that is too vague to warn industry of the scope of the conduct prohibited.'' A similar issue was raised in a due process challenge to a portion of EPA's Final Water Quality Guidance for the Great Lakes System, which requires the Great Lakes states to set WQBELs exactly as calculated, even if they fall below quantifiable levels. But unlike DRBC's Proposed Implementation Strategy, the Great Lakes Guidance states that measurements are considered accurate only down to the quantification limit of EPA-approved methods, and EPA's policy is that any measurement below the quantification limit is deemed to be in compliance with the WQBEL. Accordingly, the D.C. Circuit concluded that there was no indication that the Great Lakes states would take enforcement action based upon measurements below the actual quantification limit, and dismissed the action as unripe. In so doing, however, the court explained that "a standard with which compliance cannot be assessed - and it is agreed that compliance with an effluent limitation set below the level of quantification simply cannot be assessed - is not a standard at all for purposes of due process. Here, DRBC's Proposed Implementation Strategy contemplates the use of Method 1668 both to calculate ALs in the first instance, and to monitor a discharger's continued effluent quality on a going-forward basis. And yet unlike the provisions in the Great Lakes Guidance that were upheld by the D.C. Circuit, the Proposed Implementation Strategy does not clearly address what will happen if effluent data gathered through the use of Method 1668 shows an exceedance of these ALs. Indeed, if anything, the Proposed Implementation Strategy suggests that a permittee in this situation could be subject to enforcement or other action, including an order by the permitting authority to implement more aggressive BMPs to achieve PCB load reductions. Both EPA's NPDES regulations and due process prohibit this approach.	Please see the response to Themes 4 and 6 of section 2.0 of this document explaining that: (1) In instances in which no approved methods are listed at 40 CFR Part 136 or required by 40 CFR subchapters N or O, both federal regulations and New Jersey regulations authorize the use of methods not specified in Part 136 for purposes of the Clean Water Act NPDES program if specified in a permit; (2) It is the professional judgment of qualified scientists that Method 1668A is a valid method for purposes of measuring congener concentrations in waters of the Delaware Estuary and Bay; (3) Although adoption of the criterion is a final action by the Commission, the draft strategy may be further revised by the states and/or U.S. EPA. No Commission action on the draft Implementation Strategy is proposed; and (4) Exceedance of the "Action Level" is not proposed to constitute a permit "violation." It is further noted that the referenced opinion resulting from a challenge to EPA guidance applicable to the Great Lakes is from dicta and has not inhibited EPA in its support for the adoption of criteria that correspond to concentrations below the detection level of methods included in 40 CFR Part 136. Moreover, the proposed implementation strategy, which involves the use of Method 1668A, was specifically developed for the Delaware Estuary because an established interstate agency with authority to manage shared water resources – i.e., the DRBC – will lead implementation by working with the individual states to establish monitoring protocols and evaluate results of PMP implementation; and by recommending appropriate revisions to the strategy if necessary to achieve reductions in pollutant loadings.
35	4	The Coalition objects to the provision of the Proposed Implementation Strategy that would require NPDES permit writers to "document in the NPDES permit fact sheets that the implementation of the PMP approach ... is more stringent than the application of a technology based effluent limit for PCBs or other proposed surrogate pollutant (e.g. TSS)," to the extent that DRBC intends for unapproved methods to be used to determine compliance with such limits.	So noted. Fact sheets are required under 40 CFR Part 124.8. In developing the draft Implantation Strategy, co-regulators jointly determined that such documentation in the NPDES permit fact sheets is necessary to satisfy Clean Water Act requirements.

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36	4	A permittee should not necessarily have to submit an updated PMP as part of its five-year permit renewal.	The element of the PCB Implementation Strategy that the commenter appears to reference (par. 2.d. of the draft strategy document) is intended to require the permittee to submit a PMP Progress Report summarizing the minimization measures and reductions achieved *to date* for the discharge, as distinguished from the measures and reductions reported annually (see par. 2.b. of the draft strategy). The PMP must be updated with each permit renewal to the extent that modifications are needed to ensure maximum practicable reduction continues to be achieved. The need for clarification of the strategy on this point is duly noted.
37	4	More information is needed concerning how a determination will be made that a discharger's wasteload allocation is "achieved."	The draft Implementation Strategy specifies that the permit require that the monitoring requirement, reporting, PMP requirements and the Action Level remain effective until the discharger's wasteload allocation (WLA) is achieved. Achievement means that the monitoring data being gathered demonstrates that the PCB concentrations and/or loadings in the effluent are consistently below the WLA assigned to the discharge in the PCB TMDL document. When this situation occurs, the policies of the respective state permitting authority will apply. Since these WLAs are water quality-based, the permitting agencies typically use the "reasonable potential analysis" approach required by federal regulations, using procedures recommended in the Technical Support Document for Water Quality-Based Controls (U.S. EPA, 1991). The Coalition has indicated in its comments that it supports the use of this approach. Regarding the relationship between "maximum practicable reduction" under the Commission's PMP rule and achieving the WLA, the Commission recognizes that for certain discharges, achieving the WLA may not be practicable despite intensive efforts to identify and reduce or eliminate PCB sources contributing to a wastewater discharge. In the event of such an outcome, several options may be considered, including reallocation of loads between discharges, reallocations of a portion of the load allocations to the wasteload allocation portion of the TMDL, or trading of loadings between point sources or between point sources and non-point sources. Alternatively, the discharger may be required to maintain its maximally reduced load until such time, if any, as new technologies or techniques emerge that would yield greater reductions, at which point commensurate reductions through application of such measures could be required.
38	4	The Coalition supports periodic review of water quality conditions and continued assessment of the Proposed Implementation Strategy.	The Commission appreciates the support of the Coalition for periodic reassessment of PCB concentrations in the ambient water, sediment, fish tissue and airshed of the Delaware Estuary and Bay. We agree that periodic assessments are needed in an adaptive management approach such as we have proposed for attaining the water quality criterion and eliminating fish consumption advisories in the Delaware Estuary and Bay. Also, please see the response to Comment No. 16 in this document.

Delaware River Basin Commission RESPONSES TO COMMENTS RECEIVED ON REVISED HUMAN HEALTH CRITERION FOR PCBs AND PCB IMPLEMENTATION STRATEGY			
Comment No.	**Commenter No.**	**Comment**	**Response**
39	4	The Coalition Supports Using DRBC's Proposed Ten-Year Assessment and Report to Evaluate Attainability of the Fish Consumption Use.	The Commission appreciates the support of the Coalition regarding the 10-year evaluation and reporting on progress in achieving the PCB loading reductions needed to attain the proposed water quality criterion.
40	4	Point sources contribute only a small fraction of the total PCB loadings in the Estuary (less than 10%), and even if these point source loadings were eliminated completely, it still would not be possible to attain the water quality standard. Thus, meaningful water quality improvements in the Delaware Estuary ultimately rest upon realizing significant reductions in PCB loadings from nonpoint sources. The Coalition supports these efforts to address nonpoint sources because such efforts represent meaningful, though incremental, progress towards achieving PCB reductions.	Please see response to Comments Nos. 1, 2, 3, and 4 above. Notably, federal regulations require point source discharges to have a water quality based effluent limit for any parameter that is being discharged or may be discharged at a level that will cause, have the reasonable potential to cause, or contribute to an exceedance of the applicable water quality criterion. Each of the point sources included in the TMDLs has such potential for total PCBs. Point sources continue to be the second largest loading of PCBs to the estuary, contributing ~24% of the total PCB loading. Contaminated sites contribute ~11% of the total PCB loading. Both point and non-point source loadings are addressed in the draft Implementation Strategy, and to date, substantial reductions have been achieved for both types of discharges.
41	4	The ten-year assessment and report should specifically address attainability of the designated fish consumption use and associated PCB water quality criteria and provide for a Use Attainability Analysis to identify the most appropriate attainable use if it appears that attainment is unlikely.	As stated in the Coalition's comments, the language in the draft implementation strategy regarding the reporting of progress on a ten-year basis will include assessments of the attainment of the designated uses and associated water quality criteria over that period. These ten-year assessments will continue "until the designated uses and water quality criteria are attained, or the Commission concludes that the water quality criterion and its associated designated use is not attainable and modifies the designated use and water quality criterion and its water quality regulations accordingly" (*see* p. 8 of the draft strategy). A formal Use Attainability Analysis will only be conducted following a determination that the water quality criterion is not attainable. If and when made, such a determination will likely be conducted for each water quality zone where the "fishable" use remains impaired, and will involve consultation among the three state agencies, U.S. EPA Regions II and III, and the DRBC.
42	4	Reassessing attainability of the fish consumption use as part of the regular ten-year review process is consistent with the Clean Water Act and EPA's UAA regulations and policies.	So noted. See response to Theme 2 in Section 2.0 of this document.

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Comment No.	**Commenter No.**	**Comment**	**Response**
43	4	The Coalition maintains that there is currently a sufficient legal and regulatory basis on which to remove the fish consumption use because it is currently not attainable and is not an existing use.	As the commenter explains at length, federal regulations allow states to remove a designated use under certain conditions. These regulations and the factors under which a designated use can be removed are not applicable where the designated use is an existing use (40 CFR § 131.10(h)(1)). In this comment and subsequent comments, the commenter maintains that fish consumption is not an existing use. We disagree with this interpretation for reasons set forth below. Clean Water Act (CWA) section 101(a)(2) establishes as a national goal "water quality which provides for protection and propagation of fish, shellfish, and wildlife, and recreation in and on the water, wherever attainable." EPA frequently abbreviates this goal to "fishable" and has said that the language refers not only to protecting water quality so that fish and shellfish thrive, but to mean that when caught, the fish can also be safely eaten by humans. Accordingly, it has said that to be consistent with section 101(a)(2), the applicable criteria for such "fishable" designated uses must not only protect the aquatic organisms themselves, but also protect human health through consumption of fish and shellfish (*see,* e.g., Human Health Ambient Water Quality Criteria and Fish Consumption Rates FAQ at http://water.epa.gov/scitech/swguidance/standards/criteria/health/methodology/upload/hhfaqs.pdf and http://water.epa.gov/scitech/swguidance/standards/upload/2000_10_31_standards_shellfish.pdf. The Commission designations that correspond to the Clean Water Act designation "fishable" include "maintenance and propagation of resident fish and other aquatic life" and "passage of anadromous fish," both of which are "Water Uses to be Protected" for the Delaware Estuary and Bay, adopted in 1967. Thus, protection of aquatic life, and by extension, the protection of human health through the consumption of fish and shellfish, have been designated uses for the Estuary and Bay since 1967. They also constitute "existing uses." Recreational fishing and consumption of fish caught in the Estuary and Bay have been documented in a 1993 study in Zones 5 and 6 commissioned by the State of Delaware, and in a similar 2004 study in Zones 2, 3 and 4 conducted by the Penn State University Sea Grant Program (KCA, 1994 and Faulds et al, 1994). The latter study estimated that ~12,000 fishing trips of about 3 hours in length were conducted between May 1 and August 31, 2003.
44	4	Of the six factors that can be used to demonstrate that the existing use is unattainable, only two factors are currently applicable. These factors are: 1) human caused conditions or sources of pollution prevent the attainment of the use and cannot be remedied or would cause more environmental damage to correct than to leave in place; and 2) controls [on point source discharges] more stringent than those required by sections 301(b) and 306 of the Act would result in substantial and widespread economic and social impact.	The most recent observation shows a 46% reduction in PCB loadings from the ten NPDES discharges that represent 90% of the total loading of PCBs to Zones 2 through 6. These data highlight the success of the PMP requirement and indicate that cost-effective remedies are available that are showing progress in attaining the water quality criterion. The approach outlined in the Implementation Strategy will allow evaluations of available remedies and their cost effectiveness for controlling PCB discharges to continue until the criterion is attained or the designated use and associated water quality criterion is modified. We do not agree that the proposed water quality criterion is not attainable. In addition to the 46% load reduction referenced above, DRBC and state permitting authorities currently have three NPDES permittees who have either achieved or are approaching the proposed water quality criterion through source identification and elimination, or treatment technologies.

Delaware River Basin Commission RESPONSES TO COMMENTS RECEIVED ON REVISED HUMAN HEALTH CRITERION FOR PCBs AND PCB IMPLEMENTATION STRATEGY			
Comment No.	**Commenter No.**	**Comment**	**Response**
45	4	Attainment of the fish consumption use is not currently feasible because human caused sources of pollution prevent attainment and cannot be remedied. DRBC's proposal continues to acknowledge that "the Estuary and Bay will remain impaired for many years," and the Commission remains unable to project a date for attaining the proposed WQC.	Uncertainty regarding the rate and extent to which PCB loads can be reduced constitutes the basis for employing an adaptive management approach that relies on maximum practicable reduction of PCB loadings, combined with periodic re-assessment.. The implementation of PMPs at industrial and municipal facilities has demonstrated that basic controls such as the removal of PCB-laden transformers and contaminated soils can yield significant PCB load reductions. A 46% reduction in PCB loading from 10 facilities that contribute 90% of the PCB loading from point sources is evidence that sources of PCBs can and have been remediated. The Commenter is also incorrect in the statement that the "Commission remains unable to project a date for attaining the proposed WQC." Commission staff has made projections as part of the development of the estuary TMDLs, and as stated in the Implementation Strategy, each report of progress "will include the projected date of attainment of the water quality criterion" (*see* p. 8 of the draft strategy).
46	4	ENVIRON and HydroQual concluded that levels of PCB concentrations in the ambient water column and in fish tissue make it such that the Delaware Estuary cannot be restored to meet or even approach meeting a 16 pg/L PCB water quality standard in the foreseeable future. They established: • That fish collected from almost all surface water bodies sampled in the mid-Atlantic region, as well as from some of the most remote parts of North America, have PCB concentrations exceeding the fish tissue target that corresponds to the proposed WQC; • That for point source wastewater discharges, there are no existing treatment technologies that can achieve the proposed WQC at end-of-pipe and that even the most state-of-the-art, developing and unproven technologies have not been shown to achieve the necessary loading reductions. ENVIRON reconfirms the widespread scientific and regulatory recognition that existing concentrations of PCBs in urban conditions, and even in remote, pristine conditions, can prevent attainment of a fish consumption use. ENVIRON further concludes that the attainment of a fish consumption use is not attainable in urban areas such as the Delaware Estuary due to background levels of PCBs in fish tissue.	Ample evidence is now available that active sources of PCBs and not just background levels of PCBs in the atmosphere are contributing to elevated PCB concentrations in fish tissue in the Delaware Estuary and Bay. Of particular note, concentrations of PCBs in fish tissue collected in the non-tidal portion of the Delaware River have been measured since 2000. These data indicate that smallmouth bass collected in the Delaware Water Gap National Recreation Area during the period 2004 to 2007 and in a single sample collected at Narrowsburg in the Upper Delaware River in 2004 had tissue concentrations of <20 parts per billion (ppb), less than one order of magnitude higher than the acceptable level of 2 ppb. With respect to treatment technologies, we note that technologies have been applied successfully to smaller volume wastewater streams, such as those from groundwater remediation sites. At one such site in New Jersey with a direct discharge to the Delaware River, the median effluent concentration for the last four years is 17.5 pg/L, prompting the permittee to request reductions in the required monitoring frequency. The State of New Jersey also commissioned a study of available treatment technologies for PCBs (SAIC, 2005) that identified three technologies: granular activated carbon, ultraviolet oxidation, and sonochemical degradation that "should be able to achieve the proposed New Jersey criterion of 72 pg/L based upon their removal/destruction efficiencies." Additional testing on full-scale systems with analytical methods that can demonstrate compliance with low level criteria was recommended. Full scale testing of treatment technologies has been performed in recent years. Seattle Public Utilities tested conventional passive technologies and four different treatment technologies to remove PCBs from stormwater. This testing showed removal efficiencies of up to 89 to 94% removal by electrocoagulation and chitosan acetate with pressurized sand filtration (http://www.cforjustice.org/wp-content/uploads/2012/05/060512_Spokane_SPU_LDWSC1.pdf). In addition, an aluminum casting and forming facility in Spokane, WA utilizes a black walnut filtration system to treat a PCB-contaminated wastewater effluent of approximately 16 MGD.

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Comment No.	**Commenter No.**	**Comment**	**Response**
47	4	Attainment of the fish consumption use is not feasible because controls more stringent than those required by Sections 301(b) and 306 of the Clean Water Act would result in substantial and widespread economic and social impact.	The adaptive management approach embodied in the Implementation Strategy does not require the installation of specific technologies on waste streams to achieve wasteload allocations based upon the proposed water quality criterion of 16 pg/L. Rather, the strategy embraces continued implementation of the PMP concept through several five-year permit cycles. This approach will allow a permittee to continually identify and employ the most cost effective measures until maximum practicable reduction of their PCB loading is achieved. While treatment technologies may prove to be the most effective measure to reduce a facility's PCB loading, we do not believe that use of treatment technologies will be widespread. However, that significant reductions in PCB loadings can be achieved with cost-effective solutions has been demonstrated by the 46% reduction in loadings achieved since 2005.
48	4	The Designated Fish Consumption Use Can Be Removed Because It Is Not An "Existing Use" In The Estuary	See response to Theme 2 in Section 2.0 of this document. Also, see response to Comment No. 43.
PUBLIC HEARING COMMENTS (September 10, 2013)			
49	1	Since 2001 the coalition [coalition members include PSE&G, Dupont, Exelon, Dow. Calpine, AMTRAK, PBF Energy, Philadelphia Energy Solutions, DELCORA, Camden County Municipal Utilities Authority and the City of Philadelphia Water Department] has been involved in PCB issues in the Delaware Estuary. The coalition is proud of the accomplishments their members have made to date, significant point source reductions have been achieved. The coalition remains committed to a well-reasoned, adaptive management approach for making further progress	So noted.
50	1	We generally support the proposed implementation strategy subject to the development of further details regarding issues surrounding the action level.	See response to Theme 5 in Section 2.0 of this document.
51	1	We continue to have concerns about relying on an unapproved analytical method and about the use of the date that is generated by that method.	See response to Theme 4 in Section 2.0 of this document.
52	1	Our comments will address the role of use attainability evaluations that are relevant to whether it is reasonable to believe that the proposed water quality standard is achievable and how the use the use attainability process can fit into the long-term program that has been proposed.	See response to Theme 3 in Section 2.0 of this document. See also response to Comment No. 16.
53	1	We encourage the Commission to give careful thought to the sequence of decision making and consider how DRBC's actions will relate to the establishment of the states to PCB TMDLs by EPA.	See response to Theme 1 in Section 2.0 of this document. See also response to Comments Nos. 14, 18, 19 and 20.

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Comment No.	**Commenter No.**	**Comment**	**Response**
54	1	More detail about the implementation strategy is needed before the Commissioners are asked to vote on a proposed water quality standard and implementation strategy. The critically important, unanswered questions relate to 1) how action levels will be initially established and revised in the permit renewal cycles, 2) how it will be determined that an action level is not being met, and 3) what are the consequences of exceeding an action level.	See also response to Comments Nos. 14, 17 and 19. See also the Introduction and the response to Theme 1 in Section 2.0 of this document.
55	2	I would like to limit my comments today to matters regarding the implementation plan. I think that there is pretty much universal consensus that the PMP process works. It has yielded tremendous results. It has been effective. It is a wonderful concept so I think no one disagrees that it is the way to go.	So noted. We concur that the PMP process has yielded remarkable results in reducing PCB loadings.
56	2	Does the PMP implementation procedure really need to be changed at this point? All the authorities are already there to bring about all the progress that we want to see. So I'm not sure why we are tampering with the now.	While much progress has been made, much more needs to be done. The 46% reduction in PCB loading achieved so far was only seen for 10 dischargers. Significant reductions need to be achieved by the other point source dischargers as well as in non-point source loads. In addition, load reductions achieved need to be maintained. This is one basis for the Action Level. See response to Theme 5 in Section 2.0 of this document. See also response to Comment No. 10.
57	2	The major modifications (to the existing implementation requirements under the Stage 1 TMDLs] are that action levels will be established based upon EEQs [Existing Effluent Quality] and if they are violated, they will trigger a change to the PMPs.	See response to Theme 5 in Section 2.0 of this document.
58	2	We need to be absolutely clear what an action level is. It is not an NPDES effluent limit, it's not an NPDES permit limit. I would ask that that clearly be stated in the rules before these rules are submitted to the Commissioners for a vote.	See response to Theme 5 in Section 2.0 of this document. See also the Introduction and responses to Comment Nos. 11, 22, 23 and 24.
59	2	It is unclear what it means to violate an action level.	See response to Comments No. 12. Also see response to Theme 5 in Section 2.0 of this document.
60	2	What is the consequence of violating an action level?	See response to Comments Nos. 13 and 26. Also see response to Theme 5 in Section 2.0 of this document.
61	2	It is important the state permitting agency be the individual organization that gives oversight to the permittee.	See response to Comments Nos. 13 and 29. Also see response to Theme 5 in Section 2.0 of this document.

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Comment No.	**Commenter No.**	**Comment**	**Response**
COMMENTS Prepared by ENVIRON INTERNATIONAL CORPORATION ON THE PROPOSED IMPLEMENTATION STRATEGY for the DELAWARE ESTUARY TMDL COALITION			
A1-1	4	We support the use of an iterative process for implementation and the assessment of progress towards and attainability of the designated use, at the close of each ten-year reporting period. Depending on as yet unspecified details related to establishment of Action Levels and determination of exceedances thereof, the Proposed Implementation Strategy appears to represent a workable framework for making incremental progress towards the attainability of that goal.	So noted. See Themes 3 and 5 in Section 2.0 of this document.
A1-2	4	We commend DRBC for the considerable improvements made with the Proposed Implementation Strategy since 2009. In general, we support the conceptual approach as currently described. However, because the approach is conceptual and provides very little information about how the Action Levels will be calculated and how exceedances will be determined, several important decisions are required before it will be possible to conduct a detailed technical critique.	So noted. See the response to Theme 5 in section 2.0 of this document.
A1-3	4	We encourage DRBC to consider the following six guiding principles as a starting point before the Commission defines the basis for Action Levels and exceedances thereof.	We agree that principles and criteria should be developed to guide the identification and evaluation of procedures for establishing the Action Level. The guiding principles presented in the commenters' submission provide several good suggestions, including: 1) exceedances of Action Levels should be judged based upon statistically appropriate points of comparison; 2) simpler methods are preferable to complex computational procedures for establishing Action Levels; and 3) guidance should be developed and provided to ensure consistent and fair application to dischargers. Please see the response to Theme 5 in section 2.0 of this document for a discussion of the ongoing effort to determine how Action Levels should be determined, what should constitute an exceedence of an Action Level, and what the consequences of an exceedance may be. When co-regulators have completed their discussions, Commission staff will convene another meeting of the TAC to facilitate discussions of recommendations with interested stakeholders.
A1-4	4	There is widespread scientific and regulatory recognition that urban conditions and even remote, pristine conditions can prevent attainment of designated uses related to fish consumption. Even under the best of implementation strategies, these factors may prevent attainment of the Estuary's fish consumption use. As such, we support the Proposed Implementation Strategy's provision to regularly assess progress towards and attainability of the proposed WQC.	So noted.

