Health Consultation

EVALUATION OF INDOOR AIR AT A RESIDENTIAL PROPERTY
IN
SARASOTA, SARASOTA COUNTY, FLORIDA

JULY 23, 1999

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

EVALUATION OF INDOOR AIR AT A RESIDENTIAL PROPERTY
IN
SARASOTA, SARASOTA COUNTY, FLORIDA

Prepared by:

Florida Department of Health
Bureau of Environmental Toxicology
Under Cooperative Agreement with the
Agency for Toxic Substances and Disease Registry

SUMMARY AND STATEMENT OF ISSUES

A Sarasota resident asked the Florida Department of Health (FDOH) to provide technical assistance to her and her family and to sample her residence for pesticides. She was concerned that she and her family were experiencing health effects from pesticide exposure. Upon her request, FDOH collected air samples in her home to evaluate whether a health threat exists. Specifically this health consultation evaluates the air monitoring data collected to determine if a health threat exists; and documents technical assistance provided to this Sarasota resident by FDOH.

BACKGROUND

The home in question is an apartment located at 3751 South School Road, Sarasota, Florida 34239 (Figure 1). The area in the vicinity of the site includes a canal to the east and Roberts Bay and the Gulf of Mexico to the west (Figure 2). The resident lives with her mother, father and brother in the same apartment.

The Sarasota County Health Department took air samples from the Sarasota resident's apartment on February 4, 1999. They also took a control air sample from an apartment downstairs from the resident's apartment. They used metered pumps and performed an eight hour air pump sample. The air samples from the resident's apartment and the downstairs apartment were taken from 2-3 feet off the floor. The following pesticides sampled for were: Diazinon, Heptachlor, Aldrin, Chlorpyriphos, (Dursban), oxychlordane, A-Chlordane, G-Chlordane, T-Nonachlor, and Dieldrin. On February 22, 1999, the Florida Department of Health in Jacksonville analyzed these samples. The results of the air monitoring are included in Table I. The health significance of these levels are included in the discussion section below.

On March 16, 1999, the FDOH, visited the Sarasota resident and spoke with her about her health and pesticide situation. FDOH has spoken with the resident several times regarding the results of the air sampling done in her home.

DISCUSSION

We compared the air concentrations found to ATSDR standard comparison values. A comparison value is used as a means of selecting environmental contaminants for further evaluation to determine whether exposure to them has public health significance. Those contaminants that are known or suspected human carcinogens were evaluated for both carcinogenic and non-carcinogenic adverse health effects.

To evaluate health effects, ATSDR has developed Minimal Risk Levels (MRL) for contaminants commonly found at hazardous waste sites. The MRL is an estimate of daily human exposure to a

contaminant below which non-cancer, adverse health effects are unlikely to occur. ATSDR developed MRL for each route of exposure, such as ingestion, inhalation, and dermal contact, and for the length of exposure, such as acute (less than 14 days), intermediate (15 to 365 days), chronic (greater than 365 days). ATSDR presents these MRL in the Toxicological Profiles. These chemical-specific profiles provide information on health effects, environmental transport, human exposure, and regulatory status. The U.S. Environmental Protection Agency (EPA) has developed reference doses (RfDs) to evaluate non-cancer health effects resulting from exposure to chemicals at Superfund sites.

Both MRL and RfDs are health guideline values that are usually derived from experimental animal data, based on broad assumptions, and corrected by a series of uncertainty factors. Thus, the values serve only as guidelines and not as absolute values that explicitly divide ranges of safety from ranges of risk. Additional medical or toxicological information must be evaluated to determine what adverse health effects are likely from exposure to chemicals of concern at a site.

