

Spokane River Regional Toxics Task Force
Coordinated Response to EPA Regarding the Remand from Judge Rothstein
DRAFT: May 27, 2015

The following information is provided as a coordinated response from the Spokane River Regional Toxics Task Force (SRRTTF) to the request by EPA to provide information associated with Judge Rothstein's order.

Background: Early PCB Investigations Unveiled Significant Data Gaps

In April 2011 the Department of Ecology (Ecology) published a PCB Source Assessment for the Spokane River. This report relied on data collected between 2003 and 2007 using various sampling methods. The analysis of data collected provided the following information as the then current understanding of PCB conditions related to the Spokane River (the river).

- The report calculated PCBs crossing the Idaho/Washington state line to be approximately 477 mg/day
- Between the Idaho/Washington state line and Long Lake Dam, approximately 3,187 mg/day of PCBs were estimated to be entering the river
- Measured discharges from Washington point sources (NPDES Permit Holders) accounted for about 307 mg/day of PCBs
- Tributaries to the Spokane River accounted for 97 mg/day of PCBs
- 690 mg/day¹ of PCBs were estimated to be entering the River from the City of Spokane's stormwater system.

In summary, the 2011 report findings indicated that at least 66% of the PCB sources measured in the River were unknown, and much of these data were uncertain. Because of the lack of sufficient data and unaccounted sources, the report did not provide the certainty necessary to develop a source reduction plan.

Solution: Use Collaborative Task Force to Employ a “Direct to Implementation” Approach

Washington and Idaho NPDES permits required participation of the permittees in a Regional Toxics Task Force (Task Force) with a goal to develop a comprehensive plan to bring the Spokane River into compliance with the applicable water quality standard for PCBs. In addition to the NPDES permittees in the Spokane River Basin, members participating in the SRRTTF include conservation and environmental interests including Lake Spokane Association, Spokane Riverkeeper and the Lands Council; Spokane Regional Health District; Ecology; Idaho DEQ; Washington State Department of Health; the Coeur d'Alene Tribe; the Spokane Tribe of Indians; and USEPA. By late 2012, the Task Force was sufficiently organized so that it could begin functioning, they developed an MOA (Attachment A), a funding entity, and procured a national expert as a community technical advisor for the important work it was undertaking.

¹ Recent sampling and analyses show the estimated stormwater contribution of PCBs from the City of Spokane are actually approximately 46 mg/day.

Development of the PCB Reduction Work Plan was Thoughtful and Comprehensive

In order to achieve their goal of developing a comprehensive plan to bring the Spokane River into compliance, the Task Force developed and adopted an initial Work Plan in 2012 (Attachment B), setting forth the common vision of the Task Force members, identifying the anticipated work necessary to accurately identify primary sources of PCBs, and the schedule for the completion of that work. The Task Force is currently on schedule with the work, and has proven its ability to make measurable progress towards the reduction of PCBs in the Spokane River.

Initial Task Force Actions Were Expedient and On-target

In April 2013, the Task Force engaged LimnoTech, a firm renowned for their expertise on the fate and transport of PCBs, as a technical advisor to assist with the development of an initial scope of work for its technical efforts. These initial “Phase 1” efforts included compilation of all PCB data that may be relevant for characterizing either potential PCB source contribution or instream PCB conditions, review and evaluation of the compiled data for future use, an analysis of the data to identify data gaps that were critical to developing a clear understanding of current conditions, and the development of a data collection strategy and the companion sampling, analysis, and quality assurance plans.

Existing PCB Data Compilation

An inventory of existing groundwater, stormwater, point source discharges, and river and lake sampling data was compiled and included information that was publically available (Ecology publications and open literature) as well as data from other known public and private sources and all Task Force members. These data were placed into a data base for future use.

Review and Evaluation of Compiled Data

Once the data compilation effort had been completed, the data were reviewed and characterized based on quality and usability with respect to potential source identification, source delivery pathways to the river, and instream fate and transport. All work was conducted with extensive review and acceptance by Task Force members.

Data Gap Analysis

An inventory of missing information (data gaps) was developed using a conceptual model for the river that considered potential sources and source pathways. This model covered the river from its origin at the outlet of Lake Coeur d’Alene to Nine Mile Dam, below the Spokane urban area. Four main data gaps were identified:

- The magnitude of true sources contributing to stormwater loads
- The sources between the outlet of Lake Coeur d’Alene and the Idaho/Washington state line

- Loading from atmospheric sources
- Loading from groundwater sources

Data Collection Strategy

Based upon the identified data gaps, the initial “Phase 2” data collection strategy focused on dry weather monitoring of the Spokane River between the outlet of Lake Coeur d’Alene and Nine Mile Dam so that the loading from groundwater sources could be quantified as well as the loading from sources in Idaho. The data collection strategy for the dry weather monitoring (baseline monitoring) included all point sources as well as all river and tributary locations where flow was either measured or calculated. This strategy allowed the development of mass balances for each river segment between river flow gages so that the contribution of PCB loads via groundwater could be determined. Once groundwater contributions were quantified, monitoring during wet weather conditions would allow quantification of stormwater loads.

