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Office of Emergency and Remedial Response
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June 1990

Superfund Record of Decision:

62nd Street Dump, FL

50272-101

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15. Supplementary Notes

16. Abstract (Limit: 200 words)

The 5-acre 62nd Street Dump site is an inactive industrial waste disposal area in Tampa, Hillsborough County, Florida. Several marsh areas and a series of fish breeding ponds lie adjacent to the site. Surrounding land use is mixed light industrial and residential. The site overlies a series of sedimentary rock aquifers, which are currently used as drinking water sources. In the mid-1970s, the site was used as a sand borrow pit. After this operation halted, industrial wastes, including auto parts, batteries, and kiln dust were dumped onsite. Industrial dumping ceased in 1976, but unauthorized onsite dumping of construction materials and household garbage continued. In 1976, fish kills occurred in the adjacent ponds, which lead to site investigations in 1979 and 1980 by private groups. Based on these investigations, the contamination was determined to be the result of waste material leaching from the landfill. Several additional investigations were conducted from 1983 to 1989 to identify and further characterize contaminant sources and contaminated media. This Record of Decision (ROD) addresses source remediation and onsite and offsite ground water contamination. The primary contaminants of concern affecting the soil, debris, and ground water are organics including PCBs; and metals including arsenic, chromium, and lead.

(See Attached Page)

17. Document Analysis a. Descriptors

Record of Decision - 62nd Street Dump, FL
First Remedial Action - Final
Contaminated Media: soil, debris, gw
Key Contaminants: organics (PCBs), metals (arsenic, chromium, lead)

b. Identifiers/Open-Ended Terms

c. COSATI Field/Group

18. Availability Statement	19. Security Class (This Report) None	21. No. of Pages 83
	20. Security Class (This Page) None	22. Price

(See ANSI-Z39.18) *See Instructions on Reverse* OPTIONAL FORM 272 (4-77) (Formerly NTIS-35) Department of Commerce

Abstract (Continued)

The selected remedial action for this site includes dewatering and excavating approximately 48,000 cubic yards of contaminated soil and non-cement debris, followed by onsite treatment using solidification/stabilization, and placing the treated material onsite within the original dump area; capping the site with an impermeable membrane and vegetative soil cover; pumping and onsite treatment of contaminated ground water using chromium reduction, flocculation, sedimentation, and filtration, followed by offsite discharge to a publicly owned treatment works (POTW) or onsite discharge to surface water; disposing of residual sludges onsite; monitoring ground water; and implementing institutional controls including land use restrictions. The estimated present worth cost for this remedial action is $16,460,000, which includes an estimated present worth O&M cost of $690,000 for 30 years.

PERFORMANCE STANDARDS OR GOALS: Federal MCLs were chosen as cleanup standards for ground water. Chemical-specific goals include chromium 50 ug/l (MCL) and lead 15 ug/l (proposed MCL). Soil cleanup criteria were chosen as the more stringent of health-based criteria or values calculated from a leachate model. Chemical-specific goals for soil include PCBs 0.33 mg/kg, arsenic 3.5 mg/kg, chromium 8.8 mg/kg, and lead 17.4 mg/kg.

Record of Decision

Declaration

SITE NAME AND LOCATION

62nd Street Site
Tampa, Hillsborough County, Florida

STATEMENT OF BASIS AND PURPOSE

This decision document presents the selected remedial action for the 62nd Street Site, in Tampa, Hillsborough County, Florida, which was chosen in accordance with CERCLA, as amended by SARA, and, to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). This decision is based on the administrative record file for this site.

The State of Florida concurs with the selected remedy.

ASSESSMENT OF THE SITE

Actual or threatened releases of hazardous substances from this site, if not addressed by implementing the response action selected in this Record of Decision (ROD), may present an imminent and substantial endangerment to public health, welfare, or the environment.

DESCRIPTION OF THE REMEDY

This remedy is the final action for the site. The function of this remedy is to reduce the risks associated with exposure to contaminated onsite soils, and contaminated groundwater in the surficial aquifer onsite and offsite.

The major components of the selected remedy include:

- Solidification/stabilization of the battery wastes, shredded auto parts, and contaminated soils (approximately 48,000 cubic yards). Contaminants of concern associated with the battery wastes and shredded auto parts are antimony, arsenic, cadmium, chromium, copper, lead, and polychlorinated biphenyls (PCBs).

- No treatment of the onsite cement wastes since they present little threat through either direct contact or leaching to groundwater.

- Capping of the entire site (approximately 5.5 acres) with a two-foot vegetative soil cover underlain by an impermeable membrane.

- Extraction and treatment of the groundwater from the surficial aquifer both onsite and offsite. Contaminants of concern in the the surficial aquifer are lead and chromium.
- Institutional controls or other land use restrictions to ensure the integrity of the cap and preclude exposure to the treated soils.

The total present worth cost for the selected remedy is $16,460,000.

STATUTORY DETERMINATIONS

The selected remedy is protective of human health and the environment, complies with Federal and State requirements that are legally applicable or relevant and appropriate to the remedial action, and is cost-effective. This remedy utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable and satisfies the statutory preference for remedies that employ treatment which reduces toxicity, mobility, or volume as a principal element.

Because this remedy will result in hazardous substances remaining onsite, a review will be conducted within five years after commencement of remedial action to ensure that the remedy continues to provide adequate protection of human health and the environment.

JUN 27 1990

Date

Greer C. Tidwell
Regional Administrator

Record of Decision

The Decision Summary

62nd Street Site

Tampa, Hillsborough County, Florida

Prepared by:
U.S. Environmental Protection Agency
Region IV
Atlanta, Georgia

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The Decision Summary

62nd Street Site

Tampa, Hillsborough County, Florida

1.0 Introduction

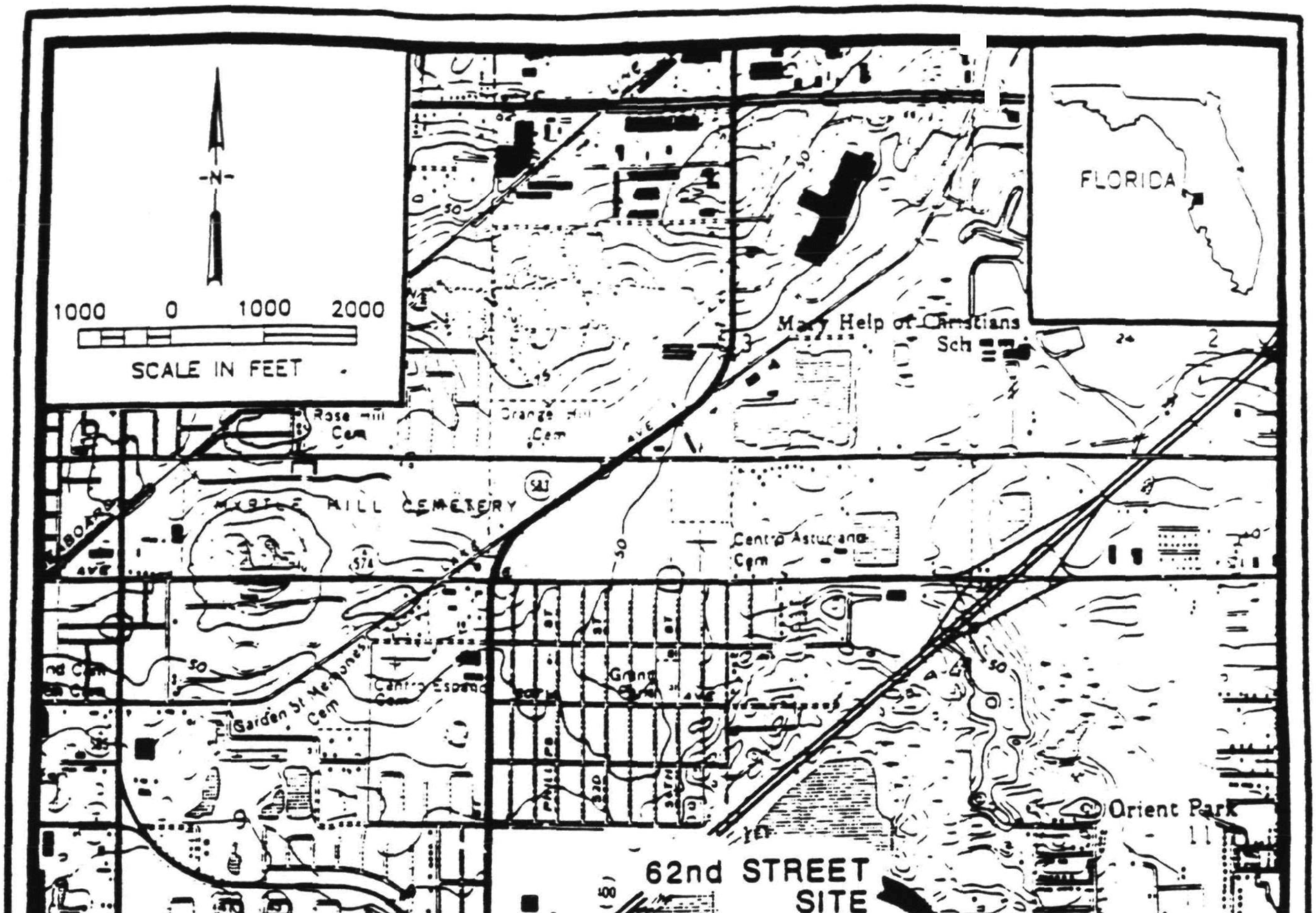
The 62nd Street Site (the Site) was proposed for inclusion on the National Priorities List (NPL) in December 1982. The site has been the subject of a variety of studies, including a Remedial Investigation (RI) which was performed for the Florida Department of Environmental Regulation (FDER) from February 1986 to September 1987 by a team of contractors consisting of Mayes, Sudderth and Etheredge, Inc. (MSE), Fred C. Hart and Associates, Inc. (Hart), and Universal Engineering Testing Company, Inc. (UETC). FDER also conducted the Feasibility Study (FS) for the Site under a contract with Camp Dresser & McKee, Inc. (CDM). The FS, which develops and analyzes potential alternatives for remediation at the site, was issued to the public on March 22, 1990. The FS also supplements the RI by conducting additional field activities to characterize the nature and extent of soil, sediment, surface water, and groundwater contamination at the Site.

2.0 Site Name, Location, and Description

The 62nd Street Site is located in Tampa, Hillsborough County, Florida, north of Columbus Drive and just west of 62nd Street (Figure 2-1). The Site is a five and a half acre dump formerly used for the disposal of industrial waste. The Site is located in an area with mixed residential and light industrial land use. The Site is bounded on the west by a series of what were small, shallow fish breeding ponds. To the east and south of the Site are residential areas interspersed with light commercial and industrial operations. To the north of the Site is undeveloped land. The current landowner operates an automobile scrap yard on the southern portion of the Site. A site map is presented as Figure 2-2.

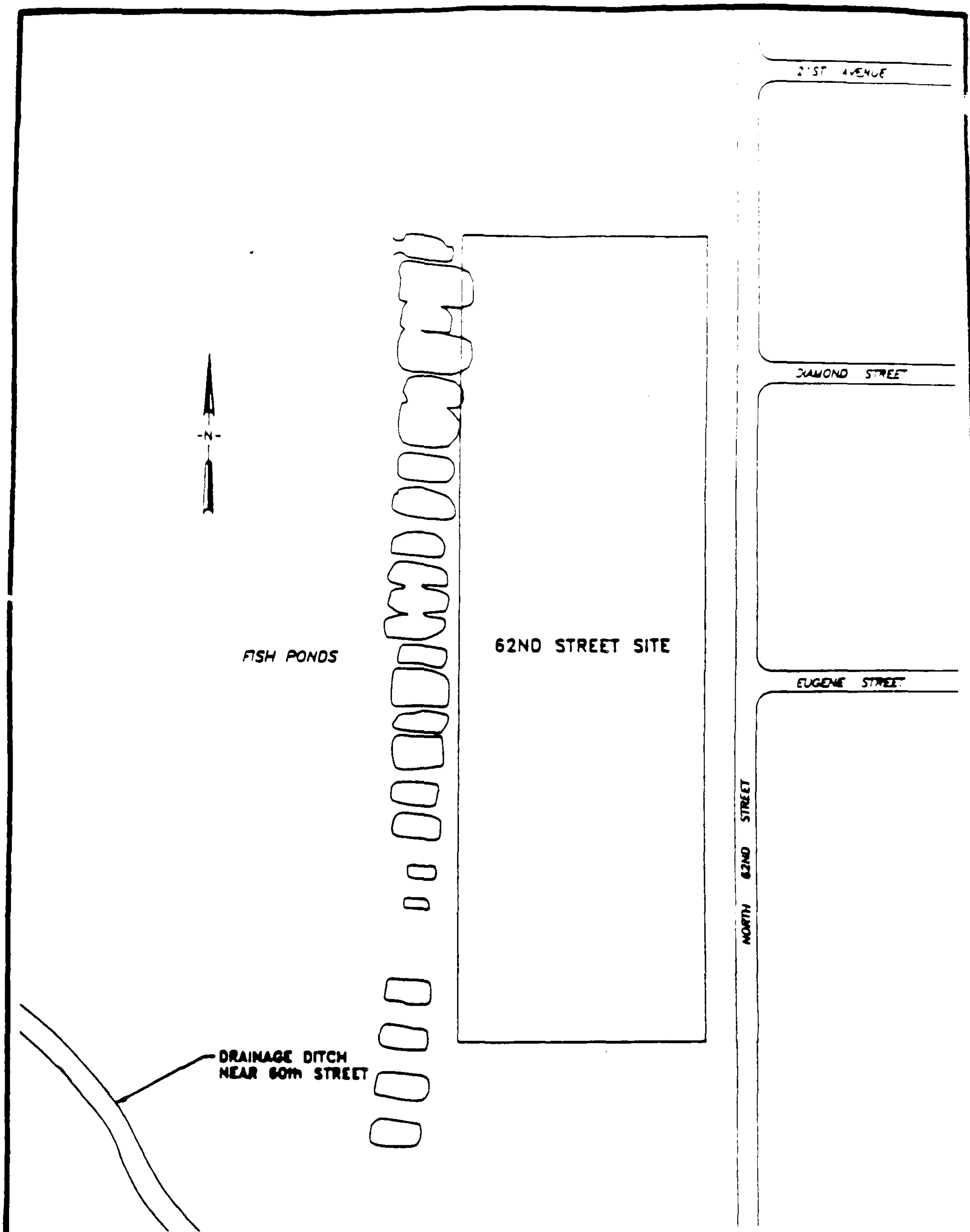
3.0 Site History and Enforcement Activities

The 62nd Street Site was operated for a limited duration of approximately three years in the mid-1970s as a borrow pit; that is, sand was excavated and sold. When the owner of the Site ceased operation of the borrow pit, he allowed several companies in Tampa to use the remaining pit as a disposal area for various waste materials, including shredded automobile parts, batteries, waste



REFERENCE: TAMPA QUADRANGLE
USGS 7.5 MINUTE SERIES

CAMP DRESSER & McKEE INC. SITE LOCATION MAP	FIGURE NO.
62nd STREET SITE TAMPA, FLORIDA	2-1



CAMP DRESSER & McKEE INC.

SITE MAP

62nd STREET SITE

TAMPA, FLORIDA

FIGURE NO

2-2

cement, kiln dust, and kiln liners. The owner ceased dumping in 1976, but unauthorized dumping of household garbage and construction debris continued after this date.

In 1976, the potential for environmental problems at the Site was recognized when fish kills occurred in fish breeding ponds on the adjacent property belonging to Peninsular Fisheries. On November 30, 1976, the Hillsborough County Environmental Protection Commission (EPC) issued a notice to cease all disposal activities at the site. The first major investigation at the Site was conducted in June 1979 by Fish Doctors Laboratory, Inc. (FDL) under contract to Peninsular Fisheries, Inc.

The study from FDL determined that several parameters in the fish breeding ponds were present in levels unsuitable for fish habitation. These parameters included copper, detergent, dissolved oxygen, iron, turbidity, and biological oxygen demand. Systems Engineering Associates (SEA), representing Peninsular Fisheries, Inc., concluded in June 1979 that leaching of the concrete material on the western portion of the Site could result in excessive alkalinity in the ponds. SEA further concluded that liquids resulting from onsite disposal of battery casings could adversely impact fish breeding in the adjacent ponds by lowering the pH and causing sulfate poisoning.

Additional work was conducted in 1980 by Seaburn and Robertson, Inc. to evaluate the impact of the Site on the adjacent fish ponds. This report concluded that there was a hydraulic connection between the dump Site and the fish ponds. The report further concluded that the dump Site was adversely impacting the water quality in the fish ponds.

Environmental sampling was conducted periodically by the Hillsborough County EPC and by the Florida Department of Environmental Regulation (FDER). The areas sampled included private wells, fish breeding ponds, a shallow sand point well installed by FDER, and various areas surrounding the Site. An analysis of the sample from the shallow sand point well showed groundwater contamination exceeding the FDER Chapter 17-3 standard for chromium. However, 1982 FDER analyses of water samples from wells upgradient and downgradient of the Site did not show any metals concentrations above background levels.

A Remedial Action Master Plan (RAMP) was prepared for the 62nd Street Site by NUS Corporation under contract to EPA in June 1983. A preliminary risk assessment was performed as a part of RAMP development, and an approach to both short- and long-term remedial actions was developed. The RAMP indicated that there was no immediate concern over drinking water contamination, but that groundwater monitoring should be continued and a feasibility study conducted to evaluate long-term remediation.

In March 1984, the FDER and the EPA entered into a Cooperative Agreement to conduct a Remedial Investigation/Feasibility Study (RI/FS) at the Site. The RI was conducted in 1986 by a team of several consulting firms consisting of Mayes, Sudderth & Etheredge, Inc., Fred C. Hart Associates, Inc., Universal Engineering Testing Company, Inc., and Compuchem Laboratories, Inc. The field activities were conducted in two phases. Phase I was conducted in February 1986, and consisted of construction and sampling of 12 test pits across the Site. Phase II was conducted in July and August 1986, and involved installing and sampling 14 groundwater monitor wells, sampling of 10 domestic wells, sampling surface water and sediment from the fish ponds, and sampling onsite surface soils.

Additional sampling of onsite monitor wells was conducted in 1987 by both Environmental Science and Engineering and the U.S. Environmental Protection Agency (EPA). Camp Dresser & McKee, Inc. (CDM) was contracted by FDER in August 1988 to conduct a Feasibility Study (FS) for the Site. The FS developed and analyzed potential alternatives for remediation at the Site. The FS also supplemented the RI by conducting additional field activities to characterize the nature and extent of soil, sediment, surface water, and groundwater contamination at the Site. In July 1989, additional domestic well sampling was performed by the Florida Department of Health and Rehabilitative Services (HRS).

4.0 Highlights of Community Participation

The RI/FS and the Proposed Plan for the 62nd Street Site were released to the public on March 21, 1990. These two documents were made available in both the administrative record and an information repository maintained at the EPA Docket Room in Region IV and at the Tampa-Hillsborough Public Library. The notice of availability was published in the Tampa Tribune on March 22, 1990. A public comment period was held from March 23, 1990 through April 23, 1990. In addition to public comment and the accessibility of the information, a public meeting was held on March 29, 1990. At this meeting, representatives from FDER and EPA answered questions and addressed community concerns. A response to comments received during this period is included in the Responsiveness Summary, Appendix A of this Record of Decision. This decision document presents the selected remedial action for the 62nd Street Site, chosen in accordance with CERCLA, as amended by SARA and, to the extent practicable, the National Contingency Plan. The decision for this site is based on the administrative record.

5.0 Scope and Role of Response Action Within Site Strategy

This ROD addresses the source of contamination, the landfill. The battery wastes, shredded auto parts, and soil at the Site, found to be contaminated with antimony, arsenic, cadmium, chromium, copper, lead, and polychlorinated biphenyls (PCBs), pose the principal threat to human health and the environment because of the risks associated with possible ingestion or dermal contact. Also, the shallow groundwater aquifer, found to be contaminated above health-based levels with cadmium, chromium, and lead, has migrated offsite. Although this aquifer is not the source of drinking water for the local residents, under future use scenarios, it presents a threat to human health and the environment. The cleanup objectives for this ROD are to prevent current or future exposure to the contaminated soil and groundwater through treatment and containment, and to reduce the migration of contaminants.

6.0 Summary of Site Characterizations

The Site has been used in the past for excavation to obtain fill material. Borrow pits resulting from the excavation were used for dumping a variety of waste materials including shredded automobiles, tires, batteries, vinyl seats, and Portland cement stack dust. Plastic battery casing chips have been observed on the ground surface in several locations in the southern and western areas of the Site. Activities conducted by the current site owner involve the storage of scrap automobile parts and other scrap metal.