Evaluation of air data:

We evaluated the air monitoring results from the Sarasota resident's apartment (See Table I). The only pesticide concentration detected in her apartment was 0.0081 micrograms per cubic meter (μg/cu M) for chlorpyriphos. Currently there is not a MRL for this contaminant. Chlorpyriphos is not a probable human carcinogen. No non-carcinogenic illnesses are likely in adults from inhalation of chlorpyriphos. The four members of the family are usually in the apartment for a 24 hour period. Even though they occupy the apartment for long periods of time, the air exposure they receive for pesticides in this amount of time is still below the EMEG/MRL for the other pesticides sampled. Therefore, based on the air concentrations in the Sarasota resident's apartment, it is not likely that there is a public health threat to the Sarasota resident or her family. In accordance with the "Interim Criteria for Levels of Public Health Hazard" from the Public Health Assessment Manual, revised May 1, 1999, this resident and her family are in Category E, no public health hazard.

In addition, a second air sample was collected from the apartment downstairs from the Sarasota resident's apartment. This sample was collected as a control sample to see if the downstairs air sample concentrations were higher. One would expect the first floor of an apartment building to have higher air concentrations of contaminants. The highest pesticide concentration in the downstairs apartment was 0.0096 micrograms per cubic meter (μg/cu M) for G-Chlordane. The maximum estimated daily dose for G-Chlordane is less than ATSDR's Chronic Environmental Media Evaluation Guide (EMEG)/Minimal Risk Level (MRL) of 0.02 μg/cu M.. This maximum estimated dose of G-chlordane is at least 2 times less than the Chronic EMEG. Therefore, no non-carcinogenic illnesses are likely in adults from inhalation of G-Chlordane. Chlordane is a probable human carcinogen. The Cancer Risk Evaluation Guide (CLEG) is 0.003 μg/cu M.. Therefore, based on the air concentrations in the downstairs apartment, it is not likely that there is a public health threat to the woman who lives alone in this apartment.

Children's Health Section:

There are currently four adults living in the resident's apartment. Even if children were to visit the apartment or later lived in this apartment, it is unlikely that the concentrations of pesticides in the air would pose a health threat to the residents or children.

The concentrations of pesticides detected in the air samples in the Sarasota resident's apartment were all below ATSDR's EMEGs/MRLs.

CONCLUSION

The FDOH determined that the air concentrations of pesticides analyzed in the Sarasota resident's apartment are not a health threat to her or her family.

RECOMMENDATION

The FDOH will continue to provide technical assistance to the Sarasota resident upon request.

REFERENCE

Public Health Assessment Guidance Manual. (ATSDR). 1993. Appendix D, page D-3.

ATTACHMENTS

Figure 1: Site Location Map
Figure 2. County Map
Table I. Air Monitoring Data

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CERTIFICATION

The Evaluation of indoor air at a residential property in Sarasota, Florida consultation was prepared by the Florida Department of Health, Bureau of Environmental Toxicology, under a cooperative agreement with the Agency for Toxic Substances and Disease Registry. It is in accordance with approved methodology and procedures existing at the time the health consultation was begun.

Technical Project Officer, SPS, SSAB, DHAC

The Division of Health Assessment and Consultation, ATSDR, has reviewed this health consultation, and concurs with its findings.

for Section Chief, SPS, SSAB, DHAC, ATSDR

Table I
Air Monitoring Results
February 4, 1999

Media/Parameter	Screening Value	Classified as Carcinogen	Sample #990209-090	Sample #990209-091
			Taken from an apartment downstairs from the Sarasota Resident's Apartment	Taken from Sarasota Resident's Apartment
AIR				
Chlorpyriphos	none	Not classified	0.0061 ug/cu M (I)	0.0081 ug/cu M (I)
A-Chlordane	Chronic EMEG/MRL - 0.02 ug/cu M	Reasonably anticipated as	0.0032 ug/cu M	not detected
G-Chlordane	Chronic EMEG/MRL - 0.02 ug/cu M	Reasonably anticipated as	0.0096 ug/cu M	not detected
T-Nonachlor	none	None found	0.0016 ug/cu M (I)	not detected

