Appendix G. Response to Comments

The purpose of the ***Response to Public Comments*** is to report on and respond to comments received by the Washington State Department of Ecology (Ecology) on the Draft PCB Chemical Action Plan (CAP). Comments were received by letter and e-mail during a 60-day comment period, from Aug 6th through October 6th, 2014. There were also two public forums, in Olympia on September 15th and in Spokane on September 24, 2014.

The purpose of the PCB CAP is to identify the dangers of PCBs, detail where these compounds can be found in our environment and recommend ways to reduce harm. Development of the PCB CAP is a multi-program, multi-agency effort with the involvement of external stakeholders and interested parties. The Departments of Ecology and Health were assisted by an advisory committee of 17 representatives of business, health, environmental, state and local government, and tribal organizations.

The Draft PCB CAP was made available to the public online as well as in printed form (Department of Ecology Publication No. 14-07-024). All comments were reviewed and considered carefully by both Ecology and DOH and changes were made accordingly in light of those comments. We appreciate the time and effort each commenter took to review the draft, develop comments and submit them.

Either the entire comment or excerpts are presented along with our response. When a commenter gives a page number, it is for the Draft PCB CAP and is likely a different page in the final PCB CAP. If a commenter gives a comment number, it refers to his or her comment letter and not how the comments and responses are numbered in our response to comments. The references are not included in this appendix, but all the information, with references, can be found in the final PCB CAP.

Summary of Changes

There are many changes between the Draft PCB CAP that was out for public comment and the Final PCB CAP. Most of the changes were made to add new information or provide clarification. In general, minor changes were made without detailed responses. Our basic conclusions and recommendations remain the same.

List of commenters

City of Everett
Color Pigment Manufacturers Association, Inc.
King County Department of Natural Resources and Parks and Public Health Seattle & King County
King County Local Hazardous Waste Management Program
National Council for Air Stream Improvement, Inc.
Northwest Food Processors Association
Northwest Pulp and Paper Association
Spokane County
Spokane Tribal Natural Resources
Weyerhaeuser
Washington Toxics Coalition

No.	Commenter	Keywords	Comment (as written in entirety or excerpted)	Response
1	City of Everett	General support	We appreciate that the areas to achieve the greatest reduction of exposures are shown, and that these are areas outside of the realm of the Clean Water Act NPDES permitting. The recommendations and implementation steps are well thought out.	Thank you for your comment.
2	City of Everett	stormwater; NPDES permits	Page 10, Pathways. Second paragraph. See also comment 3 for page 67 and comment 7 for page 84 [*note- these are comments 4 and 8 in this response to comments document*]. The discussion of stormwater loadings need to note that this includes from all land uses, and that the loadings to Puget Sound are greatest from the forest land use attributed to precipitation loading and the great volume of flow from the forest land use. This is important to note here, and elsewhere in the CAP because this is beyond the reach of CWA stormwater NPDES controls.	It seems appropriate to focus on the most important findings for pathways in the summary and not include more details. Therefore, we have kept the same wording in the summary and we added more detailed information you asked for in the body of the report along with a reference to the surface runoff study, which was part of the Puget Sound Toxics Loading Study and discusses delivery pathways in more detail. The diffuse nature of sources and pathways was taken into account in our recommendations.
3	City of Everett	monitoring	Page 36, Congener detection- Method 1668C. The CAP notes that detection limits for Method 1668 can be in the ppm to ppb levels depending upon complexity of sample and matrix involved. Check with your Environmental Assessment Section because they are reporting data for water in the 10 part per quadrillion range. For example, see data described at the top of page 84.	We agree it would be more accurate to say that detections limits for Method 1668 can range from the low part per quadrillion levels in clean water to ppb or higher depending on the complexity of the sample or matrix involved (e.g. matrices like biosolids). We made changes in the CAP to reflect this.
4	City of Everett	stormwater	Page 67, Pathways. See also comments 1 and 7 [*note- these are comments 2 and 8 in this response to comments document*]. In an email to you on May 20th, I had recommended that the discussion for Puget Sound to be changed to separate out the stormwater (or "surface runoff") loadings into the four separate land uses (commercial/industrial, residential, agricultural, forest/field/other) and I cited to the PCB median loadings for each as calculated by Ecology in the phase 3 Puget Sound Toxics Loading Studies. I recommend a pie diagram be added similar to the ones for the three inland rivers on page 68.	We added information on the relative levels of PCBs found in the four land covers and loadings from those four land use categories as you requested. We also referenced the surface runoff study from the Puget Sound Toxics Loading study that has more detail. In the Puget Sound assessment we state that toxic chemical levels were generally found most frequently and at the highest concentrations in surface runoff from developed lands (i.e. commercial/industrial). Agricultural and residential stormwater also contained higher concentrations of many toxic chemicals compared to stormwater from forested lands. Here is a link to the focus sheet that discusses the findings. https://fortress.wa.gov/ecy/publications/summarypages/1103025.html We added a figure from the Toxics Loading Study showing the relative contributions of the different pathways and a pie chart you suggested to show the relative contributions from the four land use categories to PCBs in surface runoff in Puget Sound.
5	City of Everett	pathways: monitoring; NPDES permits	Page 10 and 71, relative abundance of PCBs in Puget Sound. On both of these pages, the relative abundance of PCBs in the sediments, the water column, and the biota are presented. On page 10, these are presented both as mass (1440kg, 10 kg, and 40 kg) as well as relative percentages (97%, <1%, and <3%) are presented, while on page 71, the percentages are provided, but only the mass in the biota is provided. Both the percentages and the mass should be presented in both places. The median values for the loadings from different sources in kilograms should also be presented in both areas so they can be compared with the abundance in the sediments, water, and biota. For Puget Sound we have 1490 kg in the environmental media, and we contribute about 1 kg a year total from municipal stormwater treatment plants, and stormwater from commercial/industrial areas and residential areas combined. In terms of bioaccumulative exposure to fish, the legacy contamination present in the sediments, and the biota and the water are far more significant that the sources subject to NPDES permitting.	We added mass to the relative percentages on page 71, so both are presented on both pages. We agree that the loadings from NPDES permittees are smaller than from other pathways and the largest contributor of PCBs in runoff comes from forested land, due to the large surface area. This is why our recommendations focus on reducing other sources.
6	City of Everett	monitoring	Page 78, PCBs in air and soil. The comment is made in the second paragraph that PCB levels in the atmosphere have been decreasing and provides a citation. Another comment in the same paragraph says PCB levels in air may be plateauing and no citation is provided. What is it? I view the term plateauing as leveling off at the top. Perhaps you mean leveling off after a period of decreasing, in which case some other term might be better.	The clarification was made that we meant leveling off after a period of decreasing.
7	City of Everett	environmental toxicity	Page 81. Discussion of PCBs in harbor seals. It notes that PCB-associated health impacts are observed in seals from this region. Is this correct? Have we actual observations of effects, or just observations of concentrations that are presumed to have effects? There is a difference. Since the passage of the Marine Mammals Protection Act back in the early 1970's, seal and sea lion populations have rebounded greatly and may be a carrying capacity now. Between 1972 and 1996, the population of these marine mammals on the west coast increased about 6% per year.	We do not have observed health effects in local populations. This section has been changed to more accurately state that we see levels of PCBs in seals and killer whales that are above effects levels.
8	City of Everett	stormwater	Page 84. Third paragraph discussion of total PCB load to Puget Sound. See also comments 1 and 3 [*note- these are comments 2 and 4 in this response to comments document*]. This notes that surface water (stormwater) accounted for 74-76% of the total PCB load to Puget Sound and the US portions of the Strait of Georgia and the Strait of Jun de Fuca. Again, this needs to be broken out further by land use types and quantified, as well as providing relative percentages.	We added total loadings from the Puget Sound Toxics Loading Study and information on the relative loadings from the different land areas. Both the relative percents and masses are presented.
9	City of Everett	Human Health Criteria; fish	Page 89. Reference to the Human Health Criterion equivalent fish tissue concentrations. Reference is made in the first paragraph and in Figure 19 to fish tissue concentration of 5.3 ppb as equivalent to Washington's human health water quality criterion for PCBs. Washington has no adopted fish tissue human health criteria. The human health water quality criteria pertain to bioconcentration from exposures to the water only. Water concentrations are associated with water quality criteria and Clean Water Act regulatory tools. Observed tissue concentrations result from bioaccumulation up the food chain (not bioconcentration from the water) and also from sediment exposures to the biota. The tissue concentrations have little to do with the water quality. The comment also pertains to five other places listed in the comment letter.	Ecology uses concentrations of pollutants in fish and shellfish tissue to gauge whether beneficial uses are being met. Fish tissue equivalent concentrations (FTECs) These concentrations are calculated from the water criteria using a chemical specific bioconcentration factor listing in the National Toxics Rule As an example the human health water quality criteria of 170pg/l for PCBs results in a FTEC of 5.3ug/kg Ecology does not consider the FTECs to be criteria, but instead they are used in developing the Water Quality Assessment. This procedure is discussed in Ecology Policy 1-11 (http://www.ecy.wa.gov/programs/wq/303d/policy1-11Rev.html)

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10	City of Everett	environmental toxicity	Page 93. Paragraphs discussing killer whales. The paragraph describes the Southern resident killer whales as among the world's most PCB-contaminated marine mammals. The paragraph should also note that the transient killer whales have even higher PCB-contamination, and spend most of their lives outside of Puget Sound. Blubber PCB data are provided for the northern and southern resident whales. Similar data should be provided and discussed for the transient whales.	Information has been added to that section to note that the transient killer whales have higher levels of PCBs compared to the resident killer whales and to include biopsy data. Transient killer whales eat marine mammals, which are in a higher trophic level than the salmon eaten by resident killer whales, and organisms in higher trophic levels have higher levels of PCBs. The Southern resident killer whales that feed on Puget Sound Chinook are still among the world's most PCB-contaminated marine mammals.
11	Color Pigment Manufacturers Association, Inc	pigments and dyes	Pigments and specifically diarylide pigments are overemphasized in the document, which does not support the priority the authors assign to pigments, particularly in comparison to other known priority sources of PCBs in the environment.	Ecology disagrees. The importance of this source is that it is effectively uncontained and unregulated once it enters commerce. In addition, it is a new and continual source of PCBs to the environment when most regulations are dealing with other, known sources such as legacy PCBs. While this amount is small compared to the potential amount of PCBs from inadvertent generation, there are large amounts of pigments and dye produced each year and the PCB contribution from this source is not insignificant as shown by the May 2014 EPA enforcement action against a major manufacturer of the pigment titanium dioxide (http://yosemite.epa.gov/opa/admpress.nsf/0/2b9f65813734d80585257cd80056d762). In addition, we do know this amount is important in areas of the state such as the Spokane River and can potentially adversely impact a companies ability to meet PCB water quality discharge limits.
12	Color Pigment Manufacturers Association, Inc	pigments and dyes	The production of organic pigments and derived amounts of diarylide pigments and PCB 11 believed to be in commerce are overstated due to reliance on errors in the peer reviewed literature.	The estimate used in the Draft PCB CAP is not based on the incorrect estimate of 250 million metric tons, but on the corrected figure of 250 thousand metric tons. While we also have not seen a correction in the journal, the authors corrected the estimate in the later (2013 and 2014) work that we cited. However, we added another estimate based on information in the Comments of the Color Pigments Manufacturers Association, Inc. on the Advanced Notice of Proposed Rulemaking Regarding Reassessment of Use Authorizations for Polychlorinated Biphenyls, 75 Fed. Reg. 17645, April 7, 2010, Docket Control No. EPA-HQ-OPPT-2009-0757. In their comments, the CPMA estimates that 1000 lbs of PCBs are inadvertently produced in the 90 million lbs of phthalocyanine and diarylide pigments manufactured or imported into the US each year. Scaling by population, leads to an estimate of 9 kg in Washington, which is within the estimate of 0.02 to 31 kg in the Draft PCB CAP that was based on a revised estimate from Guo 2013.
13	Color Pigment Manufacturers Association, Inc	pigments and dyes	Pigments are not the only source of 3,3' dichlorobiphenyl ("PCB 11") in the environment and existing studies do not substantiate the assumption that PCB 11 found in the environment is only derived from pigments.	The ATSDR Toxicological Profile for PCBs (2000) and the other references cited in the Draft PCB CAP (e.g., Shultz et al. 1979) support that PCB-11 was not a component of Aroclor mixtures. A study by Zanaroli et al 2006 showed that PCB 11 was not generated after 16 months of anaerobic microbial breakdown of environmental PCBs taken from marine sediment in Venice harbor. Since these same microbes were able to generate some PCB 11 via reductive dechlorination of freshly added spikes of 5 coplanar congeners under certain laboratory conditions, the authors hypothesized that the environmentally weathered PCBs were not bioavailable for this microbial action. Investigation of PCB 11 by Litten et al. 2002 traced PCB 11 in New York and New Jersey Harbor to a pigment factory. Rodenburg et al. 2010 investigated the ratio of PCB 11 to a characteristic dechlorination end product, PCB-4, and concluded that dechlorination was not a significant source of PCB 11. It is possible that there are other sources of PCB-11 that have yet to be identified and are interested in seeing any studies you have showing other sources of PCB-11.

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14	Color Pigment Manufacturers Association, Inc	pigments and dyes	The description of pigments should include reference to readily available international dossiers on the safety and toxicological properties of the diarylide, monoazo and phthalocyanine pigments. The Draft Chemical Action Plan refers to the International Agency for Research on Cancer ("IARC") classification of the carcinogenicity of PCBs, without accurately describing the current IARC classification of PCBs and its limitations.	The commenter presented information on the safety of pigments, which is outside the scope of the PCB CAP. We are concerned with the inadvertently generated PCBs and not the pigments themselves. The international dossiers also apply to pigments and did not address PCBs. The CPMA particularly noted the very recent Canadian "Final Screening Assessment for Certain Diarylide Yellow Pigments." This assessment was for the pigments, especially as Canada does not regulate mono- or di-chlorinated biphenyls such as PCB-11. We stand by our inclusion of the new classification of PCBs in the upcoming IARC monograph. According to the IARC webpage, the IARC Monograph Volume 107 (2014) with a reclassification of PCBs to "human carcinogens" is available as a summary in the Lancet (Lauby-Secretan et al 2013) and will be available online soon. As such, we do not consider the Lauby-Secretan et al. paper that we cited in the Health Chapter of the PCB *CAP as a draft or preliminary classification by IARC. The IARC summary recognizes that PCB mixtures differ depending on their source and degree of weathering. It also recognizes that there are a range of carcinogenic pathways attributed to PCBs. According to the summary, "Low-chlorinated PCBs are readily metabolized into highly reactive electrophilic species which, in addition to producing DNA adducts and reactive oxygen species, are directly genotoxic and mutagenic." The summary further describes that excess cancer risks of melanoma were consistently associated with PCB exposures in occupational studies, studies of the general population, and in both cohort and case-control study designs. The IARC classification is reported together with cancer classifications by other organizations such as EPA and NTP and is appropriate for the broad overview of health endpoints presented in the CAP.*
15	Color Pigment Manufacturers Association, Inc	pigments and dyes	The extensive report entitled “Polychlorinated Biphenyls (PCBs) in General Consumer Products” regarding inadvertent PCBs found in products emphasizing PCB 11, which was developed by the Department of Ecology, should be described and referenced in the draft Chemical Action Plan.	Ecology agrees. This report was not published when the Draft PCB CAP was being prepared for publication. It has been added it to the final PCB CAP.
16	Color Pigment Manufacturers Association, Inc	pigments and dyes	The CPMA disagrees strongly with assertions attributed to Dr. Robert M. Christie in the report entitled "Alternatives for Elimination of PCBs in Pigments used for Printing Inks and Architectural Paints" which claims that there are potential substitutes for diarylide, monoazo and phthalocyanine pigments.	Specifically what Professor Christie has stated is that there is no apparent substitute for the diarylide yellow, nor is there an apparent synthetic process that can be used to reduce PCB generation. He did state that there are alternative synthetic methods for the phthalocyanines (i.e. removing the chlorine from the product) and that has been successfully done in some products. This was stated at the ACS green chemistry symposium in 2013. Ecology sought Dr. Christie's advice due to his expertise and will further investigate safer alternatives to certain pigments and dyes. The PCB CAP does not state there are safer alternatives, but recommends further investigation of the availability of safer alternatives, which would include pigment manufacturers and other interested parties.
17	King County Department of Natural Resources and Parks and Public Health Seattle & King County	general support	Overall, we support the recommendations in the draft PCB CAP, but suggest a stronger effort toward cessation of ongoing sources of PCBs. We ask that you strongly consider more robust funding and staffing to implement the draft recommendations. With an adequate range of actions and commensurate resources to support those actions, the state departments of Ecology and Health can help better protect Washington residents.	Thank you for your support. We agree that more resources are needed to implement the recommendations and have requested funding to do so in the governor's budget.
18	King County Department of Natural Resources and Parks and Public Health Seattle & King County	fish; communication	With respect to reducing risks from consumption of fish, King County emphasizes that fish advisories are not effective communication tools by themselves. To more effectively reduce exposures, we recommend supplemental funding for DOH and local health jurisdictions to implement education plans focused on fishing communities.	We agree that fish advisories need outreach and community engagement to be effective in protecting people from PCB contaminants in fish. DOH works to prevent harm from existing PCBs in fish by statewide outreach to women of child bearing age on ways to reduce prenatal PCB exposures and outreach to local populations at risk for exceeding specific fish advisories. Currently DOH has limited resources for fish advisory education and program coordination. Local public health and tribal jurisdictions continue to be important partners in community engagement work but also lack funding. More resources would allow DOH to reach special populations, culturally tailor messages to specific communities, and create and fund more partnerships with local jurisdictions. If additional funding is available, there is an existing state program and a network of local partners that could efficiently convert supplemental funds into better protection of people.

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19	King County Department of Natural Resources and Parks and Public Health Seattle & King County	toxics reduction	We recommend that the PCB CAP be coordinated with the toxic reduction package as the latter has a significant CAP component that would potentially strengthen the new PCB CAP. This could be accomplished by delaying the finalization of the PCB CAP until the toxics reduction package is complete or developing an addendum to the CAP to the incorporate toxics reduction strategies including alternatives assessments, bans and phase outs as applicable.	The governor's toxic reduction package has been coordinated with the PCB CAP, especially the request for funding to implement the PCB CAP recommendations and other CAP recommendations. We do not agree that it would be beneficial to wait for the proposed bill to pass. While Ecology does not have authority to require alternatives assessments or ban certain uses of PCBs, as in the proposal, the current recommendations call for Ecology to complete an alternatives assessment on inadvertent generation of PCBs in pigments and dyes, which would provide the necessary information. In addition, the recommendation includes an in depth look at the larger picture of inadvertent generation which will point toward the next steps, including alternatives assessments. DOH intends to seek additional funds for more outreach and education as part of the Governor's toxic reduction initiative and other funding sources.
20	King County Department of Natural Resources and Parks and Public Health Seattle & King County	lamp ballasts; building materials; Recommendation #1; Recommendation #3	Recommendations 1 and 3. We support the safe replacement of PCB-containing lamp ballasts and PCB-containing materials and other public buildings in King County. ... We recommend a plan for assessing other public buildings be developed… King County recommends prioritizing locations for remediation by considering social equity and justice factors... We recommend that the CAP include additional financing strategies or include a funding plan to implement the safe replacement of PCB-containing materials in schools and other public buildings...We recommend that funding also be provided to DOH to co-lead this work and educate the public in the inventory process.	Ecology and Health agree that social equity and justice are important considerations for prioritizations and will include that in our work. Ecology has requested funding in the governor's budget for implementing this recommendation and DOH will be involved in implementing this recommendation as their resources allow. Future implementation work will include a financing plan. These recommendations aim to reduce releases of PCBs into indoor environments. Efforts to identify and remove sources of PCB that contribute to young children's exposure will start with public schools. Day cares and other public buildings will be included as resources allow. It makes sense to focus on the sources that are likely to have the biggest contribution to children's exposure and in communities with the least means to help themselves. Public health rationale for removing PCB light ballasts in schools as well as guidelines for safe removal are available through the EPA website. DOH is willing to provide supplementary information and guidance.
21	King County Department of Natural Resources and Parks and Public Health Seattle & King County	Building materials; Recommendation #2	Recommendation 2. We support the development of Best Management Practices (BMPs) with stakeholder and agency involvement prior to implementing actions to prevent PCB releases… include a description of how the current federal and state regulatory approaches listed in the CAP will specifically manage the lifecycle of PCBs... Updates may be necessary to support implementation of BMPs.... also identify sustainable funding mechanisms and protocols for local jurisdictions that issue demolition permits. A protocol should adequately assess hazards from dust emissions and waste disposal similar to lead or asbestos abatement during demolition. We suggest adding specific language and questions to the State Environmental Protection Act (SEPA) checklist to educate redevelopers and local land use agencies about the need to assess historic buildings and structures for PCB-containing materials prior to major renovation or demolition. ...In particular, building materials that may contain PCBs can end up in illegal landfills.... However, illegal landfills located on private property limits the ability of state or local government to assess them. In developing BMPs for containment of PCB-containing materials, we recommend these illegal landfills be considered.	We agree that your suggestions are important for implementing this recommendation in cooperation with local jurisdictions. We also brought your suggestion to the attention of SEPA Unit for inclusion in the guidance for the Environmental Checklist and will follow up on it. Current authorities exist for addressing illegal landfills, including ones on private property. The Jurisdictional local health department issues solid waste permits and enforces them.
22	King County Department of Natural Resources and Parks and Public Health Seattle & King County	Inadvertent generation; Recommendation #4	Recommendation 4. The CAP should emphasize eliminating any future production of PCBs in products and manufacturing processes. ...This information will be a direct benefit in working towards their [LHWMP] mission.	We agree and the CAP recommendation on inadvertent production emphasizes this.
23	King County Department of Natural Resources and Parks and Public Health Seattle & King County	historic electrical equipment; Recommendation #5	Recommendation 5. We support this important survey effort to identify owners of historic electrical equipment. The CAP should direct utilities to not only identify but also replace and properly dispose of electrical equipment containing PCBs. This must be a priority for utilities in Washington.	We agree on the importance of identifying and properly disposing of electrical equipment. The CAP cannot direct utilities to identify or replace equipment.

