

**HEALTH CONSULTATION
(EXPOSURE INVESTIGATION)**

Evaluation of Fly Ash

**MATERIALS EXCHANGE CORPORATION LANDFILL
(a/k/a WEST COAST MATERIALS)**

HOMOSASSA SPRINGS, CITRUS COUNTY, FLORIDA

Prepared by:

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

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HOMOSASSA SPRINGS, CITRUS COUNTY, FLORIDA

SEPTEMBER 30, 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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Summary and Statement of Issues

This health consultation evaluates dust and soil results collected from a residence on Grover Cleveland Boulevard across from the Materials Exchange Corporation (MEC) landfill in Homosassa Springs, Florida.

In September 2001, a Homosassa Springs resident living near the MEC landfill asked the Florida DOH if fly ash from the landfill was in her yard and if so, at what levels. She and her husband report breathing difficulties and other health problems related to dust from the landfill. In spring 2002, the resident sold her home and moved several miles away.

The Florida Department of Environmental Protection (DEP) collected three soil and four dust samples from the resident's yard. The Florida DOH evaluated the laboratory results and concluded metals in the soil were not likely to cause illness. The one dust sample analyzed for fly ash did not contain detectable levels of fly ash. Although not specifically addressed in this report; pollen, mold, and fungus found in the four dust samples are common allergens and may potentially cause allergic reactions in susceptible individuals.

The conclusions and recommendations in this report are only applicable to the residents living on the tested property. The Florida DOH developed this report under a cooperative agreement with, and funding from, the federal Agency for Toxic Substances and Disease Registry (ATSDR).

Demographics

The MEC landfill is a privately owned operating construction and demolition (C&D) landfill. It is on the north side of Grover Cleveland Boulevard, about 3.5 miles east of US 19 (Figures 1 & 2). Six single-family homes and five mobile homes are within 500 feet of the landfill. Located more than 500 feet to the west and northwest are both undeveloped and residential areas. The areas north and east of the landfill may be used for forestry and mining; there are very few houses in this area. Residential areas extend southeast, south, and southwest of the landfill for several miles.

According to 1990 census data, approximately 979 people live within 1 mile of the landfill (Figure 3). Of this population, 98% is Caucasian and 2% a combination of African Americans, Asians, Hispanics, and others; 15% is 65 years and older; 20% percent are females between the ages of 15 and 44; and 10% of the population is 6 years old or younger. As of 1990, there were 428 housing units within 1 mile of the landfill.

Site Description and History

The site was a sand mine in the 1970s. Beginning in 1980, the mined areas were filled. Currently, two closed (filled) cells and one active cell exist on the 131-acre property. From 1980 to 1990, the previous landfill-owner, Monex (also known as Monier Resources), disposed of 1.25 million tons of fly ash from a coal-fired power plant in the first cell. One cell closed in 1990, the second closed in 1998. Currently, the third cell receives construction and demolition waste.

In 1993, MEC began to fill the second cell with construction and demolition waste (as permitted by the Florida DEP). The landfill received about 1 million cubic yards of waste every 2 years from Citrus County and several other counties to the south.

In November 1995, the Citrus County Health Department (CHD) began receiving complaints of odors from nearby residents. The Florida DEP began receiving odor complaints from residents in January 1996.

From August 1998 to April 2000, Florida DEP received 144 phone calls complaining of odors. Seventy-seven of these calls were anonymous. The other 67 phone calls that Florida DEP received were from 20 different households. Residents complained of unbearable stench, nausea, burning eyes, sore throats, rotten egg odors, lack of sleep, difficulty breathing, chest pains, and headaches. Residents reported odors were worse after rainfall. They reported they could not leave their windows open.

In March 1999, a nearby resident and member of the Citrus County Civic Association petitioned ATSDR for a public health assessment. The resident reported community concerns about hydrogen sulfide and symptoms community members were experiencing.

In 1999, the Florida DEP and the Citrus CHD sought but were unable to obtain funding from the Environmental Protection Agency (EPA) for hydrogen sulfide air monitoring. Florida DOH then asked for and received from ATSDR hydrogen sulfide air monitoring equipment. In June 1999, staff from the Florida DOH and ATSDR drove through the neighborhoods surrounding the landfill and met with several concerned residents.

