Public Health Assessment for

WHITEHOUSE WASTE OIL PITS
WHITEHOUSE, DUVAL COUNTY, FLORIDA
CERCLIS NO. FLD980602767
SEPTEMBER 14, 1992

.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
UBLIC HEALTH SERVICE
gency for Toxic Substances and Disease Registry

PUBLIC HEALTH ASSESSMENT

WHITEHOUSE WASTE OIL PITS

WHITEHOUSE, DUVAL COUNTY, FLORIDA

CERCLIS NO. FLD980602767

Prepared by

Florida Department of Health and Rehabilitation Services (HRS)
Under a Cooperative Agreement with:
Agency for Toxic Substances and Disease Registry (ATSDR)

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SUMMARY

The Whitehouse Waste Oil Pits National Priorities List (NPL) site is located about 0.5 mile northwest of the community of Whitehouse in western Duval County, Florida. After waste oil spilled into the northeast tributary of McGirts Creek in 1968 and 1976, the Environmental Protection Agency stabilized and covered the remaining waste oil from the abandoned oil recycling business. Soils and ground water at the site are contaminated with heavy metals, primarily lead. Low level contamination remains in the surface water and sediments of the northeast tributary of McGirts Creek. All of the 25 families that live within 0.5 mile south of the site depend on ground water for domestic use. These residents are particularly concerned about children who play on the site being exposed to toxic chemicals and about contamination of their private potable wells. Dermal contact with the exposed waste oil is a likely exposure pathway for children and other trespassers on the site. Dermal contact with the waste oil by remediation workers and ingestion of contaminated ground water by nearby residents are potential exposure pathways. This public health assessment recommends covering the exposed waste oil, restricting site access, continuing monitoring of the nearby private potable wells, and effectively protecting workers during any future site remediation. Based on public accessibility to exposed waste oil on the site and the potential for contamination of nearby private potable wells, this site is judged to be a public health hazard.

The data and information developed in the Whitehouse Waste Oil Pits Public Health Assessment have been evaluated for appropriate health follow-up activities by the Agency for Toxic Substances and Disease Registry (ATSDR), Health Activities Recommendations Panel. The panel recommends health education about potential exposure for the community.

BACKGROUND

A. Site Description and History

Allied Petroleum Products Company operated a used motor oil recycling business at the Whitehouse Waste Oil Pits site from 1958 until it went out of business in 1968. The City of Jacksonville obtained title to the site when the property taxes were not paid. In 1980, Mr. Richard D. Peters obtained title to a portion of the site from the City of Jacksonville by paying the back property taxes. The U.S. Environmental Protection Agency (EPA) has concluded that Mr. Peters is not a likely source of funds for cleanup of this site.

Disposal of waste acid sludge and clay in unlined pits at this site contaminated soil and ground water. Releases from the waste oil pits in 1968 and 1976 contaminated the northeast tributary of McGirts Creek and portions of McGirts Creek (also known as Ortega Creek). In 1976, EPA, in cooperation with the U.S. Coast Guard, the U.S. Navy, the Jacksonville Oil Spill Committee, the Florida Department of Environmental Regulation (DER) and the Jacksonville/Duval County Bio-Environmental Services Division (BESD), cleaned up most of the oil from McGirts Creek and its northeast tributary. The fluids remaining in the pits consisted of oils floating on a layer of water and sludge.

From 1977 to 1978, the City of Jacksonville Mosquito Control Branch bottom drained the water, treated it to meet surface water standards, and discharged it to the northeast tributary of McGirts Creek. The remaining oil and sludge was removed from the pits, mixed with a highly absorbent clay-like material, and returned to the pits. This oil/clay mixture was then covered with selected construction debris, scrap lumber, trees, and wood chips. The site was covered by a layer of sand and planted with grass.

The Whitehouse Waste Oil Pits site was added to the National Priorities List in 1983. This same year the Florida DER completed an investigation delineating soil and ground-water contamination (1). EPA signed a Record of Decision (ROD) in 1985 following the completion of a Remedial Investigation and Feasibility Study (RI/FS). This ROD proposed construction of an impermeable cap over the entire site, installation of a slurry wall to contain the contaminated ground water, and treatment of the contaminated ground water (2).

In a 1989 Health Assessment, the Agency for Toxic Substances and Disease Registry (ATSDR) concluded that the Whitehouse Waste Oil Pits site is of potential health concern (3). In January 1989, EPA conducted a Post Remedial Investigation at the site to further characterize the water and sediment quality in the

northeast tributary of McGirts Creek (4). In January 1991, EPA prepared a risk assessment for this site (5). This public health assessment is being prepared by the Florida Department of Health and Rehabilitative Services (HRS) for ATSDR in conjunction with a forthcoming change of the 1985 ROD.

The Whitehouse Waste Oil Pits site is located near the community of Whitehouse in Duval County, Florida. Whitehouse is about 10 miles west of Jacksonville near the intersection of US Highway 90 W. (Beaver Sreet) and Chaffee Road. The site is located about 0.5 mile northwest of Whitehouse, at the end of Machelle Drive (see Figures 1-3, Appendix A).

The site occupies about 7 acres and is bounded on the south and east by drainage ditches and on the northwest by the northeast tributary of McGirts Creek. Due to past remedial actions, the area of the former pits are raised about 5 to 7 feet above the surrounding land. The site is covered by grass, but in several places the waste oil has migrated to the surface. These places or "boils" are a viscous mass of semisolid black oil that softens during the hot summer months.

The following is a history of the oil recycling operation and subsequent remedial actions at this site as summarized in Remedial Action Master Plan for Whitehouse Waste Oil Pits, Duval County Florida: Ecology and Environment Report (6).

> *Allied Petroleum constructed the pits to dispose of waste oil sludge and acid from its oil reclaiming process. The first pits were constructed in 1958, and by 1968 the company had constructed and filled seven pits [See maps in Appendix A]. Allied Petroleum [Products Company] then went bankrupt and most of the property transferred to the City of Jacksonville for nonpayment of taxes. It is suspected that various companies, including a local General Electric Company transformer repair shop, used the pits for waste disposal after they were abandoned by Allied Petroleum.*
>
> *In 1968 the dike surrounding Pit No. 7 ruptured, and the contents spilled onto adjacent private property and into McGirts Creek. Photographic evidence indicates that Pit No. 7 was backfilled with soil after this incident; however, confirmatory information is not available. Recognizing the need to control the water level in other pits to prevent further discharges, the City of Jacksonville Mosquito Control Branch began building a two-cell oil-water separator in series with a limestone filter to dewater the pits. The City attempted to reinforce the ponds' retaining walls to prevent further pollution problems in 1967, 1972, and 1974.*

On June 29, 1976, the EPA Region IV Environmental Emergency Branch became involved following a 200,000 gallon oil spill from Pit No. 6. The spill resulted when the Jacksonville Mosquito Control Branch was attempting to repair a dike wall. An oil spill emergency was declared and the U.S. Coast Guard, the Jacksonville Oil Spill Control Committee, the U.S. Navy, and the Bio-Environmental Services Division (BESD) were mobilized under the direction of the Oil Spills Group of the EPA Region IV Environmental Emergency Branch. Cleanup measures were initiated on the evening of June 29, 1976 (Ecology and Environment, 1981). EPA also recognized the potential hazard posed by the remaining five pits, and with the assistance of the City of Jacksonville, constructed a treatment system in order to drain the pits. The treatment plant consisted of the following processes in series: two oil-water separation ponds, a limestone-filled neutralization pit, an oil-water separation pump, an activated-carbon mixing chamber, a sedimentation basin, and a sand filter. The treated water was discharged to McGirts Creek.

Analysis of a waste sample for design and construction of the treatment plant, indicated the presence of polychlorinated biphenyls (PCBs) (8.7 to 23.33 parts per million (ppm), acids (less than Ph 2), and heavy metals (copper, lead, zinc, cadmium, and chromium). The primary purpose of the waste treatment plant was to control PCBs, and the plant was successful in that the effluent consistently contained less than 1 parts per billion (ppb) PCBs...

After draining the water from the pits, the Mosquito Control Branch took measures to stabilize the ponds. Since the remaining viscous water oil sludge would not support heavy construction equipment, the ponds were backfilled with selected construction debris, scrap lumber, trees, wood chips, and non-degradable wastes. A three-inch layer of automobile shredder waster was placed on top of this matrix. The more liquid portion of the waste oil sludge was pumped off, mixed with Fuller's earth, and then (sic) used as a backfill/sealer over the automobile shredder waste. This layer of Fuller's earth and oil was relatively impervious and should have prevented vertical percolation of rainwater. The Fuller's earth mixture was then covered with eight to twelve inches of clean earth (mostly sand). After the project ran out of Fuller's earth, local clay was substituted as a landfill capping material for the Fuller's earth and

oil mixture. Figure 1-3 provides a schematic representation of the pits configuration after these activities were completed.

