UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

MAY 19 2016

Ms. Jutta Schneider, Director
Water Planning Division
Virginia Department of Environmental Quality
629 E. Main Street
P.O. Box 1105
Richmond, Virginia 23218

Dear Ms. Schneider:

The U.S. Environmental Protection Agency (EPA), Region III, has conducted a complete review of Virginia's 2014 Section 303(d) List, and supporting documentation and information. Based on this review, EPA has determined that Virginia's list of water quality limited segments still requiring Total Maximum Daily Loads, meets the requirements of Section 303(d) of the Clean Water Act and EPA's implementing regulations. Therefore, with this letter, EPA hereby approves Virginia's 2014 Section 303(d) List. The statutory and regulatory requirements, and EPA's review of Virginia's compliance with each requirement, are described in the enclosure.

EPA values the commitments VADEQ has made towards developing methods to evaluate algal impacts to the recreation use of Virginia's free-flowing waters and future monitoring and assessment commitments in the Shenandoah River basin. We commend you and your staff for the thorough work and exemplary effort in establishing the impaired waters list and in responding to the comments received.

If you have any questions regarding this decision, please feel free to contact me or have your staff contact Ms. Evelyn S. MacKnight, Associate Director, Office of Standards, Assessment, and TMDLs, at 215-814-5717, or macknight.evelyn@epa.gov.

Sincerely,

Jon M. Capacasa, Director
Water Protection Division

Enclosures

RATIONALE FOR APPROVAL OF VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY 2014 SECTION 303(D) LIST

I. Purpose

The purpose of this document is to describe the rationale for the U.S. Environmental Protection Agency's (EPA) approval of Virginia Department of Environmental Quality's (VADEQ) 2014 Section 303(d) list. EPA has conducted a complete review of Virginia's 2014 Section 303(d) list and supporting documentation and information. Based on this review, EPA has determined that the Commonwealth's list of water quality-limited segments (WQLSs) still requiring Total Daily Maximum Loads (TMDLs) meets the requirements of Section 303(d) of the Clean Water Act (CWA or the Act) and EPA's implementing regulations.

II. Statutory and Regulatory Background

A. Identification of WQLSs for Inclusion on Section 303(d) List

Section 303(d)(1) of the Clean Water Act (CWA or the Act) directs states to identify those waters within their jurisdiction for which effluent limitations required by section 301(b)(1)(A) and (B) are not stringent enough to implement any applicable water quality standard, and to establish a priority ranking for such waters, taking into account the severity of the pollution and the uses to be made of such waters. The Section 303(d) listing requirement applies to waters impaired by point and/or nonpoint sources, pursuant to EPA's long-standing interpretation of Section 303(d).

EPA's implementing regulations require states to biennially submit a list identifying water quality limited segments (WQLS) still requiring a Total Maximum Daily Load (TMDL). 40 CFR 130.7(b)(1). EPA regulations provide that states do not need to list waters where the following controls are adequate to implement applicable standards: (1) technology-based effluent limitations required by the Act, (2) more stringent effluent limitations required by State or local authority, or (3) other pollution control requirements required by state, local, or Federal authority (see 40 CFR 130.7(b)(1)).

B. Existing and Readily Available Water Quality-Related Data and Information

In developing Section 303(d) Lists, states are required to assemble and evaluate all existing and readily available water quality-related data and information, including: (1) waters identified as partially meeting or not meeting designated uses, or as threatened, in the state's most recent Section 305(b) report; (2) waters for which dilution calculations or predictive modeling indicate non-attainment of applicable standards; (3) waters for which water quality problems have

been reported by governmental agencies, members of the public, or academic institutions; and (4) waters identified as impaired or threatened in any Section 319 nonpoint source assessment submitted to EPA (see 40 CFR 130.7(b)(5)). EPA's 1991 Guidance for Water Quality-Based Decisions describes categories of water quality-related data and information that may be existing and readily available (see Guidance for Water Quality-Based Decisions: The TMDL Process, EPA Office of Water, 1991, Appendix C ("EPA's 1991 Guidance")). While states are required to evaluate all existing and readily available water quality-related data and information, states may make reasonable decisions whether and how particular data or information is used in determining whether to list particular waters.

