TENTATIVE AGENDA
STATE WATER CONTROL BOARD MEETING

MONDAY, SEPTEMBER 16, 2024

IN PERSON ONLY – General Assembly Building, Senate Room C,
201 North 9th Street, Richmond, VA 23219

Meeting will be Live-Streamed. Go to: www.deq.virginia.gov
Any Updates To Details/Final Arrangements To Be Announced On Virginia Regulatory Town Hall

Convene – 10:00 A.M

Agenda Item	Presenter	Tab
Minutes (June 25, 2024)	Porterfield	A pg. 6
Final Exempt Regulations		
2024 - Regulatory Update to Title 40, Part 136 Code of Federal Regulations (40 CFR Part 136) / Methods Update Rule • Virginia Pollutant Discharge Elimination System (VPDES) Permit Regulation (9VAC25-31) • Virginia Pollution Abatement (VPA) Permit Regulation (9VAC25-32) • Virginia Pollutant Discharge Elimination System (VPDES) General Permit Regulation for Domestic Sewage Discharges of Less Than or Equal to 1,000 Gallons Per Day (9VAC25-110) • Virginia Pollutant Discharge Elimination System (VPDES) General Permit Regulation for Seafood Processing Facilities (9VAC25-115) • Virginia Pollutant Discharge Elimination System (VPDES) General Permit Regulation for Discharges from Groundwater Remediation of Contaminated Sites, Dewatering Activities of Contaminated Sites, and Hydrostatic Tests (9VAC25-120) • Virginia Pollutant Discharge Elimination System (VPDES) General Permit Regulation for Discharges of Stormwater Associated with Industrial Activity (9VAC25-151) • Virginia Pollutant Discharge Elimination System (VPDES) General Permit Regulation for Nonmetallic Mineral Mining (9VAC25-190) • Virginia Pollution Abatement (VPA) Regulation and General Permit for Animal Feeding Operations and Animal Waste Management (9VAC25-192) • Virginia Pollutant Discharge Elimination System (VPDES) General Permit Regulation for Concrete Products Facilities (9VAC25-193)	Norris	B pg. 29

Agenda Item	Presenter	Tab
• Virginia Pollutant Discharge Elimination System (VPDES) General Permit Regulation for Vehicle Wash Facilities and Laundry Facilities (9VAC25-194) • Virginia Pollutant Discharge Elimination System (VPDES) General Permit for Noncontact Cooling Water Discharges of 50,000 Gallons Per Day or Less (9VAC25-196) • Virginia Water Protection Permit Program Regulation (9VAC25-210) • Groundwater Withdrawal Regulations (9VAC25-610) • Virginia Pollution Abatement Regulation and General Permit for Poultry Waste Management (9VAC25-630) • Virginia Water Protection General Permit for Impacts Less Than One-Half Acre (9VAC25-660) • Virginia Water Protection General Permit for Facilities and Activities of Utility and Public Service Companies Regulated by the Federal Energy Regulatory Commission or the State Corporation Commission and Other Utility Line Activities (9VAC25-670) • Virginia Water Protection General Permit for Linear Transportation Projects (9VAC25-680) • Virginia Water Protection General Permit for Impacts from Development and Certain Mining Activities (9VAC25-690) • Sewage Collection and Treatment Regulations (9VAC25-790) • Virginia Pollution Discharge Elimination System (VPDES) General Permit Regulation for Discharges Resulting from the Application of Pesticides to Surface Waters (9VAC25-800) • General Virginia Pollutant Discharge Elimination System (VPDES) Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Bay Watershed in Virginia (9VAC25-820) • Virginia Pollutant Discharge Elimination System General Permit Regulation for Potable Water Treatment Plants (9VAC25-860) • Virginia Erosion and Stormwater Management Regulation (9VAC25-875) • General VPDES Permit for Discharges of Stormwater from Construction Activities (9VAC25-880) • Virginia Pollutant Discharge Elimination System (VPDES) General Permit for Discharges of Stormwater from Small Municipal Separate Storm Sewer Systems (MS4s) (9VAC25-890)		

Agenda Item	Presenter	Tab
Virginia Erosion and Stormwater Management Regulation (9VAC25-875)- Amendment to the Virginia Erosion and Stormwater Management Regulation (9VAC25-875 et seq.) in response to changes to 40 CFR Part 122	Mayfield	C pg. 182
Other Business		
Report to the Board Regarding Controversial Permits- • AdvanSix Resins and Chemicals LLC - Hopewell Virginia; Virginia Pollutant Discharge Elimination System Permit - VA0005291 • Surface Water Withdrawal Permit issuance, Caroline County VWP No. 20-0514	Morris	
Mountain Valley Pipeline - Update	Davenport	
Future Meeting date- to be determined	Porterfield	
Public Forum *(time not to exceed 45 minutes- no public comment on agenda items or pending regulatory actions during public forum)*		

ADJOURN

NOTE: The Board reserves the right to revise this agenda without notice unless prohibited by law. Revisions to the agenda include, but are not limited to, scheduling changes, additions or deletions. Questions on the latest status of the agenda should be directed to Melissa S. Porterfield at (804) 698-4238.

PUBLIC COMMENTS AT STATE WATER CONTROL BOARD MEETINGS: The Board encourages public participation in the performance of its duties and responsibilities. To this end, the Board has adopted public participation procedures for regulatory action and for case decisions made by the Department of Environmental Quality (Department). These procedures establish the times for the public to provide appropriate comment to the Board for regulatory action and the Department for case decisions for consideration.

For REGULATORY ACTIONS (adoption, amendment or repeal of regulations), public participation is governed by the Administrative Process Act and the Board's Public Participation Guidelines. Public comment is accepted during the Notice of Intended Regulatory Action phase (minimum 30-day comment period) and during the Notice of Public Comment Period on Proposed Regulatory Action (minimum 60-day comment period). Notice of these comment periods is announced in the Virginia Register, by posting to the Department and Virginia Regulatory Town Hall web sites and by mail to those on the Regulatory Development Mailing List. The comments received during the announced public comment periods are summarized for the Board and considered by the Board when making a decision on the regulatory action.

For CASE DECISIONS (e.g., issuance and amendment of permits and enforcement orders), the Board adopts public participation procedures in the individual regulations which establish the permit programs. (Note: as of July 1, 2022, the Department takes final action on all case decisions.) As a general rule, public comment is accepted on a draft permit for a period of 30 days. In some cases a public hearing is held at the conclusion of the public comment period on a draft permit. In other cases there may be an additional comment period during which a public hearing is held, usually 45 days.

In light of these established procedures, the Board accepts public comment on regulatory actions as well as general comments, at Board meetings in accordance with the following:

REGULATORY ACTIONS: Comments on regulatory actions are allowed only when the staff initially presents a regulatory action to the Board for final adoption. At that time, those persons who commented during the public comment period on the proposal are allowed up to 3 minutes to respond to the summary of the comments presented to the Board. Adoption of an emergency regulation is a final adoption for the purposes of this policy. Also, public comment will be accepted for certain final exempt actions where there has been no public comment period. Persons are allowed up to 3 minutes to address the Board on the emergency regulation and final exempt actions under consideration.

POOLING MINUTES ON REGULATORY ACTIONS: Those persons who commented during the public hearing or public comment period and attend the Board meeting may pool their minutes to allow for a single presentation to the Board that does not exceed the time limitation of 3 minutes times the number of persons pooling minutes, or 15 minutes, whichever is less.

NEW INFORMATION ON A REGULATORY ACTION will not be accepted at the meeting. The Board expects comments and information on a regulatory action to be submitted during the established public comment periods. However, the Board recognizes that in rare instances new information may become available after the close of the public comment period. To provide for consideration of and ensure the appropriate review of this new information, persons who commented during the prior public comment period shall submit the new information to the Department staff contact listed below at least 10 days prior to the Board meeting. The Board's decision will be based on the Department-developed official file and discussions at the Board meeting. Should the Board or Department decide that the new information was not reasonably available during the prior public comment period, is significant to the Board's decision and should be included in the official file, the Department may announce an additional public comment period in order for all interested persons to have an opportunity to participate.

PUBLIC FORUM: The Board schedules a public forum at each regular meeting to provide an opportunity for citizens to address the Board on matters other than those on the agenda or pending regulatory actions. Those persons wishing to address the Board during this time should indicate their desire on the sign-in cards/sheet and limit their presentations to 3 minutes or less. Note, there is no pooling of minutes during the public forum.

The Board reserves the right to alter the time limitations set forth in this policy without notice and to ensure comments presented at the meeting conform to this policy.

Department of Environmental Quality Staff Contact: Melissa S. Porterfield, Policy Analyst, Department of Environmental Quality, 1111 East Main Street, Suite 1400, P.O. Box 1105, Richmond, Virginia 23218, phone (804) 698-4238, e-mail: Melissa.porterfield@deq.virginia.gov

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Additional Meeting Information:

- No food or beverages allowed in meeting space.
- Attendees may not erect any signage inside or outside the meeting room or building.
- Attendees are not entitled to be disorderly or disrupt the meeting from proceeding in an orderly, efficient, and effective fashion. Disruptive behavior may result in a recess or removal from the meeting.
- Possession or use of any device that may disrupt the conduct of business is prohibited, including but not limited to: voice-amplification equipment; bullhorns; blow horns; sirens, or other noise-producing devices; as well as signs on sticks, poles or stakes; or helium-filled balloons.
- All attendees are asked to be respectful of all speakers.

- Rules will be enforced fairly and impartially not only to ensure the efficient and effective conduct of business, but also to ensure no interference with the business of the complex, its employees and guests.
- Attendees wishing to record the proceedings are welcome to do so; however, you may not interfere with the business of the meeting, nor impede the view or participation of other meeting attendees and staff.
- No smoking is allowed unless in a designated outside space. This includes tobacco & e-cigarettes.
- No alcohol, fireworks, pyrotechnics, weapons, or any substances/items controlled by law are allowed.
- No firearms are allowed in the State's contracted spaces except for firearms carried by law-enforcement officers or authorized security personnel.
- All violators may be subject to removal from the meeting facility.
- Anyone removed from the facility may not reenter.
- Anyone who fails to comply with removal may be charged with trespass.

TAB A

Commonwealth of Virginia

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

www.deq.virginia.gov

Travis A. Voyles
Secretary of Natural and Historic Resources

Michael S. Rolband, PE, PWD, PWS Emeritus
Director

MEMORANDUM

To: Members of the State Water Control Board

From : Melissa S. Porterfield MSP

Date: August 23, 2024

Subject: Minutes

Attached are the minutes from your meeting on June 25, 2024. Staff will seek your approval of the minutes at your next meeting.

If you have any questions, please contact me at (804) 698-4238 or melissa.porterfield@deq.virginia.gov.

Commonwealth of Virginia

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STATE WATER CONTROL BOARD MEETING

GALLERY, COMMUNITY COLLEGE WORKFORCE ALLIANCE, 1651 EAST PARHAM ROAD, RICHMOND, VA 23228

TUESDAY JUNE 25, 2024

Board Members Present:
Lou Ann Jessee-Wallace, Chair
Scott Cameron, Vice-chair
Tommy Branin
Robert Dunn
Jerry Kilgore
Michelle Johnson

Board Members Absent:
Ryan Seiger

Department of Environmental Quality:
Michael Rolband, Director
Melissa Porterfield
Sam Jasinski

Office of the Attorney General:
Ross Phillips, Assistant Attorney General/Chief

1. The attached minutes summarize activities that took place at this Board Meeting.

2. The meeting convened 10:05 a.m. and adjourned at 12:29 p.m.

Commonwealth of Virginia

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Director

EXCERPT FROM THE PROCEEDINGS OF THE STATE WATER CONTROL BOARD AT ITS MEETING ON JUNE 25, 2024

Minute No. 1- Election of vice chair and review and approval of Minutes

The Board elected Scott Cameron Vice-chair by a vote of (6-0). The Board also approved the minutes of the meeting held February 23, 2024, by a vote of (6-0).

Melissa S. Porterfield

Melissa S. Porterfield

Commonwealth of Virginia

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

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Secretary of Natural and Historic Resources

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Director

EXCERPT FROM THE PROCEEDINGS OF THE STATE WATER CONTROL BOARD AT ITS MEETING ON JUNE 25, 2024

Minute No. 2- Final Exempt- Virginia Erosion and Stormwater Management Regulation (9VAC25-875)- Amendment to the Virginia Erosion and Stormwater Management Regulation (9VAC25-875 et seq.) in response to Chapters 5 (SB365) and 104 (HB656) of the 2024 Virginia Acts of Assembly

Prior to the meeting the Board was provided materials showing the proposed amendments to the regulation. Dr. Scott Morris, Director of the Water Division, presented a summary of the proposed changes to the regulation. Dr. Morris conveyed to the Board that the amendments are exempt from the requirements of Article 2 of the Administrative Process Act pursuant to VA Code § 2.2-4006(A)(4)(a).

Board member Michelle Johnson submitted to DEQ staff a signed transactional disclosure statement pursuant to the Virginia State and Local Government Conflict of Interests Act before participating on this agenda item. She indicated she has a personal interest affected by the transactions being considered because of her employment as County Administrator of Charles City County.

Charles City County, like other Virginia localities, holds a VPDES permit and groundwater withdrawal permits, administers a Virginia Stormwater Management Program, a Virginia Erosion and Sediment Control Program (VESCP), and is subject to the Chesapeake Bay Preservation Act, Chesapeake Bay Preservation Area Designation and Management Regulations, Sewage Collection and Treatment Regulations, and Water Quality Standards Specific to the Chesapeake Bay and Its Tidal Tributaries. Ms. Johnson stated she was able to participate in the transaction fairly, objectively, and in the public interest.

Board Decision:
Based on the Board Book briefing material and the staff presentation, the Board voted unanimously (6-0, Branin, Cameron, Dunn, Johnson, Kilgore, Wallace) to adopt the Amendments to the Virginia Erosion and Stormwater Management Regulation and affirmed that the Board will receive, consider and respond to petitions by any interested person at any time with respect to reconsideration or revision.

Scott Morris
Director, Water Division

Commonwealth of Virginia

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Secretary of Natural and Historic Resources

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Director

EXCERPT FROM THE PROCEEDINGS OF THE STATE WATER CONTROL BOARD AT ITS MEETING ON JUNE 25, 2024

Minute No. 3- Virginia Pollutant Discharge Elimination System (VPDES) Permit Regulation (9VAC25-31), Virginia Pollution Abatement (VPA) Permit Regulation (9VAC25-32), Sewage Collection and Treatment Regulations (9VAC25-790) - Amendments to licensed operator requirements in response to Chapter 178 (HB220) of the 2024 Virginia Acts of Assembly

Prior to the meeting the Board was provided materials showing the proposed amendments to the regulation. Dr. Scott Morris, Director of the Water Division, presented a summary of the proposed changes to the regulation. Dr. Morris conveyed to the Board that the amendments are exempt from the requirements of Article 2 of the Administrative Process Act pursuant to VA Code § 2.2-4006(A)(4)(a).

Board member Michelle Johnson submitted to DEQ staff a signed transactional disclosure statement pursuant to the Virginia State and Local Government Conflict of Interests Act before participating on this agenda item. She indicated she has a personal interest affected by the transactions being considered because of her employment as County Administrator of Charles City County.

Charles City County, like other Virginia localities, holds a VPDES permit and groundwater withdrawal permits, administers a Virginia Stormwater Management Program, a Virginia Erosion and Sediment Control Program (VESCP), and is subject to the Chesapeake Bay Preservation Act, Chesapeake Bay Preservation Area Designation and Management Regulations, Sewage Collection and Treatment Regulations, and Water Quality Standards Specific to the Chesapeake Bay and Its Tidal Tributaries. Ms. Johnson stated she was able to participate in the transaction fairly, objectively, and in the public interest.

Board Decision:
Based on the Board Book briefing material and the staff presentation, the Board voted unanimously (6-0, Branin, Cameron, Dunn, Johnson, Kilgore, Wallace) to adopt the Amendments to the Virginia Pollutant Discharge Elimination System (VPDES) Permit Regulation (9VAC25-31), Virginia Pollution Abatement (VPA) Permit Regulation (9VAC25-32), and Sewage Collection and Treatment Regulations (9VAC25-790) and affirmed that the Board will receive, consider and respond to petitions by any interested person at any time with respect to reconsideration or revision.

Scott Morris
Director, Water Division

Commonwealth of Virginia

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Secretary of Natural and Historic Resources

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Director

EXCERPT FROM THE PROCEEDINGS OF THE STATE WATER CONTROL BOARD AT ITS MEETING ON JUNE 25, 2024

Minute No. 4- Final Exempt- Virginia Water Protection Permit Program Regulation (9VAC25-210) and the Groundwater Withdrawal Regulations (9VAC25-610) – Amendments in response to Chapter 251 (SB581) of the 2024 Virginia Acts of Assembly

Prior to the meeting the Board was provided materials showing the proposed amendments to the regulation. Dr. Scott Morris, Director of the Water Division, presented a summary of the proposed changes to the regulation. Dr. Morris conveyed to the Board that the amendments are exempt from the requirements of Article 2 of the Administrative Process Act pursuant to VA Code § 2.2-4006(A)(4)(a).

Board member Michelle Johnson submitted to DEQ staff a signed transactional disclosure statement pursuant to the Virginia State and Local Government Conflict of Interests Act before participating on this agenda item. She indicated she has a personal interest affected by the transactions being considered because of her employment as County Administrator of Charles City County.

Charles City County, like other Virginia localities, holds a VPDES permit and groundwater withdrawal permits, administers a Virginia Stormwater Management Program, a Virginia Erosion and Sediment Control Program (VESCP), and is subject to the Chesapeake Bay Preservation Act, Chesapeake Bay Preservation Area Designation and Management Regulations, Sewage Collection and Treatment Regulations, and Water Quality Standards Specific to the Chesapeake Bay and Its Tidal Tributaries. Ms. Johnson stated she was able to participate in the transaction fairly, objectively, and in the public interest.

Board Decision:
Based on the Board Book briefing material and the staff presentation, the Board voted unanimously (6-0, Branin, Cameron, Dunn, Johnson, Kilgore, Wallace) to adopt the amendments to the Virginia Water Protection Permit Program Regulation (9VAC25-210) and the Groundwater Withdrawal Regulations (9VAC25-610) and affirmed that the Board will receive, consider and respond to petitions by any interested person at any time with respect to reconsideration or revision.

Scott Morris
Director, Water Division

Commonwealth of Virginia

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Secretary of Natural and Historic Resources

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Director

EXCERPT FROM THE PROCEEDINGS OF THE STATE WATER CONTROL BOARD AT ITS MEETING ON JUNE 25, 2024

Minute No. 5- Final Exempt- Citation corrections in response to codification of Virginia Erosion and Stormwater Management Regulation (9VAC25-875) and changes to the Code of Virginia in response to Chapters 68 and 758 of the 2016 Acts of Assembly becoming effective July 1, 2024

The following regulations are being amended as part of this regulatory action:

- Virginia Pollutant Discharge Elimination System (VPDES) Permit Regulation (9VAC25-31)
- Virginia Pollutant Discharge Elimination System (VPDES) General Permit Regulation for Seafood Processing Facilities (9VAC25-115)
- Virginia Pollutant Discharge Elimination System (VPDES) General Permit Regulation for Discharges of Stormwater Associated with Industrial Activity (9VAC25-151)
- Virginia Water Protection Permit Regulation (9VAC25-210)
- Chesapeake Bay Preservation Area Designation and Management Regulations (9VAC25-830)
- Virginia Pollutant Discharge Elimination System (VPDES) General Permit for Discharges of Stormwater from Small Municipal Separate Storm Sewer Systems (MS4s) (9VAC25-890)
- Certification of Nonpoint Source Nutrient Credits (9VAC25-900)

Prior to the meeting the Board was provided materials showing the proposed amendments to the regulation. Dr. Scott Morris, Director of the Water Division, presented a summary of the proposed changes to the regulation. Dr. Morris conveyed to the Board that the amendments are exempt from the requirements of Article 2 of the Administrative Process Act pursuant to VA Code §§ 2.2-4006(A)(3) and 2.2-4006(A)(4)(a).

Board member Michelle Johnson submitted to DEQ staff a signed transactional disclosure statement pursuant to the Virginia State and Local Government Conflict of Interests Act before participating on this agenda item. She indicated she has a personal interest affected by the transactions being considered because of her employment as County Administrator of Charles City County.

Charles City County, like other Virginia localities, holds a VPDES permit and groundwater withdrawal permits, administers a Virginia Stormwater Management Program, a Virginia Erosion and Sediment Control Program (VESCP), and is subject to the Chesapeake Bay Preservation Act, Chesapeake Bay Preservation Area Designation and Management Regulations, Sewage Collection and Treatment Regulations, and Water Quality Standards Specific to the Chesapeake Bay and Its Tidal Tributaries. Ms. Johnson stated she was able to participate in the transaction fairly, objectively, and in the public interest.

Board Decision:
Based on the Board Book briefing material and the staff presentation, the Board voted unanimously (6-0, Branin, Cameron, Dunn, Johnson, Kilgore, Wallace) to adopt the amendments to the Virginia Pollutant Discharge Elimination System (VPDES) Permit Regulation (9VAC25-31), Virginia Pollutant Discharge Elimination System (VPDES) General Permit Regulation for Seafood Processing Facilities (9VAC25-115), Virginia Pollutant Discharge Elimination System (VPDES) General Permit Regulation for Discharges of Stormwater Associated with Industrial Activity (9VAC25-151), Virginia Water Protection Permit Regulation (9VAC25-210), Chesapeake Bay Preservation Area Designation and Management Regulations (9VAC25-830), Virginia Pollutant Discharge Elimination System (VPDES) General Permit for Discharges of Stormwater from Small Municipal Separate Storm Sewer Systems (MS4s) (9VAC25-890), and Certification of Nonpoint Source Nutrient Credits (9VAC25-900), and affirmed that the Board will receive, consider and respond to petitions by any interested person at any time with respect to reconsideration or revision.

Scott Morris
Director, Water Division

Commonwealth of Virginia

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

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Travis A. Voyles
Secretary of Natural and Historic Resources

Michael S. Rolband, PE, PWD, PWS Emeritus
Director

EXCERPT FROM THE PROCEEDINGS OF THE STATE WATER CONTROL BOARD AT ITS MEETING ON JUNE 25, 2024

MINUTE NO. 6 – Water Quality Management Planning Regulation (9VAC25-720) Amendments – Adoption of ten new wasteload allocations

Justin Williams, Manager, Office of Watershed and Local Government Assistance Programs, presented an amendment to the Water Quality Management Planning Regulation to adopt ten new waste load allocations for Board approval.

The proposed actions pertain to water bodies in the James River Basin and Rappahannock River Basin:

1. Six new waste load allocations for sediment in for Bailey Creek, Nuttree Branch, Oldtown Creek, Proctors Creek, Rohoic Creek, and Swift Creek and three new waste load allocations for phosphorus for Oldtown Creek, Rohoic Creek, and Swift Creek located in in Chesterfield, Dinwiddie, and Prince George counties and cities of Hopewell, Colonial Heights, and Petersburg.

2. One new waste load allocation for polychlorinated biphenyls in Mountain Run located in Culpepper County, Virginia.

Board Decision:

Based on the Board Book briefing material and the staff presentation, the Board voted unanimously (6-0, Branin, Cameron, Dunn, Johnson, Kilgore, Wallace) to adopt the Water Quality Management Planning Regulation amendments and affirm that the Board will receive, consider and respond to petitions by any interested person at any time with respect to reconsideration or revision.

Elizabeth McKercher

Elizabeth McKercher, Director
Water Planning Division

Commonwealth of Virginia

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Travis A. Voyles
Secretary of Natural and Historic Resources

Michael S. Rolband, PE, PWD, PWS Emeritus
Director

EXCERPT FROM THE PROCEEDINGS OF THE STATE WATER CONTROL BOARD AT ITS MEETING ON June 25, 2024

MINUTE NO. 7 – Final regulation - Reissuance of Virginia Pollution Abatement (VPA) Regulation and General Permit for Animal Feeding Operations and Animal Waste Management (9VAC25-192)

Prior to the meeting, the Board was provided materials including a briefing memo which included the regulation showing the final amendments, a list of the technical advisory committee membership, the town hall agency background document, and the Office of Regulatory Management Economic Review Form.

Betsy Bowles, the State Animal Feeding Operations Program Coordinator with the Office of Land Application Programs presented the final amendments to the VPA Regulation and General Permit for Animal Waste Management (9VAC25-192), which will expire on November 15, 2024. Ms. Bowles presented a summary of comments received, the changes made since the proposed stage, and reasons the agency did not make changes based on comments that requested further changes. The VPA Regulation and General Permit governs the pollutant management activities of animal wastes at animal feeding operations not covered by a Virginia Pollutant Discharge Elimination System permit and animal waste utilized or stored by animal waste end-users.

Prior to the Board hearing the staff recommendation, two commenters (Tony Banks, VA Farm Bureau Federation and Patrick Fanning, Chesapeake Bay Foundation) spoke to the Board.

Board Decision

Based on the briefing material and the staff presentation, the Board voted unanimously to adopt the final amendments to the VPA Regulation and General Permit for Animal Waste Management (9VAC25-192), as presented, and affirm they will receive, consider, and respond to petitions by any person at any time with respect to reconsideration or revision of the regulation, as provided by the Administrative Process Act.

Scott Morris
Director, Water Division

Commonwealth of Virginia

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Secretary of Natural and Historic Resources

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Director

EXCERPT FROM THE PROCEEDINGS OF THE STATE WATER CONTROL BOARD AT ITS MEETING ON JUNE 25, 2024

MINUTE NO. 8 - Fast Track Regulation - Water Quality Standards - Modification of Implementation Requirements for Criteria Specific to the Chesapeake Bay and Its Tidal Tributaries (9VAC25-260-185)

Mr. Bryant Thomas, Manager of the Office of Ecology, made a presentation to the Board pertaining to criteria implementation language in Virginia's Water Quality Standards (9VAC25-260).

Mr. Thomas described the Chesapeake Bay criteria implementation section (9VAC25-260-185.D.3), which contains language that specifies that Chesapeake Bay criteria should be assessed using the cumulative frequency distribution method. He described limitations of using this one method.

Mr. Thomas discussed the proposed amendment, which would allow the use of the current assessment method as well as other scientifically defensible methods. The change will provide greater flexibility for implementation and allow better use of existing datasets.

Mr. Thomas explained that this amendment is being proposed through a Fast Track rulemaking because it is considered non-controversial.

Board member Michelle Johnson submitted to DEQ staff a signed transactional disclosure statement pursuant to the Virginia State and Local Government Conflict of Interests Act before participating on this agenda item. She indicated she has a personal interest affected by the transactions being considered because of her employment as County Administrator of Charles City County.

Charles City County, like other Virginia localities, holds a VPDES permit and groundwater withdrawal permits, administers a Virginia Stormwater Management Program, a Virginia Erosion and Sediment Control Program (VESCP), and is subject to the Chesapeake Bay Preservation Act, Chesapeake Bay Preservation Area Designation and Management Regulations, Sewage Collection and Treatment Regulations, and Water Quality Standards Specific to the Chesapeake Bay and Its Tidal Tributaries. Ms. Johnson stated she was able to participate in the transaction fairly, objectively, and in the public interest.

Board Decision

Based on the briefing material and staff presentation, the Board voted unanimously (6-0, Branin, Cameron, Dunn, Johnson, Kilgore, Wallace) to approve the following actions:

1. Authorized the Department to promulgate the proposed amendment to 9 VAC 25-260-185.D.3 for public comment using the fast-track process established in § 2.2-4012.1 of the Administrative Process Act for regulations expected to be non-controversial. The Board's authorization constitutes its adoption of the regulation at the end of the public comment period provided that (i) no objection to use of the fast-track process is received from 10 or more persons, or any member of the applicable standing committee of either house of the General Assembly or of the Joint Commission on Administrative Rules, and (ii) DEQ does not find it necessary, based on public comments or for any other reason, to make any changes to the proposal.

2. Authorized the Department to set an effective date 15 days after close of the 30-day public comment period provided (i) the proposal completes the fast-track rulemaking process as provided in § 2.2-4012.1 of the Administrative Process Act and (ii) the Department does not find it necessary to make any changes to the proposal.

Elizabeth McKercher

Elizabeth McKercher, Director
Water Planning Division

Commonwealth of Virginia

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Director

EXCERPT FROM THE PROCEEDINGS OF THE STATE WATER CONTROL BOARD AT ITS MEETING ON JUNE 25, 2024

Minute No. 9- Fast Track Regulation- Virginia Erosion and Stormwater Management Regulation (9VAC25-875) - Amend and update the Virginia Runoff Reduction Method, total phosphorus load of new development projects, best management practices for water quality compliance, and other technical corrections

Prior to the meeting the Board was provided materials showing the proposed amendments to the regulation, the town hall agency background document, and the Office of Regulatory Management Economic Review Form. Rebeccah Rochet, Deputy Director of the Divion of Water Permitting, Central Office, presented a summary of the proposed changes to the regulation.

Board member Michelle Johnson submitted to DEQ staff a signed transactional disclosure statement pursuant to the Virginia State and Local Government Conflict of Interests Act before participating on this agenda item. She indicated she has a personal interest affected by the transactions being considered because of her employment as County Administrator of Charles City County.

Charles City County, like other Virginia localities, holds a VPDES permit and groundwater withdrawal permits, administers a Virginia Stormwater Management Program, a Virginia Erosion and Sediment Control Program (VESCP), and is subject to the Chesapeake Bay Preservation Act, Chesapeake Bay Preservation Area Designation and Management Regulations, Sewage Collection and Treatment Regulations, and Water Quality Standards Specific to the Chesapeake Bay and Its Tidal Tributaries. Ms. Johnson stated she was able to participate in the transaction fairly, objectively, and in the public interest.

Board Decision:
Based on the Board Book briefing material and the staff presentation, the Board voted unanimously to authorize DEQ to promulgate the proposal for public comment using the fast-track process established in § 2.2-4012.1 of the Administrative Process Act for regulations expected to be non-controversial and authorized DEQ to set a delayed effective date of July 1, 2025 after the close of the 30-day public comment period provided (i) the proposal completes the fast-track rulemaking process as provided in § 2.2-4012.1 of the Administrative Process Act and (ii) DEQ does not find it necessary to make any changes to the proposal.

Rebeccah Rochet

Rebeccah Rochet
Deputy Director, Water Permitting Division

Commonwealth of Virginia

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

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Travis A. Voyles
Secretary of Natural and Historic Resources

Michael S. Rolband, PE, PWD, PWS Emeritus
Director

EXCERPT FROM THE PROCEEDINGS OF THE STATE WATER CONTROL BOARD AT ITS MEETING ON JUNE 25, 2024

Minute No. 10- Fast Track Regulation- Virginia Erosion and Stormwater Management Regulation (9VAC25-875) - Technical Corrections

Prior to the meeting the Board was provided materials showing the proposed amendments to the regulation, the town hall agency background document, and the Office of Regulatory Management Economic Review Form. Rebeccah Rochet, Deputy Director of the Divion of Water Permitting, Central Office, presented a summary of the proposed changes to the regulation.

Board member Michelle Johnson submitted to DEQ staff a signed transactional disclosure statement pursuant to the Virginia State and Local Government Conflict of Interests Act before participating on this agenda item. She indicated she has a personal interest affected by the transactions being considered because of her employment as County Administrator of Charles City County.

Charles City County, like other Virginia localities, holds a VPDES permit and groundwater withdrawal permits, administers a Virginia Stormwater Management Program, a Virginia Erosion and Sediment Control Program (VESCP), and is subject to the Chesapeake Bay Preservation Act, Chesapeake Bay Preservation Area Designation and Management Regulations, Sewage Collection and Treatment Regulations, and Water Quality Standards Specific to the Chesapeake Bay and Its Tidal Tributaries. Ms. Johnson stated she was able to participate in the transaction fairly, objectively, and in the public interest.

Board Decision:
Based on the Board Book briefing material and the staff presentation, the Board voted unanimously to authorize DEQ to promulgate the proposal for public comment using the fast-track process established in § 2.2-4012.1 of the Administrative Process Act for regulations expected to be non-controversial and authorized DEQ to set an effective date of 15 days after the close of the 30-day public comment period provided (i) the proposal completes the fast-track rulemaking process as provided in § 2.2-4012.1 of the Administrative Process Act and (ii) DEQ does not find it necessary to make any changes to the proposal.

Rebeccah Rochet

Rebeccah Rochet
Deputy Director, Water Permitting Division

Commonwealth of Virginia

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EXCERPT FROM THE PROCEEDINGS OF THE STATE WATER CONTROL BOARD AT ITS MEETING ON JUNE 25, 2024

MINUTE NO. 11- Proposed Regulation - Water Quality Standards (9VAC-25-260) - Rulemaking to adopt site specific selenium aquatic life criteria for four streams which are tributaries to Knox Creek in Buchanan County

Mr. Bryant Thomas, Manager of the Office of Ecology, made a presentation regarding proposed site-specific aquatic life selenium criteria for four streams in Buchanan County. Adoption of the proposed criteria was requested through a petition by Clintwood JOD, LLC (CJOD). Specifically, the petitioner has requested the Board to amend the Virginia Water Quality Standards regulation (9VAC25-260 et. Seq.) to include the 2016 U.S. Environmental Protection Agency (EPA) recommended selenium water quality criterion for protection of aquatic life for four (4) specific streams, and their tributaries, in Buchanan County. Mr. Thomas provided to the Board a summary of background information regarding selenium sources, uses, and effects on aquatic life. Mr. Thomas then provided a summary of the rulemaking actions that have been taken for the proposed amendment, which include the publication of a Notice of Intended Regulatory Action from February 26 to March 27, 2024 and a Regulatory Advisory Panel meeting held in Grundy, VA on April 24, 2024.

Mr. Thomas provided an overview of the proposed criteria, explaining that their unique fish tissue expression and hierarchical nature makes implementation more challenging than other aquatic life criteria.

Board Decision

Based on the briefing material and staff presentation, a vote was taken, and the Board unanimously (6-0, Branin, Cameron, Dunn, Johnson, Kilgore, Wallace) approved staff recommendation to proceed to public comment on the proposed amendments to 9VAC25-260 regarding site-specific selenium criteria for the streams identified in the Knox Creek drainage in Buchanan County.

Elizabeth McKercher

Elizabeth McKercher, Director
Water Planning Division

Commonwealth of Virginia

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Secretary of Natural and Historic Resources

Michael S. Rolband, PE, PWD, PWS Emeritus
Director

EXCERPT FROM THE PROCEEDINGS OF THE STATE WATER CONTROL BOARD AT ITS MEETING ON JUNE 25, 2024

Minute No. 12 – Proposed Regulation – Sewage Collection and Treatment Regulations (9VAC25-790) – Amendment to include a reporting requirement for all septic systems taken off-line and connected to sewerage systems.

Prior to the meeting the Board was provided materials including a briefing memo which included a list of the regulatory advisory panel membership, the regulation showing proposed amendments, and the town hall agency background document. Joseph Bryan from the Office of VPDES Permits, Central Office, presented a summary of the significant proposed changes to the regulation.

Board member Michelle Johnson submitted to DEQ staff a signed transactional disclosure statement pursuant to the Virginia State and Local Government Conflict of Interests Act before participating on this agenda item. She indicated she has a personal interest affected by the transactions being considered because of her employment as County Administrator of Charles City County.

Charles City County, like other Virginia localities, holds a VPDES permit and groundwater withdrawal permits, administers a Virginia Stormwater Management Program, a Virginia Erosion and Sediment Control Program (VESCP), and is subject to the Chesapeake Bay Preservation Act, Chesapeake Bay Preservation Area Designation and Management Regulations, Sewage Collection and Treatment Regulations, and Water Quality Standards Specific to the Chesapeake Bay and Its Tidal Tributaries. Ms. Johnson stated she was able to participate in the transaction fairly, objectively, and in the public interest.

Board Decision

Based on the briefing material and the staff presentation, the Board voted unanimously (6-0, Branin, Cameron, Dunn, Johnson, Kilgore, Wallace) to approve the draft amendments to the Sewage Collection and Treatment Regulations (9VAC25-790) as a proposed regulation and to proceed with public comment.

Scott Morris
Director, Water Division

Commonwealth of Virginia

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Travis A. Voyles
Secretary of Natural and Historic Resources

Michael S. Rolband, PE, PWD, PWS Emeritus
Director

EXCERPT FROM THE PROCEEDINGS OF THE STATE WATER CONTROL BOARD AT ITS MEETING ON JUNE 25, 2024

MINUTE NO. 13 – Petition for Rulemaking – Petition for establishment of a regulation or policy interpreting the definition of nontidal wetland under 9VAC25-830-40, 9VAC25-830-80, and Fairfax County Ordinance 118-6-1(Q)

Justin Williams, Manager, Office of Watershed and Local Government Assistance Programs, presented a Petition for Rulemaking for Establishment of a Regulation or Policy Interpreting the Definition of a Nontidal Wetland Under 9VAC25-830-40, 9VAC25-830-80, and Fairfax County Ordinance 118-6-1(q)

Prior to the meeting the Board was provided materials including a briefing memo which contained a copy of the petition and a summary of comments received during the petition comment period. The Board was presented an overview of the petition, a summary of comments received, and a discussion of the applicability of federal and state laws and regulations.

Board member Michelle Johnson submitted to DEQ staff a signed transactional disclosure statement pursuant to the Virginia State and Local Government Conflict of Interests Act before participating on this agenda item. She indicated she has a personal interest affected by the transactions being considered because of her employment as County Administrator of Charles City County.

Charles City County, like other Virginia localities, holds a VPDES permit, and groundwater withdrawal permits, administers a Virginia Stormwater Management Program, a Virginia Erosion and Sediment Control Program (VESCP), and is subject to the Chesapeake Bay Preservation Act, Chesapeake Bay Preservation Area Designation and Management Regulations, Sewage Collection and Treatment Regulations, and Water Quality Standards Specific to the Chesapeake Bay and Its Tidal Tributaries. She stated she was able to participate in the transaction fairly, objectively, and in the public interest.

Board Decision:

Based on the briefing material and the staff presentation, the Board voted unanimously (6-0, Branin, Cameron, Dunn, Johnson, Kilgore, Wallace) to not initiate a rulemaking in response to the petition.

Elizabeth McKercher

Elizabeth McKercher, Director
Water Planning Division

Commonwealth of Virginia

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EXCERPT FROM THE PROCEEDINGS OF THE STATE WATER CONTROL BOARD AT ITS MEETING ON JUNE 25, 2024

Minute No. 14- Update on 9VAC15-60 in response to HB206

Director Rolband provided the Board with an update on an amendment to an agency regulation-9VAC15-60. Director Rolband informed the Board that this regulation is currently undergoing executive review by the Department of Planning and Budget.

Melissa S. Porterfield

Commonwealth of Virginia

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Secretary of Natural and Historic Resources

Michael S. Rolband, PE, PWD, PWS Emeritus
Director

EXCERPT FROM THE PROCEEDINGS OF THE STATE WATER CONTROL BOARD AT ITS MEETING ON JUNE 25, 2024

Minute No. 15- Report to the Board Regarding Controversial Permits- Prince Edward County Virginia Water Protection (VWP) No. 21-1912, Sandy River Reservoir and AdvanSix Resins and Chemicals LLC - Hopewell Virginia; Virginia Pollutant Discharge Elimination System Permit - VA0005291.

In accordance with § 10.1-1184.1.B of the Code of Virginia, Dr. Scott Morris provided the Controversial Permit Report to the Board. The report included each permit number, actions taken prior to the board meeting, location of the facilities and outfalls, summary of comments received, actions taken by the Department, and the schedule for the final action to be taken by the Department. The Board was provided the opportunity to respond to the Department's presentation and provide commentary regarding the permits.

Scott Morris
Director, Water Division

Commonwealth of Virginia

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Secretary of Natural and Historic Resources

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Director

EXCERPT FROM THE PROCEEDINGS OF THE STATE WATER CONTROL BOARD AT ITS MEETING ON JUNE 25, 2024

Minute No. 16: Mountain Valley Pipeline – Update

Ms. Davenport presented an update on the status of the project and noted that the pipeline was placed in service on June 14, 2024. She also provided an overview of compliance activities and stipulated penalties for the period of September 11, 2023 through March 10, 2024. Finally, she updated the Board on the resolution of the Sinking Creek sediment issue and the hydrostatic testing break.

Melanie D. Davenport

Melanie D. Davenport

Commonwealth of Virginia

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Director

EXCERPT FROM THE PROCEEDINGS OF THE STATE WATER CONTROL BOARD AT ITS MEETING ON JUNE 25, 2024

Minute No. 17- Future Meeting Date

No future meeting dates were confirmed for the Board at this meeting.

Melissa S. Porterfield

Commonwealth of Virginia

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Director

EXCERPT FROM THE PROCEEDINGS OF THE STATE WATER CONTROL BOARD AT ITS MEETING ON JUNE 25, 2024

Minute No. 18- Public Forum

Jessica Sims, Appalachian Voices, spoke during the public forum to express concerns about the Southgate Pipeline Extension through Pittsylvania County. She expressed concerns with impacts in the Dan River basin. She requested public engagement on this project and a full review of the project. Joshua Vana, Artivism Virginia, spoke to the Board about concerns with an unnamed project.

Melissa S. Porterfield

Melissa S. Porterfield

TAB B

Commonwealth of Virginia

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

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Travis A. Voyles
Secretary of Natural and Historic Resources

Michael S. Rolband, PE, PWD, PWS Emeritus
Director

MEMORANDUM

TO: State Water Control Board Members

FROM: Meghan Mayfield
Director, Division of Water Permitting

DATE: August 6, 2024

SUBJECT: 2024 - Regulatory Update to Title 40, Part 136 Code of Federal Regulations (40 CFR Part 136)/Methods Update Rule
Final Exempt Action – Amendments Conforming to Federal Regulations

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On June 17, 2024, the U.S. Environmental Protection Agency (EPA) finalized the Methods Update Rule for the Analysis of Effluent (MUR), that updates its list of approved methods for measuring pollutants in wastewater and surface water under the Clean Water Act. The Clean Water Act requires the EPA to promulgate these test procedures (analytical methods) for analysis of pollutants and updating the Board's regulations maintains consistency with federally adopted test methods. Regulated and regulatory entities use approved methods in 40 CFR Part 136, as amended by the MUR, to identify the types and amounts of pollutants in effluent for National Pollutant Discharge Elimination System (NPDES) permit applications, to determine compliance with NPDES permit limits, or to fulfill other Clean Water Act monitoring and reporting requirements.

The Virginia Department of Environmental Quality (DEQ) staff is bringing this final regulatory action before the State Water Control Board (Board) to request adoption of the amendments to update the references 40 CFR Part 136 that are in the Board's regulations. Section 2.2-4006. A. 4.(c) of the Code of Virginia allows the Board to adopt these amendments to existing regulations as a final exempt action as the changes are necessary to conform to changes in the federal regulations. In addition, Section 2.2-4006. A. 3 of the Code of Virginia allows the Board to adopt these amendments to existing regulations as a final exempt action when they consist only of changes in style or form or corrections of technical errors.

In general, the changes in EPA's MUR fall into four categories. The first category is updated versions of EPA methods currently approved in 40 CFR Part 136. The second category is new or

revised methods published by a voluntary consensus standard body that are similar to methods previously adopted as EPA-approved methods in 40 CFR Part 136. The third category is methods the EPA has reviewed under the agency's national Alternate Test Procedure program and preliminarily concluded are appropriate for nationwide use. The fourth category is corrections or amendments to the text and tables of 40 CFR Part 136.

In addition, the changes also incorporate by reference the methods added in an earlier Methods Update Rule (86 FR 27226 May 19, 2021). The EPA inadvertently failed to complete the incorporation by reference process for that final rule.

The EPA finalized these revisions to improve data quality, update methods to keep current with technology advances, and provide the regulated community with greater flexibility. As such, the EPA expects that these changes will not result in any negative economic impacts.

Various regulations of the State Water Control Board include references to EPA regulations under Title 40 of the Code of Federal Regulations (CFR). These regulatory amendments will bring the references to 40 CFR Part 136 up to date with the requirements published in the July 1, 2024, update to Title 40 of the Code of Federal Regulations. The following 25 regulations are being amended as part of this regulatory action:

- Virginia Pollutant Discharge Elimination System (VPDES) Permit Regulation (9VAC25-31)
- Virginia Pollution Abatement (VPA) Permit Regulation (9VAC25-32)
- Virginia Pollutant Discharge Elimination System (VPDES) General Permit Regulation for Domestic Sewage Discharges of Less Than or Equal to 1,000 Gallons Per Day (9VAC25-110)
- Virginia Pollutant Discharge Elimination System (VPDES) General Permit Regulation for Seafood Processing Facilities (9VAC25-115)
- Virginia Pollutant Discharge Elimination System (VPDES) General Permit Regulation for Discharges from Groundwater Remediation of Contaminated Sites, Dewatering Activities of Contaminated Sites, and Hydrostatic Tests (9VAC25-120)
- Virginia Pollutant Discharge Elimination System (VPDES) General Permit Regulation for Discharges of Stormwater Associated with Industrial Activity (9VAC25-151)
- Virginia Pollutant Discharge Elimination System (VPDES) General Permit Regulation for Nonmetallic Mineral Mining (9VAC25-190)
- Virginia Pollution Abatement (VPA) Regulation and General Permit for Animal Feeding Operations and Animal Waste Management (9VAC25-192)
- Virginia Pollutant Discharge Elimination System (VPDES) General Permit Regulation for Concrete Products Facilities (9VAC25-193)
- Virginia Pollutant Discharge Elimination System (VPDES) General Permit Regulation for Vehicle Wash Facilities and Laundry Facilities (9VAC25-194)
- Virginia Pollutant Discharge Elimination System (VPDES) General Permit for Noncontact Cooling Water Discharges of 50,000 Gallons Per Day or Less (9VAC25-196)
- Virginia Water Protection Permit Program Regulation (9VAC25-210)
- Groundwater Withdrawal Regulations (9VAC25-610)
- Virginia Pollution Abatement Regulation and General Permit for Poultry Waste Management (9VAC25-630)

- Virginia Water Protection General Permit for Impacts Less Than One-Half Acre (9VAC25-660)
- Virginia Water Protection General Permit for Facilities and Activities of Utility and Public Service Companies Regulated by the Federal Energy Regulatory Commission or the State Corporation Commission and Other Utility Line Activities (9VAC25-670)
- Virginia Water Protection General Permit for Linear Transportation Projects (9VAC25-680)
- Virginia Water Protection General Permit for Impacts from Development and Certain Mining Activities (9VAC25-690)
- Sewage Collection and Treatment Regulations (9VAC25-790)
- Virginia Pollution Discharge Elimination System (VPDES) General Permit Regulation for Discharges Resulting from the Application of Pesticides to Surface Waters (9VAC25-800)
- General Virginia Pollutant Discharge Elimination System (VPDES) Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Bay Watershed in Virginia (9VAC25-820)
- Virginia Pollutant Discharge Elimination System General Permit Regulation for Potable Water Treatment Plants (9VAC25-860)
- Virginia Erosion and Stormwater Management Regulation (9VAC25-875)
- General VPDES Permit for Discharges of Stormwater from Construction Activities (9VAC25-880)
- Virginia Pollutant Discharge Elimination System (VPDES) General Permit for Discharges of Stormwater from Small Municipal Separate Storm Sewer Systems (MS4s) (9VAC25-890)

At the State Water Control Board meeting scheduled for September 16, 2024, the Department will request that the Board adopt these amendments as final regulations, authorize their publication, and affirm that the Board will receive, consider, and respond to petitions by any interested person at any time with respect to reconsiderations or revision.

ATTACHMENTS:

- Virginia Regulatory Town Hall Documents (TH-09) - 2024 Methods Update Rule
- Final Exempt – 2024 Methods Update Rule - RIS PROJECT 7895
- ORM Economic Review Form - 2024 Methods Update Rule Economic Review Form.
- Federal Register: 89 FR 27288
    - Clean Water Act Methods Update Rule for the Analysis of Effluent.
    - Fact Sheet: Final Rule: Clean Water Act Methods Update Rule for the Analysis of Effluent April 2024

townhall.virginia.gov

Exempt Action: Final Regulation
Agency Background Document

Agency name	State Water Control Board
Virginia Administrative Code (VAC) Chapter citation(s)	9VAC25-31 9VAC25-32 9VAC25-110 9VAC25-115 9VAC25-120 9VAC25-151 9VAC25-190 9VAC25-192 9VAC25-193 9VAC25-194 9VAC25-196 9VAC25-210 9VAC25-610 9VAC25-630 9VAC25-660 9VAC25-670 9VAC25-680 9VAC25-690 9VAC25-790 9VAC25-800 9VAC25-820 9VAC25-860 9VAC25-875 9VAC25-880 9VAC25-890
VAC Chapter title(s)	• Virginia Pollutant Discharge Elimination System (VPDES) Permit Regulation (9VAC25-31)

	• Virginia Pollution Abatement (VPA) Permit Regulation (9VAC25-32) • Virginia Pollutant Discharge Elimination System (VPDES) General Permit Regulation for Domestic Sewage Discharges of Less Than or Equal to 1,000 Gallons Per Day (9VAC25-110) • Virginia Pollutant Discharge Elimination System (VPDES) General Permit Regulation for Seafood Processing Facilities (9VAC25-115) • Virginia Pollutant Discharge Elimination System (VPDES) General Permit Regulation for Discharges from Groundwater Remediation of Contaminated Sites, Dewatering Activities of Contaminated Sites, and Hydrostatic Tests (9VAC25-120) • Virginia Pollutant Discharge Elimination System (VPDES) General Permit Regulation for Discharges of Stormwater Associated with Industrial Activity (9VAC25-151) • Virginia Pollutant Discharge Elimination System (VPDES) General Permit Regulation for Nonmetallic Mineral Mining (9VAC25-190) • Virginia Pollution Abatement (VPA) Regulation and General Permit for Animal Feeding Operations and Animal Waste Management (9VAC25-192) • Virginia Pollutant Discharge Elimination System (VPDES) General Permit Regulation for Concrete Products Facilities (9VAC25-193) • Virginia Pollutant Discharge Elimination System (VPDES) General Permit Regulation for Vehicle Wash Facilities and Laundry Facilities (9VAC25-194) • Virginia Pollutant Discharge Elimination System (VPDES) General Permit for Noncontact Cooling Water Discharges of 50,000 Gallons Per Day or Less (9VAC25-196) • Virginia Water Protection Permit Program Regulation (9VAC25-210) • Groundwater Withdrawal Regulations (9VAC25-610) • Virginia Pollution Abatement Regulation and General Permit for Poultry Waste Management (9VAC25-630) • Virginia Water Protection General Permit for Impacts Less Than One-Half Acre (9VAC25-660) • Virginia Water Protection General Permit for Facilities and Activities of Utility and Public Service Companies Regulated by the Federal Energy Regulatory Commission or the State Corporation Commission and Other Utility Line Activities (9VAC25-670) • Virginia Water Protection General Permit for Linear Transportation Projects (9VAC25-680) • Virginia Water Protection General Permit for Impacts from Development and Certain Mining Activities (9VAC25-690) • Sewage Collection and Treatment Regulations (9VAC25-790) • Virginia Pollution Discharge Elimination System (VPDES) General Permit Regulation for Discharges Resulting from the Application of Pesticides to Surface Waters (9VAC25-800)

	• General Virginia Pollutant Discharge Elimination System (VPDES) Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Bay Watershed in Virginia (9VAC25-820) • Virginia Pollutant Discharge Elimination System General Permit Regulation for Potable Water Treatment Plants (9VAC25-860) • Virginia Erosion and Stormwater Management Regulation (9VAC25-875) • General VPDES Permit for Discharges of Stormwater from Construction Activities (9VAC25-880) • Virginia Pollutant Discharge Elimination System (VPDES) General Permit for Discharges of Stormwater from Small Municipal Separate Storm Sewer Systems (MS4s) (9VAC25-890)
Action title	**2024 40 CFR Part 136 Reference Update/Methods Update Rule**
Final agency action date	September 16, 2024
Date this document prepared	July 31, 2024

This information is required for executive branch review pursuant to Executive Order 19 (2022) (EO 19), any instructions or procedures issued by the Office of Regulatory Management (ORM) or the Department of Planning and Budget (DPB) pursuant to EO 19. In addition, this information is required by the Virginia Registrar of Regulations pursuant to the Virginia Register Act (§ 2.2-4100 et seq. of the Code of Virginia). Regulations must conform to the Regulations for Filing and Publishing Agency Regulations (1 VAC 7-10), and the *Form and Style Requirements for the Virginia Register of Regulations and Virginia Administrative Code.*

Brief Summary

Provide a brief summary (preferably no more than 2 or 3 paragraphs) of this regulatory change (i.e., new regulation, amendments to an existing regulation, or repeal of an existing regulation). Alert the reader to all substantive matters. If applicable, generally describe the existing regulation.

Various regulations of the State Water Control Board include references to U.S. Environmental Protection Agency's (EPA) regulations under Title 40 of the Code of Federal Regulations (CFR). These regulatory amendments will bring references to 40 CFR Part 136 up to date with the requirements published in the July 1, 2024, update to Title 40 of the Code of Federal Regulations. This action will update 25 Chapters, listed in the table on the preceding page, to incorporate EPA's Methods Update Rule (MUR) amendments. (89 FR 27288, April 16, 2024, effective June 17, 2024.)

The EPA finalized changes to its test procedures required by industries and municipalities when analyzing the chemical, physical, and biological properties of wastewater and other environmental samples for reporting under EPA's National Pollutant Discharge Elimination System (NPDES) permit program. The Clean Water Act (CWA) requires the EPA to promulgate these test procedures (analytical methods) for analysis of pollutants. The EPA anticipated that these changes would provide increased flexibility for the regulated community in meeting monitoring requirements while improving data quality. In addition, this update to the CWA methods incorporated technological advances in analytical technology.

Section 402 of the Clean Water Act (33 USC § 1342) authorizes states to administer the National Pollutant Discharge Elimination System (NPDES) permit program under state law. The Commonwealth of Virginia received such authorization in 1975 under the terms of a Memorandum of Understanding with the U.S. EPA and operates the Virginia Pollutant Discharge Elimination System (VPDES) program and Virginia 's regulations need to maintain consistency with the federal regulations.

Section 2.2-4006. A.4(c) of the Code of Virginia allows the Board to adopt these amendments to existing regulations as a final exempt action as the changes are necessary to conform to changes in the federal regulations.

Section 2.2-4006. A. 3 of the Code of Virginia allows the Board to adopt these amendments to existing regulations as a final exempt action when they consist only of changes in style or form or corrections of technical errors.

Mandate and Impetus

Identify the mandate for this regulatory change and any other impetus that specifically prompted its initiation (e.g., new or modified mandate, internal staff review, petition for rulemaking, periodic review, or board decision). For purposes of executive branch review, "mandate" has the same meaning as defined in the ORM procedures, "a directive from the General Assembly, the federal government, or a court that requires that a regulation be promulgated, amended, or repealed in whole or part."

On June 17, 2024, the Environmental Protection Agency (EPA) finalized a rule that updated its list of approved methods for measuring pollutants in wastewater and surface water under the Clean Water Act. Regulated and regulatory entities use approved methods to identify the types and amounts of pollutants in effluent for National Pollutant Discharge Elimination System (NPDES) permit applications, to determine compliance with NPDES permit limits, or to fulfill other Clean Water Act monitoring requirements. EPA's rule adds some new methods to Title 40, Part 136 of the Code of Federal Regulations (CFR) and makes minor editorial or procedural changes to some existing methods that are already promulgated in 40 CFR Part 136. These amendments update the State Water Control Board's regulations to be consistent with EPA's Methods Update Rule (MUR) amendments to 40 CFR Part 136. Section 2.2-4006.A 4 (c) of the Code of Virginia allows the Board to adopt these regulatory amendments as a final exempt action as the changes are necessary to conform to changes in the federal regulations. In addition, Section 2.2-4006. A. 3 allows the adoption of these regulatory amendments as a final exempt action as they consist of changes in style or form or corrections of technical errors.

Acronyms and Definitions

Define all acronyms used in this form, and any technical terms that are not also defined in the "Definitions" section of the regulation.

APA: Administrative Process Act
ASTM: ASTM International
ATPs: Alternate Test Procedures
CFR: Code of Federal Regulations
CWA: Clean Water Act
EPA: U.S. Environmental Protection Agency
FR: Federal Register
MUR: Methods Update Rule promulgated by the EPA and published in the Federal Register on April 16, 2024 (89 FR 27288) – Effective: June 17, 2024
NPDES: National Pollutant Discharge Elimination System
NTTAA: National Technology Transfer and Advancement Act of 1995
VCSB: Voluntary Consensus Standards Bodies
VPA: Virginia Pollution Abatement
VPDES: Virginia Pollutant Discharge Elimination System
VWP: Virginia Water Protection
WET: Whole Effluent Toxicity

Statement of Final Agency Action

Provide a statement of the final action taken by the agency including: 1) the date the action was taken; 2) the name of the agency taking the action; and 3) the title of the regulation.

On September 16, 2024, the State Water Control Board approved amendments to: Virginia Pollutant Discharge Elimination System (VPDES) Permit Regulation (9VAC25-31); Virginia Pollution Abatement (VPA) Permit Regulation (9VAC25-32); Virginia Pollutant Discharge Elimination System (VPDES) General Permit Regulation for Domestic Sewage Discharges of Less Than or Equal to 1,000 Gallons Per Day (9VAC25-110); Virginia Pollutant Discharge Elimination System (VPDES) General Permit Regulation for Seafood Processing Facilities (9VAC25-115); Virginia Pollutant Discharge Elimination System (VPDES) General Permit Regulation for Discharges from Groundwater Remediation of Contaminated Sites (9VAC25-120); Virginia Pollutant Discharge Elimination System (VPDES) General Permit Regulation for Discharges of Stormwater Associated with Industrial Activity (9VAC25-151); Virginia Pollutant Discharge Elimination System (VPDES) General Permit Regulation for Nonmetallic Mineral Mining (9VAC25-190); Virginia Pollution Abatement (VPA) Regulation and General Permit for Animal Feeding Operations and Animal Waste Management (9VAC25-192); Virginia Pollutant Discharge Elimination System (VPDES) General Permit Regulation for Concrete Products Facilities (9VAC25-193); Virginia Pollutant Discharge Elimination System (VPDES) General Permit Regulation for Vehicle Wash Facilities and Laundry Facilities (9VAC25-194); Virginia Pollutant Discharge Elimination System (VPDES) General Permit for Noncontact Cooling Water Discharges of 50,000 Gallons Per Day or Less (9VAC25-196); Virginia Water Protection (VWP) Permit Program Regulation (9VAC25-210); Groundwater Withdrawal Regulations (9VAC25-610); Virginia Pollution Abatement (VPA) Regulation and General Permit for Poultry Waste Management (9VAC25-630); Virginia Water Protection (VWP) General Permit for Impacts Less Than One-Half Acre (9VAC25-660); Virginia Water Protection (VWP) General Permit for Facilities and Activities of Utility and Public Service Companies Regulated by the Federal Energy Regulatory Commission or the State Corporation Commission and Other Utility Line Activities (9VAC25-670); Virginia Water Protection (VWP) General Permit for Linear Transportation Projects (9VAC25-680); Virginia Water Protection (VWP) General Permit for Impacts from Development and Certain Mining Activities (9VAC25-690) ; Sewage Collection and Treatment Regulations (9VAC25-790); Virginia Pollution Discharge Elimination System (VPDES) General Permit Regulation for Discharges Resulting from the Application of Pesticides to Surface Waters (9VAC25-800) General Virginia Pollutant Discharge Elimination System (VPDES) Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Bay Watershed in Virginia (9VAC25-820); Virginia Pollutant Discharge Elimination System (VPDES) General Permit Regulation for Potable Water Treatment Plants (9VAC25-860); Virginia Erosion and Stormwater Management Regulation (9VAC25-875); General VPDES Permit for Discharges of Stormwater from Construction Activities (9VAC25-880); and Virginia Pollutant Discharge Elimination System (VPDES) General Permit for Discharges of Stormwater from Small Municipal Separate Storm Sewer Systems (MS4s) (9VAC25-890) on September 16, 2024, as final amendments and affirmed that the Board will receive, consider and respond to requests by any interested person at any time with respect to reconsideration or revision.

Legal Basis

Identify (1) the agency or other promulgating entity, and (2) the state and/or federal legal authority for the regulatory change, including the most relevant citations to the Code of Virginia or Acts of Assembly chapter number(s), if applicable. Your citation must include a specific provision, if any, authorizing the

promulgating entity to regulate this specific subject or program, as well as a reference to the agency or promulgating entity's overall regulatory authority.

Section 62.1-44.15(10) of the Code of Virginia allows the State Water Control Board to adopt these regulatory amendments. Section 2.2-4006.A 4 (c) authorizes the Department to promulgate these regulatory amendments as a final exempt action as the changes are necessary to conform to changes in the federal regulations. Section 2.2-4006. A. 3 of the Code of Virginia allows the Board to adopt these amendments to existing regulations as a final exempt action when they consist only of changes in style or form or corrections of technical errors.

Purpose

Explain the need for the regulatory change, including a description of: (1) the rationale or justification, (2) the specific reasons the regulatory change is essential to protect the health, safety or welfare of citizens, and (3) the goals of the regulatory change and the problems it's intended to solve.

The regulatory updates are necessary to align state regulations with those of the EPA, ensuring DEQ maintains the authority to implement the national program. The National Pollutant Discharge Elimination System permits must include conditions to ensure compliance with the Clean Water Act's technology-based and water quality-based requirements, including restrictions on the quantity of specific pollutants that can be discharged and requirements for pollutant monitoring, measurement, and reporting to DEQ. The changes incorporate the EPA's Methods Update Rule amendments to 40 CFR Part 136 that became effective on June 17, 2024, which introduce new and revised test procedures for industries and municipalities to analyze the chemical, physical, and biological properties of wastewater and other environmental samples for reporting under the NPDES permit program and updates the regulations to incorporate the 40 CFR requirements published in the July 1, 2024, update. The changes also incorporate by reference the methods added in an earlier Methods Update Rule (86 FR 27226 May 19, 2021). The EPA inadvertently failed to complete the incorporation by reference process for that final rule.

Often, regulated entities have a choice in deciding which approved method they will use to measure a pollutant because more than one approved method is available under 40 CFR Part 136. This rulemaking would increase flexibility by providing additional methods from which to select. New methods added under the Alternate Test Procedure program reflect innovative technologies that are cheaper, faster, or greener than the other approved methods for that same parameter. The use of alternate methods is voluntary. The goals of the regulatory change are to ensure compliance with federal regulations and promote the use of advanced analytical technology to better protect the environment and public health.

Substance

Briefly identify and explain the new substantive provisions, the substantive changes to existing sections, or both. A more detailed discussion is provided in the "Detail of Changes" section below.

The proposed methods update allows for all state regulations to remain consistent with the standards in 40 CFR Part 136. National Pollutant Discharge Elimination System (NPDES) permits must include conditions designed to ensure compliance with the technology-based and water quality-based requirements of the Clean Water Act (CWA), including in many cases, restrictions on the quantity of specific pollutants that can be discharged as well as requirements for pollutant monitoring, measurement and reporting to NPDES authorities. Often, entities have a choice in deciding which approved test procedure they will use for a specific pollutant because EPA has approved the use of more than one method.

The procedures for the analysis of pollutants required by CWA section 304(h) are a central element of the NPDES permit program. Examples of where these EPA-approved analytical methods must be used include the following: (1) Applications for NPDES permits, (2) sampling or other reports required under NPDES permits, (3) other requests for quantitative or qualitative effluent data under the NPDES regulations, (4) State CWA 401 certifications and (5) sampling and analysis required under EPA's

General Pretreatment Regulations for Existing and New Sources of Pollution, 40 CFR 136.1 and 40 CFR 403.12(b)(5)(v).

Periodically, the EPA updates the approved methods in 40 CFR Part 136. In general, the changes in this action fall into four categories. The first category is updated versions of EPA methods currently approved in 40 CFR Part 136. The second category is new or revised methods published by a voluntary consensus standard body that are similar to methods previously adopted as EPA-approved methods in 40 CFR Part 136. The third category is methods the EPA has reviewed under the agency's national Alternate Test Procedure program and preliminarily concluded are appropriate for nationwide use. The fourth category is corrections or amendments to the text and tables of 40 CFR Part 136. The EPA finalized these revisions to improve data quality, update methods to keep current with technology advances, and provide the regulated community with greater flexibility. In general, through this action, EPA has improved: revised EPA bacteria methods; new or revised methods published by voluntary consensus standard bodies, such as ASTM International and the Standards Methods Committee; and methods reviewed under the Alternate Test Procedures (ATP) program.

In addition, the changes also incorporate by reference the methods added in an earlier Methods Update Rule (86 FR 27226 May 19, 2021). The EPA inadvertently failed to complete the incorporation by reference process for that final rule.

The changes are minor technical changes and clarifications to improve existing methods, new and/or revised methods published by voluntary consensus standard bodies (such as ASTM International and the Standard Methods Committee) that EPA seeks to publish in Part 136, and methods the EPA has reviewed under its Alternate Test Procedure program and found to be comparable to one or more methods currently in Part 136.

Issues

Identify the issues associated with the regulatory change, 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 there are no disadvantages to the public or the Commonwealth, include a specific statement to that effect.

The primary advantage of these regulatory changes to the regulated community is that they will have increased flexibility in deciding which approved method to use to measure a given pollutant because more than one approved method is available. According to EPA, the additional methods that will be available to the regulated community reflect innovative technologies that are cheaper, faster, or greener than other approved methods for the same parameters.

The primary advantage to the agency is that these regulatory updates align state regulations with those of the EPA to ensure that DEQ maintains the authority to implement the national program.

Overall, the goal of these regulatory changes is to ensure compliance with federal regulations and to promote and encourage the use of advanced technology to better protect the environment and public health.

There are no disadvantages to the public or the Commonwealth from these amendments.

Requirements More Restrictive than Federal

Identify and describe any requirement of the regulatory change that is more restrictive than applicable federal requirements. Include a specific citation for each applicable federal requirement, and 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 specific statement to that effect.

These amendments to existing regulations revise state regulations to be consistent with federal requirements. Therefore, the amendments are no more restrictive than the current federal requirements.

Agencies, Localities, and Other Entities Particularly Affected

Identify any other state agencies, localities, or other entities particularly affected by the regulatory change. "Particularly affected" are those that are likely to bear any identified disproportionate material impact, which would not be experienced by other agencies, localities, or entities. "Locality" can refer to either local governments or the locations in the Commonwealth where the activities relevant to the regulation or regulatory change are most likely to occur. If no agency, locality, or entity is particularly affected, include a specific statement to that effect.

Other State Agencies Particularly Affected:
No other state agencies will be particularly affected by the regulatory change.

Localities Particularly Affected:
No other localities will be particularly affected by the regulatory change.

Other Entities Particularly Affected:
There is no locality particularly affected by the regulatory change.

Details of All Changes Proposed in this Regulatory Action

*List all changes proposed in this action and the rationale for the changes. For example, describe the intent of the language and the expected impact. Describe the difference between existing requirement(s) and/or agency practice(s) and what is being proposed in this regulatory change. Explain the new requirements and what they mean rather than merely quoting the text of the regulation. * Put an asterisk next to any substantive changes.*

Please note, all the changes made, unless otherwise noted, are necessary to conform to changes in the federal regulations and are exempt from the APA in accordance with § 2.2-4006. A. 3 and § 2.2-4006.A 4 (c) of the Code of Virginia.

Current section number	New section number, if applicable	Current requirements in VAC	Change, intent, rationale, and likely impact of new requirements
9VAC25-31-25		Applicability of incorporated references based on the dates that they became effective	Added abbreviation for Code of Federal Regulations (CFR) to text for consistency. Version of 40 CFR Part 136 updated to the most current CFR published on July 1, 2024, to maintain consistency between state and federal regulations.
9VAC25-32-25		Applicability of incorporated references based on the dates that they became effective	Added abbreviation for Code of Federal Regulations (CFR) to text for consistency. Version of 40 CFR Part 136 updated to the most current CFR published on July 1, 2024, to maintain consistency between state and federal regulations.

Current section number	New section number, if applicable	Current requirements in VAC	Change, intent, rationale, and likely impact of new requirements
9VAC25-110-15		Applicability of incorporated references based on the dates that they became effective	Version of 40 CFR Part 136 updated to the most current CFR published on July 1, 2024, to maintain consistency between state and federal regulations.
8VAC25-115-15		Applicability of incorporated references based on the dates that they became effective	Added abbreviation for Code of Federal Regulations (CFR) to text for consistency. Version of 40 CFR Part 136 updated to the most current CFR published on July 1, 2024, to maintain consistency between state and federal regulations.
9VAC25-120-15		Applicability of incorporated references based on the dates that they became effective	Added abbreviation for Code of Federal Regulations (CFR) to text for consistency. Version of 40 CFR Part 136 updated to the most current CFR published on July 1, 2024, to maintain consistency between state and federal regulations.
9VAC25-151-15		Applicability of incorporated references based on the dates that they became effective	Added “of the Code of Federal Regulations (CFR)” to existing text “Title 40” for consistency. Version of 40 CFR Part 136 updated to the most current CFR published on July 1, 2024, to maintain consistency between state and federal regulations.
9VAC25-190-15		Applicability of incorporated references based on the dates that they became effective	Added abbreviation for Code of Federal Regulations (CFR) to text for consistency. Version of 40 CFR Part 136 updated to the most current CFR published on July 1, 2024, to maintain consistency between state and federal regulations.
9VAC25-192-15		Applicability of incorporated references based on the dates that they became effective	Added abbreviation for Code of Federal Regulations (CFR) to text for consistency. Version of 40 CFR Part 136 updated to the most current CFR published on July 1, 2024, to maintain consistency between state and federal regulations.
9VAC25-193-15		Applicability of incorporated references based on the dates that they became effective	Added abbreviation for Code of Federal Regulations (CFR) to text for consistency. Version of 40 CFR Part 136 updated to the most current CFR published on July 1, 2024, to maintain consistency between state and federal regulations.

Current section number	New section number, if applicable	Current requirements in VAC	Change, intent, rationale, and likely impact of new requirements
9VAC25-194-15		Applicability of incorporated references based on the dates that they became effective	Added abbreviation for Code of Federal Regulations (CFR) to text for consistency. Version of 40 CFR Part 136 updated to the most current CFR published on July 1, 2024, to maintain consistency between state and federal regulations.
9VAC25-196-15		Applicability of incorporated references based on the dates that they became effective	Added abbreviation for Code of Federal Regulations (CFR) to text for consistency. Version of 40 CFR Part 136 updated to the most current CFR published on July 1, 2024, to maintain consistency between state and federal regulations.
9VAC25-210-90 F 1		Part II. VWP Permit Application and Development - Conditions applicable to all VWP permits.	Version of 40 CFR Part 136 updated to the most current CFR published on July 1, 2024, to maintain consistency between state and federal regulations.
9VAC25-610-130 F 1		Part III. Permit Application and Issuance - Conditions applicable to all groundwater permits.	Version of 40 CFR Part 136 updated to the most current CFR published on July 1, 2024, to maintain consistency between state and federal regulations.
9VAC25-630-50 A 2		Part II. Contents of the general permit - Conditions Applicable to all VPA Permits	Version of 40 CFR Part 136 updated to the most current CFR published on July 1, 2024, to maintain consistency between state and federal regulations.
9VAC25-660-100 Part III Q 1		VWP general permit. Part III. Conditions applicable to all VWP General Permits	Version of 40 CFR Part 136 updated to the most current CFR published on July 1, 2024, to maintain consistency between state and federal regulations.
9VAC25-670-100 Part III Q 1		VWP general permit. Part III. Conditions applicable to all VWP General Permits	Version of 40 CFR Part 136 updated to the most current CFR published on July 1, 2024, to maintain consistency between state and federal regulations.
9VAC25-680-100 Part III Q 1		VWP general permit. Part III. Conditions applicable to all VWP General Permits.	Version of 40 CFR Part 136 updated to the most current CFR published on July 1, 2024, to maintain consistency between state and federal regulations.
9VAC25-690-100 Part III Q 1		VWP general permit. Part III. Conditions applicable to all VWP General Permits.	Version of 40 CFR Part 136 updated to the most current CFR published on July 1, 2024, to maintain consistency between state and federal regulations.
9VAC25-790-210 D 2		Article 2. Procedures - Nonconventional methods, processes or equipment.	Version of 40 CFR Part 136 updated to the most current CFR published on July 1, 2024, to maintain consistency between state and federal regulations.
9VAC25-800-15		Applicability of incorporated references based on the dates that they became effective	Deleted “CFR” text for consistency. Version of 40 CFR Part 136 updated to the most current CFR published on July

Current section number	New section number, if applicable	Current requirements in VAC	Change, intent, rationale, and likely impact of new requirements
			1, 2024, to maintain consistency between state and federal regulations.
9VAC25-820-15		Applicability of incorporated references based on the dates that they became effective	Added abbreviation for Code of Federal Regulations (CFR) to text for consistency. Version of 40 CFR Part 136 updated to the most current CFR published on July 1, 2024, to maintain consistency between state and federal regulations.
9VAC25-860-15		Applicability of incorporated references based on the dates that they became effective	Version of 40 CFR Part 136 updated to the most current CFR published on July 1, 2024, to maintain consistency between state and federal regulations.
9VAC25-875-30		Applicability of incorporated references based on the dates that they became effective	Added abbreviation for Code of Federal Regulations (CFR) to text for consistency. Version of 40 CFR Part 136 updated to the most current CFR published on July 1, 2024, to maintain consistency between state and federal regulations.
9VAC25-880-15		Applicability of incorporated references based on the dates that they became effective	Added abbreviation for Code of Federal Regulations (CFR) to text for consistency. Version of 40 CFR Part 136 updated to the most current CFR published on July 1, 2024, to maintain consistency between state and federal regulations.
9VAC25-890-15		Applicability of incorporated references based on the dates that they became effective	Version of 40 CFR Part 136 updated to the most current CFR published on July 1, 2024, to maintain consistency between state and federal regulations.

Regulatory Flexibility Analysis

Pursuant to § 2.2-4007.1B of the Code of Virginia, 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) establishing less stringent compliance or reporting requirements; 2) establishing less stringent schedules or deadlines for compliance or reporting requirements; 3) consolidation or simplification of compliance or reporting requirements; 4) establishing 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 regulatory change.

The regulations apply to all facilities, including small businesses. Any (1) establishment of less stringent compliance or reporting standards; (2) establishment of less stringent schedules or deadlines for compliance and reporting requirements; (3) consolidation or simplification of compliance or reporting requirements; (4) establishment of performance standards for small businesses to replace design or operational standards required in the regulation; or (5) exemption of small businesses from all or any part

of the requirements contained in this regulation for all small businesses would directly, significantly and adversely affect the benefits that would be achieved through the implementation of the regulations.

Conforming state regulations to those of the EPA is necessary to maintain authority to implement the national program. Facilities benefit from state implementation of the program as they have easier access to decision makers who have a clearer understanding of state-specific issues and needs.

The Regulatory Flexibility Act statement contained in 89 FR 27288 (06/17/2024) states that this action would not have a significant economic impact on a substantial number of small entities under the Regulatory Flexibility Act. This action will not impose any requirements on small entities. This action would approve new alternate and revised versions of CWA testing procedures. Generally, these changes would have a positive impact on small entities by increasing method flexibility, thereby allowing entities to reduce costs by choosing more cost-effective methods. In general, EPA indicated they expected the revisions would lead to few, if any, increased costs. The changes clarify or improve the instructions in the method, update the technology used in the method, improve the QC instructions, make editorial corrections, or reflect the most recent approval year of an already approved method. In some cases, the rule adds alternatives to currently approved methods for a particular analyte (e.g., ASTM Method D7511). Because these methods would be alternatives rather than requirements, there are no direct costs associated with the methods approved by the EPA and incorporated by reference. If a permittee elected to use these methods, they could incur a small cost associated with obtaining these methods from the listed sources.

Family Impact

In accordance with § 2.2-606 of the Code of Virginia, please assess the potential 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.

There is no impact on the instruction of the family or family stability.

Project 7895 - Exempt Final

State Water Control Board

2024 Methods Update Rule

9VAC25-31-25. Applicability of incorporated references based on the dates that they became effective.

Except as noted, when a regulation of the U.S. Environmental Protection Agency set forth in Title 40 of the Code of Federal Regulations (CFR) is referenced and incorporated in this chapter that regulation shall be as it exists and has been published in the July 1, 2023, update; however, references to 40 CFR Part 136 are incorporated as published in the July 1, 2024, update.

9VAC25-32-25. Applicability of incorporated references based on the dates that they became effective.

Except as noted, when a regulation of the U.S. Environmental Protection Agency set forth in Title 40 of the Code of Federal Regulations (CFR) is referenced and incorporated in this chapter that regulation shall be as it exists and has been published in the July 1, 2023, update; however, references to 40 CFR Part 136 are incorporated as published in the July 1, 2024, update.

9VAC25-110-15. Applicability of incorporated references based on the dates that they became effective.

Except as noted, when a regulation of the U.S. Environmental Protection Agency set forth in Title 40 of the Code of Federal Regulations (CFR) is referenced and incorporated herein, that regulation shall be as it exists and has been published as of July 1, 2021; however, references to 40 CFR Part 136 are incorporated as published in the July 1, 2024, update.

9VAC25-115-15. Applicability of incorporated references based on the dates that they became effective.

Except as noted, when a regulation of the U.S. Environmental Protection Agency set forth in Title 40 of the Code of Federal Regulations (CFR) is referenced or adopted in this chapter and incorporated by reference, that regulation shall be as it exists and has been published as of July 1, 2020; however, references to 40 CFR Part 136 are incorporated as published in the July 1, 2024, update.

9VAC25-120-15. Applicability of incorporated references based on the dates that they became effective.

Except as noted, when a regulation of the U.S. Environmental Protection Agency (EPA) set forth in Title 40 of the Code of Federal Regulations (CFR) is referenced or adopted in this chapter and incorporated by reference, that regulation shall be as it exists and has been published as of July 1, 2022; however, references to 40 CFR Part 136 are incorporated as published in the July 1, 2024, update.