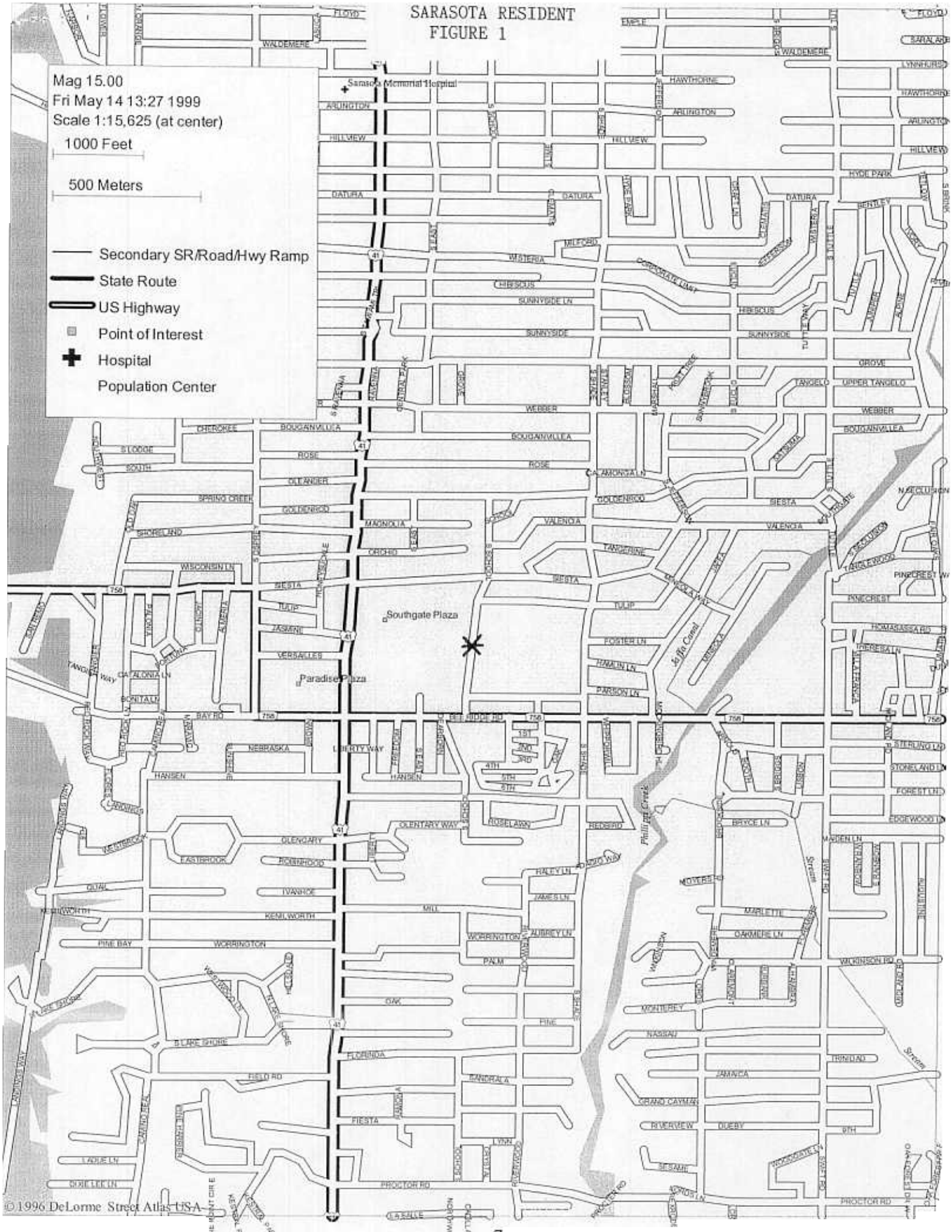
*Note: (I) = Approximate Result between MDL (Maximum Detection Limit and PQL(Practical Qualitative Limit); supporting evidence for identity

