



Final Regulation Agency Background Document

Agency Name:	Department of Environmental Quality
VAC Chapter Number:	9 VAC 25-260
Regulation Title:	Water Quality Standards
Action Title:	Water Quality Standards Amendments to Protect Designated Uses from the Impacts on Nutrients and Suspended Sediments in the Chesapeake Bay and its Tidal Tributaries
Date:	March 24, 2005

Please refer to the Administrative Process Act (§ 9-6.14:9.1 *et seq.* of the *Code of Virginia*), Executive Order Twenty-Five (98), Executive Order Fifty-Eight (99) , and the *Virginia Register Form, Style and Procedure Manual* for more information and other materials required to be submitted in the final regulatory action package.

Summary

Please provide a brief summary of the new regulation, amendments to an existing regulation, or the regulation being repealed. There is no need to state each provision or amendment; instead give a summary of the regulatory action. If applicable, generally describe the existing regulation. Do not restate the regulation or the purpose and intent of the regulation in the summary. Rather, alert the reader to all substantive matters or changes contained in the proposed new regulation, amendments to an existing regulation, or the regulation being repealed. Please briefly and generally summarize any substantive changes made since the proposed action was published.

The adopted amendments to the existing water quality standards regulation include updated numerical and narrative criteria to protect designated uses from the impacts of nutrients and suspended sediments in the Chesapeake Bay and its tidal tributaries. The rulemaking will include new and revised use designations for these waters. These amendments are additions to the existing water quality standards regulation, which contains numerical and narrative criteria to protect use designations statewide. These amendments are substantive in that the Chesapeake Bay and its tidal tributaries will have separate uses and nutrient related criteria from the rest of the state and to meet these new criteria, pollution sources upstream of the designated area must be controlled. Another substantive matter is the need for both point and nonpoint source reductions to meet these criteria; however, only point sources are regulated. Also, the cost and funding of meeting the requirements of the regulation are substantial.

Important changes made since the proposed action was published include deferral of action on the numerical chlorophyll *a* criteria for the James River and the special standard for dissolved oxygen for the Mattaponi and Pamunkey Rivers until the next scheduled State Water Control Board meeting and the addition of an allowance for compliance scheduling for Virginia Pollutant Discharge Elimination System (VPDES) permits. These deferred changes are in 9 VAC 25, 260-310, 9 VAC 25-260-410 and 9 VAC 25-260-530. The Board will consider the adoption of these sections at a future meeting.

Statement of Final Agency Action

Please provide a statement of the final action taken by the agency: including the date the action was taken, the name of the agency taking the action, and the title of the regulation.

The State Water Control Board adopted the amendments to the Water Quality Standards regulation at their March 15, 2005 meeting. Further, the Board deferred to a later meeting action on 9 VAC 25-260 310, 9 VAC 25-260-410 and 9 VAC 25-260-530.

Basis

Please identify the state and/or federal source of legal authority to promulgate the regulation. The discussion of this statutory authority should: 1) describe its scope and the extent to which it is mandatory or discretionary; and 2) include a brief statement relating the content of the statutory authority to the specific regulation. In addition, where applicable, please describe the extent to which proposed changes exceed federal minimum requirements. Full citations of legal authority and, if available, web site addresses for locating the text of the cited authority, shall be provided. If the final text differs from that of the proposed, please state that the Office of the Attorney General has certified that the agency has the statutory authority to promulgate the final regulation and that it comports with applicable state and/or federal law.

§ 62.1-44.15(3a) of the Code of Virginia, as amended, mandates and authorizes the Board to establish water quality standards and policies for any State waters consistent with the purpose and general policy of the State Water Control Law, and to modify, amend or cancel any such standards or policies established. The federal Clean Water Act at 303(c) mandates the State Water Control Board to review and, as appropriate, modify and adopt water quality standards. The corresponding federal water quality standards regulation at 40 CFR 131 requires the states to adopt criteria to protect designated uses and describes the minimum requirements for water quality standards. The minimum requirements for water quality standards are use designations, water quality criteria to protect the designated uses and an antidegradation policy. All of the citations mentioned describe mandates for water quality standards.

The federal water quality standards regulation at 40 CFR 131.10 specifically describes how states designate uses or establish subcategories of uses. The aquatic life uses established as part of this rulemaking are considered subcategories of the existing aquatic life use designation.

Web Address sites where citations can be found:

Federal Regulation web site

<http://www.epa.gov/epahome/cfr40.htm>

Clean Water Act (Federal Water Pollution Control Act) Sections 301 - 320

http://www.epa.gov/region5/water/pdf/ecwa_t3.pdf

State Water Control Law (Code of Virginia) web site

<http://leg1.state.va.us/cgi-bin/legp504.exe?000+cod+62.1-44.2>

<http://leg1.state.va.us/cgi-bin/legp504.exe?000+cod+62.1-44.15>

The statutory authority is directly related to the regulation because the amendments proposed are modifications of criteria and designated uses. Criteria and designated uses are requirements mandated under the citations listed above; however, establishing subcategories of designated uses is not mandated but allowed under 40 CFR 131.10.

The amendments, additions and deletions do not exceed applicable federal minimum requirements and have been published as recommendations for water quality criteria under section 304(a) of the Clean Water Act.

The Office of the Attorney General has certified that the agency has the statutory authority to promulgate final text of the regulation.

Purpose

Please provide a statement explaining the need for the new or amended regulation. This statement must include the rationale or justification of the final regulatory action and detail the specific reasons it is essential to protect the health, safety or welfare of citizens. A statement of a general nature is not acceptable, particular rationales must be explicitly discussed. Please include a discussion of the goals of the proposal and the problems the proposal is intended to solve.

This rulemaking is needed to establish the appropriate uses and criteria for the Chesapeake Bay as the existing criteria and uses do not adequately protect the Bay from the effects of nutrient pollution and sedimentation. Adoption of Bay specific criteria and uses are necessary to define the most accurate living resource and water quality goals for tributary strategy development (see Code of Virginia § 2.2-219) and development of total maximum daily loads (TMDL) under Section 303(d) of the Clean Water Act. Virginia is also committed through Chesapeake 2000 agreement to adopt new and revised water quality standards for the Bay. Changes to the regulation are also needed to meet EPA priorities set in their June 1998 National Strategy for Development of Nutrient Criteria.

Proper water quality standards protect water quality and living resources of Virginia's waters for consumption of fish and shellfish, recreational uses and conservation in general. Protection of water quality and living resources for food and recreation are essential to help maintain the health and welfare of the citizens of the Commonwealth.

The Bay partners with the U.S. Environmental Protection Agency (EPA) Chesapeake Bay program have worked together to publish nutrient related criteria and designated uses specific to the Chesapeake Bay. The goals of the proposal are to use these standards in calculating load allocations for the Chesapeake Bay Tributary Strategies, setting Virginia Pollutant Discharge

Elimination System Permit limits and for evaluating the waters of the Commonwealth for inclusion in the Clean Water Act 305(b) report and on the 303(d) list. Waters not meeting standards will require development of a TMDL under section 303(d) of the Clean Water Act. In May 1999, EPA Region III included Virginia's portion of the Chesapeake Bay and portions of several tidal tributaries on Virginia's 1998 Clean Water Act section 303(d) impaired waters list. The Chesapeake 2000 Agreement specifies a goal to remove the Chesapeake Bay and its tidal tributaries from the list of impaired water bodies for nutrient and sediments by 2010. Thus, the development of a TMDL for the entire Chesapeake Bay is not being scheduled until 2010 anticipating that the Chesapeake Bay Program partners can cooperatively achieve water quality standards by that time making a bay wide TMDL unnecessary.

