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Proposed Regulation Agency Background Document

Agency name	State Water Control Board
Virginia Administrative Code (VAC) citation	9 VAC 25 - 260
Regulation title	Water Quality Standards
Action title	Triennial Review Rulemaking to adopt new, update or cancel existing water quality standards as required by § 62.1-44.15 of the Code of Virginia and the federal Clean Water Act.
Date this document prepared	April 4, 2014

This information is required for executive branch review and the Virginia Registrar of Regulations, pursuant to the Virginia Administrative Process Act (APA), Executive Orders 14 (2010) and 58 (1999), and the *Virginia Register Form, Style, and Procedure Manual*.

Brief summary

In a short paragraph, please summarize all substantive provisions of new regulations or changes to existing regulations that are being proposed in this regulatory action.

Among the most notable changes to the water quality standards are amendments to modify the ammonia criteria for the protection of freshwater aquatic life. There are also amendments modifying aquatic life criteria for 3 toxic parameters, addition of aquatic life criteria for 2 new parameters, modification of human health criteria for 8 parameters, and deletion of a public water supply parameter for taste and odor (manganese). There are changes in many other sections of the regulation during this review that include updates to the reservoir nutrient criteria section, addition of 2 site specific temperature criteria, updates to stream classifications in the river basin section tables, deletions of language that is no longer needed, and miscellaneous updates and clarifications.

Legal basis

Please identify the state and/or federal legal authority to promulgate this proposed regulation, including (1) the most relevant citations to the Code of Virginia or General Assembly chapter number(s), if applicable, and (2) promulgating entity, i.e., agency, board, or person. The identification should include a reference to the agency/board/person's overall regulatory authority, as well as a specific provision authorizing the promulgating entity to regulate this specific subject or program; and a description of the extent to which the authority is mandatory or discretionary.

Federal and state mandates in the Clean Water Act at 303(c), 40 CFR 131 and the Code of Virginia in §62.1-44.15(3a) require that water quality standards be adopted, modified or cancelled every three years. These are the most relevant laws and regulations. The promulgating entity is the State Water Control Board.

The Clean Water Act authorizes restoration and maintenance of the chemical, physical, and biological integrity of the Nation's waters. The Clean Water Act at 303(c)(1) requires that the states hold public hearings for the purpose of reviewing applicable water quality standards and, as appropriate, modifying and adopting standards.

The Federal regulations at 40 CFR 131 authorize requirements and procedures for developing, reviewing, revising and approving water quality standards by the States as authorized by section 303(c) of the Clean Water Act. 40 CFR 131 specifically requires the states to adopt criteria to protect designated uses.

The State Water Control Law (Virginia Code Title 62.1 – Waters of the State, Ports and Harbors) authorizes protection and restoration of the quality of state waters, safeguarding the clean waters from pollution, prevention and reduction of pollution and promotion of water conservation. The State Water Control Law at §62.1-44.15(3a) requires the Board to establish standards of quality and to modify, amend or cancel any such standards or policies. It also requires the Board to hold public hearings from time to time for the purpose of reviewing the water quality standards, and, as appropriate, adopting, modifying or canceling such standards.

The authority to adopt standards as provided by the provisions in the previously referenced citations is mandated, although the specific standards to be adopted or modified are discretionary to the Environmental Protection Agency and the state.

Purpose

Please explain the need for the new or amended regulation. Describe the rationale or justification of the proposed regulatory action. Detail the specific reasons the regulation is essential to protect the health, safety or welfare of citizens. Discuss the goals of the proposal and the problems the proposal is intended to solve.

The rulemaking is essential to the protection of health, safety or welfare of the citizens of the Commonwealth because 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.

These standards will be used in 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) water quality characterization report and on the 303(d) list of impaired waters. Waters not meeting standards will require development of a Total Maximum Daily Load under the Clean Water Act at 303(e). The Water Quality Standards are the cornerstone for all these other programs. It is the goal to provide the citizens of the Commonwealth with a technical regulation that is protective of water quality in surface waters, reflects recent scientific information, reflects agency procedures and is reasonable and practical.

The environment will benefit because implementation of these amendments will result in better water quality in the Commonwealth for recreation, consumption of fish and shellfish and protection of aquatic life.

Substance

Please briefly identify and explain new substantive provisions (for new regulations), substantive changes to existing sections or both where appropriate. Note, more detail about all provisions or changes is provided in the "Detail of changes" section.

Definitions § 9 VAC 25-260-5

Inclusion of a definition for "wetlands".

Application of pH Criteria in Lakes/Reservoirs § 9 VAC 25-260-50

Amend section so that the pH criteria only apply to the epilimnion of thermally stratified lakes when they are stratified.

Table of Parameters (Toxics) § 9 VAC 25-260-140

An amendment to the cadmium criteria for the protection of freshwater aquatic life is based on more recent EPA guidance issued in 2001 and updated with additional revisions included in a report published by the U.S Geological Survey in 2010. The proposed cadmium criteria are more stringent by about 50% compared to the existing Virginia criteria, but less stringent than EPA's 2001 recommendations.

Freshwater aquatic life criteria for lead are being amended to include a conversion factor. All current Virginia aquatic life criteria for metals except for lead include a conversion factor that allow for the criteria to be expressed as the dissolved fraction of the metal. The dissolved fraction is the most biologically available portion that contributes to potential toxicity. Staff recommends applying a conversion factor recommended by EPA as being applicable to the Virginia criteria for lead. This will make the criteria more stringent by approximately 5%-22% because it is expressed as dissolved lead without the inclusion of any particulate lead that may be present.

Amendments are proposed to update 8 human health criteria parameters due to changes in either oral slope factors for carcinogens or reference doses for non-carcinogens, which are utilized in risk assessment calculations from which the criteria are derived. The updates to the methodology for calculating human health criteria makes new criteria concentrations for carbon tetrachloride, methylene chloride, nitrobenzene and tetrachloroethylene increase between 88 and 1779%. Updates for cyanide, Hexachloroethane, pentachlorophenol, and trichloroethylene decrease between 64 and 97% compared to the current criteria.