After stabilization was completed, the site was planted in local grasses, and ditches were constructed north and south of the oil pits. The runoff from these ditches during low flow periods was diverted to a limestone neutralization pit before discharge to the Northeast Tributary of McGirts Creek. During storm events, drainage flowed directly to the Northeast Tributary. This system was destroyed by vandals, and subsequent monitoring in 1979 showed the continuing release of pollutants to surface water and groundwater.

Following this monitoring, the City of Jacksonville under contract with FDER [Florida Department of Environmental Regulation] covered the surface and sides of the pits and dikes with six inches of low permeability local clay, followed by twelve inches of topsoil. This cover was revegetated using local grasses. The drainage was modified by filling the north ditch and constructing a new ditch along the east side. The new ditch was lined with clay to keep leachate out of the surface water and 3 drop structures were constructed to control flow velocity and erosion. The south ditch was also reconstructed by removing the site access culverts and installing a clay liner and 3 drop structures. This arrangement diverted surface water away from the landfill, thus reducing the mechanism for pollutant transport. This second stabilization project was completed in the summer of 1980.

B. Site Visit

Dr. Joe Sekerke, Florida Department of Health and Rehabilitative Services (HRS), Office of Toxicology and Hazard Assessment (HSET) and Mrs. Grazyna Pawlowicz and Mr. Mac Atwood of the Florida HRS Duval County Public Health Unit (CPHU), Office of Sanitary Engineering visited the site on January 23, 1991. No fences or other security measures were observed at the site. One warning sign was found face down at the northeast corner of the site. Evidence of trespassers eating, drinking, and smoking on the site was observed. There was also evidence of target practice with small caliber guns and riding of all-terrain vehicles over the site. Construction debris and junked automobiles were observed north of the site boundary.

A large "boil" consisting of about 36 square feet (ft^2) of black viscous semisolid oil with a distinct petroleum odor was observed

at the surface in the northeast corner of the site. This "boil" was apparently the result of the destruction of the vegetative cover by vehicular traffic, subsequent erosion of the cap, and exposure of the underlying waste oil. Five other smaller "boils" were observed on the site. There were 20 to 30 unmarked 55-gallon drums on the site, most likely from the feasibility and treatability studies. No aquatic life was observed in the northeast tributary of McGirts Creek adjacent to the site. There was evidence of children playing upstream from the site in this tributary of McGirts Creek.

Dr. Sekerke and Mr. Atwood visited the site again on February 5, 1991 to confirm the location of the monitoring and private wells.

Mr. Randy Merchant of the Florida HRS and Mrs. Leghia Mora-Applegate of the Florida DER, Bureau of Waste Cleanup met with Mr. Gerald Young and Mr. Greg Radlinski, City of Jacksonville Bio-Environmental Services Division and Ms. Sally Heuer, Florida DER on June 27, 1991 to discuss public health concerns and site history. Mr. Merchant, Mrs. Mora-Applegate, and Mr. Atwood of the Duval CPHU visited the site that afternoon. The site conditions were similar to those observed in January and February. Blackberry plants were abundant on site. Mr. Merchant and Mr. Atwood observed seepage from the site toward the northeast tributary of McGirts Creek. This seepage had a faint petroleum odor and an oil sheen. Mr. Merchant and Mr. Atwood spoke with the nearest resident to the site. Although this resident has not had any problem with his water quality, he abandoned a potable well located 20 feet south-southeast of monitoring well number D-1 in 1988 due to fear of future contamination. He now only uses the well on the south side of his property which is about 100 feet south-southeast of monitoring well D-1. No air, soil, or water samples were collected during these site visits.

C. Demographics, Land Use, and Natural Resources Use

The Whitehouse Waste Oil Pits site is located about 0.5 mile northwest of Whitehouse, a predominately white, low to middle income community of about 600 residents (5). An elementary school and a sewage treatment plant are located on the south side of Whitehouse. US Highway 90 and Interstate 10 run east-west south of Whitehouse.

It is not known how many people Allied Petroleum employed at this site. It is unlikely that anyone lived on this site when it was in operation from 1958 to 1968. Nobody currently lives on this site.

Land use within 1 mile of the site is predominately residential and hardwood swamps. An uninhabited cypress-hardwood swamp

predominates the area north and west of the site. Southwest of the site, along Machelle Drive, there are about 25 low to middle income, single family houses and trailers, the nearest of which is within 50 feet of the site. The area south and southeast of the site is covered by grasses and woods, respectively. Most of the community of Whitehouse is within 0.5 mile radius east of the site.

The northeast tributary of McGirts Creek marks the northwest boundary of the site. This tributary joins McGirts Creek (also known as Ortega Creek) about 1200 feet west of the site. The Florida DER Northeast District office and the Jacksonville BESD both estimate that people fish in McGirts Creek as far upstream as Chaffee Road. This is about 1.5 miles downstream of the site (7). McGirts Creek is classified by the Florida DER as Class III Waters: recreation, propagation and maintenance of a healthy, well-balanced population of fish and wildlife. The northeast tributary of McGirts Creek is too small, however, for recreational use such as swimming, boating, etc. McGirts Creek flows about 16 miles southeast, east, and then northeast before joining the Ortega River. The Ortega River flows northeast about 4 miles before joining the St. Johns River. None of these surface water bodies is used as a drinking water supply.

There are some small scale (<0.5 acre) vegetable gardens in the residential areas near the site. Hunting does not appear to be prevalent near the site.

There are some industrial facilities along US Highway 90 on the southeast side of Whitehouse. The Coleman-Evans Wood Preserving Co. Superfund hazardous waste site is located about 0.25 mile southeast of Whitehouse and about 0.75 mile southeast of the Whitehouse Waste Oil Pits site. Past disposal of waste pentachlorophenol and fuel oil wood preservatives has resulted in soil and shallow ground-water contamination near this site. It does not appear that the deeper drinking water aquifer at this site is contaminated. Soil and surface water contamination appear to be limited to within 500 feet of the site (8). Trinity Industries, a fabricated plates work and Owens Steel Company of Florida are also located in the same area southeast of Whitehouse.

The shallow aquifer below the Whitehouse Waste Oil Pits site extends from 0 to 30 feet below the surface and is composed mostly of sand. It is divided into two layers by a low permeability ("hardpan") layer that slows the downward infiltration of water. The pits that were dug at this site cut through this "hardpan" layer. Site specific measurements indicate that ground-water flow in the upper portion of the shallow aquifer is northwest toward the northeast tributary of McGirts Creek, and flow in the lower portion is west toward the main channel of McGirts Creek.

The next aquifer below the site is commonly referred to as the "rock" aquifer. It is composed of limestone and extends from about 90 to 130 feet below land surface. It is separated from the shallow aquifer above by about 60 feet of low permeability sandy clay. This rock aquifer is the source of potable water for all nearby residences. The hydraulic head between the shallow and the rock aquifer is upwards. At times, some of the wells in the rock aquifer flow without being pumped. Regional flow for this aquifer is east to east-northeast. Site specific measurements, however, indicate that in and around this site, the rock aquifer flows to the south-southwest. This may be the result of pumping by domestic wells along Machelle Drive.

The Floridan aquifer in western Duval County is composed of limestone and extends from about 500 to 2,000 feet below land surface. It is separated from the aquifers above by 200-300 feet of low permeability clays of the Hawthorne Formation. Consequently, there is little or no recharge of this aquifer within the county. This aquifer is not used for potable supply in the Whitehouse area due to the expense of drilling wells to this depth. The nearest potable supply well in the Floridan aquifer is about 10 miles to the east. Regional flow in this aquifer is to the southeast.

D. State and Local Health Data

The Duval County Public Health Unit (CPHU) has sampled the private wells near the Whitehouse Oil Pits site but has not conducted any independent health studies or investigations. Whitehouse Elementary School officials were contacted regarding any pattern of illnesses that could be linked to exposure to this site.

Florida HRS epidemiologist reviewed the state birth defect and cancer registry data bases for the 32220 zip code. This zip code includes this site and an area of western Duval County bounded on the north by Pritchard Road, on the east by Interstate 95, on the south by Interstate 10 and on the west by Otis Rd (see Figure 4, Appendix A). The birth defect data base covers birth defects reported from 1980 through 1982 and the cancer data base covers cancers reported from 1981 through 1987. In 1980, the population in this zip code was 7,345. The population of Whitehouse makes up about 8% of the total population of this zip code.