9VAC25-151-15. Applicability of incorporated references based on the dates that they became effective.

Except as noted, when a regulation of the U.S. Environmental Protection Agency set forth in Title 40 ~~CFR~~ of the Code of Federal Regulations (CFR) is referenced and incorporated into this chapter, that regulation shall be as it exists and has been published as of July 1, 2023; however, references to 40 CFR Part 136 are incorporated as published in the July 1, 2024, update.

9VAC25-190-15. Applicability of incorporated references based on the dates that they became effective.

Except as noted, when a regulation of the U.S. Environmental Protection Agency set forth in Title 40 of the Code of Federal Regulations (CFR) is referenced or adopted in this chapter and

incorporated by reference that regulation shall be as it exists and has been published as of July 1, 2023; however, references to 40 CFR Part 136 are incorporated as published in the July 1, 2024, update.

9VAC25-192-15. Applicability of incorporated references based on the dates that they became effective.

Except as noted, when a regulation of the U.S. Environmental Protection Agency (EPA) set forth in Title 40 of the Code of Federal Regulations (CFR) is referenced or adopted in this chapter and incorporated by reference, that regulation shall be as it exists and has been published as of July 1, 2023; however, references to 40 CFR Part 136 are incorporated as published in the July 1, 2024, update.

9VAC25-193-15. Applicability of incorporated references based on the dates that they became effective.

Except as noted, when a regulation of the U.S. Environmental Protection Agency set forth in Title 40 of the Code of Federal Regulations (CFR) is referenced or adopted in this chapter and incorporated by reference, that regulation shall be as it exists and has been published as of July 1, 2022; however, references to 40 CFR Part 136 are incorporated as published in the July 1, 2024, update.

9VAC25-194-15. Applicability of incorporated references based on the dates that they became effective.

Except as noted, when a regulation of the U.S. Environmental Protection Agency (EPA) set forth in Title 40 of the Code of Federal Regulations (CFR) is referenced or adopted in this chapter and incorporated by reference, that regulation shall be as it exists and has been published as of July 1, 2021; however, references to 40 CFR Part 136 are incorporated as published in the July 1, 2024, update.

9VAC25-196-15. Applicability of incorporated references based on the dates that they became effective.

Except as noted, when a regulation of the U.S. Environmental Protection Agency set forth in Title 40 of the Code of Federal Regulations (CFR) is referenced or adopted in this chapter and incorporated by reference, that regulation shall be as it exists and has been published as of July 1, 2022; however, references to 40 CFR Part 136 are incorporated as published in the July 1, 2024, update.

9VAC25-210-90. Conditions applicable to all VWP permits.

A. Duty to comply. The permittee shall comply with all conditions and limitations of the VWP permit. Nothing in this chapter shall be construed to relieve the permittee of the duty to comply with all applicable federal and state statutes, regulations, toxic standards, and prohibitions. Any VWP permit violation or noncompliance is a violation of the Clean Water Act and State Water Control Law and is grounds for enforcement action, VWP permit termination, VWP permit revocation, VWP permit modification, or denial of an application for a VWP permit extension or reissuance.

B. Duty to cease or confine activity. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the activity for which a VWP permit has been granted in order to maintain compliance with the conditions of the VWP permit.

C. Duty to mitigate. The permittee shall take all reasonable steps to minimize or prevent any impacts in violation of the VWP permit that may have a reasonable likelihood of adversely affecting human health or the environment.

D. Inspection and entry. Upon presentation of credentials, the permittee shall allow the department or any duly authorized agent of the department, at reasonable times and under reasonable circumstances, to conduct the actions listed in this section. For the purpose of this

section, the time for inspection shall be deemed reasonable during regular business hours. Nothing contained herein shall make an inspection time unreasonable during an emergency.

1. Enter upon permittee's property, public or private, and have access to, inspect and copy any records that must be kept as part of the VWP permit conditions;

2. Inspect any facilities, operations or practices (including monitoring and control equipment) regulated or required under the VWP permit; and

3. Sample or monitor any substance, parameter, or activity for the purpose of ensuring compliance with the conditions of the VWP permit or as otherwise authorized by law.

E. Duty to provide information. Plans, maps, conceptual reports, and other relevant information shall be submitted as required by the department prior to commencing construction.

F. Monitoring and records requirements.

1. Monitoring of parameters, other than pollutants, shall be conducted according to approved analytical methods as specified in the VWP permit. Analysis of pollutants will be conducted according to 40 CFR Part 136 as published in the 40 CFR July 1, ~~2023~~2024, update.

2. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.

3. The permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart or electronic recordings for continuous monitoring instrumentation, copies of all reports required by the VWP permit, and records of all data used to complete the application for the VWP permit, for a period of at least three years from the date of permit expiration. This period may be extended by request of the department at any time.

4. Records of monitoring information shall include as appropriate:

a. The date, exact place and time of sampling or measurements;

b. The name of the individuals who performed the sampling or measurements;

c. The date and time the analyses were performed;

d. The name of the individuals who performed the analyses;

e. The analytical techniques or methods supporting the information such as observations, readings, calculations, and bench data used;

f. The results of such analyses; and

g. Chain of custody documentation.

G. Duty to reapply. Any permittee desiring to continue a previously permitted activity after the expiration date of the VWP permit shall apply for and obtain a new permit or, if applicable, shall request an extension in accordance with 9VAC25-210-180.

9VAC25-610-130. Conditions applicable to all groundwater permits.

A. Duty to comply. The permittee shall comply with all conditions of the permit. Nothing in this chapter shall be construed to relieve the groundwater withdrawal permit holder of the duty to comply with all applicable federal and state statutes and prohibitions. At a minimum, a person must obtain a well construction permit or a well site approval letter from the Virginia Department of Health prior to the construction of any well for any withdrawal authorized by the Department of Environmental Quality. Any permit violation is a violation of the law and is grounds for enforcement action, permit termination, revocation, modification, or denial of a permit application.

B. Duty to cease or confine activity. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the activity for which a permit has been granted in order to maintain compliance with the conditions of the permit.

C. Duty to mitigate. The permittee shall take all reasonable steps to:

1. Avoid all adverse impacts to lawful groundwater users that could result from the withdrawal; and

2. Where impacts cannot be avoided, provide mitigation of the adverse impact as described in 9VAC25-610-110 D 3 g.

D. Inspection and entry. Upon presentation of credentials, the permittee shall allow the department or any duly authorized agent of the department, at reasonable times and under reasonable circumstances, to conduct actions listed in this section. For the purpose of this section, the time for inspection shall be deemed reasonable during regular business hours. Nothing contained herein shall make an inspection time unreasonable during an emergency.

1. Entry upon any permittee's property, public or private, and have access to, inspect and copy any records that must be kept as part of the permit conditions;

2. Inspect any facilities, operations, or practices (including monitoring and control equipment) regulated or required under the permit; and

3. Sample or monitor any substance, parameter, or activity for the purpose of ensuring compliance with the conditions of the permit or as otherwise authorized by law.

E. Duty to provide information. The permittee shall furnish to the department, within a reasonable time, any information that the department may request to determine whether cause exists for modifying or revoking, reissuing, or terminating the permit or to determine compliance with the permit. The permittee shall also furnish to the department, upon request, copies of records required to be kept by the permittee.

F. Monitoring and records requirements.

1. Monitoring of parameters, other than pollutants, shall be conducted according to approved analytical methods as specified in the permit. Analysis of pollutants will be conducted according to 40 CFR Part 136 as published in the 40 CFR July 1, ~~2023~~2024, update.

2. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.

3. The permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart or electronic recordings for continuous monitoring instrumentation, copies of all reports required by the permit, and records of all data used to complete the application for the permit, for a period of at least three years from the date of the expiration of a granted permit. This period may be extended by request of the department at any time.

4. Records of monitoring information shall include as appropriate:

a. The date, exact place and time of sampling or measurements;

b. The name of the individuals who performed the sampling or measurements;

c. The date the analyses were performed;

d. The name of the individuals who performed the analyses;

e. The analytical techniques or methods supporting the information such as observations, readings, calculations, and bench data used;

f. The results of such analyses; and

g. Chain of custody documentation.

G. Permit action.

1. A permit may be modified or revoked as set forth in Part VI (9VAC25-610-290 et seq.) of this chapter.

2. If a permittee files a request for permit modification or revocation, or files a notification of planned changes, or anticipated noncompliance, the permit terms and conditions shall remain effective until the department makes a final case decision. This provision shall not be used to extend the expiration date of the effective permit.

3. Permits may be modified or revoked upon the request of the permittee, or upon department initiative, to reflect the requirements of any changes in the statutes or regulations.

9VAC25-630-50. Contents of the general permit.

Any poultry grower, poultry waste end-user, or poultry waste broker whose registration statement is accepted by the board will receive the following general permit and shall comply with the requirements therein and be subject to the VPA Permit Regulation, 9VAC25-32.

General Permit No. VPG2

Effective Date: February 17, 2021

Expiration Date: February 16, 2031

GENERAL PERMIT FOR POULTRY WASTE MANAGEMENT

AUTHORIZATION TO MANAGE POLLUTANTS UNDER THE VIRGINIA POLLUTION ABATEMENT PROGRAM AND THE VIRGINIA STATE WATER CONTROL LAW

In compliance with the provisions of the State Water Control Law (§ 62.1-44 et seq. of the Code of Virginia) and State Water Control Board regulations adopted pursuant thereto, owners of confined poultry feeding operations having 200 or more animal units, poultry waste end-users, and poultry waste brokers are authorized to manage pollutants within the boundaries of the Commonwealth of Virginia, except where board regulations prohibit such activities.

The authorized pollutant management activities shall be in accordance with the registration statement and supporting documents submitted to the Department of Environmental Quality, this cover page, and Part I—Pollutant Management and Monitoring Requirements for Confined Poultry Feeding Operations and Part II—Conditions Applicable to All VPA Permits and Part III—Pollutant Management and Monitoring Requirements for Poultry Waste End-Users and Poultry Waste Brokers, as set forth herein.

Part I

Pollutant Management and Monitoring Requirements for Confined Poultry Feeding Operations

A. Pollutant management authorization and monitoring requirements.

1. During the period beginning with the permittee's coverage under this general permit and lasting until the permit's expiration date, the permittee is authorized to manage pollutants at the location or locations identified in the registration statement and the facility's approved nutrient management plan.

2. If poultry waste is land applied, it shall be applied at the rates specified in the facility's approved nutrient management plan.

3. Soil at the land application sites shall be monitored as specified in the following table. Additional soils monitoring may be required in the facility's approved nutrient management plan.

SOILS MONITORING				
PARAMETERS	LIMITATIONS	UNITS	MONITORING REQUIREMENTS	
			Frequency	Sample Type
pH	NL	SU	1/3 years	Composite *
Phosphorus	NL	ppm or lbs/ac	1/3 years	Composite *
Potash	NL	ppm or lbs/ac	1/3 years	Composite *
Calcium	NL	ppm or lbs/ac	1/3 years	Composite *
Magnesium	NL	ppm or lbs/ac	1/3 years	Composite *
NL = No limit, this is a monitoring requirement only.				
SU = Standard Units				
*Specific sampling requirements are found in the facility's approved nutrient management plan.				

4. Poultry waste shall be monitored as specified below. Additional waste monitoring may be required in the facility's approved nutrient management plan.

WASTE MONITORING				
PARAMETERS	LIMITATIONS	UNITS	MONITORING REQUIREMENTS	
			Frequency	Sample Type
Total Kjeldahl Nitrogen	NL	*	1/3 years	Composite
Ammonia Nitrogen	NL	*	1/3 years	Composite
Total Phosphorus	NL	*	1/3 years	Composite
Total Potassium	NL	*	1/3 years	Composite
Moisture Content	NL	%	1/3 years	Composite

NL = No limit, this is a monitoring requirement only.

*Parameters for waste may be reported as a percent, as lbs/ton or lbs/1000 gallons, or as ppm where appropriate.

5. Analysis of soil and waste shall be according to methods specified in the facility's approved nutrient management plan.

6. All monitoring data required by Part I A shall be maintained on site in accordance with Part II B. Reporting of results to the department is not required; however, the monitoring results shall be made available to department personnel upon request.

B. Site design, storage, and operation requirements.

1. The confined poultry feeding operation shall be designed and operated to (i) prevent point source discharges of pollutants to state waters except in the case of a storm event greater than the 25-year, 24-hour storm and (ii) provide adequate waste storage capacity to accommodate periods when the ground is ice covered, snow covered or saturated, periods when land application of nutrients should not occur due to limited or nonexistent crop nutrient uptake, and periods when physical limitations prohibit the land application of waste.

2. Poultry waste shall be stored according to the nutrient management plan and in a manner that prevents contact with surface water and ground water. Poultry waste that is stockpiled outside of the growing house for more than 14 days shall be kept in a facility or at a site that provides adequate storage. Adequate storage shall, at a minimum, include the following:

a. Poultry waste shall be covered to protect it from precipitation and wind;

b. Storm water shall not run onto or under the stored poultry waste;

c. A minimum of two feet of separation distance to the seasonal high water table or an impermeable barrier shall be used under the stored poultry waste. All poultry waste storage facilities that use an impermeable barrier shall maintain a minimum of one foot of separation between the seasonal high water table and the impermeable barrier. Impermeable barriers must be constructed of at least 12 inches of compacted clay, at least four inches of reinforced concrete, or another material of similar structural integrity that has a minimum permeability rating of 0.0014 inches per hour ($1X10^{-6}$ centimeters per second); and

d. For poultry waste that is not stored under roof, the storage site must be at least:

(1) 100 feet from any surface water, intermittent drainage, wells, sinkholes, rock outcrops, and springs; and

(2) 200 feet from any occupied dwellings not on the permittee's property, unless the occupant of the dwelling signs a waiver of the storage site.

3. Poultry waste storage facilities constructed after December 1, 2000, shall not be located within a 100-year floodplain unless the poultry grower has no land outside the floodplain on which to construct the facility and the facility is constructed so that the poultry waste is stored above the 100-year flood elevation or otherwise protected from floodwaters through the construction of berms or similar best management flood control structures. New, expanded, or replacement poultry growing houses that are constructed after December 1, 2000, shall not be located within a 100-year floodplain unless they are part of an existing, ongoing confined poultry feeding operation and are constructed so that the poultry and poultry litter are housed above the 100-year flood elevation or otherwise protected from floodwaters through construction of berms or similar best management flood control structures. For the purposes of determining the 100-year floodplain, a Federal Emergency

Management Agency (FEMA) Flood Insurance Rate Map (FIRM), a FEMA Letter of Map Amendment (LOMA), or a FEMA Letter of Map Revision (LOMR) shall be used.

4.

The permittee shall operate and manage the facility so that impervious surfaces such as concrete end pads or load-out pads and surrounding areas and ventilation outlets are kept clean of poultry waste.

5. When the poultry waste storage facility is no longer needed, the permittee shall close it in a manner that (i) minimizes the need for further maintenance and (ii) controls, minimizes, or eliminates, to the extent necessary to protect human health and the environment, the postclosure escape of uncontrolled leachate, surface runoff, or waste decomposition products to the ground water, surface water, or the atmosphere. At closure, the permittee shall remove all poultry waste residue from the waste storage facility. At waste storage facilities without permanent covers and impermeable ground barriers, all residual poultry waste shall be removed from the surface below the stockpile when the poultry waste is taken out of storage. Removed waste materials shall be utilized according to the NMP.

C. Poultry waste transfer and utilization requirements.

1. Poultry waste may be transferred from a permitted poultry grower to another person without identifying the fields where such waste will be utilized in the permitted poultry grower's approved nutrient management plan if the following conditions are met:

a. When a poultry grower transfers to another person more than 10 tons of poultry waste in any 365-day period, the poultry grower shall provide that person with:

(1) Grower name, address, and permit number;

(2) A copy of the most recent nutrient analysis of the poultry waste; and

(3) A fact sheet.

b. When a poultry grower transfers to another person more than 10 tons of poultry waste in any 365-day period, the poultry grower shall keep a record of the following:

(1) The recipient name and address;

(2) The amount of poultry waste received by the person;

(3) The date of the transaction;

(4) The nutrient analysis of the waste; and

(5) The signed waste transfer records form acknowledging the receipt of the following:

(a) The waste;

(b) The nutrient analysis of the waste; and

(c) A fact sheet.

c. When a poultry grower transfers to another person more than 10 tons of poultry waste in any 365-day period, and the recipient of the waste is someone other than a broker, the poultry grower shall keep a record of the following:

(1) The locality in which the recipient intends to utilize the waste (i.e., nearest town or city, county, and zip code); and

(2) The name of the stream or waterbody if known to the recipient that is nearest to the waste utilization or storage site.

2. Poultry growers shall maintain the records required by Part I C 1 for at least three years after the transaction and shall make them available to department personnel upon request.

3. Transfer records reporting requirements. The grower shall submit the records required by Part I C 1 in accordance with the timing outlined in Part I C 3 a and b.

a. Beginning February 17, 2022, upon request by the department, the grower shall submit the records in a format and method determined by the department.

b. Beginning February 17, 2023, the grower shall submit to the department, annually, the records for the preceding state fiscal year (July 1 through June 30) no later than September 15.

4. Poultry waste generated by this facility shall not be applied to fields owned by or under the operational control of either the poultry grower or a legal entity in which the poultry grower has an ownership interest unless the fields are included in the facility's approved nutrient management plan.

5. The poultry grower shall implement a nutrient management plan (NMP) developed by a certified nutrient management planner in accordance with § 10.1-104.2 of the Code of Virginia and approved by the Department of Conservation and Recreation and maintain the plan on site. The terms of the NMP shall be enforceable through this permit. The NMP shall contain at a minimum the following information:

a. Site map indicating the location of the waste storage facilities and the fields where waste generated by this facility will be applied by the poultry grower. The location of fields as identified in Part I C 4 shall also be included;

b. Site evaluation and assessment of soil types and potential productivities;

c. Nutrient management sampling including soil and waste monitoring;

d. Storage and land area requirements for the grower's poultry waste management activities;

e. Calculation of waste application rates; and

f. Waste application schedules.

6. Nitrogen application rates contained in the NMP shall be established in accordance with 4VAC50-85-140 A 2. The application of poultry waste shall be managed to minimize runoff, leachate, and volatilization losses, and reduce adverse water quality impacts from nitrogen.

7. Phosphorus application rates contained in the NMP shall be established in accordance with 4VAC50-85-140 A 2. The application of poultry waste shall be managed to minimize runoff and leaching and reduce adverse water quality impacts from phosphorous.

8. The timing of land application of poultry waste shall be according to the schedule contained in the NMP, except that no waste may be applied to ice covered or snow covered ground or to soils that are saturated. Poultry waste may be applied to frozen ground within the NMP scheduled times only under the following conditions:

a. Slopes are not greater than 6.0%;

b. A minimum of a 200-foot vegetative or adequate crop residue buffer is maintained between the application area and all surface water courses;

c. Only those soils characterized by USDA as "well drained" with good infiltration are used; and

d. At least 60% uniform cover by vegetation or crop residue is present in order to reduce surface runoff and the potential for leaching of nutrients to ground water.

9. In cases where poultry waste storage is threatened by emergencies such as fire or flood or where these conditions are imminent, poultry waste can be land applied outside of the spreading schedule outlined in the grower's NMP. If this occurs, the poultry grower shall

document the land application information in accordance with Part I C 11 and notify the department in accordance with Part II H.

10. Poultry waste shall not be land applied within buffer zones. Buffer zones at waste application sites shall, at a minimum, be maintained as follows:

a. Distance from occupied dwellings not on the permittee's property: 200 feet (unless the occupant of the dwelling signs a waiver of the buffer zone);

b. Distance from water supply wells or springs: 100 feet;

c. Distance from surface water courses: 100 feet (without a permanent vegetated buffer) or 35 feet (if a permanent vegetated buffer exists).

Other site-specific conservation practices may be approved by the department that will provide pollutant reductions equivalent or better than the reductions that would be achieved by the 100-foot buffer;

d. Distance from rock outcropping (except limestone): 25 feet;

e. Distance from limestone outcroppings: 50 feet; and

f. Waste shall not be applied in such a manner that it would discharge to sinkholes that may exist in the area.

11. The following records shall be maintained:

a. The identification of the land application field sites where the waste is utilized or stored;

b. The application rate;

c. The application dates; and

d. What crops have been planted.

These records shall be maintained on site for a period of three years after recorded application is made and shall be made available to department personnel upon request.

D. Other special conditions.

1. Each poultry grower covered by this general permit shall complete a training program offered or approved by the department within one year of filing the registration statement for general permit coverage. All permitted poultry growers shall complete a training program at least once every five years.

2. Confined poultry feeding operations that use disposal pits for routine disposal of daily mortalities shall not be covered under this general permit. The use of a disposal pit for routine disposal of daily poultry mortalities by a permittee shall be a violation of this permit. This prohibition does not apply to the emergency disposal of dead poultry done according to regulations adopted pursuant to § 3.2-6002 of the Code of Virginia or Chapter 14 (§ 10.1-1400 et seq.) of Title 10.1 of the Code of Virginia.

Part II
Conditions Applicable to all VPA Permits

A. Monitoring.

1. Samples and measurements taken as required by this permit shall be representative of the monitored activity.

2. Monitoring shall be conducted according to procedures listed under 40 CFR Part 136, as published in the 40 CFR July 1, 2024, update, unless otherwise specified in this permit.

3. The permittee shall periodically calibrate and perform maintenance procedures on all monitoring and analytical instrumentation at intervals that will ensure accuracy of measurements.

B. Records.

1. Records of monitoring information shall include:

a. The date, exact place, and time of sampling or measurements;

b. The name of the individuals who performed the sampling or measurements;

c. The dates analyses were performed;

d. The name of the individuals who performed the analyses;

e. The analytical techniques or methods used, with supporting information such as observations, readings, calculations and bench data; and

f. The results of such analyses.

2. The permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit for a period of at least three years from the date of the sample, measurement, report or application. This period of retention may be extended by request of the board at any time.

C. Reporting monitoring results. If reporting is required by Part I or Part III of this general permit, the permittee shall follow the requirements of this subsection.

1. The permittee shall submit the results of the monitoring required by this permit not later than the 10th day of the month after the monitoring takes place, unless another reporting schedule is specified elsewhere in this permit. Monitoring results shall be submitted to the department's regional office.

2. Monitoring results shall be reported on forms provided or specified by the department.

3. If the permittee monitors the pollutant management activity, at a sampling location specified in this permit, for any pollutant more frequently than required by the permit using approved analytical methods, the permittee shall report the results of this monitoring on the monitoring report.

4. If the permittee monitors the pollutant management activity, at a sampling location specified in this permit, for any pollutant that is not required to be monitored by the permit, and uses approved analytical methods, the permittee shall report the results with the monitoring report.

5. Calculations for all limitations that require averaging of measurements shall utilize an arithmetic mean unless otherwise specified in this permit.

D. Duty to provide information. The permittee shall furnish to the department, within a reasonable time, any information which the director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to the department, upon request, copies of records required to be kept by the permittee. Plans, specifications, maps, conceptual reports, and other relevant information shall be submitted as requested by the director prior to commencing construction.

E. Compliance schedule reports. Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than 14 days following each schedule date.

F. Unauthorized discharges. Except in compliance with this permit, or another permit issued by the board, it shall be unlawful for any person to:

1. Discharge into state waters sewage, industrial wastes, other wastes, or any noxious or deleterious substances; or

2. Otherwise alter the physical, chemical, or biological properties of such state waters and make them detrimental to the public health, or to animal or aquatic life, or to the use of such waters for domestic or industrial consumption, or for recreation, or for other uses.

G. Reports of unauthorized discharges. Any permittee who discharges or causes or allows (i) a discharge of sewage, industrial waste, other wastes, or any noxious or deleterious substance into or upon state waters in violation of Part II F, or (ii) a discharge that may reasonably be expected to enter state waters in violation of Part II F shall notify the department of the discharge immediately upon discovery of the discharge, but in no case later than 24 hours after said discovery. A written report of the unauthorized discharge shall be submitted to the department within five days of discovery of the discharge. The written report shall contain:

1. A description of the nature and location of the discharge;

2. The cause of the discharge;

3. The date on which the discharge occurred;

4. The length of time that the discharge continued;

5. The volume of the discharge;

6. If the discharge is continuing, how long it is expected to continue;

7. If the discharge is continuing, what the expected total volume of the discharge will be; and

8. Any steps planned or taken to reduce, eliminate, and prevent a recurrence of the present discharge or any future discharges not authorized by this permit.

Discharges reportable to the department under the immediate reporting requirements of other regulations are exempted from this requirement.

H. Reports of unusual or extraordinary discharges. If any unusual or extraordinary discharge including a bypass or upset should occur from a treatment works and the discharge enters or could be expected to enter state waters, the permittee shall promptly notify, in no case later than 24 hours, the department by telephone after the discovery of the discharge. This notification shall provide all available details of the incident, including any adverse effects on aquatic life and the known number of fish killed. The permittee shall reduce the report to writing and shall submit it to the department within five days of discovery of the discharge in accordance with Part II I 2. Unusual and extraordinary discharges include but are not limited to any discharge resulting from:

1. Unusual spillage of materials resulting directly or indirectly from processing operations;

2. Breakdown of processing or accessory equipment;

3. Failure or taking out of service some or all of the treatment works; and

4. Flooding or other acts of nature.

I. Reports of noncompliance. The permittee shall report any noncompliance which may adversely affect state waters or may endanger public health.

1. An oral report shall be provided within 24 hours from the time the permittee becomes aware of the circumstances. The following shall be included as information which shall be reported within 24 hours under this paragraph:

a. Any unanticipated bypass; and

b. Any upset which causes a discharge to surface waters.

2. A written report shall be submitted within five days and shall contain:

a. A description of the noncompliance and its cause;

b. The period of noncompliance, including exact dates and times, and, if the noncompliance has not been corrected, the anticipated time it is expected to continue; and

c. Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

The board may waive the written report on a case-by-case basis for reports of noncompliance under Part II I if the oral report has been received within 24 hours and no adverse impact on state waters has been reported.

3. The permittee shall report all instances of noncompliance not reported under Part II I 1 or 2 in writing at the time the next monitoring reports are submitted. The reports shall contain the information listed in Part II I 2.

NOTE: The immediate (within 24 hours) reports required in Part II F, G, and H may be made to the department's regional office. For reports outside normal working hours, leave a message and this shall fulfill the immediate reporting requirement. For emergencies, the Virginia Department of Emergency Management maintains a 24-hour telephone service at 1-800-468-8892.

J. Notice of planned changes.

1. The permittee shall give notice to the department as soon as possible of any planned physical alterations or additions to the design or operation of the pollutant management activity.

2. The permittee shall give at least 10 days advance notice to the department of any planned changes in the permitted facility or activity that may result in noncompliance with permit requirements.

K. Signatory requirements.

1. Applications. All permit applications shall be signed as follows:

a. For a corporation: by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means: (i) a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy-making or decision-making functions for the corporation or (ii) the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding $25 million (in second-quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;

b. For a partnership or sole proprietorship: by a general partner or the proprietor, respectively; or

c. For a municipality, state, federal, or other public agency: by either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a public agency includes: (i) the chief executive officer of the agency or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency.

2. Reports, etc. All reports required by permits, and other information requested by the board shall be signed by a person described in Part II K 1, or by a duly authorized representative of that person. A person is a duly authorized representative only if:

a. The authorization is made in writing by a person described in Part II K 1;

b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, or a position of equivalent responsibility. A duly authorized representative may thus be either a named individual or any individual occupying a named position; and

c. The written authorization is submitted to the department.

3. Changes to authorization. If an authorization under Part II K 2 is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Part II K 2 shall be submitted to the department prior to or together with any reports, or information to be signed by an authorized representative.

4. Certification. Any person signing a document under Part II K 1 or 2 shall make the following certification: "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

L. Duty to comply. The permittee shall comply with all conditions of this general permit and 9VAC25-630. Any noncompliance with the general permit or 9VAC25-630 constitutes a violation of the State Water Control Law (§ 62.1-44 et seq. of the Code of Virginia). Permit noncompliance is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application. Compliance with a permit during its term constitutes compliance, for purposes of enforcement, with the State Water Control Law (§ 62.1-44 et seq. of the Code of Virginia).

M. Duty to reapply. If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee shall apply for and obtain a new permit. All permittees with a currently effective permit shall submit a new application at least 30 days before the expiration date of the existing permit unless permission for a later date has been granted by the board. The board shall not grant permission for applications to be submitted later than the expiration date of the existing permit.

N. Effect of a permit. This permit does not convey any property rights in either real or personal property or any exclusive privileges, nor does it authorize any injury to private property or invasion of personal rights, or any infringement of federal, state, or local law or regulations.

O. State law. Nothing in this permit shall be construed to preclude the institution of any legal action under, or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any other state law or regulation or under authority preserved by § 510 of the federal Clean Water Act. Except as provided in permit conditions on bypassing (Part II U), and upset (Part II V), nothing in this permit shall be construed to relieve the permittee from civil and criminal penalties for noncompliance.

P. Oil and hazardous substance liability. Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under §§ 62.1-44.34:14 through 62.1-44.34:23 of the State Water Control Law (§ 62.1-44 et seq. of the Code of Virginia).

Q. Proper operation and maintenance. The permittee shall be responsible for the proper operation and maintenance of all treatment works, systems and controls which are installed or used to achieve compliance with the conditions of this permit. Proper operation and maintenance includes effective plant performance, adequate funding, adequate staffing, and adequate laboratory and process controls, including appropriate quality assurance procedures.

R. Disposal of solids or sludges. Solids, sludges, or other pollutants removed in the course of treatment or management of pollutants shall be disposed of in a manner so as to prevent any pollutant from such materials from entering state waters.

S. Duty to mitigate. The permittee shall take all reasonable steps to minimize or prevent any pollutant management activity in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

T. Need to halt or reduce activity not a defense. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

U. Bypass.

1. Prohibition. "Bypass" means intentional diversion of waste streams from any portion of a treatment works. A bypass of the treatment works is prohibited except as provided herein.

2. Anticipated bypass. If the permittee knows in advance of the need for a bypass, he shall notify the department promptly at least 10 days prior to the bypass. After considering its adverse effects, the board may approve an anticipated bypass if:

a. The bypass will be unavoidable to prevent loss of human life, personal injury, or severe property damage. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities that causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. "Severe property damage" does not mean economic loss caused by delays in production; and

b. There are no feasible alternatives to bypass such as the use of auxiliary treatment facilities, retention of untreated waste, or maintenance during normal periods of equipment downtime. However, if bypass occurs during normal periods of equipment downtime or preventive maintenance and in the exercise of reasonable engineering judgment the permittee could have installed adequate backup equipment to prevent such bypass, this exclusion shall not apply as a defense.

3. Unplanned bypass. If an unplanned bypass occurs, the permittee shall notify the department as soon as possible, but in no case later than 24 hours, and shall take steps to halt the bypass as early as possible. This notification will be a condition for defense to an enforcement action that an unplanned bypass met the conditions in Part II U 2 a and b and in light of the information reasonably available to the permittee at the time of the bypass.

V. Upset. A permittee may claim an upset as an affirmative defense to an action brought for noncompliance. In any enforcement proceedings a permittee shall have the burden of proof to establish the occurrence of any upset. In order to establish an affirmative defense of upset, the permittee shall present properly signed, contemporaneous operating logs or other relevant evidence that shows:

1. That an upset occurred and that the cause can be identified;

2. That the permitted facility was at the time being operated efficiently and in compliance with proper operation and maintenance procedures;

3. That the 24-hour reporting requirements to the department were met; and

4. That the permittee took all reasonable steps to minimize or correct any adverse impact on state waters resulting from noncompliance with the permit.

W. Inspection and entry. Upon presentation of credentials, any duly authorized agent of the board may, at reasonable times and under reasonable circumstances:

1. Enter upon any public or private property on which the pollutant management activities that are governed by this permit are located and have access to records required by this permit;

2. Have access to, inspect and copy any records that must be kept as part of permit conditions;

3. Inspect any facility's equipment (including monitoring and control equipment) practices or operations regulated or required under the permit; and

4. Sample or monitor any substances or parameters at any locations for the purpose of assuring permit compliance or as otherwise authorized by the State Water Control Law (§ 62.1-44 et seq. of the Code of Virginia).

For purposes of this section, the time for inspection shall be deemed reasonable during regular business hours, and whenever the facility is involved in managing pollutants. Nothing contained herein shall make an inspection unreasonable during an emergency.

X. Permit actions. Permits may be modified, revoked and reissued, or terminated for cause upon the request of the permittee or interested persons, or upon the board's initiative. If a permittee files a request for a permit modification, revocation, or termination, or files a notification of planned changes, or anticipated noncompliance, the permit terms and conditions shall remain effective until the request is acted upon by the board. This provision shall not be used to extend the expiration date of the effective VPA permit.

Y. Transfer of permits.

1. Permits are not transferable to any person except after notice to the department. The board may require modification or revocation and reissuance of the permit to change the name of the permittee and to incorporate such other requirements as may be necessary. Except as provided in Part II Y 2, a permit may be transferred by the permittee to a new owner or operator only if the permit has been modified to reflect the transfer or has been revoked and reissued to the new owner or operator.

2. As an alternative to transfers under Part II Y 1, this permit shall be automatically transferred to a new permittee if:

a. The current permittee notifies the department within 30 days of the transfer of the title to the facility or property;

b. The notice includes a written agreement between the existing and new permittees containing a specific date for transfer of permit responsibility, coverage, and liability between them; and

c. The board does not, within the 30-day time period, notify the existing permittee and the proposed new permittee of its intent to modify or revoke and reissue the permit. If the board notice is not received, the transfer is effective on the date specified in the agreement mentioned in Part II Y 2 b.

Z. Severability. The provisions of this permit are severable and, if any provision of this permit or the application of any provision of this permit to any circumstance is held invalid, the application of such provision to other circumstances and the remainder of this permit shall not be affected thereby.

Part III
Pollutant Management and Monitoring Requirements for Poultry Waste End-Users and Poultry Brokers

A. Pollutant management authorization and monitoring requirements.

1. During the period beginning with the permittee's coverage under this general permit and lasting until the permit's expiration date, the permittee is authorized to manage pollutants at the location or locations identified in the registration statement and the permittee's approved nutrient management plan.

2. If poultry waste is land applied on land under the permittee's operational control, it shall be applied at the rates specified in the permittee's approved nutrient management plan.

3. Soil at the land application sites shall be monitored as specified in the following table. Additional soils monitoring may be required in the permittee's approved nutrient management plan.

SOILS MONITORING				
PARAMETERS	LIMITATIONS	UNITS	MONITORING REQUIREMENTS	
			Frequency	Sample Type
pH	NL	SU	1/3 years	Composite *
Phosphorus	NL	ppm or lbs/ac	1/3 years	Composite *
Potash	NL	ppm or lbs/ac	1/3 years	Composite *
Calcium	NL	ppm or lbs/ac	1/3 years	Composite *
Magnesium	NL	ppm or lbs/ac	1/3 years	Composite *
NL = No limit, this is a monitoring requirement only.				
SU = Standard Units				
*Specific sampling requirements are outlined in the permittee's approved nutrient management plan.				

4. Poultry waste shall be monitored as specified in the following table. Additional waste monitoring may be required in the permittee's approved nutrient management plan.

WASTE MONITORING				
PARAMETERS	LIMITATIONS	UNITS	MONITORING REQUIREMENTS	
			Frequency	Sample Type
Total Kjeldahl Nitrogen	NL	*	1/3 years	Composite
Ammonia Nitrogen	NL	*	1/3 years	Composite
Total Phosphorus	NL	*	1/3 years	Composite
Total Potassium	NL	*	1/3 years	Composite

Moisture Content	NL	%	1/3 years	Composite
NL = No limit, this is a monitoring requirement only.				
*Parameters for waste may be reported as a percent, as lbs/ton or lbs/1000 gallons, or as ppm where appropriate.				

5. If waste from two or more poultry waste sources is commingled or stored then a sample that best represents the waste shall be used to calculate the nutrients available in the poultry waste for land application and shall be provided to the end-user of the waste.

6. Analysis of soil and waste shall be according to methods specified in the permittee's approved nutrient management plan.

7. All monitoring data required by Part III A shall be maintained on site in accordance with Part II B. Reporting of results to the department is not required; however, the monitoring results shall be made available to department personnel upon request.

B. Site design, storage, and operation requirements.

1. Poultry waste storage facilities shall be designed and operated to (i) prevent point source discharges of pollutants to state waters except in the case of a storm event greater than the 25-year, 24-hour storm and (ii) provide adequate waste storage capacity to accommodate periods when the ground is ice covered, snow covered or saturated, periods when land application of nutrients should not occur due to limited or nonexistent crop nutrient uptake, and periods when physical limitations prohibit the land application of waste.

2. Poultry waste shall be stored according to the approved nutrient management plan and in a manner that prevents contact with surface water and ground water. Poultry waste that is stockpiled outside for more than 14 days shall be kept in a facility or at a site that provides adequate storage. Adequate storage shall, at a minimum, include the following:

a. Poultry waste shall be covered to protect it from precipitation and wind;

b. Storm water shall not run onto or under the stored poultry waste;

c. A minimum of two feet of separation distance to the seasonal high water table or an impermeable barrier shall be used under the stored poultry waste. All poultry waste storage facilities that use an impermeable barrier shall maintain a minimum of one foot of separation between the seasonal high water table and the impermeable barrier. Impermeable barriers must be constructed of at least 12 inches of compacted clay, at least four inches of reinforced concrete, or another material of similar structural integrity that has a minimum permeability rating of 0.0014 inches per hour ($1X10^{-6}$ centimeters per second); and

d. For poultry waste that is not stored under roof, the storage site must be at least:

(1) 100 feet from any surface water, intermittent drainage, wells, sinkholes, rock outcrops, and springs; and

(2) 200 feet from any occupied dwellings not on the permittee's property (unless the occupant of the dwelling signs a waiver of the storage site).

3. Poultry waste storage facilities constructed after December 1, 2000, shall not be located within a 100-year floodplain unless there is no land available outside the floodplain on which to construct the facility and the facility is constructed so that the poultry waste is stored above the 100-year flood elevation or otherwise protected from floodwaters through the construction of berms or similar best management flood control structures. For the purposes of determining the 100-year floodplain, a Federal Emergency Management

Agency (FEMA) Flood Insurance Rate Map (FIRM), a FEMA Letter of Map Amendment (LOMA), or a FEMA Letter of Map Revision (LOMR) shall be used.

4. The permittee shall operate and manage the facility so that impervious surfaces such as concrete end pads or load-out pads and surrounding areas and ventilation outlets are kept clean of poultry waste.

5. When the poultry waste storage facility is no longer needed, the permittee shall close it in a manner that (i) minimizes the need for further maintenance and (ii) controls, minimizes, or eliminates, to the extent necessary to protect human health and the environment, the postclosure escape of uncontrolled leachate, surface runoff, or waste decomposition products to the ground water, surface water, or the atmosphere. At closure, the permittee shall remove all poultry waste residue from the waste storage facility. At waste storage facilities without permanent covers and impermeable ground barriers, all residual poultry waste shall be removed from the surface below the stockpile when the poultry waste is taken out of storage. Removed waste materials shall be utilized according to the NMP.

C. Poultry waste transfer and utilization requirements.

1. When a poultry waste end-user or poultry waste broker receives, possesses, or has control over more than 10 tons of transferred poultry waste in any 365-day period, he shall provide the person from whom he received the poultry waste with:

a. The end-user or broker name, address, and permit number;

b. If the recipient of the poultry waste is an end-user, then he shall also provide the person from whom he received the poultry waste the following information:

(1) The locality in which the recipient intends to utilize the waste (i.e., nearest town or city, county and zip code);

(2) The name of the stream or waterbody if known to the recipient that is nearest to the waste utilization or storage site; and

c. Written acknowledgement of receipt of:

(1) The waste;

(2) The nutrient analysis of the waste; and

(3) The fact sheet.

If the person receiving the waste is a poultry waste broker, then he shall also certify in writing that he will provide a copy of the nutrient analysis and fact sheet to each end user to whom he transfers poultry waste.

2. When a poultry waste broker transfers or hauls poultry waste to other persons, he shall provide the person who received the poultry waste with:

a. Broker name, address, and permit number;

b. The nutrient analysis of the waste; and

c. A fact sheet.

3. When a poultry waste end-user or poultry waste broker is a recipient of more than 10 tons of transferred poultry waste in any 365-day period, the poultry waste end-user or poultry waste broker shall keep a record regarding the transferred poultry waste:

a. The following items shall be recorded regarding the source of the transferred poultry waste:

(1) The source name and address;

(2) The amount of poultry waste received from the source; and

(3) The date the poultry waste was acquired.

b. The following items shall be recorded regarding the recipient of the transferred poultry waste:

(1) The recipient name and address;

(2) The amount of poultry waste received by the person;

(3) The date of the transaction;

(4) The nutrient content of the waste;

(5) The locality in which the recipient intends to utilize the waste (i.e., nearest town or city, county, and zip code);

(6) The name of the stream or waterbody if known to the recipient that is nearest to the waste utilization or storage site; and

(7) The signed waste transfer records form acknowledging the receipt of the following:

(a) The waste;

(b) The nutrient analysis of the waste; and

(c) A fact sheet.

4. End-users or brokers shall maintain the records required by Part III C 3 for at least three years after the transaction and make them available to department personnel upon request.

5. Transfer records reporting requirements. The end-users and brokers shall submit the records required by Part III C 3 in accordance with the timing outlined in Part III C 5 a and 5 b.

a. Beginning February 17, 2022, upon request by the department, the end-users and brokers shall submit the records in a format and method determined by the department.

b. Beginning February 17, 2023, the end-users and brokers shall submit to the department, annually, the records for the preceding state fiscal year (July 1 through June 30) no later than September 15.

6. If poultry waste is also generated by this facility it shall not be applied to fields owned by or under the operational control of either the permittee or a legal entity in which the permittee has an ownership interest unless the fields are included in the permittee's approved nutrient management plan.

7. The permittee shall implement a nutrient management plan (NMP) developed by a certified nutrient management planner in accordance with § 10.1-104.2 of the Code of Virginia and approved by the Department of Conservation and Recreation and maintain the plan on site. The terms of the NMP shall be enforceable through this permit. The NMP shall contain at a minimum the following information:

a. Site map indicating the location of the waste storage facilities and the fields where waste will be applied by the permittee. The location of fields as identified in Part III C 6 shall also be included;

b. Site evaluation and assessment of soil types and potential productivities;

c. Nutrient management sampling including soil and waste monitoring;

d. Storage and land area requirements for the permittee's poultry waste management activities;

e. Calculation of waste application rates; and

f. Waste application schedules.

8. Nitrogen application rates contained in the NMP shall be established in accordance with 4VAC50-85-140 A 2. The application of poultry waste shall be managed to minimize runoff, leachate, and volatilization losses, and reduce adverse water quality impacts from nitrogen.

9. Phosphorus application rates contained in the NMP shall be established in accordance with 4VAC50-85-140 A 2. The application of poultry waste shall be managed to minimize runoff and leaching and reduce adverse water quality impacts from phosphorous.

10. The timing of land application of poultry waste shall be according to the schedule contained in the NMP, except that no waste may be applied to ice covered or snow covered ground or to soils that are saturated. Poultry waste may be applied to frozen ground within the NMP scheduled times only under the following conditions:

a. Slopes are not greater than 6.0%;

b. A minimum of a 200-foot vegetative or adequate crop residue buffer is maintained between the application area and all surface water courses;

c. Only those soils characterized by USDA as "well drained" with good infiltration are used; and

d. At least 60% uniform cover by vegetation or crop residue is present in order to reduce surface runoff and the potential for leaching of nutrients to ground water.

11. In cases where poultry waste storage is threatened by emergencies such as fire or flood or where these conditions are imminent, poultry waste can be land applied outside of the spreading schedule outlined in the permittee's NMP. If this occurs, the permittee shall document the land application information in accordance with Part III C 13 and notify the department in accordance with Part II H.

12. Poultry waste shall not be land applied within buffer zones. Buffer zones at waste application sites shall, at a minimum, be maintained as follows:

a. Distance from occupied dwellings not on the permittee's property: 200 feet (unless the occupant of the dwelling signs a waiver of the buffer zone);

b. Distance from water supply wells or springs: 100 feet;

c. Distance from surface water courses: 100 feet (without a permanent vegetated buffer) or 35 feet (if a permanent vegetated buffer exists). Other site-specific conservation practices may be approved by the department that will provide pollutant reductions equivalent or better than the reductions that would be achieved by the 100-foot buffer;

d. Distance from rock outcropping (except limestone): 25 feet;

e. Distance from limestone outcroppings: 50 feet; and

f. Waste shall not be applied in such a manner that it would discharge to sinkholes that may exist in the area.

13. The following records shall be maintained:

a. The identification of the land application field sites where the waste is utilized or stored;

b. The application rate;

c. The application dates; and

d. What crops have been planted.

These records shall be maintained on site for a period of three years after recorded application is made and shall be made available to department personnel upon request.

D. Other special conditions.

1. Each poultry waste end-user or poultry waste broker covered by this general permit shall complete a training program offered or approved by the department within one year of filing the registration statement for general permit coverage. All permitted poultry waste end-users or permitted poultry waste brokers shall complete a training program at least once every five years.

2. Poultry feeding operations that use disposal pits for routine disposal of daily mortalities shall not be covered under this general permit. The use of a disposal pit for routine disposal of daily poultry mortalities by a permittee shall be a violation of this permit. This prohibition does not apply to the emergency disposal of dead poultry done according to regulations adopted pursuant to § 3.2-6002 of the Code of Virginia or Chapter 14 (§ 10.1-1400 et seq.) of Title 10.1 of the Code of Virginia.

9VAC25-660-100. VWP general permit.

VWP GENERAL PERMIT NO. WP1 FOR IMPACTS LESS THAN ONE-HALF ACRE UNDER THE VIRGINIA WATER PROTECTION PERMIT AND THE VIRGINIA STATE WATER CONTROL LAW

Effective date: August 2, 2016
Expiration date: August 1, 2026

In compliance with § 401 of the Clean Water Act, as amended (33 USC § 1341) and the State Water Control Law and regulations adopted pursuant thereto, the board has determined that there is a reasonable assurance that this VWP general permit, if complied with, will protect instream beneficial uses, will not violate applicable water quality standards, and will not cause or contribute to a significant impairment of state waters or fish and wildlife resources. In issuing this VWP general permit, the board has not taken into consideration the structural stability of any proposed activities.

The permanent or temporary impact of less than one-half acre of nontidal wetlands or open water and up to 300 linear feet of nontidal stream bed shall be subject to the provisions of the VWP general permit set forth herein; any requirements in coverage granted under this VWP general permit; the Clean Water Act, as amended; and the State Water Control Law and regulations adopted pursuant to it.

Part I.

Special Conditions.

A. Authorized activities.

1. The activities authorized by this chapter shall not cause more than the permanent or temporary impacts to less than one-half acre of nontidal wetlands or open water and up to 300 linear feet of nontidal stream bed. Additional permit requirements as stipulated by the department in the coverage letter, if any, shall be enforceable conditions of this permit.

2. Any changes to the authorized permanent impacts to surface waters shall require a notice of planned change in accordance with 9VAC25-660-80. An application or request for modification to coverage or another VWP permit application may be required.

3. Any changes to the authorized temporary impacts to surface waters shall require written notification to and approval from the Department of Environmental Quality in accordance

with 9VAC25-660-80 prior to initiating the impacts and restoration to preexisting conditions in accordance with the conditions of this permit.

4. Modification to compensation requirements may be approved at the request of the permittee when a decrease in the amount of authorized surface waters impacts occurs, provided that the adjusted compensation meets the initial compensation goals.

B. Overall conditions.

1. The activities authorized by this VWP general permit shall be executed in a manner so as to minimize adverse impacts on instream beneficial uses as defined in § 62.1-10 (b) of the Code of Virginia.

2. No activity may substantially disrupt the movement of aquatic life indigenous to the water body, including those species that normally migrate through the area, unless the primary purpose of the activity is to impound water. Pipes and culverts placed in streams must be installed to maintain low flow conditions and shall be countersunk at both inlet and outlet ends of the pipe or culvert, unless otherwise specifically approved by the Department of Environmental Quality on a case-by-case basis, and as follows: The requirement to countersink does not apply to extensions or maintenance of existing pipes and culverts that are not countersunk, floodplain pipes and culverts being placed above ordinary high water, pipes and culverts being placed on bedrock, or pipes and culverts required to be placed on slopes 5.0% or greater. Bedrock encountered during construction must be identified and approved in advance of a design change where the countersunk condition cannot be met. Pipes and culverts 24 inches or less in diameter shall be countersunk three inches below the natural stream bed elevations, and pipes and culverts greater than 24 inches shall be countersunk at least six inches below the natural stream bed elevations. Hydraulic capacity shall be determined based on the reduced capacity due to the countersunk position. In all stream crossings appropriate measures shall be implemented to minimize any disruption of aquatic life movement.

3. Wet or uncured concrete shall be prohibited from entry into flowing surface waters, unless the area is contained within a cofferdam and the work is performed in the dry or unless otherwise approved by the Department of Environmental Quality. Excess or waste concrete shall not be disposed of in flowing surface waters or washed into flowing surface waters.

4. All fill material shall be clean and free of contaminants in toxic concentrations or amounts in accordance with all applicable laws and regulations.

5. Erosion and sedimentation controls shall be designed in accordance with the Virginia Erosion and Sediment Control Handbook, Third Edition, 1992. These controls shall be placed prior to clearing and grading and maintained in good working order to minimize impacts to state waters. These controls shall remain in place until the area is stabilized and shall then be removed.

6. Exposed slopes and streambanks shall be stabilized immediately upon completion of work in each permitted impact area. All denuded areas shall be properly stabilized in accordance with the Virginia Erosion and Sediment Control Handbook, Third Edition, 1992.

7. All construction, construction access (e.g., cofferdams, sheetpiling, and causeways) and demolition activities associated with the project shall be accomplished in a manner that minimizes construction or waste materials from entering surface waters to the maximum extent practicable, unless authorized by this VWP general permit.

8. No machinery may enter flowing waters, unless authorized by this VWP general permit or approved prior to entry by the Department of Environmental Quality.

9. Heavy equipment in temporarily impacted wetland areas shall be placed on mats, geotextile fabric, or other suitable material to minimize soil disturbance to the maximum extent practicable. Equipment and materials shall be removed immediately upon completion of work.

10. All nonimpacted surface waters and compensatory mitigation areas within 50 feet of authorized activities and within the project or right-of-way limits shall be clearly flagged or marked for the life of the construction activity at that location to preclude unauthorized disturbances to these surface waters and compensatory mitigation areas during construction. The permittee shall notify contractors that no activities are to occur in these marked surface waters.

11. Temporary disturbances to surface waters during construction shall be avoided and minimized to the maximum extent practicable. All temporarily disturbed wetland areas shall be restored to preexisting conditions within 30 days of completing work at each respective temporary impact area, which shall include reestablishing preconstruction elevations and contours with topsoil from the impact area where practicable and planting or seeding with appropriate wetland vegetation according to cover type (i.e., emergent, scrub-shrub, or forested). The permittee shall take all appropriate measures to promote and maintain revegetation of temporarily disturbed wetland areas with wetland vegetation through the second year post-disturbance. All temporarily impacted streams and streambanks shall be restored to their preconstruction elevations and contours with topsoil from the impact area where practicable within 30 days following the construction at that stream segment. Streambanks shall be seeded or planted with the same vegetation cover type originally present, including any necessary, supplemental erosion control grasses. Invasive species identified on the Department of Conservation and Recreation's Virginia Invasive Plant Species List shall not be used to the maximum extent practicable or without prior approval from the Department of Environmental Quality.

12. Materials (including fill, construction debris, and excavated and woody materials) temporarily stockpiled in wetlands shall be placed on mats or geotextile fabric, immediately stabilized to prevent entry into state waters, managed such that leachate does not enter state waters, and completely removed within 30 days following completion of that construction activity. Disturbed areas shall be returned to preconstruction elevations and contours with topsoil from the impact area where practicable; restored within 30 days following removal of the stockpile; and restored with the same vegetation cover type originally present, including any necessary, supplemental erosion control grasses. Invasive species identified on the Department of Conservation and Recreation's Virginia Invasive Plant Species List shall not be used to the maximum extent practicable or without prior approval from the Department of Environmental Quality.

13. Continuous flow of perennial springs shall be maintained by the installation of spring boxes, french drains, or other similar structures.

14. The permittee shall employ measures to prevent spills of fuels or lubricants into state waters.

15. The permittee shall conduct his activities in accordance with the time-of-year restrictions recommended by the Virginia Department of Wildlife Resources, the Virginia Marine Resources Commission, or other interested and affected agencies, as contained, when applicable, in a Department of Environmental Quality VWP general permit coverage letter, and shall ensure that all contractors are aware of the time-of-year restrictions imposed.

16. Water quality standards shall not be violated as a result of the construction activities.

17. If stream channelization or relocation is required, all work in surface waters shall be done in the dry, unless otherwise authorized by the Department of Environmental Quality, and all flows shall be diverted around the channelization or relocation area until the new channel is stabilized. This work shall be accomplished by leaving a plug at the inlet and outlet ends of the new channel during excavation. Once the new channel has been stabilized, flow shall be routed into the new channel by first removing the downstream plug and then the upstream plug. The rerouted stream flow must be fully established before construction activities in the old stream channel can begin.

C. Road crossings.

1. Access roads and associated bridges, pipes, and culverts shall be constructed to minimize the adverse effects on surface waters to the maximum extent practicable. Access roads constructed above preconstruction elevations and contours in surface waters must be bridged, piped, or culverted to maintain surface flows.

2. Installation of road crossings shall occur in the dry via the implementation of cofferdams, sheetpiling, stream diversions, or other similar structures.

D. Utility lines.

1. All utility line work in surface waters shall be performed in a manner that minimizes disturbance, and the area must be returned to its preconstruction elevations and contours with topsoil from the impact area where practicable and restored within 30 days of completing work in the area, unless otherwise authorized by the Department of Environmental Quality. Restoration shall be the seeding or planting of the same vegetation cover type originally present, including any necessary, supplemental erosion control grasses. Invasive species identified on the Department of Conservation and Recreation's Virginia Invasive Plant Species List shall not be used to the maximum extent practicable or without prior approval from the Department of Environmental Quality.

2. Material resulting from trench excavation may be temporarily sidecast into wetlands not to exceed a total of 90 days, provided the material is not placed in a manner such that it is dispersed by currents or other forces.

3. The trench for a utility line cannot be constructed in a manner that drains wetlands (e.g., backfilling with extensive gravel layers creating a french drain effect). For example, utility lines may be backfilled with clay blocks to ensure that the trench does not drain surface waters through which the utility line is installed.

E. Stream modification and stream bank protection.

1. Riprap bank stabilization shall be of an appropriate size and design in accordance with the Virginia Erosion and Sediment Control Handbook, Third Edition, 1992.

2. Riprap apron for all outfalls shall be designed in accordance with the Virginia Erosion and Sediment Control Handbook, Third Edition, 1992.

3. For stream bank protection activities, the structure and backfill shall be placed as close to the stream bank as practicable. No material shall be placed in excess of the minimum necessary for erosion protection.

4. All stream bank protection control structures shall be located to eliminate or minimize impacts to vegetated wetlands to the maximum extent practicable.

5. Asphalt and materials containing asphalt or other toxic substances shall not be used in the construction of submerged sills or breakwaters.

6. Redistribution of existing stream substrate for the purpose of erosion control is prohibited.

7. No material removed from the stream bottom shall be disposed of in surface waters, unless otherwise authorized by this VWP general permit.

F. Stormwater management facilities.

1. Stormwater management facilities shall be installed in accordance with best management practices and watershed protection techniques (e.g., vegetated buffers, siting considerations to minimize adverse effects to aquatic resources, bioengineering methods incorporated into the facility design to benefit water quality and minimize adverse effects to aquatic resources) that provide for long-term aquatic resources protection and enhancement, to the maximum extent practicable.

2. Compensation for unavoidable impacts shall not be allowed within maintenance areas of stormwater management facilities.

3. Maintenance activities within stormwater management facilities shall not require additional permit coverage or compensation, provided that the maintenance activities do not exceed the original contours of the facility, as approved and constructed, and are accomplished in designated maintenance areas as indicated in the facility maintenance or design plan or when unavailable, an alternative plan approved by the Department of Environmental Quality.

Part II.

Construction and Compensation Requirements, Monitoring, and Reporting.

A. Minimum compensation requirements.

1. The permittee shall provide any required compensation for impacts in accordance with the conditions in this VWP general permit, the coverage letter, and the chapter promulgating the general permit.

2. Compensation options that may be considered under this VWP general permit include the purchase of mitigation bank credits or the purchase of in-lieu fee program credits with a primary service area that covers the impact site in accordance with § 62.1-44.15:23 of the Code of Virginia, 9VAC25-660-70, and the associated provisions of 9VAC25-210-116.

3. The final compensation plan shall be submitted to and approved by the department prior to a construction activity in permitted impacts areas. The department shall review and provide written comments on the final plan within 30 days of receipt or it shall be deemed approved. The final plan as approved by the department shall be an enforceable requirement of any coverage under this VWP general permit. Deviations from the approved final plan shall be submitted and approved in advance by the department.

B. Impact site construction monitoring.

1. Construction activities authorized by this permit that are within impact areas shall be monitored and documented. The monitoring shall consist of:

a. Preconstruction photographs taken at each impact area prior to initiation of activities within impact areas. Photographs remain on the project site and shall depict the impact area and the nonimpacted surface waters immediately adjacent to and downgradient of each impact area. Each photograph shall be labeled to include the following information: permit number, impact area number, date and time of the photograph, name of the person taking the photograph, photograph orientation, and photograph subject description.

b. Site inspections shall be conducted by the permittee or the permittee's qualified designee once every calendar month during activities within impact areas. Monthly inspections shall be conducted in the following areas: all authorized permanent and

temporary impact areas; all avoided surface waters, including wetlands, stream channels, and open water; surface water areas within 50 feet of any land disturbing activity and within the project or right-of-way limits; and all on-site permanent preservation areas required under this permit. Observations shall be recorded on the inspection form provided by the Department of Environmental Quality. The form shall be completed in its entirety for each monthly inspection and shall be kept on site and made available for review by the Department of Environmental Quality staff upon request during normal business hours. Inspections are not required during periods of no activity within impact areas.

2. Monitoring of water quality parameters shall be conducted during permanent relocation of perennial streams through new channels in the manner noted in this subdivision. The permittee shall report violations of water quality standards to the Department of Environmental Quality in accordance with the procedures in 9VAC25-660-100 Part II C. Corrective measures and additional monitoring may be required if water quality standards are not met. Reporting shall not be required if water quality standards are not violated.

a. A sampling station shall be located upstream and immediately downstream of the relocated channel.

b. Temperature, pH, and dissolved oxygen (D.O.) measurements shall be taken every 30 minutes for at least two hours at each station prior to opening the new channels and immediately before opening new channels.

c. Temperature, pH, and D.O. readings shall be taken after opening the channels and every 30 minutes for at least three hours at each station.

C. Reporting.

1. Written communications required by this VWP general permit shall be submitted to the appropriate Department of Environmental Quality office. The VWP general permit tracking number shall be included on all correspondence.

2. The Department of Environmental Quality shall be notified in writing prior to the start of construction activities at the first authorized impact area.

3. A construction status update form provided by the Department of Environmental Quality shall be completed and submitted to the Department of Environmental Quality twice per year for the duration of coverage under a VWP general permit. Forms completed in June shall be submitted by or on July 10, and forms completed in December shall be submitted by or on January 10. The form shall include reference to the VWP permit tracking number and one of the following statements for each authorized surface water impact location:

a. Construction activities have not yet started;

b. Construction activities have started;

c. Construction activities have started but are currently inactive; or

d. Construction activities are complete.

4. The Department of Environmental Quality shall be notified in writing within 30 days following the completion of all activities in all authorized impact areas.

5. The permittee shall notify the Department of Environmental Quality in writing when unusual or potentially complex conditions are encountered that require debris removal or involve a potentially toxic substance. Measures to remove the obstruction, material, or toxic substance or to change the location of a structure are prohibited until approved by the Department of Environmental Quality.

6. The permittee shall report fish kills or spills of oil or fuel immediately upon discovery. If spills or fish kills occur between the hours of 8:15 a.m. to 5 p.m., Monday through Friday,

the appropriate Department of Environmental Quality regional office shall be notified; otherwise, the Department of Emergency Management shall be notified at 1-800-468-8892.

7. Violations of state water quality standards shall be reported to the appropriate Department of Environmental Quality office no later than the end of the business day following discovery.

8. The permittee shall notify the Department of Environmental Quality no later than the end of the third business day following the discovery of additional impacts to surface waters, including wetlands, stream channels, and open water that are not authorized by the Department of Environmental Quality or to any required preservation areas. The notification shall include photographs, estimated acreage or linear footage of impacts, and a description of the impacts.

9. Submittals required by this VWP general permit shall contain the following signed certification statement:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violation."

Part III.

Conditions Applicable to All VWP General Permits.

A. Duty to comply. The permittee shall comply with all conditions, limitations, and other requirements of the VWP general permit; any requirements in coverage granted under this VWP general permit; the Clean Water Act, as amended; and the State Water Control Law and regulations adopted pursuant to it. Any VWP general permit violation or noncompliance is a violation of the Clean Water Act and State Water Control Law and is grounds for (i) enforcement action, (ii) VWP general permit coverage termination for cause, (iii) VWP general permit coverage revocation, (iv) denial of application for coverage, or (v) denial of an application for a modification to VWP general permit coverage. Nothing in this VWP general permit shall be construed to relieve the permittee of the duty to comply with all applicable federal and state statutes, regulations, and toxic standards and prohibitions.

B. Duty to mitigate. The permittee shall take all reasonable steps to minimize or prevent impacts in violation of the VWP general permit that may have a reasonable likelihood of adversely affecting human health or the environment.

C. Reopener. This VWP general permit may be reopened to modify its conditions when the circumstances on which the previous VWP general permit was based have materially and substantially changed, or special studies conducted by the department or the permittee show material and substantial change since the time the VWP general permit was issued and thereby constitute cause for revoking and reissuing the VWP general permit.

D. Compliance with state and federal law. Compliance with this VWP general permit constitutes compliance with the VWP permit requirements of the State Water Control Law. Nothing in this VWP general permit shall be construed to preclude the institution of any legal action under or relieve the permittee from any responsibilities, liabilities, or other penalties

established pursuant to any other state law or regulation or under the authority preserved by § 510 of the Clean Water Act.

E. Property rights. Coverage under this VWP general permit does not convey property rights in either real or personal property or any exclusive privileges, nor does it authorize injury to private property, any invasion of personal property rights, or any infringement of federal, state, or local laws or regulations.

F. Severability. The provisions of this VWP general permit are severable.

G. Inspection and entry. Upon presentation of credentials, the permittee shall allow the department or any duly authorized agent of the department, at reasonable times and under reasonable circumstances, to enter upon the permittee's property, public or private, and have access to inspect and copy any records that must be kept as part of the VWP general permit conditions; to inspect any facilities, operations, or practices (including monitoring and control equipment) regulated or required under the VWP general permit; and to sample or monitor any substance, parameter, or activity for the purpose of ensuring compliance with the conditions of the VWP general permit or as otherwise authorized by law. For the purpose of this section, the time for inspection shall be deemed reasonable during regular business hours. Nothing contained herein shall make an inspection time unreasonable during an emergency.

H. Transferability of VWP general permit coverage. VWP general permit coverage may be transferred to another permittee when all of the criteria listed in this subsection are met. On the date of the VWP general permit coverage transfer, the transferred VWP general permit coverage shall be as fully effective as if it had been granted directly to the new permittee.

1. The current permittee notifies the department of the proposed transfer of the general permit coverage and provides a written agreement between the current and new permittees containing a specific date of transfer of VWP general permit responsibility, coverage, and liability to the new permittee, or that the current permittee will retain such responsibility, coverage, or liability, including liability for compliance with the requirements of enforcement activities related to the authorized activity.

2. The department does not within 15 days notify the current and new permittees of the board's intent to modify or revoke and reissue the VWP general permit.

I. Notice of planned change. VWP general permit coverage may be modified subsequent to issuance in accordance with 9VAC25-660-80.

J. VWP general permit coverage termination for cause. VWP general permit coverage is subject to termination for cause by the department after public notice and opportunity for a hearing in accordance with 9VAC25-210-180. Reasons for termination for cause are as follows:

1. Noncompliance by the permittee with any provision of this chapter, any condition of the VWP general permit, or any requirement in general permit coverage;

2. The permittee's failure in the application or during the process of granting VWP general permit coverage to disclose fully all relevant facts or the permittee's misrepresentation of any relevant facts at any time;

3. The permittee's violation of a special or judicial order;

4. A determination by the department that the authorized activity endangers human health or the environment and can be regulated to acceptable levels by a modification to the VWP general permit coverage or a termination;

5. A change in any condition that requires either a temporary or permanent reduction or elimination of any activity controlled by the VWP general permit; or

6. A determination that the authorized activity has ceased and that the compensation for unavoidable adverse impacts has been successfully completed.

K. The department may terminate VWP general permit coverage without cause when the permittee is no longer a legal entity due to death or dissolution or when a company is no longer authorized to conduct business in the Commonwealth. The termination shall be effective 30 days after notice of the proposed termination is sent to the last known address of the permittee or registered agent, unless the permittee objects within that time. If the permittee does object during that period, the department shall follow the applicable procedures for termination under 9VAC25-210-180 and § 62.1-44.15:25 of the Code of Virginia.

L. VWP general permit coverage termination by consent. The permittee shall submit a request for termination by consent within 30 days of completing or canceling all authorized activities requiring notification under 9VAC25-660-50 A and all compensatory mitigation requirements. When submitted for project completion, the request for termination by consent shall constitute a notice of project completion in accordance with 9VAC25-210-130 F. The director may accept this termination of coverage on behalf of the department. The permittee shall submit the following information:

1. Name, mailing address, and telephone number;
2. Name and location of the activity;
3. The VWP general permit tracking number; and
4. One of the following certifications:

a. For project completion:

"I certify under penalty of law that all activities and any required compensatory mitigation authorized by the VWP general permit and general permit coverage have been completed. I understand that by submitting this notice of termination I am no longer authorized to perform activities in surface waters in accordance with the VWP general permit and general permit coverage, and that performing activities in surface waters is unlawful where the activity is not authorized by the VWP permit or coverage, unless otherwise excluded from obtaining coverage. I also understand that the submittal of this notice does not release me from liability for any violations of the VWP general permit or coverage."

b. For project cancellation:

"I certify under penalty of law that the activities and any required compensatory mitigation authorized by the VWP general permit and general permit coverage will not occur. I understand that by submitting this notice of termination I am no longer authorized to perform activities in surface waters in accordance with the VWP general permit and general permit coverage, and that performing activities in surface waters is unlawful where the activity is not authorized by the VWP permit or coverage, unless otherwise excluded from obtaining coverage. I also understand that the submittal of this notice does not release me from liability for any violations of the VWP general permit or coverage, nor does it allow me to resume the authorized activities without reapplication and coverage."

c. For events beyond permittee control, the permittee shall provide a detailed explanation of the events, to be approved by the Department of Environmental Quality, and the following certification statement:

"I certify under penalty of law that the activities or the required compensatory mitigation authorized by the VWP general permit and general permit coverage have changed as the result of events beyond my control (see attached). I understand that by submitting this notice of termination I am no longer authorized to perform activities in surface waters in accordance with the VWP general permit and general permit coverage, and that performing activities in surface waters is unlawful where the activity is not

authorized by the VWP permit or coverage, unless otherwise excluded from obtaining coverage. I also understand that the submittal of this notice does not release me from liability for any violations of the VWP general permit or coverage, nor does it allow me to resume the authorized activities without reapplication and coverage."

M. Civil and criminal liability. Nothing in this VWP general permit shall be construed to relieve the permittee from civil and criminal penalties for noncompliance.

N. Oil and hazardous substance liability. Nothing in this VWP general permit shall be construed to preclude the institution of legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under § 311 of the Clean Water Act or §§ 62.1-44.34:14 through 62.1-44.34:23 of the State Water Control Law.

O. Duty to cease or confine activity. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the activity for which VWP general permit coverage has been granted in order to maintain compliance with the conditions of the VWP general permit or coverage.

P. Duty to provide information.

1. The permittee shall furnish to the department information that the department may request to determine whether cause exists for modifying, revoking, or terminating VWP permit coverage or to determine compliance with the VWP general permit or general permit coverage. The permittee shall also furnish to the department, upon request, copies of records required to be kept by the permittee.

2. Plans, maps, conceptual reports, and other relevant information shall be submitted as required by the department prior to commencing construction.

Q. Monitoring and records requirements.

1. Monitoring of parameters, other than pollutants, shall be conducted according to approved analytical methods as specified in the VWP general permit. Analysis of pollutants will be conducted according to 40 CFR Part 136 as published in the July 1, ~~2023~~2024, update, Guidelines Establishing Test Procedures for the Analysis of Pollutants.

2. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.

3. The permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart or electronic recordings for continuous monitoring instrumentation, copies of all reports required by the VWP general permit, and records of all data used to complete the application for coverage under the VWP general permit, for a period of at least three years from the date of general permit expiration. This period may be extended by request of the department at any time.

4. Records of monitoring information shall include, as appropriate:

a. The date, exact place, and time of sampling or measurements;

b. The name of the individuals who performed the sampling or measurements;

c. The date and time the analyses were performed;

d. The name of the individuals who performed the analyses;

e. The analytical techniques or methods supporting the information such as observations, readings, calculations, and bench data used;

f. The results of such analyses; and

g. Chain of custody documentation.

R. Unauthorized discharge of pollutants. Except in compliance with this VWP general permit, it shall be unlawful for the permittee to:

1. Discharge into state waters sewage, industrial wastes, other wastes, or any noxious or deleterious substances;

2. Excavate in a wetland;

3. Otherwise alter the physical, chemical, or biological properties of state waters and make them detrimental to the public health, to animal or aquatic life, or to the uses of such waters for domestic or industrial consumption, for recreation, or for other uses; or

4. On and after October 1, 2001, conduct the following activities in a wetland:

a. New activities to cause draining that significantly alter or degrade existing wetland acreage or functions;

b. Filling or dumping;

c. Permanent flooding or impounding; or

d. New activities that cause significant alteration or degradation of existing wetland acreage or functions.

S. Duty to reapply. Any permittee desiring to continue a previously authorized activity after the expiration date of the VWP general permit shall comply with the provisions in 9VAC25-660-27.

9VAC25-670-100. VWP general permit.

VWP GENERAL PERMIT NO. WP2 FOR FACILITIES AND ACTIVITIES OF UTILITIES AND PUBLIC SERVICE COMPANIES REGULATED BY THE FEDERAL ENERGY REGULATORY COMMISSION OR THE STATE CORPORATION COMMISSION AND OTHER UTILITY LINE ACTIVITIES UNDER THE VIRGINIA WATER PROTECTION PERMIT AND THE VIRGINIA STATE WATER CONTROL LAW

Effective date: August 2, 2016
Expiration date: August 1, 2026

In compliance with § 401 of the Clean Water Act, as amended (33 USC § 1341) and the State Water Control Law and regulations adopted pursuant thereto, the board has determined that there is a reasonable assurance that this VWP general permit, if complied with, will protect instream beneficial uses, will not violate applicable water quality standards, and will not cause or contribute to a significant impairment of surface waters or fish and wildlife resources. In issuing this VWP general permit, the board has not taken into consideration the structural stability of any proposed activities.

The permanent or temporary impact of up to one acre of nontidal wetlands or open water and up to 1,500 linear feet of nontidal stream bed shall be subject to the provisions of the VWP general permit set forth herein; any requirements in coverage granted under this VWP general permit; the Clean Water Act, as amended; and the State Water Control Law and regulations adopted pursuant to it.

Part I.

Special Conditions.

A. Authorized activities.

1. The activities authorized by this chapter shall not cause more than the permanent or temporary impacts of up to one acre of nontidal wetlands or open water and up to 1,500

linear feet of nontidal stream bed. Additional permit requirements as stipulated by the department in the coverage letter, if any, shall be enforceable conditions of this permit.

2. Any changes to the authorized permanent impacts to surface waters shall require a notice of planned change in accordance with 9VAC25-670-80. An application or request for modification to coverage or another VWP permit application may be required.

3. Any changes to the authorized temporary impacts to surface waters shall require written notification to and approval from the Department of Environmental Quality in accordance with 9VAC25-670-80 prior to initiating the impacts and restoration to preexisting conditions in accordance with the conditions of this permit.

4. Modification to compensation requirements may be approved at the request of the permittee when a decrease in the amount of authorized surface waters impacts occurs, provided that the adjusted compensation meets the initial compensation goals.

B. Overall conditions.

1. The activities authorized by this VWP general permit shall be executed in a manner so as to minimize adverse impacts on instream beneficial uses as defined in § 62.1-10 (b) of the Code of Virginia.

2. No activity may substantially disrupt the movement of aquatic life indigenous to the water body, including those species that normally migrate through the area, unless the primary purpose of the activity is to impound water. Pipes and culverts placed in streams must be installed to maintain low flow conditions and shall be countersunk at both inlet and outlet ends of the pipe or culvert, unless otherwise specifically approved by the Department of Environmental Quality on a case-by-case basis, and as follows: The requirement to countersink does not apply to extensions or maintenance of existing pipes and culverts that are not countersunk, floodplain pipes and culverts being placed above ordinary high water, pipes and culverts being placed on bedrock, or pipes and culverts required to be placed on slopes 5.0% or greater. Bedrock encountered during construction must be identified and approved in advance of a design change where the countersunk condition cannot be met. Pipes and culverts 24 inches or less in diameter shall be countersunk three inches below the natural stream bed elevations, and pipes and culverts greater than 24 inches shall be countersunk at least six inches below the natural stream bed elevations. Hydraulic capacity shall be determined based on the reduced capacity due to the countersunk position. In all stream crossings appropriate measures shall be implemented to minimize any disruption of aquatic life movement.

3. Wet or uncured concrete shall be prohibited from entry into flowing surface waters, unless the area is contained within a cofferdam and the work is performed in the dry or unless otherwise approved by the Department of Environmental Quality. Excess or waste concrete shall not be disposed of in flowing surface waters or washed into flowing surface waters.

4. All fill material shall be clean and free of contaminants in toxic concentrations or amounts in accordance with all applicable laws and regulations.

5. Erosion and sedimentation controls shall be designed in accordance with the Virginia Erosion and Sediment Control Handbook, Third Edition, 1992. These controls shall be placed prior to clearing and grading and maintained in good working order to minimize impacts to state waters. These controls shall remain in place until the area is stabilized and shall then be removed.

6. Exposed slopes and streambanks shall be stabilized immediately upon completion of work in each permitted area. All denuded areas shall be properly stabilized in accordance with the Virginia Erosion and Sediment Control Handbook, Third Edition, 1992.

7. All construction, construction access (e.g., cofferdams, sheetpiling, and causeways) and demolition activities associated with the project shall be accomplished in such a manner that minimizes construction or waste materials from entering surface waters to the maximum extent practicable, unless authorized by this VWP general permit.

8. No machinery may enter flowing waters, unless authorized by this VWP general permit or approved prior to entry by the Department of Environmental Quality.

9. Heavy equipment in temporarily impacted wetland areas shall be placed on mats, geotextile fabric, or other suitable material, to minimize soil disturbance to the maximum extent practicable. Equipment and materials shall be removed immediately upon completion of work.

10. All nonimpacted surface waters and compensatory mitigation areas within 50 feet of authorized activities and within the project or right-of-way limits shall be clearly flagged or marked for the life of the construction activity at that location to preclude any unauthorized disturbances to these surface waters and compensatory mitigation areas during construction. The permittee shall notify contractors that no activities are to occur in these marked surface waters.

11. Temporary disturbances to surface waters during construction shall be avoided and minimized to the maximum extent practicable. All temporarily disturbed wetland areas shall be restored to preexisting conditions within 30 days of completing work at each respective temporary impact area, which shall include reestablishing preconstruction elevations and contours with topsoil from the impact area where practicable and planting or seeding with appropriate wetland vegetation according to cover type (i.e., emergent, scrub-shrub, or forested). The permittee shall take all appropriate measures to promote and maintain revegetation of temporarily disturbed wetland areas with wetland vegetation through the second year post-disturbance. All temporarily impacted streams and streambanks shall be restored to their preconstruction elevations and contours with topsoil from the impact area where practicable within 30 days following the construction at that stream segment. Streambanks shall be seeded or planted with the same vegetation cover type originally present, including any necessary, supplemental erosion control grasses. Invasive species identified on the Department of Conservation and Recreation's Virginia Invasive Plant Species List shall not be used to the maximum extent practicable or without prior approval from the Department of Environmental Quality.

12. Materials (including fill, construction debris, and excavated and woody materials) temporarily stockpiled in wetlands shall be placed on mats or geotextile fabric, immediately stabilized to prevent entry into state waters, managed such that leachate does not enter state waters, and completely removed within 30 days following completion of that construction activity. Disturbed areas shall be returned to preconstruction elevations and contours with topsoil from the impact areas where practicable; restored within 30 days following removal of the stockpile; and restored with the same vegetation cover type originally present, including any necessary, supplemental erosion control grasses. Invasive species identified on the Department of Conservation and Recreation's Virginia Invasive Plant Species List shall not be used to the maximum extent practicable or without prior approval from the Department of Environmental Quality.

13. Continuous flow of perennial springs shall be maintained by the installation of spring boxes, french drains, or other similar structures.

14. The permittee shall employ measures to prevent spills of fuels or lubricants into state waters.

15. The permittee shall conduct his activities in accordance with the time-of-year restrictions recommended by the Virginia Department of Wildlife Resources, the Virginia

Marine Resources Commission, or other interested and affected agencies, as contained, when applicable, in a Department of Environmental Quality VWP general permit coverage letter, and shall ensure that all contractors are aware of the time-of-year restrictions imposed.

