TRI-CITY OIL CONSERVATIONIST SITE
TEMPLE TERRACE, FLORIDA

SUMMARY OF REMEDIAL ALTERNATIVE SELECTION

September 1987

DECLARATION FOR THE RECORD OF DECISION

TRI-CITY OIL CONSERVATIONIST CORPORATION SITE
TEMPLE TERRACE, FLORIDA

Statement of Purpose

This Decision document represents the selected remedial action for the Tri-City Oil Conservationist Corporation site which was developed in accordance with the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act (SARA), and to the extent practicable, the National Contingency Plan (NCP).

The State of Florida has concurred with the selected remedy.

Statement of Basis

This decision is based upon the Administrative Record which is on file in the EPA Region IV offices, 345 Courtland Street, N.E., Atlanta, Georgia and is available at the Florida Department of Environmental Regulation 2600 Blair Stone Road, Tallahassee, Florida, 32399-2400. The attached index identifies the documents which comprise this Administrative Record.

Description of the Selected Remedy

The Remedy chosen is one of "No Further Action". The Agency concurs with previous remedial actions taken at the site by the State of Florida. Operation and maintenance activities will be unnecessary as contaminants have been removed.

Declaration

The remedy completed by the State of Florida is protective of human health and the environment, attains Federal and State requirements that are applicable or relevant and appropriate, and is cost effective. The statutory preference for treatment is not satisfied because treatment was found to be impracticable. Treatments which reduce toxicity, mobility, or volume of wastes would not have been cost effective at this site because of the small volume (850 cubic yards) of wastes present.

Contaminated soils at the site were removed and disposed of at an approved hazardous waste facility. This remedy was chosen over an alternative treatment because it was cost effective and utilized the best available technology at the time.

Lee A. DeHihns, III
Acting Regional Administrator

9/21/87
Date

SITE NAME, LOCATION, AND DESCRIPTION

Tri-City Oil Conservationist Corporation was an industrial waste oil recovery facility operating in Temple Terrace, Hillsborough County, Florida (Figure 1). The facility occupied approximately one-fourth acre near the intersection of Busch Boulevard and 50th Street (Figure 2). The site is bordered by a Toyota service center to the south, an auto repair shop to the west, Associates Financial Services to the north, and Craftsman Supply store to the east. Across 50th Street to the west was an empty lot, the Militello Property (Figure 3). In 1985-1986, the property across 50th street was developed into a shopping center.

The Tri-City Oil facility is located within one-fourth mile of at least eight private drinking water wells. One well, located at the Toyota service center, is approximately 30 feet (ft) from the southern boundary of the Tri-City Oil lot. A second nearby well is located at 8736 50th Street, across from Tri-City Oil. There are major public drinking water supply wells within 2 miles of the facility that serve the City of Temple Terrace (population approximately 15,400). The Hillsborough River (approximatley 3,000 ft south of the site) is used as a surface water storage reservoir by the Tampa Water Treatment Plant which serves a population of 475,000 persons.

The Tri-City Oil site slopes from north to south, with a slightly steeper grade in the center of the site than along the east or west boundaries (2.5 percent versus 1 to 1.5 percent). Most precipitation percolates readily into the sandy soil, although some localized ponding has been observed on the site during heavy rainfall. There are no surface drainage features on the site nor evidence of runoff from the site.

Two distinct aquifers exist in the Temple Terrace area: A shallow unconfined aquifer comprised of unconsolidated sands, silts, and clays; and the artesian Floridan Aquifer consisting of a thick sequence of limestones and dolomites with several distinct water-producing zones (Figure 4).

SITE-SPECIFIC GEOLOGY & HYDROGEOLOGY

The geology of the upper 32 to 40 ft at the Tri-City Oil site consists of unconsolidated sands, sandy clays, and clayey sands (Figure 5). Fine-grained quartz sands with little or no fine material occur from ground surface to depths of 17 to 32 ft. Below the sands are found sandy clays and clayey sands of varying plasticity and permeability that persist to depths up to 40 ft. The lower several feet of this unit are generally slightly sandy hard clay, which lie unconformably upon the undulating surface of the Tampa Limestone. These clayey sands and sandy to slightly sandy clays form the confining layer of the underlying Floridan Aquifer.

Ground water levels fluctuate seasonally in the surficial sands at the site. Piezometer 2, screened partially in the unconsolidated soil above the limestone to a depth of 36 ft, was completely dry on several occasions during the study period (Figure 5). Similarly, Monitor well 2, also partially screened in the unconsolidated soil, contained little water at certain

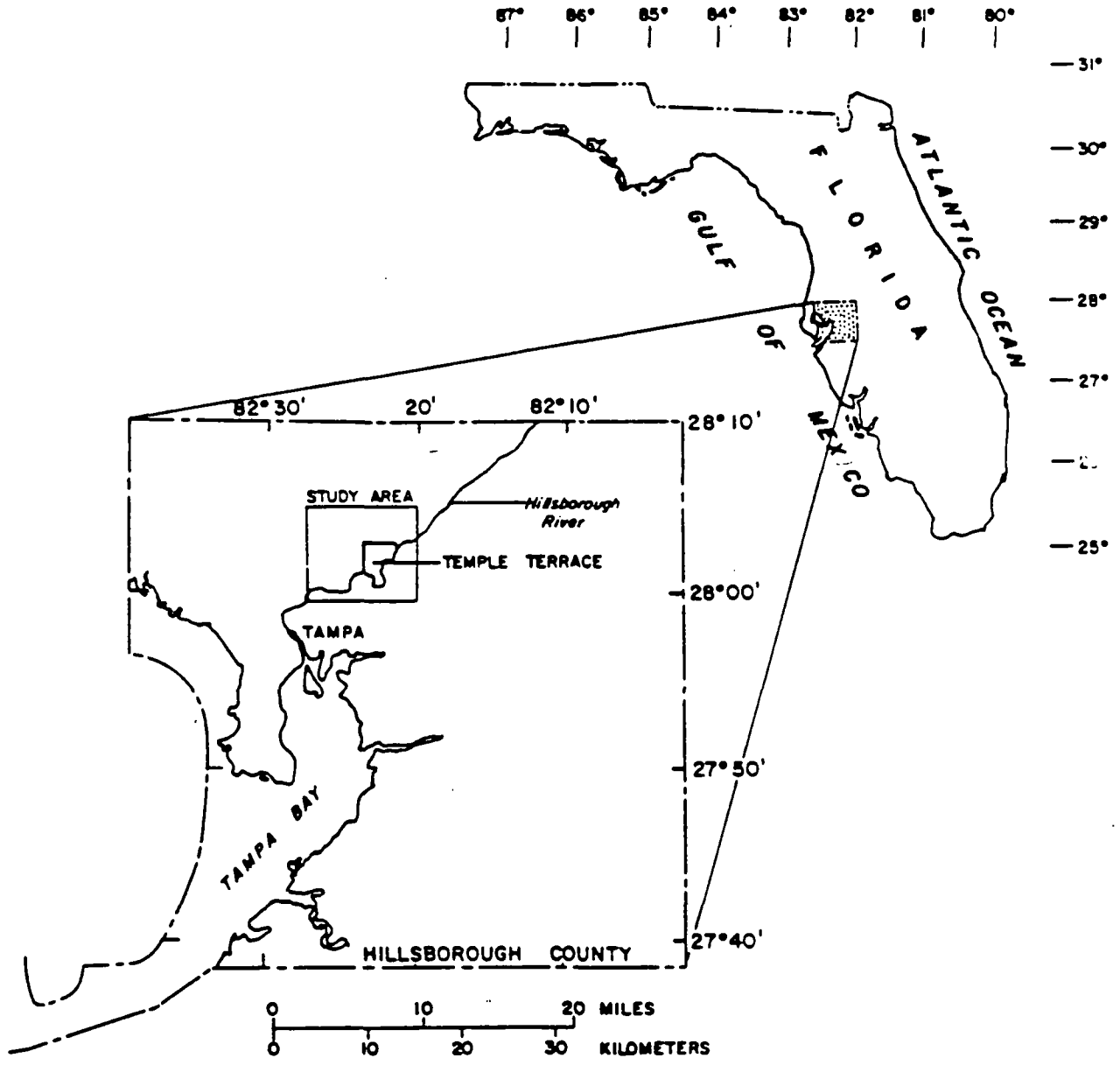

Figure 1
LOCATION MAP

SOURCE: USGS, 1978.