Observations by Whitehouse Elementary School officials and results of the state birth defects and cancer registry data base searches are discussed in the Health Outcome Data Evaluation section.

COMMUNITY HEALTH CONCERNS

This site has received considerable media attention. It was the subject of a 1979 ABC-TV documentary "The Killing Ground" and a nationally syndicated newspaper column by Jack Anderson in August 1986. Whitehouse residents, especially those living adjacent to the site, expressed these health concerns at EPA/Florida DER sponsored public meetings on May 9, 1984, March 28, 1985, April 18, 1985, and January 30, 1992 (9):

1. The community is concerned that contamination of their individual potable wells might cause cancer.

2. The community is concerned that children and other trespassers on the site might have been exposed to toxic chemicals and may suffer adverse health effects.

3. The community is concerned that vegetables grown near the site might be contaminated.

4. The community is concerned that the water, fish, and sediments in McGirts Creek and its northeast tributary have been contaminated.

5. Former remediation workers are concerned that they suffered transient skin irritation from contact with the waste oil between 1978 and 1979.

ENVIRONMENTAL CONTAMINATION AND OTHER HAZARDS

To identify facilities that could contribute to the soil and ground-water contamination near the Whitehouse Oil Pits site, the 1987, 1988 and 1989 Toxic Chemical Release Inventory (TRI) data base was searched. TRI was developed by the U.S. Environmental Protection Agency (EPA) from the chemical release (air, water, soil) information provided by certain industries. Four facilities within the 32220 zip code, which includes the Whitehouse Waste Oil Pits site, reported releases between 1987 and 1989. Trinity Industries, a fabricated plates work, is located at 11,934 W. Beaver, near the intersection with Chaffee Road. Trinity Industries estimated it released 53,412 pounds of xylenes to the air between 1987 and 1989. Owens Steel Company of Florida is located at 10,483 General Avenue, about 0.75 mile southeast of the Whitehouse Waste Oil Pits site. Owens Steel estimated that in 1989 it released 510 pounds of chromium and 44 pounds of manganese to the air. Owens Steel also estimated that in 1989 it released 74 pounds of chromium and 630 pounds of manganese to the land. The other two facilities in this zip code reporting releases between 1987 and 1989 were FloFab, a lubricated wire products manufacturer and Dantzler Lumber and

Export Company. Both are located about 3 miles east of the site. Due to the distance, releases from these two facilities are unlikely to have had an impact around the Whitehouse Waste Oil Pits site.

Past waste oil and acid disposal has caused soil, ground-water, surface water, and sediment contamination at this site. Spills in 1968 and 1976 contaminated McGirts Creek and its northeast tributary downstream from the site.

Soil, ground-water, surface water and sediment quality data were compiled from 4 sources: the 1983 Florida DER report (1), the 1989 EPA Post Remedial Investigation (4), the 1991 EPA Risk Assessment (5), and private wells sampled by the Duval CPHU from 1976 to 1991 (10). These data indicated that heavy metals and polychlorinated biphenyls (PCBs) were the most significant contaminants. Other metals and some extractable and volatile organics were found, but at concentrations below levels of concern.

Four chemicals or chemical groups: lead, chromium, nickel, and polychlorinated biphenyls (PCBs), were selected as representative of the chemicals associated with this site. Lead, chromium, and nickel were selected because of their toxicity and occurrence in high concentrations in soil and ground-water samples. PCBs were selected because of their detection in the soils on site and their toxicity. Mere selection of these chemicals, however, does not imply that a human health threat exists at this site. The health implications of these chemicals are discussed in the Public Health Implications section.

In this public health assessment, the contamination that exists on the site will be discussed first, separately from the contamination that occurs off the site. "On site" will be defined as the area bounded on the south and east by the drainage ditches and on the north and west by the northeast tributary of McGirts Creek. The creek and drainage ditches themselves will be considered "off site."

A. On-Site Contamination

The contamination on this site is concentrated in the viscous oil/soil mixture that underlies most of the site. Leaching of this waste oil has contaminated ground water under the site.

On-Site Surface Soils and Exposed Waste Oil

In May 1990, EPA contractor Ebasco Services collected eight surface soil and exposed waste oil samples (depth not specified)

from various locations on the site (5). Three of these samples were from the waste oil "boils" where the waste oil was exposed at the surface. The highest concentrations of lead, chromium, nickel, and PCBs were found in these waste oil "boils." The concentrations of lead, chromium, nickel, and PCBs found in these samples were above the levels found in the background subsurface soil sample. It should be noted that the site is heavily vegetated, and unless it is disturbed, the contaminated soil or waste oil is not likely to become airborne.

Table 1. On-Site Surface Soils and Exposed Waste Oil
(depth not specified)

Contaminants of Concern	# Positive/ # Sampled	Concentration (mg/kg)	Background Concentration (mg/kg)
Lead	7/8	nd - 36,000	nd
Chromium	5/8	nd - 45	5
Nickel	2/4	nd - 11*	nd
PCBs	2/4	nd - 46	nd

mg/kg - milligrams per kilogram
* - estimated concentration based on sample dilution

Source: 1991 EPA Risk Assessment (5)

On-Site Subsurface Soils and Buried Waste Oil

In 1983, Florida DER collected 12 subsurface soil and 3 buried waste oil samples (5-30 feet deep) from the site. Florida DER also collected a background subsurface soil sample about 300 feet southeast of the site, near the intersection of Grayson Street and Chaffee Road (1). In May 1990, EPA contractor Ebasco Services collected 8 buried waste oil samples (6-14 feet deep) (5). The highest concentrations of lead, chromium, nickel, and PCBs were found in the buried waste oil samples.

Table 2. On-Site Subsurface Soils and Buried Waste Oil
(5-30 feet deep)

Contaminants of Concern	# Positive/ # Sampled	Concentration (mg/kg)	Background Concentration (mg/kg)
Lead	19/23	nd - 22,000	nd
Chromium	22/23	nd - 110	5
Nickel	10/23	nd - 45	nd
PCBs	5/23	nd - 54	nd

mg/kg - milligrams per kilogram
nd - not detected (detection limits not reported)

Source: 1983 Florida DER Report (1), 1991 EPA Risk Assessment (5)

On-Site Shallow Ground Water

In 1983, Florida DER sampled the shallow ground water (5-15 feet deep) from 6 monitoring wells on the northern half of the site. For comparison, Florida DER also sampled the uncontaminated shallow ground water about 300 feet southeast (hydraulically upgradient) of the site (1). In 1990, EPA contractor Ebasco Services resampled two of these on-site wells (5). Table 3 summarizes results from both of these sample events.

The shallow ground water on site was contaminated with high levels of chromium and nickel, well above the health based comparison values. The concentrations of lead in the shallow ground water were only slightly above the health based comparison values. Health based comparison values are EPA or ATSDR estimates of daily exposure to contaminants below which adverse health effects are unlikely to occur. Background concentrations of lead, chromium, nickel, and PCBs in the shallow ground water were 0.01 mg/L, 0.01 mg/L, 0.17 mg/L, and below detection limits, respectively. Detection limits were not specified.

Table 3. On-Site Shallow Ground Water
(5-15 feet deep)

Contaminants of Concern	# Positive/ # Sampled	Concentration (mg/L)	Health Based Comparison Values (mg/L)
Lead	8/8	0.05 - 0.90	0.015[a]
Chromium	8/8	0.2 - 68	0.05[b]
Nickel	7/8	0.6 - 43	0.1[c]
PCBs	1/8	nd - 0.001	0.05[d]

mg/L - milligrams per Liter
nd - not detected (detection limits not reported)
[a] - June 1991 EPA action level for lead in drinking water.
[b] - Derived from the oral Reference Dose for children
[c] - Lifetime Health Advisory.
[d] - 1992 ATSDR Environmental Media Evaluation Guide (EMEG) for children.

Source: 1983 Florida DER Report (1) and 1991 EPA Risk Assessment (5)

On-Site Deep Ground Water

In 1983, Florida DER sampled the ground water in the rock aquifer (90-130 feet deep) from a monitoring well in the northwestern part of the site. For comparison, Florida DER also sampled the uncontaminated ground water in the rock aquifer from a well about 300 feet southeast of the site (1). In 1990, EPA contractor Ebasco Services sampled the deep ground water from another monitoring well in the northwestern part of the site (5).

