Health Consultation

(EXPOSURE INVESTIGATION)

ROYAL OAKS COMMUNITY

EDGEWATER, VOLUSIA COUNTY, FLORIDA

EPA FACILITY ID: FLN000407257

MAY 6, 2002

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

(EXPOSURE INVESTIGATION)

ROYAL OAKS COMMUNITY

EDGEWATER, VOLUSIA COUNTY, FLORIDA

EPA FACILITY ID: FLN000407257

Prepared by:

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

Summary and Statement of Issues

The purpose of this health consultation was to determine if the blood lead levels of six children living in the Royal Oaks Community in Edgewater, Florida were a public health threat. In December 2001, the Volusia County Health Department (CHD), in cooperation with the Florida DOH, tested the six children. Florida DOH determined the measured blood lead levels in the six children tested were not likely to cause illness. Florida DOH notified the children's parents by phone and mail.

General Background Information

Environmental Lead Exposure

People living near hazardous waste sites can be exposed to lead by breathing air, drinking water, eating foods, or swallowing or touching dust or dirt that contains lead (ATSDR 1999).

People can bring lead home in the dust on their hands or clothes if lead is used in the place where they work. Pets can also bring lead into the home in dust or dirt on their fur or feet if they spend time in places that have high levels of lead in the soil. Once lead falls onto soil, lead usually sticks to soil particles. Lead may remain stuck to soil particles in water for many years" (ATSDR 1999).

Lead in the Body

In communities adjacent to many NPL sites throughout the United States, elevated blood lead levels were found in children who played near the sites, washed their hands infrequently, and had other behavioral risk factors (ATSDR 1997).

The half-life of lead in the blood is 28-36 days. This means after 28-36 days, the amount of lead in your blood is one-half the amount it was on the first day of exposure. This also means that blood lead levels reflect recent exposure" (ATSDR 1999).

CDC studies show levels of lead in the blood of U.S. children have dropped dramatically since the late 1970s. This is because lead is banned from gasoline, residential paint, and solder used for food cans and water pipes. Still, about 900,000 U.S. children between the ages of 1 and 5 years are believed to have blood lead levels equal to or greater than 10 micrograms per deciliter (ug/dL), the CDC level of concern (ATSDR, 1999).

In residential settings, lead intoxication has been observed in children, but rarely in adults (Sedman 1989). "CDC considers children to have an elevated level of lead if the amount of lead in the blood is at least 10 ug/dL. Medical evaluation and environmental investigation and remediation should be done for all children with blood lead levels equal to or greater than 20 ug/dL. Medical treatment may be necessary for children if the lead concentration in blood is higher than 45 ug/dL" (ATSDR, 1999).

Site Description and History

The Royal Oaks Community site is at 210 Mango Tree Drive in Edgewater, Volusia County, Florida (Attachment A, B and C). It is a 24-acre residential manufactured home community comprising 18 mobile homes, cleared lots, and undeveloped property. Approximately 31 people currently live in this community. Six are children between 10 and 15 years old.

From 1962 to 1999, the Hanson and McCallister, Inc. excavating company owned this site. They excavated sand and created a large borrow pit. The U.S. Environmental Protection Agency (EPA) reported the pit was filled with land clearing debris, tree stumps, and possibly construction debris.

In December 2000, utility workers installing underground lines discovered several 55-gallon metal drums and 1-gallon paint cans buried under the southeastern portion of the site. The property owner's contractors uncovered 25 more drums - in extremely poor condition - containing sludge, solvents, and other paint-related chemicals (Remediation Technologies Inc. 2001a). The Florida Department of Environmental Protection (DEP) tested the sludge from these drums and found the sludge contained lead and volatile organic compounds (VOCs).

In February 2001, the Florida DEP requested assistance from the U.S. EPA. In March 2001, the EPA conducted a geophysical survey to identify where additional drums might be buried. The EPA identified two locations: one in the southeast part of the site near where drums were originally discovered and another near the entrance to the site on Mango Tree Drive.