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Tri-City Oil

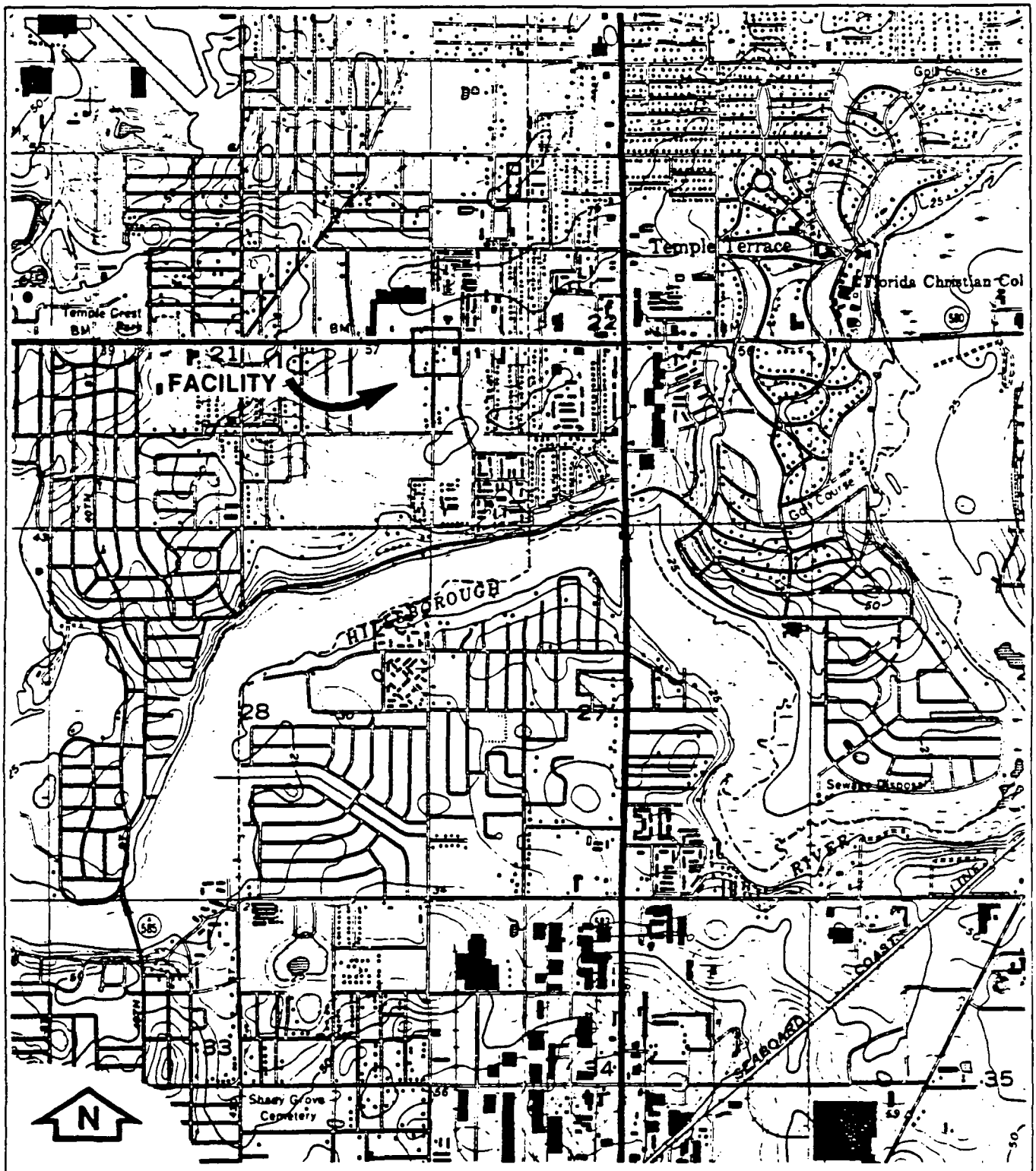

Figure 2
FACILITY LOCATION

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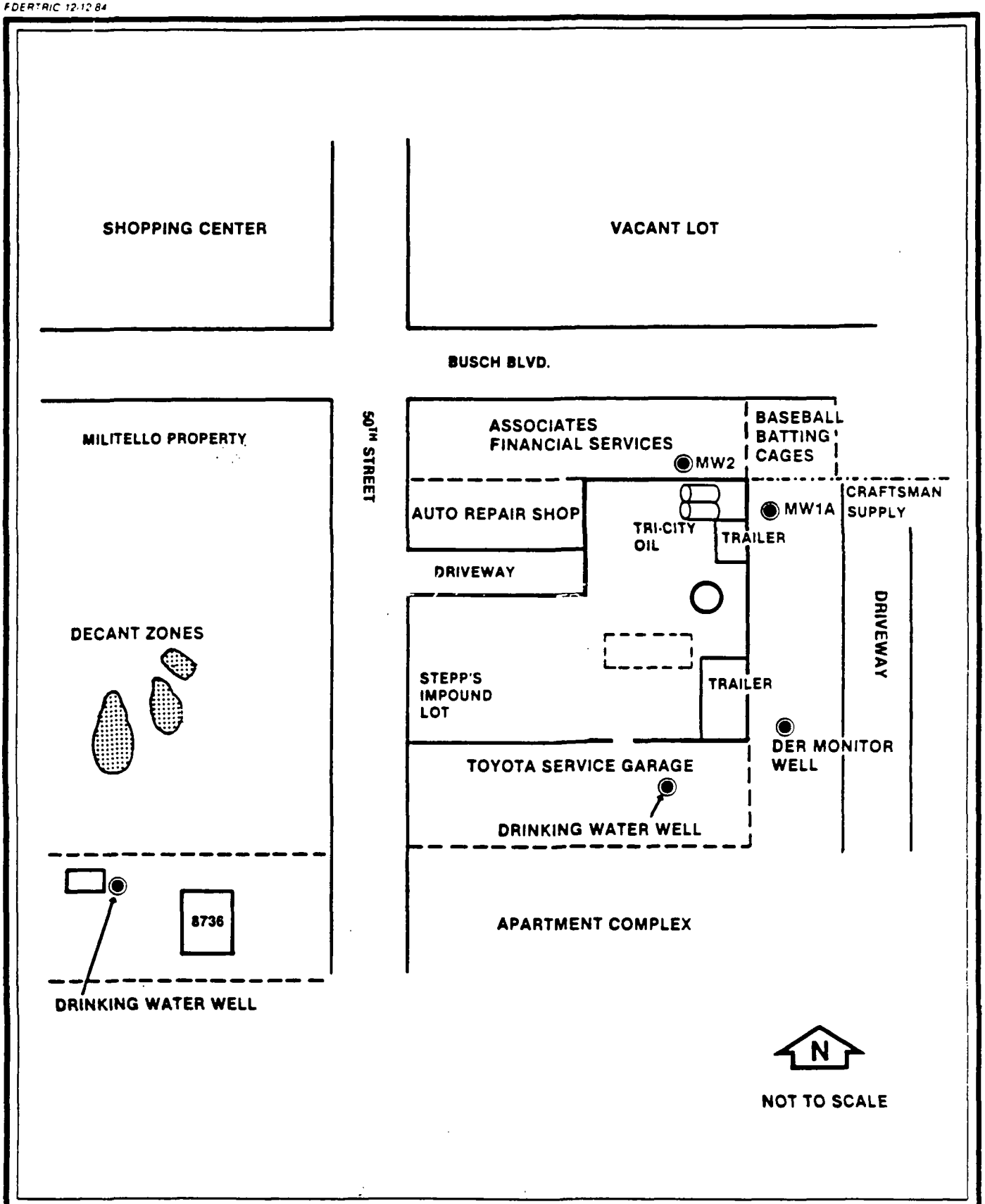