In addition to requiring states to assemble and evaluate all existing and readily available water quality-related data and information, EPA regulations at 40 CFR 130.7(b)(6) require states to include, as part of their submissions to EPA, documentation to support decisions to list or not list waters. Such documentation must include the following information: (1) a description of the methodology used to develop the list; (2) a description of the data and information used to identify waters; 3) a rationale for any decision to not use existing and readily available data discussed in 130.7(b)(5); and (4) any other reasonable information requested by the Region.

C. Priority Ranking

EPA regulations also codify and interpret the requirement in Section 303(d)(1)(A) of the CWA that states establish a priority ranking for listed waters. The regulations at 40 CFR 130.7(b)(4) require states to prioritize waters on their Section 303(d) Lists for TMDL development, and also to identify those WQLSs targeted for TMDL development in the next two years. In prioritizing, the regulations require that states must take into account the severity of the pollution and the uses to be made of such waters (See Section 303(d)(1)(A)). In accordance with EPA guidance, states may consider other factors relevant to prioritizing waters for TMDL development, including immediate programmatic needs, vulnerability of particular waters as aquatic habitats, recreational, economic, and aesthetic importance of particular waters, degree of public interest and support, and state or national policies and priorities. If an endangered species or a public water supply is affected by an impairment listing, that should be considered in scheduling TMDL development as expeditiously as possible. (See 57 FR 33040, 33045 (July 24, 1992), and EPA's 1991 Guidance).

III. Analysis of Virginia's Submission

VADEQ provided EPA with a draft 2014 Integrated Report, which included the 2014 Section 303(d) List, in preliminary draft form, on December 15, 2014. The draft 2014 Integrated Report was public noticed in the Virginia Register as being available for public comment from December 15, 2014, until January 30, 2015. A public webinar summarizing the findings of the report was held on January 8, 2015. An electronic copy of the report was made available on the VADEQ web page and paper copies were available upon request. EPA provided comments to

VADEQ on the draft 2014 Integrated Report on January 29, 2015. The Commonwealth amended its 2014 Integrated Report to address the public's and EPA's comments. An initial copy of Virginia's final 2014 Integrated Report was submitted to EPA for approval on June 17, 2015. VADEQ resubmitted a revised version of the 2014 Integrated Report on September 17, 2015. The revised IR moved seven 305(b) assessment units in the North Fork Shenandoah River and South Fork Shenandoah River from Virginia Category 2B (unimpaired, waters are of concern to the state) to Virginia Category 3C (information suggests water quality problems, but is insufficient for making impairment determinations).

Virginia developed an Integrated Report which identifies the assessment status of all of Virginia's waters combining CWA's Section 303(d) and 305(b) requirements. Virginia's Section 303(d) List is just one portion of Virginia's Integrated Report; Virginia's impaired waters list is comprised of seven subcategories. Category 5A of the Integrated Report contains those waters which are impaired for one or more designated uses by a pollutant(s) and require a TMDL. Category 5B of the Integrated Report identifies those waters which require a TMDL because they do not support the shellfish consumption use. Category 5C of the list contains those waters that are unable to attain their designated uses due to suspected natural conditions. These waters will be further studied to determine if a change in water quality standards would be appropriate to reflect the natural condition impacts. TMDLs are required on these waters unless standards are modified such that no TMDL is needed. Category 5D waters are those waters which have a TMDL developed to address a specific pollutant and/or impairment, but other TMDLs are needed for additional pollutants and/or impairments. Category 5E of the list contains those waters that are impaired by individual point sources that are not expected to meet their compliance schedule by their next permit issuance or the reporting period. Category 5F of the list contains waters where the water quality standard is attained for a pollutant(s) with a TMDL, but the water remains impaired for additional pollutant(s) requiring TMDL development. Category 5M of the list are waters impaired due to atmospheric mercury.

EPA has reviewed Virginia's 2014 submission, and has concluded that the Commonwealth identified the waters on its 2014 Section 303(d) list submission in compliance with Section 303(d) of the Act and 40 CFR §130.7.