16. Water quality standards shall not be violated as a result of the construction activities.

17. If stream channelization or relocation is required, all work in surface waters shall be done in the dry, unless otherwise authorized by the Department of Environmental Quality, and all flows shall be diverted around the channelization or relocation area until the new channel is stabilized. This work shall be accomplished by leaving a plug at the inlet and outlet ends of the new channel during excavation. Once the new channel has been stabilized, flow shall be routed into the new channel by first removing the downstream plug and then the upstream plug. The rerouted steam flow must be fully established before construction activities in the old stream channel can begin.

C. Road crossings.

1. Access roads and associated bridges, pipes, and culverts shall be constructed to minimize the adverse effects on surface waters to the maximum extent practicable. Access roads constructed above preconstruction elevations and contours in surface waters must be bridged, piped, or culverted to maintain surface flows.

2. Installation of road crossings shall occur in the dry via the implementation of cofferdams, sheetpiling, stream diversions, or similar structures.

D. Utility lines.

1. All utility line work in surface waters shall be performed in a manner that minimizes disturbance, and the area must be returned to its preconstruction elevations and contours with topsoil from the impact area where practicable and restored within 30 days of completing work in the area, unless otherwise authorized by the Department of Environmental Quality. Restoration shall be the seeding or planting of the same vegetation cover type originally present, including any necessary, supplemental erosion control grasses. Invasive species identified on the Department of Conservation and Recreation's Virginia Invasive Plant Species List shall not be used to the maximum extent practicable or without prior approval from the Department of Environmental Quality.

2. Material resulting from trench excavation may be temporarily sidecast into wetlands, not to exceed 90 days, provided the material is not placed in a manner such that it is dispersed by currents or other forces.

3. The trench for a utility line cannot be constructed in a manner that drains wetlands (e.g., backfilling with extensive gravel layers creating a trench drain effect.). For example, utility lines may be backfilled with clay blocks to ensure that the trench does not drain surface waters through which the utility line is installed.

E. Stream modification and stream bank protection.

1. Riprap bank stabilization shall be of an appropriate size and design in accordance with the Virginia Erosion and Sediment Control Handbook, Third Edition, 1992.

2. Riprap apron for all outfalls shall be designed in accordance with the Virginia Erosion and Sediment Control Handbook, Third Edition, 1992.

3. For stream bank protection activities, the structure and backfill shall be placed as close to the stream bank as practicable. No material shall be placed in excess of the minimum necessary for erosion protection.

4. All stream bank protection structures shall be located to eliminate or minimize impacts to vegetated wetlands to the maximum extent practicable.

5. Asphalt and materials containing asphalt or other toxic substances shall not be used in the construction of submerged sills or breakwaters.

6. Redistribution of existing stream substrate for the purpose of erosion control is prohibited.

7. No material removed from the stream bottom shall be disposed of in surface waters, unless otherwise authorized by this VWP general permit.

Part II.

Construction and Compensation Requirements, Monitoring, and Reporting.

A. Minimum compensation requirements.

1. The permittee shall provide any required compensation for impacts in accordance with the conditions in this VWP general permit, the coverage letter, and the chapter promulgating the general permit. For all compensation that requires a protective mechanism, including preservation of surface waters or buffers, the permittee shall record the approved protective mechanism in the chain of title to the property, or an equivalent instrument for government-owned lands, and proof of recordation shall be submitted to the Department of Environmental Quality prior to commencing impacts in surface waters.

2. Compensation options that may be considered under this VWP general permit shall meet the criteria in § 62.1-44.15:23 of the Code of Virginia, 9VAC25-210-116, and 9VAC25-670-70.

3. The permittee-responsible compensation site or sites depicted in the conceptual compensation plan submitted with the application shall constitute the compensation site. A site change may require a modification to coverage.

4. For compensation involving the purchase of mitigation bank credits or the purchase of in-lieu fee program credits, the permittee shall not initiate work in permitted impact areas until documentation of the mitigation bank credit purchase or of the in-lieu fee program credit purchase has been submitted to and received by the Department of Environmental Quality.

5. The final compensation plan shall be submitted to and approved by the department prior to a construction activity in permitted impact areas. The department shall review and provide written comments on the final plan within 30 days of receipt or it shall be deemed approved. The final plan as approved by the department shall be an enforceable requirement of any coverage under this VWP general permit. Deviations from the approved final plan shall be submitted and approved in advance by the department.

a. The final permittee-responsible wetlands compensation plan shall include:

(1) The complete information on all components of the conceptual compensation plan.

(2) A summary of the type and acreage of existing wetland impacts anticipated during the construction of the compensation site and the proposed compensation for these impacts; a site access plan; a monitoring plan, including proposed success criteria, monitoring goals, and the location of photo-monitoring stations, monitoring wells, vegetation sampling points, and reference wetlands or streams, if available; an abatement and control plan for undesirable plant species; an erosion and sedimentation control plan; a construction schedule; and the final protective mechanism for the protection of the compensation site or sites, including all surface waters and buffer areas within its boundaries.

(3) The approved protective mechanism. The protective mechanism shall be recorded in the chain of title to the property, or an equivalent instrument for government-owned lands, and proof of recordation shall be submitted to the Department of Environmental Quality prior to commencing impacts in surface waters.

b. The final permittee-responsible stream compensation plan shall include:

(1) The complete information on all components of the conceptual compensation plan.

(2) An evaluation, discussion, and plan drawing or drawings of existing conditions on the proposed compensation stream, including the identification of functional and physical deficiencies for which the measures are proposed, and summary of geomorphologic measurements (e.g., stream width, entrenchment ratio, width-depth ratio, sinuosity, slope, substrate, etc.); a site access plan; a monitoring plan, including a monitoring and reporting schedule, monitoring design and methodologies for success, proposed success criteria, location of photo-monitoring stations, vegetation sampling points, survey points, bank pins, scour chains, and reference streams; an abatement and control plan for undesirable plant species; an erosion and sedimentation control plan, if appropriate; a construction schedule; a plan-view drawing depicting the pattern and all compensation measures being employed; a profile drawing; cross-sectional drawing or drawings of the proposed compensation stream; and the final protective mechanism for the protection of the compensation site or sites, including all surface waters and buffer areas within its boundaries.

(3) The approved protective mechanism. The protective mechanism shall be recorded in the chain of title to the property, or an equivalent instrument for government-owned lands, and proof of recordation shall be submitted to the Department of Environmental Quality prior to commencing impacts in surface waters.

6. The following criteria shall apply to permittee-responsible wetland or stream compensation:

a. The vegetation used shall be native species common to the area, shall be suitable for growth in local wetland or riparian conditions, and shall be from areas within the same or adjacent U.S. Department of Agriculture Plant Hardiness Zone or Natural Resources Conservation Service Land Resource Region as that of the project site. Planting of woody plants shall occur when vegetation is normally dormant, unless otherwise approved in the final wetlands or stream compensation plan or plans.

b. All work in permitted impact areas shall cease if compensation site construction has not commenced within 180 days of commencement of project construction, unless otherwise authorized by the department.

c. The Department of Environmental Quality shall be notified in writing prior to the initiation of construction activities at the compensation site.

d. Point sources of stormwater runoff shall be prohibited from entering a wetland compensation site prior to treatment by appropriate best management practices. Appropriate best management practices may include sediment traps, grassed waterways, vegetated filter strips, debris screens, oil and grease separators, or forebays.

e. The success of the compensation shall be based on meeting the success criteria established in the approved final compensation plan.

f. If the wetland or stream compensation area fails to meet the specified success criteria in a particular monitoring year, other than the final monitoring year, the reasons for this failure shall be determined and a corrective action plan shall be submitted to the Department of Environmental Quality for approval with or before that year's

monitoring report. The corrective action plan shall contain at a minimum the proposed actions, a schedule for those actions, and a monitoring plan, and shall be implemented by the permittee in accordance with the approved schedule. Should significant changes be necessary to ensure success, the required monitoring cycle shall begin again, with monitoring year one being the year that the changes are complete, as confirmed by the Department of Environmental Quality. If the wetland or stream compensation area fails to meet the specified success criteria by the final monitoring year or if the wetland or stream compensation area has not met the stated restoration goals, reasons for this failure shall be determined and a corrective action plan, including proposed actions, a schedule, and a monitoring plan, shall be submitted with the final year monitoring report for Department of Environmental Quality approval. Corrective action shall be implemented by the permittee in accordance with the approved schedule. Annual monitoring shall be required to continue until two sequential, annual reports indicate that all criteria have been successfully satisfied and the site has met the overall restoration goals (e.g., that corrective actions were successful).

g. The surveyed wetland boundary for the compensation site shall be based on the results of the hydrology, soils, and vegetation monitoring data and shall be shown on the site plan. Calculation of total wetland acreage shall be based on that boundary at the end of the monitoring cycle. Data shall be submitted by December 31 of the final monitoring year.

h. Herbicides or algicides shall not be used in or immediately adjacent to the compensation site or sites without prior authorization by the department. All vegetation removal shall be done by manual means, unless authorized by the Department of Environmental Quality in advance.

B. Impact site construction monitoring.

1. Construction activities authorized by this permit that are within impact areas shall be monitored and documented. The monitoring shall consist of:

a. Preconstruction photographs taken at each impact area prior to initiation of activities within impact areas. Photographs shall remain on the project site and depict the impact area and the nonimpacted surface waters immediately adjacent to and downgradient of each impact area. Each photograph shall be labeled to include the following information: permit number, impact area number, date and time of the photograph, name of the person taking the photograph, photograph orientation, and photograph subject description.

b. Site inspections shall be conducted by the permittee or the permittee's qualified designee once every calendar month during activities within impact areas. Monthly inspections shall be conducted in the following areas: all authorized permanent and temporary impact areas; all avoided surface waters, including wetlands, stream channels, and open water; surface water areas within 50 feet of any land disturbing activity and within the project or right-of-way limits; and all on-site permanent preservation areas required under this permit. Observations shall be recorded on the inspection form provided by the Department of Environmental Quality. The form shall be completed in its entirety for each monthly inspection and shall be kept on site and made available for review by the Department of Environmental Quality staff upon request during normal business hours. Inspections are not required during periods of no activity within impact areas.

2. Monitoring of water quality parameters shall be conducted during permanent relocation of perennial streams through new channels in the manner noted in this subdivision. The

permittee shall report violations of water quality standards to the Department of Environmental Quality in accordance with the procedures in 9VAC25-670-100 Part II E. Corrective measures and additional monitoring may be required if water quality standards are not met. Reporting shall not be required if water quality standards are not violated.

a. A sampling station shall be located upstream and immediately downstream of the relocated channel.

b. Temperature, pH, and dissolved oxygen (D.O.) measurements shall be taken every 30 minutes for at least two hours at each station prior to opening the new channels and immediately before opening new channels.

c. Temperature, pH, and D.O. readings shall be taken after opening the channels and every 30 minutes for at least three hours at each station.

C. Permittee-responsible wetland compensation site monitoring.

1. An as-built ground survey, or an aerial survey provided by a firm specializing in aerial surveys, shall be conducted for the entire compensation site or sites, including invert elevations for all water elevation control structures and spot elevations throughout the site or sites. Aerial surveys shall include the variation from actual ground conditions, such as +/- 0.2 feet. Either type of survey shall be certified by a licensed surveyor or by a registered professional engineer to conform to the design plans. The survey shall be submitted within 60 days of completing compensation site construction. Changes or deviations in the as-built survey or aerial survey shall be shown on the survey and explained in writing.

2. Photographs shall be taken at the compensation site or sites from the permanent markers identified in the final compensation plan, and established to ensure that the same locations and view directions at the site or sites are monitored in each monitoring period. These photographs shall be taken after the initial planting and at a time specified in the final compensation plan during every monitoring year.

3. Compensation site monitoring shall begin on the first day of the first complete growing season (monitoring year one) after wetland compensation site construction activities, including planting, have been completed. Monitoring shall be required for monitoring years one, two, three, and five, unless otherwise approved by the Department of Environmental Quality. In all cases, if all success criteria have not been met in the fifth monitoring year, then monitoring shall be required for each consecutive year until two annual sequential reports indicate that all criteria have been successfully satisfied.

4. The establishment of wetland hydrology shall be measured during the growing season, with the location and number of monitoring wells, and frequency of monitoring for each site, set forth in the final monitoring plan. Hydrology monitoring well data shall be accompanied by precipitation data, including rainfall amounts, either from on site, or from the closest weather station. Once the wetland hydrology success criteria have been satisfied for a particular monitoring year, weekly monitoring may be discontinued for the remainder of that monitoring year following Department of Environmental Quality approval. After a period of three monitoring years, the permittee may request that hydrology monitoring be discontinued, providing that adequate hydrology has been established and maintained. Hydrology monitoring shall not be discontinued without written approval from the Department of Environmental Quality.

5. The presence of hydric soils or soils under hydric conditions shall be evaluated in accordance with the final compensation plan.

6. The establishment of wetland vegetation shall be in accordance with the final compensation plan. Monitoring shall take place in August, September, or October during the growing season of each monitoring year, unless authorized in the monitoring plan.

7. The presence of undesirable plant species shall be documented.

8. All wetland compensation monitoring reports shall be submitted in accordance with 9VAC25-670-100 Part II E 6.

D. Permittee-responsible stream compensation and monitoring.

1. Riparian buffer restoration activities shall be detailed in the final compensation plan and shall include, as appropriate, the planting of a variety of native species currently growing in the site area, including appropriate seed mixtures and woody species that are bare root, balled, or burlapped. A minimum buffer width of 50 feet, measured from the top of the stream bank at bankfull elevation landward on both sides of the stream, shall be required where practical.

2. The installation of root wads, vanes, and other instream structures, shaping of the stream banks, and channel relocation shall be completed in the dry whenever practicable.

3. Livestock access to the stream and designated riparian buffer shall be limited to the greatest extent practicable.

4. Stream channel restoration activities shall be conducted in the dry or during low flow conditions. When site conditions prohibit access from the streambank or upon prior authorization from the Department of Environmental Quality, heavy equipment may be authorized for use within the stream channel.

5. Photographs shall be taken at the compensation site from the vicinity of the permanent photo-monitoring stations identified in the final compensation plan. The photograph orientation shall remain constant during all monitoring events. At a minimum, photographs shall be taken from the center of the stream, facing downstream, with a sufficient number of photographs to view the entire length of the restoration site. Photographs shall document the completed restoration conditions. Photographs shall be taken prior to site activities, during instream and riparian compensation construction activities, within one week of completion of activities, and during at least one day of each monitoring year to depict restored conditions.

6. An as-built ground survey, or an aerial survey provided by a firm specializing in aerial surveys, shall be conducted for the entire compensation site or sites. Aerial surveys shall include the variation from actual ground conditions, such as +/- 0.2 feet. The survey shall be certified by the licensed surveyor or by a registered, professional engineer to conform to the design plans. The survey shall be submitted within 60 days of completing compensation site construction. Changes or deviations from the final compensation plans in the as-built survey or aerial survey shall be shown on the survey and explained in writing.

7. Compensation site monitoring shall begin on day one of the first complete growing season (monitoring year one) after stream compensation site construction activities, including planting, have been completed. Monitoring shall be required for monitoring years one and two, unless otherwise approved by the Department of Environmental Quality. In all cases, if all success criteria have not been met in the final monitoring year, then monitoring shall be required for each consecutive year until two annual sequential reports indicate that all criteria have been successfully satisfied.

8. All stream compensation site monitoring reports shall be submitted in accordance with 9VAC25-670-100 Part II E 6.

E. Reporting.

1. Written communications required by this VWP general permit shall be submitted to the appropriate Department of Environmental Quality office. The VWP general permit tracking number shall be included on all correspondence.

2. The Department of Environmental Quality shall be notified in writing prior to the start of construction activities at the first permitted impact area.

3. A construction status update form provided by the Department of Environmental Quality shall be completed and submitted to the Department of Environmental Quality twice per year for the duration of coverage under a VWP general permit. Forms completed in June shall be submitted by or on July 10, and forms completed in December shall be submitted by or on January 10. The form shall include reference to the VWP permit tracking number and one of the following statements for each authorized surface water impact location:

a. Construction activities have not yet started;

b. Construction activities have started;

c. Construction activities have started but are currently inactive; or

d. Construction activities are complete.

4. The Department of Environmental Quality shall be notified in writing within 30 days following the completion of all activities in all authorized impact areas.

5. The Department of Environmental Quality shall be notified in writing prior to the initiation of activities at the permittee-responsible compensation site. The notification shall include a projected schedule of activities and construction completion.

6. All permittee-responsible compensation site monitoring reports shall be submitted annually by December 31, with the exception of the last year, in which case the report shall be submitted at least 60 days prior to the expiration of the general permit, unless otherwise approved by the Department of Environmental Quality.

a. All wetland compensation site monitoring reports shall include, as applicable, the following:

(1) General description of the site, including a site location map identifying photo-monitoring stations, vegetative and soil monitoring stations, monitoring wells, and wetland zones.

(2) Summary of activities completed during the monitoring year, including alterations or maintenance conducted at the site.

(3) Description of monitoring methods.

(4) Analysis of all hydrology information, including monitoring well data, precipitation data, and gauging data from streams or other open water areas, as set forth in the final compensation plan.

(5) Evaluation of hydric soils or soils under hydric conditions, as appropriate.

(6) Analysis of all vegetative community information, including woody and herbaceous species, both planted and volunteers, as set forth in the final compensation plan.

(7) Photographs labeled with the permit number, the name of the compensation site, the photo-monitoring station number, the photograph orientation, the date and time of the photograph, the name of the person taking the photograph, and a brief description of the photograph subject. This information shall be provided as a separate attachment to each photograph, if necessary. Photographs taken after the initial planting shall be included in the first monitoring report after planting is complete.

(8) Discussion of wildlife or signs of wildlife observed at the compensation site.

(9) Comparison of site conditions from the previous monitoring year and reference site.

(10) Discussion of corrective measures or maintenance activities to control undesirable species, to repair damaged water control devices, or to replace damaged planted vegetation.

(11) Corrective action plan that includes proposed actions, a schedule, and monitoring plan.

b. All stream compensation site monitoring reports shall include, as applicable, the following:

(1) General description of the site, including a site location map identifying photo-monitoring stations and monitoring stations.

(2) Summary of activities completed during the monitoring year, including alterations or maintenance conducted at the site.

(3) Description of monitoring methods.

(4) Evaluation and discussion of the monitoring results in relation to the success criteria and overall goals of compensation.

(5) Photographs shall be labeled with the permit number, the name of the compensation site, the photo-monitoring station number, the photograph orientation, the date and time of the photograph, the name of the person taking the photograph, and a brief description of the photograph subject. Photographs taken prior to compensation site construction activities, during instream and riparian restoration activities, and within one week of completion of activities shall be included in the first monitoring report.

(6) Discussion of alterations, maintenance, or major storm events resulting in significant change in stream profile or cross section, and corrective actions conducted at the stream compensation site.

(7) Documentation of undesirable plant species and summary of abatement and control measures.

(8) Summary of wildlife or signs of wildlife observed at the compensation site.

(9) Comparison of site conditions from the previous monitoring year and reference site, and as-built survey, if applicable.

(10) Corrective action plan that includes proposed actions, a schedule and monitoring plan.

(11) Additional submittals that were approved by the Department of Environmental Quality in the final compensation plan.

7. The permittee shall notify the Department of Environmental Quality in writing when unusual or potentially complex conditions are encountered that require debris removal or involve potentially toxic substance. Measures to remove the obstruction, material, or toxic substance or to change the location of a structure are prohibited until approved by the Department of Environmental Quality.

8. The permittee shall report fish kills or spills of oil or fuel immediately upon discovery. If spills or fish kills occur between the hours of 8:15 a.m. to 5 p.m., Monday through Friday, the appropriate Department of Environmental Quality regional office shall be notified; otherwise, the Department of Emergency Management shall be notified at 1-800-468-8892.

9. Violations of state water quality standards shall be reported to the appropriate Department of Environmental Quality office no later than the end of the business day following discovery.

10. The permittee shall notify the Department of Environmental Quality no later than the end of the third business day following the discovery of additional impacts to surface waters, including wetlands, stream channels, and open water that are not authorized by the Department of Environmental Quality or to any required preservation areas. The

notification shall include photographs, estimated acreage or linear footage of impacts, and a description of the impacts.

11. Submittals required by this VWP general permit shall contain the following signed certification statement:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violation."

Part III.

Conditions Applicable to All VWP General Permits.

A. Duty to comply. The permittee shall comply with all conditions, limitations, and other requirements of the VWP general permit; any requirements in coverage granted under this VWP general permit; the Clean Water Act, as amended; and the State Water Control Law and regulations adopted pursuant to it. Any VWP general permit violation or noncompliance is a violation of the Clean Water Act and State Water Control Law and is grounds for (i) enforcement action, (ii) VWP general permit coverage termination for cause, (iii) VWP general permit coverage revocation, (iv) denial of application for coverage, or (v) denial of an application for a modification to VWP general permit coverage. Nothing in this VWP general permit shall be construed to relieve the permittee of the duty to comply with all applicable federal and state statutes, regulations, and toxic standards and prohibitions.

B. Duty to mitigate. The permittee shall take all reasonable steps to minimize or prevent impacts in violation of the VWP general permit that may have a reasonable likelihood of adversely affecting human health or the environment.

C. Reopener. This VWP general permit may be reopened to modify its conditions when the circumstances on which the previous VWP general permit was based have materially and substantially changed, or special studies conducted by the department or the permittee show material and substantial change since the time the VWP general permit was issued and thereby constitute cause for revoking and reissuing the VWP general permit.

D. Compliance with state and federal law. Compliance with this VWP general permit constitutes compliance with the VWP permit requirements of the State Water Control Law. Nothing in this VWP general permit shall be construed to preclude the institution of any legal action under or relieve the permittee from any responsibilities, liabilities, or other penalties established pursuant to any other state law or regulation or under the authority preserved by § 510 of the Clean Water Act.

E. Property rights. The issuance of this VWP general permit does not convey property rights in either real or personal property or any exclusive privileges, nor does it authorize injury to private property, any invasion of personal property rights, or any infringement of federal, state, or local laws or regulations.

F. Severability. The provisions of this VWP general permit are severable.

G. Inspection and entry. Upon presentation of credentials, the permittee shall allow the department or any duly authorized agent of the department, at reasonable times and under

reasonable circumstances, to enter upon the permittee's property, public or private, and have access to inspect and copy any records that must be kept as part of the VWP general permit conditions; to inspect any facilities, operations, or practices (including monitoring and control equipment) regulated or required under the VWP general permit; and to sample or monitor any substance, parameter, or activity for the purpose of ensuring compliance with the conditions of the VWP general permit or as otherwise authorized by law. For the purpose of this section, the time for inspection shall be deemed reasonable during regular business hours. Nothing contained herein shall make an inspection time unreasonable during an emergency.

H. Transferability of VWP general permit coverage. VWP general permit coverage may be transferred to another permittee when all of the criteria listed in this subsection are met. On the date of the VWP general permit coverage transfer, the transferred VWP general permit coverage shall be as fully effective as if it had been granted directly to the new permittee.

1. The current permittee notifies the department of the proposed transfer of the general permit coverage and provides a written agreement between the current and new permittees containing a specific date of transfer of VWP general permit responsibility, coverage, and liability to the new permittee, or that the current permittee will retain such responsibility, coverage, or liability, including liability for compliance with the requirements of enforcement activities related to the authorized activity.

2. The department does not within the 15 days notify the current and new permittees of the board's intent to modify or revoke and reissue the VWP general permit.

I. Notice of planned change. VWP general permit coverage may be modified subsequent to issuance in accordance with 9VAC25-670-80.

J. VWP general permit coverage termination for cause. VWP general permit coverage is subject to termination for cause by the department after public notice and opportunity for a hearing in accordance with 9VAC25-210-180. Reasons for termination for cause are as follows:

1. Noncompliance by the permittee with any provision of this chapter, any condition of the VWP general permit, or any requirement in general permit coverage;

2. The permittee's failure in the application or during the process of granting VWP general permit coverage to disclose fully all relevant facts or the permittee's misrepresentation of any relevant facts at any time;

3. The permittee's violation of a special or judicial order;

4. A determination by the department that the authorized activity endangers human health or the environment and can be regulated to acceptable levels by a modification to the VWP general permit coverage or a termination;

5. A change in any condition that requires either a temporary or permanent reduction or elimination of any activity controlled by the VWP general permit; or

6. A determination that the authorized activity has ceased and that the compensation for unavoidable adverse impacts has been successfully completed.

K. The department may terminate VWP general permit coverage without cause when the permittee is no longer a legal entity due to death or dissolution or when a company is no longer authorized to conduct business in the Commonwealth. The termination shall be effective 30 days after notice of the proposed termination is sent to the last known address of the permittee or registered agent, unless the permittee objects within that time. If the permittee does object during that period, the department shall follow the applicable procedures for termination under 9VAC25-210-180 and § 62.1-44.15:25 of the Code of Virginia.

L. VWP general permit coverage termination by consent. The permittee shall submit a request for termination by consent within 30 days of completing or canceling all authorized activities requiring notification under 9VAC25-670-50 A and all compensatory mitigation requirements.

When submitted for project completion, the request for termination by consent shall constitute a notice of project completion in accordance with 9VAC25-210-130 F. The director may accept this termination of coverage on behalf of the department. The permittee shall submit the following information:

1. Name, mailing address, and telephone number;
2. Name and location of the activity;
3. The VWP general permit tracking number; and
4. One of the following certifications:

a. For project completion:

"I certify under penalty of law that all activities and any required compensatory mitigation authorized by the VWP general permit and general permit coverage have been completed. I understand that by submitting this notice of termination I am no longer authorized to perform activities in surface waters in accordance with the VWP general permit and general permit coverage, and that performing activities in surface waters is unlawful where the activity is not authorized by the VWP permit or coverage, unless otherwise excluded from obtaining coverage. I also understand that the submittal of this notice does not release me from liability for any violations of the VWP general permit or coverage."

b. For project cancellation:

"I certify under penalty of law that the activities and any required compensatory mitigation authorized by the VWP general permit and general permit coverage will not occur. I understand that by submitting this notice of termination I am no longer authorized to perform activities in surface waters in accordance with the VWP general permit and general permit coverage, and that performing activities in surface waters is unlawful where the activity is not authorized by the VWP permit or coverage, unless otherwise excluded from obtaining coverage. I also understand that the submittal of this notice does not release me from liability for any violations of the VWP general permit or coverage, nor does it allow me to resume the authorized activities without reapplication and coverage."

c. For events beyond permittee control, the permittee shall provide a detailed explanation of the events, to be approved by the Department of Environmental Quality, and the following certification statement:

"I certify under penalty of law that the activities or the required compensatory mitigation authorized by the VWP general permit and general permit coverage have changed as the result of events beyond my control (see attached). I understand that by submitting this notice of termination I am no longer authorized to perform activities in surface waters in accordance with the VWP general permit and general permit coverage, and that performing activities in surface waters is unlawful where the activity is not authorized by the VWP permit or coverage, unless otherwise excluded from obtaining coverage. I also understand that the submittal of this notice does not release me from liability for any violations of the VWP general permit or coverage, nor does it allow me to resume the authorized activities without reapplication and coverage."

M. Civil and criminal liability. Nothing in this VWP general permit shall be construed to relieve the permittee from civil and criminal penalties for noncompliance.

N. Oil and hazardous substance liability. Nothing in this VWP general permit shall be construed to preclude the institution of legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under § 311 of the Clean Water Act or §§ 62.1-44.34:14 through 62.1-44.34:23 of the State Water Control Law.

O. Duty to cease or confine activity. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the activity for which VWP general permit coverage has been granted in order to maintain compliance with the conditions of the VWP general permit or coverage.

P. Duty to provide information.

1. The permittee shall furnish to the department any information that the department may request to determine whether cause exists for modifying, revoking, or terminating VWP permit coverage or to determine compliance with the VWP general permit or general permit coverage. The permittee shall also furnish to the department, upon request, copies of records required to be kept by the permittee.

2. Plans, maps, conceptual reports, and other relevant information shall be submitted as required by the department prior to commencing construction.

Q. Monitoring and records requirements.

1. Monitoring of parameters, other than pollutants, shall be conducted according to approved analytical methods as specified in the VWP general permit. Analysis of pollutants will be conducted according to 40 CFR Part 136 as published in the July 1, ~~2023~~2024, update, Guidelines Establishing Test Procedures for the Analysis of Pollutants.

2. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.

3. The permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart or electronic recordings for continuous monitoring instrumentation, copies of all reports required by the VWP general permit, and records of all data used to complete the application for coverage under the VWP general permit, for a period of at least three years from the date of general permit expiration. This period may be extended by request of the department at any time.

4. Records of monitoring information shall include, as appropriate:

a. The date, exact place, and time of sampling or measurements;

b. The name of the individuals who performed the sampling or measurements;

c. The date and time the analyses were performed;

d. The name of the individuals who performed the analyses;

e. The analytical techniques or methods supporting the information such as observations, readings, calculations, and bench data used;

f. The results of such analyses; and

g. Chain of custody documentation.

R. Unauthorized discharge of pollutants. Except in compliance with this VWP general permit, it shall be unlawful for the permittee to:

1. Discharge into state waters sewage, industrial wastes, other wastes, or any noxious or deleterious substances;

2. Excavate in a wetland;

3. Otherwise alter the physical, chemical, or biological properties of state waters and make them detrimental to the public health, to animal or aquatic life, or to the uses of such waters for domestic or industrial consumption, for recreation, or for other uses; or

4. On and after October 1, 2001, conduct the following activities in a wetland:

a. New activities to cause draining that significantly alters or degrades existing wetland acreage or functions;

b. Filling or dumping;

c. Permanent flooding or impounding; or

d. New activities that cause significant alteration or degradation of existing wetland acreage or functions.

S. Duty to reapply. Any permittee desiring to continue a previously authorized activity after the expiration date of the VWP general permit shall comply with the provisions in 9VAC25-670-27.

9VAC25-680-100. VWP general permit.

VWP GENERAL PERMIT NO. WP3 FOR LINEAR TRANSPORTATION PROJECTS UNDER THE VIRGINIA WATER PROTECTION PERMIT AND THE VIRGINIA STATE WATER CONTROL LAW

Effective date: August 2, 2016
Expiration date: August 1, 2026

In compliance with § 401 of the Clean Water Act, as amended (33 USC § 1341) and the State Water Control Law and regulations adopted pursuant thereto, the board has determined that there is a reasonable assurance that this VWP general permit, if complied with, will protect instream beneficial uses, will not violate applicable water quality standards, and will not cause or contribute to a significant impairment of state waters or fish and wildlife resources. In issuing this VWP general permit, the board has not taken into consideration the structural stability of any proposed activities.

The permanent or temporary impact of up to two acres of nontidal wetlands or open water and up to 1,500 linear feet of nontidal stream bed shall be subject to the provisions of the VWP general permit set forth herein; any requirements in coverage granted under this VWP general permit; the Clean Water Act, as amended; and the State Water Control Law and regulations adopted pursuant to it.

Part I.

Special Conditions.

A. Authorized activities.

1. The activities authorized by this chapter shall not cause more than the permanent or temporary impacts of up to two acres of nontidal wetlands or open water and up to 1,500 linear feet of nontidal stream bed. Additional permit requirements as stipulated by the department in the coverage letter, if any, shall be enforceable conditions of this permit.

2. Any changes to the authorized permanent impacts to surface waters shall require a notice of planned change in accordance with 9VAC25-680-80. An application or request for modification to coverage or another VWP permit application may be required.

3. Any changes to the authorized temporary impacts to surface waters shall require written notification to and approval from the Department of Environmental Quality in accordance with 9VAC25-680-80 prior to initiating the impacts and restoration to preexisting conditions in accordance with the conditions of this permit.

4. Modification to compensation requirements may be approved at the request of the permittee when a decrease in the amount of authorized surface waters impacts occurs, provided that the adjusted compensation meets the initial compensation goals.

B. Overall conditions.

1. The activities authorized by this VWP general permit shall be executed in a manner so as to minimize adverse impacts on instream beneficial uses as defined in § 62.1-10 (b) of the Code of Virginia.

2. No activity may substantially disrupt the movement of aquatic life indigenous to the water body, including those species that normally migrate through the area, unless the primary purpose of the activity is to impound water. Pipes and culverts placed in streams must be installed to maintain low flow conditions and shall be countersunk at both inlet and outlet ends of the pipe or culvert, unless specifically approved by the Department of Environmental Quality on a case-by-case basis and as follows: The requirement to countersink does not apply to extensions or maintenance of existing pipes and culverts that are not countersunk, floodplain pipe and culverts being placed above ordinary high water, pipes and culverts being placed on bedrock, or pipes or culverts required to be placed on slopes 5.0% or greater. Bedrock encountered during construction must be identified and approved in advance of a design change where the countersunk condition cannot be met. Pipes and culverts 24 inches or less in diameter shall be countersunk three inches below the natural stream bed elevations, and pipes and culverts greater than 24 inches shall be countersunk at least six inches below the natural stream bed elevations. Hydraulic capacity shall be determined based on the reduced capacity due to the countersunk position. In all stream crossings appropriate measures shall be implemented to minimize any disruption of aquatic life movement.

3. Wet or uncured concrete shall be prohibited from entry into flowing surface waters, unless the area is contained within a cofferdam and the work is performed in the dry or unless otherwise approved by the Department of Environmental Quality. Excess or waste concrete shall not be disposed of in flowing surface waters or washed into flowing surface waters.

4. All fill material shall be clean and free of contaminants in toxic concentrations or amounts in accordance with all applicable laws and regulations.

5. Erosion and sedimentation controls shall be designed in accordance with the Virginia Erosion and Sediment Control Handbook, Third Edition, 1992. These controls shall be placed prior to clearing and grading and maintained in good working order to minimize impacts to state waters. These controls shall remain in place until the area is stabilized and shall then be removed.

6. Exposed slopes and streambanks shall be stabilized immediately upon completion of work in each permitted impact area. All denuded areas shall be properly stabilized in accordance with the Virginia Erosion and Sediment Control Handbook, Third Edition, 1992.

7. All construction, construction access (e.g., cofferdams, sheetpiling, and causeways) and demolition activities associated with the project shall be accomplished in a manner that minimizes construction or waste materials from entering surface waters to the maximum extent practicable, unless authorized by this VWP general permit.

8. No machinery may enter flowing waters, unless authorized by this VWP general permit or approved prior to entry by the Department of Environmental Quality.

9. Heavy equipment in temporarily impacted wetland areas shall be placed on mats, geotextile fabric, or other suitable material, to minimize soil disturbance to the maximum extent practicable. Equipment and materials shall be removed immediately upon completion of work.

10. All nonimpacted surface waters and compensatory mitigation areas within 50 feet of authorized activities and within the project or right-of-way limits shall be clearly flagged or marked for the life of the construction activity at that location to preclude unauthorized

disturbances to these surface waters and compensatory mitigation areas during construction. The permittee shall notify contractors that no activities are to occur in these marked surface waters.

11. Temporary disturbances to surface waters during construction shall be avoided and minimized to the maximum extent practicable. All temporarily disturbed wetland areas shall be restored to preexisting conditions within 30 days of completing work at each respective temporary impact area, which shall include reestablishing preconstruction elevations and contours with topsoil from the impact area where practicable and planting or seeding with appropriate wetland vegetation according to cover type (i.e., emergent, scrub-shrub, or forested). The permittee shall take all appropriate measures to promote and maintain revegetation of temporarily disturbed wetland areas with wetland vegetation through the second year post-disturbance. All temporarily impacted streams and streambanks shall be restored to their preconstruction elevations and contours with topsoil from the impact area where practicable within 30 days following the construction at that stream segment. Streambanks shall be seeded or planted with the same vegetation cover type originally present, including any necessary, supplemental erosion control grasses. Invasive species identified on the Department of Conservation and Recreation's Virginia Invasive Plant Species List shall not be used to the maximum extent practicable or without prior approval from the Department of Environmental Quality.

12. Materials (including fill, construction debris, and excavated and woody materials) temporarily stockpiled in wetlands shall be placed on mats or geotextile fabric, immediately stabilized to prevent entry into state waters, managed such that leachate does not enter state waters, and completely removed within 30 days following completion of that construction activity. Disturbed areas shall be returned to preconstruction elevations and contours with topsoil from the impact area where practicable; restored within 30 days following removal of the stockpile; and restored with the same vegetation cover type originally present, including any necessary supplemental erosion control grasses. Invasive species identified on the Department of Conservation and Recreation's Virginia Invasive Plant Species List shall not be used to the maximum extent practicable or without prior approval from the Department of Environmental Quality.

13. Continuous flow of perennial springs shall be maintained by the installation of spring boxes, french drains, or other similar structures.

14. The permittee shall employ measures to prevent spills of fuels or lubricants into state waters.

15. The permittee shall conduct his activities in accordance with the time-of-year restrictions recommended by the Virginia Department of Wildlife Resources, the Virginia Marine Resources Commission, or other interested and affected agencies, as contained, when applicable, in Department of Environmental Quality VWP general permit coverage, and shall ensure that all contractors are aware of the time-of-year restrictions imposed.

16. Water quality standards shall not be violated as a result of the construction activities.

17. If stream channelization or relocation is required, all work in surface waters shall be done in the dry, unless otherwise authorized by the Department of Environmental Quality, and all flows shall be diverted around the channelization or relocation area until the new channel is stabilized. This work shall be accomplished by leaving a plug at the inlet and outlet ends of the new channel during excavation. Once the new channel has been stabilized, flow shall be routed into the new channel by first removing the downstream plug and then the upstream plug. The rerouted stream flow must be fully established before construction activities in the old stream channel can begin.

C. Road crossings.

1. Access roads and associated bridges, pipes, and culverts shall be constructed to minimize the adverse effects on surface waters to the maximum extent practicable. Access roads constructed above preconstruction elevations and contours in surface waters must be bridged, piped, or culverted to maintain surface flows.

2. Installation of road crossings shall occur in the dry via the implementation of cofferdams, sheetpiling, stream diversions, or similar structures.

D. Utility lines.

1. All utility line work in surface waters shall be performed in a manner that minimizes disturbance, and the area must be returned to its preconstruction elevations and contours with topsoil from the impact area where practicable and restored within 30 days of completing work in the area, unless otherwise authorized by the Department of Environmental Quality. Restoration shall be the seeding or planting of the same vegetation cover type originally present, including any necessary supplemental erosion control grasses. Invasive species identified on the Department of Conservation and Recreation's Virginia Invasive Plant Species List shall not be used to the maximum extent practicable or without prior approval from the Department of Environmental Quality.

2. Material resulting from trench excavation may be temporarily sidecast into wetlands not to exceed a total of 90 days, provided the material is not placed in a manner such that it is dispersed by currents or other forces.

3. The trench for a utility line cannot be constructed in a manner that drains wetlands (e.g., backfilling with extensive gravel layers creating a french drain effect). For example, utility lines may be backfilled with clay blocks to ensure that the trench does not drain surface waters through which the utility line is installed.

E. Stream modification and stream bank protection.

1. Riprap bank stabilization shall be of an appropriate size and design in accordance with the Virginia Erosion and Sediment Control Handbook, Third Edition, 1992.

2. Riprap aprons for all outfalls shall be designed in accordance with the Virginia Erosion and Sediment Control Handbook, Third Edition, 1992.

3. For bank protection activities, the structure and backfill shall be placed as close to the stream bank as practicable. No material shall be placed in excess of the minimum necessary for erosion protection.

4. All stream bank protection structures shall be located to eliminate or minimize impacts to vegetated wetlands to the maximum extent practicable.

5. Asphalt and materials containing asphalt or other toxic substances shall not be used in the construction of submerged sills or breakwaters.

6. Redistribution of existing stream substrate for the purpose of erosion control is prohibited.

7. No material removed from the stream bottom shall be disposed of in surface waters, unless otherwise authorized by this VWP general permit.

F. Dredging.

1. Dredging depths shall be determined and authorized according to the proposed use and controlling depths outside the area to be dredged.

2. Dredging shall be accomplished in a manner that minimizes disturbance of the bottom and minimizes turbidity levels in the water column.

3. If evidence of impaired water quality, such as a fish kill, is observed during the dredging, dredging operations shall cease, and the Department of Environmental Quality shall be notified immediately.

4. Barges used for the transportation of dredge material shall be filled in such a manner to prevent the overflow of dredged materials.

5. Double handling of dredged material in state waters shall not be permitted.

6. For navigation channels the following shall apply:

a. A buffer of four times the depth of the dredge cut shall be maintained between the bottom edge of the design channel and the channelward limit of wetlands, or a buffer of 15 feet shall be maintained from the dredged cut and the channelward edge of wetlands, whichever is greater. This landward limit of buffer shall be flagged and inspected prior to construction.

b. Side slope cuts of the dredging area shall not exceed a two-horizontal-to-one-vertical slope to prevent slumping of material into the dredged area.

7. A dredged material management plan for the designated upland disposal site shall be submitted and approved 30 days prior to initial dredging activity.

8. Pipeline outfalls and spillways shall be located at opposite ends of the dewatering area to allow for maximum retention and settling time. Filter fabric shall be used to line the dewatering area and to cover the outfall pipe to further reduce sedimentation to state waters.

9. The dredge material dewatering area shall be of adequate size to contain the dredge material and to allow for adequate dewatering and settling out of sediment prior to discharge back into state waters.

10. The dredge material dewatering area shall utilize an earthen berm or straw bales covered with filter fabric along the edge of the area to contain the dredged material, filter bags, or other similar filtering practices, any of which shall be properly stabilized prior to placing the dredged material within the containment area.

11. Overtopping of the dredge material containment berms with dredge materials shall be strictly prohibited.

G. Stormwater management facilities.

1. Stormwater management facilities shall be installed in accordance with best management practices and watershed protection techniques (e.g., vegetated buffers, siting considerations to minimize adverse effects to aquatic resources, bioengineering methods incorporated into the facility design to benefit water quality and minimize adverse effects to aquatic resources) that provide for long-term aquatic resources protection and enhancement, to the maximum extent practicable.

2. Compensation for unavoidable impacts shall not be allowed within maintenance areas of stormwater management facilities.

3. Maintenance activities within stormwater management facilities shall not require additional permit coverage or compensation, provided that the maintenance activities do not exceed the original contours of the facility, as approved and constructed, and is accomplished in designated maintenance areas as indicated in the facility maintenance or design plan or when unavailable, an alternative plan approved by the Department of Environmental Quality.

Part II.

Construction and Compensation Requirements, Monitoring and Reporting.

A. Minimum compensation requirements.

1. The permittee shall provide any required compensation for impacts in accordance with the conditions in this VWP general permit, the coverage letter, and the chapter promulgating the general permit. For all compensation that requires a protective mechanism, including preservation of surface waters or buffers, the permittee shall record the approved protective mechanism in the chain of title to the property, or an equivalent instrument for government-owned lands, and proof of recordation shall be submitted to the Department of Environmental Quality prior to commencing impacts in surface waters.

2. Compensation options that may be considered under this VWP general permit shall meet the criteria in § 62.1-44.15:23 of the Code of Virginia, 9VAC25-210-116, and 9VAC25-680-70.

3. The permittee-responsible compensation site or sites depicted in the conceptual compensation plan submitted with the application shall constitute the compensation site. A site change may require a modification to coverage.

4. For compensation involving the purchase of mitigation bank credits or the purchase of in-lieu fee program credits, the permittee shall not initiate work in permitted impact areas until documentation of the mitigation bank credit purchase or of the in-lieu fee program credit purchase has been submitted to and received by the Department of Environmental Quality.

5. The final compensatory mitigation plan shall be submitted to and approved by the department prior to a construction activity in permitted impact areas. The department shall review and provide written comments on the final plan within 30 days of receipt or it shall be deemed approved. The final plan as approved by the department shall be an enforceable requirement of any coverage under this VWP general permit. Deviations from the approved final plan shall be submitted and approved in advance by the department.

a. The final permittee-responsible wetlands compensation plan shall include:

(1) The complete information on all components of the conceptual compensation plan.

(2) A summary of the type and acreage of existing wetland impacts anticipated during the construction of the compensation site and the proposed compensation for these impacts; a site access plan; a monitoring plan, including proposed success criteria, monitoring goals, and the location of photo-monitoring stations, monitoring wells, vegetation sampling points, and reference wetlands or streams, if available; an abatement and control plan for undesirable plant species; an erosion and sedimentation control plan; a construction schedule; and the final protective mechanism for the protection of the compensation site or sites, including all surface waters and buffer areas within its boundaries.

(3) The approved protective mechanism. The protective mechanism shall be recorded in the chain of title to the property, or an equivalent instrument for government-owned lands, and proof of recordation shall be submitted to the Department of Environmental Quality prior to commencing impacts in surface waters.

b. The final permittee-responsible stream compensation plan shall include:

(1) The complete information on all components of the conceptual compensation plan.

(2) An evaluation, discussion, and plan drawing or drawings of existing conditions on the proposed compensation stream, including the identification of functional and physical deficiencies for which the measures are proposed, and summary of geomorphologic measurements (e.g., stream width, entrenchment ratio, width-depth ratio, sinuosity, slope, substrate, etc.); a site access plan; a monitoring plan, including a monitoring and reporting schedule, monitoring design and methodologies for success, proposed success criteria, location of photo-monitoring stations, vegetation

sampling points, survey points, bank pins, scour chains, and reference streams; an abatement and control plan for undesirable plant species; an erosion and sedimentation control plan, if appropriate; a construction schedule; a plan-view drawing depicting the pattern and all compensation measures being employed; a profile drawing; cross-sectional drawing or drawings of the proposed compensation stream; and the final protective mechanism for the protection of the compensation site or sites, including all surface waters and buffer areas within its boundaries.

(3) The approved protective mechanism. The protective mechanism shall be recorded in the chain of title to the property, or an equivalent instrument for government-owned lands, and proof of recordation shall be submitted to the Department of Environmental Quality prior to commencing impacts in surface waters.

6. The following criteria shall apply to permittee-responsible wetland or stream compensation:

a. The vegetation used shall be native species common to the area, shall be suitable for growth in local wetland or riparian conditions, and shall be from areas within the same or adjacent U.S. Department of Agriculture Plant Hardiness Zone or Natural Resources Conservation Service Land Resource Region as that of the project site. Planting of woody plants shall occur when vegetation is normally dormant, unless otherwise approved in the final wetlands or stream compensation plan or plans.

b. All work in permitted impact areas shall cease if compensation site construction has not commenced within 180 days of commencement of project construction, unless otherwise authorized by the department.

c. The Department of Environmental Quality shall be notified in writing prior to the initiation of construction activities at the compensation site.

d. Point sources of stormwater runoff shall be prohibited from entering a wetland compensation site prior to treatment by appropriate best management practices. Appropriate best management practices may include sediment traps, grassed waterways, vegetated filter strips, debris screens, oil and grease separators, or forebays.

e. The success of the compensation shall be based on meeting the success criteria established in the approved final compensation plan.

f. If the wetland or stream compensation area fails to meet the specified success criteria in a particular monitoring year, other than the final monitoring year, the reasons for this failure shall be determined and a corrective action plan shall be submitted to the Department of Environmental Quality for approval with or before that year's monitoring report. The corrective action plan shall contain at minimum the proposed actions, a schedule for those actions, and a monitoring plan, and shall be implemented by the permittee in accordance with the approved schedule. Should significant changes be necessary to ensure success, the required monitoring cycle shall begin again, with monitoring year one being the year that the changes are complete as confirmed by the Department of Environmental Quality. If the wetland or stream compensation area fails to meet the specified success criteria by the final monitoring year or if the wetland or stream compensation area has not met the stated restoration goals, reasons for this failure shall be determined and a corrective action plan, including proposed actions, a schedule, and a monitoring plan, shall be submitted with the final year monitoring report for the Department of Environmental Quality approval. Corrective action shall be implemented by the permittee in accordance with the approved schedule. Annual monitoring shall be required to continue until two sequential, annual reports indicate that all criteria have been successfully satisfied and

the site has met the overall restoration goals (e.g., that corrective actions were successful).

g. The surveyed wetland boundary for the compensation site shall be based on the results of the hydrology, soils, and vegetation monitoring data and shall be shown on the site plan. Calculation of total wetland acreage shall be based on that boundary at the end of the monitoring cycle. Data shall be submitted by December 31 of the final monitoring year.

h. Herbicides or algicides shall not be used in or immediately adjacent to the compensation site or sites without prior authorization by the department. All vegetation removal shall be done by manual means only, unless authorized by the Department of Environmental Quality in advance.

B. Impact site construction monitoring.

1. Construction activities authorized by this permit that are within impact areas shall be monitored and documented. The monitoring shall consist of:

a. Preconstruction photographs taken at each impact area prior to initiation of activities within impact areas. Photographs shall remain on the project site and depict the impact area and the nonimpacted surface waters immediately adjacent to and downgradient of each impact area. Each photograph shall be labeled to include the following information: permit number, impact area number, date and time of the photograph, name of the person taking the photograph, photograph orientation, and photograph subject description.

b. Site inspections shall be conducted by the permittee or the permittee's qualified designee once every calendar month during activities within impact areas. Monthly inspections shall be conducted in the following areas: all authorized permanent and temporary impact areas; all avoided surface waters, including wetlands, stream channels, and open water; surface water areas within 50 feet of any land disturbing activity and within the project or right-of-way limits; and all on-site permanent preservation areas required under this permit. Observations shall be recorded on the inspection form provided by the Department of Environmental Quality. The form shall be completed in its entirety for each monthly inspection and shall be kept on site and made available for review by the Department of Environmental Quality staff upon request during normal business hours. Inspections are not required during periods of no activity within impact areas.

2. Monitoring of water quality parameters shall be conducted during permanent relocation of perennial streams through new channels in the manner noted in this subdivision. The permittee shall report violations of water quality standards to the Department of Environmental Quality in accordance with the procedures in 9VAC25-680-100 Part II E. Corrective measures and additional monitoring may be required if water quality standards are not met. Reporting shall not be required if water quality standards are not violated.

a. A sampling station shall be located upstream and immediately downstream of the relocated channel.

b. Temperature, pH, and dissolved oxygen (D.O.) measurements shall be taken every 30 minutes for at least two hours at each station prior to opening the new channels and immediately before opening new channels.

c. Temperature, pH, and D.O. readings shall be taken after opening the channels and every 30 minutes for at least three hours at each station.

C. Permittee-responsible wetland compensation site monitoring.

1. An as-built ground survey, or an aerial survey provided by a firm specializing in aerial surveys, shall be conducted for the entire compensation site or sites, including invert elevations for all water elevation control structures and spot elevations throughout the site or sites. Aerial surveys shall include the variation from actual ground conditions, such as +/- 0.2 feet. Either type of survey shall be certified by a licensed surveyor or by a registered professional engineer to conform to the design plans. The survey shall be submitted within 60 days of completing compensation site construction. Changes or deviations in the as-built survey or aerial survey shall be shown on the survey and explained in writing.

2. Photographs shall be taken at the compensation site or sites from the permanent markers identified in the final compensation plan, and established to ensure that the same locations and view directions at the site or sites are monitored in each monitoring period. These photographs shall be taken after the initial planting and at a time specified in the final compensation plan during every monitoring year.

3. Compensation site monitoring shall begin on the first day of the first complete growing season (monitoring year one) after wetland compensation site construction activities, including planting, have been completed. Monitoring shall be required for monitoring years one, two, three, and five, unless otherwise approved by the Department of Environmental Quality. In all cases, if all success criteria have not been met in the final monitoring year, then monitoring shall be required for each consecutive year until two annual sequential reports indicate that all criteria have been successfully satisfied.

4. The establishment of wetland hydrology shall be measured weekly during the growing season, with the location and number of monitoring wells, and frequency of monitoring for each site, set forth in the final monitoring plan. Hydrology monitoring well data shall be accompanied by precipitation data, including rainfall amounts, either from on site or from the closest weather station. Once the wetland hydrology success criteria have been satisfied for a particular monitoring year, monitoring may be discontinued for the remainder of that monitoring year following Department of Environmental Quality approval. After a period of three monitoring years, the permittee may request that hydrology monitoring be discontinued, providing that adequate hydrology has been established and maintained. Hydrology monitoring shall not be discontinued without written approval from the Department of Environmental Quality.

5. The presence of hydric soils or soils under hydric conditions shall be evaluated in accordance with the final compensation plan.

6. The establishment of wetland vegetation shall be in accordance with the final compensation plan. Monitoring shall take place in August, September, or October during the growing season of each monitoring year, unless otherwise authorized in the monitoring plan.

7. The presence of undesirable plant species shall be documented.

8. All wetland compensation monitoring reports shall be submitted in accordance with 9VAC25-680-100 Part II E 6.

D. Permittee-responsible stream compensation and monitoring.

1. Riparian buffer restoration activities shall be detailed in the final compensation plan and shall include, as appropriate, the planting of a variety of native species currently growing in the site area, including appropriate seed mixtures and woody species that are bare root, balled, or burlapped. A minimum buffer width of 50 feet, measured from the top of the stream bank at bankfull elevation landward on both sides of the stream, shall be required where practical.

2. The installation of root wads, vanes, and other instream structures, shaping of the stream banks and channel relocation shall be completed in the dry whenever practicable.

3. Livestock access to the stream and designated riparian buffer shall be limited to the greatest extent practicable.

4. Stream channel restoration activities shall be conducted in the dry or during low flow conditions. When site conditions prohibit access from the streambank or upon prior authorization from the Department of Environmental Quality, heavy equipment may be authorized for use within the stream channel.

5. Photographs shall be taken at the compensation site from the vicinity of the permanent photo-monitoring stations identified in the final compensation plan. The photograph orientation shall remain constant during all monitoring events. At a minimum, photographs shall be taken from the center of the stream, facing downstream, with a sufficient number of photographs to view the entire length of the restoration site. Photographs shall document the completed restoration conditions. Photographs shall be taken prior to site activities, during instream and riparian compensation construction activities, within one week of completion of activities, and during at least one day of each monitoring year to depict restored conditions.

6. An as-built ground survey, or an aerial survey provided by a firm specializing in aerial surveys, shall be conducted for the entire compensation site or sites. Aerial surveys shall include the variation from actual ground conditions, such as +/- 0.2 feet. The survey shall be certified by the licensed surveyor or by a registered, professional engineer to conform to the design plans. The survey shall be submitted within 60 days of completing compensation site construction. Changes or deviations from the final compensation plans in the as-built survey or aerial survey shall be shown on the survey and explained in writing.

7. Compensation site monitoring shall begin on day one of the first complete growing season (monitoring year one) after stream compensation site constructions activities, including planting, have been completed. Monitoring shall be required for monitoring years one and two, unless otherwise approved by the Department of Environmental Quality. In all cases, if all success criteria have not been met in the final monitoring year, then monitoring shall be required for each consecutive year until two annual sequential reports indicate that all criteria have been successfully satisfied.

8. All stream compensation site monitoring reports shall be submitted in accordance with 9VAC25-680-100 Part II E 6.

E. Reporting.

1. Written communications required by this VWP general permit shall be submitted to the appropriate Department of Environmental Quality office. The VWP general permit tracking number shall be included on all correspondence.

2. The Department of Environmental Quality shall be notified in writing prior to the start of construction activities at the first permitted impact area.

3. A construction status update form provided by the Department of Environmental Quality shall be completed and submitted to the Department of Environmental Quality twice per year for the duration of coverage under a VWP general permit. Forms completed in June shall be submitted by or on July 10, and forms completed in December shall be submitted by or on January 10. The form shall include reference to the VWP permit tracking number and one of the following statements for each authorized surface water impact location:

a. Construction activities have not yet started;

b. Construction activities have started;

c. Construction activities have started but are currently inactive; or

d. Construction activities are complete.

4. The Department of Environmental Quality shall be notified in writing within 30 days following the completion of all activities in all authorized impact areas.

5. The Department of Environmental Quality shall be notified in writing prior to the initiation of activities at the permittee-responsible compensation site. The notification shall include a projected schedule of activities and construction completion.

6. All permittee-responsible compensation site monitoring reports shall be submitted annually by December 31, with the exception of the last year, in which case the report shall be submitted at least 60 days prior to the expiration of the general permit, unless otherwise approved by the Department of Environmental Quality.

a. All wetland compensation site monitoring reports shall include, as applicable, the following:

(1) General description of the site including a site location map identifying photo-monitoring stations, vegetative and soil monitoring stations, monitoring wells, and wetland zones.

(2) Summary of activities completed during the monitoring year, including alterations or maintenance conducted at the site.

(3) Description of monitoring methods.

(4) Analysis of all hydrology information, including monitoring well data, precipitation data, and gauging data from streams or other open water areas, as set forth in the final compensation plan.

(5) Evaluation of hydric soils or soils under hydric conditions, as appropriate.

(6) Analysis of all vegetative community information, including woody and herbaceous species, both planted and volunteers, as set forth in the final compensation plan.

(7) Photographs labeled with the permit number, the name of the compensation site, the photo-monitoring station number, the photograph orientation, the date and time of the photograph, the name of the person taking the photograph, and a brief description of the photograph subject. This information shall be provided as a separate attachment to each photograph, if necessary. Photographs taken after the initial planting shall be included in the first monitoring report after planting is complete.

(8) Discussion of wildlife or signs of wildlife observed at the compensation site.

(9) Comparison of site conditions from the previous monitoring year and reference site.

(10) Discussion of corrective measures or maintenance activities to control undesirable species, to repair damaged water control devices, or to replace damaged planted vegetation.

(11) Corrective action plan that includes proposed actions, a schedule, and monitoring plan.

b. All stream compensation site monitoring reports shall include, as applicable, the following:

(1) General description of the site including a site location map identifying photo-monitoring stations and monitoring stations.

(2) Summary of activities completed during the monitoring year, including alterations or maintenance conducted at the site.

(3) Description of monitoring methods.

(4) Evaluation and discussion of the monitoring results in relation to the success criteria and overall goals of compensation.

(5) Photographs shall be labeled with the permit number, the name of the compensation site, the photo-monitoring station number, the photograph orientation, the date and time of the photograph, the name of the person taking the photograph, and a brief description of the photograph subject. Photographs taken prior to compensation site construction activities, during instream and riparian restoration activities, and within one week of completion of activities shall be included in the first monitoring report.

(6) Discussion of alterations, maintenance, or major storm events resulting in significant change in stream profile or cross section, and corrective actions conducted at the stream compensation site.

(7) Documentation of undesirable plant species and summary of abatement and control measures.

(8) Summary of wildlife or signs of wildlife observed at the compensation site.

(9) Comparison of site conditions from the previous monitoring year and reference site, and as-built survey, if applicable.

(10) Corrective action plan that includes proposed actions, a schedule and monitoring plan.

(11) Additional submittals that were approved by the Department of Environmental Quality in the final compensation plan.

7. The permittee shall notify the Department of Environmental Quality in writing when unusual or potentially complex conditions are encountered that require debris removal or involve potentially toxic substance. Measures to remove the obstruction, material, or toxic substance or to change the location of a structure are prohibited until approved by the Department of Environmental Quality.

8. The permittee shall report fish kills or spills of oil or fuel immediately upon discovery. If spills or fish kills occur between the hours of 8:15 a.m. to 5 p.m., Monday through Friday, the appropriate Department of Environmental Quality regional office shall be notified; otherwise, the Department of Emergency Management shall be notified at 1-800-468-8892.

9. Violations of state water quality standards shall be reported to the appropriate Department of Environmental Quality office no later than the end of the business day following discovery.

10. The permittee shall notify the Department of Environmental Quality no later than the end of the third business day following the discovery of additional impacts to surface waters including wetlands, stream channels, and open water that are not authorized by the Department of Environmental Quality or to any required preservation areas. The notification shall include photographs, estimated acreage or linear footage of impacts, and a description of the impacts.

11. Submittals required by this VWP general permit shall contain the following signed certification statement:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for

submitting false information, including the possibility of fine and imprisonment for knowing violation."

Part III.

Conditions Applicable to All VWP General Permits.

A. Duty to comply. The permittee shall comply with all conditions, limitations, and other requirements of the VWP general permit; any requirements in coverage granted under this VWP general permit; the Clean Water Act, as amended; and the State Water Control Law and regulations adopted pursuant to it. Any VWP general permit violation or noncompliance is a violation of the Clean Water Act and State Water Control Law and is grounds for (i) enforcement action, (ii) VWP general permit coverage termination for cause, (iii) VWP general permit coverage revocation, (iv) denial of application for coverage, or (v) denial of an application for a modification to VWP general permit coverage. Nothing in this VWP general permit shall be construed to relieve the permittee of the duty to comply with all applicable federal and state statutes, regulations, and toxic standards and prohibitions.

B. Duty to mitigate. The permittee shall take all reasonable steps to minimize or prevent impacts in violation of the VWP general permit that may have a reasonable likelihood of adversely affecting human health or the environment.

C. Reopener. This VWP general permit may be reopened to modify its conditions when the circumstances on which the previous VWP general permit was based have materially and substantially changed, or special studies conducted by the department or the permittee show material and substantial change since the time the VWP general permit was issued and thereby constitute cause for revoking and reissuing the VWP general permit.

D. Compliance with state and federal law. Compliance with this VWP general permit constitutes compliance with the VWP permit requirements of the State Water Control Law. Nothing in this VWP general permit shall be construed to preclude the institution of any legal action under or relieve the permittee from any responsibilities, liabilities, or other penalties established pursuant to any other state law or regulation or under the authority preserved by § 510 of the Clean Water Act.

E. Property rights. The issuance of this VWP general permit does not convey property rights in either real or personal property or any exclusive privileges, nor does it authorize injury to private property, any invasion of personal property rights, or any infringement of federal, state, or local laws or regulations.

F. Severability. The provisions of this VWP general permit are severable.

G. Inspection and entry. Upon presentation of credentials, the permittee shall allow the department or any duly authorized agent of the department, at reasonable times and under reasonable circumstances, to enter upon the permittee's property, public or private, and have access to inspect and copy any records that must be kept as part of the VWP general permit conditions; to inspect any facilities, operations, or practices (including monitoring and control equipment) regulated or required under the VWP general permit; and to sample or monitor any substance, parameter, or activity for the purpose of ensuring compliance with the conditions of the VWP general permit or as otherwise authorized by law. For the purpose of this section, the time for inspection shall be deemed reasonable during regular business hours. Nothing contained herein shall make an inspection time unreasonable during an emergency.

H. Transferability of VWP general permit coverage. VWP general permit coverage may be transferred to another permittee when all of the criteria listed in this subsection are met. On the date of the VWP general permit coverage transfer, the transferred VWP general permit coverage shall be as fully effective as if it had been granted directly to the new permittee.

1. The current permittee notifies the department of the proposed transfer of the general permit coverage and provides a written agreement between the current and new permittees containing a specific date of transfer of VWP general permit responsibility, coverage, and liability to the new permittee, or that the current permittee will retain such responsibility, coverage, or liability, including liability for compliance with the requirements of enforcement activities related to the authorized activity.

2. The department does not within 15 days notify the current and new permittees of the board's intent to modify or revoke and reissue the VWP general permit.

I. Notice of planned change. VWP general permit coverage may be modified subsequent to issuance in accordance with 9VAC25-680-80.

J. VWP general permit coverage termination for cause. VWP general permit coverage is subject to termination for cause by the department after public notice and opportunity for a hearing in accordance with 9VAC25-210-180. Reasons for termination for cause are as follows:

1. Noncompliance by the permittee with any provision of this chapter, any condition of the VWP general permit, or any requirement in general permit coverage;

2. The permittee's failure in the application or during the process of granting VWP general permit coverage to disclose fully all relevant facts or the permittee's misrepresentation of any relevant facts at any time;

3. The permittee's violation of a special or judicial order;

4. A determination by the department that the authorized activity endangers human health or the environment and can be regulated to acceptable levels by a modification to VWP general permit coverage or a termination;

5. A change in any condition that requires either a temporary or permanent reduction or elimination of any activity controlled by the VWP general permit; or

6. A determination that the authorized activity has ceased and that the compensation for unavoidable adverse impacts has been successfully completed.

K. The department may terminate VWP general permit coverage without cause when the permittee is no longer a legal entity due to death or dissolution or when a company is no longer authorized to conduct business in the Commonwealth. The termination shall be effective 30 days after notice of the proposed termination is sent to the last known address of the permittee or registered agent, unless the permittee objects within that time. If the permittee does object during that period, the department shall follow the applicable procedures for termination under 9VAC25-210-180 and § 62.1-44.15:25 of the Code of Virginia.

L. VWP general permit coverage termination by consent. The permittee shall submit a request for termination by consent within 30 days of completing or canceling all authorized activities requiring notification under 9VAC25-680-50 A and all compensatory mitigation requirements. When submitted for project completion, the request for termination by consent shall constitute a notice of project completion in accordance with 9VAC25-210-130 F. The director may accept this termination of coverage on behalf of the department. The permittee shall submit the following information:

1. Name, mailing address, and telephone number;

2. Name and location of the activity;

3. The VWP general permit tracking number; and

4. One of the following certifications:

a. For project completion:

"I certify under penalty of law that all activities and any required compensatory mitigation authorized by the VWP general permit and general permit coverage have

been completed. I understand that by submitting this notice of termination I am no longer authorized to perform activities in surface waters in accordance with the VWP general permit and general permit coverage, and that performing activities in surface waters is unlawful where the activity is not authorized by the VWP permit or coverage, unless otherwise excluded from obtaining coverage. I also understand that the submittal of this notice does not release me from liability for any violations of the VWP general permit coverage."

b. For project cancellation:

"I certify under penalty of law that the activities and any required compensatory mitigation authorized by the VWP general permit and general permit coverage will not occur. I understand that by submitting this notice of termination I am no longer authorized to perform activities in surface waters in accordance with the VWP general permit and general permit coverage, and that performing activities in surface waters is unlawful where the activity is not authorized by the VWP permit or coverage, unless otherwise excluded from obtaining coverage. I also understand that the submittal of this notice does not release me from liability for any violations of the VWP general permit or coverage, nor does it allow me to resume the authorized activities without reapplication and coverage."

c. For events beyond permittee control, the permittee shall provide a detailed explanation of the events, to be approved by the Department of Environmental Quality, and the following certification statement:

"I certify under penalty of law that the activities or the required compensatory mitigation authorized by the VWP general permit and general permit coverage have changed as the result of events beyond my control (see attached). I understand that by submitting this notice of termination I am no longer authorized to perform activities in surface waters in accordance with the VWP general permit and general permit coverage, and that performing activities in surface waters is unlawful where the activity is not authorized by the VWP permit or coverage, unless otherwise excluded from obtaining coverage. I also understand that the submittal of this notice does not release me from liability for any violations of the VWP general permit authorization or coverage, nor does it allow me to resume the authorized activities without reapplication and coverage."

M. Civil and criminal liability. Nothing in this VWP general permit shall be construed to relieve the permittee from civil and criminal penalties for noncompliance.

N. Oil and hazardous substance liability. Nothing in this VWP general permit shall be construed to preclude the institution of legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under § 311 of the Clean Water Act or §§ 62.1-44.34:14 through 62.1-44.34:23 of the State Water Control Law.

O. Duty to cease or confine activity. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the activity for which VWP general permit coverage has been granted in order to maintain compliance with the conditions of the VWP general permit or coverage.

P. Duty to provide information.

1. The permittee shall furnish to the department any information that the department may request to determine whether cause exists for modifying, revoking, or terminating VWP permit coverage or to determine compliance with the VWP general permit or general permit coverage. The permittee shall also furnish to the department, upon request, copies of records required to be kept by the permittee.

2. Plans, maps, conceptual reports, and other relevant information shall be submitted as required by the department prior to commencing construction.

Q. Monitoring and records requirements.

1. Monitoring of parameters, other than pollutants, shall be conducted according to approved analytical methods as specified in the VWP general permit. Analysis of pollutants will be conducted according to 40 CFR Part 136 as published in the July 1, ~~2023~~2024, update, Guidelines Establishing Test Procedures for the Analysis of Pollutants.

2. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.

3. The permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart or electronic recordings for continuous monitoring instrumentation, copies of all reports required by the VWP general permit, and records of all data used to complete the application for coverage under the VWP general permit, for a period of at least three years from the date of general permit expiration. This period may be extended by request of the department at any time.

4. Records of monitoring information shall include, as appropriate:

a. The date, exact place, and time of sampling or measurements;

b. The name of the individuals who performed the sampling or measurements;

c. The date and time the analyses were performed;

d. The name of the individuals who performed the analyses;

e. The analytical techniques or methods supporting the information such as observations, readings, calculations, and bench data used;

f. The results of such analyses; and

g. Chain of custody documentation.

R. Unauthorized discharge of pollutants. Except in compliance with this VWP general permit, it shall be unlawful for the permittee to:

1. Discharge into state waters sewage, industrial wastes, other wastes, or any noxious or deleterious substances;

2. Excavate in a wetland;

3. Otherwise alter the physical, chemical, or biological properties of state waters and make them detrimental to the public health, to animal or aquatic life, or to the uses of such waters for domestic or industrial consumption, for recreation, or for other uses; or

4. On and after August 1, 2001, for linear transportation projects of the Virginia Department of Transportation, or on and after October 1, 2001, for all other projects, conduct the following activities in a wetland:

a. New activities to cause draining that significantly alters or degrades existing wetland acreage or functions;

b. Filling or dumping;

c. Permanent flooding or impounding; or

d. New activities that cause significant alteration or degradation of existing wetland acreage or functions.

S. Duty to reapply. Any permittee desiring to continue a previously authorized activity after the expiration date of the VWP general permit shall comply with the provisions in 9VAC25-680-27.

9VAC25-690-100. VWP general permit.

VWP GENERAL PERMIT NO. WP4 FOR IMPACTS FROM DEVELOPMENT AND CERTAIN MINING ACTIVITIES UNDER THE VIRGINIA WATER PROTECTION PERMIT AND THE VIRGINIA STATE WATER CONTROL LAW

Effective date: August 2, 2016
Expiration date: August 1, 2026

In compliance with § 401 of the Clean Water Act, as amended (33 USC § 1341) and the State Water Control Law and regulations adopted pursuant thereto, the board has determined that there is a reasonable assurance that this VWP general permit, if complied with, will protect instream beneficial uses, will not violate applicable water quality standards, and will not cause or contribute to a significant impairment of state waters or fish and wildlife resources. In issuing this VWP general permit, the board has not taken into consideration the structural stability of any proposed activities.

The permanent or temporary impact of up to two acres of nontidal wetlands or open water and up to 1,500 linear feet of nontidal stream bed shall be subject to the provisions of the VWP general permit set forth herein; any requirements in coverage granted under this general permit; the Clean Water Act, as amended; and the State Water Control Law and regulations adopted pursuant to it.

Part I.

Special Conditions.

A. Authorized activities.

1. The activities authorized by this chapter shall not cause more than the permanent or temporary impacts of up to two acres of nontidal wetlands or open water and up to 1,500 linear feet of nontidal stream bed. Additional permit requirements as stipulated by the department in the coverage letter, if any, shall be enforceable conditions of this permit.

2. Any changes to the authorized permanent impacts to surface waters shall require a notice of planned change in accordance with 9VAC25-690-80. An application or request for modification to coverage or another VWP permit application may be required.

3. Any changes to the authorized temporary impacts to surface waters shall require written notification to and approval from the Department of Environmental Quality in accordance with 9VAC25-690-80 prior to initiating the impacts and restoration to preexisting conditions in accordance with the conditions of this permit.

4. Modification to compensation requirements may be approved at the request of the permittee when a decrease in the amount of authorized surface waters impacts occurs, provided that the adjusted compensation meets the initial compensation goals.

B. Overall conditions.

1. The activities authorized by this VWP general permit shall be executed in a manner so as to minimize adverse impacts on instream beneficial uses as defined in § 62.1-10 (b) of the Code of Virginia.

2. No activity may substantially disrupt the movement of aquatic life indigenous to the water body, including those species that normally migrate through the area, unless the primary purpose of the activity is to impound water. Pipes and culverts placed in streams must be installed to maintain low flow conditions and shall be countersunk at both inlet

and outlet ends of the pipe or culvert, unless otherwise specifically approved by the Department of Environmental Quality on a case-by-case basis, and as follows: The requirement to countersink does not apply to extensions or maintenance of existing pipes and culverts that are not countersunk, floodplain pipes and culverts being placed above ordinary high water, pipes and culverts being placed on bedrock, or pipes and culverts required to be placed on slopes 5.0% or greater. Bedrock encountered during construction must be identified and approved in advance of a design change where the countersunk condition cannot be met. Pipes and culverts 24 inches or less in diameter shall be countersunk three inches below the natural stream bed elevations, and pipes and culverts greater than 24 inches shall be countersunk at least six inches below the natural stream bed elevations. Hydraulic capacity shall be determined based on the reduced capacity due to the countersunk position. In all stream crossings appropriate measures shall be implemented to minimize any disruption of aquatic life movement.

3. Wet or uncured concrete shall be prohibited from entry into flowing surface waters, unless the area is contained within a cofferdam and the work is performed in the dry or unless otherwise approved by the Department of Environmental Quality. Excess or waste concrete shall not be disposed of in flowing surface waters or washed into flowing surface waters.

4. All fill material shall be clean and free of contaminants in toxic concentrations or amounts in accordance with all applicable laws and regulations.

5. Erosion and sedimentation controls shall be designed in accordance with the Virginia Erosion and Sediment Control Handbook, Third Edition, 1992, or for mining activities covered by this general permit, the standards issued by the Virginia Department of Energy that are effective as those in the Virginia Erosion and Sediment Control Handbook, Third Edition, 1992. These controls shall be placed prior to clearing and grading and maintained in good working order to minimize impacts to state waters. These controls shall remain in place until the area is stabilized and shall then be removed.

6. Exposed slopes and streambanks shall be stabilized immediately upon completion of work in each permitted impact area. All denuded areas shall be properly stabilized in accordance with the Virginia Erosion and Sediment Control Handbook, Third Edition, 1992.

7. All construction, construction access (e.g., cofferdams, sheetpiling, and causeways) and demolition activities associated with the project shall be accomplished in a manner that minimizes construction or waste materials from entering surface waters to the maximum extent practicable, unless authorized by this VWP general permit.

8. No machinery may enter flowing waters, unless authorized by this VWP general permit or approved prior to entry by the Department of Environmental Quality.

9. Heavy equipment in temporarily-impacted wetland areas shall be placed on mats, geotextile fabric, or other suitable material to minimize soil disturbance to the maximum extent practicable. Equipment and materials shall be removed immediately upon completion of work.

10. All nonimpacted surface waters and compensatory mitigation areas within 50 feet of authorized activities and within the project or right-of-way limits shall be clearly flagged or marked for the life of the construction activity at that location to preclude unauthorized disturbances to these surface waters and compensatory mitigation areas during construction. The permittee shall notify contractors that no activities are to occur in these marked surface waters.

11. Temporary disturbances to surface waters during construction shall be avoided and minimized to the maximum extent practicable. All temporarily disturbed wetland areas

shall be restored to preexisting conditions within 30 days of completing work at each respective temporary impact area, which shall include reestablishing preconstruction elevations and contours with topsoil from the impact area where practicable and planting or seeding with appropriate wetland vegetation according to cover type (i.e., emergent, scrub-shrub, or forested). The permittee shall take all appropriate measures to promote and maintain revegetation of temporarily disturbed wetland areas with wetland vegetation through the second year post-disturbance. All temporarily impacted streams and streambanks shall be restored to their preconstruction elevations and contours with topsoil from the impact area where practicable within 30 days following the construction at that stream segment. Streambanks shall be seeded or planted with the same vegetation cover type originally present, including any necessary supplemental erosion control grasses. Invasive species identified on the Department of Conservation and Recreation's Virginia Invasive Plant Species List shall not be used to the maximum extent practicable or without prior approval from the Department of Environmental Quality.

12. Materials (including fill, construction debris, and excavated and woody materials) temporarily stockpiled in wetlands shall be placed on mats or geotextile fabric, immediately stabilized to prevent entry into state waters, managed such that leachate does not enter state waters, and completely removed within 30 days following completion of that construction activity. Disturbed areas shall be returned to preconstruction elevations and contours with topsoil from the impact area where practicable; restored within 30 days following removal of the stockpile; and restored with the same vegetation cover type originally present, including any necessary supplemental erosion control grasses. Invasive species identified on the Department of Conservation and Recreation's Virginia Invasive Plant Species List shall not be used to the maximum extent practicable or without prior approval from the Department of Environmental Quality.

13. Continuous flow of perennial springs shall be maintained by the installation of spring boxes, french drains, or other similar structures.

14. The permittee shall employ measures to prevent spills of fuels or lubricants into state waters.

15. The permittee shall conduct activities in accordance with the time-of-year restrictions recommended by the Virginia Department of Wildlife Resources, the Virginia Marine Resources Commission, or other interested and affected agencies, as contained, when applicable, in Department of Environmental Quality VWP general permit coverage, and shall ensure that all contractors are aware of the time-of-year restrictions imposed.

16. Water quality standards shall not be violated as a result of the construction activities.

17. If stream channelization or relocation is required, all work in surface waters shall be done in the dry, unless otherwise authorized by the Department of Environmental Quality, and all flows shall be diverted around the channelization or relocation area until the new channel is stabilized. This work shall be accomplished by leaving a plug at the inlet and outlet ends of the new channel during excavation. Once the new channel has been stabilized, flow shall be routed into the new channel by first removing the downstream plug and then the upstream plug. The rerouted stream flow must be fully established before construction activities in the old stream channel can begin.

C. Road crossings.

1. Access roads and associated bridges, pipes, and culverts shall be constructed to minimize the adverse effects on surface waters to the maximum extent practicable. Access roads constructed above preconstruction elevations and contours in surface waters must be bridged, piped, or culverted to maintain surface flows.

2. Installation of road crossings shall occur in the dry via the implementation of cofferdams, sheetpiling, stream diversions, or similar structures.

D. Utility lines.

1. All utility line work in surface waters shall be performed in a manner that minimizes disturbance, and the area must be returned to its preconstruction elevations and contours with topsoil from the impact area where practicable and restored within 30 days of completing work in the area, unless otherwise authorized the Department of Environmental Quality. Restoration shall be the seeding of planting of the same vegetation cover type originally present, including any necessary supplemental erosion control grasses. Invasive specifies identified on the Department of Conservation and Recreation's Virginia Invasive Plant Species List shall not be used to the maximum extent practicable or without prior approval from the Department of Environmental Quality.

2. Material resulting from trench excavation may be temporarily sidecast into wetlands not to exceed a total of 90 days, provided the material is not placed in a manner such that it is dispersed by currents or other forces.