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24	King County Department of Natural Resources and Parks and Public Health Seattle & King County	monitoring; Recommendation #6	Recommendation 6. King County supports expanding environmental monitoring in order to identify possible PCB hot spots. For those requiring cleanup, we recommend funding be made available to assist in these cleanups. We recommend spending a larger effort to identify the sites with the highest potential for past or current releases of PCBs and the highest potential for human exposure. Because eating local fish and shellfish is a major route of exposure to PCBs in Washington State, King County recommends expanding tissue monitoring locations and continuing monitoring of fish for PCBs at sites of high concern. This should be done on a regular basis (beyond FY21) at a frequency best representative for the water body, e.g., more often for large water bodies less often for smaller water bodies. These tissue trend data are imperative in understanding if fish advisories are necessary to protect human health or when an advisory could be lifted. We recommend that Ecology include frequently-fished water bodies that have no PCB tissue data, especially in areas that are fished by vulnerable populations. In addition, ongoing sampling of fish tissue is necessary to measure if remedial actions and source control efforts are working to reduce PCB levels in fish or if other actions are necessary to reduce fish exposures from diffuse aerial sources. Cleaning up newly identified hot spots in sediment will help reduce fish tissue PCB burdens. However, ongoing aerial and stormwater sources will continue to impact PCB levels in fish tissues. Aerial deposition of PCBs has been shown to be a significant source of PCBs to the surface of large water bodies like Lake Washington and Puget Sound. The additional contribution of PCBs deposited on land from aerial sources and entering surface runoffs unknown but suspected to be even larger impact than direct deposition to surface waters, especially streams and rivers. We suggest that instead of conducting general air monitoring, additional state and regional sources be dedicated towards quantifying, using modeling or other tools, the contribution of indirect aerial deposition to the stormwater pathway.	Thank you for your support of the recommendations for monitoring, including air monitoring. Ecology will continue our regular PCB monitoring to identify possible clean up sites, sampling fish tissue to provide data for Health to use in fish advisories, to assess effectiveness, and other monitoring. We expect to continue PCB monitoring past FY21 as the implementation plan only mentioned FY21 as a budgeting convention. Ecology's fish tissue sampling supports the DOH fish advisory work and the two agencies will continue to work together to pick the best sites for monitoring to protect human health, including vulnerable populations. Ecology is in the process of designing air monitoring studies, which may include modeling or other tools. We agree that quantifying the contribution of aerial deposition is important.
25	King County Department of Natural Resources and Parks and Public Health Seattle & King County	communication; Recommendation #7	Recommendation 7. We support a public educational campaign targeting Washington State residents to reduce their exposures to PCBs. Currently this campaign will fund an Ecology communicator. Because the priority exposure is through consumption of fish, we recommend that DOH, who issues fish advisories, be the primary educator regarding PCB exposures. DOH also has direct contact with and engages local health jurisdictions and schools throughout the state. Fish advisories alone are weak communication tools to protect fish consumers. We recommend supplemental funding for DOH and local health jurisdictions to implement education plans which may improve outcomes in reducing exposure. Any education campaign regarding a specific harvest of fish from a location should include alternative healthy sources of fish, as the benefits of eating fish should also be promoted. In the interest of protecting disadvantaged fishing populations first, we recommend that DOH provide targeted outreach to these populations using community-based participatory methods. This approach will allow and fund disadvantaged fishing communities to determine how best to communicate the risks and benefits to within their community considering their cultural norms and in their language. While fishers are of concern, preventing PCB exposure in the workplace is also important. We recommend that the departments of Ecology and Health coordinate with other agencies such as Washington Labor and Industries and the federal Occupational Safety and Health Administration to ensure that materials are mitigated appropriately in the workplace.	The Draft PCB CAP only included Ecology's implementation plan, as usual for CAPs, but we added DOH to the implementation plan in the final PCB CAP. In implementing this recommendation we would consult with DOH, and DOH will request additional resources for a larger role. We agree that DOH has a lot of expertise, especially around fish consumption. Ecology will also work with LNI on workplace exposures. We agree that fish advisories need outreach and community engagement to be effective in protecting people from PCB contaminants in fish and will include this in implementing this recommendation. DOH works to prevent harm from existing PCBs in fish by statewide outreach to women of child bearing age on ways to reduce prenatal PCB exposures and outreach to local populations at risk for exceeding specific fish advisories. Currently DOH has limited resources for fish advisory education and program coordination. Local public health and tribal jurisdictions continue to be important partners in community engagement work but also lack funding. More resources would allow DOH to reach special populations, culturally tailor messages to specific communities, and create and fund more partnerships with local jurisdictions. If additional funding is available, there is an existing state program and a network of local partners that could efficiently convert supplemental funds into better protection of people.
26	King County Department of Natural Resources and Parks and Public Health Seattle & King County	Biomonitoring; Recommendation #8	Recommendation 8. We support a study on PCB congener levels in Washington residents. However, the CAP does not include the development of an implementation plan for a study on PCBs congeners in Washington residents. We feel the CAP needs to identify a goal, logic model, implementation plan, and source of funding for this study. Based on national studies and detections in the general population, it is highly likely PCBs will be measured in Washington residents. Considering the large fish-eating population in Washington, the congener distribution may likely be similar to other fish-eating populations. Risk is highest among subsistence, tribal, immigrant, and other vulnerable populations who eat more than DOH advisory consumption limits. Human biomonitoring data can help scientists plan and conduct research on exposure and health effects. However, to accomplish this, a very robust biomonitoring plan would need to be carefully developed by health officials. A research study such as this is needed, but may be out of the scope of the CAP. Considering the healthy benefits from eating fish, it is difficult to determine where the benefit/health risk balance lies. One valuable use of biomonitoring data would be to measure effectiveness of the CAP'S efforts in reducing PCB's released to the environment and ultimately reduce exposures to Washington residents. A long-term human biomonitoring plan would need to be developed to accomplish this. Considering the half-life of PCBs in fish and in people we suggest extending the timeline put forth in the CAP (FY16-21). Measuring PCBs every three or four years over the next 20 years would allow an assessment of whether PCB human body burdens are decreasing. We recommend that Ecology partner with DOH who may more easily develop the capacity to determine trends based on their previous biomonitoring work. We suggest the state should carefully prioritize funding resources between better understanding the body burden of PCBs in Washington residents and source control actions to reduce exposures to PCBs.	The draft PCB CAP only included Ecology's implementation plan, as usual for CAPs, but we added DOH implementation to the final PCB CAP. The timeline in the implementation plan is for budgetary convention, while we expect to continue biomonitoring past 2021 if resources are available. We appreciate your support of this recommendation. If supplemental funding can be secured, biomonitoring studies would be designed and conducted by DOH, with the support of Ecology. DOH applied for a grant in 2014 that would have funded this activity but was unsuccessful. DOH has requested funding in the governor's budget for limited biomonitoring in 2015-16. If funds are secured, the study will focus on understanding human exposures to PCB congeners specific to pigment and dyes. Currently this recommendation is prioritized lower than identification and removal of likely sources of PCBs.

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27	King County Local Hazardous Waste Management Program	funding	We support all of the recommendations proposed in the draft PCB CAP as important measures to address known sources of PCBs, to protect the most vulnerable populations, and to gain additional understanding about PCBs in products and in people. Our comments provide additional suggestions to further refine these recommendations. While all of the draft CAP recommendations are needed actions, we are disappointed that the recommendations did not identify more actions to effectively reduce existing levels of PCB pollutants and prevent harmful exposures. ...The PCB CAP recommendations would be strengthened by including a process to identify funding strategies and implement those action plans.	Thank you for your support. We agree and have requested funding for implementing the PCB CAP recommendations as part of the governor's toxics reduction package.
28	King County Local Hazardous Waste Management Program	collaboration	For those recommendations involving assessments, data collection and education with schools, businesses, or the public, we encourage Ecology to leverage resources and increase impact by coordinating with local jurisdictions and other stakeholders who can integrate PCB-focused activities in their existing strategies with schools, property owners, and property managers.	Ecology agrees and intends to do this.
29	King County Local Hazardous Waste Management Program	lamp ballasts; Recommendation #1	Recommendation 1. The LHWMP strongly supports this recommendation, and actions to remove PCB-containing lamp ballasts from schools and other public buildings to address a key source of PCBs and to protect children, a vulnerable population….We believe that many schools in the county may still have PCB-containing lamp ballasts. And in recent years, LHWMP staff have heard reports of leaking PCB ballasts, so we are aware of this serious and ongoing problem....We support a similar assessment of all publicly owned buildings in the state, with priority placed on buildings used by children and other vulnerable populations....In addition, we encourage expansion of this recommendation to include a survey and replacement assistance to child care centers, to address exposure risk to very young children. LHWMP has responded to incidents with leaky PCB ballasts in licensed child care facilities....The CAP should also recommend strategies for financing replacement of PCB-containing ballasts in all public facilities, not just schools. We are aware that the WA State Department of Health has expertise and resources with PCB-containing lamp ballasts in schools, and other school environmental health issues. We suggest this statement on page 14 is modified to reference WDOH: “Schools with PCB-containing lamp ballasts will be provided with information about the importance of removing these ballasts and referred to OSPI (or WA State Department of Health and other available resources) to replace these fixtures with more energy-efficient lighting.”	Thank you for your support. We have prioritized schools and our recommendation includes other publicly owned buildings. In addition, we are restricted in giving state financial support to privately owned businesses, such as childcares, but we can include education and outreach to childcares. We agree and have requested funding for implementing the PCB CAP recommendations as part of the governor's toxics reduction package. Future implementation work would include a financing plan. We agree that DOH has a lot of experience and expertise on schools and have added the reference to the Department of Health in that recommendation.
30	King County Local Hazardous Waste Management Program	Building materials; Recommendation #2	Recommendation 2. We support development of a PCB Source Control Guidance Manual. Such a resource would be invaluable for LHWMP as our staff conduct field inspections and outreach to property managers/owners in King County. Please consider whether a hand-held x-ray fluorescence (XRF) analyzer is suitable for detecting PCBs in buildings. If so, it could be a relatively inexpensive screening test for PCBs. The XRF is capable of detecting chlorine, but other building sources of chlorine may interfere. If not already completed, Ecology could assess the suitability of the method for this application.	Ecology has considered the use of a hand-held XRF for detecting PCBs in building materials, but communication with people who are experienced with detecting and remediating PCB-containing building materials convinced us that it is not suitable. In addition, a paper by Klosterhaus et al. (2014) reported they used a portable XRF as a screening tool in their study on caulk in San Francisco Bay area buildings and found the XRF was not a good predictor of PCB levels in caulk.
31	King County Local Hazardous Waste Management Program	Building materials; Recommendation #3	Recommendation 3. We support the proposal to evaluate the potential for school buildings to contain PCB-containing materials, including caulk and paint, and other historic materials such as capacitors. Similar to our comments under Recommendation #1, we support expanding this assessment to licensed child care facilities to reduce exposure of very young children to PCB-containing building materials. The CAP should also recommend funding strategies for removal of PCB-containing materials, with proper disposal of these hazardous materials. New Recommendation for Historic PCB-Containing Building Materials: To increase the identification rate of buildings with historic PCB-containing building materials and lamp ballasts, we propose a new recommendation. During property transfers, a PCB assessment could alert potential buyers to these materials. Environmental professionals can be educated about the hazards and potential risks of PCB-containing building materials. The BMPs for inspection or containment described in Recommendation #2 could be applied. Property owners could have a market-based incentive to properly contain or dispose of PCB-containing equipment and other materials. According to consultants who conduct environmental site assessments, unless there is obvious leakage, typically the presence of PCB in light ballasts is not within the scope of an environmental site assessment conducted according to ASTM Practice E-1527-05 Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process. Hazardous materials within a building may not always be considered part of the scope of an ASTM Phase I. These are sometimes considered ‘business environmental risks’ and it is up to the consultant purchaser/lender whether these are included in the Phase I. The ASTM Phase I is based on the identification of potential environmental releases and not hazardous materials that are fully contained within a building. So, for example, PCB-containing caulk on exterior windows may be within the scope of a Phase I, while PCB ballasts may not be. Educating environmental professionals to include the presence of these materials may be more effective than trying to change the scope of the standard.	We agree that licensed child-care centers are another important target of PCB source identification and removal efforts. These recommendations aim to reduce releases of PCBs into indoor environments. Efforts to identify and remove sources of PCB that contribute to young children's exposure will start with public schools. Day cares and other public buildings will be included as resources allow. It makes sense to focus on the sources that are likely to have the biggest contribution to children's exposure and in communities with the least means to help themselves. Public health rationale for removing PCB light ballasts in schools as well as guidelines for safe removal are available through the EPA website. DOH is willing to provide supplementary information and guidance. We are willing to explore the property transfer idea with stakeholders. At this point there is no mechanism identified for a market-based incentive. The ASTM standards do not currently include testing for PCB-containing materials, although electrical equipment that is likely to contain PCBs should be included. We agree that education and outreach to professionals is an important component of implementing this recommendation.

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32	King County Local Hazardous Waste Management Program	Inadvertent generation; Recommendation #4	Recommendation 4. We strongly support the recommendation's components to address the challenging problem of new sources of PCBs generated in manufacturing processes, i.e., non-legacy PCBs, and encourage further actions. We fully support any attempts to conduct alternatives assessments on PCB-containing products, educate purchasers and vendors concerning that hazards associated with PCBs, reform the current regulations under TSCA, and consider state-level actions to reduce use of PCB-containing products. The recommendation appropriately identifies key actions as: (1) further testing and analysis to identify products and product categories that contain PCBs, as well as alternative products without PCBs; and (2) dissemination of that information by WA Ecology to increase awareness of the presence of PCBs in these products, and encourage purchasing and use of alternative products. In addition to notifications to schools, cities, and residents as stated on page 16, this information should be provided to all government associations and agencies in the state. We support greater emphasis on active dissemination of this information by WA Ecology to businesses, with encouragement that they voluntarily adopt purchasing policies for preference for products with no, or lower, amounts of PCBs. WA Ecology should target their efforts to business sectors most likely to be using the identified PCB-containing products.	Ecology agrees about the importance of information on PCBs in products and intends to disseminate such information as widely as possible. We also agree that it makes sense to target specific business sectors if we identify products used in those sectors. We have requested funding for an alternatives assessment for PCBs in pigments as part of the governor's toxics reduction package. Ecology will continue our work on TSCA reform and include evaluating the effectiveness of your suggestion for either federal or state legislation.
33	King County Local Hazardous Waste Management Program	historic electrical equipment; Recommendation #5	Recommendation 5. We support conducting a statewide inventory of historical electronic equipment to create an accurate picture of the problem. Survey activities with utilities and other entities should be coupled with education about PCBs and BMPs for spill prevention and clean-up to prevent waterway contamination.	Thank you for your support. Ecology and Health agree that technical assistance and outreach are an important component of implementing this recommendation and have requested funding for implementing this PCB CAP recommendation as part of the governor's toxics reduction package.
34	King County Local Hazardous Waste Management Program	monitoring; Recommendation #6	Recommendation 6. We support continued, targeted, and expanded environmental monitoring to identify areas needing PCB clean-up. We also encourage WA Ecology to develop and coordinate its monitoring plan in collaboration with moderate risk waste programs and other local government activities.	Ecology agrees and intends to do this. We have requested funding for implementing this PCB CAP recommendation as part of the governor's toxics reduction package.
35	King County Local Hazardous Waste Management Program	communication; Recommendation #7	Recommendation 7. The LHWMP supports the recommendation's proposal to educate residents, people who fish, schools, local governments, and businesses about the risks associated with PCBs and the availability of safer alternatives. Such a campaign would be particularly valuable in King County, where fish advisories based on PCB contamination have been issued for several locations, including the Lower Duwamish River, Green Lake, Lake Washington, and Puget Sound. LHWMP is concerned that segments of the population in King County, particularly those that have been traditionally underserved by public health agencies, continue to consume PCB-contaminated fish in excess of advisory limits. Culturally appropriate outreach methods and messages should be targeted toward communities who rely on fishing in PCB-contaminated waterways as a significant part of their diets. We also encourage community-based participatory research to identify more effective strategies to communicate risks and benefits of fish consumption to vulnerable and disadvantaged populations. In addition, LHWMP supports efforts to educate small businesses, so that they may identify PCB-containing products and then replace them with safer alternatives. Public education campaigns will be most effective when coordinated with local governments to assure consistency of messages and efficient outreach to businesses and the public. For example, the LHWMP could assist in dissemination of resources and Best Management Practices developed by Ecology through its existing relationships with key target audiences, via web-based portals to Ecology's online resources, distributed materials, and as part of our field visits and technical consultations.	The Draft PCB CAP only included Ecology's implementation plan, as usual for CAPs. We have added DOH to the implementation plan in the final PCB CAP. In implementing this recommendation we would consult with DOH, but DOH may not have enough resources for a larger role. DOH intends to request funding for an expanded role. We agree that DOH has a lot of expertise, especially around fish consumption. We also agree that coordinated work is important. Both Ecology and Health regularly work with local governments and other entities. We also agree that it makes sense to target specific business sectors if we identify products used in those sectors. We agree that fish advisories need outreach and community engagement to be effective in protecting people from PCB contaminants in fish. DOH works to prevent harm from existing PCBs in fish by statewide outreach to women of child bearing age on ways to reduce prenatal PCB exposures and outreach to local populations at risk for exceeding specific fish advisories. Currently DOH has limited resources for statewide fish advisory education and program coordination. Local public health and tribal jurisdictions continue to be important partners in community engagement work but also lack funding. More resources would allow DOH to reach more special populations, culturally tailor messages to specific communities, and create and fund more partnerships with local jurisdictions. If additional funding is available, there is an existing state program and a network of local partners that could efficiently convert supplemental funds into better protection of people.
36	King County Local Hazardous Waste Management Program	Biomonitoring; Recommendation #8	Recommendation 8. The LHWMP supports enhanced biomonitoring for PCBs because we are concerned that vulnerable populations consume resident fish and shellfish in excess of the advisory limits issued by state and local health departments. Efforts should be directed toward better identifying these vulnerable populations and offering biomonitoring for PCBs. LHWMP also concurs that the body burden of PCBs that are produced inadvertently during the manufacture of dyes, pigments, and printing inks deserve attention. LHWMP supports biomonitoring for these congeners. Adequate funding needs to be provided to WA State Department of Health to conduct these important PCB biomonitoring studies.	Thank you for your support. We have requested funding for implementing this PCB CAP recommendation as part of the governor's toxics reduction package.
37	National Council for Air Stream Improvement, Inc.	congener toxicity	The document contains little to no discussion of congener-specific toxicity. The CAP should summarize scientific information relevant to the toxicity of PCB-11 and provide some perspective on the toxicity of this congener relative to what is known about the toxicity of the other PCB congeners (like the dioxin like ones and the Aroclors). "... it is essentially impossible to make any authoritative statements regarding the toxicity of specific congeners, especially those not present in the various Aroclor mixtures used in the majority of toxicity studies which includes PCB-11. Thus, it cannot be stated with any degree of certainty which specific congeners actually meet the definition of toxicity given in the PBT Rule. Given the CAP's apparent prioritization of PCB-11, a thorough discussion of PCB-11 toxicity is warranted and needs to be added to the CAP to justify this prioritization. "	The Health chapter of the CAP has been revised to include more congener-specific data including dioxin-like congeners and congeners that have neurotoxicity data. We have also added available data from genotoxicity and cancer testing of congeners specific to ambient air, indoor air, and dye and pigments to better support the recommendations. Human exposures to congener mixtures associated with different sources, such as ambient air and caulk off gassing to indoor air, have also been added to the exposure section. We added both the available exposure and toxicity data for PCB-11 specifically. There is limited information on the toxicity of PCB-11 and we added it to the report. We agree that more studies are needed, but what we know urges caution.