A. Existing and Readily Available Water Quality Related Data and Information

In preparing its 2014 Section 303(d) List, Virginia assembled all existing and readily available data documenting water quality conditions in Virginia from January 1, 2007, through December 31, 2012. The list was a result of the combined efforts of many state agencies. The Virginia Department of Conservation and Recreation (VADCR) was responsible for the assessment and analysis of nonpoint source information. The Virginia Department of Health (VADH) provided other water quality health-related information regarding shellfish and fish tissue impairments. Water quality assessments were conducted by staff in each of VADEQ's regional offices. This was done through the use of data collected by the regional ambient water

quality monitoring program and regional biologists. Monitoring data was also provided to VADEQ by the United States Geological Survey (USGS), United States Forest Service (USFS), Tennessee Valley Authority (TVA), the EPA Chesapeake Bay Program, and various citizen monitoring groups.

B. Description of Virginia's methodology used to develop this list (CFR 130.7 (b)(6)(i))

Virginia defines waters as impaired when they do not support, or only partially support, any of their designated uses. The five designated uses are aquatic life, fish consumption, shellfish consumption, recreation, and drinking. Use attainment is determined by comparison of field measured or projected values of various water quality parameters to applicable numeric or narrative criteria. The processes for using existing and readily available water quality-related data and information are described in Virginia's *Water Quality Assessment Guidance Manual for 2014 305(b)/303(d) Integrated Water Quality Report,* which describes the State's assessment methodologies and its use of data. EPA reviewed this guidance and provided feedback to Virginia prior to the Integrated Report.

C. Description of the data and information used to identify waters not supporting or partially supporting their designated uses, including a description of the data and information used by the state as required by Section 130.7 (b)(5).

1. Section 130.7(b)(5)(i), Waters identified by the state in its most recent Section 305(b) report as "partially meeting" or not meeting designated uses or as "threatened."

Virginia's 2014 Section 303(d) List was combined with the 305(b) Report to form what is referred to as the Integrated Report. Therefore, the 305(b) Report is no longer a stand-alone document and the data that would have gone into the development of such a "stand alone" report was used in the production of the Integrated Report. In Virginia, the biennial water quality assessment is conducted by VADEQ with the assistance of VADCR. The Integrated Report incorporates the data and evaluations from other agencies such as the USGS, TVA, USFS, and various citizens groups within the state. Virginia's Integrated Report compartmentalized the waters of Virginia into five distinct categories. Waters are defined as: Category 1: Supporting of All Uses; Category 2: Supporting of All Uses for Which Assessment Occurred; Category 3: Lacking Data for a Determination; Category 4: Impaired but not Requiring a TMDL; or, Category 5: Impaired and Requiring a TMDL. Many of these five categories were further sub-categorized by Virginia.

Waters in any of the sections in Category 5: Impaired and Requiring a TMDL, are those which are placed on Virginia's 2014 Section 303(d) List. These waters are found as not attaining one or more designated uses based on monitoring data. Details on determination of non-

attainment for the designated use categories is provided in Virginia's *Water Quality Assessment Guidance Manual for 2014 305(b)/303(d) Integrated Water Quality Report*. Virginia's 2014 Section 303(d) further refines the impaired Category 5 waters identified in the Integrated Report into the seven sub-categories described above.

2. Section 130.7(b) (5) (ii) Waters for which dilution calculations or predictive models indicate non-attainment of applicable water quality standards.

Most of the waters listed on Virginia's 2014 Section 303(d) List were listed based on monitoring data. However, waters listed on Part 5E of the 2014 Section 303(d) List were listed based on permit information, i.e. predictive modeling information. These facilities have compliance schedules for water quality-based effluent limits that extend beyond the listing cycle. These facilities are expected to attain their final effluent limits which will allow for the attainment of water quality standards.

3. Section 130.7(b) (5) (iii), Waters for which water quality problems have been reported by local, state, or Federal agencies; members of the public; or academic institutions.

Several waters were placed on Virginia's Section 303(d) List as a result of data collected by agencies and groups other than VADEQ:

- Federal agencies included the TVA, USGS, USFS, NPS, and the Chesapeake Bay Program;
- State agencies included VADCR and VADH; and
- Several citizen-generated data sets were evaluated in the report and list.

For a discussion of how VADEQ used information submitted by the Potomac/Shenandoah Riverkeeper, see Section III.D. below.

