Health Consultation

CORNELL DUBILIER ELECTRONICS INCORPORATED

SOUTH PLAINFIELD, MIDDLESEX COUNTY, NEW JERSEY

CERCLIS NO. NJD981557879

MAY 26, 1998

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

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Prepared by:

Exposure Investigation and Consultation Branch
Division of Health Assessment and Consultation
Agency for Toxic Substances and Disease Registry

Background and Statement of Issues

The Region II U.S. Environmental Protection Agency (EPA) has requested that the Agency for Toxic Substances and Disease Registry (ATSDR) evaluate analytical data from residential properties located across the street from the Cornell-Dubilier Electronic Inc. site in South Plainfield, New Jersey, and determine if polychlorinated biphenyls (PCBs) in indoor dust and surface soils are at levels of public health concern [1]. Exposure Investigation and Consultation Branch (EICB) has completed several verbal health consultations regarding on-site PCB contamination and made public health recommendations that have included sampling of residential homes near the site [2,3].

The Cornell-Dubilier Electronics Site is located at 333 Hamilton Boulevard in South Plainfield, Middlesex County, New Jersey. The 25 acre site is bordered by commercial businesses and residences on the south, west and north, and on the southeast, east, and northeast by an unnamed tributary to Bound Brook [2]. It is estimated that 540 persons reside within 0.25 miles of the site; the nearest residence is approximately 200 feet from the site [2].

During the 1950s, Cornell-Dubilier Electronics, Inc. manufactured electronic parts and components, and tested transformer oils. Discarded electronic components were landfilled onsite and transformer oils contaminated with PCBs were reportedly dumped directly onto site soils. The company vacated the site in the early 1960s [2].

The site is currently known as the Hamilton Industrial Park and is occupied by an estimated 15 commercial businesses. Numerous companies have operated at the site as tenants over the years [2]. A paved driveway is used to enter the park; the pavement ends within 100 yards of entering the park. It has been observed that vehicles entering the industrial park during dry conditions create airborne dust [2]. The driveway leads into what was formally a dirt, gravel, and stone roadway that nearly encircles the business structures at the site. The roadway separates the structures from a heavily vegetated vacant field, and was paved by EPA in September 1997 as part of the site stabilization process to mitigate migration of contaminated dust.

On March 24, 1998, ATSDR and EPA Region II held a conference call to discuss indoor dust and surface soil data collected from 16 residential properties and analyzed for PCBs.

The residential properties sampled by EPA were selected using information obtained from air modeling. The indoor dust and surface soil sampling was conducted to evaluate health impacts to area residents from PCB contamination .

In October 1997, EPA Region II collected surface soil samples from 16 residential properties [4]. The soils were analyzed for PCBs. Approximately 20 surface soil samples were collected from each residential property. PCB levels in surface soils ranged from none detected to 22 parts per million (ppm).

In November 1997, EPA Region II collected indoor dust samples from 12 residential properties [5]. The indoor dust samples were analyzed for PCBs. Approximately two to four indoor dust samples were collected from each residential property. PCB levels in indoor dust ranged from none detected to 205 ppm (or 117 micrograms (ug) total PCBs in sample mass).

Discussion

Because the properties sampled were residential, it is anticipated that populations potentially exposed to contamination will include children and adults.

PCBs can be absorbed into the body via ingestion, inhalation, or dermal exposure following ingestion of dust or soil, inhalation of PCB-laden dust, or direct dermal contact with PCBs in soil or dust. In humans, long-term exposure to PCBs can affect the skin and liver; reproductive, endocrine, immunosuppressive, and carcinogenic effects have been observed in animal studies [6]. PCBs have very low potential for producing acute toxic effects [6].

An immunosuppressant effect was observed in a study of monkeys chronically exposed to 0.005 mg/kg/day of PCBs. On the basis of this study of monkeys, ATSDR has derived a chronic oral Minimal Risk Level (MRL) for PCBs of 2.0E-05 mg/kg/day. An MRL is defined as an estimate of daily human exposure to a dose of a chemical that is likely to be without an appreciable risk of adverse noncancerous effects over a specified duration of exposure [6]. Screening level exposure-dose calculations indicate that children in some houses may exceed the MRL.

