

Health Consultation

HEAD START PRESCHOOL

BRADENTON, MANATEE COUNTY, FLORIDA

MAY 14, 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

HEAD START PRESCHOOL

BRADENTON, MANATEE COUNTY, FLORIDA

Prepared by:

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

SUMMARY AND STATEMENT OF ISSUES

The Manatee County Health Department (MCHD) in Bradenton asked the Florida Department of Health (FDOH) to provide technical input and assistance to them with biological sampling of the preschool children and staff at the Head Start Preschool in Bradenton Florida. Specifically, this health consultation evaluates the available environmental data to determine if a health threat exists; evaluates the need for conducting an exposure investigation, and documents technical assistance provided to MCHD by FDOH.

BACKGROUND

The site is located within Section 31, Township 34 South, Range 18 East in Manatee County, Florida (Figure 1). The site is located along the east side of 15th Street East, approximately 1500 feet south of 13th Avenue East. The area in the vicinity of the site includes citrus groves and single/multi-family residential developments and industrial properties. (Figure 2). The site is comprised of undeveloped, densely wooded land in the southern and eastern portions (approximately 8 acres), and the Manatee County Morton Clark Head Start facility. The topography surrounding the school and the site is relatively level. Drainage ditches border the north, east and south perimeters of the property (Figure 3).

Tropicana Products, Incorporated bought the Manatee County Morton Clark School site in 1968 which now houses the Head Start Preschool. Tropicana is a company that manufactures containers of juice. Landfilling activities at the site occurred between 1968-1980. Later, the glass, metal, wood and fire bricks from their operations were landfilled on the northern and eastern parts of the property. Some of these materials contained arsenic from Tropicana's glass making process. In 1980, a 3-4 foot layer of clean fill was placed on the landfill and the Head Start school was built. In September 1998, the Manatee County School District initiated an environmental investigation of the Head Start property as a potential site for a new elementary school.

In September and December 1998, soil sampling was done at the site by AT&E consultants, Tampa. The only contaminant found above levels of health concerns was arsenic in the soil. In February 1999, Tropicana hired a private toxicologist to interpret the environmental sampling results. The toxicologist concluded that the children and adults are within safe limits for potential exposures to arsenic. Tropicana Products, Incorporated met with Head Start staff, the School Board and Manatee County Health Department. Tropicana Products, Incorporated proactively informed the Director of the school and the parents of the children that they would fund biological testing to determine if the children and staff were exposed to arsenic or other contaminants found in the soils above national average background concentrations. Since the Manatee County Health Department was inexperienced with coordination of conducting biological sampling, in February, 1999 the Manatee County Health Department (MCHD) asked the Florida Department of Health to review the Summary Report and Data Evaluation, dated February 25, 1999¹. They wanted our

recommendation on what type of biological sampling should be done for the Head Start preschool children and staff.

The report included soil data from the school playgrounds and areas to the east of the playgrounds. (Figure 3). Soil in the school area is comprised of sand, clay and limestone. Arsenic soil concentrations from the September - December, 1998 sampling event ranged from <0.8 ppm to 42.0 ppm (Table 1). A total of 12 soil samples were taken from the Head Start property. Two soil borings were installed on the west playground. Both soil samples taken at 0-1 feet detected arsenic soil concentrations below 0.8 ppm. Five soil samples were taken at approximately 80 feet intervals from the south playground. The arsenic soil concentrations ranged from below 0.8 ppm to 8.9 ppm. The remaining five soil samples were taken from the eastern property east of the south playground. The arsenic soil concentrations from this area ranged from 6.1 ppm to 42.0 ppm.¹

Tropicana installed a fence around the area to the east of the school playgrounds in February, 1999. Therefore, the children can not play in this area. The soil concentrations in this area ranged between 6.1 parts per million (ppm) to 42 ppm. The arsenic soil concentrations on the west playground were <0.8 ppm. The arsenic soil concentrations on the south playground ranged from <0.8 ppm to 8.9 ppm. To date, parents of the school children have not informed the school of health complaints from their children.

DISCUSSION

Evaluation of environmental data:

We evaluated the soil concentrations of arsenic on-site. The highest arsenic concentration in the accessible area on-site is 8.9 ppm. The highest arsenic concentration within the fenced area is 42 ppm. The maximum estimated daily dose for arsenic for children is less than ATSDR's minimal risk level (MRL) for arsenic. Therefore, no illnesses are likely in children or adults from incidental ingestion of arsenic in soils on-site.