Since the publication of this proposal, two other regulations have been proposed and legislation enacted to implement these criteria. The regulations proposed under a separate rulemaking are amendments to the Water Quality Management Planning Regulation and the Policy for Nutrient Enriched Waters. The Water Quality Management Planning Regulation specifies nitrogen and phosphorus loading requirements for significant dischargers in the Bay watershed. The Policy for Nutrient Enriched waters (renamed Regulation for Nutrient Enriched Waters) specifies technology based nutrient limits for all dischargers. Also, the 2005 Virginia General Assembly established a Chesapeake Bay watershed general permit and point source nutrient trading program to assist in meeting the load allocations (House Bill No. 2862 and Senate Bill No. 1275). With the Governor's signature, these bills are due to become law on July 1, 2005. These criteria are needed to establish the nitrogen, phosphorus and sediment waste load allocations in these corresponding implementing laws and regulations.

Substance

Please identify and explain the new substantive provisions, the substantive changes to existing sections, or both where appropriate. Please note that a more detailed discussion is required under the statement of the regulatory action's detail.

The adopted regulatory action constitutes an amendment of existing regulatory provisions. The existing regulation currently designates all depths, areas and time periods of the Chesapeake Bay and its tidal tributaries for full aquatic life use protection. Therefore, existing numerical criteria apply equally at all depths and in all areas of the Bay at all times. This regulatory action will subcategorize aquatic life uses in the Bay. Criteria have also been adopted to protect the subcategorized uses. In addition, some implementation procedures, including the allowance for compliance scheduling have been added to the regulation.

Issues

Please provide a statement identifying the issues associated with the final regulatory action. The term "issues" means: 1) the advantages and disadvantages to the public of implementing the new provisions; 2) the advantages and disadvantages to the agency or the Commonwealth; and 3) other pertinent matters of interest to the regulated community, government officials, and the public. If there are no disadvantages to the public or the Commonwealth, please include a sentence to that effect.

The public will benefit as these amendments will result in protection and restoration of the habitat, survival, growth and reproduction of aquatic life through the proper definition of their habitats (designated uses) and seasonal application of criteria specifically designed to protect the organisms living in those habitats. Also, the living resources that were affected by nutrient enrichment and sedimentation will be restored. Clearer water with improved living resources can benefit the public through better recreational opportunities, employment opportunities (through tourism and commercial fisheries improvements), improvements in property values and quality of life in general to those who enjoy the Chesapeake Bay and tidal tributaries. The disadvantage is that certain sectors of the public may see this as an attempt to “lower the bar” on water quality for the deeper waters of the Bay because the proposed instantaneous dissolved criteria are less stringent than existing. Other sectors of the public may see this as too stringent and the criteria will be difficult and expensive to meet. However, the goal is to set realistic, protective goals in water quality management and to maintain the most scientifically defensible criteria in the water quality standards regulation.

The advantage to the agency is that the adoption of these criteria will be the first step in meeting the goals of the Chesapeake 2000 agreement which establishes that the jurisdictions with tidal waters will use their best efforts to adopt new or revised water quality standards consistent with the defined water quality conditions. This will allow the agency to make a realistic assessment of these tidal waters so that appropriate controls can be implemented.

The advantage to the Commonwealth is that the adoption of these criteria will define the necessary water quality and living resource goals needed for the development of tributary strategies as specified in the Code of Virginia § 2.2-219.

There is no disadvantage to the agency or the Commonwealth that will result from the adoption of these amendments.

Pertinent matters of interest to the regulated community, government officials, and the public are the potential costs to meet the requirements of this regulation and how the final nitrogen, phosphorus and sediment loads will be allocated according to the corresponding implementing regulations (Water Quality Management Planning Regulation, Policy for Nutrient Enriched Waters and the Chesapeake Bay watershed general permit that will be established under the 2005 Virginia General Assembly House Bill No. 2862 and Senate Bill No. 1275).

Statement of Changes Made Since the Proposed Stage

Please highlight any changes, other than strictly editorial changes, made to the text of the proposed regulation since its publication.

9 VAC 25-260-5 – No changes made from proposed.

9 VAC 25-260-10 – Under paragraph B, the descriptions of migratory fish spawning and nursery designated use has been revised to include a balanced indigenous population of anadromous, semi-anadromous, catadromous and tidal-fresh resident fish species instead of just anadromous, semi-anadromous and tidal-fresh resident fish species.

9 VAC 25-260-50 – No changes from proposed.

9 VAC 25-260-185 – Proposed footnote number 1 in both subsections A and C, have been deleted (see explanation under section 310 below). Footnote 1 in subsection A was a reference to special standard “aa” in section 310 for dissolved oxygen in the Mattaponi and Pamunkey Rivers and footnote 1 in subsection C was a reference to special standard “bb” in section 310 for numerical chlorophyll *a* criteria in the James River.

Subsection D paragraph 4 has been moved to a new section 9 VAC 25-260-186. In this new section, an allowance for compliance scheduling for all National Pollutant Discharge Elimination System permits has been added in response to public comment (see response to public comments received on 9 VAC 25-260-185 subsection D (Implementation) below).

9 VAC 25-260-310 - Special standards "aa" and “bb” were ‘carved out’ and not included in this submittal to the Department of Planning and Budget. Adoption of amendments to section 310 have been postponed in order to give further consideration to the comments received and to develop nutrient loading and a cost alternatives analyses on the numerical chlorophyll *a* criteria for the James River. Due to its placement in section 310, the Mattaponi and Pamunkey River dissolved oxygen special standards must also be postponed. The adoption of these special standards will be considered at the June quarterly meeting of the State Water Control Board.

9 VAC 25-260-330 – 350 – No changes from proposed.

9 VAC 25-260-410 and 530 - Lower James and the York River basin section table amendments not included in this submittal. These were the river basins that contained references to special standards “aa” and “bb” which are postponed (see section 310 changes above).

Public Comment

Please summarize all public comment received during the public comment period and provide the agency response. If no public comment was received, please include a statement indicating that fact.

NOTE: Acronyms and abbreviations used for those individuals or organizations who commented are listed at the end of this section.

Comments to 9 VAC 25-260 (General Comments – no particular section)

Comment (Martha Levering - private citizen):

Greatly in favor of the new water quality standards.

Comment (Capt. Ferrell McLain – Charter Fishing Boat Captain):

There are increasing warnings regarding the safety of eating fish in the Bay, the Pfeisteria scare and the 2003-2004 “dead zone” scare. Little action has been taken to reduce nitrogen and phosphorus pollution because there were no defensible water quality standards. After decades of scientific deliberation, these new criteria that define the critical aspects of healthy water quality (D.O., water clarity and algae) must be adopted.

Comment (James Simpson - private citizen):

Fully supports the efforts to control and protect water quality/resources. Objects to a land application permit for the surface deposition of industrial and municipal sewage sludge / bio-solids in Augusta County. There are no staff to monitor the constituents of the waste. This is in conflict with the Boards proposed changes to limit pollution.

Comment (Blackwater/Nottoway Riverkeeper):

These standards should go into effect quickly. They are the backbone of the entire nutrient clean up effort and will set VA on a path to cleaner rivers and streams. Twenty years of scientific study is enough - it is time to finalize this bureaucratic process and implement actions that will reduce nutrient pollution.

Comment (CBF, JRA, VCN and SELC):

Supports the rulemaking. Many years of study have gone into this and we need these standards to restore water quality.

Comment (EPA):

Supports the rulemaking. All of these proposed criteria, designated uses and attainment assessment procedures are fully consistent with EPA guidance and regulations being adopted into state water quality standards regulations by concurrent promulgation actions in MD, DE and DC.

Comment (USFWS):

Supports the rulemaking. The proposed regulation including the recommendations provided by the USFWS will not adversely impact federally listed threatened or endangered species.

Comment (VMA):

Supports scientifically-sounds, numeric nutrient criteria based on response variables and generally supports the dissolved oxygen and water clarity standards, and looks forward to working with DEQ on implementation of these standards.

Comment (VAMWA):

Generally supports many aspects of the proposal, including the refined designated uses, revised dissolved oxygen criteria, new water clarity criteria and new methodologies for assessing attainment. Overall support for the Bay Program and for undertaking point source nutrient reduction projects as part of the solution.

Appreciation of DEQ staff and commitment to working with DEQ to achieve substantial additional point source nutrient reductions.

