

# Health Consultation

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Evaluation of Wipe Sample Data for  
Polychlorinated Biphenyls

BRISTOL FRANKLIN STREET PCBS

BRISTOL, HARTFORD COUNTY, CONNECTICUT

EPA FACILITY ID: CTN000103182

SEPTEMBER 4, 2003

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES  
Public Health Service  
Agency for Toxic Substances and Disease Registry  
Division of Health Assessment and Consultation  
Atlanta, Georgia 30333

## **Health Consultation: A Note of Explanation**

An ATSDR health consultation is a verbal or written response from ATSDR to a specific request for information about health risks related to a specific site, a chemical release, or the presence of hazardous material. In order to prevent or mitigate exposures, a consultation may lead to specific actions, such as restricting use of or replacing water supplies; intensifying environmental sampling; restricting site access; or removing the contaminated material.

In addition, consultations may recommend additional public health actions, such as conducting health surveillance activities to evaluate exposure or trends in adverse health outcomes; conducting biological indicators of exposure studies to assess exposure; and providing health education for health care providers and community members. This concludes the health consultation process for this site, unless additional information is obtained by ATSDR which, in the Agency's opinion, indicates a need to revise or append the conclusions previously issued.

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## HEALTH CONSULTATION

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Prepared by:

Connecticut Department of Public Health  
Under a Cooperative Agreement with the  
Agency for Toxic Substances and Disease Registry

*The conclusions and recommendations in this health consultation are based on the data and information made available to the Connecticut Department of Public Health and the Agency for Toxic Substances and Disease Registry. The Connecticut Department of Public Health and the Agency for Toxic Substances and Disease Registry will review additional information when received. The review of additional data could change the conclusions and recommendations listed in this document.*

## BACKGROUND and PURPOSE

The purpose of this health consultation is to evaluate the public health significance of samples analyzed for polychlorinated biphenyls (PCBs) that were collected from the basement floor of a residence on James Street in Bristol, Connecticut. Surface contamination samples are typically referred to as "wipe samples" and they measure contaminants that are adhered to surfaces such as walls or floors. The wipe sampling was conducted to determine whether residual PCB contamination was present on the basement floor after the basement was flooded with PCB-contaminated oily sewage in early 2002. The PCBs originated from an industrial property (the Franklin Street Site) located adjacent to James Street. Health questions and concerns identified by the resident will also be addressed in this health consultation.

The Bristol Franklin Street Site (the Site) is an industrial property located on approximately 20 acres of land, immediately adjacent to James Street. It was operated as a ball bearing manufacturing plant from 1912 until the late 1960s by the General Motors Corporation (GM). After GM sold the property in 1973, the Site was used for fuel storage, manufacturing and distribution, and is currently used for storage of machinery and old industrial equipment. The Site is surrounded by commercial and residential properties. There is a creek (North Creek) which runs along the southern boundary of the facility. Figure 1 in Attachment A is a diagram of the Bristol Franklin Street Site which shows the locations of North Creek and James Street.

The first indications that contaminants from the Site were being released into the environment occurred in early 2002, when the Connecticut Department of Environmental Protection (CT DEP) responded to a report from a resident on James Street that oily sewage had flooded his basement from a backed up City of Bristol sanitary sewer line. At the same time, CT DEP observed that small amounts of oil were breaking out of the embankment along North Creek just east of the end of James Street (see Figure 1). CT DEP determined that oil breaking through the North Creek bank was coming from a large subsurface pool of motor oil/cutting oil on the Site. CT DEP also determined that the oil contained low levels of polychlorinated biphenyls (PCBs) (approximately 10 -12 mg/kg). PCBs were commonly added to various oils in the late 1960s and early 1970s because of their insulating and flame retardant properties. CT DEP concluded that PCB-contaminated oil from the Site had entered the sanitary sewer line and was the likely cause of the backup, which resulted in PCB-contaminated sewage to enter the James Street resident's basement. A containment structure was constructed in North Creek in June 2002 by CT DEP to contain the oil and prevent further discharge of oil to North Creek. The US Environmental Protection Agency (EPA) and GM are currently conducting environmental sampling at the Site, which includes investigating the pool of oil beneath the Site.