Arsenic is a known human carcinogen. Lifetime exposure to the highest level of arsenic in the soils may result in a low increase with the risk of skin or lung cancer. Currently, there are 33 staff who work at the school. Since the school was built in 1980, five long-term staff members at the school have worked there for 19 years. Five others have worked at the school for 10 years. Because the length of the potential exposure period for workers is less than a lifetime, and the fact that it is unlikely that employees would consistently be exposed to the highest levels of arsenic found on the site, no significant increase in the risk of cancer is expected.

Technical Support Provided by FDOH:

After the FDOH reviewed the Summary Report and Data Evaluation: Manatee County, Morton Clark School Site, dated February 25, 1999, the Exposure Investigation Section at ATSDR (Agency for Toxic Substances and Disease Registry) was consulted to see if an Exposure Investigation at the Bradenton site was warranted. ATSDR determined that an Exposure Investigation was not warranted due to low levels of arsenic in the soil at the site. Furthermore, ATSDR did not agree that hair testing of the preschool children and staff for arsenic was beneficial for the community due to inherent problems with collection of hair samples. Also, FDOH and ATSDR agreed that the soil concentrations did not greatly exceed the ATSDR health based guidance concentrations for arsenic. They also agreed that the arsenic soil concentrations at this site were typical for those found in Florida.

The FDOH provided the following technical assistance to the MCHD:

- Toxicological information about biological sampling of arsenic
- ATSDR fact sheet on arsenic
- Laboratory analysis information for arsenic testing
- Contact at the National Medical Services Laboratory in Pennsylvania
- Examples of consent forms and household questionnaires
- Examples of exposure investigations

However, since parents of the school children at the Head Start Elementary School requested an Exposure Investigation and Tropicana Products Incorporated agreed to fund the laboratory costs for an investigation, FDOH's lead toxicologist and the EIC agreed to assist the Manatee County Health Department with technical support for an exposure investigation. The County Health Departments in Florida rely on the Florida Department of Health office in Tallahassee for this technical support.

Children's Health Section:

In general, it is possible for arsenic to be ingested by schoolchildren via soils while playing on the playground on a daily basis. However, it is not likely that a current completed exposure pathway exists for the Head Start school children. Tropicana installed a fence around the area to the east of the school playgrounds in February, 1999. Therefore, the children can not play in this area. The soil concentrations in this area ranged between 6.1 parts per million(ppm) to 42 ppm. The arsenic soil concentrations on the west playground were <0.8 ppm. The arsenic soil concentrations on the south playground ranged from <0.8 ppm to 8.9 ppm. To date, parents of the school children have not informed the school of health complaints from their children. The maximum estimated daily dose for arsenic for children is less than ATSDR's minimal risk level (MRL) for arsenic. Therefore, no illnesses are likely in children from incidental ingestion of arsenic in soils on-site. Arsenic is a known human carcinogen. Since the school only accepts 3-5

year old children, they are likely to be exposed to arsenic in the soils for only a few years. Lifetime exposure to the highest level of arsenic in the soils may result in a low increase with the risk of skin or lung cancer. Based on this information and using the formula for calculating the dose for a child at the site provided in the Public Health Assessment Guidance Manual, we do not think that there is a health threat to the children at the Bradenton school.

CONCLUSIONS

1. The FDOH provided technical assistance to the MCHD regarding the arsenic at the Bradenton Head Start school.
2. The FDOH determined that the arsenic soil concentrations at the site are not a health threat to the school children or staff at the school.
3. ATSDR and FDOH agreed that an Exposure Investigation is not warranted for this site.
4. The Florida Department of Health will continue to provide technical assistance to the Manatee County Health Department as needed.

Children's Health Conclusion:

The children attend the school for three years. Therefore, they are likely to be exposed to arsenic in the soils for only a few years. Due to the low levels of arsenic in the soils on-site, it is not likely that a public health hazard currently exists. We think it is difficult to quantify past exposures for these children.