3. The trench for a utility line cannot be constructed in a manner that drains wetlands (e.g., backfilling with extensive gravel layers creating a french drain effect.). For example, utility lines may be backfilled with clay blocks to ensure that the trench does not drain surface waters through which the utility line is installed.

E. Stream modification and stream bank protection.

1. Riprap bank stabilization shall be of an appropriate size and design in accordance with the Virginia Erosion and Sediment Control Handbook, Third Edition, 1992.

2. Riprap apron for all outfalls shall be designed in accordance with the Virginia Erosion and Sediment Control Handbook, Third Edition, 1992.

3. For stream bank protection activities, the structure and backfill shall be placed as close to the stream bank as practicable. No material shall be placed in excess of the minimum necessary for erosion protection.

4. All stream bank protection structures shall be located to eliminate or minimize impacts to vegetated wetlands to the maximum extent practicable.

5. Asphalt and materials containing asphalt or other toxic substances shall not be used in the construction of submerged sills or breakwaters.

6. Redistribution of existing stream substrate for the purpose of erosion control is prohibited.

7. No material removed from the stream bottom shall be disposed of in surface waters, unless otherwise authorized by this VWP general permit.

F. Dredging.

1. Dredging depths shall be determined and authorized according to the proposed use and controlling depths outside the area to be dredged.

2. Dredging shall be accomplished in a manner that minimizes disturbance of the bottom and minimizes turbidity levels in the water column.

3. If evidence of impaired water quality, such as a fish kill, is observed during the dredging, dredging operations shall cease, and the Department of Environmental Quality shall be notified immediately.

4. Barges used for the transportation of dredge material shall be filled in such a manner to prevent the overflow of dredged materials.

5. Double handling of dredged material in state waters shall not be permitted.

6. For navigation channels the following shall apply:

a. A buffer of four times the depth of the dredge cut shall be maintained between the bottom edge of the design channel and the channelward limit of wetlands, or a buffer of 15 feet shall be maintained from the dredged cut and the channelward edge of wetlands, whichever is greater. This landward limit of buffer shall be flagged and inspected prior to construction.

b. Side slope cuts of the dredging area shall not exceed a two-horizontal-to-one-vertical slope to prevent slumping of material into the dredged area.

7. A dredged material management plan for the designated upland disposal site shall be submitted and approved 30 days prior to initial dredging activity.

8. Pipeline outfalls and spillways shall be located at opposite ends of the dewatering area to allow for maximum retention and settling time. Filter fabric shall be used to line the dewatering area and to cover the outfall pipe to further reduce sedimentation to state waters.

9. The dredge material dewatering area shall be of adequate size to contain the dredge material and to allow for adequate dewatering and settling out of sediment prior to discharge back into state waters.

10. The dredge material dewatering area shall utilize an earthen berm or straw bales covered with filter fabric along the edge of the area to contain the dredged material, filter bags, or other similar filtering practices, any of which shall be properly stabilized prior to placing the dredged material within the containment area.

11. Overtopping of the dredge material containment berms with dredge materials shall be strictly prohibited.

G. Stormwater management facilities.

1. Stormwater management facilities shall be installed in accordance with best management practices and watershed protection techniques (e.g., vegetated buffers, siting considerations to minimize adverse effects to aquatic resources, bioengineering methods incorporated into the facility design to benefit water quality and minimize adverse effects to aquatic resources) that provide for long-term aquatic resources protection and enhancement, to the maximum extent practicable.

2. Compensation for unavoidable impacts shall not be allowed within maintenance areas of stormwater management facilities.

3. Maintenance activities within stormwater management facilities shall not require additional permit coverage or compensation provided that the maintenance activities do not exceed the original contours of the facility, as approved and constructed, and is accomplished in designated maintenance areas as indicated in the facility maintenance or design plan or when unavailable, an alternative plan approved by the Department of Environmental Quality.

Part II.

Construction and Compensation Requirements, Monitoring, and Reporting.

A. Minimum compensation requirements.

1. The permittee shall provide any required compensation for impacts in accordance with the conditions in this VWP general permit, the coverage letter, and the chapter promulgating the general permit. For all compensation that requires a protective

mechanism, including preservation of surface waters or buffers, the permittee shall record the approved protective mechanism in the chain of title to the property, or an equivalent instrument for government-owned lands, and proof of recordation shall be submitted to the Department of Environmental Quality prior to commencing impacts in surface waters.

2. Compensation options that may be considered under this VWP general permit shall meet the criteria in § 62.1-44.15:23 of the Code of Virginia, 9VAC25-210-116, and 9VAC25-690-70.

3. The permittee-responsible compensation site or sites depicted in the conceptual compensation plan submitted with the application shall constitute the compensation site. A site change may require a modification to coverage.

4. For compensation involving the purchase of mitigation bank credits or the purchase of in-lieu fee program credits, the permittee shall not initiate work in permitted impact areas until documentation of the mitigation bank credit purchase or of the in-lieu fee program credit purchase has been submitted to and received by the Department of Environmental Quality.

5. The final compensation plan shall be submitted to and approved by the department prior to a construction activity in permitted impact areas. The department shall review and provide written comments on the final plan within 30 days of receipt or it shall be deemed approved. The final plan as approved by the department shall be an enforceable requirement of any coverage under this VWP general permit. Deviations from the approved final plan shall be submitted and approved in advance by the department.

a. The final permittee-responsible wetlands compensation plan shall include:

(1) The complete information on all components of the conceptual compensation plan.

(2) A summary of the type and acreage of existing wetland impacts anticipated during the construction of the compensation site and the proposed compensation for these impacts; a site access plan; a monitoring plan, including proposed success criteria, monitoring goals, and the location of photo-monitoring stations, monitoring wells, vegetation sampling points, and reference wetlands or streams, if available; an abatement and control plan for undesirable plant species; an erosion and sedimentation control plan; a construction schedule; and the final protective mechanism for the compensation site or sites, including all surface waters and buffer areas within its boundaries.

(3) The approved protective mechanism. The protective mechanism shall be recorded in the chain of title to the property, or an equivalent instrument for government-owned lands, and proof of recordation shall be submitted to the Department of Environmental Quality prior to commencing impacts in surface waters.

b. The final permittee-responsible stream compensation plan shall include:

(1) The complete information on all components of the conceptual compensation plan.

(2) An evaluation, discussion, and plan drawing or drawings of existing conditions on the proposed compensation stream, including the identification of functional and physical deficiencies for which the measures are proposed, and summary of geomorphologic measurements (e.g., stream width, entrenchment ratio, width-depth ratio, sinuosity, slope, substrate, etc.); a site access plan; a monitoring plan, including a monitoring and reporting schedule, monitoring design and methodologies for success, proposed success criteria, location of photo-monitoring stations, vegetation sampling points, survey points, bank pins, scour chains, and reference streams; an abatement and control plan for undesirable plant species; an erosion and sedimentation control plan, if appropriate; a construction schedule; a plan-view

drawing depicting the pattern and all compensation measures being employed; a profile drawing; cross-sectional drawing or drawings of the proposed compensation stream; and the final protective mechanism for the protection of the compensation site or sites, including all surface waters and buffer areas within its boundaries.

(3) The approved protective mechanism. The protective mechanism shall be recorded in the chain of title to the property, or an equivalent instrument for government-owned lands, and proof of recordation shall be submitted to the Department of Environmental Quality prior to commencing impacts in surface waters.

6. The following criteria shall apply to permittee-responsible wetland or stream compensation:

a. The vegetation used shall be native species common to the area, shall be suitable for growth in local wetland or riparian conditions, and shall be from areas within the same or adjacent U.S. Department of Agriculture Plant Hardiness Zone or Natural Resources Conservation Service Land Resource Region as that of the project site. Planting of woody plants shall occur when vegetation is normally dormant, unless otherwise approved in the final wetlands or stream compensation plan or plans.

b. All work in permitted impact areas shall cease if compensation site construction has not commenced within 180 days of commencement of project construction, unless otherwise authorized by the department.

c. The Department of Environmental Quality shall be notified in writing prior to the initiation of construction activities at the compensation site.

d. Point sources of stormwater runoff shall be prohibited from entering a wetland compensation site prior to treatment by appropriate best management practices. Appropriate best management practices may include sediment traps, grassed waterways, vegetated filter strips, debris screens, oil and grease separators, or forebays.

e. The success of the compensation shall be based on meeting the success criteria established in the approved final compensation plan.

f. If the wetland or stream compensation area fails to meet the specified success criteria in a particular monitoring year, other than the final monitoring year, the reasons for this failure shall be determined, and a corrective action plan shall be submitted to the Department of Environmental Quality for approval with or before that year's monitoring report. The corrective action plan shall contain at minimum the proposed actions, a schedule for those actions, and a monitoring plan, and shall be implemented by the permittee in accordance with the approved schedule. Should significant changes be necessary to ensure success, the required monitoring cycle shall begin again, with monitoring year one being the year that the changes are complete, as confirmed by the Department of Environmental Quality. If the wetland or stream compensation area fails to meet the specified success criteria by the final monitoring year or if the wetland or stream compensation area has not met the stated restoration goals, reasons for this failure shall be determined and a corrective action plan, including proposed actions, a schedule, and a monitoring plan, shall be submitted with the final year monitoring report for Department of Environmental Quality approval. Corrective action shall be implemented by the permittee in accordance with the approved schedule. Annual monitoring shall be required to continue until two sequential, annual reports indicate that all criteria have been successfully satisfied and the site has met the overall restoration goals (e.g., that corrective actions were successful).

g. The surveyed wetland boundary for the wetlands compensation site shall be based on the results of the hydrology, soils, and vegetation monitoring data and shall be shown on the site plan. Calculation of total wetland acreage shall be based on that boundary at the end of the monitoring cycle. Data shall be submitted by December 31 of the final monitoring year.

h. Herbicides or algicides shall not be used in or immediately adjacent to the wetlands or stream compensation site or sites without prior authorization by the department. All vegetation removal shall be done by manual means, unless authorized by the Department of Environmental Quality in advance.

B. Impact site construction monitoring.

1. Construction activities authorized by this permit that are within impact areas shall be monitored and documented. The monitoring shall consist of:

a. Preconstruction photographs taken at each impact area prior to initiation of activities within impact areas. Photographs shall remain on the project site and depict the impact area and the nonimpacted surface waters immediately adjacent to and downgradient of each impact area. Each photograph shall be labeled to include the following information: permit number, impact area number, date and time of the photograph, name of the person taking the photograph, photograph orientation, and photograph subject description.

b. Site inspections shall be conducted by the permittee or the permittee's qualified designee once every calendar month during activities within impact areas. Monthly inspections shall be conducted in the following areas: all authorized permanent and temporary impact areas; all avoided surface waters, including wetlands, stream channels, and open water; surface water areas within 50 feet of any land disturbing activity and within the project or right-of-way limits; and all on-site permanent preservation areas required under this permit. Observations shall be recorded on the inspection form provided by the Department of Environmental Quality. The form shall be completed in its entirety for each monthly inspection and shall be kept on site and made available for review by the Department of Environmental Quality staff upon request during normal business hours. Inspections are not required during periods of no activity within impact areas.

2. Monitoring of water quality parameters shall be conducted during permanent relocation of perennial streams through new channels in the manner noted in this subdivision. The permittee shall report violations of water quality standards to the Department of Environmental Quality in accordance with the procedures in 9VAC25-690-100 Part II E. Corrective measures and additional monitoring may be required if water quality standards are not met. Reporting shall not be required if water quality standards are not violated.

a. A sampling station shall be located upstream and immediately downstream of the relocated channel.

b. Temperature, pH, and dissolved oxygen (D.O.) measurements shall be taken every 30 minutes for at least two hours at each station prior to opening the new channels and immediately before opening new channels.

c. Temperature, pH, and D.O. readings shall be taken after opening the channels and every 30 minutes for at least three hours at each station.

C. Permittee-responsible wetland compensation site monitoring.

1. An as-built ground survey, or an aerial survey provided by a firm specializing in aerial surveys, shall be conducted for the entire compensation site or sites, including invert elevations for all water elevation control structures and spot elevations throughout the site

or sites. Aerial surveys shall include the variation from actual ground conditions, such as +/- 0.2 feet. Either type of survey shall be certified by a licensed surveyor or by a registered professional engineer to conform to the design plans. The survey shall be submitted within 60 days of completing compensation site construction. Changes or deviations in the as-built survey or aerial survey shall be shown on the survey and explained in writing.

2. Photographs shall be taken at the compensation site or sites from the permanent markers identified in the final compensation plan, and established to ensure that the same locations and view directions at the site or sites are monitored in each monitoring period. These photographs shall be taken after the initial planting and at a time specified in the final compensation plan during every monitoring year.

3. Compensation site monitoring shall begin on day one of the first complete growing season (monitoring year one) after wetland compensation site construction activities, including planting, have been completed. Monitoring shall be required for monitoring years one, two, three, and five, unless otherwise approved by the Department of Environmental Quality. In all cases, if all success criteria have not been met in the final monitoring year, then monitoring shall be required for each consecutive year until two annual sequential reports indicate that all criteria have been successfully satisfied.

4. The establishment of wetland hydrology shall be measured during the growing season, with the location and number of monitoring wells, and frequency of monitoring for each site, set forth in the final monitoring plan. Hydrology monitoring well data shall be accompanied by precipitation data, including rainfall amounts either from on site or from the closest weather station. Once the wetland hydrology success criteria have been satisfied for a particular monitoring year, monitoring may be discontinued for the remainder of that monitoring year following Department of Environmental Quality approval. After a period of three monitoring years, the permittee may request that hydrology monitoring be discontinued, providing that adequate hydrology has been established and maintained. Hydrology monitoring shall not be discontinued without written approval from the Department of Environmental Quality.

5. The presence of hydric soils or soils under hydric conditions shall be evaluated in accordance with the final compensation plan.

6. The establishment of wetland vegetation shall be in accordance with the final compensation plan. Monitoring shall take place in August, September, or October during the growing season of each monitoring year, unless otherwise authorized in the monitoring plan.

7. The presence of undesirable plant species shall be documented.

8. All wetland compensation monitoring reports shall be submitted in accordance with 9VAC25-690-100 Part II E 6.

D. Permittee-responsible stream compensation and monitoring.

1. Riparian buffer restoration activities shall be detailed in the final compensation plan and shall include, as appropriate, the planting of a variety of native species currently growing in the site area, including appropriate seed mixtures and woody species that are bare root, balled, or burlapped. A minimum buffer width of 50 feet, measured from the top of the stream bank at bankfull elevation landward on both sides of the stream, shall be required where practical.

2. The installation of root wads, vanes, and other instream structures, shaping of the stream banks, and channel relocation shall be completed in the dry whenever practicable.

3. Livestock access to the stream and designated riparian buffer shall be limited to the greatest extent practicable.

4. Stream channel restoration activities shall be conducted in the dry or during low flow conditions. When site conditions prohibit access from the streambank or upon prior authorization from the Department of Environmental Quality, heavy equipment may be authorized for use within the stream channel.

5. Photographs shall be taken at the compensation site from the vicinity of the permanent photo-monitoring stations identified in the final compensation plan. The photograph orientation shall remain constant during all monitoring events. At a minimum, photographs shall be taken from the center of the stream, facing downstream, with a sufficient number of photographs to view the entire length of the restoration site. Photographs shall document the completed restoration conditions. Photographs shall be taken prior to site activities, during instream and riparian compensation construction activities, within one week of completion of activities, and during at least one day of each monitoring year to depict restored conditions.

6. An as-built ground survey, or an aerial survey provided by a firm specializing in aerial surveys, shall be conducted for the entire compensation site or sites. Aerial surveys shall include the variation from actual ground conditions, such as +/- 0.2 feet. The survey shall be certified by the licensed surveyor or by a registered, professional engineer to conform to the design plans. The survey shall be submitted within 60 days of completing compensation site construction. Changes or deviations from the final compensation plans in the as-built survey or aerial survey shall be shown on the survey and explained in writing.

7. Compensation site monitoring shall begin on day one of the first complete growing season (monitoring year one) after stream compensation site construction activities, including planting, have been completed. Monitoring shall be required for monitoring years one and two, unless otherwise approved by the Department of Environmental Quality. In all cases, if all success criteria have not been met in the final monitoring year, then monitoring shall be required for each consecutive year until two annual sequential reports indicate that all criteria have been successfully satisfied.

8. All stream compensation site monitoring reports shall be submitted by in accordance with 9VAC25-690-100 Part II E 6.

E. Reporting.

1. Written communications required by this VWP general permit shall be submitted to the appropriate Department of Environmental Quality office. The VWP general permit tracking number shall be included on all correspondence.

2. The Department of Environmental Quality shall be notified in writing prior to the start of construction activities at the first permitted impact area.

3. A construction status update form provided by the Department of Environmental Quality shall be completed and submitted to the Department of Environmental Quality twice per year for the duration of coverage under a VWP general permit. Forms completed in June shall be submitted by or on July 10, and forms completed in December shall be submitted by or on January 10. The form shall include reference to the VWP permit tracking number and one of the following statements for each authorized surface water impact location:

a. Construction activities have not yet started;

b. Construction activities have started;

c. Construction activities have started but are currently inactive; or

d. Construction activities are complete.

4. The Department of Environmental Quality shall be notified in writing within 30 days following the completion of all activities in all authorized impact areas.

5. The Department of Environmental Quality shall be notified in writing prior to the initiation of activities at the permittee-responsible compensation site. The notification shall include a projected schedule of activities and construction completion.

6. All permittee-responsible compensation site monitoring reports shall be submitted annually by December 31, with the exception of the last year, in which case the report shall be submitted at least 60 days prior to the expiration of the general permit, unless otherwise approved by the Department of Environmental Quality.

a. All wetland compensation site monitoring reports shall include, as applicable, the following:

(1) General description of the site, including a site location map identifying photo-monitoring stations, vegetative and soil monitoring stations, monitoring wells, and wetland zones.

(2) Summary of activities completed during the monitoring year, including alterations or maintenance conducted at the site.

(3) Description of monitoring methods.

(4) Analysis of all hydrology information, including monitoring well data, precipitation data, and gauging data from streams or other open water areas, as set forth in the final compensation plan.

(5) Evaluation of hydric soils or soils under hydric conditions, as appropriate.

(6) Analysis of all vegetative community information, including woody and herbaceous species, both planted and volunteers, as set forth in the final compensation plan.

(7) Photographs labeled with the permit number, the name of the compensation site, the photo-monitoring station number, the photograph orientation, the date and time of the photograph, the name of the person taking the photograph, and a brief description of the photograph subject. This information shall be provided as a separate attachment to each photograph, if necessary. Photographs taken after the initial planting shall be included in the first monitoring report after planting is complete.

(8) Discussion of wildlife or signs of wildlife observed at the compensation site.

(9) Comparison of site conditions from the previous monitoring year and reference site.

(10) Discussion of corrective measures or maintenance activities to control undesirable species, to repair damaged water control devices, or to replace damaged planted vegetation.

(11) Corrective action plan that includes proposed actions, a schedule, and monitoring plan.

b. All stream compensation site monitoring reports shall include, as applicable, the following:

(1) General description of the site, including a site location map identifying photo-monitoring stations and monitoring stations.

(2) Summary of activities completed during the monitoring year, including alterations or maintenance conducted at the site.

(3) Description of monitoring methods.

(4) Evaluation and discussion of the monitoring results in relation to the success criteria and overall goals of compensation.

(5) Photographs shall be labeled with the permit number, the name of the compensation site, the photo-monitoring station number, the photograph orientation, the date and time of the photograph, the name of the person taking the photograph,

and a brief description of the photograph subject. Photographs taken prior to compensation site construction activities, during instream and riparian restoration activities, and within one week of completion of activities shall be included in the first monitoring report.

(6) Discussion of alterations, maintenance, or major storm events resulting in significant change in stream profile or cross section, and corrective actions conducted at the stream compensation site.

(7) Documentation of undesirable plant species and summary of abatement and control measures.

(8) Summary of wildlife or signs of wildlife observed at the compensation site.

(9) Comparison of site conditions from the previous monitoring year and reference site, and as-built survey, if applicable.

(10) Corrective action plan that includes proposed actions, a schedule and monitoring plan.

(11) Additional submittals that were approved by the Department of Environmental Quality in the final compensation plan.

7. The permittee shall notify the Department of Environmental Quality in writing when unusual or potentially complex conditions are encountered that require debris removal or involve potentially toxic substance. Measures to remove the obstruction, material, or toxic substance or to change the location of a structure are prohibited until approved by the Department of Environmental Quality.

8. The permittee shall report fish kills or spills of oil or fuel immediately upon discovery. If spills or fish kills occur between the hours of 8:15 a.m. to 5 p.m., Monday through Friday, the appropriate Department of Environmental Quality regional office shall be notified; otherwise, the Department of Emergency Management shall be notified at 1-800-468-8892.

9. Violations of state water quality standards shall be reported to the appropriate Department of Environmental Quality office no later than the end of the business day following discovery.

10. The permittee shall notify the Department of Environmental Quality no later than the end of the third business day following the discovery of additional impacts to surface waters, including wetlands, stream channels, and open water that are not authorized by the Department of Environmental Quality or to any required preservation areas. The notification shall include photographs, estimated acreage or linear footage of impacts, and a description of the impacts.

11. Submittals required by this VWP general permit shall contain the following signed certification statement:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violation."

Part III.

Conditions Applicable to All VWP General Permits.

A. Duty to comply. The permittee shall comply with all conditions, limitations, and other requirements of the VWP general permit; any requirements in coverage granted under this VWP general permit; the Clean Water Act, as amended; and the State Water Control Law and regulations adopted pursuant to it. Any VWP general permit violation or noncompliance is a violation of the Clean Water Act and State Water Control Law and is grounds for (i) enforcement action, (ii) VWP general permit coverage termination for cause, (iii) VWP general permit coverage revocation, (iv) denial of application for coverage, or (v) denial of an application for a modification to VWP general permit coverage. Nothing in this VWP general permit shall be construed to relieve the permittee of the duty to comply with all applicable federal and state statutes, regulations, and toxic standards and prohibitions.

B. Duty to mitigate. The permittee shall take all reasonable steps to minimize or prevent impacts in violation of the VWP general permit that may have a reasonable likelihood of adversely affecting human health or the environment.

C. Reopener. This VWP general permit may be reopened to modify its conditions when the circumstances on which the previous VWP general permit was based have materially and substantially changed, or special studies conducted by the department or the permittee show material and substantial change since the time the VWP general permit was issued and thereby constitute cause for revoking and reissuing the VWP general permit.

D. Compliance with state and federal law. Compliance with this VWP general permit constitutes compliance with the VWP permit requirements of the State Water Control Law. Nothing in this VWP general permit shall be construed to preclude the institution of any legal action under or relieve the permittee from any responsibilities, liabilities, or other penalties established pursuant to any other state law or regulation or under the authority preserved by § 510 of the Clean Water Act.

E. Property rights. The issuance of this VWP general permit does not convey property rights in either real or personal property or any exclusive privileges, nor does it authorize injury to private property, any invasion of personal property rights, or any infringement of federal, state, or local laws or regulations.

F. Severability. The provisions of this VWP general permit are severable.

G. Inspection and entry. Upon presentation of credential, the permittee shall allow the department or any duly authorized agent of the department, at reasonable times and under reasonable circumstances, to enter upon the permittee's property, public or private, and have access to inspect and copy any records that must be kept as part of the VWP general permit conditions; to inspect any facilities, operations, or practices (including monitoring and control equipment) regulated or required under the VWP general permit; and to sample or monitor any substance, parameter, or activity for the purpose of ensuring compliance with the conditions of the VWP general permit or as otherwise authorized by law. For the purpose of this section, the time for inspection shall be deemed reasonable during regular business hours. Nothing contained herein shall make an inspection time unreasonable during an emergency.

H. Transferability of VWP general permit coverage. VWP general permit coverage may be transferred to another permittee when all of the criteria listed in this subsection are met. On the date of the VWP general permit coverage transfer, the transferred VWP general permit coverage shall be as fully effective as if it had been granted directly to the new permittee.

1. The current permittee notifies the department of the proposed transfer of the general permit coverage and provides a written agreement between the current and new permittees containing a specific date of transfer of VWP general permit responsibility, coverage, and liability to the new permittee, or that the current permittee will retain such

responsibility, coverage, or liability, including liability for compliance with the requirements of enforcement activities related to the authorized activity.

2. The department does not within 15 days notify the current and new permittees of the board's intent to modify or revoke and reissue the VWP general permit.

I. Notice of planned change. VWP general permit coverage may be modified subsequent to issuance in accordance with 9VAC25-690-80.

J. VWP general permit coverage termination for cause. VWP general permit coverage is subject to termination for cause by the department after public notice and opportunity for a hearing in accordance with 9VAC25-210-180. Reasons for termination for cause are as follows:

1. Noncompliance by the permittee with any provision of this chapter, any condition of the VWP general permit, or any requirement in general permit coverage;

2. The permittee's failure in the application or during the process of granting VWP general permit coverage to disclose fully all relevant facts or the permittee's misrepresentation of any relevant facts at any time;

3. The permittee's violation of a special or judicial order;

4. A determination by the department that the authorized activity endangers human health or the environment and can be regulated to acceptable levels by a modification to VWP general permit coverage or a termination;

5. A change in any condition that requires either a temporary or permanent reduction or elimination of any activity controlled by the VWP general permit; or

6. A determination that the authorized activity has ceased and that the compensation for unavoidable adverse impacts has been successfully completed.

K. The department may terminate VWP general permit coverage without cause when the permittee is no longer a legal entity due to death or dissolution or when a company is no longer authorized to conduct business in the Commonwealth. The termination shall be effective 30 days after notice of the proposed termination is sent to the last known address of the permittee or registered agent, unless the permittee objects within that time. If the permittee does object during that period, the department shall follow the applicable procedures for termination under 9VAC25-210-180 and § 62.1-44.15:25 of the Code of Virginia.

L. VWP general permit coverage termination by consent. The permittee shall submit a request for termination by consent within 30 days of completing or canceling all authorized activities requiring notification under 9VAC25-690-50 A and all compensatory mitigation requirements. When submitted for project completion, the request for termination by consent shall constitute a notice of project completion in accordance with 9VAC25-210-130 F. The director may accept this termination of coverage on behalf of the department. The permittee shall submit the following information:

1. Name, mailing address, and telephone number;

2. Name and location of the activity;

3. The VWP general permit tracking number; and

4. One of the following certifications:

a. For project completion:

"I certify under penalty of law that all activities and any required compensatory mitigation authorized by the VWP general permit and general permit coverage have been completed. I understand that by submitting this notice of termination I am no longer authorized to perform activities in surface waters in accordance with the VWP general permit and general permit coverage, and that performing activities in surface waters is unlawful where the activity is not authorized by the VWP permit or coverage,

unless otherwise excluded from obtaining coverage. I also understand that the submittal of this notice does not release me from liability for any violations of the VWP general permit or coverage."

b. For project cancellation:

"I certify under penalty of law that the activities and any required compensatory mitigation authorized by the VWP general permit and general permit coverage will not occur. I understand that by submitting this notice of termination I am no longer authorized to perform activities in surface waters in accordance with the VWP general permit and general permit coverage, and that performing activities in surface waters is unlawful where the activity is not authorized by the VWP permit or coverage, unless otherwise excluded from obtaining coverage. I also understand that the submittal of this notice does not release me from liability for any violations of the VWP general permit or coverage, nor does it allow me to resume the authorized activities without reapplication and coverage."

c. For events beyond permittee control, the permittee shall provide a detailed explanation of the events, to be approved by the Department of Environmental Quality, and the following certification statement:

"I certify under penalty of law that the activities or the required compensatory mitigation authorized by the VWP general permit and general permit coverage have changed as the result of events beyond my control (see attached). I understand that by submitting this notice of termination I am no longer authorized to perform activities in surface waters in accordance with the VWP general permit and general permit coverage, and that performing activities in surface waters is unlawful where the activity is not authorized by the VWP permit or coverage, unless otherwise excluded from obtaining coverage. I also understand that the submittal of this notice does not release me from liability for any violations of the VWP general permit or coverage, nor does it allow me to resume the authorized activities without reapplication and coverage."

M. Civil and criminal liability. Nothing in this VWP general permit shall be construed to relieve the permittee from civil and criminal penalties for noncompliance.

N. Oil and hazardous substance liability. Nothing in this VWP general permit shall be construed to preclude the institution of legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under § 311 of the Clean Water Act or §§ 62.1-44.34:14 through 62.1-44.34:23 of the State Water Control Law.

O. Duty to cease or confine activity. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the activity for which VWP general permit coverage has been granted in order to maintain compliance with the conditions of the VWP general permit or coverage.

P. Duty to provide information.

1. The permittee shall furnish to the department any information that the department may request to determine whether cause exists for modifying, revoking, or terminating VWP permit coverage or to determine compliance with the VWP general permit or general permit coverage. The permittee shall also furnish to the department, upon request, copies of records required to be kept by the permittee.

2. Plans, maps, conceptual reports, and other relevant information shall be submitted as required by the department prior to commencing construction.

Q. Monitoring and records requirements.

1. Monitoring of parameters, other than pollutants, shall be conducted according to approved analytical methods as specified in the VWP general permit. Analysis of

pollutants will be conducted according to 40 CFR Part 136 as published in the July 1, ~~2023~~2024, update, Guidelines Establishing Test Procedures for the Analysis of Pollutants.

2. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.

3. The permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart or electronic recordings for continuous monitoring instrumentation, copies of all reports required by the VWP general permit, and records of all data used to complete the application for coverage under the VWP general permit, for a period of at least three years from the date of general permit expiration. This period may be extended by request of the department at any time.

4. Records of monitoring information shall include, as appropriate:

a. The date, exact place, and time of sampling or measurements;

b. The name of the individuals who performed the sampling or measurements;

c. The date and time the analyses were performed;

d. The name of the individuals who performed the analyses;

e. The analytical techniques or methods supporting the information such as observations, readings, calculations, and bench data used;

f. The results of such analyses; and

g. Chain of custody documentation.

R. Unauthorized discharge of pollutants. Except in compliance with this VWP general permit, it shall be unlawful for the permittee to:

1. Discharge into state waters sewage, industrial wastes, other wastes, or any noxious or deleterious substances;

2. Excavate in a wetland;

3. Otherwise alter the physical, chemical, or biological properties of state waters and make them detrimental to the public health, to animal or aquatic life, or to the uses of such waters for domestic or industrial consumption, for recreation, or for other uses; or

4. On and after October 1, 2001, conduct the following activities in a wetland:

a. New activities to cause draining that significantly alters or degrades existing wetland acreage or functions;

b. Filling or dumping;

c. Permanent flooding or impounding; or

d. New activities that cause significant alteration or degradation of existing wetland acreage or functions.

S. Duty to reapply. Any permittee desiring to continue a previously authorized activity after the expiration date of the VWP general permit shall comply with the provisions in 9VAC25-690-27.

9VAC25-790-210. Nonconventional methods, processes or equipment.

A. Policy. The policy of the department is to encourage the development of any new or nonconventional methods, processes, and equipment that appear to have application for the treatment or conveyance of sewage. Sewage treatment methods, processes, and equipment may be subject to a special permit application procedure if (i) they are not covered by the Manual of Practice (Part III (9VAC25-790-310 et seq.) of this chapter) and (ii) they are in principle, or application, deemed to be nonconventional.

B. Provisional CTO. The performance reliability of nonconventional processes and equipment shall have been thoroughly demonstrated through an approved testing program for similar

installations (loadings of 75% or more of design level) before they may be considered for conventional approval and use. Where the department approves such a testing program, a provisional CTO will be issued for treatment works in which new or nonconventional processes and equipment are to be evaluated. The provisional CTO will specify conditions related to the testing requirements and agreements necessary for issuance of a final CTO. The owner of the facility shall submit the required test results to the department according to an approved schedule for approval prior to issuance of a final CTO. It is the owner's responsibility to operate in compliance with requirements imposed by permits issued for the sewerage system or treatment works.

C. Assurance resources. As a prerequisite to the issuance of a provisional CTO, the owner must furnish assurance of financial ability or resources available to modify, convert, or replace, the new or nonconventional processes or equipment in the event the performance reliability cannot be established over the period of time specified by the provisional CTO. These assurances may be in the form of funds placed in escrow, letters of credit, performance bonds, etc., which would revert to the facility owner if performance reliability cannot be established.

D. Performance reliability testing. All procedures used in testing of the performance reliability shall be conducted under the supervision of a licensed professional engineer who shall attest to the accuracy of sampling and testing procedures. The required samples shall be tested through a qualified laboratory. The testing program shall provide as a minimum the following:

1. Samples shall be collected at designated locations at a stated frequency and analyzed in accordance with provisions of the provisional CTO. The minimum testing period shall be 12 months under the comparable environmental and operational conditions for which the process and equipment will receive conventional approvals for any additional installations.

2. All analyses shall be made in accordance with the 19th Edition of Standard Methods for the Examination of Water and Wastewater (1995) and 40 CFR Part 136 as published in the 40 CFR July 1, ~~2023~~2024, update, or other approved analytical methods.

E. CTC. After the area engineer evaluates the plans and testing data, the director can issue a CTC if the performance data verifies that the method, process, or equipment can perform reliably in accordance with the design specifications and the operation standards of Part II, and that the method, process, or equipment may be installed as conventional for similar site specific operation.

F. Provisional CTO. Upon completion of construction or modification, a provisional CTO for a definite period of time will be issued for the operation of the nonconventional methods, processes, and equipment. Not more than one provisional CTO will be granted for a similar installation during the evaluation period. The provisional CTO shall require that:

1. The evaluation period shall be a minimum of 12 months and no longer than 18 months,

2. The holder of a provisional CTO must submit reports on operation during the evaluation period. The reports shall be prepared by either a licensed professional engineer experienced in the field of environmental engineering, the owner's operating or engineering staff, or a qualified testing firm.

G. Final CTO. The director will issue a final CTO upon lapse of the provisional CTO, if, on the basis of testing during that period, the new or nonconventional method, process, or equipment demonstrates reliable performance in accordance with permit requirements and the operation standards of Part II. If the standards are not met, then the owner shall provide for modification of the sewerage systems or treatment works, in a manner that will enable those standards to be met in accordance with this chapter.

9VAC25-800-15. Applicability of incorporated references based on the dates that they became effective.

Except as noted, when a regulation of the U.S. Environmental Protection Agency set forth in Title 40 of the Code of Federal Regulations (CFR) is referenced and incorporated in this chapter, that regulation shall be as it exists and has been published as of the July 1, 2022, ~~CFR~~ update; however, references to 40 CFR Part 136 are incorporated as published in the July 1, 2024, update.

9VAC25-820-15. Applicability of incorporated references based on the dates that they became effective.

Except as noted, when a regulation of the U.S. Environmental Protection Agency set forth in Title 40 of the Code of Federal Regulations (CFR) is referenced or adopted in this chapter and incorporated by reference that regulation shall be as it exists and has been published as of July 1, 2014; however, references to 40 CFR Part 136 are incorporated as published in the July 1, 2024, update.

9VAC25-860-15. Applicability of incorporated references based on the dates that they became effective.

Except as noted, when a regulation of the U.S. Environmental Protection Agency set forth in Title 40 of the Code of Federal Regulations (CFR) is referenced and incorporated in this chapter, that regulation shall be as it exists and has been published as of July 1, 2022; however, references to 40 CFR Part 136 are incorporated as published in the July 1, 2024, update.

9VAC25-875-30. Applicability of incorporated by references based on the dates that they became effective.

Except as noted, when a regulation of the United States set forth in the Code of Federal Regulations (CFR) is referenced and incorporated in this chapter, that regulation shall be as it exists and has been published in the July 1, 2022, update; however, references to 40 CFR Part 136 are incorporated as published in the July 1, 2024, update.

9VAC25-880-15. Applicability of incorporated references based on the dates that they became effective.

Except as noted, when a regulation of the United States set forth in the Code of Federal Regulations (CFR) is referenced and incorporated in this chapter, that regulation shall be as it exists and has been published in the July 1, 2022, update; however, references to 40 CFR Part 136 are incorporated as published in the July 1, 2024, update.

9VAC25-890-15. Applicability of incorporated references based on the dates that they became effective.

Except as noted, when a regulation of the U.S. Environmental Protection Agency set forth in Title 40 of the Code of Federal Regulations (CFR) is referenced and incorporated in this chapter, that regulation shall be as it exists and has been published in the July 1, 2022, update; however, references to 40 CFR Part 136 are incorporated as published in the July 1, 2024, update.

Office of Regulatory Management

Economic Review Form

Agency name	State Water Control Board
Virginia Administrative Code (VAC) Chapter citation(s)	9VAC25-31 9VAC25-32; 9VAC25-110; 9VAC25-115; 9VAC25-120; 9VAC25-151; 9VAC25-190; 9VAC25-192; 9VAC25-193; 9VAC25-194; 9VAC25-196; 9VAC25-210; 9VAC25-610; 9VAC25-630; 9VAC25-660; 9VAC25-670; 9VAC25-680; 9VAC25-690; 9VAC25-790; 9VAC25-800; 9VAC25-820; 9VAC25-860; 9VAC25-875; 9VAC25-880; and 9VAC25-890
VAC Chapter title(s)	• Virginia Pollutant Discharge Elimination System (VPDES) Permit Regulation (9VAC25-31) • Virginia Pollution Abatement (VPA) Permit Regulation (9VAC25-32) • Virginia Pollutant Discharge Elimination System (VPDES) General Permit Regulation for Domestic Sewage Discharges of Less Than or Equal to 1,000 Gallons Per Day (9VAC25-110) • Virginia Pollutant Discharge Elimination System (VPDES) General Permit Regulation for Seafood Processing Facilities (9VAC25-115) • Virginia Pollutant Discharge Elimination System (VPDES) General Permit Regulation for Discharges from Groundwater Remediation of Contaminated Sites, Dewatering Activities of Contaminated Sites, and Hydrostatic Tests (9VAC25-120) • Virginia Pollutant Discharge Elimination System (VPDES) General Permit Regulation for Discharges of Stormwater Associated with Industrial Activity (9VAC25-151) • Virginia Pollutant Discharge Elimination System (VPDES) General Permit Regulation for Nonmetallic Mineral Mining (9VAC25-190) • Virginia Pollution Abatement (VPA) Regulation and General Permit for Animal Feeding Operations and Animal Waste Management (9VAC25-192) • Virginia Pollutant Discharge Elimination System (VPDES) General Permit Regulation for Concrete Products Facilities (9VAC25-193)

	• Virginia Pollutant Discharge Elimination System (VPDES) General Permit Regulation for Vehicle Wash Facilities and Laundry Facilities (9VAC25-194) • Virginia Pollutant Discharge Elimination System (VPDES) General Permit for Noncontact Cooling Water Discharges of 50,000 Gallons Per Day or Less (9VAC25-196) • Virginia Water Protection Permit Program Regulation (9VAC25-210) • Groundwater Withdrawal Regulations (9VAC25-610) • Virginia Pollution Abatement Regulation and General Permit for Poultry Waste Management (9VAC25-630) • Virginia Water Protection General Permit for Impacts Less Than One-Half Acre (9VAC25-660) • Virginia Water Protection General Permit for Facilities and Activities of Utility and Public Service Companies Regulated by the Federal Energy Regulatory Commission or the State Corporation Commission and Other Utility Line Activities (9VAC25-670) • Virginia Water Protection General Permit for Linear Transportation Projects (9VAC25-680) • Virginia Water Protection General Permit for Impacts from Development and Certain Mining Activities (9VAC25-690) • Sewage Collection and Treatment Regulations (9VAC25-790) • Virginia Pollution Discharge Elimination System (VPDES) General Permit Regulation for Discharges Resulting from the Application of Pesticides to Surface Waters (9VAC25-800) • General Virginia Pollutant Discharge Elimination System (VPDES) Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Bay Watershed in Virginia (9VAC25-820) • Virginia Pollutant Discharge Elimination System General Permit Regulation for Potable Water Treatment Plants (9VAC25-860) • Virginia Erosion and Stormwater Management Regulation (9VAC25-875) • General VPDES Permit for Discharges of Stormwater from Construction Activities (9VAC25-880) • Virginia Pollutant Discharge Elimination System (VPDES) General Permit for Discharges of Stormwater

	from Small Municipal Separate Storm Sewer Systems (MS4s) (9VAC25-890)
Action title	2024 40 CFR Part 136 Reference Update/Methods Update Rule
Date this document prepared	July 31, 2024
Regulatory Stage (including Issuance of Guidance Documents)	Final Exempt

Cost Benefit Analysis

Complete Tables 1a and 1b for all regulatory actions. You do not need to complete Table 1c if the regulatory action is required by state statute or federal statute or regulation and leaves no discretion in its implementation.

Table 1a should provide analysis for the regulatory approach you are taking. Table 1b should provide analysis for the approach of leaving the current regulations intact (i.e., no further change is implemented). Table 1c should provide analysis for at least one alternative approach. You should not limit yourself to one alternative, however, and can add additional charts as needed.

Report both direct and indirect costs and benefits that can be monetized in Boxes 1 and 2. Report direct and indirect costs and benefits that cannot be monetized in Box 4. See the ORM Regulatory Economic Analysis Manual for additional guidance.

Table 1a: Costs and Benefits of the Proposed Changes (Primary Option)

(1) Direct & Indirect Costs & Benefits (Monetized)	**Background:** On June 17, 2024, the U.S. Environmental Protection Agency (EPA) finalized a rule, the Methods Update Rule for the Analysis of Effluent (MUR), that updates its list of approved methods for measuring pollutants in wastewater and surface water under the Clean Water Act. Regulated and regulatory entities use approved methods in 40 CFR Part 136, as amended by the MUR, to identify the types and amounts of pollutants in effluent for National Pollutant Discharge Elimination System (NPDES) permit applications, to determine compliance with NPDES permit limits, or to fulfill other Clean Water Act monitoring and reporting requirements. Various regulations of the State Water Control Board include references to EPA regulations under Title 40 of the Code of Federal Regulations (CFR). These regulatory amendments will bring the references to 40

	CFR Part 136 up to date with the requirements published in the July 1, 2024, update to Title 40 of the Code of Federal Regulations. The Regulatory Flexibility Act statement contained in the Federal Register when the MUR was published (89 FR 27288, 04/16/2024) states that it will not have a significant economic impact on a substantial number of small entities because it will not impose any new requirements on them. The update to 40 CFR Part 136 approves new alternate and revised versions of Clean Water Act testing procedures. Generally, these changes will have a positive impact on small entities by increasing method flexibility, thereby allowing entities to reduce costs by choosing more cost-effective methods. The EPA expects the update will lead to few, if any, increased costs because the changes clarify or improve the instructions in the methods, update the technology used in the methods, improve the QC instructions, make editorial corrections, and reflect the most recent approval year of already approved methods. In some cases, the rule adds alternatives to currently approved methods for a particular analyte (e.g., ASTM Method D7511). Because these methods would be alternatives rather than requirements, there are no direct costs associated with the methods approved by the EPA and incorporated by reference in the State Water Control Board's regulations that implement federal programs and requirements. **Direct Costs:** This regulatory action updates testing methods regulated parties and regulators follow for federal programs that Virginia (through DEQ) has delegated authority to implement so they are consistent with those allowed by EPA. Updates to existing methods do not impose any costs to regulated parties and regulators that are already using those methods. If regulated parties or regulators choose to use new alternative methods, the EPA methods are available free of charge from (epa.gov/*cwa-methods/approved-cwa-microbiological-test-methods*), therefore the EPA methods incorporated by reference are reasonably available. ASTM methods can be purchased from *astm.org.* The price of ASTM standards is not fixed but generally ranges between $50 and $100 per method. ASTM also offers memberships or subscriptions that allow unlimited access to their methods. The ASTM methods incorporated by reference are reasonably available. Methods approved under Standard Methods can be purchased from *standardmethods.org*. The price generally ranges between from $60 to $80 per method. Standard Methods also offers memberships or

	subscriptions that allow unlimited access to their methods. The methods incorporated by reference are reasonably available. The ATP methods are available free of charge on their respective websites (sgsaxys.com or pacelabs.com), therefore the ATP methods incorporated by reference are reasonably available. Because these methods would be alternatives rather than requirements, there are no direct costs associated with the methods approved by the EPA and incorporated by reference. If a permittee elected to use the alternative methods, they could incur a small cost associated with obtaining these methods from the listed sources. **Indirect Costs:** Indirect costs associated with the amendments may include costs associated with training personnel on updates to existing methods and new test procedures, costs associated with recalibrating equipment to comply with new procedures, and costs associated with updating standard operating procedures to reflect the changes. While EPA has concluded that the direct costs associated with obtaining the new and revised test procedures would not be a significant financial burden, it is important to note that the permittee or environmental laboratory may still incur some additional costs because of these indirect factors. **Direct Benefits:** The EPA finalized these revisions to improve data quality, update methods to keep current with technology advances, and provide the regulated community with greater flexibility. National Pollutant Discharge Elimination System permits (issued as Virginia Pollutant Discharge Elimination System (VPDES) permits in Virginia) include conditions designed to ensure compliance with the technology-based and water quality-based requirements of the Clean Water Act, including restrictions on the quantity of specific pollutants discharged as well as requirements for pollutant monitoring, measurement, and reporting to DEQ. Permittees are currently limited in deciding which approved test method(s) they will use for a specific pollutant because the EPA has subsequently approved the use of more modern and additional methods for testing that are currently not allowed by Virginia's regulations. This regulatory change updates the Board's regulations to allow the most recently adopted EPA test methods. **Indirect Benefits:** The adoption of methods developed by national voluntary consensus standards can have a ripple effect on the regulated communities beyond just meeting regulatory requirements. It can encourage the use of more standardized and widely accepted methods, leading to greater consistency in data collection and analysis. This can improve

	comparability of data across different facilities and districts, enabling better tracking of trends and identification of potential issues. Additionally, the use of newer, more advanced analytical technologies can lead to more accurate and precise data, which can inform better decision-making by regulators, permittees, and other stakeholders. The adoption of these updated methods can contribute to improved environmental outcomes and protection of public health.	
(2) Present Monetized Values	Direct & Indirect Costs	Direct & Indirect Benefits
	(a) The EPA Methods are available free of charge on the EPA websites. ASTM methods can be purchased from astm.org. The price of ASTM standards is not fixed but generally ranges between $50 and $100 per method. ASTM offers memberships or subscriptions that allow unlimited access to their methods. Methods approved under Standards Methods can be purchased from standardmethods.org. The price generally ranges between $60 to $80 per method. Standard Methods also offers memberships or subscriptions that allow unlimited access to their methods. Without a membership or subscription, the direct cost per method will be between $50 - $100 to obtain the testing updates. The number of methods and amount of testing required to demonstrate compliance with VPDES, and other permit requirements varies by permittee and the nature of the activity or discharge	(b) Without a membership or subscription, the direct cost per method will be between $50 - $100 to obtain updates if a permit requires testing for a parameter/analyte and the permittee or lab chooses to use that method. New methods, and increased flexibility in the choice of equivalent methods gives permittees the ability to select which methods are best suited to their needs considering cost, availability, and other factors.

	that is subject to permitting. Due to the unique and distinct nature of DEQ's permits, it is not possible to provide more general monetized values.	
(3) Net Monetized Benefit	Same as present.	
(4) Other Costs & Benefits (Non-Monetized)	Decreases burden on both permittees and environmental laboratories.	
(5) Information Sources	Federal Register: Clean Water Act: Methods Update Rule for the Analysis of Effluent. Publication Date: 04/16/2024 – Effective Date: 06/17/2024 Final MUR – 2024 Federal Register Notice (April 16, 2024) Fact Sheet: Final Rule: Clean Water Act Methods Update Rule for the Analysis of Effluent	

Table 1b: Costs and Benefits under the Status Quo (No change to the regulation)

(1) Direct & Indirect Costs & Benefits (Monetized)	**Direct Costs:** Permittees and environmental laboratories currently must satisfy the older testing standard from 2021, the last time EPA updated methods in 40 CFR Part 136. **Indirect Costs:** Less flexibility for the regulated community, no improvements in the quality of data collected, and an inability to keep current with technology advances. **Direct Benefits:** There are no direct benefits to not updating the test methods. **Indirect Benefits:** Permittees will not have to update or keep current with technology advances.	
(2) Present Monetized Values	Direct & Indirect Costs	Direct & Indirect Benefits
	(a) $50 - $100 per permittee or environmental laboratory per method to obtain the updated methods if the permittee does not maintain a memberships or subscriptions that allow unlimited access to their methods.	(b) Maintains status quo of the current data quality, limiting the scope of methods that fail to keep current with technology advances, and thus permittees have limited flexibility when testing.

(3) Net Monetized Benefit	Zero net monetized benefit if updates are not made to the regulation.
(4) Other Costs & Benefits (Non-Monetized)	NA
(5) Information Sources	Federal Register: Clean Water Act: Methods Update Rule for the Analysis of Effluent. Publication Date: 04/16/2024 – Effective Date: 06/17/2024 Final MUR – 2024 Federal Register Notice (April 16, 2024) Fact Sheet: Final Rule: Clean Water Act Methods Update Rule for the Analysis of Effluent

Table 1c: Costs and Benefits under Alternative Approach(es)

(1) Direct & Indirect Costs & Benefits (Monetized)	The agency was unable to identify an alternative approach since this change makes Virginia's regulations consistent with federal testing methods. **Direct Costs:** NA **Indirect Costs:** NA **Direct Benefits:** NA **Indirect Benefits:** NA	
(2) Present Monetized Values	Direct & Indirect Costs	Direct & Indirect Benefits
	(a) Not applicable	(b) Not applicable
(3) Net Monetized Benefit	Not applicable	
(4) Other Costs & Benefits (Non-Monetized)	Not applicable	
(5) Information Sources	Not applicable	

Impact on Local Partners

Use this chart to describe impacts on local partners. See Part 8 of the ORM Cost Impact Analysis Guidance for additional guidance.

Table 2: Impact on Local Partners

(1) Direct & Indirect Costs & Benefits (Monetized)	Localities would experience the same costs and benefits described in table 1a. No estimate is available concerning the number of localities benefiting from this regulatory change. Localities that have obtained a VPDES, VPA, Groundwater withdrawal, Virginia Water Protection Permit or are regulated by the Sewage Treatment and Collection regulation are potentially impacted by this amendment. **Direct Costs:** see table 1a. **Indirect Costs:** see table 1a. **Direct Benefits:** see table 1a. **Indirect Benefits:** see table 1a.

(2) Present Monetized Values	Direct & Indirect Costs	Direct & Indirect Benefits
	(a) see table 1a.	(b) see table 1a.

(3) Other Costs & Benefits (Non-Monetized)	see table 1a.
(4) Assistance	none
(5) Information Sources	see table 1a.

Impacts on Families

Use this chart to describe impacts on families. See Part 8 of the ORM Cost Impact Analysis Guidance for additional guidance.

Table 3: Impact on Families

(1) Direct & Indirect Costs & Benefits (Monetized)	**Direct Costs:** None. **Indirect Costs:** None. **Direct Benefits:**

	None. **Indirect Benefits:** None.	
(2) Present Monetized Values	Direct & Indirect Costs	Direct & Indirect Benefits
	(a) None.	(b) None.
(3) Other Costs & Benefits (Non-Monetized)	None.	
(4) Information Sources	None.	

Impacts on Small Businesses

Use this chart to describe impacts on small businesses. See Part 8 of the ORM Cost Impact Analysis Guidance for additional guidance.

Table 4: Impact on Small Businesses

(1) Direct & Indirect Costs & Benefits (Monetized)	Small businesses would experience the same costs and benefits described in table 1a. No estimate is available concerning the number of small businesses benefiting from this regulatory change. Small businesses that have obtained a VPDES, VPA, Groundwater withdrawal, Virginia Water Protection Permit or are regulated by the Sewage Treatment and Collection regulation are potentially impacted by this amendment. **Direct Costs:** See table 1a. **Indirect Costs:** See table 1a. **Direct Benefits:** See table 1a. **Indirect Benefits:** See table 1a.	
(2) Present Monetized Values	Direct & Indirect Costs	Direct & Indirect Benefits
	(a) See table 1a.	(b) See table 1a.

(3) Other Costs & Benefits (Non-Monetized)	See table 1a.
(4) Alternatives	None.
(5) Information Sources	See table 1a.

Changes to Number of Regulatory Requirements

Table 5: Regulatory Reduction

For each individual action, please fill out the appropriate chart to reflect any change in regulatory requirements, costs, regulatory stringency, or the overall length of any guidance documents.

Change in Regulatory Requirements

VAC Section(s) Involved	Authority of Change	Initial Count	Additions	Subtractions	Total Net Change in Requirements
9VAC25-31-25	**(M/A)**	0	0	0	0
	(D/A)	0	0	0	0
	(M/R)	0	0	0	0
	(D/R)	0	0	0	0
9VAC25-32-25	**(M/A)**	0	0	0	0
	(D/A)	0	0	0	0
	(M/R)	0	0	0	0
	(D/R)	0	0	0	0
9VAC25-110-15	**(M/A)**	0	0	0	0
	(D/A)	0	0	0	0
	(M/R)	0	0	0	0
	(D/R)	0	0	0	0
9VAC25-115-15	**(M/A)**	0	0	0	0
	(D/A)	0	0	0	0
	(M/R)	0	0	0	0
	(D/R)	0	0	0	0
9VAC25-120-15	**(M/A)**	0	0	0	0
	(D/A)	0	0	0	0
	(M/R)	0	0	0	0
	(D/R)	0	0	0	0
9VAC25-151-15	**(M/A)**	0	0	0	0
	(D/A)	0	0	0	0
	(M/R)	0	0	0	0
	(D/R)	0	0	0	0
9VAC25-190-15	**(M/A)**	0	0	0	0
	(D/A)	0	0	0	0
	(M/R)	1	0	0	0
	(D/R)	0	0	0	0
9VAC25-192-15	**(M/A)**	0	0	0	0
	(D/A)	0	0	0	0
	(M/R)	0	0	0	0
	(D/R)	0	0	0	0
9VAC25-193-15	**(M/A)**	0	0	0	0
	(D/A)	0	0	0	0

	(M/R)	0	0	0	0
	(D/R)	0	0	0	0
9VAC25-194-15	**(M/A)**	0	0	0	0
	(D/A)	0	0	0	0
	(M/R)	0	0	0	0
	(D/R)	0	0	0	0
9VAC25-196-15	**(M/A)**	0	0	0	0
	(D/A)	0	0	0	0
	(M/R)	0	0	0	0
	(D/R)	0	0	0	0
9VAC25-210-90	**(M/A)**	0	0	0	0
	(D/A)	0	0	0	0
	(M/R)	12	0	0	0
	(D/R)	0	0	0	0
9VAC25-610-130	**(M/A)**	0	0	0	0
	(D/A)	0	0	0	0
	(M/R)	25	0	0	0
	(D/R)	0	0	0	0
9VAC25-630-50	**(M/A)**	0	0	0	0
	(D/A)	0	0	0	0
	(M/R)	0	0	0	0
	(D/R)	0	0	0	0
9VAC25-660-100	**(M/A)**	0	0	0	0
	(D/A)	0	0	0	0
	(M/R)	72	0	0	0
	(D/R)	0	0	0	0
9VAC25-670-100	**(M/A)**	0	0	0	0
	(D/A)	0	0	0	0
	(M/R)	90	0	0	0
	(D/R)	0	0	0	0
9VAC25-680-100	**(M/A)**	0	0	0	0
	(D/A)	0	0	0	0
	(M/R)	103	0	0	0
	(D/R)	0	0	0	0
9VAC25-690-100	**(M/A)**	0	0	0	0
	(D/A)	0	0	0	0
	(M/R)	104	0	0	0
	(D/R)	0	0	0	0
9VAC25-790-210	**(M/A)**	0	0	0	0
	(D/A)	0	0	0	0
	(M/R)	31	0	0	0
	(D/R)	0	0	0	0
9VAC25-800-15	**(M/A)**	0	0	0	0
	(D/A)	0	0	0	0
	(M/R)	0	0	0	0

	(D/R)	0	0	0	0
9VAC25-820-15	**(M/A)**	0	0	0	0
	(D/A)	0	0	0	0
	(M/R)	0	0	0	0
	(D/R)	0	0	0	0
9VAC25-860-15	**(M/A)**	0	0	0	0
	(D/A)	0	0	0	0
	(M/R)	0	0	0	0
	(D/R)	0	0	0	0
9VAC25-875-30	**(M/A)**	0	0	0	0
	(D/A)	0	0	0	0
	(M/R)	1	0	0	0
	(D/R)	0	0	0	0
9VAC25-880-15	**(M/A)**	0	0	0	0
	(D/A)	0	0	0	0
	(M/R)	1	0	0	0
	(D/R)	0	0	0	0
9VAC25-890-15	**(M/A)**	0	0	0	0
	(D/A)	0	0	0	0
	(M/R)	0	0	0	0
	(D/R)	0	0	0	0
				Grand Total of Changes in Requirements:	**(M/A): 0**
					(D/A): 0
					(M/R): 0
					(D/R): 0

Key:
Please use the following coding if change is mandatory or discretionary and whether it affects externally regulated parties or only the agency itself:
(M/A): Mandatory requirements mandated by federal and/or state statute affecting the agency itself
(D/A): Discretionary requirements affecting agency itself
(M/R): Mandatory requirements mandated by federal and/or state statute affecting external parties, including other agencies
(D/R): Discretionary requirements affecting external parties, including other agencies

Cost Reductions or Increases (if applicable)

VAC Section(s) Involved	**Description of Regulatory Requirement**	**Initial Cost**	**New Cost**	**Overall Cost Savings/Increases**
9VAC25-31-25 9VAC25-32-25 9VAC25-110-15 9VAC25-115-15 9VAC25-120-15 9VAC25-151-15 9VAC25-190-15 9VAC25-192-15 9VAC25-193-15 9VAC25-194-15 9VAC25-196-15 9VAC25-210-90 9VAC25-610-130 9VAC25-630-50 9VAC25-660-100 9VAC25-670-100 9VAC25-680-100 9VAC25-690-100 9VAC25-790-210 9VAC25-800-15 9VAC25-820-15 9VAC25-860-15 9VAC25-875-30 9VAC25-880-15 9VAC25-890-15	Update regulation to include additional test methods for use by regulated community.	Memberships or subscriptions to have unlimited access to the ASTM methods / Standards Methods, or $50 - $100 per method for nonmember access to testing methods.	Permittees with membership or subscription with VCSB or ASTM will incur no additional cost. Nonmembers will incur a $50 - $100 cost per method to access to testing methods.	Ranges from no increase for Permittees with membership or subscription with ASTM / Standards Methods to $50 - $100 cost to access to for permittees without membership or subscription with ASTM/Standards Methods

Other Decreases or Increases in Regulatory Stringency (if applicable)

VAC Section(s) Involved	Description of Regulatory Change	Overview of How It Reduces or Increases Regulatory Burden
9VAC25-31-25 9VAC25-32-25 9VAC25-110-15 9VAC25-115-15 9VAC25-120-15 9VAC25-151-15 9VAC25-190-15 9VAC25-192-15 9VAC25-193-15 9VAC25-194-15 9VAC25-196-15 9VAC25-210-90 9VAC25-610-130 9VAC25-630-50 9VAC25-660-100 9VAC25-670-100 9VAC25-680-100 9VAC25-690-100 9VAC25-790-210 9VAC25-800-15 9VAC25-820-15 9VAC25-860-15 9VAC25-875-30 9VAC25-880-15 9VAC25-890-15	The regulatory amendments will update the references to 40 CFR Part 136 in each of the cited chapters to 40 CFR Part 136 as published in the July 1, 2024, update to the Code of Federal Regulations.	Provides increased flexibility for the permittees in meeting monitoring requirements while improving data quality and complying with the updated methods.

Length of Guidance Documents (only applicable if guidance document is being revised) NA

Title of Guidance Document	Original Word Count	New Word Count	Net Change in Word Count
NA			

*If the agency is modifying a guidance document that has regulatory requirements, it should report any change in requirements in the appropriate chart(s).

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 136

[EPA–HQ–OW–2022–0901; FRL 9346–02–OW]

RIN 2040–AG25

Clean Water Act Methods Update Rule for the Analysis of Effluent

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule.

SUMMARY: The U.S. Environmental Protection Agency (EPA) is finalizing changes to its test procedures required to be used by industries and municipalities when analyzing the chemical, physical, and biological properties of wastewater and other samples for reporting under the EPA's National Pollutant Discharge Elimination System permit program. The Clean Water Act requires the EPA to promulgate these test procedures (analytical methods) for analysis of pollutants. The EPA anticipates that these changes will provide increased flexibility for the regulated community in meeting monitoring requirements while improving data quality. In addition, this update to the CWA methods will incorporate technological advances in analytical technology and make a series of minor changes and corrections to existing approved methods. As such, the EPA expects that these changes will not result in any negative economic impacts.

DATES: This final rule is effective on June 17, 2024. The incorporation by reference of certain material listed in this rule and is approved by the Director of the Federal Register as of June 17, 2024.

ADDRESSES: The EPA has established a docket for this action under Docket ID No. EPA–OW–HQ–2022–0901. All documents in the docket are listed on the *http://www.regulations.gov* website. Although listed in the index, some information is not publicly available, *e.g.,* CBI or other information whose disclosure is restricted by statute. Certain other material, such as copyrighted material, is not placed on the internet and will be publicly available only in hard copy form. Publicly available docket materials are available electronically through *http://www.regulations.gov.*

FOR FURTHER INFORMATION CONTACT: Tracy Bone, Engineering and Analysis Division, Office of Water (4303T), Environmental Protection Agency, 1200 Pennsylvania Avenue NW, Washington, DC 20460–0001; telephone number: 202–564–5257; email address: *bone.tracy@epa.gov.*

SUPPLEMENTARY INFORMATION:

Table of Contents

I. General Information

This preamble describes the abbreviations and acronyms; reasons for the rule; and a summary of the changes and clarifications; the legal authority for the rule; methods incorporated by reference; and a summary of the changes and clarifications.

A. Does this action apply to me?

Entities potentially affected by the requirements of this action include:

Category	Examples of potentially affected entities
State, Territorial, and Indian Tribal Governments.	States authorized to administer the National Pollutant Discharge Elimination System permitting program; states, territories, and Tribes providing certification under CWA section 401; state, territorial, and Tribal-owned facilities that must conduct monitoring to comply with NPDES permits.
Industry	Facilities that must conduct monitoring to comply with NPDES permits; the environmental monitoring industry.
Municipalities	Publicly Owned Treatment Works or other municipality-owned facilities that must conduct monitoring to comply with NPDES permits.

This table is not intended to be exhaustive, but rather provides a guide for readers regarding entities likely to be affected by this action. This table lists types of entities that the EPA is now aware of that could potentially be affected by this action. Other types of entities not listed in the table could also be affected. To determine whether your facility is affected by this action, you should carefully examine the applicability language at 40 CFR 122.1 (NPDES purpose and scope), 40 CFR 136.1 (NPDES permits and CWA) and 40 CFR 403.1 (pretreatment standards purpose and applicability). If you have questions regarding the applicability of this action to a particular entity, consult the appropriate person listed in the preceding **FOR FURTHER INFORMATION CONTACT** section.

B. What action is the Agency taking?

Periodically, the EPA updates the approved methods in 40 CFR part 136. In general, the changes in this action fall into four categories. The first category is updated versions of EPA methods currently approved in 40 CFR part 136. The second category is new or revised methods published by a voluntary consensus standard body that are similar to methods previously adopted as EPA-approved methods in 40 CFR part 136. The third category is methods the EPA has reviewed under the agency's national Alternate Test Procedure program and preliminarily concluded are appropriate for nationwide use. The fourth category is corrections or amendments to the text and tables of 40 CFR part 136. The EPA is finalizing these revisions to improve data quality, update methods to keep current with technology advances, and provide the regulated community with greater flexibility. The following paragraphs provide details on the revisions.

C. What is the Agency's authority for taking this action?

The EPA is promulgating this regulation under the authorities of sections 301(a), 304(h), and 501(a) of the CWA; 33 U.S.C. 1251, 1311(a), 1314(h) and 1361(a). Section 301(a) of the CWA prohibits the discharge of any pollutant into navigable waters unless the discharge complies with, among other provisions, an NPDES permit issued under section 402 of the CWA. Section 304(h) of the CWA requires the EPA Administrator to ''. . . promulgate guidelines establishing test procedures for the analysis of pollutants that shall include the factors which must be provided in any certification pursuant to [section 401 of the CWA] or permit application pursuant to [section 402 of the CWA].'' Section 501(a) of the CWA authorizes the Administrator to ''. . . prescribe such regulations as are necessary to carry out this function under [the CWA].'' The EPA generally

has codified its test procedure regulations (including analysis and sampling requirements) for CWA programs at 40 CFR part 136, though some requirements are codified in other parts (*e.g.,* 40 CFR Chapter I, Subchapters N and O).

II. Background

Abbreviations and Acronyms Used in the Preamble

ASTM: ASTM International [1]
ATP: Alternate Test Procedure
BHI: Brain heart infusion
CATC: Cyanide Amenable to Chlorination
CFR: Code of Federal Regulations
CNCl: Cyanogen Chloride
CWA: Clean Water Act
EC–MUG: EC broth with 4-methylumbelliferyl-β-D-glucuronide
EDTA: Ethylenediaminetetraacetic acid
EPA: the U.S. Environmental Protection Agency
DO: Dissolved Oxygen
GC: Gas Chromatography
GC/MS/MS: Gas Chromatography-Tandem Mass Spectrometry
GC/HRMS: Gas Chromatography-High Resolution Mass Spectrometry
IBR: Incorporation by Reference
ICP/AES: Inductively Coupled Plasma-Atomic Emission Spectroscopy
NED: *N*-(1-naphthyl)-ethylenediamine dihydrochloride
NPDES: National Pollutant Discharge Elimination System
m/z: Mass to Charge Ratio
MF: Membrane Filtration
MPN: Most Probable Number
nm: Nanometer
NTTAA: National Technology Transfer and Advancement Act
POTW: Publicly Owned Treatment Works
QC: Quality Control
TKN: Total Kjeldahl Nitrogen
USGS: United States Geological Survey
VCSB: Voluntary Consensus Standards Body

NPDES permits must include conditions designed to ensure compliance with the technology-based and water quality-based requirements of the CWA, including in many cases, restrictions on the quantity of specific pollutants that can be discharged as well as pollutant measurement and reporting requirements. Often, entities have a choice in deciding which approved test procedure they will use for a specific pollutant because the EPA has approved the use of more than one method.[2]

The procedures for the analysis of pollutants required by CWA section 304(h) are a central element of the NPDES permit program. Examples of where these EPA-approved analytical methods must be used include the following: (1) applications for NPDES permits, (2) sampling or other reports required under NPDES permits, (3) other requests for quantitative or qualitative effluent data under the NPDES regulations, (4) state CWA 401 certifications, and (5) sampling and analysis required under the EPA's General Pretreatment Regulations for Existing and New Sources of Pollution, 40 CFR 136.1 and 40 CFR 403.12(b)(5)(v).

On February 21, 2023, the EPA proposed to update the approved methods in 40 CFR part 136. The EPA received 20 comments on the proposed rulemaking (February 21, 2023, 88 FR 10724) from laboratory associations, state environmental agencies, trade associations and citizens. All commenters supported finalizing this rule and approving each proposed method.

There were some specific comments that are outside the scope of this rulemaking. As stated in the proposed rule (88 FR 10725, February 21, 2023,), the EPA only considered new or revised methods that were submitted to the EPA. Method withdrawals, methods for new parameters, methods based on new technologies (except methods approved through the alternate test procedure program) and VCSB methods not submitted from VCSBs were not considered for this routine update. Commenters requesting changes to VCSB, or vender methods should work through the method owner to revise the method and submit any supporting data to the EPA for consideration.

Commenters noted that there was a format error in the proposed rulemaking language on Table IC, footnotes 15, 16 and 17, (88 FR 10763, February 21, 2023). The new footnote 16 was inadvertently added to the end of footnote 15. The information in the new footnotes is correctly described in the preamble (88 FR 10738, February 21, 2023). This typographical error of the order and numbering of the footnotes has been corrected in the final rule. In addition, the following parameters were missing from the preamble discussions of the revision of Standard Methods method 6410B–2020: 2,2′-oxybis(1-chloropropane) (also referred to as bis[2-Chloro-1-methylethyl] ether); hexachloroethane; and N-nitrosodimethylamine. The revised 6410B–2020 discussion in Section IV.C.35 of this preamble is correct.

III. Corrections or Amendments to the Text and Tables of 40 CFR Part 136

In addition to the method revision incorporated by reference as discussed in Section IV of this preamble, Standard Methods has revised a few of their general quality control sections (2020, 3020, 4020 and 5020). The EPA is updating the year of the current references to these sections in 136.3 Table IB footnote 85. The EPA is also adding a reference to an additional Standard Methods Quality Control section: Part 6000 Individual Organic Compounds, 6020. These Quality Control Standards are available for download at *www.standardmethods.org* at no charge. The EPA is correcting several minor errors or inconsistencies in the tables of approved methods. The EPA is making the following changes to 40 CFR 136.3, Tables IA, IB, IC, ID or IH:

1. Table IA. Removing the units of ''number per 100 mL'' under parameter 1. Coliform (fecal), because parameter 1 is specifically for biosolids that are reported as ''number per gram dry weight''.

2. Table IA. Moving United States Geologic Survey Method ''B–0050–85'' from parameter 1. Coliform (fecal) number per gram dry weight to parameter 2. Coliform (fecal) number per 100 mL, to address an error from the previous rulemaking when Parameter 1 Coliform (fecal) was split into two parameters to eliminate confusion as to which methods were approved for biosolids.

3. Table IA parameter 3 and IH parameter 2. Moving the phrase ''two-step'' in the ''Method'' column from the second to the third line which returns the phrase to the proper line after having been inadvertently moved.

4. Table IB. Revising footnote 85 to remove bullet formatting.

5. Table IB. Adding footnote 86 to Method 419D. Method 419D is listed as an approved method for of determination nitrate using Colorimetric (Brucine sulfate) methodology. This addition corrects a long-standing typographical error regarding the appropriate footnote for this method in Table IB.

6. Table IB. Correcting an inadvertent error to footnote 57. The reference number was incorrectly changed to 335.4–1. The correct number is 335.4.

7. Tables IC and ID. Adding footnote 15 to the Standard Methods column header and adding footnote 15 to refer to Quality Control Section: Part 6000 Individual Organic Compounds, 6020 (2019).

8. Table IC. Changing parameter 39, dichlorodifluoromethane, to refer to Method 6200 B rather than 6200 C for the GC/MS method.

9. Table IC. Adding footnote 10 to parameters 66–72, 95, 96 and 97 which

[1] Formerly known as the American Society for Testing and Materials (ASTM).

[2] NPDES permit regulations also specify that the approved method needs to be sufficiently sensitive. See 40 CFR 122.21(e)(3).

were inadvertently dropped in an earlier rulemaking. Footnote 10 to table IC applies to all of the 17 dioxin and furan congeners.

10. Table IH parameter 2. Moving method B–0025–85 down one row because it was inadvertently moved in an earlier rulemaking. This method is a single step membrane filtration method rather than a most probable number method.

11. Table II. Revising footnote 5 for the preservation and holding time requirements for cyanide to add the year (2015) of the ASTM method D7365–09a (15).

The recommended sampling and preservation procedures in the ASTM method have not changed since 2009, but the change to footnote 5 simplifies identification of the current method that is available from ASTM International. The 2015 reapproval date was already updated in footnote 6 to Table II in the 2021 methods update rule; however, adding the reapproval date was overlooked in the incorporated by reference section and in footnote 5 to Table II.

IV. Incorporation by Reference

Currently, hundreds of methods and ATPs are incorporated by reference within 40 CFR part 136. In most cases, 40 CFR part 136 contains multiple approved methods for a single parameter (or pollutant) and regulated entities often have a choice in selecting a method. The rule contains revisions to VCSB methods that are currently incorporated by reference, (see Sections IV.B, IV.C, and IV.E of this preamble). Two VCSBs have made such revisions: Standard Methods and ASTM. The VCSB methods are consistent with the requirements of the National Technology Transfer and Advancement Act, under which Federal agencies use technical standards developed or adopted by the VCSBs if compliance would not be inconsistent with applicable law or otherwise impracticable. This rule also includes two vendor ATPs (see Section IV.D of this preamble) and four revised EPA methods (see Section IV.A of this preamble) which the EPA is incorporating by reference.

The rule incorporates by reference the methods added in an earlier Methods Update Rule (86 FR 27226, May 19, 2021). The EPA inadvertently failed to complete the incorporation by reference review process for that final rule. The EPA proposed 68 methods for incorporation by reference into 40 CFR 136.3 (84 FR 56590, October 22, 2019). Other than ASTM D7365–09a (Reapproved 2015) and the EPA Method 1623.1, the methods are described in the 2019 proposal as well as the 2021 final rule. ASTM D7365–09a (Reapproved 2015) and Method 1623.1 are summarized in this preamble.

The EPA is also incorporating by reference an errata sheet in Table IA, footnotes 25, 26, 27. The U.S. EPA Whole Effluent Toxicity (WET) Methods Errata Sheet, EPA 821–R–02–012–ES, corrects and clarifies the WET methods referenced in those footnotes. The errata sheet was described and promulgated as part of the 2017 Clean Water Act Methods Update Rule for the Analysis of Effluent (see 82 FR 40841, August 28, 2017; docket number EPA–HQ–OW–2014–0797). The EPA inadvertently failed to incorporate by reference the errata sheet in the 2017 final rule.

The following paragraphs provide details on the methods incorporated by reference.

A. Changes to 40 CFR 136.3 To Include New Versions of Previously Approved EPA Methods

The EPA is adding revised versions of the EPA membrane filtration methods 1103.2, 1106.2, 1600.1, and 1603.1 found in Tables IA and IH. These methods were approved from 2002 to 2014. The EPA is also summarizing method 1623.1 that was added in the earlier rule (86 FR 27226, May 19, 2021) but not summarized. The revisions include standardizing language between the related methods, updating to reflect current lab practices and clarifying edits.

These methods each describe a membrane filter procedure for the detection and enumeration of either enterococci or *Escherichia coli* bacteria by their growth after incubation on selective media. These methods provide a direct count of bacteria in water samples based on the development of colonies on the surface of the membrane filter.

1. *E. coli.* Method 1103.2 describes a MF procedure for the detection and enumeration of *Escherichia coli* bacteria in ambient (fresh) water and is currently approved in Table IH. This is a two-step method which requires transferring the membrane filter after incubation on membrane-Thermotolerant Escherichia coli Agar (mTEC) to a pad saturated with urea substrate.

2. Enterococci. Method 1106.2 describes a MF procedure for the detection and enumeration of enterococci bacteria in ambient water and is currently approved in Table IH. This is a two-step method which requires transferring the membrane filter after incubation on membrane-Enterococcus (mE) agar to Esculin Iron Agar (EIA) medium.

3. Enterococci. Method 1600.1 describes a MF procedure for the detection and enumeration of enterococci bacteria in ambient (fresh and marine) water and wastewater and is currently approved in Tables IA and IH. This is a single-step method that is a modification of EPA Method 1106.1 (mE–EIA). The membrane filter containing the bacterial cells is placed on membrane-Enterococcus Indoxyl-β-D-Glucoside Agar (mEI).

4. *E. coli.* Method 1603.1 describes a MF procedure for the detection and enumeration of thermotolerant *Escherichia coli* bacteria in ambient (fresh) waters and wastewaters using Modified membrane-Thermotolerant Escherichia coli Agar (modified mTEC) and is currently approved in Table IA and IH.

5. *Cryptosporidium and Giardia.* Method 1623.1 describes a method for the detection of *Cryptosporidium* and *Giardia* in ambient water by concentration immunomagnetic separation (IMS), and immunofluorescence assay (FA) microscopy. A water sample is filtered and the oocysts, cysts, and extraneous materials are retained on the filter. EPA Method 1623.1 includes updated acceptance criteria for IPR, OPR, and MS/MSD, and clarifications and revisions based on the use of EPA Method.

The EPA methods are available free of charge on our websites (*epa.gov/cwa-methods/approved-cwa-microbiological-test-methods*), therefore the EPA methods incorporated by reference are reasonably available.

B. Changes to 40 CFR 136.3 To Include New Versions of Approved ASTM Methods

The EPA is adding new versions of ASTM methods previously approved in 40 CFR part 136. These changes to currently approved ASTM methods in 40 CFR part 136 include minor clarifications and editorial changes. As an example, ASTM added text to the appropriate method scope sections to indicate that the method was developed in accordance with the ''Decision on Principles for the Development of International Standards, Guides and Recommendations'' issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee. None of these changes will affect the performance of the method. The following describes the changes to current ASTM methods that the EPA is including in 40 CFR part 136. Each entry contains (in the following order):

the parameter, the ASTM method number (the last two digits in the method number represent the year ASTM published the method), a brief description of the analytical technique, and a brief description of any minor procedural changes (if there are any) in this revision from the last approved version of the method. Method revisions that are only formatting in nature will have no description of the changes. The methods listed below are organized according to the table at 40 CFR part 136 in the order in which they appear.

ASTM methods can be purchased from *astm.org.* The price of ASTM standards is not fixed. The price generally ranges between $50 and $100 per method. ASTM also offers memberships or subscriptions that allow unlimited access to their methods. The ASTM methods incorporated by reference are reasonably available.

The EPA is adding the following ASTM methods found in Table IB, and Table II at 40 CFR part 136:

1. Dissolved Oxygen. D888–18 (A, B, C), Dissolved Oxygen, Winkler, Electrode, Luminescent-based Sensor. Standard D888–18A measures dissolved oxygen using the Winkler iodometric titration procedure. The volume of titrant used is proportional to the concentration of DO in the sample. Standard D888–18B measures DO in the sample with an electrochemical probe that produces an electrical potential which is logarithmically proportional to the concentration of DO in the sample. Standard D888–18C measures DO with a luminescence-based sensor probe that employs frequency domain lifetime-based luminescence quenching and signal processing.

2. Hydrogen Ion (pH). In D1293–18 (A, B), pH, Electrometric. The activity of hydrogen ion (H+) in the sample is determined electrometrically with an ion-selective electrode in comparison to at least two standard reference buffers and pH is reported as the negative log of that activity.