Figure 3
TRI-CITY OIL AND ADJACENT PROPERTIES

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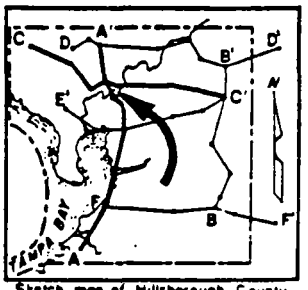
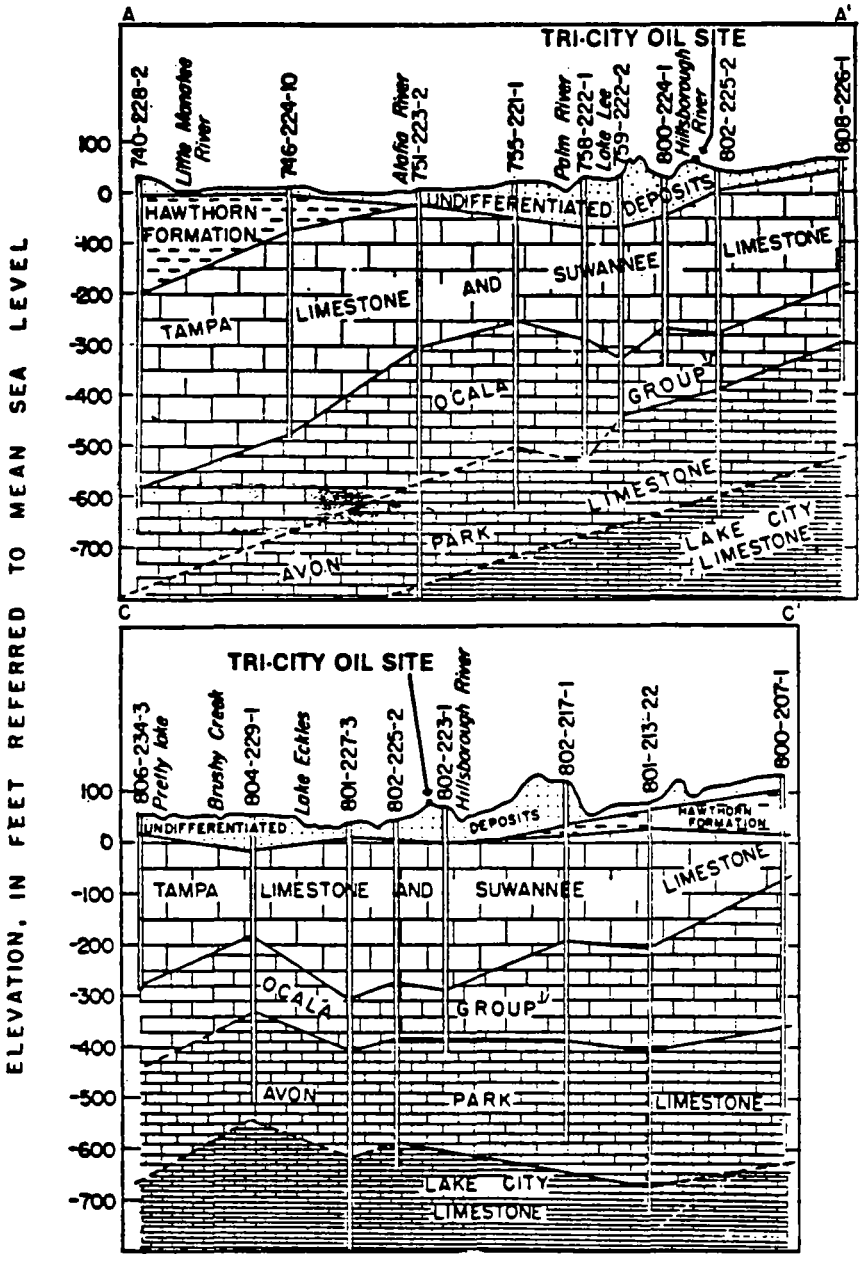


Sketch map of Hillsborough County showing the location of cross sections.



Note: 1/ The Ocala group used here accords to the terminology of the Florida Geological Survey.

Figure 4
GEOLOGIC CROSS SECTION THROUGH HILLSBOROUGH COUNTY, FLORIDA

SOURCE: USGS, 1951.

TRI-CITY OIL

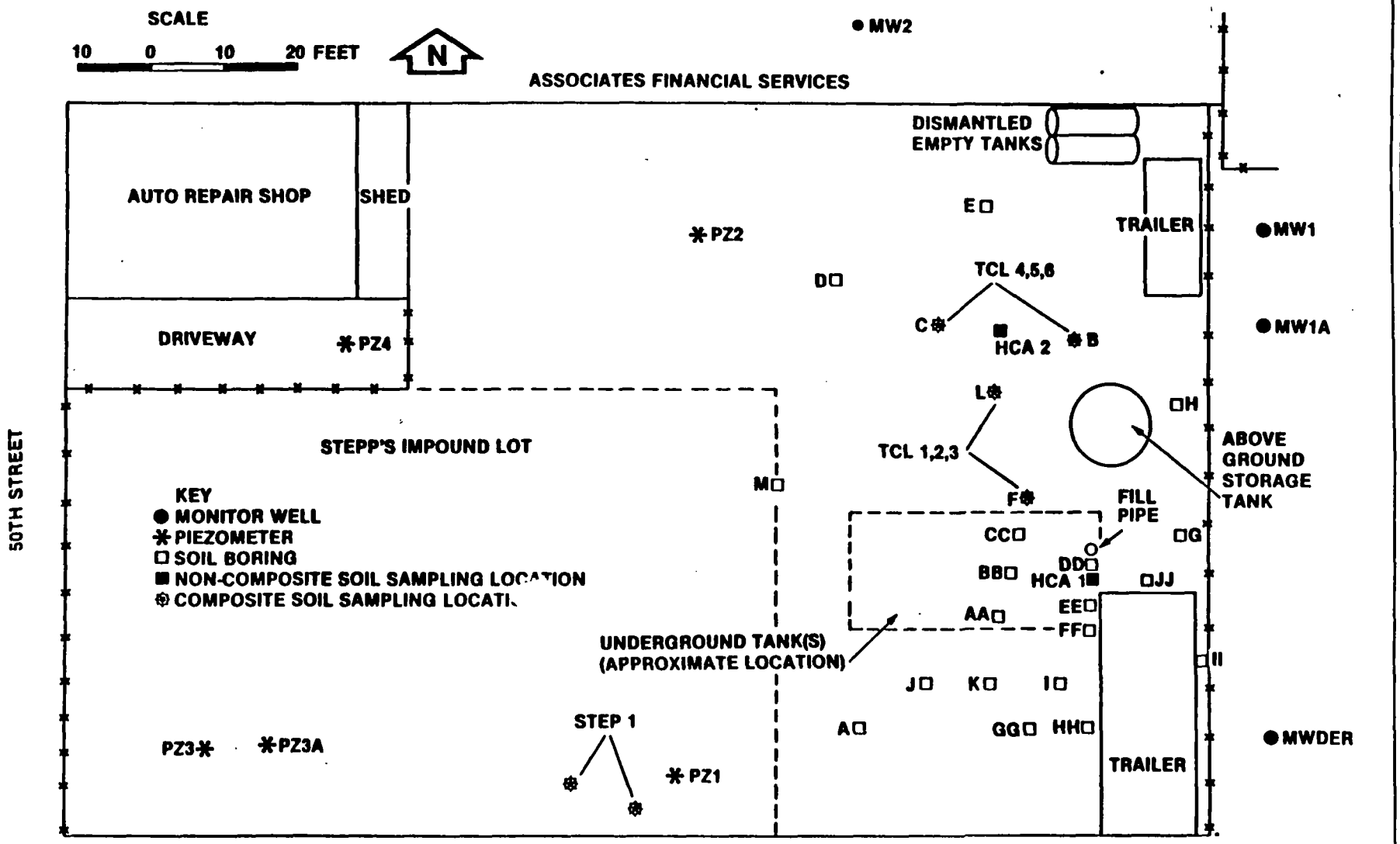


Figure 5
LOCATIONS OF SOIL BORINGS, SAMPLING LOCATIONS, PIEZOMETERS AND MONITOR WELLS

FDER
CONTAMINATION ASSESSMENT
Tri-City Oil

times, even though the well was placed at a depth of 43 ft.

