SRRTTF: Comprehensive Plan Implementation Summary Tables (3)
Year Five, 1/1/2021–12/31/2021
Actions Compiled from SRRTTF Comprehensive Plan (approved TBD)

Table 1 – Category A Control Actions

Category (Plan Section)	Control Action	Lead Group	Status 12/31/21
A: Wastewater Treatment (5.1)	5.1.1 Maintain compliance with Idaho Municipal Permits	Permit holders	In compliance with permits Next Steps: Permittees continue to work with regulators on permit compliance and any associated updated requirements
	5.1.2 Maintain compliance with Washington Municipal Permits		
	5.1.3 Maintain compliance with Washington Industrial Permits		
	5.1.4 Maintain compliance with Fish Hatchery/Aquaculture Permits		
A: Remediate Known Contaminated Sites (5.2) ***(see also 6.3 below)***	5.2.1 Maintain remediation remedy for Spokane River Upriver Dam and Donkey Island	Ecology	The remedial actions and monitoring in 2008 and 2010 were completed by Avista under the terms of the consent decree. Ecology completed the Periodic Review for this site with the public comment period ending October 27, 2021. Next Steps: Ecology will respond in the next few months to the comments received. The next Ecology Periodic Review for the Spokane River Upriver Dam and Donkey Island Site is scheduled for 2026.
	5.2.2 Maintain protections for General Electric site near Spokane River	Ecology	The last Ecology Periodic Review for the General Electric Co. Site located at 4323 E. Mission Ave was completed in 2013. An on-site well, NM-11, has had intermittent exceedances above the site cleanup level of 0.1 ug/1 since then. The sample results indicate the PCB is Aroclor 1260. The results for wells downgradient of NM-11 are below the site cleanup level of 0.1 ug/l and usually below the detection limits of 0.053 ug/l. Next Steps: The periodic review is currently in internal review and is scheduled to be completed in 2022.

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	5.2.3 Maintain protections for the City Parcel	Ecology	The first periodic review, scheduled for 2024, will evaluate compliance with the institutional control that requires industrial land use as part of the environmental covenant. No additional soil or groundwater sampling is scheduled unless there is a requested change in land use. The City of Spokane constructed the Erie Stormwater facility and with the exception of an emergency overflow pipe, this stormwater basin, which contains the City Parcel Site, will now be completely infiltrated and not discharged to the river
	5.2.4 Complete PCB groundwater treatment pilot for Kaiser Aluminum	Kaiser Aluminum	Kaiser gave an update at the June TF meeting. Their primary target is above 200 gallons/minute but as they get more information from the study being performed, they will continue to reevaluate going forward. Kaiser can modularly expand the system without having to change the footprint too much. The order states that Kaiser will implement full scale until they no longer have impacts to the Spokane river. Next Steps: Expanding treatment options and providing another update in the future.
	5.2.5 Schedule and Monitoring Program	Nothing specified – Plan references in Section 6.1 broader implementation effectiveness assessment within five years to review all available data to assess: 1) PCB loading to the Spokane River and changes in loading, and 2) Spokane River PCB concentrations and changes in concentrations	
A: Stormwater Controls (5.3)	5.3.1 NPDES Stormwater Permits for MS4s	Permit holders	In compliance with permits
	5.3.2 Implement 3 actions that reduce PCBs in the City of Spokane's Integrated Clean Water Plan	City of Spokane	Cochran Basin: Small infiltration facility built with I03 storage tank project and Monroe St project. Ecology grants have been received for Disc Golf and TJ Meenach infiltration basins, piping/conveyance, and the lift station/control facility. Funding comes from a combination of SFAP grants and City funds. Construction of the pipeline began in Fall 2021. Green Infrastructure: City continues to include green infrastructure in its construction projects where applicable and encourage its use on private development. CSOs: As of August 2020, all CSO storage facilities have been built and are operational.
A: Low Impact Development Ordinance (5.4)	Encourage use of LID stormwater practices	Cities and Counties	City of Spokane: Ordinance/incentives still in place and being used.
A: Street Sweeping (5.5)	Continue street sweeping efforts	Cities and Counties	City of Spokane: Strategic street sweeping still being performed.