Comment (Augusta,, BWXT, Chesterfield, Fredericksburg, Hanover, Henrico, HRRSA, HRSD, Leesburg, J.H. Miles, PWCSA, Rapidan, Richmond, Rivanna, SCWWA, UOSA):

Agree with VAMWA's technical and regulatory comments and request that DEQ carefully consider their comments and take the specific actions VAMWA recommends.

Comment (Greif, Westvaco):

Supports DEQ's efforts to establish scientifically sound numerical and narrative dissolved oxygen, submerged aquatic vegetation and water clarity criteria to protect designated uses in the Chesapeake Bay and its tidal tributaries from the impact on nutrient and suspended sediments.

Comment (Honeywell, HRSD):

Generally, supports the proposed standards for dissolved oxygen and water clarity.

Comment (PMUSA):

Supports many aspects of the proposal, including the refined designated uses, revised dissolved oxygen criteria, new water clarity criteria and new methodology for assessing attainment.

Response:

DEQ acknowledges the general agreement to the amendments.

Comments to 9 VAC 25-260-5 (Definitions)**Comment (Dr. Land):**

The pycnocline is not horizontal over long distances and should be defined using historical data. It also must be used as a boundary only in the deep waters which should be clearly stated in Part 1 Definitions.

Response:

The DEQ currently collects the data to calculate the location of the pycnocline during each sampling event. This will ensure exact application of the designated uses, depending on the conditions of the day. The section on definitions is not intended to define deep water boundaries, only to help the reader understand the meaning of a pycnocline. Deep water is specifically defined in section 10 and the definition references EPA's *Technical Support Document for Identification of Chesapeake Bay Designated Uses and Attainability, Addendum 2004*. This document delineates the deep water horizontal boundaries and the delineation does not include shallow waters.

Comments to 9 VAC 25-260-10 (Designation of Uses)**Comment (VAMWA, HRSD, UOSA):**

The use boundaries published in EPA's *Technical Support Document for Identification of Chesapeake Bay Designated Uses and Attainability, Addendum 2004* should not be incorporated by reference, but maintained as agency guidance.

Response:

DEQ believes the use boundaries should be specifically referenced in the regulation. In fact, the use boundaries should either be listed by geographical coordinates in the river basin section tables or referenced to another document that contains the geographical coordinates (which is what DEQ elected to do in the interest of keeping the rulemaking confined to just a few sections of the regulation). All the criteria are directly coupled with the five designated uses (this is the definition of a water quality standard) and therefore, the physical locations of the designated use boundaries must be an integral component of the regulation. The current EPA and VA regulations do not allow a designated use to change automatically as science progresses. All changes to designated uses must be made through a formal, public regulatory review process, documented by use attainability analyses and approved by EPA. Virginia's triennial reviews of the state water quality standards regulation will provide opportunities to make necessary changes to the designated use boundaries through an open, public process.

Comment (HRSD):

The main stem Elizabeth River channel should be designated as 'deep channel.' The open water designation was based on ambient data. The other Bay waters were based on the water quality model. This approach has not been validated. Furthermore, DEQ evaluated data collected as much as 20 years prior to this evaluation. Current guidance suggests that only the most recent data (3-5 years) be used to draw conclusions regarding the condition of a water segment. DEQ acknowledges the presence of the channel in the river, and the uses are supposed to reflect the organisms and conditions found in the river. A review of the organisms found in the channel of the river indicates those normally associated with deep channel conditions. DEQ claims that the dissolved oxygen in this section of the Elizabeth River is influenced by oceanic waters, and that this is evidenced by higher dissolved oxygen concentrations and salinities at higher depths. However, data provided in EPA's

Technical Support Document for Identification of Chesapeake Bay Designated Uses and Attainability, Addendum 2004 shows decreasing dissolved oxygen with increasing depth. A review of Chesapeake Bay Program data shows that an increase in dissolved oxygen with depth is not the norm; the suggestion made by DEQ is not supported by most of the data collected over the past five years. Three of the stations in the polyhaline portion of the Elizabeth River average nearly 14 meters in depth. This location, therefore, represents one of the deepest parts of the Chesapeake Bay system. If deep water and deep channel uses exist anywhere in the Bay they must exist in this part of the Elizabeth River.

Response:

The Elizabeth River use designations were determined using ambient data (depth profiles of observed density, pycnocline depth(s) and dissolved oxygen concentrations) for all Elizabeth River water quality monitoring stations for each station's available water quality data record. Ambient data was also used in other waters to determine the applicability of assigned designated uses, particularly in regards to assessing the effects of stratification. The model could not be used to estimate water quality conditions in the Elizabeth River under basin wide achievement of the cap load. Given the complexity of circulation patterns within the river, the limitations of the number of cells used to simulate the river, and the limited efforts to calibrate the model specifically for the river, the Chesapeake Bay Program's Modeling Subcommittee did not select any of the Elizabeth River's five segments for assessment of model calibration. Therefore, the model could not be used or validated in the Elizabeth. The only recourse was to evaluate 20+ years of water quality monitoring data records available from 23 water quality monitoring stations which provided sufficient information to refine the recommended tidal water designated use boundaries for the Elizabeth River and its tidal tributaries.

The comment that "current guidance suggest that only the most recent data (3-5 years) be used to draw conclusions regarding the condition of a water segment" is mixing the determination of a designated use with attainment procedures. The two are completely separate assessments that rely on two different temporal periods of data. Use designations should reflect long term uses of the water body. However, water quality is assessed over shorter time periods to identify impairments quickly, before the use is destroyed.

The delineation of the open-water vs. deep-water vs. deep-channel were not made on the basis of the depth of the water column, i.e., deeper waters were not automatically delineated as deep-water uses. The basis for delineating the difference uses was on ensuring the necessary level of water quality protection for different biological communities by directly factoring in physical process and forcing factors—salinity, stratification, physical circulation patterns—which naturally and strongly influence water quality conditions. EPA's *Technical Support Document for Identification of Chesapeake Bay Designated Uses and Attainability, Addendum 2004* systematically lays out the monitoring based evidence supporting application of the different designated uses by segment within the Elizabeth River, principally relating the observed water column profile of dissolved oxygen concentrations over depth with the corresponding measure of the strength and degree of stratification. Furthermore, the term "Channel" as used in a physical description i.e. "the dredged channel in the Elizabeth" is a different concept than the designated use title "Deep Channel". A dredged channel can have a designated use of "open water" based solely on the aquatic life use it can support as in the case of the Elizabeth. The river channel will contain organisms associated with deep channel conditions as well as other aquatic life (e.g. fish and shellfish).

Data presented in EPA's *Technical Support Document for Identification of Chesapeake Bay Designated Uses and Attainability, Addendum 2004* show both cases where dissolved oxygen increased with depth (fig II-7) and where it decreased with depth (fig II-6). An increase with depth is definitely not the norm but the fact that it does occur is only used as evidence that there are inflows of high dissolved oxygen bottom waters which combined with relatively weak vertical stratification demonstrates why this section of the Elizabeth can support an open water designated use. The observation in Fig II-7 where the bottom dissolved oxygen concentrations were higher than concentrations higher up in the water column demonstrates the combination of limited to no stratification of the 14 meter water column plus limited (1-2 mg liter-1) changes in dissolved oxygen concentration from the surface to bottom. The water column shows a very well mixed water column representative of and supportive of an open-water designated use as defined in the proposed regulations. The delineation of an open-water designated use for this section of the mainstem Elizabeth is based on evaluation of the entire decadal monitoring record, not just the past several years of data, and not just on the sampled days where bottom dissolved oxygen concentrations were higher than concentrations observed higher up in the water column.

Comment (DGIF):

The "Migratory Fish Spawning and Nursery" designated use should extend through June. Juveniles remain until November.

Response:

The migratory fish spawning and nursery designated use provides for dissolved oxygen concentrations protective of the early life stages of fish (i.e. egg, larval and early juvenile) of anadromous, semi-anadromous and tidal fresh fish species. Therefore the spatial and temporal application was established to provide this level of protection during the time and habitat area principally inhabited by these early life stages. The May 31 end date reflects when the eggs and larvae have finished their transition to the juvenile life stage for all the target anadromous and semi-anadromous species.