It was not until May 2003, that environmental and health officials first became aware that the James Street resident had health questions and concerns regarding the flooding incident in his basement. In May 2003, EPA held a public meeting to present plans for sampling and cleanup of the Bristol Franklin Street site. At this meeting, the James Street resident raised questions and concerns regarding whether PCBs may be present in his basement as a result of the flooding and whether health effects his children were experiencing could be related to exposure to the PCB-contaminated sewage. Although the resident cleaned his basement immediately after the event, he stated that petroleum odors were present for many months afterwards.

To address the James Street resident's questions and concerns, GM agreed to sample his basement for PCBs. In June 2003, contractors for GM performed a visual inspection of the basement to ascertain current conditions in the basement and determine appropriate locations for sample collection. Wipe samples were collected from three locations on the concrete basement floor and were analyzed for PCBs. The wipe sampling procedures are discussed below in the Environmental Data Section.

#### *Health Education and Community Involvement Activities*

CT DPH staff attended a public meeting on May 12, 2003 to answer health-related questions regarding PCBs and other contaminants found at the Site. On June 9, 2003, CT DPH joined GM, EPA and CT DEP staff on the visit to the James Street residence. CT DPH observed the collection of wipe samples and spoke with the resident about his health questions and concerns. Also on June 9th, CT DPH visited another home on James Street to talk with residents about health-related questions and concerns they had expressed at the public meeting on May 12, 2003. On June 23, 2003, CT DPH again visited the residence where sampling had occurred and communicated the PCB sample results and answered health questions.

#### *Environmental Data*

The visual inspection indicated no observable oily or sewage odors in the James Street resident's basement. In addition, no areas of oil staining on the concrete floor were observed. Three hexane wipe samples were collected from the basement floor by a contractor for GM. Each sample was collected from a 100 centimeter squared (cm<sup>2</sup>) area. The first sample (sample-01) was collected from an area of the basement that had received the greatest accumulation of flooding. Sample-02 was collected from an area next to the discharge pipe where sewage had entered the basement. The final sample (sample-03) was collected from a portion of the basement slightly higher in elevation which had received no flooding. In addition, a field blank was collected by exposing a hexane wipe to the air in the basement. The wipe sample procedure was done according to approved EPA methodologies.

Results of the PCB wipe samples are presented in Table 1 below. In two of the three samples collected from the basement floor, PCBs were not detected. The field blank was also non-detect. The sample collected from the location which received the greatest accumulation of flooding

(Sample-01) identified one PCB Aroclor at a concentration of 0.38 J ug/100cm<sup>2</sup>. Aroclor is the trade name for a specific formulation of PCBs. The “J” indicates that the value is below the laboratory reporting limit and thus, the concentration is estimated.

Table 1 also includes the comparison value for PCB wipe samples that CT DPH used to evaluate the data. Comparison values are discussed in greater detail in the Discussion Section below.

Table 1 - PCB Wipe Sample Results Collected from the Basement Floor of a James St. Residence, Bristol, CT.

PCB	Sample-01	Sample-02	Sample-03	Field Blank	Reporting Limit
Aroclor 1016	ND	ND	ND	ND	0.5 ug/100 cm <sup>2</sup>
Aroclor 1221	ND	ND	ND	ND	0.5 ug/100 cm <sup>2</sup>
Aroclor 1232	ND	ND	ND	ND	0.5 ug/100 cm <sup>2</sup>
Aroclor 1242	ND	ND	ND	ND	0.5 ug/100 cm <sup>2</sup>
Aroclor 1248	ND	ND	ND	ND	0.5 ug/100 cm <sup>2</sup>
Aroclor 1254	ND	ND	ND	ND	0.5 ug/100 cm <sup>2</sup>
Aroclor 1260	0.38 ug/100cm <sup>2</sup> J	ND	ND	ND	0.5 ug/100 cm <sup>2</sup>
<b>Comparison value for PCB wipe data: 10 ug/100 cm<sup>2</sup> (CT DPH clearance level)</b>					

ND - Not Detected at indicated reporting limit

Reporting Limit - limit at which laboratory method and equipment can confidently identify a compound.

