# Town of Christiansburg, Virginia

## PCB Impairment Action Plan

## General Permit No. VAR040025


July 1, 2016

Updated December 13, 2016

Updated April 13, 2020

Prepared by the Christiansburg Department of Engineering

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.

RJ Wingfield 4-30-2020

Randy Wingfield, Town Manager date

VAR040025 Town of Christiansburg

## Executive Summary

The Town of Christiansburg has been assigned Waste Load Allocations (WLA) for Polychlorinated Biphenyls (PCB) in the Roanoke River watershed in a 2009 Total Maximum Daily Load (TMDL) study. As part of a census defined urbanized area, Christiansburg is required to maintain Municipal Separate Storm Sewer System (MS4) permit coverage to discharge stormwater from its storm drain system and is defined as an MS4 operator under General Permit VAR04. In compliance with Section II, Part B, of General Permit VAR04, Christiansburg shall address PCB waste load allowances in accordance with Section II.B and this Local TMDL Action Plan.

This document serves as a Town-specific Total Maximum Daily Load (TMDL) Action Plan to identify the best management practices and other interim milestone activities to be implemented to address the PCB WLA assigned to the Town's regulated MS4 area.

The Roanoke River TMDL study states that, where warranted, non-numeric Best Management Practices (BMPs) shall be implemented and will focus on PCB source tracking and elimination at the site of contamination, rather than end-of-pipe controls, to comply with the WLA provisions of the TMDL.

This iteration of the Town of Christiansburg PCB Action Plan addresses the special conditions of the MS4 General Permit through the following actions:

- Coordinate with the Town Public Works Wastewater Treatment Plant (WWTP) to gather information on potential PCB sources through the WWTP Industrial Waste Surveys for industrial sanitary sewer connections.
- Enhanced required staff good housekeeping/IDDE training frequencies and inclusion of Pollutant of Concern.
- Additional public education and outreach efforts focused on the pollutant of concern beyond the minimum required in Part I.E.1 of the MS4 permit.
- Contact with the Montgomery Regional Solid Waste Authority to receive any updates to their Household Hazardous Waste collection and outreach efforts.
- Update inventory of Town owned properties in the Roanoke River Watershed and investigate for significant sources of the pollutant of concern.

Due to the potential cost to the Town of meeting the required reductions, the Town reserves the right to make future adjustments to this plan and to substitute any practices and projects that can achieve Pollutant of Concern (POC) reductions at less total cost.

## Introduction

This Town of Christiansburg Polychlorinated Biphenyl (PCB) Action Plan has been developed in response to an approved Total Maximum Daily Load Plan (TMDL) for which the Town is assigned a Wasteload Allocation (WLA):

- The December 2009 Roanoke River PCB TMDL Development (Virginia)

This TMDL was approved by the Environmental Protection Agency on April 9, 2010.

The special conditions of Christiansburg's 2018-2023 MS4 General Permit require the development of an Action Plan in response to TMDLs in which an individual or aggregate wasteload has been allocated to the permittee. Under the terms of the MS4 permit this plan becomes enforceable by the Virginia Department of Environmental Quality.

The 2009 Roanoke River PCB TMDL assigns WLAs to identified point sources within the watershed. As an MS4, the town's storm drain system is assigned a WLA and the WLA is divided into North Fork Roanoke River and South Fork Roanoke River subwatershed components. The Town of Christiansburg's WLA for the North Fork Roanoke River watershed's Wasteload Allocation for PCB is 1.6 mg/yr, a 99.05 % reduction from the existing baseline of 166.8 mg/yr. In the South Fork Roanoke River watershed the TMDL assigns a WLA of 1.7 mg/yr, a 99.05 % reduction from the existing baseline of 177.4 mg/yr.