Wastes buried at the Site fall into two categories: auto part/battery wastes and cement wastes. The disposal of the auto part/battery wastes at the Site has resulted in the release of hazardous substances including antimony, arsenic, cadmium, chromium, copper, lead, and polychlorinated biphenyls (PCBs) in the soil. The surficial aquifer both onsite and offsite is also contaminated with cadmium, chromium, and lead above health-based levels. The cement wastes represent little threat through either direct contact or leaching to groundwater.

6.1 Site Geology

The general geology of the Tampa area, including the 62nd Street Site, is that of a series of sedimentary sequences of rock and unconsolidated sediments overlying a basement of crystalline igneous or metamorphic rock. The basement rock is of Paleozoic age and the sedimentary sequences become younger upwards from the basement rock. The sedimentary rocks range in age from Mesozoic through Cenozoic with Pleistocene sediments of the Cenozoic being the youngest. Sedimentary rocks in the Tampa area consist of limestones, sand, clay, and silt. The variability of rock and sediment types suggests environments of deposition ranging from open ocean to shoreline to lagoons and tidal marshes.

Lithologic and Paleoenvironmental evidence in the Tampa area and much of Florida suggests that the sedimentary layers of rocks and sediments were laid down during a series of transgressive (shoreward) and regressive (receding) shoreline migrations. Rock and sediment sequences which are present and of concern at the 62nd Street Site are the Tampa limestone, Hawthorn Formation and undifferentiated Pliocene, Pleistocene, and recent deposits.

The Tampa limestone, the oldest unit of concern, is early Miocene in age and consists of soft, white, impure limestones. The unit contains some beds of calcareous sands and clayey sands. Much of the unit contains soft lime muds, solution cavities, and sinkholes and, therefore, is highly porous in some zones. Its porous nature permits large volumes of water to flow through, giving it good aquifer characteristics. Water quality in the Tampa limestone is generally good.

The upper part of the Tampa limestone is high in clay content, making the contact between it and the Hawthorn limestone difficult to determine. Throughout this document, the Tampa limestone is referred to as the lower aquifer or Floridan aquifer.

The Hawthorn Formation is very thinly represented, if at all, at the 62nd Street Site, and consists of a phosphatic clay unit. The Hawthorn is known to contain montmorillonite clays. These clays are characterized by swelling when hydrated and having the ability to absorb and retain certain ions in an exchangeable state. The clay units age is late Miocene. This unit, along with the very top portion of the Tampa limestone, is referred to as the confining unit.

The undifferentiated Pliocene, Pleistocene, and recent deposits overlie the Hawthorn and Tampa limestone. They were formed by glacial periods which caused fluctuations in sea level. These fluctuations left varying thicknesses of fine grained quartz sands throughout the Tampa area, with the thickness of the sands in the 62nd Street Site being approximately 20 feet. As the deposits allow water to be transmitted through them, they can generally be termed an aquifer, in their natural state. Water quality in this aquifer is suitable for domestic and municipal supplies, although in some locales there is high iron content in the water. These deposits are referred to as the upper sand aquifer in this document.

6.2 Hydrology

Surface water flows at the site are influenced by relatively small elevation changes. This is due to the flat topography of the site area. The topographic low of the site occurs at the southwest corner and local residents report that a considerable amount of standing water is present in this area during wet periods of the year. Just prior to the public meeting for this Record of Decision, the current landowner dug a trench through this low area to allow the Site to drain to the west into a small drainage ditch offsite. As part of the Remedial Design for the Site, samples will be taken in the drainage ditch to see if contamination has migrated offsite as a result of the new onsite trench.

A small surface water diversion berm originates along the southwestern boundary of the site and extends along the western boundary to the northern portion of the site. Small onsite depressions are also present, resulting in the formation of marshy areas during the majority of the year.

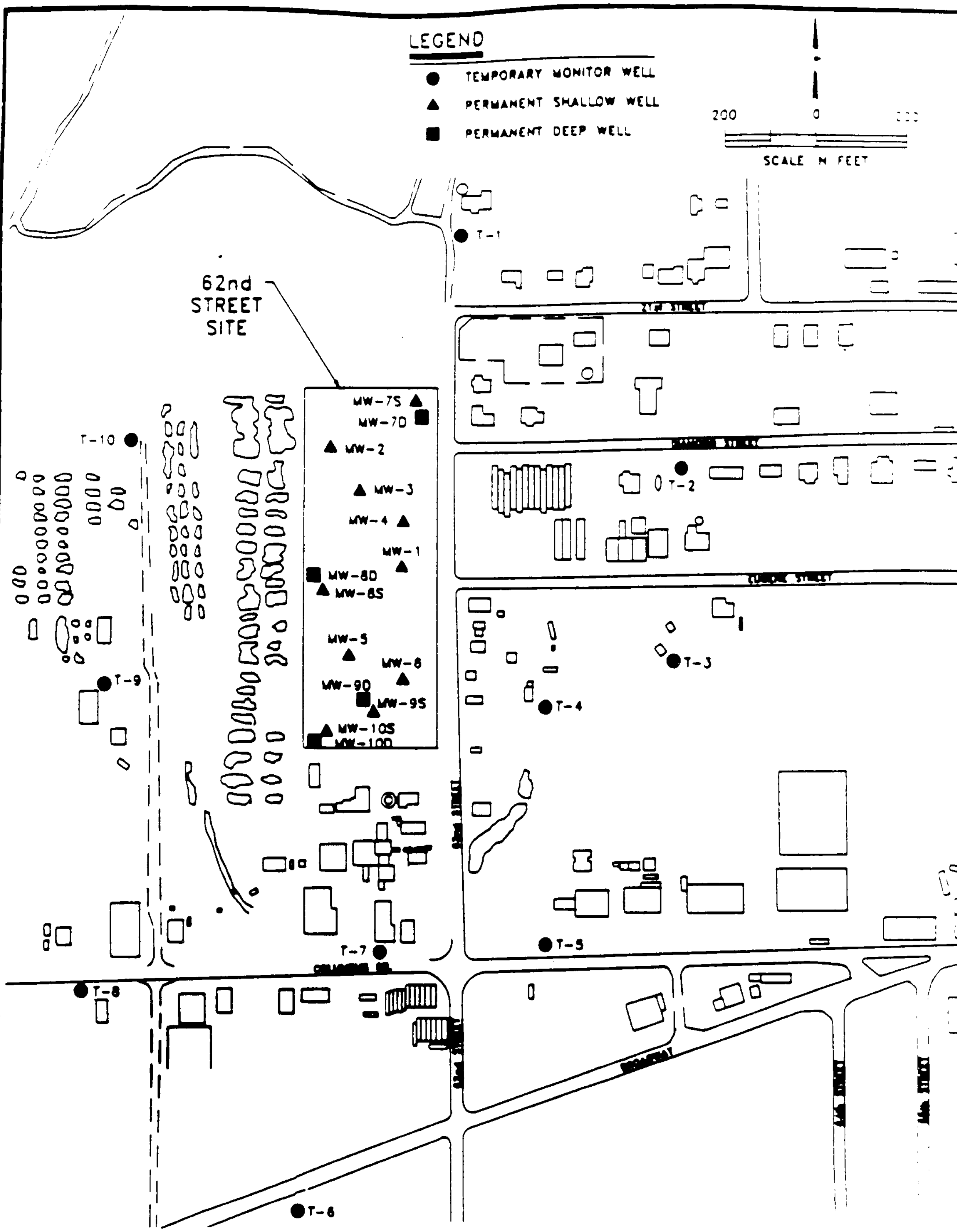
Site-wide surface water flows from a topographic high at the northeastern corner of the site to a low in the southwestern corner. The diversion berm then acts as a conduit to transmit surface water to the northwestern corner of the site and ultimately into the series of interconnected fish ponds. Two drainage ditches are present on the adjacent property to the west of the site which are reported to drain into Palm River, which runs into McKay Bay. These drainage ditches are the major transmission vehicle for movement of surface water from the site and the adjacent fish pond area. In addition to the presence of numerous fish ponds located immediately west of the site, a large lake is located approximately 1,500 feet to the northwest of the site.

6.3 Groundwater

The groundwater sampling activities during the RI consisted of the sampling of offsite domestic wells, and the installation and sampling of 14 onsite monitor wells. All offsite domestic wells were completed in the Floridan aquifer and their locations were selected to define background water quality and to detect any offsite migration of contaminants. Fourteen monitor wells, ten in the surficial aquifer and four in the Floridan aquifer, were installed onsite.

The RI sufficiently identified the contamination onsite; however, it was not of sufficient scope to thoroughly define the extent of offsite contamination. Therefore, additional field investigations were conducted as a component of the FS to supplement the existing data. The additional work was conducted in two phases with data obtained from Phase I used to guide field operations in Phase II. During Phase I, a series of 10 temporary groundwater monitor wells were added in the surficial aquifer offsite. Figure 6-1 shows the locations of the temporary monitor wells added during Phase I of the FS and the monitor wells installed during the RI.

Eight permanent groundwater monitor wells were installed in four clusters, with two wells at each cluster. One well at each cluster was drilled to the surficial aquifer and the other well to the Floridan aquifer. Figure 6-2 shows the eight permanent offsite wells added during the Phase I of the FS.
Phase II added seven more permanent monitor wells in the surficial aquifer. Figure 6-3 shows the locations of the seven additional wells added during the Phase II of the FS.
Water level measurements were taken in all of the wells and water contour maps were drawn for the surficial aquifer (Figure 6-4) and the Floridan aquifer (Figure 6-5).



CAMP DRESSER & McKEE INC.

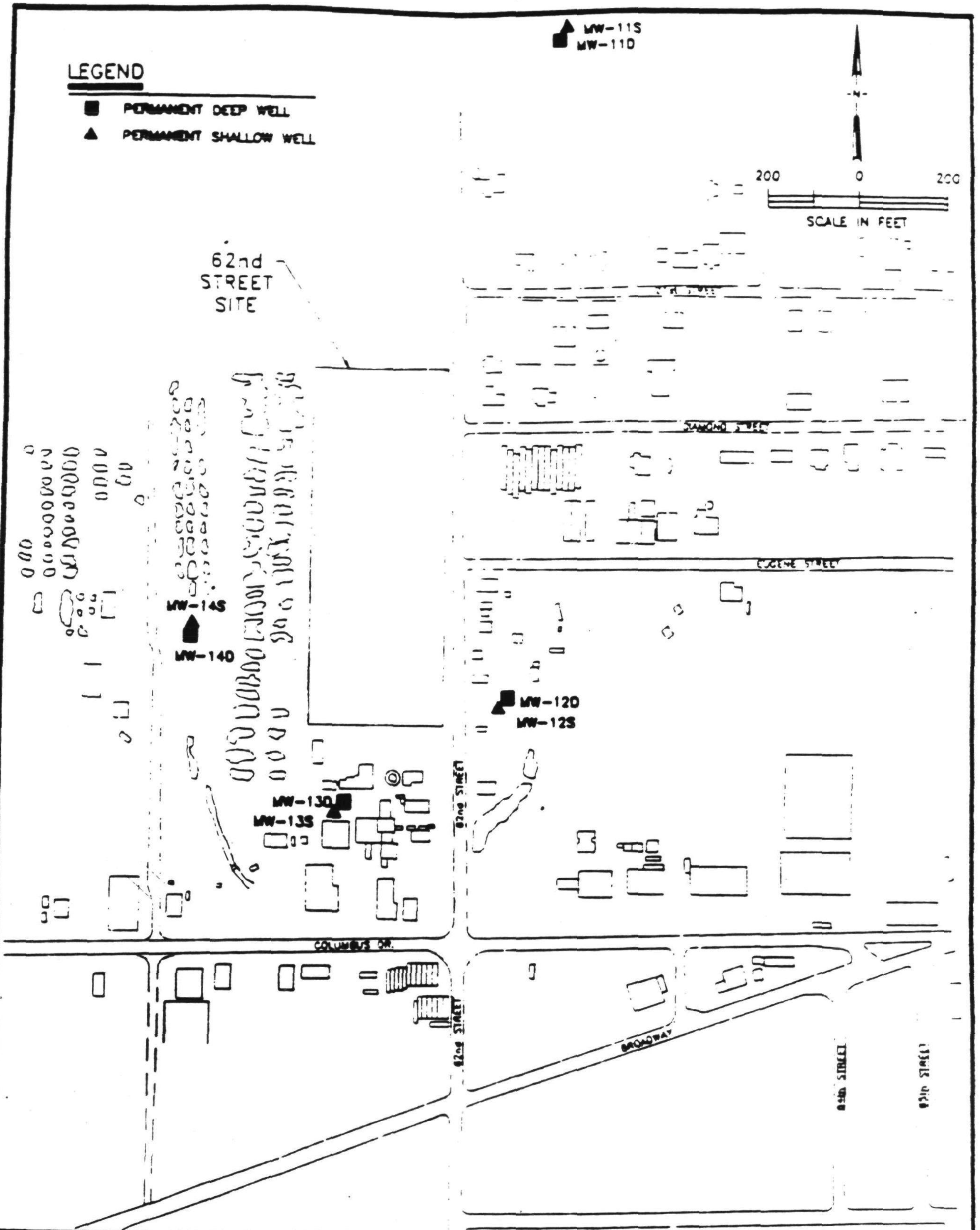
TEMPORARY AND PREVIOUSLY EXISTING MONITOR WELL LOCATIONS

62nd STREET SITE

TAMPA, FLORIDA

FIGURE NO

6



CAMP DRESSER & McKEE INC.

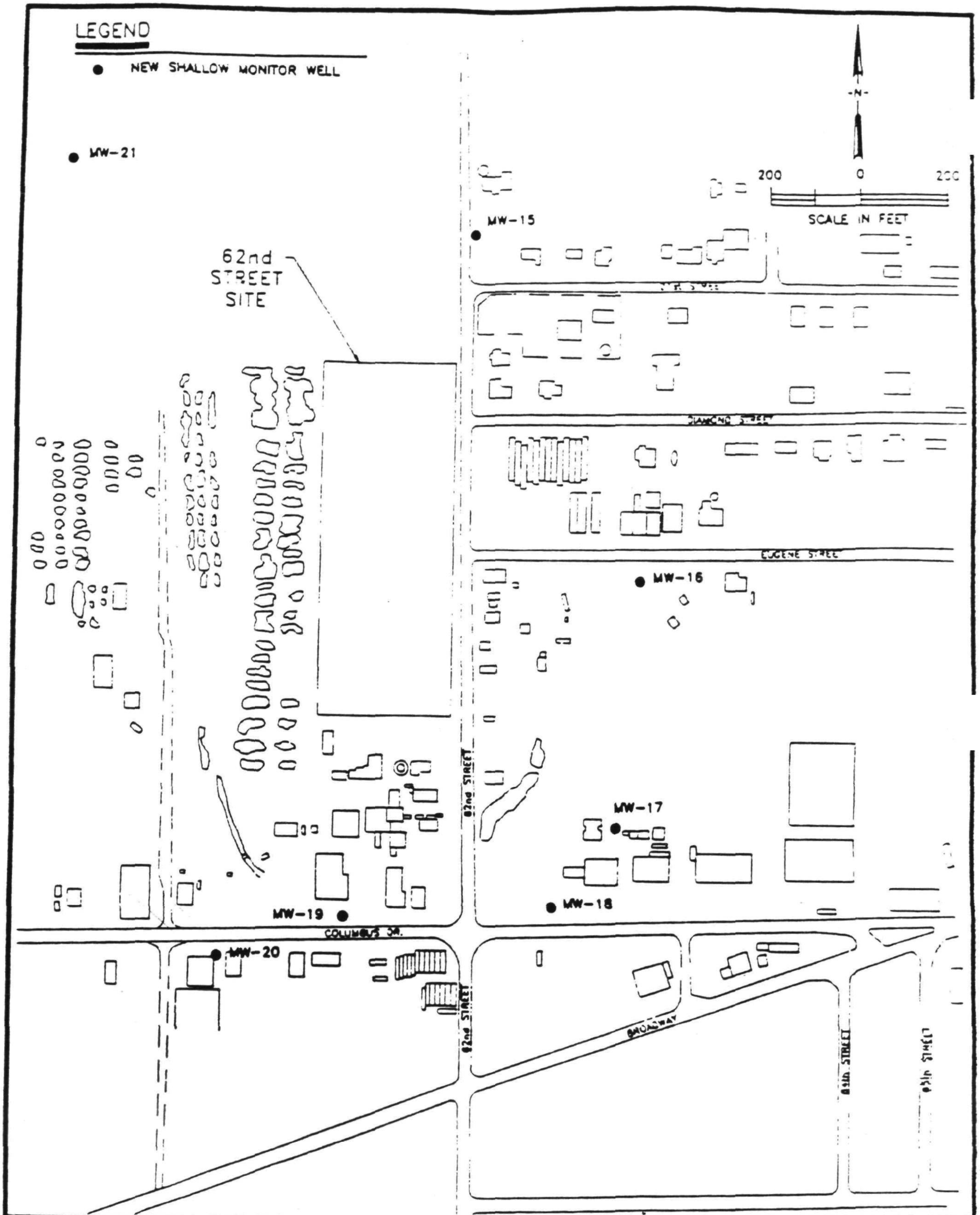
PHASE I PERMANENT MONITOR WELL LOCATIONS

62nd STREET SITE

TAMPA, FLORIDA

FIGURE NO.

6-2



CAMP DRESSER & McKEE INC.

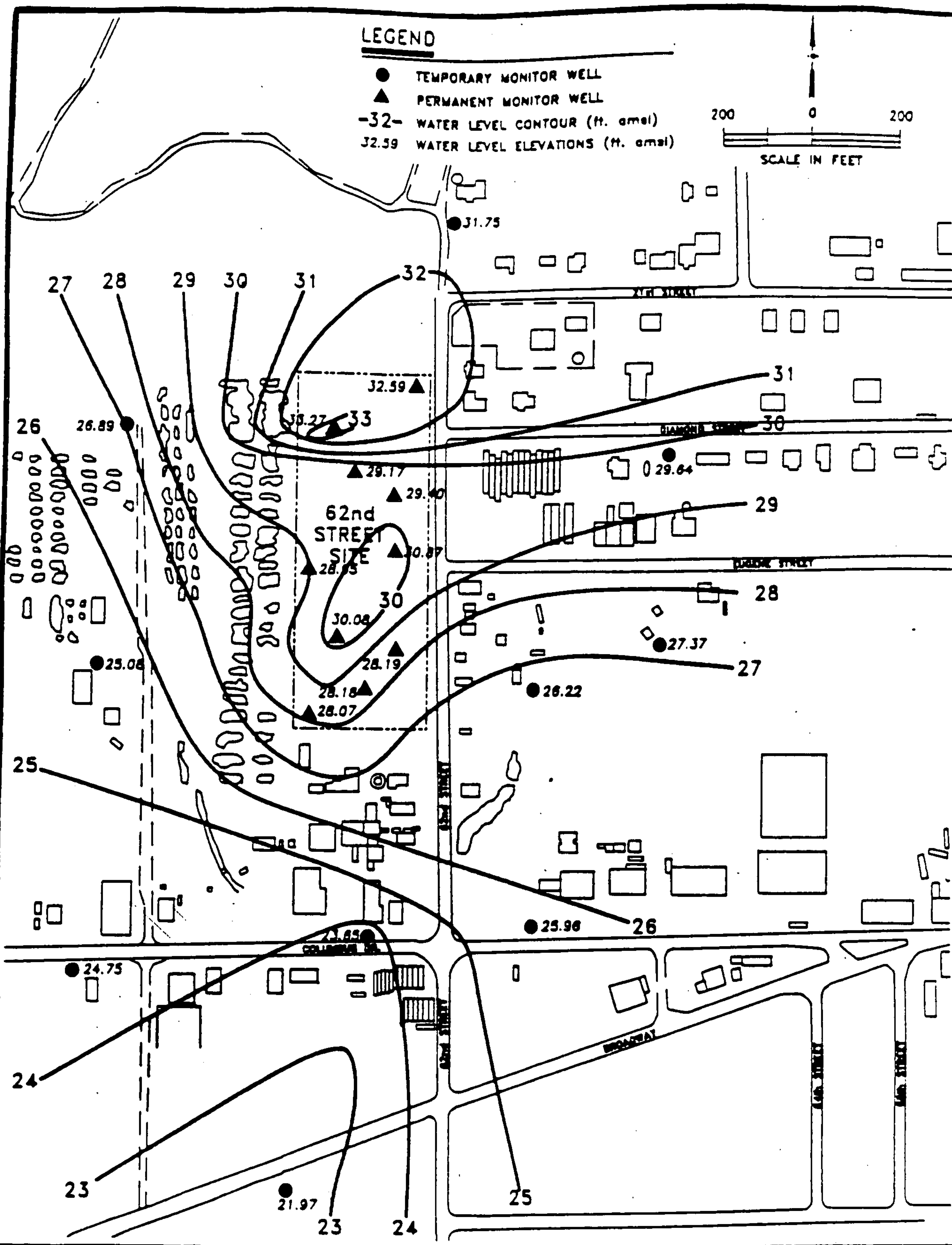
NEW SHALLOW MONITOR WELL LOCATIONS

62nd STREET SITE

TAMPA, FLORIDA

FIGURE NO.

