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**Subject:** RE: Koppers Health Inquiry - Request for more information  
**Date:** Friday, September 10, 2010 6:00:45 PM

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Ms. Cotter:

Thank you for your September 1, 2010 e-mail "Koppers Health Inquiry – Request for more information." The Florida Department of Health has organized this response under the following headings:

- Dioxins and Associated Diseases/Symptoms
- Reportable Diseases/Conditions in Florida
- Health Inquiry
- "Inadequate" Soil Testing

#### Dioxins and Associated Diseases/Symptoms

Although the toxicology of dioxins is complex, I've attached an excellent summary from the US Agency for Toxic Substances and Disease Registry (ATSDR) 1998 toxicological profile. This summary is also available on-line at <http://www.atsdr.cdc.gov/PHS/PHS.asp?id=361&tid=63>.

In this profile, ATSDR summarized the diseases and symptoms associated with exposure to high concentrations of dioxins [ATSDR 1998]. ATSDR compiled these diseases and symptoms from 1) human epidemiological studies following high level exposures at industrial accidents and 2) laboratory studies of animals exposed to high concentrations.

Diseases and symptoms associated with exposure to lower concentrations of dioxins are uncertain.

#### Human

1. Chloracne (severe acne of the hands and trunk)
2. Red skin rashes, darkened patches of skin (hyperpigmentation), and excessive body hair
3. Lassitude (weakness, listlessness, exhaustion), weakness of the lower limbs, muscular pains, sleepiness or sleeplessness, increased perspiration, loss of appetite, headaches, sudden onset/short-lived seizures, and accumulation of fluid in the brain
4. Abnormal skin sensation (burning, prickling, itching, or tingling), pain, loss of sensation, and weakness
5. Diabetes mellitus
6. An excess of cholesterol in the blood and cells

#### Other Animals

1. Weight loss
2. Liver damage
3. Hair loss
4. Swelling of the face
5. Chloracne
6. Immune system depression: increased risk of infection

7. Reproductive effects: decreased fertility, altered sex hormone levels, decreased sperm production, and miscarriages.
8. Birth defects
9. Liver, thyroid, and skin cancers

### Reportable Diseases/Conditions in Florida

In Florida, most reportable diseases/conditions are communicable diseases such as AIDS, the flu, malaria, rabies, etc. The list of reportable diseases/condition in Florida is at: [http://www.doh.state.fl.us/Disease\\_ctrl/epi/surv/reportable\\_diseases\\_08.pdf](http://www.doh.state.fl.us/Disease_ctrl/epi/surv/reportable_diseases_08.pdf).

Of the reportable diseases/conditions associated with environmental contamination, cancer and birth defects (congenital anomalies) have statewide data bases. The birth defects data base does not, however, include information on fertility, sex hormones levels, sperm production, miscarriages, or endometriosis.

### Health Inquiry

In your e-mail you asked about the health inquiry process. Although health inquiries around hazardous waste sites may appear simple and straightforward, they are neither. Inquiries must carefully consider the health effect to be studied, time period to be studied, the data available for that time period, how people were exposed, exposure levels, and the time delay between onset of exposure and initial disease detection.

One difficulty associated with health inquiries is determining which diseases or conditions to study. Selecting too few diseases or conditions or grouping diseases too broadly could miss important health outcomes and decrease the ability to demonstrate an association. On the other hand, selecting too many diseases, especially those not associated with exposure to site-related contaminants, could increase the chance of identifying non site-related associations.

To identify diseases or conditions, Florida DOH carefully reviewed the existing environmental data, including off-site surface soil contamination in the Stephen Foster neighborhood and contaminated sediments in Springstead and Hogtown creeks [ATSDR 2009, 2010a, 2010b]. Based on this review, Florida DOH identified cancer as a study health condition. Although health conditions other than cancer may be related to low concentrations of dioxins, data are not readily available to compare prevalence in Stephen Foster with other neighborhoods.

Another basic, yet difficult, step is accurately defining the exposed population or group of people to study. Defining the population too narrowly may miss those with important exposures and decrease the ability to demonstrate an association. Defining the population too broadly may include those not exposed and also decrease the ability to demonstrate an association.

