

**Surface Water and Sediment Data Summary**  
**Cabot Carbon/Koppers Superfund Site, Gainesville, Florida**  
**June 16, 2008**

**I. Introduction**

This document presents a summary of surface water and sediment data quality data collected at Springstead and Hogtown Creeks, which are located downstream of the Cabot Carbon/Koppers Superfund Site, Gainesville, Florida (“Site”). Sediment and surface water data collected at the former Cabot property and the Koppers property were also reviewed and are also presented here-in.<sup>1</sup> The objective of this analysis was to compile and assimilate surface water and sediment quality data collected in Springstead and Hogtown Creeks to develop an understanding of contaminant distribution and potential human health risks posed by these contaminants, given that the community and Alachua County Environmental Protection Department (ACEPD) are concerned about the presence of “tar” in these Creeks and potential human health risks.

**II. Surface Water and Sediment Quality Data**

A total of 13 sediment sampling events and 12 surface water sampling events have been performed in the vicinity of the Site between 1961 and 2006. Details of the sampling events, including sample date, media sampled, target analytes, and aerial extent of sampling locations, are provided in Table 1. Figures 1 and 2 respectively show all sediment and surface water samples collected in this time period in the vicinity of the Site. Tables 3a and 4a summarize concentrations of select metals and detected volatile organic compounds (VOCs) in sediment and surface water samples, respectively. Tables 3b and 4b summarize concentrations of detected semivolatile organic compounds (SVOCs) in sediment and surface water samples, respectively.

A review of the analytical data and other observations noted during sampling indicate:

- Visual evidence of contamination (*i.e.*, tar presence) in sediments in surface waters were noted on the following three occasions:
  - During the 1987 IT investigation, leachate seeps and a black oily-looking substance was noticed in North Main Street Ditch, from the Northeast Lagoon to the Project Jumpstart interceptor. No sample was collected of this material. Note, in 1995, as part of the installation of the groundwater interceptor trench (east of the former Cabot property boundary), sediments from North Main Street Ditch were excavated, and a concrete channel was constructed to replace the former earthen swale.
  - In June 1994, ACEPD responded to a citizen's complaint and verified the presence of a dark brown to black material in Springstead Creek, approximately 2 miles west of the Koppers property boundary (Springstead-2/B; Figure 1). The material had an asphalt-like crust and coal-tar like odor, and was analyzed for VOCs (Table 2). ACEPD also observed similar material approximately 0.25 miles upstream of this location (Figure 1). Other sediment samples collected in

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<sup>1</sup> Note, we only reviewed historical surface water and sediment studies conducted at the Koppers facility (*e.g.*, RI reports) since they were readily available to us, but not any recent documents.

this area in the mid-1990s also detected VOCs, metals and polyaromatic hydrocarbons (PAHs) (Tables 3a and 3b and Figures 3 and 4).

- In 2004, ACEPD again found the coal-tar like material in Springstead Creek at the same location (downstream of NW 13<sup>th</sup> Street) described above (Figure 1). It is not clear whether a sample of this material was collected.

To summarize, tar has been observed in Springstead Creek on a few occasions, approximately 2 miles downstream of the Site.

- PAH compounds, which can originate from multiple sources including wood treating operations, were measured at elevated concentrations in sediment samples collected in the vicinity of the tar material encountered in Springstead Creek (Table 3b and Figures 3 and 4). Elevated levels of PAHs have also been detected in sediments in the drainage ditch on the Koppers property, and, prior to its remediation, in the vicinity of the Northeast Lagoon in North Main Street Ditch (Figures 3 and 4).
- Phenol, which is the primary pine tar processing indicator compound, was initially detected at elevated levels (up to 23,824 µg/L) in water samples collected from retention ponds/manholes on the former Cabot property, the North Main Street Ditch, and the downstream creeks in the 1970s and early 80s (Table 4b and Figures 5 and 9). Following the installation of Project Jumpstart in 1985, phenol concentrations generally attenuated to low to non-detectable levels in downstream waters and sediments (Springstead and Hogtown Creeks) (Tables 3b and 4b and Figures 5 and 9). Surface water and sediment quality showed further improvement after the groundwater interceptor trench was installed in 1995, as evident from the absence of phenol in all sediment and surface water samples collected downstream of the site (Tables 3b and 4b and Figures 6 and 10).

### **III. Human Health Risk Assessment**

Two human risk assessments have been undertaken to assess risk posed by potential exposures to surface water and sediment in Springstead Creek. The key assumptions and conclusions of these risk assessment are discussed below.

#### *Hunter/ESE Risk Assessment*

In 1990, Hunter/ESE evaluated the potential health risks to onsite and offsite human receptors associated with site-related constituents. The key assumptions and findings of the risk assessment were as follows:

- Based on measured concentrations, frequency of detection, and toxicity of chemicals, the following indicator chemicals were selected for the risk assessment: noncarcinogenic and potentially carcinogenic PAHs, pentachlorophenol (PCP), phenol, benzene, naphthalene, arsenic, and chromium (VI).
- Offsite exposure pathways (related to surface water and sediment impacts) considered in the risk assessment: included inhalation of vapors from, direct contact to, and incidental ingestion of surface water and sediments. The North Main Street Ditch and Springstead Creek (at the Koppers property boundary) were identified as the two offsite locations that were most likely to be frequented by receptor populations.

- Exposure Point Concentrations (EPCs) for the North Main Street Ditch were estimated using sediment and surface water data collected by IT Corporation (IT, 1987) and ESE, Inc. (ESE, 1988). Data collected by ESE, Inc. (ESE, 1988) and Koppers (Koppers, 1985) were used to estimate EPCs for Springstead Creek.
- Adolescent recreators (7 to 13 years) were selected as the receptor group most likely to be exposed. Upper bound exposures were characterized for this group, and if found acceptable, were considered as protective of human health for the general population.
- Using conservative upper bound exposure assumptions and toxicity factors, the risk associated with surface water and sediment exposures at the North Main Street Ditch were determined to be less than the EPA target risk of  $10^{-6}$ . The hazard index was also found to be less than 1, US EPA's risk target.
- The total carcinogenic risk associated with surface water and sediment exposures at Springstead Creek were found to exceed  $10^{-6}$  ( $6.3 \times 10^{-6}$  and  $7.67 \times 10^{-5}$ ), but were less than  $10^{-4}$ . The risk was primarily associated with dermal absorption of PCP in surface water, and dermal absorption and incidental ingestion of carcinogenic PAHs in sediment. The total hazard index was found to be less than 1.

Table 5a summarizes the upper bound concentrations for the indicator chemicals used in estimating potential exposures in the risk assessment. Tables 5b and 5c respectively summarize the key exposure and toxicity factors used in the risk calculations. Note, the toxicity factors used in the Hunter/ESE risk assessment were much more conservative than current USEPA-approved values. For example, all carcinogenic PAHs were considered to be equally potent and the toxicity factor for benzo(a)pyrene was used to assess risks for all carcinogenic PAHs. The exposure factor values used were also conservative, but generally comparable to values currently used to assess upper-bound risks.

#### *FDHRS/ATSDR Risk Assessment*

In 1995, the Florida Department of Health also evaluated the potential health risks associated with exposure to selected site-related constituents (including arsenic, phenol, benzene, chromium) present in Springstead Creek sediments.

- The study used sediment and surface water sampling results of all investigations that had been undertaken to-date to estimate exposure point concentrations and evaluate exposures from incidental ingestion and direct exposure to onsite and offsite sediments in site drainage areas (North Main Street Drainage Ditch; Koppers Ditch; Springstead Creek; Hogtown Creek; Koppers Ditch/Creek confluence).
- The risk assessment, which evaluated chronic and continuous children exposure to sediments, did not identify any current or future risks associated with exposure to sediments in North Main Street Drainage Ditch, Springstead Creek, Hogtown Creek and Koppers Ditch/Creek confluence. Note, no PAHs were included in this assessment.
- The assessment did indicate that children playing at the Koppers drainage ditch and Hogtown Creek confluence before 1981 may have experienced health issues associated with incidental ingestion of arsenic-contaminated sediments. However, this risk was determined based on a single arsenic detection in a sediment sample collected in 1981 at the Koppers property boundary.

**Table 1**  
**Summary of Sediment/Surface Water Sampling Studies**  
**Cabot Carbon/Koppers Superfund Site, Gainesville, FL**

<b>Sampled By</b>	<b>Sampling Date</b>	<b>Media</b>	<b>Target Analytes</b>	<b>Sample Location</b>
Florida State Health Board	1961	Surface Water	pH, select Metals and Phenol	Springstead Creek; Hogtown Creek
Alachua County Pollution Control Board	1961 - 1980	Surface Water	Phenol, pH, BOD, COD and Dissolved Oxygen	North Main Street Ditch; Koppers Drainage Ditch; Springstead Creek; Hogtown Creek
EPA	1979 - 1980	Sediment/Surface Water	Select VOCs and SVOCs	North Main Street Ditch; Downstream portions of Hogtown Creek
EPA	1983	Sediment/Surface Water	Select Metals, PCBs, VOCs, SVOCs and Terpenes	North Main Street Ditch; Koppers Drainage Ditch; Downstream portions of Hogtown Creek
Koppers	1984	Surface Water	Select Metals/SVOCs and TOC	Koppers Drainage Ditch
FDER/FLDEP	1986	Sediment	Heavy Metals and SVOCs	North Main Street Ditch (Upstream and downstream of Project Jumpstart)
IT	1987	Sediment/Surface Water	Metals, VOCs and SVOCs	North Main Street Ditch; Koppers Drainage Ditch
Hunter ESE	1988	Sediment/Surface Water	Metals, oil & grease, VOCs, SVOCs and Terpenes/Terpenoids	North Main Street Ditch; Koppers Drainage Ditch; Springstead Creek; Hogtown Creek
Alachua County DEP	15-Jun-94	Sediment	VOCs	Springstead Creek
	7-Sep-94	Sediment	SVOCs	Springstead Creek
	15-Aug-95	Sediment	SVOCs	Springstead Creek
	27-Aug-95	Sediment	SVOCs	Springstead Creek; Hogtown Creek
	19-Sep-95	Sediment	Metals	Springstead Creek; Hogtown Creek
	29-Sep-95	Sediment	VOCs	Springstead Creek; Hogtown Creek
	23-Sep-96	Sediment	Metals, VOCs and SVOCs	Springstead Creek; Hogtown Creek
Weston	Apr-05	Surface Water	Select SVOCs [only PAHs]	North Main Street Ditch (North of former Cabot Property)
	Jun-05	Surface Water	SVOCs	
Alachua County DEP	2006	Sediment/Surface Water	Metals, VOCs and SVOCs	North Main Street Ditch; Koppers Drainage Outfall; Springstead Creek

*Note:*

*PCB - Polychlorinated Biphenyl.*

*PAH - Polyaromatic Hydrocarbons.*

*VOC - Volatile Organic Compounds.*

*SVOC - Semi-Volatile Organic Compounds.*

**Table 2**  
**Summary of VOC Concentrations**  
*June 1994 Sample of Coal Tar-Like Material - Springstead Creek [Adjacent to Springstead - 2/B Sediment Sample]*  
**Cabot Carbon/Koppers Superfund Site**  
**Gainesville, FL**

<b>Volatile Organic Compounds</b>	<b>Concentration (ug/Kg)</b>
Ethylbenzene	19,000
Toluene	32,000
Xylenes (Total)	85,000
Styrene	8,700 *
Chloromethane	ND
Bromomethane	ND
Vinyl Chloride	ND
Chloroethane	ND
Methylene Chloride	ND
Acetone	ND
Carbon Disulfide	ND
Trichlorofluoromethane	ND
1,1-Dichloroethene	ND
1,1-Dichloroethane	ND
1,2-Dichloroethene (Total)	ND
Chloroform	ND
1,2-Dichloroethane	ND
2-Butanone	ND
1,1,1-Trichloroethane	ND
Carbon Tetrachloride	ND
Vinyl Acetate	ND
Bromodichloromethane	ND
1,2-Dichloropropane	ND
cis-1,3-Dichloropropene	ND
Trichloroethene (TCE)	ND
Dibromochloromethane	ND
1,1,2-Trichloroethane	ND
Benzene	ND
trans-1,3-Dichloropropene	ND
2-Chloroethylvinylether	ND
Bromoform	ND
4-Methyl-2-Pentanone (MIBK)	ND
2-Hexanone	ND
Tetrachloroethene (PCE)	ND
1,1,2,2-Tetrachloroethane	ND
Chlorobenzene	ND
Acrolein	ND
Acrylonitrile	ND

Note:

\* - Lab Estimated value. Results reported at a value less than the quantitation limit.

ND - Non-detect.

**Table 3a**  
**Sediment Quality Data Summary : Selected Metals and VOCs**  
**Cabot Carbon/Koppers Superfund Site, Gainesville, FL**

Sample Location Summary				Select Metals (ug/Kg)			Volatile Organic Compounds (ug/Kg)												
Sampled By	Sample Date	Sample ID	Location Description	Data Sources	Arsenic	Chromium	Copper	1,2-Dibromo-Ethane	Benzene	Carbon disulfide	Ethyl-Benzene	Methylene Chloride	Styrene	Tetrachloro-ethylene (PCE)	Toluene	Total Xylenes	Total VOCs <sup>a</sup>		
EPA	Dec.79	CC-001	North Main Street Ditch (upstream of Northeast Lagoon)	1,2															
		CC-002	North Main Street Ditch (adjacent to former Cabot Operations)																
		CC-003	Tributary to North Main Street Ditch; background sample																
		CC-004	North Main Street Ditch (downstream of Cabot Site, just before confluence with Koppers ditch)																
		CC-005	~1mile downstream of Koppers drainage ditch confluence																
		CC-006	Hogtown Creek (~ 3 miles Southwest of Cabot/Koppers Site)																
	Nov.80	CC-001	(See Above)	1,2															
		CC-002	(See Above)																
		CC-003	(See Above)																
		CC-004	(See Above)																
		CC-005	(See Above)																
		CC-040	Hogtown Creek, ~ 75 feet upstream of Hail Sink							ND			ND	ND		ND	ND		
	1983	CC-001	(See Above)	2															
		CC-002	(See Above)																
		CC-003	(See Above)																
		CC-004	(See Above)																
		CC-005	(See Above)																
		CC-006	(See Above)																
K-1		Koppers Drainage Ditch (upstream of lagoons)																	
K-2	Koppers Drainage Ditch (near the northern Kopper Boundary)		26,000	32,000	28,000														
FDER/FLDEP	1986	S-1; S-2; S-3 <sup>b</sup>	Near the North Main Street Ditch and 28th Ave. Intersection	2	29,900	5,000	22,400												
IT	1987	ITS-1	North Main Street Ditch (upstream of Northeast Lagoon)	3	< 200	2,800	1,300		ND		ND	33		ND	ND		33		
		ITS-2	North Main Street Ditch (downstream of Northeast Lagoon)		< 160	2,300	900		42		920	50		10	570		1,592		
		ITS-3	Tributary to the North Main Street Ditch; background sample		620	7,500	4,000		ND		ND	23		ND	< 10		23		
		ITS-4	North Main Street Ditch ( in section of ditch located north of former Cabot Property)		< 80	3,100	1,100		< 10			55	< 10		ND	130		185	
		ITS-5	North Main Street Ditch ( in section of ditch located north of former Cabot Property)		< 20	4,600	1,400		ND			ND	< 10		ND	< 10		ND	
		ITS-6	Koppers Drainage Ditch (upstream of lagoons)		8,400	4,200	34,000		ND			ND	22		ND	11		33	
		ITS-7	Koppers Drainage Ditch (near NE Koppers Boundary)		3,800	6,700	4,000		ND			ND	73		ND	ND		73	
		ITS-8	Stormwater Retention Pond in the NW corner of the Cabot Site		400	4,400	2,500		< 10			570	67		ND	430		1,067	
		ITS-9	Feeder ditch (East of North Main Street Ditch and Springstead Creek Confluence)		< 10	1,100	390		ND			ND	46		ND	ND		46	

**Table 3a**  
**Sediment Quality Data Summary : Selected Metals and VOC:**  
**Cabot Carbon/Koppers Superfund Site, Gainesville, FL**

