

Letter Health Consultation

BURNHAM CANAL SITE
MILWAUKEE, WISCONSIN

**Prepared by the
Wisconsin Department of Health Services**

SEPTEMBER 28, 2009

Prepared under a Cooperative Agreement with the
U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Agency for Toxic Substances and Disease Registry
Division of Health Assessment and Consultation
Atlanta, Georgia 30333

Health Consultation: A Note of Explanation

A health consultation is a verbal or written response from ATSDR or ATSDR's Cooperative Agreement Partners 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 or ATSDR's Cooperative Agreement Partner which, in the Agency's opinion, indicates a need to revise or append the conclusions previously issued.

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LETTER HEALTH CONSULTATION

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September 24, 2009

Nefertiti Simmons
US Environmental Protection Agency
Superfund Division
77 W Jackson (SR - 6J)
Chicago, IL 60604

Dear Ms. Simmons:

The Wisconsin Division of Public Health (DPH) appreciates the opportunity to comment on the recent report¹ for the Burnham Canal (BC), located in the southern portion of the Menomonee River Valley. We are examining public health concerns related to contaminants in media at the site.

Background

As you shared with us, in 2007 the Miller Compressing Company (Miller) approached EPA and requested the Superfund Alternative Site approach to address contamination in the BC at their property located at 1640 W. Bruce Street (see Attachments 1, 2 and 3).

Miller operated a wire reclamation furnace from the 1970s through the mid 1980s. Other activities conducted on the Miller property include non-ferrous recycling and shearing and baling. Other past and current industrial uses along the BC include a chemical company, tannery, lumber and building materials companies, a smelting company, meat packing, a foundry and cement companies. The BC was a federally authorized navigation channel historically dredged and maintained until a street level fixed bridge was constructed across the canal at 11th Street, effectively blocking large ship traffic. The BC remains a federally authorized navigation channel east of the 11th Street Bridge.

¹ Natural Resource Technology. July 24, 2008. Draft Completion Report for Burnham Canal Site, Milwaukee, Wisconsin. USEPA ID No. WIN000510222. Pewaukee, WI: NRT.

The Miller property was previously the site of a Petitioned Health Consultation² by the Agency for Toxic Substances and Disease Registry (ATSDR) in 1999. Several community members who lived near the site were concerned about public health effects related to the recycling operations conducted at the property, particularly air and water quality. Miller employed a metal shredder (no longer used) to grind metal wastes. The shredder was the petitioner's primary reason for concern. The Petitioned Health Consultation found no data supporting the release of hazardous substances into the environment that could be related to human exposure pathways off the Miller property and concluded that no further actions were warranted for the site.

The 2008 Draft Completion Report describes the results of several environmental investigations from areas of the BC located west of South 11th Street and adjacent to a property owned and operated by Miller. These investigations have identified heavy metals, polychlorinated biphenyls (PCBs), dioxins and polycyclic aromatic hydrocarbons (PAHs) in canal sediments. Limited surface soil sampling on the Miller property also identified elevated levels of PAHs and heavy metals. EPA's main concern has been with the elevated levels of lead and copper in canal sediments. Miller has expressed plans to sell the property once contamination issues in the Canal have been resolved.

On January 29, 2009 staff from DPH, along with the Milwaukee Health Department (MHD) and EPA Region V, met with Miller representatives and toured the property. The property appeared well-fenced and was nearly entirely paved. The only un-paved portion noted was a small area at the western end of BC with a storm-water outlet. This unpaved area was fenced off from the rest of the property.

Discussion

The investigative data supplied to DPH have almost exclusively focused on sediments in the Burnham canal with the addition of three surface water samples and four hand-augered soil borings. These investigations have identified heavy metals, PCBs (polychlorinated biphenyls), dioxins and PAHs (polycyclic aromatic hydrocarbons) in canal sediments above the Consensus Based Sediment Quality Guidelines³ (CBSQG). Copper was detected in canal sediment between 100 to 2,100 mg/kg and lead between 200 and 1,500 mg/kg. Total PCBs in sediment were found at levels above 1 mg/kg in most samples and ranged up to 10 mg/kg. Typical total PAH concentrations ranged from 100 to 700 mg/kg. The surface soil sampling at the unpaved western end of the canal also identified elevated levels of PAHs and heavy metals.

Benzo(b)fluoranthene, one of several PAHs detected, was found in all four soil boring at levels between 1 to 23 mg/kg. Lead was detected at the surface in all four soil sample above the industrial residual contaminant level of 500 mg/kg published in Table 2 of DNR Code 720.11. The lead levels in soil ranged from 2,080 mg/kg to 7,880 mg/kg. Copper levels ranged from 13,700 to 18,200 mg/kg, above the 4,100 mg/kg screening level in the US EPA Region III Risk-based concentration tables. No recent air, groundwater, or surface water run-off sample data has

² Agency for Toxic Substances and Disease Registry. September 28, 1999. Petitioned Health Consultation, Miller Compressing Company, Incorporated, Milwaukee, Wisconsin.

