

# **Letter Health Consultation**

## **Wells Fargo Tower and Sound Physicians Building: Polychlorinated Biphenyls (PCBs) in Caulking Tacoma, Pierce County, Washington**

February 27, 2014

**Prepared by**

**The Washington State Department of Health  
Under a Cooperative Agreement with the  
Agency for Toxic Substances and Disease Registry**



## **Foreword**

The Washington State Department of Health (DOH) prepared this health consultation under a cooperative agreement with the Agency for Toxic Substances and Disease Registry (ATSDR). ATSDR is part of the U.S. Department of Health and Human Services. ATSDR is responsible for health issues related to hazardous substances.

The purpose of a health consultation is to assess the health threat posed by hazardous substances in the environment. If needed, a health consultation will also recommend steps or actions to protect public health. Health consultations are initiated in response to health concerns raised by residents or agencies about exposure to hazardous substances.

This health consultation was prepared in accordance with ATSDR methodologies and guidelines. However, the report has not been reviewed and cleared by ATSDR. The findings in this report are relevant to conditions at the site during the time the report was written. It should not be relied upon if site conditions or land use changes in the future.

Use of trade names is for identification only and does not imply endorsement by state or federal health agencies.

For additional information, please contact us at 1-877-485-7316 or visit our web site at [www.doh.wa.gov/consults](http://www.doh.wa.gov/consults).

For persons with disabilities this document is available on request in other formats. To submit a request, please call 1-800-525-0127 (TDD/TTY call 711).

For more information about ATSDR, contact the CDC Information Center at 1-800-CDC-INFO (1-800-232-4636) or visit the agency's web site at [www.atsdr.cdc.gov](http://www.atsdr.cdc.gov).



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February 27, 2014

John Sherman  
Environmental Health Division  
Tacoma-Pierce County Health Department  
3629 S D Street  
Tacoma, Washington 98418

Re: Wells Fargo Tower and Sound Physicians Building in Downtown Tacoma with  
Polychlorinated Biphenyls (PCBs) Caulking Contamination

Dear Mr. Sherman:

The Washington State Department of Health (DOH) prepared this Letter Health Consultation at the request of the Environmental Health Division of Tacoma-Pierce County Health Department. The purpose is to evaluate whether elevated levels of polychlorinated biphenyls (PCBs) found in various exterior building materials around the Wells Fargo Plaza site pose a potential health hazard to people. DOH prepares health consultations under a cooperative agreement with the Agency for Toxic Substances and Disease Registry (ATSDR).

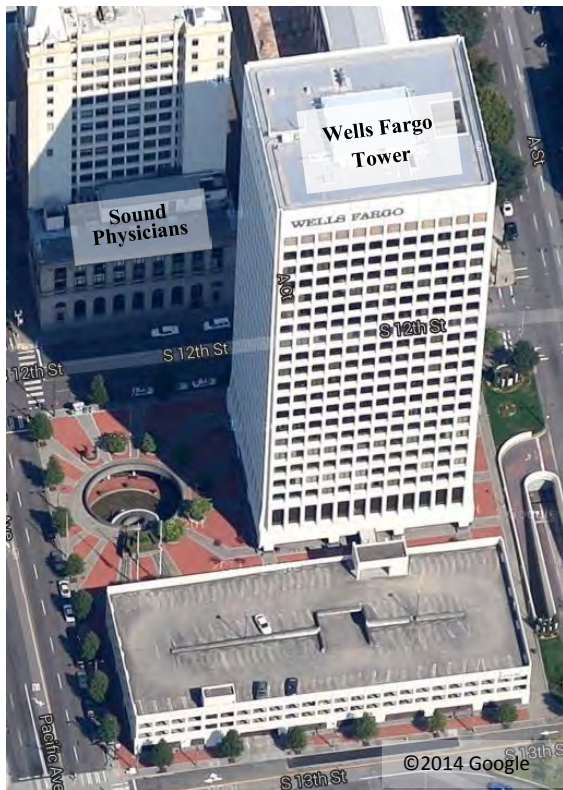
## **Background and Statement of Issues**

Sampling and analysis of stormwater sediments in the downtown Tacoma FD3A drainage basin (42 acres) have found consistently elevated levels of PCBs. After the City of Tacoma tracked potential sources of contamination, the Wells Fargo Tower and the Sound Physicians building were identified and reported to the Washington State Department of Ecology as likely sources of contamination in stormwater sediments.