4. Section 130.7(b)(5)(iv), Waters identified by the State as impaired or threatened in a non-point assessment submitted to EPA under section 319 or in any updates of the assessment.

VADEQ also considered Virginia's 2010 Non-Point Source (NPS) Assessment and Prioritization Study, which identified potential pollutant loadings, water quality impairments, and biological health impacts. The main focus of the study was to determine the potential nutrient and sediment loadings associated with the land uses of a watershed. These waters were then segmented so that a summation of total impaired length per watershed could be derived. Watersheds were then prioritized based on potential pollutant loadings, water quality impairments, measures of biological health, and NPS reduction activities. A 2014 NPS Assessment and Prioritization study was conducted but was not available within the timeframe for

data considered for the 2014 IR. It is anticipated that the 2014 NPS Assessment and Prioritization will be considered in connection with Virginia's 2016 IR. Virginia utilized available nonpoint source information and listed waters with nonpoint sources causing or expected to cause impairment, consistent with Section 303(d) and EPA guidance.

5. Other data and information used to identify waters (besides items 1-4 discussed above).

VADEQ considered other data in addition to the categories of existing and readily available data and information listed in the EPA regulations and set out above. As mentioned in Section III.C.3, several federal and state agencies as well as citizens groups provided data to VADEQ which was used in the formation of Virginia's 2014 Integrated Report and Section 303(d) List.

D. A rationale for any decision to not use any existing and readily available data and information for any one of the categories of waters as described in Sections 130.7(b)(5) and 130.7(b)(6)(iii)

While states are required to evaluate all existing and readily available water quality-related data and information, states may make reasonable decisions whether and how particular data or information is used in determining whether to list particular waters. 40 C.F.R. § 130.7(b)(6)(iii). Virginia has formalized the Commonwealth's assessment process through its *Water Quality Assessment Guidance Manual for 2014 305(b)/303(d) Integrated Water Quality Report ("Virginia 2014 Assessment Guidance"),* which describes how citizen and non-VADEQ data is evaluated and used by VADEQ for purposes of the IR and the Section 303(d) list. As a general matter, citizen-generated data that does not meet Level III criteria described in the *"Virginia 2014 Assessment Guidance"* is not utilized by Virginia to identify impairments for purposes of Section 303(d), but may be used for other parts of the IR.

EPA requested and Virginia provided information as to Virginia's decision not to use certain information provided by the Potomac/Shenandoah Riverkeepers during the public comment period. That information included a considerable amount of photographs of algal mats, citizen testimonials outlining concerns over algal growth, algal toxin lab data, and algal bottom cover measurements (collectively, the "SRK information"). The SRK information was submitted to support the commenter's assertion that all segments of the North Fork Shenandoah River, South Fork Shenandoah River, and mainstem Shenandoah Rivers, comprising roughly 250 miles, be listed as impaired on the Virginia's Section 303(d) list for failing to meet the recreational use water quality standards[1] (WQS) due to excessive algae. EPA's review of Virginia's 2014 Section

[1] Virginia's WQS at 9VAC25-260-20: *State waters, including wetlands, shall be free from substances attributable to sewage, industrial waste, or other waste in concentrations, amounts, or combinations which contravene established standards or interfere directly or indirectly with designated uses of such water or which*

303(d) list considered the SRK information and the Commonwealth's explanations regarding evaluation of the SRK information and why it decided not to list segments of the North Fork, South Fork, and mainstem Shenandoah Rivers as impaired based on the SRK information.