Sampled By	Sample Date	Sample Location Summary			Data Sources	Select Metals (ug/Kg)			Volatile Organic Compounds (ug/Kg)											
		Sample ID	Location Description			Arsenic	Chromium	Copper	1,2-Dibromo-Ethane	Benzene	Carbon disulfide	Ethyl-Benzene	Methylene Chloride	Styrene	Tetrachloro-ethylene (PCE)	Toluene	Total Xylenes	Total VOCs <sup>a</sup>		
Hunter/ESE	Nov.88	SE-001	North Main Street Ditch (upstream of Northeast Lagoon)	2		3,680	1,370										ND			
		SE-002	North Main Street Ditch (adjacent to former Cabot Operations)			2,650	5,030												ND	
		SE-003	North main street Ditch (upstream of Project Jumpstart)			1,410	15,700													ND
		SE-004	North main street Ditch (downstream of Project Jumpstart)			8,490	1,270													ND
		SE-005	North main street Ditch (downstream of Project Jumpstart & SW-004)			3,170	2,060													ND
		SE-006	Koppers Drainage Ditch (upstream of lagoons)			1,350	7,130	76,000												
		SE-007	Koppers Drainage Ditch (intermediate sampling location)			22,300	34,200	14,300												
		SE-008	Koppers Drainage Ditch (intermediate sampling location)			50,500	172,000	88,600												
		SE-009	Koppers Drainage Ditch (intermediate sampling location)			16,700	43,000	29,300												
		SE-010	Koppers Drainage Ditch (downstream of lagoons)			10,400	16,200	14,900												
		SE-011	West of Project Jumpstart (north of former Cabot property; East of Marsh area)			2.7	9.5	7.9												
		SE-012	West of Project Jumpstart (north of former Cabot property; East of Marsh area)			ND	1.1	ND												
		SE-013	West of Project Jumpstart (north of former Cabot property; East of Marsh area)			ND	ND	ND												
		SE-014	West of Project Jumpstart (north of former Cabot property; East of Marsh area)			0.4	8.8	ND												
		SE-015	West of Project Jumpstart (north of former Cabot property; East of Marsh area)			ND	1.7	0.97												
Alachua County	15-Jun-94	Adjacent to Springstead 2/B	Sample of coal tar-Like material on Springstead Creek (downstream of 13th Street)	5 <sup>c</sup>				ND	ND	ND	19,000	ND	8,700	J	ND	32,000	85,000	136,000		
	7-Sep-94	Springstead 2/B	Springstead Creek (downstream of 13th Street)	4																
	15-Aug-95	Springstead 2/B	(See Above)	5																
	27-Aug-95	Springstead C	Springstead Creek (downstream of 13th Street)	5																
		Springstead D	Springstead Creek (upstream of 13th Street)																	
		Hogtown C	Hogtown Creek																	
	19-Sep-95	CD A	At the confluence of North Main Street ditch and Springstead Creek	5	300	1,200	800													
		Springstead A	Springstead Creek (east of North Main Street - background sample)		700	7,300	700													
		Springstead B	(See Above)		1,000	6,000	3,300													
		Springstead C	(See Above)		500	3,200	26,100													
Springstead D		(See Above)		400	1,700	37,000														
Springstead E	Springstead Creek (upstream of NW6th Str.		2,800	11,800	7,200															

**Table 3a**  
**Sediment Quality Data Summary : Selected Metals and VOC:**  
**Cabot Carbon/Koppers Superfund Site, Gainesville, FL**

Sampled By	Sample Location Summary				Data Sources	Select Metals (ug/Kg)			Volatile Organic Compounds (ug/Kg)									
	Sample Date	Sample ID	Location Description			Arsenic	Chromium	Copper	1,2-Dibromo-Ethane	Benzene	Carbon disulfide	Ethyl-Benzene	Methylene Chloride	Styrene	Tetrachloro-ethylene (PCE)	Toluene	Total Xylenes	Total VOCs <sup>a</sup>
Alachua County	19-Sep-95	Hogtown A	Hogtown Creek	5	700	5,300	800											
		Hogtown B	Hogtown Creek		500	2,900	27,500											
		Hogtown C	(See Above)		700	4,800	19,800											
	29-Sep-95	Springstead C	(See Above)	5 <sup>c</sup>				258	ND	ND	1,070	ND	ND	ND	128	7,880	9,336	
		Springstead D	(See Above)					334	ND	ND	1,630	ND	ND	ND	5,860	19,340	27,164	
		Hogtown C	(See Above)					134	ND	ND	ND	ND	ND	ND	106	2,000	2,240	
	23-Sep-96	Springstead C	(See Above)	5	638	2,800	33,400	ND	355		22,600 *	ND	4,430	ND	31,300 *	66,500 *	125,185	
		Springstead D	(See Above)		3,940	21,800	119,000	ND	ND		7.3	ND	ND	ND	1.4	17	25	
		Hogtown B	(See Above)		1,760	12,900	50,300	ND	ND		15	ND	ND	ND	30	1,044	1,089	
		Hogtown C	(See Above)		966	4,560	26,300	ND	ND		13,400 *	ND	ND	ND	2,160 *	33,500 *	49,060	
	Sep.06	SPRSTMAIN	Feeder Ditch (near the intersection of North main street and NE 35th Ave.)	6	ND	470	ND	ND	ND	0.92 J	ND	ND	ND	ND	ND	ND	ND	ND
		DERDITCHS	North Main Street Ditch (upstream of confluence with Springstead Creek)		260	940	330	ND	ND	1.7 J	ND	ND	ND	ND	ND	ND	ND	ND
		DERDITCHN	North Main Street Ditch (upstream of confluence with Springstead Creek)		440	1,100	650	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
		SPRSTRROF	Koppers Ditch Outfall		8,400	17,000	9,200	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SPRSTNW6		Springstead Creek (near NW 6th Street)	710		2,600	870	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
SPRSTNW13		Springstead Creek (near NW 13th Street)	460		3,000	640	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	

*Note:*

*Blank Cells - No data available.*

*ND - Non-Detect.*

*NS - Not Sampled.*

*\* - Results for diluted samples.*

*J - Lab Estimated value. Results reported at a value less than the quantitation limit.*

*a- Total VOC includes only the detected (does not include the lab estimated values) values.*

*b - Maximum Reported concentration from the locations S-1, S-2 and S-3. Measurement location information not available.*

*c - Samples were analyzed only for Volatile Organic Compounds.*

*Data Sources:*

*1 - EPA. November 1980.*

*2 - Hunter/ESE RI Report. 1989.*

*3 - IT Corp. 1987.*

*4 - Alachua County DEP. 1994.*

*5 - Alachua County DEP. 1994; 1995; 1996.*

*6 - Alachua County DEP. 2006.*



**Table 3b**  
**Sediment Quality Data Summary : Detected SVOCs**  
**Cabot Carbon/Koppers Superfund Site, Gainesville, FL**

Sample Location Summary				Polyaromatic Hydrocarbons (ug/Kg)													Polyaromatic Hydrocarbons (ug/Kg) [Continued]									
Sampled By	Sample Date	Sample ID	Location Description	Data Sources	Acenaphthene	Acenaphthalene	Anthracene	Benzo (a) anthracene	Benzo (a) pyrene	Benzo (b) flouranthene	Benzo (k) flouranthene	Benzo (g,h,i) perylene	Chrysene	Dibenzo (a,h) anthracene	Flouranthene	Flourene	Indeno [1,2,3-cd] pyrene	Phenanthrene	Pyrene	Naphthalene	1-Methylnaphthalene	2-Methylnaphthalene	Total PAHs <sup>a</sup>			
EPA	Dec.79	CC-001	North Main Street Ditch (upstream of Northeast Lagoon)	1,2	<5,000		<5,000						<5,000		<5,000	<5,000		<5,000					ND			
		CC-002	North Main Street Ditch (adjacent to former Cabot Operations)		<5,000		<5,000										<5,000	<5,000						ND		
		CC-003	Tributary to North Main Street Ditch; background sample																							
		CC-004	North Main Street Ditch (downstream of Cabot Site, just before confluence with Koppers ditch)		<5,000		<5,000								<5,000		<5,000	<5,000		<5,000		<5,000				ND
		CC-005	~1 mile downstream of Koppers drainage ditch confluence																							
		CC-006	Hogtown Creek (~ 3 miles Southwest of Cabot/Koppers Site)																							
	Nov.80	CC-001	(See Above)		1,2																					
		CC-002	(See Above)																							
		CC-003	(See Above)																							
		CC-004	(See Above)																							
		CC-005	(See Above)																							
		CC-006	(See Above)																							
	1983	CC-040	Hogtown Creek, ~ 75 feet upstream of Haile Sink		2		ND	ND			ND	ND			ND	ND	ND		ND	ND	ND			ND		
		CC-001	(See Above)													800			500							
		CC-002	(See Above)																							
		CC-003	(See Above)																							
		CC-004	(See Above)																							
		CC-005	(See Above)																							
	FDER/FLDEP	1986	S-1; S-2; S-3 <sup>b</sup>	Near the North Main Street Ditch and 28th Ave. Intersection	2	30,000	35,000												63,000		225,000			353,000		
			K-1	Koppers Drainage Ditch (upstream of lagoons)				600									7,500									
	IT	1987	ITS-1	North Main Street Ditch (upstream of Northeast Lagoon)	3	ND	ND	ND	ND	ND	ND	ND	ND	ND		1,300	ND	ND	< 1,000	2,600	ND			3,900		
			ITS-2	North Main Street Ditch (downstream of Northeast Lagoon)		1,800	2,000	ND	< 1,000	ND	ND	ND	< 1,000		1,100	1,100	ND	3,700	1,400	8,900				20,000		
			ITS-3	Tributary to the North Main Street Ditch; background sample		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	< 1,000	ND	ND	< 1,000	ND	ND				ND
			ITS-4	North Main Street Ditch ( in section of ditch located north of former Cabot Property)		ND	ND	< 1,000	ND	ND	ND	ND	ND	ND	ND	ND	< 1,000	ND	ND	< 1,000	ND	ND				ND
ITS-5			North Main Street Ditch ( in section of ditch located north of former Cabot Property)	< 1,000		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	< 1,000	ND	ND	ND	ND				ND	
ITS-6			Koppers Drainage Ditch (upstream of lagoons)	< 1,000		ND	< 1,000	2,100	4,100	9,900		3,500	4,700		6,500	< 1,000	2,800	3,000	13,000	< 1,000					49,600	
ITS-7			Koppers Drainage Ditch (near NE Koppers Boundary)	< 1,000		< 1,000	< 1,000	3,300	3,200	9,200		2,600	4,900		5,100	< 1,000	2,200	< 1,000	9,300	< 1,000					39,800	
ITS-8			Stormwater Retention Pond in the NW corner of the Cabot Site	< 1,000		ND	1,100	< 1,000	< 1,000	< 1,000		ND	< 1,000		ND	1,200	ND	5,300	1,600	3,200						12,400
ITS-9			Feeder ditch (East of North Main Street Ditch and Springstead Creek Confluence)	ND		ND	ND	ND	ND	ND		ND	ND		ND	ND	ND	ND	ND	ND	ND					ND
Hunter/ESE	Nov.88	SE-001	North Main Street Ditch (upstream of Northeast Lagoon)	2	ND	ND	ND								ND			ND		ND			ND			
		SE-002	North Main Street Ditch (adjacent to former Cabot Operations)		ND	ND	ND										ND		ND		ND			ND		
		SE-003	North main street Ditch (upstream of Project Jumpstart)		ND	ND	ND										ND		ND		ND			ND		
		SE-004	North main street Ditch (downstream of Project Jumpstart)		ND	ND	ND										ND		ND		ND			ND		
		SE-005	North main street Ditch (downstream of Project Jumpstart & SW-004)		ND	ND	ND										ND		ND		ND			ND		
		SE-006	Koppers Drainage Ditch (upstream of lagoons)					ND	ND	ND		ND					ND			ND					ND	
		SE-007	Koppers Drainage Ditch (intermediate sampling location)					ND	ND	ND		ND					3,600			ND					3,600	
		SE-008	Koppers Drainage Ditch (intermediate sampling location)					ND		4,700	4,900		5,800				4,800			3,900					24,100	
		SE-009	Koppers Drainage Ditch (intermediate sampling location)					ND		4,100	4,000		3,400				5,400			6,600					23,500	
		SE-010	Koppers Drainage Ditch (downstream of lagoons)							12,000	8,000	10,000		10,000			37,000			25,000					102,000	

**Table 3b**  
**Sediment Quality Data Summary : Detected SVOCs**  
**Cabot Carbon/Koppers Superfund Site, Gainesville, FL**

Sample Location Summary				Polyaromatic Hydrocarbons (ug/Kg)													Polyaromatic Hydrocarbons (ug/Kg) [Continued]									
Sampled By	Sample Date	Sample ID	Location Description	Data Source	Acenaphthene	Acenaphthalene	Anthracene	Benzo (a) anthracene	Benzo (a) pyrene	Benzo (b) flouranthene	Benzo (k) flouranthene	Benzo (g,h,i) perylene	Chrysene	Dibenzo (a,h) anthracene	Flouranthene	Flourene	Indeno [1,2,3-cd] pyrene	Phenanthrene	Pyrene	Naphthalene	1-Methylnaphthalene	2-Methylnaphthalene	Total PAHs <sup>a</sup>			
Hunter/ESE	Nov.88	SE-011	West of Project Jumpstart (north of former Cabot property; East of Marsh area)	2																						
		SE-012	West of Project Jumpstart (north of former Cabot property; East of Marsh area)																							
		SE-013	West of Project Jumpstart (north of former Cabot property; East of Marsh area)																							
		SE-014	West of Project Jumpstart (north of former Cabot property; East of Marsh area)																							
		SE-015	West of Project Jumpstart (north of former Cabot property; East of Marsh area)																							
Alachua County	15-Jun-94	Adjacent to Springstead 2/B	Sample of coal tar-Like material on Springstead Creek (downstream of 13th Street)	5 <sup>c</sup>																						
	7-Sep-94	Springstead 2/B	Springstead Creek (downstream of 13th Street)	4	19,000 J	31,000	18,000 J	11,000 J	ND	ND	ND	ND	12,000 J	ND	41,000	25,000 J	ND	140,000	26,000 J	61,000	NS	80,000	353,000			
	15-Aug-95	Springstead 2/B	(See Above)	5	21,000 J	36,000	21,000 J	8,900 J	ND	ND	ND	ND	10,000 J	ND	25,000 J	14,000 J	ND	120,000	20,000 J	77,000	NS	96,000	329,000			
	27-Aug-95	Springstead C	Springstead Creek (downstream of 13th Street)	5	461	ND	1,665	ND	ND	114	ND	ND	ND	ND	75	490	ND	1,009	325	530	ND	ND	4,668			
		Springstead D	Springstead Creek (upstream of 13th Street)		271	ND	1,202	ND	57	ND	ND	ND	ND	ND	ND	143	304	ND	727	257	392	ND	ND	3,352		
	29-Sep-95	Hogtown C	Hogtown Creek	5 <sup>c</sup>	2,017	ND	3,187	49	71	ND	ND	ND	ND	ND	490	1,752	1,285	ND	1,948	1,739	ND	ND	ND	12,538		
		Springstead C	(See Above)																							
		Springstead D	(See Above)																							
	23-Sep-96	Hogtown C	(See Above)	5																						
		Springstead C	(See Above)		14,850	59,400	ND	ND	ND	ND	ND	ND	ND	ND	ND	46,200	16,500	ND	66,000	9,900	62,700	44,550	59,400	379,500		
		Springstead D	(See Above)		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	18,150	ND	ND	9,900	ND	ND	ND	ND	28,050		
		Hogtown B	(See Above)		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	13,200	ND	ND	ND	ND	13,200		
	Sep.06	Hogtown C	(See Above)	6	13,200	37,950	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	64,350	9,900	33,000	33,000	42,900	234,300			
		SPRSTMAIN	Feeder Ditch (near the intersection of North main street and NE 35th Ave.)		ND	ND	ND	ND	21	31	ND	20	ND	ND	ND	ND	ND	21	ND	ND	ND	ND	ND	93		
		DERDITCHS	North Main Street Ditch (upstream of confluence with Springstead Creek)		31	ND	ND	ND	28	47	ND	24	ND	ND	ND	58	ND	28	ND	48	ND	ND	ND	264		
DERDITCHN		North Main Street Ditch (upstream of confluence with Springstead Creek)	ND		ND	ND	ND	13	23	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	36			
SPRSTRROF		Koppers Ditch Outfall	ND		160	320	430	410	1,100	320	480	620	120	730	ND	490	87	780	ND	ND	ND	ND	6,047			
SPRSTNW6		Springstead Creek (near NW 6th Street)	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
SPRSTNW13	Springstead Creek (near NW 13th Street)	ND	ND	ND	130	160	260	100	140	220	36	310	ND	140	68	270	ND	ND	ND	ND	1,834					

Note:  
Blank Cells - No data available.  
ND - Non-Detect.  
NS - Not Sampled.  
\* - Results for diluted samples.  
J - Lab Estimated value. Results reported at a value less than the quantitation limit.  
a - Total PAH value includes detected (including only the "J" qualifier) values.  
b - Maximum Reported concentration from the locations S-1, S-2 and S-3. Measurement location information not available.  
c - Samples were analyzed only for Volatile Organic Compounds.  
d - Reported as Methyl Naphthalene.