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Comment No.	Commenter No.	Comment	Response
A1-5	4	Point sources contribute a relatively small proportion of PCB loading to the Delaware Estuary, while the ocean, atmospheric deposition, the Delaware above Trenton, tributaries, and other non-point sources make up the balance. Unless DRBC brings greater focus to nonpoint sources, their PCB loading will prevent attainment of the proposed WQC despite any reductions achieved by point sources.	See response to Comment No. 3.
A1-6	4	There is no available technology to enable point sources to comply with the proposed WQC. SAIC's (2005) report describing available treatment technologies states that none of the technologies discussed have been proven or confirmed to remove PCBs to 72 pg/L, much less the proposed WQC of 16 pg/L. Even if technological advances made that concentration achievable for effluent from point sources in the future, however, costs would be prohibitive.	SAIC's 2005 report prepared for the U.S. Environmental Protection Agency,- Region II concluded that "while in theory the treatment technologies should be able to achieve the proposed criteria based on their removal/destruction efficiencies, additional testing on full-scale systems for mercury, PCBs, and DDT …are needed to justify the installation of end-of-pipe treatment controls." Since the issuance of this report, treatment systems have been installed on several small volume discharges to the estuary to treat PCB-contaminated waste streams (see response to Comment No. 46). We also note that EPA disagreed with a similar comment submitted on the proposed Stage 1 TMDLs in 2003. That comment asserted that there is an absence of demonstrated treatment technology to meet the proposed WLAs, and that the environmental benefit of reducing PCB loadings of point sources would be negligible. As noted in the Stage 1 TMDL report, PCBs are persistent in the environment, and accumulate in the tissue of fish and other wildlife. Therefore, EPA believes that any removal of PCBs from the environment, including the water column, is beneficial. The CWA does not provide for consideration of the cost to point sources as a factor to be considered when applicable water quality criteria are established. Under the CWA, while economic information (including costs) may be considered in designating uses in a waterbody, such economic factors are irrelevant in setting the criteria to meet those uses. *See* Mississippi Comm'n Natural Resources v. Costle, 625 F. 2d. 1269, 1277 (5th Cir 1989).
A1-7	4	The proposed PCB water quality criterion is unnecessarily stringent. It was derived by applying multiple layers of conservative assumptions that result in compounding conservatism and protection of a worst case scenario that does not actually exist. While some individuals may find that one or two of the assumptions regarding fish consumption are consistent with their actual behavior, it is highly unlikely that all assumptions in combination are consistent with anyone's behavior.	The proposed water quality criterion is based upon the U.S. EPA Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health (2000), EPA-822-B-00-004. See response to Theme 2 in section 2.0 of this document for details on the extensive stakeholder-driven process that was utilized to develop the proposed criterion.

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Comment No.	Commenter No.	Comment	Response
A1-8	4	Even considered individually, rather than in combination, many of the assumptions used to derive the proposed WQC are overly stringent. The use of the 1 x 10^{-6} (one in one million) target risk is overly stringent in this case. Calculating a WQC using an intermediate target cancer risk and a high-end fish consumption rate would result in fewer false positive results where the detected concentrations of PCBs in water are actually the result of background concentrations of PCBs from a variety of sources, which could include global cycling or anthropogenic background levels.	See response to Comment No. A1-7. The Commission's Water Quality Regulations at Section 3.10.3 D.4. specify "In establishing stream quality objectives for carcinogens, the risk level is established at 10^{-6} or one additional cancer in every 1,000,000 humans exposed for a lifetime (70 years)." This risk level is also specified in the water quality regulations of the State of Delaware at Title 7, Chapter 7401 - Watershed Assessment, Section 4.5.9.3.2.1; State of New Jersey at 7:9B-1.5(a)5.; and the Commonwealth of Pennsylvania at Title 25, Chapter 93, Section 93.8a.(d). The risk level for water quality criteria established by the Commission and all three states bordering Zones 2 - 6 is set by regulation.
A1-9	4	The derivation of the fish consumption rate of 17.5 g/day-described in the Basis and Background Document as site-specific and representative of the general population- is not transparent and likely overestimates actual consumption of fish from the Delaware Estuary.	We do not agree that one of the bases for the consumption rate (i.e., site-specific consumption data) used to calculate the proposed water quality criterion for the protection of human health from carcinogenic effects is not transparent. Reports are available for both the KCA (1994) and Faulds *et al.* (2004) studies as evidenced in the detailed comments provided. The other two surveys cited by the commenter do not provide any basis for an alternate consumption rate due to the low numbers of participants or lack of key data in the two studies. In addition, although the Faulds *et al.* study resulted in a higher consumption rate in Zones 2 - 4, the TAC and its Water Quality Criteria Subcommittee recommended that a rate of 17.5 grams per day be used since this is also the default consumption rate recommended by the U.S. EPA and is used by all three estuary states in developing water quality criteria for human health. See response to Theme 2 in section 2.0 of this document for additional information regarding the process used to develop the uniform criterion.
A1-10	4	In deriving the proposed WQC, DRBC should account for the loss of PCBs that is well-documented to occur during cooking.	On February 12, 2003, the TAC considered several motions regarding the recommendations of the Water Quality Criteria Subcommittee on revised water quality criteria for the protection of human health from carcinogenic effects. One of the motions recommended that no reduction in the PCB concentration of consumed fillets by trimming and cooking be considered in the development of the criteria. This motioned passed with 7 affirmative votes, 1 negative vote and 2 abstentions.

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Comment No.	Commenter No.	Comment	Response
A1-11	4	The BAFs employed in the derivation of the proposed WQC appear fundamentally flawed. Our primary concern is that BAFs represent a highly simplified view of an extremely complex process that is not always best described with a single BAF value.	We disagree with this comment. As discussed in Theme 2 in Section 2.0 of this document, the Commission's Toxics Advisory Committee in early 2000 recognized that the PCB human health water quality criteria of the states and DRBC needed revision to conform to new science and updated guidance adopted by the U.S. EPA. In January 2001, the TAC unanimously approved a recommendation that a field-derived bioaccumulation factor ("BAF") be developed as one basis for the revised human health criteria for PCBs in Zones 2 through 6 of the Delaware River. This recommendation is consistent with the current U.S. EPA methodology for deriving ambient water quality criteria for the protection of human health (see EPA-822-B-00-004, October 2000). Specifically, the new methodology recommends the use of a BAF rather than a bioconcentration factor as recommended in the 1980 methodology. Of the four procedures recommended in the methodology, the one recommended for nonionic organic compounds such as PCBs is a measured BAF derived from field data. These data include total tissue and water concentrations of the pollutant of interest (PCBs) normalized by the lipid content of the tissue and the freely dissolved concentration in the ambient water. Data used in this study were obtained from ambient water and fish tissue studies conducted by the DRBC, and a special bioaccumulation study performed by researchers from the Patrick Center for Environmental Research, Academy of Natural Sciences, Philadelphia, PA and Chesapeake Biological Laboratory, University of Maryland, Solomons, MD. The report is available at http://www.state.nj.us/drbc/library/documents/bioaccum-PCBs-estuary.pdf. The use of this data in the procedures for calculating the water quality criterion was reviewed by a subcommittee of the TAC who, in their recommendations to the TAC for a revised criterion, included a single field-derived BAF for two trophic levels for all water quality management zones. Thus, the revised criterion reflects not only the latest science and site-specific data but also the consensus of stakeholders and their technical experts who participated in the subcommittee deliberations.
A1-12	4	A fundamental assumption underlying BAFs is that conditions are at steady state (i.e., PCB concentrations in aqueous and biota are in equilibrium). Further evaluation of the data is needed to evaluate this assumption.	The new U.S. EPA methodology for deriving ambient water quality criteria for the protection of human health addresses this issue, acknowledges this assumption and recommends that measurements used in a BAF should be based upon ambient water concentrations that are averaged over a sufficient period of time and on adequate spatial averaging. The BAFs for trophic levels 3 and 4 were based upon sampling conducted over four water quality management zones and in two seasons. In addition, ambient water and fish tissue data in channel catfish and white perch collected by the DRBC in these same zones for more than ten years has not changed substantially.
A1-13	4	BAFs may not be constant or linear.	See response to Comment No. A1-12. In addition, as noted by the commenter, despite their limitations the BAF assumptions as to steady state conditions and linearity are incorporated into the new U.S. EPA methodology.

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Comment No.	Commenter No.	Comment	Response
A1-14	4	Overly simplistic application of K_{ow} [octanol-water partition coefficient] values results in an inaccurate calculation of the BAF.	We do not agree with this comment. The Basis and Background Document for the revised human health water quality criterion contains all of the data and calculations used to determine a numerical value for the criterion. This information was reviewed by a subcommittee of the TAC in developing their criterion recommendations to the full committee. The commenter is in error concerning the use of a single median value for the K_{ow} in the calculation of the BAFs. Individual values for the freely-dissolved fraction of each of the ten PCB homologs for each water quality management zone were calculated using K_{ow} values for each homolog. The median value of the fractions for each zone was then used to calculate the Baseline BAFs for each zone since the criterion represents Total PCBs.
A1-15	4	The dissolved fraction calculation is outdated.	The new U.S. methodology recommends deriving BAFs using the most bioavailable fraction to account for the influence of dissolved organic carbon ("DOC") and particulate organic carbon ("POC") on a chemical's bioavailability. As noted in the methodology, the freely-dissolved fraction of a chemical is considered to be the best expression of the bioavailable form of the chemical. The formula to determine the freely-dissolved portion of PCBs follows that recommended in Procedure #1 for field-measured BAFs, and uses site-specific data from each water quality zone, collected during the same period as ambient water and tissue data. The revised formula for determining the freely-dissolved fraction recommended by the commenter is one utilized in a food web bioaccumulation model used for PCBs in San Francisco Bay (Arnot, J.A. and F.A.P.C. Gobas, 2010). This formula includes disequilibrium factors for both POC and DOC that represent the degree to which site-specific POC-water and DOC-water partition coefficients vary from equilibrium values. As discussed in the response to Comment No. A1-12, ambient water surveys have been conducted by the DRBC in the Delaware Estuary for more than ten years. Data from these surveys indicate that POC and DOC concentrations have not changed substantially over time. In addition, the revised formula of Arnot and Gobas has not been included in EPA guidance for deriving ambient water quality criteria for the protection of human health.

Delaware River Basin Commission
RESPONSES TO COMMENTS RECEIVED ON REVISED HUMAN HEALTH CRITERION FOR PCBs AND PCB IMPLEMENTATION STRATEGY
Comments of the Delaware Estuary TMDL Coalition
Appendix 1 - Comments Prepared by ENVIRON International Corporation

Comment No.	Commenter No.	Comment	Response
A1-16	4	The probabilistic calculation of the proposed WQC, which is described in the Basis and Background Document as a mechanism to assess the uncertainty in the risk parameters, is not transparent and almost certainly overestimates risks to the general population.	The commenter states that the probabilistic calculation of the proposed WQC is not transparent. Specifically, the commenter indicates that there was insufficient detail in the Basis and Background Document to allow replication of the probabilistic calculations. The DRBC, in consultation with the DNREC, disagrees. The necessary and sufficient information needed to replicate the calculation includes: the equations used in the probabilistic calculations; specification of which variables were considered constants versus which were treated as distributions; what distributions were used; what underlying source data were used; what statistical method was used to "sample" from the distributions; and the results of the analysis. All of this information was provided in the Basis and Background Document. Underlying data were readily available. We therefore conclude that there was sufficient transparency and information to allow replication of the probabilistic calculations with reasonable effort. The commenter further states that the probabilistic calculation almost certainly overestimates risks to the general population. We agree with the commenter, provided "general population" is defined to include both people who do and do not consume fish from the Delaware Estuary. People who do not consume fish from the Delaware Estuary are not exposed through that route. Assuming those individuals are exposed when they aren't, overstates risks to those individuals. The criterion, however, is intended to protect individual who do consume fish from the Delaware Estuary. Those individuals represent a subset of the general population. Including fish consumers and non-fish consumers in the calculation of the criterion has the effect of overstating risk to the general population while understating the risk to the subpopulation of fish consumers. Underestimating risk to fish consumers is counter to the intent of the criterion. The criterion specifically targets fish consumers, not the general population. The final point here is that the probabilistic calculation was intended only to supplement the primary, deterministic calculation of the criterion. Clearly, all information was provided to the Water Quality Subcommittee for their review and to allow replication of the deterministic calculation of the criterion.

Delaware River Basin Commission RESPONSES TO COMMENTS RECEIVED ON REVISED HUMAN HEALTH CRITERION FOR PCBs AND PCB IMPLEMENTATION STRATEGY Comments of the Delaware Estuary TMDL Coalition Appendix 2 - Comments Prepared by Environmental Standards, Inc., Review and Evaluation of Method 1668 (October 19, 2009)			
Comment No.	**Commenter No.**	**Comment**	**Response**
COMMENTS Prepared by ENVIRONMENTAL STANDARDS, INC. ON METHOD 1668 for the DELAWARE ESTUARY TMDL COALITION			
A2-1	4	EPA issued a proposed rule on September 23, 2010, (Federal Register, Vol. 75, No. 184, pages 58023-58076) to approve several new or revised analytical methods (test procedures). The full title of the proposed rule is "Guidelines Establishing Test Procedures for the Analysis of Pollutants Under the Clean Water Act; Analysis and Sampling Procedures." In this rule, EPA is proposing to promulgate EPA Method 1668C for the analysis of chlorinated biphenyl (CB) congeners (commonly referred to as polychlorinated biphenyls or "PCBs"). Environmental Standards, Inc. (Environmental Standards) was retained by several interested parties to provide technical services to review and evaluate EPA Method 1668. Environmental Standards' review and evaluation focused on the technical adequacy of work performed above [Method 1668A Interlaboratory Validation Study Report, U.S. EPA, March 2010 and Method 1668C Chlorinated Biphenyl Congeners in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS, U.S.EPA, April 2010 and related documents] relative to the proposed promulgation of Method 1668C.	We do not intend to provide individual responses to the comments in this appendix as it concentrates on revisions to Method 1668C, which are not required as part of the non-numeric effluent requirements for the implementation of the Stage 1 TMDLs. Method 1668A was originally and remains the required analytical method. Furthermore, in the context of implementing the Stage 1 TMDLS established in 2003, in consultation with the regulated community and its consultants (including representatives from Environmental Standards, Inc.), the Commission established a specific set of requirements to be used with Method 1668A for the analysis of effluent samples collected by NPDES permittees either as a result of a specific monitoring request issued by the DRBC Executive Director or a monitoring requirement in a NPDES permit issued to estuary and bay dischargers. These requirements (at http://www.state.nj.us/drbc/quality/toxics/pcbs/monitoring.html) include project-specific modifications to Method 1668A, including calibration, quality assurance, reporting and data evaluation protocols. Please see Theme 4 for additional discussion of the development and use of Method 1668A in the Delaware Estuary and Bay PCB TMDL efforts to date. In addition to the extensive use of Method 1668A as part of the implementation of the Stage 1 Delaware Estuary and Bay TMDLs, this method is also being used extensively in connection with TMDLs in other regions, including in the NY/NJ Harbor, throughout the State of Virginia, and in the Potomac River, Spokane River and San Francisco Bay.

Delaware River Basin Commission RESPONSES TO COMMENTS RECEIVED ON REVISED HUMAN HEALTH CRITERION FOR PCBs AND PCB IMPLEMENTATION STRATEGY Comments of the Delaware Estuary TMDL Coalition Appendix 3 - Comments Prepared by Delaware Estuary TMDL Coalition on DRBC's 2009 Proposed Rulemaking, October 19, 2009			
Comment No.	**Commenter No.**	**Comment**	**Response**
COMMENTS Submitted by the DELAWARE ESTUARY TMDL COALITION on DRBC's 2009 Proposed Rulemaking			
A3-1	4	Appendix 3 consists of the Delaware Estuary TMDL Coalition's comments of October 19, 2009 on DRBC's August 2009 proposed amendments to its Water Quality Regulations, Water Code and Comprehensive Plan to (I) revise the water quality criteria ("WQC") for polychlorinated biphenyls ("PCBs") in the Delaware Estuary, (2) apply the revised PCB standard to the Delaware Bay, and (3) provide authority for the use of compliance schedules for PCBs and other constituents in appropriate cases. The major points of these comments are: 1. The proposed water quality criterion of 16 picograms per liter cannot be attained. 2. The proposed TMDL Implementation Plan is unrealistic and unacceptable in view of the use of numeric effluent limits, compliance schedules and an unreliable analytical method. 3. Federal law and regulations do not support, let alone compel, the establishment of numeric limits under these circumstances, and DRBC, EPA and the Basin States have the clear legal authority to adopt an implementation plan that is based exclusively upon the existing, successful PMP regulatory framework.	DRBC is not providing individual responses to the comments contained in this 2009 submission, because the comments either (a) refer to the draft TMDL Implementation Plan that was published for comment in August 2009 and not the Draft PCB Implementation Strategy that is the subject of the current notice; or (b) are addressed elsewhere in this Comment and Response document. Regarding the attainability of the proposed water quality criterion, please see Themes 2 and 3 in section 2.0 of this document. Importantly, the commenter's concern about the establishment of numeric effluent limits in NPDES permits is addressed by the draft Implementation Strategy, which proposes to continue the use of non-numeric effluent requirements such as those that accompanied the establishment of the Stage 1 TMDLs in 2003. Please see Theme 5 in section 2.0 of this document for relevant details.

4.0 REFERENCES

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APPENDIX A

DRBC RESOLUTION NO. 2013 – 8

NO. 2013 – 8

A RESOLUTION to amend the Comprehensive Plan, Water Code and Administrative Manual – Part III Water Quality Regulations to revise the stream quality objectives for total polychlorinated biphenyls (Total PCBs) for the Delaware River Estuary and Delaware Bay for the protection of human health from carcinogenic effects.

WHEREAS, the Commission's Toxics Advisory Committee (TAC) unanimously voted in January 2001 that the DRBC should revise its water quality criteria for PCBs to reflect the most current EPA guidance, including the use of bioaccumulation factors and estuary-specific data on fish consumption; and

WHEREAS, by Resolution No. 2003-11 in March of 2003, the Commission authorized the Executive Director, among other things, to initiate notice and comment rulemaking to revise the Commission's PCB human health water quality criteria effective on or after January 1, 2004 to reflect site-specific data on fish consumption, site-specific bioaccumulation factors, and current U.S. Environmental Protection Agency guidance on development of human health water quality criteria; and

WHEREAS, such rulemaking was postponed pending additional technical effort by the Toxics Advisory Committee to refine the revised criterion and a separate effort by the Implementation Advisory Committee to develop recommendations for achieving reductions in PCB loadings to the river; and

WHEREAS, applying the most recent estuary-specific data available, the TAC, with the assistance of a Toxics Criteria Subcommittee that included technical experts representing the regulated community, developed a revised human health water quality criterion for PCBs for the Delaware Estuary and Bay of 16 picograms per liter; and

WHEREAS, on July 7, 2005 the TAC voted to recommend to the Commission that notice and comment rulemaking be initiated on a revised water quality criterion for PCBs of 16 picograms per liter for the protection of human health from carcinogenic effects; and

WHEREAS, by Resolution No. 2005-19 adopted in December of 2005, the Commission authorized and requested the Executive Director to proceed with notice and comment rulemaking in accordance with Resolution No. 2003-11 on a proposal to revise the Commission's ambient human health water quality criteria for PCBs, which currently vary by Water Quality Management Zone, to a uniform value of 16 picograms per liter to become effective on or after January 1, 2007; and

WHEREAS, by the same resolution, the Commission authorized and requested the Executive Director to convene a working session or sessions to develop recommendations for implementing criteria for bioaccumulative pollutants, which include but are not limited to PCBs, noting that recommended approaches be consistent with the existing Clean Water Act National Pollutant Discharge Elimination System (NPDES) framework, while also reflecting principles of adaptive management, and that participants include staff of the DRBC, EPA Regions 2 and 3 and the signatory state environmental agencies ("co-regulators"), along with agency staff from

outside the Basin who are experienced in developing or applying rules designed to implement water quality criteria that cannot be achieved within a single NPDES permit cycle; and

WHEREAS, on August 14, 2009, the Commission published notice of a proposed rule (a) amending the Commission's ambient human health water quality criteria for PCBs for Water Quality Zones 2 through 5 to establish a uniform criterion of 16 picograms per liter, and (b) extending the criterion to Delaware Bay (Zone 6); and simultaneously invited comment on a proposed TMDL Implementation Plan developed by the co-regulators; and

WHEREAS, based on the comments received, the Commission deferred action on its rulemaking proposal pending refinement by the co-regulators of implementation strategies for point sources; and

WHEREAS, between August 1, 2013 and August 17, 2013, the Commission again published notice in the *Federal Register* and member state registers of and sought comment on a proposed rule to establish a uniform criterion for Total PCBs for the Delaware Estuary and Bay (Water Quality Zones 2-6) of 16 picograms per liter, and simultaneously invited comment on an implementation strategy that was revised as to point sources; and

WHEREAS, the Commission held a public hearing on the proposed rulemaking and draft implementation strategy on September 10, 2013 and accepted written comment on these items through September 20, 2013; and

WHEREAS, four commenters filed written comments on the proposed rule and the draft implementation strategy, and two of these also commented in person at the public hearing; and

WHEREAS, after reviewing the comments, Commission staff prepared a Response to Comments document; and

WHEREAS, the Commission has considered the comments received and concurs in the recommendations set forth in the Response to Comments document prepared by staff; and

WHEREAS, the proposed uniform water quality criterion for Total PCBs will protect the health of people who drink water withdrawn from the Delaware Estuary and/or consume fish caught in the Estuary and Bay; and

WHEREAS, the revised criterion for Total PCBs will provide the basis for Stage 2 TMDLs for Water Quality Zones 2 through 6, which are expected to be established by U.S. EPA Regions II and III ("EPA") to replace the Stage 1 TMDLs established by EPA for the Delaware Estuary in December 2003 and Delaware Bay in December 2006; and

WHEREAS, the Commission understands from the NPDES permitting authorities in the basin that the revised criterion will be implemented in accordance with the draft implementation strategy developed by co-regulators, subject to any technical refinements to that strategy made in response to comments received to date or in any future comment period. It is the Commission's intention to implement its programs in the same manner; and

WHEREAS, certain regulated dischargers have asked whether Article 6 of the Commission's *Rules of Practice and Procedure* governs the time for an appeal from the criterion, and in response, the Commission notes that by its terms Article 6 does not apply to "any proposed or adopted rule or regulation of the Commission"; now therefore,

BE IT RESOLVED by the Delaware River Basin Commission:

1. In accordance with the rule text amendments set forth below, the Commission's Water Quality Regulations, Water Code and Comprehensive Plan are hereby amended to establish a uniform criterion for Total PCBs for the protection of human health from carcinogenic effects in Water Quality Zones 2 through 6 (the Delaware Estuary and Bay) equal to 16 picograms per liter.

2. These amendments shall become effective 30 days following the last date of publication in the *Federal Register* and member state registers, provided, however that:

3. The Commission concurs with the implementation strategy proposed by the co-regulators, including the issuance of requirements in NPDES permits consistent with that strategy (subject to any necessary technical refinements). The Commission further concurs with the co-regulators' intended use of the existing NPDES permit approach, which was published as an appendix to the Stage 1 TMDLs, until the Stage 2 TMDLs are established based on the revised criterion. The Commission intends to utilize the same principles in administering its own PCB program.