PCBs were produced for commercial uses from about 1929 to 1977. The 1976 Toxic Substances Control Act banned certain uses and restricted PCB concentrations to low levels. The largest use of PCBs was for heat transfer fluids in electrical transformers and capacitors. PCBs were also used as plasticizers, wax and pesticide extenders, and lubricants. Many products used to contain PCBs at high levels, such as carbonless copy paper and caulk used to seal cracks in homes and buildings. PCBs are still found in old products produced before commercial production of PCBs ended, such as in electrical transformers. They can also be found in new products, either as a contaminant or intentionally added below regulated levels. There is still inadvertent production of PCBs during manufacturing of chemicals including dyes and pigments. (Washington DOE)

Since PCBs do not naturally occur in the environment, PCBs detected in air, water and soil are a result of activities relating to the manufacture, use, and disposal of PCBs. Although PCBs are no longer made in the United States, people can still be exposed to them. Many older transformers and capacitors may still contain PCBs, and this equipment can be used for 30 years or more. Old fluorescent lighting fixtures and old electrical devices and appliances, such as television sets and refrigerators, may contain PCBs if they were made before PCB use was stopped. When these electric devices get hot during operation, small amounts of PCBs may get into the air and raise the level of PCBs in indoor air. Because devices that contain PCBs can leak with age, they could also be a source of skin exposure to PCBs. In the past, PCBs have entered the environment during accidental spills and leaks during PCB transporting or from leaks and fires in products containing PCBs. Today, PCBs still enter the environment from a variety of sources

including hazardous waste sites, improper industrial or commercial waste disposal, and uncontained leaks from old electrical transformers. (ATSDR)

The Environmental Protection Agency (EPA) has determined that long-term exposure to PCBs may increase the risk of cancer. (DEQ PCB Portal). One of the major ways people are exposed to PCBs is through our diet, such as eating fish that contain PCBs. PCBs have been shown to have toxic effects to the immune, reproductive, nervous, and endocrine system in humans and other organisms. PCBs also cause cancer in animals, and are considered likely to cause cancer in humans. (Washington DOE)
PCBs have a relatively low vapor pressure that reduces their potential to volatilize. They are also nonpolar and therefore are only slightly soluble. This non-polarity and low solubility makes PCBs bind strongly to soils and sediment. PCBs enter surface waters carried by contaminated soil particles via surface water runoff. Reducing the potential for sediment transport at PCB sites reduces the potential for PCB contributions to surface water.

Without remediation, PCBs can remain in the environment for an extended time due to their stability. PCBs can also bioaccumulate in fish (ATSDR). Concerns over bioaccumulation of PCBs in fish led to the development of PCB total maximum daily loads (TMDLs) for PCB impaired water bodies.

## Local TMDL Special Conditions

The VAR04 General Permit lists in Part II.B.3 specific criteria to be addressed when a permittee is assigned a WLA as listed below:

a) The TMDL project name;
b) The EPA approval date of the TMDL. (a) and (b) are listed above.;
c) The wasteload allocated to the permitted (individually or in aggregate), and the corresponding percent reduction, if applicable;

Table 1: Wasteload Allocations for Sediment

| Watershed | MS4 permittees assigned WLA | Existing load (mg/yr) | Percent reduction required | Mg/yr reduction required | TMDL WLA (mg/yr) |
|---|---|---|---|---|---|
| North Fork Roanoke River | Town of Christiansburg (VAR040025) | 166.8 | 99.05 | 165.2 | 1.6 |
| South Fork Roanoke River | Town of Christiansburg (VAR040025) | 177.4 | 99.05 | 175.7 | 1.7 |

d) Identification of the significant sources of the pollutants of concern discharging to the permittee's MS4 and that are not covered under a separate VPDES permit. For the purposes of this requirement, a significant source of pollutants means a discharge where the expected pollutant loading is greater than the average pollutant loading for the land use identified in

the TMDL;

- The Town has not identified any significant sources of the pollutant of concern (PCB) discharging to the permittee's MS4 that are not covered under a separate VPDES permit. There are no significant sources of the POC identified in the TMDL study that fall within the Town's MS4 regulated area.

e) The BMPs designed to reduce the pollutants of concern in accordance with Parts II B 4, B5, and B6;

f) Any calculations required in accordance with Part II B4, B5 or B6;

- The Roanoke River TMDL study states that non-numeric Best Management Practices (BMPs) will be used to comply with the Wasteload Allocation provisions of the Roanoke River PCB TMDL. Therefore, no calculations are required.

g) For action plans developed in accordance with Part II B 4 and B5, an outreach strategy to enhance the public's education (including employees) on methods to eliminate and reduce discharges of the pollutants; and

- This is Part II B6, so no outreach strategy is required.

h) A schedule of anticipated actions planned for implementation during this permit term.