Acrolein and carbaryl are new proposed criteria to protect the aquatic life use. Acrolein is a biocide frequently used in recirculating process water systems for slime control and carbaryl is the active ingredient in the commonly available pesticide Sevin®.

Proposed inclusion of a 'Biotic Ligand Model' for copper intended to be used on a site specific basis. The model accounts for waterbody site specific physiochemical characteristics for organic carbon, pH, temperature, alkalinity, calcium, chloride, magnesium, potassium, sodium, sulfate instead of just hardness like the current criteria. Potentially it could be used in lieu of a water effects ratio study.

Proposed deletion of the manganese criterion for waters designated as public water supply. The manganese criterion is based on a federally recommended Secondary Maximum Contaminant Level (SMCL) that is intended to be applied to treated drinking water as supplied to the consumers to prevent laundry staining.

Ammonia Criteria § 9 VAC 25-260-155

Proposal to amend the section to include new nationally recommended aquatic life criteria for ammonia in freshwater. Like the current criteria, the proposed criteria are calculated as a function of temperature and pH and accounts for the presence/absence of trout and early life stages of fish. The recalculated ammonia criteria incorporate toxicity data for freshwater mussels in the family Unionidae which are the

most sensitive organisms in the recalculation data base. The new criteria are more restrictive primarily because more recent toxicity data show that mussels and snails (including endangered species) are very sensitive to ammonia and the current ammonia criteria do not provide sufficient protection for these species. Site specific options to calculate criteria omitting mussel toxicity data are proposed to be used in waters where a demonstration has been made that mussels are absent; however, consultation with USFWS and DGIF indicate freshwater mussels should be considered ubiquitous in Virginia and likely to be present in any perennial waterbody.

Special Standards § 9 VAC 25-260-310

Proposal to amend special standard ‘m’ to include language to clarify that the effluent limitations applicable to all wastewater treatment facilities in the Chickahominy River basin above Walker’s Dam only apply to treatment facilities treating an organic nutrient source.

Staff is proposing two new special standards (‘ee’ and ‘ff’) to set a recommended maximum temperature of 26°C for Tinker Creek and 28°C for sections of the Roanoke River from May 1 – Oct 31 that are stocked with trout only during the winter months. Current maximum temperature criteria for stockable trout waters of 21°C apply year-round.

River Basin Section Tables § 9 VAC 25-260-390 – 540

Proposed deletion of the public water supply designation for an old raw water intake on the James River in Chesterfield County previously utilized by the American Tobacco Company. Consultation with the Virginia Department of Health indicate no known active intake for potable water has been there in the past 35 years and VDH could not find any records about a domestic water intake at that location in years prior to 1978. The property where the intake is located has changed hands several times over the years and is now owned by Sustainability Park, LLC.

There are proposed clarifications/corrections to delineations for trout stream designations, basin section description clarifications, additions of new Class VII Swamp Waters, water authority name changes, and other miscellaneous corrections.

Issues

Please identify the issues associated with the proposed regulatory action, including:

- 1) the primary advantages and disadvantages to the public, such as individual private citizens or businesses, of implementing the new or amended provisions;*
- 2) the primary 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 the regulatory action poses no disadvantages to the public or the Commonwealth, please indicate.

The primary advantage to the public is that the updated numerical toxics criteria are based on better scientific information to protect water quality and human health. The disadvantage is that criteria that become more stringent may result in increased costs to the regulated community. 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. EPA has also provided guidance that these criteria are "approvable" under the Clean Water Act.

The advantage to the agency or the Commonwealth that will result from the adoption of these amendments will be more accurate and scientifically defensible permit limits, assessments and clean up plans (TMDLs). These are discussed under the “Purpose” section where the goals of the proposal, the environmental benefits, and the problems the proposal is intended to solve are discussed.

The regulated community will find the amendments pertinent to their operations, particularly where the numerical criteria are more stringent since that may require additional capital or operating costs for control in their discharge (see Economic Impact).

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

Requirements more restrictive than federal

Please identify and describe any requirements of the proposal, which are more restrictive than applicable federal requirements. Include a rationale for the need for the more restrictive requirements. If there are no applicable federal requirements or no requirements that exceed applicable federal requirements, include a statement to that effect.

There are no requirements that exceed applicable federal requirements.

Localities particularly affected

Please identify any locality particularly affected by the proposed regulation. Locality particularly affected means any locality which bears any identified disproportionate material impact which would not be experienced by other localities.

The Counties of Caroline, Carroll, Charles City, Chesterfield, Essex, Gloucester, Greensville, Hanover, Henrico, King George, King & Queen, King William, New Kent, Northumberland, Middlesex, Westmoreland and the City of Suffolk are affected by amendments to reclassify certain water bodies as swamp waters. Botetourt County and the Cities of Roanoke and Salem are affected by the additional of special standard ee and ff to certain trout waters. Orange and Powhatan counties are affected by the application of special nutrient standards to two lakes. The remainder of the amendments are either applicable statewide or are not expected to impose any identified disproportionate material impact to a locality.

Public participation

Please include a statement that in addition to any other comments on the proposal, the agency is seeking comments on the costs and benefits of the proposal, the impacts of the regulated community, and the impacts of the regulation on farm or forest land preservation.

In addition to any other comments, the Board is seeking comments on the costs and benefits of the proposal, the potential impacts of this regulatory proposal and any impacts of the regulation on farm and forest land preservation. Also, the agency/board is seeking information on impacts on small businesses as defined in § 2.2-4007.1 of the Code of Virginia. Information may include 1) projected reporting, recordkeeping and other administrative costs, 2) probable effect of the regulation on affected small businesses, and 3) description of less intrusive or costly alternative methods of achieving the purpose of the regulation.