In April and May 2001, the property owner's contractors excavated more soils on the southeast side of the site and underneath the driveway at 26 Towering Oak Drive. They found approximately 90 more 55-gallon drums and 1-gallon paint cans. Most of these drums were rusted with holes. Some of the drums appeared to be burned. The contractors also found paint chips in the soil and four intact empty drums. They placed the drums and cans in an enclosed roll-off dumpster and fenced the area (Remediation Technologies Inc. 2001a). Also in May 2001, the EPA relocated a resident living near the excavation and moved the house off the site.

In July 2001, EPA suspended all excavation activities. The EPA reported a total of 150 drums and paint cans had been uncovered. The water-filled excavation pit bordered by Towering Oaks Way, and Treaty Oak Way was several feet deep. Five mobile homes are immediately adjacent to the excavated area. Some are less than 20 feet from the excavation. According to the EPA, other houses in the neighborhood could also have buried drums beneath them (Attachment B, C and D). The EPA reported residents are at risk of exposure to contaminants via inhalation, ingestion and direct contact (EPA 2001a).

In September 2001, a resident reported flooding and a broken sewer line in the neighborhood. The site owner buried the broken sewer pipe. Three weeks later, the EPA notified the Florida DOH who notified the Volusia CHD.

In October 2001, residents complained to the Florida DOH of odors, burning eyes, nausea, vomiting, headache, dizziness, and skin problems before and after excavation activities. Residents also complained of cancer and cancer deaths. Residents complained vapors entered their homes during the excavations. They were concerned their children were exposed to arsenic- and lead-contaminated dust. They report during excavation, dust covered their homes and cars and they tracked dust indoors.

In October 2001, the EPA tested air at the site for Volatile Organic Compounds (VOCs). They also tested water, soil, and sludge from the excavation pit. EPA found elevated levels of the following VOCs in some of the buried drums: ethylbenzene, toluene, xylene and 1,2,4-trimethylbenzene.

Currently, the Florida DOH is preparing a public health assessment that evaluates the health risks associated with the Royal Oaks site.

Discussion

In September 2001, residents requested blood testing for metals and volatile organic chemicals (VOCs). In October 2001, the Florida DOH requested federal funding from ATSDR for indoor and outdoor VOC air monitoring, dust sampling of homes and blood lead testing for children. ATSDR agreed with blood lead testing for the children. They disagreed, however, with the Florida DOH coordinating air monitoring since EPA has agreed to relocate residents during future excavation activities. In December 2001, the Florida DOH coordinated with the Volusia CHD blood lead testing for the six children in the Royal Oaks Community.

Blood Lead Testing

On December 11 and 12, 2001, the Volusia CHD in New Smyrna Beach collected blood from two girls and four boys ages 10-15. All of these children live within 200 feet of the excavated soil piles. The Florida DOH Laboratory in Jacksonville analyzed the blood samples for lead. The Volusia CHD paid for the laboratory analysis.

The Florida DOH informed the children's parents of the blood lead test results via phone and mail. As authorized by the children's parents, Florida DOH also notified the family physicians, EPA, and Florida DEP.

Blood Lead Test Results and Interpretation

The blood lead levels in the six children living in the Royal Oaks Community from December 2001 are not likely to cause illness. All six children living in the Royal Oaks Community had blood lead levels less than three micrograms per liter (ug/dL). These levels are within an

acceptable range. The geometric mean blood lead concentrations for the entire U.S. population (CDC 2001) in this age group are:

6-11 years old	1.3 ug/dL
12-19 years old	1.0 ug/dL

Although the children's blood lead levels were slightly higher than the national geometric mean, they were not likely to cause illness.

The children's blood lead levels were also less than the CDC's guideline of 10.0 ug/dL. CDC considers children to have an elevated level of lead if the amount of lead in the blood is at least 10 ug/dL (ATSDR 1999).