“J” - sample result is below the reporting limit, concentration is estimated.

## DISCUSSION

### *Evaluation of public health implications to adults and children*

When determining the public health implications of exposure to hazardous contaminants, CT DPH considers how people might come into contact with contaminants and compares contaminant concentrations with health protective comparison values. Health-based comparison values are used as guidelines for evaluating exposures to chemicals. Comparison values are concentrations in environmental media (e.g., indoor air, soil, drinking water) that are not expected to pose adverse health risks, assuming unrestricted, long-term exposure. When contaminant levels are below comparison values, we can say with relative certainty that health impacts from exposure to those levels are unlikely. When contaminant levels exceed comparison values, it does not mean that health impacts are likely. Rather, it means that exposures should be evaluated further. In this health consultation, CT DPH used its clearance level for PCBs in wipe samples (10 ug/100 cm<sup>2</sup>) as a comparison value. This value was derived by EPA under its Toxic Substances Control Act (TSCA) Program as a clearance level for surficial PCBs. It was developed to be protective of adults and children who could be exposed to PCBs on surfaces such as walls or floors of homes or schools. At PCB levels below 10 ug/100 cm<sup>2</sup>, exposure would not be expected to pose a public health threat.

PCB wipe sample data from the James Street residence shows that PCBs were identified in one of the sampled locations at an extremely low level. The wipe sample with the estimated concentration of 0.38 ug/100 cm<sup>2</sup> is well below the comparison value of 10 ug/100 cm<sup>2</sup>. In addition, there would be very little direct contact with the PCB contamination on the basement floor. Therefore, exposure to the very low level of PCBs on the basement floor is extremely unlikely to pose a public health hazard. Attachment B provides a fact sheet which provides supplementary information regarding PCBs and their uses, as well as health effects that have been observed in laboratory animal studies and studies in people exposed to large amounts of PCBs.

### EVALUATION OF COMMUNITY CONCERNS

CT DPH received health concerns from the James Street resident whose basement was flooded with PCB-contaminated sewage. Concerns were expressed at the May 12, 2003 public meeting as well as the two June home visits. The resident was primarily concerned with whether frequent nosebleeds in his children could be caused by exposure they may have received when the basement was flooded with PCB-contaminated sewage. He also asked whether a fainting spell he experienced a year after the flooding incident could be related to the exposure he may have received. Lastly, he questioned whether there were any long-term health impacts that could result from exposure he or his family may have received to the PCB-contaminated sewage.

The resident reported that there was a very strong odor when the flooding initially occurred. The resident's wife and children did not stay in the house while the sewage was being cleaned up. They did not have any direct contact with the sewage and only had short-term exposure to the odors. The resident cleaned his flooded basement himself. He reported that odors remained for several months after the cleanup, especially after it rained. No observable oily or sewage odors were noted during either of the home visits that occurred in June 2003.

Because PCBs were detected at such an extremely low level in a single location on the basement floor, there are no health impacts that would be expected to occur from exposure to the PCBs. It should also be noted that PCBs are not volatile compounds. That is, they do not evaporate readily into the air. Therefore, there would not have been any PCBs in the air when the flooding occurred in the basement. The motor oil/cutting oil that was present in the sewage is volatile and some constituents would have evaporated into the air. Irritation of the skin, eyes, nose or throat could have been caused by breathing the basement air or touching the sewage when it was present in the basement. However, these effects would not be permanent and would resolve when the sewage and associated odors were gone. Given the fact that the sewage was cleaned up more than a year ago and there are no remaining odors in the basement, CT DPH believes that it is extremely unlikely that nosebleeds, fainting spells or any other health symptoms are related to possible exposure to the PCB-contaminated sewage.