3. Metals Series. In D1976–20, Elements in Water by Inductively-Coupled Plasma Atomic Emission Spectroscopy for determination of aluminum, antimony, arsenic, beryllium, boron, cadmium, chromium, cobalt, copper, iron, lead, magnesium, manganese, molybdenum, nickel, selenium, silver, thallium, vanadium, and zinc. The sample is acid digested and analyzed by ICP/AES for the simultaneous or sequential determination of 29 elements. The changes include changing the initial instrument calibration from using four standards as the first option to using only one standard and a calibration blank.

4. Surfactants. In D2330–20, Methylene Blue Active Substances, the sample is mixed with an acidic aqueous solution of methylene blue reagent, which forms a blue-colored ion pair with any anionic surfactants which is subsequently extracted with chloroform and washed with an acidic solution to remove interferences. The intensity of the blue color is measured using a photometer at 650 nanometers. The concentration of methylene blue active substances is determined in comparison to a standard curve.

5. Residue, filterable and nonfilterable. In D5907–18 (A and B), Filterable Matter (Total Dissolved Solids) and Nonfilterable Matter (Total Suspended Solids) under Test Method A, an aliquot of the sample is filtered through a glass fiber filter and the solids trapped on the filter are dried at 105 °C and weighed to determine the nonfilterable material (total suspended solids) by difference. Under Test Method B, the filtrate from Test Method A, or a separate filtrate, is evaporated to dryness at 180 °C and the residue weighed to determine the total dissolved solids.

6. Cyanide—Free. In D7237–18, Free Cyanide, Flow Injection, followed by Gas Diffusion Amperometry an aliquot of the sample is introduced into a flow injection analysis instrument, where it mixes with a phosphate buffer to release hydrogen cyanide which diffuses through a hydrophobic gas diffusion membrane into an alkaline solution and is detected amperometrically with a silver electrode. This version also added new information about sulfide interferences and potential mitigation strategies that the EPA anticipates will improve data quality. There are no other procedural changes.

7. Cyanide—Total. In D7284–20, Total Cyanide, Manual Distillation with $MgCl_2$ followed by Flow Injection, Gas Diffusion Amperometry, the sample is distilled with acid and a magnesium chloride catalyst to release cyanide to a sodium hydroxide solution. An aliquot of the sodium hydroxide solution is introduced into a flow injection analysis instrument, where it is acidified, and the hydrogen cyanide diffuses through a hydrophobic gas diffusion membrane into an alkaline solution and is detected amperometrically with a silver electrode.

8. Cyanide. D7365–09a (Reapproved 2015) is applicable for the collection and preservation of water samples for the analysis of cyanide. Samples are collected in appropriate containers and mitigated for known interferences either in the field during sample collection or in the laboratory prior to analysis. The sampling, preservation and mitigation of interference procedures described in this practice are recommended for the analysis of total cyanide, available cyanide, weak acid dissociable cyanide, and free cyanide by ASTM Methods D2036, D4282, D4374, D6888, D6994, D7237, D7284, and D7511.

9. Organic Carbon. In D7573–18a^{e1}, Total Organic Carbon, Combustion, the sample is sparged with an inert gas to remove dissolved inorganic carbon, acidified, and then combusted at high temperature to convert organic carbon to carbon dioxide. The carbon dioxide is measured with an infra-red detector. This version also adds data from an interlaboratory method validation study and new method detection limit values, but there are no procedural changes.

C. Changes to 40 CFR 136.3 To Include New Versions of Approved ''Standard Methods'' Methods

The EPA is approving new versions of methods developed by the Standard Methods Committee that were previously approved in 40 CFR part 136. Standard Methods has reviewed many of their methods in preparation for releasing the next edition of ''Standard Methods for the Examination of Water & Wastewater.'' The newer versions provide clarifications and make editorial corrections. These edits include removal of referents to specific brand names and trademarks, incorporation of footnotes into the text, a reformatting of figures, tables and reference lists, removal of bibliographical references that are no longer available, small editorial changes based on current style guides and changes to scientific publishing standards, and minor clarifications to procedures based on input from users. For example, the revisions replace distilled water with reagent water in all methods.

Each entry contains the Standard Method number and date, the parameter, and a brief description of the analytical method. The EPA lists only one version of a method. The date indicates the specific version approved for use under the CWA. The methods listed below are organized according to the table at 40 CFR part 136 in the order in which they appear.

Methods approved under Standard Methods can be purchased from *standardmethods.org.* The price generally ranges between from $60 to $80 per method. Standard Methods also offers memberships or subscriptions that allow unlimited access to their

methods. The methods incorporated by reference are reasonably available.

The EPA is adding the following methods to Tables IB, IC, and ID at 40 CFR part 136 for the following parameters:

1. Color. 2120 B–2021, Visual Comparison Method, is a platinum-cobalt method of measuring color, the unit of color being that produced by one mg platinum per liter in the form of the chloroplatinate ion. The 1:2 ratio of cobalt to platinum resulting from the preparation of the standard platinum-cobalt solution matches the color of natural waters.

2120 F–2021, American Dye Manufacturers Institute (ADMI) Weighted-Ordinate Spectrophotometric Method. This method calculates single-number color difference values (*i.e.,* uniform color differences) in accordance with the Adams-Nickerson chromatic value formula. Values are independent of chroma and hue. Transmittance of light is measured spectrophotometrically at multiple wavelengths and converted to a set of abstract numbers, which then are converted to a single number that indicates color value. This number is expressed on a scale used by the ADMI.

2. Turbidity. 2130 B–2020, Nephelometric Method is based on a comparison of the intensity of light scattered by the sample under defined conditions with the intensity of light scattered by a standard reference suspension under the same conditions. The higher the intensity of scattered light, the higher the turbidity. Formazin polymer is used as the primary standard reference suspension.

3. Acidity. 2310 B–2020, Titration Method measures the hydrogen ions present in a sample as a result of dissociation or hydrolysis of solutes that react with additions of standard alkali. Acidity thus depends on the endpoint pH or indicator used. The construction of a titration curve by recording a sample's pH after successive small, measured additions of titrant permits identification of inflection points and buffering capacity, if any, and allows the acidity to be determined with respect to any pH of interest. Samples of industrial wastes, acid mine drainage, or other solutions that contain appreciable amounts of hydrolyzable metal ions such as iron, aluminum, or manganese are treated with hydrogen peroxide to ensure the oxidation of any reduced forms of polyvalent cations and are boiled to hasten hydrolysis. Acidity results may be highly variable if this procedure is not followed exactly.

4. Alkalinity. 2320 B–2021 Titration Method, measures the hydroxyl ions present in a sample resulting from dissociation or hydrolysis of solutes that react with additions of standard acid. Alkalinity thus depends on the endpoint pH used. For samples of low alkalinity (less than 20 mg/L $CaCO_3$) an extrapolation technique based on the near proportionality of concentration of hydrogen ions to excess of titrant beyond the equivalence point is used. The amount of standard acid required to reduce the pH exactly 0.30 pH unit is measured carefully. Because this change in pH corresponds to an exact doubling of the hydrogen ion concentration, a simple extrapolation can be made to the equivalence point.

5. Hardness.

a. In 2340 B–2021, Hardness by Calculation is the preferred method for determining hardness by calculating it from the results of separate determinations of calcium and magnesium by any approved method provided that the sum of the lowest point of quantitation for Ca and Mg is below the NPDES permit requirement for hardness.

b. In 2340 C–2021, Ethylenediaminetetraacetic acid Titrimetric Method, EDTA forms a chelated soluble complex when added to a solution of certain metal cations. If a small amount of a dye such as eriochrome black T or calmagite is added to an aqueous solution containing calcium and magnesium ions at a pH of 10.0 ± 0.1, the color of the solution becomes wine red. If EDTA is added as a titrant, the calcium and magnesium will be complexed, and when all of the magnesium and calcium has been complexed, the solution turns from wine red to blue, marking the endpoint of the titration. The volume of titrant used is proportional to hardness in the sample. Magnesium ion must be present to yield a satisfactory endpoint. To ensure this, a small amount of complexometrically neutral magnesium salt of EDTA is added to the buffer; this automatically introduces sufficient magnesium and obviates the need for a blank correction.

6. Specific Conductance. 2510 B–2021 measures conductance (or resistance) in the laboratory using a standard potassium chloride solution and from the corresponding conductivity, a cell constant is calculated. Most conductivity meters do not display the actual solution conductance, or resistance, rather, they generally have a dial that permits the user to adjust the internal cell constant to match the conductivity of a standard. Once the cell constant has been determined, or set, the conductivity of an unknown solution is displayed by the meter.

7. Residue-Total.

a. In 2540 B–2020 an aliquot of a well-mixed sample is evaporated in a pre-weighed evaporating dish at 103–105 °C to constant weight in a 103 to 105 °C oven. The increase compared to the empty pre-weighed dish weight represents total solids.

b. In 2540 C–2020, Total Dissolved Solids Dried at 180 °C (Residue—filterable in Table IB) a measured volume of a well-mixed sample is filtered through a glass fiber filter with applied vacuum. The entire exposed surface of the filter is washed with at least three successive volumes of reagent-grade water with continued suction until all traces of water are removed. The total filtrate (with washings) is then transferred to a pre-weighed dish and evaporated to dryness. Successive volumes of sample are added to the same dish after evaporation if necessary to yield between 2.5 and 200 mg of dried residue. The evaporated residue is then dried for one hour or more in an oven at 180 °C, cooled in a desiccator to ambient temperature, and weighed until the weight change is less than 0.5 mg.

c. In 2540 D–2020, Total Suspended Solids Dried from 103 to 105 °C (Residue—non-filterable total suspended solids (TSS) in Table IB) a well-mixed sample is filtered through a pre-weighed standard glass-fiber filter. The filter and the retained residue are then dried to a constant weight in a 103 to 105 °C oven. The increase in filter weight represents TSS.

d. In 2540 E–2020, Fixed and Volatile Solids Ignited at 550 °C (Residue—volatile in Table IB) the residue obtained from the determination of total (Method 2540 B), filterable (Method 2540 C), or non-filterable residue (Method 2540 D) is ignited at 550 ± 50 °C in a muffle furnace, cooled in a desiccator to ambient temperature and weighed. Repeated successive cycles of drying, cooling, desiccating, and weighing are performed until the weight change is less than 0.5 mg. The remaining solids are fixed total, dissolved, or suspended solids, while those lost to ignition are volatile total, dissolved, or suspended solids.

e. In 2540 F–2020, Settleable Solids (aka, Residue—settleable in Table IB), a well-mixed sample is used to fill an Imhoff cone or graduated cylinder to the one liter mark. The sample is allowed to settle for 45 minutes, then gently agitated near the sides of the cone (or graduated cylinder) with a rod or by spinning. The sample is then allowed to settle for another 15 minutes and the volume of settleable solids in the cone (or graduated cylinder) is recorded as

mL/L. When applicable, the recorded volume is corrected for interference from pockets of liquid volume.

8. Multiple metals by flame atomic absorption spectrometry.

a. 3111 B–2019, Direct Air-Acetylene Flame Method. The method is approved in Table IB for determination of antimony, cadmium, calcium, chromium, cobalt, copper, gold, iridium, iron, lead, magnesium, manganese, nickel, palladium, platinum, potassium, rhodium, ruthenium, silver, sodium, thallium, tin, and zinc. A sample is aspirated into a flame and the metals are atomized. A light beam is directed through the flame, into a monochromator, and onto a detector that measures the amount of light absorbed by the atomized metal in the flame. Because each metal has its own characteristic absorption wavelength, a source lamp composed of that element is used. The amount of energy at the characteristic wavelength absorbed in the flame is proportional to the concentration of the element in the sample over a limited concentration range.

b. 3111 C–2019, Extraction and Air-Acetylene Flame Method consists of chelation with ammonium pyrrolidine dithiocarbamate (APDC) and extraction into methyl isobutyl ketone (MIBK), followed by aspiration into an air-acetylene flame and is suitable for the determination of low concentrations of cadmium, chromium, cobalt, copper, iron, lead, manganese, nickel, silver, and zinc. The method is approved in Table IB for determination of cadmium, chromium, cobalt, copper, iron, lead, nickel, silver, and zinc. The EPA is also approving method 3111 C for manganese. This parameter was inadvertently left off in an earlier rulemaking approving method 3111 C.

c. 3111 D–2019, Direct Nitrous Oxide-Acetylene Flame Method. A sample is aspirated into a flame produced using a mixture of nitrous oxide and acetylene and the metals are atomized. A light beam is directed through the flame, into a monochromator, and onto a detector that measures the amount of light absorbed by the atomized metal in the flame. The method is approved in Table IB for determination of aluminum, barium, beryllium, molybdenum, osmium, titanium, and vanadium. In addition, the EPA is approving method 3111 D for calcium. This parameter was inadvertently left off in an earlier rulemaking approving method 3111 D.

d. 3111 E–2019, Extraction and Nitrous Oxide-Acetylene Flame Method. The method consists of chelation with 8-hydroxyquinoline, extraction with MIBK, and aspiration into a nitrous oxide-acetylene flame and is suitable for the determination of aluminum at concentrations less than 900 µg/L and beryllium at concentrations less than 30 µg/L. The method is approved in Table IB for determination of aluminum, and beryllium.

9. Mercury—Total. 3112 B–2020, Metals by Cold-Vapor Atomic Absorption Spectrometric Method is a flameless AA procedure based on the absorption of radiation at 253.7 nm by mercury vapor. The mercury in a sample is reduced to the elemental state and aerated from solution in a closed system. The mercury vapor passes through a cell positioned in the light path of an atomic absorption spectrophotometer. Absorbance is measured as a function of mercury concentration. The method is approved in Table IB for determination of mercury.

10. Metals by AA Furnace. In 3113 B–2020, Electrothermal Atomic Absorption Spectrometric Method, a discrete sample volume is dispensed into the graphite sample tube (or cup). Typically, determinations are made by heating the sample in three or more stages. First, a low current heats the tube to dry the sample. The second, or charring, stage destroys organic matter and volatilizes other matrix components at an intermediate temperature. Finally, a high current heats the tube to incandescence and, in an inert atmosphere, atomizes the element being determined. Additional stages frequently are added to aid in drying and charring, and to clean and cool the tube between samples. The resultant ground-state atomic vapor absorbs monochromatic radiation from the source. A photoelectric detector measures the intensity of transmitted radiation. The inverse of the transmittance is related logarithmically to the absorbance, which is directly proportional to the number density of vaporized ground-state atoms (the Beer-Lambert law) over a limited concentration range. The method is approved in Table IB for determination of aluminum, antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, iron, lead, manganese, molybdenum, nickel, selenium, silver, and tin. Although not specifically listed as target analytes in 3113 B, the 2010 version of the method is also approved in Table IB for determination of gold, thallium, and vanadium, as these elements may also be determined using the method.

11. Arsenic and Selenium by AA Gaseous Hydride.

a. 3114 B–2020, Manual Hydride Generation/Atomic Absorption Spectrometric Method is a manual hydride generation method that is applicable to the determination of arsenic and selenium by conversion to their hydrides by sodium borohydride reagent and transport into an atomic absorption atomizer. The method is approved in Table IB for determination of arsenic and selenium.

b. 3114 C–2020, Continuous Hydride Generation/Atomic Absorption Spectrometric Method is a continuous-flow hydride generation method that is applicable to the determination of arsenic and selenium by conversion to their hydrides by sodium borohydride reagent and transport into an atomic absorption atomizer. The continuous hydride generator offers the advantages of simplicity in operation, excellent reproducibility, low detection limits, and high sample volume throughput for selenium analysis following preparations as described in 3500-Se B or 3114 B.4c and d. The method is approved in Table IB for determination of arsenic and selenium.

12. Multiple Metals by ICP/AES (Plasma Emission Spectroscopy). In 3120 B–2020, an Inductively Coupled Plasma source consists of a flowing stream of argon gas ionized by an applied radio frequency field typically oscillating at 27.1 MHz. This field is inductively coupled to the ionized gas by a water-cooled coil surrounding a quartz torch that supports and confines the plasma. A sample aerosol is generated in an appropriate nebulizer and spray chamber and is carried into the plasma through an injector tube located within the torch. The sample aerosol is injected directly into the ICP, subjecting the constituent atoms to temperatures of about 6000 to 8000 °K. Because this results in almost complete dissociation of molecules, significant reduction in chemical interferences is achieved. The high temperature of the plasma excites atomic emission efficiently. Ionization of a high percentage of atoms produces ionic emission spectra. The ICP provides an optically thin source that is not subject to self-absorption except at very high concentrations. Total metals are determined after appropriate digestion. The method is approved in Table IB for determination of aluminum, antimony, arsenic, barium, beryllium, boron, cadmium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, molybdenum, nickel, potassium, selenium, silica, silver, sodium, thallium, vanadium, and zinc. Although not specifically listed as a target analyte in method 3120 B, the 2011 version of the method is also approved in Table IB for determination

of phosphorus because this element may also be determined using the method.

13. Multiple Metals by Inductively Coupled Plasma-Mass Spectrometry. In this method, 3125 B–2020, Inductively Coupled Plasma-Mass Spectrometry-Method, a sample is introduced into an argon-based, high-temperature radio-frequency plasma, usually via pneumatic nebulization. As energy transfers from the plasma to the sample stream, the target element undergoes desolvation, atomization, and ionization. The resulting ions are extracted from the plasma through a differential vacuum interface and separated based on their mass-to-charge (m/z) ratio by a mass spectrometer. Typically, either a quadrupole (with or without collision cell technology or dynamic reaction cell) or magnetic sector (high-resolution) mass spectrometer is used. An electron multiplier detector counts the separated ions, and a computer-based data-management system processes the resulting information. The method is approved in Table IB for determination of aluminum, antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, manganese, molybdenum, nickel, potassium, selenium, silver, thallium, vanadium, and zinc. Although not specifically listed as a target analyte in method 3125 B, the 2011 version of the method is also approved in Table IB for determination of boron, calcium, gold, iridium, iron, magnesium, palladium, platinum, potassium, rhodium, ruthenium, silica, sodium, tin, and titanium as these elements may also be determined using the method.

14. 3500 Colorimetric Series for Multiple Metals.

a. Aluminum. In 3500-Al B–2020, Eriochrome Cyanine R Method with Eriochrome cyanine R dye, dilute aluminum solutions buffered to a pH of 6.0 produce a red to pink complex that exhibits maximum absorption at 535 nm. The intensity of the developed color is influenced by the aluminum concentration, reaction time, temperature, pH, alkalinity, and concentration of other ions in the sample. To compensate for color and turbidity, the aluminum in one portion of a sample is complexed with EDTA to provide a blank. The interference of iron and manganese, two elements commonly found in water when aluminum is present, is eliminated by adding ascorbic acid. The method is approved in Table IB for determination of aluminum.

b. Arsenic. In 3500-As B–2020, Silver Diethyldithiocarbamate Method, arsenite, containing trivalent arsenic, is reduced selectively by aqueous sodium borohydride solution to arsine, AsH_3, in an aqueous medium of pH 6. Arsenate, methylarsonic acid, and dimethylarsinic acid are not reduced under these conditions. The generated arsine is swept by a stream of oxygen-free nitrogen from the reduction vessel through a scrubber containing glass wool or cotton impregnated with lead acetate solution into an absorber tube containing silver diethyldithiocarbamate and morpholine dissolved in chloroform. The intensity of the red color that develops is measured at 520 nm. The method is approved in Table IB for determination of arsenic.

c. Calcium. In 3500-Ca B–2020, EDTA Titrimetric Method, EDTA is added to water containing both calcium and magnesium, where it combines first with the calcium. Calcium can be determined directly, with EDTA, when the pH is made sufficiently high that the magnesium is largely precipitated as the hydroxide and an indicator is used that combines with calcium only. Several indicators give a color change when all the calcium has been complexed by the EDTA at a pH of 12 to 13. The method is approved in Table IB for determination of calcium.

d. Chromium. 3500-Cr B–2020, Colorimetric Method measures total chromium and dissolved hexavalent chromium, (chromium VI). For total chromium, an unfiltered sample must first be digested using an approved digestion procedure (see Table IB, footnote 4). For dissolved hexavalent chromium, a sample is filtered, and the hexavalent chromium is determined colorimetrically by reaction with diphenylcarbazide in acid solution. A red-violet colored complex of unknown composition is produced. The method is approved in Table IB for determination of total chromium after digestion of the sample, and for dissolved hexavalent chromium (chromium VI).

In 3500-Cr C–2020, Ion Chromatographic Method. This method is applicable to determination of dissolved hexavalent chromium in drinking water, groundwater, and industrial wastewater effluents. An aqueous sample is filtered, and its pH adjusted to between 9 and 9.5 with a concentrated buffer. This pH adjustment reduces the solubility of trivalent chromium and preserves the hexavalent chromium oxidation state. The sample is introduced into the instrument's eluent stream of ammonium sulfate and ammonium hydroxide. Trivalent chromium in solution is separated from the hexavalent chromium by the column. After separation, hexavalent chromium reacts with an azide dye to produce a chromogen that is measured at 530 or 540 nm. Hexavalent chromium is identified based on retention time. The method is approved in Table IB for determination of dissolved hexavalent chromium (chromium VI).

e. Copper Colorimetric. In 3500-Cu B–2020, Neocuproine Method, the sample is treated with hydroxylamine hydrochloride to reduce any cupric ions (Cu2+) to cuprous ions (Cu+). Sodium citrate is used to complex metallic ions that might precipitate when the pH is raised. The pH is adjusted to between 4 and 6 with ammonium hydroxide (NH_4OH), a solution of neocuproine (2,9-dimethyl-1,10-phenanthroline) in methanol is added, and the resultant complex is extracted into chloroform ($CHCl_3$). After dilution of the $CHCl_3$ to an exact volume with methanol (CH_3OH), the absorbance of the solution is measured at 457 nm. The method is approved in Table IB for determination of copper.

In 3500-Cu C–2020, Bathocuproine Method, cuprous ion forms a water-soluble orange-colored chelate with disodium bathocuproine disulfonate (sodium 4,4′-(2,9-dimethyl-1,10-phenanthroline-4,7-diyl)dibenzenesulfonate). While the color forms over the pH range 3.5 to 11.0, the recommended pH range is between 4 and 5. The sample is buffered at a pH of about 4.3 and reduced with hydroxylamine hydrochloride. The absorbance is measured at 484 nm. The 2011 editorial revision currently is approved in Table IB for determination of copper.

f. Potassium. In 3500-K B–2020, Flame Photometric Method, trace amounts of potassium can be determined in either a direct-reading or internal-standard type of flame photometer at a wavelength of 766.5 nm. The method is approved in Table IB for determination of potassium.

In 3500-K C–2020, Potassium-Selective Electrode Method, potassium ions are measured potentiometrically by using a potassium ion-selective electrode and a double-junction, sleeve-type reference electrode. The analysis is performed with either a pH meter having an expanded millivolt scale capable of being read to the nearest 0.1 mV or a specific-ion meter having a direct concentration scale for potassium. Before measurement, an ionic strength adjustor reagent is added to both standards and samples to maintain a constant ionic strength. The electrode response is measured in standard solutions with potassium concentrations spanning the range of interest using a calibration line derived either by the

instrument meter or manually. The electrode response in sample solutions is measured following the same procedure and potassium concentration determined from the calibration line or instrument direct readout. The 2011 editorial revision currently is approved in Table IB for determination of potassium.

g. Manganese. In 3500-Mn B–2020, Persulfate Method, persulfate oxidation of soluble manganous compounds to form permanganate is carried out in the presence of silver nitrate. The resulting color is stable for at least 24 hours if excess persulfate is present and organic matter is absent. The method is approved in Table IB for determination of manganese.

h. Sodium. In 3500-Na B–2020, Flame Emission Photometric Method, a sample is nebulized into a gas flame under carefully controlled, reproducible excitation conditions. The sodium resonant spectral line at 589 nm is isolated by interference filters or by light-dispersing devices such as prisms or gratings. Emission light intensity is measured by a phototube, photomultiplier, or photodiode. The light intensity at 589 nm is approximately proportional to the sodium concentration. The method is approved in Table IB for determination of sodium.

i. Lead. In 3500-Pb B–2020, Dithizone Method, an acidified sample containing microgram quantities of lead is mixed with ammoniacal citrate-cyanide reducing solution and extracted with dithizone in chloroform ($CHCl_3$) to form a cherry-red lead dithizonate. The color of the mixed color solution is measured photometrically. The method is approved in Table IB for determination of lead.

j. Zinc. 3500-Zn B–2020, Zincon Method. Zinc forms a blue complex with zincon (2-carboxy-2′-hydroxy-5′-sulfoformazyl benzene) in a solution buffered to pH 9.0. Other heavy metals likewise form colored complexes with zincon. Cyanide is added to complex zinc and heavy metals. Cyclohexanone is added to selectively free zinc from its cyanide complex so that it can be complexed with zincon to form a blue color which is measured spectrophotometrically at 620 nm. Sodium ascorbate reduces manganese interference. The developed color is stable except in the presence of copper. The method is approved in Table IB for determination of zinc.

15. 4110 Series, Ion Chromatography.

a. In 4110 B–2020, Ion Chromatography with Chemical Suppression of Eluent Conductivity, a water sample is injected into a stream of eluent and passed through a series of ion exchangers. The anions of interest are separated based on their relative affinities for a low-capacity, strongly basic anion exchanger (guard and analytical columns). The separated anions are directed through a suppressor device that provides continuous suppression of eluent conductivity and enhances analyte response. In the suppressor, the separated anions are converted to their highly conductive acid forms while the conductivity of the eluent is greatly decreased. The separated anions in their acid forms are measured by conductivity. They are identified based on retention time as compared to standards. Quantitation is by measurement of peak area or peak height. The method is approved in Table IB for determination of bromide, chloride, fluoride, nitrate, combined nitrate-nitrite, nitrite, orthophosphate, and sulfate.

b. 4110 C–2020, Single-Column Ion Chromatography with Direct Conductivity Detection. An aqueous sample is injected into an ion chromatograph consisting of an injector port, analytical column, and conductivity detector. The sample merges with the eluent stream and is pumped through the analytical column where the anions are separated based on their affinity for the active sites of the column packing material. Concentrations are determined by direct conductivity detection without chemical suppression. The method is approved in Table IB for determination of bromide, chloride, fluoride, nitrate, combined nitrate-nitrite, nitrite, orthophosphate, and sulfate.

c. 4110 D–2020, Ion Chromatographic Determination of Oxyhalides and Bromide. The sample is analyzed in a manner similar to that in 4110 B–2020. However, bromate has been shown to be subject to positive interferences in some matrices. The interference is noticeable usually as a flattened peak. It often can be eliminated by passing the sample through an H+ off-line solid-phase extraction (SPE) cartridge, by selection of a different column-eluent combination, or by diluting the eluent, which will increase retention times and spread the chromatogram. Additionally, chloride or a nontarget analyte present in unusually high concentration may overlap with a target analyte sufficiently to cause problems in quantitation or may cause retention-time shifts. Dilution of the sample may resolve this problem. The method is approved in Table IB for determination of bromide.

16. Inorganic Anions by CIE/UV (Capillary Ion Electrophoresis). In 4140 B–2020, Capillary Ion Electrophoresis with Indirect UV Detection, the sample is introduced at the cathodic end of the capillary and anions are separated based on their differences in mobility in the electric field as they migrate through the capillary. Cations migrate in the opposite direction and are not detected. Water and neutral organics are not attracted toward the anode. They migrate after the anions and thus do not interfere with anion analysis. Anions are detected as they displace charge-for-charge the UV-absorbing electrolyte anion (chromate), causing a net decrease in UV absorbance in the analyte anion zone compared to the background electrolyte. Detector polarity is reversed to provide positive millivolt response to the data system. As in chromatography, the analytes are identified by their migration time and quantitated by using time-corrected peak area relative to standards. The method is approved in Table IB for determination of bromide, chloride, fluoride, nitrate, combined nitrate-nitrite, nitrite, orthophosphate, and sulfate.

17. 4500 Series, Chloride.

a. 4500-Cl^- B–2021, Titrimetric Method. In a neutral or slightly alkaline solution, potassium chromate can indicate the endpoint of the silver nitrate titration of chloride. Silver chloride is precipitated quantitatively before red silver chromate is formed. In this version of the method approved by the Standard Methods Committee in 2021, additional information regarding removal of interferences caused by sulfide, thiosulfate, and sulfite ions by digestion of the sample with hydrogen peroxide prior to titration has been added to the sample preparation procedures. A tighter pH range of 8 to 10, as opposed to 7 to 10, is specified for adjustment of the pH of the sample prior to titration. A reference has been added for the 2021 Standard Methods Joint Task Group validation report titled: ''Interlaboratory validation study for the use of H_2O_2 with boiling for determining Cl^-.'' The method is approved in Table IB for determination of chloride.

b. 4500-Cl^- C–2021, Mercuric Nitrate Method. Chloride can be titrated with mercuric nitrate, $Hg(NO_3)_2$, because of the formation of soluble, slightly dissociated mercuric chloride. In the pH range 2.3 to 2.8, diphenylcarbazone indicates the titration endpoint by formation of a purple complex with the excess mercuric ions. Xylene cyanol FF serves as a pH indicator and endpoint enhancer. Increasing the strength of the titrant and modifying the indicator mixtures extends the range of measurable chloride concentrations.

The method is approved in Table IB for determination of chloride.

c. 4500-Cl^- D–2021, Potentiometric Method. Chloride is determined by potentiometric titration with silver nitrate solution with a glass and silver-silver chloride electrode system. During titration, an electronic voltmeter is used to detect the change in potential between the two electrodes. The endpoint of the titration is that instrument reading at which the greatest change in voltage has occurred for a small and constant increment of silver nitrate added. The method is approved in Table IB for determination of chloride.

d. 4500-Cl^- E–2021, Automated Ferricyanide Method. Thiocyanate ion is liberated from mercuric thiocyanate by the formation of soluble mercuric chloride. In the presence of ferric ion, free thiocyanate ion forms a highly colored ferric thiocyanate, of which the intensity is proportional to the chloride concentration. The is approved in Table IB for determination of chloride.

18. 4500 Series Cyanide Total or Available.

a. 4500–CN^- B–2021, Manual Distillation (as Preliminary Treatment of Samples). Total cyanides are measured after preliminary treatment of samples for preservation and to remove interferences. The preliminary treatment required depends on which interfering substances the samples contain. Distillation removes many interfering substances, but other pretreatment procedures will be needed for samples containing sulfides, fatty acids, oxidizing agents, nitrites, and nitrates. The method is approved in Table IB for preliminary treatment of samples to be used for determination of cyanide.

b. 4500–CN^- C–2021, Total Cyanide after Distillation. Hydrogen cyanide (HCN) is liberated from an acidified sample by distillation and purging with air, with the HCN gas collected in a NaOH scrubbing solution. The cyanide concentration in the scrubbing solution is determined via titrimetric, colorimetric, or potentiometric procedures. The method is approved in Table IB for preliminary treatment of samples to be used for determination of cyanide.

c. 4500–CN^- D–2021, Titrimetric Method. CN^- in the alkaline distillate from the preliminary treatment procedures (4500–CN^- B and C) is titrated with standard silver nitrate ($AgNO_3$) to form the soluble cyanide complex $Ag(CN)^{2-}$. As soon as all CN^- has been complexed and a small excess of Ag^+ has been added, the silver-sensitive indicator, p-dimethylaminobenzalrhodanine, detects the excess Ag^+ and immediately changes color from yellow to salmon. The method is approved in Table IB for determination of cyanide.

d. 4500–CN^- E–2021, Spectrophotometric Method. Total CN^- in the alkaline distillate from the preliminary treatment procedures (4500–CN^- B and C) is converted to cyanogen chloride (CNCl) by reaction with chloramine-T at pH less than 8 without hydrolyzing to cyanate (CNO^-). After the reaction is complete, adding a pyridine-barbituric acid reagent turns CNCl a red-blue color. Maximum color absorbance in aqueous solution is between 575 and 582 nm. The method is approved in Table IB for determination of cyanide.

e. 4500–CN^- F–2021, Ion Selective Electrode Method. Total CN^- in the alkaline distillate from the preliminary treatment procedures (4500-CN^- B and C) is determined potentiometrically by using a CN^--ion selective electrode. The 2016 version of the method currently is approved in Table IB for determination of cyanide.

f. 4500–CN^- G–2021, Cyanides Amenable to Chlorination after Distillation. Available cyanide, or cyanide amenable to chlorination (CATC), can be determined when a portion of the sample is chlorinated at high pH and cyanide levels in the chlorinated sample are determined after manual distillation followed by titrimetric or spectrophotometric measurement. CATC is calculated by the difference between the results for cyanide in the unchlorinated sample and the results for the chlorinated sample. The method is approved in Table IB for preliminary treatment of samples to be used for determination of available cyanide.

g. 4500–CN^- N–2021, Total Cyanide after Distillation by Flow Injection Analysis. Total cyanides are digested and steam-distilled from the sample (4500–CN^- C). The cyanide in this distillate is converted to CNCl by reaction with chloramine-T at pH less than 8. The CNCl then forms a red-blue dye by reacting with pyridine-barbituric acid reagent. The absorbance of this red dye is measured at 570 nm and is proportional to the total or weak acid dissociable cyanide in the sample. The method is approved in Table IB for determination of cyanide.

19. 4500 Total Fluoride Series.

a. 4500–F^- B–2021, Preliminary Distillation Step. Fluoride is separated from other nonvolatile constituents in water by conversion to hydrofluoric or fluosilicic acid and subsequent distillation. The conversion is accomplished by using a strong, high-boiling acid. To protect against glassware etching, hydrofluoric acid is converted to fluosilicic acid by using soft glass beads. Quantitative fluoride recovery is accomplished by using a relatively large sample. Acid and sulfate carryover are minimized by distilling over a controlled temperature range. The method is approved in Table IB for preliminary treatment of samples to be used for determination of fluoride.

b. 4500–F^- C–2021, Ion-Selective Electrode Method. The fluoride electrode is an ion-selective sensor that measures the ion activity of fluoride in solution rather than concentration. The key element in the fluoride electrode is the laser-type doped lanthanum fluoride crystal across which a potential is established by fluoride solutions of different concentrations. The crystal contacts the sample solution at one face and an internal reference solution at the other. Fluoride ion activity depends on the solution total ionic strength and pH, and on fluoride complexing species. Adding an appropriate buffer provides a nearly uniform ionic strength background, adjusts pH, and breaks up complexes. In effect, the electrode measures concentration. The method is approved in Table IB for determination of fluoride.

c. 4500–F^- D–2021, SPADNS Method. The SPADNS colorimetric method is based on the reaction between fluoride and a ''lake'' of zirconium-dye. Fluoride reacts with the dye lake, dissociating a portion of it into a colorless complex anion (ZrF_6^{2-}) and the dye. As the amount of fluoride increases, the color produced becomes progressively lighter and absorbance is measured colorimetrically at 570 nm. The method is approved in Table IB for determination of fluoride.

d. 4500–F^- E–2021, Complexone Method. The sample is distilled in the automated system, and the distillate is reacted with alizarin fluorine blue-lanthanum reagent to form a blue complex that is measured colorimetrically at 620 nm. method is approved in Table IB for determination of fluoride.

20. 4500 Hydrogen ion (pH). In 4500–H^+ B–2021, Electrometric Method, the basic principle of electrometric pH measurement is determination of the activity of the hydrogen ions by potentiometric measurement using a standard hydrogen electrode and a reference electrode. The hydrogen electrode consists of a platinum electrode across which hydrogen gas is bubbled at a pressure of 101 kilopascal. Because of difficulty in its use and the potential for poisoning the hydrogen electrode, the glass electrode commonly

is used. The electromotive force produced in the glass electrode system varies linearly with pH. This linear relationship is described by plotting the measured emf against the pH of different buffers. A sample's pH is determined by extrapolation. This version of the method adds information to Section 2—Apparatus, regarding equipment that may be used for manual or automatic temperature compensation. The 2011 editorial revision currently is approved in Table IB for determination of pH.

21. 4500 Kjeldahl Nitrogen Total (TKN) Series.

a. 4500–N_{org} B–2021, Macro-Kjeldahl Method. In the presence of sulfuric acid (H_2SO_4), potassium sulfate (K_2SO_4), and a cupric sulfate ($CuSO_4$) catalyst, amino nitrogen of many organic materials is converted to ammonium. Free ammonia also is converted to ammonium. After the addition of base, the ammonia is distilled from an alkaline medium and absorbed in boric or sulfuric acid. The ammonia may be determined colorimetrically, by ammonia-selective electrode, or by titration with a standard mineral acid. The method is approved in Table IB for preliminary treatment of samples to be used for determination of total Kjeldahl nitrogen (TKN).

b. 4500–N_{org} C–2021, Semi-Micro-Kjeldahl Method. This is a reduced-volume version of 4500 N_{org} B that specifies use of Kjeldahl flasks with a capacity of 100 mL in a semi-micro-Kjeldahl digestion apparatus equipped with heating elements to accommodate Kjeldahl flasks and a suction outlet to vent fumes. The method is approved in Table IB for preliminary treatment of samples to be used for determination of total Kjeldahl nitrogen (TKN).

c. 4500–N_{org} D–2021, Block Digestion and Flow Injection Analysis. Samples are digested in a block digestor with sulfuric acid and copper sulfate as a catalyst. The digested sample is injected onto the FIA manifold, where its pH is controlled by raising it to a known, basic pH by neutralization with a concentrated buffer. This in-line neutralization converts the ammonium cation to ammonia, and also prevents undue influence of the sulfuric acid matrix on the pH-sensitive color reaction that follows. The ammonia thus produced is heated with salicylate and hypochlorite to produce a blue color that is proportional to the ammonia concentration. The color is intensified by adding sodium nitroprusside. The presence of EDTA in the buffer prevents the precipitation of calcium and magnesium. The resulting peak's absorbance is measured at 660 nm. The peak area is proportional to the concentration of TKN in the original sample. The method is approved in Table IB for determination of TKN.

22. 4500–NH_3 Nitrogen (Ammonia as nitrogen) Series.

a. 4500–NH_3 B–2021, Preliminary Manual Distillation Step. The sample is buffered at pH 9.5 with a borate buffer to decrease hydrolysis of cyanates and organic nitrogen compounds. It is distilled into a solution of boric acid when titration is to be used, or into H_2SO_4, when the phenate method is used as the determinative step. The ammonia in the distillate can be determined either colorimetrically by the phenate method or titrimetrically with standard H_2SO_4 and a mixed indicator or a pH meter. Ammonia in the distillate also can be determined by the ammonia-selective electrode method, using 0.04 N H_2SO_4 to trap the ammonia. This revision replaces instructions for storage of ammonia-free water with instructions for preparation of ammonia-free water using an ion exchange resin and simply says that if high blank values are produced, the analyst should prepare fresh ammonia-free water. The method is approved in Table IB for preliminary treatment of samples to be used for determination of ammonia.

b. 4500–NH_3 C–2021, Titration Method. The titrimetric method is used only on samples that have been carried through preliminary distillation. Ammonia is titrated with a standardized sulfuric acid titrant using a mixed indicator of methyl red and methylene blue. The method is approved in Table IB for determination of ammonia as well as for determination of TKN after appropriate digestion/distillation of the sample.

c. 4500–NH_3 D–2021, Electrode Method. The ammonia-selective electrode uses a hydrophobic gas-permeable membrane to separate the sample solution from an electrode internal solution of ammonium chloride. Dissolved ammonia ($NH_{3(aq)}$ and NH_4^+) is converted to $NH_{3(aq)}$ by raising the pH to above 11 with a strong base. $NH_{3(aq)}$ diffuses through the membrane and changes the internal solution pH that is sensed by a pH electrode. The fixed level of chloride in the internal solution is sensed by a chloride ion-selective electrode that serves as the reference electrode of the sample. Potentiometric measurements are made with a pH meter having an expanded millivolt scale or with a specific ion meter. The method is approved in Table IB for determination of ammonia, as well as for determination of TKN after appropriate digestion/distillation of the sample.

d. 4500–NH_3 E–2021, Electrode Method. Ammonia is determined using an ammonia-selective electrode. When a linear relationship exists between concentration and response, known addition is convenient for measuring occasional samples because no calibration is needed. Because an accurate measurement requires that the concentration at least double as a result of the addition, sample concentration must be known within a factor of three. The total concentration of ammonia can be measured in the absence of complexing agents down to 0.8 mg/L NH_3-N or in the presence of a large excess (50 to 100 times) of complexing agent. The method is approved in Table IB for determination of ammonia, as well as for determination of TKN after appropriate digestion/distillation of the sample.

e. 4500–NH_3 F–2021, Phenate Method. An intensely blue compound, indophenol, is formed by the reaction of ammonia, hypochlorite, and phenol catalyzed by sodium nitroprusside. The color is measured spectrophotometrically at 640 nm. The method is approved in Table IB for determination of ammonia, as well as for determination of TKN after appropriate digestion/distillation of the sample.

f. 4500–NH_3 G–2021, Semi-Automated Phenate Method. Alkaline phenol and hypochlorite react with ammonia to form indophenol blue that is proportional to the ammonia concentration. The blue color formed is intensified with sodium nitroprusside. The color is measured spectrophotometrically at 630 to 660 nm. The method is approved in Table IB for determination of ammonia, as well as for determination of TKN after appropriate digestion/distillation of the sample.

g. 4500–NH_3 H–2021, Semi-Automated Phenate Method. A water sample containing ammonia or ammonium cation is injected into an FIA carrier stream to which a complexing buffer (alkaline phenol) and hypochlorite are added. This reaction, the Berthelot reaction, produces the blue indophenol dye. The blue color is intensified by the addition of nitroferricyanide. The resulting peak's absorbance is measured at 630 nm. The peak area is proportional to the concentration of ammonia in the original sample. The method is approved in Table IB for determination of ammonia, as well as for determination of TKN after appropriate digestion/distillation of the sample.

23. 4500–NO_2^- Nitrite as Nitrogen. 4500–NO_2^- B–2021,

Spectrophotometric Method. Nitrite ($NO2^-$) in a sample is determined through formation of a reddish-purple azo dye produced at pH 2.0 to 2.5 by coupling diazotized sulfanilamide with N-(1-naphthyl)-ethylenediamine dihydrochloride (NED) and absorbance is measured spectrophotometrically at 543 nm. The method is approved in Table IB for determination of nitrite.

24. 4500–$NO3^-$ Nitrogen (Nitrite/Nitrate as Nitrogen Series).

a. 4500–$NO3^-$ D–2019, Nitrate Electrode Method. Nitrate is measured using an ion-selective electrode that develops a potential across a thin, inert membrane holding in place a water-immiscible liquid ion exchanger. The method is approved in Table IB for determination of nitrate.

b. 4500–NO_3^- E–2019, Cadmium Reduction Method. Nitrate (NO_3^-) is reduced almost quantitatively to nitrite (NO_2^-) in the presence of cadmium (Cd). This method uses commercially available Cd granules treated with copper sulfate ($CuSO_4$) and packed in a glass column. The NO_2^- is then diazotized with sulfanilamide and coupled with NED to form a highly colored azo dye that is measured spectrophotometrically. To correct for any NO_2^- present in the sample before NO_3^- reduction, samples also must be analyzed without the reduction step. The method is approved in Table IB for determination of nitrate (by subtraction), as well as for determination of combined nitrate + nitrite, and for determination of nitrite singly when bypassing the reduction step.

c. 4500–NO_3^- F–2019, Automated Cadmium Reduction Method. This is an automated version of the cadmium reduction method 4500 $NO3^-$ E. Nitrate in a sample is reduced to nitrite using cadmium reduction and then diazotized with sulfanilamide and coupled with NED to form a highly colored azo dye that is measured spectrophotometrically. To correct for any NO_2^- present in the sample before NO_3^- reduction, samples also must be analyzed without the reduction step. The method is approved in Table IB for determination of nitrate (by subtraction), as well as for determination of combined nitrate + nitrite, and for determination of nitrite singly when bypassing the reduction step.

d. 4500–NO_3^- H–2019, Automated Hydrazine Reduction Method. Nitrate in a sample is reduced to nitrite using hydrazine sulfate then diazotized with sulfanilamide and coupled with NED to form a highly colored azo dye that is measured spectrophotometrically. The method is approved in Table IB for determination of combined nitrate and nitrite.

e. 4500–NO_3^- I–2019, Cadmium Reduction Flow Injection Method. A sample is passed through a copperized cadmium column to quantitatively reduce its nitrate content to nitrite. The nitrite is diazotized with sulfanilamide and coupled with NED to yield a water-soluble dye with a magenta color whose absorbance at 540 nm is proportional to the nitrate + nitrite in the sample. Nitrite concentrations may be determined by bypassing the cadmium column and nitrate concentration may be calculated by subtraction of the result for the nitrite concentration from the result for the combined nitrate + nitrite concentration. The method is approved in Table IB for determination of nitrate, as well as for determination of combined nitrate + nitrite, and for determination of nitrite singly by bypassing the reduction step.

25. 4500–O Oxygen (Dissolved) Series.

a. 4500–O B–2021, Iodometric Methods. A divalent manganese solution is added and then a strong alkali is added to a sample in a glass-stoppered bottle and dissolved oxygen (DO) rapidly oxidizes an equivalent amount of the dispersed divalent manganous hydroxide precipitate into higher-valency hydroxides. Oxidized manganese reverts to the divalent state in the presence of iodide ions in an acidic solution, liberating an amount of iodine equivalent to the original DO content. The iodine is then titrated with a standard thiosulfate solution. The method is approved in Table IB for determination of DO.

b. 4500–O C–2021, Azide Modification. The sample is treated with manganous sulfate, potassium hydroxide, and potassium iodide (the latter two reagents combined in one solution) and finally sulfuric acid. The initial precipitate of manganous hydroxide, $Mn(OH)_2$, combines with the DO in the sample to form a brown precipitate, manganic hydroxide, $MnO(OH)_2$. Upon acidification, the manganic hydroxide forms manganic sulfate, which acts as an oxidizing agent to release free iodine from the potassium iodide. The iodine, which is stoichiometrically equivalent to the DO in the sample, is then titrated with sodium thiosulfate or phenylarsine oxide (PAO). The azide modification effectively removes nitrite interference, which is the most common interference in biologically treated effluents and incubated biochemical oxygen demand (BOD) samples. The method is approved in Table IB for determination of DO.

c. 4500–O D–2021, Permanganate Modification. The permanganate modification is used only on samples containing Fe(II) (*e.g.,* acid mine water). Concentrated sulfuric acid, potassium permanganate in solution and potassium fluoride in solution are added to the sample. Enough $KMnO_4$ solution is added to obtain a violet tinge that persists for 5 minutes. 0.5 to 1.0 mL potassium oxalate solution is then added only until permanganate color is removed completely. From this point, the procedure closely parallels that in 4500–O C. The method is approved in Table IB for determination of DO.

d. 4500–O E–2021, Alum Flocculation Modification. Samples high in suspended solids may consume appreciable quantities of iodine in acid solution. The interference due to solids may be removed by alum flocculation. Concentrated ammonium hydroxide and aluminum potassium sulfate solution are added to a sample. The sample is allowed to settle for about 10 min and the clear supernatant is siphoned into a 250- to 300-mL DO bottle until it overflows. From this point, the procedure closely parallels that in 4500–O C. The method is approved in Table IB for determination of DO.

e. 4500–O F–2021, Copper Sulfate-Sulfamic Acid Flocculation Modification. This modification is used for biological flocs (*e.g.,* activated sludge mixtures), which have high oxygen utilization rates. A copper sulfate-sulfamic acid inhibitor solution is added to the sample. The suspended solids are allowed to settle, and the relatively clear supernatant liquor is siphoned into a 250- to 300-mL DO bottle. From this point, the procedure closely parallels that in 4500–O C. The method is approved in Table IB for determination of DO.

f. 4500–O G–2021, Electrode Method. Oxygen-sensitive polarographic or galvanic membrane electrodes are composed of two solid metal electrodes in contact with supporting electrolyte separated from the test solution by a selective membrane. Polyethylene and fluorocarbon membranes are commonly used because they are permeable to molecular oxygen and are relatively rugged. The diffusion current is linearly proportional to the molecular-oxygen concentration. The measured current can be converted easily to concentration units (*e.g.,* mg/L) by a number of calibration procedures. The method is approved in Table IB for determination of DO.

g. 4500–O H–2021, Luminescence-based Method. The optical probe uses luminescence-based oxygen sensors to measure the light-emission

characteristics of a luminescent reaction; oxygen quantitatively quenches the luminescence. The change in the luminescence signal's lifetime correlates to the DO concentration. The method is approved in Table IB for determination of DO.

26. 4500–P Phosphorus Total and Ortho Phosphorus Series.

a. 4500–P B–2021, Digestion Sample Preparation. Because phosphorus may occur in combination with organic matter, a digestion method to determine total phosphorus must be able to oxidize organic matter effectively to release phosphorus as orthophosphate. Three digestion methods are given in 4500–P B.3, 4, and 5. The perchloric acid method in B.5 is the most vigorous and time-consuming method, and is recommended for particularly difficult samples, such as sediments. The nitric acid-sulfuric acid method is recommended for most samples. The simplest digestion method that may be used for determination of total phosphorus is the persulfate oxidation technique in which 50 mL of an unfiltered sample is boiled with sulfuric acid and either ammonium persulfate or potassium persulfate for approximately 30–40 minutes or until a final volume of about 10 mL is reached. The method is approved in Table IB for preliminary treatment of samples to be used for determination of total phosphorus as orthophosphorus using manual or automated versions of the ascorbic acid reduction, colorimetric methods.

b. 4500–P E–2021, Manual Method. Ammonium molybdate and antimony potassium tartrate react in an acid medium with orthophosphate to form phosphomolybdic acid, a heteropoly acid that is reduced to intensely colored molybdenum blue by ascorbic acid and is measured spectrophotometrically. This revision adds that possible interference from silicate should be evaluated when reporting concentrations less than 10 µg/L. The method is approved in Table IB for determination of total phosphorus after digestion of the sample, as well as for determination of orthophosphorus in a filtered, undigested sample.

c. 4500–P F–2021, Automated Ascorbic Acid Reduction Method. Ammonium molybdate and antimony potassium tartrate react with orthophosphate in an acid medium to form an antimony-phosphomolybdate complex, which on reduction with ascorbic acid yields an intense blue color suitable for photometric measurement using continuous flow analytical equipment. The method is approved in Table IB for determination of total phosphorus after digestion of the sample, as well as for determination of orthophosphorus in a filtered, undigested sample.

d. 4500–P G–2021, Automated. Ammonium molybdate and antimony potassium tartrate react with orthophosphate in an acid medium to form an antimony-phosphomolybdate complex, which on reduction with ascorbic acid yields an intense blue color suitable for photometric measurement using flow injection analysis. The method is approved in Table IB for determination of total phosphorus after digestion of the sample, as well as for determination of orthophosphorus in a filtered, undigested sample.

e. 4500–P H–2021, Automated Total Phosphorus. Samples are manually digested using the approved procedure for preliminary treatment of samples to be used for determination of total phosphorus. When the resulting solution is injected onto the manifold, the orthophosphate ion reacts with ammonium molybdate and antimony potassium tartrate under acidic conditions to form a complex. This complex is reduced with ascorbic acid to form a blue complex suitable for photometric measurement using flow injection analysis. The method is approved in Table IB for determination of total phosphorus.

27. 4500–S_2^- Sulfide Series.

a. 4500–S_2^- B–2021, Sample Pretreatment. Dissolved sulfide is measured by first removing insoluble matter. This is done by adding sodium hydroxide and aluminum chloride solutions producing an aluminum hydroxide floc that is settled, leaving a clear supernatant for analysis. The method is approved in Table IB for preliminary treatment of samples to be used for determination of sulfide.

b. 4500–S_2^- C–2021, Sample Pretreatment. Interferences due to sulfite, thiosulfate, iodide, and many other soluble substances, but not ferrocyanide, are eliminated by first precipitating zinc sulfide (ZnS) by addition of sodium hydroxide and zinc acetate solutions, removing the supernatant, and replacing it with reagent water. The same procedure is used even when not needed for removal of interferences, to concentrate sulfide prior to analysis. The method is approved in Table IB for preliminary treatment of samples to be used for determination of sulfide.

c. 4500–S_2^- D–2021, Colorimetric Method. The methylene blue method is based on the reaction of sulfide, ferric chloride, and dimethyl-p-phenylenediamine to produce methylene blue. Ammonium phosphate is added after color development to remove ferric chloride color, which is measured photometrically. The procedure is applicable at sulfide concentrations between 0.1 and 20.0 mg/L. The method is approved in Table IB for determination of sulfide.

d. 4500–S_2^- F–2021, Titrimetric. Iodine oxidizes sulfide in acid solution. A titration based on this reaction is an accurate method for determining sulfide at concentrations above one mg/L if interferences are absent and if loss of H_2S is avoided. The method is approved in Table IB for determination of sulfide.

e. 4500–S_2^- G–2021, Ion-Selective Electrode Method. The potential of a sulfide ion-selective electrode (ISE) is related to the sulfide ion activity. An alkaline antioxidant reagent (AAR) is added to samples and standards to inhibit oxidation of sulfide by oxygen and to provide a constant ionic strength and pH. Use of the AAR allows calibration in terms of total dissolved sulfide concentration. All samples and standards must be at the same temperature. Sulfide concentrations between 0.032 mg/L and 100 mg/L can be measured without preconcentration. For lower concentrations, preconcentration is necessary. The method is approved in Table IB for determination of sulfide.

28. 4500–SiO_2 Silica Series.

a. 4500–SiO_2 C–2021, Colorimetric Method. Ammonium molybdate at pH approximately 1.2 reacts with silica and any phosphate present to produce heteropoly acids. Oxalic acid is added to destroy the molybdophosphoric acid, but not the molybdosilicic acid. Even if phosphate is known to be absent, the addition of oxalic acid is highly desirable and is a mandatory step. The intensity of the yellow color produced is proportional to the concentration of molybdate-reactive silica and is measured photometrically. The method is approved in Table IB for determination of silica.

b. 4500–SiO_2 E–2021, Automated Method for Molybdate-Reactive Silica. Ammonium molybdate at pH approximately 1.2 reacts with silica and any phosphate present to produce heteropoly acids. Oxalic acid is added to destroy the molybdophosphoric acid, but not the molybdosilicic acid. The yellow molybdosilicic acid is reduced by means of amino naphthol sulfonic acid to heteropoly blue. The blue color is more intense than the yellow color of 4500–SiO_2 C and provides increased sensitivity. The method is approved in Table IB for determination of silica.

c. 4500–SiO_2 F–2021, Automated Method for Molybdate-Reactive Silicate. Silicate reacts with molybdate under

acidic conditions to form yellow beta-molybdosilicic acid. This acid is subsequently reduced with stannous chloride to form a heteropoly blue complex that is measured photometrically. Oxalic acid is added to reduce the interference from phosphate. The method is approved in Table IB for determination of silica.

29. 4500–SO_4^{2-} Sulfate Series.

a. 4500–SO_4^{2-} C–2021, Gravimetric Method with Ignition of Residue. Sulfate is precipitated in a hydrochloric acid (HCl) solution as barium sulfate ($BaSO_4$) by the addition of barium chloride ($BaCl_2$). The precipitation is carried out near the boiling temperature, and after a period of digestion, the precipitate is filtered, washed with water until free of Cl^-, ignited at 800 °C for an hour and weighed as $BaSO_4$. The method is approved in Table IB for determination of sulfate.

b. 4500–SO_4^{2-} D–2021, Gravimetric Method with Drying of Residue. Sulfate is precipitated in a hydrochloric acid (HCl) solution as barium sulfate ($BaSO_4$) by the addition of barium chloride ($BaCl_2$). The precipitation is carried out near the boiling temperature, and after a period of digestion the precipitate is filtered, washed with water until free of Cl^-, dried to a constant weight in an oven at 105 °C or higher, and weighed as $BaSO_4$. The method is approved in Table IB for determination of sulfate.

c. 4500–SO_4^{2-} E–2021, Turbidimetric Method. Sulfate ion (SO_4^{2-}) is precipitated in an acetic acid medium with barium chloride ($BaCl_2$) to form barium sulfate ($BaSO_4$) crystals of uniform size. Light absorbance of the $BaSO_4$ suspension is measured by a photometer and the SO_4^{2-} concentration is determined by comparison of the reading with a standard curve. The method is approved in Table IB for determination of sulfate.

d. 4500–SO_4^{2-} F–2021, Automated Colorimetric Method. Barium sulfate is formed by the reaction of the SO_4^{2-} with barium chloride ($BaCl_2$) at a low pH. At high pH, excess barium reacts with methylthymol blue (MTB) to produce a blue chelate. The uncomplexed methylthymol blue is gray. The intensity of gray (uncomplexed methylthymol blue) is measured photometrically and is proportional to concentration of sulfate. The method is approved in Table IB for determination of sulfate.

e. 4500–SO_4^{2-} G–2021, Automated Colorimetric Method. At pH 13.0, barium forms a blue complex with methylthymol blue (MTB). The sample is injected into a low, but known, concentration of sulfate. The sulfate from the sample then reacts with the ethanolic barium-MTB solution and displaces the MTB from the barium to give barium sulfate and uncomplexed MTB. Uncomplexed MTB has a grayish color. The pH is raised with NaOH and the gray color of the uncomplexed MTB is measured photometrically. The intensity of the gray color is proportional to the sulfate concentration. The method is approved in Table IB for determination of sulfate.

30. Sulfite 4500–SO_3^{2-} B–2021, Titrimetric Iodometric Method. An acidified sample containing sulfite (SO_3^{2-}) is titrated with a standardized potassium iodide–iodate titrant. Free iodine, liberated by the iodide–iodate reagent, reacts with SO_3^{2-}. The titration endpoint is signaled by the blue color resulting from the first excess of iodine reacting with a starch indicator. The method is approved in Table IB for determination of sulfite.

31. 5520 Oil and Grease Series.

a. 5520 B–2021, Liquid-Liquid, Partition-Gravimetric Method. Dissolved or emulsified oil and grease is extracted from water by intimate contact with an extracting solvent (n-hexane). The extract is dried over sodium sulfate. The solvent is then distilled from the extract and the hexane extractable material is desiccated and weighed. Some extractables, especially unsaturated fats and fatty acids, oxidize readily; hence, special precautions regarding temperature and solvent vapor displacement are included to minimize this effect. Organic solvents shaken with some samples may form an emulsion that is very difficult to break. This method includes a means for handling such emulsions. Recovery of solvents is discussed. Solvent recovery can reduce both vapor emissions to the atmosphere and costs. The method is approved in Table IB for determination of oil and grease (hexane extractable material or HEM).

b. 5520 F–2021, Hydrocarbons. The oil and grease extracted by 5520 B is used for this test. When only hydrocarbons are of interest, this procedure is introduced before final measurement. When hydrocarbons are to be determined after total oil and grease has been measured, redissolve the extracted oil and grease in n-hexane. Silica gel has the ability to adsorb polar materials. The solution of extracted hydrocarbons and fatty materials in n-hexane is mixed with silica gel, and the fatty acids are removed selectively from solution. The solution is filtered to remove the silica gel, the solvent is distilled, and the silica gel treated hexane extractable material (SGT–HEM) is weighed. The materials not eliminated by silica gel adsorption are designated hydrocarbons by this test. The method is approved in Table IB for determination of oil and grease (hexane extractable material or HEM).

32. 5530 Phenols Series.

a. 5530 B–2021, Manual Distillation. Phenols, defined as hydroxy derivatives of benzene and its condensed nuclei, may occur in domestic and industrial wastewaters, natural waters, and potable water supplies. Phenols are distilled from nonvolatile impurities. Because the volatilization of phenols is gradual, the distillate volume must ultimately equal that of the original sample. The method is approved in Table IB for preliminary treatment of samples to be used for determination of phenols.

b. 5530 D–2021, Colorimetric Method. Steam-distillable phenolic compounds react with 4-aminoantipyrine at pH 7.9 ± 0.1 in the presence of potassium ferricyanide to form a colored antipyrine dye. This dye is kept in aqueous solution and the absorbance is measured photometrically at 500 nm. The method is approved in Table IB for determination of phenol. Note that for regulatory compliance monitoring required under the Clean Water Act, the colorimetric reaction must be performed at a pH of 10.0 ± 0.2 as stated in 40 CFR 136.3, Table IB, footnote 27.

33. 5540 Surfactants. In 5540 C–2021 this colorimetric method comprises three successive extractions from an acid aqueous medium containing excess methylene blue into chloroform ($CHCl_3$), followed by an aqueous backwash and measurement of the blue color in the $CHCl_3$ by spectrophotometry at 652 nm. The method is applicable to methylene blue active substances at concentrations down to about 0.025 mg/L. The method is approved in Table IB for determination of surfactants.

34. 6200 Volatile Organic Compounds Series.

a. 6200 B–2020, Purge and Trap Capillary-Column Gas Chromatographic/Mass Spectrometric (GC/MS) Method. Volatile organic compounds are transferred efficiently from the aqueous to the gaseous phase by bubbling an inert gas (*e.g.,* helium) through a water sample contained in a specially designed purging chamber at ambient temperature. The vapor is swept through a sorbent trap that adsorbs the analytes of interest. After purging is complete, the trap is heated and backflushed with the same inert gas to desorb the compounds onto a gas chromatographic column. The gas chromatograph is temperature-programmed to separate the compounds. The detector is a mass spectrometer. The method is approved in Table IC for determination of

benzene, bromodichloromethane, bromoform, bromomethane, carbon tetrachloride, chlorobenzene, chloroethane, chloroform, chloromethane, dibromochloromethane, 1,2-dichlorobenzene, 1,3-dichlorobenzene, 1,4-dichlorobenzene, dichlorodifluoromethane, 1,1-dichloroethane, 1,2-dichloroethane, 1,1-dichloroethene, trans-1,2-dichloroethene, 1,2-dichloropropane, cis-1,3-dichloropropene, trans-1,3-dichloropropene, ethylbenzene, methylene chloride, 1,1,2,2-tetrachloroethane, tetrachloroethene, toluene, 1,1,1-trichloroethane, 1,1,2-trichloroethane, trichloroethene, trichlorofluoromethane, and vinyl chloride.

b. 6200 C–2020, Purge and Trap Capillary-Column Gas Chromatographic (GC) Method. Volatile organic compounds are transferred efficiently from the aqueous to the gaseous phase by bubbling an inert gas (*e.g.,* helium) through a water sample contained in a specially designed purging chamber at ambient temperature. The vapor is swept through a sorbent trap that adsorbs the analytes of interest. After purging is complete, the trap is heated and backflushed with the same inert gas to desorb the compounds onto a gas chromatographic column. The gas chromatograph is temperature-programmed to separate the compounds and detected using a photoionization detection and an electrolytic conductivity detection in series. The method is approved in Table IC for determination of benzene, bromodichloromethane, bromoform, bromomethane, carbon tetrachloride, chlorobenzene, chloroethane, chloroform, chloromethane, dibromochloromethane, 1,2-dichlorobenzene, 1,3-dichlorobenzene, 1,4-dichlorobenzene, 1,1-dichloroethane, 1,2-dichloroethane, 1,1-dichloroethene, trans-1,2-dichloroethene, 1,2-dichloropropane, cis-1,3-dichloropropene, trans-1,3-dichloropropene, ethylbenzene, methylene chloride, 1,1,2,2-tetrachloroethane, tetrachloroethene, toluene, 1,1,1-trichloroethane, 1,1,2-trichloroethane, trichloroethene, trichlorofluoromethane, and vinyl chloride.

35. 6410 Extractable Base/Neutrals and Acids 6410 B–2020, Liquid–Liquid Extraction Gas Chromatographic/Mass Spectrometric Method. This method is applicable to the determination of organic compounds that are partitioned into an organic solvent and are amenable to gas chromatography in municipal and industrial discharges. A measured volume of sample is extracted serially with methylene chloride at a pH of approximately 2 and again at pH 11. The extract is dried, concentrated, and analyzed by GC/MS. Qualitative compound identification is based on retention time and relative abundance of three characteristic masses (m/z). Quantitative analysis uses internal-standard techniques with a single characteristic m/z. This revision adds a note that although the method was validated extracting base-neutrals first and then acids, performance may be improved by extracting acids first and then base-neutrals. In addition, the EPA is approving method 6410–B for endrin aldehyde in Table ID. This parameter was inadvertently left off the 2007 MUR rulemaking (72 FR 11200, March 12, 2007). The method is approved in Table IC for determination of acenaphthene, acenaphthylene, anthracene, benzidine, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, butyl benzyl phthalate, bis(2-chloroethoxy) methane, bis(2-chloroethyl) ether, bis(2-ethylhexyl) phthalate, bromodichloromethane, 4-bromophenyl phenyl ether, 4-chloro-3-methyl phenol, 2-chloronaphthalene, 2-chlorophenol, 4-chlorophenyl phenyl ether, chrysene, dibenzo(a,h)anthracene, 3,3′-dichlorobenzidine, 2,4-dichlorophenol, diethyl phthalate, 2,4-dimethylphenol, dimethyl phthalate, di-n-butyl phthalate, di-n-octyl phthalate, 2, 4-dinitrophenol, 2,4-dinitrotoluene, 2,6-dinitrotoluene, fluoranthene, fluorene, hexachlorobenzene, hexachlorobutadiene, hexachlorocyclopentadiene, hexachloroethane, indeno(1,2,3-c,d) pyrene, isophorone, 2-methyl-4,6-dinitrophenol, naphthalene, nitrobenzene, 2-nitrophenol, 4-nitrophenol, N-nitrosodimethylamine, n-nitrosodi-n-propylamine, n-nitrosodiphenylamine, 2,2′-oxybis(1-chloropropane), PCB–1016, PCB–1221, PCB–1232, PCB–1242, PCB–1248, PCB–1254, PCB–1260, pentachlorophenol, phenanthrene, phenol, pyrene, 1,2,4-trichlorobenzene, and 2,4,6-trichlorophenol and in Table ID for determination of aldrin, α-BHC, β-BHC, δ-BHC, γ-BHC (lindane), chlordane, 4,4′-DDD, 4,4′-DDE, 4,4′-DDT, dieldrin, endosulfan I, endosulfan II, endosulfan sulfate, endrin, heptachlor, heptachlor epoxide, and toxaphene.

36. 6420 Phenols. 6420 B–2020, Liquid–Liquid Extraction Gas Chromatographic Method. A measured volume of sample is acidified and extracted with methylene chloride. The extract is dried and exchanged to 2-propanol during concentration. Target analytes in the extract are separated by gas chromatography and are identified by retention time and measured with a flame ionization detector, or derivatized and measured with an electron capture detector. This revision of the method replaces distilled, deionized water with reagent water, adds that the packed columns used for validation of the method are no longer available or recommended, and includes information on alternative capillary columns that may be used. The method is approved in Table IC for determination of 4-chloro-3-methylphenol, 2-chlorophenol, 2,4-dichlorophenol, 2,4-dimethylphenol, 2,4-dinitrophenol, 2-methyl-4,6-dinitrophenol, 2-nitrophenol, 4-nitrophenol, pentachlorophenol, phenol, and 2,4,6-trichlorophenol.

37. 6440 Polynuclear Aromatic Hydrocarbons. 6440 B–2021, Liquid–Liquid Extraction Chromatographic Method. A measured volume of sample is extracted with methylene chloride. The extract is dried, concentrated, and separated by the high-performance liquid chromatographic (HPLC) or gas chromatographic (GC) method. Ultraviolet (UV) and fluorescence detectors are used with HPLC to identify and measure the polynuclear aromatic hydrocarbons. A flame ionization detector is used with GC. The method is approved in Table IC for determination of acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-c,d)pyrene, naphthalene, phenanthrene, and pyrene.

38. 6630 Organochlorine Pesticides Series.

a. 6630 B–2021, Liquid–Liquid Extraction Gas Chromatographic Method I. In this procedure, the pesticides are extracted with a mixed solvent, diethyl ether–hexane or methylene chloride–hexane, by either liquid–liquid extraction using a separatory funnel or by continuous liquid–liquid extraction. The extract is concentrated by evaporation and, if necessary, is cleaned up by column adsorption chromatography. The individual pesticides then are separated by gas chromatography and the compounds are measured with an electron capture detector (ECD). This revision of the method adds information regarding alternative capillary columns that may be used in place of the packed columns that were used for validation of the method, removes information

regarding preparation of packed columns, replaces information regarding the manual injection technique with use of an autosampler and states that gas chromatography/mass spectrometry (GC/MS) may be used for confirmatory analyses in place of a second column and ECD detection. There are no other procedural changes. The method is approved in Table ID for determination of aldrin, α-BHC, β-BHC, δ-BHC, γ-BHC (lindane), captan, carbophenothion, chlordane, 4,4′-DDD, 4,4′-DDE, 4,4′-DDT, dichloran, dieldrin, endosulfan I, endosulfan II, endrin, heptachlor, heptachlor epoxide, isodrin, malathion, methoxychlor, mirex, parathion methyl, parathion ethyl, PCNB, strobane, toxaphene, and trifluralin.

b. In 6630 C–2021, Liquid–Liquid Extraction Gas Chromatographic Method II. In this procedure, a measured volume of sample is extracted with methylene chloride either by liquid–liquid extraction using separatory funnels or by continuous liquid–liquid extraction. The extract is dried and exchanged to hexane during concentration. The target analytes are separated by gas chromatography and the compounds are measured with an electron capture detector (ECD). This revision of the method adds information regarding alternative capillary columns that may be used in place of the packed columns that were used for validation of the method, and states that gas chromatography/mass spectrometry (GC/MS) may be used for confirmatory analyses in place of a second column and ECD detection. There are no other procedural changes. The method is approved in Table ID for determination of aldrin, α-BHC, β-BHC, δ-BHC, γ-BHC (lindane), chlordane, 4,4′-DDD, 4,4′-DDE, 4,4′-DDT, dieldrin, endosulfan I, endosulfan II, endosulfan sulfate, endrin, endrin aldehyde, heptachlor, heptachlor epoxide, isodrin, methoxychlor, mirex, PCNB, strobane, and toxaphene.

39. 6640 Acidic Herbicide Compounds. 6640 B-2021, Micro Liquid–Liquid Extraction Gas Chromatographic Method. A 40-mL sample is adjusted to pH ≥12 with 4 N sodium hydroxide and is kept for 1 hour at room temperature to hydrolyze derivatives. Because the chlorophenoxy acid herbicides are formulated as a variety of esters and salts, the hydrolysis step is required and may not be skipped. The aqueous sample then is acidified with sulfuric acid to pH ≤1 and extracted with 4 mL of methyl tert-butyl ether (MtBE) that contains the internal standard. The chlorinated acids, which have been partitioned into the MtBE, then are converted to methyl esters by derivatization with diazomethane. The target esters are separated and detected by capillary column gas chromatography using an electron capture detector (GC/ECD). Analytes are quantified using an internal-standard-based calibration curve. The method is approved in Table IC for determination of 2,4–D, 2,4,5–T, and 2,4,5–TP (Silvex).

D. Changes to 40 CFR 136.3 To Include Alternate Test Procedures in Table IC

To promote method innovation, the EPA maintains a program that allows method developers to apply for the EPA review and potential approval of an alternative method to an existing approved method. This alternate test procedure (ATP) program is described for CWA applications at 40 CFR 136.4 and 136.5. The EPA is approving two ATPs for nationwide use. Based on EPA's review, the performance of these ATPs is equally effective as other methods already approved for measurement of 2,3,7,8-substituted tetra- through octa-chlorinated dibenzo-p-dioxins and dibenzofurans (PCDDs/PCDFs) in wastewater. The ATP applicants supplied the EPA with study reports that contain the data from their validation studies. These study reports, the final methods, and the letters documenting EPA's review are included as supporting documents in the docket for this rule.

These new methods are: SGS AXYS Method 16130, ''Determination of 2,3,7,8-Substituted Tetra- through Octa-Chlorinated Dibenzo-p-Dioxins and Dibenzofurans (CDDs/CDFs) Using Waters and Agilent Gas Chromatography- Mass Spectrometry (GC–MS/MS), Revision 1.0'' and Pace Analytical Method PAM–16130–SSI, ''Determination of 2,3,7,8-Substituted Tetra- through Octa-Chlorinated Dibenzo-p-Dioxins and Dibenzofurans (CDDs/CDFs) Using Shimadzu Gas Chromatography Mass Spectrometry (GC–MS/MS), Revision 1.1.'' These ATPs are the results of separate collaborative efforts between SGS AXYS Analytical Services Ltd, and the instrument manufacturers Waters Corporation and Agilent Technologies, and between Pace Analytical Services LLC and the instrument manufacturer Shimadzu Scientific Instruments, Inc. These final methods are heavily adapted from EPA Method 1613B. Neither ATP makes changes to the extraction or cleanup procedures specified in Method 1613B. All required quality control tests (or analogous tests) and associated QC acceptance criteria have been included in both SGS AXYS 16130 and PAM–16130–SSI.

To minimize costs to both the applicants and the Agency where possible, SGS AXYS, Pace Analytical, and the instrument manufacturers who collaborated on these methods worked closely with EPA's CWA ATP Coordinator to design single-laboratory validation studies for these methods. The goal of these validation studies was to demonstrate that all of the performance criteria specified in Method 1613B could be met and that comparable performance could be achieved when using GC–MS/MS instrumentation for determination of PCDDs/PCDFs in extracts from real-world samples.

The ATP methods are available free of charge on their respective websites (sgsaxys.com or pacelabs.com), therefore the ATP methods incorporated by reference are reasonably available.

In these two methods, referred to in the rule as SGS AXYS 16130 and PAM 16130–SSI, each sample is spiked with the same suite of carbon-13 labeled standards prior to extraction and those standards are used for isotope dilution quantitation in the same way as is done in EPA Method 1613B. All of the relevant QC acceptance criteria are the same in the methods as well. The difference between these methods and the approved EPA method (1613B) is the use of an MS/MS detector system that uses Multiple Reaction Monitoring (MRM) in place of a high-resolution mass spectrometer (HRMS) detector system. The GC portions of the methods did not change.

E. Changes to 40 CFR 136.3 To Include New Standard Methods Committee Methods Based on Previously Approved Technologies

The EPA is adding five new methods in furtherance of the National Technology Transfer and Advancement Act of 1995 (NTTAA), Public Law 104–113, that provides that Federal agencies and departments shall use technical standards developed or adopted by the VCSBs if compliance would not be inconsistent with applicable law or otherwise impracticable. These methods were submitted by Standard Methods and are consistent with other already approved methods. As discussed in Section IV. B and C of this preamble, these methods are reasonably available.

The EPA is adding 4500–CN^- P–2021, 4500–CN^- Q–2021, 4500 CN^- R–2021, and 4500–F^- G–2021 to Table IB for cyanide and fluoride and is adding 5520 G–2021 to Table IB for oil and grease, based on the following reasons:

1. Cyanide. Although method 4500–CN^- P–2021, Total Cyanide by Segmented Flow Injection, UV-

Irradiation with Gas Diffusion, and Amperometric Measurement is new to Standard Methods for the Examination of Water and Wastewater, it is based on ASTM D7511–12(17), which is approved in Table IB for determination of total cyanide and relies on the same underlying chemistry and determinative technique to determine total cyanide. Total cyanide consists of dissolved HCN, sodium cyanide (NaCN), and various metal-cyanide complexes, which a continuous flow analyzer converts to aqueous HCN by mixing it with sulfuric acid, irradiating with UV light, and precipitating potentially interfering sulfides with bismuth ion. The aqueous HCN is captured in a donor stream that is passed across a hydrophobic gas-permeable membrane, which selectively diffuses the gaseous HCN into a parallel acceptor stream of dilute sodium hydroxide forming dissolved CN^-. The cyanide ion in this acceptor stream is measured using an amperometric detector, where the cyanide ion dissolves the silver electrode, resulting in a proportional current.

2. 4500–CN^- Q–2021, Weak and Dissociable Cyanide by Flow Injection, Gas Diffusion, and Amperometric Measurement. Weak and dissociable cyanide consists of dissolved HCN, NaCN, and various metal-cyanide complexes and includes the same forms of cyanide as those measured using other methods approved in Table IB for determination of available cyanide. Analysts pretreat for weak and dissociable cyanide by mixing a sample with ligand reagents. They then inject the sample into a sulfuric acid and bismuth nitrate solution to produce a donor stream containing aqueous dissolved HCN and precipitated sulfide, if sulfide is present. The donor stream is passed across a hydrophobic gas-permeable membrane, which selectively diffuses gaseous HCN into a parallel acceptor stream of dilute sodium hydroxide, forming dissolved CN^-. The cyanide ion in this acceptor stream is measured using an amperometric detector, where the cyanide ion dissolves the silver electrode, resulting in a proportional current. Although this method is new to Standard Methods for the Examination of Water and Wastewater, it is based on ASTM D6888–16, which is approved in Table IB for determination of available cyanide and relies on the same underlying chemistry and determinative technique to determine available cyanide.

3. 4500–CN^- R–2021, Free Cyanide by Flow Injection, Gas Diffusion, and Amperometric Measurement. Free cyanide (FCN) consists of dissolved HCN, NaCN, and the soluble fraction of various metal-cyanide complexes. To determine FCN, analysts pretreat a sample by mixing it with a buffered solution in the pH range of 6 to 8 that simulates the receiving water resulting in a donor stream containing aqueous dissolved HCN in equilibrium with the cyanide anion. The donor stream is passed across a hydrophobic gas-permeable membrane, which selectively diffuses gaseous HCN into a parallel acceptor stream that consists of dilute sodium hydroxide, forming dissolved CN^-. The cyanide ions in this acceptor stream are measured when it is passed through an amperometric detector, where the cyanide ion dissolves the silver electrode, resulting in a proportional current. Although this method is new to Standard Methods for the Examination of Water and Wastewater, it is based on ASTM D7237–15, which is approved in Table IB for determination of free cyanide and relies on the same underlying chemistry and determinative technique to determine free cyanide.

4. Fluoride. 4500–F^- G–2021, Ion-Selective Electrode Flow Injection Analysis is an automated version of method 4500–F^- C and relies on the same underlying chemistry and determinative technique as USGS Method I–4237–85, which currently is approved in Table IB for determination of fluoride. Fluoride is determined potentiometrically by using a combination fluoride ion selective electrode (ISE) in a flow cell. The fluoride electrode consists of a lanthanum fluoride crystal across which a potential is developed by fluoride ions.