Child Health Initiative

It is important to remember children are not small adults. Children are more sensitive to the effects of lead than adults. A child's exposure can differ from an adult's exposure in many ways. Children drink more fluids, eat more food, and breathe more air per kilogram of body weight than do adults. Children also have a larger skin surface in proportion to their body volume. A child's diet often differs from that of adults. A child's behavior and lifestyle also influence exposure. Children - especially small children - crawl on the floor, put things in their mouths and might ingest inappropriate items such as dirt or paint chips. Children also spend more time outdoors than do adults. Finally, children are closer to the ground and do not have the judgment of adults for avoiding hazards (ATSDR 1999).

The blood lead levels measured in children living in the Royal Oaks Community are not likely to cause illness.

Conclusions

The measured blood lead levels of the six children living in the Royal Oaks Community are not likely to cause illness. Therefore, this site is categorized as a no apparent health hazard. Florida DOH recognizes that the information presented in this consult is limited to blood lead levels measured in six children and does not address all exposure risks associated with the Royal Oaks site.

Recommendations/Public Health Action Plan

The Florida DOH is currently preparing a public health assessment that evaluates the health risks associated with the Royal Oaks site. This information will be given to the U. S. EPA, CHD, residents of the Royal Oaks community, and other interested groups.

References

Agency for Toxic Substances and Disease Registry (ATSDR). 1997. Children and hazardous waste sites: the unique susceptibility of children. Available at URL: www.atsdr.cdc.gov/child.

Agency for Toxic Substances and Disease Registry (ATSDR). 1999. Toxicological profile for lead. Atlanta: US Department of Health and Human Services.

Centers for Disease Control and Prevention (CDC). 2001. National report on human exposure to environmental chemicals (NHANES Survey 1999). National Center for Environmental Health, Division of Laboratory Sciences. Atlanta, Georgia.

Remediation Technologies, Inc. 2001. May 15th site Activity summary to USEPA. Royal Oaks Subdivision, Edgewater, Florida.

Sedman RM. 1989. The development for applied action levels for soil contact: A scenario for the exposure of humans to soil in a residential setting. Environmental Health Perspective 79:291-313.

US Environmental Protection Agency (USEPA). 2001. RAT notification / priority recommendation, initial POLREP #1 dated August 15, 2001. Royal Oaks Drum Site, Edgewater, Volusia County, Florida.

Other Documents Reviewed

Remediation Technologies, Inc. 2001. July 6th site activity summary to USEPA. Royal Oaks Subdivision, Edgewater, Florida

US Environmental Protection Agency. 2001. August 15th letter report request for removal action at the Royal Oaks Drum Site in Edgewater, Volusia County, Florida, dated August 15, 2001.