The City of Tacoma obtained data for these buildings through the analytical services of the Center for Urban Waters Environmental Services Laboratory. Various exterior samples were collected for PCBs analysis from the buildings, including paint samples, caulking samples, and some soil samples. Mr. Geoffrey M. Smyth, Division Manager of Science and Engineering at the Center for Urban Waters, shared the results from their sampling. Most paint samples were collected as wipe samples so that the paint remained; paint chips were analyzed as soil samples. All soil samples and caulk samples were processed as soil matrix. Samples were analyzed using U.S. Environmental Protection Agency (EPA) Method 8270D for PCBs. Based on the laboratory

report, the City of Tacoma believes that particularly high concentrations of PCBs in caulking materials at both properties (Wells Fargo Tower and Sound Physicians) are contributing to elevated levels of PCBs found in public catch basins.

The Wells Fargo Tower is located in downtown Tacoma at 1201 Pacific Avenue. The tower was built in 1970 and has 24 stories with an additional under-building parking garage. It is a Class A office/retail building with about 308,000 rentable square feet. Tenants include the Wells Fargo Bank, Gordon Thomas Honeywell, and Propel. The building was last painted approximately 13 years ago. The Sound Physicians building is located at 1123 Pacific Avenue in downtown Tacoma. It was built in 1921 and has been in operation as an office building, recruiting and providing physicians for hospitals across the nation for a little over 10 years. It is a smaller building with several floors. Both buildings were built before PCBs were banned in the United States (U.S.) in 1977, which increases the likelihood that these buildings were constructed using materials containing PCBs.



**Figure 1:** View of Wells Fargo Tower and Sound Physicians building in Tacoma, WA.



**Figure 2:** Vicinity Map of Site and location in Tacoma, WA.

## Discussion

PCBs are a mixture of man-made organic chemicals. The manufacture of PCBs stopped in the U.S. in 1977 because of evidence showing that it is a persistent organic pollutant in the environment and harmful to people's health. PCBs can still be found in certain products such as old fluorescent lighting fixtures, electrical devices and appliances containing capacitors, as well as in old building materials. PCBs have entered the environment (soil, water, air) during the manufacture and use of PCBs. There are no known natural sources of PCBs in the environment. Today, PCBs can still enter the environment from illegal or improper dumping, and from various sources still containing PCBs [1].

There are 209 structural variations of PCBs, referred to as congeners, which differ in the number and location of chlorine atoms in the chemical structure. Most PCBs commercially produced in the U.S. were standard mixtures called Aroclors. The conditions for producing each Aroclor favor the synthesis of certain congeners, giving each Aroclor a unique pattern based on its congener composition. No Aroclor contains all 209 congeners.

Once in the environment, PCBs do not breakdown easily and may stay in the soil for months or years. PCBs stick to soil and do not usually move deep into the soil with rainfall. In air, PCBs can be carried long distances. Although levels of PCBs in the environment are decreasing, small amounts of PCBs can be found in almost all outdoor and indoor air, sediments, surface water, and animals. PCBs build up in the food chain and are stored in the fatty parts of the body. People get most of their exposure to PCBs in the food they eat. The major dietary source of PCBs is fish. PCBs are also found in meats and dairy products [1]. Since the 1980's, levels of PCBs in people have followed a downward trend [2, 3].