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38	National Council for Air Stream Improvement, Inc.	pigments and dyes	The CAP should make clear that the inadvertently generated PCBs present in pigments and dyes, including PCB-11, are not just an issue for pulp mills and that these PCBs also contribute to loadings from municipal effluents and stormwater… This, NCASI suggests alternative language throughout: "More information is known about PCBs in pigments and dyes, which are known to be released into the environment in stormwater, effluents from municipal treatment works, and effluents from pulp mills re-pulping post-consumer paper."	We have clarified this in the CAP. This was included as an example, and not meant to imply it was only a problem for pulp mills. Our recommended actions focus on finding alternative ways to produce pigments and dyes so that PCBs are not inadvertently generated and are then not an issue in downstream releases.
39	National Council for Air Stream Improvement, Inc.	recycling	The suggestion to "eliminate recycling of paper in Washington State" should be removed from the CAP.	We agree that eliminating recycling is an unacceptable approach. Following the PBT Rule, we look at a range of options in CAPs, from the status quo to complete elimination and the options presented are not recommended actions. This was included as a possible option, even though it's really a possible consequence, and it was not recommended. We removed this from the list of options and instead included this undesired possibility in the text for clarification.
40	Northwest Food Processors Association (NWFPA)	pigments and dyes	NWFPA advises that any action beyond study of these PCBs is not warranted at this time. The Department recognizes that not much is known about the processes that inadvertently generate PCBs or the products that contain PCBs. It also acknowledges that it does not have a good estimate for how much PCB is released from these sources in Washington this year. Moreover, non-PCB containing alternatives to these pigments, dyes and inks are not available. Any state program such as SB 6086 that provides a preference for products that do not contain PCBs when there is no alternative available will impose a hardship on Washington businesses. NWFPA recommends that the Department encourage studies to better understand the processes of inadvertent generation, to document the pathways by which they enter the environment, and to develop effective and acceptable alternatives that can replace PCB-containing pigments, dyes and inks.	We agree that not much is known about the processes that inadvertently generate PCB and the products that contain them. That is why we are actively evaluating products that result in potential exposure to people and the environment. Initial testing results show that some products contain much higher levels of PCBs than other similar products, implying that it is possible to make products with lower levels of PCBs, but an alternatives assessment process is needed. While we have not identified all of the known sources of inadvertently generated PCBs in Washington waters, we do know that pigments represent a known and not insignificant source of PCBs in some of our watersheds. Wastewater from paper recycling does have significant levels of PCB. Lynn Schmidt from the City of Spokane presented information at the 2014 Spokane River Forum about preliminary results on hydroseed, which uses recycled paper, highlighting that recycled paper appears to contain enough PCBs to be significant from an environmental perspective. Engaging in studies can help understand where PCBs go, but the primary issue here is we have identified a source and we should put a plan in place to eliminate that source. Then the studies, and end of pipe treatment, won't be necessary. We agree that part of the solution is to develop effective and acceptable alternatives and have requested funding for this in the governor's budget. We do not agree that SB 6086 will impose a hardship on Washington businesses. The new law applies to state purchasing and provides a preference for products that do not contain PCBs only when the products are "cost-effective" and "technically feasible." There is no requirement to buy products that do not contain PCBs if there are no alternatives available.
41	Northwest Pulp and Paper Association	recycling	NWPPA stridently opposes the statement, "eliminate recycling of paper in Washington State," as a method to control inadvertent PCB generation. NWPPA strongly requests this statement and sentiment be removed from the final CAP.	We agree that eliminating recycling is an unacceptable approach. Following the PBT Rule, we look at a range of options in CAPs, from the status quo to complete elimination and the options presented are not recommended actions. This was included as a possible option, even though it's really a possible consequence, and it was not recommended. We removed this from the list of options and instead included this undesired possibility in the text for clarification.
42	Northwest Pulp and Paper Association	General support	NWPPA supports and encourages the Department efforts developing and implementing chemical action plans as a means of reducing the release of toxics into Washington's environment.	Thank you for your support.
43	Northwest Pulp and Paper Association	General support	NWPPA appreciates the Department's efforts to investigate the source, fate and transport of PCB's through all aspects of Washington business, industry and commercial activities and the built environment.	Thank you for your support.
44	Northwest Pulp and Paper Association	General support	NWPPA agrees with Ecology's determination that PCB's are legacy pollutants of high concern that were widely used in commercial and industrial activities until U.S. production was halted; however, PCB's are still present in various physical locations for example electrical transmission transistors, building materials and some pigments and dyes and are ubiquitous across the landscape	Thank you for your support.
45	Northwest Pulp and Paper Association	TSCA reform	NWPPA supports changes to the federal Toxic Substances Control Act (TSCA) allowing greater control <u>at the federal level</u> over chemical substances and mixtures before they enter the market to allow a level playing field between states. Discussion: NWPPA believes federal TSCA reform is the best method to control pigments and dyes before they enter the Nation's economy. NWPPA opposes any Washington State specific action that would create an unfair manufacturing climate jeopardizing Washington businesses that compete in international markets. The CAP acknowledges that PCBs are a National issue.	We have been engaged in reform to TSCA and will continue to do so. We agree that action at the federal level is the best way to control pigments and dyes, but actions at the state level are appropriate in the absence of effective federal regulation. Reform to TSCA does not necessarily create an unfair advantage to Washington or internationally. Under the PCB section of TSCA, "manufacture" includes "import." So regulating a PCB in the US also regulates the import of that substance from another country.

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46	Northwest Pulp and Paper Association	Inadvertent generation; recycling	NWPPA believes that examining inadvertent generation of PCB's is a good objective but calling out recycled paper and proposing to eliminate recycling of paper in Washington elsewhere in the draft PCB CAP is absolutely unwarranted and requests Ecology remove such statements and focus from the final PCB CAP. Discussion: Pigments and dyes are used in many manufacturing process (the draft CAP cites there are 70 manufacturing processes that are likely to inadvertently generate PCB's) just not paper manufacturing. NWPPA suggests that any future analysis by Ecology look broadly at the introduction of PCB's into Washington State and their fate and transport in the environment and not limit the focus of future work to assessment of the paper recycling industry in Washington.	We are not recommending a focus on paper recycling and we agree that eliminating recycling is an unacceptable approach. Our recommendation is to determine if there are alternatives to pigments and dyes, since this is a known process that generates PCBs. We also recommend looking broadly at the processes identified by the EPA to determine other sources of inadvertently generated PCBs. As mentioned in other responses, paper recycling was used as an example and not meant to imply it was the only problem. Our recommendations focus on avoiding inadvertent generation of PCBs, and thus eliminating them before they get into municipal wastewater treatment or other downstream pathways. Also mentioned in other responses, in CAPs we are required look at a range of options, from the status quo to complete elimination and the options presented are not recommended actions. This option was included as a possible option, even though it's really a possible consequence, and it was not recommended. We removed this from the list of options and instead included this undesired possibility in the text for clarification.
47	Spokane County	NPDES permits	The Chemical Action Plan (CAP) on Page 9 states: "For the purposes of this CAP, sources are considered to be the original material, such as PCBs in transformers." This approach, while potentially helpful in reducing direct exposure in developed settings such as schools and existing structures, does not directly address the ongoing challenges presented to waste water utilities and other NPDES-permitted businesses due to inadvertently-generated PCBs.	Recommendation #4 specifically addresses inadvertently generated PCBs as sources of PCBs. Other recommendations address preventing legacy sources of PCBs from entering the environment and eventually getting to NPDES-permitted facilities. POTWs have challenges with PCBs and other chemicals entering their collections from both sanitary, business, and stormwater (if combined) sources, These inputs may contain inadvertently generated PCBs and/or legacy PCBs from sources such as caulk.
48	Spokane County	Inadvertent generation; Recommendation #4	The Chemical Action Plan (CAP) could benefit from added guidance to accomplish the CAP recommendations. For example, other than the 50 ppm standard described in the Toxics Substances Control Act (TSCA), what is meant by "PCB-free" products? Are such products tested, approved, labeled, and listed somewhere?	There is currently no definition of PCB-free products, no label, and no list of such products. There is ongoing work by Ecology and others, such as the City of Spokane, to test products and figure out which products do or do not contain PCBs. Ecology is working with the Department of Enterprise Services (DES) to implement SB 6086 that establishes a preference for state purchase of products without PCBs, unless it is not cost effective or technically feasible to do so. Information on these products will be widely distributed and available to others who are interested in purchasing products without PCBs or with the lowest level of PCBs available.
49	Spokane County	regulatory consistency; Recommendation #4, Recommendation #6	As described in Page 13 of the CAP, the recommendations to protect human health and the environment are based on a variety of factors, including, "…5) consistency with existing federal and state regulatory requirements." Accordingly, Recommendation 4 includes language that, "Ecology and DOH should petition with the federal government to reform current regulations under the Toxics Substances Control Act (TSCA)". The CAP does not address this issue in the Implementation Steps, but should do so. Inconsistent regulatory policies also exist with respect to allowable concentrations of PCBs in drinking water per the Federal Drinking Water standards, when compared to applicable surface water standards. Additionally, Recommendation 6 includes language to conduct additional site assessment and cleanup actions at "highly concentrated" PCB contaminated sites. PCB cleanup levels as described in the current Washington State Model Toxics Control Act are inconsistent with national and Tribal surface water standards. Resolving these inconsistencies in federal and state regulatory policies will be an important step in reducing the occurrence of PCBs in NPDES-permitted waste streams and other non-point sources.	We agree that there are inconsistent regulations and will continue our ongoing work on both the larger reform of TSCA and reform of PCB regulations under TSCA. We will evaluate the effectiveness of petitioning EPA. We added language to the implementation plan to explicitly include this as part of work on inadvertently generated PCBs. We appreciate your comments on the current cleanup process and further regulatory consistency. We agree that part of our implementation is to explore agency consistency internally.
50	Spokane County	communication; Recommendation #7	There is concern that if each regulated entity develops an independent public education campaign, there may not be a consistent and accurate message to all state residents. This is particularly true given that there are many ambiguities and unknowns in the identification, quantification, removal and safe disposal of many toxic chemicals.	We agree and intend to work with other entities in the education campaign. Both Ecology and Health regularly work with local governments and other entities.
51	Spokane County	congener toxicity; Recommendation #7	To assist in public education, it would be helpful to know what PCB congeners are toxic, and what products they are found in. Similarly, what are the true sources of PCBs in fish tissue and what PCB congeners in fish tissue are toxic.	It would be ideal to have all the information you request, such as which congeners are in which products and a way to compare the toxicity of all 209 congeners, but we don't have all of that information. The PCB CAP describes what is known about the sources of PCBs in Washington, the mixtures of congeners we are exposed to, and different toxic effects of certain individual congeners and mixtures. Ecology and others, such as the City of Spokane, are working to determine which PCB congeners are in which products. Information on these products will be widely distributed and available to others who are interested in purchasing products without PCBs or with the lowest level of PCBs available.

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52	Spokane Tribal Natural Resources	NPDES permits	PCB dischargers from sources known and unknown negatively impact the Tribe's natural resources, and the Department firmly believes that the Washington Department of Ecology can do significantly more to protect the Tribe's resources which in turn will protect all Washington citizens.	We agree that there is more that we can do, as laid out in the PCB CAP recommendations along with existing actions. Ecology's work with the Spokane River Regional Toxics Task Force is an example of Ecology working with a broad array of stakeholders (public officials, dischargers and environmental groups) to identify and remove PCB sources from the Spokane River. Ecology financially supported design and planning for Spokane County's new treatment facility which has demonstrated extraordinary PCB removal from water.
53	Spokane Tribal Natural Resources	NPDES permits	First, the document focuses almost entirely on upstream, not end of pipe PCB removal. Although, PCBs do come from diffuse sources, the end of the NPDES permittees' pipes and stormwater discharges are a known and significant source that can be further reduced through aggressive Clean Water Act supported enforcement activities. To this end, the Department recommends that Ecology add an action item that requires Ecology to petition EPA to approve testing Method 1668 for enforcement purposes	We agree that end of pipe actions are important and have added a statement to the summary on the importance of existing efforts, such as permitting and cleanup. The recommendations in the PCB CAP are for new actions on top of what we are already doing to reduce PCBs. To date, EPA does not support Method 1668 for effluent compliance monitoring and enforcement because they have not been able to demonstrate and document the performance of the Method at the levels of inter-laboratory variability needed for routine effluent compliance measurements. Ecology concurs with this EPA position and will not petition EPA to approve testing Method 1668 for enforcement purposes. The recommendations in the PCB CAP do focus on preventing and managing upstream sources, since we also have ongoing permitting and enforcement to addresses the end of pipe. Ecology believes it appropriately uses its enforcement authority and that PCB reductions require aggressive source control work as well as enforcement actions and upstream actions. The work of the SRRTTF is an example of source control efforts, as well as the creative settlement between the City of Spokane and the Spokane Riverkeeper under which the City identifies PCB hotspots in its stormwater system and investigates those hotspots to find and remove PCB sources that contribute loadings to the City's stormwater system.
54	Spokane Tribal Natural Resources	TSCA reform; Recommendation #4	Second, on page 16, the document states that "Ecology and DOH should petition the federal government to reform current regulations under the Toxics Substances Control Act (TSCA)." "Should" be changed to "shall" petition, and this item should be added to the FY 16- 17 implementation steps. Additionally, Ecology should add language that encourages it to work with Tribes and NGOs to pursue these changes.	Ecology will continue our work on both the larger reform of TSCA and reform of PCB regulations under TSCA and we added language to the implementation plan to explicitly include this as part of work on inadvertently generated PCBs. Part of this work will be evaluating the effectiveness of petitioning EPA. We agree that it is a good idea to encourage more collaboration with Tribes and NGOs on this topic and we will do this.
55	Spokane Tribal Natural Resources	Inadvertent generation; Recommendation #4	Finally, Ecology should prepare legislation for this legislative session that bans the importation into the State of products that contain any amount of PCBs.	We are not recommending a ban on PCBs in products, because we don't know enough about what processes inadvertently generate PCBs, which products they are in, and if there are safer alternatives. In addition, there are concerns about Washington State being preempted by federal use authorizations for PCBs in products. We have requested funding for investigating inadvertent generation of PCBs in products and finding safer alternatives as part of the governor's toxics reduction package.
56	Washington Toxics Coalition	Inadvertent generation; Recommendation #4	The CAP should recommend reducing new generation of PCBs in two ways: one, restrictions on the levels of PCBs in products; and two, creation of a process to identify manufacturing processes that generate PCBs and develop alternatives. Because the federal ban on PCBs does not extend to all product types, Washington state needs new policy to ban all PCBs in all products. Since additional PCBs may be released in manufacturing, Ecology also needs to pursue this possibly significant source. The manufacture of some pigments and dyes have already been identified as those that inadvertently generate PCBs, therefore immediate action should be taken on these. Some initial work has been completed to identify other manufacturing processes that inadvertently generate PCBs. However, the list of processes that inadvertently generate PCBs referenced in the Draft PCB CAP is old and incomplete, and further investigation is needed to update and complete it. Ecology should work with manufacturers that use processes identified as potentially problematic to determine the most important sources and develop strategies for eliminating them.	That you for your support of recommendation #4 to identify processes that inadvertently generate PCBs. We are not recommending a ban on PCBs in products, because we don't know enough about what processes inadvertently generate PCBs, which products they are in, and if there are safer alternatives. In addition, there are concerns about Washington State being preempted by federal use authorizations for PCBs in products. We have requested funding for investigating inadvertent generation of PCBs in products and finding safer alternatives as part of the governor's toxics reduction package.
57	Washington Toxics Coalition	lamp ballasts; Recommendation #1	The draft CAP identifies lamp ballasts as a major source of exposure, and schools and other public buildings as a reservoir of these ballasts. Since this source has already been identified, Washington should act quickly to ensure their speedy replacement. Public agencies, including school districts, should be supported with funding and technical resources to survey and assess PCB-containing lamp ballasts in public buildings and replace them with PCB-free fixtures. Schools and other public buildings should also be assessed for the presence of PCB-containing building materials such as paint and caulk.	That you for your support of recommendation #1 to identify and replace PCB lamp ballast. We have requested funding to implement this recommendation as part of the governor's toxics reduction package.
58	Weyerhaeuser	recycling	A recommendation to "Eliminate the recycling of paper in Washington State" is a non-starter and should not be seriously considered.	We agree that eliminating recycling is an unacceptable approach. Following the PBT Rule, we look at a range of options in CAPs, from the status quo to complete elimination and the options presented are not recommended actions. This was included as a possible option, even though it's really a possible consequence, and it was not recommended. We removed this from the list of options and instead included this undesired possibility in the text for clarification.

No.	Commenter	Keywords	Comment (as written in entirety or excerpted)	Response
59	Weyerhaeuser	monitoring; Recommendation #4. Recommendation #6, Recommendation #8	The goal of this CAP effort is to reduce PCBs in (or entering into) the environment and thereby reduce adverse human health impacts attributable to PCB exposure. In a resource- limited system, a key challenge is to focus attention where the greatest gain can be achieved. While Recommendations #4 and #8 call for monitoring in narrow ways, we suggest value in a broadened and more prominent Recommendation focused on new science/information development and the tracking of Best Practices. Candidate elements would include: - Track research/conduct literature reviews to better understand the relative persistence, bioaccumulation, toxicity characteristics of individual PCB congeners. The historic focus has been on the "dioxin-like" PCB congeners; more recently, PCB-11 has captured the attention of researchers. Ever improving information should influence CAP development. - Recommend or specify that all PCB monitoring (environmental media/ products/ raw materials/ tissue) should include full congener analysis. - Task the Environmental Assessment Program to work with interested stakeholders, including the Washington Dept of Health, to identify and fund a Top-10 list of research topics to improve the understanding on PCB inputs, residence, and impacts to Washington's environment and the public. Air deposition, contributions from backyard trash burning, PCB's in leaked motor oil, contributions from weathered caulk and paint, congener profile in anadromous and edible resident fish, contributions in stormwater by land use type, etc. Setter information will allow for more effective deployment of resources and government programs to accomplish the objective. - Other jurisdictions appear to be ahead of Washington in PCB CAP-like activities. There should on-going efforts to learn from those experiences and apply the best ideas in Washington. Ecology should not consider this CAP to be a "one and done" effort. A commitment to continuing knowledge development will facilitate a re-examination of the CAP recommendations in 2-4 years. Progress can be assessed and action plans recalibrated.	We agree that ongoing development of new information and monitoring is important to evaluate trends and continue to prioritize activities as we implement these recommendations. Part of Recommendation #4 to learn more about what products contain inadvertently generated PCBs will take into account which congeners are generated and their characteristics. A number of the types of monitoring suggested are underway for planned as part of current programs or the governor's Toxics Reduction Initiative. We know a lot about PCB sources already that can guide ongoing activities so we don't have to wait to move forward with some actions. In addition, the federal National Estuary Program (NEP) is funding King County to develop a PCB source control manual based on lessons learned from successful programs in Seattle, Tacoma, Portland and Spokane. We do not agree that full PCB congener analysis is needed for everything. It is most useful in lowering detection limits or source tracing where congener profiles are useful. Selection of any appropriate method should be based on project specific goals. During the CAP process we worked with interested stakeholders, including the advisory committee, Health, Ecology's Environmental Assessment Program, and other programs in Ecology, to identify the most important research topics. The Draft PCB CAP Recommendation includes the areas of investigation that we have prioritized in that process, including how widespread old PCB lamp ballasts are in schools and other public buildings, BMPs for building materials, which processes inadvertently generate PCBs and what new products PCBs are found in, identifying environmental hot spots, the relative importance of air deposition, and the congeners in Washington residents. Ecology and Health will continue our ongoing work on monitoring for PCBs in environmental media, including cleanup sites and fish tissues. The estimate of backyard trash burning is not as reliable as some of the other estimates, and we are already working to end trash burning, which is illegal at all times and in all places in Washington State.
60	Weyerhaeuser		Page 12, Table I -This Table conveys several messages. First, while it is certainly true the mass estimates presented are coarse, those estimates do signal the broad opportunity areas for government-focused attention to remove/reduce PCB in the environment. Second, it can be noted that regulatory programs already exist to address many of the sources in the Legacy Reservoir column (40 CFR Part 761, WAC 173-303 *Dangerous Waste,* WAC 173-340 MJCA, WAC 173-204 Sediment Management Standards). Third, the Annual Releases column entries probably pinpoint the richest targets for this Chemical Action Plan. Finally, where the Annual Releases show a wide range of mass values or "Unknown," the implication is that these are candidates for more survey work and information development.	We agree with the usefulness of the table. The recommendations are not solely based on any one number, such as the annual releases, but on a combination of the estimated amounts, potential for exposure, opportunities to reduce that source, existing regulatory programs and other considerations. The recommendations complement the existing regulatory programs, such as by preventing PCBs from getting into stormwater and then sediments, and thus not requiring clean up. We would like to fill in more information where there are current "unknowns," and anticipate doing so as work continues on PCBs. We have requested funding for this as part of the governor's toxics reduction package.
61	Weyerhaeuser	historic electrical equipment; Recommendation #5	Recommendation #5 - *Inventory PCB-containing equipment and ascertain replacement schedule* -- This Recommendation will consume scarce Ecology staff resources to create a database having no direct nexus to reducing PCB environmental losses. Regulatory programs already exist to addresses releases from PCB-containing equipment (40 CFR Part 761 and WAC 173-303). Ecology should be content with these.	We disagree that it is a poor use of resources to confirm the equipment replacement and provide technical assistance for proper replacement and disposal. The existing regulatory programs do not address all of the equipment or levels of PCBs that we now know are of concern. For example, the federal regulation only addresses transformers with PCBs greater than 500 ppm, and their database has never been updated.
62	Weyerhaeuser	monitoring; Recommendation #6	Recommendation #6 - *Expand Environmental Monitoring* - The Recommendation calls for cleanup of known contaminated sites, yet the discussion focuses on monitoring. Fresh thinking is needed on what it will take to actually remove PCBs from the environment. MTCA and Sediment Management Standards regulatory processes aspire to perfection (and offer little incentive for PLP's to undertake interim removal actions). The pursuit of perfection is agonizingly slow. If the best information is that Washington residents are actually experiencing toxic effects from PCB exposure (first introduced on page 11 and then throughout the CAP), then this Recommendation should be re-titled and the CAP discussion refocused on defining the challenges to expeditious removal of environmental PCBs.	While it will take a combination of cleanup and prevention to reduce PCB levels, the recommendations are more focused on preventing PCBs from entering the environment and thus requiring additional clean up. Recommendation #6 does focus on monitoring to find new sites, which would then be cleaned up in the usual process. We appreciate your comments on the current cleanup process and Ecology is working to speed up decision making for cleanups.
63	Weyerhaeuser	communication; Recommendation #7	Recommendation #7 - *Public Education Campaign* - The public would benefit from practical information on the relative health risk of exposures to environmental pollutants, and this in contrast to the risks from the other exposures and activities we Americans subject ourselves to. But a campaign focused solely on PCB's which rehashes the page 10 *Exposure* paragraph probably won't accomplish much.	We agree that a successful campaign has to provide specific information and how to avoid exposures.
64	Weyerhaeuser	waste disposal	Page 64 - Additional research should be conducted on the source(s) of and off-site disposal practices for the 1000's of pounds of PCB wastes reported in recent TRI reports.	Ecology is satisfied that the current hazardous waste treatment and disposal companies that report in this category appropriately dispose of the existing PCB waste.