/s/ Angus Eaton
Angus Eaton, Acting Chairman *pro tem*

/s/ Pamela M. Bush
Pamela M. Bush, J.D., M.R.P., Commission Secretary

ADOPTED: December 4, 2013

In accordance with the foregoing,

Section 3.30 TABLE 6: STREAM QUALITY OJECTIVES FOR CARCINOGENS FOR THE DELAWARE RIVER ESTUARY AND BAY of Article 3 of the Water Code and Article 3 of the Administrative Manual - Part III Water Quality Regulations, 18 CFR 410, are hereby amended as follows:

For the parameter "PCBs (Total)", in the column headed "Freshwater Objectives (ug/l): Fish & Water Ingestion," remove the number "0.0000444" and insert "0.000016"; in the column headed "Freshwater Objectives (ug/l): Fish Ingestion Only," remove the number "0.0000448" and insert "0.000016"; and in the column headed "Marine Objectives (ug/l): Fish Ingestion Only," remove the number "0.0000079" and insert "0.000016".

APPENDIX B

FEDERAL AND STATE REGISTER NOTICES AND DRBC WEB NOTICE OF PROPOSED RULEMAKING

effective September 15, 2012, is amended as follows:

Paragraph 6005 Class E Airspace areas extending upward from 700 feet or more above the surface of the earth.

* * * * *

ACE KS E5 Washington, KS [Amended]

Washington County Memorial Airport, KS
(Lat. 39°44′07″ N., long. 97°02′51″ W.)

That airspace extending upward from 700 feet above the surface within a 7.3-mile radius of Washington County Memorial Airport.

Issued in Fort Worth, TX, on July 25, 2013.

David P. Medina,

Manager, Operations Support Group, ATO Central Service Center.

[FR Doc. 2013–18868 Filed 8–2–13; 8:45 am]

BILLING CODE 4910–13–P

DELAWARE RIVER BASIN COMMISSION

18 CFR Part 410

Amendments to the Water Quality Regulations, Water Code and Comprehensive Plan To Revise the Human Health Water Quality Criteria for PCBs in Zones 2 Through 6 of the Delaware Estuary and Bay

AGENCY: Delaware River Basin Commission.

ACTION: Proposed rule; notice of public hearing.

SUMMARY: The Delaware River Basin Commission ("DRBC" or "Commission") will hold a public hearing to receive comments on proposed amendments to the Commission's *Water Quality Regulations, Water Code* and *Comprehensive Plan* to revise the water quality criteria for polychlorinated biphenyls ("PCBs") in the Delaware Estuary and Bay, DRBC Water Quality Management Zones 2 through 6, for the protection of human health from carcinogenic effects. The Commission will simultaneously solicit comment on a draft implementation strategy to support achievement of the criteria.

DATES: The public hearing will be held starting at 1:00 p.m. on Tuesday, September 10, 2013. The hearing will continue until all those wishing to testify have had an opportunity to do so. Written comments will be accepted and must be received by 5:00 p.m. on Friday, September 20, 2013. More information regarding the procedures for the hearing and comments is provided below.

ADDRESSES: The public hearing will be held in the Goddard Conference Room at the Commission's office building located at 25 State Police Drive, West Trenton, NJ. As Internet mapping tools are inaccurate for this location, please use the driving directions posted on the Commission's Web site.

Oral testimony and written comments: Persons wishing to testify at the hearing are asked to register in advance by phoning Paula Schmitt at 609–883–9500, ext. 224. Written comments may be submitted as follows: If by email, to *paula.schmitt@drbc.state.nj.us;* if by fax, to Commission Secretary at 609–883–9522; if by U.S. Mail, to Commission Secretary, DRBC, P.O. Box 7360, West Trenton, NJ 08628–0360; and if by overnight mail, to Commission Secretary, DRBC, 25 State Police Drive, West Trenton, NJ 08628–0360. Comments also may be delivered by hand at any time during the Commission's regular office hours (Monday through Friday, 8:30 a.m. through 5:00 p.m. except on national holidays) until the close of the comment period at 5:00 p.m. on Friday, September 20. In all cases, please include the commenter's name, address and affiliation, if any, in the comment document and "PCB Rulemaking" in the subject line.

FOR FURTHER INFORMATION CONTACT: The rule text, basis and background document and the draft Implementation Strategy are available on the DRBC Web site, DRBC.net. A May 10, 2012 PowerPoint presentation that illustrates PCB loading reductions achieved through the implementation of the Commission's PMP Rule is also posted on the Web site. For further information, please contact Commission Secretary Pamela M. Bush, 609–883–9500 ext. 203.

SUPPLEMENTARY INFORMATION:

Re-Proposal. A notice of proposed rulemaking to amend the current PCB criteria and to invite comment on an implementation plan was published in the **Federal Register** (74 FR 41100) on August 14, 2009. The Commission deferred action on the proposal, however, pending the refinement of implementation strategies for point sources. Today, the uniform criterion of 16 picograms per liter is re-proposed, and a draft implementation strategy that has been revised for point sources is simultaneously published for comment.

Current Criteria. The human health water quality criteria for PCBs currently in effect in Zones 2 through 5 of the Delaware Estuary were established by the Commission in 1996 (*see* 61 FR 58047 and incorporation by reference at 18 CFR part 410). The 1996 criterion applicable to the lower portion of Zone 5 was extended to Zone 6, Delaware Bay, in 2010, effective the following year (*see* 76 FR 16285). The development of these PCB criteria predated the collection of site-specific bioaccumulation data for the Estuary and Bay and site-specific fish-consumption data for Zones 2 through 4 that are relevant to the development of human health water quality criteria. They are also inconsistent with current guidance issued by the U.S. Environmental Protection Agency ("EPA") for the development of such criteria, and they vary by water quality zone, adding undue complexity to application of the criteria in these tidal waters.

Development of New Criteria. By Resolution No. 2003–11 on March 19, 2003 the Commission directed the executive director to initiate rulemaking on a proposal to revise the Commission's water quality criteria for PCBs for the protection of human health from carcinogenic effects to reflect site-specific data on fish consumption, site-specific bioaccumulation factors, and current EPA guidance on development of human health criteria. Amendment of the PCB criteria was delayed, however, pending ongoing work by the Commission's Toxics Advisory Committee ("TAC") to develop the new criterion and a simultaneous initiative by the Commission and diverse stakeholders to develop an implementation plan. The TAC is a standing committee of stakeholders, including regulators, municipal and industrial dischargers and environmental organizations that advises the Commission on technical matters relating to the control of toxic contaminants in shared waters of the Basin.

Rigorously applying the most current available data and methodology, including site-specific data on fish consumption, site-specific bioaccumulation factors, and the current EPA methodology for the development of human health criteria for toxic pollutants (*see* EPA–822–B–00–004, October 2000), the TAC in July 2005 completed development of a revised PCB water quality criterion for the protection of human health from carcinogenic effects for the Delaware Estuary and Bay, recommending adoption of a uniform criterion of 16 picograms per liter for Water Quality Management Zones 2 through 6. By Resolution No. 2005–19 on December 7, 2005, the Commission again directed the executive director to conduct rulemaking, specifically to replace the existing criteria for PCBs with the

uniform criterion of 16 picograms per liter.

Over the course of the next three-and-a-half years, the Commission continued to work with co-regulators on an implementation strategy for point and non-point sources to accompany the proposed uniform criterion. A notice of proposed rulemaking to amend the current PCB criteria and to invite comment on an implementation plan was issued in August 2009 (*see* 74 FR 41100). The Commission deferred action on the proposal, however, pending the refinement of implementation strategies for point sources. The updated, uniform criterion of 16 picograms per liter is now re-proposed, and a draft implementation strategy that has been revised for point sources is simultaneously published for comment.

Proposed Amendment. It is proposed to amend Table 6 in Section 3.30 of Article 3 of the *Water Quality Regulations* and *Water Code* as follows: For the parameter "PCBs (Total)", in the column headed "Freshwater Objectives (ug/l): Fish & Water Ingestion," by removing the number "0.0000444" and inserting "0.000016"; in the column headed "Freshwater Objectives (ug/l): Fish Ingestion Only," by removing the number "0.0000448" and inserting "0.000016"; and in the column headed "Marine Objectives (ug/l): Fish Ingestion Only," by removing the number "0.0000079" and inserting "0.000016". It is further proposed to amend paragraph 410.1(c) of title 18 of the Code of Federal Regulations by replacing the date of incorporation by reference that appears there (December 8, 2010), with the date on which the Commission adopts a final rule in response to this proposal.

Water Quality Impairment for PCBs. Because high levels of PCBs have resulted in state-issued fish consumption advisories for certain species caught in the Estuary and Bay, these waters are listed by the bordering states as impaired under Section 303(d) of the federal Clean Water Act ("CWA"), and a total maximum daily load ("TMDL") is required to be established for them. A TMDL expresses the maximum amount of a pollutant that a water body can receive and still attain water quality standards. Once the TMDL is calculated, it is allocated to all sources in the watershed—point and nonpoint. In order to ensure the attainment and maintenance of water quality standards, a source must not discharge a load in excess of its allocated share of the TMDL.

The EPA established TMDLs for PCBs on behalf of the states in December of 2003 for the Delaware Estuary and in December of 2006 for the Delaware Bay ("Stage 1 TMDLs"). Upon adoption of revised human health water quality criteria for PCBs in the Delaware Estuary and Bay, it is anticipated that EPA will establish new TMDLs ("Stage 2 TMDLs") corresponding to the updated criteria.

Implementing PCB Load Reductions. To initiate PCB reductions, by Resolution No. 2005–9 in May 2005, the Commission amended its Water Quality Regulations ("WQR") to establish a requirement for PCB Pollutant Minimization Plans ("PMPs") (*see* Section 4.30.9 of the WQR, incorporated by reference at 18 CFR Part 410) ("the PMP Rule"). In accordance with the PMP Rule the largest point source dischargers of PCBs to the Delaware Estuary and Bay undertook the development and implementation of PMPs, including a variety of track-down and load reduction strategies. Ambient and effluent data collected between 2005 and 2011 show that their efforts over the past 12 years (and in some cases longer) have substantially reduced point source PCB loadings to the Estuary and Bay. However, because PCBs persist in the environment, including in soils that drain to municipal and industrial discharge facilities, most dischargers will require more time, including in some instances decades, to achieve the PCB loading reductions needed to meet their assigned wasteload allocations.

The draft document entitled *Implementation Strategy for Polychlorinated Biphenyls for Zones 2–6 of the Delaware River Estuary* ("Implementation Strategy") builds on the approach embodied by the PMP Rule. Among other things, it attempts to better integrate PMP requirements with the National Pollutant Discharge Elimination System (NPDES) permit program administered by the Estuary states of Delaware, New Jersey and Pennsylvania pursuant to the CWA.

Notably, the 2003 Delaware Estuary TMDL report projected that "due to the scope and complexity of the problem that has been defined through these TMDLs, achieving the estuary water quality standards for PCBs will take decades." (EPA 2003, Executive Summary, p. xiii). Adoption of an updated, uniform criterion for the Delaware Estuary and Bay and implementation of the criterion by means of the proposed strategy will not alter this prognosis. However, the proposed criterion and Implementation Strategy are intended to align the Commission's water quality criteria with current science and to ensure that increasingly protective pollutant levels in fish and ambient water are achieved at an aggressive pace until the protected use—fishable waters—is restored.

Subjects on Which Comment is Expressly Solicited. Public comment is solicited on all aspects of the proposed rule. These include but are not limited to the assumptions applied in developing the criterion as set forth in a basis and background document that is available on the DRBC Web site, DRBC.net. Comment on the proposed Implementation Strategy for the new criterion, also posted on the Web site, is simultaneously requested.

Dated: July 30, 2013.

Pamela M. Bush,

Commission Secretary.

[FR Doc. 2013–18810 Filed 8–2–13; 8:45 am]

BILLING CODE P

DEPARTMENT OF HOMELAND SECURITY

Coast Guard

33 CFR Part 117

[Docket No. USCG–2013–0526]

RIN 1625–AA09

Drawbridge Operation Regulation; Umpqua River, Reedsport, OR

AGENCY: Coast Guard, DHS.

ACTION: Notice of proposed rulemaking.

SUMMARY: The Coast Guard proposes to temporarily change the operating schedule that governs the U.S. 101 Umpqua River swing bridge, mile 11.1, at Reedsport, OR. The proposed rule change is necessary to accommodate Oregon Department of Transportation's (ODOT) extensive bridge maintenance and restoration efforts. The bridge is currently scheduled to open on signal if at least two hours notice is given. ODOT proposes to only open the bridge with a minimum of six hours notice and will limit the openings to twice daily; once in the morning and once in the evening.

DATES: Comments and related material must reach the Coast Guard on or before September 4, 2013.

ADDRESSES: You may submit comments identified by docket number USCG–2013–0526 using any one of the following methods:

(1) Federal eRulemaking Portal: *http://www.regulations.gov.*

(2) Fax: 202–493–2251.

(3) Mail or Delivery: Docket Management Facility (M–30), U.S. Department of Transportation, West Building Ground Floor, Room W12–140, 1200 New Jersey Avenue SE.,

Symbol Key

Arial type indicates the text existing prior to the regulation being promulgated. Underlined text indicates new text. Language which is ~~stricken~~ through indicates text being deleted.

Proposed Regulations

Under 29 **Del.C.** §10115 whenever an agency proposes to formulate, adopt, amend or repeal a regulation, it shall file notice and full text of such proposals, together with copies of the existing regulation being adopted, amended or repealed, with the Registrar for publication in the *Register of Regulations* pursuant to §1134 of this title. The notice shall describe the nature of the proceedings including a brief synopsis of the subject, substance, issues, possible terms of the agency action, a reference to the legal authority of the agency to act, and reference to any other regulations that may be impacted or affected by the proposal, and shall state the manner in which persons may present their views; if in writing, of the place to which and the final date by which such views may be submitted; or if at a public hearing, the date, time and place of the hearing. If a public hearing is to be held, such public hearing shall not be scheduled less than 20 days following publication of notice of the proposal in the *Register of Regulations*. If a public hearing will be held on the proposal, notice of the time, date, place and a summary of the nature of the proposal shall also be published in at least 2 Delaware newspapers of general circulation. The notice shall also be mailed to all persons who have made timely written requests of the agency for advance notice of its regulation-making proceedings.

DELAWARE RIVER BASIN COMMISSION

PUBLIC NOTICE

Summary: The Delaware River Basin Commission ("DRBC" or "Commission") will hold a **public hearing** to receive comments on proposed amendments to the Commission's *Water Quality Regulations, Water Code* and *Comprehensive Plan* to revise the water quality criteria for polychlorinated biphenyls ("PCBs") in the Delaware Estuary and Bay, DRBC Water Quality Management Zones 2 through 6, for the protection of human health from carcinogenic effects. The Commission will simultaneously solicit comment on a draft implementation strategy to support achievement of the criteria.

Dates: The **public hearing** will be held starting at 1:00 P.M. on Tuesday, September 10, 2013. The hearing will continue until all those wishing to testify have had an opportunity to do so. Written comments will be accepted and must be received by 5:00 P.M. on Friday, September 20, 2013. Additional information regarding the procedures for the hearing and comments is provided below.

Addresses: The **public hearing** will be held in the Goddard Conference Room at the Commission's office building located at 25 State Police Drive, West Trenton, NJ. As Internet mapping tools are inaccurate for this location, please use the driving directions posted on the Commission's website.

Oral Testimony and Written Comments: Persons wishing to testify at the hearing are asked to register in advance by phoning Paula Schmitt at 609-883-9500, ext. 224. Written comments may be submitted as follows:

- If by email, to paula.schmitt@drbc.state.nj.us;
- if by fax, to Commission Secretary at 609-883-9522;
- if by U.S. Mail, to Commission Secretary, DRBC, P.O. Box 7360, West Trenton, NJ 08628-0360;
- and if by overnight mail, to Commission Secretary, DRBC, 25 State Police Drive, West Trenton, NJ 08628-0360.

Comments also may be delivered by hand at any time during the Commission's regular office hours (Mon. through Fri., 8:30 a.m. through 5:00 p.m. except on national holidays) until the close of the comment period at 5:00 p.m. on Friday, September 20. In all cases, please include the commenter's name, address and affiliation, if any, in the comment document and "PCB Rulemaking" in the subject line.

For Further Information: The basis and background document and the draft Implementation Strategy are available on the DRBC website, DRBC.net. A May 10, 2012 PowerPoint presentation that illustrates PCB loading reductions achieved through the implementation of the Commission's PMP Rule is also posted on the website. For further information, please contact Commission Secretary Pamela M. Bush, 609-883-9500 ext. 203.

Supplementary Information

Re-Proposal. A notice of proposed rulemaking to amend the current PCB criteria and to invite comment on an implementation plan was published in the Delaware Register of Regulations on August 1, 2009 (13 DE Reg. 154 – 158 (08/01/2009)), as well as in the Federal Register on August 14, 2009 (74 FR 41100). The Commission deferred action on the proposal, however, pending the refinement of implementation strategies for point sources. Today, the uniform criterion of 16 picograms per liter is re-proposed, and a draft implementation strategy that has been revised for point sources is simultaneously published for comment.

Current Criteria. The human health water quality criteria for PCBs currently in effect in Zones 2 through 5 of the Delaware Estuary were established by the Commission in 1996 (see 61 FR 58047 and incorporation by reference at 18 C.F.R. Part 410). The 1996 criterion applicable to the lower portion of Zone 5 was extended to Zone 6, Delaware Bay, in 2010, effective the following year (see 76 FR 16285). The development of these PCB criteria pre-dated the collection of site-specific bioaccumulation data for the Estuary and Bay and site-specific fish-consumption data for Zones 2 through 4 that are relevant to the development of human health water quality criteria. They are also inconsistent with current guidance issued by the U.S. Environmental Protection Agency ("EPA") for the development of such criteria, and they vary by water quality zone, adding undue complexity to application of the criteria in these tidal waters.

Development of New Criteria. By Resolution No. 2003-11 on March 19, 2003 the Commission directed the executive director to initiate rulemaking on a proposal to revise the Commission's water quality criteria for PCBs for the protection of human health from carcinogenic effects to reflect site-specific data on fish consumption, site-specific bioaccumulation factors, and current EPA guidance on development of human health criteria. Amendment of the PCB criteria was delayed, however, pending ongoing work by the Commission's Toxics Advisory Committee ("TAC") to develop the new criterion and a simultaneous initiative by the Commission and diverse stakeholders to develop an implementation plan. The TAC is a standing committee of stakeholders, including regulators, municipal and industrial dischargers and environmental organizations that advises the Commission on technical matters relating to the control of toxic contaminants in shared waters of the Basin.

Rigorously applying the most current available data and methodology, including site-specific data on fish consumption, site-specific bioaccumulation factors, and the current EPA methodology for the development of human health criteria for toxic pollutants (*see* EPA-822-B-00-004, October 2000), the TAC in July 2005 completed development of a revised PCB water quality criterion for the protection of human health from carcinogenic effects for the Delaware Estuary and Bay, recommending adoption of a uniform criterion of 16 picograms per liter for Water Quality Management Zones 2 through 6. By Resolution No. 2005-19 on December 7, 2005, the Commission again directed the executive director to conduct rulemaking, specifically to replace the existing criteria for PCBs with the uniform criterion of 16 picograms per liter.

Over the course of the next three-and-a-half years, the Commission continued to work with co-regulators on an implementation strategy for point and non-point sources to accompany the proposed uniform criterion. A notice of proposed rulemaking to amend the current PCB criteria and to invite comment on an implementation plan was issued in August 2009 (see 74 FR 41100). The Commission deferred action on the proposal, however, pending the refinement of implementation strategies for point sources. The updated, uniform criterion of 16 picograms per liter is now re-proposed, and a draft implementation strategy that has been revised for point sources is simultaneously published for comment.

Water Quality Impairment for PCBs. Because high levels of PCBs have resulted in state-issued fish consumption advisories for certain species caught in the Estuary and Bay, these waters are listed by the bordering states as impaired under Section 303(d) of the federal Clean Water Act ("CWA"), and a total maximum daily load ("TMDL") is required to be established for them. A TMDL expresses the maximum amount of a pollutant that a water body can receive and still attain water quality standards. Once the TMDL is calculated, it is allocated to all sources in the watershed – point and nonpoint. In order to ensure the attainment and maintenance of water quality standards, a source must not discharge a load in excess of its allocated share of the TMDL.

The EPA established TMDLs for PCBs on behalf of the states in December of 2003 for the Delaware Estuary and in December of 2006 for the Delaware Bay ("Stage 1 TMDLs"). Upon adoption of revised human health water quality criteria for PCBs in the Delaware Estuary and Bay, it is anticipated that EPA will establish new TMDLs ("Stage 2 TMDLs") corresponding to the updated criteria.

Implementing PCB Load Reductions. o initiate PCB reductions, by Resolution No. 2005-9 in May 2005, the Commission amended its Water Quality Regulations ("WQR") to establish a requirement for PCB Pollutant Minimization Plans ("PMPs") (see Section 4.30.9 of the WQR, incorporated by reference at 18 C.F.R. Part 410)

("the PMP Rule"). In accordance with the PMP Rule the largest point source dischargers of PCBs to the Delaware Estuary and Bay undertook the development and implementation of PMPs, including a variety of track-down and load reduction strategies. Ambient and effluent data collected between 2005 and 2011 show that their efforts over the past 12 years (and in some cases longer) have substantially reduced point source PCB loadings to the Estuary and Bay. However, because PCBs persist in the environment, including in soils that drain to municipal and industrial discharge facilities, most dischargers will require more time, including in some instances decades, to achieve the PCB loading reductions needed to meet their assigned wasteload allocations.

The draft document entitled *Implementation Strategy for Polychlorinated Biphenyls for Zones 2 - 6 of the Delaware River Estuary* ("Implementation Strategy") builds on the approach embodied by the PMP Rule. Among other things, it attempts to better integrate PMP requirements with the National Pollutant Discharge Elimination System (NPDES) permit program administered by the Estuary states of Delaware, New Jersey and Pennsylvania pursuant to the CWA.

Notably, the 2003 Delaware Estuary TMDL report projected that "due to the scope and complexity of the problem that has been defined through these TMDLs, achieving the estuary water quality standards for PCBs will take decades." (EPA 2003, Executive Summary, p. xiii). Adoption of an updated, uniform criterion for the Delaware Estuary and Bay and implementation of the criterion by means of the proposed strategy will not alter this prognosis. However, the proposed criterion and Implementation Strategy are intended to align the Commission's water quality criteria with current science and to ensure that increasingly protective pollutant levels in fish and ambient water are achieved at an aggressive pace until the protected use – fishable waters – is restored.

Subjects on Which Comment is Expressly Solicited. Public comment is solicited on all aspects of the proposed rule. These include but are not limited to the assumptions applied in developing the criterion, as set forth in a basis and background document that is available on the DRBC website, DRBC.net. Comment on the proposed Implementation Strategy for the new criterion, also posted on the website, is simultaneously requested.

