

Health Consultation

STATE OF SOUTH CAROLINA

DITCH SAMPLING DATA
PRIVATE PROPERTY – HORRY COUNTY

MYRTLE BEACH, HORRY COUNTY, SOUTH CAROLINA

MARCH 17, 2005

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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Prepared by:

South Carolina Department of Health and Environmental Control
under cooperative agreement with the
Agency for Toxic Substances and Disease Registry

BACKGROUND AND STATEMENT OF ISSUES

The United States Department of Justice-District of South Carolina asked the Office of Environmental Community Health (OECH) with the South Carolina Department of Health and Environmental Control (SCDHEC) to evaluate the potential health risks associated with wading and playing in drainage ditches near the former Myrtle Beach Air Force Base. The ditches lie between the former Air Force Base and a large, privately-owned piece of property. The sediment and surface water sampling data evaluated for this health consultation was collected by the property owner and not part of a SCDHEC or United States Environmental Protection Agency (U.S.EPA) investigation nor was it collected with SCDHEC or U.S.EPA oversight.

A previous health consultation was completed in October 2002 by SCDHEC. This 2002 health consultation reviewed surface water and sediment samples collected in these same ditches by the property owner. The previous health consultation concluded that these ditches pose no public health hazard and no further public health recommendations were warranted (SCDHEC, 2002). Additional data has been collected from these same ditches, which will be the purpose of this current health consultation (ERM, 2003).

The property consists of approximately 162 acres of undeveloped woodland. It is bordered by an access road on the north, by single-family homes on the east, on the west by undeveloped woodland, and part of the former Air Force Base operations on the south (Figure 1). Highway 17 lies just beyond the northern side of the property. The ditches surround the piece of private property shown in Figure 1 and historically, received runoff from the Air Force Base. The Base is closed and past environmental contamination is being addressed by a Resource Conservation Recovery Act (RCRA) Corrective Action Program.

The ditch along the eastern side of the property is 50 to 75 feet wide and about twelve feet deep. The ditch that crosses the property (from southwest to northeast) is 125 to 175 feet wide and 12 feet deep. The ditch along the southern part of the property, between the property and the Air Force Base, is much smaller than the other two (Figure 2). The water in the ditches is not deep. The ditches flow south to north to empty into the Intracoastal Waterway. The ditches are not large enough (too shallow) to contain fish large enough to eat nor are they used for any type of water supply (residential or commercial).

The area east of one of the ditches is residential, with a mix of single family and manufactured housing. There are probably less than 100 people living in the area immediately east of the ditches. There are no homes on the piece of private property in question or on the former Air Force Base.

Screening levels for public health consultations are contaminant concentrations in specific media used to select contaminants for further evaluation. These values include United States Environmental Protection Agency (U.S.EPA) Maximum Contaminant Levels (MCLs), those calculated by SCDHEC-OECH, ATSDR's Environmental Media Evaluation Guides (EMEGs), and other relevant guidelines. EMEGs are derived from ATSDR Minimal Risk Levels (MRLs). EMEGs and SCDHEC calculated screening levels are the estimates of a daily exposure to a chemical likely to be without an appreciable risk of non-carcinogenic adverse effects. MCLs are

the maximum permissible levels of contaminants in public water. There are no screening levels for skin contact (dermal absorption) so SCDHEC-OECH uses the U.S.EPA MCLs for drinking water as a screening level for the water in the ditches.

Surface water and sediment samples were collected from eleven locations along the east and west ditches in February 2003 (Figure 2) (ERM, 2003). Most of the sediment samples were collected from 0 to 4 inches in depth. A couple of samples were collected from 0 to 12 inches and 4 to 12 inches. Samples were analyzed for metals, polychlorinated biphenyls (PCBs), pesticides, and volatile organic compounds (VOCs).

There were no detections of pesticides or VOCs in six of the water samples. Four water samples collected from locations 4C, 5C, 6C, and 11 C (Figure 2), contained low levels of cis-1,2-dichloroethene. The highest concentration was 2.1 parts per billion (ppb), which is far below the MCL of 70 ppb. One sample (11C) contained low levels of chlordane (1.2 ppb), which is below the 2.0 ppb MCL. Using U.S.EPA MCLs as screening levels for surface water is very conservative and overestimates the risk. The water in these ditches is not used as a drinking water supply. The ditches are too small and shallow for swimming.

Chlordane was found in a couple of sediment samples (4C and 11C- Figure 2). The highest concentration was 32 parts per million (ppm) in Sed-11C collected from 4 to 12 inches in depth. Much lower levels (5.6 ppm) were found at location 4C. The highest concentration is far below the ATSDR screening levels of 400 ppm for adults and only slightly above the screening level for children (30 ppm).

One sediment sample (4C, Figure 2) contained very low levels of heptachlor epoxide (0.17 ppm), which was below the screening levels for both children (0.7 ppm) and adults (9 ppm). This pesticide was not detected in any other sediment samples, but was found in a sediment sample in the previous investigation (SCDHEC, 2002).

DISCUSSION

The United States Department of Justice asked the OECH to evaluate the potential health risks associated with wading and playing in three drainage ditches near the former Myrtle Beach Air Force Base. A previous health consultation, prepared in October 2002, evaluated surface water and sediment data collected in these same ditches. The newest samples were collected in February 2003.

One surface water sample contained chlordane. A few surface water samples contained cis, 1,2-DCE. Concentrations were below screening levels (U.S.EPA MCLs). Two sediment sample locations, 4C and 11C (Figure 2), contained several pesticides including chlordane and heptachlor epoxide. The chlordane concentration in both locations was below the screening level for adults. It was found at one location only slightly above the screening level for children. This sample location is on the south side of the road that runs along the southern edge of the piece of private property.

There is no risk of adverse health effects to children or adults from playing or wading in these

ditches. A couple of pesticides were found in surface water and sediment. One volatile compound was found in a few surface water samples. Concentrations are low and exposure will be minimal. These ditches are small (narrow) and the banks are steep. During low rain periods, they can be dry. Part of the ditch next to the residential area is fenced. While a couple of pesticides were found, they were limited to a couple of samples. Most of the sediment and surface water samples did not report detections for any chemicals. In general, the results from this round of sampling were similar to what was found in the 2002 sampling.

Child Health Considerations

SCDHEC's evaluation contained within this document considered children as a susceptible subpopulation. Children are more likely to wade in the ditches, therefore, more likely to come in contact with surface water and sediment in the ditches. Children can have a greater exposure than adults because they typically play outside for longer periods and are attracted to playing in water, resulting in a greater duration of exposure than adults.

CONCLUSIONS

ATSDR classifies sites as to their public health hazard category. Under ATSDR's classification system, these ditches pose no public health hazard. This means that the levels of chemicals measured in the ditches do not pose a risk to children playing and wading in the water. These ditches are not used as any type of water supply nor are they used for fishing. This is the same conclusion that was drawn in the SCDHEC 2002 Health Consultation for the same area.

RECOMMENDATIONS

No further public health recommendations are warranted at this time.

REFERENCES

Environmental Resources Management. April 2003. Data Update to the Report of Site Assessment. Myrtle Beach, South Carolina.

SCDHEC 2002-Public Health Consultation. Private Property-Horry County, Myrtle Beach, South Carolina.

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CERTIFICATION

This Health Consultation was prepared by the South Carolina Department of Health and Environmental Control's OECH 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. Editorial review was completed by the Cooperative Agreement Partner.

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

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