No.	Commenter	Keywords	Comment (as written in entirety or excerpted)	Response
65	Weyerhaeuser	waste burning	Page 64 and 69 -Residential waste burning (estimate of 199 kg/yr of PCB loss) and motor oil (11.3 million kg of oil loss to the environment)- These estimated mass losses are huge and are certainly worthy of a CAP Recommendation. A public information campaign coupled with some regulatory/enforcement authority may represent the most significant and immediate opportunity for tangible PCB and stormwater improvements available to Ecology. (Some jurisdictions reportedly combine a check for vehicle oil leaks with the mandatory emission testing program)	Residential waste burning is illegal in Washington State. There is more uncertainty around that estimate compared with the other estimates, due to the difficulty of estimating emissions from that activity. State and local air authorities are often notified of illegal burning through complaints from the public. Compliance personnel also look out for illegal burning when they are in the field carrying out their duties. We recognize that education is an important tool for minimizing illegal outdoor burning, and state and local authorities frequently provide information to the public through education campaigns. Ecology and local authorities will continue to enforce laws pertaining to illegal burning when necessary, and find opportunities to educate the public about the environmental and public health hazards of illegal burning. Washington State is phasing out its car emissions testing requirements, so there will not be an opportunity to combine it with other environmental testing. While burning creates PCBs, motor oil is a pathway for PCBs to get from sources to the environment and not a source in itself. We can manage motor oil leaks and drips as a pathway, such as in stormwater management and the Puget Sound Starts Here campaign.

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September 25, 2014

Dr.Holly Davies

Department of Ecology
300 Desmond Dr.
PO Box 47600
Olympia, WA 98504

Subj: Comments re Draft PCB Chemical Action Plan

Dear Dr. Davies:

Thank you for the clear analysis and sensible approach laid out in the PCB CAP. We appreciate that the areas to achieve the greatest reduction of exposures are shown, and that these are areas outside of the realm of Clean Water Act NPDES permitting. The recommendations and implementation steps are well thought out. We submit the following comments, prepared by Lincoln Loehr, in an effort to further refine and clarify the CAP.

The following comments are keyed to pages and topics in the July 2014 draft PCB CAP.

Comment 1. Page 10, Pathways. Second paragraph. See also comment 3 for page 67 and comment 7 for page 84.

The discussion of stormwater loadings needs to note that this includes from all land uses, and that the loadings to Puget Sound are greatest from the forest land use attributed to precipitation loading and the great volume of flow from the forest land use. This is important to note here, and elsewhere in the CAP because this is beyond the reach of CWA stormwater NPDES controls.

Comment 2. Page 36, Congener detection – Method1668C

The CAP notes that detection limits for Method 1668 can be in the ppm to ppb levels depending upon complexity of sample and matrix involved. Check with your Environmental Assessment Section because they are reporting data for water in the 10 part per quadrillion range. For example, see data described at the top of page 84.

Comment 3. Page 67, Pathways. See also comments 1 and 7.

In an email to you on May 20th, I had recommended that the discussion for Puget Sound be changed to separate out the stormwater (or "surface runoff") loadings into the four separate land uses (commercial/industrial, residential, agricultural, forest/field/other) and I cited to the PCB median

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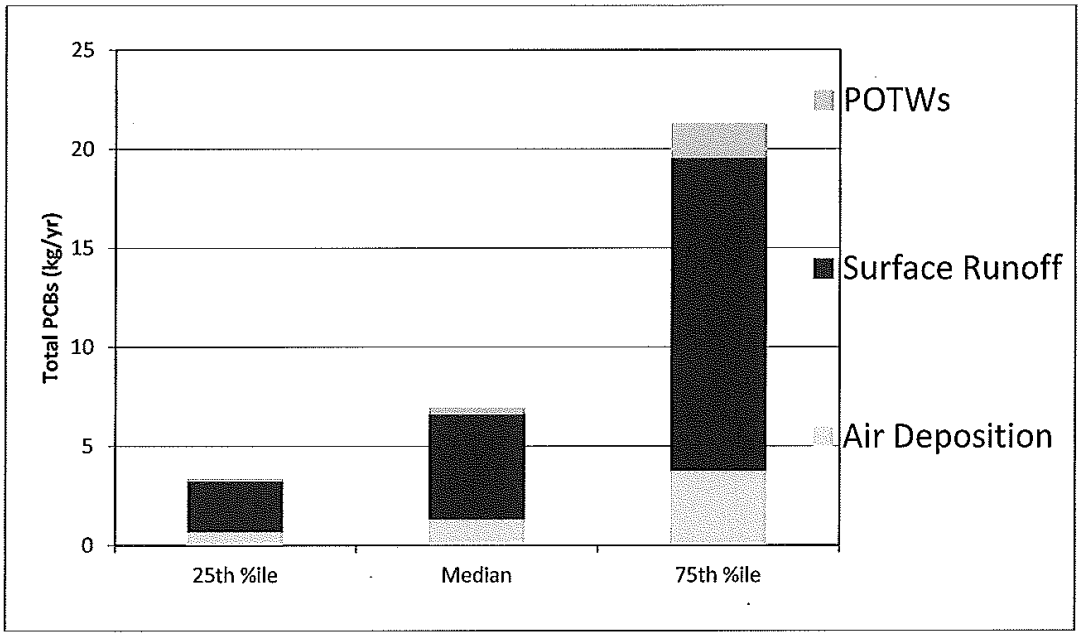
loadings for each as calculated by Ecology in the phase 3 Puget Sound Toxics Loading Studies (PSTLS). I recommended a pie diagram be added similar to the ones for the three inland rivers on page 68.

I note that in your public presentations of the draft CAP you include a figure from the PSTLS report No. 11-03-055, which is below.

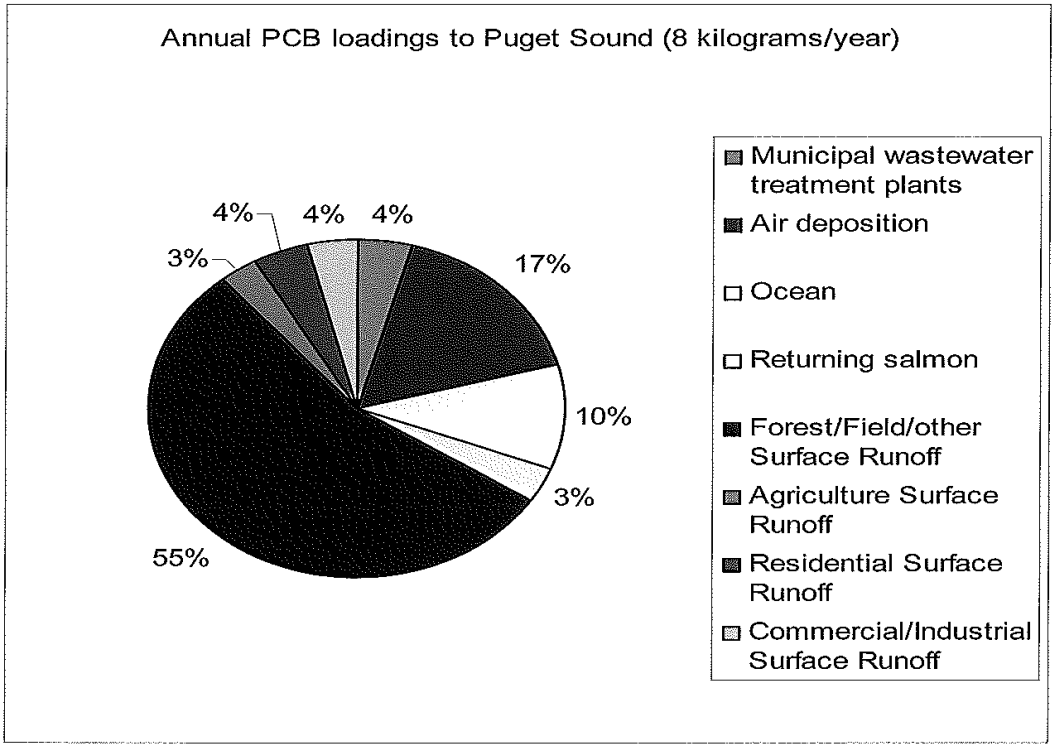


The figure shows that "surface runoff" is the largest source. On page 67, the term "stormwater" is used instead of "surface runoff". The two terms have been interchangeable with Ecology in the PSTLS. The problem with the brief statement on page 67, and the figure used in the public meetings is that it doesn't show the breakdown for this stormwater by the different land uses, thereby leaving it to the reader to interpret, which is easily construed as stormwater subject to improvement through stormwater permitting. Most of the stormwater loading cannot be reduced through improvements in stormwater controls. The loadings of stormwater from the different land uses has been developed by Ecology in Table 15 in publication No. 11-03-010, and should be included in the CAP. I presented the median loadings to Puget Sound from all sources identified by DOE in the PSTLS reports in my May 20, 2014 email. The median PCB loadings from the PSTLS reports are as follows:

1.32	kg/yr	air deposition (DOE 2011(a) table 13.
4.39	kg/yr	forest/Field/Other surface runoff (DOE 2011(b) Table 15.
0.226	kg/yr	Agriculture surface runoff (DOE 2011(b) Table 15.
0.344	kg/yr	Residential surface runoff (DOE 2011(b) Table 15.
0.310	kg/yr	Commercial/Industrial surface runoff (DOE 2011(b) Table 15.
0.342	kg/yr	Municipal Wastewater Treatment Plants (DOE 2011(a) Table 13.

0.8	kg/yr	Ocean (DOE 2011(a) Table 13.
0.265	kg/yr	Returning salmon (DOE 2011(a) Table 13.
7.997	kg/yr	TOTAL

The following pie diagram shows the median loadings to Puget Sound from these sources.



The key point to be made here is that we have very little authority or control over 85% of this loading (air, ocean, returning salmon, forest), and that the stormwater that can be subject to controls is limited to about 15% of the loading. That loading also amounts to about 1.2 kg/year, which is minor compared to the PCB quantities in the environmental media of sediment, biota and water (see Comment 4 below).

Comment 4. Page 10 and page 71, relative abundance of PCBs in Puget Sound

On both these pages, the relative abundance of PCBs in the sediments, the water column and the biota are presented. On page 10, these are presented both as mass (1440 kg, 10 kg, and 40 kg) as well as relative percentages (97%, <1% and <3%) are presented, while on page 71, the percentages are provided, but only the mass in the biota is provided. Both the percentages and the mass should be presented in both places.

The median values for the loadings from different sources in kilograms should also be presented in both areas so they can be compared with the abundance in the sediments, water and biota. For Puget Sound we have 1490 kg in the environmental media, and we contribute about 1 kg a year total from municipal

wastewater treatment plants, and stormwater from commercial/industrial areas and residential areas combined. In terms of bioaccumulative exposure to fish, the legacy contamination present in the sediments, and the biota and the water are far more significant than the sources subject to NPDES permitting.

Comment 5. Page 78, PCBs in air and soil.

The comment is made in the second paragraph that PCB levels in the atmosphere have been decreasing and provides a citation. Another comment in the same paragraph says PCB levels in air may be plateauing and no citation is provided. What is it? I view the term plateauing as leveling off at the top. Perhaps you mean leveling off after a period of decreasing, in which case some other term might be better.

Comment 6. Page 81. Discussion of PCBs in harbor seals.

It notes that PCB-associated health impacts are observed in seals from this region. Is this correct? Have we actual observations of effects, or just observations of concentrations that are presumed to have effects? There is a difference. Since the passage of the Marine Mammals Protection Act back in the early 1970's, seal and sea lion populations have rebounded greatly and may be at carrying capacity now. Between 1972 and 1996, the population of these marine mammals on the west coast increased about 6% per year.

Comment 7. Page 84. Third paragraph discussion of total PCB load to Puget Sound. See also comments 1 and 3.

This notes that surface water (stormwater) accounted for 74-76% of the total PCB load to Puget Sound and the U.S. portions of the Strait of Georgia and the Strait of Juan de Fuca. Again, this needs to be broken out further by the land use types and quantified, as well as providing relative percentages.

Comment 8. Page 89. Reference to Human Health Criterion equivalent fish tissue concentrations.

Reference is made in the first paragraph and in Figure 19 to fish tissue concentration of 5.3 ppb as equivalent to Washington's human health water quality criterion for PCB.

Washington has no adopted fish tissue human health criteria. The human health water quality criteria pertain to bioconcentration from exposures to the water only. Water concentrations are associated with water quality criteria and Clean Water Act regulatory tools. Observed tissue concentrations result from bioaccumulation up the food chain (not bioconcentration from the water) and also from sediment exposures to the biota. The tissue concentrations have little to do with the water quality.

This comment also pertains to

1) The last paragraph on page 92, which continues on page 93,

2) The 5th bullet on page 101,

3) Figure 25 on page 117,

4) Paragraph 2 on page 118,

5) The first paragraph on page 146.

Comment 9. Page 93. Paragraphs discussing killer whales.

The paragraphs describes the Southern resident killer whales as among the world's most PCB-contaminated marine mammals. The paragraph should also note that the transient killer whales have even higher PCB-contamination, and spend most of their lives outside of Puget Sound. (See slide 22 in your public workshop presentation re the draft CAP.) Blubber PCB data are provided for the northern and southern resident whales. Similar data should be provided and discussed for the transient whales.

References:

DOE 2011(a). Assessment of Selected Toxic Chemicals in the Puget Sound Basin, 2007-2011. Publication No. 11-03-055. www.ecy.wa.gov/biblio/1103055.html.

DOE 2011(b). Phase 3 Data and Load Estimates. Publication No. 11-03-010. www.ecy.wa.gov/biblio/1103010.html.

Thank you for the opportunity to comment on the PCB CAP.

Heather Kibbey

Surface Water Manager

CPMA®
COLOR PIGMENTS MANUFACTURERS ASSOCIATION, INC.

October 1, 2014

Holly Davies, Ph.D.
Senior Scientist
Waste 2 Resources Program
Department of Ecology
State of Washington
P.O. Box 47600
Olympia, WA 98504-7706

Re: Comments of the Color Pigments Manufacturers Association, Inc. on the Draft "Chemical Action Plan for Polychlorinated Biphenyls"

Dear Dr. Davies:

The following comments on the draft Chemical Action Plan for Polychlorinated Biphenyls ("PCBs"), dated August 5, 2014, are provided on behalf of the Color Pigments Manufacturers Association, Inc. ("CPMA").

The CPMA is an industry trade association representing small, medium and large color pigments manufacturers throughout Canada, Mexico and the United States, accounting for the bulk of the production of color pigments in these countries. Color pigments manufacturers located in other countries with sales in Canada, Mexico and the United States, and suppliers of intermediates, other

1850 M Street NW, Suite 730• Washington, DC 20036 • USA
Phone: (202) 465-4900 • Fax: (202) 465-4905 • e-mail: cpma@cpma.com

chemicals and other products used by North American manufacturers of color pigments are also members of the Association. Color pigments are widely used in product compositions of all kinds, including paints, inks, plastics, glass, synthetic fibers, ceramics, cement products, textiles, cosmetics and artist products.

We believe that the draft Chemical Action Plan for PCBs should be revised to address the following concerns:

- Pigments and specifically diarylide pigments are overemphasized in the document, which does not support the priority the authors assign to pigments, particularly in comparison to other known priority sources of PCBs in the environment.

- The production of organic pigments and derived amounts of diarylide pigments and PCB 11 believed to be in commerce are overstated due to reliance on errors in the peer reviewed literature.

- Pigments are not the only source of 3,3' dichlorobiphenyl ("PCB 11") in the environment and existing studies do not substantiate the assumption that PCB 11 found in the environment is only derived from pigments.

- The description of pigments should include reference to readily available international dossiers on the safety and toxicological properties of the diarylide, monoazo and phthalocyanine pigments.

- The extensive report entitled “Polychlorinated Biphenyls (PCBs) in General Consumer Products” regarding inadvertent PCBs found in products emphasizing PCB 11, which was developed by the Department of Ecology, should be described and referenced in the draft Chemical Action Plan.

- The CPMA disagrees strongly with assertions attributed to Dr. Robert M. Christie in the report entitled "Alternatives for Elimination of PCBs in Pigments used for Printing Inks and Architectural Paints" which claims that there are potential substitutes for diarylide, monoazo and phthalocyanine pigments.

In general, the draft Chemical Action Plan identifies inadvertent production of PCBs in dyes and pigments and other, largely unknown and unidentified products, as significant sources of PCBs in the environment. The draft Chemical Action Plan indicates that extensive industries other than dyes and pigments may have inadvertent PCBs and that little is known about those industries, particularly soaps and surfactants which would be expected to involve discharge to water bodies. Draft Chemical Action Plan p.60. The draft Chemical Action Plan also appears to focus excessively on the relatively small amount PCBs which may be inadvertently generated in the manufacture of pigments and specifically on the production and use of diarylide pigments.

Background on Organic Pigments and the Impacted Chemical Classes, Their Definition and Toxicity

Organic pigments represent unique crystalline solids which are known for their stability in the environment. Pigments are distinct from dyes. Pigments, as opposed to dyes, retain crystalline structure and remain insoluble throughout the coloration process and are unchanged by the material in which they are incorporated.

Due to their extremely low solubility, in both lipids and water, pigments are not bioavailable, do not bioaccumulate and do not bioconcentrate in the food chain. This has been shown by extensive tests which have indicated that, eventhough estimated values would

signal concern, in actual tests, organic pigments do not exhibit any potential to bioaccumulate. As a result of these attributes, pigments are not toxic.

Once encapsulated in the matrix which makes up the final product, exposure to pigments is effectively eliminated. The only actual exposure to pigments occurs during the step when pigments are added to formulations, usually inks, paints or plastics. After that, the pigment is encapsulated in the resin which makes up the colored product or coating. There are three primary classes of organic pigments which are known to potentially contain PCBs. These are identified as diarylide pigments, phthalocyanine pigments and certain monoazo pigments.

Diarylide Pigments

These pigments are among the most important yellow pigments for coloring printing inks and certain plastics. The diarylide, or disazo, pigments share a common structure and characteristics. Diarylide pigments are manufactured from two azo groups in the molecule and are primarily yellow, orange and red. Due to their transparency, color strength and working characteristics, these pigments are critical to colored printing, including traditional four color printing processes. Diarylide pigments are manufactured by tetrazotisation of aromatic diamines and coupling with

acetoacetarylides. The production of diarylide pigments may inadvertently generate trace amounts of PCB 11.

The diarylide pigments are technologically and economically unique and unreplaceable in commerce and are still produced in large quantities to satisfy demands for the properties of these pigments.

Toxicological Data Available for the Diarylide Pigments

Under sponsorship from the United Kingdom, an international Organization for Economic Cooperation and Development ("OECD") Screening Information Data Set ("SIDS") dossier was prepared for diarylide pigments. Representative pigments were tested for acute, subchronic and chronic toxicity in numerous studies, including an available comprehensive two year chronic toxicity study in mice and rats undertaken by the U.S. National Toxicology Program ("NTP") for C. I. Pigment Yellow 12. The results of these studies have consistently indicated that diarylide pigments are not toxic or carcinogenic. The NTP study report is readily available for review online.

Additionally, in 2013, Environment Canada conducted a comprehensive screening assessment of diarylide pigments. The Environment Canada assessment of environmental impact was based upon a detailed examination of six paper recycling and deinking facilities, which discharged water to six different Canadian rivers. The deinking facilities used varying quantities of water and,

therefore, generated differing concentration levels for contaminants in the water discharged. The overall conclusion of the Environment Canada draft screening assessment was that the diarylide pigments used primarily in printing inks and plastics have low potential to cause ecological harm in Canada. Canada Gazette, Part 1, June 15, 2013 and related Draft Screening Assessment for the Diarylide Pigments.

Phthalocyanine Pigments

One of the pigment classes which may contain trace amounts of inadvertent PCBs is the phthalocyanine pigments. Phthalocyanine pigments are inert substances. No significant health or environmental effects have been found for these substances. These organometallic compounds are distinguished by a covalently bonded structure, which provides these compounds with unusual stability in all environmental media and a pronounced lack of solubility and bioavailability. OECD SIDS dossiers have been prepared for the phthalocyanine pigments. Summary reports of information on the toxicological properties of these pigments are readily available.

These inert compounds are commonly used as colorant ingredients to provide blue and green shades to printing inks, plastics, synthetic fibers and coatings in many industries. These valuable products have excellent light fastness and color intensity, are resistant to heat and chemicals, and possess high tinting strength.

EPA has assessed copper phthalocyanine compounds and concluded that:

> "EPA's assessment included metabolism, absorption, acute and chronic toxicity, neurotoxicity, carcinogenicity, mutagenicity, reproductive system effects, development toxicity and ecotocity. In all cases, the conclusion was that phthalocyanine compounds could not be anticipated to cause harm by any of these pathways...
> phthalocyanine compounds that are substituted with only hydrogen and/or bromine and/or chlorine do not meet the toxicity criteria of EPCRA Section 313(d)(2)(B) because the copper phthalocyanine compounds cannot reasonably be anticipated to cause cancer, developmental toxicity, reproductive toxicity, neurotoxicity, gene mutations, or chronic toxicity. These intact copper phthalocyanine compounds cannot reasonably be anticipated to cause such effects..." 60 Fed. Reg. 18363
>
> EPA further noted that it:
>
> "believes that its conclusions regarding the toxicity of this intact compound and the availability of soluble copper from these substituted compounds apply to all copper phthalocyanine compounds that are substituted with only hydrogen and/or bromine and/or chlorine". 60 Fed. Reg. 18362.