Chapter 4.3 of Virginia's 2014 IR outlines a response to public concerns over excess algae in the Shenandoah River. Virginia explained that implementing the portion of its narrative water quality criterion related to "substances which nourish undesirable or nuisance aquatic plant life" presents unique challenges. Specifically, this aspect of the criterion includes a subjective component based upon the perception of river users, making it challenging to identify impairments in a manner that is consistently repeatable. Virginia also noted that the quantity of photographs, citizen testimonials, and algal data submitted by the commenter varied by segment, spatially and temporally throughout the Shenandoah River basin. While Virginia has determined that the data does not meet the State's quality standards for use in determining the recreational use attainment status of the North Fork, South Fork, and mainstem Shenandoah Rivers for excessive algae, VADEQ acknowledged there are several segments on the North Fork and South Fork Shenandoah Rivers, comprising roughly 25 miles, for which the commenter submitted multiple types of information (photos, complaints and algal bottom cover data) in a manner that also provided spatial and temporal information. Virginia has recognized that, although not of sufficient quality for use in the State's determinations for whether a water should be in Category 5, the State's 303(d) list of impaired waters, this information is, nevertheless, useful. In response for the final 2014 IR, seven assessment units in the Shenandoah River basin were moved from Virginia Category 2B (unimpaired, waters are of concern to the state) to Virginia Category 3C (information suggests water quality problems, but is insufficient for making impairment determinations) for the recreation use with the potential cause identified as algae. Virginia Category 3C is an indication that there is information suggesting water quality problems may exist, but the information is not sufficient for making a determination of impairment at this time. Virginia Category 3C waters identify that "such waters will be prioritized by VADEQ for follow up monitoring" so that additional data and information of sufficient quality can be collected to determine if these waters are impaired. A summary of the changes and list of reclassified waters are included in Chapter 4.3 of VADEQ's 2014 IR as submitted September 17, 2015.

EPA's decision to approve Virginia's Section 303(d) list, in addition to the rationale in the other sections outlined herein, is based on Virginia's explanation that assessing the attainment of the particular WQS at issue raises unique challenges. In this instance, EPA defers to the state's judgement that additional data and information collection is necessary before it can resolve the attainment status of these waters in light of the specific language of Virginia's narrative criterion.

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are inimical or harmful to human, animal, plant, or aquatic life. Specific substances to be controlled include, but are not limited to: floating debris, oil, scum, and other floating materials; toxic substances (including those which bioaccumulate); substances that produce color, tastes, turbidity, odors, or settle to form sludge deposits; and substances which nourish undesirable or nuisance aquatic plant life. Effluents which tend to raise the temperature of the receiving water will also be controlled. Conditions within mixing zones established according to 9VAC25-260-20 B do not violate the provisions of this subsection.

Virginia's record is clear that it evaluated the relevant information submitted in light of the water quality criterion language, determined that there was insufficient quality data and information to determine attainment of the narrative WQS, and used the information to prioritize the waters in Virginia Category 3C for targeted monitoring relating to algae as a nuisance during upcoming listing cycles. This prioritization for targeted monitoring for algae includes a number of commitments by Virginia to gather additional information to make impairment decisions on the impact of algal blooms to the recreation use on future Section 303(d) lists, starting in 2018. A description of Virginia's commitments and other actions taken by EPA and Virginia can be found in an exchange of correspondence between EPA and VADEQ dated April 8, 2016, and April 18, 2016, which are appended to this Decision Rationale.

Virginia provided a number of additional explanations in Chapter 4.3 of its 2014 IR for its decision not to list segments of the Shenandoah based on the SRK information submitted. EPA has concluded that Virginia's approach is reasonable for this listing cycle based on the reasons listed above. However, EPA does not agree with all of the reasons provided in the state's record as explained below:

- Virginia indicates that impairment determinations can only be made based on "specific and objective monitoring data" as well as a "scientifically valid assessment method." EPA's regulations at 40 CFR 130.7(b)(5)(iii) recognize that a state can place a waterbody on its CWA section 303(d) list based upon water quality-related information submitted by members of the general public. Although states may make reasonable decisions whether and how particular data or information is used in determining whether to list particular waters, the lack of a formalized methodology by itself is not a basis for a state to avoid evaluating data or information when developing its section 303(d) list.[2]
- Similarly, the state explains that VADEQ will make impairment decisions based on citizen-collected data only if the data was collected with an agency approved quality assurance project plan (QAPP), and that the commenter has no such plan. It is EPA's longstanding position that, while states are required to evaluate all existing and readily available water quality-related data and information, states may make reasonable decisions whether and how particular data or information is used in determining whether to list particular waters, including whether there is sufficient indicia of quality control or reliability. EPA interprets Virginia's statements as meaning that the SRK information did not qualify as Level III data as described in the *Virginia 2014 Assessment Guidance*. EPA commends VADEQ generally for maximizing its use of citizen data and putting out clear guidance to facilitate submission and use of citizen data. Nevertheless, with respect to the SRK information, the *Virginia 2014 Assessment Guidance* does not address the types of information submitted by SRK nor provide guidance as to how citizens can submit photographs, testimonials and other similar types of data in a way that would qualify as