Dated: July 5, 2013
PAMELA M. BUSH, ESQ.
Commission Secretary

Text of proposed amendments:
It is proposed to amend the Comprehensive Plan, Article 3 of the Water Quality Regulations (WQR) and Article 3 of the Water Code (WC) as set forth below. Editor's instructions are denoted by underscore thus. Added text is denoted by boldface **thus.**

Amend Table 6 of Section 3.30 of Article 3 of the WQR and WC as follows:

For the parameter "PCBs (Total)", in the column headed "Freshwater Objectives (ug/l): Fish & Water Ingestion," remove the number "0.0000444" and insert "**0.000016**"; in the column headed "Freshwater Objectives (ug/l): Fish Ingestion Only," remove the number "0.0000448" and insert "**0.000016**"; and in the column headed "Marine Objectives (ug/l): Fish Ingestion Only," remove the number "0.0000079" and insert "**0.000016**".

DEPARTMENT OF AGRICULTURE

DELAWARE FOREST SERVICE

Statutory Authority: 3 Delaware Code, Section 1101 (3 **Del.C.** §1011)
3 **DE Admin. Code** 401

PUBLIC NOTICE

401 Forest Service Erosion and Sedimentation Regulations

Background

On June 14, 2012, Governor Jack Markell signed Executive Order No. 36, which requires each executive branch agency to examine their existing regulations, with a view toward streamlining or eliminating unnecessary or

year in which tax credits are not in excess of the amount of credits available.

(a)

DELAWARE RIVER BASIN COMMISSION

Revised Notice of Proposed Rulemaking and Public Hearing

Proposed Amendments to the Water Quality Regulations, Water Code, and Comprehensive Plan to Revise the Human Health Water Quality Criteria for Polychlorinated Biphenyls (PCBs) in Zones 2 through 6 of the Delaware Estuary and Bay

Authorized By: Delaware River Basin Commission, Pamela M. Bush, Commission Secretary.

Proposal Number: PRN 2013-116.

The Delaware River Basin Commission ("DRBC" or "Commission") is a Federal interstate compact agency charged with managing the water resources of the Basin without regard to political boundaries. Its commissioners are the governors of the four Basin states – New Jersey, New York, Pennsylvania, and Delaware – and a Federal representative, the North Atlantic Division Commander of the U.S. Army Corps of Engineers. The Commission is not subject to the requirements of the New Jersey Administrative Procedure Act. This notice is published by the Commission for information purposes.

Summary: The Delaware River Basin Commission ("DRBC" or "Commission") will hold a **public hearing** to receive comments on proposed amendments to the Commission's Water Quality Regulations, Water Code and Comprehensive Plan to revise the human health water quality criteria for polychlorinated biphenyls (PCBs) in the Delaware Estuary and Bay, DRBC Water Quality Management Zones 2 through 6. The Commission will simultaneously solicit comment on a draft implementation strategy to support achievement of the criteria.

Dates: The **public hearing** will be held at 1:00 P.M. on Tuesday, September 10, 2013. The hearing will continue until all those wishing to testify have had an opportunity to do so. Written comments will be accepted and must be received by 5:00 P.M. on Friday, September 20, 2013. For more information regarding the procedures for the hearing and comments, see Supplementary Information.

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Oral testimony and written comments: Persons wishing to testify at the hearing are asked to register in advance by phoning Paula Schmitt at 609-883-9500, ext. 224. Written comments may be submitted as follows: If by e-mail, to paula.schmitt@drbc.state.nj.us; if by fax, to Commission Secretary at 609-883-9522; if by U.S. Mail, to Commission Secretary, DRBC, P.O. Box 7360, West Trenton, NJ 08628-0360; and if by overnight mail, to Commission Secretary, DRBC, 25 State Police Drive, West Trenton, NJ 08628-0360. In all cases, please include the commenter's name, address and affiliation, if any, in the comment document and "PCB Rulemaking" in the subject line.

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Supplementary Information

Reproposal. A notice of proposed rulemaking to amend the current PCB criteria and to invite comment on an implementation plan was published in the New Jersey Register (42 N.J.R. 1702(a)) on August 2, 2009, as well as in the Federal Register (74 FR 41100) on August 14, 2009. The Commission deferred action on the proposal, however, pending the refinement of implementation strategies for point sources. Today, the uniform criterion of 16 picograms per liter is reproposed, and a draft implementation strategy that has been revised for point sources is simultaneously published for comment.

Current Criteria. The human health water quality criteria for PCBs currently in effect in Zones 2 through 5 of the Delaware Estuary were established by the Commission in 1996 (see 61 FR 58047 and incorporation by reference at 18 CFR Part 410). The 1996 criterion applicable to the lower portion of Zone 5 was extended to Zone 6, Delaware Bay, in 2010, effective the following year (see 76 FR 16285). The development of these PCB criteria pre-dated the collection of site-specific bioaccumulation data for the Estuary and Bay and site-specific fish-consumption data for Zones 2 through 4 that are relevant to the development of human health water quality criteria. They are also inconsistent with current guidance issued by the U.S. Environmental Protection Agency (EPA) for the development of such criteria, and they vary by water quality zone, adding undue complexity to application of the criteria in these tidal waters.

Development of New Criteria. By Resolution No. 2003-11 on March 19, 2003, the Commission directed the Executive Director to initiate rulemaking on a proposal to revise the Commission's water quality criteria for PCBs for the protection of human health from carcinogenic effects to reflect site-specific data on fish consumption, site-specific bioaccumulation factors, and current EPA guidance on development of human health criteria. Amendment of the PCB criteria was delayed, however, pending ongoing work by the Commission's Toxics Advisory Committee (TAC) to develop the new criterion and a simultaneous initiative by the Commission and diverse stakeholders to develop an implementation plan. The TAC is a standing committee of stakeholders, including regulators, municipal and industrial dischargers, and environmental organizations, that advises the Commission on technical matters relating to the control of toxic contaminants in shared waters of the Basin.

Rigorously applying the most current available data and methodology, including site-specific data on fish consumption, site-specific bioaccumulation factors, and the current EPA methodology for the development of human health criteria for toxic pollutants (see EPA-822-B-00-004, October 2000), the TAC in July 2005 completed development of a revised PCB water quality criterion for the protection of human health from carcinogenic effects for the Delaware Estuary and Bay, recommending adoption of a uniform criterion of 16 picograms per liter for Water Quality Management Zones 2 through 6. By Resolution No. 2005-19 on December 7, 2005, the Commission again directed the Executive Director to conduct rulemaking, specifically to replace the existing criteria for PCBs with the uniform criterion of 16 picograms per liter.

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Implementing PCB Load Reductions. To initiate PCB reductions, by Resolution No. 2005-9 in May 2005, the Commission amended its Water Quality Regulations (WQR) to establish a requirement for PCB Pollutant Minimization Plans (PMPs) (see Section 4.30.9 of the WQR, incorporated by reference at 18 CFR Part 410) ("the PMP Rule"). In accordance with the PMP Rule, the largest point source dischargers of PCBs to the Delaware Estuary and Bay undertook the development and implementation of PMPs, including a variety of track-down and load reduction strategies. Ambient and effluent data collected between 2005 and 2011 show that their efforts over the past 12 years (and in some cases longer) have substantially reduced point source PCB loadings to the Estuary and Bay. However, because PCBs persist in the environment, including in soils that drain to municipal and industrial discharge facilities, most dischargers will require more time, including in some instances decades, to achieve the PCB loading reductions needed to meet their assigned wasteload allocations.

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Subjects on Which Comment is Expressly Solicited. Public comment is solicited on all aspects of the proposed rule. These include, but are not limited to, the assumptions applied in developing the criterion, as set forth in a basis and background document that is available on the DRBC website, DRBC.net. Comment on the proposed Implementation Strategy for the new criterion, also posted on the website, is simultaneously requested.

Text of proposed amendments:

It is proposed to amend the Comprehensive Plan, Article 3 of the Water Quality Regulations (WQR) and Article 3 of the Water Code (WC) as set forth below. Editor's instructions are denoted by underscore thus. Added text is denoted by boldface **thus**.

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For the parameter "PCBs (Total)", in the column headed "Freshwater Objectives (µg/l): Fish & Water Ingestion," remove the number "0.0000444" and insert "**0.000016**"; in the column headed "Freshwater Objectives µg/l): Fish Ingestion Only," remove the number "0.0000448" and insert "**0.000016**"; and in the column headed "Marine Objectives µg/l): Fish Ingestion Only," remove the number "0.0000079" and insert "**0.000016**".

PROPOSED RULE MAKING
NO HEARING(S) SCHEDULED

Jurisdictional Classification

I.D. No. CVS-33-13-00019-P

PURSUANT TO THE PROVISIONS OF THE State Administrative Procedure Act, NOTICE is hereby given of the following proposed rule:

Proposed Action: Amendment of Appendix 2 of Title 4 NYCRR.

Statutory authority: Civil Service Law, section 6(1)

Subject: Jurisdictional Classification.

Purpose: To add a subheading and to classify a position in the non-competitive class.

Text of proposed rule: Amend Appendix 2 of the Rules for the Classified Service, listing positions in the non-competitive class, in the Executive Department, by adding thereto the subheading "Statewide Financial System," and the position of øChief Information Security Officer 1 (1).

Text of proposed rule and any required statements and analyses may be obtained from: Shirley LaPlante, NYS Department of Civil Service, Empire State Plaza, Agency Building 1, Albany, NY 12239, (518) 473-6598, email: shirley.laplante@cs.state.ny.us

Data, views or arguments may be submitted to: Ilene Lees, Counsel, NYS Department of Civil Service, Empire State Plaza, Agency Building 1, Albany, NY 12239, (518) 473-2624, email: ilene.lees@cs.state.ny.us

Public comment will be received until: 45 days after publication of this notice.

Regulatory Impact Statement

A regulatory impact statement is not submitted with this notice because this rule is subject to a consolidated regulatory impact statement that was previously printed under a notice of proposed rule making, I.D. No. CVS-02-13-00002-P, Issue of January 9, 2013.

Regulatory Flexibility Analysis

A regulatory flexibility analysis is not submitted with this notice because this rule is subject to a consolidated regulatory flexibility analysis that was previously printed under a notice of proposed rule making, I.D. No. CVS-02-13-00002-P, Issue of January 9, 2013.

Rural Area Flexibility Analysis

A rural area flexibility analysis is not submitted with this notice because this rule is subject to a consolidated rural area flexibility analysis that was previously printed under a notice of proposed rule making, I.D. No. CVS-02-13-00002-P, Issue of January 9, 2013.

Job Impact Statement

A job impact statement is not submitted with this notice because this rule is subject to a consolidated job impact statement that was previously printed under a notice of proposed rule making, I.D. No. CVS-02-13-00002-P, Issue of January 9, 2013.

Delaware River Basin Commission

INFORMATION NOTICE

Information Notice
Revised Notice of Proposed Rulemaking and Public Hearing

The Delaware River Basin Commission ("DRBC" or "Commission") is a Federal interstate compact agency charged with managing the water resources of the Basin without regard to political boundaries. Its commissioners are the governors of the four Basin states – New York, New Jersey, Pennsylvania and Delaware – and a Federal representative, the North Atlantic Division Commander of the U.S. Army Corps of Engineers. The Commission is not subject to the requirements of the New York State Administrative Procedure Act. This notice is published by the Commission for information purposes.

Proposed Amendments to the *Water Quality Regulations, Water Code* and *Comprehensive Plan* to Revise the Human Health Water Quality Criteria for PCBs in Zones 2 through 6 of the Delaware Estuary and Bay

Summary: The Commission will hold a public hearing to receive comments on proposed amendments to the Commission's Water Quality Regulations, Water Code and Comprehensive Plan to revise the water quality criteria for polychlorinated biphenyls ("PCBs") in the Delaware Estuary and Bay, DRBC Water Quality Management Zones 2 through 6, for the protection of human health from carcinogenic effects. The Commission will simultaneously solicit comment on a draft implementation strategy to support achievement of the criteria.

Dates: The public hearing will begin at 1:00 P.M. on Tuesday, September 10, 2013. The hearing will continue until all those wishing to testify have had an opportunity to do so. Written comments will be accepted and must be received by 5:00 P.M. on Friday, September 20, 2013. More information regarding the procedures for the hearing and comments is provided below.

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For Further Information: The rule text, basis and background document, and draft Implementation Strategy are available on the DRBC website, DRBC.net. A May 10, 2012 PowerPoint presentation that illustrates PCB loading reductions achieved through the implementation of the Commission's PMP Rule is also posted on the website. For further information, please contact Commission Secretary Pamela M. Bush, 609-883-9500 ext. 203.

Supplementary Information:

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Dated: July 26, 2013

PAMELA M. BUSH, ESQ.

Commission Secretary

Text of proposed amendments:

It is proposed to amend the Comprehensive Plan, Article 3 of the Water Quality Regulations (WQR) and Article 3 of the Water Code (WC) as set forth below. Editor's instructions are denoted by underscore *thus.* Added text is denoted by boldface **thus.**

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*For the parameter "PCBs (Total)", in the column headed "Freshwater Objectives (ug/l): Fish & Water Ingestion," remove the number "0.0000444" and insert "**0.000016**"; in the column headed "Freshwater Objectives (ug/l): Fish Ingestion Only," remove the number "0.0000448" and insert "**0.000016**"; and in the column headed "Marine Objectives (ug/l): Fish Ingestion Only," remove the number "0.0000079" and insert "**0.000016**".*

Education Department

EMERGENCY/PROPOSED RULE MAKING NO HEARING(S) SCHEDULED

English Language Arts (ELA) and Mathematics Common Core Learning Standards (CCLS)

I.D. No. EDU-33-13-00022-EP

Filing No. 790

Filing Date: 2013-07-30

Effective Date: 2013-07-30

PURSUANT TO THE PROVISIONS OF THE State Administrative Procedure Act, NOTICE is hereby given of the following action:

Proposed Action: Amendment of section 100.5 of Title 8 NYCRR.

Statutory authority: Education Law, sections 101 (not subdivided), 207 (not subdivided), 208 (not subdivided), 209 (not subdivided), 305(1) and (2), 308 (not subdivided), 309 (not subdivided) and 3204(3)

Finding of necessity for emergency rule: Preservation of general welfare.

Specific reasons underlying the finding of necessity: The proposed amendment establishes requirements to transition to the new Regents Examinations in English Language Arts (ELA) (Common Core) and in mathematics which measure the New York State Common Core Learning Standards (CCLS).

Pursuant to the proposed amendment, the transition plan for the new Regents Examination in ELA (Common Core) includes the following:

- Students who first enter grade 9 in September 2013 and thereafter shall meet the English requirement for graduation by passing the Regents Examination in English Language Arts (Common Core) or an approved alternative.
- Students who first entered Grade 9 prior to September 2013 shall meet the English requirement for graduation by passing the new Regents Examination in ELA (Common Core) or by passing the Regents Comprehensive Examination in English, while that exam is still being offered. For the June 2014 and August 2014 administrations only, students enrolled in Common Core English courses may, at local discretion, take the Regents Comprehensive Exam in English in addition to the Regents Examination in ELA (Common Core), and may meet the English requirement for graduation by passing either examination.

With respect to the transition plan for the new Regents Examinations in mathematics (Common Core), the proposed amendment would require that:

- Students who first begin instruction in a commencement level mathematics course aligned to the CCLS in September 2013 and thereafter shall meet the mathematics requirement for graduation by passing a commencement level Regents Examination in mathematics that measures the CCLS, or an approved alternative.
- Students who first began or will complete an Integrated Algebra, Geometry, or Algebra 2/Trigonometry course prior to September 2013 shall meet the mathematics requirements for graduation by passing the corresponding commencement level Regents, while those examinations are still being offered. For the June 2014, August 2014 and January 2015 administrations only, students receiving Algebra I (Common Core) instruction

PROPOSED RULEMAKING

DELAWARE RIVER BASIN COMMISSION

[25 PA. CODE CH. 901]

Proposed Amendments to the Water Quality Regulations, Water Code and Comprehensive Plan to Revise the Human Health Water Quality Criteria for Carcinogenic Effects for PCBs in Zones 2 through 6 of the Delaware Estuary and Bay; Revised Notice of Proposed Rulemaking and Public Hearing

Summary:

The Delaware River Basin Commission ("DRBC" or "Commission") will hold a public hearing to receive comments on proposed amendments to the Commission's Water Quality Regulations, Water Code and Comprehensive Plan to revise the water quality criteria for polychlorinated biphenyls ("PCBs") in the Delaware Estuary and Bay, DRBC Water Quality Management Zones 2 through 6, for the protection of human health from carcinogenic effects. The Commission will simultaneously solicit comment on a draft implementation strategy to support achievement of the criteria.

Dates:

The public hearing will be held starting at 1:00 P.M. on Tuesday, September 10, 2013. The hearing will continue until all those wishing to testify have had an opportunity to do so. Written comments will be accepted and must be received by 5:00 P.M. on Friday, September 20, 2013. Additional information regarding the procedures for the hearing and comments is set forth below.

Addresses:

The public hearing will be held in the Goddard Conference Room at the Commission's office building located at 25 State Police Drive, West Trenton, NJ. As Internet mapping tools are inaccurate for this location, please use the driving directions posted on the Commission's website.

Oral Testimony and Written Comments:

Persons wishing to testify at the hearing are asked to register in advance by phoning Paula Schmitt at 609-883-9500, ext. 224. Written comments may be submitted as follows: If by email, to paula.schmitt@drbc.state.nj.us; if by fax, to Commission Secretary at 609-883-9522; if by U.S. Mail, to Commission Secretary, DRBC, P.O. Box 7360, West Trenton, NJ 08628-0360; and if by overnight mail, to Commission Secretary, DRBC, 25 State Police Drive, West Trenton, NJ 08628-0360. Comments also may be delivered by hand at any time during the Commission's regular office hours (Mon. through Fri., 8:30 a.m. through 5:00 p.m. except on national holidays) until the close of the comment period at 5:00 p.m. on Friday, September 20. In all cases, please include the commenter's name, address and affiliation, if any, in the comment document and "PCB Rulemaking" in the subject line.

For Further Information:

The basis and background document and the draft Implementation Strategy are available on the DRBC website, DRBC.net. A May 10, 2012 PowerPoint presentation that illustrates PCB loading reductions achieved through the implementation of the Commission's PMP Rule is also posted on the website. For further information, please contact Commission Secretary Pamela M. Bush, 609-883-9500 ext. 203.

Supplementary Information

Re-Proposal. A notice of proposed rulemaking to amend the current PCB criteria and to invite comment on an implementation plan was published in the *Pennsylvania Bulletin* on August 15, 2009 (39 Pa.B. 4892) and in the *Federal Register* (74 FR 41100) on August 14, 2009. The Commission deferred action on the proposal, however, pending the refinement of implementation strategies for point sources. Today, the uniform criterion of 16 picograms per liter is re-proposed, and a draft implementation strategy that has been revised for point sources is simultaneously published for comment.

Current Criteria. The human health water quality criteria for PCBs currently in effect in Zones 2 through 5 of the Delaware Estuary were established by the Commission in 1996 (see 61 FR 58047 and incorporation by reference at 18 C.F.R. Part 410). The 1996 criterion applicable to the lower portion of Zone 5 was extended to Zone 6, Delaware Bay, in 2010, effective the following year (see 76 FR 16285). The development of these PCB criteria pre-dated the collection of site-specific bioaccumulation data for the Estuary and Bay and site-specific fish-consumption data for Zones 2 through 4 that are relevant to the development of human health water quality criteria. They are also inconsistent with current guidance issued by the U.S. Environmental Protection Agency ("EPA") for the development of such criteria, and they vary by water quality zone, adding undue complexity to application of the criteria in these tidal waters.

Development of New Criteria. By Resolution No. 2003-11 on March 19, 2003 the Commission directed the executive director to initiate rulemaking on a proposal to revise the Commission's water quality criteria for PCBs for the protection of human health from carcinogenic effects to reflect site-specific data on fish consumption, site-specific bioaccumulation factors, and current EPA guidance on development of human health criteria. Amendment of the PCB criteria was delayed, however, pending ongoing work by the Commission's Toxics Advisory Committee ("TAC") to develop the new criterion and a simultaneous initiative by the Commission and diverse stakeholders to develop an implementation plan. The TAC is a standing committee of stakeholders, including regulators, municipal and industrial dischargers and environmental organizations that advises the Commission on technical matters relating to the control of toxic contaminants in shared waters of the Basin.

Rigorously applying the most current available data and methodology, including site-specific data on fish consumption, site-specific bioaccumulation factors, and the current EPA methodology for the development of human health criteria for toxic pollutants (*see* EPA-822-B-00-004, October 2000), the TAC in July 2005 completed development of a revised PCB water quality criterion for the protection of human health from carcinogenic effects for the Delaware Estuary and Bay, recommending adoption of a uniform criterion of 16 picograms per liter for Water Quality Management Zones 2 through 6. By Resolution No. 2005-19 on December 7, 2005, the Commission

again directed the executive director to conduct rulemaking, specifically to replace the existing criteria for PCBs with the uniform criterion of 16 picograms per liter.

Over the course of the next three-and-a-half years, the Commission continued to work with co-regulators on an implementation strategy for point and non-point sources to accompany the proposed uniform criterion. A notice of proposed rulemaking to amend the current PCB criteria and to invite comment on an implementation plan was issued in August 2009 (see 74 FR 41100). The Commission deferred action on the proposal, however, pending the refinement of implementation strategies for point sources. The updated, uniform criterion of 16 picograms per liter is now re-proposed, and a draft implementation strategy that has been revised for point sources is simultaneously published for comment.

Water Quality Impairment for PCBs. Because high levels of PCBs have resulted in state-issued fish consumption advisories for certain species caught in the Estuary and Bay, these waters are listed by the bordering states as impaired under Section 303(d) of the federal Clean Water Act ("CWA"), and a total maximum daily load ("TMDL") is required to be established for them. A TMDL expresses the maximum amount of a pollutant that a water body can receive and still attain water quality standards. Once the TMDL is calculated, it is allocated to all sources in the watershed—point and nonpoint. In order to ensure the attainment and maintenance of water quality standards, a source must not discharge a load in excess of its allocated share of the TMDL.

The EPA established TMDLs for PCBs on behalf of the states in December of 2003 for the Delaware Estuary and in December of 2006 for the Delaware Bay ("Stage 1 TMDLs"). Upon adoption of revised human health water quality criteria for PCBs in the Delaware Estuary and Bay, it is anticipated that EPA will establish new TMDLs ("Stage 2 TMDLs") corresponding to the updated criteria.

Implementing PCB Load Reductions. To initiate PCB reductions, by Resolution No. 2005-9 in May 2005, the Commission amended its Water Quality Regulations ("WQR") to establish a requirement for PCB Pollutant Minimization Plans ("PMPs") (see Section 4.30.9 of the WQR, incorporated by reference at 18 C.F.R. Part 410) ("the PMP Rule"). In accordance with the PMP Rule the largest point source dischargers of PCBs to the Delaware Estuary and Bay undertook the development and implementation of PMPs, including a variety of track-down and load reduction strategies. Ambient and effluent data collected between 2005 and 2011 show that their efforts over the past 12 years (and in some cases longer) have substantially reduced point source PCB loadings to the Estuary and Bay. However, because PCBs persist in the environment, including in soils that drain to municipal and industrial discharge facilities, most dischargers will require more time, including in some instances decades, to achieve the PCB loading reductions needed to meet their assigned wasteload allocations.