RECOMMENDATION

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

REFERENCES

1. Summary Report and Data Evaluation: Manatee County, Morton Clark School Site, Bradenton Florida. February 25, 1999. Christopher Teaf, Toxicologist for Tropicana
2. Agency for Toxic Substances and Disease Registry (ATSDR). 1993. Toxicological Profile for Arsenic. Atlanta: U.S. Department of Health and Human Services, Public Health Service

ATTACHMENTS

Figure 1: Site Location Map

Figure 2. City Map

Figure 3. Site Map with Locations of Soil Borings

Table 1 Table of Soil Boring Concentrations

PREPARER OF REPORT

Susan Ann Bland
Florida Department of Health
Bureau of Environmental Toxicology

ATSDR Regional Representative

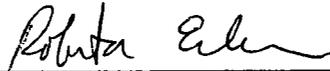
Bob Safay
ATSDR/ORO

ATSDR Technical Project Officer

Roberta Erlwein
Division of Health Assessment and Consultation
Superfund Site Assessment Branch

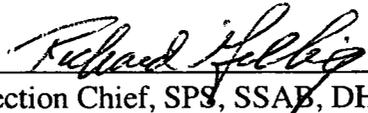
CERTIFICATION

The Bradenton Head Start Health 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.



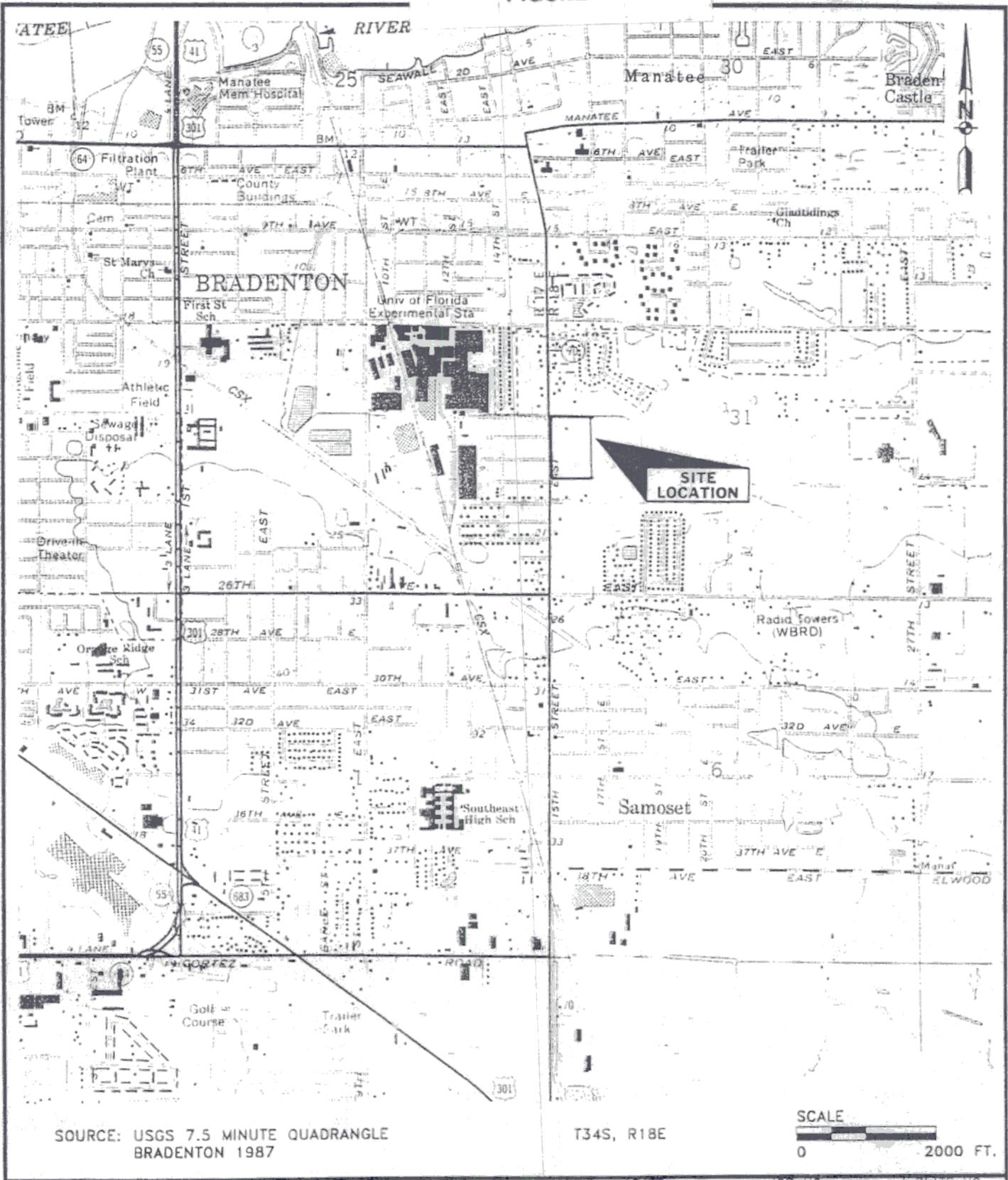
Technical Project Officer, SPS, SSAB, DHAC