The ground water in the rock aquifer on site was contaminated with high levels of chromium, well above the health based comparison value. Health based comparison values are EPA or ATSDR estimates of daily exposure to contaminants below which adverse health effects are unlikely to occur. Lead, nickel and PCBs were below the comparison values. Background concentrations of lead, chromium, nickel, and PCBs in the deep ground water were 0.03, 0.01, 0.001 mg/L, and below detection limits, respectively.

Table 4. On-Site Deep Ground Water
(90-130 feet deep)

Contaminants of Concern	# Positive/ # Sampled	Concentration (mg/L)	Health Based Comparison Value (mg/L)
Lead	2/2	0.02 - 0.05	0.015[a]
Chromium	2/2	0.03 - 5.70	0.05[b]
Nickel	2/2	0.1 - 0.26	0.1[c]
PCBs	0/2	nd	0.05[d]

mg/L - milligrams per Liter
nd - not detected (detection limits not reported)
[a] - June 1991 EPA action level for lead in drinking water.
[b] - Derived from the oral Reference Dose for children.
[c] - Lifetime Health Advisory.
[d] - 1992 ATSDR Environmental Media Evaluation Guide (EMEG) for children.

Source: 1983 Florida DER Report (1) and 1991 EPA Risk Assessment (5)

B. Off-Site Contamination

Past waste oil spills contaminated off-site soils, ground water, surface water, and sediments. Although none of the private potable wells in the rock aquifer south and southwest of the site along Machelle Drive have been affected, they are threatened by the proximity of contaminated ground water. The water quality in McGirts Creek and its northeast tributary has improved since the oil spills in 1968 and 1976. Shallow ground-water discharge to the drainage ditches and the northeast tributary of McGirts Creek, however, continues to be a source of low level surface water contamination. The sediments in McGirts Creek and its northeast tributary are still contaminated compared to background.

Off-Site Surface Soils

In May 1990, EPA contractor Ebasco Services collected one surface soil sample about 5 feet south of the site at the end of Machelle Drive (depth not specified). The concentration of lead was

higher than the background sample. The concentration of chromium in this sample was the same as in the background subsurface soil sample. The concentrations of nickel and PCBs were below detection limits (5). Since there are no data on the prevailing wind direction, it is not possible to determine if this sample is representative of off-site soil down wind from the site. This one surface soil sample is inadequate to determine the extent of off-site surface soil contamination. Additional samples should be taken to better characterize the extent of the off-site surface soil contamination. These surface soil samples should be taken along the southwest boundary of the site on either side of Machelle Drive.

Table 5. Off-Site Surface Soils
(depth not specified)

Contaminants of Concern	# Positive/ # Sampled	Concentration (mg/kg)	Background Concentration (mg/kg)
Lead	1/1	18	nd
Chromium	1/1	7.6	5
Nickel	0/1	nd	nd
PCBs	0/1	nd	nd

mg/kg - milligrams per kilogram
nd - not detected (detection limits not reported)

Source: 1991 EPA Risk Assessment (5)

Off-Site Subsurface Soils

In 1983, Florida DER collected subsurface soil samples (10-30 feet deep) from 2 off-site locations. One location was about 100 feet south of the site at the end of Machelle Drive and the other was about 1,400 feet southwest of the site in a pasture. Concentrations of lead, nickel, and PCBs were all below detection limits. The concentrations of chromium were similar to background levels (1).

Table 6. Off-Site Subsurface Soils
(10-30 feet deep)

Contaminants of Concern	# Positive/ # Sampled	Concentration (mg/kg)	Backgrou Concentrat (mg/kg)
Lead	0/2	nd	nd
Chromium	2/2	2 - 8	5
Nickel	0/2	nd	nd
PCBs	0/2	nd	nd

mg/kg - milligrams per kilogram
nd - not detected (detection limits not reported)

Source: 1983 Florida DER Report (1)

)ff-Site Shallow Ground Water

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Table 7. Off-Site Shallow Ground Water
(5-15 feet deep)

Contaminants of Concern	# Positive/ # Sampled	Concentration (mg/L)	Health Based Comparison Value (mg/L)
Lead	10/10	0.01 - 0.15	0.015[a]
Chromium	10/10	0.01 - 0.20	0.05[b]
Nickel	10/10	0.02 - 0.16	0.1[c]
PCBs	0/10	nd	0.05[d]

mg/L - milligrams per Liter
nd - not detected (detection limits not reported)
[a] - June 1991 EPA action level for lead in drinking water.
[b] - Derived from the oral Reference Dose for children.
[c] - Lifetime Health Advisory.
[d] - 1992 ATSDR Environmental Media Evaluation Guide (EMEG) for children.

Source: 1983 Florida DER Report (1) and 1991 EPA Risk Assessment (5)

Off-Site Deep Ground Water

In 1983, Florida DER sampled the ground water from a monitoring well (D-1) in the rock aquifer (90-130 feet deep) about 40 feet south of the site at the end of Machelle Drive. In addition Florida DER sampled 16 private wells south and southwest of the site along Machelle Drive. Those private wells, which are the potable water supply in this area, draw water from the rock aquifer. For comparison, Florida DER also sampled the uncontaminated ground water in this aquifer from a monitoring well (D-3) about 300 feet southeast of the site (1). In 1990, EPA contractor Ebasco Services sampled the same monitoring well at the end of Machelle Drive (D-1) and two nearby private wells near the end of Machelle Dr (5). The Duval County Public Health Unit (CPHU) has been sampling the private potable wells south and southwest of the site along Machelle Drive periodically from 1976 to the present. The most recent samples were taken in February 1991 (10).

Ground-water contamination in the rock aquifer (90-130 feet deep) has been found in only one monitoring well (D-1) 40 feet south of the site at the end of Machelle Drive and has not spread further south to the private wells along Machelle Drive. The concentration of lead in the ground water taken from this well

was above the health based comparison value. Health based comparison values are EPA or ATSDR estimates of daily exposure to contaminants below which adverse health effects are unlikely to occur. The concentrations of lead, chromium, nickel, and PCBs in the private potable wells south and southwest of Machelle Drive have all been below detection limits.

Background concentrations of lead, chromium, nickel, and PCBs were 0.03, 0.01, 0.001 mg/L, and below detection limits, respectively. Although the background concentration of lead in ground water at this site is above the health based comparison value, it is within the normal range for this aquifer. The Florida DER operates a state-wide network of monitoring wells located in unaffected areas to measure the background ground-water quality. The range in lead levels in the 5 background monitoring wells in Duval County is 0.010 to 0.031 mg/L.

Table 8. Off-Site Deep Ground Water
(90-130 feet deep)

Contaminants of Concern	# Positive/ # Sampled	Concentration (mg/L)	Health Based Comparison Values (mg/L)
Lead	2/20	nd - 1.60	0.015[a]
Chromium	2/20	nd - 0.12	0.05[b]
Nickel	2/20	nd - 0.19	0.1[c]
PCBs	0/20	nd	0.05[d]

mg/L - milligrams per Liter
nd - not detected (detection limits not reported)
[a] - June 1991 EPA action level for lead in drinking water.
[b] - Derived from the oral Reference Dose for children.
[c] - Lifetime Health Advisory.
[d] - 1992 ATSDR Environmental Evaluation Media Guide (EMEG) for children.

Source: 1983 Florida DER Report(1), 1991 EPA Risk Assessment(4), and Duval CPHU files (10).

Off-Site Surface Water

The waste oil spills into the northeast tributary of McGirts Creek in 1968 and 1976 resulted in contamination of McGirts Creek

and its northeast tributary. The concentrations of contaminants in those two creeks, however, have been decreasing since 1976. The maximum concentrations cited in Table 9 reflect conditions in 1980 and 1981. Currently, the concentrations of lead, chromium, nickel, and PCBs in McGirts Creek and its northeast tributary meet the Florida DER standards for Class III surface waters.

The 1983 Florida DER report includes May 1977 and May 1979 surface water quality data downstream from the pits. Although these 1977 and 1979 data must be considered carefully due to the lack of specific location or reference, they do show that the high concentrations of lead and chromium in the northeast tributary of McGirts Creek after the 1976 oil spill (1.6 and 0.1 mg/L, respectively), were greatly reduced by 1979 (0.025 and 0.013 mg/L, respectively). Analyses for PCBs were not mentioned (1).

In 1980 and 1981, Florida DER conducted a bioassay on leachate seeping from the site and on water samples from the northeast tributary of McGirts Creek. Florida DER found the leachate from the site to be acutely toxic to three species of fish native to Florida. The toxicity was attributed to the low pH (pH=2) and high concentrations of dissolved metals (concentrations not given) in the leachate flowing from this site. The water sample from the northeast tributary of McGirts Creek downstream from this site was more toxic to the fish species tested than the upstream sample (11, 12).

