

Health Consultation

JERNIGAN TRUCKING DUMP
(a/k/a JERNIGAN/LEWIS/FERTIC DISPOSAL SITE)

SEFFNER, HILLSBOROUGH COUNTY, FLORIDA

CERCLIS NO. FLD981757446

APRIL 7, 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

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Prepared by:

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

Background and Statement of Issues

In September 1997, the U.S. Environmental Protection Agency (EPA) asked the Florida Department of Health (Florida DOH) to evaluate the potential health threat posed by the Jernigan/Lewis/ Fertic Disposal Site (Jernigan). This evaluation is part of EPA's Archive Pilot Program, which determines whether low hazard ranking sites require further activity or involvement by EPA (1). EPA has asked Florida DOH to assess the health threat to people working or trespassing on the site and to residents near the site from exposure to chemicals in soil and groundwater.

This health consultation will assess the public health threat from contaminants found in soil and groundwater at this site. The interpretation, advice, and recommendations presented in this report are site specific and should not be considered applicable to any other sites.

The Jernigan site is at 7911 Williams Road, Seffner, Hillsborough County, Florida (Figures 1 - 3). The site is about 117 acres in extent. The area surrounding the site is used for agriculture and as pastureland for dairy farming. There are several ponds on the eastern side of the site. The site was originally a sand pit and peat mining operation in the 1960's. During the mid-1970's, about 200 tons of salt (sodium chloride) were illegally dumped at the site. About this same time, battery casings from a lead battery recycling operation were also disposed of on the site (2, 3). All dumping operations were discontinued in 1984. However, illegal dumping of trash and garbage continued as late as 1992 (2, 3). State and county environmental agencies issued a number of citations for violation of environmental regulations (3). Despite orders for corrective action, however, some battery casings remain on the site (4).

According to 1990 census data, about 1,100 people live within a one-mile radius of the site. Family income in this area ranges from about \$25,500-\$29,500 per year. Racial makeup of the population is about 77% white and 20% black (5). There are six foster care homes, one private school, and one public school within one mile of the site. There are about 370 private wells that supply drinking water to about 90% of the homes within this area.

Soil, sediments, and groundwater have been sampled at the site. In February 1990, contractors for EPA collected four surface (depth 0-2 feet) and four subsurface (depth 3-4 feet) soil samples, and two sediment samples from the Jernigan site. They also collected two groundwater samples from two off-site private wells. They analyzed the samples for volatile organic compounds (VOCs), pesticides, metals, and cyanide (2). In July 1992, EPA contractors collected ten subsurface (depth not indicated) soil, four sediment samples, and two shallow groundwater (depth 4-8 feet) samples from the Jernigan site. They also collected a groundwater sample from each of two off-site private wells, one hydraulically downgradient to the southwest and one hydraulically upgradient to the northeast. They analyzed the samples for metals, VOCs, and chlorinated hydrocarbons (3).

The number of surface soil samples collected and analyzed from the site are limited. We do not consider the available surface soil data sufficient to characterize the extent and nature of the health threat from exposure to chemicals in the soil. This is a significant data gap. The number of

groundwater samples are also limited. The level of manganese in off-site private wells has increased. We do not know if the levels of other chemicals in groundwater on and off of the site are also increasing. This is also a significant data gap.

On September 12, 1997, Bruce Tuovila, Florida DOH, conducted a site visit at the Jernigan/Lewis/Fertic Disposal site. With him were David Hutchins, ATSDR, Ben Moore, ATSDR, and Julie Smith, Florida Department of Health. The Jernigan site is in a rural area east of Tampa. It is an active construction debris landfill bordered by cow pastures on the north, south, and east, and by Williams Road on the west (Fig. 4). They observed mounds of construction debris, several acres in size, consisting of dirt, concrete blocks, boards, and steel scrap. In several places there were battery casing chips visible on the surface of the ground. To the east of the mounds of debris, they observed an area where excavation of a low, swampy area was occurring. There was also evidence that part of the site had been used as a dirt bike (motorcycle) racing track. Another area was set up as a rifle or pistol target range. Access to the site is controlled from Williams Road by a chain-link fence and gate. However, site access is unrestricted from the cow pastures.