Field Parameters for above air samples

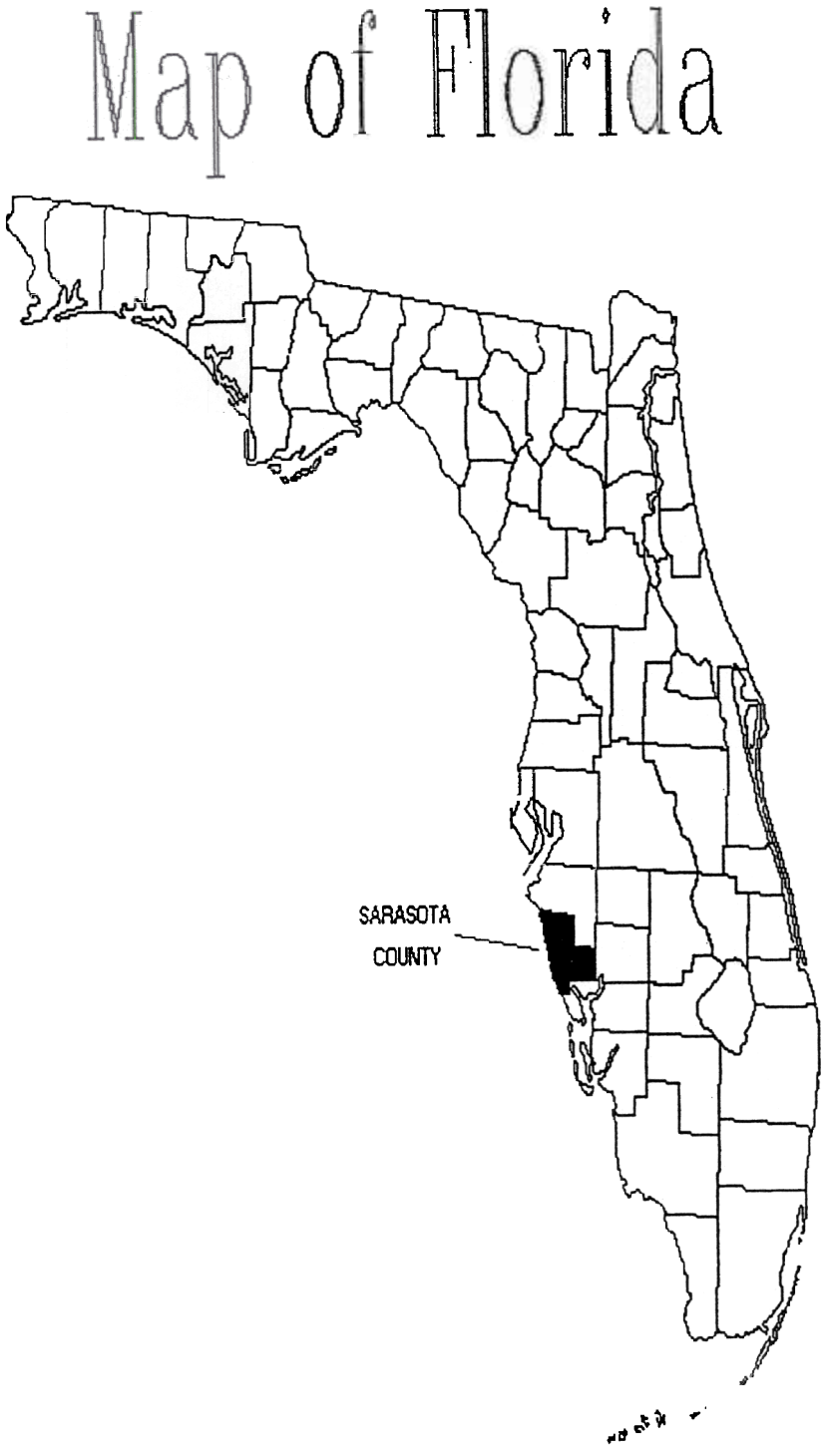
Sample 9910209-090	Sample 990209-091
2.58 Liters/minute	2.649 Liters/minute
475 minutes	478 minutes
24.9 degrees Centigrade	24.2 degrees Centigrade
766 mm HG*	766 mm HG

*m HG -millimeters of mercury

SARASOTA RESIDENT
FIGURE 1



SARASOTA RESIDENT
FIGURE 2



SOURCE: FLORIDA DOH FILES