Anyone wishing to submit written comments for the public comment file may do so by mail, email or fax to David Whitehurst, P.O. Box 1105, Richmond, VA 23218, (804) 698-4121, fax (804) 698-4116 and email David.Whitehurst@deq.virginia.gov. Comments may also be submitted through the Public Forum feature of the Virginia Regulatory Town Hall web site at: www.townhall.virginia.gov. Written comments

must include the name and address of the commenter. In order to be considered, comments must be received by 11:59 pm on the last day of the public comment period.

A public hearing will be held and notice of the hearing will be published in the *Virginia Register of Regulations*, posted on the Virginia Regulatory Town Hall website (<http://www.townhall.virginia.gov>), and on the Commonwealth Calendar website (<http://www.virginia.gov/cmsportal3/cgi-bin/calendar.cgi>). Both oral and written comments may be submitted at that time.

Economic impact

Please identify the anticipated economic impact of the proposed new regulations or amendments to the existing regulation. When describing a particular economic impact, please specify which new requirement or change in requirements creates the anticipated economic impact.

<p>Projected cost to the state to implement and enforce the proposed regulation, including (a) fund source, and (b) a delineation of one-time versus on-going expenditures.</p>	<p>There will be no additional costs to the state / agency. Existing water quality monitoring programs (and related funding sources) will continue to support the proposed changes.</p>
<p>Projected cost of the <i>new regulations or changes to existing regulations</i> on localities.</p>	<p>There is no reported cost to localities. Estimated costs to affected businesses or other entities are explained below.</p>
<p>Description of the individuals, businesses or other entities likely to be affected by the <i>new regulations or changes to existing regulations</i>.</p>	<p>Facilities likely to be covered by this regulation are VPDES permit based facilities and impaired water streams that need to have a Total Maximum Daily Load developed under the Clean Water Act 303(e).</p>
<p>Agency’s best estimate of the number of such entities that will be affected. Please include an estimate of the number of small businesses affected. Small business means a business entity, including its affiliates, that (i) is independently owned and operated and (ii) employs fewer than 500 full-time employees or has gross annual sales of less than \$6 million.</p>	<p>Potentially affected entities would be those with permitted discharges to surface waters of the Commonwealth that have effluent limits for those parameters with proposed changes to the criteria concentration values. Those with monitoring requirements in their permit may also be affected for those parameters that become more stringent.</p> <p>The estimated number of potentially affected facilities due to proposed amendments to the ammonia, lead, cadmium, and human health criteria is 435 and includes those facilities with effluent limitations and those with monitoring requirements but no limits.</p> <p>There are approximately 352 active VPDES permits with effluent limitations for ammonia. A significant number of those facilities may receive more stringent ammonia limits, as well as the potential for new facilities to receive limits, as the proposed water quality criteria are implemented. Significant Dischargers of nutrients (POTWs ≥ 0.1 MGD east of the fall line and ≥ 0.5 MGD west of the fall line) within the Chesapeake Bay watershed have mostly upgraded to remove Total Nitrogen and in doing so convert ammonia-N to nitrate-N. The proposed water quality criteria will therefore mostly impact smaller facilities in the Chesapeake Bay watershed and any municipal facility outside of the Chesapeake Bay watershed. As a</p>

	<p>matter of practice, wastewater treatment plants designed to meet an ammonia limitation are generally designed to fully nitrify (remove <u>all</u> ammonia) so lower limitations do not necessarily mean that a wastewater treatment plant upgrade would be required. For most conventional activated sludge plants not currently using nutrient reduction technology, it may just require optimizing operational procedures to meet the new limitation. The largest potential impact is expected to be on facilities that discharge to very small receiving streams and older plants that do not treat wastewater using the activated sludge process.</p> <p>There are 10 active VPDES permits with effluent limitations for cadmium. Fourteen have monitoring requirements but no limits.</p> <p>There are 10 active VPDES permits with effluent limitations for lead. Eighteen have monitoring requirements but no limits.</p> <p>There are 7 active VPDES permits with effluent limitations for human health parameters. Twenty-four have monitoring requirements but no limits.</p> <p>Impacts to small businesses should not be significantly different than for larger businesses.</p>
<p>All projected costs of the new regulations or changes to existing regulations for affected individuals, businesses, or other entities. Please be specific and include all costs. Be sure to include the projected reporting, recordkeeping, and other administrative costs required for compliance by small businesses. Specify any costs related to the development of real estate for commercial or residential purposes that are a consequence of the proposed regulatory changes or new regulations.</p>	<p>Until the number, size, type of facilities and degree of additional treatment needed are known for dischargers affected by the proposed amendments, no projected costs are available. It is possible that order-of-magnitude cost opinions (-30% to +50% accuracy) can be developed using cost-curve data, information on similar facility upgrades that have been completed, and owner-furnished information.</p>
<p>Beneficial impact the regulation is designed to produce.</p>	<p>There are three proposed changes in the WQS regulation that would have a net benefit. The first two listed below would provide cost-savings and flexibility to the agency in terms of implementation of the proposed regulation.</p> <ul style="list-style-type: none"> • Special Standards § 9 VAC 25-260-310 • Additional Class VII Swamp Waters to § 9 VAC 25-260-390-450 <p>Amendments to Special Standard 'm' for the Chickahominy watershed above Walker's Dam may result in cost savings in the form of reduced monitoring requirements for facilities whose waste streams do not contain an organic nutrient source.</p> <p>Implementation of proposed Special Standards 'ee' and 'ff' will likely result in determination that the aquatic life use is</p>

	<p>not impaired, thus avoiding development of costly and inappropriate TMDLs.</p> <p>A number of waters in eastern and southeastern Virginia are incorrectly classed as Class III waters with associated pH and dissolved oxygen criteria that are inappropriate for assessing the natural conditions that exist in these swamps. Identifying these waters and applying Class VII criteria to protect them results in the removal of an impairment listing for some and a correct assessment for others, thus eliminating the need to develop costly TMDLs. These unique aquatic ecosystems possess naturally low levels of dissolved oxygen, pH and unique aquatic biota that have adapted to the environmental attributes of these waterbodies. They will now have appropriate criteria by which to assess them. Removal of TMDLS from the listing and classifying them as Class VII Swamp Waters will not exempt them from the usual water quality monitoring and assessment process.</p> <p>The third proposed change that could have economic benefit is the human health criteria updates that have become less stringent which may result in a cost savings for facilities that have permit limits for those compounds and/or facilities that have monitoring requirements.</p> <p>A general benefit of the proposed amendments will be scientifically correct and legally defensible water quality standards to protect the surface waters of Virginia.</p>
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Alternatives

Please describe any viable alternatives to the proposal considered and the rationale used by the agency to select the least burdensome or intrusive alternative that meets the essential purpose of the action. Also, include discussion of less intrusive or less costly alternatives for small businesses, as defined in §2.2-4007.1 of the Code of Virginia, of achieving the purpose of the regulation.