- Sections e and h are addressed below in "BMPs and schedules to address PCB load reduction".

Additionally, per Part II B 6 of the MS4 permit, for each PCB TMDL Action Plan, the permittee shall include an inventory of potentially significant sources of PCBs owned or operated by the permittee that drains to the MS4 that includes the following information:

(1) Location of the potential source

(2) Whether or not the potential source is from current site activities or activities previously conducted at the site that have been terminated (i.e. legacy activities); and

(3) A description of any measures being implemented or to be implemented to prevent exposure to stormwater and the discharge of PCBs from the site.

The Town of Christiansburg does not currently know of any potentially significant sources of PCBs owned or operated by the permittee that drain to the MS4 within the Roanoke River Watershed. Per the requirements of Part II B 6 of the MS4 permit, if at any time during the term of this permit the Town discovers a previously unidentified significant source of PCBs within the permittee's MS4 regulated service area, the permittee shall notify DEQ in writing within 30 days of discovery.

## BMPs and schedules to address bacteria load reduction

### Schedule of Anticipated Actions and BMPs through the 2018 – 2023 Permit Cycle

- A yearly outreach effort beyond that detailed in the MS4 program plan to educate Town residents and business about PCB sources and elimination will be initiated.
- Montgomery Regional Solid Waste Authority (MRSWA) will be contacted for any updates to their Household Hazardous Waste collection and outreach efforts.

- The required staff Good Housekeeping/IDDE training currently contains information on local TMDLs, although not specifically PCBs. PCBs will be added in the 2020 training. As listed in the 2016 PCB Action Plan, some staff training will be occurring more frequently than the biennial frequency required by the MS4 General Permit.
- The properties identified in the 2016 Action Plan as being within the Town limits, owned by the Town, and within the Roanoke River watershed, plus other properties that may have been acquired since then that meet the same criteria, will be investigated for significant sources of the Pollutant of Concern**.**
- Coordinate with the town Public Works Wastewater Treatment Plant (WWTP) to gather information on potential PCB sources through the WWTP Industrial Waste Surveys for industrial sanitary sewer connections.
    - Revision of the industrial waste survey of significant dischargers that is sent to new significant dischargers and to all significant dischargers at the next VPDES permit cycle is complete. Review Significant Industrial Users (SIUs) and any relevant discharger's Standard Industrial (SIC) Codes to evaluate potential sources of PCBs.
    - When the WWTF conducts their next survey, results will be evaluated for potential sources of PCBs in the Roanoke River Watershed

**The following BMPs were listed in the 2016 Town of Christiansburg PCB Action Plan. It is noted at the end of each BMP and schedule if it was completed, or if it is being modified or removed from the Action Plan. Detailed progress reports on these BMPs have already been submitted to DEQ through the MS4 Annual Reports.**

- MCM 1 – Public Education:
    - Evaluate the substitution or addition of education on PCB sources and elimination as a high-priority water quality issue. Research existing outreach efforts by others for PCBs as a legacy pollutant for the criteria used in the selection of an appropriate target audience and for this potential water quality issue. Research outreach programs and activities by others, including social media outreach. **EVALUATION COMPLETED. PCB INCLUDED AS WATER QUALITY ISSUE IN MS4 PROGRAM PLAN. 2020 UPDATE UNDER SCHEDULE OF ANTICPATED ACTIONS ABOVE.**
    - Include information about PCB as a Pollutant of Concern in future annual mailers that are attached to the annual drinking water quality information. Evaluate the use of social media as an outreach method. **COMPLETED. MAILER DISCONTINUED.SOCIAL MEDIA WILL BE USED AS NEEDED.**
    - Include discussion of the PCB TMDL during the Town Council Annual Report Presentation. **ANNUAL REPORTS ARE NOT PRESENTED TO TOWN COUNCIL. ITEM REMOVED.**