Therefore, eventhough some phthalocyanine pigments may contain trace amounts of inadvertently generated substances, such as PCBs, there is no reason to believe that these stable compounds pose any risk to health or the environment. Any trace contaminants contained in phthalocyanine pigment compounds would be contained both in the matrix which makes up the phthalocyanine molecule and the resin, ink or coating in which the pigment is used.

Monoazo Pigments

Another pigment class which may contain trace amounts of inadvertent PCBs in certain pigments is the monoazo class, which pigments are characterized by a single azo group. Many members of this class are small in volume and used for special applications. The major volume monoazo pigments are reds made by coupling diazotized sulfonated aromatic amines to beta-naphthol or beta-oxynaphthoic acid, followed by conversion to insoluble metal salts with, for example, calcium chloride.

OECD SIDS dossiers were prepared for the some of the largest volume analog monoazo pigments, including C.I. Pigment Red 57 and C.I. Pigment Red 53.

The monoazo pigments have high LD50 values generally exceeding 10,000 milligrams per kilogram body weight ("mg/kg")[1] [2] and, therefore, are considered of low toxicity.

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[1] Lewis, P.A., Editor, Pigment Handbook, Volume 1, 2nd Edition, John Wiley and Sons, New York, 1987.

[2] Verschuren, K., Handbook of Environmental Data on Organic Chemicals, Van Nostrand Reinhold Co., 1977.

Animal ingestion studies of C.I. Pigment Red 57:1 (Lithol Rubine, D&C Red No. 7) were conducted for use of this pigment as a Drug and Cosmetic Colorant.[3] [4] [5] [6] Chronic feeding studies on C.I. Pigment Orange 5 (Drug & Cosmetic ("D & C") Orange 17) and C.I. Pigment Red 53:1 (D&C Red 9) also demonstrated low toxicity. Insoluble aluminum salts of this group are also used in the United States as certified D & C colors. D & C Red No. 7 and its salts are also regulated as colorants in food contact polymers.

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[3] Catalogue of Food Colors, Volume 1, International Life Sciences Institute, 1982.

[4] Federal Register, Vol. 47, pp. 57681-57689, December 28, 1982, "D&C Red No. 6 and D&C Red No. 7" Final Rule, Food and Drug Administration.

[5] Vettorazzi, G., Handbook of International Food Regulatory Toxicology, Volume 2: Profiles, SP Medical and Scientific Books, 1981.

[6] Leist, K.H., Ecotoxicological Environmental Safety, 6(5), 1982, pp. 457-463.

Bioaccumulation and the Related Toxicity Of Pigments

Pigments are extremely insoluble. As a result, these compounds are non-toxic and very low in bioavailability. In the literature, there are two published summaries concerning the acute toxicity of pigments[7]. Due to their extremely low solubility, in both lipids and water, organic pigments are not bioaccumulative; nor do they bioconcentrate in the food chain. This has been shown by extensive tests which have indicated that, eventhough theoretical log P values for organic pigments may be calculated at levels that would signal concern, in actual tests, insoluble organic pigments do not exhibit any potential to bioaccumulate.[8]

[7] See summary concerning 4000 separate colorants, Clarke, E.A. and Anliker, R., "Organic Dyes and Pigments. "The Handbook of Environmental Chemistry, Volume 3, Part A, O. Hutzinger, Editor, Springer-Verlag, Berlin.), the National Printing Ink Research Institute ("NPIRI') tabulated LD50 data for 108 organic pigments (NPIRI Raw Materials Data Handbook), Volume 4, Pigments, Francis MacDonald Sinclair Memorial Laboratory 7, Lehigh University, Bethlehem, PA 18105, 1983. 1983),

[8] R. Anliker and P. Moser, Ecotoxicology and Environmental Safety (1987), Volume 13, p. 43-52, entitled "Bioaccumulation of Organic Pigments in Fish: Their Relation to the Partition Coefficient and the Solubility in Water and Octanol".

Size of the Color Pigments Industry is Overstated in the Draft Chemical Action Plan

The size of the international color pigments industry is overstated in the draft Chemical Action Plan. In text immediately following Table 11, entitled "PCB-11 Worldwide Concentrations From Printed Materials", at page 42, the draft Chemical Action Plan states that diarylide yellow comprises approximately 25% of the 250 million tons of pigments produced yearly worldwide.

This estimate of worldwide pigment production in the draft Chemical Action Plan is incorrect. As discussed below, worldwide production of organic pigments in 2006 should be estimated in the draft at 250,000 tons, not 250 million tons. This error is derived from a 2012 presentation by Lisa Rodenburg, Ph.D., which incorporated information from a study published in 2010, entitled "Evidence for Unique and Ubiquitous Environmental Sources of 3,3'-Dichlorobiphenyl (PCB 11)" Environ. Sci. Techno., Vol. 44, 2010, pp. 2816-2821 (Rodenburg, 2010) (the "Study"). The Study contained an estimate of "250 million metric tons", representing the worldwide production of organic pigments in 2006. This value was also used in the Study to estimate the worldwide production of inadvertent PCB 11 in diarylide pigments, as follows:

> "Worldwide production of color organic pigments was estimated to be 250 million metric tons in 2006, with about 25% of the market being diarylide yellow pigments. About 65% of the total production of color organic pigments is used in printing... Therefore, worldwide production of PCB 11 via the manufacture of diarylide yellow pigments is estimated to be 1.5 t in 2006". The Study p.1.

Within the Study, this information was obtained from an article entitled "The Pigment Report", which appeared in the March, 2007 edition of the trade journal Ink World. By assuming that the value represented in the Pigment Report represented 250 million tons, rather than 250 thousand tons, the authors of the Study overestimated the amount of organic pigments and, by derivation PCB 11 in world commerce resulting from pigments, by a factor of 1,000. This mistake was brought to the attention of the authors of the Study, who acknowledged that the mistake was significant; yet no correction has been submitted to the journal in which it was published.

The draft Chemical Action Plan contains additional estimates of pigments in Washington based on worldwide organic pigments production in 2006. Draft Chemical Action Plan p. 62. If estimates of pigments and PCBs in commerce in Washington are warranted at all, these estimates should be based on actual analysis of relevant products.

Sources of PCB 11 Other Than Diarylide Pigments are Ignored

Under the topic "Environmentally Significant PCBs", the draft Chemical Action Plan states:

> "In some samples, PCB 11 was either the most or second most abundant congener detected. PCB-11 is neither associated with historical commercial PCB products nor a breakdown product of commercial mixtures. The source was traced to pigments currently used in paint (Hu and Hornbuckle, 2010)". Draft Chemical Action Plan p.98.

The cited study points to paints as a potential source of PCB 11. It does not establish paints as the only source of PCB 11 in the environment. Although diarylide pigments are sometimes used in paints, diarylide pigments are not the dominate source of yellow shade colors for paints, due to their performance characteristics in paint products. However, PCB 11 was known to be a significant ingredient in Aroclor 1221, one of the last major products produced by Monsanto prior to the TSCA ban on the production of PCBs. Concentration of PCB 11 in Aroclor 1221 has been estimated in various studies in a range of .3 to .16 percent. The total production of Aroclor 1221 by Monsanto in its last years of Aroclor production involved many millions of pounds. Aroclor 1221 was used in various products, including adhesives and building materials. All products

containing low weight PCB congeners, including pigments, but also these other products and Aroclor 1221 itself, partition to the air, thereby generating PCB exposure.

PCB 11 is also known to be a dechlorination product of Aroclor PCBs. See for example Zanaroli et al. (2006) "Microbial Reductive Dechlorination of Weathered and Exogenous Co-planar Polychlorinated Biphenyls in an Anaerobic Sediment of a Venice Lagoon". (Cited in the draft Chemical Action Plan).

The draft Chemical Action Plan indicates that numerous industries were identified by EPA as being potential sources of PCBs in the environment. These include widely distributed cosmetic products and soaps. Traces of inadvertent chlorinated organic contaminants may exist in measurable quantities at or below parts per million ("ppm") levels in any synthetic chemical processes involving chlorine, chlorinated solvents or chlorinated organic substances. These alternative sources should be identified in the draft Chemical Action Plan.

We note that the Guo 2013 thesis indicates that an error was previously made in calculations of the estimated PCB 11 production from pigments. The Guo 2013 theses does not substantiate that PCB 11 derives only from diarylide pigments, nor does the product testing

and speculation included in the theses account for the difference in environmental concentration and predicted concentration based on recent product testing.

Pigments are Disproportionately Addressed in the Chemical Action Plan

The draft Chemical Action Plan focuses almost all of the effort and resources on, at most, 1% of the larger PCB issue. Given that pigments are described in the draft Chemical Action Plan as a very small contributor of PCBs with releases of .02 to 31 kg/year, compared to releases of "unknown" inadvertent PCBs at an estimated 900 kg/year, the detailed emphasis on the pigments industry is at best out of proportion with the other sources. For example, if the estimate of pigments and dyes based on PCB 11 is valid and an assumption is made that a maximum of 31 kg per year of PCBs is released from pigments and dyes, then the maximum concentration of annual PCB releases identified in Table 1 for historic uses and current generation would be reduced by 1.0% if pigments releases were eliminated.

Furthermore, Table 1 indicates that significant sources of releases of PCBs from "other open uses" and "other closed uses" are unidentified and are not accounted for in the calculation, so the

estimate of 1% from pigments must be considered higher than necessary, since additional sources of PCB releases other than pigments have not been accounted for. Draft Chemical Action Plan, Table 1, p. 12.

Because pigments are 1% of the amount identified by the draft Chemical Action Plan, the extensive analysis of pigments as a major source of PCBs in Washington is overstated. The suggested priority action for the Department of Ecology to devote considerable resources to research directed at replacing pigments with unproven alternatives should be reconsidered in favor of using resources to address far more significant, identified and unidentified, sources of PCBs.

The Chemical Action Plan Overstates the Risk Associated with Color Pigments and Products Manufactured with Color Pigments.

Studies undertaken of fish in Washington surface waters by the Department of Ecology do not indicate that PCB 11 is bioaccumulating or causing any significant exposure to humans or animals. Product analysis conducted by the Department of Ecology shows results for PCBs at parts per billion ("ppb") levels uniformly below 1 ppm. See Report entitled "Polychlorinated Biphenyls (PCBs) in General Consumer Products" dated June 2014, Publication No. 14-04-035. The

maximum amount of PCB 11 shown in consumer products is 48.5 ppb. The highest PCB total for all congeners was 339 ppb, consisting largely of PCB 209 (not PCB 11) in a non-consumer green paint dispersion product used for coloring and tinting paints which may in turn be sold to consumers at a much lower concentration. None of the analyzed products exceeded 1 ppm of all PCBs. This analysis of products (mostly yellow and green) for PCBs, which was produced by the Washington Department of Ecology, is not incorporated into the draft Chemical Action Plan.

The Fifty ppm Limitation on the Concentration of Inadvertent PCBs Present in Products is an International Standard Which Generally Excludes Monochlorobiphenyl and Dichlorobiphenyl Congeners.

The draft Chemical Action Plan recommends that Washington Departments of Ecology and Health petition the EPA to lower limits for inadvertent PCBs in products. Draft Chemical Action Plan p.16.

As a result of the promulgation of the PCB regulations by EPA under TSCA thirty years ago, many jurisdictions have since developed similar restrictions. The inadvertent presence of PCBs in chlorinated synthetic chemical products of all kinds is now regulated at or below a level of 50 ppm throughout the world. Most of the major trading partners of the United States, including Canada, regulate inadvertent PCBs at a maximum concentration of 50 ppm.

Monochlorobiphenyl and dichlorobiphenyl, including PCB 11, are regulated in the United States with a special discounting factor only for the inadvertent presence in products. The presence of monochlorobiphenyl and dichlorobiphenyl are largely unregulated outside of the United States. In many countries, the term "PCBs" is not defined to include these congeners. This is because the "Mono" and "Di" chlorobiphenyls are not ordinarily defined as "Poly" chlorinated biphenyls. The prefix "Poly", literally meaning "many", is understood to contain three or more of an entity, in this case chlorine atoms. These congeners are also not considered to be toxicologically equivalent to PCBs containing three or more chlorine atoms.

The draft Chemical Action Plan does state that monochlorobiphenyl and dichlorobiphenyl congeners are not regulated in Canada as PCBs. Draft Chemical Action Plan p.155. The draft Chemical Action Plan should be revised to accurately describe the current regulation and definitions of PCBs in other countries.

If EPA were to agree with the suggested request from the Washington Departments of Ecology and Health to further restrict inadvertent PCBs in products, new restrictions specific to the United States would have a punitive impact on United States manufacturers

and would not change or prevent the continued use of the same color pigments in other jurisdictions, which export colored products unregulated by TSCA to the United States.

There Are No Viable Substitutes for the Impacted Organic Pigments with the Necessary Performance Attributes.

While alternative ink, paint and plastic products using substitute pigments could, in some limited applications, be produced, there are no pigment substitutes which provide the same unique properties of diarylide, monoazo and phthalocyanine pigments in existing formulated products. Diarylide, monoazo and phthalocyanine pigments are leading products in world commerce. When the proven safety and unique performance characteristics of these pigments are considered, there simply are no viable substitutes for these important organic pigments in printing inks, paints, plastics.

Current International Agency for Research on Cancer Classification of PCBs

The draft Chemical Action Plan refers the International Agency for Research on Cancer ("IARC") classification of the carcinogenicity of PCBs, without accurately describing the current

IARC classification of PCBs and its limitations. The draft Chemical Action Plan states:

> "The International Agency for Research on Cancer (IARC) recently changed their classification of PCBs and dioxin-like PCBs from "probable human carcinogens" to "human carcinogens" to recognize that there is now sufficient evidence in humans and animals. (Lauby-Secretan et al. 2013) draft Chemical Action Plan p. 102.

The Lauby-Secretan et al. 2013 reference for the statement above in the draft Chemical Action Plan is actually from a journal article describing various changes that may occur in the IARC monographs after the revised monographs are prepared, proposed and finalized by IARC.

Moreover, the current IARC classification for PCBs is limited to 12 PCB congeners, which are described as "dioxin like" and have been assigned Toxicity Equivalency Factors according to the World Health Organization. It appears that it is possible that IARC will propose to elevate the 12 "dioxin like" PCB congeners from the current classification of "probable human carcinogens" to "known human carcinogens". The 12 congeners associated with "dioxin like" characteristics are not those associated with inadvertently generated PCBs in pigments.

Therefore, the current applicable IARC classification for PCBs covers 12 "dioxin like" congeners, which are not associated with pigments. The discussion of the IARC classification should be corrected in the draft Chemical Action Plan to reference the applicable current IARC monograph.

Conclusion

The draft Chemical Action Plan should present a more balanced perspective. Pigments and specifically diarylide pigments are overemphasized by the text, which does not support the priority the authors assign to these sources, particularly in comparison to other known priority sources of PCBs in the environment.

The total production of organic pigments and estimated amounts of diarylide pigments and PCB 11 based on total production believed to be in commerce are overstated, due to reliance on errors in the literature relied upon.

Pigments are not the only source of PCB 11 in the environment and existing studies do not establish that PCB 11 in the environment can only be derived from pigments.

The description of pigments should include reference to readily available international dossiers on the safety and toxicological properties of the diarylide, monoazo and phthalocyanine pigments.

The extensive report on inadvertent PCBs found in products, emphasizing PCB 11, which was developed by the Washington State Department of Ecology, should be described and incorporated in the draft Chemical Action Plan.

CPMA members support and comply with the current regulations for excluded products and processes under the Toxic Substances Control Act.

We hope these comments are helpful in revising the draft Chemical Action Plan to present a more balanced, cost effective approach.

Thank you for your consideration.

Sincerely,

David J. Wawer
Executive Director

King County
Department of
Natural Resources and Parks
Director's Office
King Street Center
201 S Jackson St, Suite 700
Seattle, WA 98104-3855

Public Health
Seattle & King County

Office of the Director
401 Fifth Avenue, Suite 1300
Seattle, WA 98104-1818
206-296-4600 Fax 206-296-0166
TTY Relay: 711
www.kingcounty.gov/health

October 6, 2014

Holly Davies
Department of Ecology
P.O. Box 47600
Olympia, WA 98504-7706
Holly.Davies@ecy.wa.gov

Dear Ms. Davies:

Thank you for providing King County the opportunity to submit comments on the Washington State Department of Ecology (Ecology) Draft Polychlorinated Biphenyls (PCB) Chemical Action Plan (CAP). Please find attached specific comments on Recommendations 1 – 8 presented in the draft PCB CAP.

Overall, we support the recommendations in the draft PCB CAP, but suggest a stronger effort toward cessation of ongoing sources of PCBs. We ask that you strongly consider more robust funding and staffing to implement the draft recommendations. With an adequate range of actions and commensurate resources to support those actions, the state departments of Ecology and Health can help better protect Washington residents.

As the nation's 13th most populous county, King County is responsible for the health and safety of a third of our state's population. As part of the state's largest local government, our agencies oversee a wide range of regional services to protect the health, safety, and quality of life for our two million residents.

We support all of the recommendations proposed in the draft PCB CAP as each will:

- address known sources of PCBs;
- protect the most vulnerable populations; and,
- gain additional insight about PCBs in products and people.

While each recommendation in the PCB CAP has merit and the potential to be effective, the CAP recommendations could benefit from further refinement and a clear funding strategy. Defining clear funding sources for the most expensive actions, prioritizing recommendations based on their potential for greatest source and/or exposure reduction, and developing criteria for targeting buildings and areas for further monitoring would strengthen the CAP.

Considering the potential health impacts that PCB-contaminated fish have on people eating fish throughout our county and state, King County would like to see the PCB CAP be successful in reducing both legacy and current sources and exposure of PCBs. Thirteen of the sixteen water bodies with fish advisories (>80%) issued by Washington State Department of Health (DOH) restrict fish consumption because of elevated PCB concentrations. PCBs drive the need for advisories more than any other chemical in fish.

With respect to reducing risks from consumption of fish, King County emphasizes that fish advisories are not effective communication tools by themselves. To more effectively reduce exposures, we recommend supplemental funding for DOH and local health jurisdictions to implement education plans focused on fishing communities.

In addition, PCBs are the main contaminant of concern at several large National Priority List of Superfund sites (Comprehensive Environmental Response, Compensation, and Liability Act) and Washington Hazardous Sites List (Model Toxics Control Act, MTCA) sites in our state. Any additional source control actions that result from the CAP will support the success of clean-up actions at sites such as Whidbey Island Naval Air Station, Bonneville Power Administration facilities, Bremerton Naval Shipyard, Lower Duwamish Waterway, and North Boeing Field.

Washington State is updating Human Health Criteria development and implementation tools with rule-making based on Governor Inslee's direction. We recommend that the PCB CAP be coordinated with the toxic reduction package as the latter has a significant CAP component that would potentially strengthen the new PCB CAP. This could be accomplished by delaying the finalization of the CAP until the toxics reduction package is complete or developing an addendum to the CAP to incorporate toxics reduction strategies including alternatives assessments, bans and phase outs as applicable.

If you have questions or would like more information about our recommendations, contact Rhonda Kaetzel at 206-263-1162 or via email at rhonda.kaetzel@kingcounty.gov.

We urge you to consider the changes recommended in the attached document and we thank you for the opportunity to comment.

Sincerely,

Christie True
Director
Department of Natural Resources and Parks

Patty Hayes, RN, MS
Interim Director
Public Health – Seattle & King County

King County Department of Natural Resources and Parks and Public Health-Seattle and King County Joint Comments on Department of Ecology's Draft PCB CAP

October 6, 2014

Recommendations 1 & 3

We support the safe replacement of PCB-containing lamp ballasts and PCB-containing materials in schools and other public buildings in King County. Schools and local juvenile detention centers have reported leaking PCB-containing lamp ballasts in recent years. Other public buildings and properties in King County have been identified to release PCBs into the environment.

Assessing public buildings other than schools is not included in the Economic Analysis section. King County is concerned that the proposed funding may not reach beyond characterizing schools. We recommend a plan for assessing other public buildings be developed. We feel this should include buildings or properties with sensitive populations at a minimum, including preschool or after school care locations, parks, juvenile detention centers, public health clinics, and libraries.

During survey work, King County recommends prioritizing locations for remediation by considering social equity and justice factors. Areas where vulnerable populations live and locations with documented health inequities should be scored with higher priority than locations in well-off communities.

Recommendations 1 & 3 appear to be collecting similar information through different processes. After age and characteristics of public buildings have been compiled, a site investigation could identify multiple PCB-containing materials at once. It is unclear if a site visit will include qualitative or quantitative work.

Funding has been a major barrier to facility improvements in King County schools including the replacement of PCB-containing lamp ballasts. We support using energy-efficiency funds and new funds appropriated from the legislature. We recommend that the CAP include additional financing strategies or include a funding plan to implement the safe replacement of PCB-containing materials in schools and other public buildings.

Washington State DOH has expertise in working with environmental issues in schools, including how to deal with PCB-containing lamp ballasts. Because of this, we recommend that funding also be provided to DOH to co-lead this work and educate the public (see Recommendation 7) in the inventory process.

Recommendation 2

We support the development of Best Management Practices (BMPs) with stakeholder and agency involvement prior to implementing actions to prevent PCBs release.

We recommend that the BMPs include a description of how the current federal and state regulatory approaches listed in the CAP will specifically manage the lifecycle of PCBs. Updates to current regulations or mandates listed in the draft plan may be necessary to support the implementation of BMPs.