One alternative would have been to not propose any of the amendments described in this document. That alternative was not chosen for the proposed updates to aquatic life and human health criteria because those criteria are based upon more recent scientific information and data that provide for improved environmental and human health protection. Many of the miscellaneous corrections are necessary to provide accurate information to the public.

Human Health Criteria

The updates are for the reference doses for non-carcinogenic toxic pollutants nitrobenzene and free cyanide and oral slope factors for the following carcinogens: Carbon Tetrachloride, Hexachloroethane, Methylene Chloride, Pentachlorophenol, Tetrachloroethylene, Trichloroethylene. The newly calculated criteria concentrations increased for some and decreased for others. During the Regulatory Advisory Panel process it was asked if the State has the option to maintain the lower criteria concentrations. Virginia does have the option to maintain criteria lower than the nationally recommended criteria should those nationally recommended become less stringent. However that option was not pursued as updates to the reference doses and oral slope factors are the best currently available scientific basis for human health criteria determinations.

Manganese Public Water Supply Criterion

Surface water manganese concentrations in Virginia often exceed the Public Water Supply criterion, which is expressed as total recoverable (50 mg/L). The current standard is a Safe Drinking Water Act Secondary Maximum Contaminant Level concentration related to finished drinking water to prevent unwanted staining of laundry. This issue is of particular concern to dischargers in the Roanoke River basin because 60+ miles of the river is designated as Public Water Supply which can result in discharge effluent limits to meet a criterion for a parameter that some view as unreasonable, for a criterion that shows evidence of a naturally occurring high water column concentration. Agency staff considered 3 options to address the issue: criterion modification, criterion deletion, or maintaining the current criterion. Criterion modification, to express the manganese criterion as dissolved, was attempted during the last Triennial Review but was disapproved by EPA. Secondary Maximum Contaminant Levels for finished drinking water applied as a surface water criterion is inappropriate and may lead to unnecessary TMDLs which led to the decision for criterion deletion.

Ammonia Criteria

It was considered whether geographic regions and/or watersheds within Virginia could be designated as “mussel free” and apply the less-stringent, site specific criteria over broad areas. Subsequent consultation with US Fish and Wildlife Service, Dept. of Game and Inland Fisheries, and Dept. of Conservation and Recreation indicated it is appropriate to presume mussels are present in any perennial freshwater stream in Virginia and require that the absence of mussels be determined on a very localized site-by-site basis.

Regulatory flexibility analysis

Please describe the agency’s analysis of alternative regulatory methods, consistent with health, safety, environmental, and economic welfare, that will accomplish the objectives of applicable law while minimizing the adverse impact on small business. Alternative regulatory methods include, at a minimum: 1) the establishment of less stringent compliance or reporting requirements; 2) the establishment of less stringent schedules or deadlines for compliance or reporting requirements; 3) the consolidation or simplification of compliance or reporting requirements; 4) the establishment of performance standards for small businesses to replace design or operational standards required in the proposed regulation; and 5) the exemption of small businesses from all or any part of the requirements contained in the proposed regulation.

The proposed changes in the Water Quality Standards Regulation provide for internal flexibility in regulatory recordkeeping and water quality monitoring efforts. Economic estimates of the same are provided above.

Public comment

Please summarize all comments received during the public comment period following the publication of the NOIRA, and provide the agency response.

Commenter	Comment	Agency response
Comments – General/Miscellaneous		
US Fish & Wildlife Service	The list of threatened and endangered waters, which has not been updated in many years, should be revisited during the Triennial Review.	Not acted upon because the intent of the list was to identify waterbodies subject to the halogen ban (9VAC25-260-110) DEQ applies to the Clinch and Holston Rivers This was fully implemented decades ago. This list of endangered species waters is not

Commenter	Comment	Agency response
		intended to be comprehensive and whenever the need arises to identify endangered species waters for permitting decisions, DEQ staff contact the Department of Game and Inland Fisheries for up to date information.
US Fish & Wildlife Service	Prohibit new permittees from using chlorine disinfection for effluent that discharges to threatened and endangered waters.	DEQ does not believe this is necessary. The numeric criteria for total residual chlorine are considered protective of aquatic life, and most treatment plants using chlorine are also required to dechlorinate.
VA Mining Issues Group & VA Association of Municipal Wastewater Agencies	Clarify in the water quality standards that the Virginia Stream Condition Index (SCI) should be used only for monitoring and assessment purposes and not as a criterion for permitting and enforcement purposes.	DEQ does not view the SCI as a numeric criterion, but rather uses it as a tool to assess attainment of the designated use for aquatic life (9VAC25-260-10). All state waters are designated to support “the propagation and growth of a balanced, indigenous population of aquatic life,...which might reasonably be expected to inhabit them”. The SCI is used to determine if the aquatic life community in a waterbody meets this designated use. If the SCI score indicates that the aquatic community is not meeting expectations for a balanced community in the waterbody, then additional investigation (such as a TMDL study) is used to determine if the general narrative criteria (9VAC25-260-20A) is not being met and what stressors (toxic chemicals, metals, nutrients, sediments etc) are causing the impact on the aquatic life. If a stressor is identified, that may become useful for permitting or enforcement purposes. The use of the VASCI as a monitoring and assessment tool is best described in the monitoring and assessment guidance, rather than in the WQS regulation.
VA Mining Issues Group	They look forward to working with DEQ staff and other stakeholders to assist with developing a rulemaking with scientifically sound, cost effective, and practical changes.	DEQ believes that Regulatory Advisory Panel worked together well and provided valuable input to DEQ, helping to craft the current proposed amendments to the Water Quality Standards.
Shenandoah & Potomac Riverkeepers	Address deleterious anthropogenic changes to stream flow regimes through Virginia WQS and control accordingly through regulatory actions.	DEQ believes that it is not practical at this time to establish flow regime standards or criteria on a statewide basis.
Hampton Roads Sanitation District	Recommend that DEQ not revise human health criteria based on updated reference doses that the Integrated Risk Information System (IRIS) has labeled with a low	None of the reference doses that are being used to modify the human health criteria were identified as having a low degree of confidence. All of the criteria