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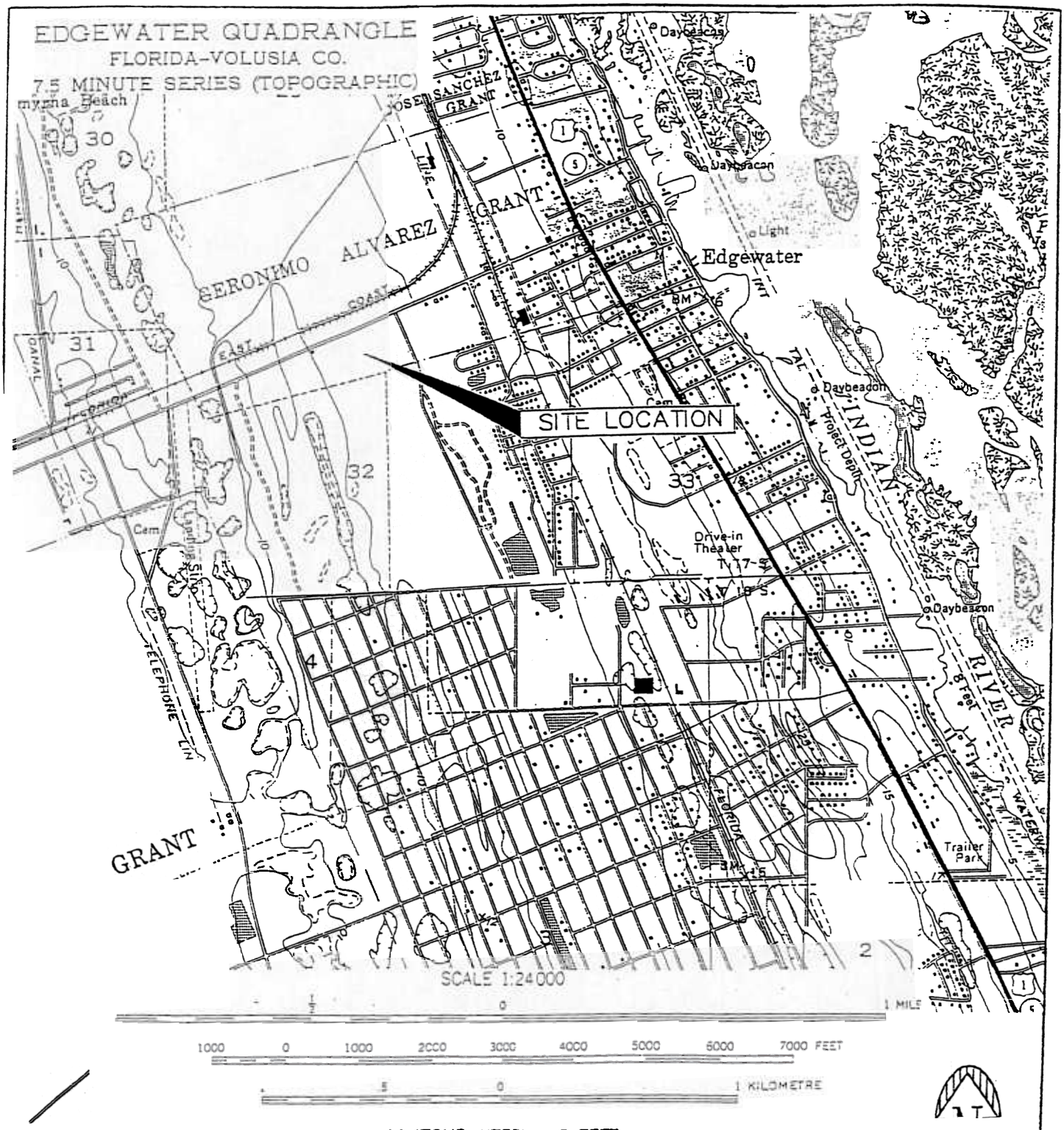


CONTOUR INTERVAL 5 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929
APPROXIMATE LINE OF MEAN HIGH WATER
RIVER NORTH ARE NEGLIGIBLE