- MCM 2 – Public Involvement:
    - Participation in the New River PCB TMDL Technical Advisory Committee to provide input into the development of the TMDL that provides consistency across both TMDL plans. **COMPLETED.**
- MCM 3 – Illicit Discharge:
    - The Town website provides contact information to report IDDE comments and complaints. **NOW REQUIRED UNDER VAR04 GENERAL PERMIT PART I.E.2. REMOVED FROM ACTION PLAN.**
- MCM 4 – Construction Site Runoff:
    - Regulated land disturbance projects in the Town are required to be consistent with the Chapter 16 ESC and SWM Ordinances, which require Stormwater Pollution Prevention Plans that minimize the discharge of pollutants from construction activity and post-construction. Inspections are required to be performed during construction activity. **NOT APPLICABLE TO PCB ACTION PLAN. ITEM REMOVED.**
- MCM 5 – Post Construction Stormwater Management:
    - The Town SWM program requires regulated land disturbance projects to address post-construction water quality and requires a long term inspection and maintenance program for stormwater management facilities to ensure functionality. As an additional practice the SWM regulations and BMP maintenance requirements apply at a lower 10,000 square foot threshold as compared to the state 1 acre threshold. The facilities are designed to meet the technical criteria target phosphorus reductions; however, facilities that remove phosphorus inherently also remove sediment from passing downstream. **NOT APPLICABLE TO PCB ACTION PLAN. ITEM REMOVED**
    - The Town currently inspects all privately owned stormwater management facilities annually, exceeding the General Permit minimum requirement that all facilities be inspected at least once every five years. **NOT APPLICABLE TO PCB ACTION PLAN. ITEM REMOVED**
- MCM 6 – Good Housekeeping:
    - Housekeeping SWPPPs are developed for Town staff and SWPPP inspection are occurring in the current permit year, one year ahead of the required deadline. **SWPPP DEVELOPMENT COMPLETED AND INSPECTIONS ARE ONGOING.THIS IS REQUIRED UNDER VAR04 GENERAL PERMIT PART I.E.6 AND IS REMOVED FROM THE ACTION PLAN.**
    - The Town SWPPP housekeeping training occurs at a more frequent training schedule than the biennial frequency required by the MS4 General Permit. **ONGOING.**
    - The Town has IDDE complaint contact information on the town website, as specified in the MS4 program plan, to enhance public IDDE reporting capabilities. **NOW REQUIRED UNDER VAR04 GENERAL PERMIT PART I.E.2. REMOVED FROM ACTION PLAN.**

## Identify and Maintain a List of BMPs

The 2013 -2018 MS4 permit conditions required the permittee to conduct an assessment of facilities for significant sources of the Pollutant of Concern. The following properties within the Town limits are owned by the Town and within the Roanoke River watershed.

| Watershed | Land Use | Parcel ID | Address | Comments |
|---|---|---|---|---|
| RU04 Elliot Creek (South Fork Roanoke River Watershed) | Pump Station | 70371 | Overland Drive | Walnut Branch Pump Station |
| | Pump Station | 90631 | 200 Pops Lane | Conner's Pump station |
| | Vacant | 71051 | Lomoor Drive | Lomoor Street former pump station site |
| | Vacant | 71034 | Tower Road | Tower Road |
| | Pump Station | 070348, 031962, 070347 | 832 Tower Road SE | Tower Road Pump Station |
| | Pump Station | 32141 | John Lemley Lane | |
| | Park | 120264 | John Lemley Lane | Park |
| RU07 North Fork Roanoke River - Wilson Creek | Rest Area | 31401 | Wayside Drive | Wayside Drive Rest Area |
| | Stormwater Pond | 80053 | White Pine Drive | White Pine Court Subdivision |
| | Vacant | 32739 | Dunlap Drive | Parcel adjacent to ROW |
| | Stormwater Pond | 120346 | Industrial Drive | Christiansburg Industrial Park Detention Pond |
| | Stormwater Pond | 160190 | Industrial Drive | Christiansburg Industrial Park Extended Detention Pond |
| RU05 South Fork Roanoke River - Brake Branch | No Town owned Properties present | | | |

## Measurable Goals through the 2013 – 2018 Permit Cycle (Updates at end of each goal)

- Evaluate the substitution or addition of education on PCB sources and elimination as a high-priority water quality issue for the 2017-2018 permit year. **ADDRESSED ABOVE IN 2020 UPDATE OF ACTIONABLE ITEMS.**
    - Research existing traditional and social media outreach efforts by others for PCBs as a legacy pollutant for the criteria used in the selection of an appropriate target audience and for this Water Quality Issue (WQI). **COMPLETED**

- Examine residential outreach information on electrical and appliance sources of PCB Examine institutional, commercial and industrial businesses as potential target audiences. **COMPLETED.**
    - Interim milestone timeline: Complete existing outreach methods research by June 30, 2017. Evaluate existing methods through September 30, 2017 and modify PEOP as appropriate based on research evaluation. Begin any modified outreach in the 2017-2018 permit year and provide any revisions to PEOP with the 2016-2017 Annual Report on October 1, 2017.
    - Method to assess effectiveness: Education and outreach efforts are modified in the 2017-2018 year to address PCB as a POC.