The migratory fish spawning and nursery designated use is a seasonally defined use which overlays on "top" of the year round open-water designated use. The open-water designated use dissolved oxygen criteria was derived to be protective of juvenile and adult life stages anadromous and semi-anadromous species beyond the May 31. Therefore, the overlapping nature of these "discrete" designated uses will ensure water quality conditions protective of the times different species/communities are present within those use habitats from egg through adult. This does not imply that juveniles of the different migratory species are no longer present in these habitats come June 1st only that the protective designated use has changed to reflect the level of protection necessary for the juveniles and adults now present.

Comment (USFWS):

The "Migratory Fish Spawning and Nursery" designated use should include protection of a balanced indigenous population of anadromous, semi-anadromous, catadromous, and tidal –fresh resident fish species inhabiting spawning and nursery grounds.

Response:

The migratory fish spawning and nursery designated use definition to will be revised to read: "...protect the survival, growth and propagation of the early life stages of **a balanced indigenous population** of anadromous, semi-anadromous, **catadromous**, and tidal-fresh resident fish species

inhabiting spawning and nursery grounds” with the insertion of the words in bold typeface.

Comments to 9 VAC 25-260-185 subsection A (Dissolved Oxygen)

Comment (VA Beach, HRPDC):

The application of the dissolved oxygen criteria to the designated uses is not clear. The regulations should clarify the relationship between the dissolved oxygen criteria and salinity ranges.

Response:

The Table in 9 VAC 25-260-185 should be interpreted as stated: the attainment of applicable dissolved oxygen criteria should be evaluated for those tidal waters falling within the stated salinity range. The Chesapeake Bay Program segmentation scheme segments were, in part, defined on the basis of salinity. The attainment assessment procedures are set up to evaluate dissolved oxygen criteria attainment on the basis of the measured salinity of waters on a monitoring event by event basis and then illustrate attainment on the basis of the appropriate segment. For example, the migratory spawning and nursery 6.0 mg/L 7-day mean criteria does not apply when salinities exceed 0.5 parts per thousand. Any data collected where the salinity exceeds 0.5 would not be used in calculating the assessment of that 6.0 mg/L 7-day mean. However, the instantaneous maximum of 5.0 has no salinity restrictions and would apply and would be used in assessments in all migratory spawning and nursery waters as defined in EPA’s *Technical Support Document for Identification of Chesapeake Bay Designated Uses and Attainability, Addendum 2004*.

Comment (VAMWA, UOSA):

The proposed instantaneous minimum DO Criterion for spawning/nursery areas are overprotective – should keep existing instantaneous maximum of 4.0 mg/L. VAMWA cannot identify in the literature any short-term impacts at concentrations greater than 3.2 mg/L under the temperatures experienced in the nursery/spawning period.

Response:

The determination that an instantaneous minimum temporal averaging period was required to protect the early life stages of migratory and resident tidal fresh species was based on the published EPA freshwater dissolved oxygen criteria temporal averaging period. Citations that support the 5.0 mg/L include Carlson and Siefert (1974) who concluded that concentrations from 1.7 to 6.3 mg/l reduced the growth of early stage of the largemouth bass by 10 to 20 percent. At concentrations as high as 4.5 mg/l, hatching was premature and feeding was delayed; both factors could indirectly influence survival, especially if other stresses were to occur simultaneously. Further, Spoor (1997) who exposed largemouth bass embryos and larvae to low dissolved oxygen for brief exposures of a few hours. He found at 23 to 24°C and 4 to 5 mg/l, the normally quiescent, bottom-dwelling yolk-sac larvae became very active and swam vertically to a few inches above the substrate. Such behavior in natural systems would probably cause significant losses due to predation and simple displacement from nesting areas.

In addressing the question of selecting an instantaneous minimum value as the criteria application period, the EPA freshwater criteria document cites the following rationale:

“In considering daily or longer-term cyclic exposures to low dissolved oxygen concentrations, the minimum values may be more important than the mean levels. The importance of the daily minimum as a determinant of growth rate is common to the results of Fisher (1963), Stewart (1967), and

Whitworth (1968). Since annual low dissolved oxygen concentrations normally occur during warmer months, the significance of reduced growth rates during the period in question must be considered. If growth rates are normally low, then the effect of low dissolved oxygen concentration on growth could be minimal; if normal growth rates are high, the effects could be significant especially in the majority of the annual growth occurs during the period in question.”

As stated in EPA’s 2003 *Ambient Water Quality Criteria for Dissolved Oxygen, Water Clarity and Chlorophyll a for the Chesapeake Bay and Its Tidal Tributaries* on page 46:

“In the case of anadromous species, a narrow set of natural conditions (e.g., salinity, temperature) is required and a narrow time window exists for a successful spawn. Natural mortalities for larvae already are extremely high. As even short-term reductions in growth could influence advancement to the next stage through the impairment of survival and the ability to avoid predators, the criterion value that protects against growth effects [5 mg liter^{-1}] is applied as an instantaneous minimum.”

The migratory fish spawning and nursery designated use provides protection during the months where rapid evolution from egg to larvae to juvenile life stages due to very high growth rates on the order of hours to days are occurring for freshwater and anadromous fish species in very confined spatial locations (due to narrow temperature, salinity and bottom substrate tolerances) and temporal windows. Therefore, a minimum dissolved oxygen concentration, not solely a mean concentration, is required to ensure protection against reductions in growth rates and behavioral responses as cited in the EPA freshwater criteria.

Comment (VA Beach):

There are no minimum DO levels for the migratory, deep-water and deep-channel uses outside of the season listed in section 185. The Shallow Water use has no DO requirements. The designated use of the Lynnhaven River is not clear. It is unclear whether the minimum DO levels include the actual limits of DO that can reasonably be expected to be maintained in warm to hot estuarine waters with high salinity. It is recommended that the regulations include an allowance for temperature, salinity and atmospheric pressure by requiring a minimum percentage of DO saturation.

Response:

The shallow water bay grass designated use is a seasonal use which overlays the year-round open-water aquatic life designated use. 9 VAC 25-260-185 does not list specific dissolved oxygen criteria for the shallow water bay grass designated use as that use is specific to supporting underwater bay grasses which are protected by the water clarity criteria and numerical SAV restoration acreages in subsection B of section 185. The open-water designated use applies year-round from shoreline to shoreline (with summer-time deep water exceptions as noted in section 10) and the open-water dissolved oxygen criteria apply to these same shallow water habitats. These concentrations of dissolved oxygen protect aquatic life in shallow water.

The boundaries for the migratory fish spawning and nursery designated use were delineated based on the upriver extent of tidally influenced waters to the down-river and upper Chesapeake Bay end of spawning and nursery habitats that have been determined through a composite of all targeted anadromous and semi-anadromous fish species’ spawning and nursery habitats. These designated use boundaries were not based on water column salinity alone. As documented in Figure IV-12 on page 80 and Table IV-9 on page 92 in EPA’s *Technical Support Document for Identification of Chesapeake Bay Designated Uses and Attainability*, the tidal Lynnhaven River (segment LYNPH)

does not have a migratory fish spawning and nursery designated use applied to it. The open-water aquatic life and shallow water bay grass designated uses do apply to the tidal Lynnhaven River to ensure protection of fish (including the migrating anadromous adult fish that are present in the Lynnhaven), bay grasses and other aquatic life. The Technical Support Document is referenced in the definition of migratory spawning habitats so that the boundaries of these designated uses can be identified. This was done in lieu of listing all the narrative descriptions of each segment and use within the standards.

The 95th percentile water column temperature of ALL Chesapeake Bay tidal water quality data is 27.34 °C. The dissolved oxygen saturation concentration at this temperature and a salinity of 30 ppt is 6.98 mg/L. The 95th percentile temperature of all temperature data where salinity was 30 ppt or greater is 24.8 C which gives a dissolved oxygen saturation concentration of 7.16 mg/L. This analysis of long-term high temperatures measured in Chesapeake Bay tidal waters (95th percentile) at high salinity levels (30+ppt) indicates that the open-water 5 mg/L 30-day mean concentration dissolved oxygen criterion can be attained.