In a 1999 health consultation, Florida DOH determined the landfill posed an indeterminate public health hazard because critical air and water quality data were lacking. In that report, Florida DOH concluded:

Air quality information is not currently available to address the community's health concerns.

Information on possible releases of metals from the flash cell to groundwater is limited to on-site monitoring wells.

Area physicians (and residents) may not have adequate information on the effects of hydrogen sulfide exposure.

A second Florida DOH health consultation, in April 2000, was unable to determine the public health threat from groundwater near MEC since adequate data was not available. Although the Florida DEP tests of private drinking water wells found no public health threat, these wells were more than 1/2 mile from the landfill. Florida DOH recommended testing of private wells closer to the landfill.

From July 2000 to March 2001, the Florida DOH, in cooperation with the Agency for Toxic Substances and Disease Registry (ATSDR), coordinated continuous air monitoring for hydrogen

sulfide near the MEC landfill. Lockheed Martin (under contract to EPA) assisted the Florida DOH with this investigation. The Florida DOH chose three locations for the continuous hydrogen sulfide air monitoring based on resident complaints and wind direction. All of the 24-hour average hydrogen sulfide concentrations were less than ATSDR's health-based guidance concentration of 30 parts per billion (ppb).

In September 2000, Florida DOH also coordinated grab air sampling at one location. Hydrogen sulfide and other sulfur compounds were not detected in the grab sample.

Based on evaluation of results of the air-monitoring program, Florida DOH concludes there is no apparent public health hazard from hydrogen sulfide near this landfill.

On July 17 and September 20, 2000, the Florida DOH and the Citrus CHD met with several nearby residents in a home to hear their health concerns. Florida DOH addressed these concerns in a March 20, 2001, e-mail to these residents. In August 2000, one nearby resident reported seeing dead animals in the last few months near the landfill. She also reported seeing blind birds in her yard. She reported five dogs in her neighborhood died in the last 2 years; three of the dogs were old and two were young. She believes at least one dog died of hydrogen sulfide poisoning.

On February 5, 2001, staff from the Florida DOH, ATSDR, Citrus CHD, and Florida DEP participated in a teleconference with several nearby residents. Florida DOH discussed the ongoing air monitoring and addressed residents' health concerns. Nearby residents' report that the more rainfall the area experienced, the stronger the odors became. Since January 2001, nearby residents have reported that the intensity of odors appear to have decreased. This may coincide with below normal rainfall that has been recorded in the area.

In August 2001, one nearby resident complained of strong odors. Florida DOH provided a Silicon-lined canister for this resident to collect a grab air sample.

In the past two years, the Florida DOH completed four health consultations including review of air, soil and ground water data. The air monitoring focused solely on hydrogen sulfide, not metals. The soil samples taken were not true surface soil samples. The Florida DOH recommended soil samples be collected from 0-3". Even though previous soil and water data test results for metals were at levels unlikely to cause illness, the Florida DOH requested the Florida DEP to collect additional soil samples as only a few samples were taken in this particular area near the landfill. The Florida DOH is now preparing another health consultation to evaluate these soil results.

During our November 28, 2001 public meeting, several residents who keep a close watch on the landfill's activities noted the landfill had not been watered down, as was required by the Florida DEP. Also, at this time, residents claimed the lack of rain contributed to the dusty conditions at the landfill.

~~In Spring 2002, the Homosassa Springs resident who was concerned about fly ash from MEC notified Florida DOH she was selling her home and moving to a nearby city several miles away. The resident relocated in 2002.~~

Discussion

In September 2001, a Homosassa Springs resident living across from the MEC landfill asked the Florida DOH if fly ash from the landfill was in her yard and if so, at what levels. She and her husband report breathing difficulties and other health problems related to dust from the landfill.

This residence is within 150 feet of the landfill. The resident complained of dust in and on her house, car, doors, and windows. She kept her windows closed year round due to heavy dust. She and her husband report various medical problems. She claims her husband's allergies worsen when dust blows from the landfill.

Florida DOH requested Florida DEP collect dust samples from the resident's door, entranceway and windows. The Florida DOH also requested surface soil samples from the resident's yard.

On January 30, 2002 Florida DEP inspected the residence and collected dust and soil samples. The Florida DEP also inspected the MEC landfill where fly ash was buried but did not see any exposed fly ash. Florida DEP analyzed the soil for sulfates, nitrates, and metals associated with fly ash from burning coal: arsenic, barium, cadmium, chromium, lead, mercury and selenium.