## CONCLUSIONS AND RECOMMENDATIONS

PCB wipe samples collected from three locations on the floor of a basement that was flooded with PCB-contaminated sewage indicate one location with a very low level of PCBs. The PCB concentration detected is an estimated value because it is below the level that can confidently be identified by the laboratory. The estimated concentration is also well below the level considered by CT DPH to be safe for homes or schools.

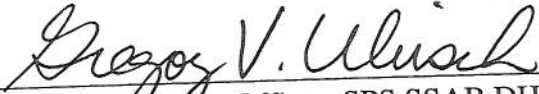
Because of the very low concentration of PCBs present on the basement floor and the low level of possible exposure, CT DPH has concluded that exposure to the PCB-contaminated sewage that the James Street residents may have received is very unlikely to result in adverse health effects. The health questions and concerns expressed by the James Street residents have been identified by CT DPH and have been addressed in this health consultation.

The Agency for Toxic Substances and Disease Registry (ATSDR) has a categorization scheme whereby the level of public health hazard at a site is assigned to one of five conclusion categories. ATSDR conclusion categories are included as Attachment C to this report. CT DPH has concluded that PCBs detected on the basement floor of the James Street residence present "no apparent public health hazard." CT DPH has determined that no further actions need to be taken.




## CERTIFICATION

The Health Consultation for Evaluation of Wipe Sample Data for Polychlorinated Biphenyls Related to the Bristol Franklin Street Site, Bristol, Connecticut was prepared by the Connecticut Department of Public Health under a cooperative agreement with the Agency for Toxic Substances and Disease Registry (ATSDR). It is in accordance with approved methodology and procedures existing at the time the health consultation was initiated.

  
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Technical Project Officer, SPS, SSAB, DHAC

The Division of Health Assessment and Consultation (DHAC), ATSDR, has reviewed this Health Consultation and concurs with its findings.

  
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Chief, SSAB, DHAC, ATSDR

PREPARER OF HEALTH CONSULTATION

Margaret L. Harvey, MPH  
Epidemiologist  
Environmental Epidemiology and Occupational Health  
Connecticut Department of Public Health

ATSDR Regional Representative:

William Sweet  
EPA/New England

ATSDR Technical Project Officer:

Greg V. Ulirsch  
Superfund Site Assessment Branch  
Division of Health Assessment and Consultation  
Agency for Toxic Substances and Disease Registry

ATTACHMENT A

FIGURE 1

DIAGRAM OF THE FRANKLIN STREET SITE



ATTACHMENT B

FACT SHEET ON PCBs



# POLYCHLORINATED BIPHENYLS (PCBs)

Agency for Toxic Substances and Disease Registry ToxFAQs

September 1997

This fact sheet answers the most frequently asked health questions (FAQs) about polychlorinated biphenyls (PCBs). For more information, call the ATSDR Information Center at 1-800-447-1544. This fact sheet is one in a series of summaries about hazardous substances and their health effects. It's important you understand this information because this substance may harm you. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present.

**HIGHLIGHTS: Polychlorinated biphenyls are a mixture of individual chemicals which are no longer produced in the United States, but are still found in the environment. Polychlorinated biphenyls can cause irritation of the nose and throat, and acne and rashes. They have been shown to cause cancer in animal studies. Polychlorinated biphenyls have been found in at least 383 of the 1,430 National Priorities List sites identified by the Environmental Protection Agency (EPA).**

## What are polychlorinated biphenyls?

(Pronounced pŏl'ē-klŏr'ə-nāt ĭd' bī-fē'nŏlz')

Polychlorinated biphenyls (PCBs) are a group of manufactured organic chemicals that contain 209 individual chlorinated chemicals (known as congeners). PCBs are either oily liquids or solids and are colorless to light yellow in color. They have no known smell or taste. There are no known natural sources of PCBs. Some commercial PCB mixtures are known in the United States by their industrial trade name, Aroclor.

PCBs don't burn easily and are good insulating material. They have been used widely as coolants and lubricants in transformers, capacitors, and other electrical equipment. The manufacture of PCBs stopped in the United States in 1977 because of evidence that they build up in the environment and cause harmful effects. Products containing PCBs are old fluorescent lighting fixtures, electrical appliances containing PCB capacitors, old microscope oil, and hydraulic fluids.