In 1983, the United States Geological Survey (USGS) collected 5 surface water samples (2 upstream and 3 downstream) from McGirts Creek and its northeast tributary for the Florida DER. Although water quality had improved since 1980 and 1981, comparison of upstream samples with downstream samples indicated that contaminated ground-water discharge from these pits was still causing degradation in the water quality of McGirts Creek and its northeast tributary (1).

In 1989, EPA collected 4 surface water samples from the northeast tributary of McGirts Creek (1 upstream and 3 downstream). The concentrations of lead, chromium, nickel, and PCBs were below detection limits. Only a few extractable and volatile organic chemicals were found and the concentrations were below levels of concern (4).

In 1990, EPA contractor Ebasco Services collected 4 surface water samples from the northeast tributary of McGirts Creek adjacent to the site (1 upstream and 3 downstream). Concentrations of lead, chromium, and nickel were slightly higher downstream of the site. Concentrations of PCBs were below detection limits both upstream and downstream of the site (5). The water quality was, however, still within the Florida DER standards for Class III freshwaters: recreation, propagation and maintenance of a healthy, well-

balanced population of fish and wildlife (Rule 17-302.560, F.A.C.).

Table 9 summarizes the 1983 Florida DER data (1) and the 1989 and 1990 EPA data (4,5).

Table 9. Off-Site Surface Waters

Contaminants of Concern	# Positive/ # Sampled	Concentration (mg/L)	Background Concentrations (mg/L)
Lead	4/9	nd - 0.2	nd
Chromium	2/9	nd - 0.3	nd
Nickel	4/9	nd - 0.2	nd
PCBs	0/9	nd	nd

mg/L - milligrams per Liter
nd - not detected (detection limits not reported)

Source: 1983 Florida DER Report(1), 1989 EPA Post Remedial Investigation (4), and 1991 EPA Risk Assessment (5).

Off-Site Sediments

In 1983, Florida DER collected and analyzed 2 sediment grab samples from the northeast tributary of McGirts Creek downstream from the site and 1 background sediment sample upstream from the site. The concentrations of lead, chromium, and nickel in the downstream sediments were not different from those of the upstream sample. The concentration of PCBs in one downstream sediment sample was higher than the upstream sample (1).

In 1989, EPA collected and analyzed 3 sediment grab samples from the northeast tributary of McGirts Creek adjacent to the site and 1 background sediment grab sample upstream from the site. The concentrations of lead, chromium, nickel, and PCBs were either below detection limits or less than the background concentration (4).

In 1990, EPA contractor Ebasco collected and analyzed 4 sediment grab samples from the ditch south of the site and from the northeast tributary of McGirts Creek downstream of the site. Ebasco also collected and analyzed a background sediment sample from the northeast tributary of McGirts creek upstream from the site. The concentrations of lead in two sediment samples were

higher than the background. The concentration of chromium was elevated above background in one sample. The concentrations of nickel and PCBs were below detection limits in all of the sediment samples (5).

The sediments in McGirts Creek and its northeast tributary have not been dredged or otherwise disturbed either before or after these samples were taken. Thus the concentrations of lead, chromium, and PCBs in the sediments of McGirts Creek and its northeast tributary downstream from the site remain slightly higher than the background concentrations upstream.

Table 10 summarizes the results from 1983 Florida DER (1) and 1989 and 1990 EPA (4,5) sampling.

Table 10. Off-Site Sediments

Contaminants of Concern	# Positive/ # Sampled	Concentration (mg/kg)	Background Concentrations (mg/kg)
Lead	6/9	nd - 20	3
Chromium	5/9	nd - 38	2.1
Nickel	0/9	nd	nd
PCBs	1/9	nd - 0.017	nd

mg/kg - milligrams per kilogram
nd - not detected (detection limits not reported)

Source: 1983 Florida DER Report(1), 1989 EPA Post Remedial Investigation (4), and 1991 EPA Risk Assessment (5).

C. Quality Assurance/Quality Control

In preparing this public health assessment, Florida HRS relies on the information provided in the referenced documents and assumes that adequate quality assurance and quality control measures were followed with regard to chain-of-custody, laboratory procedures, and data reporting. The validity of the analysis and conclusions drawn for this public health assessment is determined by the completeness and reliability of the referenced information.

Although quality assurance and quality control information is unavailable for the Florida HRS private well sampling data or the 1983 Florida DER Report, there are no indications that these data

are not reliable. Samples for the 1991 EPA Risk Assessment were collected according to the Engineering Support Branch Standard Operating Procedures and Quality Assurance Manual, U.S. Environmental Protection Agency, Region IV, Environmental Services Division, April 1, 1986. Those samples were analyzed through the EPA's Contract Laboratory Program and validated by EPA.

D. Physical and Other Hazards

No physical hazards were observed during the site visits and none were mentioned in any of the site-related documents reviewed for this public health assessment.

PATHWAY ANALYSIS

A. Completed Exposure Pathways

Direct dermal absorption of contaminants from the exposed waste oil by former remediation workers and by children and other trespassers on site is believed to be the only completed exposure pathway. Exposure is believed to be occurring, or likely to occur, since site access is unrestricted and there is frequent site trespass. Evidence of trespass on this site was seen during site visits in January, February, and June 1991. The exact number of children or other trespassers on this site, however, is unknown. Contaminants of concern include lead, chromium, nickel, and PCBs. The data are inadequate to determine if there were any completed exposure pathways in the past.

Completed Exposure Pathways

Time	1 Source of Contamination	2 Environmental Media Transport	3 Point of Exposure	4 Route of Exposure	5 Receptor Population
1978-1979	oil pits	waste oil	waste oil	skin	remediation workers
1981-present	oil pits	waste oil	exposed waste oil	skin	children/ trespassers

B. Potential Exposure Pathways

There are two potential exposure pathways. The first is the potential for residents south and southwest of the site to be exposed via ingestion of contaminated ground water from their private potable water wells. Lead from the waste oil pits has contaminated the ground water in the rock aquifer (90-130 feet deep). This contamination has moved off site to within 100 feet of the nearest potable water well. Although none of these wells has been contaminated to date, continued movement of the contaminated ground water might result in contamination of those wells. Exposure could occur if the contaminated ground water in this aquifer reaches any of those wells before the site is cleaned up. Exposure could include ingestion of contaminated water and inhalation of aerosolized water during showering. The low permeability of skin to these metals makes dermal absorption from the ground water an unlikely route of exposure.

The second potential exposure pathway is direct skin contact with PCBs in the waste oil by remediation workers on the site. Exposure of clean up workers is likely to occur if proper protective equipment is not used.

Potential Exposure Pathways

1	2	3	4	5
Source of Contamination	Environmental Media Transport	Point of Exposure	Route of Exposure	Receptor Population
1. waste oil pits	ground water	private wells	ingestion/ inhalation	nearby residents
2. waste oil pits	waste oil	surface of waste oil	skin absorption	remedial workers

C. Incomplete or Eliminated Exposure Pathways

Although no plant samples have been analyzed, it is unlikely that consumption of plants grown around the site is a significant

exposure pathway. Contamination at this site is associated with the waste oil and it is assumed that off-site soil contamination is not widely distributed. This assumption is supported by the electromagnetic survey conducted by Florida DER in 1983 which indicated upper soil contamination was confined to the site (1). A few off-site samples (3 to 5), however, should be taken to confirm the limited extent of surface soil contamination. These surface soil samples should be taken along the southwest boundary of the site near Machelle Drive.

Lead was the only contaminant of concern in the one surface soil sample taken off site. This sample, taken at the end of Machelle Drive, had 18 mg/kg of lead which is higher than the background concentration. Eighteen mg/kg of lead, however, is within the range of normal lead levels for uncontaminated soil in the eastern United States (13). Watering of plants with ground water from the private potable well is not a source of contamination since these wells have not been contaminated.

Ground water in the shallow aquifer (5-15 feet deep) near the site is contaminated, but it is not a pathway for human exposure since there are no wells at this depth.

Ingestion of contaminants from McGirts Creek is unlikely since it is not a source of drinking water. Although people fish in McGirts Creek within 1.5 miles of the site, it is unlikely that any of the contaminants of concern from this site have accumulated to measurable levels in fish. Fish from McGirts Creek, however, have not been tested for contamination. The low levels of lead and chromium in the water and sediments are not expected to accumulate in fish (14, 15). Fish can accumulate PCBs from contaminated waters and eating contaminated fish can be a major source of PCB exposure to humans (16). PCBs, however, were not detected in any of the surface water samples at this site and only at a low concentration in one sediment sample in 1983.