Commenter	Comment	Agency response
	degree of confidence.	that are being proposed for change are in response to changes in the EPA recommendations for the toxicological values such as the reference dose. The newer recommendations for reference doses are considered to have a higher level of confidence than the older values they are replacing.
Comments – Narrative Criteria		
Shenandoah & Potomac Riverkeepers	Wording and methods of applying the narrative criteria are insufficient to fully protect Virginia’s waters and meet legal mandates. Regulatory changes are necessary to avoid misapplication of narrative criteria provisions. DEQ should publish implementation plans for use of the narrative criteria in all their programs. Despite documented impairments in the Shenandoah River and its North and South Forks DEQ has refused to designate these waters as impaired, despite clear and abundant evidence that the pollution problems interfere with designated and existing uses. DEQ has not limited nutrient pollution from discharges that contribute to the degraded conditions. It is urgent that DEQ develop reliable and well-supported procedures for developing limits and pollution control measures based on narrative criteria. This procedure must be broad enough to guide actions in VPDES permitting, CWA section 401 certifications or any other process where the State is obligated to carry out the mandates of their WQS. Narrative criteria must be fully applied to address historic and existing impairments and losses of designated and existing uses.	The general narrative criteria (9VAC25-260-20A) provides the initial rationale and basis for all efforts to prevent conditions that adversely affect attainment of designated uses. Where appropriate, numeric criteria have been established for the protection of aquatic life (DO, pH, temperature, and toxics), and human health (toxics), recreation (bacteria criteria) and to control nutrients. To date, nutrient criteria have been adopted for the Chesapeake Bay, lakes and reservoirs. Work is ongoing to develop nutrient criteria for streams and small to medium rivers, but these have not yet been finalized. The narrative standard is often implemented when there is evidence that an adverse affect is occurring that is not being addressed by the existing numeric criteria. Primarily, this is implemented as a response to a benthic Macroinvertebrate survey identifying an aquatic life community that is not meeting the expectation for a diverse and balanced community. This triggers additional studies to identify the primary stressor(s) affecting the aquatic life, and once identified, the narrative standard provides the authority to address the issue and require control measures.
Shenandoah & Potomac Riverkeepers	Recommend that the first paragraph of 9VAC25-260-20 be changed to read: <u>“State waters, including wetlands, shall be protected from pollution which contravenes established standards or interferes directly or indirectly with designated or existing uses of such water or which are inimical or harmful to human, animal, plant, or aquatic life.”</u> To accompany this change in the text of the WQS regulation, the definition of “pollution” included in the federal regulations at 40 CFR §130.2(c) should be added to 9VAC25-260-5. <u>“Pollution” means man-made or man induced alteration of the chemical, physical, biological, and</u>	Most of the Regulatory Advisory Panel (RAP) members were concerned that the Virginia Administrative Code already has established a definition of pollution and the WQS Regulation should not be at odds with that. Some RAP members thought that the suggested language would be more limiting than the current language but others considered it an expansion. DEQ decided to not amend the current language of the narrative General Criteria.

Commenter	Comment	Agency response
	<u>radiological integrity of water.</u>	
	Comments – Mixing Zones	
US Fish & Wildlife Service	If there is potential that federally threatened or endangered species may be adversely affected, mixing zones should not be permitted. Water quality criteria should be met at the point of effluent discharge.	DEQ believes that water quality standards and criteria are designed to be protective of all aquatic life, including threatened and endangered (T&E) species. During permit review, consideration is given to the possible presence of T&E species prior to permit issuance. When this is a significant concern, procedures are in place to involve sister agencies in consultation.
	Comments – Antidegradation	
Shenandoah & Potomac Riverkeepers	Procedures for applying the antidegradation policy must be changed. <i>De minimis</i> provisions are not justified by any technical rationale and are not allowable under Clean Water Act or State Water Control Law. The practice of allowing waters to be degraded for all other parameters because one or more criteria are violated and tier analysis assigns Tier 1 status dooms high quality features of thousands of waters across the state to degradation.	DEQ has guidelines for applying the current antidegradation policy which supplies advice on identifying the appropriate tiers. DEQ is aware that EPA is currently undertaking a rulemaking that includes potential changes to their recommendations regarding antidegradation policy. DEQ will not propose any amendments to Virginia's Antidegradation Policy until EPA has finalized their rules.
US Fish & Wildlife Service	Antidegradation tier should not be lowered to Tier 1 for all contaminants if only impaired for one pollutant. DEQ must re-affirm their policy on antidegradation assessment to ensure that permit writers do not cite a lack of data as a reason to determine that a body of water should be given a designation of Tier 1.	DEQ assumes the default classification of a waterbody is Tier 2 unless there is evidence that it is not. Data are required to determine that Tier 1 is justified. DEQ will wait until EPA finalizes their Water Quality Standards Regulatory Clarification Rulemaking, before determining what changes, if any, to propose for Virginia's Antidegradation Policy.
Hampton Roads Sanitation District & Virginia Association of Municipal Wastewater Agencies	Antidegradation policy and implementation are already fully consistent and transparent and there is no need to make any changes. The Virginia approach is protective of water quality including protection of high quality waters.	DEQ will wait until EPA finalizes their Water Quality Standards Regulatory Clarification Rulemaking, before determining what changes, if any, to propose for Virginia's Antidegradation Policy.
	Comments – Criteria	
Shenandoah & Potomac Riverkeepers	Virginia must promulgate numeric criteria in this regulatory action to address water quality problems caused by sediment and nutrient pollution. Enforcement of narrative criteria is generally reactive. The ability to act proactively through numeric criteria is practically and legally required to protect State waters.	Virginia has established nutrient criteria for reservoirs and the Chesapeake Bay, affecting nearly two thirds of watersheds in Virginia. Additional nutrient criteria for flowing freshwater are still under technical review and development, but not ready for promulgation at this time. Sediment issues can vary locally and currently DEQ addresses problems involving sediment through the TMDL