6-3



CAMP DRESSER & McKEE INC.

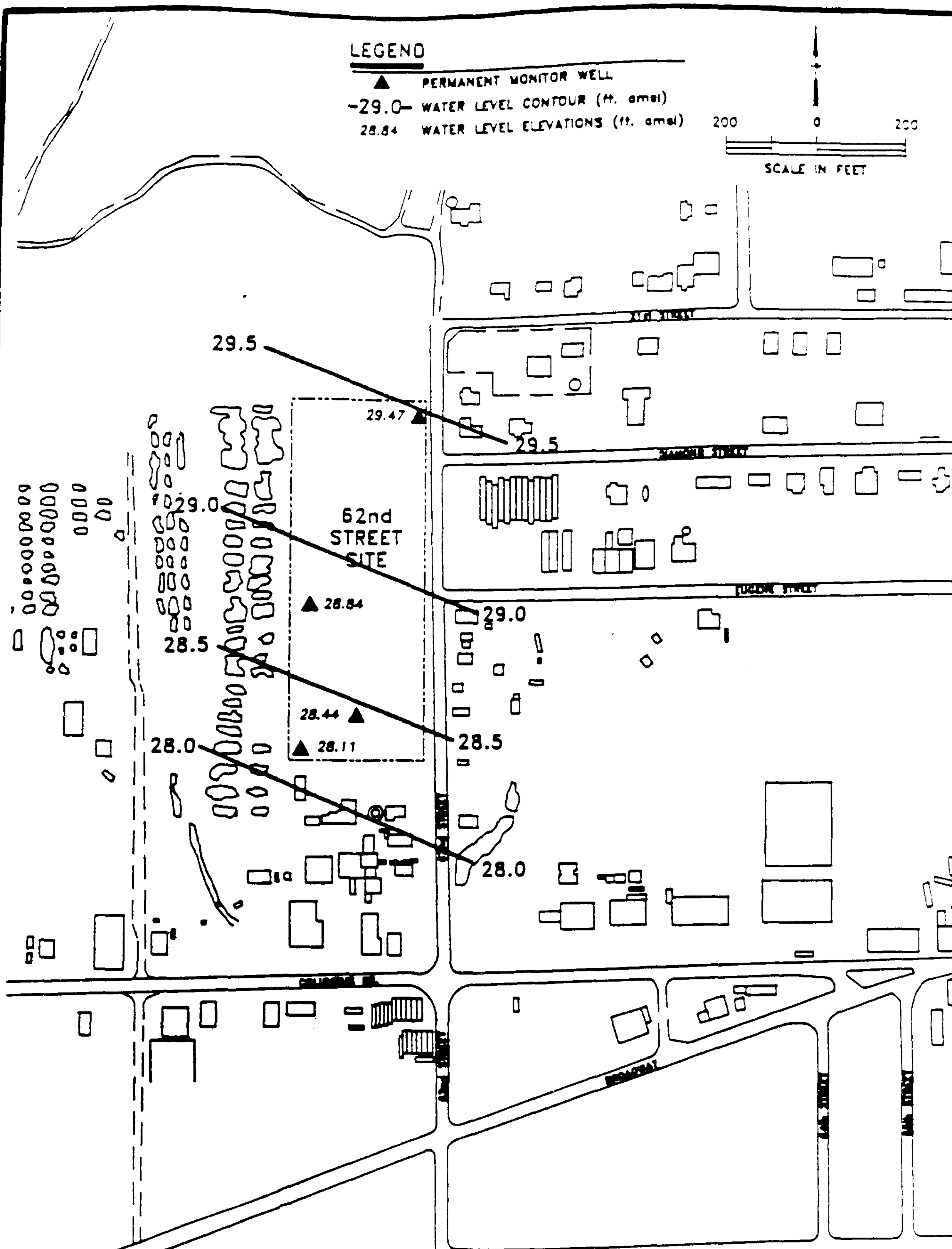
SURFICIAL AQUIFER WATER LEVELS - MARCH 1989

62nd STREET SITE

TAMPA, FLORIDA

FIGURE NO.

6-4



CAMP DRESSER & McKEE INC.

FLORIDAN AQUIFER WATER LEVELS - MARCH 1989

62nd STREET SITE

TAMPA, FLORIDA

FIGURE NO.

6-5

Analytical data collected from the groundwater sampling events performed in the RI and the FS found that the surficial aquifer was contaminated with lead, chromium, arsenic, and cadmium at levels exceeding the Safe Drinking Water Act (SDWA) Maximum Concentration Limits (MCLs). The most common contaminant exceeding the MCL was chromium, with eight wells showing values above the 50 ppb MCL (the highest value was 544 ppb). Chromium was also detected in levels exceeding the MCL in the upgradient well, indicating a second source of contamination in the area.

The second most common contaminant was lead with a current MCL of 50 ppb. Four wells exceeded the MCL for lead (the highest value was 399 ppb). The current MCL of 50 ppb for lead was established as an interim drinking water regulation in 1975. Since that time, considerable human health information has been produced that indicates that the level may not be protective for young children. EPA has issued a memorandum stating that a lower level of 15 ppb lead is more protective to human health and the environment than the current MCL of 50 ppb. A copy of this memorandum is included as Appendix C. Nine wells exceed the recommended 15 ppb lead value.

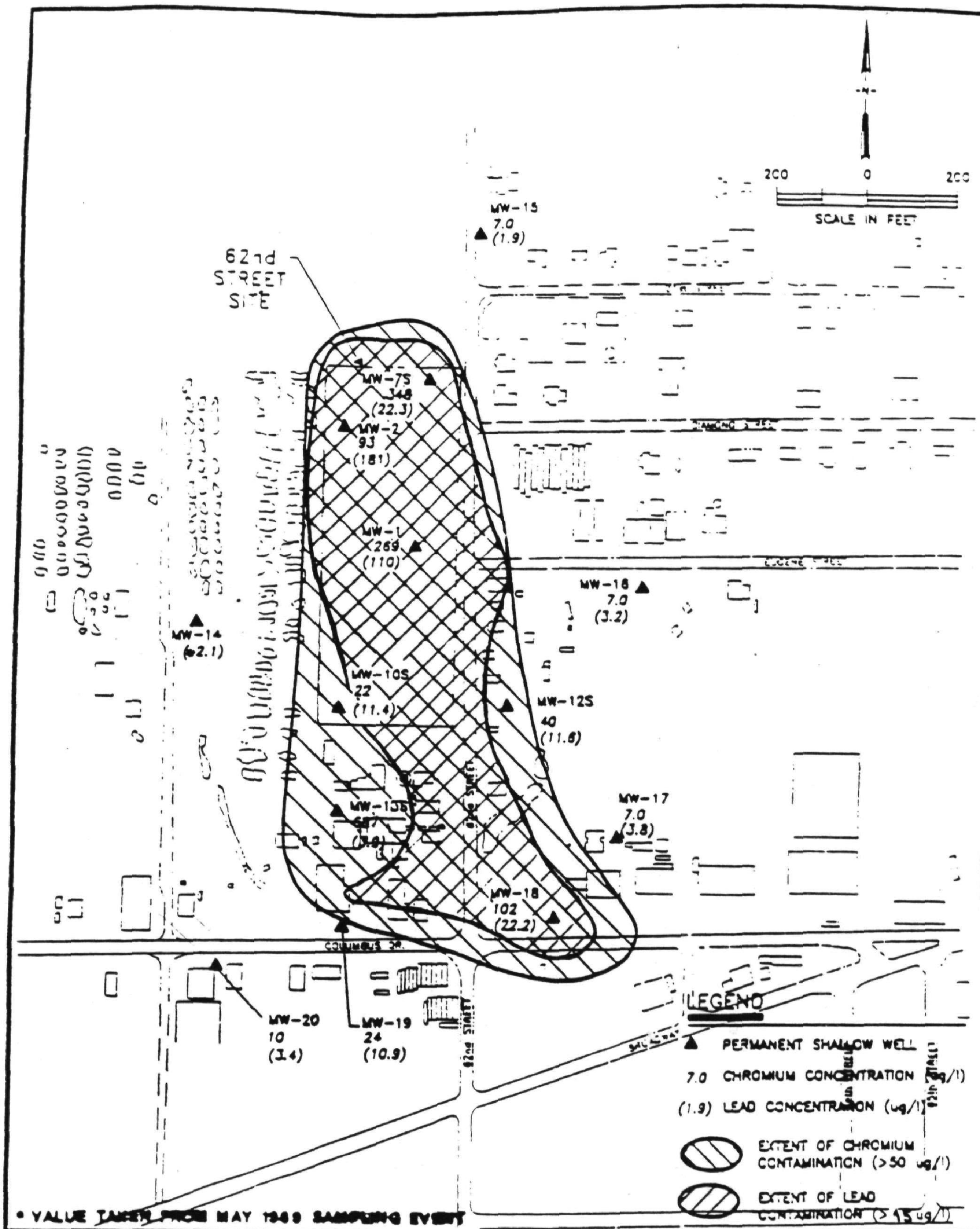
Arsenic was present above the 50 ppb MCL in one well, with a reported value of 65 ppb. Cadmium was present above the 10 ppb MCL in one well, with a reported value of 12 ppb.

None of the samples taken from the deep Floridan wells or the domestic wells showed site-related contaminants of concern above the SDWA MCLs. However, the domestic wells did show violations of secondary water quality standards.

Figure 6-6 shows the extent of site-related groundwater contamination in the surficial aquifer exceeding the cleanup goals. Since the lead plume is entirely contained within the chromium plume, chromium will be the main contaminant of concern during cleanup. The presence of chromium in groundwater is assumed to be mostly in its more toxic hexavalent state. The shape of the plume appears to be in accordance with the flow direction estimated in Figure 6-3. However, chromium contamination detected upgradient and to the north of the site were not included when defining the plume. Accordingly, this Record of Decision does not take into account the upgradient and offsite contamination which appears to be caused by a source not related to the 62nd Street Site. The areal extent of the estimated chromium plume which is to be addressed with the selected remedy is approximately 678,436 ft^2 (about 16 acres).

6.4 Soil

Test pit samples of subsurface soil were taken to determine the physical and chemical properties of the wastes and to determine the vertical and horizontal extent of each waste type, including the cement wastes, automobile parts, and battery casings. Figure 6-7



CAMP DRESSER & McKEE INC.

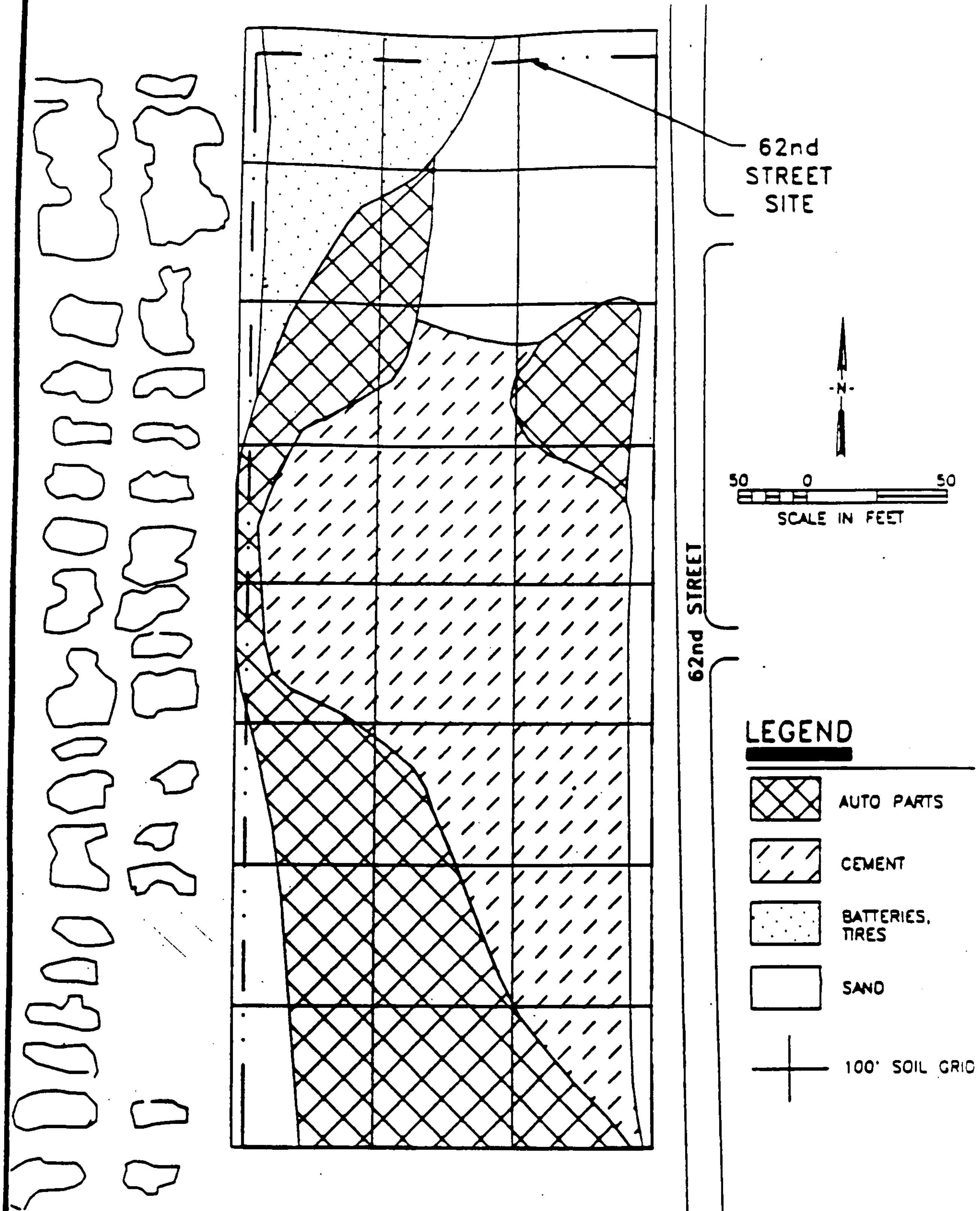
EXTENT OF SITE-RELATED GROUNDWATER CONTAMINATION EXCEEDING CLEANUP GOALS

62nd STREET SITE

TAMPA, FLORIDA

FIGURE NO.

6-6



SOURCE: FRED C. HART ASSOCIATES, INC., 1986

CAMP DRESSER & McKEE INC.

AREAL EXTENT OF CONTAMINATION (HART, 1986)

62nd STREET SITE

TAMPA, FLORIDA

FIGURE NO.

6-7

represents the areal extent of soil contamination according to each waste type.

The site is a threat to the human health and the environment due to the presence of antimony, arsenic, cadmium, chromium, copper, lead and polychlorinated biphenyls (PCBs).

	Background Range (ppm)	Site Range (ppm)
Antimony	2 - 10	0.14 - 512
Arsenic	1 - 50	0.084 - 72
Cadmium	0.01 - 0.7	0.01 - 49
Chromium	1 - 1,000	0.13 - 210
Copper	2 - 100	0.15 - 43,000
Lead	2 - 200	0.05 - 20,000
PCBs	0	0.09 - 11

Extraction Procedure (EP) toxicity tests were performed on three of the soil samples. The analysis indicated that the site materials were toxic only for lead. However, the pH in the groundwater ranged from 11 to 12.5. Under such high pH conditions, the metals were probably in an insoluble hydroxide form. Since the water samples were not filtered, these metal hydroxides may have been dissolved by the acid preservative in the sampling bottle.

6.5 Sediment and Surface Water

Sediment and surface water samples were obtained from the offsite fish ponds and drainage ditches on the western side of the site. These fish ponds are the apparent receptors of surface water runoff from the site. Therefore, any site-related surface water or particulate contamination could be identified through pond sampling. Analyses of the sediment and surface water samples consisted of testing for inorganic, volatile organic, semi-volatile organic chemicals, and polychorinated biphenyls.

Sediment samples collected from the fish ponds by Hart Associates indicated the presence of high levels of iron, which is considered to be naturally occurring. A number of other metal constituents were present at relatively low levels, again at levels considered to be within expected background ranges. Sediment sampling conducted during the FS were consistent with the 1986 RI findings, with the exception of a few organic compounds which were detected either at low levels or reported as estimated values. The impact of these organic chemicals was evaluated in the risk assessment portion of the FS, and the results of this analysis indicate that the chemicals present in the pond sediments do not pose a risk to human health and/or the environment. Therefore, no remediation of sediments is necessary at the fish ponds located adjacent to the site.

Results from both the RI and the FS indicate that concentrations of all the offsite surface water samples were below the Ambient Water

Quality Criteria (AWQC). As no permanent surface water bodies exist on the 62nd Street Site and contaminant levels in the offsite ponds are below the AWQC, surface water remediation is not required for protection of human health and/or the environment.

7.0 Summary of Site Risks

CERCLA directs that the Agency must protect human health and the environment from current and potential exposure to hazardous substances at superfund sites. In order to assess the current and potential risks for the 62nd Street Site, a risk assessment was conducted as part of the Feasibility Study. This section summarizes the findings concerning the risks from exposure to soil and groundwater related to the site.

7.1 Identification of the Contaminants of Concern

The 62nd Street site is a threat due to the presence of antimony, arsenic, cadmium, chromium, copper, lead, nickel, bis(2-ethyhexyl)phthalate, and polychlorinated biphenyls (PCBs) in the soil. Wastes buried at the site fall into two categories: auto part/battery wastes and cement wastes. The auto part/battery wastes are highly contaminated, with lead being the most prominent contaminant. The cement wastes contain only low levels of contaminants.

The toxicity, mobility, and persistent characteristics of these contaminants at the site do not warrant the exclusion of any of these substances from consideration as chemicals of concern at this site. The contaminants of concern for this site are listed in Table 7-1. This table also presents the detected range for these substances, as well as the frequency and media.

7.2 Exposure Assessment Summary

The principal potential pathways of exposure for the 62nd Street Site are direct contact with contaminated soils or sediments and/or groundwater consumption and inhalation of contaminated dust. The key to identifying potential receptors is knowledge of the local environment surrounding the site. The 62nd Street Site is bound on the west by fish ponds and a marshy area, on the south by an automobile junk yard, on the east by private homes and on the north by a large lake. All residents in the area receive water via groundwater wells, with two-thirds of the population served by community and public water supply systems. Approximately 9,000 people are served by private wells within a three-mile radius of the site. Four current exposure scenarios and four future exposure scenarios were evaluated in the risk assessment and are listed below:

TABLE 7-1

CONTAMINANTS OF CONCERN

62nd Street Site

Contaminant	Soil Background Range (mg/kg)	Media	Concentration Range Soil (mg/kg)	Concentration Range Water (mg/l)	Frequency of Positive Identifications
Antimony	2 - 10	Test Pit	0.14 - 512		9/15
		Test Boring	BDL		0/2
		Sediment	BDL		0/10
		Groundwater		0.064 - 0.076	2/16
Arsenic	1 - 50	Surficial Soil	2.5 - 7.5		4/4
		Test Pit	0.084 - 30		10/15
		Test Boring	2.5 - 72		7/9
		Sediment	0.29 - 4.5		2/10
		Groundwater		0.0008 - 0.0256	13/16
Bis(2-ethylhexyl)phthalate		Surficial Soil	0.270 - 0.340		2/4
		Test Pit	0.660 - 91		3/8
		Test Boring	4.1 - 860		5/8
		Sediment	0.034 - 0.360		10/10
Cadmium	0.01 - 0.7	Surficial Soil	0.17 - 30		4/4
		Test Pit	0.01 - 49		14/15
		Test Boring	0.33 - 35		6/9
		Sediment	0.5 - 0.82		2/10
		Groundwater		0.0027 - 0.012	7/16
Chromium	1 - 1,000	Surficial Soil	3 - 210		4/4
		Test Pit	0.13 -140		10/15
		Test Boring	3.5 - 79		7/9
		Sediment	3 - 3.4		2/10
		Groundwater		0.010 - 0.687	13/16
Copper	2 - 100	Surficial Soil	5.3 - 25,000		4/4
		Test Pit	0.15 - 43,000		11/15
		Test Boring	1.7 - 930		7/9
		Sediment	1.6 - 27.3		8/10
		Groundwater		0.010 - 0.217	10/16
Lead	2 - 200	Surficial Soil	59 - 2,300		4/4
		Test Pit	0.05 - 20,000		15/15
		Test Boring	51 - 11,000		7/9
		Sediment	1.8 - 162		10/10
		Groundwater		0.0019 - 0.181	16/16

TABLE 7-1
(continued)
CONTAMINANTS OF CONCERN
62nd Street Site

Contaminant	Soil Background Range (mg/kg)	Media	Concentration Range Soil (mg/kg)	Concentration Range Water (mg/l)	Frequency of Positive Identifications
Nickel		Test Pit	0.1 - 260		8/15
		Test Boring	BDL		0/2
		Sediment	3.6 - 38.8		2/10
		Groundwater		0.009 - 0.395	12/16
PCB-1016		Test Pit	3.8		1/15
		Sediment	BDL		0/10
PCB-1242		Test Boring	0.200 - 11.0		2/8
		Sediment	BDL		0/10
PCB-1254		Test Boring	6.2 - 9.0		2/8
PCB-1260		Surficial Soil	0.090 - 2.9		2/4
		Test Pit	0.580 - 20.0		4/15
		Sediment	BDL		0/10

Current Exposure Scenarios:

1. Direct contact with surficial soils and test pit waste soil by trespassers and onsite workers.

2. Ingestion of groundwater.

3. Inhalation of contaminants by nearby residents and onsite workers.

4. Direct contact with sediments by children trespassing onsite.

Although the future scenarios do not reflect current site conditions, these scenarios could potentially result from unrestricted site access.