Data Sources:  
1 - EPA. November 1980.  
2 - Hunter/ESE RI Report. 1989.  
3 - IT Corp. 1987.  
4 - Alachua County DEP. 1994.  
5 - Alachua County DEP. 1994; 1995; 1996.  
6 - Alachua County DEP. 2006.

**Table 3b**  
**Sediment Quality Data Summary : Detected SVOCs**  
**Cabot Carbon/Koppers Superfund Site, Gainesville, FL**

Sample Location Summary				Other Semi-Volatile Organic Compounds (ug/Kg)											
Sampled By	Sample Date	Sample ID	Location Description	Data Source	Penta-Chloro-phenol (PCP)	Bis (2-ethylhexyl)-phthalate	Butyl Benzyl phthalate	Carba-zole	Di-n-butyl phthalate	Dibenzo-furan	Phenol	2,4-DiMethylPhenol	4-Methyl-phenol	Other SVOCs - Total	
EPA	Dec.79	CC-001	North Main Street Ditch (upstream of Northeast Lagoon)	1,2											
		CC-002	North Main Street Ditch (adjacent to former Cabot Operations)												
		CC-003	Tributary to North Main Street Ditch; background sample												
		CC-004	North Main Street Ditch (downstream of Cabot Site, just before confluence with Koppers ditch)												
		CC-005	~1mile downstream of Koppers drainage ditch confluence												
		CC-006	Hogtown Creek (~ 3 miles Southwest of Cabot/Koppers Site)												
	Nov.80	CC-001	(See Above)	1,2											
		CC-002	(See Above)												
		CC-003	(See Above)												
		CC-004	(See Above)												
		CC-005	(See Above)												
		CC-040	Hogtown Creek, ~ 75 feet upstream of Haile Sink			ND	ND	ND				ND	ND		
	1983	CC-001	(See Above)	2											
		CC-002	(See Above)												
		CC-003	(See Above)												
		CC-004	(See Above)												
		CC-005	(See Above)												
		CC-006	(See Above)												
K-1	Koppers Drainage Ditch (upstream of lagoons)														
K-2	Koppers Drainage Ditch (near the northern Kopper Boundary)		10,000												
FDER/FLDEP	1986	S-1; S-2; S-3 <sup>b</sup>	Near the North Main Street Ditch and 28th Ave. Intersection	2								830,000			
IT	1987	ITS-1	North Main Street Ditch (upstream of Northeast Lagoon)	3	ND	ND	ND		ND		ND	ND		ND	
		ITS-2	North Main Street Ditch (downstream of Northeast Lagoon)		ND	1,100	ND		< 1,000		ND	ND		1,100	
		ITS-3	Tributary to the North Main Street Ditch; background sample		ND	ND	ND		< 1,000		ND	ND		ND	
		ITS-4	North Main Street Ditch ( in section of ditch located north of former Cabot Property)		ND	ND	ND		< 1,000		2,500	< 1,000		2,500	
		ITS-5	North Main Street Ditch ( in section of ditch located north of former Cabot Property)		ND	ND	ND		< 1,000		ND	ND		ND	
		ITS-6	Koppers Drainage Ditch (upstream of lagoons)		ND	1,100	1,200		< 1,000		ND	ND		2,300	
		ITS-7	Koppers Drainage Ditch (near NE Koppers Boundary)		ND	ND	ND		< 1,000		ND	ND		ND	
		ITS-8	Stormwater Retention Pond in the NW corner of the Cabot Site		ND	ND	ND		< 1,000		ND	ND		ND	
		ITS-9	Feeder ditch (East of North Main Street Ditch and Springstead Creek Confluence)		ND	ND	ND		ND		ND	ND		ND	
Hunter/ESE	Nov.88	SE-001	North Main Street Ditch (upstream of Northeast Lagoon)	2	ND						ND	ND			
		SE-002	North Main Street Ditch (adjacent to former Cabot Operations)		ND						ND	ND			
		SE-003	North main street Ditch (upstream of Project Jumpstart)		ND						ND	ND			
		SE-004	North main street Ditch (downstream of Project Jumpstart)		ND						ND	ND			
		SE-005	North main street Ditch (downstream of Project Jumpstart & SW-004)		ND						ND	ND			
		SE-006	Koppers Drainage Ditch (upstream of lagoons)												
		SE-007	Koppers Drainage Ditch (intermediate sampling location)												
		SE-008	Koppers Drainage Ditch (intermediate sampling location)												
		SE-009	Koppers Drainage Ditch (intermediate sampling location)												
		SE-010	Koppers Drainage Ditch (downstream of lagoons)												

**Table 3b**  
**Sediment Quality Data Summary : Detected SVOCs**  
**Cabot Carbon/Koppers Superfund Site, Gainesville, FL**

Sample Location Summary				Other Semi-Volatile Organic Compounds (ug/Kg)										Other SVOCs - Total	
Sampled By	Sample Date	Sample ID	Location Description	Data Sources	Penta-Chloro-phenol (PCP)	Bis (2-ethylhexyl)-phthalate	Butyl Benzyl phthalate	Carbazole	Di-n-butyl phthalate	Dibenzo-furan	Phenol	2,4-DiMethylPhenol	4-Methyl-phenol		
Hunter/ESE	Nov.88	SE-011	West of Project Jumpstart (north of former Cabot property; East of Marsh area)	2		ND									
		SE-012	West of Project Jumpstart (north of former Cabot property; East of Marsh area)			1.2									
		SE-013	West of Project Jumpstart (north of former Cabot property; East of Marsh area)			1.3									
		SE-014	West of Project Jumpstart (north of former Cabot property; East of Marsh area)			1.2									
		SE-015	West of Project Jumpstart (north of former Cabot property; East of Marsh area)			ND									
Alachua County	15-Jun-94	Adjacent to Springstead 2/B	Sample of coal tar-Like material on Springstead Creek (downstream of 13th Street)	5 <sup>c</sup>											
	7-Sep-94	Springstead 2/B	Springstead Creek (downstream of 13th Street)	4	ND	ND	ND	ND	ND	21,000 J	ND	ND	9,900 J		
	15-Aug-95	Springstead 2/B	(See Above)	5	ND	ND	ND	ND	ND	22,000 J	ND	27,000 J	ND		
	27-Aug-95	Springstead C	Springstead Creek (downstream of 13th Street)	5	ND	ND			647	ND	ND	ND	ND	ND	
		Springstead D	Springstead Creek (upstream of 13th Street)		ND	212			239	ND	ND	ND	ND	ND	
	29-Sep-95	Hogtown C	Hogtown Creek	5 <sup>c</sup>	ND	ND			ND	ND	ND	ND	ND	ND	
		Springstead C	(See Above)												
		Springstead D	(See Above)												
	23-Sep-96	Hogtown C	(See Above)	5	ND	ND	ND		ND	ND	ND	ND	24,750	ND	
		Springstead C	(See Above)		ND	ND	ND		ND	ND	ND	ND	ND	ND	
		Springstead D	(See Above)		ND	ND	ND		ND	ND	ND	ND	ND	ND	
		Hogtown B	(See Above)		ND	ND	ND		ND	ND	ND	ND	ND	ND	
	Sep.06	Hogtown C	(See Above)	6	ND	ND	ND		ND	ND	ND	ND	ND	ND	
		SPRSTMAIN	Feeder Ditch (near the intersection of North main street and NE 35th Ave.)		ND	29	ND	ND	ND	ND	ND	ND	ND	ND	29
DERDITCHS		North Main Street Ditch (upstream of confluence with Springstead Creek)	ND		57	ND	ND	ND	ND	ND	ND	ND	ND	57	
DERDITCHN		North Main Street Ditch (upstream of confluence with Springstead Creek)	ND		43	ND	ND	ND	ND	ND	ND	ND	ND	43	
SPRSTRROF		Koppers Ditch Outfall	280		32	ND	96	ND	ND	ND	ND	ND	ND	408	
SPRSTNW6		Springstead Creek (near NW 6th Street)	ND		33	ND	ND	ND	ND	ND	ND	ND	ND	33	
SPRSTNW13	Springstead Creek (near NW 13th Street)	ND	100	ND	ND	ND	ND	ND	ND	ND	ND	100			

Note:  
Blank Cells - No data available.  
ND - Non-Detect.  
NS - Not Sampled.  
\* - Results for diluted samples.  
J - Lab Estimated value. Results reported at a value less than the quantitation limit.  
a - Total PAH value includes detected (including only the "T" qualifier) values.  
b - Maximum Reported concentration from the locations S-1, S-2 and S-3. Measurement location information  
c - Samples were analyzed only for Volatile Organic Compounds.  
d - Reported as Methyl Naphthalene.

Data Sources:  
1 - EPA. November 1980.  
2 - Hunter/ESE RI Report. 1989.  
3 - IT Corp. 1987.  
4 - Alachua County DEP. 1994.  
5 - Alachua County DEP. 1994; 1995; 1996.  
6 - Alachua County DEP. 2006.

**Table 4a**  
**Surface Water Quality Data Summary : Selected Metals and VOCs**  
**Cabot Carbon/Koppers Superfund Site, Gainesville, FL**

Sampled By	Sample Date	Sample Location Summary			Data Sources	Select Metals (ug/L)			Volatile Organic Compounds (ug/l)						
		Sample ID/ Area	Location Description			Arsenic	Chromium	Copper	Benzene	Carbon disulfide	Chloro-form	Ethyl-benzene	Tetrachloro-ethylene (PCE)	Toluene	trans-1,2-DCE
Florida State Health Board	1961	Station-1	Springstead Creek (NW of Koppers Boundary)	7	0.0	0.0									
		Station-2	Koppers Company Lagoon No.1 effluent line		1.1	0.03									
		Station-3	Koppers Company Lagoon No.2 effluent into Springstead Creek		0.38	0.10									
		Station-4	Hogtown Creek at Jackson Rd. Bridge (near the NE 23rd intersection)		0.13	0.0									
Alachua County Pollution Board	1977 - 1978: (during K-Mart construction)	3	K-Mart (former Cabot) stormwater pond discharge into the North Main Street Drainage Ditch	7											
		4a	Former Cabot Lagoons												
		4d	Manhole -1 [K-Mart (former Cabot) stormwater pond storm sewer, groundwater infiltration]												
		4e	Manhole -2 [K-Mart (former Cabot) stormwater pond storm sewer, groundwater infiltration]												
		6	North Main Street Drainage Ditch (downstream of Project Jumpstart)												
		7	Tributary to North Main Street Ditch; background sample												
		8	Extension of the North Main Street Ditch (upstream of confluence with Springstead Creek)												
		1978 - 1980: (Quarterly Sampling, Post K-Mart Construction)	1		Beginning of North Main Street Ditch [background sample]	10									
	2	25 - 150 yards upstream from K-Mart (former Cabot) stormwater discharge into the North Main Street Ditch													
	3	(See Above); Post-construction													
	4a	(See Above); Post-construction													
	4b	Chevrolet Dealer (former Cabot) Retention Pond (primarily surface water runoff)													
	4c	NE 28th place (north of (former Cabot) retention pond (site groundwater dewatering))													
	5	5 - 100 yards downstream of K-Mart (former Cabot) stormwater pond discharge into the Main Street Drainage Ditch													
	6	(See Above); Post-construction													
7	(See Above); Post-construction														
8	(See Above); Post-construction														
9	Springstead Creek (NW 6th Street)														
10	Springstead Creek (NW 13th Street)														
11	Hogtown Creek (upstream of NW 23rd Ave. intersection)														
12	Hogtown Creek (Between NW 16th Rd and NW 8th Ave.)														
13	Hogtown Creek (Spillway at the intersection of NW 34th street and University Ave.)														
14	Hogtown Creek (near SW 20th Ave.)														
15	Haile Sink (West of I-75)														

**Table 4a**  
**Surface Water Quality Data Summary : Selected Metals and VOCs**  
**Cabot Carbon/Koppers Superfund Site, Gainesville, FL**

Sampled By	Sample Location Summary				Select Metals (ug/L)			Volatile Organic Compounds (ug/l)									
	Sample Date	Sample ID/ Area	Location Description	Data Sources	Arsenic	Chromium	Copper	Benzene	Carbon disulfide	Chloro-form	Ethyl-benzene	Tetrachloro-ethylene (PCE)	Toluene	trans-1,2-DCE	Total VOCs <sup>a</sup>		
EPA	Dec.79	CC-001	North Main Street Ditch (upstream of Northeast Lagoon)	1,2,9								13					
		CC-002	North Main Street Ditch (adjacent to former Cabot Operations)														
		CC-003	Tributary to North Main Street Ditch; background sample														
		CC-004	North Main Street Ditch (downstream of Cabot Site, just before confluence with Koppers ditch)						11			6.3	< 5	27			
		CC-005	~1mile downstream of Koppers drainage ditch confluence														
		CC-006	Hogtown Creek (~ 3 miles Southwest of Cabot/Koppers Site)														
	Nov.80	CC-001	(See Above)		1,2												
		CC-002	(See Above)														
		CC-003	(See Above)														
		CC-004	(See Above)														
		CC-005	(See Above)														
		CC-006	(See Above)														
	1983	CC-040	Hogtown Creek, ~ 75 feet upstream of Haile Sink		2				ND		ND	ND	ND	ND	ND	ND	
		CC-001	(See Above)											9.1			
		CC-002	(See Above)														
		CC-003	(See Above)														
		CC-004	(See Above)														
		CC-005	(See Above)														
Koppers	Aug.84	S-1	Koppers Drainage Ditch (upstream of lagoons)	2,3	2.8	<7	7.5										
		S-2	Koppers Drainage Ditch [near the northern Kopper Boundary]		78	<7	<3										
		S-3	North Main Street Ditch (immediately upstream of the Koppers Ditch and North Main Street Ditch confluence)		<1	<7	<3										
		S-4	Koppers Drainage Ditch (intermediate sampling location)		730	890	432										
		S-5	Koppers Drainage Ditch (intermediate sampling location)		74	19	8.7										
	Sep.84	S-3	(See Above)	2,3	1.8	<4	<3										
IT	1987	ITS-1	North Main Street Ditch (upstream of Northeast Lagoon)	3	<2	<10	4	ND		ND	ND	<10	ND	<10	ND		
		ITS-2	North Main Street Ditch (downstream of Northeast Lagoon)		<1	<10	2	10		ND	14	<10	71	<10	95		
		ITS-3	Tributary to North Main Street Ditch; background sample		<2	<10	4	ND		ND	ND	ND	ND	ND	ND		
		ITS-4	North Main Street Ditch ( in section of ditch located north of former Cabot Property)		<2	<10	4	<10		ND	<10	<10	30	10	40		
		ITS-5	North Main Street Ditch ( in section of ditch located north of former Cabot Property)		<2	<10	<4	<10		ND	<10	<10	28	ND	28		
		ITS-6	Koppers Drainage Ditch (upstream of lagoons)		<2	<10	3	ND		<10	ND	ND	ND	ND	ND		
		ITS-7	Koppers Drainage Ditch (near NE Koppers Boundary)		<166	<10	4	ND		ND	ND	ND	ND	ND	ND		
		ITS-8	Stormwater Retention Pond in the NW corner of the Cabot Site		<1	<10	2	ND		ND	ND	ND	ND	ND	ND		
		ITS-9	Feeder ditch (East of North Main Street Ditch and Springstead Creek Confluence)		<2	<10	6	ND		ND	ND	ND	ND	ND	ND		

**Table 4a**  
**Surface Water Quality Data Summary : Selected Metals and VOCs**  
**Cabot Carbon/Koppers Superfund Site, Gainesville, FL**

Sample Location Summary					Select Metals (ug/L)			Volatile Organic Compounds (ug/l)							
Sampled By	Sample Date	Sample ID/ Area	Location Description	Data Sources	Arsenic	Chromium	Copper	Benzene	Carbon di-sulfide	Chloro-form	Ethyl-benzene	Tetrachloro-ethylene (PCE)	Toluene	trans-1,2-DCE	Total VOCs <sup>a</sup>
Hunter/ESE	Nov.88	SW-001	North Main Street Ditch (upstream of Northeast Lagoon)	2		12.9					ND				2.3
		SW-002	North Main Street Ditch (adjacent to former Cabot Operations)			13.4					44 <sup>b</sup>				610
		SW-003	North main street Ditch (upstream of Project Jumpstart)			10					ND				675
		SW-004	North main street Ditch (downstream of Project Jumpstart)			ND					ND				550
		SW-005	North main street Ditch (downstream of Project Jumpstart & SW-004)			ND					ND				372
		SW-006	Springstead Creek (immediately downstream of Kopper ditch and Creek Confluence)			ND					ND				
Weston	Apr.05 and Jun.05	SW-1	Tributary to North Main Street Ditch; background sample	11 <sup>c</sup>											
		SW-2	North Main Street Ditch ( in section of ditch located north of former Cabot Property)												
Alachua County	Sep.06	DERDITCHS	North Main Street Ditch (upstream of confluence with Springstead Creek)	6	ND	0.87	ND	0.24	ND	ND	ND	ND	ND	ND	0.24
		DERDITCHN	North Main Street Ditch (Upstream of confluence with Springstead Creek)		ND	0.80	ND	ND	1.9	ND	ND	ND	ND	ND	1.9

Note:

Blank Cells - No data available.