As Ecology develops BMPs, it should also identify sustainable funding mechanisms and protocols for local jurisdictions that issue demolition permits. A protocol should adequately assess hazards from dust emissions and waste disposal similar to lead or asbestos abatement during demolition. We suggest adding specific language and questions to the State Environmental Protection Act (SEPA) checklist to educate redevelopers and local land use agencies about the need to assess historic buildings and structures for PCB-containing materials prior to major renovation or demolition.

In particular, building materials that may contain PCBs can end up in illegal landfills. These locations pose a greater threat of release of PCBs than legal landfills because of a lack of documentation of wastes and containment infrastructure. However, illegal landfills located on private property limits the ability of state or local government to assess them. In developing BMPs for containment of PCB-containing materials, we recommend these illegal landfills be considered. Developing a process that funds Ecology to shoulder the burden of proof at these unregulated sites would minimize potential releases of PCBs from these sites.

King County supports additional BMPs to prevent release of PCBs into stormwater Studies on Lake Washington and Puget Sound illustrate that stormwater is the largest contributor of PCBs to water and sediment.

Recommendation 4

We greatly support actions at the federal level to lower allowable concentrations of PCBs in products by reforming the Toxic Substances Control Act (TSCA). We also support learning about what products contain PCBs and completing an alternative assessment for PCBs. The CAP should emphasize eliminating any future production (intentional or inadvertent) of PCBs in products and manufacturing processes. King County agencies partner within the interagency Local Hazardous Waste Management Program whose mission is to reduce the threat posed by the production, use, storage, and disposal of hazardous materials. This information will be a direct benefit in working toward their mission.

Recommendation 5

We support this important survey effort to identify owners of historic electrical equipment. The CAP should direct utilities to not only identify but also replace and properly dispose of electrical equipment containing PCBs. This must be a priority for utilities in Washington.

Recommendation 6

King County supports expanding environmental monitoring in order to identify possible PCB hot spots. For those requiring cleanup, we recommend funding be made available to assist in

these cleanups. We recommend spending a larger effort to identify the sites with the highest potential for past or current releases of PCBs and the highest potential for human exposure.

Because eating local fish and shellfish is a major route of exposure to PCBs in Washington State, King County recommends expanding tissue monitoring locations and continuing monitoring of fish for PCBs at sites of high concern. This should be done on a regular basis (beyond FY21) at a frequency best representative for the water body, e.g., more often for large water bodies less often for smaller water bodies. These tissue trend data are imperative in understanding if fish advisories are necessary to protect human health or when an advisory could be lifted. We recommend that Ecology include frequently-fished water bodies that have no PCB tissue data, especially in areas that are fished by vulnerable populations. In addition, ongoing sampling of fish tissue is necessary to measure if remedial actions and source control efforts are working to reduce PCB levels in fish or if other actions are necessary to reduce fish exposures from diffuse aerial sources.

Cleaning up newly identified hot spots in sediment will help reduce fish tissue PCB burdens. However, ongoing aerial and stormwater sources will continue to impact PCB levels in fish tissues. Aerial deposition of PCBs has been shown to be a significant source of PCBs to the surface of large water bodies like Lake Washington and Puget Sound. The additional contribution of PCBs deposited on land from aerial sources and entering surface runoff is unknown but suspected to be even larger impact than direct deposition to surface waters, especially streams and rivers. We suggest that instead of conducting general air monitoring, additional state and regional sources be dedicated towards quantifying, using modeling or other tools, the contribution of indirect aerial deposition to the stormwater pathway.

Recommendation 7

We support a public educational campaign targeting Washington State residents to reduce their exposures to PCBs. Currently this campaign will fund an Ecology communicator. Because the priority exposure is through consumption of fish, we recommend that DOH, who issues fish advisories, be the primary educator regarding PCB exposures. DOH also has direct contact with and engages local health jurisdictions and schools throughout the state.

Fish advisories alone are weak communication tools to protect fish consumers. We recommend supplemental funding for DOH and local health jurisdictions to implement education plans which may improve outcomes in reducing exposure. Any education campaign regarding a specific harvest of fish from a location should include alternative healthy sources of fish, as the benefits of eating fish should also be promoted. In the interest of protecting disadvantaged fishing populations first, we recommend that DOH provide targeted outreach to these populations using community-based participatory methods. This approach will allow and fund disadvantaged fishing communities to determine how best to communicate the risks and benefits to within their community considering their cultural norms and in their language.

While fishers are of concern, preventing PCB exposure in the workplace is also important. We recommend that the departments of Ecology and Health coordinate with other agencies such as Washington Labor and Industries and the federal Occupational Safety and Health Administration to ensure that materials are mitigated appropriately in the workplace.

Recommendation 8

We support a study on PCB congener levels in Washington residents. However, the CAP does not include the development of an implementation plan for a study on PCBs congeners in Washington residents. We feel the CAP needs to identify a goal, logic model, implementation plan, and source of funding for this study. Based on national studies and detections in the general population, it is highly likely PCBs will be measured in Washington residents. Considering the large fish-eating population in Washington, the congener distribution may likely be similar to other fish-eating populations. Risk is highest among subsistence, tribal, immigrant, and other vulnerable populations who eat more than DOH advisory consumption limits.

Human biomonitoring data can help scientists plan and conduct research on exposure and health effects. However, to accomplish this, a very robust biomonitoring plan would need to be carefully developed by health officials. A research study such as this is needed, but may be out of the scope of the CAP. Considering the healthy benefits from eating fish, it is difficult to determine where the benefit/health risk balance lies.

One valuable use of biomonitoring data would be to measure effectiveness of the CAP's efforts in reducing PCB's released to the environment and ultimately reduce exposures to Washington residents. A long-term human biomonitoring plan would need to be developed to accomplish this. Considering the half-life of PCBs in fish and in people we suggest extending the timeline put forth in the CAP (FY16–21). Measuring PCBs every three or four years over the next 20 years would allow an assessment of whether PCB human body burdens are decreasing. We recommend that Ecology partner with DOH who may more easily develop the capacity to determine trends based on their previous biomonitoring work. We suggest the state should carefully prioritize funding resources between better understanding the body burden of PCBs in Washington residents and source control actions to reduce exposures to PCBs.

King County
Solid Waste Division
Water and Land Resources Division

Public Health
Seattle and King County

Seattle
Public Utilities

Sound Cities Association

Participating Cities and Tribes:
Algona
Auburn
Beaux Arts
Bellevue
Black Diamond
Bothell
Burien
Carnation
Clyde Hill
Covington
Des Moines
Duvall
Enumclaw
Federal Way
Hunts Point
Issaquah
Kenmore
Kent
Kirkland
Lake Forest Park
Maple Valley
Medina
Mercer Island
Muckleshoot Tribe
Newcastle
Normandy Park
North Bend
Pacific
Redmond
Renton
Sammamish
SeaTac
Shoreline
Skykomish
Snoqualmie
Snoqualmie Tribe
Tukwila
Woodinville
Yarrow Point

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October 2, 2014

Washington Department of Ecology
PO Box 47600
Olympia, WA 98504-7706

Attention: Holly Davies, hdav461@ECY.WA.GOV

RE: Draft PCB Chemical Action Plan, July 2014, Publication No. 14-07-024

Dear Ms. Davies:

Thank you for this opportunity to comment on the Draft PCB Chemical Action Plan (CAP). We appreciate the efforts of the members of the PCB CAP Advisory Committee and Washington State Department of Ecology (Ecology) staff in developing recommendations to address the ongoing threat to public health and environmental quality from Polychlorinated Biphenyls (PCBs).

The Local Hazardous Waste Management Program in King County (LHWMP) is a regional partnership comprised of local government agencies, including King County Water and Land Resources Division, King County Solid Waste Division, Seattle Public Utilities, Public Health – Seattle & King County, and the 37 suburban cities of King County, Washington. Our program's mission is to protect and enhance public health and environmental quality in King County by reducing the threat posed by the production, use, storage and disposal of hazardous materials.

We support all of the recommendations proposed in the draft PCB CAP as important measures to address known sources of PCBs, to protect the most vulnerable populations, and to gain additional understanding about PCBs in products and in people. Our comments provide additional suggestions to further refine these recommendations.

While all of the draft CAP recommendations are needed actions, we are disappointed that the recommendations did not identify more actions to effectively reduce existing levels of PCB pollutants and prevent harmful exposures. Much of the draft CAP's recommendations are focused on surveys, assessments, and monitoring to identify sources of PCBs and "hot spots". Targeted actions will be needed to clean-up identified legacy sources of PCBs and to restrict use of PCB-containing products to prevent ongoing contamination. We encourage concurrent analysis to develop action plans that would be the most effective and efficient in reducing PCB levels and exposures overall, and in prioritizing interventions in the most impacted areas and for the most vulnerable populations. The PCB CAP recommendations would be strengthened by including a process to identify funding strategies and implement those action plans.

For those recommendations involving assessments, data collection and education with schools, businesses, or the public, we encourage Ecology to leverage resources and increase impact by coordinating with local jurisdictions and other stakeholders who can integrate PCB-focused activities in their existing strategies with schools, property owners, and property managers. With appropriate training, existing field teams within moderate risk waste programs could support Ecology's assessment

efforts through visual inspections. Collaborations with local jurisdictions may also be possible on research and alternative assessments regarding PCB-containing pigments, dyes, and other products. For example, the LHWMP is currently collaborating with Ecology on PCB analysis in our sampling plan for auto body waterborne paints.

Comments on specific recommendations:

Recommendation 1. *Survey and assess PCB-containing lamp ballasts in schools and other public buildings. Encourage replacement with more energy efficient PCB-free fixtures.*

The LHWMP strongly supports this recommendation, and actions to remove PCB-containing lamp ballasts from schools and other public buildings to address a key source of PCBs and to protect children, a vulnerable population. In the past, LHWMP partnered with utilities in lighting upgrade projects that replaced PCB ballasts for small quantity generators of hazardous waste, which included some schools. We believe that many schools in the county may still have PCB-containing lamp ballasts. And in recent years, LHWMP staff have heard reports of leaking PCB ballasts, so we are aware of this serious and ongoing problem.

As stated in the PCB CAP, there is a need to survey school buildings to accurately assess the number of PCB-containing lamp ballasts that need to be replaced. We support a similar assessment of all publicly owned buildings in the state, with priority placed on buildings used by children and other vulnerable populations.

In addition, we encourage expansion of this recommendation to include a survey and replacement assistance to child care centers, to address exposure risk to very young children. LHWMP has responded to incidents with leaky PCB ballasts in licensed child care facilities. The number of child care centers is substantial, which also suggests the large number of children who are potentially exposed. In 2006, King County had 1,977 licensed child care programs: 628 centers and 1,349 family homes (limited to 12 or fewer kids).

Funding has been a major barrier to facility improvement in schools. We fully support the recommendations in the CAP to ensure adequate funding for removal of PCB-containing lamp ballasts, and replacement with more energy efficient lighting, through existing energy efficiency funds or new funds appropriated by the Legislature. The CAP should also recommend strategies for financing replacement of PCB-containing ballasts in all public facilities, not just schools.

We are aware that the WA State Department of Health has expertise and resources with PCB-containing lamp ballasts in schools, and other school environmental health issues. We suggest this statement on page 14 is modified to reference WDOH: *"Schools with PCB-containing lamp ballasts will be provided with information about the importance of removing these ballasts and referred to OSPI (or <u>WA State Department of Health and</u> other available resources) to replace these fixtures with more energy-efficient lighting."*

Recommendation 2*. Develop and promote Best Management Practices (BMPs) for containment of PCB-containing materials in buildings currently in use and those slated for demolition.*

We support development of a PCB Source Control Guidance Manual. Such a resource would be invaluable for LHWMP as our staff conduct field inspections and outreach to property managers/owners in King County.

Please consider whether a hand-held x-ray fluorescence (XRF) analyzer is suitable for detecting PCBs in buildings. If so, it could be a relatively inexpensive screening test for PCBs. The XRF is capable of detecting chlorine, but other building sources of chlorine may interfere. If not already completed, Ecology could assess the suitability of the method for this application.

Recommendation 3. *Assess schools and other public buildings for the presence of PCB-containing building materials.*

We support the proposal to evaluate the potential for school buildings to contain PCB-containing materials, including caulk and paint, and other historic materials such as capacitors. Similar to our comments under Recommendation #1, we support expanding this assessment to licensed child care facilities to reduce exposure of very young children to PCB-containing building materials. The CAP should also recommend funding strategies for removal of PCB-containing materials, with proper disposal of these hazardous materials.

New Recommendation for Historic PCB-Containing Building Materials: To increase the identification rate of buildings with historic PCB-containing building materials and lamp ballasts, we propose a new recommendation. During property transfers, a PCB assessment could alert potential buyers to these materials. Environmental professionals can be educated about the hazards and potential risks of PCB-containing building materials. The BMPs for inspection or containment described in Recommendation #2 could be applied. Property owners could have a market-based incentive to properly contain or dispose of PCB-containing equipment and other materials.

According to consultants who conduct environmental site assessments, unless there is obvious leakage, typically the presence of PCB in light ballasts is not within the scope of an environmental site assessment conducted according to *ASTM Practice E-1527-05 Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process.*

Hazardous materials within a building may not always be considered part of the scope of an ASTM Phase I. These are sometimes considered 'business environmental risks' and it is up to the consultant purchaser/lender whether these are included in the Phase I. The ASTM Phase I is based on the identification of potential environmental releases and not hazardous materials that are fully contained within a building. So, for example, PCB-containing caulk on exterior windows may be within the scope of a Phase I, while PCB ballasts may not be. Educating environmental professionals to include the presence of these materials may be more effective than trying to change the scope of the standard.

Recommendation 4. *Learn more about what products contain PCBs and promote the use of processes that don't inadvertently generate PCBs.*

We strongly support the recommendation's components to address the challenging problem of new sources of PCBs generated in manufacturing processes, i.e., non-legacy PCBs, and encourage further actions. We fully support any attempts to conduct alternatives assessments on PCB-containing products, educate purchasers and vendors concerning that hazards associated with PCBs, reform the current regulations under TSCA, and consider state-level actions to reduce use of PCB-containing products.

The recommendation appropriately identifies key actions as: (1) further testing and analysis to identify products and product categories that contain PCBs, as well as alternative products

without PCBs; and (2) dissemination of that information by WA Ecology to increase awareness of the presence of PCBs in these products, and encourage purchasing and use of alternative products. In addition to notifications to schools, cities, and residents as stated on page 16, this information should be provided to all government associations and agencies in the state. We support greater emphasis on active dissemination of this information by WA Ecology to businesses, with encouragement that they voluntarily adopt purchasing policies for preference for products with no, or lower, amounts of PCBs. WA Ecology should target their efforts to business sectors most likely to be using the identified PCB-containing products.

We support the recommendation for an alternatives assessment focusing on manufacturing processes for pigments and dyes to be directed by WA Ecology. On page 16, the CAP refers to a potential role for Green Chemistry Northwest, and we believe it should be Northwest Green Chemistry instead. If Northwest Green Chemistry is to develop a new alternative manufacturing process for pigments and dyes, adequate funding will have to be provided from some source. We encourage WA Ecology to solicit voluntary funding from manufacturers of pigments and dyes, and/or to pursue legislation requiring manufacturers of pigments and dyes to support the Northwest Green Chemistry center's work or to conduct their own alternatives assessment to achieve a similar goal.

We also support the recommendation's policy focus on calls to EPA to reform their TSCA regulation to reduce the allowable amount of PCBs in products under TSCA. If this issue cannot be rapidly addressed by EPA rule-making under existing TSCA authority, e.g., within 3 years, then we encourage WA Ecology to work with members of the WA Congressional delegation to introduce federal legislation to mandate a lower PCB limit in a more rapid timeframe. In addition, we encourage consideration of state-level legislative action if federal action is not imminent, such as phasing in a lower allowable limit of PCBs for those products where alternative assessments have identified ways to prevent formation of PCBs or remove the PCB contaminants.

Recommendation 5. *Survey owners of historic electrical equipment.*

We support conducting a statewide inventory of historical electronic equipment to create an accurate picture of the problem. Survey activities with utilities and other entities should be coupled with education about PCBs and BMPs for spill prevention and clean-up to prevent waterway contamination.

Recommendation 6. *Expand environmental monitoring to identify any new areas requiring cleanup.*

We support continued, targeted, and expanded environmental monitoring to identify areas needing PCB clean-up. We also encourage WA Ecology to develop and coordinate its monitoring plan in collaboration with moderate risk waste programs and other local government activities.

Recommendation 7. *Conduct a public educational campaign.*

The LHWMP supports the recommendation's proposal to educate residents, people who fish, schools, local governments, and businesses about the risks associated with PCBs and the availability of safer alternatives. Such a campaign would be particularly valuable in King County, where fish advisories based on PCB contamination have been issued for several

locations, including the Lower Duwamish River, Green Lake, Lake Washington, and Puget Sound. LHWMP is concerned that segments of the population in King County, particularly those that have been traditionally underserved by public health agencies, continue to consume PCB-contaminated fish in excess of advisory limits. Culturally appropriate outreach methods and messages should be targeted toward communities who rely on fishing in PCB-contaminated waterways as a significant part of their diets. We also encourage community-based participatory research to identify more effective strategies to communicate risks and benefits of fish consumption to vulnerable and disadvantaged populations.

In addition, LHWMP supports efforts to educate small businesses, so that they may identify PCB-containing products and then replace them with safer alternatives.

Public education campaigns will be most effective when coordinated with local governments to assure consistency of messages and efficient outreach to businesses and the public. For example, the LHWMP could assist in dissemination of resources and Best Management Practices developed by Ecology through its existing relationships with key target audiences, via web-based portals to Ecology's online resources, distributed materials, and as part of our field visits and technical consultations.

Recommendation 8. *Conduct a study on which PCB congeners are present in Washington residents.*

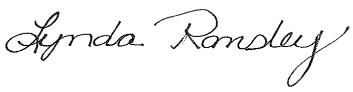
The LHWMP supports enhanced biomonitoring for PCBs because we are concerned that vulnerable populations consume resident fish and shellfish in excess of the advisory limits issued by state and local health departments. Efforts should be directed toward better identifying these vulnerable populations and offering biomonitoring for PCBs.

LHWMP also concurs that the body burden of PCBs that are produced inadvertently during the manufacture of dyes, pigments, and printing inks deserve attention. LHWMP supports biomonitoring for these congeners.

Adequate funding needs to be provided to WA State Department of Health to conduct these important PCB biomonitoring studies.

Thank you for the opportunity to comment on this Draft PCB CAP. If you have questions about our recommendations, please contact Margaret Shield at (206) 477-6238 or margaret.shield@kingcounty.gov.

Sincerely,



Lynda Ransley
Program Director
Local Hazardous Waste Management Program
http://www.hazwastehelp.org
206.240.5977
lynda.ransley@kingcounty.gov

cc: Margaret Shield

ncasi

NATIONAL COUNCIL FOR AIR AND STREAM IMPROVEMENT, INC.
West Coast Regional Center
***Mailing address*: PO Box 458, Corvallis OR 97339**
***Street address*: 720 SW Fourth Street, Corvallis OR 97333**
Phone: (541)752-8801 Fax: (541)752-8806

Dr. Jeff Louch
Principal Scientist
JLouch@ncasi.org

October 6, 2014

Holly Davies
Washington State Department of Ecology
Toxics Cleanup Program
PO Box 47600
Olympia, Washington 98504-7600

Dear Ms. Davies:

The National Council for Air and Stream Improvement, Inc. (NCASI) is an independent, non-profit membership organization that provides technical support to the forest products industry on environmental issues. An important part of our mission is to ensure that regulatory decision making is based on sound science. In this capacity, NCASI has reviewed the Draft PCB Chemical Action Plan (CAP) published in July 2014 as Publication No. 14-07-024. NCASI also submitted comments on the January 4, 2014, version of this CAP to you on January 6, 2014, and these comments are attached for reference.

Review of Publication No. 14-07-024 reveals that this document does not address an important information gap identified in NCASI's comments on the January draft. Specifically, the current CAP contains little to no discussion of congener-specific toxicity (as was suggested in General Comment 2 in the attached). Considering that the current CAP appears to prioritize PCB-11 for remedial action, the absence of any information indicating that this specific congener meets the definition of a toxic chemical per the PBT rule (WAC 173-333) is troubling. The following comments thus reiterate some of our previous comments (attached).

1. The CAP should summarize scientific information relevant to the toxicity of PCB-11 and provide some perspective on the toxicity of this congener relative to what is known about the toxicity of other PCB congeners (e.g., the twelve "dioxin-like" congeners) or PCB mixtures (e.g., aroclors).

As reflected by the information presented in the CAP, essentially all scientific data on PCB toxicity was obtained from studies performed on mixtures of PCBs. As a consequence, other than the twelve "dioxin-like" PCBs, it is essentially impossible to make any authoritative statements regarding the toxicity of specific congeners, especially those not present in the various aroclor mixtures used in the majority of toxicity studies (which includes PCB-11). Thus, it cannot be stated with any degree of certainty which specific congeners actually meet the

... environmental research for the forest products industry since 1943

definition of toxicity given in the PBT rule. Given the CAP's apparent prioritization of PCB-11, a thorough discussion of PCB-11 toxicity is warranted and needs to be added to the CAP to justify this prioritization.

2. The CAP should make clear that the inadvertently generated PCBs present in pigments and dyes, including PCB-11, are not just an issue for pulp mills and that these PCBs also contribute to loadings from municipal effluents and stormwater.

At multiple points throughout the CAP, the presence of inadvertently manufactured PCBs in pigments and dyes is highlighted as an issue for "paper recyclers." For example (pg. 15):

> "More information is known about PCBs in pigments and dyes, which are a known source of PCBs to the environment and a problem for paper recyclers in the state."