Water levels measured in the piezometers monitoring the water table in the surficial sands suggest that flow from the site is to the northwest and is dependent upon seasonal variations in water availability. Zones of shallow, perched water tables are evident in the geologic sequence as well.

Depth to the limestone, which comprises the Floridan Aquifer, varies from 32 to 40 ft below ground surface. The top of the limestone of the Floridan Aquifer is very uneven, and the upper 2 to 3 ft are generally soft and very permeable and typically marked by 100-percent loss of circulation during drilling. The limestone several feet below the top of the Floridan Aquifer is hard and very permeable, although lenses of softer material occur occasionally to a depth of at least 60 ft.

Water levels in ground water monitoring wells MWDER, MWIA, and MW2 reflect the elevation of the potentiometric surface of the Floridan Aquifer. A steep hydraulic gradient exists from south to north in the aquifer locally, suggesting that ground water flow in the Floridan Aquifer is from south to north. Reversal of the normal north-to-south flow might be explained by extensive pumping to the north. Another explanation is that land development in the recharge zone, including increased paved areas, has effectively reduced the available recharge area, thereby affecting the direction of ground water flow. Discontinuous clay lenses may also alter the direction of the ground water flow in localized areas.

SITE HISTORY

The Tri-City property was used for operation of a heating oil service business from the early 1960's to 1975. From 1978 to 1983 Tri-City Oil Conservationist Corporation was a waste oil collection and distribution center. The Tri-City facility had an estimated storage capacity of 16,000 gallons, between three aboveground and at least one underground tank. Careless operating conditions at the site resulted in spills during transfer operations and leaks from tanks and lines. Failure to clean up these spills, in combination with poor surface drainage, caused accumulation of liquid wastes at the site, particularly at the south end of the facility. During the operational period of the Tri-City Site, the Hillsborough County Environmental Protection Commission and the Florida Department of Environmental Regulation received several complaints regarding odor problems and sloppy practices. It was also reported that tank trucks delivering waste oil and other products often drained some of their contents onto the Militello Property located across 50th Street.

In 1982 a 3,000 gallon spill of waste oil occurred at the Tri-City operation. Soil and sludge collected by the FDER in November 1982 from the Tri-City Oil lot were analyzed for priority pollutant metals and petroleum hydrocarbons. Several types of hydrocarbons and high levels of heavy metals such as lead, chormium, and zinc were identified in these samples (Table 1).

TABLE 1

METALS DETECTED DURING NOVEMBER 1982 SAMPLE COLLECTION

METALS - mg/kg

	Sb	As	Ba	Be	Cd	Cr	Cu	Pb	Hg	Ni	Se	Ag	Tl	Zn
	1.47	1.47K	17.7	0.21	2.07	17.8	12.8	477	0.30	5.39	0.07	.11K	1.4K	339
17823A Sed. layer														
	1.11	0.33K	8.82	0.11	1.16	7.82	30.3	1041	0.12	1.61	0.06U	0.19	2.2U	423
17823B Oil layer														

U = Material was analyzed for but not detected. The number is the minimum detection limit.

K = Actual value is known to be less than value given.

Analysis detected petroleum hydrocarbons similar to a #2 diesel oil comprised a small percentage of the oil. Infra Red analysis indicated that the major percentage of the oil was a heavy, high molecular-weight hydrocarbon, similar to mineral oil.

Due to the sandy nature of the soils and the amount of oils and liquid solvents present on the site, ground water contamination was also suspected. In early 1983, the owner was contacted by the Florida DER and told to clean up the site.

In September 1983, the Tri-City site was put on the EPA's proposed National Priorities List (NPL) with a Hazard Ranking Score of 37.5. The site was finalized on the NPL in September, 1984.

Additional sampling conducted by FDER in January 1984 revealed metals contamination in surface soils and in soils 1 to 2 ft beneath the surface (Table 2). Soil composites collected from the Militello property also revealed concentrations of heavy metals above background levels. Several organics including benzene, toulene, xylene, and chlorinated hydrocarbons were found in high concentrations in liquid-phase samples on the ground and from an underground storage tank (Table 3). Analysis of ground water samples from the FDER monitor well and the private drinking water well at 8736 50th Street showed no detectable contamination.

Florida DER contracted a private consultant to perform a contamination assessment at the Tri-City site. As part of this assessment the consultant was tasked to conduct air monitoring at these sites. Initial readings of breathing zone air quality using an HNU Photoionzation Analyzer did not reveal VOC concentration above background levels in this zone. Based upon the readings obtained, the FDER decided long term air monitoring was not necessary.

In February 1984, the EPA issued an Administrative Order to the responsible parties. The order directed them to take remedial measures to mitigate the imminent and substantial endangerment to human health and the environment. They did not take any cleanup actions. The EPA then conducted an immediate removal at the Tri-City site. Vacuum trucks and tank trucks were used to remove liquids from the above and below ground tanks. The sludges covering the ground were mixed with an absorbent, then removed. The top six inches of soil were also removed. The liquids and heavily contaminated sludges were taken to an EPA-approved disposal facility in Pinewood, South Carolina. The soils contaminated with "non-hazardous" materials were taken to the Lake County Landfill. The EPA project took one week.

TABLE 2

JANUARY 1984 SOIL SAMPLE RESULTS
Based upon sample span Lab ID #'s 20527 - 20532

COMPOUND mg/kg	SAMPLE LOCATION AND DESCRIPTION					
	Surface Background S S Craftsman Supply	Tri-City Oil Soil background sample 1 ft deep S S Craftsman Supply	Tri-City Oil Soil background sample 2 ft deep S S Craftsman Supply	Soil Composite Under flow decant area Militello Lot	Surface Soil Composite Tri-City Oil	Soil Composite 1-2 Ft Deep Tri-City Oil
ANTIMONY	u	u	u	u	u	u
ARSENIC	1.17	.61	.74	.41	.82	.59
BERYLLIUM	u	u	u	u	u	u
CADMIUM	.33	u	u	.25	11.6	.70
CHROMIUM	5.47	2.68	2.81	3.34	6.80	6.44
COPPER	13.6	65.1	1.27	9.91	5.73	4.58
MERCURY	.04	u	u	u	.04	.04
NICKEL	1.67	5.07	4.70	1.26	u	1.57
SELLENIUM	u	u	u	u	u	u
SILVER	u	u	u	u	u	u
THALLIUM	u	u	u	u	u	u
ZINC	307	24.6	2.57	70.3	124	115
LEAD	63.7	14.4	2.20	129	244	202

NOTE: ALL VALUES ARE ug/l
u = NOT DETECTED

TABLE 3

JANUARY 1984 WATER SAMPLE RESULTS
(Based upon sample SPAN Lab ID #'s
20518 - 20526)

Compound mg/kg	SAMPLE LOCATION & DESCRIPTION		
	Liquid Phase on Ground	Underground tank	Underground tank
Benzene	1.0×10^4	74	u
1,1 Dichloroethane	72	224	u
Ethylbenzene	8.1×10^3	2.0×10^3	u
Methylene Chloride	2.4×10^4	1.7×10^4	u
Tetrachloroethene	4.1×10^3	574	u
1,1,1 Tetrachloroethane	8.8×10^3	467	u
Trichloroethene	2.0×10^3	294	u
Toluene	6.1×10^4	u	u
Xylene	4.4×10^4	u	u
1,2 Dichloroethane	u	16	u
1,1 Dichloroethene	u	29	u
n-Propylbenzene	u	1.2×10^3	u
Napthalene	u	u	300
Other hydrocarbons	u	u	u