ND - Non-Detect.

a - Total VOC includes only the detected (does not include the lab estimated values) values.

b - Tentatively Identified Compound.

c - Analyzed only for select PAHs and phenolic compounds.

Data Sources:

1 - EPA. November 1980.

2 - Hunter/ESE RI Report. 1989.

3 - IT Corp. 1987.

4 - Alachua County DEP. 1994.

5 - Alachua County DEP. 1994; 1995; 1996.

6 - Alachua County DEP. 2006.

7 - Bureau of Sanitary Engineering, FL State Health Board, 1965?.

8 - Weston. 1993.

9 - Memo to Bill Buzick from Sam Johnson, April 30, 1980.

10 - Alachua County Pollution Control District, 1980??.

11 - Weston. 2005.

**Table 4b**  
**Surface Water Quality Data Summary : Detected SVOCs**  
**Cabot Carbon/Koppers Superfund Site, Gainesville, FL**

Sampled By	Sample Date	Sample Location Summary			Data Sources	Polyaromatic Hydrocarbons (ug/L)								
		Sample ID/ Area	Location Description			Acenap-thene	Acenap-thalene	Anthra-cene	Chrysene	Flouran-thene	Flourene	Naph-thalene	Phenan-threne	Pyrene
Florida State Health	1961	Station-1	Springstead Creek (NW of Koppers Boundary)	7										
		Station-2	Koppers Company Lagoon No.1 effluent line											
		Station-3	Koppers Company Lagoon No.2 effluent into Springstead Creek											
		Station-4	Hogtown Creek at Jackson Rd. Bridge (near the NE 23rd intersection)											
Alachua County Pollution Board	1977 - 1978 (during K-Mart Construction)	3	K-Mart (former Cabot) stormwater pond discharge into the North Main Street Drainage Ditch											
		4a	Former Cabot Lagoons											
		4d	Manhole -1 [K-Mart (former Cabot) stormwater pond storm sewer, groundwater infiltration]											
		4e	Manhole -2 [K-Mart (former Cabot) stormwater pond storm sewer, groundwater infiltration]											
		6	North Main Street Drainage Ditch (downstream of Project Jumpstart)											
		7	Tributary to North Main Street Ditch; background sample											
		8	Extension of the North Main Street Ditch (upstream of confluence with Springstead Creek)											
		(Quarterly Sampling Post K-Mart construction)	1978 - 1980		1	Beginning of North Main Street Ditch [background sample]	10							
2	25 - 150 yards upstream from K-Mart (former Cabot) stormwater discharge into the North Main Street Ditch													
3	(See Above); Post-construction													
4a	(See Above); Post-construction													
4b	Chevrolet Dealer (former Cabot) Retention Pond (primarily surface water runoff)													
4c	NE 28th place (north of (former Cabot) retention pond (site groundwater dewatering)													
5	5 - 100 yards downstream of K-Mart (former Cabot) stormwater pond discharge into the Main Street Drainage Ditch													
6	(See Above); Post-construction													
7	(See Above); Post-construction													
8	(See Above); Post-construction													
9	Springstead Creek (NW 6th Street)													
10	Springstead Creek (NW 13th Street)													
11	Hogtown Creek (upstream of NW 23rd Ave. intersection)													
12	Hogtown Creek (Between NW 16th Rd and NW 8th Ave.)													
13	Hogtown Creek (Spillway at the intersection of NW 34th street and University Ave.)													
14	Hogtown Creek (near SW 20th Ave.)													
15	Haile Sink (West of I-75)													



**Table 4b**  
**Surface Water Quality Data Summary : Detected SVOCs**  
**Cabot Carbon/Koppers Superfund Site, Gainesville, FL**

Sampled By	Sample Date	Sample Location Summary			Data Sources	Polycyclic Aromatic Hydrocarbons (ug/L)												
		Sample ID/ Area	Location Description			Acenap- thene	Acenap- thalene	Anthra- cene	Chrysene	Flouren- thene	Flourene	Naph- thalene	Phenan- threne	Pyrene	Total PAHs <sup>a</sup>			
EPA	Dec.79	CC-001	North Main Street Ditch (upstream of Northeast Lagoon)	1,2,9														
		CC-002	North Main Street Ditch (adjacent to former Cabot Operations)															
		CC-003	Tributary to North Main Street Ditch; background sample															
		CC-004	North Main Street Ditch (downstream of Cabot Site, just before confluence with Koppers ditch)			<50	<50			<50		<50						ND
		CC-005	~1mile downstream of Koppers drainage ditch confluence															
		CC-006	Hogtown Creek (~ 3 miles Southwest of Cabot/Koppers Site)															
	Nov.80	CC-001	(See Above)		1,2													
		CC-002	(See Above)															
		CC-003	(See Above)															
		CC-004	(See Above)															
		CC-005	(See Above)															
		CC-006	(See Above)															
	1983	CC-040	Hogtown Creek, ~ 75 feet upstream of Haile Sink		2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
		CC-001	(See Above)															
		CC-002	(See Above)															
		CC-003	(See Above)															
		CC-004	(See Above)					4					30					
		CC-005	(See Above)															
Koppers	Aug.84	S-1	Koppers Drainage Ditch (upstream of lagoons)	2,3												8,000 - 10,000 <sup>e</sup>		
		S-2	Koppers Drainage Ditch [near the northern Kopper Boundary]												10,000 - 33,000 <sup>e</sup>			
		S-3	North Main Street Ditch (immediately upstream of the Koppers Ditch and North Main Street Ditch confluence)													9,000 - 11,000 <sup>e</sup>		
		S-4	Koppers Drainage Ditch (intermediate sampling location)															
		S-5	Koppers Drainage Ditch (intermediate sampling location)															
IT	1987	S-3	(See Above)	2,3							14					24		
		ITS-1	North Main Street Ditch (upstream of Northeast Lagoon)		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
		ITS-2	North Main Street Ditch (downstream of Northeast Lagoon)		< 10	ND	ND	ND	ND	ND	ND	14	ND	ND	ND	14		
		ITS-3	Tributary to North Main Street Ditch; background sample		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
		ITS-4	North Main Street Ditch ( in section of ditch located north of former Cabot Property)		< 10	ND	ND	ND	ND	ND	ND	< 10	ND	ND	ND	ND		
		ITS-5	North Main Street Ditch ( in section of ditch located north of former Cabot Property)		< 10	ND	ND	ND	ND	ND	ND	14	ND	ND	ND	14		
		ITS-6	Koppers Drainage Ditch (upstream of lagoons)		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
		ITS-7	Koppers Drainage Ditch (near NE Koppers Boundary)		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
		ITS-8	Stormwater Retention Pond in the NW corner of the Cabot Site		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
		ITS-9	Feeder ditch (East of North Main Street Ditch and Springstead Creek Confluence)		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
Hunter/ ESE	Nov.88	SW-001	North Main Street Ditch (upstream of Northeast Lagoon)	2	ND						ND					ND		
		SW-002	North Main Street Ditch (adjacent to former Cabot Operations)		7.2							35 <sup>c</sup>				42		
		SW-003	North main street Ditch (upstream of Project Jumpstart)		6.0 <sup>c</sup>							35 <sup>c</sup>				41		
		SW-004	North main street Ditch (downstream of Project Jumpstart)		5.5 <sup>c</sup>							38 <sup>c</sup>				44		
		SW-005	North main street Ditch (downstream of Project Jumpstart & SW-004)		3.8 <sup>c</sup>							28 <sup>c</sup>				32		
		SW-006	Springstead Creek (immediately downstream of Kopper ditch and Creek Confluence)		3.0						2.0	1.5					7	

**Table 4b**  
**Surface Water Quality Data Summary : Detected SVOCs**  
**Cabot Carbon/Koppers Superfund Site, Gainesville, FL**

Sample Location Summary					Polyaromatic Hydrocarbons (ug/L)									
Sampled By	Sample Date	Sample ID/ Area	Location Description	Data Sources	Acenap- thene	Acenap- thalene	Anthra- cene	Chrysen- e	Flouren- thene	Flourene	Naph- thalene	Phenan- threne	Pyrene	Total PAHs <sup>a</sup>
Weston	Apr.05	SW-1	Tributary to North Main Street Ditch; background sample	11 <sup>d</sup>	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
		SW-2	North Main Street Ditch ( in section of ditch located north of former Cabot Property)		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Jun.05	SW-1	Tributary to North Main Street Ditch; background sample	11 <sup>d</sup>	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
		SW-2	North Main Street Ditch ( in section of ditch located north of former Cabot Property)		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Alachua County	Sep.06	DERDITCHS	North Main Street Ditch (upstream of confluence with Springstead Creek)	6	0.95	ND	ND	ND	ND	ND	ND	ND	ND	0.95
		DERDITCHN	North Main Street Ditch (Upstream of confluence with Springstead Creek)		0.71	ND	ND	ND	ND	ND	ND	ND	ND	0.71

Note:

Blank Cells - No data available.

ND - Non-Detect.

J - Lab Estimated value. Results reported at a value less than the quantitation limit.

a - Total includes detected (including only the "I" qualifier) values.

b - Sum of individual phenolic compounds.

c - Tentatively identified compounds and values estimated from the Graph: Hunter/ESE, 1989.

d - Analyzed only for select PAHs and phenolic compounds.

e - Individual compound values were not reported for the sample.

Data Sources:

1 - EPA. November 1980.

2 - Hunter/ESE RI Report. 1989.

3 - IT Corp. 1987.

4 - Alachua County DEP. 1994.

5 - Alachua County DEP. 1994; 1995; 1996.

6 - Alachua County DEP. 2006.

7 - Bureau of Sanitary Engineering, FL State Health Board, 1965?.

8 - Weston. 1993.

9 - Memo to Bill Buzick from Sam Johnson, April 30, 1980.

10 - Alachua County Pollution Control District, 1980??.

11 - Weston. 2005.

**Table 4b**  
**Surface Water Quality Data Summary : Detected SVOCs**  
**Cabot Carbon/Koppers Superfund Site, Gainesville, FL**

Sampled By	Sample Date	Sample Location Summary			Data Sources	Other Semi-Volatile Organic Compounds [ug/l]											Terpenes and Terpenoids						
		Sample ID/ Area	Location Description			Penta-Chloro-phenol (PCP)	Bis (2-ethylhexyl)-phthalate	Di-n-butyl-phthalate	Di-n-octyl-phthalate	N-Nitroso-diphenyl-amine	Phenol	2,4-DiMethyl-Phenol	2-Chloro-phenol	2,4-Dichloro-phenol	2,4-Dinitro-phenol	2,4,6-Trichloro-phenol	Phenols <sup>b</sup>	Other SVOCs Total <sup>a</sup>	Camphor <sup>c</sup>	Cineole (reported as 1,8 Cineole) <sup>c</sup>	Terpenes	$\alpha$ -Terpineol <sup>c</sup>	
Florida State Health	1961	Station-1	Springstead Creek (NW of Koppers Boundary)	7						0.0													
		Station-2	Koppers Company Lagoon No.1 effluent line								5,500												
		Station-3	Koppers Company Lagoon No.2 effluent into Springstead Creek								2.0												
		Station-4	Hogtown Creek at Jackson Rd. Bridge (near the NE 23rd intersection)								0.0												
Alachua County Pollution Board	1977 - 1978 (during K-Mart Construction)	3	K-Mart (former Cabot) stormwater pond discharge into the North Main Street Drainage Ditch	10						500 - 18,000													
		4a	Former Cabot Lagoons							30 - 90													
		4d	Manhole -1 [K-Mart (former Cabot) stormwater pond storm sewer, groundwater infiltration]								8,000 - 12,000												
		4e	Manhole -2 [K-Mart (former Cabot) stormwater pond storm sewer, groundwater infiltration]								7,900 - 15,200												
		6	North Main Street Drainage Ditch (downstream of Project Jumpstart)								3,200												
		7	Tributary to North Main Street Ditch; background sample								40												
		8	Extension of the North Main Street Ditch (upstream of confluence with Springstead Creek)								0												
		1978 - 1980 (Quarterly Sampling Post K-Mart construction)	1		Beginning of North Main Street Ditch [background sample]								< 5 - 40										
	2		25 - 150 yards upstream from K-Mart (former Cabot) stormwater discharge into the North Main Street Ditch								60 - 962												
	3		(See Above); Post-construction								700 - 11,200												
	4a		(See Above); Post-construction								0 - 24												
	4b		Chevrolet Dealer (former Cabot) Retention Pond (primarily surface water runoff)								23,824												
	4c		NE 28th place (north of (former Cabot) retention pond (site groundwater dewatering)								10,905												
	5		5 - 100 yards downstream of K-Mart (former Cabot) stormwater pond discharge into the Main Street Drainage Ditch								620 - 6,250												
	6	(See Above); Post-construction								1,676 - 2,114													
7	(See Above); Post-construction								< 5 - 6														
8	(See Above); Post-construction								957 - 1,980														
9	Springstead Creek (NW 6th Street)								437 - 542														
10	Springstead Creek (NW 13th Street)								45 - 113														
11	Hogtown Creek (upstream of NW 23rd Ave. intersection)								0 - 29														
12	Hogtown Creek (Between NW 16th Rd and NW 8th Ave.)								0														
13	Hogtown Creek (Spillway at the intersection of NW 34th street and University Ave.)								0 - 70														
14	Hogtown Creek (near SW 20th Ave.)								0														
15	Haile Sink (West of I-75)								< 5 - 18														

**Table 4b**  
**Surface Water Quality Data Summary : Detected SVOCs**  
**Cabot Carbon/Koppers Superfund Site, Gainesville, FL**

