TNRCC

Protecting Texas by Reducing and Preventing Pollution

Screening Site Inspection Report

Greens Bayou
Houston, Harris County, Texas
TXD # Pending

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VI

Prepared in cooperation with the U.S. Environmental Protection Agency

October 2001

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Texas Natural Resource Conservation Commission
Site Assessment and Management Section
Superfund Site Discovery and Assessment Program
Austin, Texas

October 2001

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SCREENING SITE INSPECTION REPORT

Greens Bayou

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EPA ID # PENDING

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NOTES TO THE READER

The following rules were used when citing references in this Screening Site Inspection (SSI) Report:

1. If the reference cited had an original page number, that number is cited.

2. If the reference cited had no original page number, then a designated tracking number is cited.

3. If the reference cited is for analytical data found within a table, the sample ID is used to locate that reference.

4. The State predecessor agencies: Texas Water Quality Board (TWQB), Texas Department of Water Resources (TDWR), Texas Water Commission (TWC), and Texas Air Control Board (TACB), referred to throughout this report are now known as the Texas Natural Resource Conservation Commission (TNRCC). The new agency, TNRCC, became effective September 1, 1993, as mandated under State Senate Bill 2 of the 73rd Regular Legislative Session.

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Reference
Number Description of the Reference

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2. U.S. Environmental Protection Agency. Hazard Ranking System Guidance Manual, EPA 540-R-92-026, OSWER Directive 9345.1-07, November 1992. 431 pages plus Appendix.

3. US Environmental Protection Agency. Guidance for Performing Site Inspections Under CERCLA, Office of Emergency and Remedial Response, Hazardous Site Evaluation Division, Publication 9345.1-05, September, 1992. 125 pages.

4. U.S. Environmental Protection Agency. Superfund Chemical Data Matrix (SCDM). June 1996.

5. U.S. Geological Survey, Jacinto City, Texas Quadrangle, 7.5 Minute Series. Topographic Map. 1982. (Four mile radius added by TNRCC). 1 page.

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8. Gary Hazelwood, Texas Natural Resource Conservation Commission to Winston Denton, Texas Parks and Wildlife Department. Telephone Memo. May 23, 2001. 1 page.

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10. Texas Water Commission, Segment Identification Maps for Texas River and Coastal Basins. November 1992. 5 pages.

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13. U.S. Environmental Protection Agency, Region 6, Houston Branch. *Case Number 29393, Sample Designation Group F0AD8, CLP Data Review and Organic Regional Data Assessment Package.* From: Marvelyn Humphrey, Alternate ESAT RPO, 6MD-HC, To: B. Rhotenberry, 6SF-RA. July 31, 2001. 205 pages.

14. Tischler/Kocurek, Greens Bayou Fish and Crab Tissue Study. March 2001. 36 pages.

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16. U.S. Environmental Protection Agency. Screening Site Inspection Field Photographs. June 11 - 13, 2001. 10 pages.

17. U.S. Department of the Interior, Fish and Wildlife Service, Jacinto City, Texas Quadrangle, 7.5 Minute Series. National Wetlands Inventory Map. 1979. 1 page.

18. Sugeno, Amy, Texas Parks and Wildlife Department, Wildlife Habitat Assessment Program. Endangered Species Letter. September 11, 2001. 10 pages.

SSI REPORT
REVIEW COVER SHEET

SITE NAME: Greens Bayou

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Pathway, Components, or Threats Not Evaluated

Ground Water Pathway

The Ground Water Pathway was not evaluated due to the lack of targets and because the inclusion of this pathway would not significantly affect the site score.

Soil Exposure Pathway

The Resident Population Threat, and Nearby Population Threat, were not evaluated due to the lack of targets and because the inclusion of this pathway would not significantly affect the site score.

Air Migration Pathway

The Air Migration Pathway was not evaluated due to the lack of targets and because the inclusion of this pathway would not significantly affect the site score.

SSI Report Narrative Summary

Name of Site: Greens Bayou **Date Prepared**: October 2001

CERCLIS Site ID Number: EPA ID # PENDING

Site Specific Identifier: Contaminated sediments

Owner/Operator: Greens Bayou is owned by the Port of Houston Authority

Street Address of Site: None (see General Location below)