- Include information about PCB as a Pollutant of Concern in 2017-2018 annual mailers that are attached to the annual drinking water quality information. **MAILER DISCONTINUED. ADDRESSED IN CHRISTIANSBURG CONNECTION NEWSLETTER MAILED WITH UTILITY BILLS.**
    - Interim milestone timeline: Address PCBs in June, 2018 mailer using information gathered from outreach research.
    - Method to assess effectiveness: June, 2018 mailer should address PCB as a POC.
- Continue New River TAC participation to advocate for consistent TMDL requirements across all town watersheds. **TAC COMPLETED.**
    - Interim milestone timeline: Continue TAC participation in anticipated January 2017 meeting and subsequent meetings.
    - Method to assess effectiveness: Document participation in TAC.
- Coordinate with the town Public Works Wastewater Treatment Plant (WWTP) to gather information on potential PCB sources through the WWTP Industrial Waste Surveys for industrial sanitary sewer connections. **ADDRESSED ABOVE IN 2020 UPDATE TO SCHEDULE OF ANTICIPATED ACTIONS.**
    - Revise the industrial waste survey of significant dischargers that is sent to new significant dischargers and to all significant dischargers at the next VPDES permit cycle. Review Significant Industrial Users (SIUs) and any relevant discharger's Standard Industrial (SIC) Codes to evaluate potential sources of PCBs.
        - Interim milestone timeline: Complete document revision by June 30, 2017. Evaluate existing survey data by June 30, 2018. Report results in 2017-2018 Annual Report.
        - Method to assess effectiveness: Report results indicating specific potential POC dischargers for subsequent education and outreach efforts would be an effective outcome.
- Research IDDE ordinance language at other localities for specific PCB prohibition. **COMPLETED. RESEARCH DOCUMENTED.**
    - Interim milestone timeline: Research existing ordinances at other municipalities through September 30, 2017. Submit findings to Director of Engineering for consideration and discussion with Town Manager.

        - Method to assess effectiveness: Effectiveness will be assessed as delivery of recommendation to the Town administration.
- Survey existing PCB-free purchasing ordinance language at other localities and evaluate the potential to add such language to Town Code. **COMPLETED. NO EFFECTIVE ORDINANCE LANGUAGE LOCATED. ITEM REMOVED FROM ACTION PLAN.**
    - Interim milestone timeline: Research existing ordinances at other municipalities, effect on product availability, and economic effects of this this type of ordinance through September 30, 2017. Submit findings to Director of Engineering for consideration and discussion with Town Manager and Finance Director for evaluation.
    - Method to assess effectiveness: Effectiveness will be assessed as delivery of recommendation to the Town administration by September 30, 2017. Should ordinance language be incorporated into Town Code a measure of effectiveness will be established to gauge the impact of the code revision.
- Examine methods to determine historical land uses to identify potential legacy sources of PCBs
    - Interim milestone timeline: Complete examination of efforts by June 30, 2017. Document outreach in 2016-2017 MS4 Annual Report.
    - Method to assess effectiveness: Inclusion of any methodologies to identify potential legacy sources of PCBs in 2017-2018 Action Plan update would indicate an effective effort. **THE TOWN FINDS THIS ITEM TO BE OUTSIDE THE SCOPE OF THE VAR04 GENERAL PERMIT REQUIREMENTS. THE TOWN WILL INVESTIGATE TOWN OWNED PROPERTIES IN THE ROANOKE RIVER WATERSHED AS REQUIRED AND DETAILED ABOVE IN THE 2020 UPDATE OF ANTICIPATED ACTIONS. ITEM REMOVED.**
- Contact the Montgomery Regional Solid Waste Authority (MRSWA). Discuss residential drop off and disposal of potential PCB-source waste products (old electrical appliances, televisions, refrigerators, etc.). Discuss potential for partnerships in public outreach for proper disposal of potential PCB source. **COMPLETED. CONTACT INFORMATION INCLUDED IN OUTREACH. UPDATE FOR 2020 ACTION PLAN ADDRESSED ABOVE.**
    - Interim milestone timeline: Complete outreach to MRSWA by June 30, 2017. Document outreach in 2016-2017 MS4 Annual Report.
    - Method to assess effectiveness: Inclusion of any MRSWA partnership in 2017-2018 PEOP would indicate an effective outreach effort.
- Review Good Housekeeping SWPPP materials for potential revisions to more specifically address PCBs as a pollutant of concern. **COMPLETED.**
    - Interim milestone timeline: Review town parcels located within the Roanoke River watershed. Identify potential SWPPP sites for PCB concerns by September, 2017. Document review in 2016-2017 MS4 Annual Report. (List of sites).**ITEM REMOVED. YEARLY ASSESSEMENT OF SITES NOW REQUIRED BY VAR04 GENERAL PERMIT PART I.E.6.**
    - Method to assess effectiveness: Inclusion of PCB related information in TOC Good Housekeeping Manual and site inspection forms at applicable SWPPP sites would