Sampled By	Sample Date	Sample Location Summary			Data Sources	Other Semi-Volatile Organic Compounds [ug/l]											Terpenes and Terpenoids									
		Sample ID/ Area	Location Description			Penta-Chloro-phenol (PCP)	Bis (2-ethylhexyl)-phthalate	Di-n-butyl-phthalate	Di-n-octyl-phthalate	N-Nitroso-diphenyl-amine	Phenol	2,4-DiMethyl-Phenol	2-Chloro-phenol	2,4-Dichloro-phenol	2,4-Dinitro-phenol	2,4,6-Trichloro-phenol	Phenols <sup>b</sup>	Other SVOCs Total <sup>a</sup>	Camphor <sup>c</sup>	Cineole (reported as 1,8 Cineole) <sup>c</sup>	Terpenes	$\alpha$ -Terpineol <sup>c</sup>				
EPA	Dec.79	CC-001	North Main Street Ditch (upstream of Northeast Lagoon)	1,2,9						< 5																
		CC-002	North Main Street Ditch (adjacent to former Cabot Operations)								1,500															
		CC-003	Tributary to North Main Street Ditch; background sample								< 5															
		CC-004	North Main Street Ditch (downstream of Cabot Site, just before confluence with Koppers ditch)				ND				1,015	160		ND	ND	ND	1,200 J	1,175								
		CC-005	~1mile downstream of Koppers drainage ditch confluence								113															
		CC-006	Hogtown Creek (~ 3 miles Southwest of Cabot/Koppers Site)								70															
	Nov.80	CC-001	(See Above)		1,2						< 20															
		CC-002	(See Above)								4,100															
		CC-003	(See Above)								< 20															
		CC-004	(See Above)								3,450															
		CC-005	(See Above)																							
		CC-006	(See Above)																							
		CC-040	Hogtown Creek, ~ 75 feet upstream of Haile Sink				ND					ND	ND													
	1983	CC-001	(See Above)		2		400		11																	
		CC-002	(See Above)																							
		CC-003	(See Above)																							
		CC-004	(See Above)									120	180									70				
		CC-005	(See Above)																							
CC-006		(See Above)																								
K-2	Koppers Drainage Ditch (near the northern Kopper Boundary)																					60 <sup>e</sup>				
Koppers	Aug.84	S-1	Koppers Drainage Ditch (upstream of lagoons)	2,3	4					> 10												14				
		S-2	Koppers Drainage Ditch [near the northern Kopper Boundary]								> 10												12			
		S-3	North Main Street Ditch (immediately upstream of the Koppers Ditch and North Main Street Ditch confluence)									2,000 - 3,000												380		
		S-4	Koppers Drainage Ditch (intermediate sampling location)									380												43		
		S-5	Koppers Drainage Ditch (intermediate sampling location)									13												41		
	Sep.84	S-3	(See Above)	2,3	14						352	160	10	46								750				
IT	1987	ITS-1	North Main Street Ditch (upstream of Northeast Lagoon)	3	ND	ND	ND		ND	ND	ND			ND	ND	900	900									
		ITS-2	North Main Street Ditch (downstream of Northeast Lagoon)							ND	78	14			ND	ND	960	960								
		ITS-3	Tributary to North Main Street Ditch; background sample								ND	ND	ND			ND	ND	< 10	ND							
		ITS-4	North Main Street Ditch ( in section of ditch located north of former Cabot Property)							1,100	ND	ND				130	96	900	2,000							
		ITS-5	North Main Street Ditch ( in section of ditch located north of former Cabot Property)							ND	ND	< 10				ND		800	800							
		ITS-6	Koppers Drainage Ditch (upstream of lagoons)							ND	ND	ND				ND		< 10	ND							
		ITS-7	Koppers Drainage Ditch (near NE Koppers Boundary)							ND	ND	ND				ND		< 10	ND							
		ITS-8	Stormwater Retention Pond in the NW corner of the Cabot Site							ND	ND	< 10				ND		< 10	ND							
		ITS-9	Feeder ditch (East of North Main Street Ditch and Springstead Creek Confluence)							ND	ND	ND				ND		10	10							
Hunter/ESE	Nov.88	SW-001	North Main Street Ditch (upstream of Northeast Lagoon)	2		2.4				ND	ND					ND		ND	ND			ND	ND			
		SW-002	North Main Street Ditch (adjacent to former Cabot Operations)								180	c	245	c			1,061	c	910	ND			81			
		SW-003	North main street Ditch (upstream of Project Jumpstart)								250		425	c			1,725	c	ND	ND			160			
		SW-004	North main street Ditch (downstream of Project Jumpstart)								250		430				2,666	c	1,800	74			170			
		SW-005	North main street Ditch (downstream of Project Jumpstart & SW-004)								225	c	340	c			1,404	c	1,100	93			96			
		SW-006	Springstead Creek (immediately downstream of Kopper ditch and Creek Confluence)									ND		25	c			78	c	29	ND			20		

**Table 4b**  
**Surface Water Quality Data Summary : Detected SVOCs**  
**Cabot Carbon/Koppers Superfund Site, Gainesville, FL**

Sample Location Summary				Other Semi-Volatile Organic Compounds [ug/l]													Terpenes and Terpenoids						
Sampled By	Sample Date	Sample ID/ Area	Location Description	Data Sources	Penta-Chloro-phenol (PCP)	Bis (2-ethylhexyl)-phthalate	Di-n-butyl-phthalate	Di-n-octyl-phthalate	N-Nitroso-diphenyl-amine	Phenol	2,4-DiMethyl-Phenol	2-Chloro-phenol	2,4-Dichloro-phenol	2,4-Dinitro-phenol	2,4,6-Trichloro-phenol	Phenols <sup>b</sup>	Other SVOCs Total <sup>a</sup>	Camphor <sup>c</sup>	Cineole (reported as 1,8 Cineole) <sup>c</sup>	Terpenes	$\alpha$ -Terpineol <sup>c</sup>		
Weston	Apr.05	SW-1	Tributary to North Main Street Ditch; background sample	11 <sup>d</sup>																			
		SW-2	North Main Street Ditch ( in section of ditch located north of former Cabot Property)																				
	Jun.05	SW-1	Tributary to North Main Street Ditch; background sample	11 <sup>d</sup>	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND						
		SW-2	North Main Street Ditch ( in section of ditch located north of former Cabot Property)		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND					
Alachua County	Sep.06	DERDITCHS	North Main Street Ditch (upstream of confluence with Springstead Creek)	6	ND	1.3	ND	ND	ND	ND	ND	ND	ND	ND	ND		1.3						
		DERDITCHN	North Main Street Ditch (Upstream of confluence with Springstead Creek)		ND	2.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		2.7					

Note:  
Blank Cells - No data available.  
ND - Non-Detect.  
J - Lab Estimated value. Results reported at a value less than the quantitation limit.  
a - Total includes detected (including only the "I" qualifier) values.  
b - Sum of individual phenolic compounds.  
c - Tentatively identified compounds and values estimated from the Graph: Hunter/ESE, 1989.  
d - Analyzed only for select PAHs and phenolic compounds.  
e - Individual compound values were not reported for the sample.

Data Sources:  
1 - EPA. November 1980.  
2 - Hunter/ESE RI Report. 1989.  
3 - IT Corp. 1987.  
4 - Alachua County DEP. 1994.  
5 - Alachua County DEP. 1994; 1995; 1996.  
6 - Alachua County DEP. 2006.  
7 - Bureau of Sanitary Engineering, FL State Health Board, 1965??.  
8 - Weston. 1993.  
9 - Memo to Bill Buzick from Sam Johnson, April 30, 1980.  
10 - Alachua County Pollution Control District, 1980??.  
11 - Weston. 2005.

**Table 5a**  
**Summary of Upper Bound Exposure Point Concentrations**  
**1990 Hunter/ESE Risk Assessment**  
**Cabot Carbon/Koppers Superfund Site, Gainesville, FL**

Constituent	North Main Street Ditch			Springstead Creek	
	Sediment	Surface Water		Sediment*	Surface Water**
	Dermal Contact/ Ingestion (ug/Kg)	Dermal Contact/ Ingestion (ug/L)	Inhalation (ug/m <sup>3</sup> )	Dermal Contact/ Ingestion (ug/Kg)	Dermal Contact/ Ingestion (ug/L)
Arsenic	160	1	NA	50,500	78
Chromium (VI)	2,300	13.4	NA	172,000	NA
Total potentially carcinogenic PAHs	2,000	NA	NA	43,000	5
Total non-carcinogenic PAHs	11,100	7.2	2.26E-03	68,600	7.6
Naphthalene	8,900	38	1.42E-02	NA	14
Pentachlorophenol	NA	NA	NA	NA	53
Phenol	NA	250	2.97E-03	NA	352
Benzene	42	10	NA	NA	NA

*Note:*

*NA - Not Applicable.*

*\* - Based on concentrations measured in sediment samples SE-007 to SE-010, collected from the Koppers Drainage Ditch.*

*\*\* - The inhalation pathway was not evaluated at Springstead Creek, since no volatile constituents were present in the surface water sample collected in 1989.*

**Table 5b**  
**Summary of Key Exposure Factors**  
**1990 Hunter/ESE Risk Assessment**  
**Cabot Carbon/Koppers Superfund Site, Gainesville, FL**

Exposure Pathway/Exposure Factor	Adolescent Recreator (7-13 yrs)	
	Value	Comments
<b>General Assumptions</b>		
Body Weight (kg)	35	Average body weight (Anderson <i>et al.</i> , 1985)
Exposure Duration (yr)	6	Assumes 6 years as a child in same neighborhood
Averaging Period - Cancer (days)	25,550	70-year lifetime * 365 days/year
Averaging Period - Noncancer (days)	2,190	Exposure Duration * 365 days/year
<b>Key Parameters used for North Main Street Ditch</b>		
<b>Dermal Contact with Ditch Sediments</b>		
Skin Surface Area Exposed per Event (cm <sup>2</sup> /event)	2,350	25% of average total skin area of a child/event (EPA, 1988a)
Fraction exposed to contaminated sediments	0.5	Assumes child is in direct contact with sediment 50% of the time
Sediment/Skin Adherence Factor (mg/cm <sup>2</sup> )	1	Sandy nature of the site sediment
Sediment Dermal Exposure Frequency (events/yr)	10	
<b>Ingestion of Ditch Sediments</b>		
Sediment Ingestion Rate (mg/day)	100	Incidental ingestion rate for > 6 year old (EPA, 1989)
Fraction of sediment ingested from source area	0.5	Assumes child is in direct contact with sediment 50% of the time
Sediment Ingestion Exposure Frequency (days/yr)	10	
<b>Dermal Contact with Ditch Water</b>		
Surface Area Exposed to Surface Water (cm <sup>2</sup> )	2,350	25% of average total skin area of a child (EPA, 1988a)
Fraction exposed to contaminated water	0.5	Assumes child is in direct contact with surface water 50% of the time
Surface Water Dermal Exposure Frequency (days/yr)	10	
Surface Water Dermal Exposure Time (hr/day)	2	
<b>Ingestion of Ditch Water</b>		
Surface Water Contact Rate (L/event)	0.01	Assumes incidental ingestion of surface water is 1% of daily water intake for a child (1L/day)
Surface Water Ingestion Exposure Frequency (events/yr)	10	
<b>Inhalation of Constituents from Ditch Water *</b>		
Average Inhalation Rate (m <sup>3</sup> /hour)	2.7	Moderate breathing rates for a 10-year old (EPA, 1988a)
Inhalation Exposure Frequency (days/yr)	10	
Exposure Time (hours/day)	2	
<b>Key Parameters used for Springstead Creek</b>		
<b>Dermal Contact with Creek Sediments</b>		
Skin Surface Area Exposed per Event (cm <sup>2</sup> /event)	2,350	25% of average total skin area of a child/event (EPA, 1988a)
Fraction exposed to contaminated sediments	0.5	Assumes child is in direct contact with sediment 50% of the time
Sediment/Skin Adherence Factor (mg/cm <sup>2</sup> )	1	Sandy nature of the site sediment
Sediment Dermal Exposure Frequency (events/yr)	130	2 days/wk from Sep. - May and 4 days/wk from May - August
<b>Ingestion of Creek Sediments</b>		
Sediment Ingestion Rate (mg/day)	100	Incidental ingestion rate for > 6 year old (EPA, 1989)
Fraction of sediment ingested from source area	0.5	Assumes child is in direct contact with sediment 50% of the time
Sediment Ingestion Exposure Frequency (days/yr)	130	2 days/wk from Sep. - May and 4 days/wk from May - August
<b>Dermal Contact with Creek Water</b>		
Surface Area Exposed to Surface Water (cm <sup>2</sup> )	2,350	25% of average total skin area of a child (EPA, 1988a)
Fraction exposed to contaminated water	0.5	Assumes child is in direct contact with surface water 50% of the time
Surface Water Dermal Exposure Frequency (days/yr)	130	2 days/wk from Sep. - May and 4 days/wk from May - August
Surface Water Dermal Exposure Time (hr/day)	0.14 to 0.85	1 hr/wk from Sep. - May and 6 hrs/wk from May - August
<b>Ingestion of Creek Water</b>		
Surface Water Contact Rate (L/event)	0.01	Assumes incidental ingestion of surface water is 1% of daily water intake for a child (1L/day)
Surface Water Ingestion Exposure Frequency (events/yr)	130	2 days/wk from Sep. - May and 4 days/wk from May - August

Note:

\* - The inhalation pathway was not evaluated at Springstead Creek, since no volatile constituents were present in the surface water sample collected in 1989.

**Table 5c**  
**Comparison of Key Toxicity Factors**  
**1990 Hunter/ESE Risk Assessment**  
**Cabot Carbon/Koppers Superfund Site, Gainesville, FL**

Constituents	Cancer Slope Factor (mg/kg-d) <sup>-1</sup>				Non-Cancer Acceptable Daily Intake (mg/kg/day)			
	Oral		Inhalation		Oral		Inhalation	
	Hunter/ ESE Values	Current EPA Approved Values <sup>1,2</sup>	Hunter/ ESE Values	Current EPA Approved Values <sup>1,2</sup>	Hunter/ ESE Values	Current EPA Approved Values <sup>1,2</sup>	Hunter/ ESE Values	Current EPA Approved Values <sup>1,2</sup>
Arsenic	1.75	1.5	50	15.1	NA	0.0003	NA	NAI
Chromium (VI)	NA	0.003	41	12 *	0.005	0.003	NA	0.0001 *
Total potentially carcinogenic PAHs <sup>a</sup>	11.5	7.30	6.11	0.88 *	NA	NAI	NA	NAI
Total non-carcinogenic PAHs <sup>b</sup>	NA	NAI	NA	NAI	0.006	0.04	0.006	NAI
Naphthalene	NA	NAI	NA	NAI	0.41	0.020	0.41	0.003 *
Pentachlorophenol	1.0	0.12	NA	NAI	NA	0.030	NA	NAI
Phenol	NA	NAI	NA	NAI	0.60	0.30	0.02	NAI

Note:

*a* - Assumed values for benzo(a)pyrene applied to the other carcinogenic PAHs.

*b* - Assumed values for fluoranthene applied to the other non-carcinogenic PAHs.

NA - Not Applicable.

NAI - Information Not Available.

\* - Inhalation units are in mg/m<sup>3</sup>.