Commenter	Comment	Agency response
		process. A Statewide criterion for sediment is not practical at this time.
US Fish & Wildlife Service	New EPA-published ammonia criteria should be incorporated into existing permits when the permit is modified for any reason. If no permit modifications occur during the current permit cycle, these criteria could be implemented upon permit reissuance.	DEQ intends to propose amendments to the ammonia criteria. Once adopted and approved, the new criteria will be implemented following standard procedures.
US Fish & Wildlife Service	Permitted discharges to waters harboring federally listed species or waters that are designated critical habitat should be assessed to determine the need for more stringent ammonia limits.	The ammonia criteria that DEQ will propose should be protective of federally listed species.
US Fish & Wildlife Service	Supports the use of the biotic ligand model (BLM) for copper.	DEQ has proposed use of the Biotic Ligand Model for copper as an option for site specific application.
US Fish & Wildlife Service	Cyanide freshwater criteria should be lowered based on a recent report; "Scientific Review of Cyanide Ecotoxicology and Evaluation of Ambient Water Quality Criteria: Final Report" (January 2007) produced on behalf of the Water Environment Research Foundation and on other studies that have taken place since the previous triennial review.	DEQ reviewed the publication and determined that the publication's recalculated acute and chronic cyanide freshwater criteria are 23 and 4.8 µg/L, which is less than an 8% difference from the current acute and chronic criteria of 22 and 5.2 µg/L. DEQ considers the differences between the two as negligible with little benefit to be realized. The publication's recalculated acute saltwater criterion of 5.5 µg CN/L is 5-fold higher than current acute marine criterion of 1.0 µg/L and includes toxicity data for a crab species not present in Virginia and, as such, may provide inappropriate saltwater aquatic life protection. The recalculated chronic SW criterion of 1.1 µg /L is only slightly different than the current chronic marine criterion of 1.0 µg/L.
US Fish & Wildlife Service	Methyl mercury fish tissue criterion should be evaluated to ensure that it is protective of federally listed fish species, which are not human food sources.	Virginia has mercury criteria calculated to be protective of all aquatic life. There are currently no data of which DEQ is aware to indicate any particular threatened or endangered species is particularly sensitive to either mercury or methylmercury.
Virginia Mining Issues Group	Current selenium criteria are functionally obsolete and no longer reflect the best available science. DEQ should revise the freshwater aquatic life criteria to be consistent with that as reported in GEI Consultants, Inc. "Updated Freshwater Life Criteria for Selenium" (2013).	EPA is actively involved with finalizing new recommended criteria for selenium. Once EPA issues their recommendations, DEQ will decide on the appropriate criteria to propose. This will take place outside of the Triennial Review process.
Virginia Manufacturer's	DEQ should revise the current selenium criteria to reflect higher values that are	DEQ will wait until EPA's recommendations are issued,

Committer	Comment	Agency response
Association	supported by the best available science and data.	scheduled for sometime this year.
Fairfax Water & Norfolk Dept. Utilities	A bromide criterion is needed to protect the drinking water use in waters designated as Public Water Supplies from the formation of bromate. Bromate is a brominated disinfection by-product (DBP) regulated in drinking water through the Safe Drinking Water Act. Brominated DBPs are linked to increased cancer risk and other adverse human health effects. Potential sources of bromide are fire retardants, coal-fired power plants, industrial wastewater, and oil & gas extraction wastewater.	The EPA representative stated that EPA is aware of concerns regarding increased levels of disinfection byproducts due to the presence of increased concentrations of bromide in surface waters. There is an internal EPA workgroup to scope out the issues which are still in an early stage. EPA sent DEQ several background documents relating to the bromide issue. DEQ has no clear guidance on how to proceed with this issue at this time, but will follow this issue as EPA develops their recommendations. DEQ will not propose any amendments during this triennial review.
Fairfax Water & Norfolk Dept. Utilities	Maintain the current 50 ug/l Public Water Supply criterion for manganese.	DEQ believes that the current criterion for manganese, which is intended to apply to finished drinking water to prevent laundry staining, is inappropriate when applied to natural river water. Manganese is a common, naturally occurring component in Virginia's soils and suspended sediment, but is relatively nontoxic at concentrations far above the criterion value. Manganese is routinely removed in treatment when suspended sediment is removed in the initial drinking water treatment process.
Hampton Roads Sanitation District	Generally supportive of revising cadmium and lead criteria though it is unclear what potential impact more stringent cadmium criteria may have on permittees. DEQ must continue to allow facilities to manage effluent hardness to limit metal bioavailability in lieu of costly upgrades.	DEQ plans on proposing recalculated criteria for cadmium in freshwater and applying a total -to-dissolved conversion factor to the lead criteria.
Hampton Roads Sanitation District & Virginia Association of Municipal Wastewater Agencies	Supportive of inclusion of the BLM method of calculating site specific copper criteria. Recommend continued consideration of the Water Effect Ratio (WER) methodology as well.	DEQ will propose the copper BLM criteria and will allow for flexibility in implementing the copper criteria. The current copper criteria will remain in effect with the BLM as an option when sufficient data are available to properly use the model.
Hampton Roads Sanitation District & Virginia Association of Municipal Wastewater Agencies	New EPA-recommended freshwater ammonia criteria are substantially more stringent than existing criteria and present implementation challenges to publicly owned treatment works. A reasonable approach to implementation would be to apply the existing criteria to waters that do not have a readily identifiable Unionid	DEQ will propose the new ammonia criteria with flexibility of using adjusted criteria where it can be demonstrated that Unionid mussels are not present in a waterbody.