## What happens to PCBs when they enter the environment?

- Before 1977, PCBs entered the air, water, and soil during their manufacture and use.

- Today, PCBs can be released into the environment from hazardous waste sites that contain PCBs, illegal or improper dumping of PCB wastes, and leaks from electrical transformers containing PCBs.
- PCBs may be carried long distances in the air; they remain in the air for approximately 10 days.
- In water, a small amount of the PCBs may remain dissolved, but most sticks to organic particles and sediments.
- PCBs in water build up in fish and marine mammals and can reach levels thousands of times higher than the levels in water.

## How might I be exposed to PCBs?

- Using old fluorescent lighting fixtures and old appliances such as television sets and refrigerators; these may leak small amounts of PCBs into the air when they get hot during operation
- Eating food, including fish, meat and dairy products containing PCBs
- Breathing air near hazardous waste sites that contain PCBs
- Drinking PCB-contaminated well water
- Repairing or maintaining PCB transformers

ToxFAQs Internet address via WWW is <http://atsdr1.atsdr.cdc.gov:8080/ToxFAQ.html>

### How can PCBs affect my health?

People exposed to PCBs in the air for a long time have experienced irritation of the nose and lungs, and skin irritations, such as acne and rashes.

It is not known whether PCBs may cause birth defects or reproductive problems in people. Some studies have shown that babies born to women who consumed PCB-contaminated fish had problems with their nervous systems at birth. However, it is not known whether these problems were definitely due to PCBs or other chemicals.

Animals that breathed very high levels of PCBs had liver and kidney damage, while animals that ate food with large amounts of PCBs had mild liver damage. Animals that ate food with smaller amounts of PCBs had liver, stomach, and thyroid gland injuries, and anemia, acne, and problems with their reproductive systems. Skin exposure to PCBs in animals resulted in liver, kidney, and skin damage.

### How likely are PCBs to cause cancer?

It is not known whether PCBs causes cancer in people. In a long-term (365 days or longer) study, PCBs caused cancer of the liver in rats that ate certain PCB mixtures.

The Department of Health and Human Services (DHHS) has determined that PCBs may reasonably be anticipated to be carcinogens.

### Is there a medical test to show whether I've been exposed to PCBs?

There are tests to find out if PCBs are in your blood, body fat, and breast milk. Blood tests are probably the easiest, safest, and best method for detecting recent exposures to large amounts of PCBs.

However, since all people in the industrial countries have some PCBs in their bodies, these tests can only show if you

have been exposed to higher-than-background levels of PCBs. However, these measurements cannot determine the exact amount or type of PCBs you have been exposed to or how long you have been exposed. In addition, they cannot predict whether you will experience any harmful health effects.

### Has the federal government made recommendations to protect human health?

The EPA has set a maximum contaminant level of 0.0005 milligrams PCBs per liter of drinking water (0.0005 mg/L). The EPA requires that spills or accidental releases into the environment of 1 pound or more of PCBs be reported to the EPA.

The Food and Drug Administration (FDA) requires that milk, eggs, other dairy products, poultry fat, fish, shellfish, and infant foods contain not more than 0.2-3 parts of PCBs per million parts (0.2-3 ppm) of food.

### Glossary

Carcinogen: A substance with the ability to cause cancer

CAS: Chemical Abstracts Service

Milligram (mg): One thousandth of a gram

PPM: Parts per million

### Source of Information

This ToxFAQs information is taken from the 1997 Toxicological Profile for Polychlorinated biphenyls (PCBs) (update) produced by the Agency for Toxic Substances and Disease Registry, Public Health Service, U.S. Department of Health and Human Services, Public Health Service in Atlanta, GA.

Animal testing is sometimes necessary to find out how toxic substances might harm people and how to treat people who have been exposed. Laws today protect the welfare of research animals and scientists must follow strict guidelines.