Most of what is known about possible human health risks of PCBs comes from animal studies and accidental human exposures to high levels of these chemicals in the workplace [4]. Chronic (long-term) and acute (short-term) exposures to PCBs have been shown to produce a wide array of toxic effects in animals including neurobehavioral, immunological, and developmental deficits in newborns exposed to PCBs through their mothers while in the womb [1]. Health problems seen in humans include skin irritation, vomiting, nausea, diarrhea, abdominal pain, eye irritation, and liver damage.

PCBs are often present in schools and larger buildings built before the 1970s. Indoor air is a common route of exposure to PCBs. Ingestion of PCBs through incidental ingestion is also a concern for children in schools built before the 1970s. With the Wells Fargo Tower and Sound Physicians building, the primary route of exposure to PCBs would most likely be through the inhalation of particles.

Recent investigations modeling PCB transport in the Lake Washington watershed identified storm water as the most significant loading pathway for PCBs into the watershed. Understanding technologies to treat, manage, or remove urban PCBs is an essential next step to reduce PCBs in the Puget Sound region.

## **Exposure Pathways**

These office buildings house both part-time and full-time staff. Minimal time is expected to be spent outdoors where sampling of exterior building materials took place, and children are unlikely to be playing in this area. Cleaning and maintenance staffs have a greater risk of contact with PCBs in comparison to office workers. The potential exposure pathway of concern at this site is of an adult inhaling PCBs in the form of dust from particles dislodged from cleaning the windows and other surfaces. Particles of contaminated caulking from sidewalks around the buildings could also be potentially brought indoors on people's shoes, so indoor inhalation of PCBs may also be a concern for people working in this building. However, indoor air sampling and analysis is needed to determine this.

## **Exterior Surfaces Summary**

DOH has evaluated the available data to determine whether the PCBs found outside Wells Fargo Tower and Sound Physicians pose a health concern. In order for any contaminant to be a health concern, the contaminant must be present at a high enough concentration to cause potential harm and there must be a completed route of exposure. Table 1 shows the concentration range of PCBs.

ATSDR does not have standards for evaluating data from surface wipe samples. However, EPA has a regulatory clean-up standard or spill cleanup criteria for PCBs of 10 micrograms per 100 square centimeters ( $\mu\text{g}/100\text{cm}^2$ ) on wipes collected from indoor surfaces [1]. EPA estimated that inhalation cancer risk from exposure to PCBs at  $10 \mu\text{g g}/100\text{cm}^2$  would be at 1 excess cancer case per 1,000,000 exposed ( $1 \times 10^{-6}$ ). Similarly, EPA estimated that cancer risk from dermal contact with PCBs at  $10 \mu\text{g}/100\text{cm}^2$  would be at 1 excess cancer case per 100,000 exposed [5]. Surface wipe samples were taken from a variety of exterior painted surfaces. All wipe samples analyzed are below the EPA spill cleanup criteria for indoor surfaces.

Caulking sampled from sidewalks and exterior of the buildings expansion joints contained very high levels of PCBs (up to 38,000,000  $\mu\text{g}/\text{kg}$  or 38,000 ppm). However, direct contact exposure to the caulking embedded in the sidewalks and building expansion joints is predicted to be very limited. This is due to the relative surface area of the caulk and its consistency as a sealant sitting below the surface level of the concrete or bricks. Roof access to both buildings is limited to general maintenance and repair workers. PCB levels on the roof and garage sump areas are below the adult chronic comparison value of 10 ppm. Therefore, it is unlikely that exposure to PCB materials on the roof or garage sump area will pose a problem to human health. No further evaluation can be completed as indoor air sampling data and other indoor sampling would be necessary to evaluate contamination for human health relevance at this site.

**Table 1.** Concentration range of PCBs detected in exterior samples around Wells Fargo Plaza in Tacoma, Pierce County, WA.