NOTE: All Values are ug/l
u= NOT DETECTED

Since no sampling was done after the immediate removal, the DER spent about $55,000 from the State Water Quality Assurance Trust Fund to conduct a contamination assessment at the site. The investigation revealed that VOC's and heavy metals were still present in the top one to three feet of soil on the site and also on the lot across the street. Ground water samples from two adjacent monitor wells showed cadmium levels just above drinking water standards. Air monitoring showed no readings above background around the perimeter of the site. Since the soil contamination posed a threat to ground water, the FDER tasked a contractor to remove the remaining source of contamination. The source removal began on April 29, 1985. A total of 850 cubic yards, of contaminated soils were excavated from the Tri-City site and transported to an approved hazardous waste disposal facility located in Pinewood, South Carolina. Two above-ground storage tanks were removed from the site. One tank still contained organic sludges which were disposed of with the contaminated soils. A 16,000-gallon underground storage tank was also excavated. The tank contained some liquids and sludges making it necessary to cut open the tank to effect removal.

In all, 5000 gallons of organic liquids and sludges were removed. When the work was completed the soils were sampled (Table 4). Two areas of the site contained low levels of contamination. Further soil removal was conducted by FDER to remove remaining contaminants. The site was then resampled to verify that removal was complete (Table 5).

When the excavation was completed, clean fill was used to bring the site back to its orginal grade. Grass seed was spread on the fill and covered with a hay mesh to prevent erosion. This action was completed in May 1985.

In August 1985, the Tri-City monitor wells and nearby drinking water wells were sampled by DER personnel (Table 6). Analyses revealed metals concentrations for cadmium, chromium and lead to be slightly above drinking water standards in two of the monitor wells. In January 1986, the monitor wells were sampled again in addition to several private drinking water wells. Filtered and unfiltered samples were collected in the field after each well was purged. Analyses revealed all samples to be within drinking water standards. In June 1986, the monitor wells were resampled to confirm that wells were free from contamination. Analyses revealed all samples were below state and federal standards (Table 7).

The June 1986 analyses of soils, ground water and sediments indicate that the source of contamination has been removed. It does not appear likely that the initial well sampling metal concentrations were site related. These wells were installed with a rotary type rig, and it is possible that all drilling mud was not removed. Both wells indicating contamination from the August 1985 analyses were reported as having high sediment content after purging, and water samples were not filtered. These same wells now meet ARARs.

TABLE 4

SOIL CLEANUP CONFIRMATION SAMPLING
FOR FDER REMOVAL MAY, 1985

(Based on sample data from
Environpact Report T-1980)

Compound mg/kg	SAMPLE # 1	2	3	4	5	6	2496-7	2496-8
Lead	8.00	8.00	26.5	31.5	14.3	6.5	46.5	10.0
Chromium	1.32	1.96	1.16	0.73	0.98	0.84	0.11	0.03
Cadium	0.09	0.03	0.08	0.04	0.04	0.02	2.08	1.12
Acrolein	u	u	u	u	u	u	275.2	u
Acrylonitrile	u	u	u	u	u	u	454.9	u
Trichloroethylene	u	u	u	u	u	u	5.1	11.4

NOTE: ALL VALUES ARE ug/l
u= NOT DETECTED

TABLE 5

SOIL CLEANUP CONFIRMATION SAMPLING
MAY 17, 1985 (Based on ESE Sample
Data Report #84414-0422)

Compound mg/l	SAMPLE # OR LOCATION TOYHW1	DER-1W	MW-1A	MW-2
Isophorone	u	u	u	8
Bis 2 Ethylhexyl-phthalate	81	28	35	u
Di-n-Butyl-phthalate	3	6	2	1
Di-Octylph-thalate	u	10	7	2
Cadmium	u	15.6	3.2	4.9
Chromium	u	u	16	86
Copper	5.0	u	9.1	u
Mercury	0.4	1.1	0.3	0.4
Nickel	u	u	u	15
Lead	u	u	u	50.5
Zinc	277	8	16	24

NOTE: All Values are ug/l
u = NOT DETECTED

TABLE 6

MONITOR WELL SAMPLING PRIORITY POLLUTANT RESULTS/AUGUST 1985

Compound ug/l	SAMPLE # TOYHW1	DER-1W	MW-1A	MW-2
CADMIUM	u	15.6	u	u
CHROMIUM	u	u	u	86
LEAD	u	u	u	50.5

NOTE: ALL VALUES ARE ug/l
u= BELOW FLORIDA DRINKING WATER STANDARD
Parameters not listed were not detected

TABLE 7

TRI-CITIES CONSERVATIONIST CORPORATION, INC
GROUND WATER SAMPLING RESULTS FOR JUNE 1986

COMPOUND ANALYZED	WELL LOCATION		
	MW-1A	MW-2	MW-DER1
Antimony	200u	200u	200u
Beryllium	10u	10u	10u
Cadmium	10u	10u	10u
Chromium	25u	25u	25u
Copper	50u	50u	50u
Lead	50u	50u	50u
Mercury	0.2u	0.2u	0.2u
Nickel	50u	50u	50u

u = minimum detection limit (below limits of analytical detection)*

* = all analyses in ug/l unless otherwise noted

ENFORCEMENT HISTORY

This Record of Decision recommends no futher remedial action. Therefore, no enforcement action relating to remediation at the Tri-City site is being considered at this time. Federal action may be taken to recover the monies expended in the cleanup of the site.

EPA spent approximately fifty thousand dollars ($50,000) for its February 1984 immediate removal action at the site. From discussions with the State and from a Responsible Party search report EPA has identified several owner/operator and generator potentially responsible parties. Tri-City Oil Conservationist Corporation was involuntarily dissolved on November 10, 1983. Other owner/operators are in bankruptcy. A cost recovery action against the potentially responsible parties may be initiated under the suthority of Sections 107 and 122(h) of CERCLA.

Florida spent approximately fifty-five thousand dollars ($55,000) for a Contamination Assessment and one hundred forty-five thousand dollars ($145,000) for its May 1985 removal action. The State is currently pursuing a civil cost recovery action against the owner/operators of the site.

CURRENT SITE STATUS

Upon review of the Tri-City Oil Conservationist Corporation data-base it is apparent the site is no longer contaminated. Currently, the Tri-City Oil site stands vacant. There exists grass and low scrub vegetation on the surface of the site. Visually, it appears level with no visible drainage pathways for surface water to migrate off the site. The property is idle with access limited by a locked gate. Across 50th Street to the west is the Militello Property which has had a small commercial center constructed upon it. There now exists a convenience store upon this property and the entire site is covered by both the building and its associated parking areas which are constructed of asphalt.

EXPOSURE ASSESSMENT

Extent of Contamination

Based upon data gathered during the FDER contamination assessment performed in July 1984, the heaviest areas of contamination identified were: (1) surface soils of the Militello lot decant zones, (2) surface soils in the northern third of the Tri-City Oil lot, and (3) subsurface soils near the underground storage tank on the Tri-City Oil lot. These soils contained a number of VOC's present at concentrations up to several thousand ppm and lead at levels up to 380 ppm. Additional analyses of the most heavily contaminated sample also revealed the presence of PCB's, napthalene, Bis (2-ethylhexyl) phthalate, and several petroleum hydrocarbons.

Table 8 and 9 summarize anayltical data for the Tri-City Oil composite and non-composite samples, respectively. Zones of contamination on the Tri-City Oil lot were estimated on the basis of the soil analytical results, HNU readings, and observations of stained soil during soil sample location screening. These estimates of areal and vertical extent of soil contamination are depicted in Figure 6 and 7. The areas shaded by lines in each figure represent zones known to be contaminated above background, based on analysis of composite and noncomposite soil samples, and HNU measurements. Contamination in the north end of the site appeared to be largely confined to the upper 12 inches of soil. Contamination observed in the vicinity of the fill pipe for the underground tank was more localized, making it difficult to pinpoint the zones of contamination in this area. A layer of heavily contaminated soil was found just above the surface of the buried tank near the fill pipe, (sample depth 12 to 18 inches) as shown in Figure 6. The zone of contamination shown on the figure was based both on analysis of the non-composited sample and on HNU readings taken during soil screening.