Table 2 – Control Actions Coordinated by SRRTTF

Category	Control Action	Lead Group	Status 12/31/2021
A: Purchasing Standards (5.6)	Implement State and local purchasing and procurement policies	State agencies, Cities and Counties. TSCA Work Group (WG)	In April 2018 a letter was sent to WA and ID state and local agencies encouraging them to use non-chlorinated road paints. Spokane, Spokane County, Liberty Lake and Post Falls to use non-diarylide yellow paint.
B: Support of Green Chemistry Alternatives (5.7)	5.7.2 Provide guidance & feedback to Ecology on Green Chemistry efforts 5.7.2 Assist Ecology in contacting other parties about existing or future Green Chemistry efforts	iPCB/TSCA WG (Green Chemistry group sunsetted in 2021)	In June 2020 the TF approved the Road Paint White Paper written by Northwest Green Chemistry. They looked at paint products that were non-diarylide yellow and found out they were already being utilized by WSDOT. WSDOT modified their specifications that they would no longer use these diarylide yellow paints for road striping and gave preference to manufacturers that do not use them. See also activities described for 5.8.2.

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B: PCB Product Testing (5.8) (Short Term Action)	5.8.2 Provide comments on the PCB product testing report	Full Task Force	Lauren Tamboer from Ecology Hazardous Waste and Toxics Reduction Program gave a Safer Products of WA presentation at the April TF meeting. It is an implementation program aiming to reduce toxic chemicals in consumer products and addressing contaminants at the source and included findings from webinars held by Ecology in March 2021. Cheryl Niemi with Ecology has also provided updates on Safer Products of WA at iPCB/TSCA work group and Task Force meetings. Next Steps: Continued tracking and support of these efforts is expected into the future.
	5.8.2 Provide input to Ecology in support of its efforts towards development of a clearinghouse	iPCB/TSCA WG and Ecology, with support from other agencies	The TSCA/iPCB work group and the Task Force continue to support product testing efforts and provide guidance on future product testing, including coordination with Titanium Dioxide Stewardship Council on preparing QAPP and testing for Ti02 in pigments, and with Ecology as discussed above for the Safer Products of WA. The Titanium Dioxide Stewardship Council gave a report on the TiO_2 study at the September TF meeting and EPA gave a presentation on inadvertent PCBs in consumer products to the TSCA work group at their November work group meeting. Next Steps: Continued tracking and support of these efforts is expected into the future.
	5.8.2 Provide public education on PCB containing products	Education and Outreach (E&O) WG	Complete: 2021 Spring Media Campaign: Goal of the PCB media campaign was to engage and educate the public about high PCB levels in the Spokane River, and appropriate ways to discard toxic household chemicals, including those that may contain PCBs.The campaign ran for 6 weeks from April – June 2021 and included information on Auto, Oil & Fluids • Paint, Pigment & Caulk • Compact Fluorescent Lights & Ballasts • Printer Ink & Toner Cartridges Radio ads: 124800 listeners were reached and a total of 580 ads were played: I-Heart Digital Media: There were 802,011 impressions in 2021 vs. 482,705 impressions in 2020 involving web display, web pre-roll video, mobile app display and Facebook video & topic ads. They are looking into hiring a video or PR firm to get videos out about the TF. They hope to get message out about all the good things the TF is doing and hope to update the TF and PCB free websites. Next Steps: The E & O workgroup is working with the Spokane River Forum on a digital media campaign that will run from January 2022 – June 2023 and different topics will be addressed in messaging, along with emphasizing seasonal items.

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B: Waste Disposal Assistance (5.9)	5.9.2 Provide recommendation to organizations on how to better control PCB waste	E&O WG	The WA Department of Health updated the Spokane River fish advisory in 2019, and from this the Spokane Regional Health District developed river signage, public information brochures, and updated its web page. Next Steps: Continue Got Waste Wednesdays with Spokane River Forum, implementing the digital media campaign as described above, and further refinements to PCB Free website and other outreach activities. The Lands Council is also leading outreach efforts through a national campaign to reduce inadvertent PCBS. In 2021, they developed a directory of organizations to target., and developed a draft iPCB Free website to support national outreach efforts, which will continue into 2022.
	5.9.2 Raise public awareness on how to identify and dispose of PCB containing items		
B: Regulatory Rulemaking (5.10)	5.10.2 Seek to attain State/federal level changes to color box requirements for road paints	TSCA WG	The TDSC finished their study of using method 1668 to determine the presence of iPCBs at facilities they sampled. A report on the TiO_2 study was provided at the September TF meeting. Next Steps: Continue efforts to encourage other organizations to adopt non-chlorinated road paints.
B: Compliance with PCB Regulations (5.11) (Short term action)	5.11.2 Review Ecology's atmospheric deposition study results	Technical Track WG	Action completed
	5.11.2 Support agencies on regulatory revisions that are driven by Ecology's atmospheric deposition study	TSCA WG or full Task Force as appropriate	No additional action planned at this time; will revisit if/when related agency regulatory revisions are proposed.
B: Emerging End of Pipe Stormwater Technologies (5.12) (Short term action)	5.12.2 Review of Phase 1 results	Technical Track WG	Phase 1 – Lands Council Study using City of Spokane vactor waste to test fungal treatment on breaking down persistent PCBs. Action completed in 2018. Findings resulted in statistical decrease in PCB congeners, particularly those containing ortho-chlorines. Overall PCB levels did not significantly decrease, possibly indicating high number congeners broke down into lower number congeners. Potential next steps were also identified. Next Steps: See Phase 2 (5.12.2)
	5.12.2 Support Phase 2 if Phase 1 results warrant	Technical Track WG	Phase 2 - In 2020 A draft report was prepared by Sanda Thang and Alyssa Toney which investigated the change in microorganism consortium and microorganism diversity during bioremediation of PCBs. The diversity index indicated a decrease over a six-month period of remediation in diversity for the previously remediated soil. Additionally, none of the identified genera were the same between the samples. This and the presence of Corynebacterium, related to Rhodococcus, which contains a species that is a known PCB degrader, indicate a possible change in the composition of bacteria throughout the remediation process although further testing is necessary. A presentation was given in January 2021 by Les Stephens from the Lands Council regarding mycoreremediation (fungi remediation) of PCBs. Further research, if approved by the Task Force, will explore the connection between total soil DNA concentration and extent of hydrocarbon reduction. Next Steps: North Central High school is providing a request for help with their remediation project in 2022.