[2] For more information, see: *Information Concerning 2016 Clean Water Act Sections 303(d), 305(b) and 314 Integrated Reporting and Listing Decisions.* https://www.epa.gov/sites/production/files/2015-10/documents/2016-ir-memo-and-cover-memo-8_13_2015.pdf

Level III data. Accordingly, while EPA recognizes that it is appropriate for states to consider indicia of quality control or reliability, EPA does not agree with VADEQ's explanation in this instance. EPA recognizes a state's discretion to weigh data quality considerations when making attainment decisions, but lack of a State-approved QAPP alone should not be used to summarily reject data or assume that data is of low quality regardless of the actual quality controls that were employed.[3]

- Virginia asserts that recreation use assessment for its rivers and streams is appropriately based on violations of *E. coli* bacteria, a numeric human health risk criterion. Virginia's narrative WQS on its face, however, is not limited to bacteria. EPA appreciates Virginia's commitment to developing information sufficient to make impairment decisions on the impact of algal blooms to the recreation use in future Section 303(d) lists.
- The state's record indicates that local TMDLs have been developed related to benthic impairments and that the Chesapeake Bay TMDL and Virginia's Watershed Implementation Plan (WIP) will address nutrients in the Shenandoah River basin. EPA values Virginia as a committed partner in addressing nutrients. The existence of TMDLs and other actions that may have the effect of reducing nutrients and concomitantly alleviating algal issues may provide an appropriate consideration for assigning waters a low priority in terms of developing a priority ranking for TMDL development. That is not a basis, however, for not assessing whether there is an impairment based on the impact of algal blooms to the recreation use if there is sufficient information to do so.

E. Any other reasonable information requested by the Regional Administrator described in Section 130.7(b) (6) (iv).

During the review of Virginia's 2014 Section 303(d) List, EPA Region III staff requested and received additional information from Virginia.

- **Justification for the de-listed segments.** Virginia delisted several waters which were previously listed on their 2012 Section 303(d) List. Virginia provided EPA with supplemental data on these waters as was done for past assessments. A short justification for delisting was also submitted for EPA Region III's review. EPA agrees with VADEQ's delisting determinations.

- **Clarification of changes to previously listed waters.** EPA Region III requested that Virginia provide the old segment identification numbers for waters that were previously listed. EPA made this request in order to track waters from previous Section 303(d) Lists to the 2014 Section 303(d) List. EPA also requested clarification on the listing category for several formerly impaired waters. EPA appreciates the clarifications provided by VADEQ.

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[3] For more information, see: *Guidance for 2006 Assessment, Listing and Reporting Requirements Pursuant to Sections 303(d), 305(b) and 314 of the Clean Water Act.* https://www.epa.gov/sites/production/files/2015-10/documents/2006irg-report.pdf

F. Identification of the pollutants causing or expected to cause a violation of the applicable water quality standards described in Section 130.7(b) (4).

Virginia identified the pollutants that were causing or expected to cause a violation of the applicable water quality standards for every listed segment where the identity of the pollutant was known. Virginia included those pollutants for which a numeric water quality criterion was violated, such as *E. coli*. For WQLSs identified on Virginia's 2014 Section 303(d) list as violating Virginia's narrative water quality criteria as applied to aquatic life, the impairing pollutant frequently is unknown because the impairment is identified by a direct measure of the biological community. Therefore, the Section 303(d) list identifies many WQLSs based upon failure to achieve the narrative water quality criteria as applied to aquatic life without identifying the cause of the impairment. VADEQ anticipates that the cause of biological impairments will be determined during TMDL development.

G. Priority Ranking and Targeting

Virginia's 2014 Section 303(d) List addresses the priority ranking requirement by identifying dates by which TMDLs will be developed for waters identified as impaired and requiring TMDLs. Streams for which a TMDL will not be established within the next two years are identified as having a TMDL due by 2016, 2018, 2022, etc. VADEQ utilizes various mechanisms to schedule the development of TMDLs, consistent with EPA guidance, which allows for states to use additional criteria to prioritize its Section 303(d) list (see EPA, April 1991).