During soil screening, additional zones of contamination were discovered based upon observations of stained soils. These zones were not designated for sampling and analysis since the HNU did not reveal significant concentrations of volatile organics. These areas are shown by dotted zones in Figures 6 and 7. The extent of contamination in these areas was estimated on the basis of borings D, E, G, and H. The stained soil appeared to be confined to the upper 12 to 15 inches. Although total VOCs were not detected at significant concentrations by HNU during soil screening, the soils were apparently contaminated by petroleum hydrocarbons and possibly metals.

Table 8. Data Summary for Tri-City Oil Heavily Contaminated Soil Samples (Noncomposited)*

COMPOUND	Sample ID** HCA1 (12-18")	HCA2 (8-12")
Xylene	77,100	927
Arsenic (mg/kg)	1.1	3.3
Beryllium (mg/kg)	0.1	0.3
Cadmium (mg/kg)	6.1	0.4
Copper (mg/kg)	8	3
Lead (mg/kg)	150	230
Nickel (mg/kg)	1	1
Selemium (mg/kg)	0.4	0.07
Thallium (mg/kg)	20	46.4
Dichlorodifluoromethane	1700	430
T-1,2-dichloroethene	250	ND
Ethylbenzene	6100	ND
Methylene chloride	390	120
Tetrachloroethylene	3000	ND
1,1,1-Trichloroethane	1400	ND
Trichloroethene	250	ND
Toluene	15,000	75
Bis(2-ethylhexyl)phthalate	2,000	2,600
Naphthalene	606	ND
Chromium (mg/kg)	8.9	4.2
PCB-1016	160	ND
PCB-1260	1400	ND
Benzene	660	ND

ND = Not detected.

*In µg/kg, unless otherwise noted.

Table 9. Data Summary for Tri-City Oil Heavily Contaminated Soil Samples (Noncomposited)*

COMPOUND	Sample ID** HCA1 (12-18")	HCA2 (8-12")
Xylene	77,100	927
Arsenic (mg/kg)	1.1	3.3
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Cadmium (mg/kg)	6.1	0.4
Copper (mg/kg)	8	3
Lead (mg/kg)	150	230
Nickel (mg/kg)	1	1
Selenium (mg/kg)	0.4	0.07
Thallium (mg/kg)	20	46.4
Dichlorodifluoromethane	1700	430
T-1,2-dichloroethene	250	ND
Ethylbenzene	6100	ND
Methylene chloride	390	120
Tetrachloroethylene	3000	ND
1,1,1-Trichloroethane	1400	ND
Trichloroethene	250	ND
Toluene	15,000	75
Bis(2-ethylhexyl)phthalate	2,000	2,600
Naphthalene	606	ND
Chromium (mg/kg)	8.9	4.2
PCB-1016	160	ND
PCB-1260	1400	ND
Benzene	660	ND

ND = Not detected.

*In ug/kg, unless otherwise noted.

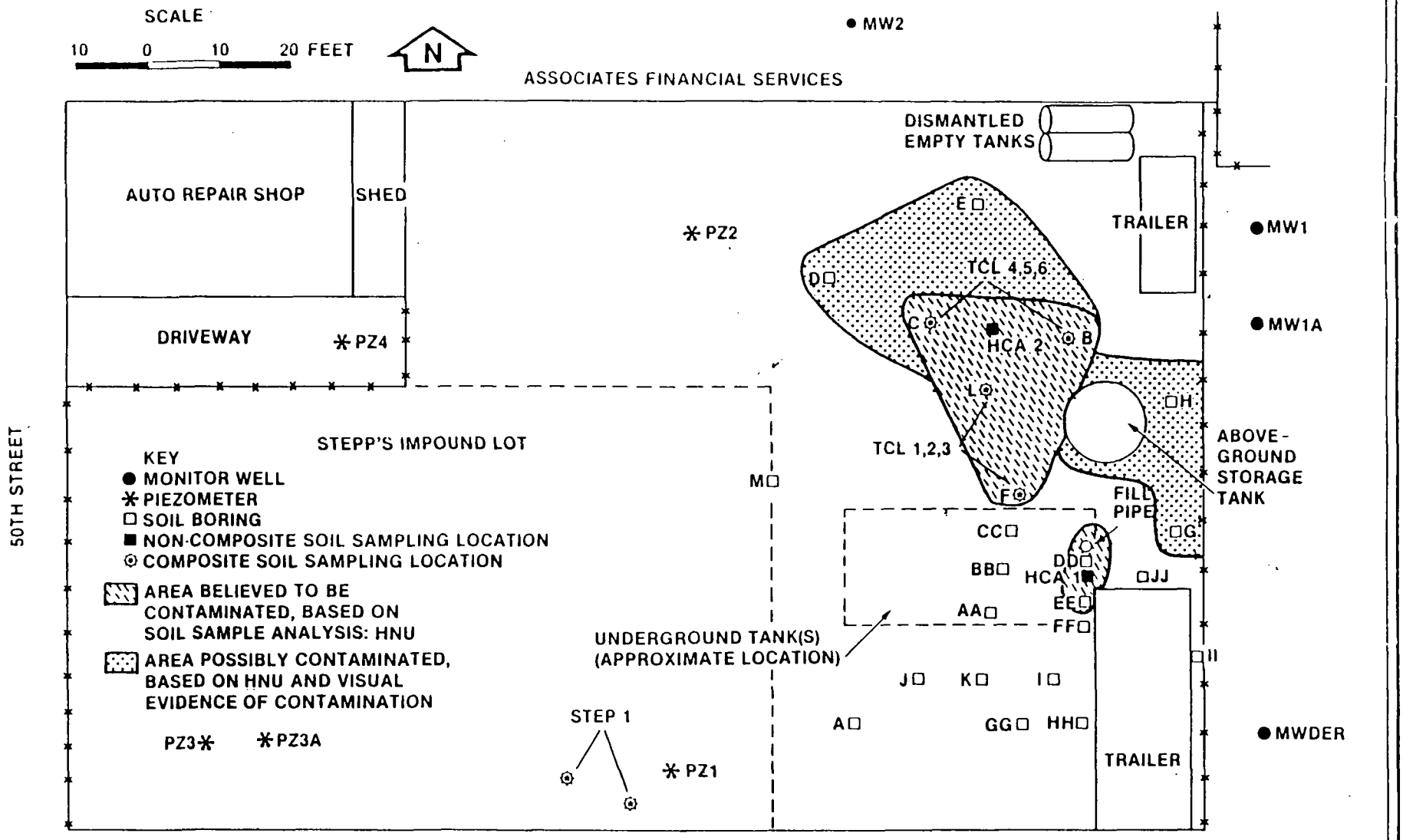

Figure 6
ZONES OF SOIL CONTAMINATION ABOVE BACKGROUND, UPPER 6"

SOURCE: ESE, 1984.