Data Sources:

Hunter/ESE, 1990 (Table 8.3-1)

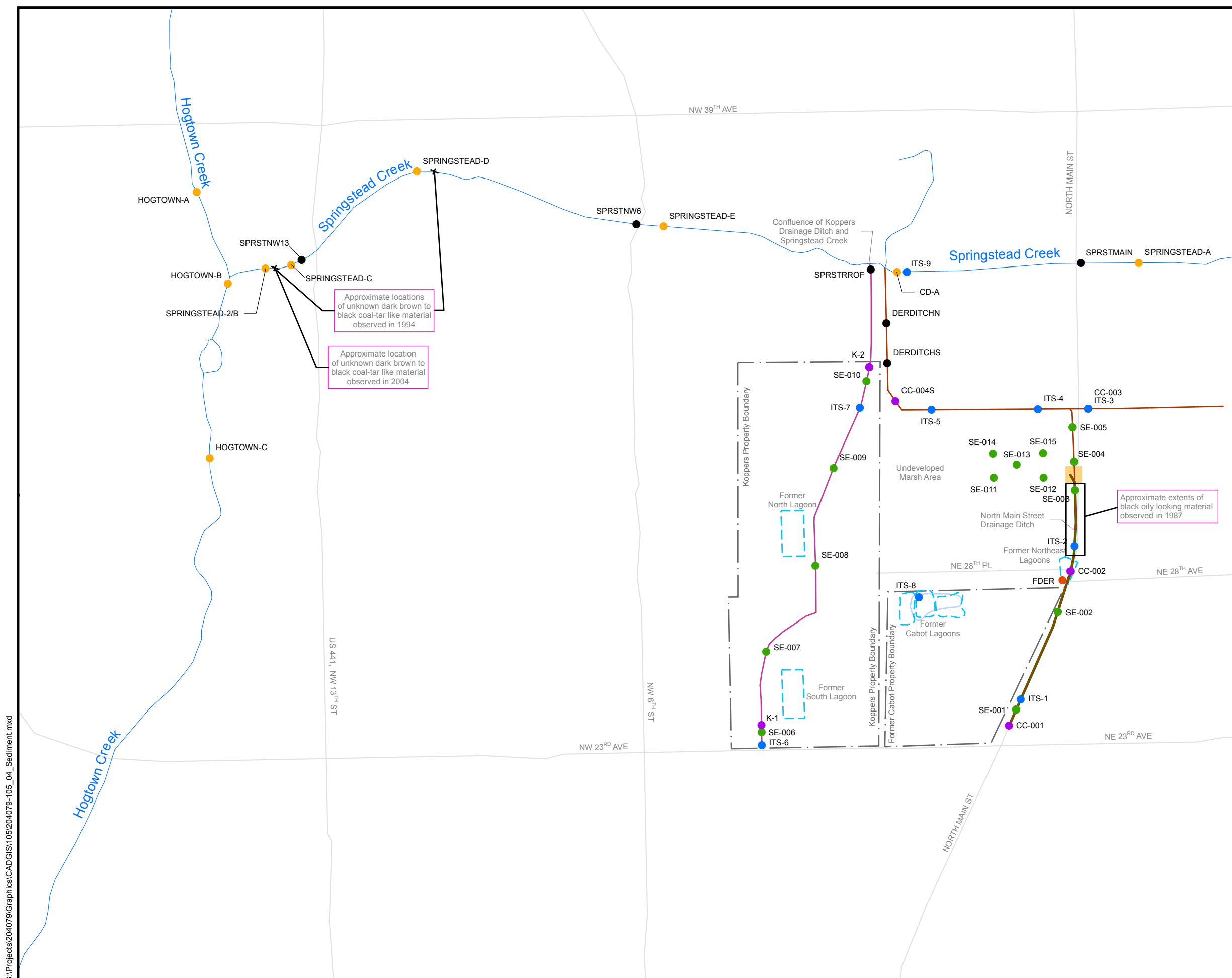
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<http://cfpub.epa.gov/ncea/iris/index.cfm>

2- TOXNET Weblink:

[http://rais.ornl.gov/tox/rap\\_toxp.shtml](http://rais.ornl.gov/tox/rap_toxp.shtml)

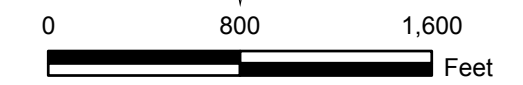
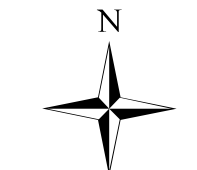




**LEGEND**

- EPA (1979,1980,1983)
- FDER Study (S-1;S-2;S-3, 1986)
- IT Corp (1987)
- Hunter / ESE (1988)
- Alachua County (1994 - 1996)
- Alachua County (2006)
- Project Jumpstart (1985-1995)
- Stormwater Retention Pond
- Groundwater Interceptor Trench
- Koppers Drainage Ditch
- North Main Street Drainage Ditch

**NOTES:**  
 1) All sample locations, property boundaries and site features are approximate.



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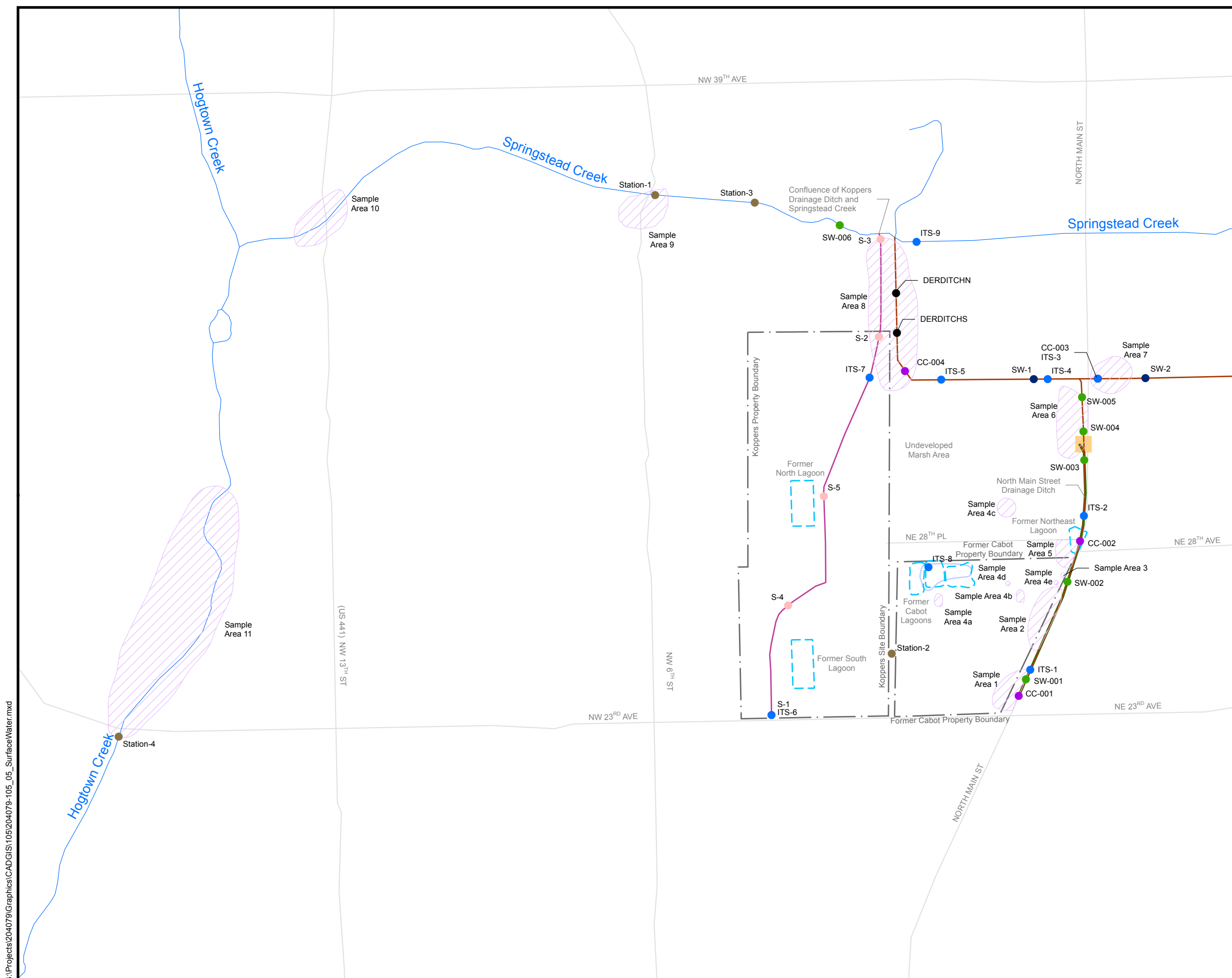
**FIGURE 1**

**Sediment Sampling Locations (1979-2006)**

CABOT CARBON / KOPPERS SUPERFUND SITE  
 GAINESVILLE, FLORIDA

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Date:	6/13/2008	Date:	6/13/2008	File:	204079-105_04.mxd

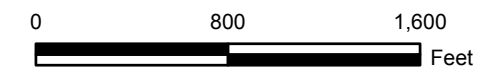
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**LEGEND**

- Florida Health Board (1961)
- ▨ Alachua County Pollution Board (1961-1980)
- EPA (1979, 1980, 1983)
- Koppers (1984)
- IT Corp (1987)
- Hunter / ESE (1988)
- Weston (2005)
- Alachua County (2006)
- Project Jumpstart (1985-1995)
- Groundwater Interceptor Trench
- Koppers Drainage Ditch
- North Main Street Drainage Ditch
- Stormwater Retention Pond

**NOTE:**  
 1) All sample locations, property boundaries and site features are approximate.



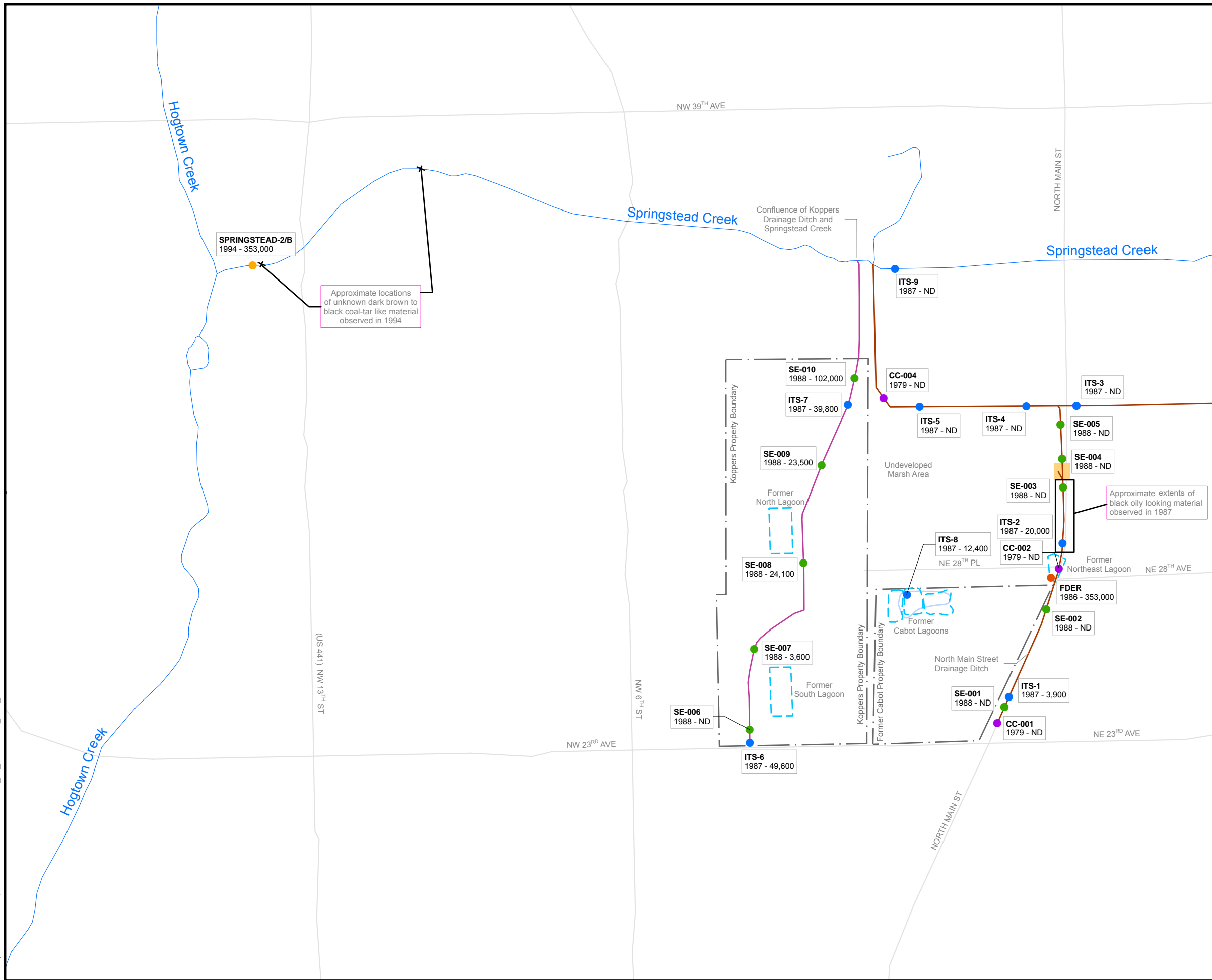
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**FIGURE 2**  
**Surface Water Sampling Locations (1961-2006)**

CABOT CARBON / KOPPERS SUPERFUND SITE  
 GAINESVILLE, FLORIDA

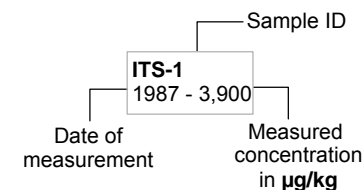
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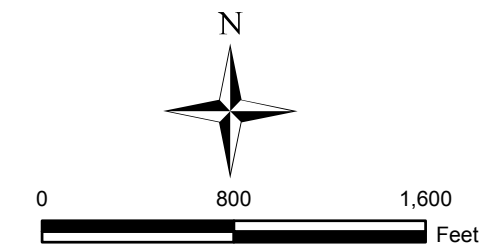


**LEGEND**

- EPA (1979, 1980, 1983)
- FDER Study (S-1;S-2;S-3,1986)
- IT Corp (1987)
- Hunter/ ESE (1988)
- Alachua County (1994-1995)
- Project Jumpstart (1985-1995)
- Koppers Drainage Ditch
- North Main Street Drainage Ditch
- Stormwater Retention Pond



**NOTES:**  
 1) ND = Non Detect.  
 2) All sample locations, property boundaries and site features are approximate.



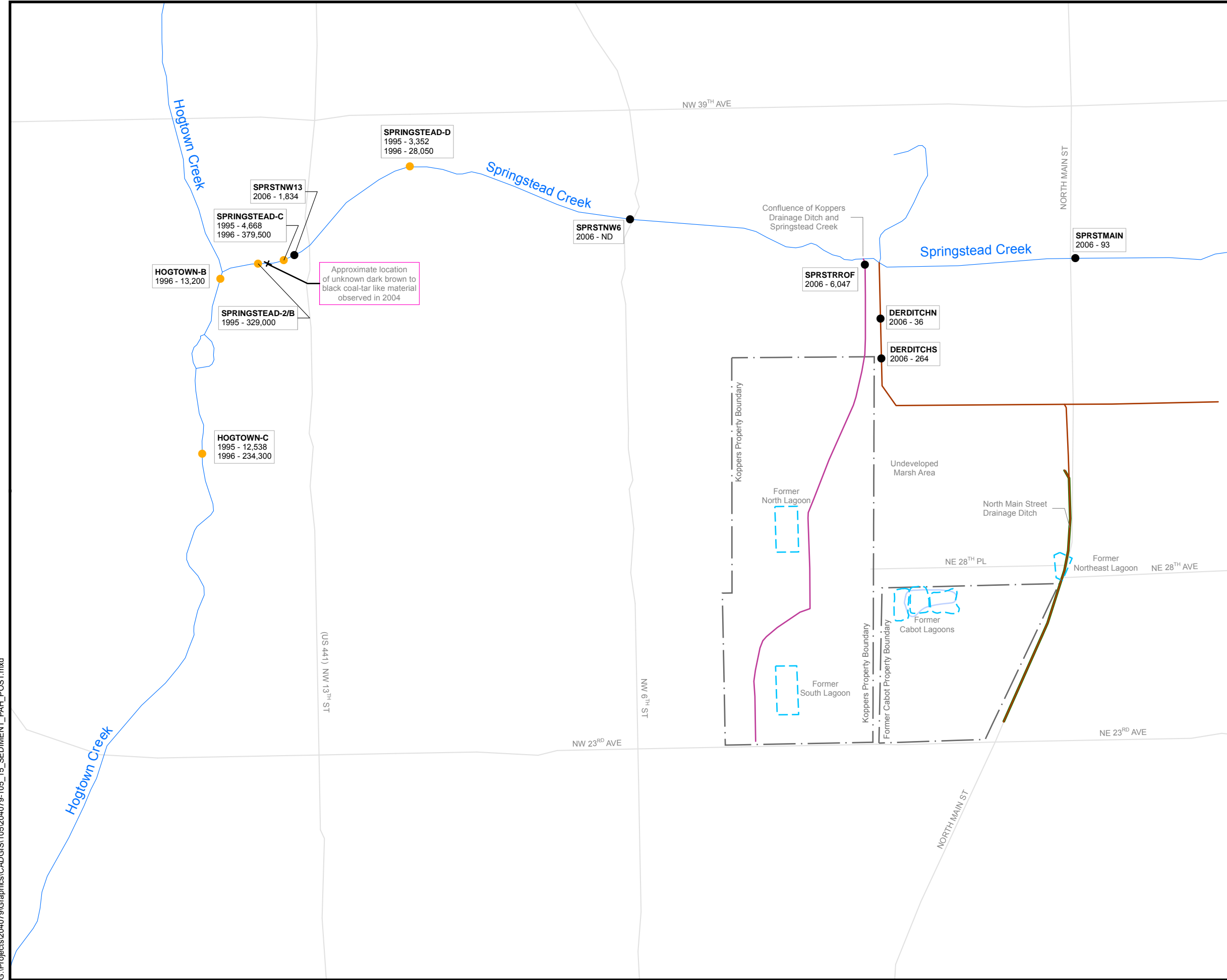
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**FIGURE 3**  
**Total PAH Concentrations in Sediment: Pre-Remedy (Before June 1995)**