On January 29, 1999, Bruce Tuovila revisited the site to assess current conditions. The site is virtually unchanged from the previous site visit. However, Mr. Tuovila observed that the access gate was closed and locked. Several vehicles and a boat on a trailer were partially blocking the access road. The owner informed Mr. Tuovila that the site had been closed for about a year and no further dumping had occurred.

Table 1 shows the maximum level of each chemical of potential health concern in surface soil, subsurface soil, sediment, or groundwater samples collected at the site. Groundwater levels shown are for test wells on the site. The health significance of the lower levels found in private wells are presented in the discussion section below. Chemicals not shown in the tables are below screening levels. We selected the chemicals of concern by comparing the maximum concentration found to standard comparison values. A comparison value is used as a means of selecting environmental contaminants for further evaluation to determine whether exposure to them has public health significance. Those contaminants that are known or suspected human carcinogens were evaluated for both carcinogenic and non-carcinogenic adverse health effects.

Table 1. Maximum Contaminant Levels Measured

CONTAMINANT	MAXIMUM CONCENTRATION-SURFACE SOIL	MAXIMUM CONCENTRATION-SUBSURFACE SOIL	MAXIMUM CONCENTRATION-SEDIMENT	MAXIMUM CONCENTRATION-GROUNDWATER
ARSENIC	NA	3.3 mg/kg	NA	17 µg/L
LEAD	90 mg/kg	510 mg/kg	180 mg/kg	9 µg/L
MANGANESE	42 mg/kg	48 mg/kg	210 mg/kg	160 µg/L

mg/kg - milligrams per kilogram

µg/L - micrograms per liter

NA - not analyzed

Sources: (2, 3)

Discussion

To evaluate health effects, ATSDR has developed Minimal Risk Levels (MRLs) for contaminants commonly found at hazardous waste sites. The MRL is an estimate of daily human exposure to a contaminant below which non-cancer, adverse health effects are unlikely to occur. ATSDR developed MRLs for each route of exposure, such as ingestion, inhalation, and dermal contact, and for the length of exposure, such as acute (less than 14 days), intermediate (15 to 365 days), and chronic (greater than 365 days). ATSDR presents these MRLs in the Toxicological Profiles. These chemical-specific profiles provide information on health effects, environmental transport, human exposure, and regulatory status. The U.S. Environmental Protection Agency (EPA) has developed reference doses (RfDs) to evaluate non-cancer health effects resulting from exposure to chemicals at Superfund sites.

Both MRLs and RfDs are health guideline values that are usually derived from experimental animal data, based on broad assumptions, and corrected by a series of uncertainty factors. Thus, the values serve only as guidelines and not as absolute values that explicitly divide ranges of safety from ranges of risk. Additional medical or toxicological information must be evaluated to determine what adverse health effects are likely from exposure to chemicals of concern at a site.

To evaluate possible adverse health effects from incidental ingestion of chemicals in water, we used a standard ingestion rate for water of 1 liter per day (L/day) for children and 2 L/day for adults. To evaluate possible adverse health effects from incidental ingestion of chemicals in soil, we used a standard incidental ingestion rate of 200 milligrams per day (mg/day) for children and 100 mg/day for adults. We also used a standard body weight of 15 kilograms (kg) for children and 70 kg for adults.

The toxicological evaluation presented below for the chemicals of concern at this site is based on the available information about chemicals in soil, sediment and groundwater. As indicated above,

this environmental data is not adequate to fully assess the extent and nature of contamination at this site. Therefore, this evaluation may not completely reflect the public health threat represented by site-related contamination.

Arsenic

The maximum estimated daily dose of arsenic for children and adults from incidental ingestion of soil and sediment at this site is less than ATSDR's chronic oral MRL (6). This dose is at least 100 times less than the lowest level that has been found to cause illness in humans or animals. Arsenic is a known human carcinogen. However, lifetime exposure to the maximum estimated daily dose of arsenic in soil and sediment would result in no significant increase in the risk of cancer. Therefore, no illnesses are likely from incidental ingestion of arsenic in soil and sediment at this site. Arsenic also occurs in the shallow groundwater at the site. However, this water is not used for household consumption. No arsenic was detected in private wells near the site. Since no one is being exposed, illnesses are not likely in children or adults from exposure to arsenic in groundwater.