ROYAL OAKS COMMUNITY

ATTACHMENT A

ROYAL OAKS
MANGO TREE DRIVE
EDGEWATER, FLORIDA

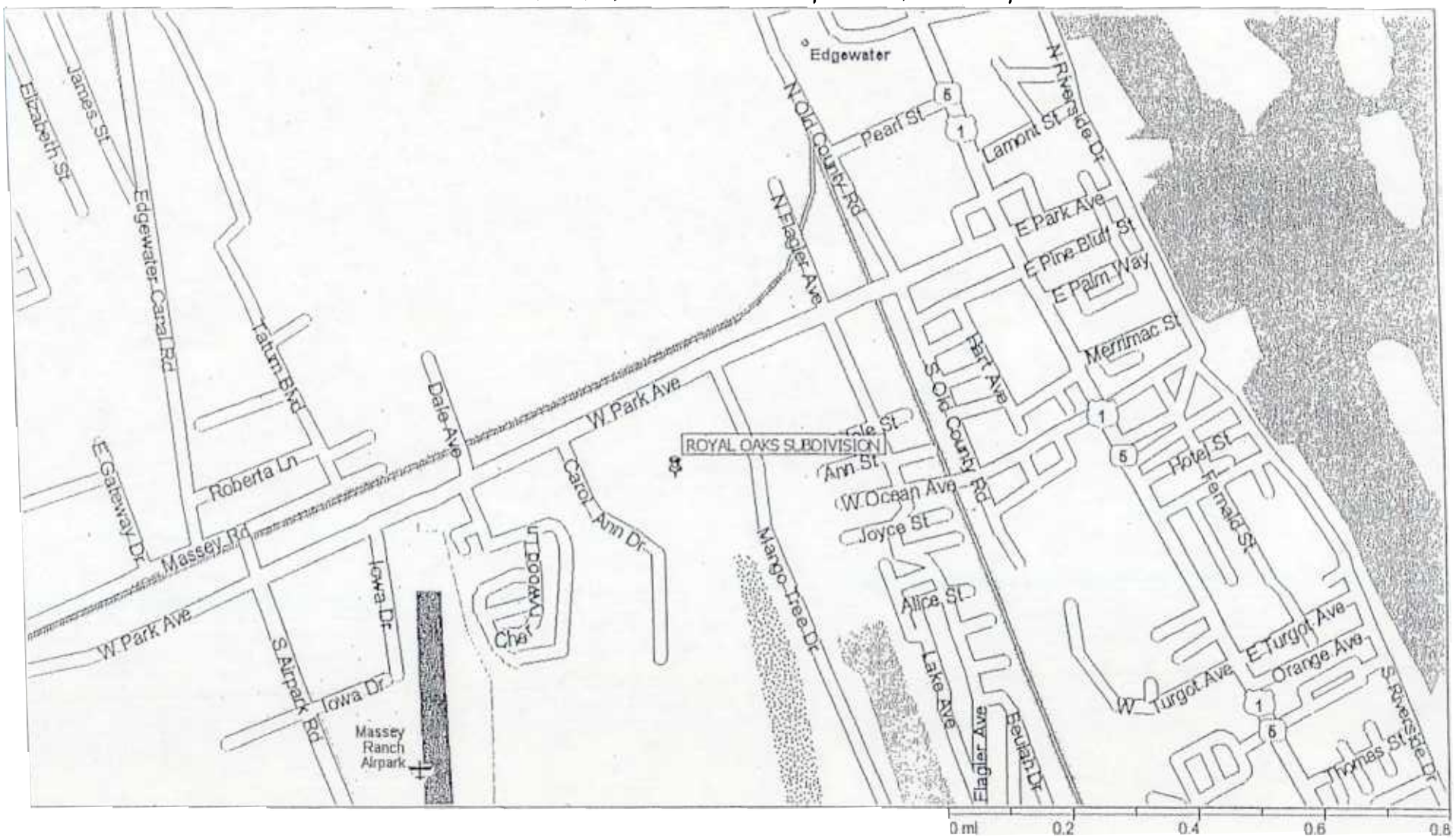
REMTECH, INC.