As a part of the initial data collection strategy, sampling, analysis, and quality assurance plans were developed and reviewed by the Task Force members and approved by Ecology, Idaho DEQ and EPA. Data collection and associated sampling, analysis and quality assurance were especially challenging due to the exceedingly low concentrations of PCBs in the water column and the absence of known sediment sources in the Spokane River. The Task Force’s work in measuring PCBs at these low levels is precedent setting given that the concentration levels being measured are similar to those found in laboratory blanks. In order to minimize potential sample collection issues, the sampling plan specified that all samples would be collected in the same manner to the maximum extent possible. In addition, an overall quality assurance plan for sample collection and analysis was developed. All sampling was conducted over a fairly short time period (synoptic) so that a contemporaneous “snapshot” of the river from the outlet of Lake Coeur d’Alene to Nine Mile Dam could be obtained.

Dry Weather Synoptic Sampling Event in 2014: the First Comprehensive Analysis

In August 2014 the Task Force, through its contractors and technical advisor, implemented its data collection strategy by conducting a synoptic sampling event. This event represents the first comprehensive data collection effort that had been performed on the Spokane River for PCB loading between the outlet of Lake Coeur d’Alene to Nine Mile Dam. This sampling event resulted in the collection of approximately 70 water samples from both instream locations as well as point sources and flow data at each river segment. In addition to PCBs, analyses were also conducted for at least six other general water quality parameters.

Previous studies did not assess groundwater flow and associated PCB loading from groundwater sources. Initial analysis of new data highlight a few noteworthy findings.

- Between the Barker Road and the Trent Avenue Bridge sampling locations on the river, river flow increased by an average rate of 362 million gallons per day over the two week monitoring period due to groundwater flowing into the river

- From the mass balance calculations for this segment of the river (Barker Road to Trent Avenue Bridge) the average PCB loading to the river was about 273 mg/day
- The PCB loading from groundwater flowing into the river for this segment of the river represented the single largest mass source (mg/day) measured during the synoptic sampling event
- Although river flow data at the Greene Street gage could not be collected during the sampling event, flow estimates for that location indicate the possibility that a second segment (Greene Street to Spokane Gage) may exist where groundwater flow into the river could be contributing a PCB load.

Work of the Task Force is Vital to Successful PCB Reduction Effort

Much work remains to be completed in the identification of sources of PCBs entering the Spokane River. The Work Plan that was adopted in 2012 organized the technical work into four phases. Phase 1 has been completed, and Phase 2 is partially complete. The next steps as identified in the initial Work Plan are described below. It is anticipated this initial work will be completed in 2016. We expect that as more data are collected and we expand our understanding of PCB loading to the Spokane River, we may identify other sources and additional data gaps that will lead to additional testing and new approaches.

Phase 2

The Task Force has completed approximately half of the Phase 2 data collection work to address data gaps and to create an adequate data set to characterize and quantify PCB sources. This data collection phase also needs to evaluate wet season contributions to the Spokane River to determine seasonal variations in PCB loadings. In addition, the concentration of PCBs in groundwater needs to be measured across the Rathdrum Prairie Spokane Valley Aquifer to better estimate PCB loading into the Spokane River and Little Spokane River. Finally, the effect of aerial deposition as a source needs to be evaluated to characterize whether aerial deposition is a significant source of PCBs into the Spokane River.

Phase 3

In Phase 3, the Task Force will characterize and quantify the identified sources of PCBs entering the Spokane River. It is anticipated that these sources will include all of the point sources such as the wastewater treatment facilities that discharge to the Spokane River. Also included will be consideration of non-point sources such as stormwater, groundwater, and perhaps aerial deposition.

The characterization of the point sources will include an evaluation of the PCB reduction measures that are anticipated to result as each wastewater treatment facility implements their next level of treatment as required under their NPDES permits to comply with the Spokane River Dissolved Oxygen TMDL.

Phase 4

In Phase 4 of the initial Work Plan, the Task Force will summarize the identified sources of PCBs into the Spokane River. For each identified source, a range of Best Management Practices (BMPs) that can eliminate or reduce the source of the PCBs will be identified with recommendations for implementation.