Lead

ATSDR has not established an MRL for lead. However, a No Observed Adverse Effect Level (NOAEL) has been developed based on observations of impaired blood production and changes in liver enzymes in rats (7). The maximum estimated daily dose of lead for children and adults from incidental ingestion of surface soil at this site is less than the NOAEL. Therefore, it is not likely that illnesses will occur from incidental ingestion of lead in surface soil at this site. The maximum estimated daily dose of lead from incidental ingestion of subsurface soil and sediment at this site exceeds the NOAEL for children, but not for adults. Because the subsurface soil and sediments are relatively inaccessible, it is not likely that sufficient exposure would occur to result in any illnesses in children. Lead also occurs in shallow groundwater and private well water at the site. However, the maximum estimated daily dose of lead for children and adults from incidental ingestion of lead in water is at least 40 times less than the NOAEL. Therefore, illnesses are not likely in children or adults from exposure to lead in groundwater.

Manganese

Manganese is an essential nutrient in the diet. Children and adults need between 1-5 mg of manganese per day for good health (8). The maximum estimated daily dose of manganese from incidental ingestion of soil and sediment at this site is at least 100 times less than this amount. Therefore, it is not likely that illnesses will occur in children or adults from incidental ingestion of manganese in soil and sediment at this site. Manganese also occurs in the shallow groundwater at the site. This water is not used for household consumption. Manganese was detected in private wells near the site. However, the maximum estimated daily dose of manganese from private well

water is less than EPA's RfD for manganese. Therefore, illnesses are not likely in children or adults from exposure to manganese in groundwater.

Child Health Considerations

Because children are present, the health effects from exposure to chemicals in young children are a special concern. Children are generally exposed to greater levels of contaminants in soil because their activities bring them into greater contact with the soil. They are often more sensitive to the effects of chemical exposures than adults.

Children are especially sensitive to the effects of exposure to lead (7). They may also be at increased risk from exposure to manganese (8). However, as detailed in the discussion section above, there is not likely to be sufficient exposure to these chemicals in young children at this site to cause any illnesses.

Conclusions

Based upon the information reviewed, we categorize this site as an indeterminant public health threat. The currently available information indicates that illnesses are not likely in adults and children from exposure to arsenic, lead, and manganese in soil, sediment, and groundwater. However, significant data gaps exist for surface soil and groundwater. Additional information is needed to fully evaluate the public health threat from exposure to chemicals at this site.

Recommendations

The Florida Department of Health recommends that the Florida Department of Environmental Protection collect and analyze additional surface soil (0 - 3 inches) and groundwater samples from the Jernigan/Lewis/Fertic Disposal site to more fully characterize the extent and nature of the contamination. Florida DOH will evaluate this information to determine the public health threat represented by this site and what actions, if any, are necessary to protect public health.

References

1. Agency for Toxic Substances and Disease Registry. Regional Information System Record of Activity regarding EPA Archive Pilot Program. September 16, 1997.
2. NUS Corporation. Final Screening Site Inspection Report, Phase II, Jernigan Trucking Dump, Seffner, Hillsborough County, Florida. September 24, 1990.
3. B&V Waste Science and Technology Corp. Final Expanded Site Inspection, Jernigan Trucking Dump and Lewis/Fertic Disposal, Seffner, Hillsborough County, Florida. March 10, 1993.
4. Florida Department of Environmental Protection. Personal communication to Bruce Tuovila, Florida DOH, from Allison Amram, Florida DEP, regarding disposition of battery casing chips at Jernigan site. December 28, 1998.
5. Bureau of the Census, U.S. Department of Commerce, Washington, DC, 1990 Census Data Files.
6. Agency for Toxic Substances and Disease Registry. Toxicological Profile for Arsenic (Update). ATSDR: Atlanta, April 1993.
7. Agency for Toxic Substances and Disease Registry. Toxicological Profile for Lead (Draft Update). ATSDR: Atlanta, August 1997.
8. Agency for Toxic Substances and Disease Registry. Toxicological Profile for Manganese (Draft Update). ATSDR: Atlanta, September 1997.