5. Oil and Grease. In 5520 G–2021, Solid-Phase, Partition-Gravimetric Method, dissolved or emulsified oil and grease is extracted from water by passing a sample through a solid-phase extraction (SPE) disk where the oil and grease are adsorbed by the disk and subsequently eluted with n-hexane. SPE is a modification allowed under EPA Methods 1664 A and B and relies on the same underlying chemistry and determinative technique as Methods 1664 A and B. Some extractables, especially unsaturated fats and fatty acids, oxidize readily; hence, special precautions regarding temperature and solvent vapor displacement are provided. This method is not applicable to materials that volatilize at temperatures below 85 °C, or crude and heavy fuel oils containing a significant percentage of material not soluble in n-hexane. This method may be a satisfactory alternative to liquid-liquid extraction techniques, especially for samples that tend to form difficult emulsions during the extraction step.

V. Statutory and Executive Order Reviews

A. Executive Order 12866: Regulatory Planning and Review and Executive Order 14094: Modernizing Regulatory Review

This action is not a significant regulatory action as defined in Executive Order 12866, as amended by Executive Order 14094, and was therefore not subject to a requirement for Executive Order 12866 review.

B. Paperwork Reduction Act

This action does not impose an information collection burden under the Paperwork Reduction Act. This rule does not impose any information collection, reporting, or recordkeeping requirements. This rule merely revises or adds alternate CWA test procedures.

C. Regulatory Flexibility Act (RFA)

I certify that this action will not have a significant economic impact on a substantial number of small entities under the RFA. This action will not impose any requirements on small entities. This action would approve new alternate and revised versions of CWA testing procedures. Generally, these changes would have a positive impact on small entities by increasing method flexibility, thereby allowing entities to reduce costs by choosing more cost-effective methods. In general, the EPA expects the revisions would lead to few, if any, increased costs. The changes clarify or improve the instructions in the method, update the technology used in the method, improve the QC instructions, make editorial corrections, or reflect the most recent approval year of an already approved method. In some cases, the rule adds alternatives to currently approved methods for a particular analyte (*e.g.,* ASTM Method D7511). Because these methods would be alternatives rather than requirements, there are no direct costs associated with the methods approved by the EPA and incorporated by reference. If a permittee elected to use these methods, they could incur a small cost associated with obtaining these methods from the listed sources. See Sections IV. A through D of this preamble.

D. Unfunded Mandates Reform Act

This action does not contain any unfunded mandate as described in the Unfunded Mandates Reform Act, 2 U.S.C. 1531–1538, and does not significantly or uniquely affect small governments. The action imposes no

enforceable duty on any state, local or tribal governments or the private sector.

E. Executive Order 13132: Federalism

This final rule does not have federalism implications. It will not have substantial direct effects on the states, on the relationship between the national government and the states, or on the distribution of power and responsibilities among the various levels of government.

F. Executive Order 13175: Consultation and Coordination With Indian Tribal Governments

This action does not have tribal implications as specified in Executive Order 13175. This rule would merely approve new alternate and revised versions of test procedures. The EPA has concluded that the final rule would not lead to any costs to any tribal governments, and if incurred, the EPA projects they would be minimal. Thus, Executive Order 13175 does not apply to this action.

G. Executive Order 13045: Protection of Children From Environmental Health Risks and Safety Risks

The EPA interprets Executive Order 13045 as applying only to those regulatory actions that concern environmental health or safety risks that the EPA has reason to believe may disproportionately affect children, per the definition of ''covered regulatory action'' in section 2–202 of the Executive Order.

Therefore, this action is not subject to Executive Order 13045 because it does not concern an environmental health risk or safety risk. Since this action does not concern human health, EPA's Policy on Children's Health also does not apply.

H. Executive Order 13211: Actions That Significantly Affect Energy Supply, Distribution, or Use

This action is not subject to Executive Order 13211 because it is not a significant regulatory action under Executive Order 12866.

I. National Technology Transfer and Advancement Act of 1995

This action involves technical standards. The EPA is approving the use of technical standards developed and recommended by the Standard Methods Committee and ASTM International for use in compliance monitoring where the EPA determined that those standards meet the needs of CWA programs. As described above, this final rule is consistent with the NTTAA.

J. Executive Order 12898: Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations

The EPA believes that this type of action does not concern human health or environmental conditions and therefore cannot be evaluated with respect to potentially disproportionate and adverse effects on communities with environmental justice concerns. This action has no effect on communities because this action will approve new alternate and revised versions of CWA testing procedures. These changes would provide increased flexibility for the regulated community in meeting monitoring requirements while improving data quality. In addition, this update to the CWA methods will incorporate technological advances in analytical technology. Although this action does not concern human health or environmental conditions, the EPA identifies and addresses environmental justice concerns by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority populations (people of color) and low-income populations.

K. Congressional Review Act

This action is subject to the Congressional Review Act and the EPA will submit a rule report to each House of the Congress and to the Comptroller General of the United States. This is not a ''major rule'' as defined by 5 U.S.C. 804(2).

List of Subjects in 40 CFR Part 136

Environmental protection, Incorporation by reference, Reporting and recordkeeping requirements, Test procedures, Water pollution control.

Michael S. Regan,

Administrator.

For the reasons set forth in the preamble, the EPA amends 40 CFR part 136 as follows:

PART 136—GUIDELINES ESTABLISHING TEST PROCEDURES FOR THE ANALYSIS OF POLLUTANTS

■ 1. The authority citation for part 136 continues to read as follows:

Authority: Secs. 301, 304(h), 307 and 501(a), Pub. L. 95–217, 91 Stat. 1566, *et seq.* (33 U.S.C. 1251, *et seq.*) (the Federal Water Pollution Control Act Amendments of 1972 as amended by the Clean Water Act of 1977).

■ 2. Amend § 136.3 by:

■ a. In paragraph (a), revising tables IA, IB, IC, ID, and IH;

■ b. Revising paragraph (b) introductory text;

■ c. Revising and republishing paragraphs (b)(8), (10), (15), (19), (26), and (27);

■ d. Redesignating paragraphs (b)(33) through (39) as paragraphs (b)(35) through (41);

■ e. Adding new paragraphs (b)(33) and (34);

■ f. Revising the newly redesignated paragraphs (b)(40) introductory text, (b)(40)(ii), (ix), and (xiv); and

■ g. In paragraph (e), table II, revising Footnote ''5''.

The revisions and additions read as follows:

§ 136.3 Identification of test procedures.

(a) * * *

TABLE IA—LIST OF APPROVED BIOLOGICAL METHODS FOR WASTEWATER AND SEWAGE SLUDGE

Parameter and units	Method [1]	EPA	Standard methods	AOAC, ASTM, USGS	Other
Bacteria					
1. Coliform (fecal), number per gram dry weight.	Most Probable Number (MPN), 5 tube, 3 dilution, or.	p. 132,[3] 1680,[11 15] 1681[11 20]	9221 E–2014.		
	Membrane filter (MF),[2 5] single step	p. 124[3]	9222 D–2015.[29]		
2. Coliform (fecal), number per 100 mL	MPN, 5 tube, 3 dilution, or	p. 132[3]	9221 E–2014, 9221 F–2014.[33]		
	Multiple tube/multiple well, or				Colilert-18®.[13 18 28]
	MF,[2 5] single step[5]	p. 124[3]	9222 D–2015[29]	B–0050–85.[4]	
3. Coliform (total), number per 100 mL	MPN, 5 tube, 3 dilution, or	p. 114[3]	9221 B–2014.		
	MF,[2 5] single step or	p. 108[3]	9222 B–2015[30]	B–0025–85.[4]	
	MF,[2 5] two step with enrichment	p. 111[3]	9222 B–2015.[30]		

TABLE IA—LIST OF APPROVED BIOLOGICAL METHODS FOR WASTEWATER AND SEWAGE SLUDGE—Continued

Parameter and units	Method [1]	EPA	Standard methods	AOAC, ASTM, USGS	Other
4. *E. coli,* number per 100 mL	MPN [6 8 16] multiple tube, or		9221 B2014/9221 F–2014.[12 14 33]		
	multiple tube/multiple well, or		9223 B–2016 [13]	991.15 [10]	Colilert®.[13 18] Colilert-18®.[13 17 18]
	MF,[2 5 6 7 8] two step, or		9222 B–2015/9222 I–2015.[31]		
	Single step	1603.1 [21]			m-ColiBlue24®.[19]
5. Fecal streptococci, number per 100 mL.	MPN, 5 tube, 3 dilution, or	p. 139 [3]	9230 B–2013.		
	MF,[2] or	p. 136 [3]	9230 C–2013 [32]	B–0055–85.[4]	
	Plate count	p. 143.[3]			
6. Enterococci, number per 100 mL	MPN, 5 tube, 3 dilution, or	p. 139 [3]	9230 B–2013.		
	MPN,[6 8] multiple tube/multiple well, or.		9230 D–2013	D6503–99 [9]	Enterolert®.[13 23]
	MF [2 5 6 7 8] single step or	1600.1 [24]	9230 C–2013.[32]		
	Plate count	p. 143.[3]			
7. *Salmonella*, number per gram dry weight [11].	MPN multiple tube	1682.[22]			
Aquatic Toxicity					
8. Toxicity, acute, fresh water organisms, LC_{50}, percent effluent.	Water flea, *Cladoceran, Ceriodaphnia dubia* acute.	2002.0.[25]			
	Water flea, *Cladocerans, Daphnia pulex* and *Daphnia magna* acute.	2021.0.[25]			
	Fish, Fathead minnow, *Pimephales promelas,* and Bannerfin shiner, *Cyprinella leedsi,* acute.	2000.0.[25]			
	Fish, Rainbow trout, *Oncorhynchus mykiss,* and brook trout, *Salvelinus fontinalis,* acute.	2019.0.[25]			
9. Toxicity, acute, estuarine and marine organisms of the Atlantic Ocean and Gulf of Mexico, LC_{50}, percent effluent.	Mysid, *Mysidopsis bahia,* acute	2007.0.[25]			
	Fish, Sheepshead minnow, *Cyprinodon variegatus,* acute.	2004.0.[25]			
	Fish, Silverside, *Menidia beryllina, Menidia menidia,* and *Menidia peninsulae,* acute.	2006.0.[25]			
10. Toxicity, chronic, fresh water organisms, NOEC or IC_{25}, percent effluent.	Fish, Fathead minnow, *Pimephales promelas,* larval survival and growth.	1000.0.[26]			
	Fish, Fathead minnow, *Pimephales promelas,* embryo-larval survival and teratogenicity.	1001.0.[26]			
	Water flea, Cladoceran, *Ceriodaphnia dubia,* survival and reproduction.	1002.0.[26]			
	Green alga, *Selenastrum capricornutum,* growth.	1003.0.[26]			
11. Toxicity, chronic, estuarine and marine organisms of the Atlantic Ocean and Gulf of Mexico, NOEC or IC_{25}, percent effluent.	Fish, Sheepshead minnow, *Cyprinodon variegatus,* larval survival and growth..	1004.0.[27]			
	Fish, Sheepshead minnow, *Cyprinodon variegatus,* embryo-larval survival and teratogenicity.	1005.0.[27]			
	Fish, Inland silverside, *Menidia beryllina,* larval survival and growth.	1006.0.[27]			
	Mysid, *Mysidopsis bahia,* survival, growth, and fecundity.	1007.0.[27]			
	Sea urchin, *Arbacia punctulata,* fertilization.	1008.0.[27]			

Table IA notes:

[1] The method must be specified when results are reported.

[2] A 0.45-μm membrane filter (MF) or other pore size certified by the manufacturer to fully retain organisms to be cultivated and to be free of extractables which could interfere with their growth.

[3] Microbiological Methods for Monitoring the Environment, Water and Wastes, EPA/600/8–78/017. 1978. US EPA.

[4] U.S. Geological Survey Techniques of Water-Resource Investigations, Book 5, Laboratory Analysis, Chapter A4, Methods for Collection and Analysis of Aquatic Biological and Microbiological Samples. 1989. USGS.

[5] Because the MF technique usually yields low and variable recovery from chlorinated wastewaters, the Most Probable Number method will be required to resolve any controversies.

[6] Tests must be conducted to provide organism enumeration (density). Select the appropriate configuration of tubes/filtrations and dilutions/volumes to account for the quality, character, consistency, and anticipated organism density of the water sample.

[7] When the MF method has been used previously to test waters with high turbidity, large numbers of noncoliform bacteria, or samples that may contain organisms stressed by chlorine, a parallel test should be conducted with a multiple-tube technique to demonstrate applicability and comparability of results.

[8] To assess the comparability of results obtained with individual methods, it is suggested that side-by-side tests be conducted across seasons of the year with the water samples routinely tested in accordance with the most current *Standard Methods for the Examination of Water and Wastewater* or EPA alternate test procedure (ATP) guidelines.

[9] Annual Book of ASTM Standards—Water and Environmental Technology, Section 11.02. 2000, 1999, 1996. ASTM International.
[10] Official Methods of Analysis of AOAC International. 16th Edition, 4th Revision, 1998. AOAC International.
[11] Recommended for enumeration of target organism in sewage sludge.
[12] The multiple-tube fermentation test is used in 9221B.2–2014. Lactose broth may be used in lieu of lauryl tryptose broth (LTB), if at least 25 parallel tests are conducted between this broth and LTB using the water samples normally tested, and this comparison demonstrates that the false-positive rate and false-negative rate for total coliform using lactose broth is less than 10 percent. No requirement exists to run the completed phase on 10 percent of all total coliform-positive tubes on a seasonal basis.
[13] These tests are collectively known as defined enzyme substrate tests.
[14] After prior enrichment in a presumptive medium for total coliform using 9221B.2–2014, all presumptive tubes or bottles showing any amount of gas, growth or acidity within 48 h ± 3 h of incubation shall be submitted to 9221F–2014. Commercially available EC–MUG media or EC media supplemented in the laboratory with 50 µg/mL of MUG may be used.
[15] Method 1680: Fecal Coliforms in Sewage Sludge (Biosolids) by Multiple-Tube Fermentation Using Lauryl-Tryptose Broth (LTB) and EC Medium, EPA–821–R–14–009. September 2014. U.S. EPA.
[16] Samples shall be enumerated by the multiple-tube or multiple-well procedure. Using multiple-tube procedures, employ an appropriate tube and dilution configuration of the sample as needed and report the Most Probable Number (MPN). Samples tested with Colilert® may be enumerated with the multiple-well procedures, Quanti-Tray® or Quanti-Tray®/2000 and the MPN calculated from the table provided by the manufacturer.
[17] Colilert-18® is an optimized formulation of the Colilert® for the determination of total coliforms and *E. coli* that provides results within 18 h of incubation at 35°C rather than the 24 h required for the Colilert® test and is recommended for marine water samples.
[18] Descriptions of the Colilert®, Colilert-18®, Quanti-Tray®, and Quanti-Tray®/2000 may be obtained from IDEXX Laboratories, Inc.
[19] A description of the mColiBlue24® test is available from Hach Company.
[20] Method 1681: Fecal Coliforms in Sewage Sludge (Biosolids) by Multiple-Tube Fermentation Using A–1 Medium, EPA–821–R–06–013. July 2006. U.S. EPA.
[21] Method 1603.1: *Escherichia coli* (*E. coli*) in Water by Membrane Filtration Using Modified membrane-Thermotolerant *Escherichia coli* Agar (Modified mTEC), EPA–821–R–23–008. September 2023. U.S. EPA.
[22] Method 1682: *Salmonella* in Sewage Sludge (Biosolids) by Modified Semisolid Rappaport-Vassiliadis (MSRV) Medium, EPA–821–R–14–012. September 2014. U.S. EPA.
[23] A description of the Enterolert® test may be obtained from IDEXX Laboratories Inc.
[24] Method 1600.1: Enterococci in Water by Membrane Filtration Using Membrane-Enterococcus Indoxyl-β-D-Glucoside Agar (mEI), EPA–821–R–23–006. September 2023. U.S. EPA.
[25] Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, EPA–821–R–02–012. Fifth Edition, October 2002. U.S. EPA; and U.S. EPA Whole Effluent Toxicity Methods Errata Sheet, EPA 821–R–02–012–ES. December 2016.
[26] Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, EPA–821–R–02–013. Fourth Edition, October 2002. U.S. EPA; and U.S. EPA Whole Effluent Toxicity Methods Errata Sheet, EPA 821–R–02–012–ES. December 2016.
[27] Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms, EPA–821–R–02–014. Third Edition, October 2002. U.S. EPA; and U.S. EPA Whole Effluent Toxicity Methods Errata Sheet, EPA 821–R–02–012–ES. December 2016.
[28] To use Colilert-18® to assay for fecal coliforms, the incubation temperature is 44.5 ± 0.2 °C, and a water bath incubator is used.
[29] On a monthly basis, at least ten blue colonies from positive samples must be verified using Lauryl Tryptose Broth and EC broth, followed by count adjustment based on these results; and representative non-blue colonies should be verified using Lauryl Tryptose Broth. Where possible, verifications should be done from randomized sample sources.
[30] On a monthly basis, at least ten sheen colonies from positive samples must be verified using lauryl tryptose broth and brilliant green lactose bile broth, followed by count adjustment based on these results; and representative non-sheen colonies should be verified using lauryl tryptose broth. Where possible, verifications should be done from randomized sample sources.
[31] Subject coliform positive samples determined by 9222 B–2015 or other membrane filter procedure to 9222 I–2015 using NA–MUG media.
[32] Verification of colonies by incubation of BHI agar at 10 ± 0.5 °C for 48 ± 3 h is optional. As per the Errata to the 23rd Edition of *Standard Methods for the Examination of Water and Wastewater* ''Growth on a BHI agar plate incubated at 10 ± 0.5 °C for 48 ± 3 h is further verification that the colony belongs to the genus *Enterococcus*.''
[33] 9221F. 2–2014 allows for simultaneous detection of *E. coli* and thermotolerant fecal coliforms by adding inverted vials to EC–MUG; the inverted vials collect gas produced by thermotolerant fecal coliforms.

TABLE IB—LIST OF APPROVED INORGANIC TEST PROCEDURES

Parameter	Methodology [58]	EPA [52]	Standard methods [84]	ASTM	USGS/AOAC/Other
1. Acidity (as $CaCO_3$), mg/L.	Electrometric endpoint or phenolphthalein endpoint.	.....	2310 B–2020	D1067–16	I–1020–85.[2]
2. Alkalinity (as $CaCO_3$), mg/L.	Electrometric or Colorimetric titration to pH 4.5, Manual.	.....	2320 B–2021	D1067–16	973.43,[3] I–1030–85.[2]
	Automatic	310.2 (Rev. 1974) [1] ..	.....	.....	I–2030–85.[2]
3. Aluminum—Total,[4] mg/L.	Digestion,[4] followed by any of the following:				
	AA direct aspiration [36]	.....	3111 D–2019 or 3111 E–2019.	.....	I–3051–85.[2]
	AA furnace	.....	3113 B–2020.		
	STGFAA	200.9 Rev. 2.2 (1994).			
	ICP/AES [36]	200.5 Rev 4.2 (2003),[68] 200.7 Rev. 4.4 (1994).	3120 B–2020	D1976–20	I–4471–97.[50]
	ICP/MS	200.8, Rev. 5.4 (1994).	3125 B–2020	D5673–16	993.14,[3] I–4472–97,[81]
	Direct Current Plasma (DCP) [36]	.....	.....	D4190–15	See footnote.[34]
	Colorimetric (Eriochrome cyanine R)	.....	3500–Al B–2020.		
4. Ammonia (as N), mg/L.	Manual distillation [6] or gas diffusion (pH > 11), followed by any of the following:	350.1 Rev. 2.0 (1993).	4500–NH_3 B–2021 ...	.....	973.49.[3]
	Nesslerization	.....	.....	D1426–15 (A)	973.49,[3] I–3520–85.[2]
	Titration	.....	4500–NH_3 C–2021.		
	Electrode	.....	4500–NH_3 D–2021 or E–2021.	D1426–15 (B)	
	Manual phenate, salicylate, or other substituted phenols in Berthelot reaction-based methods.	.....	4500–NH_3 F–2021 ...	.....	See footnote.[60]
	Automated phenate, salicylate, or other substituted phenols in Berthelot reaction-based methods.	350.1,[30] Rev. 2.0 (1993).	4500–NH_3 G–2021, 4500–NH_3 H–2021.	.....	I–4523–85,[2] I–2522–90.[80]
	Automated electrode	.....	.....	.....	See footnote.[7]
	Ion Chromatography	.....	.....	D6919–17.	
	Automated gas diffusion, followed by conductivity cell analysis.	.....	.....	.....	Timberline Ammonia-001.[74]
	Automated gas diffusion followed by fluorescence detector analysis.	.....	.....	.....	FIAlab100.[82]
5. Antimony—Total,[4] mg/L.	Digestion,[4] followed by any of the following:				

TABLE IB—LIST OF APPROVED INORGANIC TEST PROCEDURES—Continued

Parameter	Methodology [58]	EPA [52]	Standard methods [84]	ASTM	USGS/AOAC/Other
	AA direct aspiration [36]		3111 B–2019.		
	AA furnace		3113 B–2020.		
	STGFAA	200.9 Rev. 2.2 (1994).			
	ICP/AES [36]	200.5 Rev 4.2 (2003),[68] 200.7 Rev. 4.4 (1994).	3120 B–2020	D1976–20.	
	ICP/MS	200.8, Rev. 5.4 (1994).	3125 B–2020	D5673–16	993.14,[3] I–4472–97.[81]
6. Arsenic—Total,[4] mg/L.	Digestion,[4] followed by any of the following:	206.5 (Issued 1978).[1]			
	AA gaseous hydride		3114 B–2020 or 3114 C–2020.	D2972–15 (B)	I–3062–85.[2]
	AA furnace		3113 B–2020	D2972–15 (C)	I–4063–98.[49]
	STGFAA	200.9 Rev. 2.2 (1994).			
	ICP/AES [36]	200.5, Rev 4.2 (2003),[68] 200.7 Rev. 4.4 (1994).	3120 B–2020	D1976–20.	
	ICP/MS	200.8, Rev. 5.4 (1994).	3125 B–2020	D5673–16	993.14,[3] I–4020–05.[70]
	Colorimetric (SDDC)		3500–As B–2020	D2972–15 (A)	I–3060–85.[2]
7. Barium—Total,[4] mg/L.	Digestion,[4] followed by any of the following:				
	AA direct aspiration [36]		3111 D–2019		I–3084–85.[2]
	AA furnace		3113 B–2020	D4382–18.	
	ICP/AES [36]	200.5, Rev 4.2 (2003),[68] 200.7 Rev. 4.4 (1994).	3120 B–2020		I–4471–97.[50]
	ICP/MS	200.8 Rev. 5.4 (1994).	3125 B–2020	D5673–16	993.14,[3] I–4472–97.[81]
	DCP [36]				See footnote.[34]
8. Beryllium—Total,[4] mg/L.	Digestion,[4] followed by any of the following:				
	AA direct aspiration		3111 D–2019 or 3111 E–2019.	D3645–15 (A)	I–3095–85.[2]
	AA furnace		3113 B–2020	D3645–15 (B).	
	STGFAA	200.9, Rev. 2.2 (1994).			
	ICP/AES	200.5 Rev 4.2 (2003),[68] 200.7 Rev. 4.4 (1994).	3120 B–2020	D1976–20	I–4471–97.[50]
	ICP/MS	200.8 Rev. 5.4 (1994).	3125 B–2020	D5673–16	993.14,[3] I–4472–97.[81]
	DCP			D4190–15	See footnote.[34]
	Colorimetric (aluminon)		See footnote [61]		
9. Biochemical oxygen demand (BOD_5), mg/L.	Dissolved Oxygen Depletion		5210 B–2016 [85]		973.44 [3] p. 17,[9] I–1578–78,[8] see footnote.[10 63]
10. Boron—Total,[37] mg/L.	Colorimetric (curcumin)		4500–B B–2011		I–3112–85.[2]
	ICP/AES	200.5 Rev 4.2 (2003),[68] 200.7 Rev. 4.4 (1994).	3120 B–2020	D1976–20	I–4471–97.[50]
	ICP/MS	200.8 Rev. 5.4 (1994).	3125 B–2020	D5673–16	993.14.[3]
	DCP			D4190–15	See footnote.[34]
11. Bromide, mg/L	Electrode			D1246–16	I–1125–85.[2]
	Ion Chromatography	300.0 Rev 2.1 (1993), and 300.1 Rev 1.0 (1997).	4110 B–2020, C–2020 or D–2020.	D4327–17	993.30,[3] I–2057–85.[79]
	CIE/UV		4140 B–2020	D6508–15	D6508 Rev. 2.[54]
12. Cadmium—Total,[4] mg/L.	Digestion,[4] followed by any of the following:				
	AA direct aspiration [36]		3111 B–2019 or 3111 C–2019.	D3557–17 (A or B)	974.27 [3] p. 37,[9] I–3135–85 [2] or I–3136–85.[2]
	AA furnace		3113 B–2020	D3557–17 (D)	I–4138–89.[51]
	STGFAA	200.9 Rev. 2.2 (1994)..			
	ICP/AES [36]	200.5 Rev 4.2 (2003),[68] 200.7 Rev. 4.4 (1994).	3120 B–2020	D1976–20	I–1472–85 [2] or I–4471–97.[50]
	ICP/MS	200.8, Rev. 5.4 (1994).	3125 B–2020	D5673–16	993.14,[3] I–4472–97.[81]
	DCP [36]			D4190–15	See footnote.[34]
	Voltammetry [11]			D3557–17 (C).	
	Colorimetric (Dithizone)		3500–Cd D–1990.		
13. Calcium—Total,[4] mg/L.	Digestion [4] followed by any of the following:				

TABLE IB—LIST OF APPROVED INORGANIC TEST PROCEDURES—Continued

Parameter	Methodology [58]	EPA [52]	Standard methods [84]	ASTM	USGS/AOAC/Other
	AA direct aspiration		3111 B–2019 or 3111 D–2019.	D511–14 (B)	I–3152–85.[2]
	ICP/AES	200.5 Rev 4.2 (2003),[68] 200.7 Rev. 4.4 (1994).	3120 B–2020		I–4471–97.[50]
	ICP/MS	200.8, Rev. 5.4 (1994).	3125 B–2020	D5673–16	993.14.[3]
	DCP				See footnote.[34]
	Titrimetric (EDTA)		3500-Ca B–2020	D511–14 (A).	
	Ion Chromatography			D6919–17.	
14. Carbonaceous biochemical oxygen demand ($CBOD_5$), mg/L[12].	Dissolved Oxygen Depletion with nitrification inhibitor.		5210 B–2016 [85]		See footnotes.[35 63]
15. Chemical oxygen demand (COD), mg/L.	Titrimetric	410.3 (Rev. 1978) [1]	5220 B–2011 or C–2011.	D1252–06(12) (A)	973.46[3] p. 17,[9] I–3560–85.[2]
	Spectrophotometric, manual or automatic	410.4 Rev. 2.0 (1993).	5220 D–2011	D1252–06(12) (B)	See footnotes,[13 14 83] I–3561–85.[2]
16. Chloride, mg/L	Titrimetric: (silver nitrate)		4500-Cl^- B–2021	D512–12 (B)	I–1183–85.[2]
	(Mercuric nitrate)		4500-Cl^- C–2021	D512–12 (A)	973.51,[3] I–1184–85.[2]
	Colorimetric: manual				I–1187–85.[2]
	Automated (ferricyanide)		4500-Cl^- E–2021		I–2187–85.[2]
	Potentiometric Titration		4500-Cl^- D–2021.		
	Ion Selective Electrode			D512–12 (C).	
	Ion Chromatography	300.0 Rev 2.1 (1993), and 300.1 Rev 1.0 (1997).	4110 B–2020 or 4110 C–2020.	D4327–17	993.30,[3] I–2057–90.[51]
	CIE/UV		4140 B–2020	D6508–15	D6508, Rev. 2.[54]
17. Chlorine—Total residual, mg/L.	Amperometric direct		4500-Cl D–2011	D1253–14.	
	Amperometric direct (low level)		4500-Cl E–2011.		
	Iodometric direct		4500-Cl B–2011.		
	Back titration ether end-point [15]		4500-Cl C–2011.		
	DPD–FAS		4500-Cl F–2011.		
	Spectrophotometric, DPD		4500-Cl G–2011.		
	Electrode				See footnote.[16]
17A. Chlorine—Free Available, mg/L.	Amperometric direct		4500-Cl D–2011	D1253–14..	
	Amperometric direct (low level)		4500-Cl E–2011.		
	DPD–FAS		4500-Cl F–2011.		
	Spectrophotometric, DPD		4500-Cl G–2011.		
18. Chromium VI dissolved, mg/L.	0.45-micron filtration followed by any of the following:				
	AA chelation-extraction		3111 C–2019		I–1232–85.[2]
	Ion Chromatography	218.6 Rev. 3.3 (1994).	3500-Cr C–2020	D5257–17	993.23.[3]
	Colorimetric (diphenyl-carbazide)		3500-Cr B–2020	D1687–17 (A)	I–1230–85.[2]
19. Chromium—Total,[4] mg/L.	Digestion,[4] followed by any of the following:				
	AA direct aspiration [36]		3111 B–2019	D1687–17 (B)	974.27,[3] I–3236–85.[2]
	AA chelation-extraction		3111 C–2019.		
	AA furnace		3113 B–2020	D1687–17 (C)	I–3233–93.[46]
	STGFAA	200.9 Rev. 2.2 (1994).			
	ICP/AES [36]	200.5 Rev 4.2 (2003),[68] 200.7 Rev. 4.4 (1994).	3120 B–2020	D1976–20.	
	ICP/MS	200.8 Rev. 5.4 (1994).	3125 B–2020	D5673–16	993.14,[3] I–4020–05[70] I–4472–97.[81]
	DCP [36]			D4190–15	See footnote.[34]
	Colorimetric (diphenyl-carbazide)		3500-Cr B–2020.		
20. Cobalt—Total,[4] mg/L.	Digestion,[4] followed by any of the following:				
	AA direct aspiration		3111 B–2019 or 3111 C–2019.	D3558–15 (A or B)	p. 37,[9] I–323985.[2]
	AA furnace		3113 B–2020	D3558–15 (C)	I–4243–89.[51]
	STGFAA	200.9 Rev. 2.2 (1994).			
	ICP/AES	200.7 Rev. 4.4 (1994).	3120 B–2020	D1976–20	I–4471–97.[50]
	ICP/MS	200.8 Rev. 5.4 (1994).	3125 B–2020	D5673–16	993.14,[3] I–4020–05[70] I–4472–97.[81]
	DCP			D4190–15	See footnote.[34]
21. Color, platinum cobalt units or dominant wavelength, hue, luminance purity.	Colorimetric (ADMI)		2120 F–2021.[78]		
	Platinum cobalt visual comparison		2120 B–2021		I–1250–85.[2]
	Spectrophotometric				See footnote.[18]
22. Copper—Total,[4] mg/L.	Digestion,[4] followed by any of the following:				

TABLE IB—LIST OF APPROVED INORGANIC TEST PROCEDURES—Continued

Parameter	Methodology [58]	EPA [52]	Standard methods [84]	ASTM	USGS/AOAC/Other
	AA direct aspiration [36]		3111 B–2019 or 3111 C–2019.	D1688–17 (A or B)	974.27,[3] p. 37,[9] I–3270–85 [2] or I–3271–85.[2]
	AA furnace		3113 B–2020	D1688–17 (C)	I–4274–89.[51]
	STGFAA	200.9 Rev. 2.2 (1994).			
	ICP/AES [36]	200.5 Rev 4.2 (2003),[68] 200.7 Rev. 4.4 (1994).	3120 B–2020	D1976–20	I–4471–97.[50]
	ICP/MS	200.8 Rev. 5.4 (1994).	3125 B–2020	D5673–16	993.14,[3] I–4020–05,[70] I–4472–97.[81]
	DCP [36]			D4190–15	See footnote.[34]
	Colorimetric (Neocuproine)		3500-Cu B–2020.		
	Colorimetric (Bathocuproine)		3500-Cu C–2020		See footnote.[19]
23. Cyanide—Total, mg/L.	Automated UV digestion/distillation and Colorimetry.				Kelada-01.[55]
	Segmented Flow Injection, In-Line Ultraviolet Digestion, followed by gas diffusion amperometry.		4500–CN^- P–2021	D7511–12 (17).	
	Manual distillation with $MgCl_2$, followed by any of the following:	335.4 Rev. 1.0 (1993) [57].	4500–CN^- B–2021 and C–2021.	D2036–09(15)(A), D7284–20.	10–204–00–1–X.[56]
	Flow Injection, gas diffusion amperometry			D2036–09(15)(A) D7284–20.	
	Titrimetric		4500–CN^- D–2021	D2036–09(15)(A)	See footnote [9] p. 22.
	Spectrophotometric, manual		4500–CN^- E–2021	D2036–09(15)(A)	I–3300–85.[2]
	Semi-Automated [20]	335.4 Rev. 1.0 (1993) [57].	4500–CN^- N–2021		10–204–00–1–X,[56] I–4302–85.[2]
	Ion Chromatography			D2036–09(15)(A).	
	Ion Selective Electrode		4500–CN^- F–2021	D2036–09(15)(A).	
24. Cyanide—Available, mg/L.	Cyanide Amenable to Chlorination (CATC); Manual distillation with $MgCl_2$, followed by Titrimetric or Spectrophotometric.		4500–CN^- G–2021	D2036–09(15)(B).	
	Flow injection and ligand exchange, followed by gas diffusion amperometry [59].		4500–CN^- Q–2021	D6888–16	OIA–1677–09.[44]
	Automated Distillation and Colorimetry (no UV digestion).				Kelada–01.[55]
24A. Cyanide—Free, mg/L.	Flow Injection, followed by gas diffusion amperometry.		4500–CN^- R–2021	D7237–18 (A)	OIA–1677–09.[44]
	Manual micro-diffusion and colorimetry			D4282–15.	
25. Fluoride—Total, mg/L.	Manual distillation,[6] followed by any of the following:.		4500–F^- B–2021	D1179–16 (A).	
	Electrode, manual		4500–F^- C–2021	D1179–16 (B).	
	Electrode, automated		4500–F^- G–2021		I–4327–85.[2]
	Colorimetric, (SPADNS)		4500–F^- D–2021.		
	Automated complexone		4500–F^- E–2021.		
	Ion Chromatography	300.0 Rev 2.1 (1993) and 300.1 Rev 1.0 (1997).	4110 B–2020 or C–2020.	D4327–17	993.30.[3]
	CIE/UV		4140 B–2020	D6508–15	D6508, Rev. 2.[54]
26. Gold—Total,[4] mg/L	Digestion,[4] followed by any of the following:				
	AA direct aspiration		3111 B–2019.		
	AA furnace	231.2 (Issued 1978) [1]	3113 B–2020.		
	ICP/MS	200.8, Rev. 5.4 (1994).	3125 B–2020	D5673–16	993.14.[3]
	DCP				See footnote.[34]
27. Hardness—Total (as $CaCO_{(3)}$, mg/L.	Automated colorimetric	130.1 (Issued 1971).[1]			
	Titrimetric (EDTA)		2340 C–2021	D1126–17	973.52B,[3] I–1338–85.[2]
	Ca plus Mg as their carbonates, by any approved method for Ca and Mg (See Parameters 13 and 33), provided that the sum of the lowest point of quantitation for Ca and Mg is below the NPDES permit requirement for Hardness..		2340 B–2021.		
28. Hydrogen ion (pH), pH units.	Electrometric measurement		4500–H^+ B–2021	D1293–18 (A or B)	973.41,[3] I–1586–85.[2]
	Automated electrode	150.2 (Dec. 1982) [1]			See footnote [21] I–2587–85.[2]
29. Iridium—Total,[4] mg/L.	Digestion,[4] followed by any of the following:.				
	AA direct aspiration		3111 B–2019.		
	AA furnace	235.2 (Issued 1978).[1]			
	ICP/MS		3125 B–2020.		
30. Iron—Total,[4] mg/L	Digestion,[4] followed by any of the following:				
	AA direct aspiration [36]		3111 B–2019 or 3111 C–2019.	D1068–15 (A)	974.27,[3] I–3381–85.[2]
	AA furnace		3113 B–2020	D1068–15 (B).	
	STGFAA	200.9, Rev. 2.2 (1994).			

TABLE IB—LIST OF APPROVED INORGANIC TEST PROCEDURES—Continued

Parameter	Methodology [58]	EPA [52]	Standard methods [84]	ASTM	USGS/AOAC/Other
	ICP/AES [36]	200.5 Rev. 4.2 (2003),[68] 200.7 Rev. 4.4 (1994).	3120 B–2020	D1976–20	I–4471–97.[50]
	ICP/MS	200.8, Rev. 5.4 (1994).	3125 B–2020	D5673–16	993.14.[3]
	DCP [36]			D4190–15	See footnote.[34]
	Colorimetric (Phenanthroline)		3500-Fe B–2011	D1068–15 (C)	See footnote.[22]
31. Kjeldahl Nitrogen [5]—Total (as N), mg/L.	Manual digestion [20] and distillation or gas diffusion, followed by any of the following:		4500–N_{org} B–2021 or C–2021 and 4500–NH_3 B–2021.	D3590–17 (A)	I–4515–91.[45]
	Titration		4500–NH_3 C–2021		973.48.[3]
	Nesslerization			D1426–15 (A).	
	Electrode		4500–NH_3 D–2021 or E–2021.	D1426–15 (B).	
	Semi-automated phenate	350.1 Rev. 2.0 (1993).	4500–NH_3 G–2021 or 4500–NH_3 H–2021.		
	Manual phenate, salicylate, or other substituted phenols in Berthelot reaction based methods.		4500–NH_3 F–2021		See footnote.[60]
	Automated gas diffusion, followed by conductivity cell analysis.				Timberline Ammonia-001.[74]
	Automated gas diffusion followed by fluorescence detector analysis.				FIAlab 100.[82]
	Automated Methods for TKN that do not require manual distillation..				
	Automated phenate, salicylate, or other substituted phenols in Berthelot reaction-based methods colorimetric (auto digestion and distillation)	351.1 (Rev. 1978) [1]			I–4551–78.[8]
	Semi-automated block digestor colorimetric (distillation not required).	351.2 Rev. 2.0 (1993).	4500–N_{org} D–2021	D3590–17 (B)	I–4515–91.[45]
	Block digester, followed by Auto distillation and Titration.				See footnote.[39]
	Block digester, followed by Auto distillation and Nesslerization.				See footnote.[40]
	Block Digester, followed by Flow injection gas diffusion (distillation not required).				See footnote.[41]
	Digestion with peroxdisulfate, followed by Spectrophotometric (2,6-dimethyl phenol).				Hach 10242.[76]
	Digestion with persulfate, followed by Colorimetric.				NCASI TNTP W10900.[77]
32. Lead—Total,[4] mg/L	Digestion,[4] followed by any of the following:				
	AA direct aspiration [36]		3111 B–2019 or 3111 C–2019.	D3559–15 (A or B)	974.27,[3] I–3399–85.[2]
	AA furnace		3113 B–2020	D3559–15 (D)	I–4403–89.[51]
	STGFAA	200.9 Rev. 2.2 (1994).			
	ICP/AES [36]	200.5 Rev. 4.2 (2003),[68] 200.7 Rev. 4.4 (1994).	3120 B–2020	D1976–20	I–4471–97.[50]
	ICP/MS	200.8 Rev. 5.4 (1994).	3125 B–2020	D5673–16	993.14,[3] I–4472–97.[81]
	DCP [36]			D4190–15	See footnote.[34]
	Voltammetry [11]			D3559–15 (C).	
	Colorimetric (Dithizone)		3500-Pb B–2020.		
33. Magnesium—Total,[4] mg/L.	Digestion,[4] followed by any of the following:				
	AA direct aspiration		3111 B–2019	D511–14 (B)	974.27,[3] I–3447–85.[2]
	ICP/AES	200.5 Rev. 4.2 (2003),[68] 200.7 Rev. 4.4 (1994).	3120 B–2020	D1976–20	I–4471–97.[50]
	ICP/MS	200.8 Rev. 5.4 (1994).	3125 B–2020	D5673–16	993.14.[3]
	DCP				See footnote.[34]
	Ion Chromatography			D6919–17.	
34. Manganese—Total,[4] mg/L.	Digestion,[4] followed by any of the following:				
	AA direct aspiration [36]		3111 B–2019 or 3111 C–2019.	D858–17 (A or B)	974.27,[3] I–3454–85.[2]
	AA furnace		3113 B–2020	D858–17 (C).	
	STGFAA	200.9 Rev. 2.2 (1994).			
	ICP/AES [36]	200.5, Rev. 4.2 (2003); [68] 200.7, Rev. 4.4 (1994).	3120 B–2020	D1976–20	I–4471–97.[50]
	ICP/MS	200.8 Rev. 5.4 (1994).	3125 B–2020	D5673–16	993.14,[3] I–4472–97.[81]
	DCP [36]			D4190–15	See footnote.[34]
	Colorimetric (Persulfate)		3500-Mn B–2020		920.203.[3]
	Colorimetric (Periodate)				See footnote.[23]

TABLE IB—LIST OF APPROVED INORGANIC TEST PROCEDURES—Continued

Parameter	Methodology [58]	EPA [52]	Standard methods [84]	ASTM	USGS/AOAC/Other
35. Mercury—Total, mg/L.	Cold vapor, Manual	245.1 Rev. 3.0 (1994).	3112 B–2020	D3223–17	977.22,[3] I–3462–85.[2]
	Cold vapor, Automated	245.2 (Issued 1974).[1]			
	Cold vapor atomic fluorescence spectrometry (CVAFS).	245.7 Rev. 2.0 (2005) [17].			I–4464–01.[71]
	Purge and Trap CVAFS	1631E.[43]			
36. Molybdenum—Total,[4] mg/L.	Digestion,[4] followed by any of the following:				
	AA direct aspiration		3111 D–2019		I–3490–85.[2]
	AA furnace		3113 B–2020		I–3492–96.[47]
	ICP/AES	200.7 Rev. 4.4 (1994).	3120 B–2020	D1976–20	I–4471–97.[50]
	ICP/MS	200.8 Rev. 5.4 (1994).	3125 B–2020	D5673–16	993.14,[3] I–4472–97.[81]
	DCP				See footnote.[34]
37. Nickel—Total,[4] mg/L.	Digestion,[4] followed by any of the following:				
	AA direct aspiration [36]		3111 B–2019 or 3111 C–2019.	D1886–14 (A or B)	I–3499–85.[2]
	AA furnace		3113 B–2020	D1886–14 (C)	I–4503–89.[51]
	STGFAA	200.9 Rev. 2.2 (1994).			
	ICP/AES [36]	200.5 Rev. 4.2 (2003),[68] 200.7 Rev. 4.4 (1994).	3120 B–2020	D1976–20	I–4471–97.[50]
	ICP/MS	200.8, Rev. 5.4 (1994).	3125 B–2020	D5673–16	993.14,[3] I–4020–05,[70] I–4472–97.[81]
	DCP [36]			D4190–15	See footnote.[34]
38. Nitrate (as N), mg/L	Ion Chromatography	300.0 Rev. 2.1 (1993) and 300.1 Rev. 1.0 (1997).	4110 B–2020 or C–2020.	D4327–17	993.30.[3]
	CIE/UV		4140 B–2020	D6508–15	D6508, Rev. 2.[54]
	Ion Selective Electrode		4500–NO_3^- D–2019..		
	Colorimetric (Brucine sulfate)	352.1 (Issued 1971) [1]			973.50,[3] 419D,[86] p. 28.[9]
	Spectrophotometric (2,6-dimethylphenol)				Hach 10206.[75]
	Nitrate-nitrite N minus Nitrite N (see parameters 39 and 40).				
39. Nitrate-nitrite (as N), mg/L.	Cadmium reduction, Manual		4500–NO_3^- E–2019	D3867–16 (B).	
	Cadmium reduction, Automated	353.2 Rev. 2.0 (1993).	4500–NO_3^- F–2019 or 4500–NO_3^- I–2019.	D3867–16 (A)	I–2545–90.[51]
	Automated hydrazine		4500–NO_3^- H–2019.		
	Reduction/Colorimetric				See footnote.[62]
	Ion Chromatography	300.0 Rev. 2.1 (1993) and 300.1 Rev. 1.0 (1997).	4110 B–2020 or C–2020.	D4327–17	993.30.[3]
	CIE/UV		4140 B–2020	D6508–15	D6508, Rev. 2.[54]
	Enzymatic reduction, followed by automated colorimetric determination.			D7781–14	I–2547–11,[72] I–2548–11,[72] N07–0003.[73]
	Enzymatic reduction, followed by manual colorimetric determination.		4500–NO_3^- J–2018.		
	Spectrophotometric (2,6-dimethylphenol)				Hach 10206.[75]
40. Nitrite (as N), mg/L	Spectrophotometric: Manual		4500–NO_2^- B–2021		See footnote.[25]
	Automated (Diazotization)				I–4540–85 [2] see footnote,[62] I–2540–90.[80]
	Automated (*bypass cadmium reduction)	353.2 Rev. 2.0 (1993).	4500–NO_3^- F–2019, 4500–NO_3^- I–2019.	D3867–16 (A)	I–4545–85.[2]
	Manual (*bypass cadmium or enzymatic reduction).		4500–NO_3^- E–2019, 4500–NO_3^- J–2018.	D3867–16 (B).	
	Ion Chromatography	300.0 Rev. 2.1 (1993) and 300.1 Rev. 1.0 (1997).	4110 B–2020 or C–2020.	D4327–17	993.30.[3]
	CIE/UV		4140 B–2020	D6508–15	D6508, Rev. 2.[54]
	Automated (*bypass Enzymatic reduction)			D7781–14	I–2547–11,[72] I–2548–11,[72] N07–0003.[73]
41. Oil and grease—Total recoverable, mg/L.	Hexane extractable material (HEM): *n*-Hexane extraction and gravimetry.	1664 Rev. A 1664 Rev. B [42].	5520 B or G–2021.[38].		
	Silica gel treated HEM (SGT–HEM): Silica gel treatment and gravimetry.	1664 Rev. A, 1664 Rev. B [42].	5520 B or G–2021 [38] and 5520 F–2021.[38]		
42. Organic carbon—Total (TOC), mg/L.	Combustion		5310 B–2014	D7573–18a[e1]	973.47,[3] p. 14.[24]

TABLE IB—LIST OF APPROVED INORGANIC TEST PROCEDURES—Continued

Parameter	Methodology [58]	EPA [52]	Standard methods [84]	ASTM	USGS/AOAC/Other
	Heated persulfate or UV persulfate oxidation.	.....	5310 C–2014, 5310 D–2011.	D4839–03(17)	973.47,[3, p. 14.[24]
43. Organic nitrogen (as N), mg/L.	Total Kjeldahl N (Parameter 31) minus ammonia N (Parameter 4).				
44. Ortho-phosphate (as P), mg/L.	Ascorbic acid method:				
	Automated	365.1 Rev. 2.0 (1993).	4500–P F–2021 or G–2021.	.....	973.56,[3] I–4601–85,[2] I–2601–90.[80]
	Manual, single-reagent	.....	4500–P E–2021	D515–88 (A)	973.55.[3]
	Manual, two-reagent	365.3 (Issued 1978).[1]			
	Ion Chromatography	300.0 Rev. 2.1 (1993) and 300.1 Rev. 1.0 (1997).	4110 B–2020 or C–2020.	D4327–17	993.30.[3]
	CIE/UV	.....	4140 B–2020	D6508–15	D6508, Rev. 2.[54]
45. Osmium—Total[4], mg/L.	Digestion,[4] followed by any of the following:				
	AA direct aspiration	.....	3111 D–2019.		
	AA furnace	252.2 (Issued 1978).[1]			
46. Oxygen, dissolved, mg/L.	Winkler (Azide modification)	.....	4500–O (B–F)–2021	D888–18 (A)	973.45B,[3] I–1575–78.[8]
	Electrode	.....	4500–O G–2021	D888–18 (B)	I–1576–78.[8]
	Luminescence-Based Sensor	.....	4500–O H–2021	D888–18 (C)	See footnotes. [63 64]
47. Palladium—Total,[4] mg/L.	Digestion,[4] followed by any of the following:				
	AA direct aspiration	.....	3111 B–2019.		
	AA furnace	253.2 (Issued 1978).[1]			
	ICP/MS	.....	3125 B–2020.		
	DCP	.....	.....	.....	See footnote.[34]
48. Phenols, mg/L	Manual distillation,[26] followed by any of the following:.	420.1 (Rev. 1978) [1] ..	5530 B–2021	D1783–01(12).	
	Colorimetric (4AAP) manual	420.1 (Rev. 1978) [1] ..	5530 D–2021 [27]	D1783–01(12) (A or B).	
	Automated colorimetric (4AAP)	420.4 Rev. 1.0 (1993).			
49. Phosphorus (elemental), mg/L.	Gas-liquid chromatography	.....	.....	.....	See footnote.[28]
50. Phosphorus—Total, mg/L.	Digestion,[20] followed by any of the following:.	.....	4500–P B (5)–2021 ..	.....	973.55.[3]
	Manual	365.3 (Issued 1978) [1]	4500–P E–2021	D515–88 (A).	
	Automated ascorbic acid reduction	365.1 Rev. 2.0 (1993).	4500–P (F–H)–2021	.....	973.56,[3] I–4600–85.[2]
	ICP/AES [4 36]	200.7Rev. 4.4 (1994)	3120 B–2020	.....	I–4471–97.[50]
	Semi-automated block digestor (TKP digestion).	365.4 (Issued 1974) [1]	.....	D515–88 (B)	I–4610–91.[48]
	Digestion with persulfate, followed by Colorimetric.	.....	.....	.....	NCASI TNTP W10900.[77]
51. Platinum—Total,[4] mg/L.	Digestion,[4] followed by any of the following:				
	AA direct aspiration	.....	3111 B–2019.		
	AA furnace	255.2 (Issued 1978).[1]			
	ICP/MS	.....	3125 B–2020.		
	DCP	.....	.....	.....	See footnote.[34]
52. Potassium—Total,[4] mg/L.	Digestion,[4] followed by any of the following:				
	AA direct aspiration	.....	3111 B–2019	.....	973.5,[3] I–3630–85.[2]
	ICP/AES	200.7 Rev. 4.4 (1994).	3120 B–2020.		
	ICP/MS	200.8, Rev. 5.4 (1994).	3125 B–2020	D5673–16	993.14.[3]
	Flame photometric	.....	3500–K B–2020.		
	Electrode	.....	3500–K C–2020.		
	Ion Chromatography	.....	.....	D6919–17.	
53. Residue—Total, mg/L.	Gravimetric, 103–105°	.....	2540 B–2020	.....	I–3750–85.[2]
54. Residue—filterable, mg/L.	Gravimetric, 180°	.....	2540 C–2020	D5907–18 (B)	I–1750–85.[2]
55. Residue—non-filterable (TSS), mg/L.	Gravimetric, 103–105° post-washing of residue.	.....	2540 D–2020	D5907–18 (A)	I–3765–85.[2]
56. Residue—settleable, mg/L.	Volumetric (Imhoff cone), or gravimetric	.....	2540 F–2020.		
57. Residue—Volatile, mg/L.	Gravimetric, 550°	160.4 (Issued 1971) [1]	2540 E–2020	.....	I–3753–85.[2]
58. Rhodium—Total,[4] mg/L.	Digestion,[4] followed by any of the following:				
	AA direct aspiration, or	.....	3111 B–2019.		
	AA furnace	265.2 (Issued 1978).[1]			
	ICP/MS	.....	3125 B–2020.		
59. Ruthenium—Total,[4] mg/L.	Digestion,[4] followed by any of the following:				
	AA direct aspiration, or	.....	3111 B–2019.		
	AA furnace	267.2.[1]			

TABLE IB—LIST OF APPROVED INORGANIC TEST PROCEDURES—Continued

Parameter	Methodology [58]	EPA [52]	Standard methods [84]	ASTM	USGS/AOAC/Other
	ICP/MS		3125 B–2020.		
60. Selenium—Total,[4] mg/L.	Digestion,[4] followed by any of the following:				
	AA furnace		3113 B–2020	D3859–15 (B)	I–4668–98.[49]
	STGFAA	200.9 Rev. 2.2 (1994).			
	ICP/AES [36]	200.5 Rev 4.2 (2003),[68] 200.7 Rev. 4.4 (1994).	3120 B–2020	D1976–20.	
	ICP/MS	200.8 Rev. 5.4 (1994).	3125 B–2020	D5673–16	993.14,[3] I–4020–05 [70] I–4472–97.[81]
	AA gaseous hydride		3114 B–2020, or 3114 C–2020.	D3859–15 (A)	I–3667–85.[2]
61. Silica—Dissolved,[37] mg/L.	0.45-micron filtration followed by any of the following:				
	Colorimetric, Manual		4500–SiO_2 C–2021	D859–16	I–1700–85.[2]
	Automated (Molybdosilicate)		4500–SiO_2 E–2021 or F–2021.		I–2700–85.[2]
	ICP/AES	200.5 Rev. 4.2 (2003),[68] 200.7 Rev. 4.4 (1994).	3120 B–2020		I–4471–97.[50]
	ICP/MS	200.8 Rev. 5.4 (1994).	3125 B–2020	D5673–16	993.14.[3]
62. Silver—Total,[4 31] mg/L.	Digestion,[4 29] followed by any of the following:				
	AA direct aspiration		3111 B–2019 or 3111 C–2019.		974.27,[3] p. 37,[9] I–3720–85.[2]
	AA furnace		3113 B–2020		I–4724–89.[51]
	STGFAA	200.9 Rev. 2.2 (1994).			
	ICP/AES	200.5 Rev. 4.2 (2003),[68] 200.7 Rev. 4.4 (1994).	3120 B–2020	D1976–20	I–4471–97.[50]
	ICP/MS	200.8 Rev. 5.4 (1994).	3125 B–2020	D5673–16	993.14,[3] I–4472–97.[81]
	DCP				See footnote.[34]
63. Sodium—Total,[4] mg/L.	Digestion,[4] followed by any of the following:				
	AA direct aspiration		3111 B–2019		973.54,[3] I–3735–85.[2]
	ICP/AES	200.5 Rev. 4.2 (2003),[68] 200.7 Rev. 4.4 (1994).	3120 B–2020		I–4471–97.[50]
	ICP/MS	200.8 Rev. 5.4 (1994).	3125 B–2020	D5673–16	993.14.[3]
	DCP				See footnote.[34]
	Flame photometric		3500-Na B–2020.		
	Ion Chromatography			D6919–17.	
64. Specific conductance, micromhos/cm at 25 °C.	Wheatstone bridge	120.1 (Rev. 1982) [1]	2510 B–2021	D1125–95(99) (A)	973.40,[3] I–2781–85.[2]
65. Sulfate (as SO_4), mg/L.	Automated colorimetric	375.2 Rev. 2.0 (1993).	4500–SO_4^{2-} F–2021 or G–2021.		
	Gravimetric		4500–SO_4^{2-} C–2021 or D–2021.		925.54.[3]
	Turbidimetric		4500–SO_4^{2-} E–2021	D516–16.	
	Ion Chromatography	300.0 Rev. 2.1 (1993) and 300.1 Rev. 1.0 (1997).	4110 B–2020 or C–2020.	D4327–17	993.30,[3] I–4020–05.[70]
	CIE/UV		4140 B–2020	D6508–15	D6508 Rev. 2.[54]
66. Sulfide (as S), mg/L	Sample Pretreatment		4500–S^{2-} B, C–2021.		
	Titrimetric (iodine)		4500–S^{2-} F–2021		I–3840–85.[2]
	Colorimetric (methylene blue)		4500–S^{2-} D–2021.		
	Ion Selective Electrode		4500–S^{2-} G–2021	D4658–15.	
67. Sulfite (as SO_3), mg/L.	Titrimetric (iodine-iodate)		4500–SO_3^{2-} B–2021.		
68. Surfactants, mg/L	Colorimetric (methylene blue)		5540 C–2021	D2330–20.	
69. Temperature, °C	Thermometric		2550 B–2010		See footnote.[32]
70. Thallium-Total,[4] mg/L.	Digestion,[4] followed by any of the following:				
	AA direct aspiration		3111 B–2019.		
	AA furnace	279.2 (Issued 1978) [1]	3113 B–2020.		
	STGFAA	200.9 Rev. 2.2 (1994).			
	ICP/AES	200.7 Rev. 4.4 (1994).	3120 B–2020	D1976–20.	
	ICP/MS	200.8, Rev. 5.4 (1994).	3125 B–2020	D5673–16	993.14,[3] I–4471–97 [50] I–4472–97.[81]
71. Tin—Total,[4] mg/L	Digestion,[4] followed by any of the following:				
	AA direct aspiration		3111 B–2019		I–3850–78.[8]

TABLE IB—LIST OF APPROVED INORGANIC TEST PROCEDURES—Continued

Parameter	Methodology [58]	EPA [52]	Standard methods [84]	ASTM	USGS/AOAC/Other
	AA furnace		3113 B–2020.		
	STGFAA	200.9 Rev. 2.2 (1994).			
	ICP/AES	200.5 Rev. 4.2 (2003),[68] 200.7 Rev. 4.4 (1994).			
	ICP/MS	200.8 Rev. 5.4 (1994).	3125 B–2020	D5673–16	993.14.[3]
72. Titanium—Total,[4] mg/L.	Digestion,[4] followed by any of the following:				
	AA direct aspiration		3111 D–2019.		
	AA furnace	283.2 (Issued 1978).[1]			
	ICP/AES	200.7 Rev. 4.4 (1994).			
	ICP/MS	200.8 Rev. 5.4 (1994).	3125 B–2020	D5673–16	993.14.[3]
	DCP				See footnote.[34]
73. Turbidity, NTU [53]	Nephelometric	180.1, Rev. 2.0 (1993).	2130 B–2020	D1889–00	I–3860–85,[2] see footnotes.[65 66 67]
74. Vanadium—Total,[4] mg/L.	Digestion,[4] followed by any of the following:				
	AA direct aspiration		3111 D–2019.		
	AA furnace		3113 B–2020	D3373–17.	
	ICP/AES	200.5 Rev. 4.2 (2003),[68] 200.7 Rev. 4.4 (1994).	3120 B–2020	D1976–20	I–4471–97.[50]
	ICP/MS	200.8 Rev. 5.4 (1994).	3125 B–2020	D5673–16	993.14,[3] I–4020–05.[70]
	DCP			D4190–15	See footnote.[34]
	Colorimetric (Gallic Acid)		3500–V B–2011.		
75. Zinc—Total,[4] mg/L	Digestion,[4] followed by any of the following:				
	AA direct aspiration [36]		3111 B–2019 or 3111 C–2019.	D1691–17 (A or B)	974.27 [3] p. 37,[9] I–3900–85.[2]
	AA furnace	289.2 (Issued 1978).[1]			
	ICP/AES [36]	200.5 Rev. 4.2 (2003),[68] 200.7, Rev. 4.4 (1994).	3120 B–2020	D1976–20	I–4471–97.[50]
	ICP/MS	200.8 Rev. 5.4 (1994).	3125 B–2020	D5673–16	993.14,[3] I–4020–05,[70] I–4472–97.[81]
	DCP [36]			D4190–15	See footnote.[34]
	Colorimetric (Zincon)		3500 Zn B–2020		See footnote.[33]
76. Acid Mine Drainage		1627.[69]			

Table IB Notes:

[1] Methods for Chemical Analysis of Water and Wastes, EPA–600/4–79–020. Revised March 1983 and 1979, where applicable. U.S. EPA.

[2] Methods for Analysis of Inorganic Substances in Water and Fluvial Sediments, Techniques of Water-Resource Investigations of the U.S. Geological Survey, Book 5, Chapter A1., unless otherwise stated. 1989. USGS.

[3] Official Methods of Analysis of the Association of Official Analytical Chemists, Methods Manual, Sixteenth Edition, 4th Revision, 1998. AOAC International.

[4] For the determination of total metals (which are equivalent to total recoverable metals) the sample is not filtered before processing. A digestion procedure is required to solubilize analytes in suspended material and to break down organic-metal complexes (to convert the analyte to a detectable form for colorimetric analysis). For non-platform graphite furnace atomic absorption determinations, a digestion using nitric acid (as specified in Section 4.1.3 of Methods for Chemical Analysis of Water and Wastes) is required prior to analysis. The procedure used should subject the sample to gentle acid refluxing, and at no time should the sample be taken to dryness. For direct aspiration flame atomic absorption (FLAA) determinations, a combination acid (nitric and hydrochloric acids) digestion is preferred, prior to analysis. The approved total recoverable digestion is described as Method 200.2 in Supplement I of ''Methods for the Determination of Metals in Environmental Samples'' EPA/600R–94/111, May 1994, and is reproduced in EPA Methods 200.7, 200.8, and 200.9 from the same Supplement. However, when using the gaseous hydride technique or for the determination of certain elements such as antimony, arsenic, selenium, silver, and tin by non-EPA graphite furnace atomic absorption methods, mercury by cold vapor atomic absorption, the noble metals and titanium by FLAA, a specific or modified sample digestion procedure may be required, and, in all cases the referenced method write-up should be consulted for specific instruction and/or cautions. For analyses using inductively coupled plasma-atomic emission spectrometry (ICP–AES), the direct current plasma (DCP) technique or EPA spectrochemical techniques (platform furnace AA, ICP–AES, and ICP–MS), use EPA Method 200.2 or an approved alternate procedure (*e.g.,* CEM microwave digestion, which may be used with certain analytes as indicated in this table IB); the total recoverable digestion procedures in EPA Methods 200.7, 200.8, and 200.9 may be used for those respective methods. Regardless of the digestion procedure, the results of the analysis after digestion procedure are reported as ''total'' metals.

[5] Copper sulfate or other catalysts that have been found suitable may be used in place of mercuric sulfate.

[6] Manual distillation is not required if comparability data on representative effluent samples are on file to show that this preliminary distillation step is not necessary; however, manual distillation will be required to resolve any controversies. In general, the analytical method should be consulted regarding the need for distillation. If the method is not clear, the laboratory may compare a minimum of 9 different sample matrices to evaluate the need for distillation. For each matrix, a matrix spike and matrix spike duplicate are analyzed both with and without the distillation step (for a total of 36 samples, assuming 9 matrices). If results are comparable, the laboratory may dispense with the distillation step for future analysis. Comparable is defined as <20% RPD for all tested matrices). Alternatively, the two populations of spike recovery percentages may be compared using a recognized statistical test.

[7] Industrial Method Number 379–75 WE Ammonia, Automated Electrode Method, Technicon Auto Analyzer II. February 19, 1976. Bran & Luebbe Analyzing Technologies Inc.

[8] The approved method is that cited in Methods for Determination of Inorganic Substances in Water and Fluvial Sediments, Techniques of Water-Resources Investigations of the U.S. Geological Survey, Book 5, Chapter A1. 1979. USGS.

[9] American National Standard on Photographic Processing Effluents. April 2, 1975. American National Standards Institute.

[10] In-Situ Method 1003–8–2009, Biochemical Oxygen Demand (BOD) Measurement by Optical Probe. 2009. In-Situ Incorporated.

[11] The use of normal and differential pulse voltage ramps to increase sensitivity and resolution is acceptable.

[12] Carbonaceous biochemical oxygen demand ($CBOD_5$) must not be confused with the traditional BOD_5 test method which measures ''total 5-day BOD.'' The addition of the nitrification inhibitor is not a procedural option but must be included to report the $CBOD_5$ parameter. A discharger whose permit requires reporting the traditional BOD_5 may not use a nitrification inhibitor in the procedure for reporting the results. Only when a discharger's permit specifically states $CBOD_5$ is required can the permittee report data using a nitrification inhibitor.

[13] OIC Chemical Oxygen Demand Method. 1978. Oceanography International Corporation.

[14] Method 8000, Chemical Oxygen Demand, Hach Handbook of Water Analysis, 1979. Hach Company.

[15] The back-titration method will be used to resolve controversy.

[16] Orion Research Instruction Manual, Residual Chlorine Electrode Model 97–70. 1977. Orion Research Incorporated. The calibration graph for the Orion residual chlorine method must be derived using a reagent blank and three standard solutions, containing 0.2, 1.0, and 5.0 mL 0.00281 N potassium iodate/100 mL solution, respectively.

[17] Method 245.7, Mercury in Water by Cold Vapor Atomic Fluorescence Spectrometry, EPA–821–R–05–001. Revision 2.0, February 2005. US EPA.
[18] National Council of the Paper Industry for Air and Stream Improvement (NCASI) Technical Bulletin 253 (1971) and Technical Bulletin 803, May 2000.
[19] Method 8506, Bicinchoninate Method for Copper, Hach Handbook of Water Analysis. 1979. Hach Company.
[20] When using a method with block digestion, this treatment is not required.
[21] Industrial Method Number 378–75WA, Hydrogen ion (pH) Automated Electrode Method, Bran & Luebbe (Technicon) Autoanalyzer II. October 1976. Bran & Luebbe Analyzing Technologies.
[22] Method 8008, 1,10-Phenanthroline Method using FerroVer Iron Reagent for Water. 1980. Hach Company.
[23] Method 8034, Periodate Oxidation Method for Manganese, Hach Handbook of Wastewater Analysis. 1979. Hach Company.
[24] Methods for Analysis of Organic Substances in Water and Fluvial Sediments, Techniques of Water-Resources Investigations of the U.S. Geological Survey, Book 5, Chapter A3, (1972 Revised 1987). 1987. USGS.
[25] Method 8507, Nitrogen, Nitrite-Low Range, Diazotization Method for Water and Wastewater. 1979. Hach Company.
[26] Just prior to distillation, adjust the sulfuric-acid-preserved sample to pH 4 with 1 + 9 NaOH.
[27] The colorimetric reaction must be conducted at a pH of 10.0 ± 0.2.
[28] Addison, R.F., and R.G. Ackman. 1970. Direct Determination of Elemental Phosphorus by Gas-Liquid Chromatography, *Journal of Chromatography*, 47(3):421–426.
[29] Approved methods for the analysis of silver in industrial wastewaters at concentrations of 1 mg/L and above are inadequate where silver exists as an inorganic halide. Silver halides such as the bromide and chloride are relatively insoluble in reagents such as nitric acid but are readily soluble in an aqueous buffer of sodium thiosulfate and sodium hydroxide to pH of 12. Therefore, for levels of silver above 1 mg/L, 20 mL of sample should be diluted to 100 mL by adding 40 mL each of 2 M $Na_2S_2O_3$ and NaOH. Standards should be prepared in the same manner. For levels of silver below 1 mg/L the approved method is satisfactory.
[30] The use of EDTA decreases method sensitivity. Analysts may omit EDTA or replace with another suitable complexing reagent provided that all method-specified quality control acceptance criteria are met.
[31] For samples known or suspected to contain high levels of silver (*e.g.,* in excess of 4 mg/L), cyanogen iodide should be used to keep the silver in solution for analysis. Prepare a cyanogen iodide solution by adding 4.0 mL of concentrated NH_4OH, 6.5 g of KCN, and 5.0 mL of a 1.0 N solution of I_2 to 50 mL of reagent water in a volumetric flask and dilute to 100.0 mL. After digestion of the sample, adjust the pH of the digestate to <7 to prevent the formation of HCN under acidic conditions. Add 1 mL of the cyanogen iodide solution to the sample digestate and adjust the volume to 100 mL with reagent water (NOT acid). If cyanogen iodide is added to sample digestates, then silver standards must be prepared that contain cyanogen iodide as well. Prepare working standards by diluting a small volume of a silver stock solution with water and adjusting the pH≤7 with NH_4OH. Add 1 mL of the cyanogen iodide solution and let stand 1 hour. Transfer to a 100-mL volumetric flask and dilute to volume with water.
[32] ''Water Temperature-Influential Factors, Field Measurement and Data Presentation,'' Techniques of Water-Resources Investigations of the U.S. Geological Survey, Book 1, Chapter D1. 1975. USGS.
[33] Method 8009, Zincon Method for Zinc, Hach Handbook of Water Analysis, 1979. Hach Company.
[34] Method AES0029, Direct Current Plasma (DCP) Optical Emission Spectrometric Method for Trace Elemental Analysis of Water and Wastes. 1986—Revised 1991. Thermo Jarrell Ash Corporation.
[35] In-Situ Method 1004–8–2009, Carbonaceous Biochemical Oxygen Demand (CBOD) Measurement by Optical Probe. 2009. In-Situ Incorporated.
[36] Microwave-assisted digestion may be employed for this metal, when analyzed by this methodology. Closed Vessel Microwave Digestion of Wastewater Samples for Determination of Metals. April 16, 1992. CEM Corporation.
[37] When determining boron and silica, only plastic, PTFE, or quartz laboratory ware may be used from start until completion of analysis.
[38] Only use *n*-hexane (*n*-Hexane—85% minimum purity, 99.0% min. saturated C6 isomers, residue less than 1 mg/L) extraction solvent when determining Oil and Grease parameters—Hexane Extractable Material (HEM), or Silica Gel Treated HEM (analogous to EPA Methods 1664 Rev. A and 1664 Rev. B). Use of other extraction solvents is prohibited.
[39] Method PAI–DK01, Nitrogen, Total Kjeldahl, Block Digestion, Steam Distillation, Titrimetric Detection. Revised December 22, 1994. OI Analytical.
[40] Method PAI–DK02, Nitrogen, Total Kjeldahl, Block Digestion, Steam Distillation, Colorimetric Detection. Revised December 22, 1994. OI Analytical.
[41] Method PAI–DK03, Nitrogen, Total Kjeldahl, Block Digestion, Automated FIA Gas Diffusion. Revised December 22, 1994. OI Analytical.
[42] Method 1664 Rev. B is the revised version of EPA Method 1664 Rev. A. U.S. EPA. February 1999, Revision A. Method 1664, *n*-Hexane Extractable Material (HEM; Oil and Grease) and Silica Gel Treated *n*-Hexane Extractable Material (SGT–HEM; Non-polar Material) by Extraction and Gravimetry. EPA–821–R–98–002. U.S. EPA. February 2010, Revision B. Method 1664, *n*-Hexane Extractable Material (HEM; Oil and Grease) and Silica Gel Treated *n*-Hexane Extractable Material (SGT–HEM; Non-polar Material) by Extraction and Gravimetry. EPA–821–R–10–001.
[43] Method 1631, Revision E, Mercury in Water by Oxidation, Purge and Trap, and Cold Vapor Atomic Fluorescence Spectrometry, EPA–821–R–02–019. Revision E. August 2002, U.S. EPA. The application of clean techniques described in EPA's Method 1669: *Sampling Ambient Water for Trace Metals at EPA Water Quality Criteria Levels*, EPA–821–R–96–011, are recommended to preclude contamination at low-level, trace metal determinations.
[44] Method OIA–1677–09, Available Cyanide by Ligand Exchange and Flow Injection Analysis (FIA). 2010. OI Analytical.
[45] Open File Report 00–170, Methods of Analysis by the U.S. Geological Survey National Water Quality Laboratory—Determination of Ammonium Plus Organic Nitrogen by a Kjeldahl Digestion Method and an Automated Photometric Finish that Includes Digest Cleanup by Gas Diffusion. 2000. USGS.
[46] Open File Report 93–449, Methods of Analysis by the U.S. Geological Survey National Water Quality Laboratory—Determination of Chromium in Water by Graphite Furnace Atomic Absorption Spectrophotometry. 1993. USGS.
[47] Open File Report 97–198, Methods of Analysis by the U.S. Geological Survey National Water Quality Laboratory—Determination of Molybdenum by Graphite Furnace Atomic Absorption Spectrophotometry. 1997. USGS.
[48] Open File Report 92–146, Methods of Analysis by the U.S. Geological Survey National Water Quality Laboratory—Determination of Total Phosphorus by Kjeldahl Digestion Method and an Automated Colorimetric Finish That Includes Dialysis. 1992. USGS.
[49] Open File Report 98–639, Methods of Analysis by the U.S. Geological Survey National Water Quality Laboratory—Determination of Arsenic and Selenium in Water and Sediment by Graphite Furnace-Atomic Absorption Spectrometry. 1999. USGS.
[50] Open File Report 98–165, Methods of Analysis by the U.S. Geological Survey National Water Quality Laboratory—Determination of Elements in Whole-water Digests Using Inductively Coupled Plasma-Optical Emission Spectrometry and Inductively Coupled Plasma-Mass Spectrometry. 1998. USGS.
[51] Open File Report 93–125, Methods of Analysis by the U.S. Geological Survey National Water Quality Laboratory—Determination of Inorganic and Organic Constituents in Water and Fluvial Sediments. 1993. USGS.
[52] Unless otherwise indicated, all EPA methods, excluding EPA Method 300.1, are published in U.S. EPA. May 1994. Methods for the Determination of Metals in Environmental Samples, Supplement I, EPA/600/R–94/111; or U.S. EPA. August 1993. Methods for the Determination of Inorganic Substances in Environmental Samples, EPA/600/R–93/100. EPA Method 300.1 is U.S. EPA. Revision 1.0, 1997, including errata cover sheet April 27, 1999. Determination of Inorganic Ions in Drinking Water by Ion Chromatography.
[53] Styrene divinyl benzene beads (*e.g.,* AMCO–AEPA–1 or equivalent) and stabilized formazin (*e.g.,* Hach StablCal™ or equivalent) are acceptable substitutes for formazin.
[54] Waters Corp. Now included in ASTM D6508–15, Test Method for Determination of Dissolved Inorganic Anions in Aqueous Matrices Using Capillary Ion Electrophoresis and Chromate Electrolyte. 2015.
[55] Kelada-01, Kelada Automated Test Methods for Total Cyanide, Acid Dissociable Cyanide, and Thiocyanate, EPA 821–B–01–009, Revision 1.2, August 2001. US EPA. Note: A 450–W UV lamp may be used in this method instead of the 550–W lamp specified if it provides performance within the quality control (QC) acceptance criteria of the method in a given instrument. Similarly, modified flow cell configurations and flow conditions may be used in the method, provided that the QC acceptance criteria are met.
[56] QuikChem Method 10–204–00–1–X, Digestion and Distillation of Total Cyanide in Drinking and Wastewaters using MICRO DIST and Determination of Cyanide by Flow Injection Analysis. Revision 2.2, March 2005. Lachat Instruments.
[57] When using sulfide removal test procedures described in EPA Method 335.4, reconstitute particulate that is filtered with the sample prior to distillation.
[58] Unless otherwise stated, if the language of this table specifies a sample digestion and/or distillation ''followed by'' analysis with a method, approved digestion and/or distillation are required prior to analysis.
[59] Samples analyzed for available cyanide using OI Analytical method OIA–1677–09 or ASTM method D6888–16 that contain particulate matter may be filtered only after the ligand exchange reagents have been added to the samples, because the ligand exchange process converts complexes containing available cyanide to free cyanide, which is not removed by filtration. Analysts are further cautioned to limit the time between the addition of the ligand exchange reagents and sample filtration to no more than 30 minutes to preclude settling of materials in samples.
[60] Analysts should be aware that pH optima and chromophore absorption maxima might differ when phenol is replaced by a substituted phenol as the color reagent in Berthelot Reaction (''phenol-hypochlorite reaction'') colorimetric ammonium determination methods. For example, when phenol is used as the color reagent, pH optimum and wavelength of maximum absorbance are about 11.5 and 635 nm, respectively—see, Patton, C.J. and S.R. Crouch. March 1977. *Anal. Chem.* 49:464–469. These reaction parameters increase to pH > 12.6 and 665 nm when salicylate is used as the color reagent—see, Krom, M.D. April 1980. *The Analyst* 105:305–316.
[61] If atomic absorption or ICP instrumentation is not available, the aluminon colorimetric method detailed in the 19th Edition of *Standard Methods for the Examination of Water and Wastewater* may be used. This method has poorer precision and bias than the methods of choice.
[62] Easy (1-Reagent) Nitrate Method, Revision November 12, 2011. Craig Chinchilla.
[63] Hach Method 10360, Luminescence Measurement of Dissolved Oxygen in Water and Wastewater and for Use in the Determination of BOD_5 and $CBOD_5$. Revision 1.2, October 2011. Hach Company. This method may be used to measure dissolved oxygen when performing the methods approved in this table IB for measurement of biochemical oxygen demand (BOD) and carbonaceous biochemical oxygen demand (CBOD).
[64] In-Situ Method 1002–8–2009, Dissolved Oxygen (DO) Measurement by Optical Probe. 2009. In-Situ Incorporated.
[65] Mitchell Method M5331, Determination of Turbidity by Nephelometry. Revision 1.0, July 31, 2008. Leck Mitchell.