The draft document entitled Implementation Strategy for Polychlorinated Biphenyls for Zones 2—6 of the Delaware River Estuary ("Implementation Strategy") builds on the approach embodied by the PMP Rule. Among other things, it attempts to better integrate PMP requirements with the National Pollutant Discharge Elimination System (NPDES) permit program administered by the Estuary states of Delaware, New Jersey and Pennsylvania pursuant to the CWA.

Notably, the 2003 Delaware Estuary TMDL report projected that "due to the scope and complexity of the problem that has been defined through these TMDLs, achieving the estuary water quality standards for PCBs will take decades." (EPA 2003, Executive Summary, p. xiii). Adoption of an updated, uniform criterion for the Delaware Estuary and Bay and implementation of the criterion by means of the proposed strategy will not alter this prognosis. However, the proposed criterion and Implementation Strategy are intended to align the Commission's water quality criteria with current science and to ensure that increasingly protective pollutant levels in fish and ambient water are achieved at an aggressive pace until the protected use—fishable waters—is restored.

Subjects on Which Comment is Expressly Solicited. Public comment is solicited on all aspects of the proposed rule. These include but are not limited to the assumptions applied in developing the criterion, as set forth in a basis and background document that is available on the DRBC website, DRBC.net. Comment on the proposed Implementation Strategy for the new criterion, also posted on the website, is simultaneously requested.

Dated: July 5, 2013

PAMELA M. BUSH, Esq.,
Secretary

Fiscal Note: 68-53. No fiscal impact; (8) recommends adoption.

Text of proposed amendments:

It is proposed to amend the Comprehensive Plan, Article 3 of the Water Quality Regulations (WQR) and Article 3 of the Water Code (WC) as set forth below. Editor's instructions are denoted by underscore thus. Added text is denoted by boldface **thus.**

Amend Table 6 of Section 3.30 of Article 3 of the WQR and WC as follows:

For the parameter "PCBs (Total)", in the column headed "Freshwater Objectives (ug/l): Fish & Water Ingestion," remove the number "0.0000444" and insert "**0.000016**"; in the column headed "Freshwater Objectives (ug/l): Fish Ingestion Only," remove the number "0.0000448" and insert "**0.000016**"; and in the column headed "Marine Objectives (ug/l): Fish Ingestion Only," remove the number "0.0000079" and insert "**0.000016**".

[Pa.B. Doc. No. 13-1518. Filed for public inspection August 16, 2013, 9:00 a.m.]

GAME COMMISSION

[58 PA. CODE CH. 143]

Hunting and Furtaker Licenses; Agents

To effectively manage the wildlife resources of this Commonwealth, the Game Commission (Commission) proposed at its June 25, 2013, meeting to amend Chapter 143, Subchapter B (relating to appointment of agents) to eliminate the late fees for late agent applications and also to make housekeeping amendments to related text.

The proposed rulemaking will not have an adverse impact on the wildlife resources of this Commonwealth.

The authority for the proposed rulemaking is 34 Pa.C.S. (relating to Game and Wildlife Code) (code).

The proposed rulemaking was made public at the June 25, 2013, meeting of the Commission. Comments can be

APPENDIX C

DRAFT IMPLEMENTATION STRATEGY

IMPLEMENTATION STRATEGY FOR POLYCHLORINATED BIPHENYLS FOR ZONES 2 – 6 OF THE DELAWARE RIVER ESTUARY

Delaware River Basin Commission
DELAWARE • NEW JERSEY
PENNSYLVANIA • NEW YORK
UNITED STATES OF AMERICA

DELAWARE RIVER BASIN COMMISSION
WEST TRENTON, NEW JERSEY
JULY 2013

Acknowledgments

This report was prepared by the Delaware River Basin Commission staff: Carol R. Collier, Executive Director. Dr. Thomas J. Fikslin and Pamela M. Bush were the principal authors. Dr. Fikslin is the Manager of the Commission's Modeling, Monitoring and Assessment Branch. Pamela Bush is the Assistant General Counsel for the Commission. Significant contributions were also made by Dr. Namsoo Suk, Supervisor of the Modeling Section in the Branch. A workgroup of representatives from the U.S. EPA, State of Delaware, State of New Jersey and the Commonwealth of Pennsylvania, and the Commission provided the framework and technical review of this strategy.

Suggested Citation

Fikslin, T.J. and P.M. Bush. 2013. Implementation Strategy for Polychlorinated Biphenyls for Zones 2 - 6 of the Delaware River Estuary. Delaware River Basin Commission. West Trenton, NJ. July 2013.

Background

PCBs. Polychlorinated biphenyls ("PCBs") are a class of man-made chemical compounds that were manufactured and used extensively in industrial and commercial applications, including electrical, heat transfer, and hydraulic equipment; as plasticizers in paints, plastics and rubber products; and in pigments, dyes and carbonless copy paper before their manufacture and general use, with exceptions, was banned by the U.S. Environmental Protection Agency ("EPA") in 1978. Equipment and products commonly containing PCBs include transformers, capacitors, paints, printing inks, pesticides, hydraulic fluids and lubricants. Although their manufacture and use were generally banned by federal regulations, existing uses in electrical equipment were allowed and equipment containing PCBs is still in use. In addition, PCBs may also be created as a by-product in certain manufacturing processes such as dye and pigment production. The EPA has determined that PCBs are probable human carcinogens, and that PCBs also have non-cancer health effects. Individual PCB compounds, called "congeners," consist of between one and ten chlorine atoms attached to a biphenyl molecule. There are 209 possible patterns in which chlorine atoms may be attached to the biphenyl ring structure. PCBs are hydrophobic, sorbing to organic carbon in soils and sediments, and concentrating in the tissues of aquatic biota either directly or indirectly through the food chain.

Impairment. Due to elevated concentrations of PCBs in the tissues of fish caught in the Delaware Estuary, the states of Delaware, New Jersey, and Pennsylvania ("Estuary States") have issued fish consumption advisories. Advisories are currently in effect from Trenton, New Jersey to the mouth of the Delaware Bay, an area designated as Water Quality Management Zones ("Zones") 2 through 6 (Figure 1). Because fish tissue contamination impairs the Estuary's designated use – fishable waters – during the 1990s all three states also listed the Estuary as "impaired" in accordance with Section 303(d) of the Federal Clean Water Act (CWA). In accordance with the CWA, the states and EPA share responsibility for establishing total maximum daily loads, or "TMDLs," for each pollutant contributing to the impairment. A TMDL is defined as the maximum amount of a pollutant that can be assimilated by a water body without causing the applicable water quality criterion to be exceeded. TMDLs for PCBs for Zones 2 through 5 were established jointly by EPA Regions II and III on December 15, 2003. (*See* http://www.epa.gov/reg3wapd/tmdl/pa_tmdl/DelawareRiver/index.htm). A TMDL for Delaware Bay (Zone 6) was established by EPA Regions II and III on December 14, 2006 (*See* http://www.epa.gov/reg3wapd/pdf/pdf_tmdl/Zone6AL_Report.pdf).

Current Water Quality Criteria. The 1986 amendments to the Clean Water Act required states to establish water quality criteria for certain toxic substances, including PCBs, at levels sufficient to protect the designated uses of the waters in the state. EPA issues guidance and regulations that establish recommended criteria for consideration by states in their development of water quality standards. In 2000, EPA issued a revised methodology for establishing ambient water quality criteria for the protection of human health. Two significant changes recommended in this guidance were the recommendations to use site-specific values for fish consumption for the water body covered by the criteria, and to use a bioaccumulation factor or BAF rather than a BCF. The states have adopted water quality criteria for PCBs. However, regulations adopted by Delaware and New Jersey either defer to or incorporate by reference the Commission's criteria. Pennsylvania's rules provide that the more stringent of the Commission's or the Commonwealth's criteria apply. In 1996, the Commission adopted water quality criteria for toxic pollutants

including PCBs for Zones 2 through 5 of the Delaware River. In 2010, DRBC extended these water quality criteria to Zone 6. Current DRBC criteria for PCBs vary by Zone. They are: 44.4 pg/l for Zones 2 and 3 for exposure through drinking water and fish consumption; 44.8 pg/l for Zones 4 and the upper portion of Zone 5 for exposure through fish consumption only; and 7.9 pg/l for the lower portion of Zone 5 and Zone 6 for exposure through fish consumption only. The criterion in the lower portion of Zone 5 and in Zone 6 is attributable to the use of a higher fish consumption rate.

Figure 1: Water quality management zones established by the Delaware River Basin Commission for the tidal Delaware River and Delaware Bay.

Proposed Criterion. The Commission is proposing a revised water quality criterion of 16 pg/l for Zones 2 through 6. The criterion was developed under the guidance of the Commission's Toxics Advisory Committee ("TAC") and its Toxics Criteria Subcommittee. The TAC is a standing

committee of stakeholders, including regulators, municipal and industrial dischargers and environmental organizations that advises the Commission on technical matters relating to the control of toxic contaminants in shared waters of the Basin. The methodology, assumptions, and data sets used to develop the proposed criterion are set forth in detail in the accompanying *Basis and Background Document: Revised Human Health Water Quality Criteria for Total PCBs for the Protection of Human Health from Carcinogenic Effects* (http://www.nj.gov/drbc/library/documents/basis-bkgd_revPCBcriterion0713.pdf).

We note that the Commission published a notice in August 2009 proposing to adopt 16 pg/l as the revised, uniform water quality criterion for PCBs for the protection of human health from carcinogenic effects in Zones 2 through 6. (*See* 13 Delaware Register of Regulations, p. 313 (Aug. 1, 2009); 74 FR 41100 (Aug. 14, 2009); 41 N.J.R. 3050 (Aug. 17, 2009); NYS Register, Aug. 19, 2009, p. 3; and 39 Pa. B. 4892 (Aug. 15, 2009)). At that time, DRBC solicited comment on the proposed criterion and on a TMDL Implementation Plan that had been developed by DRBC and the federal and state agencies responsible for regulating point and non-point sources of pollution. The Commission deferred action on the 2009 proposal, however, to allow additional time for refinement of the portion of the implementation plan applicable to point sources. Comment is now solicited for a second time on both the criterion and the portion of the implementation plan applicable to non-point sources. For the first time, comment is requested on a new draft implementation strategy for point sources.

Implementation Strategy. For PCBs and other legacy pollutants that are hydrophobic and bioaccumulative, several factors make the attainment of water quality criteria especially challenging. First, PCB sources and pathways include non-point sources such as contaminated soils, contaminated sediment, and air deposition not subject to control under the National Pollutant Discharge Elimination System ("NPDES") program. Second, data are limited for many sources due to the historical and current use of less sensitive analytical methodologies compared to more sensitive analytical methods capable of detecting PCBs at extremely low concentrations. Third, insufficient experience exists regarding the extent to which wastewater treatment technologies can remove PCBs in a waste stream, and in particular, the extent to which such technologies can achieve effluent concentrations that would satisfy anticipated permit limits, to make end-of-pipe treatments a viable reduction approach for all point source discharges at this time. Fourth, a large reservoir of PCBs from historical point and non-point source loadings persists in sediments. Because PCBs would continue to be released from sediments into the water column even if loadings from all other sources were eliminated, the Estuary and Bay will remain impaired for many years.

Notwithstanding these challenges, the regulatory program instituted by the Clean Water Act requires that the total maximum daily load of any pollutant resulting in a water quality impairment be allocated among individual point and categorical non-point sources of the pollutant to the water body. The NPDES program for point sources has traditionally been understood to require that discharges be reduced to their allocated loads within a single five-year permit cycle. If the likelihood of achieving this objective is remote, the fact remains that containing or removing sources of PCBs can accelerate water quality improvements, whereas continuing releases of PCBs can only aggravate and prolong water quality impairments. With ambient PCB levels in Estuary surface water orders of magnitude above the water quality

criteria, and consumption advisories in effect recommending little or no consumption of many species of Estuary fish due to PCBs, regulators and other stakeholders believe that additional measures to reduce PCB loadings are needed and can be implemented. Measures to reduce PCB loadings to the Estuary are well underway, and the results have been impressive.

To help address gaps in the regulation of PCB discharges and to speed implementation of the Estuary TMDLs for PCBs issued by EPA in 2003 ("Stage 1 TMDLs"), DRBC approved a rule in May of 2005 authorizing the Commission to require Pollutant Minimization Plans ("PMPs") for point or non-point discharges of a toxic pollutant following the issuance of a TMDL for the pollutant by a state or EPA or the issuance of an assimilative capacity determination (similar to a TMDL) for the pollutant by the DRBC. The Stage 1 TMDLs have been implemented for point sources through (1) the development and implementation of PMPs, including implementation of appropriate PCB minimization measures; and (2) monitoring with Method 1668A, a highly sensitive analytical method capable of detecting PCB congeners at concentrations below water quality criteria for PCBs. Similar or other innovative approaches could be used for certain non-point sources, including contaminated sites and metal recycling facilities. Significant loading reductions have been achieved with this strategy, as demonstrated by the staff presentation at the May 10, 2012 Commission meeting entitled "Implementing PCB TMDLs: Pollutant Minimization Plan (PMP) Status" (http://www.state.nj.us/drbc/library/documents/Cavallo_PCB-PMPupdate051012.pdf).

The Commission in partnership with the environmental agencies of the Estuary States, EPA Regions II and III, and EPA Headquarters have developed a revised point source implementation strategy to accompany the updated human health water quality criterion for PCBs and the Stage 2 TMDLs when established by EPA. A key objective of this strategy is to provide for uniform treatment by the three Estuary States of all point source PCB dischargers to this shared water body. Strategies for reducing loadings from non-point sources, including tributaries, boundaries (defined as the mouth of Delaware Bay and the C&D Canal), contaminated sites covered under federal and state hazardous wastes regulations, air sources and sediments, are those proposed in 2009, some of which have been applied to significant effect since then including proactive identification and removal of PCB-containing equipment.

Highlights of the implementation strategy for point and non-point sources are set forth below:

Point Sources

Key components of the point source permitting strategy are as follows:

1. The permit must include the more stringent of (a) any technology based requirements for TSS in compliance with 40 CFR Parts 122.44(a)(1) and 125.3, or (b) the DRBC effluent quality requirements at Section 3.10.4D.1.a. of the DRBC Water Quality Regulations (WQR).

2. Provisions to ensure that each discharger attains its Stage 2 TMDL wasteload allocation (WLA) as quickly as possible through:

a. A requirement that the permittee develop a Pollutant Minimization Plan (PMP) conforming to the provisions of Section 4.30.9 of the DRBC's Water Quality Regulations (WQR) including a set of best management practices (BMPs) intended to achieve "maximum practicable reduction" of PCB loadings to the Estuary, and

b. A requirement that the permittee submit a PMP Annual Report reporting the success of measures implemented, the PCB loadings reductions achieved, and any revisions to the PMP for the coming year.

c. A provision that the permitting agency will establish elements of the PMP as enforceable requirements of the permit (e.g., milestones and key actions).

d. A requirement that the permittee submit a PMP Progress Report to accompany an updated PMP as part of the 5-year permit renewal application.

e. A requirement that the permittee submit a revised PMP if the permitting agency determines that the PMP will not likely achieve the maximum practicable reduction of PCB discharges. This revised PMP would be implemented during the permit cycle to ensure progress in reducing PCB loads.

3. A requirement for monitoring and reporting using a sensitive sampling and analytical method for PCB congeners – i.e., Method 1668A or the latest subsequent revision thereof.

4. An Action Level based upon Existing Effluent Quality (EEQ) to ensure that reductions achieved through implementation of a PMP are maintained. EEQ will be developed from monitoring data collected prior to reissuance of a discharge permit. If the Action Level is exceeded, the permittee becomes subject to additional specified actions which may include monitoring, trackdown studies and/or BMP requirements to reduce loadings.

5. A requirement that monitoring, reporting, PMP requirements, and the Action Level remain in place until the discharger's wasteload allocation (WLA) is achieved, after which monitoring, reporting and a numeric effluent limit (consistent with the permittee's WLA and the policies of the permitting authority) will apply.

Non-Point Sources

The plan also contains PCB load reduction strategies for each non-point source category identified in the TMDLs for Zones 2 through 6. The key elements of the non-point source strategy are similar to those described in the TMDL Implementation Plan that was published for comment in August 2009.
(http://www.state.nj.us/drbc/library/documents/TMDL_Implementation_Plan081709.pdf)
Addressing non-point sources of PCBs is particularly challenging due to the lack of

comprehensive regulatory program comparable to the NPDES permitting program. The strategies focus on identifying and prioritizing sources of PCBs in each non-point source category and then utilizing existing authorities to focus on water quality impacts and achieve the load allocations assigned to these sources. The plan specifically addresses the categories of non-point sources consisting of tributaries and boundaries, contaminated sites and air sources. Applications of the 2009 strategies since that year demonstrate that substantial reductions in PCB loads from these sources are achievable.

The strategy for tributaries and boundaries builds upon the TMDL approach utilized for Zones 2 through 6. Loadings are assigned to each tributary and boundary to ensure that the water quality criterion for PCBs is not exceeded in the mainstem Delaware River. Assigned loadings usually are based upon the water quality criterion adopted by the state agency for that water body. All three states bordering the Estuary, however, have criteria that are less stringent than either the current DRBC criterion or the proposed DRBC criterion of 16 picograms per liter. Section 4.20.4, "Tributaries to Interstate Waters", of the DRBC regulations provides that wastewater discharged into an intrastate tributary of interstate waters be treated so that the assimilation of such wastes by the interstate waters will not result in a violation of the water quality criterion of the receiving interstate water. Accordingly, the assigned loadings will generally be based upon the applicable DRBC criterion for the Estuary (i.e., 16 pg/L). The assigned loading should be included in any TMDL for PCBs that is established for the tributary by the state permitting authority or the U.S. EPA. The two largest tributaries to the Estuary, the mainstem Delaware River above the head of the tide and the Schuylkill River, have both been listed by PADEP and NJDEP, respectively, as impaired by PCBs. A TMDL for the Schuylkill River was established by U.S. EPA Region III on April 7, 2007. NJDEP listed the non-tidal Delaware River from Easton, PA to Trenton. NJ (DRBC Management Zone 1E) as impaired by PCBs in 2004. The Commission will coordinate with state agencies regarding the listing and development of TMDLs for those minor tributaries that have been shown to have loadings greater than their load allocations.

Contaminated sites are the fifth highest non-point source category of PCB loadings. Factors contributing to the assessment of loadings from sites in this category include a lack of focus on PCBs in developing site remediation alternatives, and the lack of assessment of water quality impacts from a site including the identification of pathways for pollutants to the Estuary. Recognizing the importance of this source category, the Commission initiated the Delaware Toxics Reduction Program or DelTRiP following the establishment of the Stage 1 TMDLs in 2004 (http://www.state.nj.us/drbc/DelTRiP/index.htm). This program is a cooperative effort of the Commission, the states bordering the Estuary and the U.S. EPA to identify, prioritize, track the progress in reducing PCB loadings, and report the status of sites contributing toxic pollutants to the Delaware River Basin. A high degree of uncertainty was associated with the loading estimate for this source category in the Stage 1 TMDLs. This can be attributed to the lack of congener-specific data on PCB concentrations and site-specific information on soil and slope characteristics of the sites. The strategy for contaminated sites consists of three components: 1) continued revision of loadings from contaminated sites with direct pathways to the Estuary (i.e., those located on or near the Estuary or below the head of tide on tributaries), 2) prioritization of the sites based upon the revised loadings, and 3) coordination with the lead federal or state agencies responsible for overseeing the remediation of a site.

Air sources of PCBs influence PCB concentrations through wet and dry deposition, and through the exchange of PCBs between the gaseous component of PCBs in the atmosphere and the dissolved fraction of PCBs in the estuarine waters. This latter exchange, called a flux, is bidirectional with the direction of the flux determined by the relative concentrations of PCBs in each medium. At this time, the ambient waters are a source of PCBs to the atmosphere. This is significant since reductions in the ambient water concentrations in the absence of reductions in the gaseous air concentrations will eventually result in a net influx of PCBs to estuarine waters. One finding during development of the Stage 1 TMDLs was that the exchange due to the flux of PCBs was more important than the wet and dry deposition of PCBs. The strategy for air sources of PCBs consists of three components: 1) identification of air sources of PCBs; 2) prioritization of the sources based upon their relative concentrations of PCB homologs bioaccumulated by aquatic biota; and 3) application of applicable federal and state regulations for controlling emissions. The Commission initiated monitoring to identify and prioritize air sources in 2001 when it established three long-term monitoring sites in Northeast Philadelphia; Swarthmore, PA; and at Lums Pond State Park in Delaware. These sites complemented an ongoing monitoring network in New Jersey operated by Rutgers University for the NJDEP. The results of this monitoring effort indicated that air concentrations of PCBs reflected local influences rather than a regional signature. In 2005 and 2008, the Commission and Rutgers University conducted passive air sampling studies involving deployment of passive monitoring devices for 90 days. These studies indicated that elevated concentrations of gaseous PCBs were very localized with locations in Camden, NJ and Swarthmore, PA showing the highest concentrations. This technique shows great promise in identifying sources on large to small spatial scales.

Reporting of Progress

The final component of this implementation plan is the evaluation and reporting of progress in achieving the necessary reductions in PCB loadings to attain the applicable DRBC water quality criterion. Under the strategy, an assessment will be performed at the close of each 10-year reporting period and issued by the Commission in consultation with the states and U.S. EPA Regions II & III. The Commission is planning to complete the first progress report by December 31, 2013.

A reporting period of 10 years was chosen to encompass the 5-year permit cycle that is typical of NPDES permits for discharges to Zones 2 through 6, and acknowledge the staggered effective dates of these permits. A 10-year reporting period will thus capture between one and two complete permit cycles for all of the NPDES discharges identified in the Stage 2 TMDLs.

An assessment report will document the ambient concentrations and reductions of PCBs achieved in the water column, air, sediment and in the tissues of resident and anadromous fishes for each water quality zone covered by the TMDLs. For the point source category, the report will contain the PCB concentrations and loadings for each point source discharge (and for CSOs and MS4s respectively, in the aggregate) that has been assigned a WLA in the TMDLs. For the non-point source categories, the report will contain concentrations and loadings of PCBs for individual non-point sources (where available) and/or for categories of non-point sources by water quality management zone. Reductions in PCB loadings for individual and categorical non-point sources will be included. The daily cumulative point and non-point source loading of PCBs

for each water quality management zone achieved at the close of the reporting period will also be reported.

Since ambient concentrations will be moderated by the sediment concentrations of PCBs, a useful measure of the progress achieved is a projection of the concentration of PCBs in ambient waters for each water quality management zone at the point when Estuary waters are at equilibrium with sediments and air under the PCB loads achieved for each individual and categorical source by the close of each reporting period. The projected concentrations in each water quality management zone can be obtained using the PCB water quality models developed by the Commission. Additionally, where feasible, the report will include the projected date of attainment of the water quality criterion and designated use for each water quality management zone. Subsequent assessments of progress will be issued until the designated uses and water quality criteria are attained, or the Commission concludes that the water quality criterion and its associated designated use is not attainable, and modifies the designated use and water quality criterion and its water quality regulations accordingly.

Summary

The implementation strategy is intended to provide the detailed requirements and strategies for point and non-point sources that will be employed over the next few decades to reduce PCB loadings to the Delaware Estuary and Bay to acceptable levels. A key objective of this strategy is to provide uniformity and a degree of certainty to NPDES permits that will be issued by the Estuary States for the next several permit cycles. EPA Regions II & III have proposed to evaluate the approach no less frequently than every ten years to determine whether the results in their view support continuing, modifying or discontinuing the approach.