Task Force Maintains the Focus on PCB Sources and their Reduction and Elimination

Based on the information developed thus far, the Task Force is currently implementing a number of actions to address potential PCB sources:

- As a result of the analysis of the data generated from the synoptic sampling event, the Task Force has authorized its technical advisor to determine what studies would be needed to identify sources that could be contributing PCBs to the groundwater flowing into the river. This will in turn direct efforts for source removal.
- On a parallel track with the technical analyses, the Task Force and Task Force members are identifying and eliminating PCB contributions from stormwater runoff sources and stormwater vector waste.
- We are funding the establishment and maintenance of stream gages on the Spokane River to understand river flow in areas where significant PCB loading has been observed to occur.
- We have also been involved in product testing to identify products found to have the greatest concentrations of PCBs. Currently, the Task Force is preparing to sample and analyze hydroseed samples used on roads and highways in Washington State.
- We are currently preparing to sample and test for PCB concentrations in the tissue of hatchery fish used to stock the river.
- Following the lead of recent revisions to Washington state procurement procedures, several Task Force municipalities have also approved similar policies which allow for the preferential purchase of products (or products with packaging) that do not contain PCBs above established thresholds.
- Task Force members are conducting additional “track down” studies to identify specific sources of PCB concentrations.
- Given the very high level of “inadvertently produced” PCBs allowable in products through the Toxics Substances Control Act (TSCA), the Task Force also realizes the importance of eliminating this TSCA allowance and is continuing to work together with the EPA and local and federal legislators to achieve this end.
- The Task Force members are collaborating on public outreach activities to engage the Spokane Community and reduce the usage of products containing inadvertently produced PCBs that enter the waste stream.

Significant and Costly Treatment Process Upgrades are Already Proceeding

The NPDES permits for the regional treatment facilities discharging to the Spokane River require that the next level of treatment be installed and then optimized by the year 2021 for Washington permit holders and 2024 for Idaho permit holders. The next level of treatment will generally include sophisticated filtration technology such as membrane filters. This technology will potentially improve the PCB removal efficiency up to 99% and is anticipated to cost a total of

\$_____. The Spokane County wastewater treatment facility, which became operational in December 2011, has demonstrated that membrane filtration technologies are capable of removing up to 99% of PCBs from municipal wastewater facilities. Permittees are already removing PCBs from their discharge with current treatment technology. A summary of PCBs currently being removed from municipal and industrial wastewater is provided as Attachment C.

Preparation of a Credible TMDL for PCBs is Not Feasible

At this time, it is not feasible to develop a credible, scientifically defensible TMDL for PCBs. The preparation of a TMDL requires a different set of data and a different analytical process compared to the cleanup plan being prepared by the Task Force. It would take many years to collect the additional data and perform the analysis to create a credible TMDL for the Spokane River, during which time, much of the forward momentum of the Task Force in reducing and eliminating PCBs in the system would be lost. The following examples illustrate some of the data that would be required:

- At this time, there is no strong correlation between the concentrations of PCBs in the river water and in fish tissue. Initial dry season testing demonstrated that average concentrations in the river water do not exceed the current Washington State standard for PCB concentrations. A study to evaluate the correlation between PCB concentrations in river water and fish tissue must be done before a credible TMDL could be completed.
- There are insufficient data on the quantity of PCBs in sediments throughout the Spokane River basin. This information is needed to determine the effects of sediment on fish tissue, before a TMDL could be completed.
- There are insufficient data on the quantity of PCBs in invertebrates throughout the Spokane River basin. This information is needed to determine the effects of invertebrates on fish, since they are a major food source for fish.
- A fish tissue “finger printing” study is necessary to identify which PCB compounds are accumulating in fish compared to the PCB compounds that are found in the water column and discharged from specific sources. This study would show whether there is a specific correlation between PCBs in the Spokane River water column and PCBs found in fish tissue.
- It is not possible to successfully implement a TMDL to achieve the PCB water quality standard for the Spokane River as long as the current Federal TSCA allowances for PCBs in products exist (these allowances are _____ times greater than the current water quality standard).
- Current analytical methods do not provide low enough detection limits for PCBs relative to potential applicable water quality standards for the Spokane River
- EPA has not promulgated a sampling or analytical method for PCBs to measure to the levels necessary to demonstrate compliance with a TMDL on the Spokane River.

Absent a complete credible data set, a scientifically defensible TMDL cannot be prepared. Waste load allocations cannot be determined for a TMDL without having adequate data to understand how PCBs enter the river water, and then how PCBs accumulate in the fish tissue.

TMDL Actions Pose an Uncertain Future for a Motivated and Effective Organization

The Task Force was created under the “Direct to Implementation” approach as an alternative to development of a TMDL that was never intended to lead directly to a TMDL so long as measurable progress is being made towards the reduction of PCBs in the Spokane River. To date, the work of the Task Force members has already resulted in measurable PCB reductions in the Spokane River. Implementation of a numeric TMDL is not in the best interest of the region’s environment and would result in a costly, contentious and time consuming TMDL process. There would be no incentive for Task Force members to collaboratively participate in the Task Force or pool technical data and financial resources, a model which has worked successfully to date. The excellent collaborative work that is currently underway, focused on the identification and reduction of PCB sources, is positioned to continue making measurable progress towards reducing PCBs in the Spokane River and should be allowed to continue into the future.

[Note: In addition to Attachments A through C, individual members of the Task Force will submit supporting attachments to this coordinated response directly to the EPA.]

Attachments

Attachment A – SRRTTF MOA

Attachment B – SRRTTF Initial Work Plan (2012)

Attachment C – Permittee PCB Reduction Activities to Date