³ Wisconsin Department of Natural Resources, December 2003. Consensus-Based Sediment Quality Guidelines, Recommendations for Use & Application, Developed by the Contaminated Sediment Standing Team, WT-732 2003

been presented to DPH. The contaminated media potentially leading to exposures to people are discussed below.

Fish

PCBs in the BC sediment exceed CBSQG values established to decrease concentrations in sport fish from the Milwaukee, Menominee and Kinnickinnic Rivers. A health concern for exposure to PCBs in sediments is their bioaccumulation in fish, and the subsequent contribution to a lifetime exposure in people who eat those fish. It was noted during the DPH site visit that this stretch of the BC appears to be regularly fished from the 11th Street Bridge. However, it is unclear how frequently people catch and eat fish from this stretch of the BC. PCB levels in fish samples from the BC have not been collected. Fish collected from other portions of the Milwaukee, Menomonee and Kinnickinnic Rivers have PCB concentrations which result in fish consumption advice ranging from '1 meal per week' to 'do not eat' depending on the species. DNR fisheries studies show that sport fish freely roam throughout the Milwaukee River Estuary, including BC. DPH concludes that consuming these fish over a lifetime could harm people's health, and recommends that anglers continue to follow the fish consumption advice for the area.

Canal Sediments

The levels of heavy metals, PAHs, PCBs and Dioxins/Furans were all above default comparison values for residential or industrial soils. However, the public is unlikely to have regular direct contact with these affected sediments. As a result, the contaminants, other than PAHs, are not likely to pose a direct contact health concern for people who live or fish along this affected stretch of the Burnham Canal.

Canal Water

Heavy metals and PAHs were detected in two of the three surface water samples collected from the Burnham Canal. All the detected metals (copper, lead, and nickel) were below DNR NR 140 drinking water standards. All of the detected PAHs, except benzo(a)pyrene at 0.37 µg/l and benzo(b)fluoranthene at 0.49 µg/l were below drinking water comparison values. The DNR NR 140 standard for benzo(a)pyrene and benzo(b)fluoranthene is 0.2 µg/l. The Burnham Canal is not used as a source of drinking water. As a result DPH does not expect these contaminants to pose a threat to people via incidental exposure to the water in the BC for the levels detected to date in the water of BC. However, elevated levels of PAHs were found in the sediment transects from the Burnham Canal. Field notes from the sediment transect probing (BBL 2006, Table 2-2A) describe observations of "slight" to "heavy sheens" at two or more locations of three transects (T-4, T-7, & T-8). The notes of follow-up probing (Table 2-2B) described a similar range of sheens near two outfalls and several other locations. These field notes also describe "odors" and "strong odors" from some probe samples that also had sheens, but the field notes did not characterize the odors. The sheens and odors noted in the field notes could be from hydrocarbons such as petroleum, creosote, or coal tars. When hydrocarbons are present in sediments, they can pose a human health concern because they can be dislodged from sediments, due to either natural processes or anthropogenic disturbances, and float to the surface to become a surface sheen or slick. Floating hydrocarbon slicks and sheens can pose an acute, direct contact health concern for people who get it on their skin. While there are no reports of slicks or sheens on surface water at Burnham Canal and the likelihood of human direct contact is

extremely low, available data and field observations are not sufficient to rule out this exposure pathway.

On-site Soil

Limited sampling of surface soil from the small unpaved western portion of the canal indicates the levels of lead and PAHs are above screening values for industrial soils. No soil test results for PCB content were provided to DPH. Lead was detected at the surface in all four soil sample above the NR 720 industrial residual contaminant level of 500 mg/kg published in Table 2 of DNR Code 720.11. The lead levels in soil ranged from 2,080 mg/kg to 7,880 mg/kg. PAHs such as benzo(b)fluoranthene, one of several PAHs detected, was found in all four soil boring at levels between 1 to 23 mg/kg. The US EPA Region III Risk-based screening level for this PAH is 2.1 mg/kg. Several other of the PAHs were also detected at levels above US EPA Region III Risk-based screening levels. However, this area is fenced, and is not likely to pose a direct contact threat. No soil sample data has been provided for the rest of the Miller property. However, the remainder of the Miller property is hard surfaced or capped and is also unlikely to present a direct contact threat as long as the hard surfacing is maintained.

Groundwater

No data has been presented with which to evaluate this potential pathway. However, no exposure to contaminants identified in other media is expected via groundwater. The entire greater metropolitan area of Milwaukee is supplied with municipal water sourced from Lake Michigan.

Conclusions

The findings and conclusions presented here by DPH are relative only to public health concerns; worker or ecological concerns are not addressed. Based on information available to DPH it appears that the primary exposure pathway is to site workers. Secondary exposure pathways would include; recreational adolescent trespassers (of unknown extent), and the sport fish angler.