[66] Mitchell Method M5271, Determination of Turbidity by Nephelometry. Revision 1.0, July 31, 2008. Leck Mitchell.
[67] Orion Method AQ4500, Determination of Turbidity by Nephelometry. Revision 5, March 12, 2009. Thermo Scientific.
[68] EPA Method 200.5, Determination of Trace Elements in Drinking Water by Axially Viewed Inductively Coupled Plasma-Atomic Emission Spectrometry, EPA/600/R–06/115. Revision 4.2, October 2003. US EPA.
[69] Method 1627, Kinetic Test Method for the Prediction of Mine Drainage Quality, EPA–821–R–09–002. December 2011. US EPA.
[70] Techniques and Methods Book 5–B1, Determination of Elements in Natural-Water, Biota, Sediment and Soil Samples Using Collision/Reaction Cell Inductively Coupled Plasma-Mass Spectrometry, Chapter 1, Section B, Methods of the National Water Quality Laboratory, Book 5, Laboratory Analysis, 2006. USGS.
[71] Water-Resources Investigations Report 01–4132, Methods of Analysis by the U.S. Geological Survey National Water Quality Laboratory—Determination of Organic Plus Inorganic Mercury in Filtered and Unfiltered Natural Water with Cold Vapor-Atomic Fluorescence Spectrometry, 2001. USGS.
[72] USGS Techniques and Methods 5–B8, Chapter 8, Section B, Methods of the National Water Quality Laboratory Book 5, Laboratory Analysis, 2011 USGS.
[73] NECi Method N07–0003, ''Nitrate Reductase Nitrate-Nitrogen Analysis,'' Revision 9.0, March 2014, The Nitrate Elimination Co., Inc.
[74] Timberline Instruments, LLC Method Ammonia-001, ''Determination of Inorganic Ammonia by Continuous Flow Gas Diffusion and Conductivity Cell Analysis,'' June 2011, Timberline Instruments, LLC.
[75] Hach Company Method 10206, ''Spectrophotometric Measurement of Nitrate in Water and Wastewater,'' Revision 2.1, January 2013, Hach Company.
[76] Hach Company Method 10242, ''Simplified Spectrophotometric Measurement of Total Kjeldahl Nitrogen in Water and Wastewater,'' Revision 1.1, January 2013, Hach Company.
[77] National Council for Air and Stream Improvement (NCASI) Method TNTP–W10900, ''Total (Kjeldahl) Nitrogen and Total Phosphorus in Pulp and Paper Biologically Treated Effluent by Alkaline Persulfate Digestion,'' June 2011, National Council for Air and Stream Improvement, Inc.
[78] The pH adjusted sample is to be adjusted to 7.6 for NPDES reporting purposes.
[79] I–2057–85 in U.S. Geological Survey Techniques of Water-Resources Investigations, Book 5, Chap. A1, Methods for Determination of Inorganic Substances in Water and Fluvial Sediments, 1989.
[80] Methods I–2522–90, I–2540–90, and I–2601–90 in U.S. Geological Survey Open-File Report 93–125, Methods of Analysis by the U.S. Geological Survey National Water Quality Laboratory—Determination of Inorganic and Organic Constituents in Water and Fluvial Sediments, 1993.
[81] Method I–4472–97 in U.S. Geological Survey Open-File Report 98–165, Methods of Analysis by the U.S. Geological Survey National Water Quality Laboratory—Determination of Inorganic and Organic Constituents in Water and Fluvial Sediments, 1998.
[82] FIAlab 100, ''Determination of Inorganic Ammonia by Continuous Flow Gas Diffusion and Fluorescence Detector Analysis'', April 4, 2018, FIAlab Instruments, Inc.
[83] MACHEREY-NAGEL GmbH and Co. Method 036/038 NANOCOLOR® COD LR/HR, ''Spectrophotometric Measurement of Chemical Oxygen Demand in Water and Wastewater'', Revision 1.5, May 2018, MACHEREY-NAGEL GmbH and Co. KG.
[84] Please refer to the following applicable Quality Control Sections: Part 2000 Methods, Physical and Aggregate Properties 2020 (2021); Part 3000 Methods, Metals, 3020 (2021); Part 4000 Methods, Inorganic Nonmetallic Constituents, 4020 (2022); Part 5000 Methods, and Aggregate Organic Constituents, 5020 (2022). These Quality Control Standards are available for download at *www.standardmethods.org* at no charge.
[85] Each laboratory may establish its own control limits by performing at least 25 glucose-glutamic acid (GGA) checks over several weeks or months and calculating the mean and standard deviation. The laboratory may then use the mean ± 3 standard deviations as the control limit for future GGA checks. However, GGA acceptance criteria can be no wider than 198 ± 30.5 mg/L for BOD_5. GGA acceptance criteria for CBOD must be either 198 ± 30.5 mg/L, or the lab may develop control charts under the following conditions: dissolved oxygen uptake from the seed contribution is between 0.6–1.0 mg/L; control charts are performed on at least 25 GGA checks with three standard deviations from the derived mean; the RSD must not exceed 7.5%; and any single GGA value cannot be less than 150 mg/L or higher than 250 mg/L.
[86] The approved method is that cited in *Standard Methods for the Examination of Water and Wastewater,* 14th Edition, 1976.

TABLE IC—LIST OF APPROVED TEST PROCEDURES FOR NON-PESTICIDE ORGANIC COMPOUNDS

Parameter [1]	Method	EPA [2 7]	Standard methods [17]	ASTM	Other
1. Acenaphthene	GC	610.			
	GC/MS	625.1, 1625B	6410 B–2020		See footnote [9] p. 27.
	HPLC	610	6440 B–2021	D4657–92 (98).	
2. Acenaphthylene	GC	610.			
	GC/MS	625.1, 1625B	6410 B–2020		See footnote [9] p. 27.
	HPLC	610	6440 B–2021	D4657–92 (98).	
3. Acrolein	GC	603.			
	GC/MS	624.1 [4], 1624B.			
4. Acrylonitrile	GC	603.			
	GC/MS	624.1 [4], 1624B			O–4127–96.[13]
5. Anthracene	GC	610.			
	GC/MS	625.1, 1625B	6410 B–2020		See footnote [9] p. 27.
	HPLC	610	6440 B–2021	D4657–92 (98).	
6. Benzene	GC	602	6200 C–2020.		
	GC/MS	624.1, 1624B	6200 B–2020		O–4127–96 [13], O–4436–16.[14]
7. Benzidine	Spectro-photometric.				See footnote [3] p.1.
	GC/MS	625.1 [5], 1625B	6410 B–2020.		
	HPLC	605.			
8. Benzo(a)anthracene	GC	610.			
	GC/MS	625.1, 1625B	6410 B–2020		See footnote [9] p. 27.
	HPLC	610	6440 B–2021	D4657–92 (98).	
9. Benzo(a)pyrene	GC	610.			
	GC/MS	625.1, 1625B	6410 B–2020		See footnote [9] p. 27.
	HPLC	610	6440 B–2021	D4657–92 (98).	
10. Benzo(b)fluoranthene	GC	610.			
	GC/MS	625.1, 1625B	6410 B–2020		See footnote [9] p. 27.
	HPLC	610	6440 B–2021	D4657–92 (98).	
11. Benzo(g,h,i)perylene	GC	610.			
	GC/MS	625.1, 1625B	6410 B–2020		See footnote [9] p. 27.
	HPLC	610	6440 B–2021	D4657–92 (98).	
12. Benzo(k)fluoranthene	GC	610.			
	GC/MS	625.1, 1625B	6410 B–2020		See footnote [9] p. 27.
	HPLC	610	6440 B–2021	D4657–92 (98).	
13. Benzyl chloride	GC				See footnote [3] p. 130.
	GC/MS				See footnote [6] p. S102.
14. Butyl benzyl phthalate	GC	606.			
	GC/MS	625.1, 1625B	6410 B–2020		See footnote [9] p. 27.
15. bis(2-Chloroethoxy) methane	GC	611.			
	GC/MS	625.1, 1625B	6410 B–2020		See footnote [9] p. 27.
16. bis(2-Chloroethyl) ether	GC	611.			
	GC/MS	625.1, 1625B	6410 B–2020		See footnote [9] p. 27.
17. bis(2-Ethylhexyl) phthalate	GC	606.			
	GC/MS	625.1, 1625B	6410 B–2020		See footnote [9] p. 27.
18. Bromodichloromethane	GC	601	6200 C–2020.		
	GC/MS	624.1, 1624B	6200 B–2020		O–4127–96 [13], O–4436–16.[14]

TABLE IC—LIST OF APPROVED TEST PROCEDURES FOR NON-PESTICIDE ORGANIC COMPOUNDS—Continued

Parameter [1]	Method	EPA [2 7]	Standard methods [17]	ASTM	Other
19. Bromoform	GC	601	6200 C–2020.		
	GC/MS	624.1, 1624B	6200 B–2020		O–4127–96 [13], O–4436–16.[14]
20. Bromomethane	GC	601	6200 C–2020.		
	GC/MS	624.1, 1624B	6200 B–2020		O–4127–96 [13], O–4436–16.[14]
21. 4-Bromophenyl phenyl ether	GC	611.			
	GC/MS	625.1, 1625B	6410 B–2020		See footnote [9] p. 27.
22. Carbon tetrachloride	GC	601	6200 C–2020		See footnote [3] p. 130.
	GC/MS	624.1, 1624B	6200 B–2020		O–4127–96 [13], O–4436–16.[14]
23. 4-Chloro-3-methyl phenol	GC	604	6420 B–2021.		
	GC/MS	625.1, 1625B	6410 B–2020		See footnote [9] p. 27.
24. Chlorobenzene	GC	601, 602	6200 C–2020		See footnote [3] p. 130.
	GC/MS	624.1, 1624B	6200 B–2020		O–4127–96 [13] O–4436–16.[14]
25. Chloroethane	GC	601	6200 C–2020.		
	GC/MS	624.1, 1624B	6200 B–2020		O–4127–96.[13]
26. 2-Chloroethylvinyl ether	GC	601.			
	GC/MS	624.1, 1624B.			
27. Chloroform	GC	601	6200 C–2020		See footnote [3] p. 130.
	GC/MS	624.1, 1624B	6200 B–2020		O–4127–96 [13], O–4436–16.[14]
28. Chloromethane	GC	601	6200 C–2020.		
	GC/MS	624.1, 1624B	6200 B–2020		O–4127–96 [13], O–4436–16.[14]
29. 2-Chloronaphthalene	GC	612.			
	GC/MS	625.1, 1625B	6410 B–2020		See footnote [9] p. 27.
30. 2-Chlorophenol	GC	604	6420 B–2021.		
	GC/MS	625.1, 1625B	6410 B–2020		See footnote [9] p. 27.
31. 4-Chlorophenyl phenyl ether	GC	611.			
	GC/MS	625.1, 1625B	6410 B–2020		See footnote [9] p. 27.
32. Chrysene	GC	610.			
	GC/MS	625.1, 1625B	6410 B–2020		See footnote [9] p. 27.
	HPLC	610	6440 B–2021	D4657–92 (98).	
33. Dibenzo(a,h)anthracene	GC	610.			
	GC/MS	625.1, 1625B	6410 B–2020		See footnote [9] p. 27.
	HPLC	610	6440 B–2021	D4657–92 (98).	
34. Dibromochloromethane	GC	601	6200 C–2020.		
	GC/MS	624.1, 1624B	6200 B–2020		O–4127–96 [13], O–4436–16.[14]
35. 1,2-Dichlorobenzene	GC	601, 602	6200 C–2020.		
	GC/MS	624.1, 1625B	6200 B–2020		See footnote [9] p. 27, O–4127–96 [13], O–4436–16.[14]
36. 1,3-Dichlorobenzene	GC	601, 602	6200 C–2020.		
	GC/MS	624.1, 1625B	6200 B–2020		See footnote [9] p. 27, O–4127–96.[13]
37. 1,4-Dichlorobenzene	GC	601, 602	6200 C–2020.		
	GC/MS	624.1, 1625B	6200 B–2020		See footnote [9] p. 27, O–4127–96 [13], O–4436–16.[14]
38. 3,3′-Dichlorobenzidine	GC/MS	625.1, 1625B	6410 B–2020.		
	HPLC	605.			
39. Dichlorodifluoromethane	GC	601.			
	GC/MS		6200 B–2020		O–4127–96 [13], O–4436–16.[14]
40. 1,1-Dichloroethane	GC	601	6200 C–2020.		
	GC/MS	624.1, 1624B	6200 B–2020		O–4127–96 [13], O–4436–16.[14]
41. 1,2-Dichloroethane	GC	601	6200 C–2020.		
	GC/MS	624.1, 1624B	6200 B–2020		O–4127–96 [13], O–4436–16.[14]
42. 1,1-Dichloroethene	GC	601	6200 C–2020.		
	GC/MS	624.1, 1624B	6200 B–2020		O–4127–96 [13], O–4436–16.[14]
43. *trans*-1,2-Dichloroethene	GC	601	6200 C–2020.		
	GC/MS	624.1, 1624B	6200 B–2020		O–4127–96 [13], O–4436–16.[14]
44. 2,4-Dichlorophenol	GC	604	6420 B–2021.		
	GC/MS	625.1, 1625B	6410 B–2020		See footnote [9] p. 27.
45. 1,2-Dichloropropane	GC	601	6200 C–2020.		
	GC/MS	624.1, 1624B	6200 B–2020		O–4127–96 [13] O–4436–16.[14]
46. *cis*-1,3-Dichloropropene	GC	601	6200 C–2020.		
	GC/MS	624.1, 1624B	6200 B–2020		O–4127–96 [13], O–4436–16.[14]
47. *trans*-1,3-Dichloropropene	GC	601	6200 C–2020.		
	GC/MS	624.1, 1624B	6200 B–2020		O–4127–96 [13], O–4436–16.[14]
48. Diethyl phthalate	GC	606.			
	GC/MS	625.1, 1625B	6410 B–2020		See footnote [9] p. 27.
49. 2,4-Dimethylphenol	GC	604	6420 B–2021.		
	GC/MS	625.1, 1625B	6410 B–2020		See footnote [9] p. 27.
50. Dimethyl phthalate	GC	606.			
	GC/MS	625.1, 1625B	6410 B–2020		See footnote [9] p. 27.
51. Di-*n*-butyl phthalate	GC	606.			
	GC/MS	625.1, 1625B	6410 B–2020		See footnote [9] p. 27.
52. Di-*n*-octyl phthalate	GC	606.			
	GC/MS	625.1, 1625B	6410 B–2020		See footnote [9] p. 27.
53. 2, 4-Dinitrophenol	GC	604	6420 B–2021		See footnote [9] p. 27.
	GC/MS	625.1, 1625B	6410 B–2020.		
54. 2,4-Dinitrotoluene	GC	609.			
	GC/MS	625.1, 1625B	6410 B–2020		See footnote [9] p. 27.
55. 2,6-Dinitrotoluene	GC	609.			
	GC/MS	625.1, 1625B	6410 B–2020		See footnote [9] p. 27.
56. Epichlorohydrin	GC				See footnote [3] p. 130.
	GC/MS				See footnote [6] p. S102.

TABLE IC—LIST OF APPROVED TEST PROCEDURES FOR NON-PESTICIDE ORGANIC COMPOUNDS—Continued

Parameter [1]	Method	EPA [2 7]	Standard methods [17]	ASTM	Other
57. Ethylbenzene	GC	602	6200 C–2020.		
	GC/MS	624.1, 1624B	6200 B–2020		O–4127–96 [13], O–4436–16.[14]
58. Fluoranthene	GC	610.			
	GC/MS	625.1, 1625B	6410 B–2020		See footnote [9] p. 27.
	HPLC	610	6440 B–2021	D4657–92 (98)..	
59. Fluorene	GC	610.			
	GC/MS	625.1, 1625B	6410 B–2020		See footnote [9] p. 27.
	HPLC	610	6440 B–2021	D4657–92 (98).	
60. 1,2,3,4,6,7,8-Heptachloro-dibenzofuran.	GC/MS	1613B [10]			SGS AXYS 16130 [15], PAM 16130–SSI.[16]
61. 1,2,3,4,7,8,9-Heptachloro-dibenzofuran.	GC/MS	1613B [10]			SGS AXYS 16130 [15], PAM 16130–SSI.[16]
62. 1,2,3,4,6,7,8- Heptachloro-dibenzo-*p*-dioxin.	GC/MS	1613B [10]			SGS AXYS 16130 [15], PAM 16130–SSI.[16]
63. Hexachlorobenzene	GC	612.			
	GC/MS	625.1, 1625B	6410 B–2020		See footnote [9] p. 27.
64. Hexachlorobutadiene	GC	612.			
	GC/MS	625.1, 1625B	6410 B–2020		See footnote [9] p. 27, O–4127–96.[13]
65. Hexachlorocyclopentadiene	GC	612.			
	GC/MS	625.1 [5], 1625B	6410 B–2020		See footnote [9], p. 27, O–4127–96.[13]
66. 1,2,3,4,7,8-Hexachloro-dibenzofuran.	GC/MS	1613B [10]			SGS AXYS 16130 [15], PAM 16130–SSI.[16]
67. 1,2,3,6,7,8-Hexachloro-dibenzofuran.	GC/MS	1613B [10]			SGS AXYS 16130 [15], PAM 16130–SSI.[16]
68. 1,2,3,7,8,9-Hexachloro-dibenzofuran.	GC/MS	1613B [10]			SGS AXYS 16130 [15], PAM 16130–SSI.[16]
69. 2,3,4,6,7,8-Hexachloro-dibenzofuran.	GC/MS	1613B [10]			SGS AXYS 16130 [15], PAM 16130–SSI.[16]
70. 1,2,3,4,7,8-Hexachloro-dibenzo-*p*-dioxin.	GC/MS	1613B [10]			SGS AXYS 16130 [15], PAM 16130–SSI.[16]
71. 1,2,3,6,7,8-Hexachloro-dibenzo-*p*-dioxin.	GC/MS	1613B [10]			SGS AXYS 16130 [15], PAM 16130–SSI.[16]
72. 1,2,3,7,8,9-Hexachloro-dibenzo-*p*-dioxin.	GC/MS	1613B [10]			SGS AXYS 16130 [15], PAM 16130–SSI.[16]
73. Hexachloroethane	GC	612.			
	GC/MS	625.1, 1625B	6410 B–2020		See footnote [9] p. 27, O–4127–96.[13]
74. Indeno(1,2,3-c,d) pyrene	GC	610.			
	GC/MS	625.1, 1625B	6410 B–2020		See footnote [9] p. 27.
	HPLC	610	6440 B–2021	D4657–92 (98).	
75. Isophorone	GC	609.			
	GC/MS	625.1, 1625B	6410 B–2020		See footnote [9] p. 27.
76. Methylene chloride	GC	601	6200 C–2020		See footnote [3] p. 130.
	GC/MS	624.1, 1624B	6200 B–2020		O–4127–96 [13], O–4436–16.[14]
77. 2-Methyl-4,6-dinitrophenol	GC	604	6420 B–2021.		
	GC/MS	625.1, 1625B	6410 B–2020		See footnote [9] p. 27.
78. Naphthalene	GC	610.			
	GC/MS	625.1, 1625B	6410 B–2020		See footnote [9] p. 27.
	HPLC	610	6440 B–2021.		
79. Nitrobenzene	GC	609.			
	GC/MS	625.1, 1625B	6410 B–2020		See footnote [9] p. 27.
	HPLC			D4657–92 (98).	
80. 2-Nitrophenol	GC	604	6420 B–2021.		
	GC/MS	625.1, 1625B	6410 B–2020		See footnote [9] p. 27.
81. 4-Nitrophenol	GC	604	6420 B–2021.		
	GC/MS	625.1, 1625B	6410 B–2020		See footnote [9] p. 27.
82. N-Nitrosodimethylamine	GC	607.			
	GC/MS	625.1 [5], 1625B	6410 B–2020		See footnote [9] p. 27.
83. N-Nitrosodi-*n*-propylamine	GC	607.			
	GC/MS	625.1 [5], 1625B	6410 B–2020		See footnote [9] p. 27.
84. N-Nitrosodiphenylamine	GC	607.			
	GC/MS	625.1 [5], 1625B	6410 B–2020		See footnote [9] p. 27.
85. Octachlorodibenzofuran	GC/MS	1613B [10]			SGS AXYS 16130 [15], PAM 16130–SSI.[16]
86. Octachlorodibenzo-*p*-dioxin	GC/MS	1613B [10]			SGS AXYS 16130 [15], PAM 16130–SSI.[16]
87. 2,2′-oxybis(1-chloropropane) [12] [also known as bis(2-Chloro-1-methylethyl) ether].	GC	611.			
	GC/MS	625.1, 1625B	6410 B–2020		See footnote [9] p. 27.
88. PCB–1016	GC	608.3			See footnote [3] p. 43, see footnote.[8]
	GC/MS	625.1	6410 B–2020.		
89. PCB–1221	GC	608.3			See footnote [3] p. 43, see footnote.[8]
	GC/MS	625.1	6410 B–2020.		
90. PCB–1232	GC	608.3			See footnote [3] p. 43, see footnote.[8]
	GC/MS	625.1	6410 B–2020.		
91. PCB–1242	GC	608.3			See footnote [3] p. 43, see footnote.[8]
	GC/MS	625.1	6410 B–2020.		
92. PCB–1248	GC	608.3			See footnote [3] p. 43, see footnote.[8]
	GC/MS	625.1	6410 B–2020.		
93. PCB–1254	GC	608.3			See footnote [3] p. 43, see footnote.[8]

TABLE IC—LIST OF APPROVED TEST PROCEDURES FOR NON-PESTICIDE ORGANIC COMPOUNDS—Continued

Parameter [1]	Method	EPA [2 7]	Standard methods [17]	ASTM	Other
	GC/MS	625.1	6410 B–2020.		
94. PCB–1260	GC	608.3			See footnote [3] p. 43, see footnote.[8]
	GC/MS	625.1	6410 B–2020.		
95. 1,2,3,7,8-Pentachloro-dibenzofuran.	GC/MS	1613B [10]			SGS AXYS 16130 [15], PAM 16130–SSI.[16]
96. 2,3,4,7,8-Pentachloro-dibenzofuran.	GC/MS	1613B [10]			SGS AXYS 16130 [15], PAM 16130–SSI.[16]
97. 1,2,3,7,8-Pentachloro-dibenzo-*p*-dioxin.	GC/MS	1613B [10]			SGS AXYS 16130 [15], PAM 16130–SSI.[16]
98. Pentachlorophenol	GC	604	6420 B–2021		See footnote [3] p. 140.
	GC/MS	625.1, 1625B	6410 B–2020		See footnote [9] p. 27.
99. Phenanthrene	GC	610.			
	GC/MS	625.1, 1625B	6410 B–2020		See footnote [9] p. 27.
	HPLC	610	6440 B–2021	D4657–92 (98).	
100. Phenol	GC	604	6420 B–2021.		
	GC/MS	625.1, 1625B	6410 B–2020		See footnote [9] p. 27.
101. Pyrene	GC	610.			
	GC/MS	625.1, 1625B	6410 B–2020		See footnote [9] p. 27.
	HPLC	610	6440 B–2021	D4657–92 (98)..	
102. 2,3,7,8-Tetrachloro-dibenzofuran	GC/MS	1613B [10]			SGS AXYS 16130 [15], PAM 16130–SSI.[16]
103. 2,3,7,8-Tetrachloro-dibenzo-*p*-dioxin.	GC/MS	613, 625.1 [5], 1613B.			SGS AXYS 16130 [15], PAM 16130–SSI.[16]
104. 1,1,2,2-Tetrachloroethane	GC	601	6200 C–2020		See footnote [3] p. 130.
	GC/MS	624.1, 1624B	6200 B–2020		O–4127–96.[13]
105. Tetrachloroethene	GC	601	6200 C–2020		See footnote [3] p. 130.
	GC/MS	624.1, 1624B	6200 B–2020		O–4127–96 [13], O–4436–16.[14]
106. Toluene	GC	602	6200 C–2020.		
	GC/MS	624.1, 1624B	6200 B–2020		O–4127–96 [13], O–4436–16.[14]
107. 1,2,4-Trichlorobenzene	GC	612			See footnote [3] p. 130.
	GC/MS	625.1, 1625B	6410 B–2020		See footnote [9] p. 27, O–4127–96 [13], O–4436–16.[14]
108. 1,1,1-Trichloroethane	GC	601	6200 C–2020.		
	GC/MS	624.1, 1624B	6200 B–2020		O–4127–96 [13], O–4436–16.[14]
109. 1,1,2-Trichloroethane	GC	601	6200 C–2020		See footnote [3] p. 130.
	GC/MS	624.1, 1624B	6200 B–2020		O–4127–96 [13], O–4436–16.[14]
110. Trichloroethene	GC	601	6200 C–2020.		
	GC/MS	624.1, 1624B	6200 B–2020		O–4127–96 [13], O–4436–16.[14]
111. Trichlorofluoromethane	GC	601	6200 C–2020.		
	GC/MS	624.1	6200 B–2020		O–4127–96.[13]
112. 2,4,6-Trichlorophenol	GC	604	6420 B–2021.		
	GC/MS	625.1, 1625B	6410 B–2020		See footnote [9] p. 27.
113. Vinyl chloride	GC	601	6200 C–2020.		
	GC/MS	624.1, 1624B	6200 B–2020		O–4127–96 [13], O–4436–16.[14]
114. Nonylphenol	GC/MS			D7065–17.	
115. Bisphenol A (BPA)	GC/MS			D7065–17.	
116. *p-tert*-Octylphenol (OP)	GC/MS			D7065–17.	
117. Nonylphenol Monoethoxylate (NP1EO).	GC/MS			D7065–17.	
118. Nonylphenol Diethoxylate (NP2EO).	GC/MS			D7065–17.	
119. Adsorbable Organic Halides (AOX).	Adsorption and Coulometric Titration.	1650.[11]			
120. Chlorinated Phenolics	In Situ Acetylation and GC/MS.	1653.[11]			

Table IC notes:

[1] All parameters are expressed in micrograms per liter (µg/L) except for Method 1613B, in which the parameters are expressed in picograms per liter (pg/L).

[2] The full text of Methods 601–613, 1613B, 1624B, and 1625B are provided at appendix A, Test Procedures for Analysis of Organic Pollutants. The standardized test procedure to be used to determine the method detection limit (MDL) for these test procedures is given at appendix B of this part, Definition and Procedure for the Determination of the Method Detection Limit. These methods are available at: *https://www.epa.gov/cwa-methods* as individual PDF files.

[3] Methods for Benzidine: Chlorinated Organic Compounds, Pentachlorophenol and Pesticides in Water and Wastewater. September 1978. U.S. EPA.

[4] Method 624.1 may be used for quantitative determination of acrolein and acrylonitrile, provided that the laboratory has documentation to substantiate the ability to detect and quantify these analytes at levels necessary to comply with any associated regulations. In addition, the use of sample introduction techniques other than simple purge-and-trap may be required. QC acceptance criteria from Method 603 should be used when analyzing samples for acrolein and acrylonitrile in the absence of such criteria in Method 624.1.

[5] Method 625.1 may be extended to include benzidine, hexachlorocyclopentadiene, N-nitrosodimethylamine, N-nitrosodi-*n*-propylamine, and N-nitrosodiphenylamine. However, when they are known to be present, Methods 605, 607, and 612, or Method 1625B, are preferred methods for these compounds. Method 625.1 may be applied to 2,3,7,8-Tetrachloro-dibenzo-*p*-dioxin for screening purposes only.

[6] Selected Analytical Methods Approved and Cited by the United States Environmental Protection Agency, Supplement to the 15th Edition of *Standard Methods for the Examination of Water and Wastewater.* 1981. American Public Health Association (APHA).

[7] Each analyst must make an initial, one-time demonstration of their ability to generate acceptable precision and accuracy with Methods 601–603, 1624B, and 1625B in accordance with procedures in Section 8.2 of each of these methods. Additionally, each laboratory, on an on-going basis must spike and analyze 10% (5% for Methods 624.1 and 625.1 and 100% for methods 1624B and 1625B) of all samples to monitor and evaluate laboratory data quality in accordance with Sections 8.3 and 8.4 of these methods. When the recovery of any parameter falls outside the quality control (QC) acceptance criteria in the pertinent method, analytical results for that parameter in the unspiked sample are suspect. The results should be reported but cannot be used to demonstrate regulatory compliance. If the method does not contain QC acceptance criteria, control limits of ±three standard deviations around the mean of a minimum of five replicate measurements must be used. These quality control requirements also apply to the Standard Methods, ASTM Methods, and other methods cited.

[8] Organochlorine Pesticides and PCBs in Wastewater Using Empore™ Disk. Revised October 28, 1994. 3M Corporation.

[9] Method O–3116–87 is in Open File Report 93–125, Methods of Analysis by U.S. Geological Survey National Water Quality Laboratory—Determination of Inorganic and Organic Constituents in Water and Fluvial Sediments. 1993. USGS.

[10] Analysts may use Fluid Management Systems, Inc. Power-Prep system in place of manual cleanup provided the analyst meets the requirements of Method 1613B (as specified in Section 9 of the method) and permitting authorities. Method 1613, Revision B, Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution HRGC/HRMS. Revision B, 1994. U.S. EPA. The full text of this method is provided in appendix A to this part and at *https://www.epa.gov/cwa-methods/approved-cwa-test-methods-organic-compounds.*

[11] Method 1650, Adsorbable Organic Halides by Adsorption and Coulometric Titration. Revision C, 1997 U.S. EPA. Method 1653, Chlorinated Phenolics in Wastewater by In Situ Acetylation and GCMS. Revision A, 1997 U.S. EPA. The full text for both of these methods is provided at appendix A in part 430 of this chapter, The Pulp, Paper, and Paperboard Point Source Category.

[12] The compound was formerly inaccurately labeled as 2,2′-oxybis(2-chloropropane) and bis(2-chloroisopropyl) ether. Some versions of Methods 611, and 1625 inaccurately list the analyte as ''bis(2-chloroisopropyl) ether,'' but use the correct CAS number of 108–60–1.

[13] Method O–4127–96, U.S. Geological Survey Open-File Report 97–829, Methods of analysis by the U.S. Geological Survey National Water Quality Laboratory—Determination of 86 volatile organic compounds in water by gas chromatography/mass spectrometry, including detections less than reporting limits,1998, USGS.

[14] Method O–4436–16 U.S. Geological Survey Techniques and Methods, book 5, chap. B12, Determination of heat purgeable and ambient purgeable volatile organic compounds in water by gas chromatography/mass spectrometry, 2016, USGS.

[15] SGS AXYS Method 16130, ''Determination of 2,3,7,8-Substituted Tetra- through Octa-Chlorinated Dibenzo-*p*-Dioxins and Dibenzofurans (CDDs/CDFs) Using Waters and Agilent Gas Chromatography-Tandem-Mass Spectrometry (GC/MS/MS), Revision 1.0'' is available at: *https://www.sgsaxys.com/wp-content/uploads/2022/09/SGS-AXYS-Method-16130-Rev-1.0.pdf.*

[16] Pace Analytical Method PAM–16130–SSI, ''Determination of 2,3,7,8-Substituted Tetra- through Octa-Chlorinated Dibenzo-*p*-Dioxins and Dibenzofurans (CDDs/CDFs) Using Shimadzu Gas Chromatography Mass Spectrometry (GC–MS/MS), Revision 1.1,'' is available at: *pacelabs.com.*

[17] Please refer to the following applicable Quality Control Section: Part 6000 Individual Organic Compounds, 6020 (2019). The Quality Control Standards are available for download at standardmethods.org at no charge.

TABLE ID—LIST OF APPROVED TEST PROCEDURES FOR PESTICIDES [1]

Parameter	Method	EPA [2 7 10]	Standard methods [15]	ASTM	Other
1. Aldrin	GC	617, 608.3	6630 B–2021 & C–2021.	D3086–90, D5812–96 (02).	See footnote [3] p. 7, see footnote [4] O–3104–83, see footnote [8] 3M0222.
	GC/MS	625.1	6410 B–2020.		
2. Ametryn	GC	507, 619			See footnote [3] p. 83, see footnote [9] O–3106–93, see footnote [6] p. S68.
	GC/MS	525.2, 625.1			See footnote [14] O–1121–91.
3. Aminocarb	TLC				See footnote [3] p. 94, see footnote [6] p. S60.
	HPLC	632.			
4. Atraton	GC	619			See footnote [3] p. 83, see footnote [6] p. S68.
	GC/MS	625.1.			
5. Atrazine	GC	507, 619, 608.3			See footnote [3] p. 83, see footnote [6] p. S68, see footnote [9] O–3106–93.
	HPLC/MS				See footnote [12] O–2060–01.
	GC/MS	525.1, 525.2, 625.1.			See footnote [11] O–1126–95.
6. Azinphos methyl	GC	614, 622, 1657			See footnote [3] p. 25, see footnote [6] p. S51.
	GC–MS	625.1			See footnote [11] O–1126–95.
7. Barban	TLC				See footnote [3] p. 104, see footnote [6] p. S64.
	HPLC	632.			
	GC/MS	625.1.			
8. α-BHC	GC	617, 608.3	6630 B–2021 & C–2021.	D3086–90, D5812–96(02).	See footnote [3] p. 7, see footnote [8] 3M0222.
	GC/MS	625.1 [5]	6410 B–2020		See footnote [11] O–1126–95.
9. β-BHC	GC	617, 608.3	6630 B–2021 & C–2021.	D3086–90, D5812–96(02).	See footnote [8] 3M0222.
	GC/MS	625.1	6410 B–2020.		
10. δ-BHC	GC	617, 608.3	6630 B–2021 & C–2021.	D3086–90, D5812–96(02).	See footnote [8] 3M0222.
	GC/MS	625.1	6410 B–2020..		
11. γ-BHC (Lindane)	GC	617, 608.3	6630 B–2021 & C–2021.	D3086–90, D5812–96(02).	See footnote [3] p. 7, see footnote [4], O–3104–83, see footnote [8] 3M0222.
	GC/MS	625.1 [5]	6410 B–2020		See footnote [11], O–1126–95.
12. Captan	GC	617, 608.3	6630 B–2021	D3086–90, D5812–96(02).	See footnote [3] p. 7.
13. Carbaryl	TLC				See footnote [3] p. 94, see footnote [6] p. S60.
	HPLC	531.1, 632.			
	HPLC/MS	553			See footnote [12] O–2060–01.
	GC/MS	625.1			See footnote [11] O–1126–95.
14. Carbophenothion	GC	617, 608.3	6630 B–2021		See footnote [4] page 27, see footnote [6] p. S73.
	GC/MS	625.1.			
15. Chlordane	GC	617, 608.3	6630 B–2021 & C–2021.	D3086–90, D5812–96(02).	See footnote [3] p. 7, see footnote [4] O–3104–83, see footnote [8] 3M0222.
	GC/MS	625.1	6410 B–2020.		
16. Chloropropham	TLC				See footnote [3] p. 104, see footnote [6] p. S64.
	HPLC	632.			
	GC/MS	625.1.			
17. 2,4–D	GC	615	6640 B–2021		See footnote [3] p. 115, see footnote [4] O–3105–83.
	HPLC/MS				See footnote [12] O–2060–01.
18. 4,4′-DDD	GC	617, 608.3	6630 B–2021 & C–2021.	D3086–90, D5812–96(02).	See footnote [3] p. 7, see footnote [4] O–3105–83, see footnote [8] 3M0222.
	GC/MS	625.1	6410 B–2020.		
19. 4,4′-DDE	GC	617, 608.3	6630 B–2021 & C–2021.	D3086–90, D5812–96(02).	See footnote [3] p. 7, see footnote [4], O–3104–83, see footnote [8] 3M0222.
	GC/MS	625.1	6410 B–2020		See footnote [11] O–1126–95.

TABLE ID—LIST OF APPROVED TEST PROCEDURES FOR PESTICIDES [1]—Continued

Parameter	Method	EPA [2 7 10]	Standard methods [15]	ASTM	Other
20. 4,4′-DDT	GC	617, 608.3	6630 B–2021 & C–2021.	D3086–90, D5812–96(02).	See footnote [3] p. 7, see footnote [4] O–3104–83, see footnote [8] 3M0222.
	GC/MS	625.1	6410 B–2020.		
21. Demeton-O	GC	614, 622			See footnote [3] p. 25, see footnote [6] p. S51.
	GC/MS	625.1			
22. Demeton-S.	GC	614, 622			See footnote [3] p. 25, see footnote [6]p. S51.
	GC/MS	625.1.			
23. Diazinon	GC	507, 614, 622, 1657.			See footnote [3] p. 25, see footnote [4] O–3104–83, see footnote [6] p. S51.
	GC/MS	525.2, 625.1			See footnote [11] O–1126–95.
24. Dicamba	GC	615			See footnote [3] p. 115.
	HPLC/MS				See footnote [12] O–2060–01.
25. Dichlofenthion	GC	622.1			See footnote [4] page 27, see footnote [6] p. S73.
26. Dichloran	GC	608.2, 617, 608.3	6630 B–2021		See footnote [3] p. 7.
27. Dicofol	GC	617, 608.3			See footnote [4] O–3104–83.
28. Dieldrin	GC	617, 608.3	6630 B–2021 & C–2021.	D3086–90, D5812–96(02).	See footnote [3] p. 7, see footnote [4] O–3104–83, see footnote [8] 3M0222.
	GC/MS	625.1	6410 B–2020		See footnote [11] O–1126–95.
29. Dioxathion	GC	614.1, 1657			See footnote [4] page 27, see footnote [6] p. S73.
30. Disulfoton	GC	507, 614, 622, 1657.			See footnote [3] p. 25, see footnote [6] p. S51.
	GC/MS	525.2, 625.1			See footnote [11] O–1126–95.
31. Diuron	TLC				See footnote [3] p. 104, see footnote [6] p. S64.
	HPLC	632.			
	HPLC/MS	553			See footnote [12] O–2060–01.
32. Endosulfan I	GC	617, 608.3	6630 B–2021 & C–2021.	D3086–90, D5812–96(02).	See footnote [3] p. 7, see footnote [4] O–3104–83, see footnote [8] 3M0222.
	GC/MS	625.1 [5]	6410 B–2020		See footnote [13] O–2002–01.
33. Endosulfan II	GC	617, 608.3	6630 B–2021 & C–2021.	D3086–90, D5812–96(02).	See footnote [3] p. 7, see footnote [8] 3M0222.
	GC/MS	625.1 [5]	6410 B–2020		See footnote [13] O–2002–01.
34. Endosulfan Sulfate	GC	617, 608.3	6630 C–2021		See footnote [8] 3M0222.
	GC/MS	625.1	6410 B–2020.		
35. Endrin	GC	505, 508, 617, 1656, 608.3.	6630 B–2021 & C–2021.	D3086–90, D5812–96(02).	See footnote [3] p. 7, see footnote [4] O–3104–83, see footnote [8] 3M0222.
	GC/MS	525.1, 525.2, 625.1 [5].	6410 B–2020.		
36. Endrin aldehyde	GC	617, 608.3	6630 C–2021		See footnote [8] 3M0222.
	GC/MS	625.1	6410 B–2020..		
37. Ethion	GC	614, 614.1, 1657 ..			See footnote [4] page 27, see footnote [6], p. S73.
	GC/MS	625.1			See footnote [13] O–2002–01.
38. Fenuron	TLC				See footnote [3] p. 104, see footnote [6] p. S64.
	HPLC	632.			
	HPLC/MS				See footnote [12] O–2060–01.
39. Fenuron-TCA	TLC				See footnote [3] p. 104, see footnote [6] p. S64.
	HPLC	632.			
40. Heptachlor	GC	505, 508, 617, 1656, 608.3.	6630 B–2021 & C–2021.	D3086–90, D5812–96(02).	See footnote [3] p. 7, see footnote [4] O–3104–83, see footnote [8] 3M0222.
	GC/MS	525.1, 525.2, 625.1.	6410 B–2020.		
41. Heptachlor epoxide	GC	617, 608.3	6630 B–2021 & C–2021.	D3086–90, D5812–96(02).	See footnote [3] p. 7, see footnote [4] O–3104–83, see footnote [6] p. S73, see footnote [8] 3M0222.
	GC/MS	625.1	6410 B–2020.		
42. Isodrin	GC	617, 608.3	6630 B–2021 & C–2021.		See footnote [4] O–3104–83, see footnote [6] p. S73.
	GC/MS	625.1.			
43. Linuron	GC				See footnote [3] p. 104, see footnote [6] p. S64.
	HPLC	632.			
	HPLC/MS	553			See footnote [12] O–2060–01.
	GC/MS				See footnote [11] O–1126–95.
44. Malathion	GC	614, 1657	6630 B–2021		See footnote [3] p. 25, see footnote [6] p. S51.
	GC/MS	625.1			See footnote [11] O–1126–95.
45. Methiocarb	TLC				See footnote [3] p. 94, see footnote [6] p. S60.
	HPLC	632.			
	HPLC/MS				See footnote [12] O–2060–01.
46. Methoxychlor	GC	505, 508, 608.2, 617, 1656, 608.3.	6630 B–2021 & C–2021.	D3086–90, D5812–96(02).	See footnote [3] p. 7, see footnote [4] O–3104–83, see footnote [8] 3M0222.
	GC/MS	525.1, 525.2, 625.1.			See footnote [11] O–1126–95.

TABLE ID—LIST OF APPROVED TEST PROCEDURES FOR PESTICIDES [1]—Continued

Parameter	Method	EPA [2 7 10]	Standard methods [15]	ASTM	Other
47. Mexacarbate	TLC				See footnote [3] p. 94, see footnote [6] p. S60.
	HPLC	632.			
	GC/MS	625.1.			
48. Mirex	GC	617, 608.3	6630 B–2021 & C–2021.	D3086–90, D5812–96(02).	See footnote [3] p. 7, see footnote [4] O–3104–83.
	GC/MS	625.1.			
49. Monuron	TLC				See footnote [3] p. 104, see footnote [6] p. S64.
	HPLC	632.			
50. Monuron-TCA	TLC				See footnote [3] p. 104, see footnote [6] p. S64.
	HPLC	632.			
51. Neburon	TLC				See footnote [3] p. 104, see footnote [6] p. S64.
	HPLC	632.			
	HPLC/MS				See footnote [12] O–2060–01.
52. Parathion methyl	GC	614, 622, 1657	6630 B–2021		See footnote [4] page 27, see footnote [3] p. 25.
	GC/MS	625.1			See footnote [11] O–1126–95.
53. Parathion ethyl	GC	614	6630 B–2021		See footnote [4] page 27, see footnote [3] p. 25.
	GC/MS				See footnote [11] O–1126–95.
54. PCNB	GC	608.1, 617, 608.3	6630 B–2021 & C–2021.	D3086–90, D5812–96(02).	See footnote [3] p. 7.
55. Perthane	GC	617, 608.3		D3086–90, D5812–96(02).	See footnote [4] O–3104–83.
56. Prometon	GC	507, 619			See footnote [3] p. 83, see footnote [6] p. S68, see footnote [9] O–3106–93.
	GC/MS	525.2, 625.1			See footnote [11] O–1126–95.
57. Prometryn	GC	507, 619			See footnote [3] p. 83, see footnote [6] p. S68, see footnote [9] O–3106–93.
	GC/MS	525.1, 525.2, 625.1.			See footnote [13] O–2002–01.
58. Propazine	GC	507, 619, 1656, 608.3.			See footnote [3] p. 83, see footnote [6] p. S68, see footnote [9] O–3106–93.
	GC/MS	525.1, 525.2, 625.1			
59. Propham	TLC				See footnote [3] p. 10, see footnote [6] p. S64.
	HPLC	632.			
	HPLC/MS				See footnote [12] O–2060–01.
60. Propoxur	TLC				See footnote [3] p. 94, see footnote [6], p. S60.
	HPLC	632.			
61. Secbumeton	TLC				See footnote [3] p. 83, see footnote [6] p. S68.
	GC	619.			
62. Siduron	TLC				See footnote [3] p. 104, see footnote [6] p. S64.
	HPLC	632.			
	HPLC/MS				See footnote [12] O–2060–01.
63. Simazine	GC	505, 507, 619, 1656, 608.3.			See footnote [3] p. 83, see footnote [6] p. S68, see footnote [9] O–3106–93.
	GC/MS	525.1, 525.2, 625.1.			See footnote [11] O–1126–95.
64. Strobane	GC	617, 608.3	6630 B–2021 & C–2021.		See footnote [3] p. 7.
65. Swep	TLC				See footnote [3] p. 104, see footnote [6] p. S64.
	HPLC	632.			
66. 2,4,5–T	GC	615	6640 B–2021		See footnote [3] p. 115, see footnote [4] O–3105–83.
67. 2,4,5–TP (Silvex)	GC	615	6640 B–2021		See footnote [3] p. 115, see footnote [4] O–3105–83.
68. Terbuthylazine	GC	619, 1656, 608.3 ..			See footnote [3] p. 83, see footnote [6] p. S68.
	GC/MS				See footnote [13] O–2002–01.
69. Toxaphene	GC	505, 508, 617, 1656, 608.3.	6630 B–2021 & C–2021.	D3086–90, D5812–96(02).	See footnote [3] p. 7, see footnote [8], see footnote [4] O–3105–83.
	GC/MS	525.1, 525.2, 625.1.	6410 B–2020.		
70. Trifluralin	GC	508, 617, 627, 1656, 608.3.	6630 B–2021		See footnote [3] p. 7, see footnote [9] O–3106–93.
	GC/MS	525.2, 625.1			See footnote [11] O–1126–95.

Table ID notes:

[1] Pesticides are listed in this table by common name for the convenience of the reader. Additional pesticides may be found under table IC of this section, where entries are listed by chemical name.

[2] The standardized test procedure to be used to determine the method detection limit (MDL) for these test procedures is given at appendix B to this part, Definition and Procedure for the Determination of the Method Detection Limit.

[3] Methods for Benzidine, Chlorinated Organic Compounds, Pentachlorophenol and Pesticides in Water and Wastewater. September 1978. U.S. EPA. This EPA publication includes thin-layer chromatography (TLC) methods.
[4] Methods for the Determination of Organic Substances in Water and Fluvial Sediments, Techniques of Water-Resources Investigations of the U.S. Geological Survey, Book 5, Chapter A3. 1987. USGS.
[5] The method may be extended to include α-BHC, γ-BHC, endosulfan I, endosulfan II, and endrin. However, when they are known to exist, Method 608 is the preferred method.
[6] Selected Analytical Methods Approved and Cited by the United States Environmental Protection Agency, Supplement to the 15th Edition of *Standard Methods for the Examination of Water and Wastewater.*1981. American Public Health Association (APHA).
[7] Each analyst must make an initial, one-time, demonstration of their ability to generate acceptable precision and accuracy with Methods 608.3 and 625.1 in accordance with procedures given in Section 8.2 of each of these methods. Additionally, each laboratory, on an on-going basis, must spike and analyze 10% of all samples analyzed with Method 608.3 or 5% of all samples analyzed with Method 625.1 to monitor and evaluate laboratory data quality in accordance with Sections 8.3 and 8.4 of these methods. When the recovery of any parameter falls outside the warning limits, the analytical results for that parameter in the unspiked sample are suspect. The results should be reported, but cannot be used to demonstrate regulatory compliance. These quality control requirements also apply to the Standard Methods, ASTM Methods, and other methods cited.
[8] Organochlorine Pesticides and PCBs in Wastewater Using Empore™ Disk. Revised October 28, 1994. 3M Corporation.
[9] Method O–3106–93 is in Open File Report 94–37, Methods of Analysis by the U.S. Geological Survey National Water Quality Laboratory—Determination of Triazine and Other Nitrogen-Containing Compounds by Gas Chromatography with Nitrogen Phosphorus Detectors. 1994. USGS.
[10] EPA Methods 608.1, 608.2, 614, 614.1, 615, 617, 619, 622, 622.1, 627, and 632 are found in Methods for the Determination of Nonconventional Pesticides in Municipal and Industrial Wastewater, EPA 821–R–92–002, April 1992, U.S. EPA. EPA Methods 505, 507, 508, 525.1, 531.1 and 553 are in Methods for the Determination of Nonconventional Pesticides in Municipal and Industrial Wastewater, Volume II, EPA 821–R–93–010B, 1993, U.S. EPA. EPA Method 525.2 is in Determination of Organic Compounds in Drinking Water by Liquid-Solid Extraction and Capillary Column Gas Chromatography/Mass Spectrometry, Revision 2.0, 1995, U.S. EPA. EPA methods 1656 and 1657 are in Methods for The Determination of Nonconventional Pesticides In Municipal and Industrial Wastewater, Volume I, EPA 821–R–93–010A, 1993, U.S. EPA. Methods 608.3 and 625.1 are available at: cwa-methods/approved-cwa-test-methods-organic-compounds.
[11] Method O–1126–95 is in Open-File Report 95–181, Methods of Analysis by the U.S. Geological Survey National Water Quality Laboratory—Determination of pesticides in water by C–18 solid-phase extraction and capillary-column gas chromatography/mass spectrometry with selected-ion monitoring. 1995. USGS.
[12] Method O–2060–01 is in Water-Resources Investigations Report 01–4134, Methods of Analysis by the U.S. Geological Survey National Water Quality Laboratory—Determination of Pesticides in Water by Graphitized Carbon-Based Solid-Phase Extraction and High-Performance Liquid Chromatography/Mass Spectrometry. 2001. USGS.
[13] Method O–2002–01 is in Water-Resources Investigations Report 01–4098, Methods of Analysis by the U.S. Geological Survey National Water Quality Laboratory—Determination of moderate-use pesticides in water by C–18 solid-phase extraction and capillary-column gas chromatography/mass spectrometry. 2001. USGS.
[14] Method O–1121–91 is in Open-File Report 91–519, Methods of Analysis by the U.S. Geological Survey National Water Quality Laboratory—Determination of organonitrogen herbicides in water by solid-phase extraction and capillary-column gas chromatography/mass spectrometry with selected-ion monitoring. 1992. USGS.
[15] Please refer to the following applicable Quality Control Section: Part 6000 Methods, Individual Organic Compounds 6020 (2019). These Quality Control Standards are available for download at *www.standardmethods.org* at no charge.

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TABLE IH—LIST OF APPROVED MICROBIOLOGICAL METHODS FOR AMBIENT WATER

Parameter and units	Method [1]	EPA	Standard methods	AOAC, ASTM, USGS	Other
		Bacteria			
1. Coliform (fecal), number per 100 mL.	Most Probable Number (MPN), 5 tube, 3 dilution, or.	p. 132 [3]	9221 E–2014, 9221 F–2014. [32]		
	Membrane filter (MF) [2], single step	p. 124 [3]	9222 D–2015 [26]	B–0050–85. [4]	
2. Coliform (total), number per 100 mL.	MPN, 5 tube, 3 dilution, or	p. 114 [3]	9221 B–2014.		
	MF [2], single step or	p. 108 [3]	9222 B–2015 [27]	B–0025–85. [4]	
	MF [2], two step with enrichment	p. 111 [3]	9222 B–2015. [27]		
3. *E. coli,* number per 100 mL.	MPN [5 7 13], multiple tube, or		9221 B.3–2014/9221 F–2014. [10 12 32]		
	Multiple tube/multiple well, or		9223 B–2016 [11]	991.15 [9]	Colilert® [11 15], Colilert-18®. [11 14 15]
	MF [2 5 6 7], two step, or	1103.2 [18]	9222 B–2015/9222 I–2015 [17], 9213 D–2007.	D5392–93. [8]	
	Single step	1603.1 [19], 1604 [20]			m-ColiBlue24® [16], KwikCount™ EC. [28 29]
4. Fecal streptococci, number per 100 mL.	MPN, 5 tube, 3 dilution, or	p. 139 [3]	9230 B–2013.		
	MF [2], or	p. 136 [3]	9230 C–2013 [30]	B–0055–85. [4]	
	Plate count	p. 143. [3]			
5. Enterococci, number per 100 mL.	MPN [5 7], multiple tube/multiple well, or		9230 D–2013	D6503–99 [8]	Enterolert®. [11 21]
	MF [2 5 6 7] two step, or	1106.2 [22]	9230 C–2013 [30]	D5259–92. [8]	
	Single step, or	1600.1 [23]	9230 C–2013. [30]		
	Plate count	p. 143. [3]			
		Protozoa			
6. *Cryptosporidium*	Filtration/IMS/FA	1622 [24], 1623 [25], 1623.1. [25 31]			
7. *Giardia*	Filtration/IMS/FA	1623 [25], 1623.1. [25 31]			

Table 1H notes:
[1] The method must be specified when results are reported.
[2] A 0.45-μm membrane filter (MF) or other pore size certified by the manufacturer to fully retain organisms to be cultivated and to be free of extractables which could interfere with their growth.
[3] Microbiological Methods for Monitoring the Environment, Water and Wastes. EPA/600/8–78/017. 1978. US EPA.
[4] U.S. Geological Survey Techniques of Water-Resource Investigations, Book 5, Laboratory Analysis, Chapter A4, Methods for Collection and Analysis of Aquatic Biological and Microbiological Samples. 1989. USGS.
[5] Tests must be conducted to provide organism enumeration (density). Select the appropriate configuration of tubes/filtrations and dilutions/volumes to account for the quality, character, consistency, and anticipated organism density of the water sample.
[6] When the MF method has not been used previously to test waters with high turbidity, large numbers of noncoliform bacteria, or samples that may contain organisms stressed by chlorine, a parallel test should be conducted with a multiple-tube technique to demonstrate applicability and comparability of results.
[7] To assess the comparability of results obtained with individual methods, it is suggested that side-by-side tests be conducted across seasons of the year with the water samples routinely tested in accordance with the most current *Standard Methods for the Examination of Water and Wastewater* or EPA alternate test procedure (ATP) guidelines.

[8] Annual Book of ASTM Standards—Water and Environmental Technology. Section 11.02. 2000, 1999, 1996. ASTM International.
[9] Official Methods of Analysis of AOAC International, 16th Edition, Volume I, Chapter 17. 1995. AOAC International.
[10] The multiple-tube fermentation test is used in 9221B.3–2014. Lactose broth may be used in lieu of lauryl tryptose broth (LTB), if at least 25 parallel tests are conducted between this broth and LTB using the water samples normally tested, and this comparison demonstrates that the false-positive rate and false-negative rate for total coliform using lactose broth is less than 10 percent. No requirement exists to run the completed phase on 10 percent of all total coliform-positive tubes on a seasonal basis.
[11] These tests are collectively known as defined enzyme substrate tests.
[12] After prior enrichment in a presumptive medium for total coliform using 9221B.3–2014, all presumptive tubes or bottles showing any amount of gas, growth or acidity within 48 h ± 3 h of incubation shall be submitted to 9221F–2014. Commercially available EC–MUG media or EC media supplemented in the laboratory with 50 µg/mL of MUG may be used.
[13] Samples shall be enumerated by the multiple-tube or multiple-well procedure. Using multiple-tube procedures, employ an appropriate tube and dilution configuration of the sample as needed and report the Most Probable Number (MPN). Samples tested with Colilert® may be enumerated with the multiple-well procedures, Quanti-Tray® or Quanti-Tray®/2000, and the MPN calculated from the table provided by the manufacturer.
[14] Colilert-18® is an optimized formulation of the Colilert® for the determination of total coliforms and *E. coli* that provides results within 18 h of incubation at 35 °C, rather than the 24 h required for the Colilert® test and is recommended for marine water samples.
[15] Descriptions of the Colilert®, Colilert-18®, Quanti-Tray supreg;, and Quanti-Tray®/2000 may be obtained from IDEXX Laboratories Inc.
[16] A description of the mColiBlue24® test may be obtained from Hach Company.
[17] Subject coliform positive samples determined by 9222B–2015 or other membrane filter procedure to 9222I–2015 using NA–MUG media.
[18] Method 1103.2: *Escherichia coli* (*E. coli*) in Water by Membrane Filtration Using membrane-Thermotolerant *Escherichia coli* Agar (mTEC), EPA–821–R–23–009. September 2023. US EPA.
[19] Method 1603.1: *Escherichia coli* (*E. coli*) in Water by Membrane Filtration Using Modified membrane-Thermotolerant *Escherichia coli* Agar (Modified mTEC), EPA–821–R–23–008. September 2023 . US EPA.
[20] Method 1604: Total Coliforms and *Escherichia coli* (*E. coli*) in Water by Membrane Filtration by Using a Simultaneous Detection Technique (MI Medium), EPA 821–R–02–024. September 2002. US EPA.
[21] A description of the Enterolert® test may be obtained from IDEXX Laboratories Inc.
[22] Method 1106.2: Enterococci in Water by Membrane Filtration Using membrane-*Enterococcus*-Esculin Iron Agar (mE–EIA), EPA–821–R–23–007. September 2023. US EPA.
[23] Method 1600.1: Enterococci in Water by Membrane Filtration Using membrane-*Enterococcus* Indoxyl-β-D-Glucoside Agar (mEI), EPA–821–R–21–006. September 2023. US EPA.
[24] Method 1622 uses a filtration, concentration, immunomagnetic separation of oocysts from captured material, immunofluorescence assay to determine concentrations, and confirmation through vital dye staining and differential interference contrast microscopy for the detection of *Cryptosporidium.* Method 1622: *Cryptosporidium* in Water by Filtration/IMS/FA, EPA–821–R–05–001. December 2005. US EPA.
[25] Methods 1623 and 1623.1 use a filtration, concentration, immunomagnetic separation of oocysts and cysts from captured material, immunofluorescence assay to determine concentrations, and confirmation through vital dye staining and differential interference contrast microscopy for the simultaneous detection of *Cryptosporidium* and *Giardia* oocysts and cysts. Method 1623: *Cryptosporidium* and *Giardia* in Water by Filtration/IMS/FA. EPA–821–R–05–002. December 2005. US EPA. Method 1623.1: *Cryptosporidium* and *Giardia* in Water by Filtration/IMS/FA. EPA 816–R–12–001. January 2012. US EPA.
[26] On a monthly basis, at least ten blue colonies from positive samples must be verified using Lauryl Tryptose Broth and EC broth, followed by count adjustment based on these results; and representative non-blue colonies should be verified using Lauryl Tryptose Broth. Where possible, verifications should be done from randomized sample sources.
[27] On a monthly basis, at least ten sheen colonies from positive samples must be verified using Lauryl Tryptose Broth and brilliant green lactose bile broth, followed by count adjustment based on these results; and representative non-sheen colonies should be verified using Lauryl Tryptose Broth. Where possible, verifications should be done from randomized sample sources.
[28] A description of KwikCount™ EC may be obtained from Roth Bioscience, LLC.
[29] Approved for the analyses of *E. coli* in freshwater only.
[30] Verification of colonies by incubation of BHI agar at 10 ± 0.5 °C for 48 ± 3 h is optional. As per the Errata to the 23rd Edition of *Standard Methods for the Examination of Water and Wastewater* ''Growth on a BHI agar plate incubated at 10 ± 0.5 °C for 48 ± 3 h is further verification that the colony belongs to the genus Enterococcus.''
[31] Method 1623.1 includes updated acceptance criteria for IPR, OPR, and MS/MSD and clarifications and revisions based on the use of Method 1623 for years and technical support questions.
[32] 9221 F.2–2014 allows for simultaneous detection of *E. coli* and thermotolerant fecal coliforms by adding inverted vials to EC–MUG; the inverted vials collect gas produced by thermotolerant fecal coliforms.

(b) The material listed in this paragraph (b) is incorporated by reference into this section with the approval of the Director of the Federal Register under 5 U.S.C. 552(a) and 1 CFR part 51. All approved incorporation by reference (IBR) material is available for inspection at the EPA and at the National Archives and Records Administration (NARA). Contact the EPA at: EPA's Water Docket, EPA West, 1301 Constitution Avenue NW, Room 3334, Washington, DC 20004; telephone: 202–566–2426; email: *docket-customerservice@epa.gov.* For information on the availability of this material at NARA, visit *www.archives.gov/federal-register/cfr/ibr-locations* or email *fr.inspection@nara.gov.* The material may be obtained from the following sources in this paragraph (b).

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(8) Office of Water, U.S. Environmental Protection Agency (U.S. EPA), mail code 4303T, 1301 Constitution Avenue NW, Washington, DC 20460; website: *www.epa.gov/cwa-methods.*

(i) Method 245.7, Mercury in Water by Cold Vapor Atomic Fluorescence Spectrometry. Revision 2.0, February 2005. EPA–821–R–05–001. Table IB, Note 17.

(ii) Method 1103.2: *Escherichia coli (E. coli)* in Water by Membrane Filtration Using membrane-Thermotolerant *Escherichia coli* Agar (mTEC), EPA–821–R–23–009. September 2023. Table IH, Note 18.

(iii) Method 1106.2: Enterococci in Water by Membrane Filtration Using membrane-*Enterococcus*-Esculin Iron Agar (mE–EIA), EPA–821–R–23–007. September 2023. Table IH, Note 22.

(iv) Method 1600.1: Enterococci in Water by Membrane Filtration Using membrane-*Enterococcus* Indoxyl-β-D-Glucoside Agar (mEI), EPA–821–R–23–006, September 2023. Table 1A, Note 24; Table IH, Note 23.

(v) Method 1603.1: *Escherichia coli (E. coli)* in Water by Membrane Filtration Using Modified membrane-Thermotolerant *Escherichia coli* Agar (Modified mTEC), EPA–821–R–23–008, September 2023. Table IA, Note 21; Table IH, Note 19.

(vi) Method 1604: Total Coliforms and *Escherichia coli* (*E. coli*) in Water by Membrane Filtration Using a Simultaneous Detection Technique (MI Medium). September 2002. EPA–821–R–02–024. Table IH, Note 21.

(vii) Whole Effluent Toxicity Methods Errata Sheet, EPA 821–R–02–012–ES. December 2016, Table IA, Notes 25, 26, and 27.

(viii) Method 1623: *Cryptosporidium* and *Giardia* in Water by Filtration/IMS/FA. December 2005. EPA–821–R–05–002. Table IH, Note 26.

(ix) Method 1623.1: *Cryptosporidium* and *Giardia* in Water by Filtration/IMS/FA. EPA 816–R–12–001. January 2012. U.S. EPA, Table IH, Notes 25 and 31.

(x) Method 1627, Kinetic Test Method for the Prediction of Mine Drainage Quality. December 2011. EPA–821–R–09–002. Table IB, Note 69.

(xi) Method 1664, *n*-Hexane Extractable Material (HEM; Oil and Grease) and Silica Gel Treated *n*-Hexane Extractable Material (SGT–HEM; Nonpolar Material) by Extraction and Gravimetry. Revision A, February 1999. EPA–821–R–98–002. Table IB, Notes 38 and 42.

(xii) Method 1664, *n*-Hexane Extractable Material (HEM; Oil and Grease) and Silica Gel Treated *n*-Hexane

Extractable Material (SGT–HEM; Nonpolar Material) by Extraction and Gravimetry, Revision B, February 2010. EPA–821–R–10–001. Table IB, Notes 38 and 42.

(xiii) Method 1669, Sampling Ambient Water for Trace Metals at EPA Water Quality Criteria Levels. July 1996. Table IB, Note 43.

(xiv) Method 1680: Fecal Coliforms in Sewage Sludge (Biosolids) by Multiple-Tube Fermentation using Lauryl Tryptose Broth (LTB) and EC Medium. September 2014. EPA–821–R–14–009.Table IA, Note 15.

(xv) Method 1681: Fecal Coliforms in Sewage Sludge (Biosolids) by Multiple-Tube Fermentation using A–1 Medium. July 2006. EPA 821–R–06–013. Table IA, Note 20.

(xvi) Method 1682: *Salmonella* in Sewage Sludge (Biosolids) by Modified Semisolid Rappaport-Vassiliadis (MSRV) Medium. September 2014. EPA 821–R–14–012. Table IA, Note 23.

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(10) American Public Health Association, 800 I Street, NW, Washington, DC 20001; phone: (202)777–2742, website: *www.standardmethods.org.*

(i) *Standard Methods for the Examination of Water and Wastewater.* 14th Edition, 1975. Table IB, Notes 27 and 86.

(ii) Standard Methods for the Examination of Water and Wastewater. 15th Edition, 1980, Table IB, Note 30; Table ID.

(iii) Selected Analytical Methods Approved and Cited by the United States Environmental Protection Agency, Supplement to the 15th Edition of Standard Methods for the Examination of Water and Wastewater. 1981. Table IC, Note 6; Table ID, Note 6.

(iv) Standard Methods for the Examination of Water and Wastewater. 18th Edition, 1992. Tables IA, IB, IC, ID, IE, and IH.

(v) Standard Methods for the Examination of Water and Wastewater. 19th Edition, 1995. Tables IA, IB, IC, ID, IE, and IH.

(vi) Standard Methods for the Examination of Water and Wastewater. 20th Edition, 1998. Tables IA, IB, IC, ID, IE, and IH.

(vii) Standard Methods for the Examination of Water and Wastewater. 21st Edition, 2005. Table IB, Notes 17 and 27.

(viii) 2120, Color. Revised September 4, 2021. Table IB.

(ix) 2130, Turbidity. Revised 2020. Table IB.

(x) 2310, Acidity. Revised 2020. Table IB.

(xi) 2320, Alkalinity. Revised 2021. Table IB.

(xii) 2340, Hardness. Revised 2021. Table IB.

(xiii) 2510, Conductivity. Revised 2021. Table IB.

(xiv) 2540, Solids. Revised 2020. Table IB.

(xv) 2550, Temperature. 2010. Table IB.

(xvi) 3111, Metals by Flame Atomic Absorption Spectrometry. Revised 2019. Table IB.

(xvii) 3112, Metals by Cold-Vapor Atomic Absorption Spectrometry. Revised 2020. Table IB.

(xviii) 3113, Metals by Electrothermal Atomic Absorption Spectrometry. Revised 2020. Table IB.

(xix) 3114, Arsenic and Selenium by Hydride Generation/Atomic Absorption Spectrometry. Revised 2020, Table IB.

(xx) 3120, Metals by Plasma Emission Spectroscopy. Revised 2020. Table IB.

(xxi) 3125, Metals by Inductively Coupled Plasma-Mass Spectrometry. Revised 2020. Table IB.

(xxii) 3500-Al, Aluminum. Revised 2020. Table IB.

(xxiii) 3500-As, Arsenic. Revised 2020. Table IB.

(xxiv) 3500-Ca, Calcium. Revised 2020. Table IB.

(xxv) 3500-Cr, Chromium. Revised 2020. Table IB.

(xxvi) 3500-Cu, Copper. Revised 2020. Table IB.

(xxvii) 3500-Fe, Iron. 2011. Table IB.

(xxviii) 3500-Pb, Lead. Revised 2020. Table IB.

(xxix) 3500-Mn, Manganese. Revised 2020. Table IB.

(xxx) 3500–K, Potassium. Revised 2020. Table IB.

(xxxi) 3500-Na, Sodium. Revised 2020. Table IB.

(xxxii) 3500–V, Vanadium. 2011. Table IB.

(xxxiii) 3500-Zn, Zinc. Revised 2020. Table IB.

(xxxiv) 4110, Determination of Anions by Ion Chromatography. Revised 2020. Table IB.

(xxxv) 4140, Inorganic Anions by Capillary Ion Electrophoresis. Revised 2020. Table IB.

(xxxvi) 4500–B, Boron. 2011. Table IB.

(xxxvii) 4500 Cl^-, Chloride. Revised 2021. Table IB.

(xxxviii) 4500-Cl, Chlorine (Residual). 2011. Table IB.

(xxxix) 4500–CN^-, Cyanide. Revised 2021. Table IB.

(xl) 4500–F^-, Fluoride. Revised 2021. Table IB.

(xli) 4500–H^+, pH. 2021. Table IB.

(xlii) 4500–NH_3, Nitrogen (Ammonia). Revised 2021. Table IB.

(xliii) 4500–NO_2^-, Nitrogen (Nitrite). Revised 2021. Table IB.

(xliv) 4500–NO_3^-, Nitrogen (Nitrate). Revised 2019. Table IB.

(xlv) 4500–$N_{(org)}$, Nitrogen (Organic). Revised 2021. Table IB.

(xlvi) 4500–O, Oxygen (Dissolved). Revised 2021. Table IB.

(xlvii) 4500–P, Phosphorus. Revised 2021. Table IB.

(xlviii) 4500-SiO_2, Silica. Revised 2021. Table IB.

(xlix) 4500–S^{2-}, Sulfide. Revised 2021. Table IB.

(l) 4500–SO_3^{2-}, Sulfite. Revised 2021. Table IB.

(li) 4500–SO_4^{2-}, Sulfate. Revised 2021. Table IB.

(lii) 5210, Biochemical Oxygen Demand (BOD). Revised 2016. Table IB.

(liii) 5220, Chemical Oxygen Demand (COD). 2011. Table IB.

(liv) 5310, Total Organic Carbon (TOC). Revised 2014. Table IB.

(lv) 5520, Oil and Grease. Revised 2021. Table IB.

(lvi) 5530, Phenols. Revised 2021. Table IB.

(lvii) 5540, Surfactants. Revised 2021. Table IB.

(lviii) 6200, Volatile Organic Compounds. Revised 2020. Table IC.

(lix) 6410, Extractable Base/Neutrals and Acids. Revised 2020. Tables IC and ID.

(lx) 6420, Phenols. Revised 2021. Table IC.

(lxi) 6440, Polynuclear Aromatic Hydrocarbons. Revised 2021. Table IC.

(lxii) 6630, Organochlorine Pesticides. Revised 2021. Table ID.

(lxiii) 6640, Acidic Herbicide Compounds. Revised 2021. Table ID.

(lxiv) 7110, Gross Alpha and Gross Beta Radioactivity (Total, Suspended, and Dissolved). 2000. Table IE.

(lxv) 7500, Radium. 2001. Table IE.

(lxvi) 9213, Recreational Waters. 2007. Table IH.

(lxvii) 9221, Multiple-Tube Fermentation Technique for Members of the Coliform Group. Approved 2014. Table IA, Notes 12, 14; and 33; Table IH, Notes 10, 12, and 32.

(lxviii) 9222, Membrane Filter Technique for Members of the Coliform Group. 2015. Table IA, Note 31; Table IH, Note 17.

(lxix) 9223 Enzyme Substrate Coliform Test. 2016. Table IA; Table IH.

(lxx) 9230 Fecal Enterococcus/ Streptococcus Groups. 2013. Table IA, Note 32; Table IH.

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(15) ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428–2959; phone: (877)909–2786; website: *www.astm.org.*

(i) Annual Book of ASTM Standards, Water, and Environmental Technology, Section 11, Volumes 11.01 and 11.02. 1994. Tables IA, IB, IC, ID, IE, and IH.

(ii) Annual Book of ASTM Standards, Water, and Environmental Technology, Section 11, Volumes 11.01 and 11.02. 1996. Tables IA, IB, IC, ID, IE, and IH.

(iii) Annual Book of ASTM Standards, Water, and Environmental Technology, Section 11, Volumes 11.01 and 11.02. 1999. Tables IA, IB, IC, ID, IE, and IH.

(iv) Annual Book of ASTM Standards, Water, and Environmental Technology, Section 11, Volumes 11.01 and 11.02. 2000. Tables IA, IB, IC, ID, IE, and IH.

(v) ASTM D511–14, Standard Test Methods for Calcium and Magnesium in Water. Approved October 1, 2014. Table IB.

(vi) ASTM D512–12, Standard Test Methods for Chloride Ion in Water. Approved June 15, 2012. Table IB.

(vii) ASTM D515–88, Test Methods for Phosphorus in Water, March 1989. Table IB.

(viii) ASTM D516–16, Standard Test Method for Sulfate Ion in Water. Approved June 1, 2016. Table IB.

(ix) ASTM D858–17, Standard Test Methods for Manganese in Water. Approved June 1, 2017. Table IB.

(x) ASTM D859–16, Standard Test Method for Silica in Water. Approved June 15, 2016. Table IB.

(xi) ASTM D888–18, Standard Test Methods for Dissolved Oxygen in Water. Approved May 1, 2018. Table IB.

(xii) ASTM D1067–16, Standard Test Methods for Acidity or Alkalinity of Water. Approved June 15, 2016. Table IB.

(xiii) ASTM D1068–15, Standard Test Methods for Iron in Water. Approved October 1, 2015. Table IB.

(xiv) ASTM D1125–95 (Reapproved 1999), Standard Test Methods for Electrical Conductivity and Resistivity of Water. December 1995. Table IB.

(xv) ASTM D1126–17, Standard Test Method for Hardness in Water. Approved December 1, 2017. Table IB.

(xvi) ASTM D1179–16, Standard Test Methods for Fluoride Ion in Water. Approved June 15, 2016. Table IB.

(xvii) ASTM D1246–16, Standard Test Method for Bromide Ion in Water. June 15, 2016. Table IB.

(xviii) ASTM D1252–06 (Reapproved 2012), Standard Test Methods for Chemical Oxygen Demand (Dichromate Oxygen Demand) of Water. Approved June 15, 2012. Table IB.

(xix) ASTM D1253–14, Standard Test Method for Residual Chlorine in Water. Approved January 15, 2014. Table IB.

(xx) ASTM D1293–18, Standard Test Methods for pH of Water. Approved January 15, 2018. Table IB.

(xxi) ASTM D1426–15, Standard Test Methods for Ammonia Nitrogen in Water. Approved March 15, 2015. Table IB.

(xxii) ASTM D1687–17, Standard Test Methods for Chromium in Water. Approved June 1, 2017. Table IB.

(xxiii) ASTM D1688–17, Standard Test Methods for Copper in Water. Approved June 1, 2017. Table IB.

(xxiv) ASTM D1691–17, Standard Test Methods for Zinc in Water. Approved June 1, 2017. Table IB.

(xxv) ASTM D1783–01 (Reapproved 2012), Standard Test Methods for Phenolic Compounds in Water. Approved June 15, 2012. Table IB.

(xxvi) ASTM D1886–14, Standard Test Methods for Nickel in Water. Approved October 1, 2014. Table IB.

(xxvii) ASTM D1889–00, Standard Test Method for Turbidity of Water. October 2000. Table IB.

(xxviii) ASTM D1890–96, Standard Test Method for Beta Particle Radioactivity of Water. April 1996. Table IE.

(xxix) ASTM D1943–96, Standard Test Method for Alpha Particle Radioactivity of Water. April 1996. Table IE.

(xxx) ASTM D1976–20, Standard Test Method for Elements in Water by Inductively-Coupled Argon Plasma Atomic Emission Spectroscopy. Approved May 1, 2020. Table IB.

(xxxi) ASTM D2036–09 (Reapproved 2015), Standard Test Methods for Cyanides in Water. Approved July 15, 2015. Table IB.

(xxxii) ASTM D2330–20, Standard Test Method for Methylene Blue Active Substances. Approved January 1, 2020. Table 1B.

(xxxiii) ASTM D2460–97, Standard Test Method for Alpha-Particle-Emitting Isotopes of Radium in Water. October 1997. Table IE.

(xxxiv) ASTM D2972–15, Standard Tests Method for Arsenic in Water. Approved February 1, 2015. Table IB.

(xxxv) ASTM D3223–17, Standard Test Method for Total Mercury in Water. Approved June 1, 2017. Table IB.

(xxxvi) ASTM D3371–95, Standard Test Method for Nitriles in Aqueous Solution by Gas-Liquid Chromatography, February 1996. Table IF.

(xxxvii) ASTM D3373–17, Standard Test Method for Vanadium in Water. Approved June 1, 2017. Table IB.

(xxxviii) ASTM D3454–97, Standard Test Method for Radium-226 in Water. February 1998. Table IE.

(xxxix) ASTM D3557–17, Standard Test Method for Cadmium in Water. Approved June 1, 2017. Table IB.

(xl) ASTM D3558–15, Standard Test Method for Cobalt in Water. Approved February 1, 2015. Table IB.

(xli) ASTM D3559–15, Standard Test Methods for Lead in Water. Approved June 1, 2015. Table IB.

(xlii) ASTM D3590–17, Standard Test Methods for Total Kjeldahl Nitrogen in Water. Approved June 1, 2017. Table IB.

(xliii) ASTM D3645–15, Standard Test Methods for Beryllium in Water. Approved February 1, 2015. Table IB.

(xliv) ASTM D3695–95, Standard Test Method for Volatile Alcohols in Water by Direct Aqueous-Injection Gas Chromatography. April 1995. Table IF.

(xlv) ASTM D3859–15, Standard Test Methods for Selenium in Water. Approved March 15, 2015. Table IB.

(xlvi) ASTM D3867–16, Standard Test Method for Nitrite-Nitrate in Water. Approved June 1, 2016. Table IB.

(xlvii) ASTM D4190–15, Standard Test Method for Elements in Water by Direct- Current Plasma Atomic Emission Spectroscopy. Approved February 1, 2015. Table IB.

(xlviii) ASTM D4282–15, Standard Test Method for Determination of Free Cyanide in Water and Wastewater by Microdiffusion. Approved July 15, 2015. Table IB.

(xlix) ASTM D4327–17, Standard Test Method for Anions in Water by Suppressed Ion Chromatography. Approved December 1, 2017. Table IB.

(l) ASTM D4382–18, Standard Test Method for Barium in Water, Atomic Absorption Spectrophotometry, Graphite Furnace. Approved February 1, 2018. Table IB.

(li) ASTM D4657–92 (Reapproved 1998), Standard Test Method for Polynuclear Aromatic Hydrocarbons in Water. January 1993. Table IC.

(lii) ASTM D4658–15, Standard Test Method for Sulfide Ion in Water. Approved March 15, 2015. Table IB.

(liii) ASTM D4763–88 (Reapproved 2001), Standard Practice for Identification of Chemicals in Water by Fluorescence Spectroscopy. September 1988. Table IF.

(liv) ASTM D4839–03 (Reapproved 2017), Standard Test Method for Total Carbon and Organic Carbon in Water by Ultraviolet, or Persulfate Oxidation, or Both, and Infrared Detection. Approved December 15, 2017. Table IB.

(lv) ASTM D5257–17, Standard Test Method for Dissolved Hexavalent Chromium in Water by Ion Chromatography. Approved December 1, 2017. Table IB.

(lvi) ASTM D5259–92, Standard Test Method for Isolation and Enumeration of Enterococci from Water by the Membrane Filter Procedure. October 1992. Table IH, Note 9.

(lvii) ASTM D5392–93, Standard Test Method for Isolation and Enumeration of *Escherichia coli* in Water by the Two-Step Membrane Filter Procedure. September 1993. Table IH, Note 9.

(lviii) ASTM D5673–16, Standard Test Method for Elements in Water by Inductively Coupled Plasma—Mass Spectrometry. Approved February 1, 2016. Table IB.

(lix) ASTM D5907–18, Standard Test Methods for Filterable Matter (Total Dissolved Solids) and Nonfilterable Matter (Total Suspended Solids) in Water. Approved May 1, 2018. Table IB.

(lx) ASTM D6503–99, Standard Test Method for Enterococci in Water Using Enterolert. April 2000. Table IA Note 9, Table IH, Note 9.

(lxi) ASTM. D6508–15, Standard Test Method for Determination of Dissolved Inorganic Anions in Aqueous Matrices Using Capillary Ion Electrophoresis and Chromate Electrolyte. Approved October 1, 2015. Table IB, Note 54.

(lxii) ASTM. D6888–16, Standard Test Method for Available Cyanides with Ligand Displacement and Flow Injection Analysis (FIA) Utilizing Gas Diffusion Separation and Amperometric Detection. Approved February 1, 2016. Table IB, Note 59.

(lxiii) ASTM. D6919–17, Standard Test Method for Determination of Dissolved Alkali and Alkaline Earth Cations and Ammonium in Water and Wastewater by Ion Chromatography. Approved June 1, 2017. Table IB.

(lxiv) ASTM. D7065–17, Standard Test Method for Determination of Nonylphenol, Bisphenol A, *p-tert*-Octylphenol, Nonylphenol Monoethoxylate and Nonylphenol Diethoxylate in Environmental Waters by Gas Chromatography Mass Spectrometry. Approved December 15, 2017. Table IC.