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C: Building Demolition & Renovation Control (5.13)	5.13.1 Adapt SFEP document for use as guidance for Spokane-area bldg. contractors	Building & Demolition WG	Complete: Brochure and flier completed and distributed within the basin
	5.13.1 Work with local gov. agencies to ensure document distributed as part of all permits		
C: Identify Sites of Concern for Contaminated Groundwater (5.14)	Mine existing data to assess the potential new groundwater sites contributing to PCBs	Groundwater PCB Upgradient WG	Complete: Initial Technical Memo approved by Task Force on October 24, 2018. In 2020 the SRRTTF provided data and support for a study TetraTech conducted under contract to EPA on groundwater wells upgradient of Kaiser. Results from this study were provided at the May 2021 Task Force meetingi. Next Steps: The TF will consider the usefulness of the data and study as part of future evaluations.
	Consult with Ecology TCP staff	Groundwater PCB Upgradient WG	TCP staff fully briefed on status and findings
	Determine next action	Groundwater PCB Upgradient WG	Determine any follow up actions based upon TetraTech report findings in 2021 Next Steps: Evaluate additional potential groundwater contributions as determined in hot spots evaluations that are ongoing (e.g. groundwater contributions in the Mission Reach).
Studies to Address Data Gaps (6.3)	Characterizing sediment sources	Tech Track WG	The Task Force conducted two studies in 2021 related to characterizing sediment sources, both related to characterizing if/how sediments were contributing to the elevated biofilm PCB concentrations observed in the Mission Reach: 1. Assessment of PCB contamination of artificial bottom fill, 2. Assessment of PCB contamination of naturally occurring bottom sediments. PCB concentrations in two different types of artificial fill (brick and concrete) were sampled at four locations in Mission Reach in March of 2021. The data from this sampling showed that PCB concentrations in artificial fill were not significantly greater than PCB concentrations in naturally occurring bottom sediments. Study results were documented in a report "Spokane River Regional Toxics Task Force Evaluation of PCBs in Spokane River Artificial Bottom Fill Material" approved by the Task Force in July of 2021. Next Steps: PCB concentrations in naturally occurring bottom sediments were sampled at three locations in Mission Reach in September of 2021. Laboratory results were provided in December of 2021 and will be assessed in a project report by Spring of 2022.