Contact with the contaminated sediments in McGirts Creek and its northeast tributary is not a likely exposure pathway since this creek is too small for swimming or boating in the vicinity of the site. Children have, however, been seen playing in the northeast tributary of McGirts Creek upstream from the site and may play on occasion in the tributary downstream from the site.

PUBLIC HEALTH IMPLICATIONS

As discussed in the Environmental Contamination and Other Hazards and Pathways Analyses sections of this public health assessment, remediation workers and children trespassing on the site may be exposed to lead, chromium, nickel, and PCBs via dermal absorption

after skin contact with the waste oil "boils." Residents near the site may be exposed to lead, chromium, and nickel via ingestion of drinking water if the contaminated ground water reaches their potable wells. Remediation workers were previously exposed to contaminants and might be exposed in the future to lead, chromium, nickel, and PCBs via dermal absorption if proper safety precautions are not taken during site cleanup.

A. Toxicological Evaluation

Trespassers, including children, and remediation workers on this site may suffer skin irritation after contacting the exposed waste oil ("boils"). PCBs contained in the waste oil can penetrate the skin and cause skin irritation, liver effects, and possibly cancer, but the doses causing these effects are not known. Occupational studies suggest that exposure to PCBs via inhalation or dermal contact causes mild liver damage in humans characterized by liver enlargement and increases in blood enzyme and lipid levels (16). PCBs have been classified by EPA as probable human carcinogens. This determination is based on sufficient evidence of carcinogenicity in animals but insufficient evidence of carcinogenicity in humans. The evidence of carcinogenicity in animals is mostly from ingestion of PCBs. The evidence of carcinogenicity in animals from skin absorption of PCBs is weak. Although skin absorption of PCBs by humans may increase the risk of cancer, the data are inadequate to estimate the risk. Lead, chromium, and nickel in the waste oil are unlikely to be absorbed through the skin (14, 15, 17).

Ingestion of lead in the ground water from this site would increase the risk of brain and kidney damage. Exposure to lead is especially dangerous for unborn children because their bodies can be harmed while they are being formed. If a pregnant woman is exposed to lead, it can be carried to the unborn child and cause premature birth, low birth weight, or even abortion. For infants and young children, lead exposure has been shown to decrease intelligence (IQ) scores, slow their growth, and cause hearing problems. These effects can last as children get older and interfere with successful performance in school (14). The maximum concentration of lead in the off-site ground water from monitoring wells, 1.6 mg/L, exceeds the health based comparison value of 0.015 mg/L. This health based comparison value is the June 1991 EPA action level for lead in drinking water. Lead has not been detected in any of the private potable wells.

It is unlikely that the maximum chromium concentrations in the off-site ground water would cause adverse health effects from short term ingestion. The maximum concentration of chromium in the ground water from off-site monitoring wells, 0.12 mg/L, is greater than the health based comparison value of 0.05 mg/L for children but is less than the health based comparison value of 0.2 mg/L for adults. The health based comparison values are

derived from the oral Reference Dose. Since the concentration of chromium in the ground water only slightly exceeds the health based comparison value which has a substantial safety factor built in, adverse health effects for children would be unlikely. Chromium has not been detected in any of the private potable wells.

It is unlikely that the maximum nickel concentrations in the off-site ground water would cause adverse health effects from short term ingestion. Although the maximum concentration of nickel in the ground water from off-site monitoring wells, 0.19 mg/L, is slightly above the health based comparison value of 0.1 mg/L, the health based comparison value is based on a lifetime's ingestion (70 years) of the contaminant. Nickel has not been detected in any of the private potable wells and monitoring of those wells should detect nickel if it eventually contaminates the wells.

PCBs have not been detected in any ground water samples taken from wells either on or off site. Due to their extremely low water solubility, it is unlikely that they will be detected in any water samples.

B. Health Outcome Data Evaluation

The Duval County Public Health Unit (CPHU) has sampled the private wells near the Whitehouse Oil Pits site but has not conducted any independent health studies or investigations. Whitehouse Elementary School officials have not noticed any pattern of illnesses that could be linked to exposure to this site.

Guided by community concerns of increased cancer incidence in the population living around the site, Florida HRS consulted with state epidemiologists for an evaluation of cancer and birth defect incidence in this area. They found that the rates of cancer and birth defects in the population near the Whitehouse Oil Pits site are not unusual as compared to county or state statistics. Since the actual number of birth defects and cancer in this zip code are small, a comparison with rates for the state or entire country would not be statistically valid.

C. Community Health Concerns Evaluation

The residents in the community around this site have expressed the following heath concerns:

1. **The community is concerned that contamination of their individual potable wells might cause cancer.**

   To date, none of the private potable wells near the site have been contaminated. If they become contaminated in the

future, the metals contaminating the ground water are unlikely to cause cancer. If the contaminated ground water reaches these potable wells, the lead in this water can cause brain damage, especially to children and unborn babies. The private potable wells, however, have not yet been contaminated and are tested on a regular basis by the Duval CPHU.

2. **The community is concerned that children and other trespassers on the site might have been exposed to toxic chemicals and might suffer adverse health effects.**

Children and other trespassers may have been exposed to PCBs in the waste oil on this site via skin contact and may suffer skin irritation. Long-term exposure to PCBs also increases the risk of liver damage and cancer, but the doses causing these effects are not known (16). Nearby residents, especially children, should not go on this site and should not come in contact with the exposed waste oil.

3. **The community is concerned that vegetables grown near the site might be contaminated.**

Although plants grown around the site have not been analyzed, it is unlikely that they are a significant exposure pathway. Contamination at this site is associated with the waste oil and it is assumed that off-site soil contamination is not widespread. Additional off-site surface soil samples should be taken to confirm this assumption. The concentration of lead in the one off-site surface soil sample was within the normal range for uncontaminated soil.

4. **The community is concerned that the water, fish, and sediments in McGirts Creek and its northeast tributary have been contaminated.**

The water and sediments in McGirts Creek and its northeast tributary were contaminated by past spills. The water quality has improved greatly since the spills in 1968 and 1976, but low level water and sediment contamination remains due to continued discharge of contaminated ground water. Since no fish samples have been taken, it is not possible to determine if fish in these two streams have been contaminated. It is unlikely, however, that fish from McGirts Creek would concentrate high enough levels of PCBs or metals from the water or sediments to pose a health risk to humans from consumption. Skin contact with the low concentrations of PCBs and metals in the sediments of McGirts Creek and its northeast tributary are unlikely to cause adverse health effects.

5. **Former remediation workers are concerned that they suffered skin irritation from contact with the waste oil between 1978 and 1979.**

Remediation workers might have suffered transient skin irritation and mild liver damage from exposure to PCBs in the waste oil via skin contact with and inhalation of contaminants at the site.

CONCLUSIONS

Based on public accessibility to exposed waste oil on the site and the potential for contamination of nearby private potable wells, this site is judged to be a public health hazard. Specific reasons for the site being classified as a public health hazard are as follows:

1. Past waste disposal practices have resulted in soil contamination at this site. Past remedial actions have reduced the mobility of the waste oil by mixing with absorbent material and capping the resulting mixture. Erosion of the cap in places has exposed the waste oil ("boils").

2. Site access is currently unrestricted and there are no signs warning of the existence of hazardous waste at this site. There is extensive evidence of human trespass on this site.

3. Past waste disposal practices have resulted in ground-water contamination at this site. Ground-water contamination has moved at least 40 feet south of the site in the rock aquifer (90-130 feet deep). To date, however, none of the existing private potable wells around the site that use this aquifer have been contaminated.

4. The one surface soil sample taken off site at the end of Machelle Drive is inadequate to determine the extent of off-site surface soil contamination.

5. Remediation workers might have experienced transient skin irritation and mild liver damage from exposure to PCBs at the site in the past. Workers who perform remediation activities in the future could be exposed to the contaminated oil/soil mixture via skin contact if protective equipment is not used.

RECOMMENDATIONS

1. Cap the areas of the site where the waste oil is exposed at the surface ("boils") as soon as possible to prevent human exposure.

2. Restrict site access to prevent nearby residents (especially children) from trespassing on this site. Post signs warning of the existence of hazardous wastes on this site as required by Florida Statutes 403.704 and 403.7255, and Rule 17-736, Florida Administrative Code.

3. Continue to sample private wells south and southwest of the site along Machelle Drive on a routine basis (every 3 months) to minimize any future human exposure to site related contaminants in the ground water. If contamination is discovered, install filters or other devices to remove the contamination or provide an alternative source of water.

4. Collect and analyze a few off-site surface soil samples (3 to 5) to confirm the extent of off-site surface soil contamination. These surface soil samples should be taken along the southwest boundary of the site near Machelle Drive.