Because there are no guidance levels for metals in dust samples, the Florida DEP agreed to coordinate special testing with the laboratories. The Florida DEP requested analysis and/or visual examination of the dust samples for fly ash, asbestos, mold, fungus, pollen, etc.

Dust Sample Collection and Analysis

On January 30, 2002, the Florida DEP collected four dust samples from the resident's property. Law Engineering and Environmental Services, Inc. analyzed three samples (van, bench and shed) using polarized light microscopy/dispersion staining. They also analyzed for asbestos. The Environmental Protection Commission of Tampa laboratory, microscopically analyzed a composite (combined) bench/van dust sample to determine its contents including fly ash.

Dust Results and Interpretation

The Florida DOH reviewed laboratory results for each dust sample. None of these three samples contained asbestos. The van dust sample consisted of pollen and debris, calcite/quartz and bug parts/debris. The bench dust sample consisted mainly of cellulose and debris with trace amounts of bug parts and debris. The shed dust sample consisted of pollen and debris only. The Environmental Protection Commission of Tampa laboratory's microscopic analysis of the bench/van composite dust sample found 60% mold, 20% fungus, 15% biological debris, 3% pollen, sand (silica), organic debris and unknowns. In addition, microscopic analysis of one

combined dust sample from the resident's outside bench and van did not find any evidence of incinerator fly ash. Although not specifically addressed in this report, mold, fungus and pollen found in the dust samples are common allergens and may potentially cause allergic reactions in susceptible individuals.

Soil Sample Collection and Analysis

On January 30, 2002, the Florida DEP collected three soil samples from the resident's front yard and flowerbed and analyzed all for arsenic, cadmium, chromium, lead, mercury, and selenium.

Soil Results and Interpretation

The laboratory results for all three soil samples were either not detected or less than guidance concentrations. Therefore, accidental ingestion or inhalation of dust from these soils is not likely to cause illness.

Child Health Initiative

Even though no children were present on the Homosassa resident's property when the dust and soil samples were collected, children may go on the property in the future. Children are not small adults; a child's exposure to hazardous substances 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. They also have a larger skin surface in proportion to their body volume. A child's diet often differs from that of an adult's. A child's behavior and lifestyle also influence exposure. Children—especially very young children—crawl on the floor, put things in their mouths and can ingest inappropriate objects such as dirt or paint chips. Children also spend more time outdoors than do adults. But perhaps most importantly, children do not have the judgment of adults insofar as avoiding hazards is concerned.

Soils collected from the residence near the MEC Landfill are not likely to cause illness in children. Pollen, mold and fungus found in the dust samples, however, may cause allergic reactions.

Conclusions

Metals found in the soils at the residence on Grover Cleveland Boulevard near the MEC Landfill are not likely to cause illness. The health concern at resident's property due to fly ash concentrations is categorized as a **no apparent public health hazard**. In addition, microscopic analysis of one combined dust sample from the resident's outside bench and van did not show evidence of fly ash or asbestos. Mold, fungus and pollen found in the dust samples, however, are common allergens and may potentially cause allergic reactions in susceptible individuals.

Recommendations/Public Health Action Plan

The Florida DOH recommends future residents living on this subject property visit their physician if they have allergies to pollen, mold or fungus.

Copies of this report will be made available to communities near the MEC landfill.