(lxv) ASTM D7237–18, Standard Test Method for Free Cyanide with Flow Injection Analysis (FIA) Utilizing Gas Diffusion Separation and Amperometric Detection. Approved December 1, 2018. Table IB.

(lxvi) ASTM D7284–20, Standard Test Method for Total Cyanide in Water by Micro Distillation followed by Flow Injection Analysis with Gas Diffusion Separation and Amperometric Detection. Approved August 1, 2020. Table IB.

(lxvii) ASTM D7365–09a (Reapproved 2015), Standard Practice for Sampling, Preservation and Mitigating Interferences in Water Samples for Analysis of Cyanide. Approved July 15, 2015. Table II, Notes 5 and 6.

(lxviii) ASTM. D7511–12 (Reapproved 2017)^{e1}, Standard Test Method for Total Cyanide by Segmented Flow Injection Analysis, In-Line Ultraviolet Digestion and Amperometric Detection. Approved July 1, 2017. Table IB.

(lxix) ASTM D7573–18a^{e1}, Standard Test Method for Total Carbon and Organic Carbon in Water by High Temperature Catalytic Combustion and Infrared Detection. Approved December 15, 2018. Table IB.

(lxx) ASTM D7781–14, Standard Test Method for Nitrite-Nitrate in Water by Nitrate Reductase, Approved April 1, 2014. Table IB.

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(19) FIAlab Instruments, Inc., 334 2151 N. Northlake Way, Seattle, WA 98103; phone: (425)376–0450; website: *www.flowinjection.com/app-notes/epafialab100.*

(i) FIAlab 100, Determination of Inorganic Ammonia by Continuous Flow Gas Diffusion and Fluorescence Detector Analysis, April 4, 2018. Table IB, Note 82.

(ii) [Reserved]

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(26) MACHEREY–NAGEL GmbH and Co., 2850 Emrick Blvd., Bethlehem, PA 18020; Phone: (888)321–6224.

(i) Method 036/038 NANOCOLOR® COD LR/HR, Spectrophotometric Measurement of Chemical Oxygen Demand in Water and Wastewater, Revision 1.5, May 2018. Table IB, Note 83.

(ii) [Reserved]

(27) Micrology Laboratories, LLC (now known as Roth Bioscience, LLC), 1303 Eisenhower Drive, Goshen, IN 46526; phone: (574)533–3351.

(i) KwikCount™ EC Medium E. coli enzyme substrate test, Rapid Detection of E. coli in Beach Water By KwikCount™ EC Membrane Filtration. 2014. Table IH, Notes 28 and 29.

(ii) [Reserved]

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(33) Pace Analytical Services, LLC, 1800 Elm Street, SE, Minneapolis, MN 55414; phone: (612)656–2240.

(i) PAM–16130–SSI, Determination of 2,3,7,8-Substituted Tetra- through Octa-Chlorinated Dibenzo-*p*-Dioxins and Dibenzofurans (CDDs/CDFs) Using Shimadzu Gas Chromatography Mass Spectrometry (GC–MS/MS), Revision 1.1, May 20, 2022. Table IC, Note 17.

(ii) [Reserved]

(34) SGS AXYS Analytical Services, Ltd., 2045 Mills Road, Sidney, British Columbia, Canada, V8L 5X2; phone: (888)373–0881.

(i) SGS AXYS Method 16130, Determination of 2,3,7,8-Substituted Tetra- through Octa-Chlorinated Dibenzo-*p*-Dioxins and Dibenzofurans (CDDs/CDFs) Using Waters and Agilent Gas Chromatography-Mass Spectrometry (GC/MS/MS)., Revision 1.0, revised August 2020. Table IC, Note 16.

(ii) [Reserved]

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(40) U.S. Geological Survey (USGS), U.S. Department of the Interior, Reston, Virginia. Available from USGS Books and Open-File Reports (OFR) Section, Federal Center, Box 25425, Denver, CO 80225; phone: (703)648–5953; website: *ww.usgs.gov.*

* * * * *

(ii) Techniques and Methods—Book 5, Laboratory Analysis—Section B, Methods of the National Water Quality Laboratory—Chapter 12, Determination of Heat Purgeable and Ambient Purgeable Volatile Organic Compounds in Water by Gas Chromatography/Mass Spectrometry 2016.

* * * * *

(ix) OFR 93–125, Methods of Analysis by the U.S. Geological Survey National Water Quality Laboratory—Determination of Inorganic and Organic Constituents in Water and Fluvial Sediments. 1993. Table IB, Notes 51 and 80; Table IC, Note 9.

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(xiv) OFR 97–829, Methods of Analysis by the U.S. Geological Survey National Water Quality Laboratory—Determination of 86 Volatile Organic Compounds in Water by Gas Chromatography/Mass Spectrometry, Including Detections Less Than Reporting Limits. 1998. Table IC, Note 13.

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(e) * * *

Table II—Required Containers, Preservation Techniques, and Holding Times

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[5] ASTM D7365–09a (15) specifies treatment options for samples containing oxidants (e.g., chlorine) for cyanide analyses. Also, Section 9060A of *Standard Methods for the Examination of Water and Wastewater* (23rd edition) addresses dechlorination procedures for microbiological analyses.

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[FR Doc. 2024–07412 Filed 4–15–24; 8:45 am]

BILLING CODE 6560–50–P

FACT SHEET

Final Rule: Clean Water Act Methods Update Rule for the Analysis of Effluent

April 2024

The Environmental Protection Agency is finalizing a rule that updates its list of approved methods for measuring pollutants in wastewater and surface water under the Clean Water Act. Regulated and regulatory entities use approved methods to identify the types and amounts of pollutants in effluent for National Pollutant Discharge Elimination System (NPDES) permit applications, to determine compliance with NPDES permit limits, or to fulfill other Clean Water Act monitoring requirements. This rule adds some new methods to Title 40, Part 136 of the Code of Federal Regulations (CFR) and makes minor editorial or procedural changes to some existing methods that are already promulgated in 40 CFR Part 136.

How does this action help the regulated community?

Often, regulated entities have a choice in deciding which approved method they will use to measure a pollutant because more than one approved method is available under 40 CFR Part 136. This rulemaking would increase flexibility by providing additional methods from which to select. New methods added under the Alternate Test Procedure program reflect innovative technologies that are cheaper, faster, or greener than the other approved methods for that same parameter. When final, this rule would impose no regulatory requirements or costs on any person or entity. The use of alternate methods is voluntary.

Is the EPA required to establish analytical methods?

Yes, Clean Water Act section 304(h) requires EPA to establish analytical methods to measure pollutants in NPDES permit applications and for reports required under NPDES permits. These Clean Water Act methods are found in 40 CFR Part 136 and are used to implement the NPDES program. This action updates 40 CFR Part 136.

What do EPA's updates change?

The changes are minor technical changes and clarifications to improve existing methods, new and/or revised methods published by voluntary consensus standard bodies (such as ASTM International and the Standard Methods Committee) that EPA seeks to publish in Part 136, and methods the EPA has reviewed under its Alternate Test Procedure program and found to be comparable to one or more methods currently in Part 136.

Where can I find more information?

You can view the Federal Register notice and supporting documents at regulations.gov under Docket ID: EPA-HQ-OW-2022-0901. The EPA has also provided a link to the Federal Register on its Clean Water Act Analytical Methods website. You may also contact Tracy Bone at (202) 564-5257, or at bone.tracy@epa.gov.

TAB C

Commonwealth of Virginia

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

www.deq.virginia.gov

Travis A. Voyles
Secretary of Natural and Historic Resources

Michael S. Rolband, PE, PWD, PWS Emeritus
Director
(804) 698-4020

MEMORANDUM

TO: State Water Control Board Members

FROM: Meghan Mayfield, Director, Division of Water Permitting

DATE: August 21, 2024

SUBJECT: Final Exempt Action: Amendment to the Virginia Erosion and Stormwater Management Regulation (9VAC25-875 et seq.) in response to changes to 40 CFR Part 122

At the September 16, 2024 meeting of the State Water Control Board, the Department will present the Board with final amendments to the Virginia Erosion and Stormwater Management Regulation[i].

Revisions to 9VAC25-875-970 and 9VAC25-875-980 are necessary to maintain consistency with federal regulations. Amendments to 40 CFR Part 122, effective July 12, 2023, 88 FR 37994, replaced the term "urbanized area" with "urban area with a population of 50,000 or more people as determined by the latest Decennial Census by the Bureau of the Census" due to changes made by the Census Bureau. The amendments to the Virginia Erosion and Stormwater Management Regulation (9VAC25-875) maintain consistency with federal regulations and, as such, are exempt from the state administrative procedures for adoption of regulations because they are necessary to meet the requirements of federal law or regulations, provided such regulations do not differ materially from those required by federal law or regulation (§ 2.2-4006(A)(4)(c) of the Code of Virginia). The Office of the Attorney General will be sent the regulation for certification of authority to adopt the amendments.

After making a presentation on the proposed amendments and answering any questions the Board may have, staff will ask the Board for final approval of amendments to the Virginia Erosion and Stormwater Management Regulation (9VAC25-875 et seq.) and affirm that the Board will receive, consider and respond to petitions by any interested person at any time with respect to reconsideration or revision.

[i] 9VAC25-875, effective July 1, 2024.

ATTACHMENTS

- TH09- Exempt Action: Final Regulation Agency Background Document for the Virginia Erosion and Stormwater Management Regulation (9VAC25-875 et seq.)
- Project 7991- Final Exempt Action: Amendment to the Virginia Erosion and Stormwater Management Regulation (9VAC25-875 et seq.) in response to changes to 40 CFR Part 122
- 40 CFR §§ 122.28, 122.32, and 122.33

townhall.virginia.gov

Exempt Action: Final Regulation
Agency Background Document

Agency name	State Water Control Board
Virginia Administrative Code (VAC) Chapter citation(s)	9VAC25-875
VAC Chapter title(s)	Virginia Erosion and Stormwater Management Regulation
Action title	Amendment to the Virginia Erosion and Stormwater Management Regulation (9VAC25-875 et seq.) in response to changes to 40 CFR Part 122
Final agency action date	September 16, 2024
Date this document prepared	July 11, 2024

This information is required for executive branch review pursuant to Executive Order 19 (2022) (EO 19), any instructions or procedures issued by the Office of Regulatory Management (ORM) or the Department of Planning and Budget (DPB) pursuant to EO 19. In addition, this information is required by the Virginia Registrar of Regulations pursuant to the Virginia Register Act (§ 2.2-4100 et seq. of the Code of Virginia). Regulations must conform to the Regulations for Filing and Publishing Agency Regulations (1 VAC 7-10), and the *Form and Style Requirements for the Virginia Register of Regulations and Virginia Administrative Code.*

Brief Summary

Provide a brief summary (preferably no more than 2 or 3 paragraphs) of this regulatory change (i.e., new regulation, amendments to an existing regulation, or repeal of an existing regulation). Alert the reader to all substantive matters. If applicable, generally describe the existing regulation.

Revisions to 9VAC25-875-970 and 9VAC25-875-980 are necessary to maintain consistency with federal regulations. Amendments to 40 CFR Part 122, effective July 12, 2023, 88 FR 37994, replaced the term “urbanized area” with “urban area with a population of 50,000 or more people as determined by the latest Decennial Census by the Bureau of the Census” due to changes made by the Census Bureau. The amendments to the Virginia Erosion and Stormwater Management Regulation (9VAC25-875) maintain consistency with federal regulations and, as such, are exempt from the state administrative procedures for adoption of regulations because they are necessary to meet the requirements of federal law or regulations, provided such regulations do not differ materially from those required by federal law or regulation (§ 2.2-4006(A)(4)(c) of the Code of Virginia).

The Virginia Erosion and Stormwater Management Regulation (9VAC25-875 et seq.) will be updated to be consistent with the amended federal regulations.

Mandate and Impetus

Identify the mandate for this regulatory change and any other impetus that specifically prompted its initiation (e.g., new or modified mandate, internal staff review, petition for rulemaking, periodic review, or board decision). For purposes of executive branch review, "mandate" has the same meaning as defined in the ORM procedures, "a directive from the General Assembly, the federal government, or a court that requires that a regulation be promulgated, amended, or repealed in whole or part."

The Virginia Department of Environmental Quality (DEQ) has delegated authority from the U.S. Environmental Protection Agency (EPA) to implement the Virginia Pollutant Discharge Elimination System (VPDES) permit program in the Commonwealth. The VPDES permit program must be consistent with EPA's programs.

In July 2023, EPA published a final rule amending 40 CFR Part 122 (88 FR 37994) to be consistent with the Census Bureau's decision to discontinue its practice of publishing the location of "urbanized areas" along with the 2020 Census and future censuses. The EPA's final rule replaced the term "urbanized area" in the Phase II regulations for small municipal separate storm sewer systems (MS4s) with the phrase "urban areas with a population of 50,000 or more people," which is the Census Bureau's longstanding definition of the term urbanized areas. This change allows permitting authorities to use 2020 Census and future Census data in a manner that is consistent with existing longstanding regulatory practice.

This regulatory action is required to conform the existing regulation to changes in federal regulations for the federally delegated VPDES permit program. The amendments to the Virginia Erosion and Stormwater Management Regulation (9VAC25-875) maintain consistency with federal regulations and, as such, are exempt from the state administrative procedures for adoption of regulations because they are necessary to meet the requirements of federal law or regulations, provided such regulations do not differ materially from those required by federal law or regulation (§ 2.2-4006(A)(4)(c) of the Code of Virginia).

Statement of Final Agency Action

Provide a statement of the final action taken by the agency including: 1) the date the action was taken; 2) the name of the agency taking the action; and 3) the title of the regulation.

On September 16, 2024, the State Water Control Board approved final amendments to the Virginia Erosion and Stormwater Management Regulation (9VAC25-875 et seq.) and affirmed that the Board will receive, consider and respond to petitions by any interested person at any time with respect to reconsideration or revision.

Project 7991 – Final- for September 16. 2024 State Water Control Board meeting

Amendment to the Virginia Erosion and Stormwater Management Regulation (9VAC25-875 et seq.) in response to changes to 40 CFR Part 122

9VAC25-875-970. Small municipal separate storm sewer systems.

A. Objectives of the stormwater regulations for small MS4s.

1. Subsections A through G of this section are written in a "readable regulation" format that includes both rule requirements and guidance. The recommended guidance is distinguished from the regulatory requirements by putting the guidance in a separate subdivision headed by the word "Note."

2. Under the statutory mandate in § 402(p)(6) of the Clean Water Act, the purpose of this portion of the stormwater program is to designate additional sources that need to be regulated to protect water quality and to establish a comprehensive stormwater program to regulate these sources.

3. Stormwater runoff continues to harm the nation's waters. Runoff from lands modified by human activities can harm surface water resources in several ways, including by changing natural hydrologic patterns and by elevating pollutant concentrations and loadings. Stormwater runoff may contain or mobilize high levels of contaminants, such as sediment, suspended solids, nutrients, heavy metals, pathogens, toxins, oxygen-demanding substances, and floatables.

4. The department strongly encourages partnerships and the watershed approach as the management framework for efficiently, effectively, and consistently protecting and restoring aquatic ecosystems and protecting public health.

B. As an operator of a small MS4, am I regulated under the state's stormwater program?

1. Unless you qualify for a waiver under subdivision 3 of this subsection, you are regulated if you operate a small MS4, including systems operated by federal, state, tribal, and local governments, including the Virginia Department of Transportation; and

a. Your small MS4 is located in an ~~urbanized~~ urban area with a population of 50,000 or more people as determined by the latest ~~decennial census~~ Decennial Census by the Bureau of the Census (if your small MS4 is not located entirely within an ~~urbanized~~ urban area with a population of 50,000 or more people, only the portion that is within the ~~urbanized~~ urban area is regulated); or

b. You are designated by the department, including where the designation is pursuant to subdivisions C 3 a and b of this section or is based upon a petition under 9VAC25-875-950 D.

2. You may be the subject of a petition to the department to require a permit for your discharge of stormwater. If the department determines that you need a permit, you are required to comply with subsections C through E of this section.

3. The department may waive the requirements otherwise applicable to you if you meet the criteria of subdivision 4 or 5 of this subsection B. If you receive a waiver under this section, you may subsequently be required to seek coverage under a permit in accordance with subdivision C 1 of this section if circumstances change. (See also subdivision E 2 of this section).

4. The department may waive permit coverage if your MS4 serves a population of less than 1,000 within the ~~urbanized~~ urban area identified in subdivision B 1 a of this section and you meet the following criteria:

a. Your system is not contributing substantially to the pollutant loadings of a physically interconnected MS4 that is regulated by the department; and

b. If you discharge any pollutants that have been identified as a cause of impairment of any water body to which you discharge, stormwater controls are not needed based on wasteload allocations that are part of an approved "total maximum daily load" (TMDL) that addresses the pollutants of concern.

5. The department may waive permit coverage if your MS4 serves a population under 10,000 and you meet the following criteria:

a. The department has evaluated all surface waters, including small streams, tributaries, lakes, and ponds, that receive a discharge from your MS4;

b. For all such waters, the department has determined that stormwater controls are not needed based on wasteload allocations that are part of an approved TMDL that addresses the pollutants of concern or, if a TMDL has not been developed or approved, an equivalent analysis that determines sources and allocations for the pollutants of concern;

c. For the purpose of subdivision 5 of this subsection, the pollutants of concern include biochemical oxygen demand (BOD), sediment or a parameter that addresses sediment (such as total suspended solids, turbidity or siltation), pathogens, oil and grease, and any pollutant that has been identified as a cause of impairment of any water body that will receive a discharge from your MS4; and

d. The department has determined that future discharges from your MS4 do not have the potential to result in exceedances of water quality standards, including impairment of designated uses or other significant water quality impacts, including habitat and biological impacts.

C. If I am an operator of a regulated small MS4, how do I apply for a permit and when do I have to apply?

1. If you operate a regulated small MS4 under subsection B of this section, you must seek coverage under a permit issued by the department.

2. You must seek authorization to discharge under a general or individual permit, as follows:

a. If the department has issued a general permit applicable to your discharge and you are seeking coverage under the general permit, you must submit a registration statement that includes the information on your best management practices and measurable goals required by subdivision D 4 of this section. You may file your own registration statement, or you and other municipalities or governmental entities may jointly submit a registration statement. If you want to share responsibilities for meeting the minimum measures with other municipalities or governmental entities, you must submit a registration statement that describes which minimum measures you will implement and identify the entities that will implement the other minimum measures within the area served by your MS4. The general permit will explain any other steps necessary to obtain permit authorization.

b. (1) If you are seeking authorization to discharge under an individual permit and wish to implement a program under subsection D of this section, you must submit an application to the department that includes the information required under 9VAC25-875-920 F and subdivision D 4 of this section, an estimate of square mileage served by your small MS4, and any additional information that the department requests. A storm sewer map that satisfies the requirement of subdivision D 2 c (1) of this section will satisfy the map requirement in 9VAC25-875-920 F 7.

(2) If you are seeking authorization to discharge under an individual permit and wish to implement a program that is different from the program under subsection D of this section, you will need to comply with the permit application requirements of 9VAC25-875-950 C. You must submit both parts of the application requirements in 9VAC25-875-950 C 1 and 2 by March 10, 2003. You do not need to submit the information required by 9VAC25-875-950 C 1 b and C 2 regarding your legal authority, unless you intend for the permit writer to take such information into account when developing your other permit conditions.

(3) If allowed by the department, you and another regulated entity may jointly apply under either subdivision 2 b (1) or (2) of this subsection to be state co-permittees under an individual permit.

c. If your small MS4 is in the same ~~urbanized~~ urban area as a medium or large MS4 with a permit and that other MS4 is willing to have you participate in that MS4's stormwater program, you and the other MS4 may jointly seek a modification of the other MS4 permit to include you as a limited state co-permittee. As a limited state co-permittee, you will be responsible for compliance with the permit's conditions applicable to your jurisdiction. If you choose this option you will need to comply with the permit application requirements of 9VAC25-875-950, rather than the requirements of subsection D of this section. You do not need to comply with the specific application requirements of 9VAC25-875-950 C 1 c and d and 9VAC25-875-950 C 2 c (discharge characterization). You may satisfy the requirements in 9VAC25-875-950 C 1 e and 2 d (identification of a management program) by referring to the other MS4's stormwater management program.

d. NOTE: In referencing an MS4's stormwater management program, you should briefly describe how the existing plan will address discharges from your small MS4 or would need to be supplemented in order to adequately address your discharges. You should also explain your role in coordinating stormwater pollutant control activities in your MS4 and detail the resources available to you to accomplish the plan.

3. If you operate a regulated small MS4:

a. Designated under subdivision B 1 a of this section, you must apply for coverage under a permit or apply for a modification of an existing permit under subdivision 2 c of this subsection within 180 days of notice, unless the department grants a later date.

b. Designated under subdivision B 1 b of this section, you must apply for coverage under a permit or apply for a modification of an existing permit under subdivision 2 c of this subsection within 180 days of notice, unless the department grants a later date.

D. As an operator of a regulated small MS4, what will my MS4 permit require?

1. Your MS4 permit will require at a minimum that you develop, implement, and enforce a stormwater management program designed to reduce the discharge of pollutants from your MS4 to the maximum extent practicable (MEP), to protect water quality, and to satisfy the appropriate water quality requirements of the Clean Water Act, the Virginia Erosion and Stormwater Management Act, and the State Water Control Law. Your stormwater management program must include the minimum control measures described in subdivision 2 of this subsection unless you apply for a permit under 9VAC25-875-950 C. For purposes of this section, narrative effluent limitations requiring implementation of best management practices (BMPs) are generally the most appropriate form of effluent limitations when designed to satisfy technology requirements (including reductions of pollutants to the maximum extent practicable) and to protect water quality. Implementation of best management practices consistent with the provisions of the stormwater management program required pursuant to this section and the provisions of the permit

required pursuant to subsection C of this section constitutes compliance with the standard of reducing pollutants to the maximum extent practicable. The department will specify a time period of up to five years from the date of permit issuance for you to develop and implement your program.

2. Minimum control measures.

a. Public education and outreach on stormwater impacts.

(1) You must implement a public education program to distribute educational materials to the community or conduct equivalent outreach activities about the impacts of stormwater discharges on water bodies and the steps that the public can take to reduce pollutants in stormwater runoff.

(2) NOTE: You may use stormwater educational materials provided by the state, your tribe, EPA, environmental, public interest or trade organizations, or other MS4s. The public education program should inform individuals and households about the steps they can take to reduce stormwater pollution, such as ensuring proper septic system maintenance, ensuring the proper use and disposal of landscape and garden chemicals including fertilizers and pesticides, protecting and restoring riparian vegetation, and properly disposing of used motor oil or household hazardous wastes. The department recommends that the program inform individuals and groups how to become involved in local stream and beach restoration activities as well as activities that are coordinated by youth service and conservation corps or other citizen groups. The department recommends that the public education program be tailored, using a mix of locally appropriate strategies, to target specific audiences and communities. Examples of strategies include: distributing brochures or fact sheets, sponsoring speaking engagements before community groups, providing public service announcements, implementing educational programs targeted at school-age children, and conducting community-based projects such as storm drain stenciling, and watershed and beach cleanups. In addition, the department recommends that some of the materials or outreach programs be directed toward targeted groups of commercial, industrial, and institutional entities likely to have significant stormwater impacts. For example, providing information to restaurants on the impact of grease clogging storm drains and to garages on the impact of oil discharges. You are encouraged to tailor your outreach program to address the viewpoints and concerns of all communities, particularly minority and disadvantaged communities, as well as any special concerns relating to children.

b. Public involvement/participation.

(1) You must, at a minimum, comply with state, tribal, and local public notice requirements when implementing a public involvement/participation program.

(2) The department recommends that the public be included in developing, implementing, and reviewing your stormwater management program and that the public participation process should make efforts to reach out and engage all economic and ethnic groups. Opportunities for members of the public to participate in program development and implementation include serving as citizen representatives on a local stormwater management panel, attending public hearings, working as citizen volunteers to educate other individuals about the program, assisting in program coordination with other pre-existing programs, or participating in volunteer monitoring efforts. (Citizens should obtain approval where necessary for lawful access to monitoring sites.)

c. Illicit discharge detection and elimination.

(1) You must develop, implement, and enforce a program to detect and eliminate illicit discharges (as defined in 9VAC25-875-850) into your small MS4.

(2) You must:

(a) Develop, if not already completed, a storm sewer system map, showing the location of all outfalls and the names and location of all surface waters that receive discharges from those outfalls;

(b) To the extent allowable under state, tribal, or local law effectively prohibit, through ordinance or other regulatory mechanism, nonstormwater discharges into your storm sewer system and implement appropriate enforcement procedures and actions;

(c) Develop and implement a plan to detect and address nonstormwater discharges, including illegal dumping, to your system; and

(d) Inform public employees, businesses, and the general public of hazards associated with illegal discharges and improper disposal of waste.

(3) You need to address the following categories of nonstormwater discharges or flows (i.e., illicit discharges) only if you identify them as significant contributors of pollutants to your small MS4: water line flushing, landscape irrigation, diverted stream flows, rising groundwaters, uncontaminated groundwater infiltration (as defined in 40 CFR 35.2005(20)), uncontaminated pumped groundwater, discharges from potable water sources, foundation drains, air conditioning condensation, irrigation water, springs, water from crawl space pumps, footing drains, lawn watering, individual residential car washing, flows from riparian habitats and wetlands, dechlorinated swimming pool discharges, and street wash water. (Discharges or flows from fire-fighting activities are excluded from the effective prohibition against nonstormwater and need only be addressed where they are identified as significant sources of pollutants to surface waters.)

(4) NOTE: The department recommends that the plan to detect and address illicit discharges include the following four components: (i) procedures for locating priority areas likely to have illicit discharges, (ii) procedures for tracing the source of an illicit discharge, (iii) procedures for removing the source of the discharge, and (iv) procedures for program evaluation and assessment. The department recommends visually screening outfalls during dry weather and conducting field tests of selected pollutants as part of the procedures for locating priority areas. Illicit discharge education actions may include storm drain stenciling; a program to promote, publicize, and facilitate public reporting of illicit connections or discharges; and distribution of outreach materials.

d. Construction site stormwater runoff control.

(1) You must develop, implement, and enforce a program to reduce pollutants in any stormwater runoff to your small MS4 from construction activities that result in a land disturbance of greater than or equal to one acre, or equal to or greater than 2,500 square feet in all areas of the jurisdictions designated as subject to the Chesapeake Bay Preservation Area Designation and Management Regulations adopted pursuant to the Chesapeake Bay Preservation Act. Reduction of stormwater discharges from construction activity disturbing less than one acre must be included in your program if that construction activity is part of a larger common plan of development or sale that would disturb one acre or more. If the department waives requirements for stormwater discharges associated with small construction activity in accordance with the definition in 9VAC25-875-20, you are not required to develop, implement, or enforce a program to reduce pollutant discharges from such sites.

(2) Your program must include the development and implementation of, at a minimum:

(a) An ordinance or other regulatory mechanism to require erosion and sediment controls, as well as sanctions to ensure compliance, to the extent allowable under state, tribal, or local law;

(b) Requirements for construction site operators to implement appropriate erosion and sediment control best management practices;

(c) Requirements for construction site operators to control waste such as discarded building materials, concrete truck washout, chemicals, litter, and sanitary waste at the construction site that may cause adverse impacts to water quality;

(d) Procedures for site plan review which incorporate consideration of potential water quality impacts;

(e) Procedures for receipt and consideration of information submitted by the public; and

(f) Procedures for site inspection and enforcement of control measures.

(3) NOTE: Examples of sanctions to ensure compliance include nonmonetary penalties, fines, bonding requirements, or permit denials for noncompliance. The department recommends that procedures for site plan review include the review of individual pre-construction site plans to ensure consistency with erosion and sediment control requirements. Procedures for site inspections and enforcement of control measures could include steps to identify priority sites for inspection and enforcement based on the nature of the construction activity, topography, and the characteristics of soils and receiving water quality. You are encouraged to provide appropriate educational and training measures for construction site operators. You may wish to require a stormwater pollution prevention plan for construction sites within your jurisdiction that discharge into your system. (See 9VAC25-875-1030 L and subdivision E 2 of this section.) The department may recognize that another government entity may be responsible for implementing one or more of the minimum measures on your behalf.

e. Post-construction stormwater management in new development and redevelopment.

(1) You must develop, implement, and enforce a program to address stormwater runoff from new development and redevelopment projects that disturb greater than or equal to one acre, including projects less than one acre that are part of a larger common plan of development or sale, that discharge into your small MS4. Your program must ensure that controls are in place that would prevent or minimize water quality impacts.

(2) You must:

(a) Develop and implement strategies that include a combination of structural and nonstructural best management practices (BMPs) appropriate for your community;

(b) Use an ordinance or other regulatory mechanism to address post-construction runoff from new development and redevelopment projects to the extent allowable under state, tribal, or local law; and

(c) Ensure adequate long-term operation and maintenance of BMPs.

(3) NOTE: If water quality impacts are considered from the beginning stages of a project, new development and potentially redevelopment provide more opportunities for water quality protection. The department recommends that the BMPs chosen be appropriate for the local community, minimize water quality impacts, and attempt to maintain pre-development runoff conditions. In choosing appropriate BMPs, the

department encourages you to participate in locally based watershed planning efforts that attempt to involve a diverse group of stakeholders, including interested citizens. When developing a program that is consistent with this measure's intent, the department recommends that you adopt a planning process that identifies the municipality's program goals (e.g., minimize water quality impacts resulting from post-construction runoff from new development and redevelopment), implementation strategies (e.g., adopt a combination of structural and nonstructural BMPs), operation and maintenance policies and procedures, and enforcement procedures. In developing your program, you should consider assessing existing ordinances, policies, programs, and studies that address stormwater runoff quality. In addition to assessing these existing documents and programs, you should provide opportunities to the public to participate in the development of the program. Nonstructural BMPs are preventative actions that involve management and source controls such as: (i) policies and ordinances that provide requirements and standards to direct growth to identified areas, protect sensitive areas such as wetlands and riparian areas, maintain and increase open space (including a dedicated funding source for open space acquisition), provide buffers along sensitive water bodies, minimize impervious surfaces, and minimize disturbance of soils and vegetation; (ii) policies or ordinances that encourage infill development in higher density urban areas, and areas with existing infrastructure; (iii) education programs for developers and the public about project designs that minimize water quality impacts; and (iv) measures such as minimization of percent impervious area after development and minimization of directly connected impervious areas. Structural BMPs include: storage practices such as wet ponds and extended-detention outlet structures; filtration practices such as grassed swales, sand filters, and filter strips; and infiltration practices such as infiltration basins and infiltration trenches. The department recommends that you ensure the appropriate implementation of the structural BMPs by considering some or all of the following: pre-construction review of BMP designs; inspections during construction to verify BMPs are built as designed; post-construction inspection and maintenance of BMPs; and penalty provisions for the noncompliance with design, construction, or operation and maintenance. Stormwater technologies are constantly being improved, and the department recommends that your requirements be responsive to these changes, developments, or improvements in control technologies.

f. Pollution prevention/good housekeeping for municipal operations.

(1) You must develop and implement an operation and maintenance program that includes a training component and has the ultimate goal of preventing or reducing pollutant runoff from municipal operations. Using training materials that are available from EPA, state, tribe, or other organizations, your program must include employee training to prevent and reduce stormwater pollution from activities such as park and open space maintenance, fleet and building maintenance, new construction and land disturbances, and stormwater system maintenance.

(2) NOTE: The department recommends that, at a minimum, you consider the following in developing your program: maintenance activities, maintenance schedules, and long-term inspection procedures for structural and nonstructural stormwater controls to reduce floatables and other pollutants discharged from your separate storm sewers; controls for reducing or eliminating the discharge of pollutants from streets, roads, highways, municipal parking lots, maintenance and storage yards, fleet or maintenance shops with outdoor storage areas, salt/sand storage locations and snow disposal areas operated by you, and waste transfer stations; procedures for properly disposing of waste removed from the separate storm sewers and areas listed above

(such as dredge spoil, accumulated sediments, floatables, and other debris); and ways to ensure that new flood management projects assess the impacts on water quality and examine existing projects for incorporating additional water quality protection devices or practices. Operation and maintenance should be an integral component of all stormwater management programs. This measure is intended to improve the efficiency of these programs and require new programs where necessary. Properly developed and implemented operation and maintenance programs reduce the risk of water quality problems.

3. If an existing VESMP requires you to implement one or more of the minimum control measures of subdivision 2 of this subsection, the department may include conditions in your permit that direct you to follow that VESMP's requirements rather than the requirements of subdivision 2 of this subsection. A VESMP is a local, state, or tribal municipal stormwater management program that imposes, at a minimum, the relevant requirements of subdivision 2 of this subsection.

4. a. In your permit application (either a registration statement for coverage under a general permit or an individual permit application), you must identify and submit to the department the following information:

(1) The best management practices (BMPs) that you or another entity will implement for each of the stormwater minimum control measures provided in subdivision 2 of this subsection;

(2) The measurable goals for each of the BMPs including, as appropriate, the months and years in which you will undertake required actions, including interim milestones and the frequency of the action; and

(3) The person responsible for implementing or coordinating your stormwater management program.

b. If you obtain coverage under a general permit, you are not required to meet any measurable goals identified in your registration statement in order to demonstrate compliance with the minimum control measures in subdivisions 2 c through f of this subsection unless, prior to submitting your registration statement, EPA or the department has provided or issued a menu of BMPs that addresses each such minimum measure. Even if no regulatory authority issues the menu of BMPs, however, you still must comply with other requirements of the general permit, including good faith implementation of BMPs designed to comply with the minimum measures.

c. NOTE: Either EPA or the department will provide a menu of BMPs. You may choose BMPs from the menu or select others that satisfy the minimum control measures.

5. a. You must comply with any more stringent effluent limitations in your permit, including permit requirements that modify or are in addition to the minimum control measures based on an approved total maximum daily load (TMDL) or equivalent analysis. The department may include such more stringent limitations based on a TMDL or equivalent analysis that determines such limitations are needed to protect water quality.

b. NOTE: The department strongly recommends that until the evaluation of the stormwater program in subsection G of this section, no additional requirements beyond the minimum control measures be imposed on regulated small MS4s without the agreement of the operator of the affected small MS4, except where an approved TMDL or equivalent analysis provides adequate information to develop more specific measures to protect water quality.

6. You must comply with other applicable permit requirements, standards and conditions established in the individual or general permit developed consistent with the provisions of 9VAC25-31-190 through 9VAC25-31-250, as appropriate.

7. Evaluation and assessment.

a. You must evaluate program compliance, the appropriateness of your identified best management practices, and progress towards achieving your identified measurable goals. The department may determine monitoring requirements for you in accordance with monitoring plans appropriate to your watershed. Participation in a group monitoring program is encouraged.

b. You must keep records required by the permit for at least three years. You must submit your records to the department only when specifically asked to do so. You must make your records, including a description of your stormwater management program, available to the public at reasonable times during regular business hours (see 9VAC25-875-900 for confidentiality provision). You may assess a reasonable charge for copying. You may require a member of the public to provide advance notice.

c. Unless you are relying on another entity to satisfy your permit obligations under subdivision E 1 of this section, you must submit annual reports to the department for your first permit term. For subsequent permit terms, you must submit reports in years two and four unless the department requires more frequent reports. As of the start date in Table 1 of 9VAC25-31-1020, all reports submitted in compliance with this subsection shall be submitted electronically by the owner, operator, or the duly authorized representative of the small MS4 to the department in compliance with this section and 40 CFR Part 3 (including, in all cases, 40 CFR Part 3 Subpart D), 9VAC25-875-940, and Part XI (9VAC25-31-950 et seq.) of the Virginia Pollutant Discharge Elimination System (VPDES) Permit Regulation. Part XI of 9VAC25-31 is not intended to undo existing requirements for electronic reporting. Prior to this date, and independent of Part XI of 9VAC25-31, the owner, operator, or the duly authorized representative of the small MS4 may be required to report electronically if specified by a particular permit. Your report must include:

(1) The status of compliance with permit conditions, an assessment of the appropriateness of your identified best management practices and progress towards achieving your identified measurable goals for each of the minimum control measures;

(2) Results of information collected and analyzed, including monitoring data, if any, during the reporting period;

(3) A summary of the stormwater activities you plan to undertake during the next reporting cycle;

(4) A change in any identified best management practices or measurable goals for any of the minimum control measures; and

(5) Notice that you are relying on another governmental entity to satisfy some of your permit obligations (if applicable).

E. As an operator of a regulated small MS4, may I share the responsibility to implement the minimum control measures with other entities?

1. You may rely on another entity to satisfy your permit obligations to implement a minimum control measure if:

a. The other entity, in fact, implements the control measure;

b. The particular control measure, or component thereof, is at least as stringent as the corresponding permit requirement; and

c. The other entity agrees to implement the control measure on your behalf. In the reports you must submit under subdivision D 7 c of this section, you must also specify that you rely on another entity to satisfy some of your permit obligations. If you are relying on another governmental entity regulated under the permit program to satisfy all of your permit obligations, including your obligation to file periodic reports required by subdivision D 7 c of this section, you must note that fact in your registration statement, but you are not required to file the periodic reports. You remain responsible for compliance with your permit obligations if the other entity fails to implement the control measure (or component thereof). Therefore, the department encourages you to enter into a legally binding agreement with that entity if you want to minimize any uncertainty about compliance with your permit.

2. In some cases, the department may recognize, either in your individual permit or in a general permit, that another governmental entity is responsible under a permit for implementing one or more of the minimum control measures for your small MS4. Where the department does so, you are not required to include such minimum control measure(s) in your stormwater management program. Your permit may be reopened and modified to include the requirement to implement a minimum control measure if the entity fails to implement it.

F. As an operator of a regulated small MS4, what happens if I don't comply with the application or permit requirements in subsections C through E of this section? Permits are enforceable under the Clean Water Act and the Virginia Erosion and Stormwater Management Act. Violators may be subject to the enforcement actions and penalties described in Clean Water Act §§ 309(b), (c), and (g) and 505 or under §§ 62.1-44.15:39 through 62.1-44.15:48 of the Code of Virginia and Article 5 of the State Water Control Law. Compliance with a permit issued pursuant to § 402 of the Clean Water Act is deemed compliance, for purposes of §§ 309 and 505, with §§ 301, 302, 306, 307, and 403, except any standard imposed under § 307 for toxic pollutants injurious to human health. If you are covered as a state co-permittee under an individual permit or under a general permit by means of a joint registration statement, you remain subject to the enforcement actions and penalties for the failure to comply with the terms of the permit in your jurisdiction except as set forth in subdivision E 2 of this section.

G. Will the small MS4 stormwater program regulations at subsections B through F of this section change in the future? EPA intends to conduct an enhanced research effort and compile a comprehensive evaluation of the NPDES MS4 stormwater program. The board will reevaluate the regulations based on data from the EPA NPDES MS4 stormwater program, from research on receiving water impacts from stormwater, and the effectiveness of best management practices (BMPs), as well as other relevant information sources.

9VAC25-875-980. General permits.

A. The department may issue a general permit in accordance with the following:

1. The general permit shall be written to cover one or more categories or subcategories of discharges, except those covered by individual permits, within a geographic area. The area should correspond to existing geographic or political boundaries, such as:

a. Designated planning areas under §§ 208 and 303 of CWA;

b. Sewer districts or sewer authorities;

c. City, county, or state political boundaries;

d. State highway systems;

e. Standard metropolitan statistical areas as defined by the Office of Management and Budget;

f. ~~Urbanized~~ Urban areas with a population of 50,000 or more people as ~~designated~~ determined by the latest Decennial Census by the Bureau of the Census ~~according to criteria in 30 FR 15202 (May 1, 1974)~~; or

g. Any other appropriate division or combination of boundaries.

2. The general permit may be written to regulate one or more categories within the area described in subdivision 1 of this subsection, where the sources within a covered subcategory of discharges are stormwater point sources.

3. Where sources within a specific category of dischargers are subject to water quality-based limits imposed pursuant to 9VAC25-875-1030, the sources in that specific category or subcategory shall be subject to the same water quality-based effluent limitations.

4. The general permit must clearly identify the applicable conditions for each category or subcategory of dischargers covered by the permit.

5. The general permit may exclude specified sources or areas from coverage.

B. Administration.

1. General permits may be issued, modified, revoked and reissued, or terminated in accordance with applicable requirements of this chapter.

2. Authorization to discharge.

a. Except as provided in subdivisions 2 e and 2 f of this subsection, dischargers seeking coverage under a general permit shall submit to the department a written notice of intent to be covered by the general permit. A discharger who fails to submit a notice of intent in accordance with the terms of the permit is not authorized to discharge, under the terms of the general permit unless the general permit, in accordance with subdivision 2 e of this subsection, contains a provision that a notice of intent is not required or the department notifies a discharger (or treatment works treating domestic sewage) that it is covered by a general permit in accordance with subdivision 2 f of this subsection. A complete and timely notice of intent (NOI) to be covered in accordance with general permit requirements fulfills the requirements for permit applications for the purposes of this chapter. As of the start date in Table 1 of 9VAC25-31-1020, all notices of intent submitted in compliance with this subdivision shall be submitted electronically by the discharger (or treatment works treating domestic sewage) to the department in compliance with this subdivision 2 and 40 CFR Part 3 (including, in all cases, 40 CFR Part 3 Subpart D), 9VAC25-875-940, and Part XI (9VAC25-31-950 et seq.) of the Virginia Pollutant Discharge Elimination System (VPDES) Permit Regulation. Part XI of 9VAC25-31 is not intended to undo existing requirements for electronic reporting. Prior to this date, and independent of Part XI of 9VAC25-31, dischargers or treatment works treating domestic sewage may be required to report electronically if specified by a particular permit.

b. The contents of the notice of intent shall be specified in the general permit and shall require the submission of information necessary for adequate program implementation, including at a minimum, the legal name and address of the owner or operator, the facility name and address, type of facility or discharges, and the receiving stream, and other required data elements as identified in Appendix A to 40 CFR Part 127 as adopted by reference in 9VAC25-31-1030. All notices of intent shall be signed in accordance with 9VAC25-875-940.

c. General permits shall specify the deadlines for submitting notices of intent to be covered and the date or dates when a discharger is authorized to discharge under the permit.

d. General permits shall specify whether a discharger that has submitted a complete and timely notice of intent to be covered in accordance with the general permit and that is eligible for coverage under the permit is authorized to discharge in accordance with the permit either upon receipt of the notice of intent by the department after a waiting period specified in the general permit on a date specified in the general permit or upon receipt of notification of inclusion by the department. Coverage may be terminated or revoked in accordance with subdivision 3 of this subsection.

e. Stormwater discharges associated with small construction activity may, at the discretion of the department, be authorized to discharge under a general permit without submitting a notice of intent where the department finds that a notice of intent requirement would be inappropriate. In making such a finding, the department shall consider the (i) type of discharge, (ii) expected nature of the discharge, (iii) potential for toxic and conventional pollutants in the discharges, (iv) expected volume of the discharges, (v) other means of identifying discharges covered by the permit, and (vi) estimated number of discharges to be covered by the permit. The department shall provide in the public notice of the general permit the reasons for not requiring a notice of intent.

f. The department may notify a discharger that it is covered by a general permit, even if the discharger has not submitted a notice of intent to be covered. A discharger so notified may request an individual permit under subdivision 3 c of this subsection.

3. Requiring an individual permit.

a. The department may require any discharger authorized by a general permit to apply for and obtain an individual permit. Any interested person may request the department to take action under this subdivision. Cases where an individual permit may be required include the following:

(1) The discharger is not in compliance with the conditions of the general permit;

(2) A change has occurred in the availability of demonstrated technology or practices for the control or abatement of pollutants applicable to the point source;

(3) Effluent limitation guidelines are promulgated for point sources covered by the general permit;

(4) A water quality management plan, established by the department pursuant to 9VAC25-720, containing requirements applicable to such point sources is approved;

(5) Circumstances have changed since the time of the request to be covered so that the discharger is no longer appropriately controlled under the general permit, or either a temporary or permanent reduction or elimination of the authorized discharge is necessary;

(6) The discharge is a significant contributor of pollutants. In making this determination, the department may consider the following factors:

(a) The location of the discharge with respect to surface waters;

(b) The size of the discharge;

(c) The quantity and nature of the pollutants discharged to surface waters; and

(d) Other relevant factors;

b. Permits required on a case-by-case basis.

(1) The department may determine, on a case-by-case basis, that certain stormwater discharges, and certain other facilities covered by general permits that do not generally require an individual permit may be required to obtain an individual permit because of their contributions to water pollution.

(2) Whenever the department decides that an individual permit is required under this subsection, except as provided in subdivision 3 b (3) of this subsection, the department shall notify the discharger in writing of that decision and the reasons for it and shall send an application form with the notice. The discharger must apply for a permit within 60 days of notice, unless permission for a later date is granted by the department. The question whether the designation was proper will remain open for consideration during the public comment period for the draft permit and in any subsequent public hearing.

(3) Prior to a case-by-case determination that an individual permit is required for a stormwater discharge under this subsection, the department may require the discharger to submit a permit application or other information regarding the discharge under the State Water Control Law and § 308 of the CWA. In requiring such information, the department shall notify the discharger in writing and shall send an application form with the notice. The discharger must apply for a permit under 9VAC25-875-950 A 1 within 60 days of notice or under 9VAC25-875-950 A 8 within 180 days of notice, unless permission for a later date is granted by the department. The question whether the initial designation was proper will remain open for consideration during the public comment period for the draft permit and in any subsequent public hearing.

c. Any owner or operator authorized by a general permit may request to be excluded from the coverage of the general permit by applying for an individual permit. The owner or operator shall submit an application under 9VAC25-875-920 with reasons supporting the request. The request shall be processed under the applicable parts of this chapter. The request shall be granted by issuing of an individual permit if the reasons cited by the owner or operator are adequate to support the request.

d. When an individual permit is issued to an owner or operator otherwise subject to a general permit, the applicability of the general permit to the individual permit permittee is automatically terminated on the effective date of the individual permit.

e. A source excluded from a general permit solely because it already has an individual permit may request that the individual permit be revoked and that it be covered by the general permit. Upon revocation of the individual permit, the general permit shall apply to the source.

Office of Regulatory Management

Economic Review Form

Agency name	State Water Control Board
Virginia Administrative Code (VAC) Chapter citation(s)	9 VAC 25-875
VAC Chapter title(s)	Virginia Erosion and Stormwater Management Regulation
Action title	Amendment to the Virginia Erosion and Stormwater Management Regulation (9VAC25-875 et seq.) in response to changes to 40 CFR Part 122
Date this document prepared	July 11, 2024
Regulatory Stage (including Issuance of Guidance Documents)	Final Exempt

Cost Benefit Analysis

Complete Tables 1a and 1b for all regulatory actions. You do not need to complete Table 1c if the regulatory action is required by state statute or federal statute or regulation and leaves no discretion in its implementation.

Table 1a should provide analysis for the regulatory approach you are taking. Table 1b should provide analysis for the approach of leaving the current regulations intact (i.e., no further change is implemented). Table 1c should provide analysis for at least one alternative approach. You should not limit yourself to one alternative, however, and can add additional charts as needed.

Report both direct and indirect costs and benefits that can be monetized in Boxes 1 and 2. Report direct and indirect costs and benefits that cannot be monetized in Box 4. See the ORM Regulatory Economic Analysis Manual for additional guidance.

Table 1a: Costs and Benefits of the Proposed Changes (Primary Option)

(1) Direct & Indirect Costs & Benefits (Monetized)	Revisions to 9VAC25-875-970 and 9VAC25-875-980 are necessary to maintain consistency with federal regulations. Amendments to 40 CFR Part 122, effective July 12, 2023, 88 FR 37994, replaced the term "urbanized area" with "urban area with a population of 50,000 or more people as determined by the latest Decennial Census by the Bureau of the Census" due to changes made by the Census Bureau. The amendments to

	the Virginia Erosion and Stormwater Management Regulation (9VAC25-875) maintain consistency with federal regulations and, as such, are exempt from the state administrative procedures for adoption of regulations because they are necessary to meet the requirements of federal law or regulations, provided such regulations do not differ materially from those required by federal law or regulation (§ 2.2-4006(A)(4)(c) of the Code of Virginia). **Direct Costs:** The amendments to 9VAC25-875-970 and 9VAC25-875-980 update terminology to be consistent with amendments to the Code of Federal Regulations related to small municipal separate storm sewer systems (MS4s). The change in terminology clarify that the designation criteria for small MS4s, which the U.S. Environmental Protection Agency established in its regulations in 1999, will remain the same. Because the changes involve a change in terminology only, there are no direct costs associated with amendments to the Virginia Erosion and Stormwater Management (VESM) Regulation (9VAC25-875). **Indirect Costs:** There are no indirect costs associated with the changes to the federal regulations, and the state regulation. **Direct Benefits:** Changing "urbanized areas" to the phrase "urban areas with a population of 50,000 or more people," which is the Census Bureau's longstanding definition of the term urbanized areas, provides clarity and consistency with federal requirements that the Department of Environmental Quality implements in the federally delegated Virginia Pollutant Discharge Elimination System (VPDES) permit program. **Indirect Benefits:** The regulatory change maintains consistency with federal regulations and clarifies but does not expand which areas are classified as small MS4s and are subject to VPDES permit requirements.

(2) Present Monetized Values	Direct & Indirect Costs	Direct & Indirect Benefits
	(a) No monetized direct or indirect costs associated with these regulatory changes.	(b) The department is unable to quantify these benefits.
(3) Net Monetized Benefit	Unknown (see discussion above).	
(4) Other Costs & Benefits (Non-Monetized)	Unknown (see discussion above).	

(5) Information Sources	N/A

Table 1b: Costs and Benefits under the Status Quo (No change to the regulation)

(1) Direct & Indirect Costs & Benefits (Monetized)	**Direct Costs:** The "status quo" option would be to continue to use language that is inconsistent with federal regulations. No direct costs would be incurred by the department. **Indirect Costs:** The primary indirect costs with the "status quo" would be costs associated with explaining to the regulated community why state and federal regulatory language is not identical. The department is not able to quantify these costs. **Direct Benefits:** There is no direct benefit to the agency or the regulated community with retaining the regulation as currently written. When requirements of federal and state law are inconsistent, this may cause confusion within the regulated community. **Indirect Benefits:** There is no indirect benefit to the agency or the regulated community with retaining the regulation as currently written.	
(2) Present Monetized Values	Direct & Indirect Costs	Direct & Indirect Benefits
	(a) Unable to monetize direct or indirect costs associated with the status quo.	(b) Unable to be monetize direct and indirect costs.
(3) Net Monetized Benefit	N/A	
(4) Other Costs & Benefits (Non-Monetized)	N/A	
(5) Information Sources	N/A	

Table 1c: Costs and Benefits under Alternative Approach(es)

(1) Direct & Indirect Costs & Benefits (Monetized)	The regulatory changes that result from amendments to 40 CFR Part 122 (effective July 12, 2023) are necessary to meet federal requirements for Virginia's federally delegated VPDES permit program. Because the regulatory changes do not differ materially from those required by federal regulation, there are not alternative approaches.

	Direct Costs: N/A **Indirect Costs:** N/A **Direct Benefits:** N/A **Indirect Benefits:** N/A	
(2) Present Monetized Values	Direct & Indirect Costs	Direct & Indirect Benefits
	(a) NA	(b) NA
(3) Net Monetized Benefit	NA	
(4) Other Costs & Benefits (Non-Monetized)	NA	
(5) Information Sources	NA	

Impact on Local Partners

Use this chart to describe impacts on local partners. See Part 8 of the ORM Cost Impact Analysis Guidance for additional guidance.

Table 2: Impact on Local Partners

(1) Direct & Indirect Costs & Benefits (Monetized)	**Direct Costs:** The amendments to the VESM Regulation do not impose any cost on localities that operate small MS4s because the localities that are currently permitted will continue to be permitted and the criteria for being subject to a permit will continue to be based on a population of 50,000 or more persons. **Indirect Costs:** N/A **Direct Benefits:** Changing "urbanized area" to the phrase "urban areas with a population of 50,000 or more people," which is the Census Bureau's longstanding definition of the term urbanized areas, clarifies the regulation without the potential for subjecting unintended localities to permit requirements. **Indirect Benefits:** The regulatory change maintains consistency with federal regulations and provides clarification, but does not expand which

	areas are classified as small MS4s and are subject to VPDES permit requirements.	
(2) Present Monetized Values	Direct & Indirect Costs	Direct & Indirect Benefits
	(a) same as table 1a.	(b) same as table 1a.
(3) Other Costs & Benefits (Non-Monetized)	same as table 1a.	
(4) Assistance	None	
(5) Information Sources	same as table 1a.	

Impacts on Families

Use this chart to describe impacts on families. See Part 8 of the ORM Cost Impact Analysis Guidance for additional guidance.

Table 3: Impact on Families

(1) Direct & Indirect Costs & Benefits (Monetized)	**Direct Costs:** The amendments to the VESM Regulation do not have any impact on families because they are limited to minor changes in terminology to be consistent with federal regulations. **Indirect Costs:** N/A **Direct Benefits:** N/A **Indirect Benefits:** N/A	
(2) Present Monetized Values	Direct & Indirect Costs	Direct & Indirect Benefits
	(a) NA	(b) NA
(3) Other Costs & Benefits (Non-Monetized)	NA	

(4) Information Sources	NA

Impacts on Small Businesses

Use this chart to describe impacts on small businesses. See Part 8 of the ORM Cost Impact Analysis Guidance for additional guidance.

Table 4: Impact on Small Businesses

(1) Direct & Indirect Costs & Benefits (Monetized)	**Direct Costs:** The amendments to the VESM Regulation do not have any impact on small businesses because they are limited to a change in terminology for small MS4s **Indirect Costs:** N/A **Direct Benefits:** N/A **Indirect Benefits:** N/A	
(2) Present Monetized Values	Direct & Indirect Costs	Direct & Indirect Benefits
	(a) NA	(b) NA
(3) Other Costs & Benefits (Non-Monetized)	NA	
(4) Alternatives	NA	
(5) Information Sources	NA	

Changes to Number of Regulatory Requirements

Table 5: Regulatory Reduction

For each individual action, please fill out the appropriate chart to reflect any change in regulatory requirements, costs, regulatory stringency, or the overall length of any guidance documents.

Change in Regulatory Requirements

VAC Section(s) Involved*	Authority of Change	Initial Count	Additions	Subtractions	Total Net Change in Requirements
9VAC25-875-970	**(M/A):**	**0**	0	0	0
	(D/A):	**0**	0	0	0
	(M/R):	**37**	0	0	0
	(D/R):	**0**	0	0	0
9VAC25-875-980	**(M/A):**	**14**	0	0	0
	(D/A):	**0**	0	0	0
	(M/R):	**6**	0	0	0
	(D/R):	**0**	0	0	0
				Grand Total of Changes in Requirements:	**(M/A): 0**
					(D/A): 0
					(M/R): 0
					(D/R): 0

Key:
Please use the following coding if change is mandatory or discretionary and whether it affects externally regulated parties or only the agency itself:
(M/A): Mandatory requirements mandated by federal and/or state statute affecting the agency itself
(D/A): Discretionary requirements affecting agency itself
(M/R): Mandatory requirements mandated by federal and/or state statute affecting external parties, including other agencies
(D/R): Discretionary requirements affecting external parties, including other agencies

Cost Reductions or Increases (if applicable)

VAC Section(s) Involved*	Description of Regulatory Requirement	Initial Cost	New Cost	Overall Cost Savings/Increases
NA				

Other Decreases or Increases in Regulatory Stringency (if applicable)

VAC Section(s) Involved*	**Description of Regulatory Change**	**Overview of How It Reduces or Increases Regulatory Burden**
NA		

Length of Guidance Documents (only applicable if guidance document is being revised)

Title of Guidance Document	**Original Word Count**	**New Word Count**	**Net Change in Word Count**
NA			

*If the agency is modifying a guidance document that has regulatory requirements, it should report any change in requirements in the appropriate chart(s).

Title 40 —Protection of Environment
Chapter I —Environmental Protection Agency
Subchapter D —Water Programs
Part 122 —EPA Administered Permit Programs: the National Pollutant Discharge Elimination System
Subpart B —Permit Application and Special NPDES Program Requirements

Authority: The Clean Water Act, 33 U.S.C. 1251 *et seq.*

Source: 48 FR 14153, Apr. 1, 1983, unless otherwise noted.

§ 122.28 General permits (applicable to State NPDES programs, see § 123.25).

(a) ***Coverage.*** The Director may issue a general permit in accordance with the following:

(1) ***Area.*** The general permit shall be written to cover one or more categories or subcategories of discharges or sludge use or disposal practices or facilities described in the permit under paragraph (a)(2)(ii) of this section, except those covered by individual permits, within a geographic area. The area should correspond to existing geographic or political boundaries such as:

(i) Designated planning areas under sections 208 and 303 of CWA;

(ii) Sewer districts or sewer authorities;

(iii) City, county, or State political boundaries;

(iv) State highway systems;

(v) Standard metropolitan statistical areas as defined by the Office of Management and Budget;

(vi) Urban areas with a population of 50,000 or more people as determined by the latest Decennial Census by the Bureau of the Census; or

(vii) Any other appropriate division or combination of boundaries.

(2) ***Sources.*** The general permit may be written to regulate one or more categories or subcategories of discharges or sludge use or disposal practices or facilities, within the area described in paragraph (a)(1) of this section, where the sources within a covered subcategory of discharges are either:

(i) Storm water point sources; or

(ii) One or more categories or subcategories of point sources other than storm water point sources, or one or more categories or subcategories of "treatment works treating domestic sewage", if the sources or "treatment works treating domestic sewage" within each category or subcategory all:

(A) Involve the same or substantially similar types of operations;

(B) Discharge the same types of wastes or engage in the same types of sludge use or disposal practices;

(C) Require the same effluent limitations, operating conditions, or standards for sewage sludge use or disposal;

(D) Require the same or similar monitoring; and

(E) In the opinion of the Director, are more appropriately controlled under a general permit than under individual permits.

(3) ***Water quality-based limits.*** Where sources within a specific category or subcategory of dischargers are subject to water quality-based limits imposed pursuant to § 122.44, the sources in that specific category or subcategory shall be subject to the same water quality-based effluent limitations.

(4) ***Other requirements.***

(i) The general permit must clearly identify the applicable conditions for each category or subcategory of dischargers or treatment works treating domestic sewage covered by the permit.

(ii) The general permit may exclude specified sources or areas from coverage.

(b) ***Administration*** —

(1) ***In general.*** General permits may be issued, modified, revoked and reissued, or terminated in accordance with applicable requirements of part 124 of this chapter or corresponding State regulations. Special procedures for issuance are found at § 123.44 of this chapter for States.

(2) ***Authorization to discharge, or authorization to engage in sludge use and disposal practices.***

(i) Except as provided in paragraphs (b)(2)(v) and (vi) of this section, dischargers (or treatment works treating domestic sewage) seeking coverage under a general permit shall submit to the Director a notice of intent to be covered by the general permit. A discharger (or treatment works treating domestic sewage) who fails to submit a notice of intent in accordance with the terms of the permit is not authorized to discharge, (or in the case of sludge disposal permit, to engage in a sludge use or disposal practice), under the terms of the general permit unless the general permit, in accordance with paragraph (b)(2)(v), contains a provision that a notice of intent is not required or the Director notifies a discharger (or treatment works treating domestic sewage) that it is covered by a general permit in accordance with paragraph (b)(2)(vi). A complete and timely, notice of intent (NOI), to be covered in accordance with general permit requirements, fulfills the requirements for permit applications for purposes of §§ 122.6, 122.21, and 122.26. As of December 21, 2025 or an EPA-approved alternative date (*see* 40 CFR 127.24(e) or (f)), all notices of intent submitted in compliance with this section must be submitted electronically by the discharger (or treatment works treating domestic sewage) to the Director or initial recipient, as defined in 40 CFR 127.2(b), in compliance with this section and 40 CFR part 3 (including, in all cases, subpart D to part 3), § 122.22, and 40 CFR part 127. 40 CFR part 127 is not intended to undo existing requirements for electronic reporting. Prior to this date, and independent of 40 CFR part 127, discharger (or treatment works treating domestic sewage) may be required to report electronically if specified by a particular permit or if required to do so by state law.

(ii) The contents of the notice of intent shall be specified in the general permit and shall require the submission of information necessary for adequate program implementation, including at a minimum, the legal name and address of the owner or operator, the facility name and address, type of facility or discharges, the receiving stream(s), and other required data elements as identified in appendix A to part 127. General permits for stormwater discharges associated with industrial activity from inactive mining, inactive oil and gas operations, or inactive landfills occurring on Federal lands where an operator cannot be identified may contain alternative

notice of intent requirements. All notices of intent shall be signed in accordance with § 122.22. Notices of intent for coverage under a general permit for concentrated animal feeding operations must include the information specified in § 122.21(i)(1), including a topographic map.

(iii) General permits shall specify the deadlines for submitting notices of intent to be covered and the date(s) when a discharger is authorized to discharge under the permit;

(iv) General permits shall specify whether a discharger (or treatment works treating domestic sewage) that has submitted a complete and timely notice of intent to be covered in accordance with the general permit and that is eligible for coverage under the permit, is authorized to discharge, (or in the case of a sludge disposal permit, to engage in a sludge use or disposal practice), in accordance with the permit either upon receipt of the notice of intent by the Director, after a waiting period specified in the general permit, on a date specified in the general permit, or upon receipt of notification of inclusion by the Director. Coverage may be terminated or revoked in accordance with paragraph (b)(3) of this section.

(v) Discharges other than discharges from publicly owned treatment works, combined sewer overflows, municipal separate storm sewer systems, primary industrial facilities, and storm water discharges associated with industrial activity, may, at the discretion of the Director, be authorized to discharge under a general permit without submitting a notice of intent where the Director finds that a notice of intent requirement would be inappropriate. In making such a finding, the Director shall consider: the type of discharge; the expected nature of the discharge; the potential for toxic and conventional pollutants in the discharges; the expected volume of the discharges; other means of identifying discharges covered by the permit; and the estimated number of discharges to be covered by the permit. The Director shall provide in the public notice of the general permit the reasons for not requiring a notice of intent.

(vi) The Director may notify a discharger (or treatment works treating domestic sewage) that it is covered by a general permit, even if the discharger (or treatment works treating domestic sewage) has not submitted a notice of intent to be covered. A discharger (or treatment works treating domestic sewage) so notified may request an individual permit under paragraph (b)(3)(iii) of this section.

(vii) A CAFO owner or operator may be authorized to discharge under a general permit only in accordance with the process described in § 122.23(h).

(3) ***Requiring an individual permit.***

(i) The Director may require any discharger authorized by a general permit to apply for and obtain an individual NPDES permit. Any interested person may petition the Director to take action under this paragraph. Cases where an individual NPDES permit may be required include the following:

(A) The discharger or “treatment works treating domestic sewage” is not in compliance with the conditions of the general NPDES permit;

(B) A change has occurred in the availability of demonstrated technology or practices for the control or abatement of pollutants applicable to the point source or treatment works treating domestic sewage;

(C) Effluent limitation guidelines are promulgated for point sources covered by the general NPDES permit;

(D) A Water Quality Management plan containing requirements applicable to such point sources is approved;

(E) Circumstances have changed since the time of the request to be covered so that the discharger is no longer appropriately controlled under the general permit, or either a temporary or permanent reduction or elimination of the authorized discharge is necessary;

(F) Standards for sewage sludge use or disposal have been promulgated for the sludge use and disposal practice covered by the general NPDES permit; or

(G) The discharge(s) is a significant contributor of pollutants. In making this determination, the Director may consider the following factors:

(*1*) The location of the discharge with respect to waters of the United States;

(*2*) The size of the discharge;

(*3*) The quantity and nature of the pollutants discharged to waters of the United States; and

(*4*) Other relevant factors;

(ii) ***For EPA issued general permits only,*** the Regional Administrator may require any owner or operator authorized by a general permit to apply for an individual NPDES permit as provided in paragraph (b)(3)(i) of this section, only if the owner or operator has been notified in writing that a permit application is required. This notice shall include a brief statement of the reasons for this decision, an application form, a statement setting a time for the owner or operator to file the application, and a statement that on the effective date of the individual NPDES permit the general permit as it applies to the individual permittee shall automatically terminate. The Director may grant additional time upon request of the applicant.

(iii) Any owner or operator authorized by a general permit may request to be excluded from the coverage of the general permit by applying for an individual permit. The owner or operator shall submit an application under § 122.21, with reasons supporting the request, to the Director no later than 90 days after the publication by EPA of the general permit in the FEDERAL REGISTER or the publication by a State in accordance with applicable State law. The request shall be processed under part 124 or applicable State procedures. The request shall be granted by issuing of any individual permit if the reasons cited by the owner or operator are adequate to support the request.

(iv) When an individual NPDES permit is issued to an owner or operator otherwise subject to a general NPDES permit, the applicability of the general permit to the individual NPDES permittee is automatically terminated on the effective date of the individual permit.

(v) A source excluded from a general permit solely because it already has an individual permit may request that the individual permit be revoked, and that it be covered by the general permit. Upon revocation of the individual permit, the general permit shall apply to the source.

(c) ***Offshore oil and gas facilities*** (Not applicable to State programs).

(1) The Regional Administrator shall, except as provided below, issue general permits covering discharges from offshore oil and gas exploration and production facilities within the Region's jurisdiction. Where the offshore area includes areas, such as areas of biological concern, for which separate permit conditions are required, the Regional Administrator may issue separate general permits, individual permits, or both. The reason for separate general permits or individual permits shall be set forth in the appropriate fact sheets or statements of basis. Any statement of basis or fact sheet for a draft permit shall include the Regional Administrator's tentative determination as to whether the permit applies to "new sources," "new dischargers," or existing sources and the reasons for this determination, and the Regional Administrator's proposals as to areas of biological concern subject either to separate individual or general permits. For Federally leased lands, the general permit area should generally be no less extensive than the lease sale area defined by the Department of the Interior.

(2) Any interested person, including any prospective permittee, may petition the Regional Administrator to issue a general permit. Unless the Regional Administrator determines under paragraph (c)(1) of this section that no general permit is appropriate, he shall promptly provide a project decision schedule covering the issuance of the general permit or permits for any lease sale area for which the Department of the Interior has published a draft environmental impact statement. The project decision schedule shall meet the requirements of § 124.3(g), and shall include a schedule providing for the issuance of the final general permit or permits not later than the date of the final notice of sale projected by the Department of the Interior or six months after the date of the request, whichever is later. The Regional Administrator may, at his discretion, issue a project decision schedule for offshore oil and gas facilities in the territorial seas.

(3) Nothing in this paragraph (c) shall affect the authority of the Regional Administrator to require an individual permit under § 122.28(b)(3)(i) (A) through (G).

(d) ***Small municipal separate storm sewer systems (MS4s)*** (Applicable to State programs). For general permits issued under paragraph (b) of this section for small MS4s, the Director must establish the terms and conditions necessary to meet the requirements of § 122.34 using one of the two permitting approaches in paragraph (d)(1) or (2) of this section. The Director must indicate in the permit or fact sheet which approach is being used.

(1) ***Comprehensive general permit.*** The Director includes all required permit terms and conditions in the general permit; or

(2) ***Two-step general permit.*** The Director includes required permit terms and conditions in the general permit applicable to all eligible small MS4s and, during the process of authorizing small MS4s to discharge, establishes additional terms and conditions not included in the general permit to satisfy one or more of the permit requirements in § 122.34 for individual small MS4 operators.

(i) The general permit must require that any small MS4 operator seeking authorization to discharge under the general permit submit a Notice of Intent (NOI) consistent with § 122.33(b)(1)(ii).

(ii) The Director must review the NOI submitted by the small MS4 operator to determine whether the information in the NOI is complete and to establish the additional terms and conditions necessary to meet the requirements of § 122.34. The Director may require the small MS4 operator to submit additional information. If the Director makes a preliminary decision to authorize the small MS4 operator to discharge under the general permit, the Director must give the public notice of and opportunity to comment and request a public hearing on its proposed

authorization and the NOI, the proposed additional terms and conditions, and the basis for these additional requirements. The public notice, the process for submitting public comments and hearing requests, and the hearing process if a request for a hearing is granted, must follow the procedures applicable to draft permits set forth in §§ 124.10 through 124.13 (excluding § 124.10(c)(2)). The Director must respond to significant comments received during the comment period as provided in § 124.17.

(iii) Upon authorization for the MS4 to discharge under the general permit, the final additional terms and conditions applicable to the MS4 operator become effective. The Director must notify the permittee and inform the public of the decision to authorize the MS4 to discharge under the general permit and of the final additional terms and conditions specific to the MS4.

(Clean Water Act (33 U.S.C. 1251 *et seq.*), Safe Drinking Water Act (42 U.S.C. 300f *et seq.*), Clean Air Act (42 U.S.C. 7401 *et seq.*), Resource Conservation and Recovery Act (42 U.S.C. 6901 *et seq.*))

[48 FR 14153, Apr. 1, 1983, as amended at 48 FR 39619, Sept. 1, 1983; 49 FR 38048, Sept. 26, 1984; 50 FR 6940, Feb. 19, 1985; 54 FR 18782, May 2, 1989; 55 FR 48072, Nov. 16, 1990; 57 FR 11412, 11413, Apr. 2, 1992; 64 FR 68841, Dec. 8, 1999; 65 FR 30908, May 15, 2000; 68 FR 7268, Feb. 12, 2003; 73 FR 70483, Nov. 20, 2008; 80 FR 64096, Oct. 22, 2015; 81 FR 89348, Dec. 9, 2016; 85 FR 69196, Nov. 2, 2020; 88 FR 37999, June 12, 2023]

Title 40 —Protection of Environment
Chapter I —Environmental Protection Agency
Subchapter D —Water Programs
Part 122 —EPA Administered Permit Programs: the National Pollutant Discharge Elimination System
Subpart B —Permit Application and Special NPDES Program Requirements

Authority: The Clean Water Act, 33 U.S.C. 1251 *et seq.*

Source: 48 FR 14153, Apr. 1, 1983, unless otherwise noted.

§ 122.32 As an operator of a small MS4, am I regulated under the NPDES storm water program?

(a) Unless you qualify for a waiver under paragraph (c) of this section, you are regulated if you operate a small MS4, including but not limited to systems operated by federal, State, Tribal, and local governments, including State departments of transportation; and:

(1) Your small MS4 is located in an urban area with a population of 50,000 or more people as determined by the latest Decennial Census by the Bureau of the Census. (If your small MS4 is not located entirely within an urban area with a population of 50,000 or more people, only the portion that is within this urban area is regulated); or

(2) You are designated by the NPDES permitting authority, including where the designation is pursuant to §§ 123.35(b)(3) and (b)(4) of this chapter, or is based upon a petition under § 122.26(f).

(b) You may be the subject of a petition to the NPDES permitting authority to require an NPDES permit for your discharge of storm water. If the NPDES permitting authority determines that you need a permit, you are required to comply with §§ 122.33 through 122.35.

(c) The NPDES permitting authority may waive the requirements otherwise applicable to you if you meet the criteria of paragraph (d) or (e) of this section. If you receive a waiver under this section, you may subsequently be required to seek coverage under an NPDES permit in accordance with § 122.33(a) if circumstances change. (See also § 123.35(b) of this chapter.)

(d) The NPDES permitting authority may waive permit coverage if your MS4 serves a population of less than 1,000 within the urban area identified in paragraph (a)(1) of this section and you meet the following criteria:

(1) Your system is not contributing substantially to the pollutant loadings of a physically interconnected MS4 that is regulated by the NPDES storm water program (see § 123.35(b)(4) of this chapter); and

(2) If you discharge any pollutant(s) that have been identified as a cause of impairment of any water body to which you discharge, storm water controls are not needed based on wasteload allocations that are part of an EPA approved or established “total maximum daily load” (TMDL) that addresses the pollutant(s) of concern.

(e) The NPDES permitting authority may waive permit coverage if your MS4 serves a population under 10,000 and you meet the following criteria:

(1) The permitting authority has evaluated all waters of the U.S., including small streams, tributaries, lakes, and ponds, that receive a discharge from your MS4;

(2) For all such waters, the permitting authority has determined that storm water controls are not needed based on wasteload allocations that are part of an EPA approved or established TMDL that addresses the pollutant(s) of concern or, if a TMDL has not been developed or approved, an equivalent analysis that determines sources and allocations for the pollutant(s) of concern;

(3) For the purpose of this paragraph (e), the pollutant(s) of concern include biochemical oxygen demand (BOD), sediment or a parameter that addresses sediment (such as total suspended solids, turbidity or siltation), pathogens, oil and grease, and any pollutant that has been identified as a cause of impairment of any water body that will receive a discharge from your MS4; and

(4) The permitting authority has determined that future discharges from your MS4 do not have the potential to result in exceedances of water quality standards, including impairment of designated uses, or other significant water quality impacts, including habitat and biological impacts.

[64 FR 68842, Dec. 8, 1999, as amended at 88 FR 37999, June 12, 2023]

Title 40 —Protection of Environment
Chapter I —Environmental Protection Agency
Subchapter D —Water Programs
Part 122 —EPA Administered Permit Programs: the National Pollutant Discharge Elimination System
Subpart B —Permit Application and Special NPDES Program Requirements

Authority: The Clean Water Act, 33 U.S.C. 1251 *et seq.*

Source: 48 FR 14153, Apr. 1, 1983, unless otherwise noted.

§ 122.33 Requirements for obtaining permit coverage for regulated small MS4s.

(a) The operator of any regulated small MS4 under § 122.32 must seek coverage under an NPDES permit issued by the applicable NPDES permitting authority. If the small MS4 is located in an NPDES authorized State, Tribe, or Territory, then that State, Tribe, or Territory is the NPDES permitting authority. Otherwise, the NPDES permitting authority is the EPA Regional Office for the Region where the small MS4 is located.

(b) The operator of any regulated small MS4 must seek authorization to discharge under a general or individual NPDES permit, as follows:

(1) ***General permit.***

(i) If seeking coverage under a general permit issued by the NPDES permitting authority in accordance with § 122.28(d)(1), the small MS4 operator must submit a Notice of Intent (NOI) to the NPDES permitting authority consistent with § 122.28(b)(2). The small MS4 operator may file its own NOI, or the small MS4 operator and other municipalities or governmental entities may jointly submit an NOI. If the small MS4 operator wants to share responsibilities for meeting the minimum measures with other municipalities or governmental entities, the small MS4 operator must submit an NOI that describes which minimum measures it will implement and identify the entities that will implement the other minimum measures within the area served by the MS4. The general permit will explain any other steps necessary to obtain permit authorization.

(ii) If seeking coverage under a general permit issued by the NPDES permitting authority in accordance with § 122.28(d)(2), the small MS4 operator must submit an NOI to the Director consisting of the minimum required information in § 122.28(b)(2)(ii), and any other information the Director identifies as necessary to establish additional terms and conditions that satisfy the permit requirements of § 122.34, such as the information required under § 122.33(b)(2)(i). The general permit will explain any other steps necessary to obtain permit authorization.

(2) ***Individual permit.***

(i) If seeking authorization to discharge under an individual permit to implement a program under § 122.34, the small MS4 operator must submit an application to the appropriate NPDES permitting authority that includes the information required under § 122.21(f) and the following:

(A) The best management practices (BMPs) that the small MS4 operator or another entity proposes to implement for each of the storm water minimum control measures described in § 122.34(b)(1) through (6);

(B) The proposed measurable goals for each of the BMPs including, as appropriate, the months and years in which the small MS4 operator proposes to undertake required actions, including interim milestones and the frequency of the action;

(C) The person or persons responsible for implementing or coordinating the storm water management program;

(D) An estimate of square mileage served by the small MS4;

(E) Any additional information that the NPDES permitting authority requests; and

(F) A storm sewer map that satisfies the requirement of § 122.34(b)(3)(i) satisfies the map requirement in § 122.21(f)(7).

(ii) If seeking authorization to discharge under an individual permit to implement a program that is different from the program under § 122.34, the small MS4 operator must comply with the permit application requirements in § 122.26(d). The small MS4 operator must submit both parts of the application requirements in § 122.26(d)(1) and (2). The small MS4 operator must submit the application at least 180 days before the expiration of the small MS4 operator's existing permit. Information required by § 122.26(d)(1)(ii) and (d)(2) regarding its legal authority is not required, unless the small MS4 operator intends for the permit writer to take such information into account when developing other permit conditions.

(iii) If allowed by your NPDES permitting authority, the small MS4 operator and another regulated entity may jointly apply under either paragraph (b)(2)(i) or (ii) of this section to be co-permittees under an individual permit.

(3) ***Co-permittee alternative.*** If the regulated small MS4 is in the same urban area as a medium or large MS4 with an NPDES storm water permit and that other MS4 is willing to have the small MS4 operator participate in its storm water program, the parties may jointly seek a modification of the other MS4 permit to include the small MS4 operator as a limited co-permittee. As a limited co-permittee, the small MS4 operator will be responsible for compliance with the permit's conditions applicable to its jurisdiction. If the small MS4 operator chooses this option it must comply with the permit application requirements of § 122.26, rather than the requirements of paragraph (b)(2)(i) of this section. The small MS4 operator does not need to comply with the specific application requirements of § 122.26(d)(1)(iii) and (iv) and (d)(2)(iii) (discharge characterization). The small MS4 operator may satisfy the requirements in § 122.26(d)(1)(v) and (d)(2)(iv) (identification of a management program) by referring to the other MS4's storm water management program.

(4) ***Guidance for paragraph (b)(3) of this section.*** In referencing the other MS4 operator's storm water management program, the small MS4 operator should briefly describe how the existing program will address discharges from the small MS4 or would need to be supplemented in order to adequately address the discharges. The small MS4 operator should also explain its role in coordinating storm water pollutant control activities in the MS4, and detail the resources available to the small MS4 operator to accomplish the program.

(c) If the regulated small MS4 is designated under § 122.32(a)(2), the small MS4 operator must apply for coverage under an NPDES permit, or apply for a modification of an existing NPDES permit under paragraph (b)(3) of this section, within 180 days of notice of such designation, unless the NPDES permitting authority grants a later date.

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