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



Section Chief, SPS, SSAB, DHAC, ATSDR

FIGURE 1



SOURCE: USGS 7.5 MINUTE QUADRANGLE
BRADENTON 1987

T34S, R18E

SCALE
0 2000 FT.

DYE, DEITRICH, PRATHER, PETRUFF & ST. PAUL, P.L.	DATE 01/14/99	JOB NO. 27-2957A	PLATE NO. 1
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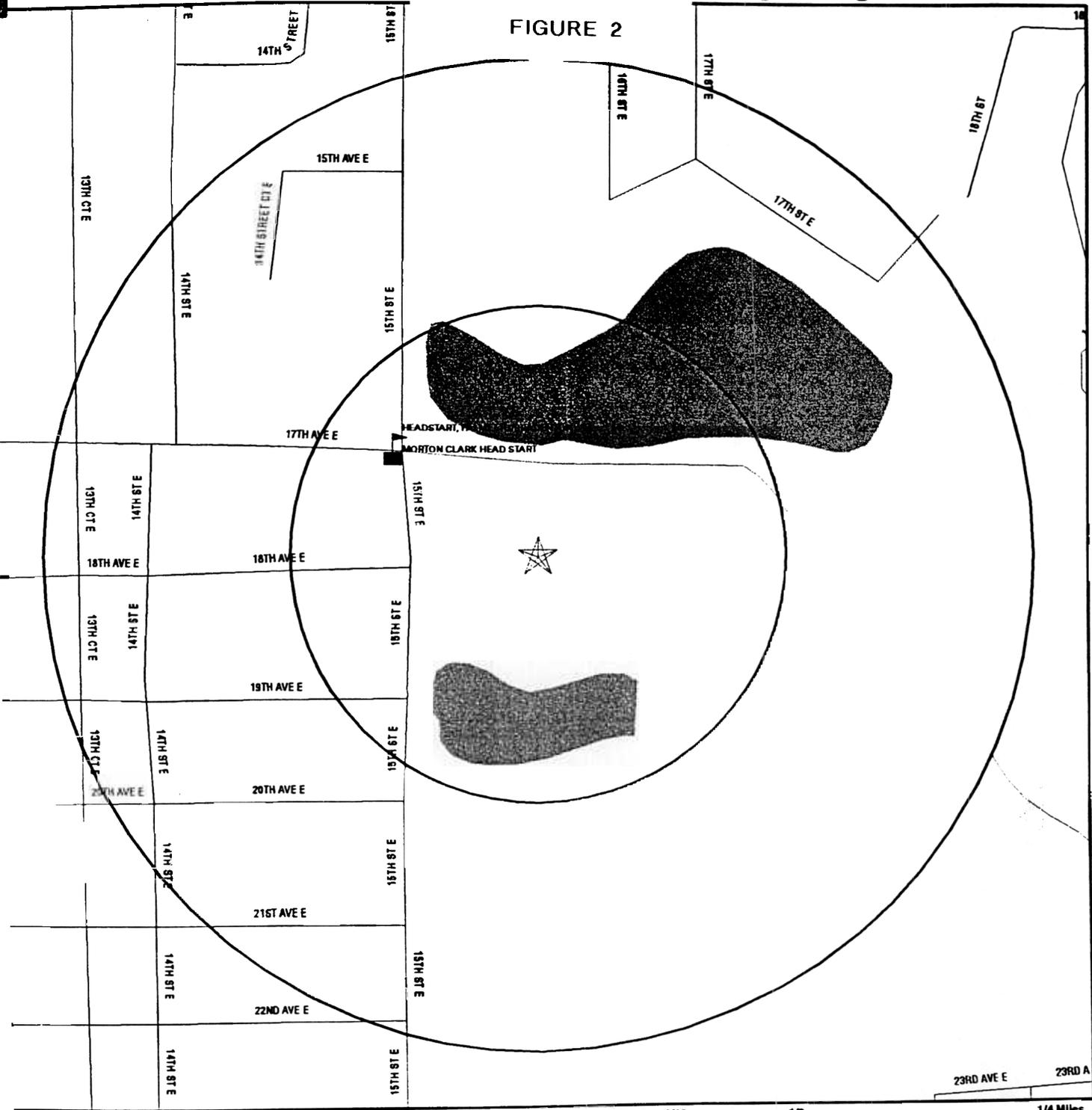
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1211 TECH BLVD., SUITE 200 TAMPA, FLORIDA 33619
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SITE LOCATION MAP