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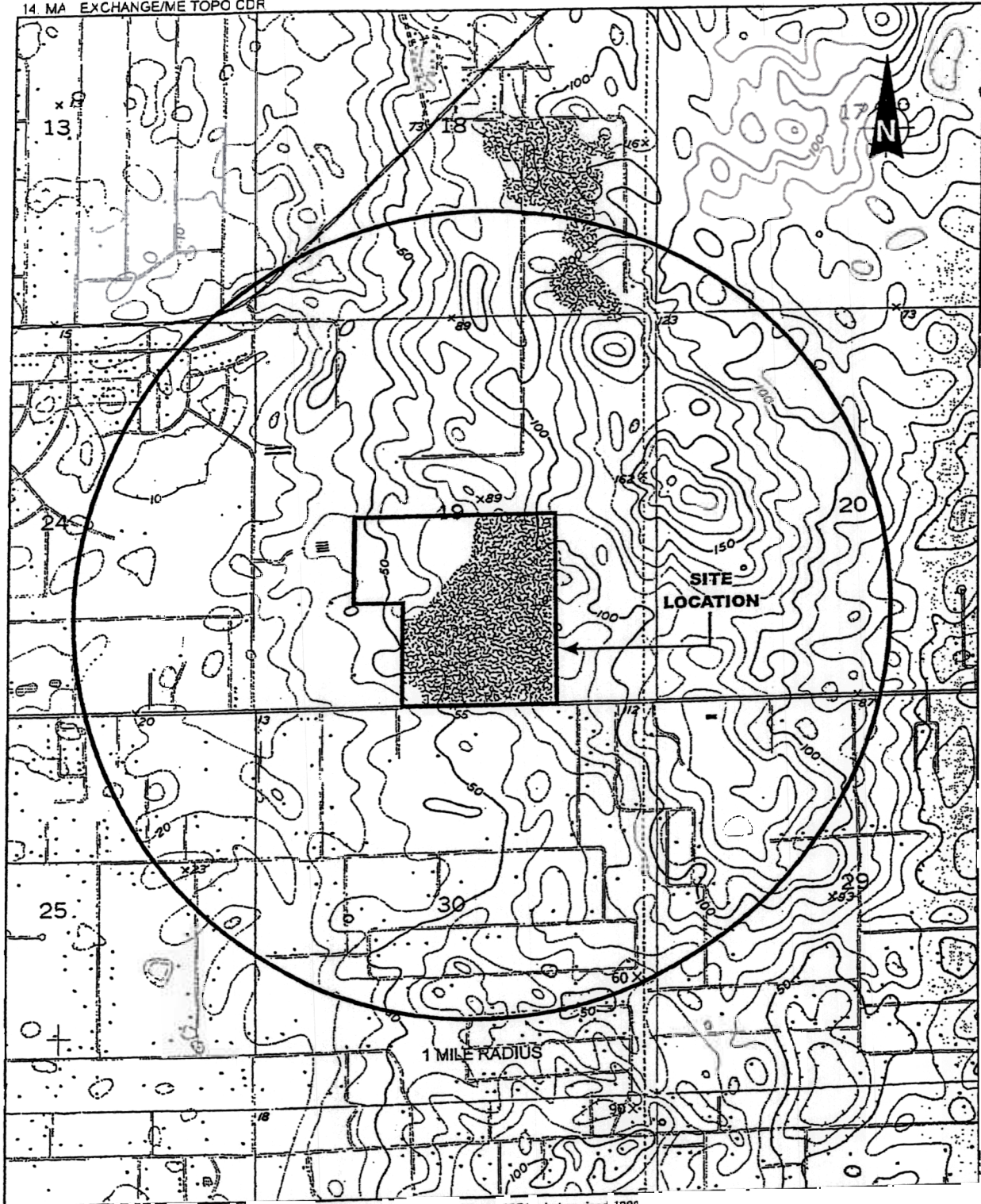
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Agency for Toxic Substances and Disease Registry

FIGURES

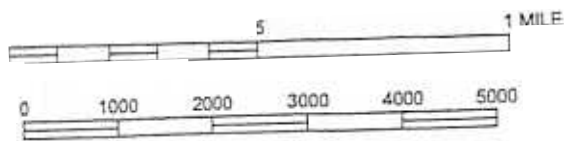
Figure 1: Site Location Map

Figure 2: Site Street Map

Figure 3: Demographics/County Map



SOURCE: U.S.G.S. 1:50,000 Series (Topographic Quadrangle: Homosassa, Florida 1054 photorevised 1988)