5. During any future site remediation, ensure effective protection measures are used to prevent exposure of remedial workers and nearby residents to the contaminated oil.

6. The data and information developed in the Whitehouse Oil Pits Public Health Assessment have been evaluated for appropriate public health actions. The Health Activities Recommendation Panel (HARP) determined that education about the potential for exposure to on-site contaminants was needed for the community. Since restriction of access to the site is inadequate, a specific program targeting parents of local children and potential trespassers is indicated in addition to release of this Public Health Assessment. HARP determined that there is no need for additional health follow-up actions at this time because human exposure cannot be documented at this time. If information becomes available indicating exposure at levels of concern, ATSDR will evaluate that information to determine what actions, if any, are needed.

Public Health Actions

The public health actions that will be performed as recommended by HARP include:

The Office of Toxicology and Hazard Assessment, in conjunction with Duval County Florida HRS Duval County Public Health Unit staff, will conduct educational activities by preparing and disseminating fact sheets informing local residents of the hazards associated with the site.

EPA and HRS will work together to restrict site access.

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CERTIFICATION

This public health assessment was prepared by the Florida Department of Health and Rehabilitative Services 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 public health assessment was initiated.

Technical Project Officer, SPS, RPB, DHAC

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

Director, DHAC, ATSDR

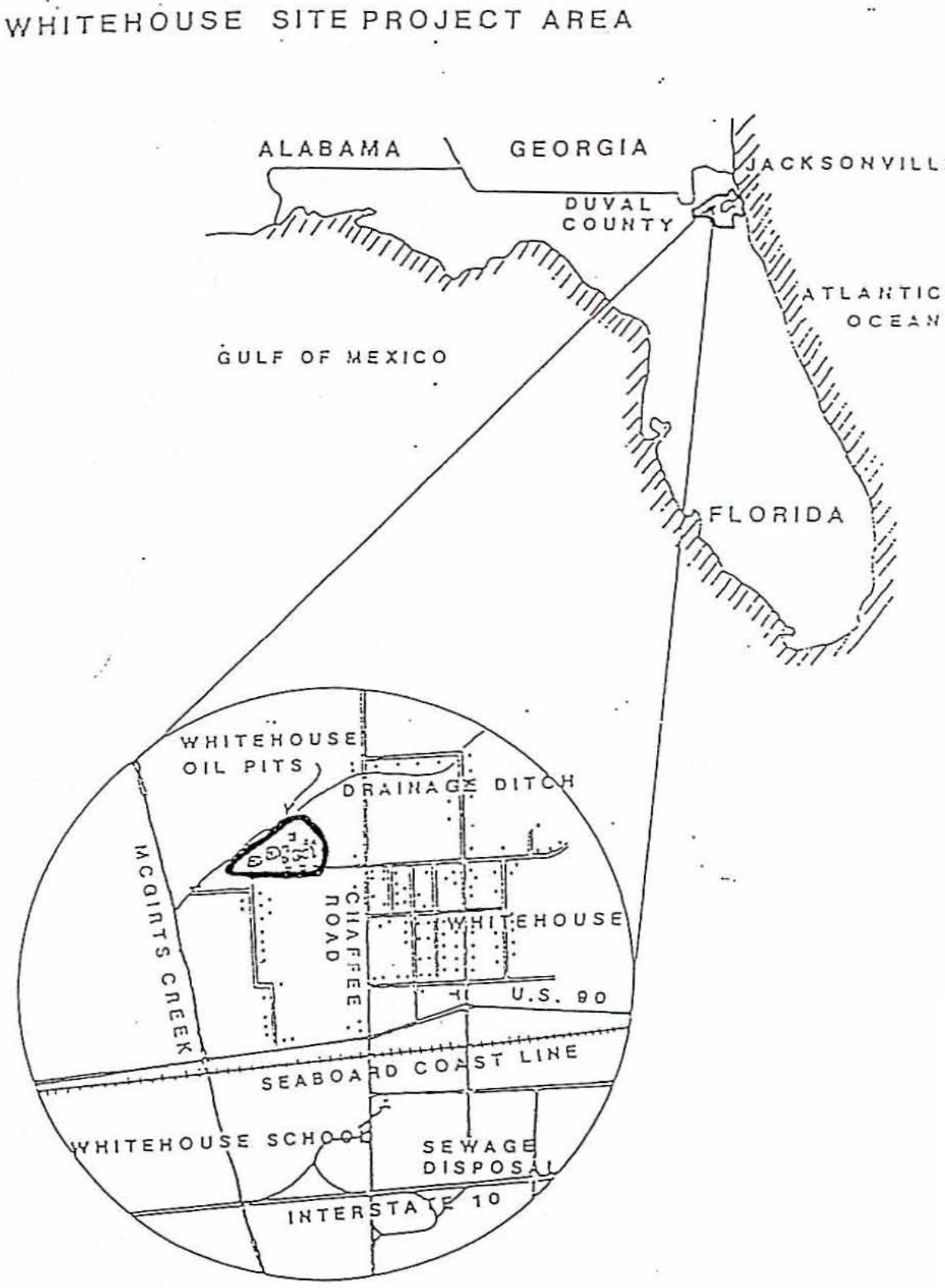


Figure 1. Whitehouse Waste Oil Pits regional map.
(Source: 1985 EPA Record of Decision)