Since screening analysis identified potential for health concern, soil and dust PCBs concentrations were evaluated using averaged daily doses estimated for both child and adult residential exposure scenarios and both cancer and non-cancer dose response relationships for PCBs. The exposure dose equation and parameter assumptions used for soil assessment followed that found in EPA RAGS. Exposure equations used for indoor dust assessment were based on ongoing methods development by a combined ATSDR/EPA/CDC workgroup on residential dust pathway analysis. Evaluations of health concerns were made on a house-by-house basis using estimated excess individual cancer risk, a margin of exposure analysis relative to the identified LOAEL for immunosuppression, and qualitative consideration of uncertainty based on site specific data.

Conclusions

Based on the indoor dust and surface soil analytical data for the residential properties located across the street from the Cornell-Dubilier site, the one point and time sampling event for both indoor dust and surface soils, the unknown location of an elevated level of PCBs on a specific residential property (e.g., the one 22 ppm elevated PCB level may be located next to a child's play area or near the entryway into the home), and the uncertainty of the future indoor dust levels (how the indoor dust levels would be impacted by surface soil contamination is uncertain), ATSDR concludes the following:

1. Elevated levels of PCBs were detected in indoor dust and the surface soils at residential properties that may pose a health concern or potential health concern to the residents. The health evaluations for the residential properties are presented in the following
table:

Table 1: Health Categories for Residential Properties:

Residential Property Designations	Health Categories	Follow up activities needed for residents with elevated levels of PCBs in indoor dust and/or surface soils
1. E	Health concern (a)	reduce/stop potential exposure to indoor dust and surface soils contaminated with PCBs health education on ways to reduce/stop potential exposure to indoor dust and/or surface soils
2. D	Health concern (a)	reduce/stop potential exposure to indoor dust and surface soils contaminated with PCBs health education on ways to reduce/stop potential exposure to indoor dust and/or surface soils
3. C	Health concern (a)	reduce/stop potential exposure to indoor dust and surface soils contaminated with PCBs health education on ways to reduce/stop potential exposure to indoor dust and/or surface soils
4. G	*Potential health concern (b)	reduce/stop potential exposure to indoor dust and surface soils contaminated with PCBs health education on ways to reduce/stop potential exposure to indoor dust and/or surface soils resample indoor dust to ensure that future indoor dust levels are not elevated (surface soil contamination may be tracked into homes)
5. O	Potential health concern (b)	reduce/stop potential exposure to indoor dust and surface soils contaminated with PCBs health education on ways to reduce/stop potential exposure to indoor dust and/or surface soils resample indoor dust to ensure that future indoor dust levels are not elevated (surface soil contamination may be tracked into homes)

6. J	Potential health concern (b)	reduce/stop potential exposure to indoor dust and surface soils contaminated with PCBs health education on ways to reduce/stop potential exposure to indoor dust and/or surface soils resample indoor dust to ensure that future indoor dust levels are not elevated (surface soil contamination may be tracked into homes)
7. B	Potential health concern (b)	reduce/stop potential exposure to indoor dust and surface soils contaminated with PCBs health education on ways to reduce/stop potential exposure to indoor dust and/or surface soils resample indoor dust to ensure that future indoor dust levels are not elevated (surface soil contamination may be tracked into homes)
8. A	Potential health concern (b)	health education on ways to reduce/stop potential exposure to indoor dust and/or surface soils resample indoor dust to ensure that future indoor dust levels are not elevated surface soils at this property did not represent a health concern; however, PCBs were detected in the indoor dust.
9. I	Potential health concern (b)	reduce/stop potential exposure to indoor dust and surface soils contaminated with PCBs health education on ways to reduce/stop potential exposure to indoor dust and/or surface soils resample indoor dust to ensure that future indoor dust levels are not elevated (surface soil contamination may be tracked into homes)
10. M	Potential health concern (d)	reduce/stop potential exposure to surface soils contaminated with PCBs health education on ways to reduce/stop potential exposure to indoor dust and/or surface soils indoor dust not a health concern; however, surface soil contamination may contribute to future indoor dust contamination
11. F	Potential health concern (d)	reduce/stop potential exposure to surface soils contaminated with PCBs health education on ways to reduce/stop potential exposure to indoor dust and/or surface soils indoor dust not a health concern; however, surface soil contamination may contribute to future indoor dust contamination
12. L	No health concern (e)	no action at this time