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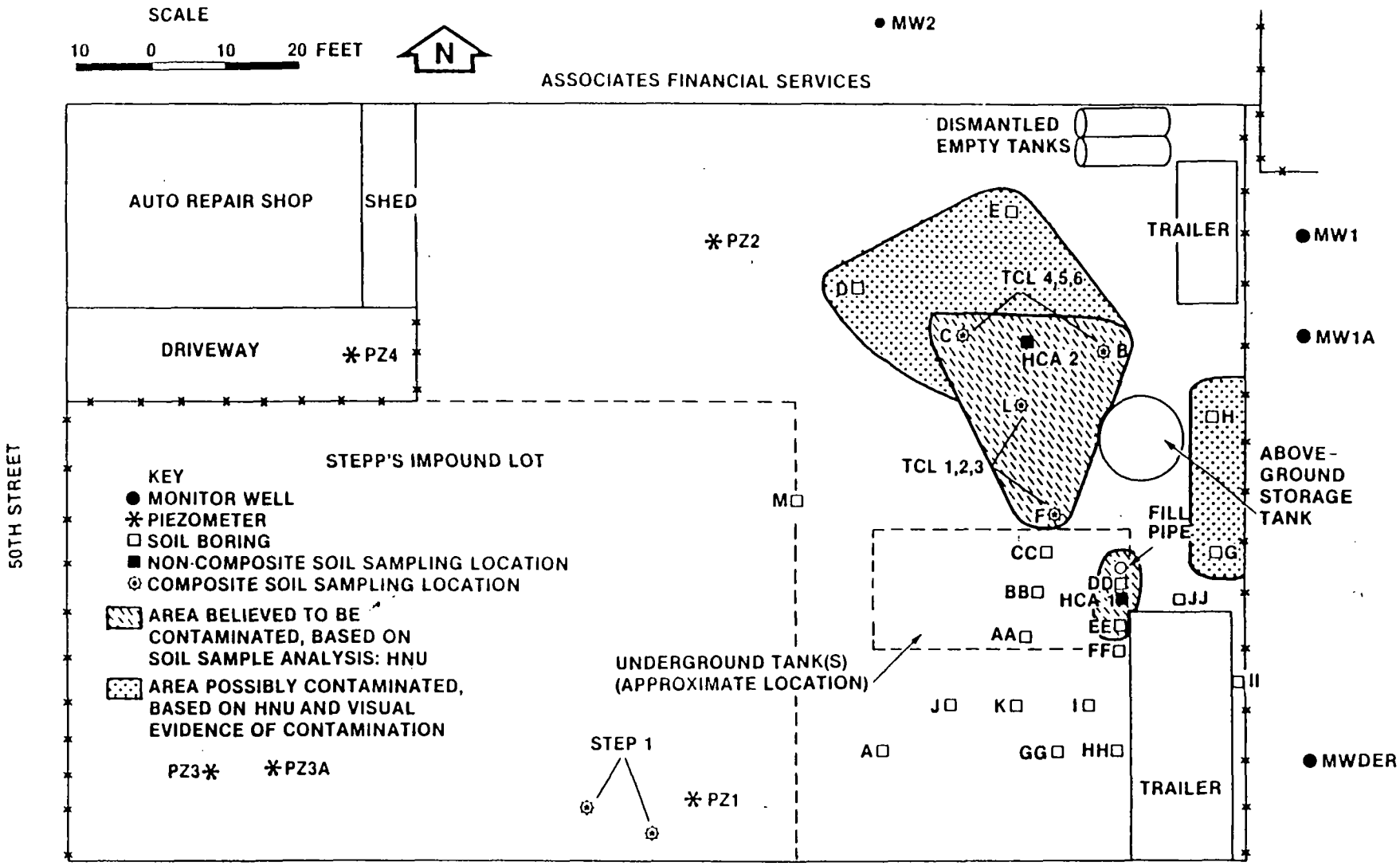

Figure **7**
ZONES OF CONTAMINATION ABOVE BACKGROUND, 6 – 12" DEPTH

SOURCE: ESE, 1984.

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CONTAMINATION ASSESSMENT
Tri-City Oil

Contamination Migration

The potential for future migration remained since most of the volatile organics identified on the site were highly mobile by virtue of high water solubility, high vapor pressure, and/or relatively low tendency to partition to organic carbon in soils. Table 10 summarizes these properties for each VOC found on the site and includes a calculated mobility index value, derived according to the methods of Gurba and Ford, 1984. The compounds are listed in descending order of mobility indices, that is, the most mobile compounds are listed first.

The preliminary assessment of mobility did not take into account the site-specific conditions influencing contaminant migration, but it did show most of the compounds listed are highly mobile in the environment. Methylene chloride and dichlorodifluoromethane, which appear to be migrating to deeper soils on the site, are among the most mobile contaminants based on this ranking system. The organic carbon fraction of the sandy soil typical on the site were believed to be fairly low, indicating that minimal retardation of contaminants would occur by partitioning to organic carbon.

Table 10. Physical-Chemical Properties and Mobility Indices

Compound	Water Solubility (mg/l)	Vapor Pressure (mmHg)	Koc	Mobility Index[1]
methylene chloride	1.7×10^4	3.62×10^2	10	0.679
trichloroethene	1.1×10^3	58	38	0.126
chloroform	8.2×10^3	1.5×10^2	50	0.121
dichlorodifluoromethane	2.8×10^2	4.87×10^3	66	0.093
benzene	1.78×10^3	95	74	0.071
trichlorofluoromethane	1.1×10^3	6.67×10^2	1.82×10^2	0.032
1,1,1-trichloroethane	7.2×10^2	1.23×10^2	1.74×10^2	0.028
toluene	5.35×10^2	22	3.39×10^2	0.012
chlorobenzene	4.88×10^2	12	3.8×10^2	0.010
tetrachloroethylene	1.65×10^2	14	3.6×10^2	0.009
ethylbenzene	1.52×10^2	7	1.2×10^3	0.003
naphthalene	31.7	9×10^{-2}	1.07×10^3	0.0004
PCB-1260	0.0027	4.1×10^{-5}	7.7×10^6	-9.0×10^{-7}
PCB-1016	4.2	4.0×10^{-4}	2.1×10^5	-1.3×10^{-5}
bis(2-ethylhexyl)phthalate	0.4	2.0×10^{-7}	7.24×10^3	-9.79×10^{-4}

Relative Mobility Index	Mobility Descriptor
>5	extremely mobile
0 to 5	very mobile
-5 to 0	slightly mobile

[1]Calculated according to methods of Gurba and Ford (1984)

The primary pathways for both environmental and health based contamination exposure would be: Inhalation of airborne vapors and dust from the site, both downward migration and lateral migration of contaminants through and across soils to water sources and direct dermal contact with contaminated soils which were ponded on the surface.

Sampling during the July 1984 Contamination Assessment (CA) by FDER determined airborne vapors to be at or near background concentrations (0.4ppm) for the Tri-City site. The CA indicated, however, a potential existed for long-term, low-level exposure to VOC's in air for persons working or living in the vicinity of the site.

Downward migration of contaminants through the soils to local aquifers was a possibility. Because the site had both an underground waste oil storage tank and contaminated soils, the addition of rainfall to the site could have driven contaminants downward through soils into the underlying water table. Use of this water for drinking could have resulted in direct health related problems.

Lateral migration of contaminants across soils via runoff from the site to streams would have both degraded water quality of the streams as well as created a potential for both human and animal contact with these contaminants. There also existed a potential for sediments to adsorb contaminants from the surface waters. Organisms which feed in stream sediments could, therefore, have been exposed to contaminants through ingestion of these sediments. Both human and animal populations use the surface waters near the Tri-City site as drinking water supplies. Again, this could have created a health risk if contaminants from the site enterd the surface water.

Dermal contact with contaminated soils was a possibility at the Tri-City site. During the facility's active operation soils were contaminated and sludges formed pools on the ground. These contaminants could be directly contacted by both human and animal populations.

As described in the site history, the Tri-City site has had all of the contaminated soils and sludges removed by both an EPA Emergency Response Action and a follow-up FDER remediation. Both of these actions were in the form of removal and disposal to an EPA-approved hazardous waste landfill.

ALTERNATIVE EVALUATION

Public Health & Environmental Objectives

Soils contaminated with oils and sludges from the Tri-City operation posed an environmental threat to both ground and surface waters through migration from the source area to potential water supplies. Human health, endangered species and wetlands were also threatened by this contamination source, through direct contact with the contaminated soils and sludges and through indirect contact in the form of airborne vapors or contaminated runoff.