Commenter	Comment	Agency response
	mussel presence pending a mussel bioassessment. If unionid mussels are present then the new criteria and appropriate permit discharge limitations would apply.	
Virginia Association of Municipal Wastewater Agencies	Support revision of cadmium and lead criteria	DEQ plans on proposing recalculated criteria for cadmium in freshwater and applying a total –to-dissolved conversion factor to the lead criteria.
Dominion Power	Manganese criterion for public water supplies should be deleted as it is an unenforceable guideline for finished drinking water and it is inappropriate for application to natural surface waters. Dominion’s multi-year study to evaluate sources of manganese distribution of concentrations indicates that the majority of manganese is natural in origin.	DEQ believes that the current criterion for manganese, which is intended to apply to finished drinking water to prevent laundry staining, is inappropriate when applied to natural river water. Manganese is a common, naturally occurring component in Virginia’s soils and suspended sediment, but is relatively nontoxic at concentrations far above the criterion value. Manganese is routinely removed in treatment when suspended sediment is removed in the initial drinking water treatment process.
Dominion Power & International Copper Association & Copper Development Association	Supports adoption of the BLM methodology to determine site specific freshwater copper criteria.	DEQ will propose the copper BLM criteria and will allow for flexibility in implementing the copper criteria. The current copper criteria will remain in effect with the BLM as an option when sufficient data are available to properly use the model.
International Zinc Association and Windward Environmental	Recommend that Virginia adopt BLM-based zinc criteria along with BLM-based criteria for copper. It is recognized that EPA has no current recommendation for zinc criteria determination through use of a BLM so it is recommended that the DEQ consider updating §46-6-7 (Site-Specific Numeric Criteria Requested Pursuant to 46 CSR 1, Section 8.4) to allow for use of the BLM to derive site-specific zinc criteria. <i>(Section quotation is for WV water quality standards regulation)</i>	DEQ will propose the copper BLM criteria, but EPA has not issued recommendations for a zinc BLM. DEQ will not propose new criteria for zinc based on a BLM without a recommendation from EPA about its validity and acceptability.
	Comments –Bacteria Criteria (Recreation)	
Hampton Roads Sanitation District & Virginia Association of Municipal Wastewater Agencies	Urge DEQ to delay adoption of new EPA-recommended recreational bacteria criteria until EPA provides guidance outlining how to implement criteria that require compliance with both a geometric mean and a Statistical Threshold Value (single value).	DEQ is not proposing amendments to the current recreational criteria for bacteria because of uncertainty about assessment of field monitoring data. EPA’s recommendations are interpreted to mean that if only a single sample within any 30 day period is available, it would be considered a geometric mean concentration with zero allowances for

Committer	Comment	Agency response
		criteria exceedance. DEQ is concerned that this will invariably lead to numerous false positives and assigning impaired status to waterbodies that do, in fact, meet the criteria. DEQ will consider this issue outside the triennial review process.
Comments – Special Standards		
Vulcan Materials, Inc.	Clarify special standard 'm'; effluent limitations that apply to wastewater treatment facilities in the entire Chickahominy watershed above Walker's Dam (this excludes discharges consisting solely of stormwater). Regulatory history indicates the limitations were to be solely applied to municipal wastewater. The language is confusing and has resulted in applying the standard more broadly than intended.	DEQ determined that the original intent of this special standard was to help prevent nutrient enrichment of the Chickahominy River basin and that the effluent limits were directed at treatment of organic waste. DEQ will propose amending special standard "m" to include the note that the effluent limitations apply to wastewater treatment facilities "treating an organic nutrient source".

Family impact

Please assess the impact of the proposed regulatory action on the institution of the family and family stability including to what extent 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 direct impact resulting from the development of water quality standards is for the protection of public health and safety and the protection of water quality in surface waters which has an indirect positive impact on families.

Detail of changes

Please list all changes that are being proposed and the consequences of the proposed changes. If the proposed regulation is a new chapter, describe the intent of the language and the expected impact. Please describe the difference between existing regulation(s) and/or agency practice(s) and what is being proposed in this regulatory action.

If the proposed regulation is intended to replace an emergency regulation, please list separately (1) all differences between the pre-emergency regulation and this proposed regulation, and (2) only changes made since the publication of the emergency regulation.

Section Number	Summary of Change (Current and Proposed)	Rationale/Consequences
9 VAC 25-260-5 Definitions	Includes definition of 'wetlands'. "Wetlands" means those areas that are inundated or	Current regulation uses the term 'wetlands' in 9VAC25-260-10 (Designation of uses) and 9VAC25-