Future Exposure Scenarios:

1. Direct contact with surficial soil and subsurface soil by construction workers and future residents.

2. Ingestion of groundwater.

3. Inhalation of contaminants by onsite workers and future residents.

4. Leaching of soil constituents into groundwater.

The direct contact pathway with surface soils and waste pits was characterized for the following receptors: children ages 6-12 trespassing onsite, adolescents 12-18 years trespassing onsite, adults trespassing onsite and construction workers. For the future use, the two scenarios that were quantified were for direct contact with surficial soils and sediments by onsite workers or future residents.

The risks associated with the ingestion of contaminated groundwater was not quantified because the contaminants of concern have MCLs and therefore, the groundwater will be remediated to the concentrations required by these drinking water standards, with the exception of lead.

The current MCL of 0.05 mg/L for lead was promulgated as an interim drinking water regulation in 1975. Since that time, considerable human health information has been produced that indicates that this level may not be protective for young children.

The Agency proposed in 1988 a lead MCL of 0.005 mg/L (the practical quantitation level) for water entering a distribution system and is now considering a Maximum Contaminant Limit Goal (MCLG) of zero for lead in drinking water. In consideration of this information, the lead remediation level for groundwater (Class II) at this site is set below the current MCL of 0.05 mg/L at a level of 0.015 mg/L. Appendix C contains a memorandum that supports the 0.015 mg/L as protective to human health and the environment.

Inhalation of contaminants is considered to be a completed pathway for onsite workers and nearby residents (ages 6-12 years) for both the current and future use scenario. The risk associated with the direct contact with contaminated sediments at the site is quantified for children ages 6-12 years and for children ages 12-18 years.

The exposure assumptions for these scenarios are summarized in Tables 7-2 and Table 7-3. The exposure point concentrations used to determine daily contaminant intake levels are contained in Tables 7-4, 7-5, and 7-6.

7.3 Summary of the Toxicity Assessment of the Contaminants of Concern

To assess the possible toxicological effects from exposure, health effects criteria are derived from a review of health and environmental standards and published toxicological studies.

For risk assessment purposes, individual pollutants are separated into two categories of chemical toxicity, depending on whether they exhibit carcinogenic or noncarcinogenic effects. This distinction relates to the current scientific opinion that the mechanism of action for each category is different.

Carcinogens:

Cancer potency factors (CPFs) have been developed by EPA's Carcinogenic Assessment Group for estimating excess lifetime cancer risks associated with exposure to potentially carcinogenic chemicals. CPFs, which are expressed in units of $(mg/kg\text{-}day)^{-1}$, are multiplied by the estimated intake of a potential carcinogen, in mg/kg-day, to provide an upper-bound estimate of the excess lifetime cancer risk associated with exposure at that intake level. The term "upper bound" reflects the conservative estimate of the risks calculated from the CPF. Use of this approach makes underestimation of the actual cancer risk highly unlikely. Cancer potency factors are derived from the results of human epidemiological studies or chronic animal bioassays to which animal-to-human extrapolation and uncertainty factors have been applied. The cancer potency factors for the carcinogenic indicator chemicals at the 62nd Street Site are presented in Table 7-7.

Non-carcinogens:

Reference doses (RfDs) have been developed by EPA for indicating the potential for adverse health effects from exposure to chemicals exhibiting noncarcinogenic effects. RfDs, which are expressed in

Table 7-2

Exposure Assumptions For The Direct Contact
With Surficial Soil and Test Pit Waste Soil[a]

Parameter	Children (6-12)[b] Average/Maximum	Adult Average/Maximum	Worker[c] Average/Maximum
Body Weight (kg)	40/40	70/70	70/70
Lifetime (yr)	70/70	70/70	70/70
Exposure Events (d/yr)	20/36	20/36	240/240
Exposure Duration (yr)	6/6	5/10	5/10
Soil Ingestion Rate (g)	50/100	50/100	50/100
Soil Contact Rate	0.4/1.9	0.4/1.9	0.4/1.9
Organics Absorbed Dermally (%)	10/10	10/10	10/10
Inorganics Absorbed Dermally (%)	1/1	1/1	1/1
Bioavailability	100/100	100/100	100/100

a The exposure assumptions are the same for the direct contact with sediments exposure pathway except for the dermal absorption rate. The sediment absorption rate is 3% for metals and 30% for organics.

b With the exception of body weight the exposure asumptions are the same for children in the age group 12-18 years. The body weight used for this age group is 55 kg.

c The exposure assumptions for current exposure to surficial soils were also used for future worker exposure to subsurface soils.

Table 7-3

Exposure Assumptions
For The Inhalation Of Surficial Soils

Parameter	Workers Average/Maximum	Residents (Adults) Average/Maximum
Body Weight (kg)	70/70	70/70[a]
Lifetime (yr)	70/70	70/70
Inhalation Rate (m^3/day)	20/20	20/20
Respirable Fraction of Particles (%)	25/25	25/25
Exposure Duration for Carcinogens (hr)	9600/19200	1400/4800
Exposure Duration for Noncarcinogens (hr)	1920/1920	160/160
Particulate Concentration in Air (ug/m^3)	50/150	50/150

a Body weight of 40 kg was used for the exposure scenario for children (ages 6-12). The other assumptions are the same for children and adult residents.

Table 7.4

Soil Concentrations (mg/kg)
For Direct Contact Scenarios

	Surficial Soil		Subsurface	
	Mean	Maximum	Mean	Maximum
Carcinogens				
Bis(2-ethylhexyl) phthalate	3.3	91	28.4	860
PCBs	2.8	20	1.78	11
Arsenic[a]			7.64	72
Noncarcinogens				
Antimony[b]	14.6	512		
Bis(2-ethylhexyl) phthalate	3.3	91	28.4	860
Cadmium	2.7	49	2.79	35
Chromium	21.7	210	20.49	210
Copper	367.9	70,000	34.8	25,000
Lead	538.1	20,000	252.9	11,000
Nickel[b]	43.3	260		

a Arsenic was not detected above background in the surficial soils.

b Antimony and lead were not detected in the subsurface soils.

Table 7.5

Particulate Contaminant Concentrations (ug/g)
For The Inhalation Scenarios

	Surficial Soils		Subsurface	
	Mean	Maximum	Mean	Maximum
Carcinogens				
Arsenic	4.6	7.5	7.64	72
Cadmium	1.7	30	2.79	35
Chromium	17.9	210	20.49	210
Noncarcinogens				
Copper	104.4	25,000	34.8	25,000
Lead	219	2300	252.9	11,000

Table 7.6

Sediment Concentrations (mg/kg)
For Direct Contact Scenarios

Carcinogens	Mean	Maximum
Arsenic	0.0045	0.0045
Bis(2-ethylhexyl) phthalate	0.079	0.360
Noncarcinogens		
Bis(2-ethylhexyl) phthalate	0.079	0.360
Cadimum	0.00053	0.00053
Chromium	0.0032	0.0034
Copper	0.0204	0.027
Lead	0.011	0.162

TABLE 7-7

CRITICAL TOXICITY VALUES FOR CHEMICALS OF CONCERN
62nd STREET SITE
TAMPA, FLORIDA

CHEMICAL	RfD mg/kg/day	SOURCE	CANCER POTENCY FACTOR $(mg/kg/day)^{-1}$	EPA WEIGHT OF EVIDENCE
Antimony	$4.00E^{-04}$ (oral)	IRIS	Not appropriate	D
Arsenic	Not appropriate	IRIS IRIS	$1.8E^{+00}$ (oral) $5.00E^{+01}$ (inhalation)	A
Bis(2-ethylhexyl)phthalate	$2.0E^{-02}$ (oral)	IRIS	$6.84E^{-04}$ (oral)	B2
Cadmium	$5.0E^{-04}$ (oral)	IRIS	$6.10E^{+00}$ (inhalation)	B1
Chromium III	$1.00E^{+00}$ (oral) $5.10E^{-03}$ (inhalation)	RfD HEA	Not appropriate	D
Chromium VI	$5.00E^{-03}$ (oral)	HEA	$4.10E^{+01}$ (inhalation)	A
Copper	$3.7E^{-02}$ (oral) $1.0E^{-02}$ (inhalation)	HEA HEA	Not appropriate	D
Lead	$1.40E^{-03}$ (oral) $4.3E^{-04}$ (inhalation)	HEA HEA	Not available	B2
Nickel	$1.00E^{-02}$ (oral)	HEA	Not appropriate	D
PCBs	Not appropriate	IRIS	$7.7E^{+00}$ (oral)	B2

SOURCES: IRIS Search, December 21, 1989.
HEA, RfD EPA Public Health Evaluation Manual, 1986.

NOTES:

1) Not appropriate designates compounds for which either RfDs are not available because the compound is considered to be carcinogenic or for which carcinogenic potency factors are not available because the compound does not exhibit carcinogenic properties.

2) Not available indicates that a toxicity value has been researched but is not currently available.

units of mg/kg-day, are estimates of lifetime daily exposure levels for humans, including sensitive individuals. Estimated intakes of chemicals from environmental media (e.g., the amount of a chemical ingested from contaminated drinking water) can be compared to the RfD. RfDs are derived from human epidemiological studies or animal studies to which uncertainty factors have been applied (e.g., to account for the use of animal data to predict effects on humans).

These uncertainty factors help ensure that the RfDs will not underestimate the potential for adverse noncarcinogenic effects to occur. The RfDs for the noncarcinogenic indicator chemicals at the 62nd Street Site are presented in Table 7-7.

7.4 Characterization of Risk

A characterization of risk was performed in the risk assessment to address potential risk and hazards to human health posed by the 62nd Street Site in the absence of remedial action. The risk characterization is based on identifying potential chemicals of concern and developing exposure scenarios for each of the potential and future exposure pathways.

Excess lifetime cancer risks are determined by multiplying the intake level with the cancer potency factor. These risks are probabilities that are generally expressed in scientific notation (e.g., $1x10^{-6}$ or 1E-6). An excess lifetime cancer risk of $1x10^{-6}$ indicates that, as a plausible upper bound, an individual has a one in one million chance of developing cancer as a result of site-related exposure to a carcinogen over a 70-year lifetime under the specific exposure conditions at a site.

Potential concern for noncarcinogenic effects of a single contaminant in a single medium is expressed as the hazard quotient (HQ) (or the ratio of the estimated intake derived from the contaminant concentration in a given medium to the contaminant's reference dose). By adding the HQs for all contaminants within a medium or across all media to which a giver population may reasonably be exposed, the Hazard Index (HI) can be generated. The HI provides a useful reference point for gauging the potential significance of multiple contaminant exposures within a single medium or across media.

Cleanup levels were derived for those scenarios which, based on the quantitative risk assessment, may adversely impact the health of exposed individuals. The exposure pathways which were evaluated and determined to pose either potential carcinogenic risks greater than 10^{-6} and/or a hazard index exceeding one are listed below:

- o Direct contact by workers, children and adult trespassers with contaminated soil under current scenarios.
- o Direct contact by workers and future residents with contaminated soil under future use scenarios.

Table 7.8

Risk Characterization For Direct Contact With Surficial Soils And Test Pits (Current Use)

Chemical	Children (6-12 yr) Average	Children (6-12 yr) Maximum	Children (12-18 yr) Average	Children (12-18 yr) Maximum	Adult Average	Adult Maximum	Worker Average	Worker Maximum
	Risk Level							
Carcinogens								
Bis(2-ethylhexyl) phthalate	$2.3x10^{-11}$	$3.8x10^{-9}$	$1.7x10^{-11}$	$2.8x10^{-9}$	$1.2x10^{-11}$	$3.6x10^{-9}$	$1.4x10^{-10}$	$2.4x10^{-8}$
PCBs	$2.2x10^{-7}$	$9.4x10^{-6}$	$7.2x10^{-7}$	$6.8x10^{-6}$	$1.1x10^{-7}$	$9.2x10^{-6}$	$1.3x10^{-6}$	$6.0x10^{-5}$
	CDI:RfD							
Noncarcinogens								
Antimony	$2.8x10^{-3}$	$3.8x10^{-1}$	$2.1x10^{-3}$	$2.8x10^{-1}$	$1.5x10^{-3}$	$2.2x10^{-1}$	$1.9x10^{-2}$	$1.4x10^{0}$
Bis(2-ethylhexyl) phthalate	$2.1x10^{-5}$	$3.3x10^{-3}$	$1.5x10^{-5}$	$2.4x10^{-3}$	$1.2x10^{-5}$	$1.9x10^{-3}$	$1.4x10^{-4}$	$1.2x10^{-2}$
Cadmium	$4.0x10^{-4}$	$2.8x10^{-2}$	$2.8x10^{-4}$	$2.2x10^{-2}$	$2.4x10^{-4}$	$1.6x10^{-2}$	$2.8x10^{-3}$	$1.1x10^{-1}$
Chromium	$3.2x10^{-4}$	$1.2x10^{-2}$	$2.4x10^{-4}$	$9.0x10^{-3}$	$1.8x10^{-4}$	$7.2x10^{-3}$	$2.2x10^{-3}$	$4.8x10^{-2}$
Copper	$7.3x10^{-4}$	$5.4x10^{-1}$	$5.4x10^{-4}$	$4.1x10^{-1}$	$4.1x10^{-4}$	$3.2x10^{-1}$	$4.9x10^{-3}$	$2.1x10^{0}$
Lead	$2.9x10^{-2}$	$4.1x10^{0}$	$2.1x10^{-2}$	$3.1x10^{0}$	$1.6x10^{-2}$	$2.4x10^{0}$	$1.9x10^{-1}$	$1.6x10^{+1}$
Nickel	$3.4x10^{-4}$	$7.6x10^{-3}$	$2.4x10^{-4}$	$5.6x10^{-3}$	$1.8x10^{-4}$	$4.4x10^{-3}$	$2.2x10^{-3}$	$2.9x10^{-2}$

Table 7.9

Risk Characterization For Direct Contact
With Surficial And Subsurface Soils (Future Use)

Chemical	Worker Average	Worker Maximum	Resident Average	Resident Maximum
Carcinogens		Risk Level		
Arsenic	$5.0x10^{-7}$	$2.2x10^{-5}$	$9.7x10^{-7}$	$6.7x10^{-5}$
Bis(2-ethylhexyl phthalate)	$1.2x10^{-9}$	$2.3x10^{-7}$	$2.3x10^{-9}$	$7.5x10^{-7}$
PCBs	$8.5x10^{-7}$	$3.3x10^{-5}$	$1.6x10^{-6}$	$1.1x10^{-4}$
Noncarcinogens		CDI:RfD		
Bis(2-ethylhexyl phthalate)	$1.2x10^{-3}$	$1.2x10^{-1}$	$1.3x10^{-3}$	$1.3x10^{-1}$
Cadmium	$2.8x10^{-3}$	$7.8x10^{-2}$	$3.0x10^{-3}$	$8.6x10^{-2}$
Chromium	$2.0x10^{-3}$	$4.8x10^{-2}$	$2.2x10^{-3}$	$5.0x10^{-2}$
Copper	$4.6x10^{-4}$	$7.6x10^{-1}$	$4.9x10^{-4}$	$8.1x10^{-1}$
Lead	$9.3x10^{-2}$	$8.6x10^{0}$	$1.0x10^{-1}$	$9.3x10^{0}$

Table 7.10

Risk Characterization For Inhalation Of Surficial Soils (Current Use)

Chemical	Worker Average	Worker Maximum	Adult Residents Average	Adult Residents Maximum	Children Residents Average	Children Residents Maximum
Carcinogens			**Risk Level**			
Arsenic	$1.3x10^{-8}$	$1.3x10^{-7}$	$2.0x10^{-9}$	$3.1x10^{-8}$	$8.3x10^{-10}$	$1.4x10^{-8}$
Cadmium	$5.8x10^{-10}$	$6.1x10^{-8}$	$8.7x10^{-11}$	$1.5x10^{-8}$	$3.7x10^{-11}$	$6.8x10^{-9}$
Chromium	$4.1x10^{-8}$	$2.9x10^{-6}$	$5.7x10^{-9}$	$7.2x10^{-7}$	$2.6x10^{-9}$	$3.2x10^{-7}$
Noncarcinogens			**CDI:RfD**			
Copper	$8.1x10^{-6}$	$5.8x10^{-3}$	$6.8x10^{-7}$	$4.9x10^{-4}$	$3.0x10^{-7}$	$2.2x10^{-4}$
Lead	$4.0x10^{-4}$	$1.3x10^{-2}$	$3.3x10^{-5}$	$1.0x10^{-3}$	$1.5x10^{-5}$	$4.6x10^{-4}$

Table 7-11

Risk Characterization For Inhalation
Of Surficial And Subsurface Soils (Future Use)

Chemical	Adult Resident		Child Resident	
	Average	**Maximum**	**Average**	**Maximum**
Carcinogen		Risk Level		
Arsenic	$3.2x10^{-9}$	$3.0x10^{-7}$	$1.4x10^{-9}$	$1.3x10^{-7}$
Cadmium	$1.4x10^{-10}$	$1.8x10^{-8}$	$6.1x10^{-11}$	$7.9x10^{-9}$
Chromium	$7.0x10^{-9}$	$7.2x10^{-7}$	$3.0x10^{-9}$	$3.2x10^{-7}$
Noncarcinogen		CDI:RfD		
Copper	$2.3x10^{-7}$	$4.9x10^{-4}$	$1.0x10^{-7}$	$2.2x10^{-4}$
Lead	$3.8x10^{-5}$	$5.0x10^{-3}$	$1.7x10^{-5}$	$2.2x10^{-3}$

Table 7-12

Risk Characterization For Direct Contact With Pond Sediments

Chemical	Children (6-12 yr) Average	Children (6-12 yr) Maximum	Children (12-18 yr) Average	Children (12-18 yr) Maximum
Carcinogens		Risk Level		
Arsenic	$1.1x10^{-11}$	$9.8x10^{-11}$	$8.3x10^{-12}$	$7.0x10^{-11}$
Bis(2-ethylhexyl) phthalate	$7.5x10^{-13}$	$2.9x10^{-11}$	$5.5x10^{-13}$	$3.6x10^{-12}$
Noncarcinogens		CDI:RfD		
Bis(2-ethylhexyl) phthalate	$6.5x10^{-7}$	$2.6x10^{-5}$	$4.7x10^{-7}$	$1.9x10^{-5}$
Cadmium	$1.7x10^{-8}$	$1.5x10^{-7}$	$1.3x10^{-8}$	$1.1x10^{-7}$
Chromium	$1.1x10^{-8}$	$9.6x10^{-8}$	$7.6x10^{-9}$	$6.8x10^{-8}$
Copper	$9.2x10^{-9}$	$1.0x10^{-7}$	$6.5x10^{-9}$	$7.6x10^{-8}$
Lead	$1.3x10^{-7}$	$1.6x10^{-5}$	$9.3x10^{-8}$	$1.2x10^{-5}$

- Inhalation by workers onsite under the current use scenario and by future residents living onsite.

The risk characterization information is summarized in Tables 7-8 through 7-12.

Actual or threatened releases of hazardous substances from this site, if not addressed by implementing the response action selected in this ROD, may present an imminent and substantial endangerment to public health, welfare, or the environment.