People living near the Cabot Carbon/Koppers site may have been exposed to contaminants in more than one way. They may have been exposed by inhalation (breathing) of dust/fumes from the site, incidental ingestion (swallowing) of surface soil in the neighborhood near the site, and incidental ingestion (swallowing) of contaminated creek sediments. Fortunately, it appears that contaminated ground water has not reached drinking water wells and people were not exposed via drinking water.

Inhalation (breathing) of dust/fumes - In the past when Cabot Carbon and Koppers were in operation, people reported dust and/or noxious odors. At the time, there was little air testing to determine how far the air contamination extended or the number of people exposed. Recently, Florida DOH requested EPA supply the data used to model on-site dust deposition so off-site dust deposition contours can be modeled.

A consultant for area residents reported finding dioxin-contaminated dust in nine homes. A much more extensive investigation will be necessary, however, to establish background levels, determine the source/sources, estimate the geographical extent of contamination, and decide the number of people exposed. In any case, procedures for quantifying exposures to indoor dust are not well established making an association with health effects problematic.

Incidental ingestion (swallowing) of surface soil - EPA and the responsible party found surface soil contamination in the Stephen Foster neighborhood on the west side of the Koppers site. They are in the process of determining how far it extends into the neighborhood. This surface soil contamination may be from wind-blown dust deposition. EPA and the responsible party expect more surface soil test results this fall.

Incidental ingestion (swallowing) of contaminated creek sediments – Adults and children who walked/waded through the Springstead and Hogtown creek beds may have accidentally ingested (swallowed) very small amounts of contaminated sediments. The number of people exposed, however, is unknown.

In summary, the population exposed to dioxins in dust, soil, and creek sediments has not been clearly defined. In the future, off-site dust deposition contours and the extent of surface soil contamination will more accurately define the exposed study population.

#### “Inadequate” Soil Testing

In your e-mail you also expressed concern that Florida DOH’s found no health risk from incidental ingestion (swallowing) of surface soil in the Stephen Foster neighborhood even though soil testing was “inadequate.” The context in which “inadequate” was used needs clarification.

In June 2010, Florida DOH recommended EPA and the responsible party test more surface soil samples further from the site to determine how far the contamination extends. The quality of the testing has been acceptable. What has been “inadequate” is not the quality of the testing but how far from the site the testing extends. EPA and the responsible party are now in the process of testing surface soil further from the site. Florida DOH will review the results.

So far, the highest concentrations of dioxins in off-site surface soil were found between NW 26<sup>th</sup> and NW 30<sup>th</sup> Avenues in the City of Gainesville easement next to the 6-foot chain link fence marking the west boundary of the Koppers site. The highest dioxin concentration in this easement next to the Koppers fence was 1,302 nanograms per kilogram (ng/kg) or parts per trillion (ppt). If children played in this area next to the Koppers fence for more than a year and incidentally ingested (swallowed) the highest concentrations of dioxins in this soil, it could possibly harm their health. Therefore, we

recommend parents not let their children play in the area next to the Koppers fence until it is cleaned up. We also recommend access be restricted and warning signs posted.

Lifetime incidental ingestion (swallowing) of surface soil with the highest dioxin concentration found so far along streets in the other parts of the Stephen Foster neighborhood (70 ppt) would result in, at most, a “very low” increased theoretical cancer risk of 2 in 100,000 ( $2 \times 10^{-5}$ ). This is the highest estimated increased cancer risk. The actual increased cancer risk is likely lower and may be as low as zero. Also these dioxin concentrations are not expected to cause any non-cancer illnesses. EPA and the responsible party are currently testing surface soil in individual Stephen Foster yards. Florida DOH will review the test results as soon as they are available.

### Summary

Determining how far dioxin soil contamination extends into the Stephen Foster neighborhood coupled with dust deposition contours will allow the Florida DOH to better identify the exposed population. Florida DOH has identified cancer as a possible health risk and a disease with a readily available data base.