EPA agrees that, as to the WQLSs included on the 2014 Section 303(d) list, VADEQ satisfied the requirement to submit a priority ranking

H. Public Participation

The draft 2014 Integrated Report was public noticed in the Virginia Register as being available for public comment from December 15, 2014, until January 30, 2015. A public webinar summarizing the findings of the report was held on January 8, 2015. An electronic copy of the report was made available on the VADEQ web page and paper copies were available upon request. EPA provided comments to VADEQ on the draft 2014 Integrated Report on January 29, 2015. The Commonwealth amended their 2014 Integrated Report to address the public's and EPA's comments. An initial copy of Virginia's final 2014 Integrated Report was submitted to EPA for approval on June 17, 2015. After additional dialogue with VADEQ on certain Shenandoah River segments, VADEQ resubmitted a revised version of the 2014 Integrated Report on September 17, 2015. The revised IR moved seven 305(b) assessment units from the North Fork Shenandoah River and South Fork Shenandoah River from Category 2B (unimpaired, waters are of concern to the state) to Virginia Category 3C (information suggests water quality

problems, but is insufficient for making impairment determinations) due to insufficient information to make an assessment of algal impacts to the recreation use.

I. Coordination with the U.S. Fish and Wildlife Service

EPA notified the Virginia Field Office of the U.S. Fish and Wildlife Service and the National Marine Fisheries Service, by letters to each agency dated January 5, 2015, of the availability of Virginia's 2014 draft Integrated Report. EPA provided notification as an informal coordination and invited the resource agencies' comments. No comments were received from either agency.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
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Philadelphia, Pennsylvania 19103-2029

APR 0 8 2016

Mr. David Paylor, Director
Virginia Department of Environmental Quality
629 E. Main Street
P.O. Box 1105
Richmond, Virginia 23218

Dear Mr. Paylor:

Thank you for taking the time to meet with U.S. Environmental Protection Agency (EPA) on March 14, 2016 to discuss Shenandoah River algae issues. EPA appreciates the Virginia Department of Environmental Quality's (VADEQ) commitment towards our common goal of developing additional tools to address water quality impacts due to excess algal growth. The following is a summary of future actions by VADEQ and EPA to help address algal issues in the Shenandoah River and Commonwealth-wide:

April 2016 Algae Summit:

- As discussed, VADEQ and EPA are planning to co-host a Region III Algae Summit April 27-28, 2016. This meeting is designed to allow states to share lessons learned and experiences on algal impacts to water quality and facilitate discussion on algal assessment methods and necessary data elements. EPA hopes the meeting will provide valuable information for VADEQ's methodology and threshold development plans and appreciates VADEQ's leadership on the issue.
- As part of the Algae Summit, EPA will convene a Region III State Water Directors level discussion of algal impacts on recreational use impairment issues and promote the exchange of state policies or approaches that may be useful for Virginia as it prepares its method. A consensus approach of the states is not a condition of moving forward.

Field Estimation Methodology Development:

- VADEQ will develop a quantifiable, repeatable state-wide field estimation methodology for evaluating the impacts of algal growth in Virginia's free-flowing waters.
- The Virginia-specific field estimation method will utilize as a foundation the EPA-funded Interstate Commission on the Potomac River Basin 2015 report, *Methods for Estimating Filamentous Algae Cover in Streams and Rivers of the Shenandoah River Basin,* and consider discussions during the Algae Summit.
- The method will be validated by the Commonwealth within the next nine months in anticipation for its inclusion in VADEQ's future annual monitoring plans. VADEQ will have discussions

with EPA and interested stakeholders to help with developing the final field estimation methodology.

Development of Impairment Thresholds:

- Concurrent to Shenandoah River algal monitoring, VADEQ plans to develop an impairment threshold for algal impacts to the recreation use in discussion with EPA, other Region III states and interested stakeholders.
- Depending on available resources, user surveys could be a key tool to establish defensible thresholds of what constitutes impairment, in line with the Interstate Commission on the Potomac River Bain report recommendations, as well as discussions during the Algae Summit.
- VADEQ will have discussions with EPA and interested stakeholders for any comment on the algae impairment thresholds.
- Proposed impairment thresholds will be included with VADEQ's *Draft 2018 Water Quality Assessment Guidance Manual* (anticipated in spring 2017).