Comment (Dr. Land):

Supports the more stringent dissolved oxygen criteria. These limits should pertain to all tidal waters, recognizing that it is normal for storms to discharge low-oxygen waters from inland swamps, but that oxygenated conditions should normally be rapidly re-established.

Response:

DEQ acknowledges the comment.

Comments to 9 VAC 25-260-185 subsection B (Submerged Aquatic Vegetation (SAV) and Water Clarity)

Comment (VAMWA, HRSD, UOSA):

Agree with the SAV use to be assessed by either specific SAV acreage or water clarity.

Response:

DEQ acknowledges the comment. These comments are consistent with the proposed attainment assessment procedures for the shallow-water bay grass designated use.

Comment (VAMWA, HRSD, UOSA):

The attainability of the proposed SAV criteria is in doubt and acreages should be revised to reflect attainable uses. The acreages were based on the “single best year” for the period of record for that segment but the proposed frequency for attainment is only three years. In resuspension-dominated tributaries such as the James River, attainment of the proposed SAV acreages in the next twenty years would be surprising.

Response:

These segment specific acreages are considered to be *conservative* estimates of past underwater bay grass distributions prior to the 1970s. According to published and anecdotal information underwater bay grasses likely grew at greater depths between the 1930s and the 1960s than was observed in a number of segments in the historical photographs and evidence suggests that underwater bay grass distribution already had declined by the time the photographs of suitable quality were available for interpretation. Assessment procedures and water quality standards guidelines have historically

centered around a 3 – 5 year window. Three years were judged by EPA scientists to be the frequency of time an aquatic ecosystem could recover from most exceedances of criteria. Looking for ‘compliance’ of any criteria over a 12 -25 year window would probably not be viewed by the public as ‘restored’ nor would the aquatic life benefit from that frequency of restoration.

A recognized expert on submerged aquatic vegetation at the Virginia Institute of Marine Science, Dr. Ken Moore, agrees that the use of single best year for the period of record is attainable and conservative. Basing the SAV restoration goals only to a post 1978 goal is inappropriate in that it would reflect acres from after the bay-wide decline experienced in the late 60s and 70s. This decline was a major part of starting the whole bay restoration process. It doesn't make sense from that perspective to then make that the goal. If one looks at the year-to-year variability in SAV for most segments of the bay since 1978, (on the VIMS SAV web site, www.vims.edu/bio) the variability are usually quite low. Wide variations in SAV over 3-year periods are not usually expected. As far as the James goes, especially the tidal fresh regions, the historical data were quite clear, so the historical acreages are well calculated. Actually there were several areas that the photographic imagery did not cover, where parts of large SAV beds were excluded. So those acreages are conservative. The Hopewell region of the James also has large shallow flats so once SAV gets established it would likely spread over large areas, like the upper Potomac, and this spreading would not require large decreases in turbidity to achieve.

Regarding attainment, DEQ did consider the difficulty of attainment of these acreages. Under the confirmation load allocation model, we saw that most of the James and the mesohaline Rappahannock could not attain the SAV restoration goal acres. In these segments, we lowered the SAV acres in those segments to match what was expected to be attained under the confirmation cap load allocation. We considered this “reasonable assurance that they can be attained.”

Comment (Dr. Land):

SAV should be used as the criterion for light penetration, not physical measurements or water clarity.

Response:

DEQ is proposing to use SAV as a criterion for light penetration. However, if the SAV are not met in a Bay program segment, then some other metric is needed to help re-establish the SAV. Since water clarity is the primary water quality problem associated with SAV restoration, this segment must meet the criteria for water clarity if the SAV acres are not met. However, if there are other uncontrollable environmental factors other than clarity that affects SAV growth (substrate, herbivory, wave action, human disturbances (i.e. boat propellers, dredging)), the shallow water use can still be met through maintenance of the water clarity criteria.

Comments to 9 VAC 25-260-185 subsection C (Narrative Chlorophyll *a* Criterion)

Comment (VAMWA, Honeywell, UOSA):

Retain the narrative chlorophyll *a* criterion but withdraw numeric chlorophyll *a* criteria until the further analyses can be performed.

Response:

DEQ has retained the narrative chlorophyll *a* criterion and is postponing action on the numerical chlorophyll *a* criteria to give further consideration to the comments received on the issue and to

develop nutrient loading and cost alternatives analyses. Action on the numeric chlorophyll *a* criteria will be considered by the Board at their June meeting.

Comment (CBF):

The narrative chlorophyll *a* standard in place for waters other than the James is simply less protective of water quality than a numeric standard as “undesirable water quality conditions....or aesthetically objectionable conditions” is a qualitative and interpretative condition.

Response:

DEQ agrees that narrative criteria are difficult to implement. We continue to include it in this proposal as it reflects EPA's minimum recommendation for chlorophyll *a*. DEQ is postponing action on the numerical chlorophyll *a* criteria to give further consideration to the comments received on the numerical criteria and to develop nutrient loading and cost alternatives analyses. Action on the numeric chlorophyll *a* criteria will be considered by the Board at their June meeting. It should be noted that implementation of the dissolved oxygen and water clarity criteria will serve to lower chlorophyll *a* concentrations in many tidal waters in Virginia.

Comments to 9 VAC 25-260-185 subsection D (Implementation)

Comment (VA Beach, HRPDC):

The watershed boundaries are not clearly delineated, particularly those interconnected with those watersheds draining south towards North Carolina.

Response:

DEQ agrees that these waters that flow south to the Albemarle/Pamlico estuarine system (Chowan) are not intended to be part of this rulemaking. DEQ believes that by using the existing references to waters in the James and Chesapeake Bay that the southern waters are excluded. However, DEQ agrees there could be more exact geographical identifiers in the river basin section tables for the separation of the James and Chesapeake Bay from the Chowan. DEQ will consider the delineations provided by the City for the southern waters during triennial review.

Comment (HRSD):

Use of the Cumulative Frequency Distribution (CFD) to determine attainment is appropriate; however the attainment procedures should not be adopted by reference in the regulation. There are many unresolved issues associated with this methodology.

Response:

If the CFD procedures are not referenced in the regulation, the Commonwealth runs the risk of being forced to strictly apply its water quality criteria literally as stated in its regulation. In other words, Virginia would be required to measure attainment of the criteria without application of the biological reference curves, without any allowance for natural conditions. Future listing and delisting decisions will be likewise affected. Any criteria exceedance would be deemed a violation.

By reference, Virginia has adopted the application of the cumulative frequency distribution/biological reference approach as stated in the EPA, *Ambient Water Quality Criteria for Dissolved Oxygen, Water Clarity and Chlorophyll a for the Chesapeake Bay and Its Tidal Tributaries*. The criteria were derived in concert with the adopted attainment assessment procedures to provide the required level of protection of the designated uses. Virginia views the attainment assessment

procedures as integral to the regulation as the criteria and designated uses.

Virginia recognizes there are still issues that need further follow-up analysis and evaluation. EPA is convening a group of state and EPA regional/headquarters water quality standards coordinators, and 305(b), 303(b) and TMDL program managers from across the Bay watershed to work through these issues in the coming year. EPA has committed to publishing all agreed to refinements and enhancements to the existing criteria attainment assessment procedures as an addendum to the original 2003 EPA Chesapeake Bay criteria document. The expectation is that Virginia along with Maryland, Delaware and the District of Columbia would formally adopt those enhanced attainment assessment procedures into their states' water quality standards regulations during the next upcoming water quality standards triennial review. Virginia's triennial review is scheduled to begin this year.

Comment (VAMWA):

The Board should adopt a feasible compliance schedule in the WQS.