The proposed approach was specifically developed for the Delaware Estuary because an established interstate agency with authority to manage shared water resources will lead implementation of the strategy by working with the individual states to establish monitoring protocols and evaluate results of PMP implementation; and by recommending appropriate revisions to the strategy if necessary to achieve reductions in pollutant loadings. Importantly, the strategy builds upon the approach that is being used to implement the Stage 1 TMDLs, which has achieved significant load reductions to date, including a recently documented 46 percent reduction in point source loadings between 2005 and 2011.

APPENDIX A

DELAWARE ESTUARY PCB IMPEMENTATION STRATEGY: APPROACH FOR NPDES PERMITTING

Developed by

Delaware River Basin Commission
U.S. Environmental Protection Agency, Office of Water
U.S. Environmental Protection Agency, Regions II and III
Delaware Department of Natural Resources and Environmental Control
New Jersey Department of Environmental Protection
Pennsylvania Department of Environmental Protection

March 20, 2013

DELAWARE ESTUARY PCB IMPLEMENTATION STRATEGY: APPROACH FOR NPDES PERMITTING

For nearly eight years, with financial and technical backing from EPA and the States bordering the Delaware Estuary, DRBC, the States, EPA Headquarters, EPA Regions 2 and 3 and other stakeholders have worked to develop a uniform, updated numeric water quality criterion for PCBs in the Estuary, corresponding Stage 2 PCB TMDLs, and an overall implementation strategy that will ensure continued PCB loading reductions and ambient water quality improvements. An important component of that overall strategy is an approach for issuing NPDES permits to point sources discharging PCBs to the Estuary. DRBC and the States have reached agreement on the proposed permitting approach set forth below.

Proposed NPDES Permitting Requirements for PCB Dischargers

Each NPDES permit for dischargers of PCBs to the Delaware Estuary is proposed to contain:

1. Provisions to ensure that each discharger attains its Stage 2 TMDL wasteload allocation (WLA) as soon as possible:

    a. A requirement that the permittee develop a Pollutant Minimization Plan (PMP) conforming to the provisions of Section 4.30.9 of the DRBC's *Water Quality Regulations* (WQR). Such a PMP will include among other elements:

        - a set of best management practices (BMPs) intended to achieve "maximum practicable reduction" of PCB loadings to the Estuary; and

        - a requirement that the permittee submit a PMP Annual Report reporting the success of measures implemented, the PCB loadings reductions achieved, and any revisions to the PMP for the coming year.

    b. A provision that the Permitting Agency will establish elements of the PMP as enforceable requirements of the permit (e.g., milestones and key actions).

    c. An Action Level based upon Existing Effluent Quality (EEQ) to ensure that reductions achieved through implementation of a PMP are maintained.

        - If the EEQ Action Level is exceeded, the permittee becomes subject to additional specified monitoring, trackdown and/or BMP requirements to reduce loadings.

        - The EEQ Action Level is re-evaluated prior to every permit renewal on the basis of monitoring data for the previous permit cycle. If the data show a reduction in PCB loadings, EEQ may be reduced. If the data fail to show a reduction by the end of a five-year permit term, the discharger's PMP will be re-evaluated by DRBC and/or the permitting agency and amended to require actions or impose controls designed to

achieve further reductions or more aggressive implementation of BMPs already included in the PMP.

2. Permitting authorities must document in the NPDES permit fact sheets that the implementation of the PMP approach to achieve compliance with the TMDL WLAs is more stringent than the application of a technology based effluent limit for PCBs or other proposed surrogate pollutant (e.g. TSS). The permit must also include the more stringent of any technology based requirements for TSS in compliance with 40 CFR Parts 122.44(a)(1) and 125.3, or the DRBC effluent quality requirements at Section 3.10.4D.1.a.

3. A requirement for monitoring and reporting to calculate effluent concentrations and loadings, using a sensitive sampling and analytical method – Method 1668A or the latest subsequent revision thereof for PCBs in the Estuary.

4. A requirement to submit a revised PMP if the permitting agency determines that the PMP will not likely achieve the maximum practicable reduction of pollutant discharges. This revised PMP would be implemented during the permit cycle to ensure progress in reducing PCB loads.

5. A requirement that the permit holder submit a PMP Progress Report to accompany an updated PMP as part of the 5-year permit renewal application. This report, summarizing progress achieved and any changes made to the PMP over the preceding permit cycle, will supply context to help the permit authority determine the need for additional requirements in the permit renewal.

6. A requirement that monitoring, reporting, PMP requirements, and the EEQ Action Level remain in place until the discharger's wasteload allocation (WLA) is achieved, after which monitoring, reporting and a numeric effluent limit (consistent with the permittee's WLA and the policies of the permitting authority) will apply. Selected PMP action items may be continued to ensure ongoing attainment of the effluent limit.

Other Proposed Elements of the Implementation Strategy and Permitting Approach

1. Under the circumstances presented for PCBs in the Delaware Estuary, it is appropriate to adopt an implementation program that allows for the use of adaptive approaches – i.e., approaches entailing the application of a variety of techniques, measurement of their effects, and further application of the most effective techniques in an iterative fashion until the protected use(s) is (are) attained or the program is modified or discontinued. Such an approach both preserves the designated use of fishable waters and ensures it is attained as soon as possible.

2. A staged approach is proposed for Municipal Separate Storm Sewer Systems (MS4s). In the Stage 1 TMDLs, a categorical wasteload allocation (WLA) was assigned to MS4s for each Water Quality Zone (Estuary Zones 2-5).

In Stage 2 of the TMDLs, the following approach to MS4s is recommended: (a) for Phase I MS4s, imposition of a requirement for a PMP and monitoring using Method 1668A; and (b) for Phase II MS4s, formation of a work group comprised of federal and state regulators, to be tasked with (i) developing a procedure for prioritizing individual Phase II MS4 discharges; (ii) identifying the types of requirements that might appropriately be applied to these discharges (e.g., system mapping, source identification, BMP requirements, etc.); and (iii) determining the type of NPDES permit – individual NPDES permit or General Permit – in which such requirements should be established.

3. DRBC in consultation with the States and EPA Regions 2 and 3 will perform zone-wide and estuary-wide assessments of cumulative changes in ambient and effluent PCB levels periodically (every 5-10 years) to measure cumulative progress and adjust the projected water quality attainment date for PCBs in the Delaware Estuary as set forth in the TMDL.

4. EPA will evaluate the approach no less frequently than every ten years to determine whether the results in its view support continuing, modifying or discontinuing the approach.

5. The proposed permitting approach is appropriate for the Delaware Estuary because an established interstate agency with authority to manage the estuary's water resources will lead implementation of the strategy by working with individual states to establish monitoring protocols and evaluate results of PMP implementation, and by recommending appropriate revisions to the strategy if necessary to achieve reductions in pollutant loadings. Moreover, the approach as applied to implement a Stage 1 TMDL has resulted in significant load reductions to date. Application of the program in other contexts can be limited by the following:

    (a) candidate pollutants may be limited to those hydrophobic pollutants for which (i) a sediment reservoir is present to attenuate the effect of load reductions on ambient water quality (as is the case with PCBs in the Delaware Estuary), or (ii) treatment technologies to achieve WLAs and LAs are unknown or have not been demonstrated on a large scale (also true for PCBs in the Estuary); and

    (b) certain factors, including for example one or more of those listed at 40 CFR 131.10(g),[1] preclude attainment of one or more designated uses of the water

[1] This section of EPA's regulations implementing the Clean Water Act establishes the allowable bases for a state's removal of a designated use or adoption of subcategories of a use. Removal of the use "fish maintenance and migration" is not proposed in the Delaware Estuary, where fishing is an existing use. *See* 40 CFR § 131.10(h) (providing that a state may not remove a designated use that is an existing use as defined at 40 CFR § 131.3, unless a use requiring more stringent criteria is added.) Instead, the criteria set forth at 40 CFR § 131.10(g) should be among those used as bases for instituting a long-term restoration program where, as in the case of PCBs in the Delaware Estuary, science and data suggest that restoration may be achieved. We note that although the §131.10(g) factors have been used in some contexts as the basis for granting a variance rather than removing a use, no "variance" mechanism is proposed here. Our approach is for instituting a long-term restoration program where as in the case of PCBs in the Delaware Estuary, science and data suggest that restoration may be achieved.

body and the corresponding water quality criteria for a period of five or more years (also true for PCBs in the Estuary); and

(c) a TMDL has been established for the pollutant(s) and water body (bodies) to be restored (as has been done for PCBs in the Delaware Estuary); and

(d) data and/or science indicate that increasingly protective levels of the pollutant(s) can be achieved over time with the implementation of feasible controls, including regulatory and non-regulatory means (as has been demonstrated for PCBs in the Delaware Estuary).

Conclusion

We believe this proposed approach is the simplest and most effective path forward to the next phase of permitting for PCBs in the Delaware Estuary, and in turn, to implementation of a comprehensive strategy for restoring the Estuary. Adopting this approach will allow DRBC to proceed with adoption of an updated, uniform PCB criterion, EPA to establish the Stage 2 TMDLs, and co-regulators to advance coordinated non-point source controls, all of which, in combination with permitting, can eventually in our view put fish from the Delaware Estuary back on local menus and among the many features that contribute to the quality of life in our region.

APPENDIX D

BASIS AND BACKGROUND DOCUMENT

Basis and Background Document

Revised Human Health Water Quality Criteria for Total PCBs for the Protection of Human Health from Carcinogenic Effects

Delaware River Basin Commission
West Trenton, New Jersey

July 2013

Acknowledgments

This report was prepared by the staff of the Delaware River Basin Commission and the Delaware Department of Natural Resources and Environmental Control. Carol R. Collier is the Executive Director of the Commission. Dr. Thomas J. Fikslin and Dr. Richard W. Greene were the principal authors. Dr. Fikslin is the Manager of the Commission's Modeling, Monitoring and Assessment Branch. Dr. Greene is an Environmental Engineer in the Watershed Assessment Section, Division of Watershed Stewardship of the Delaware Department of Natural Resources and Environmental Control.

Significant technical contributions were also made members of the Toxics Criteria Subcommittee of the Commission's Toxics Advisory Committee. Members of the subcommittee included the authors; Dr. Ronald MacGillivray of the Modeling, Monitoring and Assessment Branch; J. Bart Ruiter, DuPont Engineering Research and Technology; Dr. Steven Washburn, Environ Corp.; Lawrence Sandeen, Rohm & Haas Company; Steven Lubow, New Jersey Department of Environmental Protection; Denise Hakowski, U.S. EPA Region III; Wayne Jackson, U.S. EPA Region II; Dr. Roland Hemmett, U.S. EPA Region II; Timothy Kubiak, U.S. Fish and Wildlife Service; Bonita Moore, Pennsylvania Department of Environmental Protection; Carol Young, Pennsylvania Department of Environmental Protection; Dr. Steven Brown, Rohm & Haas Company; and Dr. Robert A. Hoke, Dupont Company.

The Toxics Advisory Committee made the final recommendations to the Commission regarding this water quality criterion. The current membership of the Committee can be found at http://www.nj.gov/drbc/about/advisory/toxics/index.html.

EXECUTIVE SUMMARY

Identification of the governing water quality criteria is an essential step in the TMDL process. For the Delaware Estuary, available water quality criteria for PCBs include human health criteria for carcinogenic and systemic effects, and both freshwater and marine acute and chronic aquatic life criteria. The current DRBC water quality criteria for PCBs in the Delaware Estuary were established in 1996. They pre-date the collection of site-specific bioaccumulation data for the Delaware Estuary and Bay and site-specific fish-consumption data for Zones 2 through 4 that are relevant to the development of human health water quality criteria. They are also inconsistent with current U.S. Environmental Protection Agency (EPA) guidance for the development of such criteria, and they vary by water quality zone. One consequence is that in order to ensure that the water quality criterion of 7.9 picograms per liter in the downstream portion of Zone 5 can be achieved, the allowable PCB loading to Zones 2 and 3, where the current criterion is 44.4 picograms per liter, must be even lower than would be required if the proposed uniform criterion were in place.

Several factors are causing regulatory agencies to update their current human health water quality criteria for PCBs. These factors include: 1) the change in the cancer potency factor for total PCBs reported in EPA's Integrated Risk Information System (IRIS), 2) the availability of an updated default national fish consumption rate, and 3) the issuance of a revised methodology for deriving ambient water quality criteria for the protection of human health (EPA -822-B-00-004) in the fall of 2000. The latter methodology also includes several new recommendations on the use of site-specific fish consumption rates to be used in criteria development, and the use of a bioaccumulation factor (BAF) rather than a bioconcentration factor (BCF).

A subcommittee of the Delaware River Basin Commission's Toxic Advisory Committee was tasked with developing revised human health criteria for five zones of the Delaware Estuary. Existing criteria for the estuary are 44.4 pg/l for Zones 2 and 3 for exposure through drinking water and fish consumption, 44.8 pg/l for Zones 4 and the upper portion of Zone 5 for exposure through fish consumption only, and 7.9 pg/l for the lower portion of Zone 5 for exposure through fish consumption only. The lower criterion in Zone 5 is also due to a higher fish consumption rate being used.

Values for five factors were needed to develop the revised criteria. Three of the factors used EPA-recommended default values. These three factors were 1) risk-specific dose (2.0 mg/kg-day at a risk level of 10^{-6}), 2) body weight (70 KG), and 3) drinking water intake (2 liters/day). Site-specific data were needed to develop appropriate values for the other two factors: fish consumption at each trophic level, and BAF at each trophic level. Site-specific data for fish consumption in Zone 5 and Delaware Bay indicated an average consumption rate for all species of 17.46 grams per day. This value is remarkably close to the national default value of 17.5 grams per day. A second study by Faulds et al, 2004 examined catch and consumption patterns in Zones 2, 3 and 4 of the tidal Delaware River by intercepting and interviewing shore anglers at six sites in urban areas in and around the City of Philadelphia. Consumption data from this study were converted to grams per day, the unit used in the criteria equation, and resulted in consumption rates of 17.9 grams per day for channel catfish and 21.7 grams per day for white perch assuming a meal size of 8 ounces. The

consumption rate selected for use in the criteria equation was 17.5 grams per day. This value is consistent with the national default value and the site-specific data for Zones 2 through 6.

Field studies were conducted to provide PCB congener data on fish tissue concentrations of PCBs in species representative of two trophic levels, channel catfish and white perch. Ambient water concentrations of PCB congeners and organic carbon were also determined using low level sampling and analytical techniques for use in calculating the BAF in the new methodology. Data on the percent lipid of consumed fish were also determined from routine monitoring conducted by state agencies and the Commission since 1990. Data on the proportion of each trophic level consumed was assumed to be 50% based upon data from all zones that indicated roughly equal proportions for the two trophic levels.

Use of these data with the new EPA methodology results in a single criterion value of 15.9 pg/L. A probabilistic approach was also used to assess the impact of the uncertainty of the values used in the methodology. This analysis indicated that the median criterion value of 16.4 pg/L was close to that obtained using the deterministic approach, and that the interquartile range (40^{th} percentile to the 60^{th} percentile) fell between 11.2 pg/L to 24.4 pg/L.

In July 2005, the Commission's Toxics Advisory Committee (TAC) that had guided the development of a new human health water quality criterion for PCBs for the Delaware Estuary and Bay voted to recommend that the Commission adopt a revised human health criterion for the protection from carcinogenic effects of 16 picograms per liter for Zones 2 through 6. This revised criterion will provide a uniform TMDL target throughout the estuary and eliminate the current sharp transition in criteria within the estuary.

As the regulatory agencies agreed on a path forward to adopt the revised PCB criterion and propose a revised long-term implementation strategy for Stage 2 TMDLs, technical staff from the Commission and Delaware DNREC agreed to evaluate the proposed criterion in light of the availability of more recent data on PCB concentrations in ambient waters of the estuary and resident fish tissue. The results of this evaluation affirm the original numerical value of 16 pg/L for the human health criterion for Zones 2 through 6.

INTRODUCTION

An essential step in the TMDL process is the identification of the governing water quality criteria. For the tidal portions of the Delaware River and Bay, applicable criteria include maximum contaminant levels, taste and odor criteria, aquatic life criteria, and human health criteria for protection from carcinogenic and systemic effects (DRBC, 2010). For hydrophobic contaminants like polychlorinated biphenyls or PCBs, the ambient water quality criteria for the protection of human health from carcinogenic effects is the most stringent criteria; on the order of nanograms per liter to picograms per liter due to the high bioaccumulation of these compounds in fish tissue. As a consequence many water bodies are listed as impaired for PCBs including the Delaware River Estuary, resulting in the requirement to develop TMDLs for the water bodies.

As a consequence of the requirement of the 1986 amendments to the Clean Water Act many states were required to adopt water quality criteria for toxic pollutants including PCBs. Water quality criteria developed by EPA in the early 1980s were typically used to establish the states' water quality standards. These criteria were established using a methodology that addressed impacts to aquatic life, and both the carcinogenic and systemic effects of a chemical or, in the case of PCBs, a class of chemical compounds on human health by exposure through ingestion of water and fish (U.S. EPA, 1980a). This methodology included the consideration of six parameters: risk level, cancer potency factor, body weight, drinking water consumption, fish consumption, and the bioconcentration (BCF) of the chemical from water to fish tissue. The risk level is essentially a policy decision of the governmental agency adopting the criteria under their water quality standards regulations. Values for each of the remaining parameters were issued by the U.S. EPA for a group of chemicals referred to as the priority pollutants. While values for the cancer potency factor and BCF were chemical-specific, specified values for body weight, drinking water intake, and fish consumption were used in the methodology for all chemicals. The specified values for these parameters were 70 kilograms, 2 liters per day, and 6.5 grams per day, respectively.

The human health criteria for protection from carcinogenic effects initially recommended by EPA was 79 picograms per liter. This value was derived using a cancer potency factor of 4.3396 (mg/KG)/day (U.S. EPA, 1980b). This factor was subsequently revised in January 1990 to 7.7 (mg/KG)/day. This revision resulted in a recommended criterion value of 44.4 picograms per liter (pg/L). By the mid-1990's, human health criteria had been adopted for the Delaware River Estuary by Delaware, Pennsylvania, the Delaware River Basin Commission (DRBC) and the U.S. EPA. Criteria established by the DRBC varied between areas of the estuary due to differences in the designated use and the use of a different value for fish consumption in the lower portion of Zone 5 (DRBC, 2010). The criteria for the estuary are 44.4 pg/l for Zones 2 and 3, 44.8 pg/l for Zones 4 and the upper portion of Zone 5, and 7.9 pg/l for the lower portion of Zone 5. The lower criterion in Zone 5 is due to a higher fish consumption rate being used while only Zones 2 and 3 are designated as a drinking water source. The water quality regulations of the states of Delaware (Title 7, Section 4.2) and New Jersey (N.J.A.C. 7:9B-1.14(h)) contain provisions that defer to water quality criteria of the Commission for the mainstem of the Delaware River. The Commonwealth of Pennsylvania water quality regulations at Title 25, Chapter 93.2 provide that the more stringent of the water quality standards established under an interstate compact or international agreement or

those adopted by the Commonwealth apply to Zones 2 through 4 of the Delaware River.

Several actions require the criteria originally adopted by the DRBC and most states to be revised. The first is the revision of the cancer slope factor from 7.7 $(mg/KG\text{-}d)^{-1}$ to a range of factors based upon the persistence of the chemical in the environment and the bioaccumulation potential (U.S. EPA, 1999). For hydrophobic chemicals with high bioaccumulation potential like PCBs, the upper bound of the slope factor was recommended by the U.S. EPA. For total PCBs, this slope factor was 2.0 $(mg/KG\text{-}d)^{-1}$. In 2000, the U.S. Environmental Protection Agency issued revised guidance on developing human health criteria (U.S. EPA, 2000). Two significant changes recommended in this guidance were the recommendations to use site-specific values for fish consumption for the water body covered by the criteria, and to use a bioaccumulation factor or BAF rather than a BCF. In lieu of site-specific values on the consumption of fish by recreational fisherman, the guidance also recommended a default value of 17.5 grams per day. In February 2001, the Delaware River Basin Commission's Toxic Advisory Committee (TAC) charged a subcommittee to develop revised criteria for the protection of human health from carcinogenic effects of total PCBs for use in the TMDLs being developed by the Commission for the Delaware River Estuary. The Stage 1 TMDLs established by U.S. EPA Regions 2 and 3 in December 2003 were based upon the criteria adopted in 1996 as the studies to develop a revised criteria were still underway. Delaware, New Jersey and Pennsylvania subsequently revised their criteria to a value of 64 pg/L by incorporating the revised cancer slope factor and incorporating the default nation fish consumption rate of 17.5 grams per day. Adoption of a revised criterion of 16 pg/L by the Commission will establish a uniform criterion for total PCBs in the tidal waters (Zones 2 through 6) of the Delaware River and Bay and incorporated the latest recommendation of the U.S. EPA including the use of a site-specific bioaccumulation factor or BAF.

METHODOLOGY

The TAC subcommittee recommended that the revised criteria be developed using the October 2000 guidance issued by the U.S. EPA. The equation recommended in the guidance is:

$$AWQC = RSD\left[\frac{BW}{DI + \sum_{i=2}^{4}\left(FI_i \bullet BAF_i\right)}\right]$$

where:

AWQC = Ambient Water Quality Criterion (mg/l)

RSD = Risk-specific dose for carcinogens based on a linear low-dose extrapolation (mg/KG-day) such as 10^{-6}. Can also be expressed as

	Risk Level/Cancer Potency Factor.
BW =	Body weight (KG)
DI =	Drinking water intake per day (default = 2 Liters)
FI_i =	Fish intake at trophic level I (where I = 1, 2, 3, 4), KG/day
BAF_i =	Bioaccumulation Factor at trophic level I, L/KG-lipid

Each of the parameters used in the revised criteria methodology was evaluated by the subcommittee. The evaluation approach involved the review of the rationale provided in the EPA guidance document for establishing national values for each of the parameters, and the evaluation of site-specific data for each of the parameters. The site-specific data available for evaluation included data on the consumption of fish by recreational fishermen in the lower estuary, Zones 5 and 6 commissioned by Delaware DNREC (KCA, 1994), and in the more urban portions of the estuary, Zones 2 through 4 (Faulds et al, 2004). DRBC also funded two studies to provide data for use in establishing bioaccumulation factors for PCBs. The first study involved measuring the concentration of PCBs in sediments and various trophic levels of the food chain of selected sport species in the Delaware River Estuary (Ashley et al, 2004). This study examined PCB concentrations in invertebrates, small prey fish, channel catfish and white perch in the fall of 2001 and the spring of 2002 in four zones of the estuary (Zones 2 - 5) that were the focus of TMDL development. The second study involved the measurement of 124 PCB congeners in water samples collected at 15 locations in Zones 2 through 5 (DRBC, 2003). Data from fish tissue surveys conducted in the estuary were also examined to determine the percent lipid of the consumed portion of channel catfish and white perch caught in the estuary (Greene, 2002).