For the contaminants found in the **canal water and sediments**, DPH reached three important conclusions:

DPH concludes that eating fish from the Milwaukee, Menominee and Kinnickinnic Rivers (including the BC) could harm people's health due to the levels of PCBs in these fish. PCBs in the BC sediment exceed CBSQG values established to decrease PCB concentrations in sport fish from these rivers. In addition, sport fish roam freely throughout the lower portion of these rivers including the BC, therefore; contaminated fish from other areas may be caught by sport fishers in the BC.

DPH can not currently conclude whether or not people could be harmed by coming in contact with hydrocarbon sheens on the BC. DPH does not have the data to determine if hydrocarbons are present in sufficient quantities in the canal sediments to periodically create sheens on the water surface, nor is there adequate exposure information to evaluate the surface water pathway.

DPH concludes that the levels of metals and the other identified contaminants in the sediment and water of the BC are not expected to harm people's health. This is because regular direct contact with the sediments is not occurring and the BC is not used for drinking water.

For the contaminants found, or likely to be present, in the **surface soil** on the property, DPH reached three important conclusions:

DPH concludes that the levels of lead and PAHs in the unpaved area at the west end of the BC are not expected to harm people's health. Because the area is fenced, regular contact is not likely to be occurring with the soil containing levels of lead and PAHs which are above the direct contact guidelines for industrial site soil.

DPH concludes that the contaminants likely present in the soil of the rest of the property are not expected to harm people's health. Except for the fenced area mentioned above, the remainder of the property is capped by asphalt or concrete paving; therefore, no direct contact is occurring with the capped soil.

DPH can not currently conclude whether or not continued PCB contamination of the BC is occurring from soil erosion or surface water drainage from the Miller property. No PCB testing of soil from the small un-paved portion of the Miller property or sediment in the surface water drainage has been conducted.

Recommendations:

- DPH recommends working with MHD to post the fish consumption advice for the Milwaukee, Menominee and Kinnickinnic Rivers in areas of the BC frequented by anglers. Anglers fishing the BC should continue to follow published fish advisory information for the Milwaukee area (Attachment 4).
- DPH recommends taking actions to limit the bioaccumulation of PCBs into fish from the sediments in the BC which are above CBSQG values. The long-term goal for the Milwaukee, Menominee and Kinnickinnic Rivers is to lower the PCB content of fish and thus reduce or eliminate the need for fish consumption advisories due to PCBs.
- DPH recommends continued fish surveys and sampling by the DNR to evaluate the continuing need for fish consumption advisories in the Milwaukee, Menominee and Kinnickinnic Rivers.
- DPH recommends further soil investigation of PCB levels in the unpaved area at the western end of the BC and an evaluation of the potential storm-water runoff loading to the canal. This will help ensure that the BC will not be re-contaminated, post remedy, by any contaminated sediment or storm-water.
- DHS supports cleanup goals in the BC that are consistent with the CBSQG values. While these values are typically driven by ecological factors, they result in levels which are also protective of public health.

Sincerely,

Henry Nehls-Lowe
Epidemiologist

Rob Thiboldeaux
Toxicologist

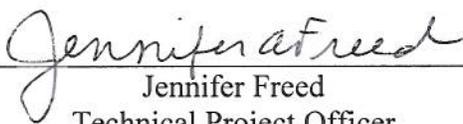
Bruce Rheineck
Hydrogeologist

CC: Terri Linder – City of Milwaukee Health Department
Margaret Brunette – Wisconsin Dept of Natural Resources
Mark Johnson – Agency for Toxic Substances & Disease Registry, Region 5 Office

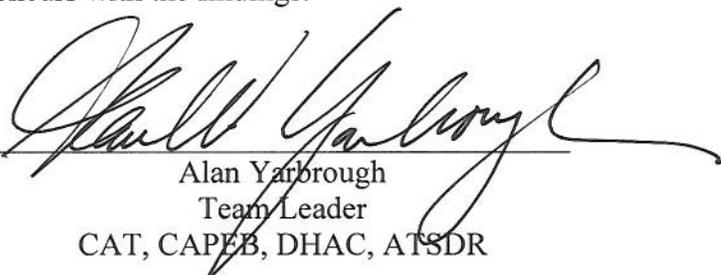
Attachments: Map of Miller Compressing Company Property and Burnham Canal;
Photograph of Burnham Canal from west end of canal;
Area map showing the Milwaukee, Menominee and Kinnickinnic Rivers;
Guidelines for Eating Fish from Milwaukee Waters

CERTIFICATION

This Health Consultation for the Burnham Canal site was prepared by the Wisconsin Department of Health Services under a cooperative agreement with the Agency for Toxic Substances and Disease Registry (ATSDR). It is in accordance with the approved methodology and procedures existing at the time the Health Consultation was begun. Editorial review was completed by the Cooperative Agreement partner.


Jennifer Freed
Technical Project Officer
CAT, CAPEB, DHAC, ATSDR

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


Alan Yarbrough
Team Leader
CAT, CAPEB, DHAC, ATSDR

Photograph of Burnham Canal looking northeast at Miller Compressing Property from west end of canal (1/29/09)



