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February 28, 2020

Cheryl Niemi
Hazardous Waste and Toxics Reduction Program
Washington State Department of Ecology
P.O. Box 47600
Olympia, WA 98504-7696

Dear Cheryl,

Jim Kildea
Manager, Regulatory Management
and Chemical Compliance
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I'm writing to offer comments relating to the proposed "Priority Consumer Products: Draft Report to the Legislature" report that has recently been published by the Washington State Department of Ecology.

HP participated in the iPCB Workshop in Spokane in October. There I shared information regarding HP's ongoing efforts to reduce or remove contaminants of concern in our printing inks. Now I can provide you with an update since that workshop.

In August 2018, HP revised its specification limits for several unwanted contaminants in materials used to make products. The specification limits are contained in HP's "General Specifications for the Environment" (or GSE), that is intended to be the base set of requirements for all materials used to manufacture HP products, both hardware and printing supplies. These specifications apply to all raw materials used in the manufacture of inks, including pigments and colorants. As mentioned in the October workshop, HP had recently begun a thorough review of our entire supply base to verify compliance with these revised specification limits.

As background and context, HP set the 0.1 ppm limit for iPCBs as an aspirational limit that could apply to all products HP manufactures and sells. The 0.1 ppm limit represented a competitive benchmark for hardware, but to our knowledge no such limit existed at the

time (or exists currently) for printing ink components. As a general matter, HP's GSE addresses contaminant materials that our customers do not desire in our products, either in hardware or in printing supplies. The 0.1 ppm set a measurable limit that would hopefully enable testing and monitoring by our suppliers and manufacturers.

Since the October workshop, HP has surveyed all its pigment and colorant suppliers worldwide for conformance to this specification. Roughly 150 pigments that are sourced from a number of colorant manufacturers were identified as within scope of this investigation. While the process is not yet complete, several conclusions may be made:

HP has had a difficult time securing information from its colorant sources, specifically regarding current iPCB levels.

Responses indicate that most suppliers are either meeting the TSCA limits (below 25 to 50 ppm) with spot auditing of typical levels, or are not measuring/monitoring iPCB levels.

We're continuing to investigate the methods employed by several of our primary colorant sources and may have a more complete characterization of typical monitoring methods and typical iPCB values in the next few months.

In the meantime, it's clear that notwithstanding HP's desired specification limit of 0.1 ppm for iPCBs in materials, our pigment and colorant suppliers are not monitoring down to that level. HP buys pigments and colorants from many of the leading pigment manufacturers on the global market, but our pigment choices are ultimately limited by the capabilities and/or willingness of those manufacturers to provide pigments with specific chemical properties.

Additionally, it is extremely difficult from a technical perspective to replace pigments or locate new pigments that meet both the performance and cost requirements that exist in our markets and applications. Product development cycles for our ink products take several years, and require extensive investigation, analysis, testing and development of new materials. HP is very thorough in its safety and chemical analysis of new inks and components, and as a result we believe that our printing inks are some of the safest in the industry. While we continue to develop and explore alternative materials that provide safe and effective printing solutions to our customers, finding alternative materials is a lengthy process that is very challenging technically and has no guarantees of success. We have not found (or been made aware of) any pigment or colorant options that are either "iPCB free" or that have extremely low levels of PCB contaminants. Moving to alternative colorants first requires that effective alternatives exist.

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HP welcomes the opportunity to continue exploring safe and effective alternatives that reduce the levels of contaminants typically found in printing inks. However, this should be done in a collaborative fashion between industry, regulators and affected stakeholders.

Please advise any questions or clarifications you may have.

Regards,

A handwritten signature in black ink, appearing to read 'JK', is written over the printed name and title.

Jim Kildea
Manager, Regulatory Management and Chemical Compliance