

STATE OF CONNECTICUT  
DEPARTMENT OF PUBLIC HEALTH

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Environmental Epidemiology and Occupational Health Program

June 29, 2012

Laura M. Miller, RS  
Chief, Environmental Health Division  
City of Milford Health Department  
85 New Haven Avenue  
Milford, CT 06460-4827

RE: Light Sources Site  
70 Cascade Boulevard, Milford  
Evaluation of 2011 environmental data

Dear Ms. Miller;

In response to your request, the Connecticut Department of Public Health (CT DPH) evaluated mercury results from soil, sediment and water samples collected from two parcels (lots 6D and 6E) adjacent to the Light Sources Inc. site in Milford, CT. Our data review, conclusions and recommendations are detailed in this letter health consultation. As requested, we assessed the environmental data in light of a proposal before the Milford Planning & Zoning Board for a 35-unit apartment building to be constructed on the parcels and also considering the existing Ryder Woods residential community located across the pond from the proposed apartment building. We also reevaluated the historic sediment and fish tissue data from the site that was first evaluated by CT DPH in a March 2005 Health Consultation (ATSDR 2005). The historic data was reevaluated in light of the proposed apartment building. As our analysis describes, mercury concentrations are not expected to harm the health of future residents of the proposed apartment complex or existing residents of the Ryder Woods community.

*Background*

Light Sources Inc. was a manufacturer of fluorescent light bulbs and specialty bulbs, both of which contain mercury. In the late 1990s, an investigation by the CT Department of Energy and Environmental Protection (DEEP) discovered mercury contamination in wetlands and stream sediments immediately south of the factory building located at 70 Cascade Blvd. in Milford. CT DEEP has alleged that Light Sources Inc. improperly disposed of fluorescent light bulbs and other mercury-contaminated wastes from their facility. DEEP has attributed mercury contamination in wetlands and stream sediments to the water transport of mercury from the Light Sources facility into a catch basin on the property which is linked to a storm water outfall that



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discharges to the wetlands, sediment and pond located to the south of the Light Sources facility (ATSDR 2005). In 2002, a court order was issued, requiring Light Sources, Inc. to perform an interim cleanup to remove sediments near the storm water outfall because of high levels of mercury. That interim cleanup has been performed. Post cleanup sediment data collected in 2002 indicate that average mercury concentrations are below levels of concern for direct contact by humans (ATSDR 2005). Fish collected from the pond in 1998 and analyzed for mercury indicate that fish tissue is relatively low in mercury. However, mercury levels in sediment are still elevated enough that bioaccumulation in fish to levels that would be unsafe for human consumption could occur (ATSDR 2005). One of the recommendations in the 2005 Health Consultation was that access points to the pond and wetland areas be posted with Connecticut's statewide fish consumption advisory signs. Fish consumption advisory signs were posted at that time and signs were reposted in the last month to replace signs that disappeared.

### *Environmental Data*

New data reviewed in this letter health consultation are contained in a January 12, 2012 letter from GeoQuest, Inc. (environmental consultant) to Garden Homes Management Corporation (developer) (GeoQuest 2012). The two parcels proposed for development are located to the southwest of the former Light Sources facility and directly west of the storm water outfall. The storm water outfall is at the northern end of a pond and wetland area. In November 2011, GeoQuest Inc., a consultant working for the apartment building developer collected eight upland soil samples, three sediment samples and three water samples from the two parcels proposed for development and from one parcel located immediately to the west of the parcels slated for development. The consultant intended to collect upland soil samples only from the two parcels slated for development but because the parcel boundaries were unclear, two of the soil samples were actually collected on the adjacent western parcel. Soil and sediment samples were collected from 0-6 inches below ground surface. All samples were tested for mercury. Table 1 summarizes the 2011 results. Mercury levels in all of the soil and sediment samples were well below CT's direct contact residential cleanup standard for soil. Mercury was not detected in the water samples.

Table 1. Mercury results from soil, sediment and water samples collected from parcels adjacent to the Light Sources Inc. facility (parcels 6D and 6E), Milford CT. Samples were collected in November 2011 (GeoQuest 2012).