Building	Sampled From	Sample	Concentration Range	Comparison Value	Comparison Value Reference	Contaminant of Concern
Wells Fargo	Roof Drain	Soil	110 UJ - 7500 J µg/kg	0.4 ppm or 400 µg/kg	CREG (Soil)	Yes
	Roof Pipe	Paint	220 U -6200 µg/kg			
	Sidewalk/building exterior	Caulk	210 UJ – 38000000 µg/kg			
	Garage	Soil/Paint	110 U – 9600 µg/kg			
	Paint	Wipe*	1 U µg/wipe	10 µg/100cm <sup>2</sup>	EPA - Spill Clean-up Criteria	No
Sound Physicians	Roof	Soil	110 U – 1500 µg/kg	0.4 ppm or 400 µg/kg	CREG (Soil)	Yes
	Roof**	Paint	110 UJ - 12000 U µg/kg			
	Roof Tar**	Tar	110 UJ-1200 U µg/kg			
	Sidewalk/building exterior	Caulk	280 UJ - 17000000 J µg/kg			
	Paint	Wipe*	1 U µg/wipe	10 µg/100cm <sup>2</sup>	EPA - Spill Clean-up Criteria	No

EPA - Environmental Protection Agency  
 CREG - Cancer Risk Evaluation Guides from Agency for Toxic Substances & Disease Registry (ATSDR)  
 J - The result is an estimated concentration  
 U - Analyte Not Detected at or above the associated value  
 UJ - Analyte Not Detected at or above the associated estimated value  
 µg/kg - micrograms per kilogram  
 µg/wipe - micrograms per wipe used to sample surface  
 µg/100 cm<sup>2</sup> - micrograms per one hundred cubic centimeters  
 \*Wiped areas sampled and analyzed are estimated to be ≥100 cm<sup>2</sup>  
 \*\*Detection limits are above the comparison value for these samples

## Conclusions

DOH cannot conclude if there are potential human health impacts from PCBs around the Wells Fargo Tower and Sound Physician building because the current data available is limited to exterior samples. Additionally, people in this community are not likely to touch, ingest, or inhale the materials sampled and analyzed.

## Recommendations

DOH recommends conducting indoor air and dust sampling and analysis for PCBs in these two buildings.

DOH recommends that building management follow Washington State Department of Labor and Industries rules and regulations and the regulations at 40 C.F.R. Part 761 for specific requirements relating to PCBs and PCB-containing materials.

As precaution, DOH recommends that cleaning staff at these buildings:

- Clean surfaces frequently to reduce dust and residue inside buildings.
- Use a wet or damp cloth (micro fiber) or mop to clean surfaces.
- Use ventilation and vacuums with high-efficiency particulate air (HEPA) filters.
- Do not sweep with dry brooms; avoid using dusters.
- Wash hands with soap and water after cleaning, and before eating or drinking.

## **Public Health Action Plan**

### Actions Planned

1. DOH will provide copies of this letter health consultation to Tacoma-Pierce County Health Department, the City of Tacoma, and building managers.
2. A copy of this letter health consultation will be placed on the DOH Site Assessments website: <http://www.doh.wa.gov/consults>.
3. If needed, DOH will review indoor air sampling plans and evaluate any additional data that becomes available.

DOH appreciates this opportunity to assist in the evaluation of these data. If you have any questions regarding this letter please contact me at 360-236-3357 or by email at [Amy.Leang@doh.wa.gov](mailto:Amy.Leang@doh.wa.gov).

Sincerely,

Amy Leang  
Health Assessor, Toxicologist  
Site Assessments and Toxicology Section

cc: Joanne Snarski, Department of Health  
Geoffrey Smyth, City of Tacoma



## References

1. Agency for Toxic Substances and Disease Registry (ATSDR). 2000. Toxicological profile for Polychlorinated Biphenyls (PCBs) (update) PB/2000/108027. Atlanta: U.S. Department of Health and Human Services. URL: <http://www.atsdr.cdc.gov/toxprofiles/tp17.html>.  
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