	<p><u>saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.</u></p>	<p>260-20 (General criteria). Providing a definition notifies citizens of the agency's expectation of what is considered a wetland and, therefore, waters of the state to which WQS criteria are applicable.</p>
<p>9VAC25-260-50. Numerical criteria for dissolved oxygen, pH, and maximum temperature.</p>	<p>Added language to footnote **** to indicate that pH criteria for man-made lakes and reservoirs only applies in the epilimnion (upper layer) when they are thermally stratified.</p>	<p>Current lake and reservoir pH criteria apply throughout the water column. During late winter and summer months, thermal boundaries can form that prevent mixing of water at the bottom with upper layers of water. Natural processes result in acidic conditions which can then result in an improper assessment of impairment and an unnecessary TMDL.</p>
<p>9VAC25-260-140. Criteria for surface water</p>	<p>Five aquatic life & eight human health updates to criteria in the parameter table.</p> <p>Current freshwater aquatic life copper criteria based solely upon water hardness. Add Biotic Ligand Model (BLM) option for copper criteria in parameter table and added subsection 9VAC25-260-140.G to explain details of appropriate application.</p> <p>Insert missing units (µg/l) for 3 parameters. Correct of a couple of Chemical Abstracts Service (CAS) numbers.</p> <p>Typographical correction of fish tissue criteria value for N-Nitrosodiphenylamine and for chrysene public water supply .</p> <p>Public water supply criterion for manganese is 50 ug/L. Proposed deletion of criterion.</p>	<p>Acrolein and carbaryl aquatic life criteria are new nationally recommended criteria from EPA. Cadmium freshwater criteria updated with more recent toxicity data. Lead criteria are now expressed as the dissolved portion as are most all metals criteria. All updates allow for improved protection of aquatic life. Human health criteria updates are based on changes to values in risk assessment calculations in EPA's Integrated Risk Assessment Information System. Provides for accurate determination of risk concentrations.</p> <p>Copper BLM is EPA's current recommended freshwater copper criteria. Allows for site specific determination of more appropriate acute & chronic toxicity values.</p> <p>Missing unit, CAS number, and criteria value typographical corrections provide correct, accurate information.</p> <p>Manganese Secondary Maximum Contaminant Levels for finished drinking water applied as a surface waters criterion is inappropriate and may lead to unnecessary TMDLs.</p> <p>The consequences resulting from these amendments are that the more stringent numerical criteria could result in economic impacts to the regulated communities that have any of these toxicants in their discharge. The environment may benefit from lower concentrations of toxic pollutants.</p>
<p>9VAC25-260-155. Ammonia surface water quality criteria.</p>	<p>Current freshwater aquatic life criteria calculations for ammonia are based upon temperature, pH, and the presence or absence of trout and/or early life stages of fish. Proposed criteria calculations are also based upon the above but also incorporate toxicity data for freshwater mussels. The proposed criteria tend to be more stringent than the existing criteria. Site specific options exist for criteria calculation in the absence of mussels.</p>	<p>The proposed is EPA's current nationally recommended criteria. Freshwater mussels are the most sensitive species in the toxicity data set thus lowering the criteria. The consequences resulting from this amendment is that the more stringent criteria could result in economic impacts to regulated communities that have ammonia in their discharge. The aquatic life and environment would benefit from the lower concentrations.</p>
<p>9VAC25-260-185. Criteria to protect designated uses from the impacts of nutrients and suspended sediment in the Chesapeake Bay and its tidal tributaries.</p>	<p>Section 9VAC25-260-185.A does not specify that the dissolved oxygen criteria in that section take precedence of the dissolved oxygen criteria for Class II waters in section 9VAC25-260-50 that are within the Chesapeake Bay basin. Proposed language now indicates that it does.</p>	<p>This amendment clarifies which dissolved oxygen criteria are applicable.</p>
<p>9VAC25-260-187. Criteria for man-made lakes and reservoirs to protect aquatic life and recreational</p>	<p>One name correction (Abel Lake). Addition of three impoundments (Lake Orange, Powhatan Lakes, Upper & Lower) to which reservoir nutrient criteria apply.</p>	<p>The consequences resulting from these amendments are accuracy and and increased environmental protection for the added impoundments.</p>

designated uses from the impacts of nutrients.		
9VAC25-260-310. Special standards and requirements.	<p>Chickahominy special standard 'm' is an effluent limitation that applies to all wastewater treatment facilities in the Chickahominy River basin above Walker's Dam. Amend special standard 'm' to indicate it applies to wastewater facilities treating an organic nutrient source.</p> <p>All waters classed as 'Stockable Trout Waters' (Class V) have a year-round maximum temperature criterion of 21°C. Add 2 site specific maximum temperature criteria 'ee' and 'ff' with maximum temperatures of 26° and 28°C respectively that apply during warm months: May 1 – October 31. The special standards are applicable to segments of Tinker Creek and the Roanoke River (Section 9VAC25-260-450).</p>	<p>Effluent limits are based on expectations for a well run wastewater treatment facility treating organic waste and thus protect against nutrient over-enrichment in Chickahominy Lake. Permittees with no waste water source containing organic waste (BOD, ammonia, phosphorus) still have discharge monitoring requirements for these parameters. Clarification of the special standard eliminates unnecessary expense for the permittee.</p> <p>DGIF stocks trout during the winter in some warm water rivers and streams and are not expected to survive the following summer. Application of 21°C maximum temperature year-round is inappropriate and does not reflect the natural thermal regime of these waters during the warmer seasons.</p>
9VAC25-260-390 through 540. River basin tables	Revised in the River Basin Section Tables two trout stream delineations, added new Class VII Swamp Waters, corrected several typographical errors, deleted one Public Water Supply (PWS) designation, and made miscellaneous corrections.	Trout stream segment delineation updates, typographical and miscellaneous corrections were made for accuracy and clarity. Changes of Class III non-tidal waters to Class VII Swamp water designation eliminate incorrect impairment listings for these unique waters and thereby avoiding the necessity of unnecessary and/or inappropriate TMDL plans. PWS deletion for 5 mile segment in the lower James River because collaboration with VDH indicates no known active intake for potable water has been there in the past 35 years. No information is available to indicate the intake has ever been used for a potable water supply. The consequence of deletion is removal of the misapplication of human health criteria for PWS and any related permit limits for dischargers within the segment.

Acronyms and definitions

Please define all acronyms used in the Agency Background Document. Also, please define any technical terms that are used in the document that are not also defined in the "Definition" section of the regulations.

- BLM - Biotic Ligand Model
- DCR - Virginia Department of Conservation and Recreation
- DGIF - Virginia Department of Game and Inland Fisheries
- EPA - US Environmental Protection Agency
- MGD - Million Gallons per Day
- POTW - Publicly Owned Treatment Works
- PWS - Public Water Supply
- RAP - Regulatory Advisory Panel
- TMDL - Total Maximum Daily Load
- USFWS - US Fish and Wildlife Service
- VDH - Virginia Department of Health
- VPDES - Virginia Pollutant Discharge Elimination System