CABOT CARBON / KOPPERS SUPERFUND SITE  
 GAINESVILLE, FLORIDA

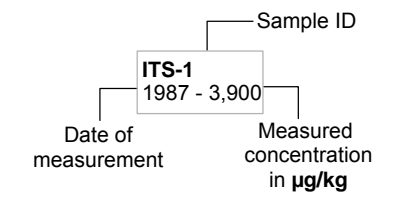
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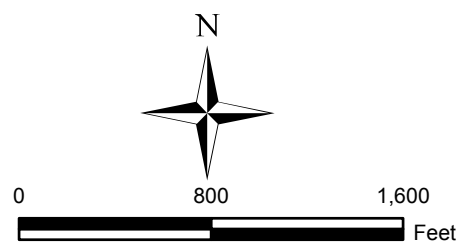


**LEGEND**

- FDER Study (S-1;S-2;S-3, 1986)
- IT Corp (1987)
- Alachua County (1995-1996)
- Alachua County (2006)
- Groundwater Interceptor Trench
- Koppers Drainage Ditch
- North Main Street Drainage Ditch
- Stormwater Retention Pond



**NOTES:**  
 1) ND = Non Detect.  
 2) All sample locations, property boundaries and site features are approximate.



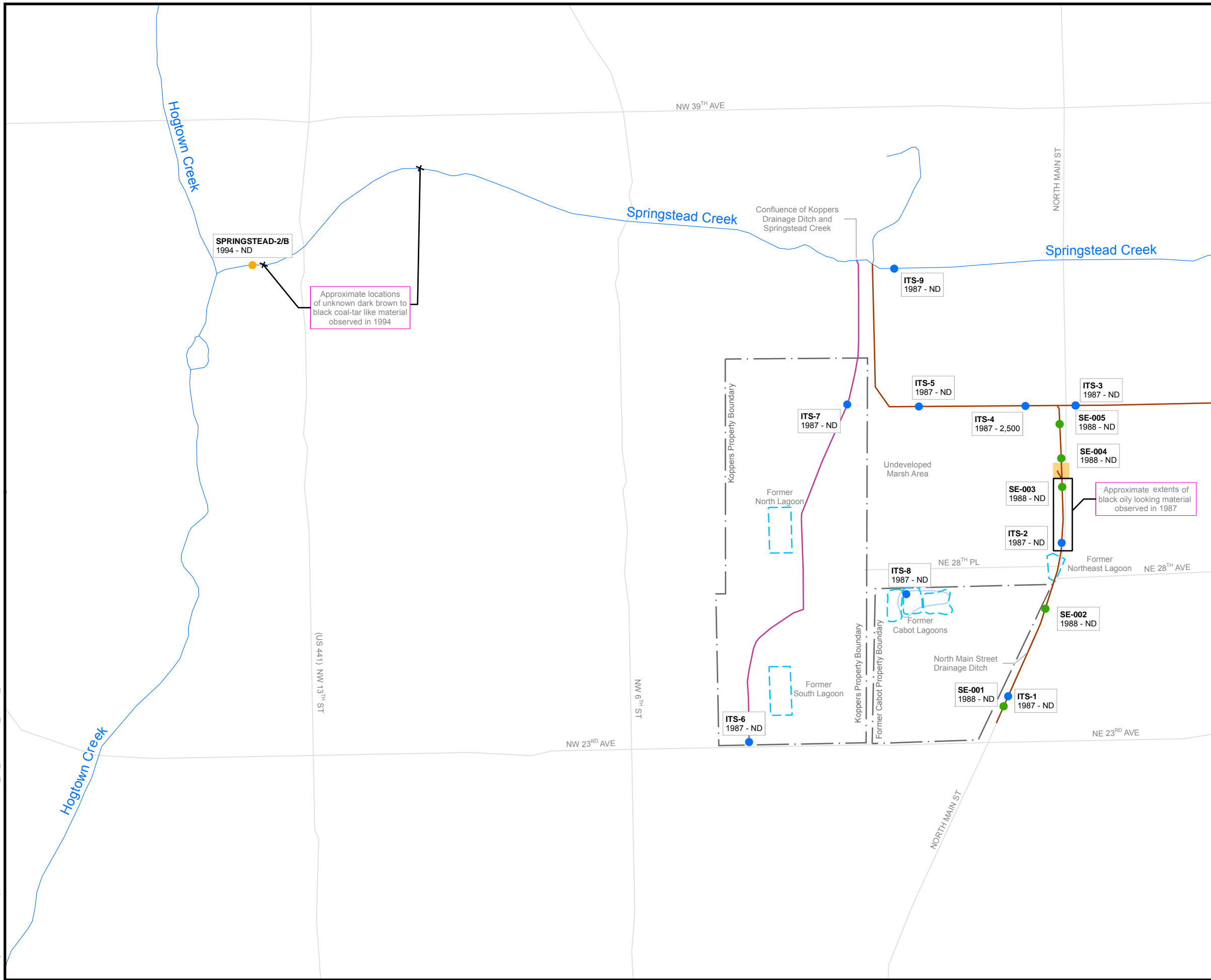
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**FIGURE 4**  
**Total PAH Concentrations in Sediment: Post-Remedy (After June 1995)**

CABOT CARBON / KOPPERS SUPERFUND SITE  
 GAINESVILLE, FLORIDA

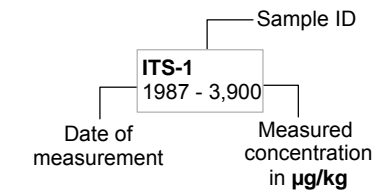
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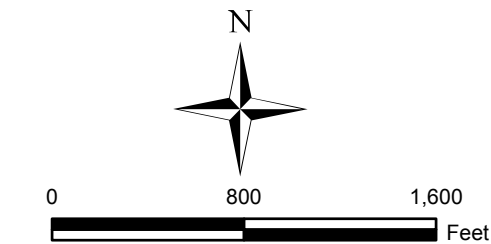


**LEGEND**

- EPA (1979, 1980, 1983)
- IT Corp (1987)
- Hunter/ ESE (1988)
- Alachua County (1994-1995)
- Project Jumpstart (1985-1995)
- Koppers Drainage Ditch
- North Main Street Drainage Ditch
- Stormwater Retention Pond



**NOTES:**  
 1) ND = Non Detect.  
 2) All sample locations, property boundaries and site features are approximate.



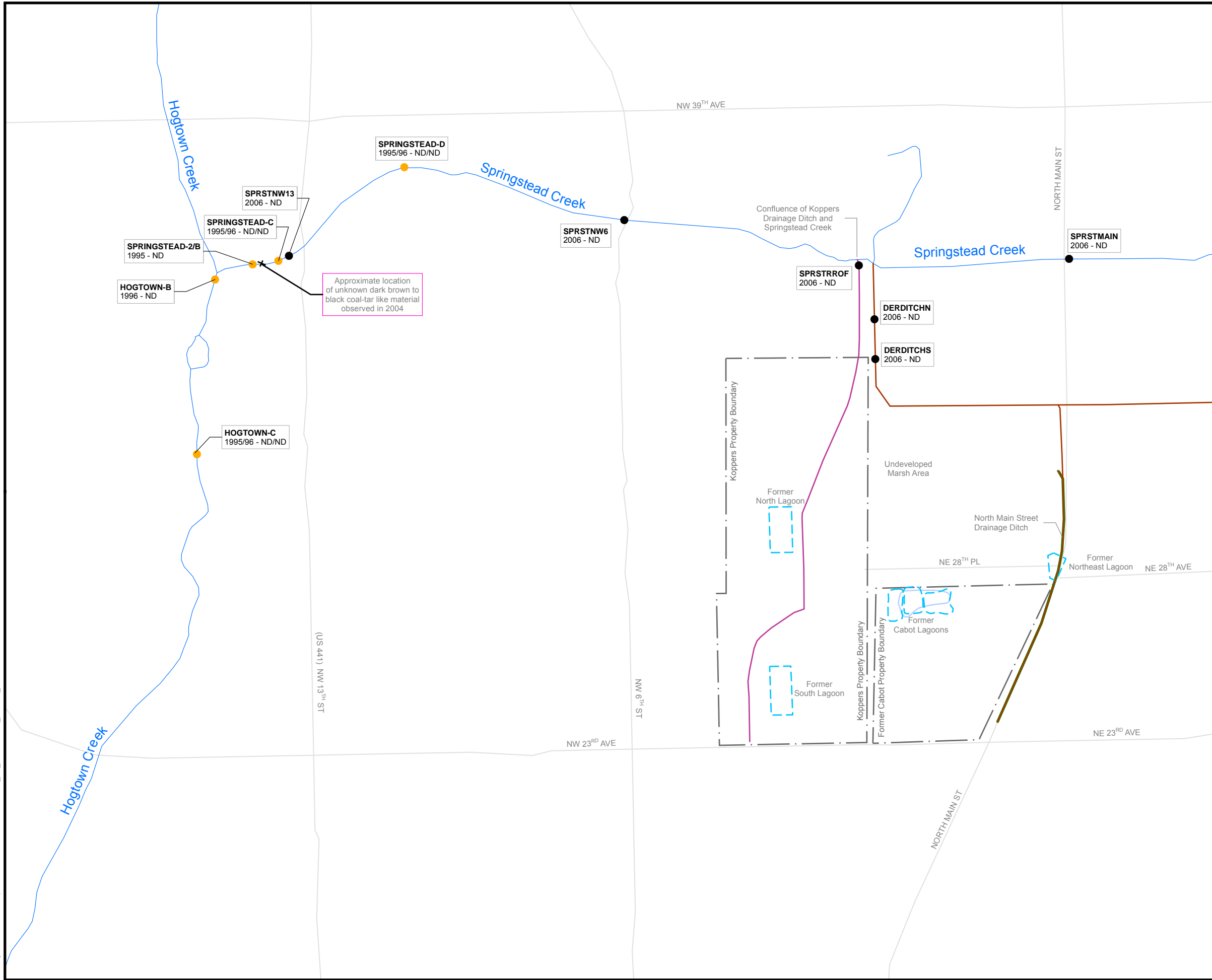
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**FIGURE 5**  
 Phenol Concentrations in Sediment: Pre-Remedy (Before June 1995)

CABOT CARBON / KOPPERS SUPERFUND SITE  
 GAINESVILLE, FLORIDA

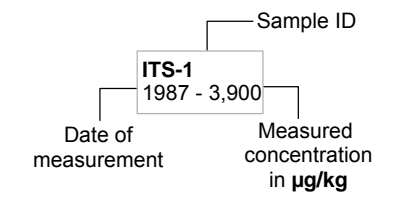
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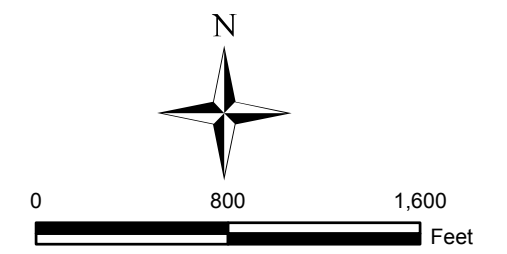


**LEGEND**

- Alachua County (1995-1996)
- Alachua County (2006)
- Groundwater Interceptor Trench
- Koppers Drainage Ditch
- North Main Street Drainage Ditch
- Stormwater Retention Pond



**NOTES:**  
 1) ND = Non Detect.  
 2) All sample locations, property boundaries and site features are approximate.



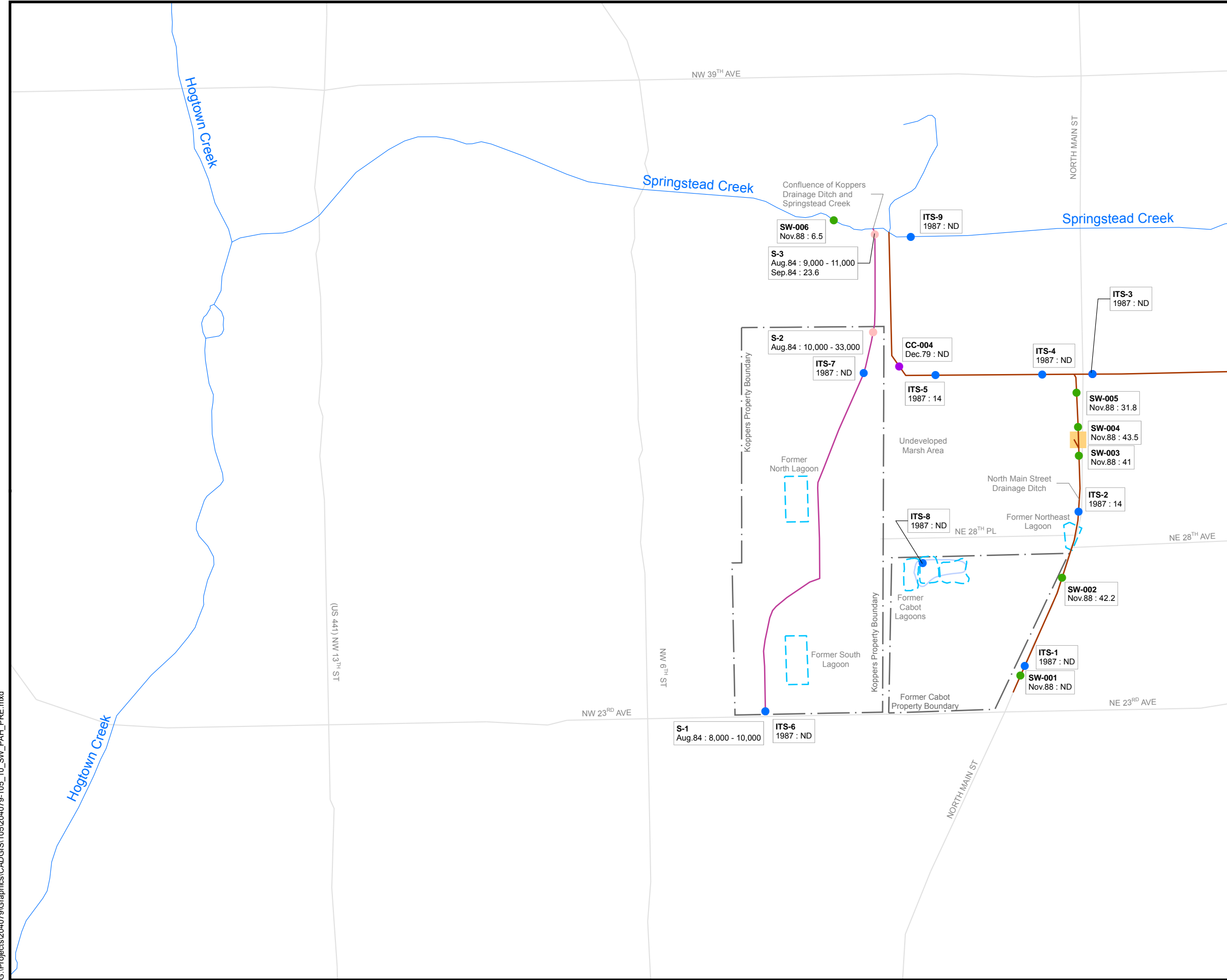
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**FIGURE 6**  
 Phenol Concentrations in Sediment: Post-Remedy (After June 1995)