In order to assess the uncertainty in the parameters that are used in the criteria equation, a probabilistic analysis was conducted using @Risk software (Palisade Corporation, 2004). This analysis involves assigning distributions to selected equation parameters and some of their components. Table 1 indicates which of the parameters and their components were assigned a distribution or a fixed value. The distributions used for each parameter and component were determined from the source data or from statistical analysis of the data. POC, DOC, % lipid for channel catfish, and % lipid for white perch were each treated as lognormal distributions. The octanol water partition coefficient (K_{ow}), which is used to calculate the fraction of freely dissolved chemical, was treated as a discrete distribution, with homolog-specific K_{ow} values assigned to different frequencies based upon the possible number of PCB congeners at each homolog level. Fish consumption rate was considered as a triangular distribution with a minimum of zero, a most likely value of 17.46 grams per day, and a maximum value of 53.9 grams per day, based upon the KCA study (1994). The cancer potency slope was treated as a uniform distribution spanning a range from 1 to 2 $(mg/KG\text{-}d)^{-1}$. Finally, baseline BAFs for channel catfish and white perch were specified as Gumbel distributions based upon best fits to the field data.

The distributions described above, in combination with the fixed values for risk level, body weight, and drinking water ingestion, were sampled 10,000 times using the Latin Hypercube procedure to produce a range of possible water quality criterion values for the protection of human health from carcinogenic effects, each with an associated frequency.

Table 1: Summary of Parameters and Data Used in Calculating Human Health Criteria for Carcinogens

Parameter	Policy	Fixed Value	Distribution Used
Risk Level of 10^{-6}	X		
Body weight - 70 kilograms		X	
Drinking water intake per day - 2 liters per day		X	
Cancer potency factor			Uniform
Fish intake at each trophic level			
Total consumption rate			Triangular
Proportion of each trophic level species		X	
Bioaccumulation factor at each trophic level (BAF_i)			
Octanol-water partition coefficient (K_{ow})			Discrete
Particulate organic carbon (POC)			Lognormal
Dissolved organic carbon (DOC)			Lognormal
% lipid of consumed portion			Lognormal
Intermediate Parameters			
Fraction of PCB freely-dissolved in water			Calculated
Baseline BAF for channel catfish			Gumbel
Baseline BAF for white perch			Gumbel
Trophic level BAF for channel catfish			Calculated
Trophic level BAF for white perch			Calculated

The distributions were then sampled 10,000 times using the Latin Hypercube procedure and summarized in frequency distributions.

RESULTS

The value(s) selected for each parameter in the revised criteria equation are discussed below:

Cancer potency factor

The value selected for use is the upper bound factor for total PCBs published in the U.S. EPA's Integrated Risk Information System (U.S. EPA, 2013). This factor was first published in 1997 along with central estimate and upper bound factors for high risk and persistence, low risk and persistence, and lowest risk and persistence as a result of a reevaluation of the data on the carcinogenicity of PCB Aroclors. The upper bound slope factor is recommended for use where there is exposure through the food chain; dioxin-like, tumor-promoting, or persistent congeners are present; or early life exposure is expected. The subcommittee recommended the use of the upper bound estimate of 2.0 $(mg/KG\text{-}d)^{-1}$.

Body weight

The value selected for use is the average weight of male and female adults of 70 kilograms. This value is recommended by the U.S. EPA for establishing ambient water quality criteria (U.S. EPA, 2000). It is slightly lower, however, than that reported in the U.S. EPA analysis of the 1999 - 2006 National Health and Nutrition Examination Surveys or NHANES (U.S. EPA, 2011). The mean body weight of adults of both sexes observed in this survey was 80.0 kilograms. The median body weights ranged from 67.4 to 81.4 kilograms. U.S. EPA recommends continued use of 70 kilograms for consistency since this value is used in the Integrated Risk Information System for deriving cancer slope factors and unit risks for drinking water.

Risk level

The risk level used in establishing ambient water quality criteria is a risk management policy decision. It is defined as the number of cases of disease such as cancer in a population exposed to a chemical or chemicals. While the U.S. EPA believes that a risk level of either 10^{-5} or 10^{-6} may be acceptable as a *de minimus* risk for the general population, it uses a level of 10^{-6} for criteria actions under Sections 304(a) and 303(c) of the Clean Water Act. The agency believes that this risk level reflects an appropriate risk for the general population, and is consistent with the policies and regulations of the agency as a whole (U.S. EPA, 2000). The recommendation of a range of risk levels does provide flexibility to government entities in establishing water quality standards.

A risk level of 1 additional cancer case in 1 million exposed individuals or 10^{-6} was selected for use in the equation. This risk level is used by the Commission, the states of Delaware and New Jersey, and the Commonwealth of Pennsylvania in establishing their water quality standards. In March 2003, the Commission adopted Resolution 2003-11 following discussion of the recommendations of the Commission's Toxics Advisory Committee on revised human health criteria and wildlife criteria for total PCBs. This resolution directed the Commission staff to solicit comment on the revised human health criteria for PCBs including the appropriate cancer risk level.

Drinking water intake rate

A value of 2.0 liters/day was selected for this parameter. This value was used in the development of the 1980 national water quality criteria, and continues to be recommended by the U.S. EPA in the 2000 guidance (U.S. EPA, 2000). This recommendation was based upon a more recent survey of food intake by individuals conducted by the U.S. Department of Agriculture entitled "1994-96 Continuing Survey of Food Intake by Individuals" (U.S.D.A., 1998). This survey reported a mean and 90th percentile drinking water consumption for adults 20 years of age and older of 1.1 and 2.2 liters/day, respectively. The U.S. EPA believes that new studies continue to support the use of 2.0 liters/day as a reasonable and protective consumption rate for the general population (U.S. EPA, 2000).

Fish consumption rate

In the 2000 guidance, the U.S. EPA recommends that a hierarchy of preference be used in the selection of a fish consumption rate for use in the criteria equation (U.S. EPA, 2000). This hierarchy is: 1) the use of local data on fish consumption patterns, 2) use of data reflecting similar geography or population groups for the water body of concern, 3) use of data from national surveys, and 4) use of the U.S. EPA default consumption rates. The default rate recommended by the U.S. EPA for both recreational fisherman and the general population is 17.5 grams per day. Ths rate is based upon the 1994-96 Continuing Survey of Food Intake by Individuals (U.S.D.A., 1998)

Two sources of data were available on the fish consumption patterns of recreational fisherman in the Delaware River Estuary. A study commissioned by the State of Delaware examined catch and consumption patterns in Zones 5 and 6, the lower portion of the tidal Delaware River and Delaware Bay (KCA, 1994). The study involved dockside intercepts and follow-up phone interviews of over 800 participants. The northern part of Zone 5 adjoins the urban area of Wilmington, and the surrounding suburban area of New Castle County in Delaware. The second study by Faulds et al, (2004) examined catch and consumption patterns in Zones 2, 3 and 4 of the tidal Delaware River by intercepting and interviewing shore anglers at six sites in Pennsylvania. These zones include the urban areas in and around the City of Philadelphia.

The average consumption of all species in Zones 5 and 6 was 17.46 grams per day, and the maximum fish consumption by any particular demographic group was 53.9 grams per day (KCA, 1994). Channel catfish and white perch were consumed at approximately equal rates. Faulds et al (2004) reported that channel catfish, striped bass and white perch were the most frequently consumed species in Zones 2 through 4. Ethnic groups reporting the highest consumption were Cambodian, Vietnamese and Afro-American. Faulds et al (2004) reported the number of meals of the species consumed by shore anglers. This data was converted to grams per day, the unit used in the criteria equation, and resulted in consumption rates of 17.9 grams per day for channel catfish and 21.7 grams per day for white perch assuming a meal size of 8 ounces.

The consumption rate selected for use in the criteria equation was 17.5 grams per day. This value is consistent with the national default value and the site-specific data for Zones 2 through 6. The

consumption data reported by Faulds et al (2004) on urban fisherman in Zones 2 - 4 was not substantially higher than the rate observed in the lower estuary, and did not support the use of a different consumption rate for zones in the Philadelphia area, especially in light of the management benefits associated with a consistent, estuary-wide criterion.

Bioaccumulation factor

Bioconcentration factors, or BCFs, represent the accumulation of a chemical in an aquatic species due to uptake from the water only. In contrast, bioaccumulation factors, or BAFs, represent the accumulation due to all routes of exposure, including exposure through the water and through the consumption of contaminated prey and sediment. Use of a bioaccumulation factor rather than a bioconcentration factor was endorsed by the Commission's Toxics Advisory Committee at their meeting in February 2001 and directed by the Commission in Resolution 2000-13 in March 2003. The 2000 guidance calls for the use of a separate factor for each of the trophic levels represented in the species consumed in the water body for which the criteria will apply. In the case of the Delaware Estuary, two trophic levels were used. Trophic level 3 represents species whose diet consists of consumers of primary producers and detritus, principally invertebrates such as amphipods of the genus *Gammarus*. The species selected to represent this trophic level was the channel catfish. Trophic level 4 represents species whose diet includes more fish. The species selected to represent this trophic level was the white perch. The use of a single value for the BAF for these two trophic levels was unanimously endorsed by the Commission's Toxics Advisory Committee in February 2003.

The 2000 guidance recommends two possible procedures for deriving BAFs for nonionic organic chemicals (U.S. EPA, 2000). Procedure #1 is recommended for nonionic organic chemicals with log K_{ow} values equal to or greater than 4.0 where metabolism is expected to be sufficiently low. PCB homologs have log K_{ow} values that range from 4.69 for monochlorobiphenyls to 8.18 for decachlorobiphenyls. The guidance specifically mentions PCBs as a group of chemicals for which Procedure #1 is deemed appropriate. Procedure #1 contains four methods for calculating the BAFs. The first method uses field measurements to derive the BAFs. The 2000 guidance recommends this method over the other three methods which utilize predictive approaches for establishing BAFs (U.S. EPA, 2000).

The first step in using measured data to derive the BAFs is to calculate Baseline BAFs. Baseline BAFs are defined as a BAF in units of Liters/kilogram-lipid that is based upon the concentration of freely dissolved chemical in the ambient water and the lipid-normalized concentration in the fish tissue (U.S. EPA, 2000). Baseline BAFs are calculated using the formula:

$$Baseline\ BAF_{l}^{fd} = \left[\frac{Measured\ BAF_{T}^{t}}{f_{fd}} - 1 \right] \left[\frac{1}{f_{l}} \right]$$

where:

Baseline BAF^{fd}_{l} =	BAF based upon the total concentration of the chemical in tissue and ambient water
f_l =	The fraction of tissue that is lipid
f_{fd} =	The fraction of the total chemical that is freely-dissolved in water
Measured BAF^{t}_{T} =	BAF based upon the total concentration of the chemical in tissue and ambient water and calculated using the formula:

$$Measured\ BAF_T^t = \frac{C_t}{C_w}$$

where:

C_t =	Total concentration of the chemical in the specified wet tissue
C_w =	Total concentration of the chemical in water

Zone-specific data on PCB concentrations in fish tissue and ambient water were obtained from two studies: a bioaccumulation study conducted by the University of Maryland and the Academy of Natural Sciences in the fall of 2001 and spring of 2002 (Ashley et al, 2004), and ambient water measurements of PCBs conducted by the Delaware River Basin Commission in late 2001 and early 2002 (DRBC, 2003). Each of these studies measured a common set of 124 congeners which were summed to derive total PCB concentrations. The fraction of the total chemical that is freely-dissolved in water is determined using the octanol water partition coefficient, and the concentration of particulate organic carbon and dissolved organic carbon in the ambient waters determined in surveys conducted by DRBC in the fall 2001 and spring 2002. The formula is:

$$f_{fd} = \frac{1}{\left[1+\left(POC \bullet K_{ow}\right)+\left(DOC \bullet 0.08 \bullet K_{ow}\right)\right]}$$

where:

POC =	Particulate organic carbon concentration in ambient water in Kilograms/liter
K_{ow} =	octanol water partition coefficient for the chemical
DOC =	Dissolved organic carbon concentration in ambient water in Kilograms/liter
f_{fd} =	The fraction of the total chemical that is freely-dissolved in water

Table 2 contains the ambient water, tissue concentration, organic carbon concentrations and fraction lipid that were used in the derivation of the Baseline BAFs.

Table 2: Data used in the derivation of the Baseline BAFs.

Study Period	Tissue Concentration (ng/g)	Ambient Water Concentration (pg/L)	POC (mg/L)	DOC (mg/L)	fraction lipid
Fall 2001		3194.4	1.51	6.44	
Channel catfish	1230.4				0.0892
White perch	1013.4				0.0734
Spring 2002		4691.8	1.84	10.74	
Channel catfish	1621				0.0817
White perch	1127.6				0.0684

Baseline BAFs are then converted to trophic level BAFs using the following formula:

$$BAF_{(TLn)} = \left[Baseline\ BAF_{l}^{fd} \bullet (f_l)_{TLn} + 1 \right] \bullet (f_{fd})$$

where

$BAF_{(TL\,n)}$ = Final trophic level baseline BAF expressed on a freely-dissolved and lipid-normalized basis for trophic level n

Baseline BAF^{fd}_{l} = BAF based upon the total concentration of the chemical in tissue and ambient water

f_l = The fraction of tissue that is lipid for trophic level n

f_{fd} = The fraction of the total chemical that is freely-dissolved in water

Table 3 lists the Baseline BAFs, fraction lipid of consumed tissue, fraction of chemical freely-dissolved and the final trophic level BAFs.

Prior to calculating the water quality criterion, the proportion of fish intake from each trophic level must be determined. Faulds et al (2004) reported that 42.6% of the fish consumed by shore anglers in Zones 2 through 4 were channel catfish while 42% of the fish consumed were white perch. Since these data indicated similar proportions for both trophic levels 3 and 4, equal proportions of each trophic level were assumed in calculating the revised ambient water quality criteria.

Table 3: Values used in the calculation of final trophic level baseline BAFs.

Trophic Level	Baseline BAF (L/KG-lipid)	fraction lipid of consumed tissue	fraction freely-dissolved	Trophic Level BAF (L/KG-lipid)
Level 3 - Channel catfish				
Fall 2001	35,288,611	0.0387	0.122	167,200
Spring 2002	44,088,605	0.0387	0.095	162,465
Level 4 - White perch				
Fall 2001	22,458,380	0.0248	0.122	68,190
Spring 2002	35,267,280	0.0248	0.095	83,281

Criterion calculation

Values for each of the parameters in the criteria equation presented in the 2000 guidance and the resulting ambient water quality criterion for the protection of human health from the carcinogenic effects of PCBs for Zones 2 through 5 is presented in Table 4.

Table 4: Parameter values used in the equation for calculating the human health criterion for the protection from carcinogenic effects for PCBs.

Parameter	Value
Risk Level	1×10^{-6}
Cancer potency factor	2.0 $(mg/KG\text{-}d)^{-1}$
Risk Specific Dose	5.0×10^{-7} mg/KG-d
Body Weight	70 KG
Drinking Water Intake	2.0 liters/day
Fish Intake	17.5 grams per day
Proportion of fish intake at each trophic level	Trophic level 3 - 0.5 Trophic level 4 - 0.5
BAF at each trophic level (L/KG-lipid)	Trophic level 3 - 164,832 Trophic level 4 - 75,736
Ambient Water Quality Criterion	**15.9 picograms/liter**

This ambient water quality criterion applies where exposure is from drinking water and fish consumption or only from fish consumption.

Probabilistic analysis

The results of the probabilistic analysis from exposure through drinking water and fish consumption, and through fish consumption only are presented in Table 5 and Figure 1. The 50th percentile of the criterion was 16.4 pg/liter for both exposure scenarios.

Table 5: Results of probabilistic analysis using @Risk.

Percentile	Ambient Water Quality Criterion	
	Fish and Water Consumption	**Fish Consumption Only**
10%	3.0	3.0
25%	6.2	6.2
50%	**16.4**	**16.4**
75%	49.6	49.7
90%	144.5	145.4

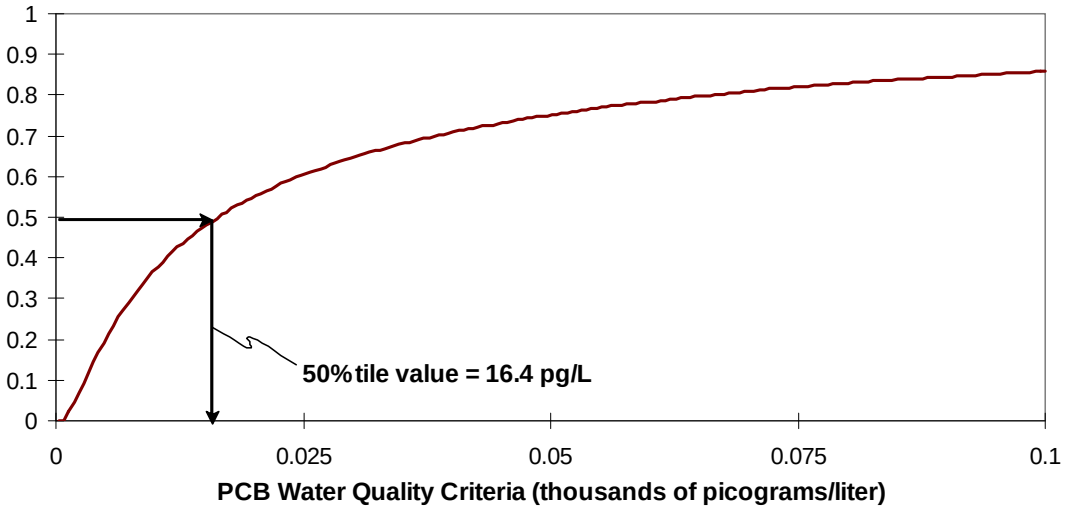

Figure 1: Distribution of ambient water quality criterion for PCBs

DISCUSSION

The keystone of any TMDL is the water quality criterion upon which it is based. In developing TMDLs for PCBs for the Delaware Estuary, several factors influence the selection of the governing criterion. These factors include: 1) a change in the cancer potency factor for total PCBs reported in EPA's Integrated Risk Information System, 2) the possible future adoption of wildlife criteria for PCBs, and 3) the issuance of a revised methodology for deriving ambient water quality criteria for the protection of human health in the fall of 2000. The latter methodology also includes several new recommendations on the fish consumption rate to be used in criteria development, and the use of a bioaccumulation factor (BAF) rather than a bioconcentration factor (BCF).

Another confounding factor that influences the development of TMDLs for hydrophobic contaminants like PCBs in interstate waters is the existence of different human health criteria adopted by bordering states. Furthermore, the requirement under the Clean Water Act that states update their criteria every three years can result in changing criteria over time, thus making the basis of the TMDLs difficult to establish. An example of the impact of these factors is the human health criteria for Zones 2 through 6 of the Delaware Estuary. In 1996, the Delaware River Basin Commission, the states of Delaware and New Jersey, and the Commonwealth of Pennsylvania all had the same criteria for water and fish consumption for PCBs, 44.4 picograms/liter. With the issuance of a revised slope factor and revised methodology for deriving human health criteria by the U.S. EPA, the adoption of different criteria by each of the three states during their triennial review was possible depending on the extent to which the new data and methodology were implemented. In 2004, both Delaware and New Jersey proposed revised human health criteria for PCBs. Delaware developed its revised criterion using the new cancer slope factor and site-specific fish consumption data, and derived a value of 64 picograms per liter. New Jersey developed its revised criterion using only the new cancer slope factor, deriving a value of 170 picograms per liter. In September 2006, New Jersey adopted a criterion of 64 picograms per liter using both the new cancer slope factor and the national default fish consumption value of 17.5 grams per day. The Commission still retains the criterion value of 44.4 picograms per liter adopted in 1996.

Adoption of the revised human health criterion for protection from carcinogenic effects for PCBs presented by the Commission will result in a uniform standard that fully implements the October 2000 guidance issued by the U.S. EPA. Even if the three states bordering the estuary have different criteria for PCBs depending on the extent to which they have implemented the new guidance, provisions in the standards of New Jersey and Delaware deferring to standards adopted by the Commission will make the revised criteria the governing criteria. Pennsylvania water quality standards do not have language deferring to the Commission's standard, but do have regulations stating that the more stringent of state, interstate or international criteria will apply in interstate or international bodies of water.

Wildlife criteria could theoretically be more stringent than human health criterion for carcinogenic effects. Factors affecting the relative stringency of each criteria include the numerical values of both the wildlife and human health criteria, and the exposure duration used in applying the criteria. The exposure duration for human health criteria for protection from carcinogenic effects is 70 years. The exposure duration for wildlife criteria is 90 days. Figure 2 compares the assimilative capacity (a

close analog of a TMDL) of Zones 2 - 5 of the Delaware Estuary based upon existing human health criteria, proposed wildlife criteria, and revised human health criteria implementing one or more recommendations of the October 2000 guidance. This graph indicates that existing criteria are not the most controlling, and that only by fully implementing the recommendations of the October 2000 guidance with respect to the cancer slope factor, fish consumption rates and the use of BAFs will the revised human health criteria be controlling.

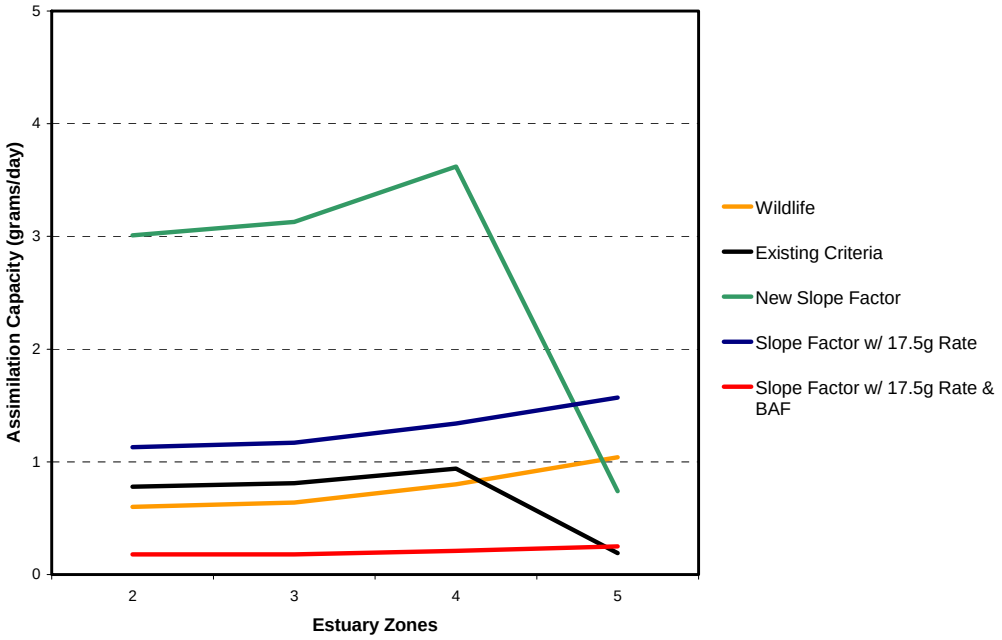

Figure 2: Comparison of assimilative capacity at different criteria values.