Integrated Report Assessment of Shenandoah River Segments:

- Over the next two years, VADEQ plans to begin algal monitoring with a focus on the Shenandoah River to validate the algal field estimation method. Monitoring will begin during the 2016 recreation (summer) season and continue into 2017 with a priority given to the five Shenandoah River segments moved to category 3C in Virginia's 2014 Integrated Report.
- Other portions of the Shenandoah River will be monitored for algal impacts using the validated methodology as VADEQ's resources allow, with monitoring updates provided in Virginia's biannual Integrated Reports, beginning with the 2018 Integrated Report. VADEQ is committed to evaluating the algal impacts to other priority sections of the Shenandoah River as quickly as possible and plans to update a timeline with planned monitoring activities in each biannual Integrated Report.
- Additional EPA grant funding is not a condition for moving forward with this monitoring and assessment process. However, it is acknowledged that resource constraints on Virginia's monitoring budget will impact the pace and scope of future activities.
- Virginia's *Draft 2018 Water Quality Assessment Guidance Manual* will include the identified impairment thresholds. It will also allow for VADEQ's use of citizen monitoring group data for recreation use attainment determinations, provided the group has developed a VADEQ approved Quality Assurance Project Plan and are determined to be a Level III data provider.
- EPA acknowledges VADEQ's desire for two years of monitoring data for making a recreational use attainment decision due to algal growth, and encourages early action should one year of data alone provide compelling information.
- Both VADEQ and EPA see the value in reporting results of VADEQ's 2016 and 2017 sampling efforts in Virginia's 2018 Integrated Report, even if the data are insufficient for a use attainment decision.
- Since VADEQ's current Integrated Report data submission deadlines may not allow a use attainment decision based on only one year of monitoring results, VADEQ will provide flexibility with assessing the Shenandoah River. More specifically:
    - VADEQ may opt to make a recreation use assessment using only the 2016 data set if the results are compelling.
    - VADEQ may consider a supplement to the 2016 Integrated Report with an off cycle 2017 update, or
    - VADEQ may allow for Shenandoah River algae-related data collected in 2017 to be used for 2018 Integrated Report decisions.

EPA values the commitments VADEQ has made towards developing methods to evaluate algal impacts to the recreation use of Virginia's free-flowing waters and future monitoring and assessment commitments on the Shenandoah River. If you have any additional questions please contact me or have your staff contact Mr. Jon Capacasa, Director of the Water Protection Division, at 215-814-5422.

Sincerely,

Shawn M. Garvin
Regional Administrator

cc: Molly Ward, Secretary of Natural Resources

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY
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Molly Joseph Ward
Secretary of Natural Resources

David K. Paylor
Director

(804) 698-4000
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April 18, 2016

Mr. Shawn M. Garvin
Regional Administrator
EPA Region 3
1650 Arch Street
Philadelphia, PA 19103-2029

RE: Shenandoah River Algae Issues

Dear Mr. Garvin:

Thank you for your April 8, 2016, letter on the referenced subject, which laid out a path forward for EPA Region 3 and the Virginia Department of Environmental Quality (DEQ) to work cooperatively and help address algae issues in the Shenandoah River and statewide.

This letter is to affirm DEQ's commitment to the future actions identified in your letter in the areas of:

1) April 2016 Algae Summit
2) Field Estimation Methodology Development
3) Development of Impairment Thresholds, and
4) Integrated Report Assessment of Shenandoah River Segments

DEQ hereby also acknowledges our agencies' common goal of developing additional tools to address water quality impacts due to excess algal growth. Please be informed that DEQ is currently in the process of hiring two additional wage-employee monitoring staff and securing equipment/supplies so the first year of this work can begin as soon as possible and continue through the fall of 2016. The focus of this work will be on the Shenandoah River segments classified as Category 3C in the draft 2014 Integrated Water Quality Assessment Report.

Shawn Garvin
April 18, 2016

We look forward to our further collaboration and partnership as we continue our shared goal of protecting and restoring water quality in the Commonwealth.

Sincerely,

David K. Paylor

cc: Molly Joseph Ward, Secretary of Natural Resources