7.5 Environmental Risks

Potential environmental effects may occur from contaminants observed in the surface waters in the ponds located onsite. However, these ponds only contain water on an intermittent basis. Because limited information was available on the presence of flora and fauna, an assessment of impact was performed by comparing concentrations detected in the surface waters to ambient water quality criteria (AWQC) for acute and chronic effects to freshwater organisms. Lead, iron, and zinc were detected above their AWQC in onsite ponds during the 1986 Remedial Investigation.

The surface water in the offsite ponds showed no contaminants above the AWQC and are therefore not expected to have any adverse environmental effects.

There is currently no information to indicate that the Site is visited or contains any endangered or threatened species.

8.0 Description of Remedial Action Alternatives

The Feasibility Study report presents the results of a detailed analysis conducted on eight potential remedial action alternatives for the 62nd Street site. This section of the Record of Decision presents a summary of each of the eight alternatives that are described in the FS report.

8.1 Alternative 1 - No Action

The No Action alternative is required by the National Contingency Plan (NCP) to be considered through the detailed analysis. It provides a baseline for comparison of other alternatives. Under the No Action alternative, no source control remedial measures would be undertaken at the 62nd Street Site.

Given the presence of the contaminant source and the low solubility of the indicator chemicals at the site, natural soil flushing would not be expected to reduce soil contaminant levels below cleanup goals.

As part of the No Action alternative, groundwater monitoring using 15 existing wells would be conducted to observe changes in the groundwater quality. Since construction would not be involved in this alternative, the implementability concerns, engineering, equipment and materials, health and safety, and schedule are not applicable.

The No Action alternative would not eliminate any exposure pathways or reduce the level of risk. The risk assessment identified that direct contact of soils under a current trespassing or future worker use scenario would result in lifetime cancer risk exceeding 10^{-6}. Additionally, contaminant leaching to groundwater would continue, thereby exceeding Applicable or Relevant and Appropriate Requirements (ARARs) and cleanup goals.

Groundwater monitoring would be conducted to observe any changes in offsite contaminant migration and loading. Cost estimates are based on quarterly sampling and analyses of 15 monitor wells for the first year and annual sampling thereafter. A 30-year time period is used for comparative purposes.

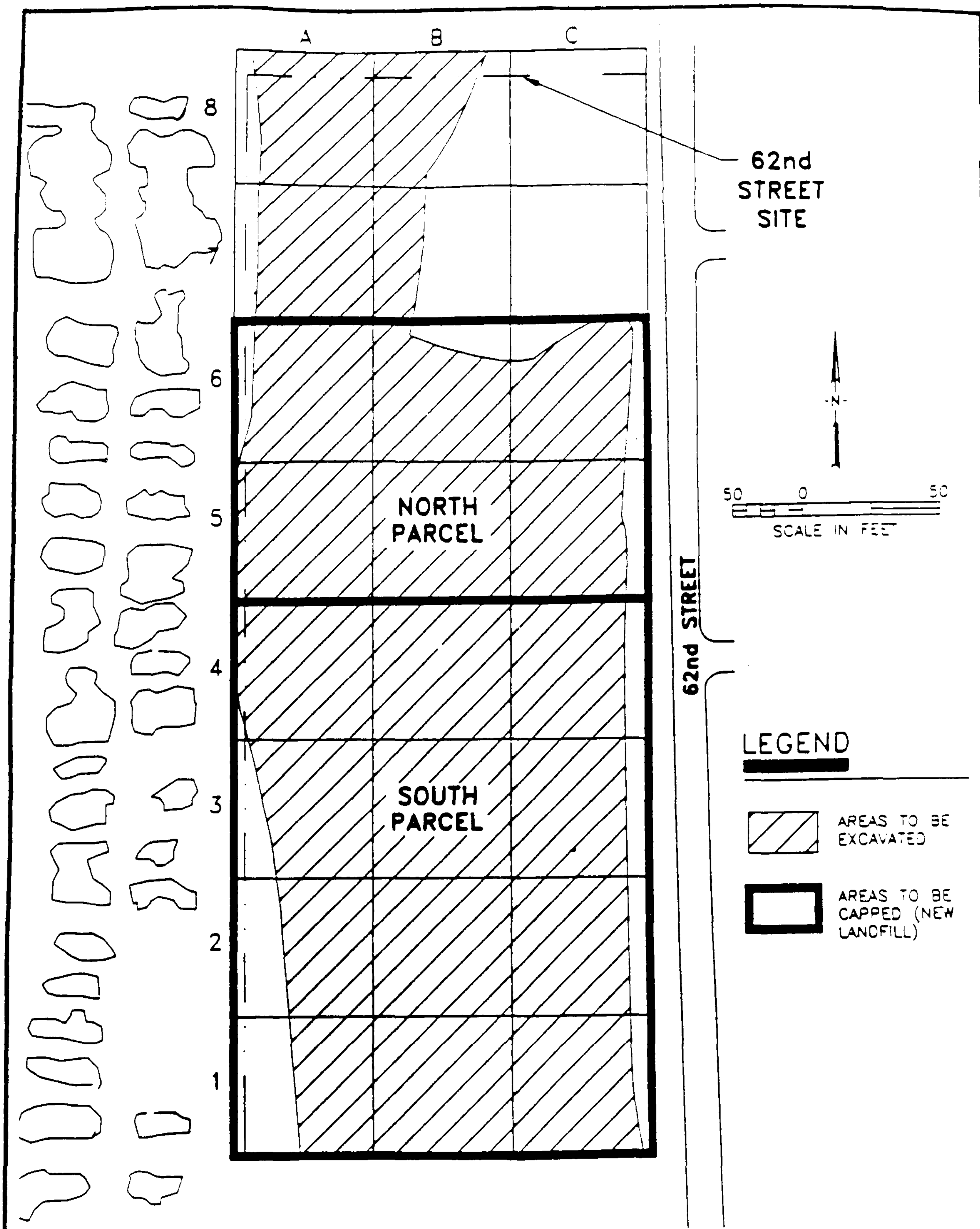
The estimated present worth cost of this alternative is approximately $220 thousand, which is based on sampling and analytical costs for long-term monitoring. Capital costs are not included with the No Action alternative.

8.2 Alternative 2 - Excavation of Soil and Placement in New Onsite Landfill With Groundwater Extraction and Onsite Treatment

This alternative would involve excavating soils and placing them into a new landfill constructed onsite in accordance with FDER regulations, in addition to groundwater extraction and onsite treatment.

The excavation and placement into a new landfill, or encapsulation cell, would be accomplished in a two-phased approach. The Site would be divided into two portions: the north parcel and the south parcel (see Figure 8-1). The north and south parcels contain approximately 38,000 and 55,000 cubic yards of contaminated soil to be excavated, respectively.

During Phase I, the contaminated soil in the south parcel would be excavated and transported to the north parcel where it would be placed on top of the existing contaminated soil. This would leave the south parcel available for construction of the southern portion of the new landfill. After the south parcel is prepared and ready to receive waste, approximately 75 percent of the total contaminated soil (70,000 cubic yards) would be excavated and loaded into trucks and transported to the south parcel. Finally, the south portion of the landfill would be closed.



CAMP DRESSER & McKEE INC.

SOIL AREAS TO BE EXCAVATED AND CAPPED DURING CONSTRUCTION OF NEW LANDFILL

62nd STREET SITE

TAMPA, FLORIDA

FIGURE NO

8-1

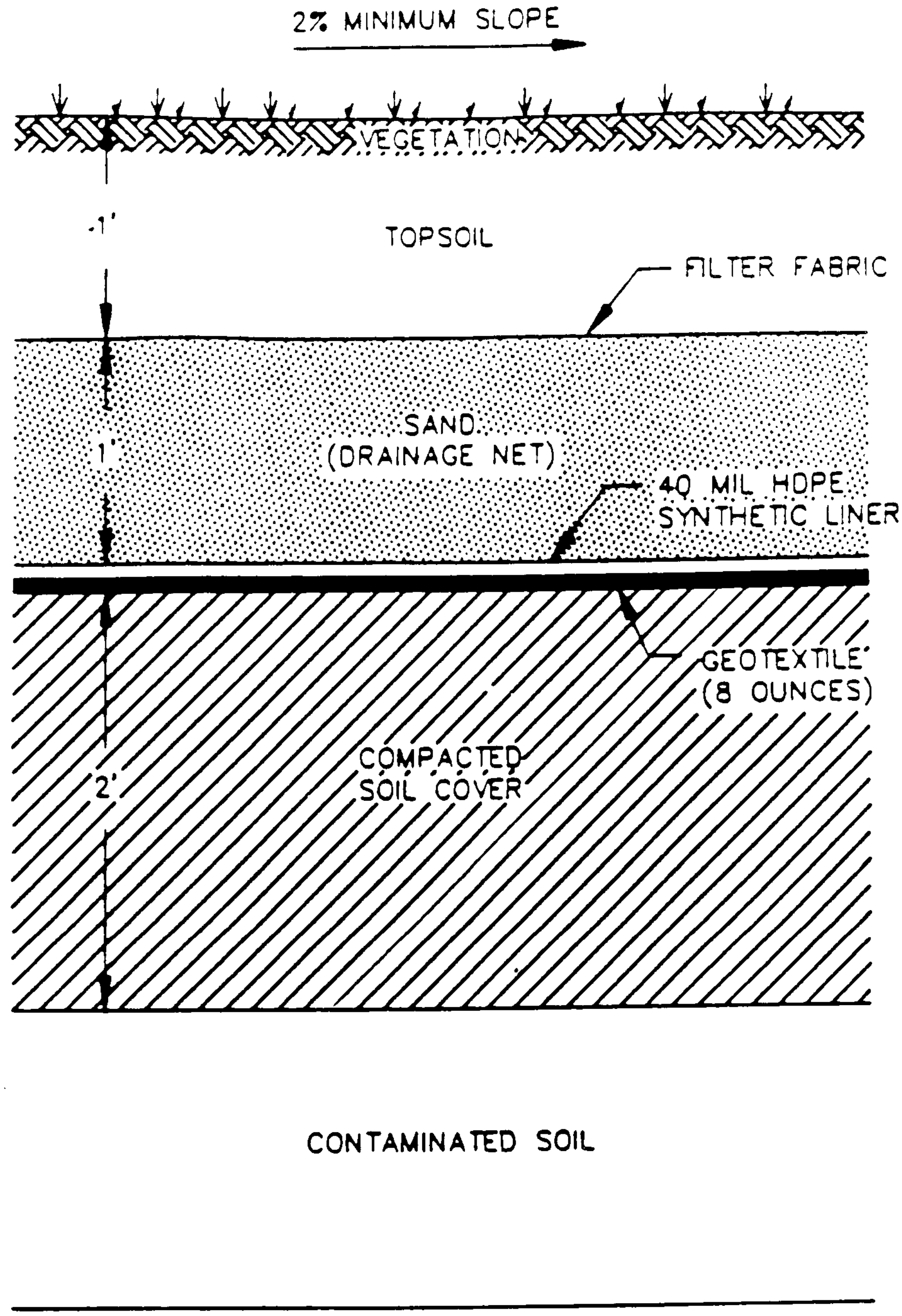
Phase II would consist of placing the rest of the contaminated soil in the northern most portion of the site, leaving enough space for the construction of the northern portion of the new landfill. Approximately 23,000 cubic yards from the southern portion of the landfill would be mulched and seeded. The total depth of the landfill would be approximately 15 feet.

A typical cross-section of the proposed surface cap for the new landfill is presented in Figure 8-2. A minimum of two feet of cover would be placed over the contaminated soils to provide a foundation to support the surface cap. This soil cover would be compacted in 6-inch lifts. An impermeable membrane would consist of a 40 mil HDPE liner underlain by a geotextile fabric to protect the liner from puncture. A 1-foot drainage layer above the liner would be constructed of sand and the top foot capping would consist of topsoil to provide a root zone for vegetative growth. In order to prevent clogging of the sand drainage layer, a filter fabric would be placed between the sand layer and the top soil. The fabric would provide a barrier to soil particles sifting into the sand layer. All the elements of the surface cap, except for the topsoil layer, would be used for the bottom and sides of the encapsulation cell.

The topsoil would be vegetated to prevent erosion. The cap would have a minimum slope of 2 percent. Surface runoff would be directed through appropriate drainage channels. Precipitation that percolates through the topsoil would flow laterally through the sand drainage layer and into the drainage channels. A leachate collection system would be incorporated with the bottom liner to remove the leachate impounded on top of the impermeable layer and convey it to a sump for treatment, if necessary, before disposal. A gas collection, or vent, system could also be included in the design of the landfill.

Groundwater dewatering would take place prior to soil removal in order to facilitate the excavation process. The dewatering would occur by means of an extraction drainfield and any supplemental dewatering that might be needed. The same drainfield would be used to extract the contaminated groundwater located onsite. The drainfield would consist of perimetrical subsurface drains extending to the bottom of the surficial aquifer which has an average depth of 17.5 feet below land surface (12.5 feet below the water table). Offsite groundwater extraction would be accomplished by downgradient pumping wells in the upper aquifer. Recovery would be accomplished at an approximate steady-state rate of 50 gallons per minute (gpm). Remediation of the upper aquifer is estimated to take two years.

Groundwater contaminants to be remediated at the site are cadmium, chromium, and lead. Under this alternative, groundwater treatment consists of chromium reduction, flocculation, sedimentation, and filtration. Flocculation and sedimentation are necessary to enhance metal removal, reduce the loading on filtration units, and prevent excessive backwashing. As shown in Figure 8-3, the treatment



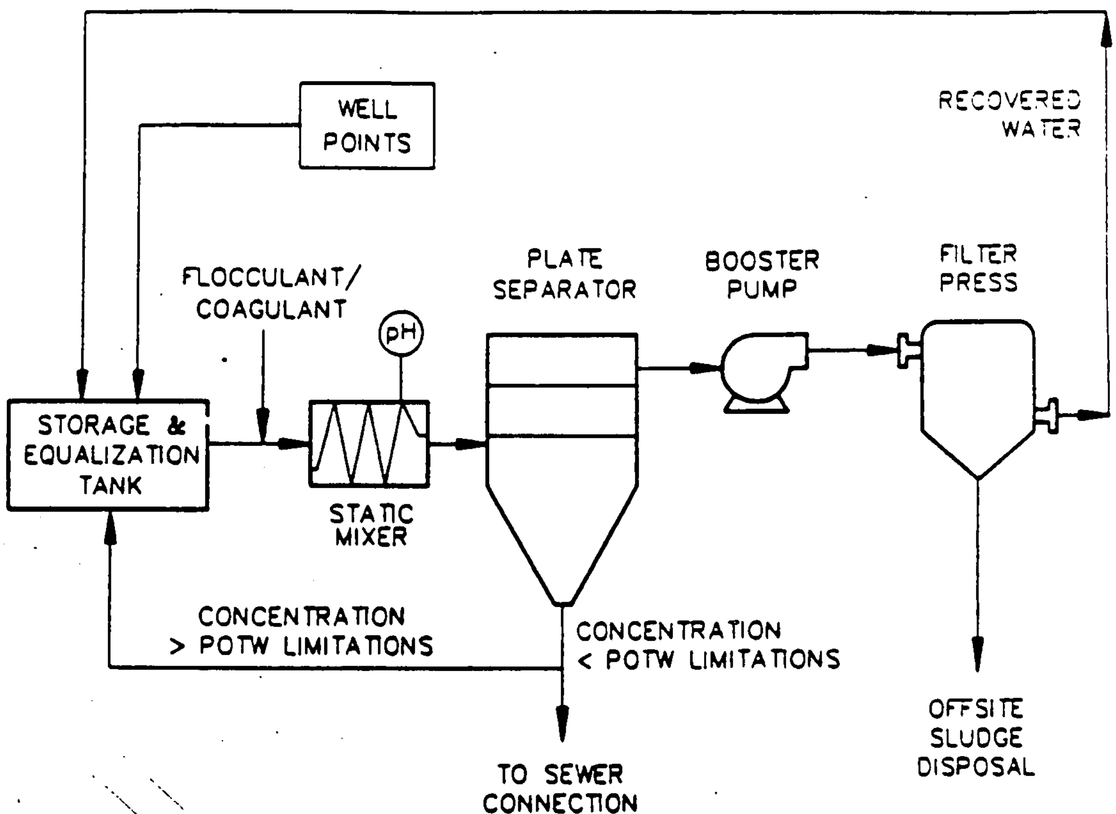
CAMP DRESSER & McKEE INC.

CROSS SECTION OF SURFACE CAP

62nd STREET SITE

TAMPA, FLORIDA

FIGURE NO. 8-2



CAMP DRESSER & McKEE INC. CONCEPTUAL GROUNDWATER TREATMENT SYSTEM	FIGURE NO.
62nd STREET SITE TAMPA, FLORIDA	8-3

involves pumping the contaminated groundwater into a mixing tank where it is rapidly combined with chemicals for pH adjustment. Following the mixing stage, during which polymer-type flocculants would be added, the water flows into a plate settler/clarifier, where the solids-liquid separation occurs. The precipitated sludge is pumped to a storage tank for subsequent dewatering using a recessed plate filter press. This filtering removes fine particles which do not effectively settle out by gravity. The water recovered from the dewatering operation is recycled to the treatment's influent stream and the concentrated sludge/filter cake is analyzed and disposed offsite in accordance with RCRA. The treated effluent from the plate separator, with contaminant concentrations below the local Publicly Owned Treatment Works (POTW) limitations, will be discharged to the closest sewer connection (approximately 500 feet away), which eventually discharges into the local POTW.

Construction of a new landfill would reduce contaminant mobility by preventing rainfall infiltration and runoff of contaminated surface soils. However, the waste toxicity and volume would remain unaffected by this alternative. Leaching to groundwater would be significantly reduced. By preventing any direct contact of the contaminant source with the groundwater, the groundwater ARARs should be met. With respect to permanence, liners are typically warranted for 20 years, but the serviceable life should extend well beyond this time frame. While the new landfill does not provide an ultimate permanent remedy, it should be considered of long duration.

Extraction and treatment of the contaminated groundwater would reduce contaminant mobility, toxicity, and volume. This alternative addresses permanent groundwater remediation combined with source control measures for the soils.

Both short- and long-term groundwater monitoring would be required for this alternative. For costing purposes, it was assumed that 15 existing monitor wells would be sampled quarterly for the first two years (short-term monitoring) and annually for 28 years (long-term monitoring). Samples would be analyzed for cadmium, chromium, and lead. Air monitoring during excavation and construction activities would be necessary to ensure that a safe working environment is maintained and that no threat to the public health or the environment is created by air emissions from the site. Health and safety requirements during the implementation of this alternative would include periodic air monitoring during excavation and construction, and the use of personal protection equipment by all personnel at the site. It is assumed that Level D personal protection would be used with a contingency to upgrade to Level C, as necessary.

Equipment and personnel decontamination facilities would also be necessary. A heavy equipment washdown pad would be constructed and all vehicles would be decontaminated prior to leaving the site. Wash water would be treated onsite with the groundwater or stored in drums and removed for offsite treatment.

Approximately six months would be required for design and contractor selection. Soil excavation and construction of the landfill would require at least two years. Groundwater remediation would also require about two years. Assuming no delays, this alternative could be implemented in approximately 4.5 years.

The estimated present worth cost for this alternative is approximately $13.72 million, including capital costs of $12.35 million and present worth O&M costs over 30 years of $1.37 million.

8.3 Alternative 3 - Excavation of Soil and Offsite Disposal With Groundwater Extraction and Onsite Treatment

This alternative would involve excavating contaminated soils and sending them offsite to a RCRA approved landfill, in addition to groundwater extraction and onsite treatment.

A total of approximately 93,000 cubic yards of contaminated soils would be excavated and transported to the closet RCRA-approved landfill for disposal of hazardous wastes. The targeted disposal facility is located in Emelle, Alabama, approximately 800 miles from the site. It is estimated that 20-ton dump trucks, which should be lined and covered during transportation, would be used to transport the waste.

Groundwater dewatering would take place prior to soil removal in order to facilitate the excavation process. The onsite dewatering and offsite groundwater extraction is the same as described in Alternative 2.

This alternative virtually eliminates direct contact risk with contaminated soil. Since the contaminant source is removed from the site, this alternative would eliminate rainfall infiltration and contact of the contaminant source with groundwater as well as future leachate production and contaminant loadings to groundwater.

This alternative would not comply with the Federal Resource Conservation and Recovery Act; 40 CFR Part 261; Land Ban. The RCRA land disposal restrictions ("LDR") require that RCRA hazardous wastes be treated to BDAT (Best Demonstrate Available Technologies) Standards prior to offsite disposal.