Response:

DEQ agrees and has added compliance language into a new section 186 to allow for compliance scheduling beyond the permit term. While federal regulations require compliance with new standards "as soon as possible," EPA also recognizes that some compliance implementation time may be necessary and appropriate for permittees to meet new permit limits based on new standards. Under a 1990 decision in an NPDES appeal (*Star-Kist Caribe Inc.*, NPDES Appeal No. 88-5), the EPA Administrator stated that the only basis in which a permittee may delay compliance is pursuant to a schedule of compliance established in the permit which is authorized by the State in the water quality standards itself or in other State implementing regulations. In addition, House Bill No. 2862 and Senate Bill No. 1275, which are under consideration by the 2005 Virginia General Assembly, would allow the Board to issue a watershed general permit to cover the significant dischargers of nutrients within the Chesapeake Bay watershed. The general permit would include a schedule of compliance established by the Board.

A compliance schedule is appropriate because of constructability issues (lack of availability of design, construction and oversight talent) and cost. The factors which allow for a compliance schedule and allow for a compliance schedule beyond permit term are listed in the regulation as follows:

1. Opportunities to minimize costs to the public or facility owners by phasing in the implementation of multiple projects;
2. Availability of required services and skilled labor; the availability of funding from the Virginia Water Quality Improvement Fund as established in §10.1-2128 of the Code of Virginia, the Virginia Water Facilities Revolving Fund as established in § 62.1-225 of the Code of Virginia, and other financing mechanisms;
3. Water quality conditions; and
4. Other relevant factors.

NOTE: The above response to compliance scheduling was adjusted when presented final to the State Water Control Board since this summary and response was written and mailed to those who commented. On March 15, 2005, the State Water Control Board was provided the final compliance schedule language to meet the same need and public comment request for feasible compliance scheduling. EPA stated that the amendment must recognize compliance schedules

for individual discharges and to recognize that upstream states may have the flexibility of including compliance schedules in their NPDES permits. As Virginia and Maryland adopt water quality standards regulations for the protection of the interstate waters of the Chesapeake Bay, EPA has advised DEQ that Virginia, as well as Maryland, should provide clear authority, either in the standards or implementing regulations, for each other, and the other states in the watershed, to include compliance schedules, where appropriate, to achieve the permit limits intended to achieve the revised Water Quality Standards. The new amendment to section 186 states that compliance schedules are allowed for NPDES permits in the watershed in accordance with implementing regulations. For Virginia, this will include our existing permitting regulation as well as the General Watershed permit. None of the factors or allowances specified in the above response were included in the final amendment.

Comment (VA Beach, HRPDC):

How will the proposed regulation impact the City's Municipal Separate Storm Sewer System (MS4) now and in the future?

The proposed regulation should state that municipal and construction site runoff are "point sources" not affected by this rulemaking.

Response:

Currently, the approach for storm water includes best management practices (BMPs) to prevent nutrients from entering the storm sewers. These costs were considered as "urban BMPs" in the tributary strategies and the Department of Planning and Budget. Because some BMPs are expected in the storm water program in order to meet these criteria, it is not appropriate to exempt them. It is unknown exactly how MS4s will be impacted in the future, particularly if a Total Maximum Daily Load is implemented in the Bay.

Comments (VA Beach):

The City requests clarification of the implementation section of these proposed regulations with respect to schedule funding, responsibility of permit holders, etc...

Response:

Implementation can be best explained through the schedules and loading requirements described in the Chesapeake Bay Nutrient and Sediment Reduction Tributary Strategy, January 2005, the proposed Water Quality Management Planning Regulation (9 VAC 25-720) and the proposed changes to the Policy for Nutrient Enriched Waters (9 VAC 25-40). These regulations contain amendments that address total nitrogen and phosphorus limitations for certain permits within the Chesapeake Bay watershed. Also, legislation under consideration by the 2005 General Assembly establishes a nutrient credit exchange program through the utilization of a watershed general permit and market based point source nutrient credit trading program. This is intended to assist dischargers to meet the cap load allocations cost-effectively and accommodate growth and economic development.

The state administers the Virginia Clean Water Revolving Load Fund which provides financial assistance in the form of low-interest loans to local governments for needed improvements at publicly-owned wastewater treatment facilities and/or collection systems. In addition, grants are made available through the Water Quality Improvement Fund. Using the WQIF, DEQ has the responsibility to provide technical and financial assistance to local governments and certain individuals for the control of point source pollution.

Comment (Dr. Land):

All discharges must be taken into account, especially in semi-restricted creeks and rivers. Tyson Foods should meet the 0.1 mg/L TP requirement like everyone else.

Response:

There are only a few dischargers in Virginia with a 0.1 mg/L total phosphorus requirement. Tyson will have a nutrient loading allocation assigned to their discharge.

Comment (Dr. Land):

Because of phosphorus rich agricultural soils, best management practices that minimize the loss of agricultural soil must be mandated and all Bay Act set backs (should be set at a 100 ft. minimum) must be enforced.

Response:

These issues fall under programs not administered by DEQ.

Comment (W. Lee Chamberlain):

The City of Richmond is a chief nutrient contributor to the James River which adds to the death zone that is now occurring. Richmond has been a significant environmental polluter and has been coming up with a “plan of the plan” for the last five years while nothing is done, except for continued public hearings while the pollution continues and taxpayer moneys are lost. Virginia should lose its primacy and be monitored by the EPA as opposed to being allowed to aid in continued pollution because of politics.

Response:

All significant dischargers of nutrients, including Richmond, will need to reduce their nutrient dischargers as part of the Commonwealth’s strategy to meet these new standards.

Comments to 9 VAC 25-260-310 paragraph aa**Comment (VAMWA, Hanover):**

Virginia should adopt site-specific DO criteria for the tidal Pamunkey and Mattaponi Rivers. The existing Bay model shows nutrient controls in the upper York basin will not improve DO and will make it worse (Hanover).

Comment: (USFWS)

The Mattaponi and Pamunkey rivers have the same dissolved oxygen criteria as for the Open Water Fish and Shellfish Designated Use from June 1 through January 30.

Response:

DEQ acknowledges comments received on these site specific criteria. We intend to respond to comments and take action on these criteria at the June Board meeting. Site-specific criteria for dissolved oxygen in the Mattaponi and Pamunkey Rivers were in the proposed regulation (due to the natural oxygen depleting processes present in the extensive surrounding tidal wetlands) but consideration of their adoption will also need to be delayed due to the postponement of the numerical chlorophyll *a* criteria. This is an unavoidable regulatory detail due to their placement in the same section as the numerical chlorophyll *a* criteria.

Comments to 9 VAC 255-260-310 paragraph bb (Numerical Chlorophyll *a* Criteria for the Tidal James River)

Comment (VAMWA, Chesterfield, Crater PDC, Fredericksburg, GA Pacific, Greif, Henrico, Honeywell, HRPDC, HRRSA, HRSD, HRWTF, PMUSA, PWCSA, Rapidan, Richmond, Rivanna, SCWWA, UOSA, VA Beach, VMA, Westvaco):

Opposed to numeric chlorophyll *a* criteria for the James River. The primary objection is the cost to meet these criteria with no apparent environmental benefit. Also, the agency should pursue an antidegradation or adaptive management approach to chlorophyll *a* standards development. The proposed chlorophyll *a* criteria were heavily influenced by pre-determined and politically-determined load allocations. A Use Attainability Analysis should be conducted and funding to obtain these standards have not been identified. Many individual technical comments were submitted by VAMWA, HRSD and the HRWTF. Most of the organizations listed above specifically mentioned their support of all VAMWA chlorophyll *a* comments.

Comment (Dr. Land):

Chlorophyll *a* should not be used as a monitoring variable. Blooms are too variable in both time and space to characterize. It is impossible to relate chlorophyll *a* to “fishability.” Use DO and water clarity.

Comment (CBF, EPA, JRA, SELC, JRA USFWS,VCN):

Support the numerical chlorophyll *a* criteria in the James. The problems associated with excessive chlorophyll levels in the James are well documented and reduced chlorophyll should allow the return of healthy levels of desirable plant and animal life. Numeric standards are efficient and clear cut for permitting and enforcement (CBF).