While it is true that the PCBs in pigments and dyes contribute to PCBs measured in final effluents from mills re-pulping post-consumer paper, and thus are indeed a problem for "paper recyclers," inadvertently manufactured PCBs, including those found in pigments and dyes, also contribute PCBs to municipal effluents and stormwater. Recent data developed on the Spokane River clearly illustrate this. Thus, NCASI suggests alternative language throughout:

> "More information is known about PCBs in pigments and dyes, which are *known to be released into the environment in stormwater, effluents from municipal treatment works, and effluents from pulp mills re-pulping post-consumer paper*."

3. The suggestion to "eliminate recycling of paper in Washington State" should be removed from the CAP.

Ecology's own analysis concludes that PCBs are present in pigments and dyes incorporated in the recovered fiber used as furnish at recycling mills, and that the presence of these PCBs in effluents from recycling mills does not result due to inadvertent generation within the mills themselves. Thus, analogous to the situation described in the CAP regarding PCBs in motor oil and consistent with the CAP's definition of a PCB source, recycling mills should not be considered a source of these PCBs, including PCB-11.

Beyond this, information presented in the CAP indicates that the <u>combined</u> discharge (to water) of total PCB from <u>two</u> recycling mills located in Washington State is on the order of 28 g/y (pg. 63 of the CAP). This is a very small fraction of the 600 g/y (total) PCB estimated to be released to Washington's environment as a result of motor oil leaking from vehicles (pg. 69 of the CAP), and an infinitesimal fraction of the annual releases associated with residential waste burning, which the CAP estimates at 199,000 g/y (Table 20 in the CAP). In addition, as noted in the CAP (e.g., pg. 67), Washington-specific data show that stormwater, not industrial effluent(s), is the single largest loading to surface water.

Ultimately, the CAP contains sufficient information to conclude that eliminating "paper recycling" in Washington will have effectively no impact on PCB loadings to surface water, and even less impact on the state-wide PCB budget, so identifying elimination of "paper recycling"

(e.g., pg. 63 of the CAP) as a potentially useful remedial action is unsupportable.

As a final comment, please note that the discussion of PCB nomenclature given on page 30 of the CAP incorrectly defines ortho and meta substitution. The definitions are reversed: ortho positions are 2,2',6,6' and meta positions are 3,3',5,5'.

Please do not hesitate to contact me if you have any questions concerning these comments.

Sincerely,

Jeffrey Louch

Jeff Louch, PhD
Principal Scientist

Attachment

pc: Steve Stratton, NCASI
Paul Wiegand, NCASI
Christian McCabe, NWPPA
Kathryn VanNatta, NWPPA

Louch, Jeff

From: Louch, Jeff
Sent: Monday, January 06, 2014 10:52 AM
To: 'hdav461@ecy.wa.gov'; 'ckra461@ecy.wa.gov'
Cc: Stratton, Steve; 'Johnson, Ken'; Christian McCabe
Subject: Comment on Draft PCB CAP
Attachments: Rough Comments on Draft PCB CAP (1-6-14).docx

Hi Holly/Carol;

Ken Johnson asked us to take a look at the Draft PCB CAP and forward comment to you. Thus the attached (very rough) comments. Let me know if you have any questions on this material.

We look forward to seeing the next version of the CAP.

Regards,

Jeff Louch

Jeff Louch, Ph.D., Principal Scientist
National Council for Air and Stream Improvement Inc. (NCASI)
720 SW 4th Street, Corvallis, Oregon 97333
(P) 541.752.8801; (F) 541.752.8806; jlouch@ncasi.org

The material presented in the current draft PCB CAP (as of January 4, 2014) can be characterized as background information. As presented, this background should provide a good basis for future sections of the CAP covering recommendations, implementation, opportunities for reduction, and economics. Still, there are some points that warrant additional attention in order to make this information truly comprehensive and add clarity, and thus provide an even more solid basis for future recommendations concerning implementation and opportunities for reductions, etc. The most significant aspects of this are summarized in three General Comments, which are followed by more specific comments indexed by CAP page number.

General Comments

1. The CAP should give more congener-specific information on persistence and bioaccumulation.

As written, the Draft CAP often lumps all PCB congeners together when, in fact, each PCB congener is a unique molecule having its own physicochemical properties. Although the section addressing physical and chemical properties clearly reflects an understanding of this, the Draft CAP is incomplete in this regard. More specifically:

- For all 209 PCB congeners, the CAP should list congener-specific values for half-lives in water, soil, and sediment showing which congeners meet the PBT criteria for persistence (in all cases, sources of the listed values must be identified)
- For all 209 PCB congeners, the CAP should list congener-specific bioconcentration factors and pK_{ow}s showing which congeners meet the PBT criteria for bioaccumulation (in all cases, sources of the listed values must be identified)

These data should be presented in tabular form (perhaps as an appendix).

2. The CAP should give more congener-specific information on toxicity.

As written, the Draft CAP often lumps all PCB congeners together when, in fact, each PCB congener is a unique molecule having its own toxicological properties. Unfortunately, information on congener-specific toxicity is not always available, so filling this gap will be more difficult than filling the gaps concerning persistence and bioaccumulation. However, toxicity is perhaps the primary metric for prioritizing congeners as being of concern, so Ecology should attempt to more thoroughly address the issue of congener-specific toxicity in the CAP.

With this in mind, the CAP should identify the specific congeners judged to be carcinogens based on their presence in aroclors. As part of this, a table listing the congener composition of all aroclors should be included in the CAP. This table can be extracted from Frame et al. (Frame et al. 1996) and provided in Appendix C of the CAP in addition to or in place of the current figures, which are clearly insufficient for the stated purpose of identifying the presence/absence of specific congeners in the individual aroclor mixtures. In addition, as a general rule, whenever the CAP cites a specific study it should identify the specific congeners involved. As an example, the discussion of the work of Rice et al. on pages 88-89 should include a list of the specific congeners included in the experimental mixture.

Ultimately, the CAP must provide some justification for concluding specific PCB congeners meet the PBT Rule criteria for toxicity (e.g., the congener has a WHO TEF). Ideally, a table listing all 209 congeners with the basis for concluding whether each congener satisfies the definition of toxic should be provided someplace in the CAP (perhaps as an appendix).

3. The CAP should give a "master" table summarizing the full PCB budget (or mass balance) for Washington State (this new table will subsequently be referred to as the "modified Table 16").

A clear understanding of where PCBs are will be necessary to understand the potential for release and thus the priority that should be given to mitigating specific reservoirs/sources and/or additional analytical work. Thus, a single table similar to Table 16 summarizing all known PCB "reservoirs" (including information given in Tables 15, 23, and 24) and the associated annual releases would be immensely useful. This table should also provide information on the mass of PCBs in various "natural" reservoirs like soil and water, as well as the mass of PCB imported as a consequence of atmospheric deposition from sources outside the state, importation of motor oil, etc.

Page-Specific Comments

Page 13 – The PBT Rule requires chemicals to meet specific criteria in order to be identified as toxic, so the CAP needs to tie each congener and each aroclor to some specific measure of toxicity.

Page 21-22 – The last full sentence on page 21 reads:

> "Aroclor fingerprinting is important as it can point toward potential PCB sources when contamination has been found in the environment."

Knowing which congeners were present in the various aroclors is also important because it informs interpretation of much of the toxicological data. Thus, addition of a new paragraph at the top of page 22 is suggested:

> "More importantly, a significant fraction of the toxicological information on PCBs was generated using aroclors, so understanding which congeners were present in the different aroclors identifies which specific congeners might be associated with aroclor toxicity. Conversely, if a specific congener is known to have been absent (i.e., not present in aroclor(s)), the toxicity of aroclors cannot be cited as the basis for concluding that a specific congener is toxic. In these cases, other information showing congener-specific toxicity according to the PBT definition is required."

Page 23-24 (Table 6) – There are numerous typos and omissions in the discussion of analytical methods. As an example, EPA Method 1668C cites congener-specific detection limits as low as ≈10 ppq depending on the matrix and congener, etc. Two obvious omissions from Table 6 are EPA Methods 608 and 680; Method 608 specifically should be included in any discussion of methods for determining aroclors.

Page 38 – In the last sentence of the first paragraph under "Estimate in Washington," the range per transformer is given as 141-2.052 kg, which conflicts with the information given on page 38.

Page 43 – The presence of PCBs in personal care products (e.g. skin lotions) seems like a potentially significant pathway for human exposure deserving of additional attention, including in the modified Table 16 suggested in General Comment #3.

Page 45 – The discussion of PCBs in the final effluents from the Inland and Ponderay (now Resolute) recycle mills should be modified to note that the PCBs in these effluents are attributable to PCBs in the secondary fiber furnish, meaning that the mills are not generating PCBs. The ultimate significance of this is that "source control" might be the most effective means of reducing PCBs in these effluents.

Page 46 – It's not clear that the cited numbers (199 kg released from burning residential waste and 0.4 kg released from commercial marine vessels) are specific to Washington. This should be clarified (and Table 16 modified accordingly).

Page 48 (Table 16) – The genesis of all the numbers in Table 16 is not clear, which is important as the annual releases are what put things in perspective. Some specific observations:

- Transformers – The reservoir numbers are in mass transformer oil, not mass PCB, while the annual releases are in terms of PCB mass. The units should be normalized to PCB mass. In addition, it's unclear where the annual release numbers for transformers in Table 16 comes from.
- Large Capacitors – It's unclear where the upper end of the annual release range came from (1700 kg/y). (Note that the entry in the reservoir column is metric tons PCBs).
- Pigments and Dyes – The annual release column cites numbers given on page 45 for "in use" PCB-11, meaning that the entry should be in the reservoir column and noted as specific to PCB11. As stated on page 45, the actual mass released to the environment is unknown, and the Table should reflect this.

Also, per General Comment #3, this table (or some analog) should be expanded to include all known reservoirs, loadings and/or sources even if there are no hard numbers to enter.

Page 49 – The discussion regarding stormwater should note that some of the PCBs in stormwater originate from atmospheric deposition of PCBs emitted from sources outside the borders of the state (e.g., Asia). The CAP should give some statement concerning the mass of PCBs entering the state via this specific pathway, and the associated loading should be included in the modified Table 16 suggested in General Comment #3.

Page 50 – The argument that motor oil is not considered a PCB source because PCBs are not formed in motor oil could also be applied to the PCBs in effluents from pulp mills that recycle paper, which result from pass through of PCBs imported to the mill with the recycled paper. Regardless, all these pathways should be included in the modified Table 16 suggest in General Comment #3.

Page 53 (Figure 12) – Figure 12 shows 1840 kg PCB released to Puget Sound per year, but only 1490 kg tied-up in "environmental media." Given the half life of PCBs (≥1 y in sediments per Table 2), where does the remaining 350 kg of PCB wind up? Are these chemicals re-volatilized? Considering that the figure does not include loadings to Puget Sound from stormwater runoff or any of the 630kg of inadvertently produced PCB, this defect in the "mass balance" is even more confusing.

Page 54 – The last sentence in the 5th paragraph reads:

> "Due to global atmospheric transport and internal cycling, success in achieving PCB reductions in Washington's environment is likely to be modest outside areas with significant contamination."

This sentence acknowledges the significance of global atmospheric transport, so it's puzzling why the CAP does not attempt to quantify this specific loading (contribution of emissions from out of state sources to in state loadings from atmospheric deposition).

Page 56-57 (Table 19) – As a general comment, "OC" results (correlational field observation) are not sufficient for identifying which specific congeners might have contributed to any observed effect. In addition, results for "commercial mixtures" (weathered or not) apply to these specific mixtures and the specific congeners known to be present in them, but are clearly not relevant to any congener known to be absent. Obviously, results from testing using unspecified PCB are of no value.

This leaves only "OE1" and "OE2" data as being potentially useful for any congener known to be absent from the tested mixtures. Because of this, the table should identify the exact congeners included in these specific studies ("OE1" and "OE2"), and the associated discussion should qualify interpretation as described above.

Page 58 – The CAP should identify the specific congeners or aroclors that have been identified as carcinogens.

Page 58 – The CAP should identify the specific congeners or aroclors that have been identified as endocrine disruptors.

Page 60 – The median wet deposition rate to Puget Sound (0.51 ng/m^2-d) could be used to estimate wet deposition of PCBs to the whole state based on relative surface areas (assuming Puget Sound is 2642 km^2 and Washington is 184800 km^2). The resulting state-wide loading (including Puget Sound) is 34.9 kg/yr (wet deposition only).

Page 61 – Ecology should make some effort to estimate the mass of PCB tied-up in soils and include this estimate in the modified Table 16 suggested in General Comment #3. Ideally, some estimate of emission from soil to the atmosphere would also be provided, as well as some estimate of the mass of PCBs contributed to surface waters due to transport of soil during storm events, etc.

Page 63 – The second to last sentence on page 63 is:

"The PCB decline in these animals has been slowed by continued atmospheric delivery of PCBs from other parts of the world and internal cycling (Johannessen et al., 2008)."

This observation calls yet again for some analysis of the fraction of the current PCB budget attributable to out of state sources.

Page 66 – The discussion in the third paragraph suggests that direct deposition of PCBs to Puget Sound from the atmosphere is in the range 1.3-8.4 lb/yr. Assuming that this includes both wet and dry deposition allows estimating the nominal state-wide loading from atmospheric deposition (wet and dry) based on relative surface areas (assuming Puget Sound is 2642 km^2 and Washington is 184800 km^2). Assuming that, on average, 4.8 lb/yr of PCBs are deposited directly to Puget Sound, the resulting estimate for the whole state (including Puget Sound) is 340 lb/yr, or 155 kg/yr. This result likely overestimates deposition of PCBs emitted outside the state because:

- The depositional rate to Puget Sound is expected to be higher than for the rest of the state due to the influence of Asian sources
- The reported depositional rate to Puget Sound also includes contributions from local sources that might not be relevant in other parts of the state

Regardless, some estimate of the PCB loading to the state from atmospheric deposition of PCBs originating from sources outside of the state should be included in the CAP.

Page 71 – Discussions of fish tissue concentrations should identify whole body vs. fillet and wet vs. lipid normalized concentrations.

Page 71 – Without additional supporting discussion, the suggestion that PCB concentrations in Puget Sound herring are attributable to ongoing sources is speculation as it's also possible that the food chain is impacted by benthic feedback of historically deposited PCBs (see comment on page 81); i.e., the fact that Puget Sound is, apparently, a sink for PCBs cannot be ruled out as a contributory factor. This is relevant because any remedial action focused on reducing PCB levels in Puget Sound fish, e.g., herring, based on the assumption that ongoing sources are the primary driver will fail if benthic feedback is a significant factor.

Page 72 - The discussion of what fraction of Puget Sound Chinook are true residents should be expanded to include the work of Chamberlin (Chamberlin 2009), who concluded that 30% of Puget Sound Chinook exhibit full residency. In addition, the recent work by Rohde (2013) on coho residency, which concluded residency represented 3.4% to perhaps 20% of Puget Sound coho, should be added to the discussion.

Page 78 – What is "treated" shredder waste? What happens to the PCBs originally present? How much treated and/or untreated shredder waste is generated and/or used as landfill cover in Washington? Whatever these amounts are, this information should be included in the modified Table 16 suggested in General Comment #3.

Page 78 – An average of 2600 metric tons of PCB-contaminated waste is disposed of each year under WPCB. Assuming this waste contains a minimum of 2 ppm PCBs, this waste stream represents a minimum of 5 kg PCBs per year. This information should be included in the modified Table 16 suggested in General Comment #3.

Page 79 – An average of 437 kg PCBs is disposed of each year in the form of light ballasts. Even if the majority of this material is shipped out of state for disposal, this information should be included in the modified Table 16 suggested in General Comment #3.

Page 79 – Identifying the nominal 40 "environmentally significant" congeners would be useful, as would identification of the 25 congeners constituting 50-75% of the total PCBs in biological tissues. Perhaps a table?

Page 80 – PCB11 has been detected in Columbia River water and clams: at what concentrations? More importantly, is PCB11 toxic to clams or the people or wildlife that might eat them? In order to be of significance under the PBT rule the chemical has to have been shown to meet the relevant toxicity criteria. Because PCB11 is not associated with aroclors it cannot be implicated as toxic based on aroclor toxicity. Likewise, there is no TEF for PCB11, so it cannot be categorized as a "dioxin-like" PCB.

Page 80 – The suggestion that PCB burdens in sediment and biota might increase by 2020 should be justified/explained. Given the acknowledgment that there is uncertainty concerning external loadings to Puget Sound, why is it not equally as possible that burdens will decrease?

Page 81 – The fact that food web models predict the PCB levels in Lake Washington and Spokane River fish are "driven mainly by levels in sediments" is relevant to the page 71 comment.

Page 82 – Any discussion of hazard quotients should be qualified by noting they are very coarse indicators of potential effects that do not allow for any statement concerning the probability of actually observing an effect. Perhaps Ecology could discuss what a hazard quotient of, e.g., 2, means? More specifically, can Ecology make any statement about the relative risks to any population (human or wildlife) associated with a shift in HQ from, e.g., 0.9 to 2?

Page 84 – Because PCB11 is not associated with any PCB mixture it is only useful as an indicator of pigments, and the presence of PCB11 generally has no significance with respect to the presence of other congeners or aroclors (or any PCB source other than pigment). Also, the statement concerning the presence of PCB11 in commercial mixtures is misleading as Frame et al. (1996) found traces of PCB11 in Aroclor 1221 only (i.e., not even a "trace" was reported in 1232, 1016, 1242, 1248, or 1254). This should be stated explicitly.

Pages 85-86 – It's noted that the relevance of the mass poisonings in Japan and Taiwan to current levels of exposure is a subject of debate because the doses associated with these events where much higher than current levels of exposure and, in some cases, because of coincident exposure to "high concentrations" of polychlorinated dibenzofurans (PCDF). Because these historical events are essentially iconic, the CAP should add some perspective here. More specifically:

- What was the PCB dose (conger-specific dose) experienced by individuals in these events?
- How does this dose compare to current biomonitoring data for Washington residents?
- What might the effect of exposure to PCDF alone have been?

The doses associated with occupational exposure at the capacitor factory should be included in this.

Page 87 – The CAP should identify the specific commercial PCB mixtures shown to be carcinogenic based on animal testing as well as the specific PCB congeners present in these mixtures.

Page 87-88 – Discussion of the work of Tryphonas et al. should provide some information on which PCB congeners are present/absent in aroclor 1254.

Page 89-90 – For every study cited, the CAP should list the specific aroclors or PCB congeners tested.

Page 91 – Discussion of EPA's tiered approach to cancer risk assessment for PCBs highlights the fact that toxicity (carcinogenicity in this case) is congener- or mixture-specific, meaning that exposure to different congeners or mixtures have different toxicological implications.

Page 91-92 – Discussion of the TEF/TEQ construct highlights the fact that toxicity ("dioxin-like" toxicity in this case) is congener- or mixture-specific, meaning that exposure to different congeners or mixtures have different toxicological implications.

Page 94 (Table 26) – Some of the exposure limits given in Table 26 are for specific aroclors, while others are provided absent any indication of the specific relevant congeners or aroclors. The table should identify the relevant PCBs (aroclors and/or congeners).

Page 97 – The specific PCB congeners found in human breast milk should be listed.

Page 99 (Figure 25) – The implication is that the concentrations shown in Figure 25 are fillet concentrations as opposed to whole body concentrations. This should be clarified.

Page 100 – When discussing Figure 26, it should be noted that coastal or Alaskan salmon have PCB concentrations exceeding WDOH's 23ppb screening value, and that this fact suggests that Puget Sound salmon may not comply with this screening level or the NTR criterion (5.3ppb) until and unless all global emission of PCBs is stopped.

Page 111 – The consumption of marine mammals by Inuit and Faroe Island populations does not seem relevant to the circumstances in Washington State, and speculation about consumption of marine mammals by State residents is something that should be backed up. More specifically:

- Which specific residents of Washington State consume marine mammals?
- Which marine mammals do they consume?
- What is the associated consumption rate?

The point of these comments is concern over the potential that the State will find itself attempting to control PCB levels in gray whales.

Page 112 – The fact that PCB11 was not a component in "PCB commercial oils" is significant as it means none of the toxicity of these oils can be attributed to PCB11. Again, the CAP must provide information showing which PCB congeners meet the PBT Rule toxicity criteria.

Page 123 – The CAP should acknowledge that current TSCA exemptions for inadvertent generation effectively mean there is a floor for any reductions to human exposure that might otherwise be achievable; i.e., without revocation of these exemptions, some exposure to PCBs is unavoidable regardless of all other actions. In addition, this reality should be noted as one reason why some specific facilities, e.g., papers mills using recycled paper, may never be able to achieve low discharge limits for PCBs.

Page 125 – The CAP should make a direct comparison between the Drinking Water MCL (0.5ppb) and the Clean Water Act (CWA) human health water quality criterion (0.000064ppb) and note that the factor of ≈7800 difference is attributable to EPA's assessment that achieving PCB concentrations <0.5ppb in drinking water is not supportable based on cost/benefit.

Appendix C

As noted, the presence of specific congeners (e.g., PCB 11) in aroclors is relevant. However, the figures do not allow the reader to make unambiguous determinations about the presence or absence of specific congeners. Thus, these data should be presented in tabular form, and this table could be taken directly from Frame et al. (1996; already cited in CAP).

References

Chamberlin, J. 2009. Early marine migratory patterns and the factors that promote resident type behavior of Chinook salmon, *Oncorhynchus tshawytscha*, in Puget Sound, Washington. University of Washington Masters Thesis. http://faculty.washington.edu/tquinn/pubs/Chamberlin_MS_thesis.pdf (last accessed 1/6/14)

Frame, G.M., Cochran, J.W., Bowadt, S.S. 1996. Complete PCB congener distributions for 17 aroclor mixtures determined by 3 HRGC systems optimized for comprehensive quantitative, congener-specific analysis. *Journal of High Resolution Chromatography* 19:657-668.