The estimated present worth cost for this alternative is approximately $46.38 million, including capital costs of $45.70 million and present worth O&M costs over 30 years of $0.68 million.

8.4 Alternative 4 - Excavation of Soil and Placement in New Onsite Landfill With Groundwater Vertical Barrier

This alternative involves excavating contaminated soils and placing them into a new landfill constructed onsite, together with onsite groundwater containment using a vertical barrier. The excavation of soil and placement in new onsite landfill would be the same as described in Alternative 2.

Given the sandy soil conditions at the Site, the vertical barrier is considered an appropriate technique. The purpose of the groundwater vertical barrier is to prevent contaminant migration by containing the onsite plume. Figure 8-4 sets out what would be the forecasted bounds of the vertical barrier around the Site perimeter. The vertical barrier considered for this alternative would be built using in situ technology. Fixation of the barrier would be accomplished using a cement-bentonite mixture. Special design considerations would be required in light of the corrosiveness of the groundwater plume. The barrier would extend over a length of 2,200 feet and to a depth of 25 feet.

The vertical barrier would be used in combination with a containment drainfield that would consist of perimetrical subsurface drains extending to a depth of 10 feet below land surface (5 feet below the water table). This drainfield would also be used for dewatering to facilitate the soil excavation process.

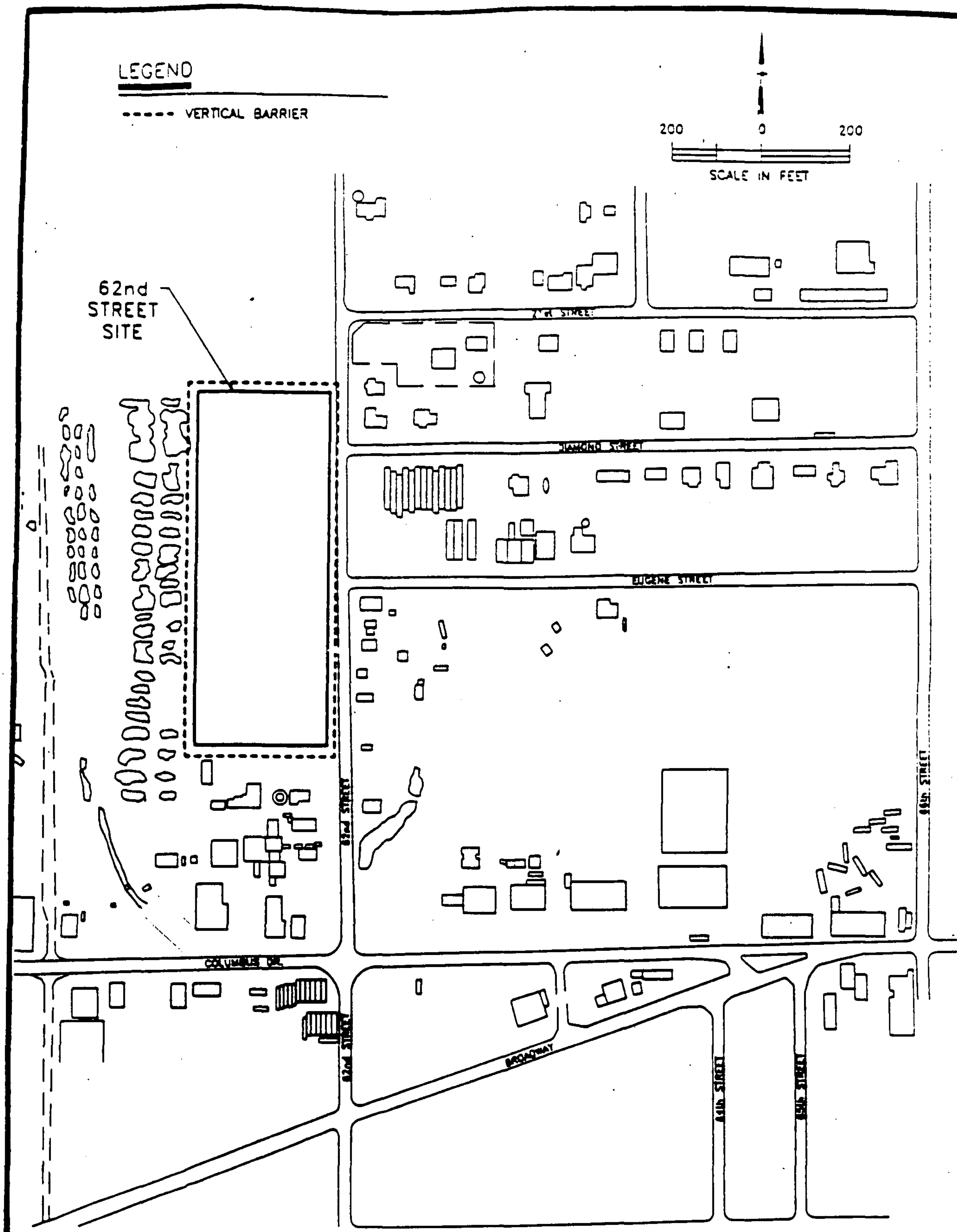
Offsite groundwater extraction would be accomplished by downgradient pumping wells in the upper aquifer and treated as described in Alternative 2. The recovery would be accomplished at an approximate steady-state rate of 35 gpm. Remediation of the upper aquifer is estimated to take two years.

Construction of a new landfill would reduce contaminant mobility by preventing rainfall infiltration and runoff of contaminated surface soils. However, the waste toxicity and volume would remain unaffected by this alternative. Leachate generation to groundwater would be significantly reduced but the groundwater ARARs would not be met. With respect to permanence, liners are typically warranted for 20 years, but the serviceable life should extend well beyond this time frame. This alternative does not provide an permanent remedy. Containment of the plume would not reduce contaminant mobility, toxicity, and volume in groundwater.

Short- and long-term groundwater monitoring would be the same as described in Alternative 2.

Health and Safety requirements while implementing this alternative would be the same as described in Alternative 2.

Approximately six months would be required for the soil remediation design and contractor selection. Soil excavation and construction of the landfill would require at least two years. Offsite groundwater remediation would require about two years and could be performed during the design, contractor selection, and actual construction of the groundwater vertical barrier which would require about 2.5 years. Assuming no delays, this alternative could be implemented in approximately five years.



CAMP DRESSER & McKEE INC.

LOCATION OF VERTICAL BARRIER

62nd STREET SITE

TAMPA, FLORIDA

FIGURE NO.

8-4

The estimated present worth cost of this alternative is $16.49 million, including capital costs of $14.93 million and present worth O&M costs over 30 years of $1.56 million.

8.5 Alternative 5 - Soil Capping With Offsite Groundwater Extraction and Onsite Groundwater Containment

This alternative would involve capping contaminated soils, in addition to groundwater extraction and onsite treatment.

The area to be capped consists of the total areal extent of soil contamination which encompass approximately 5.5 acres.

A minimum of two feet of cover would be placed over the contaminated soils to provide a foundation to support the surface cap. This soil cover would be compacted in 6-inch lifts. An impermeable membrane would consist of a 40 mil HDPE liner underlain by a geotextile fabric to protect the liner from puncture. A 1-foot drainage layer above the liner would be constructed out of sand and the top foot of capping would consist of topsoil to provide a root zone for vegetative growth. In order to prevent clogging of the sand drainage layer, a filter fabric would be placed between the sand layer and the top soil particles sifting into the sand lens.

The topsoil would be vegetated to prevent erosion. The cap would have a minimum slope of 2 percent. Surface runoff would be directed through appropriate drainage channels. Precipitation that percolates through the topsoil would flow laterally through the sand drainage layer and into the drainage channels.

To prevent contact of contaminated materials at the site with the water table, dewatering would be considered. Long-term dewatering, over 30 years, would be achieved through the use of subsurface drains. These drains would extend to the bottom of the surficial aquifer along the south border and 5 feet below the water table along the north, east, and west borders.

Groundwater extraction would not begin until the contaminated soils have been capped. The onsite dewatering and offsite groundwater extraction would be the same as described in Alternative 2.

This alternative virtually eliminates the direct contact risk with contaminated soils. Since the surface cap will reduce rainfall infiltration, future leachate and contaminant loading and thus the risk to groundwater will also be reduced.

A significant reduction in risk for groundwater exposure would be achieved. Groundwater would be extracted to meet the established cleanup goals for the site. Nonetheless, since the source of contamination has not been addressed, contaminants could continue to migrate into the groundwater for a long period of time. Heavy metals removal, through pretreatment, is anticipated to meet the POTW limitations. To accurately predict performance, a field pilot test would be required.

Construction of a surface cap would reduce contaminant mobility by preventing rainfall infiltration and runoff of contaminated surface soils. However, the waste toxicity and volume remain unaffected by this alternative. Leaching to groundwater would be significantly reduced. With respect to permanence, liners are typically warranted for 20 years, but the serviceable life should extend well beyond this time frame. While the cap would not provide a permanent remedy, it should be considered of long duration. Extraction and treatment of the contaminated groundwater would reduce contaminant mobility, toxicity, and volume in the groundwater. However, this alternative does not provide permanent groundwater remediation since the source is not addressed.

Short- and long- term groundwater monitoring would be the same as described in Alternative 2.

Health and Safety requirements while implementing this alternative would also be the same as described in Alternative 2.

Approximately six months would be required for design and contractor selection. Construction of the surface cap would require another six months. Groundwater remediation would require about two years. Assuming no delays, this alternative could be implemented in approximately three years.

The estimated present worth cost for this alternative is approximately $7.02 million, including capital costs of $5.46 million and present worth O&M costs over 30 years of $1.56 million.

8.6 Alternative 6 - Soil Capping With Groundwater Vertical Barrier

This alternative would involve capping contaminated soils and groundwater extraction with onsite treatment. The soil capping would the same as described in Alternative 5. The groundwater vertical barrier would be the same as described in Alternative 4.

This alternative virtually would eliminate direct contact risk with contaminated soils. Since the surface cap would reduce rainfall infiltration, future leachate and contaminant loadings to groundwater would also be reduced.

Provisions for containing the plume and minimizing horizontal contaminant migration in the groundwater would be made. Groundwater contaminant concentrations, however, would not meet the established cleanup goals for the site.

Construction of a surface cap would reduce contaminant mobility by preventing rainfall infiltration and runoff from contaminated surface soils. However, the waste toxicity and volume would remain unaffected by this alternative. Leaching to groundwater would be significantly reduced. With respect to permanence, liners are typically warranted for 20 years, but the serviceable life should extend well beyond this time frame. The cap does not provide a permanent remedy but should be considered of long duration for comparative purposes. Containment of the plume would not reduce contaminant mobility, toxicity, and volume.

Short- and long- term groundwater monitoring would be the same as described in Alternative 2.

Health and Safety requirements while implementing this alternative would also be the same as described in Alternative 2.

Approximately six months would be required for design and contractor selection. Construction of the surface cap would require another six months. Offsite groundwater remediation would require about two years and could be performed during the design, contractor selection, and construction of the groundwater vertical barrier would require about 2.5 years. Assuming no delays, this alternative could be implemented in approximately 3.5 years.

The estimated present worth cost for this alternative is approximately $11.37 million including capital costs of $9.81 and present worth O&M costs over 30 years of $1.56 million.

8.7 Alternative 7 - Solidification/Stabilization of Soil With Groundwater Extraction and Onsite Treatment

This alternative involves excavating contaminated soils and treating them onsite through solidification/stabilization (S/S) in addition to groundwater extraction and onsite treatment.

Soil S/S involves onsite treatment of contaminated soils with suitable fixing agents to reduce the toxicity and mobility of the indicator chemicals. With this alternative, approximately 100,000 cubic yards of contaminated soils would be excavated. Because both organic (PCBs) and inorganic (antimony, arsenic, cadmium, chromium, copper, and lead) contaminants are present, a site-specific mixture of fixing agents would be required to bind the contaminants. The use of non-toxic, non-hazardous aggregates is important.

Prior to the S/S process, the waste materials would be screened to remove large objects (e.g., pieces of tires). These large objects could be removed, crushed and/or ground in order to be solidified. The contaminated soils would be transported to an onsite cement batch plant (a pug mill) where they would be mixed with the fixing agents. The treated soils would be replaced in the excavated areas. Stabilization would occur once the returned soil/cement mixing has solidified.

The soil and solidifying/stabilizing agents would be measured and loaded into the pug mill on a batch basis. The mixture would be controlled by measuring the moisture content of the soil and aggregates in an onsite laboratory and setting the load cell controlled weight equipment to add the correct dry weight of soil and aggregates to each batch. The load cells and laboratory equipment would be calibrated to ensure that quality assurance procedures are maintained. Prior to actual implementation of the S/S process, a treatability study would be required to determine the best combinations and proportions of aggregates and soil.

The space requirements for the mobile treatment equipment and reactors is estimated to be approximately one acre including storage. Processing rates of 50 to 100 cubic yards per day are considered typical, but ultimately depend on unit sizing. For purposes of this analysis, an S/S processing rate of 100 cubic yards per day has been used. Two feet of clean topsoil would be placed over the solidified matrix. The entire site would be seeded and mulched.

Groundwater dewatering would take place prior to soil removal in order to facilitate the excavation process. The onsite dewatering and offsite groundwater extraction would be the same as described in Alternative 2.

In this alternative, contaminated soils would be treated to levels below cleanup goals. Consequently, the risk present by direct contact and leaching to groundwater would be significantly reduced.

A significant reduction in risk for groundwater exposure would be achieved. Groundwater will be extracted to meet the established cleanup goals for the site. Heavy metals removal, achieved through pretreatment, is anticipated to meet the POTW limitations. To accurately predict performance, a field pilot test of the treatment system would be required.

Since all contaminated soils would be treated, future leaching to groundwater is not expected to exceed ARARs or cleanup goals. With the use of appropriate binding agents, this technology would reduce the mobility and toxicity of the contaminants. However, the volume of the solidified matrix would increase slightly.

Extraction and treatment of the contaminated groundwater would reduce contaminant mobility, toxicity, and volume in the groundwater. This alternative provides permanent remediation combined with source control measures for the soils.

Short- and long-term groundwater monitoring is the same as described in Alternative 2.

Health and Safety requirements while implementing this alternative would also be the same as described in Alternative 2.

S/S treatment would be performed at an assumed rate of 100 cubic yards per day with a total soil remediation time of three years. Groundwater extraction and remediation would require about two years. Assuming no delays, this alternative could be implemented in approximately five years.

The estimated present worth cost for this alternative is approximately $24.73 million, including capital costs of $24.04 million and present worth O&M costs over 30 years of $690 thousand.

8.8 Alternative 8 - Solidification/Stabilization of Non-Cement Wastes and Capping of Soil With Groundwater Extraction and Onsite Treatment

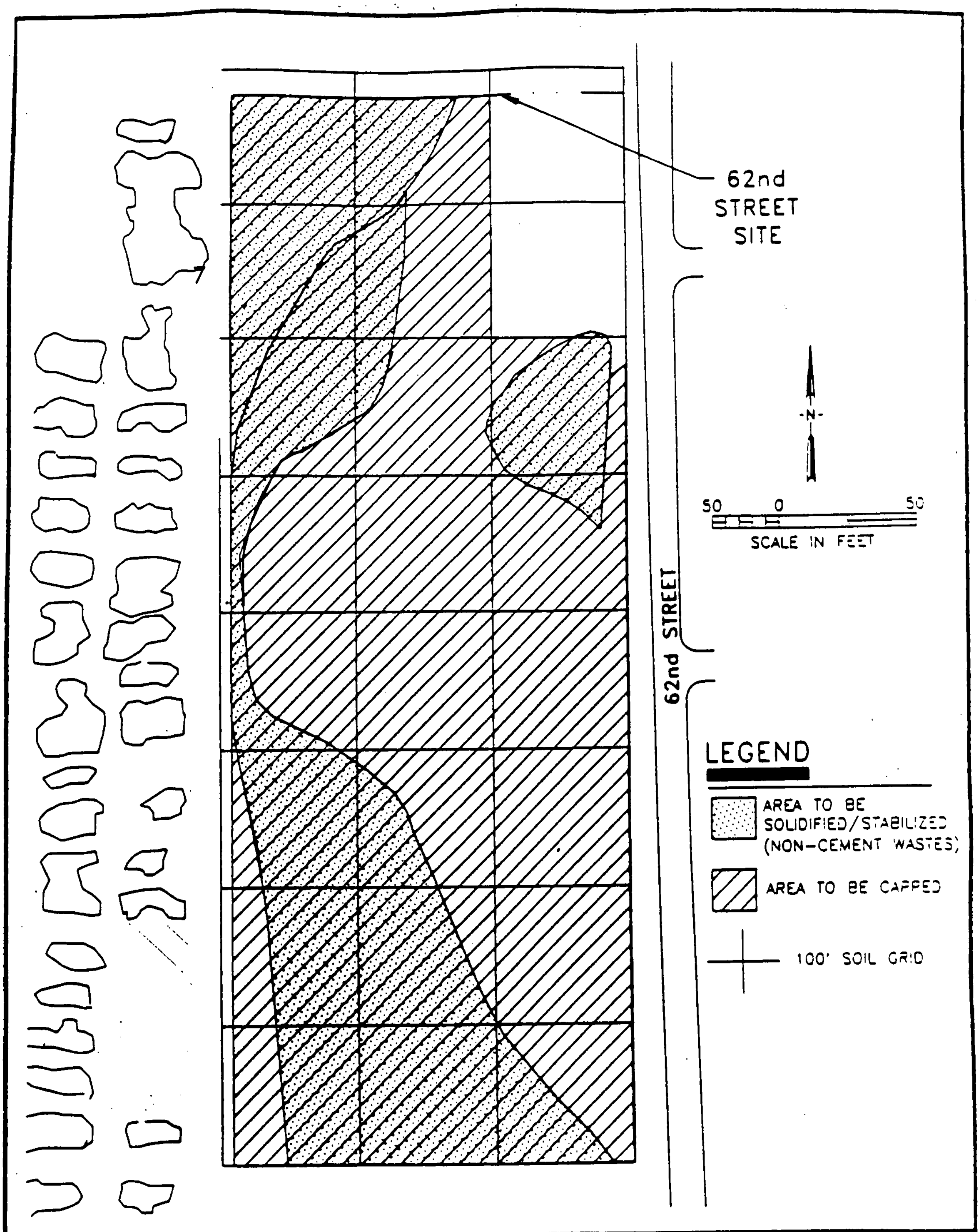
This alternative would involve excavating contaminated non-cement wastes and treating them onsite through S/S, as well as capping, and groundwater extraction and onsite treatment.

Soil S/S would involve onsite treatment of non-cement wastes with suitable fixing agents to reduce the toxicity and mobility of the indicator chemicals. With this alternative, approximately 45,000 cubic yards of contaminated soils and non-cement wastes would be excavated. The S/S treatment would be the same as described in Alternative 7. The entire site (cement and non-cement wastes) would be capped.

The area to be capped consists of the total areal extent of soil contamination, which encompasses approximately 5.5 acres. A minimum of two feet of cover would be placed over the contaminated soils to provide a foundation to support the surface cap. This soil cover would be compacted in six-inch lifts. An impermeable membrane would consist of a 40 mil HDPE liner underlain by a geotextile fabric to protect the liner from puncture. A 1-foot drainage layer above the liner would be constructed out of sand and the top 1-foot of capping would consist of topsoil to provide a root zone for vegetation growth. In order to prevent clogging of the sand drainage layer, a filter fabric will be placed between the sand layer and the topsoil. The fabric would provide a barrier to soil particles sifting into the sand lens.

The topsoil would be vegetated to prevent erosion. The cap would have a minimum slope of 2 percent. Surface runoff would be directed through appropriate drainage channels. Precipitation that percolates through the topsoil would flow laterally through the sand drainage layer and into the drainage channels. Figure 8-5 presents the areal extent of partial S/S and total capping.

Groundwater dewatering would take place prior to soil removal in order to facilitate the excavation process. The onsite dewatering and offsite groundwater extraction would be the same as described in Alternative 2.



CAMP DRESSER & McKEE INC.

AREAL EXTENT OF PARTIAL SOLIDIFICATION/STABILIZATION AND TOTAL CAPPING

62nd STREET SITE

TAMPA, FLORIDA

FIGURE NO. 8-5

In this alternative, non-cement wastes would be treated to levels below cleanup goals and the the solidified non-cement wastes and the cement wastes would be capped. Consequently, a direct contact risk and leaching to groundwater would be significantly reduced.

A significant reduction in risk for groundwater exposure would be achieved. Groundwater would be extracted to meet the established cleanup goals for the site. Heavy metals removal, achieved through pretreatment, is anticipated to meet the POTW limitations. To accurately predict performance, a field pilot test would be required.