Both EPA and FDER have sought to mitigate harm to these potential receptors by removing soils and sludges from this site which were contaminated with heavy metals and organic compounds. The goal of both agencies was to ensure that the contaminants contained on-site were not permitted to migrate off-site thereby endangering a large population of both animal and human receptors. These agencies have also sought to protect the environment by mitigating potential harm to wetlands, ground water and surface waters which may have occurred were the contaminants to have remained in place.

Technologies Considered

Technologies can be identified to address the contamination which existed at the Tri-City site. These could include: thermal destruction, capping, aeration, solidification/stablization or surface soil/sediment removal. Technologies are directed toward mitigation of threats posed by a site to public health, welfare and the environment. These technologies would then be evaluated for their applicability, effectiveness, and consistency with ARARs in addressing the contamination on-site.

As has been presented in both the Site History and the Contamination Migration/ Exposure Assessment sections of this ROD, the site had all of the contaminated soils and sludges removed to an EPA-approved hazardous waste facility. The operation was a two-phased action with EPA conducting an immediate removal and Florida DER following this action by conducting a complete source removal at the site. Florida DER then sampled the ground water of the site to confirm the soil contaminants had not reached the water table and to ensure all contamination was completely removed from the site. The results of the latest sampling effort are displayed in Table 5. The results indicate all contamination in the ground water is below the drinking water-based standards for detection and that the ground water has not been adversly impacted by the Tri-City site activity.

For the Tri-City site an evaluation of various technologies and their effectiveness, applicability and consistency with the ARARs in addressing on-site contamination proves to be unnecessary. Technologies are first identified, then screened and finally evaluated when contamination exists which can pose both health-related and environmental threats. The Tri-City site, in its current condition, poses neither a health-related nor an environmental threat to its surroundings.

Alternative Descriptions

No Further Action

Under the no further action alternative, no additional remedial activities would be performed. Implementation of this alternative accepts the previous source removal and closure activities conducted by Florida DER as sufficient to address the potential for both environmental damage and public health threats from contaminants previously on-site. Because the contaminated soils have been removed and placed in an approved hazardous waste facility and no significant contamination reached groundwater supplies in the area, additional remedial activities are not necessary. Confirmation sampling conducted by FDER confirmed the absence of contamination in both the ground water and in the soils. Since the contamination has been removed, there exists no potential for ground water contamination as a result of leachate. The soils which were placed on the site to return the surface to its original grade were clean fill.

ADDITIONAL CONSIDERATIONS

Since the enactment of the Superfund Amendments and Reauthorization Act of 1986 (SARA) new requirements have been imposed on the remedial response options available for use at Superfund sites. One portion of the Act has imposed stringent requirements which was a direct impact on the selection of a for the Tri-City Oil Conservationist Corporation Site. This requirement (SARA Section 121 (b)) encourages the selection of remedial actions which offer permanent solutions rather than the disposal of hazardous waste materials in landfills. The Tri-City site had its contamination removed and disposed of at an EPA-approved hazardous waste landfill in April 1985. Although this method would be discouraged today, it used the best available technology of the time and has proven to be an effective remedy for this site in eliminating both environmental and health-based contamination concerns.

RECOMMENDED ALTERNATIVE

The recommended alternative for the Tri-City site consists of No Further Action at this location. This alternative reflects the actions already performed at the site by Florida DER. This action included: removal of all contaminated soils at the site and subsequent disposal to an EPA-approved hazardous waste landfill, subsequent soil sampling to confirm all remaining soils were not contaminated, ground water sampling to confirm no ground water contamination had occured and return of the site to its original grade using non-contaminated clean fill materials.

Because this remedy has removed all contaminants of concern from the site it will not be necessary to undergo long term monitoring of the site.

This selected remedy has no cost.

COMPLIANCE WITH SECTION 121 OF SARA

The remedy selected for the Tri-City Oil Conservationist Corporation Site is considered to be the most effective alternative in terms of removing the threats posed by the site, and is considered the most effective choice given both the clean-up technologies available and the size of the site. The remedy provides protection which will meet all ARAR's (applicable or relevent, and appropriate requirements) and is cost effective. Finally, the remedy utilizes permanent treatment technologies to the maximum extent practicable given the small volume of contaminated materials.

OPERATIONS AND MAINTENANCE

Operations and Maintenance for the selected remedy at the Tri-City Oil Conservationist Corporation Site will be limited. There will be no long term monitoring related to the soil contamination since all soils which exceed the clean-up criteria have been removed from the site. No ground water monitoring is planned as the ground water test results indicate water quality is unaffected by historical or current site conditions.

CONSISTENCY WITH ARAR's

Applicable or Relevant and Appropriate Requirements (ARAR's) for the Tri-City Oil Conservationist Corporation site were identified which apply to the site prior to remedial activity. They are:

- Safe Drinking Water Act
- EPA Groundwater Protection Strategy
- Clean Water Act
- Resource Conservation and Recovery Act
- The State of Florida Administrative Code (FAC); Chapter 17-22 Drinking Water Standards
- The State of Florida Administrative Code (FAC); Chapter 17-13 Surface Waters: General Criteria
- The State of Florida Administrative Code (FAC); Chapter 17-30 Hazardous Waste
- Clean Air Act
- Toxic Substances Control Act

The site remedy removed contaminated materials to below existing standards - in fact, to below analytical detection limits - and disposed of it at a RCRA approved facility. Monitoring has shown the groundwater to be unaffected by the site. These actions comply with all of the identified ARARs.

COMMUNITY RESPONSIVENESS SUMMARY
TRI-CITY OIL CONSERVATIONIST CORPORATION SITE, TEMPLE TERRACE, FLORIDA

The Tri-City Oil Conservationist site has been the subject of a Contamination Assessment (CA) and a remedial action conducted by Florida Department of Environmental Regulation (FDER) and EPA. EPA has been involved with the Tri-City site since a spill of contaminated waste oil occured in 1982. Following this spill the site was placed on the National Priorities List (NPL) in September 1983. Since this time the EPA and FDER have both kept the local community informed of the actions taken at the site.

This Community Responsiveness Summary has been prepared to present a summary of EPA's community relations activities in regard to the Tri-City site.

The Responsiveness Summary is divided into two sections:

Section 1 - Overview - This section discusses EPA's recommended alternative and possible public reaction to this alternative.

Section 2 - Community Relations Activities - This section describes community relations activities performed by EPA.

1.0 OVERVIEW

1.1 Recommended Alternative

In 1984 EPA conducted an immediate removal of contaminated waste oils, sludges and contaminated soils from the Tri-City site. Following this action Florida Department of Environmental Regulation (FDER) commisioned a Contamination Assessment in February 1984 to determine the type and extent of contamination present at the site. Based on these findings FDER performed a complete removal of the contaminated soils at the site to levels of contamination below Federal and State drinking water standards.

The Record of Decision to which the Summary is attached specifies no further remedial action at this site. The Agency concurs with the removal actions taken by FDER and based upon groundwater confirmation sampling conducted by FDER in June 1986 recommends no further remedial action be taken at this site. Contaminant levels do not exceed acceptable concentrations, therefore no further actions will be taken and this site will be proposed for deletion from the NPL.

1.2 Expected Public Relation

No opposition to the recommended alternative is expected by the public. Very little interest in the site has been indicated by local residents, and both EPA and FDER have received only one inquiry and no complaints since the public notice was published in August 1987.

2.0 COMMUNITY RELATIONS ACTIVITIES

No extensive community relations activities have been conducted at the Tri-City site due to the lack of interest expressed by the local community. A public information repository was established at the Temple Terrace Public Library, Temple Terrace, Florida, in August 1987. The Administrative Record for the Tri-City site was placed in the repository.

A legal notice was published in the Tampa Tribune on August 30, 1987. This notice outlined EPA's proposed plan for further activities and informed the public of the information repository. This notice also began the start of a three-week public comment period during which EPA would receive both written and verbal comments regarding the proposed plan. The public was informed through this notice that a public meeting could be requested.

The public comment period began when the legal notice was published on August 30, 1987. No written or verbal comments were received as of September 20, 1987, and no public meeting was requested.