CONCLUSION

Revised human health criteria for the protection of human health from carcinogenic effects were developed using the updated cancer potency factor of 2.0 $(mg/KG\text{-}d)^{-1}$ and the October 2000 guidance issued by the U.S. EPA. Two significant changes recommended in this guidance were to use site-specific values for fish consumption for the water body covered by the criteria, and to use a bioaccumulation factor or BAF rather than a BCF. A value of 17.5 grams/day was selected for use in the criteria formula. This value is similar to site-specific values of 17.5 and 19.8 grams per day observed in two studies conducted in the Delaware Estuary, and is also the recommended national default value. Site-specific BAFs were developed for two trophic levels in the estuary using fish tissue data collected during the fall 2001 and spring 2002, and data on concentrations of PCB congeners in water samples collected during the same time period. Trophic level BAFs of 164,832 L/KG-lipid for trophic level 3 and 75,736 L/KG-lipid for trophic level 4 were determined using these data.

Values for other parameters in the criteria equation were a risk level of 10^{-6}, body weight of 70 kilograms, drinking water intake of 2.0 liters/day. The revised ambient water quality criterion for the protection of human health from carcinogenic effects of exposure through drinking water and fish consumption using these parameter values is 15.9 picograms/L. The results of a probabilistic analysis of selected equation parameters and some of their components indicated a 50^{th} percentile value of 16.4 picograms/L for the revised water quality criterion. This value is close to that obtained with the deterministic approach. A water quality criterion for the protection of human health from carcinogenic effects of 16 picograms per liter is therefore proposed for Water Quality Management Zones 2 through 6 from the head of the tide at Trenton, NJ to the mouth of Delaware Bay.

The values obtained using the revised criteria equation are approximately 2.5 more stringent than the criteria in Zones 2 - 4 and in the upper portion of Zone 5, and 2.2 times less stringent than the current criterion in the lower portion of Zone 5 and in Zone 6. Criteria of this magnitude would be more stringent than the wildlife criterion proposed for the State of New Jersey. Use of a revised water quality criterion for the development of TMDLs for PCBs in the Delaware Estuary will ensure consistency and stability in the value of the TMDLs.

In July 2005, the Commission's Toxics Advisory Committee (TAC) that had guided the development of a new human health water quality criterion for PCBs for the Delaware Estuary and Bay voted with no objections to recommend that the Commission adopt a revised criterion of 16 picograms per liter for Zones 2 through 6.

As the regulatory agencies agreed on a path forward to adopt the revised PCB criterion and propose a revised long-term implementation strategy for Stage 2 TMDLs, technical staff from the Commission and Delaware DNREC agreed to evaluate the proposed criterion in light of the availability of more recent data on PCB concentrations in ambient waters of the estuary and resident fish tissue. Review of the available data for this evaluation indicated that ambient water data for PCBs and carbon was available from a September 2007 survey, and that fish tissue data was available for 2007 for Zones 2 - 4. Results for the fish sample from Zone 5 were not available so data for a 2006 sample collected in Zone 5 was used. A point estimate for the criterion was calculated using the most recent U.S. EPA methodology (U.S. EPA, 2000), while a probabilistic analysis of the data was performed to develop distributions of the criterion using @Risk software. Details of the evaluation are contained in Appendix F. This analysis indicated that both the point estimate and median criterion value were the same (13.4 pg/L), with the 25th and 75th percentile values of 7.2 pg/L and 25.2 pg/L, respectively. These results compare well with the distribution of the criterion in the original analyses where the 25th and 75th percentile values were 6.2 pg/L and 49.6 pg/L, respectively. The results of this evaluation affirm the original numerical value of 16 pg/L for the human health criterion for Zones 2 through 6.

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Appendix A

Comparison of Current and Revised Criteria for Total PCBs for the Protection of Human Health from Carcinogenic Effects in Zones 2 through 6 of the Delaware River

Revised Water Quality Criteria for Total PCBs
Delaware River Basin Commission

Parameter	Cancer Potency Factor	BCF/BAF	% Lipid of Consumed Fish	Consumption Rate (Grams/day)	Basis for Consumption Rate	Freshwater Criteria (picograms/L)		Marine Criteria (picograms/L)
						Fish & Water Ingestion (Zones 2 & 3)	Fish Ingestion Only (Zones 4 & 5)	Fish Ingestion Only (Zones 5 & 6)
Total PCBs	7.70e+00	31,200[a]	3.0	6.5	Old default value	44.4	44.8	-
Total PCBs	7.70e+00	31,200[a]	3.0	37.0	Current DRBC value	-	-	7.9
Total PCBs	2.00e+00	164,832[b] 75,736[c]	3.9[b] 2.5[c]	17.5 (50% - Level 3 and 4)	National default and Estuary-Specific Data	**16.0**	**16.0**	**16.0**

a - BCF from 1980 Ambient Water Quality Criteria document.
b - BAF for trophic level 3 (mean of Fall 2001 and Spring 2002).
c - BAF for trophic level 4 (mean of Fall 2001 and Spring 2002).

Notes:Values were developed using percent lipid values from estuary data base of fillet samples, and a consumption rate of 17.5 grams per day.

Appendix B

Site-Specific BAFs
Fall 2001

Revised Water Quality Criteria for Total PCBs for the Protection of Human Health from Carcinogenic Effects in Zones 2 through 6 of the Delaware River

BAF Calculations

Freely-Dissolved Fraction:

			Freely-Dissolved Fraction										**Median**	**Minimum**	**Maximum**
	POC	DOC	Mono	Di	Tri	Tetra	Penta	Hexa	Hepta	Octa	Nona	Deca			
Zone 2	1.06	5.68	0.931	0.849	0.629	0.376	0.214	0.099	0.044	0.017	0.012	0.004	0.156	0.004	0.931
Zone 3	1.54	6.25	0.909	0.807	0.558	0.309	0.168	0.075	0.033	0.012	0.009	0.003	0.122	0.003	0.909
Zone 4	1.19	9.56	0.913	0.814	0.569	0.319	0.174	0.078	0.035	0.013	0.009	0.003	0.126	0.003	0.913
Zone 5	2.48	5.99	0.874	0.742	0.465	0.236	0.122	0.053	0.023	0.009	0.006	0.002	0.088	0.002	0.874
All Zones	1.51	6.44	0.910	0.808	0.559	0.311	0.169	0.076	0.033	0.013	0.009	0.003	0.122	0.003	0.910

	Kow
Mono	4.69
Di	5.07
Tri	5.59
Tetra	6.04
Penta	6.39
Hexa	6.78
Hepta	7.16
Octa	7.59
Nona	7.74
Deca	8.18

Note: POC, DOC and Kow are all median values.

Fall 2001

	White Perch Concentration in Tissue (Ct) ng/g	Channel catfish Concentration in Tissue (Ct) ng/g
Zone 2	681.60	1151.09
Zone 3	1345.10	2191.38
Zone 4	1441.02	1309.65
Zone 5	334.51	664.36
All Zones (median)	1013.35	1230.37

Zone	Sample ID	Wet Weight (ng/g)	(ng/g lipid)
2	2CORE WF	681.60	11485
3	3CORE WF	1345.10	17586
4	4CORE WF	1441.02	19776
5	5CORE WF	334.51	3246

Zone	Sample ID	Wet Weight (ng/g)	(ng/g lipid)
2	2CORE WF	1151.09	12485
3	3CORE WF	2191.38	21740
4	4CORE WF	1309.65	15211
5	5CORE WF	664.36	11222

Baseline BAF Calculation - using Sept 2001 DRBC water data

Channel catfish - Fall 2001
Whole Body Conc.

	Concentration in Tissue (Ct) ng/g	Total Water Concentration (Cw) pg/l	Measured BAF	Log BAF	% lipid	Fraction fd	Baseline BAF
Zone 2	1151.09	2729.36	421,744	5.63	9.22	0.156	29,258,732
Zone 3	2191.38	8739.41	250,747	5.40	10.08	0.122	20,449,300
Zone 4	1309.65	2529.14	517,824	5.71	8.61	0.126	47,558,891
Zone 5	664.36	3659.44	181,547	5.26	5.92	0.088	34,926,342
All Zones (median)	1230.37	3194.40	385,165	5.59	8.92	0.122	35,288,611

Note: Tissue concentration is converted to ng/kg and water concentration is converted to ng/l in the formula.

White Perch - Fall 2001
Whole Body Conc.

	Concentration in Tissue (Ct) ng/g	Total Water Concentration (Cw) pg/l	Measured BAF	Log BAF	% lipid	Fraction fd	Baseline BAF
Zone 2	681.60	2729.36	249,729	5.40	5.96	0.156	26,801,577
Zone 3	1345.10	8739.41	153,912	5.19	7.67	0.122	16,496,065
Zone 4	1441.02	2529.14	569,767	5.76	7.01	0.126	64,273,452
Zone 5	334.51	3659.44	91,410	4.96	10.58	0.088	9,839,988
All Zones (median)	1013.35	3194.40	201,820	5.30	7.34	0.122	22,458,380

Final Trophic Level BAF Calculation

Trophic Level 3

	Baseline BAF	Fraction lipid	Fraction fd	Trophic Level BAF
Zone 2	29,258,732	0.092	0.156	421,744
Zone 3	20,449,300	0.101	0.122	250,747
Zone 4	47,558,891	0.086	0.126	517,824
Zone 5	34,926,342	0.059	0.088	181,547
All Zones	35,288,611	**0.0387**	0.122	167,200

Trophic Level 4

	Baseline BAF	Fraction lipid	Fraction fd	
Zone 2	26,801,577	0.060	0.156	249,729
Zone 3	16,496,065	0.077	0.122	153,912
Zone 4	64,273,452	0.070	0.126	569,767
Zone 5	9,839,988	0.106	0.088	91,410
All Zones	22,458,380	**0.0248**	0.122	68,190

Note: All Zones fraction lipid is derived from the estuary-wide data compilation and UMd-CBL/ANSP data.

Final BAF Calculation - Fall 2001

ALL ZONES

Trophic Level	Trophic Level BAF	Proportion of Fish Intake*	Trophic Level Fish Intake (g/day)	BAF& Fish Intake Term
3	167,200	0.5	8.95	1,496
4	68,190	0.5	10.85	740
Total			19.8	
	Final BAF& Fish Intake Term (All Zones Combined) -		**2,236**	

* This proportion based upon data from the PSU study that indicated that 42.6% of fish consumed was channel catfish or carp while 42.0% of fish consumed was white perch or striped bass. Therefore, equal proportions from each trophic level was used in the calculation.

Appendix C

Site-Specific BAFs
Spring 2002

Revised Water Quality Criteria for Total PCBs for the Protection of Human Health from Carcinogenic Effects in Zones 2 through 6 of the Delaware River

BAF Calculations

Freely-Dissolved Fraction:

			Freely-Dissolved Fraction										**Median**	**Minimum**	**Maximum**
	POC	DOC	Mono	Di	Tri	Tetra	Penta	Hexa	Hepta	Octa	Nona	Deca			
Zone 2	0.87	4.18	0.944	0.876	0.681	0.430	0.255	0.121	0.055	0.021	0.015	0.005	0.188	0.005	0.944
Zone 3	1.85	9.58	0.886	0.765	0.496	0.259	0.136	0.060	0.026	0.010	0.007	0.003	0.098	0.003	0.886
Zone 4	2.17	9.78	0.874	0.743	0.466	0.236	0.123	0.053	0.023	0.009	0.006	0.002	0.088	0.002	0.874
Zone 5	2.47	19.43	0.835	0.679	0.390	0.185	0.093	0.040	0.017	0.006	0.005	0.002	0.066	0.002	0.835
All Zones	1.84	10.74	0.883	0.759	0.488	0.253	0.132	0.058	0.025	0.009	0.007	0.002	0.095	0.002	0.883

	Kow
Mono	4.69
Di	5.07
Tri	5.59
Tetra	6.04
Penta	6.39
Hexa	6.78
Hepta	7.16
Octa	7.59
Nona	7.74
Deca	8.18

Carbon data is from March 15 and April 11, 2002 DRBC surveys.

Note: POC, DOC and Kow are all median values.

Spring 2002

	White Perch Concentration in Tissue (Ct) ng/g	Channel catfish Concentration in Tissue (Ct) ng/g
Zone 2	659.88	510.88
Zone 3	1127.98	1659.77
Zone 4	1202.04	1815.17
Zone 5	1127.26	1582.18
All Zones (median)	1127.62	1620.98

Zone	Sample ID	Wet Weight (ng/g)	(ng/g lipid)
2	2CORE WF	659.88	10965
3	3CORE WF	1127.98	15983
4	4CORE WF	1202.04	17037
5	5CORE WF	1127.26	26479

Zone	Sample ID	Wet Weight (ng/g)	(ng/g lipid)
2	2CORE WF	510.88	10577
3	3CORE WF	1659.77	22582
4	4CORE WF	1815.17	20213
5	5CORE WF	1582.18	15681

Baseline BAF Calculation

Channel catfish - Spring 2002
Whole Body Conc.

	Concentration in Tissue (Ct) ng/g	Total Water Concentration (Cw) pg/l	Measured BAF	Log BAF	% lipid	Fraction fd	Baseline BAF
Zone 2	510.88	2220.76	230,047	5.36	4.83	0.188	25,367,088
Zone 3	1659.77	5591.81	296,822	5.47	7.35	0.098	41,261,386
Zone 4	1815.17	5233.22	346,855	5.54	8.98	0.088	43,897,648
Zone 5	1582.18	4224.84	374,495	5.57	10.09	0.066	56,008,956
All Zones (median)	1620.98	4729.03	342,771	5.54	8.17	0.095	44,088,605

Note: Tissue concentration is converted to ng/kg and water concentration is converted to ng/l in the formula.

White Perch - Spring 2002
Whole Body Conc.

	Concentration in Tissue (Ct) ng/g	Total Water Concentration (Cw) pg/l	Measured BAF	Log BAF	% lipid	Fraction fd	Baseline BAF
Zone 2	659.88	2220.76				0.188	
Zone 3	1127.98	5591.81	201,720	5.30	7.33	0.098	28,117,752
Zone 4	1202.04	5233.22	229,694	5.36	6.84	0.088	38,164,805
Zone 5	1127.26	4224.84	266,817	5.43	4.26	0.066	94,516,411
All Zones (median)	1127.62	4729.03	229,694	5.36	6.84	0.095	35,267,280

Final Trophic Level BAF Calculation

Trophic Level 3

	Baseline BAF	Fraction lipid	Fraction fd	Trophic Level BAF
Zone 2	25,367,088	0.048	0.188	230,047
Zone 3	41,261,386	0.074	0.098	296,822
Zone 4	43,897,648	0.090	0.088	346,855
Zone 5	56,008,956	0.101	0.066	374,495
All Zones	44,088,605	**0.0387**	0.095	162,465

Trophic Level 4

	Baseline BAF	Fraction lipid	Fraction fd	
Zone 2		0.000	0.188	
Zone 3	28,117,752	0.073	0.098	201,720
Zone 4	38,164,805	0.068	0.088	229,694
Zone 5	94,516,411	0.043	0.066	266,817
All Zones	35,267,280	**0.0248**	0.095	83,281

Note: All Zones fraction lipid is derived from the estuary-wide data compilation and UMd-CBL/ANSP data.

Final BAF Calculation - Spring 2002

ALL ZONES

Trophic Level	Trophic Level BAF	Proportion of Fish Intake*	Trophic Level Fish Intake (g/day)	BAF& Fish Intake Term
3	162,465	0.5	8.75	1,422
4	83,281	0.5	8.75	729
Total			17.5	
	Final BAF& Fish Intake Term (All Zones Combined) -		**2,150**	

* - This proportion based upon data from the PSU study that indicated that 42.6% of fish consumedhas been assumed to be 50% for each trophic level.
was channel catfish or carp while 42.0% of fish consumed was white perch or striped bass. Therefore, equal proportions from each trophic level was used in the calculation.

Appendix D

Final BAF Calculation

Revised Water Quality Criteria for Total PCBs for the Protection of Human Health from Carcinogenic Effects in Zones 2 through 6 of the Delaware River

Final BAF Calculation Using Fall 2001 & Spring 2002 Data

BAF & Fish Intake Term

Trophic Level 3	1,459
Trophic Level 4	734
Mrean of Fall & Spring*	**2,193**

* - Using %lipid values of 3.87% for trophic level 3 and 2.48% for trophic level 4 and 17.5 grams per day for consumed fish

Appendix E

Lipid Analysis

Revised Water Quality Criteria for Total PCBs for the Protection of Human Health from Carcinogenic Effects in Zones 2 through 6 of the Delaware River

Lipid Analysis for PCB Water Quality Criteria

12-Mar-03

	Channel Catfish					White Perch				
Year	Crosswicks	Tacony-Palmyra	Paulsboro	Deepwater	C&D Canal	Crosswicks	Tacony-Palmyra	Paulsboro	Deepwater	C&D Canal
2001	4.6	3.7	1.7	4.1	5.9	1.8	2.0	1.6	2.3	2.4
1998	13.4	9.6	15.7		9.1	3.0	2.4	7.1		8.8
1996	3.6	3.5	7.4	7.0	7.6	1.1	1.8	3.7	3.2	1.5
1994	3.6	6.9	1.8	3.3	0.9	1.0	2.0	1.2	1.4	3.8
1993	6.2	2.3	1.9	1.8	7.1	13.0	1.7	5.4	2.3	1.7
1992		3.3	3.9	1.8	2.5		2.4	3.5	1.4	0.9
1991	1.5	5.3	1.2	0.7	1.3	2.6	2.1	2.9	1.2	1.7
1990	11.1	3.6	7.3	9.0		1.9	3.8	2.7	3.5	
Median	4.6	3.6	2.9	3.3	5.9	1.9	2.1	3.2	2.3	1.7
Mean	6.3	4.8	5.1	4.0	4.9	3.5	2.3	3.5	2.2	3.0
STDev	4.4	2.4	5.0	3.0	3.3	4.3	0.7	1.9	0.9	2.7
90% C.L.	13.5	8.7	13.3	8.9	10.3	10.5	3.4	6.7	3.7	7.5
10% C.L.	-0.9	0.8	-3.0	-1.0	-0.5	-3.5	1.2	0.3	0.7	-1.5

Notes: 1990 data on samples collected at Raccoon Creek (assigned to Paulsboro), Petty Island (assigned to Tacony-Palmyra Bridge), and Yardley (assigned to Crosswicks Cr.).

	Zone 2	Zone 3	Zone 4	Zone 5	Zone 2	Zone 3	Zone 4	Zone 5
Median	4.6	3.6	2.9	3.7	1.9	2.1	3.2	2.0
Mean	6.3	4.8	5.1	4.4	3.5	2.3	3.5	2.6
STDev	4.4	2.4	5.0	3.1	4.3	0.7	1.9	2.0
90% C.L.	13.5	8.7	13.3	9.5	10.5	3.4	6.7	5.9
10% C.L.	-0.9	0.8	-3.0	-0.6	-3.5	1.2	0.3	-0.7

Estuary-wide Percent Lipid

			R. Greene's Estuary Data Base		ANSP/Baker Study	
	Channel Catfish	White Perch	Channel Catfish	White Perch	Channel Catfish	White Perch
Median	3.7	2.3	**3.87**	**2.48**	3.87	5.09
Mean	5.0	2.9	4.67	3.32	3.84	4.97
STDev	3.6	2.4				
90% C.L.	10.9	6.8				
10% C.L.	-0.9	-1.0				

Appendix F

Reanalysis of the Water Quality Criterion for Total PCBs for the Protection of Human Health from Carcinogenic Effects Using Recent Data

Reanalysis of Human Health Criterion for PCBs using Recent Data

Background

On August 14, 2009, the DRBC issued a public notice requesting comment on proposed rulemaking to adopt a revised human health criterion for PCBs for Zones 2 - 6 of the Delaware River. This rulemaking did not proceed pending agreement among co-regulators on the long-term implementation strategy to achieve Stage 2 TMDLs that would be based on this revised criterion. At a meeting of the co-regulators on September 27, 2012 where concurrence was reached on a path forward to adopt the revised criterion and establish the Stage 2 TMDLs, a question was raised about the impact on the criterion if more recent data was used. Technical staff from DRBC and Delaware DNREC agreed to reanalyze the criterion based upon more recent data to affirm the numerical value of 16 picograms/Liter for the criterion. The purpose of this document is to report on the results of this analysis.

Procedure

The original criterion recommendation was developed by Thomas Fikslin of the DRBC staff and Richard Greene of the DNREC staff in 2003 using data that was collected in the Fall 2001 and Spring 2002 as part of a bioaccumulation study (Ashley et al, 2004). Dr. Fikslin established the point estimate for the criterion using the most recent U.S. EPA methodology (U.S. EPA, 2000). Dr. Greene performed a probabilistic analysis of the data to develop distributions of the criterion using @Risk software. Review of the available data for reanalyzing the criterion indicated that ambient water data for PCBs and carbon was available from September 2007, and that fish tissue data was available for 2007 for Zones 2 - 4. Results for the fish sample from Zone 5 were not available so data for a 2006 sample collected in Zone 5 was used.

Results

Point Estimate - Values for five factors are needed to calculate the criterion using the U.S. EPA methodology. Three of the factors used EPA-recommended default values. These three factors were 1) risk-specific dose (2.0 mg/kg-day at a risk level of 10^{-6}), 2) body weight (70 KG), and 3) drinking water intake (2 liters/day). Site-specific data were utilized to develop appropriate values for the other two factors: fish consumption at each trophic level, and BAF at each trophic level. Site-specific data for fish consumption in Zones 2 to 5 and Delaware Bay indicated an average consumption rate for all species that was close to the national default value of 17.5 grams per day. This consumption rate was selected for use in the criteria equation.

The reanalysis focused on the bioaccumulation factors (BAFs) for trophic level 3 (channel catfish) and trophic level 4 (white perch) fish species as was done in the original calculation. The data on the percent lipid of consumed fish that was used in the original calculation were also used in the reanalysis. Data on the proportion of each trophic level consumed was assumed to be 50% based upon site-specific data from all zones that indicated roughly equal proportions for the two trophic levels.

Use of the 2007 data with the 2000 EPA methodology results in a single criterion value of 13.4 pg/L for Zones 2 through 5.

Probabilistic Analysis - A probabilistic approach was also used to assess the impact of the uncertainty of the values used in the methodology. This approach involves assigning distributions to variables used either directly or indirectly in the 2000 EPA Methodology. POC, DOC, % lipid for channel catfish, % lipid for white perch, total PCB in water, and total PCB in Channel catfish and white perch were each treated as normal distributions based upon the underlying data. The octanol-water partition coefficient, which is used to calculate the fraction of freely dissolved chemical, was treated as a normal distribution based upon the homolog pattern in the September 2007 ambient water data. Fish consumption rate was considered as a triangular distribution with a minimum of zero, a most likely value of 17.46 grams per day, and a maximum value of 53.9 grams per day, based upon the KCA study (KCA Research Div., 1994). The cancer potency slope was treated as a uniform distribution spanning a range from 1 to 2 (mg/KG-d)-1.Fixed values for risk level, body weight, and drinking water ingestion were used as was done in the original analysis.

This analysis indicated that the median criterion value (13.4 pg/L) was similar to that obtained using the point estimate approach, with the 40^{th} and 60^{th} percentile values of 10.7 pg/L and 16.9 pg/L, respectively.

Recommendation

The results of the reanalysis of the PCB criterion using more recent data affirm the original numerical value of 16 picograms/Liter for the criterion for all Zones of the Delaware Estuary.

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