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CERTIFICATION

This Jernigan/Lewis/Fertic Disposal Site Health Consultation was prepared by the Florida Department of Health under a cooperative agreement with the Agency for Toxic Substances and Disease Registry (ATSDR). It is in accordance with approved methodology and procedures existing at the time the health consultation was begun.



Roberta Erlwein

Technical Project Officer

Division of Health Assessment and Consultation (DHAC)

ATSDR

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



Richard Gilling

Section Chief, SSAB, DHAC, ATSDR

Figure State Map Showing Location of Hillsborough County

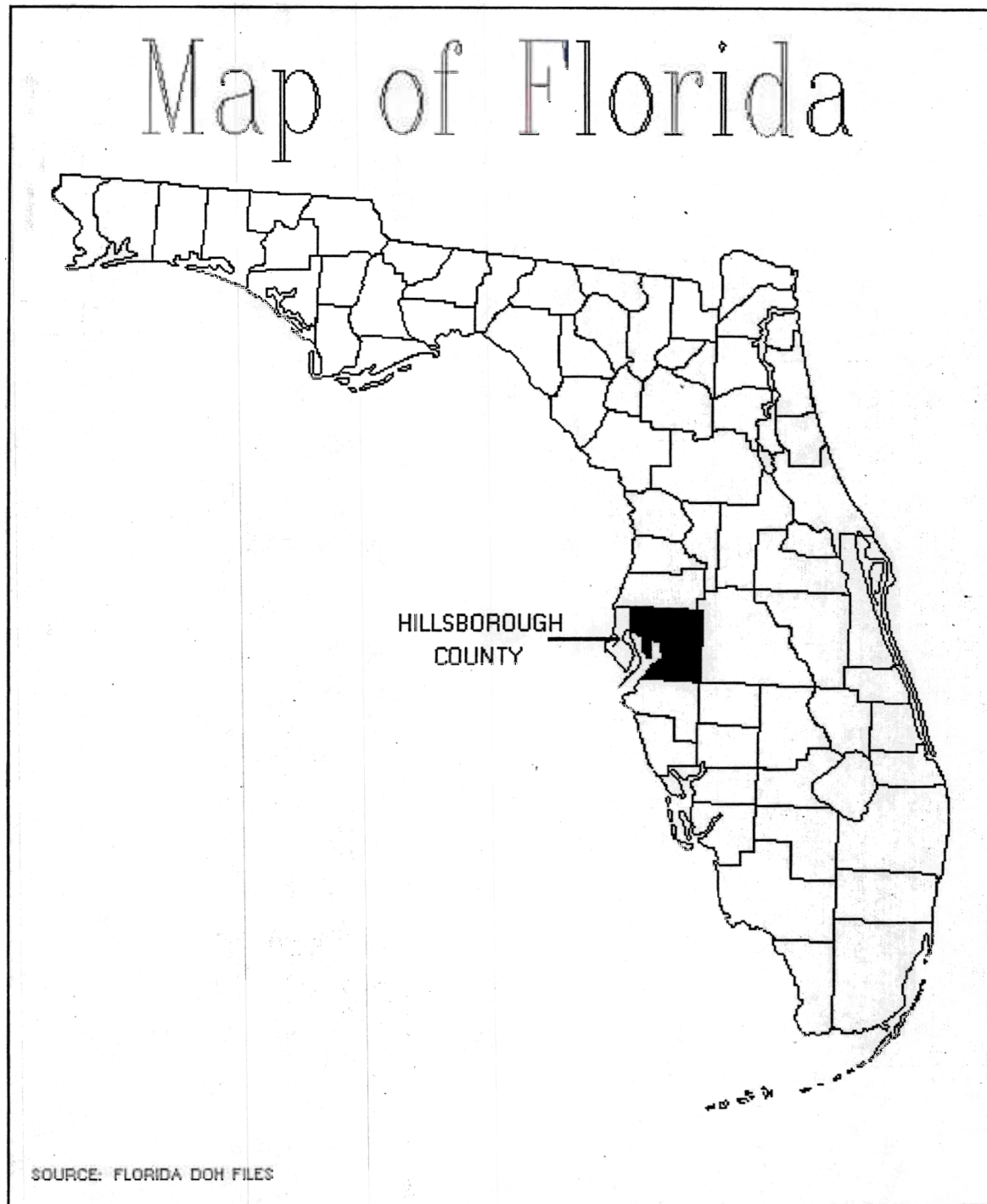


Figure 2. Location of Jernigan/Lewis/Fertic Disposal Site in Hillsborough County

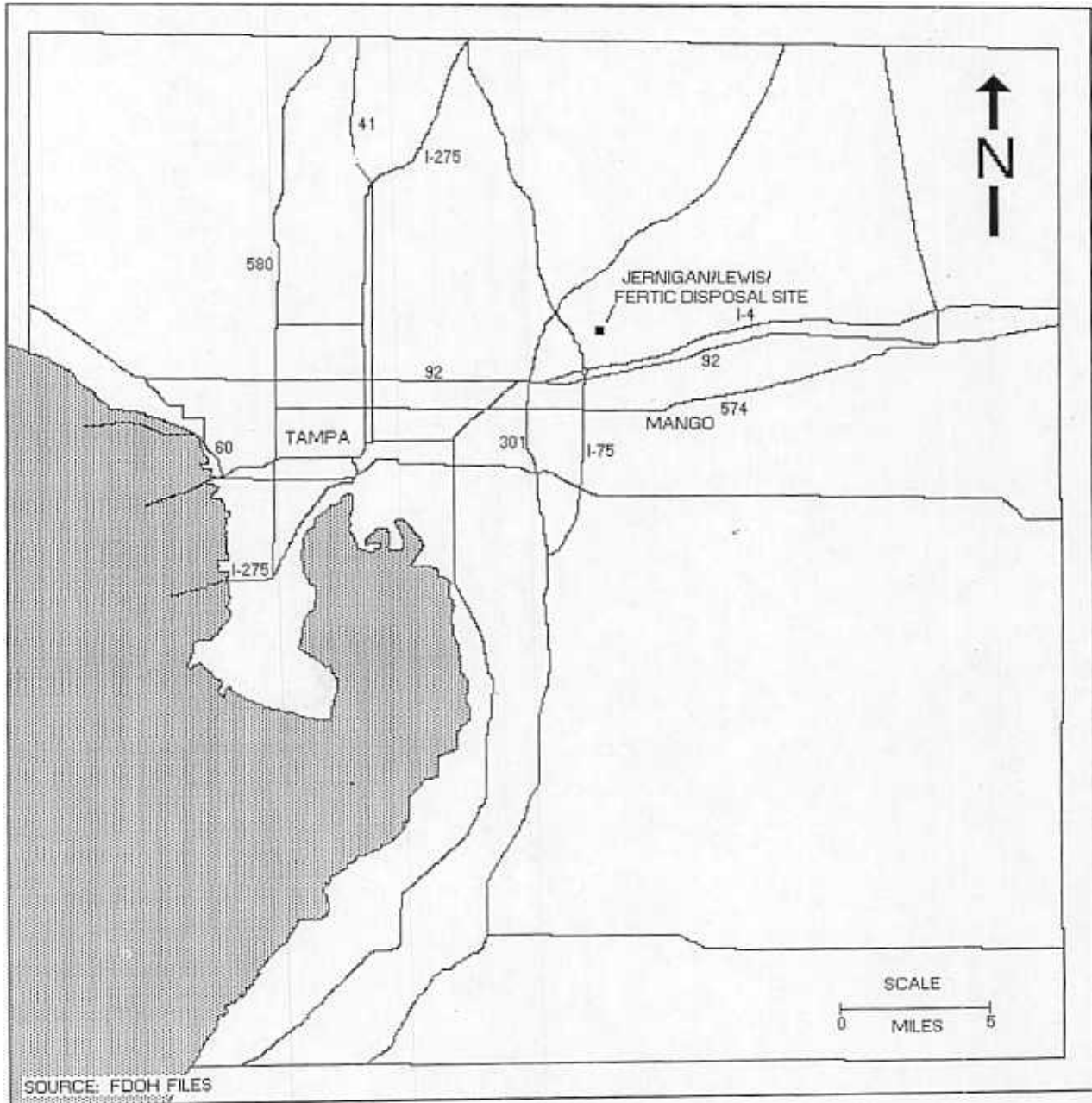


Figure 3. Location of Jernigan/Lewis/Fertic Disposal Site in Tampa

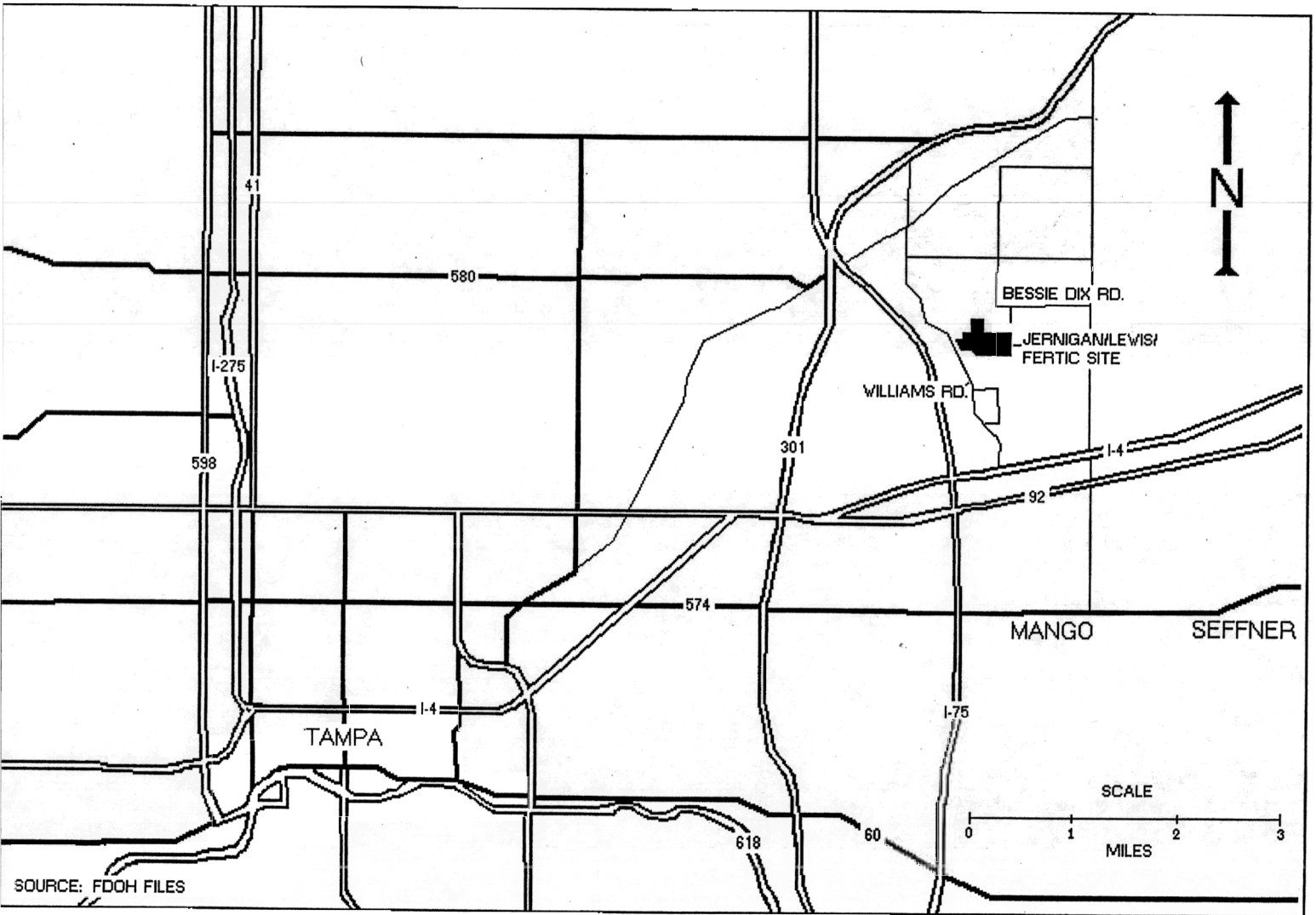


Figure 4 Detail of Jernigan/Lewis/Fertic Disposal Site