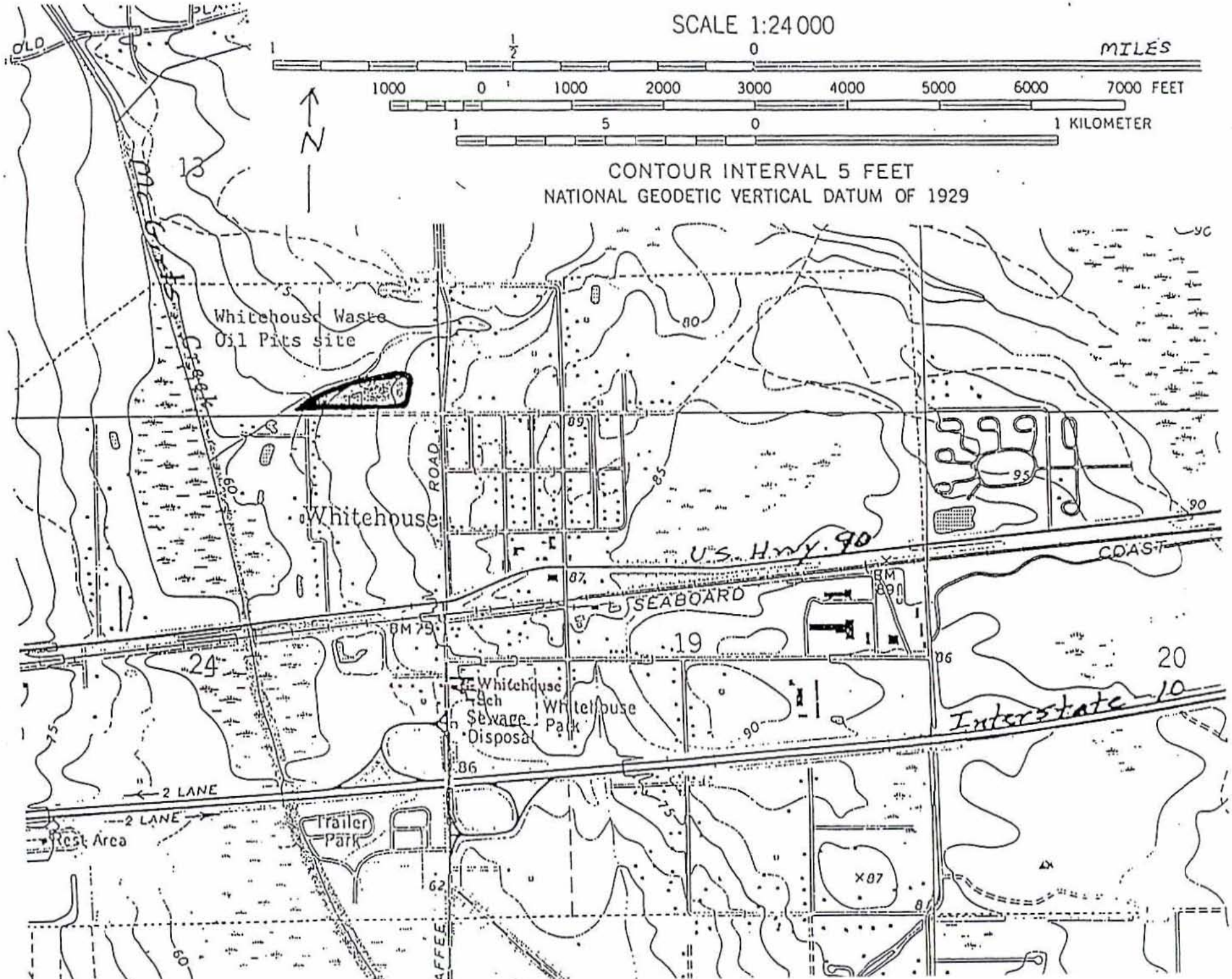
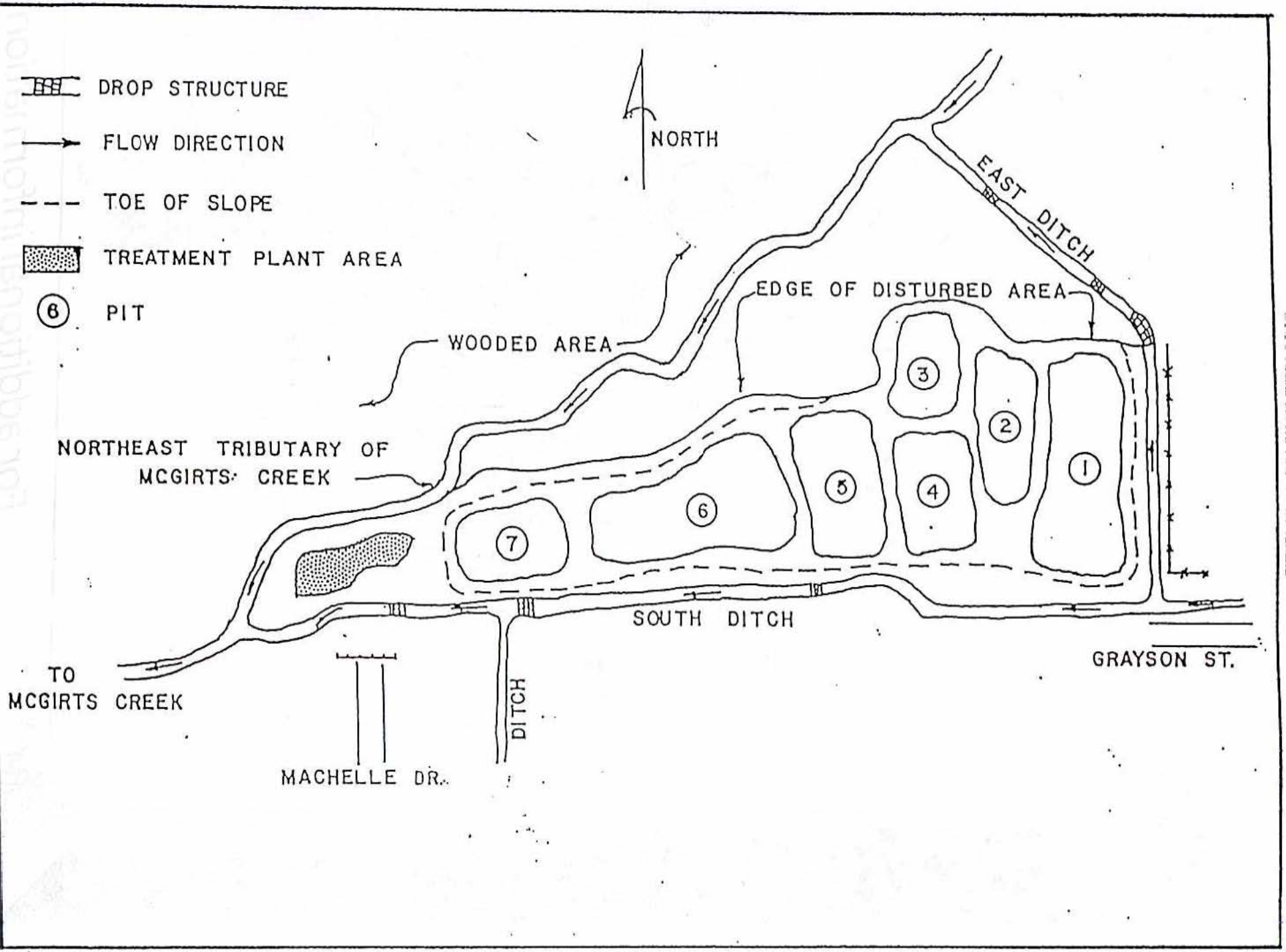


Figure 2. Whitehouse Waste Oil Pits area topographic map.


DROP STRUCTURE
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6 PIT
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1
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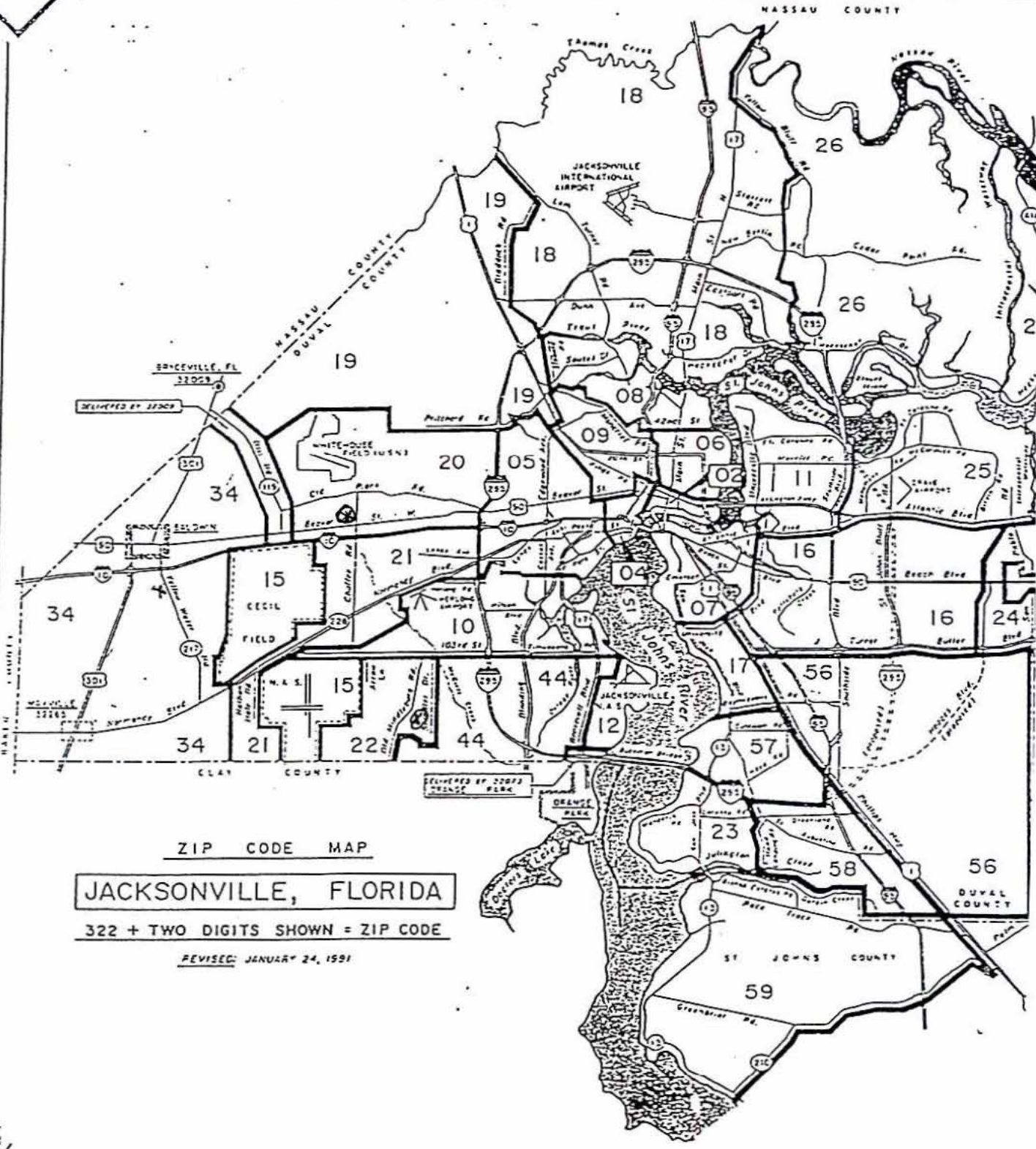
GRAYSON ST.
TO MCGIRTS CREEK
DITCH
MACHELLE DR.

COMMUNITY INTEREST PAGES

ZIP CODE MAP



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