Concentration Range	Comparison Value (ppm)	Comparison Value (CV) Source	Exposure Pathway Considered in CV
Upland Soil			
ND (0.02) – 0.09 mg/kg	20	CT-RSR-RDEC*	Direct Contact
Sediment			
1.2 – 4.64 mg/kg	20 0.2	CT-RSR-RDEC* Court ordered cleanup value for Light Sources Site	Direct Contact Fish Consumption
Water			
ND (2) ug/L	2 ug/L	MCL <sup>#</sup>	Water Consumption

CT-RSR-RDEC: CT Remediation Standards Regulations, Residential Direct Contact Standard for Soil (1995).

mg/kg: milligrams per kilogram (parts per million; ppm)

ug/L: micrograms per liter (parts per billion; ppb)

MCL: Maximum Concentration Limit, safe drinking water standard set by federal Environmental Protection Agency

In 2005, CT DPH evaluated 16 sediment samples collected from around the perimeter of the pond which extends south of the storm drain outfall and south of the two parcels slated for development (ATSDR 2005). Mercury concentrations in pond sediments ranged from 0.09 mg/kg to 21.1 mg/kg, with a 95%ile upper confidence limit (conservative estimate of the average) of 5 mg/kg. Mercury levels in sediment from parcels 6D and 6E are lower than pond sediments and upland soil mercury levels are lower still. This is not unexpected, as parcels 6D and 6E (particularly the upland soil locations) are not within the area heavily impacted by mercury from Light Sources. We would not expect any soils to be impacted by mercury from Light Sources given its environmental transport mechanism from the facility into the environment (water transport from the facility into a catch basin on the Light Sources property to a storm water outfall on the northern edge of the pond/wetlands).

#### *Exposure Pathway Evaluation*

In order for mercury exposure to occur, people must have direct contact with soil, sediment or water and they must get the mercury into their bodies. This potentially could occur through activities such as walking or playing in contaminated soil, sediment or pond water. Ingestion of mercury-contaminated fish could also result in exposure. Future residents of the apartment building potentially could be exposed to mercury through these activities. Drinking water is not a potential exposure pathway for mercury because the area is served by municipal water (i.e., nobody is drinking pond water or groundwater). CTDPH made a similar exposure pathway assessment for residents of the Ryder Woods residential development which is located west of the pond and south of parcels 6D and 6E (ATSDR 2005).

#### *Public Health Implications*

To evaluate the public health implications from mercury contamination in the soil, sediments and water, CT DPH compared mercury concentrations at parcels 6D and 6E with health-based comparison values. When environmental concentrations are below comparison values, we can conclude that even if exposure does occur, the concentrations are too low to cause harm to human health. Mercury concentrations at Parcels 6D and 6E are below comparison values. *Therefore, future residents of the apartment complex and current residents of the Ryder Woods community are not expected to be harmed by mercury in upland soils, wetland sediments or water.*

In the 2005 Health Consultation, CT DPH reached a similar conclusion; that mercury in pond sediments near Ryder Woods does not pose a health concern to residents (ATSDR 2005). Based on its reevaluation of the pond sediment data, CTDPH concludes that there is no health concern to future residents of the apartment complex from exposure to pond sediments.

With regard to fish consumption, CTDPH's 2005 conclusion is still valid; data are not sufficient to reach a conclusion about the safety of consuming fish from the pond because of the limited fish tissue dataset. Sediment concentrations are higher than the level of concern for bioaccumulation in fish and although fish analyzed in 1998 had low mercury levels, the data may not reflect current conditions. Therefore it is possible that consumption of fish from the pond could pose a health threat.

With regard to the mercury results from water samples, the detection limit is at the health comparison value. The drinking water standard was used as a comparison value because we do not have a comparison value that is reflective of the type of exposures that could potentially occur on the property (i.e., skin contact and incidental ingestion from wading, playing or fishing). We do not expect the pond water to be consumed like drinking water. Potential exposure at the site would be much less than drinking water exposure. Therefore, the fact that the detection limit is equal to the MCL does not change the determination that mercury concentrations are too low cause harm to public health.

#### *Conclusions*

- Based on the environmental data reviewed by CTDPH, mercury in upland soil, wetland sediments and water are not expected to pose a public health risk to future residents of the apartment complex proposed for parcels 6D and 6E or to current residents of the Ryder Woods community.
- Fish from the pond located southeast of parcels 6D and 6E were last sampled in 1998 and are not sufficient to support a conclusion about the health threat from fish consumption.

#### *Recommendations*

- The Milford Health Department should continue to ensure that access points to the pond and wetland areas are posted with the statewide fish consumption advisory signs.
- If the Milford Health Department determines that community outreach and education is needed regarding health concerns about mercury, they can consider consulting with CTDPH for assistance.

If you have any questions regarding this letter health consultation, please contact me at 860-509-7748.

Sincerely,



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Environmental Epidemiology and Occupational Health Program