1707 15TH STREET EAST
BRADENTON, FLORIDA

DETAIL MAP - 295427.1s - Atlanta Testing & Engineering

FIGURE 2



Target Property

Sites at elevations higher than or equal to the target property

Sites at elevations lower than the target property

Coal Gasification Sites (if requested)

Sensitive Receptors

National Priority List Sites

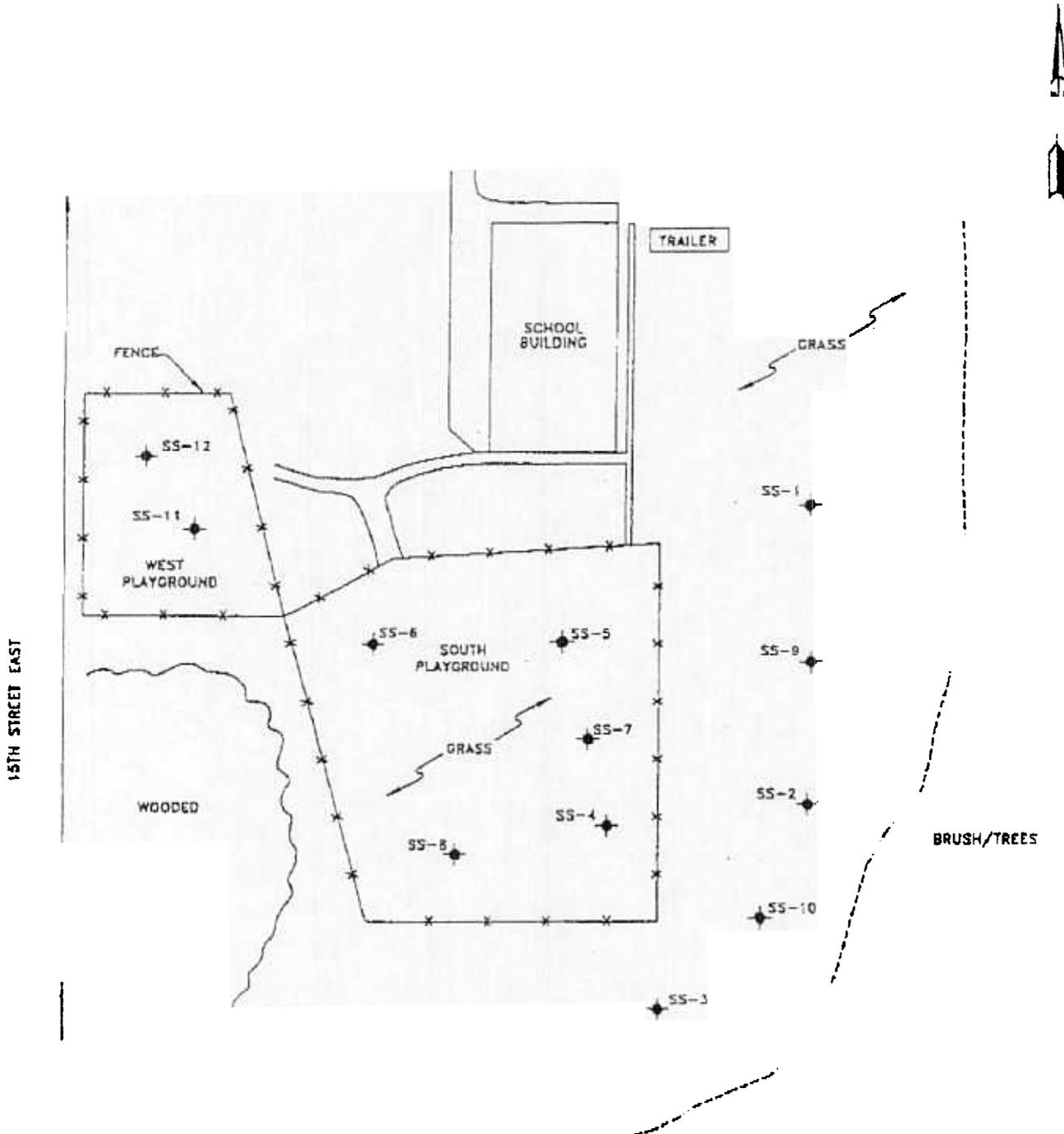
Landfill Sites

-  Power transmission lines
-  Oil & Gas pipelines
-  100-year flood zone
-  500-year flood zone
-  Wetlands per National Wetlands Inventory (1994)

TARGET PROPERTY: Manatee County School Board
ADDRESS: 1707 15th Street, East
CITY/STATE/ZIP: Bradenton FL 34208
LAT/LONG: 27.4830 / 82.5456

CUSTOMER: Atlanta Testing & Engineering
CONTACT: Cindy Cobb
INQUIRY #: 295427.1s
DATE: September 22, 1998 1:34 pm

FIGURE 3



LEGEND

SS-2 ◆ SOIL SAMPLE LOCATION AND IDENTIFICATION

SCALE



DYE, DEITRICH, PRATHER PETROFF & ST. PAUL, P.L.	DATE 01/14/99	JOB NO. 27-2957A	PLATE NO. 5
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04/29/1999 22:00



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SOIL SAMPLE LOCATION MAP

1707 15TH STREET EAST
 BRADENTON, FLORIDA

TABLE 1
SUMMARY OF SOIL ANALYTICAL DATA
MORTON CLARK HEADSTART SCHOOL