CABOT CARBON / KOPPERS SUPERFUND SITE  
 GAINESVILLE, FLORIDA

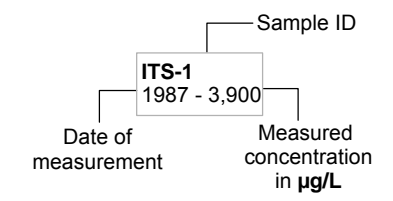
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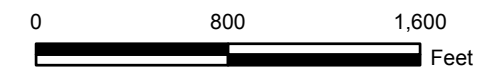
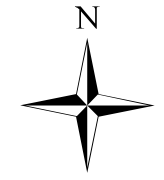


**LEGEND**

- EPA (1979,1980,1983)
- Koppers (1984)
- IT Corp (1987)
- Hunter / ESE (1988)
- Project Jumpstart (1985-1995)
- Koppers Drainage Ditch
- North Main Street Drainage Ditch
- Stormwater Retention Pond



**NOTES:**  
 1) ND = Non Detect.  
 2) All sample locations, property boundaries and site features are approximate.



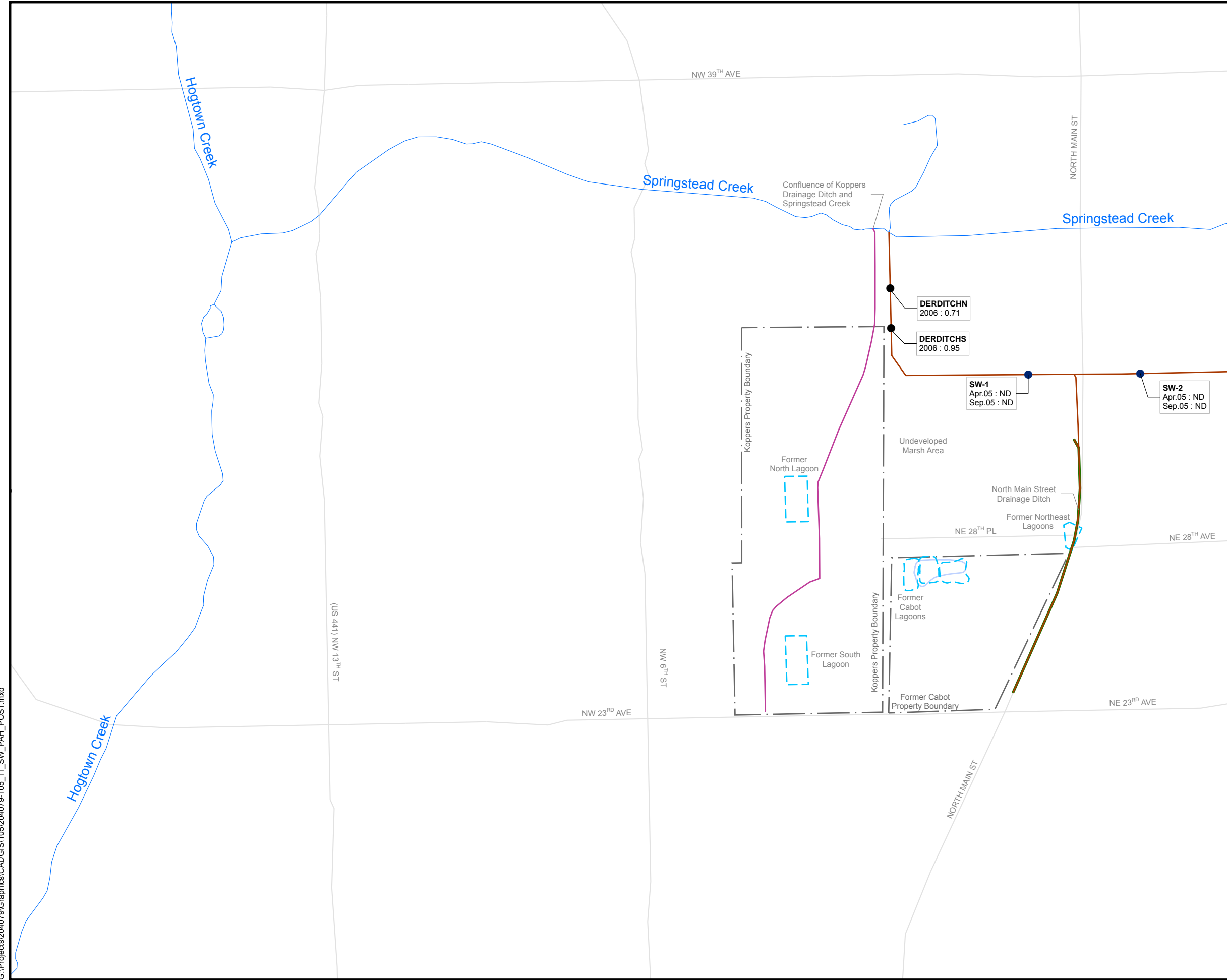
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**FIGURE 7**  
 Total PAH Concentrations in Surface Water: Pre-Remedy (Before June 1995)

CABOT CARBON / KOPPERS SUPERFUND SITE  
 GAINESVILLE, FLORIDA

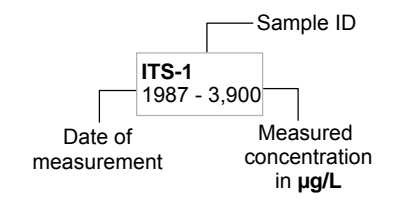
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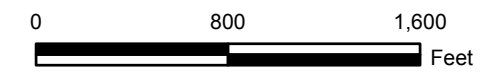


**LEGEND**

- Weston (2005)
- Alachua County (2006)
- Koppers Drainage Ditch
- North Main Street Drainage Ditch
- Stormwater Retention Pond
- Groundwater Interceptor Trench



**NOTES:**  
 1) ND = Non Detect.  
 2) All sample locations, property boundaries and site features are approximate.



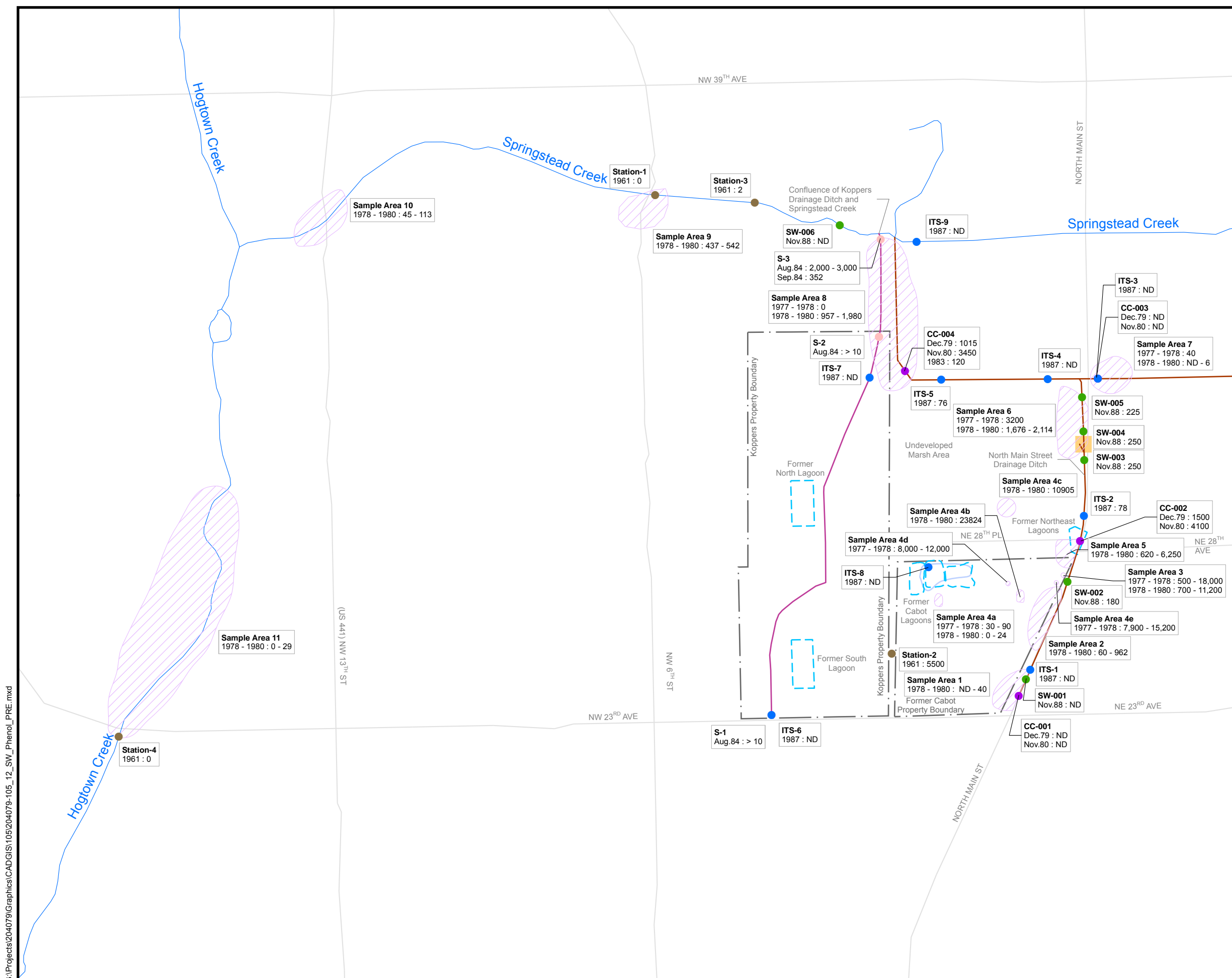
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**FIGURE 8**  
**Total PAH Concentrations in Surface Water: Post-Remedy (After June 1995)**

CABOT CARBON / KOPPERS SUPERFUND SITE  
 GAINESVILLE, FLORIDA

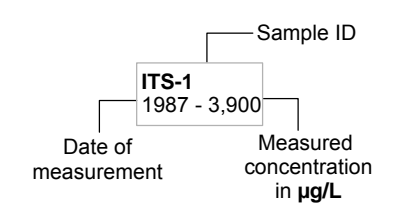
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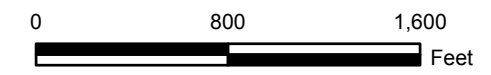
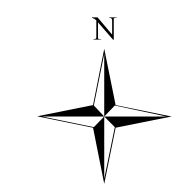


**LEGEND**

- Florida Health Board (1961)
- ▨ Alachua County Pollution Board (1961-1980)
- EPA (1979, 1980, 1983)
- Koppers (1984)
- IT Corp (1987)
- Hunter / ESE (1988)
- Project Jumpstart (1985-1995)
- Koppers Drainage Ditch
- North Main Street Drainage Ditch
- Stormwater Retention Pond



**NOTES:**  
 1) ND = Non Detect.  
 2) All Sample Locations, Property boundaries and Site features are approximate.



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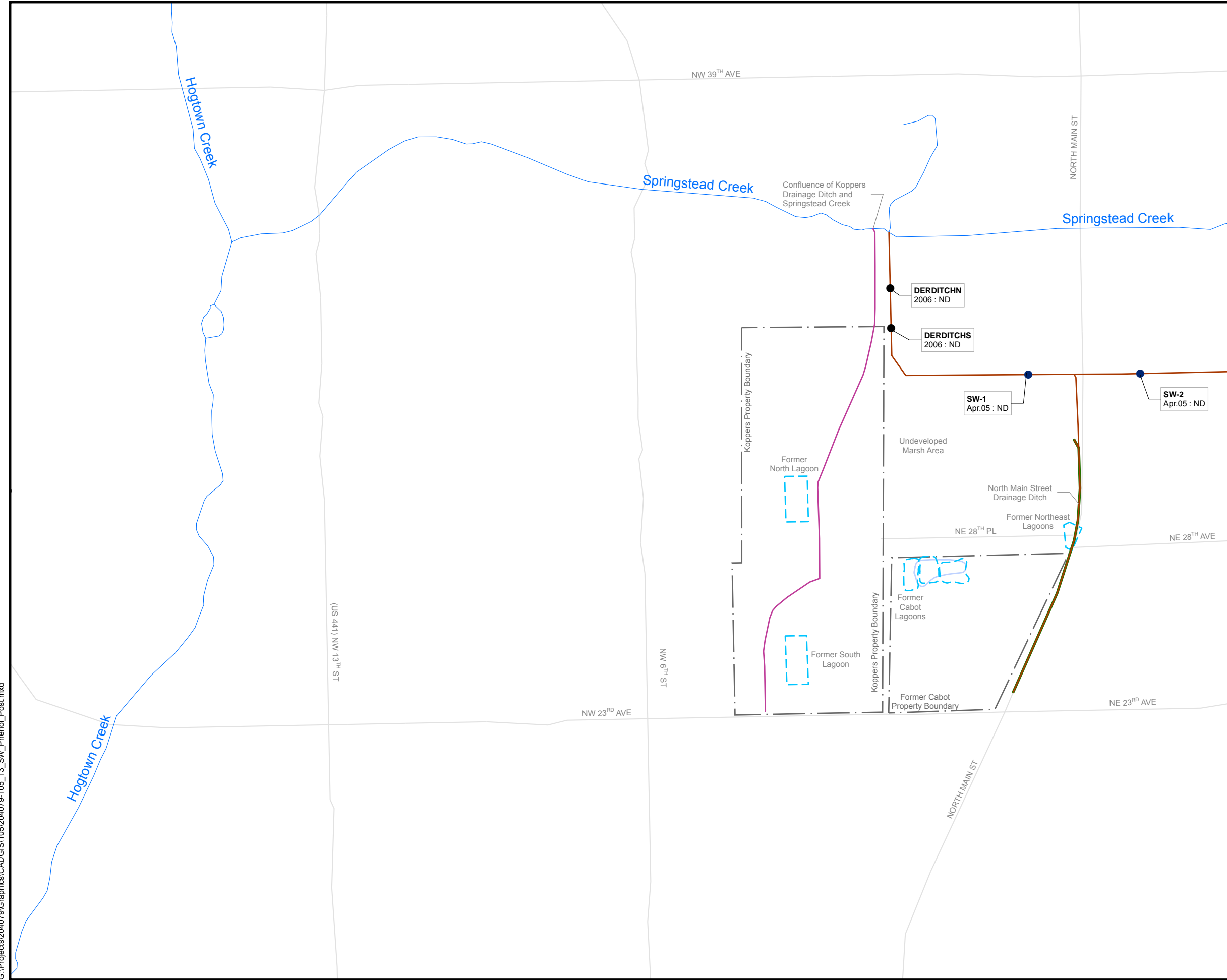
**FIGURE 9**  
 Phenol Concentrations in  
 Surface Water: Pre-Remedy  
 (Before June 1995)

CABOT CARBON / KOPPERS SUPERFUND SITE  
 GAINESVILLE, FLORIDA

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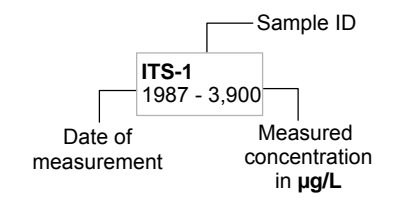
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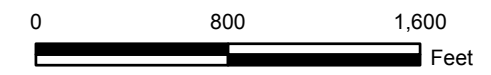


**LEGEND**

- Weston (2005)
- Alachua County (2006)
- Koppers Drainage Ditch
- North Main Street Drainage Ditch
- Stormwater Retention Pond
- Groundwater Interceptor Trench



**NOTES:**  
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 2) All sample locations, property boundaries and site features are approximate.



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**FIGURE 10**  
 Phenol Concentrations in  
 Surface Water: Post-Remedy  
 (After June 1995)

CABOT CARBON / KOPPERS SUPERFUND SITE  
 GAINESVILLE, FLORIDA

Drawing By:	RJAM	Checked By:	CE	Project No.:	204079
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