DATE: 4/24/01	PROJ. 01-455
REV. DATE: 5/17/01	

ROYAL OAKS COMMUNITY

ATTACHMENT B

ROYAL OAKS SUBDIVISION, EDGEWATER, FLORIDA

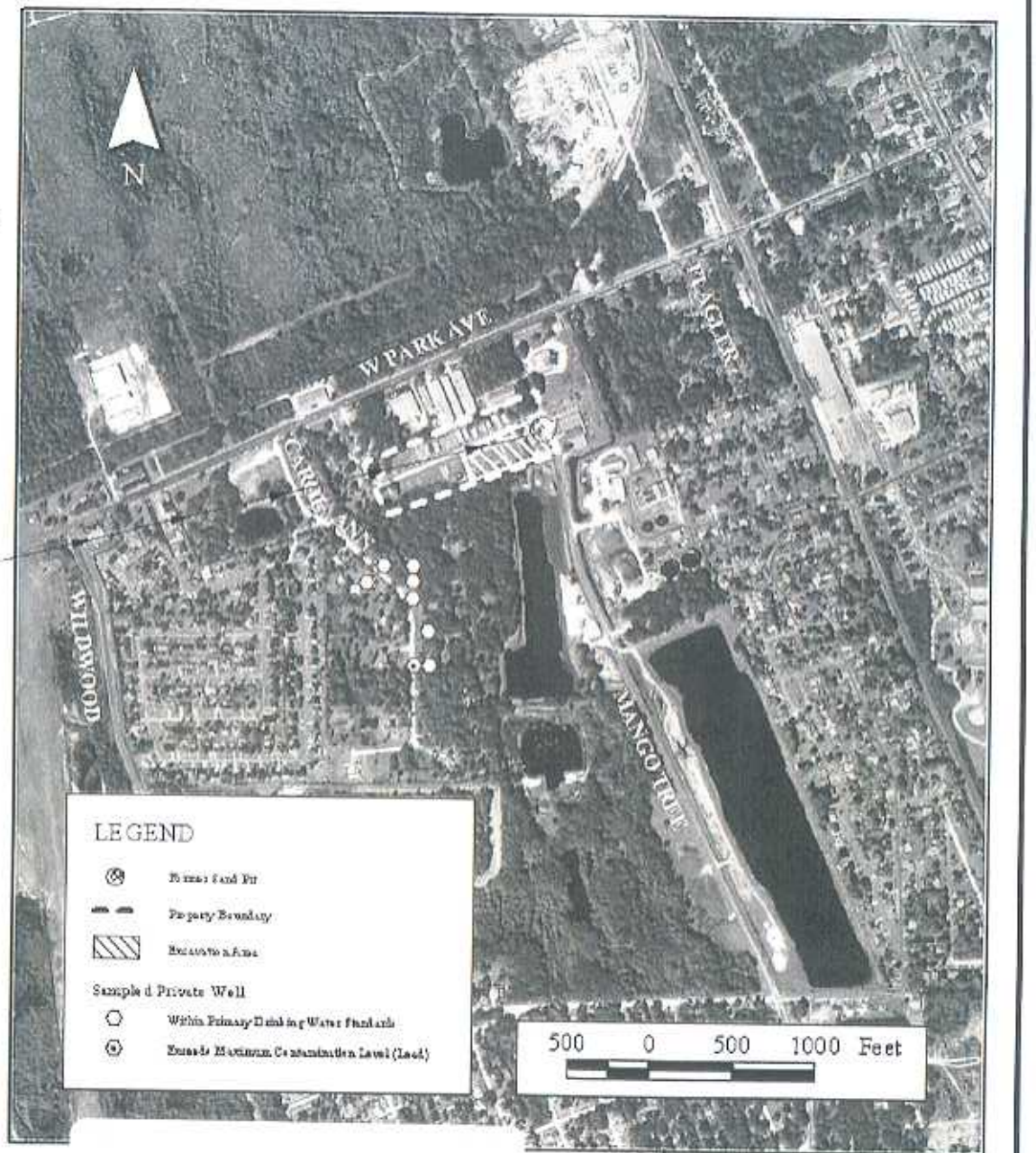


FLORIDA DEPARTMENT OF HEALTH

Royal Oaks Community Site Investigation Volusia County

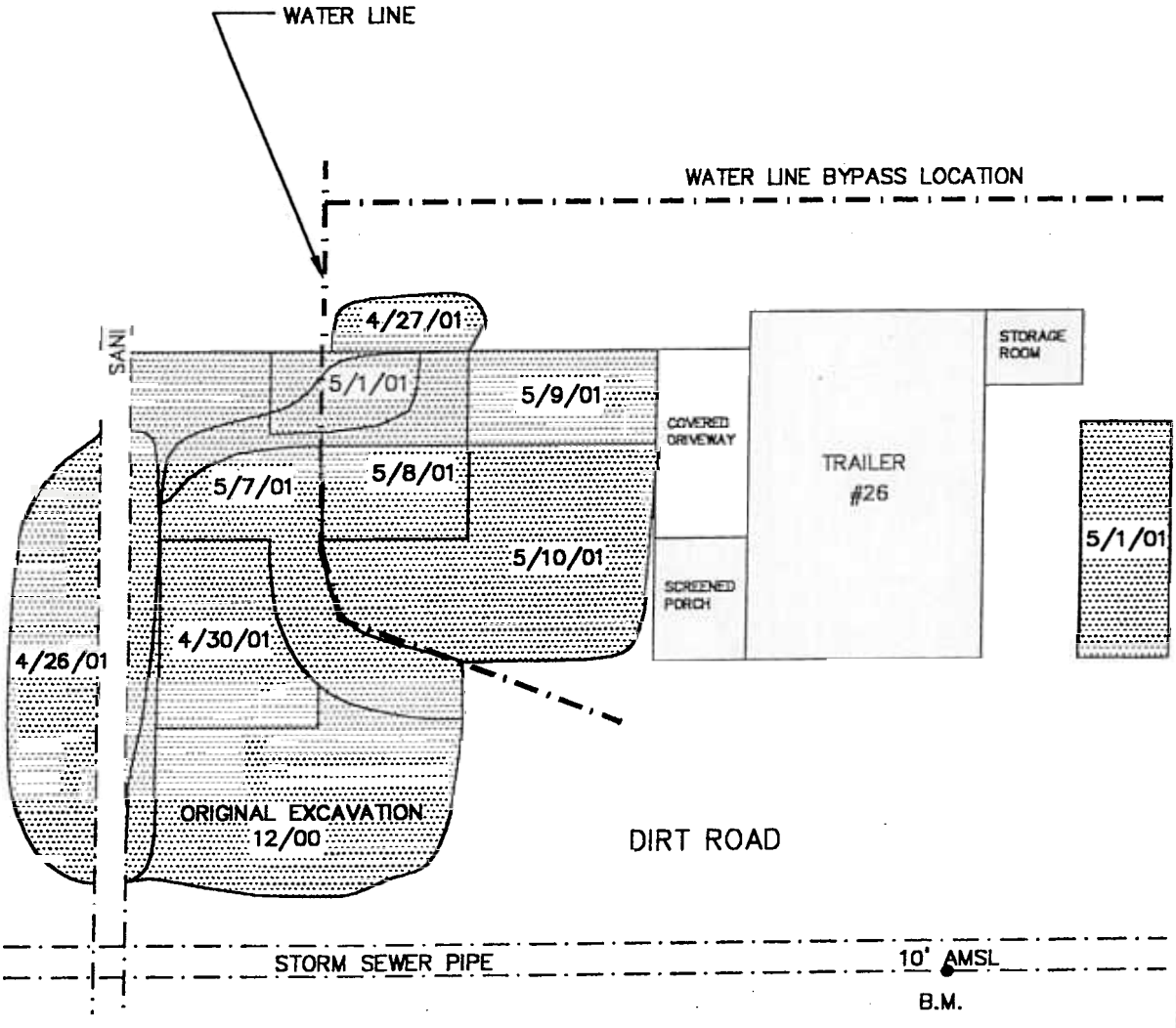
Map Prepared By

FLORIDA DEPARTMENT OF HEALTH
Drinking Water Toxics Section
Bureau of Water Programs
Florida Department of Health
February 6, 2002



ROYAL OAKS COMMUNITY

ATTACHMENT C



LEGEND

- NO DRUMS FOUND
- DRUMS WITHIN 5' OF SURFACE
- DRUMS WITHIN 12' OF SURFACE

20

N

DRUM ZONE MAP

REMTECH, INC.

ROYAL OAKS
MANGO TREE DRIVE
EDGEWATER, FLORIDA

DATE: 4/24/01

PROJ. 01-455

REV. DATE: 5/17/01

TABLES

CERTIFICATION

The Royal Oaks Subdivision Health Consultation was prepared by the Florida Department of Health, Bureau of Environmental Epidemiology, 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.

Debra Gable
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ATSDR

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

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