Rohde, J.A. 2013. Partial migration of Puget Sound Coho salmon (*Oncorhynchus kisutch*) individual and population level patterns. University of Washington Masters Thesis. http://faculty.washington.edu/tquinn/pubs/thesis.pdf (last accessed 1/6/14)

NORTHWEST FOOD PROCESSORS ASSOCIATION

October 6, 2014

Holly Davies
Department of Ecology
PO Box 47600
Olympia, WA 98504-7706
Holly.davies@ecy.wa.gov

RE: Draft PCB Chemical Action Plan

Dear Ms. Davies,

The Northwest Food Processors Association (NWFPA) submits the following comments on the Draft PCB Chemical Action Plan. NWFPA is an association of food processing companies in Washington, Oregon and Idaho and suppliers of products and services to the food processing industry.

NWFPA members are particularly concerned about the proposals regarding products such as pigments, dyes and inks that contain inadvertently generated PCBs. The draft CAP indicates that PCBs have been detected in the packaging of food products.

NWFPA advises that any action beyond study of these PCBs is not warranted at this time. The Department recognizes that not much is known about the processes that inadvertently generate PCBs or the products that contain PCBs. It also acknowledges that it does not have a good estimate for how much PCB is released from these sources in Washington each year. Moreover, non-PCB-containing alternatives to these pigments, dyes and inks are not available. Any state program such as SB 6086 that provides a preference for products that do not contain PCBs when there is no alternative available will impose a hardship on Washington businesses.

NWFPA recommends that the Department encourage studies to better understand the processes of inadvertent generation, to document the pathways by which they enter the environment, and to develop effective and acceptable alternatives that can replace PCB-containing pigments, dyes and inks.

Thank you for this opportunity to comment.

Sincerely,

Pamela Barrow

Pamela Barrow
Energy and Sustainability Director

8338 NE Alderwood Road, Suite 160, Portland, OR 97220
Phone: 503. 327.2200 • Fax: 503.327.2201 • Website: www.nwfpa.org

Northwest Pulp & Paper
ASSOCIATION

Transmitted to: Holly.Davies@ecy.wa.gov
Fax: (360) 407-6102

October 6, 2014

Holly Davies
Department of Ecology
P.O. Box 47600
Olympia, WA 98504-7706

Dear Ms. Davies:

Re: Waste to Resources Public Comment Period – Draft Polychlorinated Biphenyls (PCB) Chemical Action Plan (CAP), July 2014, Ecology Publication No. 14-07-024

The Northwest Pulp & Paper Association (NWPPA) appreciates the opportunity to comment on the Department of Ecology's Draft PCB CAP.

NWPPA is a 58-year old regional trade association comprised of 17 pulp and/or paper manufacturing facilities in the States of Washington, Idaho, and Oregon. NWPPA members produce nearly eight million tons of paper products a year and provide approximately 10,000 predominantly union-based jobs that pay an average of more than $70,000 a year in wages and benefits. Because many of our members are located in economically stressed rural communities, these family-wage manufacturing jobs help sustain the local economy, with each mill job supporting three to five additional jobs in the community.

NWPPA represents its members on regulatory and legislative issues with special emphasis on environmental and energy policy.

Members of NWPPA own and operate pulp and/or paper facilities that are required to obtain water and air discharge permits under the Clean Water Act (CWA) and Clean Air Act (CAA). NWPPA members have a direct interest in this action because their manufacturing processes and permits could potentially be affected by the Plan recommendations. Washington mills are national leaders in producing recycled paper

Northwest Pulp & Paper Association • 212 Union Avenue SE, Suite 103 • Olympia, WA 98501-1302 • 360.529.8638 • Fax 360.529.8645
www.nwppa.net

products ranging from: newsprint, telephone book paper, and various grades of Kraft papers, fine papers and tissue paper products. Our paper is manufactured to exacting standards –meeting all of requirements from our environmental permits issued by the Department.

SUMMARY OF DRAFT PCB CAP

Below is a summary of "proposed PCB reduction methods" from the draft PCB CAP for reference in our comments.

Historic PCB-Containing Building Materials

1. Survey and assess PCB-containing lamp ballasts in schools and other public buildings. Encourage replacement with more energy efficient PCB-free fixtures.
2. Develop and promote best management practices for containment of PCB-containing materials in buildings currently in use and those slated for demolition.
3. Assess schools and other public buildings for the presence of PCB-containing building materials.

Current Manufacturing Processes

4. Learn more about what products contain PCBs and promote the use of processes that don't inadvertently generate PCBs.
5. Survey owners of historic electrical equipment

Multi-Source

6. Expand environmental monitoring to identify any new areas requiring cleanup.
7. Conduct a public educational campaign.
8. Conduct a study on which PCB congeners are present in Washington residents.

NWPPA GENERAL COMMENTS

1. Comment: NWPPA supports and encourages the Department efforts developing and implementing chemical action plans as a means of reducing the release of toxics into Washington's environment.

2. Comment: NWPPA appreciates the Department's efforts to investigate the source, fate and transport of PCB's through all aspects of Washington business, industry and commercial activities and the built environment.

3. Comment: NWPPA agrees with Ecology's determination that PCB's are legacy pollutants of high concern that were widely used in commercial and industrial activities until U.S. production was halted; however, PCB's are still present in various physical locations for example electrical transmission transistors, building materials and some pigments and dyes and are ubiquitous across the landscape.

SPECIFIC COMMENTS

NWPPA has specific comments on page 63, in the "Inadvertent Generation, " and Opportunities for Reduction," sections regarding the statement, "assess alternatives for pigments and dyes to identify the availability of safer materials" and the statement, "eliminate recycling of paper in Washington State."

4. Comment: NWPPA supports changes to the federal Toxic Substances Control Act (TSCA) allowing greater control at the federal level over chemical substances and mixtures before they enter the market to allow a level playing field between states.

   Discussion: NWPPA believes federal TSCA reform is the best method to control pigments and dyes before they enter the Nation's economy. NWPPA opposes any Washington State specific action that would create an unfair manufacturing climate jeopardizing Washington businesses that compete in international markets. The CAP acknowledges that PCBs are a National issue.

5. Comment: NWPPA stridently opposes the statement, "eliminate recycling of paper in Washington State," as a method to control inadvertent PCB generation. NWPPA strongly requests this statement and sentiment be removed from the final CAP.

   Discussion: NWPPA believes possibly eliminating recycling of paper in Washington State is not a solution but a possible negative result of conflicting federal regulations in the Clean Water Act and TSCA. NWPPA believes there are many environmental benefits of recycled products in general and specifically of recycled paper. Ecology could consider adding to the discussion section above the bullets -- a discussion of the conflicting federal regulations on allowable PCBs amounts in both pigments and dyes and in numeric criteria in surface water quality standards for both State of Washington and Washington tribal nations.

   Ecology's own analysis shows that PCBs are ubiquitous in both Washington and the United States and are present in pigments and dyes in the original paper and not generated in the paper recycling process. There is no analysis in the CAP demonstrating beyond a doubt that paper recycling is such a large concern of PCB release to the environment as to eliminate all paper recycling in Washington and the

thousands of jobs of family-wage jobs in the industry. We believe the concern should be focused on TSCA reform at the federal level. NWPPA suggests TSCA reform is the answer not eliminating Washington family-wage jobs.

NWPPA has specific comments on pages 163-164, in the "Current Manufacturing Processes," section. See, "Item 4, Learn more about what products contain PCBs and promote the use of processes that don't inadvertently generate PCBs. Goal: Reduce newly generated PCBs in manufacturing processes." The draft CAP states,

> In 1982, EPA identified 70 manufacturing processes that are likely to inadvertently generate PCBs, but little else is known about this potentially large source of uncontrolled PCBs. More information is known about PCBs in pigments and dyes, which are a known source of PCBs in the environment and a problem for paper recyclers in Washington. Ecology recommends adding additional staff and funding to determine the extent of inadvertently generated PCBs in consumer products.

6. Comment: NWPPA believes that examining inadvertent generation of PCB's is a good objective but calling out recycled paper and proposing to eliminate recycling of paper in Washington elsewhere in the draft PCB CAP is absolutely unwarranted and requests Ecology remove such statements and focus from the final PCB CAP.

   Discussion: Pigments and dyes are used in many manufacturing process (the draft CAP cites there are 70 manufacturing processes that are likely to inadvertently generate PCB's) just not paper manufacturing. NWPPA suggests that any future analysis by Ecology look broadly at the introduction of PCB's into Washington State and their fate and transport in the environment and not limit the focus of future work to assessment of the paper recycling industry in Washington.

Thank you for opportunity to comment on the draft PCB CAP. Please contact us with any questions at (503) 844-9540.

Sincerely,

Kathryn VanNatta

Director of Government and Regulatory Affairs
Northwest Pulp and Paper Association

Below is from an email from David Moss (Moss, David [DMoss@spokanecounty.org]):

Spokane County Comments to the Department of Ecology's DRAFT Chemical Action Plan (CAP) |

https://fortress.wa.gov/ecy/publications/SummaryPages/1407024.html

The County of Spokane submits the following for consideration:

- The Chemical Action Plan (CAP) on Page 9 states: "For the purposes of this CAP, sources are considered to be the original material, such as PCBs in transformers." This approach, while potentially helpful in reducing direct exposure in developed settings such as schools and existing structures, does not directly address the ongoing challenges presented to waste water utilities and other NPDES-permitted businesses due to inadvertently-generated PCBs.

- The Chemical Action Plan (CAP) could benefit from added guidance to accomplish the CAP recommendations. For example, other than the 50 ppm standard described in the Toxics Substances Control Act (TSCA), what is meant by "PBC-free" products? Are such products tested, approved, labeled, and listed somewhere?

- As described in Page 13 of the CAP, the recommendations to protect human health and the environment are based on a variety of factors, including, "…5) consistency with existing federal and state regulatory requirements." Accordingly, Recommendation 4 includes language that, "Ecology and DOH should petition with the federal government to reform current regulations under the Toxics Substances Control Act (TSCA)". The CAP does not address this issue in the Implementation Steps, but should do so. Inconsistent regulatory policies also exist with respect to allowable concentrations of PCBs in drinking water per the Federal Drinking Water standards, when compared to applicable surface water standards. Additionally, Recommendation 6 includes language to conduct additional site assessment and cleanup actions at "highly concentrated" PCB contaminated sites. PCB cleanup levels as described in the current Washington State Model Toxics Control Act are inconsistent with national and Tribal surface water standards. Resolving these inconsistencies in federal and state regulatory policies will be an important step in reducing the occurrence of PCBs in NPDES-permitted waste streams and other non-point sources.

- There is concern that if each regulated entity develops an independent public education campaign, there may not be a consistent and accurate message to all state residents. This is particularly true given that there are many ambiguities and unknowns in the identification, quantification, removal and safe disposal of many toxic chemicals.

- To assist in public education, it would be helpful to know what PCB congeners are toxic, and what products they are found in. Similarly, what are the true sources of PCBs in fish tissue and what PCB congeners in fish tissue are toxic.

Thank you for consideration of our comments. Please let us know if you have any questions or if you need additional information.

Spokane Tribal Natural Resources
P.O. Box 480 ● Wellpinit, WA 99040 ● (509) 626 - 4400 ● fax 258 - 9600

October 6, 2014

Holly Davies
Department of Ecology
P.O. Box 47600
Olympia, WA 98504-7706

RE: Comments on Draft PCB CAP (sent to holly.davies@ecy.wa.gov)

Dear Ms. Davies:

The Spokane Tribe's Department of Natural Resources ("Department") wishes to provide the following comments on the Draft PCB CAP. PCB dischargers from sources known and unknown negatively impact the Tribe's natural resources, and the Department firmly believes that the Washington Department of Ecology can do significantly more to protect the Tribe's resources which in turn will protect all Washington citizens.

First, the document focuses almost entirely on upstream, not end of pipe PCB removal. Although, PCBs do come from diffuse sources, the end of the NPDES permittees' pipes and stormwater discharges are a known and significant source that can be further reduced through aggressive Clean Water Act supported enforcement activities. To this end, the Department recommends that Ecology add an action item that requires Ecology to petition EPA to approve testing Method 1668 for enforcement purposes.

Second, on page 16, the document states that "Ecology and DOH should petition the federal government to reform current regulations under the Toxics Substances Control Act (TSCA)." "Should" be changed to "shall" petition, and this item should be added to the FY 16-17 implementation steps. Additionally, Ecology should add language that encourages it to work with Tribes and NGOs to pursue these changes.

Finally, Ecology should prepare legislation for this legislative session that bans the importation into the State of products that contain any amount of PCBs.

Thank you for allowing the Department to comment on the Draft PCB CAP. If you have any questions, you can reach me at (509) 626-4427.

Sincerely,

BJ Kieffer

B.J. Kieffer
Director
Spokane Tribal Natural Resources Department

Cc: Rudy Peone, Chairman, Spokane Tribe
Brian Crossley, Water and Fish Program Manager, Spokane Tribe

October 6, 2014

Holly Davies
Department of Ecology
P.O. Box 47600
Olympia, WA 98504

Subject: Comments to Draft PCB Chemical Action Plan

Dear Ms. Davies and Department of Ecology,

Washington Toxics Coalition appreciates the opportunity to provide comments to the Department of Ecology regarding the draft PCB Chemical Action Plan (CAP) of July, 2014.

Polychlorinated biphenyls (PCBs) are persistent bioaccumulative toxic chemicals (PBTs) that threaten human and environmental health. Chemicals that are PBTs are "the worst of the worst." These toxic chemicals do not break down in the environment, and people and animals accumulate them in their bodies. PCBs were reclassified in 2013 by the International Agency for Research on Cancer (IARC) as carcinogenic to humans (Group 1). Evidence shows that PCBs can have genotoxic effects, cause immune suppression, and cause endocrine effects (www.thelancet/oncology Vol. 14, April 2013.) PCBs have been linked to problems with motor skills, decreases in short term memory, and immune effects in young children (ASTDR ToxFAQs for Polychlorinated Biphenyls (PCBS), July, 2014).

PCBs in Washington stem from historical uses as well as newly generated PCBs from current manufacturing processes. Because PCBs are persistent in the environment they represent an ongoing threat. The sources and pathways of PCB contamination are complex, reservoirs of PCBs are poorly documented, and industrial processes that inadvertently generate PCBs are only beginning to be identified.

Washington Toxics Coalition recommends that Washington state's first steps in a long term plan to reduce PCB releases and exposure be those that have high potential to make a difference and be those that our state has a high ability to implement. These are:

1. Stop generation of new PCBs in manufacturing processes,
2. Address the largest sources of exposure.

Stop Generation of New PCBs in Manufacturing Processes

The CAP should recommend reducing new generation of PCBs in two ways: one, restrictions on the levels of PCBs in products; and two, creation of a process to identify manufacturing processes that generate PCBs and develop alternatives. Because the federal ban on PCBs does not extend to all product types, Washington state needs new policy to ban all PCBs in all products. Since additional PCBs may be released in manufacturing, Ecology also needs to pursue this possibly significant source. The manufacture of some pigments and dyes have

already been identified as those that inadvertently generate PCBs, therefore immediate action should be taken on these. Some initial work has been completed to identify other manufacturing processes that inadvertently generate PCBs. However, the list of processes that inadvertently generate PCBs referenced in the Draft PCB CAP is old and incomplete, and further investigation is needed to update and complete it. Ecology should work with manufacturers that use processes identified as potentially problematic to determine the most important sources and develop strategies for eliminating them.

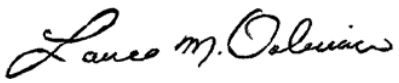
Address The Largest Sources of Exposure

The draft CAP identifies lamp ballasts as a major source of exposure, and schools and other public buildings as a reservoir of these ballasts. Since this source has already been identified, Washington should act quickly to ensure their speedy replacement. Public agencies, including school districts, should be supported with funding and technical resources to survey and assess PCB-containing lamp ballasts in public buildings and replace them with PCB-free fixtures. Schools and other public buildings should also be assessed for the presence of PCB-containing building materials such as paint and caulk.

These initial steps will significantly reduce PCB exposure and release and are steps that can be taken immediately.

Thank you.

Sincerely,



Laurie Valeriano, Executive Director

Weyerhaeuser

CH 1J32
PO Box 9777
Federal Way, WA 98477-9777
Office: (253) 924-3426
Mobile: (253) 279-4073
E-Mail: ken.johnson@weyerhaeuser.com

October 6, 2014

Holly Davies
Washington Department of Ecology

Sent by Electronic Mail to hdav461@ecy.wa.gov

Dear Holly:

Weyerhaeuser Company comments on the draft PCB Chemical Action Plan are presented below. You and your team can be commended for assembling and logically presenting much information in the draft CAP. Likewise, the commitment to engage with the advisory committee (meetings and review of interim work products) was appreciated and fruitful.

General Comment

1) The goal of this CAP effort is to reduce PCBs in (or entering into) the environment and thereby reduce adverse human health impacts attributable to PCB exposure. In a resource-limited system, a key challenge is to focus attention where the greatest gain can be achieved. While Recommendations #4 and #8 call for monitoring in narrow ways, we suggest value in a broadened and more prominent Recommendation focused on new science/information development and the tracking of Best Practices. Candidate elements would include:

   - Track research/conduct literature reviews to better understand the relative persistence, bioaccumulation, toxicity characteristics of individual PCB congeners. The historic focus has been on the "dioxin-like" PCB congeners; more recently, PCB-11 has captured the attention of researchers. Ever improving information should influence CAP development.
   - Recommend or specify that all PCB monitoring (environmental media/products/raw materials/tissue) should include full congener analysis
   - Task the Environmental Assessment Program to work with interested stakeholders, including the Washington Dept of Health, to identify and fund a Top-10 list of research topics to improve the understanding on PCB inputs, residence, and impacts to Washington's environment and the public. Air deposition, contributions from backyard trash burning, PCB's in leaked motor oil, contributions from weathered caulk and paint, congener profile in anadromous and edible resident fish, contributions in stormwater by land use type, etc. Better information will allow for more effective deployment of resources and government programs to accomplish the objective.
   - Other jurisdictions appear to be ahead of Washington in PCB CAP-like activities. There should on-going efforts to learn from those experiences and apply the best ideas in Washington.

Ecology should not consider this CAP to be a "one and done" effort. A commitment to continuing knowledge development will facilitate a re-examination of the CAP recommendations in 2-4 years. Progress can be assessed and action plans recalibrated.

Specific Comments

1) Page 12, Table 1 – This Table conveys several messages. First, while it is certainly true the mass estimates presented are coarse, those estimates do signal the broad opportunity areas for government-focused attention to remove/reduce PCB in the environment. Second, it can be noted that regulatory programs already exist to address many of the sources in the Legacy Reservoir column (40 CFR Part 761, WAC 173-303 *Dangerous Waste*, WAC 173-340 *MTCA*, WAC 173-204 *Sediment Management Standards*). Third, the Annual Releases column entries probably pinpoint the richest targets for this Chemical Action Plan. Finally, where the Annual Releases show a wide range of mass values or "Unknown," the implication is that these are candidates for more survey work and information development.

2) Page 13, Recommendations for New Actions -

   Recommendation #5 – *Inventory PCB-containing equipment and ascertain replacement schedule* -- This Recommendation will consume scarce Ecology staff resources to create a database having no direct nexus to reducing PCB environmental losses. Regulatory programs already exist to addresses releases from PCB-containing equipment (40 CFR Part 761 and WAC 173-303). Ecology should be content with these.

   Recommendation #6 – *Expand Environmental Monitoring* – The Recommendation calls for cleanup of known contaminated sites, yet the discussion focuses on monitoring. Fresh thinking is needed on what it will take to actually remove PCBs from the environment. MTCA and Sediment Management Standards regulatory processes aspire to perfection (and offer little incentive for PLP's to undertake interim removal actions). The pursuit of perfection is agonizingly slow. If the best information is that Washington residents are actually experiencing toxic effects from PCB exposure (first introduced on page 11 and then throughout the CAP), then this Recommendation should be re-titled and the CAP discussion refocused on defining the challenges to expeditious removal of environmental PCBs.

   Recommendation #7 – *Public Education Campaign* – The public would benefit from practical information on the relative health risk of exposures to environmental pollutants, and this in contrast to the risks from the other exposures and activities we Americans subject ourselves to. But a campaign focused solely on PCB's which rehashes the page 10 *Exposure* paragraph probably won't accomplish much.

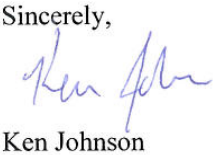
3) Page 63. A recommendation to "Eliminate the recycling of paper in Washington State" is a non-starter and should not be seriously considered. Government regulations effectively

demand the collection and reuse of paper/paperboard. The societal benefits of this practice are well documented. The best information suggests the re-pulping of post-consumer printed papers contributes a small mass loading of PCBs to the environment. The real issue relates to the inadvertent synthesis of PCB-11 in commercial inks, dyes, pigments. That's where the attention should be focused.

4) Page 64 – Additional research should be conducted on the source(s) of and off-site disposal practices for the 1000's of pounds of PCB wastes reported in recent TRI reports.

5) Page 64 and 69 – Residential waste burning (estimate of 199 kg/yr of PCB loss) and motor oil (11.3 million kg of oil loss to the environment) – These estimated mass losses are huge and are certainly worthy of a CAP Recommendation. A public information campaign coupled with some regulatory/enforcement authority may represent the most significant and immediate opportunity for tangible PCB and stormwater improvements available to Ecology.[1]

Sincerely,



Ken Johnson
Corporate Environmental Manager

[1] Some jurisdictions reportedly combine a check for vehicle oil leaks with the mandatory emission testing program.