13. H.	Potential health concern (c)	sample indoor dust health education on ways to reduce/stop potential exposure to indoor dust and/or surface soils
14. K.	Potential health concern (c)	sample indoor dust health education on ways to reduce/stop potential exposure to indoor dust and/or surface soils
15. N	Potential health concern (c)	sample indoor dust health education on ways to reduce/stop potential exposure to indoor dust and/or surface soils
16. P	Potential health concern (c)	sample indoor dust health education on ways to reduce/stop potential exposure to indoor dust and/or surface soils

(a) Health concern - take action to reduce/stop exposures to PCBs
* Potential health concern- data needed, prudent to take action at this time to reduce exposures:
(b) resample indoor dust to ensure that future indoor dust levels are not elevated (surface soil) contamination may be tracked into homes)
(c) indoor dust sampling should be conducted to better assess the health concern at these residential properties
(d) surface soils are elevated and may pose a future health concern for indoor dust contamination
(e) No health concern- no action needed at this time

2. The nature and extent of off-site migration of PCB contaminated dust via wind has not been determined.

3. The nature and extent of surface soil PCB contamination in this residential community has not been determined.

Recommendations

1. Prevent potential exposure to PCBs in surface soil at levels of public health concern. ATSDR believes that an interim measure or permanent solution to the contaminated residential yards and/or indoor dust should be put in place within six months.

2. As additional data becomes available on the extent and degree of off-site contamination, provide health education to residents on ways to reduce their potential exposure to polychlorinated biphenyls (PCBs) present in indoor dust and surface soils. ATSDR will assist in the health education at this site through the Division of Health Assessment and Consultation's Community Involvement Branch.

3. Different cleaning methods should be used in the homes where elevated levels of PCBs were detected in indoor dust by wet/damp dusting and mopping on floors and hard surfaces with a cleaning solution such as Lestoil or Mr. Clean. These products are mineral-oil-based cleaners that help to clean up the PCBs. Carpets should also be shampooed with these products. Prior to cleaning of the home interior surfaces by EPA, the use of a regular vacuum cleaner to remove dust is NOT recommended unless a HEPA (high efficiency particulate adsorption) filter is placed on the vacuum cleaner exhaust.

4. As needed, additional dust suppression techniques should be used at the site to prevent off-site migration of contaminated dust.

5. Conduct indoor dust sampling at residential properties where only surface soil sampling was conducted.

6. Determine if other residences in the area are contaminated (include soil samples from properties located upwind of the facility).

If further clarification is required or when additional information becomes available, please contact this office at 404/639-0616.

Tammie McRae Date: 5-17-98

Tammie McRae, M.S.

Concurrence: [signature] Date: 5/20/98

References

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3. Walker, Timothy. ATSDR/ Health Consultation, Cornell-Dubilier Electronics (aka Hamilton Industrial Park), South Plainfield, New Jersey. May 27, 1997.

4. Cornell-Dubilier Electronics Sampling Trip Report (Surface Soil Sampling). DCN#: START-02-F-01454. TDD#: 02-97-02-0015. PCS#: 2076. Sampling Date: October 27,28,29 and 30, 1997.

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6. Toxicological Profile for Polychlorinated Biphenyls (PCBs) Update. U.S. Department of Health and Human Services. Agency for Toxic Substances and Disease Registry. September 1997.

7. PCBs: Cancer Dose-Response Assessment and Application to Environmental Mixtures. National Center for Environmental Assessment, Office of Research and Development, U.S. Environmental Protection Agency. EPA/600/P-96/001F. September 1996.