indicate an effective effort. **COMPLETED. GOOD HOUSEKEEPING MANUAL INCLUDES PCB INFORMATION.**

## Public Comment

The Town held a 15 day Public Comment period from April 14, 2020 through April 29, 2020. The TMDL Action Plan was posted on the Town's website with an online comment form available on the same page. Links were provided via the Town's homepage and through the Town's Facebook page. Due to COVID-19 restrictions, all public comment was solicited via online channels. No public comments were received.

## Definitions – For the purposes of this guidance document, the following definitions shall apply:

**Polychlorinated Biphenyl (PCB) -** An organic chlorine compound with the formula $C_{12}H_{10-x}Cl_x$. 209 unique chemical compounds, known as congeners, exist and are included in this category of chemical compounds.

**Best Management Practices ("BMPs") –** Schedules of activities, prohibitions of practices, maintenance procedures, and other management practices, including both structural and nonstructural practices to prevent or reduce the pollution of surface waters and groundwater systems.

**Load Allocation ("LA") -** The portion of the loading capacity attributed to (1) the existing nonpoint sources of pollution and (2) natural background sources.

**Pollutant(s) of Concern ("POC")** – The pollutant(s) impairing a water body for which one or more TMDL(s) has been developed.

**TMDL Implementation Plan –** A document guided by an approved TMDL(s) that at a minimum provides details of the corrective actions to address the load allocation of one or more TMDLs. The plan includes measureable goals needed to achieve pollutant(s) source load reductions; outlines a schedule to attain water quality standards along with costs, benefits, and environmental impacts to reduce pollutant(s) and remediate impaired waterbodies.

**Total Maximum Daily Load ("TMDL") –** The sum of the individual wasteload allocations (WLAs) for point sources, load allocations (LAs) for nonpoint sources, natural background loading and a margin of safety.

**Total PCB (tPCB) -** The summation of PCB congeners, out of the possible 209,

**Wasteload Allocation ("WLA") -** The portion of a receiving waters' pollutant loading capacity that is allocated to existing or future point sources of pollution, such as an MS4.

***For terms not defined above, please refer to the 9VAC25-890-1, 9VAC25-870-10, or 9VAC25-31-10 of the Virginia Administrative Code*.**

## References

Agency for Toxic Substances and Disease Registry (ATSDR), U.S. Department of Health and Human Services. Accessed 2016: https://www.atsdr.cdc.gov/phs/phs.asp?id=139&tid=26

Virginia Department of Environmental Quality 'Resources for PCB TMDLs' (DEQ PCB Portal). Accessed 2016 at:
http://www.deq.virginia.gov/Programs/Water/WaterQualityInformationTMDLs/TMDL/PCBTMDLs.aspx

Virginia Department of Environmental Quality TMDL Guidance Memo Number 14-2004 "Procedures for reviewing and deriving total PCB concentrations from samples analyzed using low-level PCB method 1668 to be used in the development and implementation of TMDLs"

Washington Department of the Environment (DOE) Washington State Department of Ecology PBT Initiative. Accessed 2016 at: http://www.ecy.wa.gov/programs/hwtr/RTT/pbt/pcb.html