Since all non-cement wastes are targeted for treatment, future leaching is not expected to exceed groundwater ARARs or cleanup goals in these contaminated media. With the use of appropriate binding agents, this technology would reduce the mobility and toxicity of the contaminants. However, the volume of the solidified matrix would increase relative to the original volume of the non-cement wastes.

Construction of a surface cap would reduce contaminant mobility in the cement wastes by preventing rainfall infiltration and runoff of contaminated surface soils. However, the waste toxicity and volume of the cement waste materials remain unaffected by this alternative. Leaching to groundwater would be significantly reduced. With respect to permanence, liners are typically warranted for 20 years, but the serviceable life should extend well beyond this timeframe. The cap does not provide a permanent remedy for the cement waste, however the engineering controls would provide sufficient protectiveness to reduce the risk to below 10^{-6}.

Extraction and treatment of the contaminated groundwater would reduce contaminant mobility, toxicity, and volume in the groundwater. This alternative would provide permanent remediation combined with source control measures for the soils.

Short- and long- term groundwater monitoring would be the same as described in Alternative 2.

Health and Safety requirements while implementing this alternative would be the same as described in Alternative 2.

S/S would be performed at an assumed rate of 100 cubic yards per day with a total soil remediation time about 1.5 years. Construction of the surface cap would require about two years. Assuming no delays, this alternative could be implemented in approximately four years.

The estimated present worth cost for this alternative is approximately $16.46 million, including capital costs of $15.77 million and present worth O&M costs over 30 years of $690 thousand.

9.0 Summary of Comparative Analysis of Alternatives

This section provide the basis for determining which alternative (i) meets the threshold criteria of overall protection of human health and the environment and compliance with ARARs, and (ii) provides the "best balance" between long- term effectiveness and permanence, reduction of toxicity, mobility, or volume through treatment, short-term effectiveness, implementability, and cost. A glossary of the evaluation criteria is provided in Table 9.1.

9.1 Overall Protection of Human Health and Environment

All of the alternatives, with the exception of the "no action" alternative, would provide protection of human health and the environment by eliminating, reducing, or controlling risk through treatment, engineering controls, or institutional controls. Because the "no action" alternative offers no reduction in risk to human health and the environment, it is not considered further in this analysis as an option for this site.

Alternatives 5 and 6 (soil capping) do not use treatment to reduce the volume or toxicity of the soil contaminants and require long-term maintenance to ensure the integrity of the cap. Alternative 3 (offsite disposal) transfers the risk to another location without treatment and is the most costly of the soil alternatives. Alternatives 2 and 4 (new onsite landfill) do not use treatment to reduce the volume or toxicity of the soil contaminants and require long-term maintenance.

Alternatives 7 and 8 (solidification/stabilization) offer the greatest reduction of risk by treating the contaminated soils. This technology has been demonstrated to be effective for metals and PCBs.

9.2 Compliance with ARARs

Alternative 3 (offsite disposal) would not comply with the Resource Conservation and Recovery Act (RCRA) - Land Disposal Restrictions (LDR). The contaminated soils at the Site would require treatment prior to disposal which is not provided under Alternative 3. Alternatives 4 and 6 (groundwater vertical barrier) would not treat the offsite groundwater plume, thus the MCLs for groundwater would not be met. Alternatives 2 and 4 (new onsite landfill) and Alternatives 5 and 6 (capping) would not meet the Superfund Amendments and Reauthorization Acts (SARAs) preference for treatment. Only Alternatives 7 and 8 (solidification/stabilization) would meet all ARARs and SARAs preference for treatment at the 62nd Street Site.

TABLE 9.1

GLOSSARY OF EVALUATION CRITERIA

Overall Protection of Human Health and Environment - addresses whether or not a remedy provides adequate protection and describes how risks posed through each pathway are eliminated, reduced, or controlled through treatment engineering controls or institutional controls.

Compliance with ARARs - addresses whether or not a remedy will meet all of the applicable or relevant and appropriate requirements of other Federal and State environmental statutes and/or provide grounds for invoking a waiver.

Long-Term Effectiveness and Permanence - refers to the magnitude of residual risk and the ability of a remedy to maintain reliable protection of human health and the environment over time once cleanup goals have been met.

Reduction of Toxicity, Mobility, or Volume Through Treatment - is the anticipated performance of the treatment technologies that may be employed in a remedy.

Short-Term Effectiveness - refers to the speed with which the remedy achieves protection, as well as the remedy's potential to create adverse impacts on human health and the environment that may result during the construction and implementation period.

Implementability - is the technical and administrative feasibility of a remedy, including the availability of materials and services needed to implement the chosen solution.

Cost - includes capital and operation and maintenance costs.

State Acceptance - indicates whether the State concurs with, opposes, or has no comment on the Proposed Plan.

Community Acceptance - the Responsiveness Summary in the appendix of the Record of Decision reviews the public comments received from the Proposed Plan public meeting.

9.3 Long-Term Effectiveness and Permanence

Alternatives 7 and 8 (solidification/stabilization) would provide the greatest degree of long-term elimination of risk posed by contaminants at the 62nd Street site because the contaminants are permanently bound in a cement matrix. Alternatives 2 and 4 (new onsite landfill) would provide long-term protection to public health and the environment; however, long-term monitoring would be required to ensure the integrity on the new landfill. Alternatives 5 and 6 (capping) would leave the contaminants in place without treatment. The cap's effectiveness would be evaluated through long-term monitoring. Alternative 3 (offsite disposal) would merely transfer the risk to another location but would offer some protection by proper disposal in a permitted hazardous waste facility.

9.4 Reduction of Toxicity, Mobility, or Volume of the Contaminants Through Treatment

Alternatives 7 and 8, (Solidification/stabilization) would provide a significant reduction of toxicity through treatment of the contaminated soils. This alternative would also provide protection to the groundwater by treating the source of contamination. Solidification would also provide a significant reduction of contaminant mobility by binding the contaminants into a cement matrix. Alternatives 2 and 4 (new onsite landfill) and 3 (offsite disposal) do not provide for a reduction of toxicity or volume of the contaminants but would reduce their mobility. Alternatives 5 and 6 (capping) do not reduce toxicity, mobility, or volume of the contamination.

9.5 Short-Term Effectiveness

All of the alternatives would immediately break the soil ingestion exposure pathway. Minimal risk is associated with remedy construction for each alternative; however, solidification and offsite disposal would require additional precautionary measures to ensure the safety of workers. Offsite disposal adds a slight risk to the general public due to hauling activities. Given the relative immobility of site contaminants and the media in which that they are contained (soil), this risk would be minimal in the event of an accident during transportation.

9.6 Cost

Alternative 3 (offsite disposal) is the most expensive remediation alternative at $46.379 million dollars. The cost for Alternatives 2 and 4 are substantially less than the cost for Alternative 3, and may provide a greater protection. Alternatives 5 and 6 (capping) are the least costly and provide the least amount of protection.

Alternatives 7 and 8 (Solidification/stabilization) would provide the greatest amount of protectiveness, yet alternative 7 cost considerably more than alternative 8. Alternative 7 cost $24.725 million dollars while alternative 8 cost $16.457 million dollars. Alternative 7 would solidify the entire site and alternative 8 would solidify the battery wastes, shredded auto parts, and contaminated soils. Contaminant levels in the cement wastes represent little threat through either direct contact or leaching to ground water. Since these wastes are consolidated and have low permeability, they are believed to offer a protective degree of immobilization without treatment of solidification.

9.7 State Acceptance

The State of Florida, as represented by the Florida Department of Environmental Regulation, concurs in the selection of Alternative 8 as the preferred alternative for the 62nd Street Site.

9.8 Community Acceptance

Based on comments made by citizens at the public meeting held on March 29, 1990, and those received during the public comment period, the agency perceives that the community believes the selected remedy will effectively protect human health and the environment.

10.0 The Selected Remedy

Based upon consideration of the requirements of CERCLA, the detailed analysis of the alternatives, and public comments, EPA has determined that Alternative 8 is the most appropriate remedy for the 62nd Street Site in Tampa, Florida.

Under this alternative, battery wastes and shredded auto parts will be treated by solidification/stabilization and the entire landfill will be capped. Groundwater in the surficial aquifer exceeding drinking water standards will be recovered and treated, with discharge to either a local wastewater treatment plant or to the Palm River.

This alternative distinguishes between those areas of the site where cement wastes predominate, and those areas with extensive deposits of shredded auto parts and battery wastes. The fill material composed of battery wastes and auto parts will be excavated, treated by solidification/stabilization and replaced onsite. Approximately 48,000 cubic yards of material are estimated to exceed the cleanup criteria and will be treated. Solidification/Stabilization is a widely used treatment that permanently immobilizes contaminants in a cement-like matrix. Treatment of the battery and auto wastes will effectively prevent them from posing a threat through direct contact or by leaching to groundwater.

Contaminant levels in the cement wastes represent little threat through either direct contact or leaching to groundwater. Since these wastes are consolidated and have low permeability, they are believed to offer a protective degree of immobilization without treatment or solidification. To further ensure that any threat from these wastes is minimized, they will be included in the area to be covered by an impermeable cap. This will provide protection from exposure by direct contact and will reduce potential leaching of contaminants by preventing infiltration of rain water.

The goal of this remedial action is to restore the surficial aquifers groundwater to its beneficial use. The recovery and treatment of groundwater exceeding primary drinking water standards will protect the surficial aquifer for any future use. This procedure will also remove the threat posed by potential migration of contaminants from the surficial aquifer to the Floridan aquifer through breaches in the intervening clay layer. However, studies suggest that groundwater extraction and treatment are not, in all cases, completely successful in reducing contaminants to health-based levels in the aquifer. EPA recognizes that operation of the selected extraction and treatment system may indicate the technical impracticability of reaching health-based ground water quality standards using this approach. If it becomes apparent, during implementation or operation of the system, that contaminant levels have ceased to decline and are remaining constant at levels higher than the remediation goal, that goal and the remedy may be reevaluated.

Institutional controls and other land use restrictions will be used to ensure the integrity of the remedy over time and preclude exposure to treated soils through prohibitions on future uses of the Site incompatible with the cap. These institutional controls offer additional protection of human health and the environment and ensure the long-term effectiveness and permanence of the remedy.

The duration of the soil treatment is estimated at two years. Groundwater cleanup is also estimated to take two years. Following completion of the cleanup, monitoring will be conducted for a minimum of five years to demonstrate that the cleanup has met the remediation goals. The total present worth cost of this alternative is $16,460,000.

10.1 Remediation Goals

The 62nd Street site is a threat due to the presence of antimony, arsenic, cadmium, chromium, copper, lead and polychlorinated biphenyls (PCBs) in soils and groundwater. Wastes buried at the site fall into two categories; auto part/battery wastes and cement wastes. The auto part/battery wastes are highly contaminated, with lead being the most prominent contaminant. The cement wastes contain only low levels of contaminants.

Criteria for the cleanup of contaminants in soil are based on consideration of health effects and leaching to groundwater. For each contaminant, the most stringent of these two considerations takes precedence. The health-based cleanup criteria are listed in Table 10.1.

The presence of groundwater contamination at the site indicates that leaching of contaminants from waste has occurred. Numerous uncertainties exist in the determination of cleanup criteria for the prevention of unacceptable leaching to ground water. Thus a range of criteria were considered for cadmium, chromium, and lead, the site contaminants most likely to leach. For the auto part/battery wastes, the selected criteria are based on the average value of soil-water partitioning coefficients reported in the literature. Levels of cadmium, chromium and lead exceeding these criteria are widely distributed in the auto part/battery wastes.

<u>Leaching-based cleanup criteria for auto part/battery wastes</u>

	range (ppm)	selected (ppm)
cadmium	0.065 - 1.4	0.3
chromium	0.23 - 400	9
lead	0.87 - 1300	17

Due to characteristic low permeability of the cement wastes, different criteria are appropriate for leaching of contaminants from this area of the site. Leaching of contaminants is inhibited by the high pH of the wastes through the extensive formation of insoluble metal hydroxides. In addition, the low permeability of these wastes retards migration of any mobile form of these contaminants. Since these contaminants are known to be ten to one hundred times less leachable at the high pH characteristic of the cement wastes, the leaching-based cleanup criteria selected for these wastes are ten times higher than those proposed for the other wastes.

<u>Leaching-based cleanup criteria for the cement wastes</u>

	criterion (ppm)
cadmium	3
chromium	90
lead	170

Groundwater

Health based cleanup levels were not derived for groundwater because ARARs were available. The surficial aquifer has concentrations of lead, cadmium, and chromium that exceed the Federal and State primary drinking water standards. The cleanup criteria for cadmium, and chromium in the surficial aquifer will be the Maximum Concentration Limits (MCLs). As discussed in Section 7.2, a concentration on lead of 15 ppb is protective of drinking water.

TABLE 10-1

SITE CHEMICALS EXCEEDING CLEANUP GOALS
62nd STREET SITE
TAMPA, FLORIDA

CONTAMINATED MEDIUM	CHEMICAL	CLEANUP GOAL
Surface Water	None above AWQCs	N/A
Sediment	None above Risk-Based Levels	N/A
Soil	Antimony	89 mg/kg
	Arsenic	3.5 mg/kg
	Cadmium	0.315 mg/kg
	Chromium	8.8 mg/kg
	Copper	8,260 mg/kg
	Lead	17.4 mg/kg
	PCBs	0.33 mg/kg
Groundwater	Cadmium	10 µg/L
	Chromium	50 µg/L
	Lead	15 µg/L

NOTES:

AWQC - Ambient Water Quality Criteria.
N/A - Not applicable.

11.0 Statutory Requirement

The U.S. EPA and FDER believe that this remedy will satisfy the statutory requirements of providing protection of human health and the environment, attaining applicable or relevant and appropriate requirements of other environmental statutes, will be cost-effective, and will utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. Sections 11.1 thru 11.5 below, are the statutory requirements for this site.

11.1 Protection of Human Health and the Environment

The selected remedy provides protection of human health for future users through extraction and treatment of contaminated groundwater and treatment of contaminated soils. The aquifer restoration will prevent the public from ingestion of contaminant concentrations in the water. It is estimated that the groundwater will be restored to MCLs or health-based risk levels in two years.

In addition, the remedy will prevent the ingestion of contaminated soil posing an undue risk of cancer greater than 10^{-6}. The potential leaching from the soil into the groundwater will be adequately reduced to protect human health and the environment. It is estimated that the soils will be treated in two years.

11.2 Attainment of the Applicable or Relevant and Appropriate Requirements (ARAR)

Remedial actions performed under CERCLA must comply with all applicable or relevant and appropriate requirements (ARARs). All alternatives considered for the 62nd Street site were evaluated on the basis of the degree to which they complied with these requirements. The selected remedy was found to meet or exceed the following ARARs, as discussed below.

FEDERAL REGULATIONS:

Resource Conservation and Recovery Act

40 C.F.R. Part 264 Subpart X - Miscellaneous Treatment Unit

40 C.F.R. Part 261 Land Ban - The RCRA land disposal restrictions ("LDR") (40 CFR 268) promulgated in the 1984 HSWA amendments require that RCRA hazardous wastes be treated to BDAT (Best Demonstrated Available Technologies) Standards prior to placement into the land. EPA is promulgating treatment standards for RCRA wastes in a phased approach, with the last treatment standard to be promulgated in May 1990. The onsite wastes are characterized as RCRA wastes for lead, because it

exhibit EP Toxicity as defined 40 CFR 261. Excavation and treatment in a separate unit is considered to be placement under RCRA LDR. Therefore, LDR will be an applicable/or relevant and appropriate requirement. The selected remedy will meet BDAT standards for RCRA characteristic waste. The treatment process will immobilize the metals to the extent that the waste will no longer be hazardous waste as defined by RCRA.

40 C.F.R. Part 264 Subpart G - Closure and Postclosure

Clean Water Act/Safe Drinking Water Act

EPA's determination of appropriate groundwater cleanup criteria involved an evaluation of contaminant concentrations relative to available health-based standards. Such limits, including Maximum Concentration Limits (MCLs) and Maximum Concentration Limit Goals (MCLGs), and Federal Ambient Water Quality Criteria (AWQC), Section 304 of the Clean Water Act (CWA) used as prescribed in Section 121(d)(2)(b)(i) of CERCLA, as defined by the Safe Drinking Water Act (SDWA) (40 CFR Part 141 and 142) and the Clean Water Act, respectively, will be met at this site.

Federal Clean Air Act

The Clean Air Act (CAA) identifies and regulates pollutants that could be released during earth-moving activities associated with the excavation of soils on-site. The CAA Section 109 outlines the criteria pollutants for which National Ambient Air Quality Standards have been established. CAA Section 112 identifies pollutants for which there are no applicable Ambient Air Quality Standards, those substances regulated under the Federal National Emission Standards for Hazardous Pollutants. The CAA is an ARAR and the regulatory standards of the CAA will be complied with during implementation of the remedy.

Toxic Substances Control Act (TSCA)

40 CFR Part 761, promulgated under the authority of TSCA, establishes criteria to determine adequacy of cleanup of spills resulting from release of materials containing PCBs. The 62nd Street Site would classify as a non-restricted access area. The requirement for decontaminating PCB spills in a non-restricted access area is to decontaminate the soil to 10 mg/kg PCBs by weight, provided the soils are excavated to a minimum depth of 10 inches. The excavated soil must be replaced with clean soil which contains less than 1 mg/kg PCBs. The selected remedy will met the TSCA requirements.

Endangered Species Act

The selected remedy is protective of species listed as endangered or threatened under the Endangered Species Act. Requirements of the

Interagency Section 7 Consultation Process, 50 CFR Part 402, will be met. The Department of Interior, Fish and Wildlife Service, will be consulted during remedial design to assure that endangered or threatened species are not adversely impacted by implementation of this remedy. There is currently no information to indicate that the Site is visited or contains any endangered or threatened species.

National Historical Preservation Act (NHPA)

The NHPA requires that action be taken to preserve or recover historical or archaeological data which might be destroyed as a result of site activities. There is no information to indicate that the 62nd Street site contains any historic or archaeological significance.

Federal Occupational Safety and Health Administration Act (OSHA)

The selected remedial action contractor will develop and implement a health and safety program for its workers. All onsite workers will meet the minimum training and medical monitoring requirements outlined in 40 CFR 1910.

STATE REGULATIONS:

Florida Administrative Code Chapter 17-3

Water quality standards for surface water and groundwater affected by leachate and storm runoff from the Site will be met.

Florida Administrative Code Chapter 17-6

Effluent limitations and operating requirements for wastewater facilities treating landfill leachates will be met.

LOCAL REGULATIONS:

City of Tampa

The City of Tampa has established minimum quality standards for disposal to the local POTW. The disposal standards for discharge to the local POTW will be met.

Southwest Florida Water Management District (SWFWMD)

The Southwest Florida Water Management District will be consulted during remedial design to assure compliance with surface water runoff for the Site.

11.3 Cost Effectiveness

EPA's selected remedy (Alternative 8) affords a higher degree of overall protectiveness in not only protecting the public against direct exposure to surface soils but also in removing the threat of future contamination to the groundwater. The total present worth cost for the selected remedy is $16,460,000.

This remedy employs a proven technology which can be implemented year round and has been proven to be a permanent solution for this type of contamination. The selected remedy affords overall effectiveness proportional to its costs such that the remedy represents a reasonable value for the money. When the relationship between cost and overall effectiveness of the selected remedy is viewed in light of the relationship between cost and overall effectiveness afforded by the other alternatives, the selected remedy is cost-effective.

11.4 Utilization of Permanent Solutions and Alternative Treatment Technology or Resource Recovery Technologies to the Maximum Extent Practicable

U.S. EPA believes the selected remedy is the most appropriate cleanup solution for the 62nd Street site and provides the best balance among the evaluation criteria for the remedial alternatives evaluated. This remedy provides effective protection in both the short- and long-term to potential human and environmental receptors, is readily implemented, and is cost effective.

Solidification/Stabilization of the contaminated battery wastes and shredded auto parts represents a permanent solution (through treatment) which will effectively reduce and/or eliminate mobility of hazardous wastes and hazardous substances into the environment.

11.5 Preference for Treatment as a Principal Element

Treatment of the battery and auto wastes will effectively prevent them from posing a threat through direct contact or by leaching to ground water.

Solidification/Stabilization is a treatment process which has been demonstrated to effectively reduce the mobility of heavy metals in the environment. Therefore, the statutory preference for remedies that employ treatment as a principal element is satisfied.

11.6 Documentation of Significant Changes

Based upon the requirements of CERCLA section 117(b), EPA has determined that a significant change has been made to the selected remedy from the time that it was proposed in the Proposed Plan until final adoption of the remedy in this Record of Decision. The change that has occurred is the cleanup level of lead in the groundwater from the current MCL of 50 ppb to a level of 15 ppb.