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SITE MAP - MEC LANDFILL

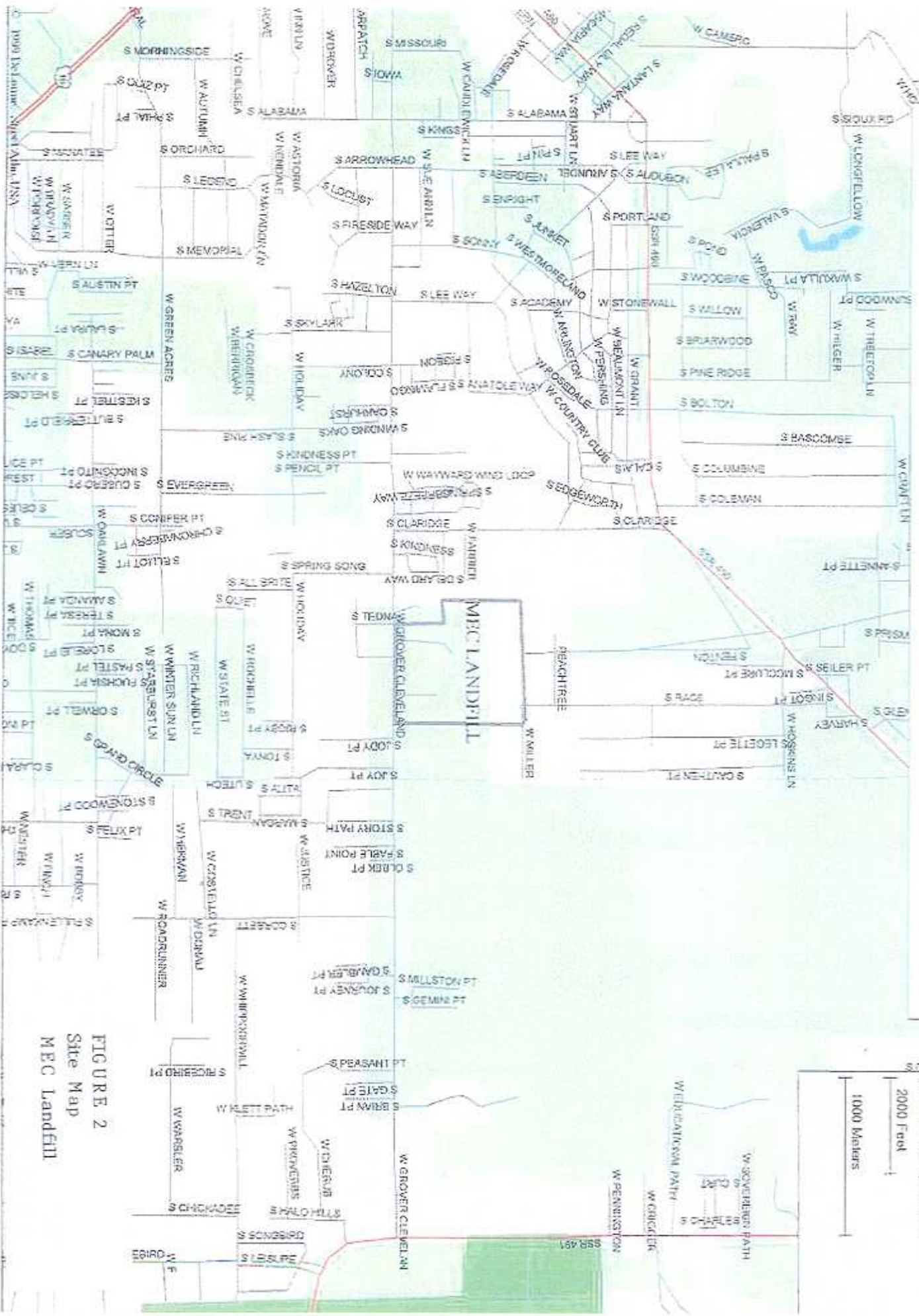


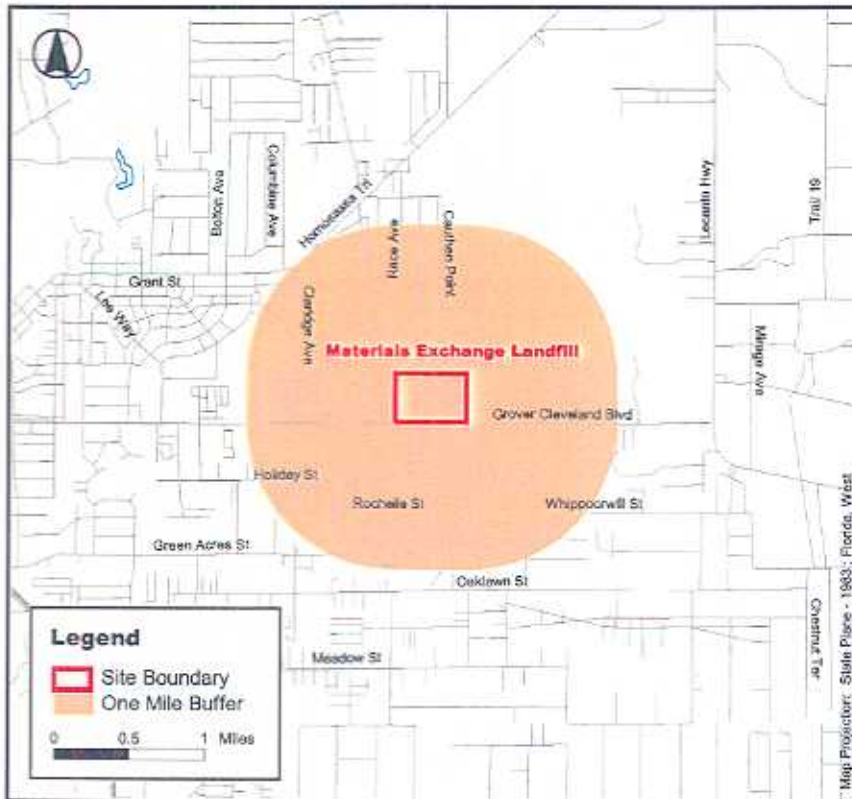
FIGURE 2
Site Map
MEC Landfill

Map 14.00
Tue Nov 20 10:50 2001
Scale 1:31,250 (at corner)
2000 Feet
1000 Meters

Materials Exchange Landfill

Homosassa, Florida

FIGURE 3
Demographics Information
MEC Landfill

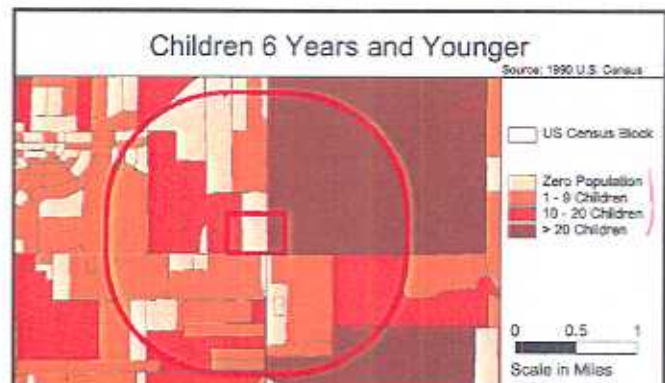
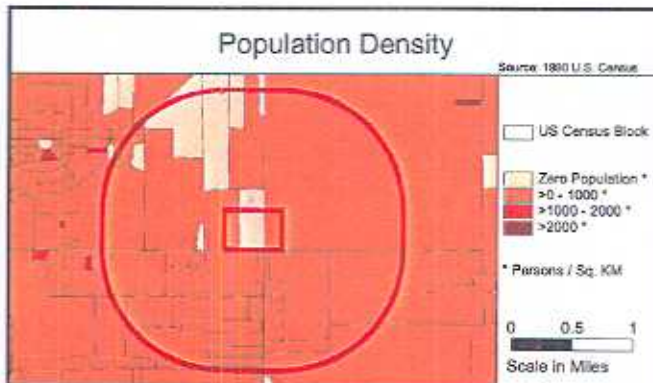


Base Map Source: 1995 TIGERLine Files

Citrus County, Florida

Demographic Statistics Within One Mile of Site*	
Total Population	979
White	961
Black	6
American Indian, Eskimo, Aleut	8
Asian or Pacific Islander	3
Other Race	2
Hispanic Origin	16
Children Aged 6 and Younger	96
Adults Aged 65 and Older	143
Females Aged 15 - 44	197
Total Housing Units	428

Demographics Statistics Source: 1990 US Census
*Calculated using an area-proportion spatial analysis technique



PHOTOS - Resident's property near landfill

Photo 1: View of resident's front yard facing landfill

Photo 2: View of resident's front yard facing landfill

Photo 3: View of resident's front yard near street and view of landfill

Photo 4: View of landfill from Resident's front yard

Photo 1: View of Resident's Front Yard Facing Landfill



Photo 2: View of Resident's Front Yard Facing Landfill



Photo 3: View of Resident's Front Yard Near Street & View of Landfill



Photo 4: View of Landfill from Resident's Front Yard



CERTIFICATION

The Materials Exchange Corporation Landfill (MEC) 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
Technical Project Officer,
SPS, SSAB, DHAC
ATSDR

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



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SPS, SSAB, DHAC,
ATSDR