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Studies to Address Data Gaps continued (6.3)	How PCBs contribute to fish tissue contamination – source identification	Fish Sampling and Tech Track WG	Prior estimates of how PCBs contribute to fish tissue contamination have been hampered due to a lack of data on PCB concentrations encompassing the Spokane River food web. Studies by Ecology in 2018 and 2019 have provided data on PCB in Spokane River biofilm and macroinvertebrates. The Technical Track and Fish Work Groups developed recommendations regarding a long-term plan to address the SRRTTF's objective of demonstrating progress toward achievement of the applicable water quality criteria for PCBs in the Spokane River. The plan includes monitoring the PCB content of one-year old rainbow trout. While the primary intent of this fish tissue data is to demonstrate progress, these data will also be useful in supporting a bioaccumulation assessment defining how PCBs contribute to fish tissue contamination. PCB concentrations in year-old rainbow trout were sampled by staff from the Washington Department of Fish and Wildlife at five locations in the Spokane River in fall of 2020. Laboratory results were assessed by the Task Force and study findings documented in a project report "Spokane River Regional Toxics Task Force Evaluation of PCBs in Spokane River Redband Trout" approved by the Task Force in July of 2021.
	PCB Mass Balance and Congeners/ homologue patterns	Tech Track WG	The Task Force sponsored a mass balance assessment of PCB-11 in 2021 using data collected during the Task Force's synoptic water quality surveys conducted in 2014, 2015, and 2018. Initial findings showed the potential presence of previously unexplained sources of PCBs in the downstream portion of the Spokane River study area. Subsequent mass balance analyses showed that study findings were sensitive to the method used to blank-correct the data, such that the prior determination of unexplained sources may not be accurate. Next Steps: The Task Force will re-assess the PCB-11 mass balance in 2022, using data from the upcoming synoptic water quality sampling.
	Database Management	Data Management WG	Spokane County IT developed a web app interface using the Tableau program for viewing PCB data, and the link for viewing the data portal is **http://spokaneriverpcbfree.org/about-pcbs/srrttf-pcb-data-portal/.** Next Steps: Continue to input new data and make updates to the portal when necessary
	Positive Matrix Factorization (PMF) analysis	PMF Analysis WG	Dr. Lisa Rodenburg gave a report at the June TF mtg. regarding the PMF results for Municipal Treatment processes. Holistic analysis of all PMF work done and the work for the Phase 2B analysis is expected to be complete by the end of 2021 or beginning of 2022. Next Steps: The Holistic and Phase 2B Analysis reports will be brought to the TF in early 2022 for review and approval.

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Studies to Address Data Gaps continued (6.3)	Data Synthesis Workshop	Tech Track WG	The Task Force held the Data Synthesis Workshop on May 30 and 31, 2019 in Spokane, WA. It was an opportunity for Task Force members and associated entities to become more familiar with the Spokane River PCB data collected by the Task Force and WA Department of Ecology, and analyses of those data by the Task Force Technical Advisor. Task Force members had the opportunity to discuss results and collaboratively chart next steps. The workshop was intended to provide a clearer understanding of what can (and cannot) be concluded from the available data to support Task Force objectives. Outcomes also included recommendations regarding monitoring and other activities to be supported in 2019 and beyond that are specifically targeted to help in finding and reducing PCBs in the Spokane River watershed. In subsequent meetings in 2019,2020, and 2021, the Task Force approved a group of actions to scope out options for long-term monitoring along with initial actions on targeted studies and investigations. Ongoing and Next Steps: Conduct approved actions and future actions as identified by the Tech Track work group based on findings and recommendations for long-term monitoring and targeted investigations. The work group is recommending a TTWG focused mini–Data Synthesis workshop early in 2022.

Table 3 – Additional Potential Control Actions

Category	Control Action	Lead Group	Status 12/31/2021
Additional Control Actions (6.2)	6.2.1 Education on Septic Disposal	TBD	Nothing has been completed on this control action
	6.2.2 Survey Schools and Public Buildings	TBD	TBD
	6.2.3 Accelerated School Construction	TBD	TBD
	6.2.4 Emerging Wastewater Technology	TBD	TBD
	6.2.5 Survey of Local Electrical Equipment	Avista and other utilities	Since 2016, Avista has completed its transformer change out program within the Spokane River Watershed. All detectable PCBs have been removed (EPA method 8082) from the distribution infrastructure within the Spokane River Watershed. Avista currently performs regularly scheduled surveys and maintains a database of all transformers within its' service territory as part of its normal operation and maintenance.
	6.2.6 Leak Detection/prevention in Electrical Equipment	TBD	TBD
	6.2.7 Regulation of Waste Disposal	TBD	TBD
	6.2.8 Stormwater Source Tracing	TBD	TBD

Category	Control Action	Lead Group	Status 12/31/2021
Additional Control Actions continued (6.2)	6.2.9 Removal of Carp from Lake Spokane	Avista	Avista initiated a carp removal pilot study as part of its investigation into methods of addressing non-point sources of phosphorus. The objective is to improve dissolved oxygen levels in Lake Spokane in accordance with the Spokane River and Lake Spokane Dissolved Oxygen Total Maximum Daily Load (Ecology 2010) and Avista's Lake Spokane Dissolved Oxygen Water Quality Attainment Plan (Avista and Golder 2012). In 2021 partnered with WDFW to extend the sampling days to 12 days. A total of 4,696.2Kg of carp (956 individuals). This equates to approximately 24.9 Kg of Total Phosphorus removed from Lake Spokane. Next Steps: Avista will continue to partner with WDFW to collect Carp in 2022.
	6.2.10 PCB Identification during Inspections	TBD	TBD
	6.2.11 Compliance with PCB Regulations	TBD	TBD