### Where can I get more information?

For more information, contact the Agency for Toxic Substances and Disease Registry, Division of Toxicology, 1600 Clifton Road NE, Mailstop E-29, Atlanta, GA 30333. Phone: 1-800-447-1544, FAX: 404-639-6359. ToxFAQs Internet address via WWW is <http://atsdr1.atsdr.cdc.gov:8080/ToxFAQ.html> ATSDR can tell you where to find occupational and environmental health clinics. Their specialists can recognize, evaluate, and treat illnesses resulting from exposure to hazardous substances. You can also contact your community or state health or environmental quality department if you have any more questions or concerns.



**ATTACHMENT C**  
**ATSDR INTERIM PUBLIC HEALTH HAZARD CATEGORIES**

<b>CATEGORY / DEFINITION</b>	<b>DATA SUFFICIENCY</b>	<b>CRITERIA</b>
<p><b>A. Urgent Public Health Hazard</b></p> <p>This category is used for sites where short-term exposures (&lt; 1 yr) to hazardous substances or conditions could result in adverse health effects that require rapid intervention.</p>	<p>This determination represents a professional judgement based on critical data which ATSDR has judged sufficient to support a decision. This does not necessarily imply that the available data are complete; in some cases additional data may be required to confirm or further support the decision made.</p>	<p>Evaluation of available relevant information* indicates that site-specific conditions or likely exposures have had, are having, or are likely to have in the future, an adverse impact on human health that requires immediate action or intervention. Such site-specific conditions or exposures may include the presence of serious physical or safety hazards.</p>
<p><b>B. Public Health Hazard</b></p> <p>This category is used for sites that pose a public health hazard due to the existence of long-term exposures (&gt; 1 yr) to hazardous substance or conditions that could result in adverse health effects.</p>	<p>This determination represents a professional judgement based on critical data which ATSDR has judged sufficient to support a decision. This does not necessarily imply that the available data are complete; in some cases additional data may be required to confirm or further support the decision made.</p>	<p>Evaluation of available relevant information* suggests that, under site-specific conditions of exposure, long-term exposures to site-specific contaminants (including radionuclides) have had, are having, or are likely to have in the future, an adverse impact on human health that requires one or more public health interventions. Such site-specific exposures may include the presence of serious physical or safety hazards.</p>
<p><b>C. Indeterminate Public Health Hazard</b></p> <p>This category is used for sites in which "critical" data are insufficient with regard to extent of exposure and/or toxicologic properties at estimated exposure levels.</p>	<p>This determination represents a professional judgement that critical data are missing and ATSDR has judged the data are insufficient to support a decision. This does not necessarily imply all data are incomplete; but that some additional data are required to support a decision.</p>	<p>The health assessor must determine, using professional judgement, the "criticality" of such data and the likelihood that the data can be obtained and will be obtained in a timely manner. Where some data are available, even limited data, the health assessor is encouraged to the extent possible to select other hazard categories and to support their decision with clear narrative that explains the limits of the data and the rationale for the decision.</p>
<p><b>D. No Apparent Public Health Hazard</b></p> <p>This category is used for sites where human exposure to contaminated media may be occurring, may have occurred in the past, and/or may occur in the future, but the exposure is not expected to cause any adverse health effects.</p>	<p>This determination represents a professional judgement based on critical data which ATSDR considers sufficient to support a decision. This does not necessarily imply that the available data are complete; in some cases additional data may be required to confirm or further support the decision made.</p>	<p>Evaluation of available relevant information* indicates that, under site-specific conditions of exposure, exposures to site-specific contaminants in the past, present, or future are not likely to result in any adverse impact on human health.</p>
<p><b>E. No Public Health Hazard</b></p> <p>This category is used for sites that, because of the absence of exposure, do NOT pose a public health hazard.</p>	<p>Sufficient evidence indicates that no human exposures to contaminated media have occurred, none are now occurring, and none are likely to occur in the future</p>	

\*Such as environmental and demographic data; health outcome data; exposure data; community health concerns information; toxicologic, medical, and epidemiologic data; monitoring and management plans