Compound/Unit	Sample Identification												Residential Standard	Industrial Standard	Leaching Standard
	SS-1 0-1/2	SS-2 0-1/2	SS-3 0-1/2	SS-4 0-1/2	SS-5 0-2	SS-6 0-1	SS-7 0-2	SS-8 0-1	SS-9 0-1/2	SS-10 0-1/2	SS-11 0-1	SS-112 0-1			
Antimony (mg/kg)	<5.0	5.2	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	NA	NA	26	220	NC
Arsenic (mg/kg)	20	42	7.2	8.6	<0.8	1.8	1.8	8.9	11	6.1	<0.8	<0.8	0.8	3.7	NC
Barium (mg/kg)	41	28	25	24	12	14	10	34	17	28	NA	NA	5,200	84,000	NC
Cadmium (mg/kg)	1.1	1.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NA	NA	37	600	NC
Chromium (mg/kg)	41	44	19	16	4.3	8.0	5.1	17	19	17	NA	NA	290	430	NC
Copper (mg/kg)	47	35	17	7.4	<2.5	31	1.7	15	15	16	NA	NA	NL	NL	NL
Lead (mg/kg)	62	38	23	12	<5.0	19	<5.0	29	26	55	NA	NA	500	1,000	NC
Mercury (mg/kg)	0.074	0.048	0.036	<0.020	<0.020	0.035	<0.020	0.036	0.050	0.099	NA	NA	23	480	NC
Nickel (mg/kg)	58	35	28	8.4	<4.0	<4.0	<4.0	9.0	15	30	NA	NA	1,500	26,000	NC
Selenium (mg/kg)	6.4	2.6	3.8	2.8	<1.0	1.3	<1.0	1.6	2.1	12	NA	NA	390	9,900	NC
Zinc (mg/kg)	170	120	65	28	<2.0	46	9.5	67	99	120	NA	NA	23,000	560,000	NC

Notes:
 1) Only those compounds detected are reported above
 2) mg/kg = milligrams per kilogram
 3) soil standards as per FDEP Guidance Document
 4) NC = No Value Calculated
 5) NL = Not Listed
 6) NA = Not Analyzed

FIGURE 4