It is fully consistent with EPA guidance and necessary to restore the river’s water quality and delist it from VA’s 303(d) list (restore the water quality in the river).

Comment (Honeywell):

DEQ should share responses to these comments in a manner that gives interested stakeholders, a meaningful opportunity to evaluate the proposed or revised chlorophyll *a* criteria in the context of other regulatory developments (i.e., the nutrient caps in the WQMP regulation)

Response:

Numerical chlorophyll *a* criteria for the James River were proposed as part of this rulemaking; however, staff will recommend postponing action on these numeric chlorophyll *a* criteria to give further consideration to the comments received on this issue and to develop nutrient loading and cost alternatives analyses.

Comments on 9 VAC 25-260-350 (Nutrient Enriched Waters Designations)

Comment (Dr. Land):

Until SAV abundance and dissolved oxygen concentrations improve considerably and meet established goals, the Bay and its tributaries must remain designated as Nutrient Enriched Waters.

Response:

The Nutrient Enriched Waters designations are unnecessary as this rulemaking will replace that method of controlling nutrients.

Comments on Cost

Comment (VA Beach):

The City of VA Beach has expended over \$100,000,000 in local funds to improve water quality in the City over the past 30 years. The City would prefer to leverage its funds with funding from the Commonwealth as it works to meet or exceed these standards. Please expand dialogue between the Commonwealth and the City to explore funding.

Comment (Bath):

Supports environmentally sound discharges. The state should partner with the localities to address the significant economic impact rather than pass costs on directly to local government. There are state funds that could and should be earmarked to address the economic impact of the proposed amendments to avoid undue tax or fee burdens on the citizens of the Commonwealth.

Comment (BWXT, J.H. Miles):

BWXT, J.H. Miles Seafood will incur significant costs as a result of this regulation.

Comment (New Market):

Concerned about the cost associated with the regulations, especially for small towns. Cost to the citizens of New Market estimates are 4.7 million dollars.

Comment (Orange):

The Town of Orange has a small economic base and implementation of the proposed regulations will be costly and may cause growth restrictions. Who will pay?

Comment (Chesterfield):

Chesterfield County is upgrading its treatment facilities to further reduce nutrients. They are concerned that the proposed nutrient allocations will limit treatment capacity and interfere with future economic development and their ability to manage growth and minimize environmental impacts.

Response:

Through proposed changes to the Water Quality Management Regulation, DEQ proposes to establish a trading and offsets program to enhance the cost-effectiveness of achieving and maintaining the waste load allocations in each tributary basin, and allow for new and expanded treatment plants in the future. These provisions will allow new and expanded dischargers to operate within Virginia's Chesapeake Bay watershed while also protecting water quality. In addition, DEQ supports the legislation under consideration by the 2005 General Assembly that would establish a nutrient credit exchange program through the utilization of a watershed general permit and market based point source nutrient credit trading program. This is intended to assist dischargers to meet the cap load allocations cost-effectively and accommodate growth and economic development.

The state administers the Virginia Clean Water Revolving Load Fund which provides financial assistance in the form of low-interest loans to local governments for needed improvements at publicly-owned wastewater treatment facilities and/or collection systems. In addition, grants are made available through the Water Quality Improvement Fund. Using the WQIF, DEQ has the responsibility to provide technical and financial assistance to local governments and certain individuals for the control of point source pollution. Another funding mechanism is through the USDA's Rural Utility Service which provides loans, grants and loan guarantees for drinking water, sanitary sewer, solid waste and storm drainage facilities in rural areas and cities and towns with populations of 10,000 or less.

Comment (CBF):

Cost should not be a factor in water quality standards development. Water Quality standards must be based upon water quality and living resources needs not cost impacts. These standards are achievable

and hope that Virginia lawmakers will vote to increase funding and provide a stable source of money to the states' water quality improvement fund.

Response:

Widespread social and economic impact is one of the factors in the federal and state water quality standards regulation that can be used to remove uses or establish subcategories of uses in the water quality standards. Also, the State Water Control Law specifies that the Board shall give due consideration to the economic and social cost and benefits when adopting standards. Under the Administrative Process Act, the Department of Planning and Budget must prepare and economic impact analysis. Under the Governor's Executive Order No. 25, this impact assessment is provided to the Secretary of Natural Resources and the Governor as well as published in the Virginia Register.

Comment (, VAMWA, Hanover, UOSA):

The economic impact analysis underestimates the total costs of meeting the proposed standards. A use attainability analysis (UAA) should be performed as called for by EPA. Costs and benefits should be considered.

Comment (HRPDC, VA Beach):

The economic impact analysis (EIA) greatly underestimates the actual costs and impacts. Nonpoint source costs cannot be considered voluntary as the standards cannot be met without these controls. The most recent estimates for nonpoint source costs are estimated at \$6.3 billion. Costs to municipal stormwater (MS4) will not be voluntary once a waterbody is listed as impaired. The EIA dismisses these costs associated with sewage treatment plant upgrades and municipal stormwater programs to the taxpayer. Technical costs have also been underestimated in the EIA and have not included the technical assistance costs to the local governments. The EIA overestimated the availability of federal and state cost-share funds. The localities of Hampton Roads oppose any state policy that uses local governments to generate revenue for state-mandated environmental programs, particularly for initiatives such as the Chesapeake Bay Agreement 2000 where local governments are not signatory parties.

Response:

DEQ will reference the EPA's *Technical Support Document for Identification of Chesapeake Bay Designated Uses and Attainability* as the UAA for subcategorizing designated uses that require less stringent criteria when these amendments are sent to EPA for approval. There is sufficient information in that document to demonstrate that naturally occurring pollutant concentrations prevent the attainment of the use and that physical conditions of the water body prevent attainment of the aquatic life use. These are two of the six factors states can choose from when removing or subcategorizing uses under a UAA. An economic UAA (i.e. substantial and widespread economic and social impact) is another factor states can choose from but not required. The state (or a permittee) could pursue an economic UAA to make these water quality requirements less stringent. A permittee may also request a variance based on economic and social impact. However, this must be demonstrated by the permittee. Costs and benefits were considered as part of the states' public participation process. DEQ acknowledges that costs estimates have changed (particularly for non-point sources) and will share this information with the State Water Control Board as they deliberate adoption of these amendments.

Comment (VAMWA, UOSA):

The goal of 175 million pounds per years needs to be re-assessed for cost effectiveness and quantifiable benefit.

Response:

These allocations were agreed upon by the Bay program partners as the necessary loads to meet aquatic life uses in the Bay and will not be re-assessed as part of this rulemaking. The memorandum from the Secretary of Natural Resources to the Principal Staff Committee Members and Representatives entitled *Summary of Decisions Regarding Nutrient and Sediment Load Allocations and New Submerged Aquatic Vegetation (SAV) Restoration Goals* summarizes the agreement. These allocations will be re-assessed in 2007 after the water quality standards are adopted by the Bay states.

Acronyms and abbreviations used for those individuals or organizations who commented:

Augusta is Augusta County Service Authority and their governing body (Jean Andrews, Regulatory Compliance Coordinator)

Bath is Bath County (Claire Collins, County Administrator)

Blackwater/Nottoway Riverkeeper (Charles Turner, Riverkeeper)

BWXT is BWX Technology, Inc., Nuclear Products Division, Lynchburg, VA (John Storton, Advisory Engineer)

CBF is the Chesapeake Bay Foundation, (Jeff Corbin, Virginia Deputy Director and Joe Lerch)

W. Lee Chamberlain is W. Lee Chamberlain III, Project Director of The Cat Point Creek Research Project, a participant in the River Corridors and Wetlands Restoration Partners program of the USEPA Office of Water, member affiliate of the Ocean Project and Member of the Society for Wetlands Scientists, Participating reporting affiliate of the Chesapeake Bay Foundation.

