



DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service
Agency for Toxic Substances
and Disease Registry

May 27, 1993

Memorandum

Date Robert E. Safay
ATSDR Regional Representative

From Wingate Road Municipal Incinerator Site, Ft. Lauderdale, FL.
Analysis of dioxin in fish and sediment samples

Subject John Zimmerman, EPA, RPM

To BACKGROUND AND STATEMENT OF ISSUES

The Agency for Toxic Substances and Disease Registry has received a request to review and comment on the levels of dioxin detected in fish and sediment samples taken from the two lakes on the Wingate Road Municipal Incinerator NPL site in Fort Lauderdale, Florida. The site is a former municipal incinerator on approximately 85 acres of land located in a residential area. The site also contains a landfill where the ash was deposited, several buildings and 2 small lakes. The larger lake, Rock Pit Lake, is approximately 25 acres in size and has residential homes on two sides of the lake, the other sides of Rock Pit Lake border the landfill. This lake is occasionally used for recreational fishing and swimming. The smaller lake, Lake Stupid, is about 3 acres in size and has been used as the location for movies. During the time that the incinerator was in operation, ash from the incinerator was spread over the landfill area. There was visual evidence that the ash often spilled into Rock Pit Lake. Lake Stupid had received ash directly from the incinerator. The overflow from Lake Stupid went into Rock Pit Lake. The conduit between the two lakes no longer exists.

DISCUSSION

Environmental Monitoring Data

Past sampling by EPA and city contractors have detected dioxin in the soil and ash at concentrations up to 53.9 parts per billion (ppb) TEF, and 2.9 ppb in sediment taken from Lake Stupid. Additional sampling for dioxin and other contaminants had been recommended by ATSDR and EPA. EPA had also recommended that fish and sediment samples be taken from the Rock Pit Lake to determine concentration levels of dioxin in the fish and sediment. The results of these samples were made available to ATSDR in March of 1993.

Results of these samples indicated low levels of dioxin in fish. These levels ranged from 0.06 parts per trillion (ppt) in medium size Bass Fillet and up to 6.62 ppt in whole body minnows. The high levels for edible fish were: Bass, 1.32 ppt whole body-0.07 ppt fillet; Tilapia, 1.29 ppt whole body (no fillet samples submitted); and catfish, 1.86 ppt whole body-0.05 ppt fillet.

The highest levels of dioxin detected in the sediments of Rock Pit Lake was 0.63 ppb.

These results are based on fish samples taken from different areas of the lake and over a period of two days. All fish were separated by species and analyzed as a composite sample.

Current Site Condition

Dioxin levels in ash residue near the old incinerator building had a maximum level of 53.9 ppb. During an ATSDR site visit it was noted that children had been building a treehouse within 50 feet of this ash pile. Additionally, ATSDR personnel noted evidence that residents as well as others have been fishing and swimming in Rock Pit Lake. The amount of debris (car parts, metal poles, concrete blocks, shopping carts, etc) limited the access to the lake from all but a few places where the residential homes were located. During the site visit, the city was in the process of erecting a fence between the landfill and the lake.

Environmental Fate and Transport

Dioxin from the ash piles released into the surface water may persist in the sediment and enter the aquatic food chain. 2,3,7,8-tetrachloro-dibenzo-p-dioxin (TCDD) is nearly insoluble in water (0.2 ug/l at 20 degrees centigrade). The half-life of TCDD in surface water is about one year, and the half-life of TCDD in sediment containing water is about one and one half years.

Community Concerns

The community living adjacent to the Rock Pit Lake expressed concerns about whether they could continue to eat the fish in the lake. At this time there is no information on the actual amount of fish consumed by the residents on a daily basis, nor is there a clear indication on the number of people that actually fish the lake.

CONCLUSIONS

1. Based on our calculations, consumption of fish, especially fillet from Rock Pit Lake should not have an adverse health effect on the people who occasionally eat fish. However, no data are available on the amount of fish consumed from this lake on a daily basis by the residents. Dose estimates are based on a 70 kg adult eating 18 grams of fish per day.
2. Given the condition of the shoreline around the Rock Pit Lake, it is unlikely that swimmers will come into contact with lake

sediment There was no evidence of swimming at Lake Stupid

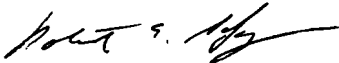
RECOMMENDATIONS

ATSDR recommends that EPA:

- 1 Consider doing a fish consumption survey to determine the amount of fish consumed from Rock Pit Lake by the residents, as well as how the fish is generally prepared.
2. Consider explaining to the residents the difference between eating whole fish as opposed to fillet. Whole fish would usually contain more toxins than fillet.

ATSDR will continue to work with the EPA on this site and will continue to review all data presented to this Agency.

If I can be of further assistance, please let me know.



Robert E. Safay