APPENDIX A

Responsiveness Summary

62nd Street Site

Tampa, Hillsborough County, Florida

RESPONSIVENESS SUMMARY

The Florida Department of Environmental Regulation (FDER) and the U.S. Environmental Protection Agency (EPA) established a public comment period from March 23, 1990 through April 23, 1990 for interested parties to comment on FDER's and EPA's Proposed Remedial Action Plan (PRAP) for the 62nd Street Dump site. The comment period followed a public meeting on March 29, 1990, conducted by FDER and EPA, held at the Oak Park Community Center in Tampa, Florida. The meeting presented the results of the studies undertaken and the preferred remedial alternative for the site.

A responsiveness summary is required by Superfund policy to provide a summary of citizen comments and concerns about the site, as raised during the public comment period, and the responses to those concerns. All comments summarized in this document have been factored into the final decision of the preferred alternative for cleanup of the 62nd Street Dump site.

This responsiveness summary for the 62nd Street Dump site is divided into the following sections.

I. Overview This section discusses the recommended alternative for remedial action and the public reaction to this alternative.

II. Background on Community Involvement and Concerns This section provides a brief history of community interest and concerns regarding the 62nd Street Dump site.

III. Summary of Major Questions and Comments Received During the Public Comment Period and FDER's or EPA's Responses This section presents both oral and written comments submitted during the public comment period, and provides the responses to these comments.

IV. Remaining Concerns This section discusses community concerns that EPA should be aware of in design and implementation of the remedial alternative for the site.

I. Overview

The preferred remedial alternative was presented to the public in a fact sheet released on March 22, 1990 and at a public meeting held on March 29, 1990. The recommended alternative addresses the source of the contamination by containing the landfill wastes and treatment of the groundwater. The major components of the recommended alternative include:

- Solidification/Stabilization of the battery wastes and shredded auto parts.

- Capping of the entire site.

- The cement wastes onsite represent little threat through either direct contact or leaching to groundwater; therefore, they will not be treated.

- Extraction and treatment of the groundwater from the surficial aquifer both onsite and offsite.

The community, in general, favors the selection of the recommended alternative. However, the community is concerned about the amount of time required to implement the alternative.

II. Background on Community Involvement and Concern

The Tampa community has been aware of the contamination problem at the 62nd Street Dump site for several years. FDER distributed the first fact sheet to the public on January 27, 1986. This fact sheet contained information pertaining to the upcoming Remedial Investigation (RI).

FDER and EPA conducted the second public meeting on March 29, 1990. The purpose of this meeting was to explain the results of the site studies, to present the recommendations of FDER and EPA for site cleanup, and to accept questions and comments from the public on any aspect of the site or its cleanup. At this meeting, the key issues and concerns identified were:

Groundwater Contamination Concerns: Property owners were concerned with the levels of contaminants found in the surficial aquifer. The citizens were also concerned that their private wells might tap into this aquifer.

Time: The public was concerned with the amount of time that it will take to clean up the site.

III. Summary of Major Questions and Comments Received During the Public Comment Period and FDER's or EPA's Responses.

1.) One commenter inquired about the depth of the surficial aquifer. There was concern that private wells were at surficial aquifer level.

FDER Response: To the best of FDER knowledge, people do not receive drinking water from the surficial aquifer. Appreciable levels of lead and chromium were found in the lower Floridan Aquifer, but these levels were well below the drinking water standards.

2.) A commenter inquired what the concentration of lead is in the surficial aquifer.

<u>FDER Response:</u> The concentration of lead can be as high as 200 parts per billion in the surficial aquifer.

3.) A commenter inquired what the concentration of chromium is in the surficial aquifer.

<u>FDER Response:</u> Chromium reached concentrations as high as approximately 600 parts per billion. The drinking water standards for chromium are 50 parts per billion.

4.) Another commenter inquired what level of PCBs are found in the surficial aquifer.

<u>FDER Response:</u> The highest level of PCBs found in the soil was 20 parts per million.

5.) A commenter stated that his well water did not taste good. He inquired what the contaminants were.

<u>EPA Response:</u> The drinking water source for this area is high in iron and sulfur, which leads to a bad taste, odor, and color. However, the health department has examined the water quality and has found no toxic chemicals.

6.) A commenter expressed concern that the county was not being responsive to citizens who felt their drinking water was not adequate for consumption.

<u>FDER Response:</u> FDER will explore the possibility of providing an alternate water supply with Hillsborough County.

7.) Another commenter inquired about health effects from contaminated soil during any implementation of the cleanup.

<u>FDER Response:</u> Primarily any danger that could occur during construction would be caused by dust emissions blowing offsite. During Remedial Design (RD), alternatives will be studied to minimize this problem. There are standard construction methods that are used to control dust emissions.

8.) A representative from Congressman Sam Gibbons' office inquired how long after the remedy is selected before the clean-up begins.

<u>EPA Attorney Response:</u> When a Potentially Responsible Party(s) (PRP) is identified, under the statute, clean up design should begin after 120 days. Sometimes it takes longer.

EPA Response: Once the comment period has ended, which will be April 23rd, EPA will evaluate the comments that are received from the public. Then, EPA will sign the Record of Decision and begin to serve notice to the Potentially Responsible Party(s). This notice will give the PRPs the opportunity to conduct the remedial design and the remedial action.

If the PRPs negotiate a Consent Decree with EPA, the PRPs will conduct the design and cleanup. In the event that the PRPs choose not enter into a Consent Decree with the Agency, EPA will conduct the design utilizing the Superfund money. Either way, EPA anticipates to begin the remedial design prior to September 1990.

9.) A commenter inquired if there is either a statutory or regulatory procedure to expedite this process.

FDER Response: FDER has evaluated the need for immediate and temporary measures; there is no possible temporary, short-term way to improve the situation.

10.) Another commenter inquired what has FDER been doing up to this point.

FDER Response: FDER started its investigation in '86 and this public meeting represents FDER's completion of its part. It has been four years, and admittedly it should have taken less time.

11.) Another commenter inquired how much the RI/FS cost.

FDER Response: The RI/FS costs about $400,000.

12.) A commenter inquired if PRP negotiations are confidential.

EPA Attorney Response: That would depend on the case and whether or not the PRP is willing to release certain information.

13.) A commenter noted that there have been no PRPs identified at this site at present and then inquired how long before clean up will actually begin.

EPA Response: Realistically, the cleanup may begin early 1991.

14.) After a discussion as to whether or not viable PRPs could be identified, one commenter inquired if the cleanup process could be expedited if citizens filed a class action suit.

EPA Attorney Response: It is certainly a possible alternative. However, a class action suit may not hasten the process.

15.) After an explanation of how the solidification/stabilization process works, a commenter wanted to know what would keep the contaminated cement contained.

FDER Response: The treatment itself causes the contaminants to become immobilized. The treated soil is then impermeable so that very little groundwater or rain water can percolate through the soil.

16.) One commenter inquired if the treatment is permanent.

FDER Response: The treatment is considered to be a permanent remedy.

17.) A commenter inquired as to what depth the waste material extends.

FDER Response: From the soil borings sampled, waste material has been found to extend approximately 20 feet from the surface. The waste lies directly on top of the clay in the Hawthorn Formation.

18.) After a discussion concerning alternatives for cleaning up the site, a commenter inquired as to which alternative will be chosen for this project.

FDER Response: The alternative that both EPA and FDER favor at this time is the last alternative, Number 8. This is where all the debris is excavated from the auto battery waste portions of the site, treated by solidification, and returned to the site. The entire site would then be covered with an impermeable cap. This process would be accompanied with recovering treatment of the groundwater in the surficial aquifer.

19.) A commenter inquired if, after April 23rd, EPA would be managing the site.

EPA Response: Yes. EPA will take it Federally when the Record of Decision is written. At that point, EPA will consult the State on the remedial designs and will consider any input the State may have.

The following responses are provided to written comments received by the Agency:

20.) The commenter requested access to a copy of the final Record of Decision (ROD) for the site.

EPA Response: EPA will include a copy of the final ROD in the Administrative Record which is maintained for public use in the Special Collections Section at the Tampa Hillsborough County Public Library, 900 North Ashley, Tampa, Florida 33602.

21.) The commenter indicated that waste acid had been dumped at the site.

EPA Response: EPA has no knowledge of or data about waste acid having been dumped at this site. In fact, the pH of the groundwater is very basic, with an average pH of 11.5.

22.) The commenter stated that EPA's conclusion that the landfilled materials at the site are potentially leachable is not substantial and therefore led EPA to develop highly theoretical risk-based cleanup criteria.

EPA Response: EPA's conclusion that the landfilled materials are potentially leachable is substantiated. The inorganic constituents identified in the Remedial Investigation (RI) are compounds which have the tendency to leach; therefore EPA does not agree that the risk-based cleanup criteria developed for this site is highly theoretical. When developing risk-based cleanup criteria, as standard practice EPA uses "worst-case" scenarios. In the case of the 62nd Street site, EPA developed cleanup criteria for the constituents detected in the RI using the assumption that these constituents have the potential to leach and are hazardous to human health and the environment.

22.) The commenter contended that EPA failed to select a cost effective remedy for the site in addition to finding little advantage in the preferred remedy.

EPA Response: Sections 8 and 9 of the ROD clearly evaluate all remedial alternatives, especially their overall protection of human health and the environment and compliance with applicable or relevant and appropriate requirements (ARARs) and standards, as well as cost. EPA believes the selected remedy is the one which overall best meets the nine evaluation criteria.

23.) The commenter noted that EPA's map showing the extent of the lead contaminated groundwater plume is incorrectly drawn based on the data presented on the map.

EPA Response: EPA has reviewed the reference figure and believes that the plumes (both chromium and lead) are drawn correctly based on the data presented in the map.

24.) The commenter stated that the groundwater data suggest a pattern of contamination that is not consistent with the characteristics of the materials identified at the site. The chromium, nickel and lead seem more representative of electroplating waste than the automobile waste.

EPA Response: The RI stated that chromium was also detected in levels exceeding the Maximum Contaminant Level (MCL) in the upgradient well, indicating a second source of contamination in the area. In addition, the ROD states that "Wastes buried at the site fall into two categories: auto part/battery wastes and cement wastes. The auto part/battery wastes are highly contaminated, with lead being the most prominent contaminant. The cement wastes contain low levels of contaminants." So EPA believes the RI properly identified the sources of the materials at the site and does not see the inconsistency noted by the commenter.

25.) The commenter stated that there appears to be no technical justification for pretreating the contaminated groundwater onsite because Publicly Owned Treatment Works (POTW) pretreatment standards would not require pretreatment for contaminated water as characterized in the RI.

EPA Response: EPA does not permit any groundwater exceeding Maximum Contaminant Levels (MCLs) from Superfund sites to be discharged prior to pretreatment. Pretreatment of contaminated groundwater will be conducted onsite and then discharged to either a local storm sewer, a nearby creek or river, or aerated onsite in accordance with City of Tampa and Hillsborough County Regulations, not sent to the POTW.

26.) The commenter recommended that a lower-cost alternative for groundwater interception around the site using pumping wells rather than an interceptor drain system be considered to collect contaminated groundwater. The commenter's justification was that the two systems functionally accomplish similar objectives and the onsite interceptor drain system accounted for 37% of total project costs while the extraction well system for the area south of the site represented on 5%.

EPA Response: Section 4.2.2.1 of the Feasibility Study (FS) explains extraction technologies, including both extraction wells and subsurface drains. The main advantage of subsurface drains over extraction wells is in contamination source control requirements at the site. The contaminated plume will be contained onsite using the subsurface drains. Offsite contaminated groundwater will be collected using extraction wells. In choosing remedial alternatives, EPA evaluates treatment technologies for overall long-term source control and protection of human health and the environment. These extraction technologies, along with stabilization/solidification (S/S) of onsite material is the most effective remedial alternative for the 62nd Street site.

27.) The commenter expressed concern that RI/FS and proposed plan documents portray site problems in the context of contaminated soil rather than clearly stating that the site was actually "a landfill operating under the tacit approval of local authorities." The commenter, therefore, contended that the site should be managed in the same way as all other landfills and not require "wholesale chemical treatment", which is unnecessary and unprecedented.

EPA Response: This site primarily operated as an "unauthorized" landfill for use by companies in the Tampa area. At the time of investigations by the Florida Department of Environmental Regulation (FDER), no closure plan was developed for the site. The data in the RI and FS indicate that groundwater contamination is linked to activities conducted on the site and materials currently remaining on the site. One of the criteria EPA employs for evaluating treatment technologies is the reduction of volume, mobility, and toxicity of contaminants. In addition, the amendments to the Superfund law require a "preference for permanent treatment". With S/S, volume is slightly increased but the mobility and toxicity of contaminants are greatly reduced. This remedy provides a permanent method of onsite source control to prevent further leaching of contaminants to groundwater. Direct contact risk is also significantly reduced. The groundwater treatment systems will provide remediation of the contaminated aquifer. The construction of a surface cap reduces contaminant mobility of unsolidified wastes by preventing rainfall infiltration and runoff of contaminated surface soils. Direct contact risks from the site are again reduced by construction of the surficial cap.

28.) The commenter recommended that a closure and post closure plan be developed for the landfill conforming to current state standards.

EPA Response: As stated in the preceding response, this site did not operate under authority or oversight of local or state officials and did not meet requirements for landfill facilities. Since it was never an authorized municipal or industrial facility, it does not have to be closed under current state standards. In addition, EPA has determined that groundwater contamination has occurred from materials at the site. Therefore, EPA has developed the most appropriate remedy for the particular materials and contamination at the 62nd Street Dump site.

29.) The commenter recommended that remediation of the contaminated groundwater plume should be implemented without delay prior to soil remediation to minimize further spread of contamination in a more timely and cost effective manner.

EPA Response: With the information gathered during the RI and FS, EPA believes that one ROD encompassing both source control and onsite and offsite groundwater contamination will be the most efficient way of addressing contamination at the site. The source and groundwater remediation will be implemented simultaneously so that groundwater concerns are addressed as quickly as possible.

IV. Remaining Concerns

The community's concerns surrounding the 62nd Street Dump site will be addressed in the following areas: community relations support throughout Remedial Design/Remedial Action and incorporation of comments/suggestions from the community into the Remedial Design.

Community relations will consist of making available final documents (i.e., Remedial Design Work Plan, Remedial Design Reports, etc.) in a timely manner to the local information repository for the site. EPA will also issue fact sheets to those on the mailing list to provide further information on progress of the project and schedules for future activities at the site. EPA will inform the community of any principal design changes made during the project design. If, at any time during the Remedial Design or Remedial Action, new information is revealed that could affect the implementation of the remedy or if the remedy fails to achieve the necessary design criteria, the Record of Decision may be revised with an opportunity for public comment to incorporate new technology that will attain the necessary cleanup objectives and goals.

APPENDIX B

State's Concurrence Memorandum

62nd Street Site

Tampa, Hillsborough County, Florida

APPENDIX C

Lead Memorandum

62nd Street Site

Tampa, Hillsborough County, Florida

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
SOLID WASTE AND EMERGENCY RESPONSE

MEMORANDUM

JUN 21 1990

SUBJECT: Cleanup Level for Lead in Ground Water

FROM: Henry L. Longest, Director
Office of Emergency and Remedial Response

Bruce M. Diamond, Director
Office of Waste Programs Enforcement

TO: Patrick M. Tobin, Director
Waste Management Division, Region IV

PURPOSE

This memorandum addresses the issue of a protective cleanup level for lead in ground water usable for drinking water, which is a major concern for several Superfund sites in Region IV.

OBJECTIVE

The objective of this memorandum is to recommend a final cleanup level for lead in ground water usable for drinking water which will meet the CERCLA requirement that all Superfund remedies be protective of human health and the environment.

BACKGROUND

The current Maximum Contaminant Level (MCL) for lead is 50 ppb and was promulgated in 1975 as an interim national primary drinking water regulation (NPDWR) under the Safe Drinking Water Act (SDWA). On November 13, 1985, the Agency began the process of revising this standard by proposing a Maximum Contaminant Level Goal (MCLG) as required by the SDWA (50 FR 46936).

On August 18, 1988 EPA proposed an MCLG for lead at zero and an MCL of 5 ppb (53 FR 31516). Also, since the primary cause of lead-contaminated drinking water is corrosion of lead-bearing pipes in public water supply (PWS) distribution systems and/or household plumbing, the proposed rule would direct PWSs to meet treatment technique requirements and to deliver public education to reduce and minimize exposures to lead in drinking water.

These requirements would be triggered when an action level is exceeded at consumers' taps throughout the water distribution system. The Agency proposed an action level of 10 ppb, on average, to trigger corrosion control and public education. Another lead action level of 20 ppb, measured at the 95 percentile of samples, was proposed as a trigger for public education.

The Agency is considering promulgation of treatment technique requirements which may include additional source water treatment, lead service connection replacement, and public education if lead concentrations at the tap exceed an action level. Any such technological treatment targets will provide substantial health protection. A final rule is being worked on, and is scheduled for promulgation in December 1990.

DISCUSSION

No cancer potency factor or reference dose has been promulgated for lead; therefore, an assessment of protective levels of lead in ground water that may be used for drinking water purposes will be based on current data. The Agency has identified 10 micrograms per deciliter (ug/dl) as a blood lead level of concern in young children. Blood lead levels above 10 ug/dl are associated with increased risks of potentially adverse effects on neurological development and diverse physiological functions.

Attached is available data that support the recommended final cleanup level for lead in drinking water at Superfund sites. This information includes the June 15, 1990, EPA draft final report entitled, "Contributions To a Risk Assessment For Lead in Drinking Water" and the June 1986, EPA draft final report entitled, "Air Quality Criteria for Lead" (Volume III of IV, p. 11-129). Based on these data, lead levels in drinking water of 15 ppb and lower should correlate to blood lead levels below the concern level of 10 ug/dl. The Agency estimates that steady exposure to a water lead concentration of 15 ppb would contribute, at most, 2-3 ug/dl to a child's blood lead. Sources of lead other than drinking water (e.g. food, air, soil, dusts) typically contribute approximately 4-5 ug/dl to children's blood lead. Accounting for the variability inherent in childhood behavior, nutrition, and physiology, it is estimated that total lead exposure, given 15 ppb in drinking water, would result in blood lead levels below 10 ug/dl in roughly 99 percent of young children who are not exposed to excessive lead paint hazards or heavily contaminated soils. Therefore, a 15 ppb cleanup level would provide substantial health protection for the majority of young children. Most of the remaining lead problem will continue to be contaminated soils and old lead-painted housing.

In an April 10, 1989, Federal Register notice (54 FR 14316), EPA announced the availability of a guidance document and testing protocol entitled, "Lead in School's Drinking Water," to assist schools in determining the source and degree of lead contamination in school drinking water supplies and how to remedy such contamination. That document, which is also attached, recommends that schools take remedial steps whenever the lead level at any drinking water outlet exceeds 20 ppb.

RECOMMENDATION

Based on a review of these and other studies, it is recommended that a final cleanup level of 15 ppb for lead in ground water usable for drinking water is protective. If water used for drinking purposes subsequent to achieving the cleanup goal in the aquifer may need further treatment to account for lead contributions related to the distribution of water through pipes, the responsibility for this additional treatment or the replacement of lead-bearing water pipes lies with the persons who are using or distributing the water. A concentration of lead of 15 ppb in drinking water should generally correlate with a blood lead level below the concern level of 10 ug/dl. In some situations, lower cleanup levels may be appropriate based on site-specific factors, such as multiple pathways of exposure caused by lead from the site.

If the remedial action will include treatment and supplying water directly to the public for drinking water consumption, compliance with a 15 ppb action level should be met at 90 percent of the taps to ensure that the remedy is protective. When the lead NPDWR is promulgated, applicable or relevant and appropriate requirements of that rule should be met.

FUTURE GUIDANCE

After promulgation of the lead NPDWR, guidance will be issued discussing those provisions of the rule that may be applicable or relevant and appropriate for Superfund actions.

For further information, please contact Tish Zimmerman at FTS 382-2461 or Neilima Senjalia at FTS 475-7027.

DISCLAIMER

The recommendations in this document are intended solely as guidance. They are not intended and cannot be relied upon to create any rights, substantive or procedural, enforceable by any party in litigation with the United States. EPA reserves the right to act at variance with these recommendations and to change them at any time without public notice.

Attachments

cc: Directors, Waste Management Division, Regions I, V, VII, VIII
Directors, Emergency and Remedial Response Division, Region II
Directors, Hazardous Waste Management Division, Regions III, VI, IX
Directors, Hazardous Waste Division, Region X