### References

[ATSDR 1998] Agency for Toxic Substances and Disease Registry. Toxicological Profile for Chlorinated Dibenzo-p-Dioxins (Update). U.S. Department of Health and Human Services. December 1998. Atlanta, Georgia.

[ATSDR 2009] Agency for Toxic Substances and Disease Registry. Health Consultation. Off-Site Surface Soil. Koppers Hazardous Waste Site. Gainesville, Alachua County, Florida. Prepared by the Florida Department of Health for the U.S. Department of Health and Human Services. July 17, 2009. Atlanta, Georgia.

[ATSDR 2010a] Agency for Toxic Substances and Disease Registry. Health Consultation. Additional Off-Site Surface Soil. Koppers Hazardous Waste Site. Gainesville, Alachua County, Florida. Prepared by the Florida Department of Health for the U.S. Department of Health and Human Services. June 17, 2010. Atlanta, Georgia.

[ATSDR 2010b] Agency for Toxic Substances and Disease Registry. Health Consultation. Public Comment Version. Springstead and Hogtown Creek Sediments. Cabot Carbon-Koppers Hazardous Waste Site. Gainesville, Alachua County, Florida. Prepared by the Florida Department of Health for the U.S. Department of Health and Human Services. June 23, 2010. Atlanta, Georgia.

The ATSDR, Health Consultation references can be found on our website:

<http://www.doh.state.fl.us/chdAlachua/index.htm>

Or at: <http://www.doh.state.fl.us/environment/medicine/SUPERFUND/pha.htm> .

Do not hesitate to contact me should you have any questions regarding this response.

Anthony Dennis

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**From:** Jen Ambrose Cotter [mailto:cotter.jen@gmail.com]  
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**Subject:** Koppers Health Inquiry - Request for more information

Mr. Dennis:

At the presentations made at both the Local Intergovernmental Team meeting and the Joint City and County Commission meeting, you provided an explanation of the constraints that are placed on the health department in conducting its Koppers-related health inquiry. Public feedback at these meetings has suggested there is unresolved disappointment on two major issues:

The community wants the study done "yesterday," and that they want it to include more things than cancer.

You've explained that a state-sponsored study cannot begin until the site has been delineated, for reasons that involve science, timing, and resources. Could you provide me with a succinct explanation of this process - perhaps with a flow chart or graphic that describes the steps involved in a health inquiry? I will do my best to share that with the community, through placement in the Gainesville Sun, and/or on the website ProtectGainesville.org.

To understand your answer to the question of why cancer will be the only disease studied (when so many other health concerns have been put on public record), one must first have an understanding of "reportable diseases." The health department has to work with data, and data collected locally is only half of what is needed to conduct a health inquiry. The other half is the set of statistics that can be used for comparison. I have heard you say specifically that the state cannot study cases of multiple sclerosis, because there are no existing sets of data on MS. It is not a "reportable disease," meaning that when a doctor diagnoses MS, they don't report that disease to federal, state or local health officials. With cases of cancer, they do.

I have also heard you say at these meetings that, based on the results of preliminary soil testing, FDOH *does not expect* to find evidence of any side effects linked to dioxin exposure in our community. That hypothesis has unsettled members of the public. Previous residential soil tests were determined by EPA to be inadequate. That is why they ordered more testing be done, the testing we are waiting on that will delineate the site. If the state's hypothesis about side effects is based on earlier studies that were found to be inadequate, couldn't it, too, be considered inadequate?

While we wait for the site to be delineated, could the Florida Department of Health provide this community with **a list of ALL diseases and conditions (including things like miscarriage) that are known to be associated with dioxin exposure, making a note of which of those diseases and conditions are "reportable,"** for public record. If the city and/or county are going to pursue an alliance with UF and Shands to conduct an independent health study - as they suggested at their special joint commission meeting - this would be a valuable piece of information for them to have. It is for this reason I have copied the members of our city and county commission in this correspondence. If any of

them take a personal interest in this request, I'm sure they will let you know directly.

Sincerely,

Jen Ambrose Cotter  
*Freelance Writer*