Chesterfield is Chesterfield County, Utilities Department (Craig Bryant, Director)

Crater PDC is the Crater Planning District Commission, Chesterfield, Colonial Heights, Dinwiddie, Emporia, Greensville, Hopewell, Petersburg, Prince George, Surry and Sussex (Dennis Morris, Executive Director)

DGIF is the VA Department of Game and Inland Fisheries (Andrew Zadnik, Environmental Services Section Biologist)

EPA is the United States Environmental Protection Agency (Robert Koroncai, Chief VA/MD/DC Branch)

Fredericksburg is the City of Fredericksburg and their governing body (Wilbur Brown, Superintendent)

GA Pacific is Georgia-Pacific Corporation (Timothy Pierce, Environmental Manager Big Island Operations)

Greif is a paper/packaging materials industry (W.S. Slagle, Environmental and Public Affairs Manager)

Hanover is the County of Hanover (Frank Harkson, Director of Public Utilities)

Henrico is the County of Henrico, Department of Public Utilities, Arthur Petrini, P.E., Director of Public Utilities

Honeywell is Honeywell Nylon, Inc. (subsidiary of Honeywell International, Inc.), Hopewell Plant (Scott Wolff, Environmental Engineer)

HRRSA is the Harrisonburg-Rockingham Regional Sewer Authority, Bridgewater, Dayton, Harrisonburg, Mt. Crawford and Rockingham County (Curtis Poe, P.E., Executive Director)

HRWTF is the City of Hopewell Regional Wastewater Treatment Facility (Mark Haley, Director)

HRPDC is the Hampton Roads Planning District Commission (Jeanne Zeidler, Chair)

HRSD is the Hampton Roads Sanitation District (Guy Aydlett, Director of Water Quality)

JRA is the James River Association (Chuck Frederickson, James Riverkeeper)

Dr. Land is Dr. Lynton S. Land, P.O. Box 539, Ophelia, VA 22530, Emeritus Professor of Geological Sciences, Edwin Allday Centennial Chair, University of Texas, Austin.

Leesburg is the Town of Leesburg (Randolph Shoemaker, Director of Utilities)

Martha Levering is Martha Levering of Charlottesville, VA

Capt. Ferrell McLain is a charter boat fisherman for BAYFISH Sport Fishing Charters in Reedville, VA

J.H. Miles is J.H. Miles & Co., Inc. Seafood, Norfolk, VA (John R. Miles)

New Market is the Town of New Market (Evan Vass, Town Manger)

Orange is the Town of Orange (Ray Lonick, Mayor)

PMUSA is Philip Morris, U.S.A., Richmond, VA (Bernard Kiernan)

PWCSA is the Prince William County Service Authority, Division of Engineering and Wastewater Treatment (Charles Weber, Director, Engineering and Water Reclamation)

Rapidan is the Rapidan Service Authority, Greene, Madison and Orange County (Dudley Pattie, General Manager)

Richmond is the City of Richmond, Department of Public Utilities (Donita Harper, CPA, Interim Director)

Rivanna is the Rivanna Water & Sewer Authority, Charlottesville and Albemarle County (Robert Wichser, Ph.D., P.E., DEE, Director Water And Wastewater)

SCWWA is the South Central Wastewater Authority and their governing body, Chesterfield, Colonial Heights, Dinwiddie, Petersburg and Prince George (James Dawson, P.E., Assistant Executive Director)

SELC is the Southern Environmental Law Center (Katherine Slaughter, Senior Attorney)

James Simpson of Raphine, VA (Fontstane Farm)

UOSA is the Upper Occoquan Sewage Authority, Fairfax and Prince William County, Cities of Manassas and Manassas Park (James Bannwart, Executive Director)

USFWS is the United States Department of the Interior Fish and Wildlife Service (Karen Mayne, Supervisor, Virginia Field Office)

VAMWA is the Virginia Association of Municipal Wastewater Agencies (Mark Haley, President)

VA Beach is the City of Virginia Beach, James Spore, City Manager

VCN is the VA Conservation Network (Martha Wingfield, President, Virginia Conservation Network)

VMA is the Virginia Manufacturers Association (Andrea Wortzel, Hunton & Williams, LLP)

Westvaco is MeadWestvaco Corporation, Covington, VA (Thomas Botkins, Environmental Projects Manager)

Detail of Changes

Please detail any changes, other than strictly editorial changes, that are being proposed. Please detail new substantive provisions, all substantive changes to existing sections, or both where appropriate. This statement should provide a section-by-section description - or crosswalk - of changes implemented by the proposed regulatory action. Include citations to the specific sections of an existing regulation being amended and explain the consequences of the changes.

Current section	Proposed new section	Current requirement	Proposed change and rationale
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number	number, if applicable		
9 VAC 25-260-5		Definitions	Added a definition for 'Chesapeake Bay and its tidal tributaries' to clarify that this phrase refers to the tidal waters in the Bay watershed to the head of the tidal influence. Added a definition for 'pycnocline' as this is a term that is unfamiliar to the general public.
9 VAC 25-260-10		Defines general statewide designated uses.	Added subcategories of general statewide aquatic life designated uses that apply to the Chesapeake Bay and its tidal tributaries in order to more accurately reflect aquatic life uses in the Bay. These subcategories of uses are migratory fish spawning and nursery, submerged aquatic vegetation shallow-water, open-water aquatic life, deep-water aquatic life and deep channel seasonal refuge.
9 VAC 25-260-50		Lists dissolved oxygen, pH and temperature criteria for Class I - VII waters.	Separates Class II tidal waters of the Chowan and Atlantic from the Chesapeake Bay and its tidal tributaries. Provides a reference for the Chesapeake Bay waters to a new section. The new section contains the new dissolved oxygen criteria for these waters.
none	9 VAC 25-260-185	None since this is a new section - but the existing criteria for the Bay are statewide in nature and include a dissolved oxygen criteria of and minimum of 4.0 mg/l and a daily average of 5.0mg/l.	Provides new dissolved oxygen, submerged aquatic vegetation, water clarity and a narrative chlorophyll <i>a</i> criteria for the five new subcategories of uses as appropriate. This section also provides water quality assessment implementation requirements.
None	9 VAC 25-260-186	None, since this is a new section.	Provides the requirement that VPDES permits in non-tidal areas may need issued to meet the requirements of section 185 and that compliance schedules for all permits (NPDES) in the watershed are allowed.
9 VAC 25-260-310		Contains site-specific and effluent criteria for various water bodies.	Two new site-specific criteria were proposed but have been postponed to give further consideration to comments received and to develop nutrient loading and a cost alternatives analyses on the numerical James River chlorophyll <i>a</i> criteria.
9 VAC 25-260-350		The Chesapeake Bay and its tidal tributaries are listed as "nutrient enriched waters." Waters listed in this section are subject to phosphorus limits under the Nutrient Enriched Waters Policy (9 VAC 25-40 et seq.)	The Chesapeake Bay and its tidal tributaries are repealed from the list of nutrient enriched water since the new method of controlling nutrients will be from implementation of the criteria set forth in 9 VAC 25-260-185 and 186.
9 VAC 25-260-410		This section delineates and classifies the Lower James River and denotes special	The only amendments in this section were the addition of the special standard ""bb"" notations for numerical chlorophyll <i>a</i> criteria

		standards.	in the James River from section 310 which has been postponed (see sections 310 above).
9 VAC 25-260- 530		This section delineates and classifies the York River and denotes special standards.	The only amendment in this section was the addition of the special standard "aa" notation for the dissolved oxygen criteria in the Mattaponi and Pamunkey Rivers from section 310. Adoption of section 310 has been postponed (see section 310 above).

Family Impact Statement

Please provide an analysis of the regulatory action that assesses the impact on the institution of the family and family stability including the extent to which the regulatory action will: 1) strengthen or erode the authority and rights of parents in the education, nurturing, and supervision of their children; 2) encourage or discourage economic self-sufficiency, self-pride, and the assumption of responsibility for oneself, one's spouse, and one's children and/or elderly parents; 3) strengthen or erode the marital commitment; and 4) increase or decrease disposable family income.

The development of water quality standards in general is for the protection of public health and safety, which has only an indirect impact on families. However, the regulatory action may decrease the disposable family income as localities upgrade their treatment facilities and pass the increased water and sewer costs to the ratepayers.