City, County and State: Houston, Harris County, Texas

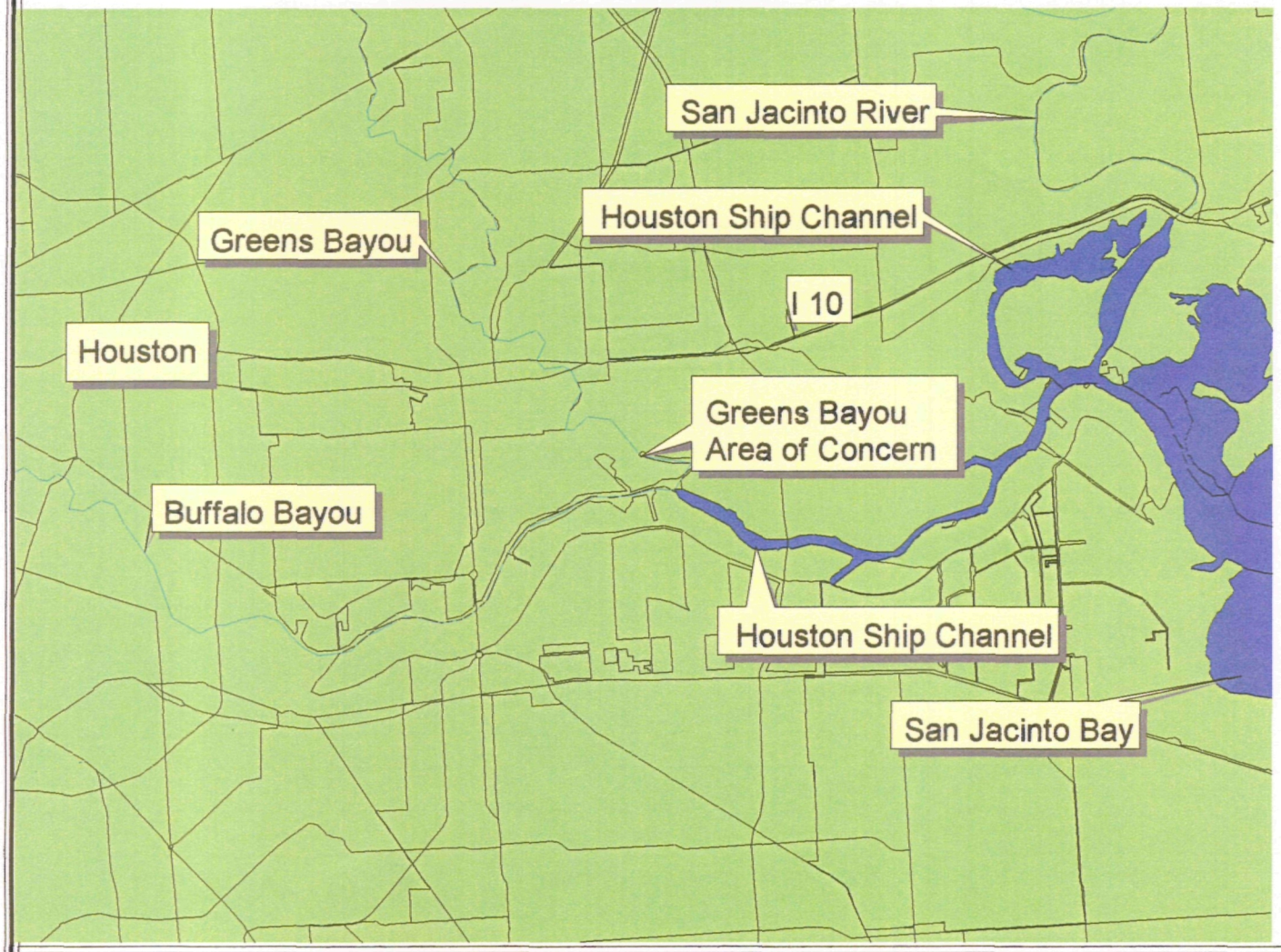
General Location in the State: Greens Bayou is located in Houston, (Harris County) Texas, as shown in Figure 1.

Latitude: *29 ° 45' 13" North* **Longitude:** *95 ° 10' 30" West*

Topographic Map: US Geological Survey 7.5 Minute Topographic Map, Jacinto City, Texas Quadrangle (Ref. 5).

Background/Operating History: Greens Bayou is a tributary to the Houston Ship Channel (HSC), in Houston, Texas, see Figure 1. Greens Bayou has documented historical contamination originating at the Diamond Shamrock facility that manufactured DDT until 1970. Diamond Shamrock operated from 1952 until 1980, and is now occupied by the GB Biosciences Corporation and ISK Magnetics, Inc. facilities located at 2239 and 2237 Haden Road in Houston. The federal navigation channels in Greens Bayou are characterized as a deep-draft channel with an authorized depth of 40 feet from the confluence with the HSC and extending 0.37 miles upstream and a stair stepped shallow-draft channel with an authorized depth of 15 feet from that point and extending another 1.28 miles upstream in Greens Bayou (Ref. 6, p. 1-1).

The Port of Houston Authority owns Greens Bayou, Harris County Flood Control Ditch (HCFCD), and the Greens Bayou dredge disposal area. The Port of Houston Authority is a successor of the Harris County Houston Ship Channel Navigation District, which was granted ownership from the act of March 11, 1927 (Ref. 7). Greens Bayou has been dredged periodically by the U.S. Corps of Engineers (USACE) to remove sediments encroaching into the federal navigation channel. All of Greens Bayou dredged sediment is placed in a disposal area that is used only for Greens Bayou sediment. The location of the Greens Bayou dredge disposal area is located between the HCFCD and Greens Bayou (Ref. 6, Figure 2). Return water from dredging operations is discharged through an overflow weir to Greens Bayou. Weir discharges are subject to conditions in Section 401 Water Quality Certifications issued by the TNRCC.



0 7 Miles

Source

The base data sets used are certified by the TNRCC GIS Section.
The map projection is the Texas State Mapping System.

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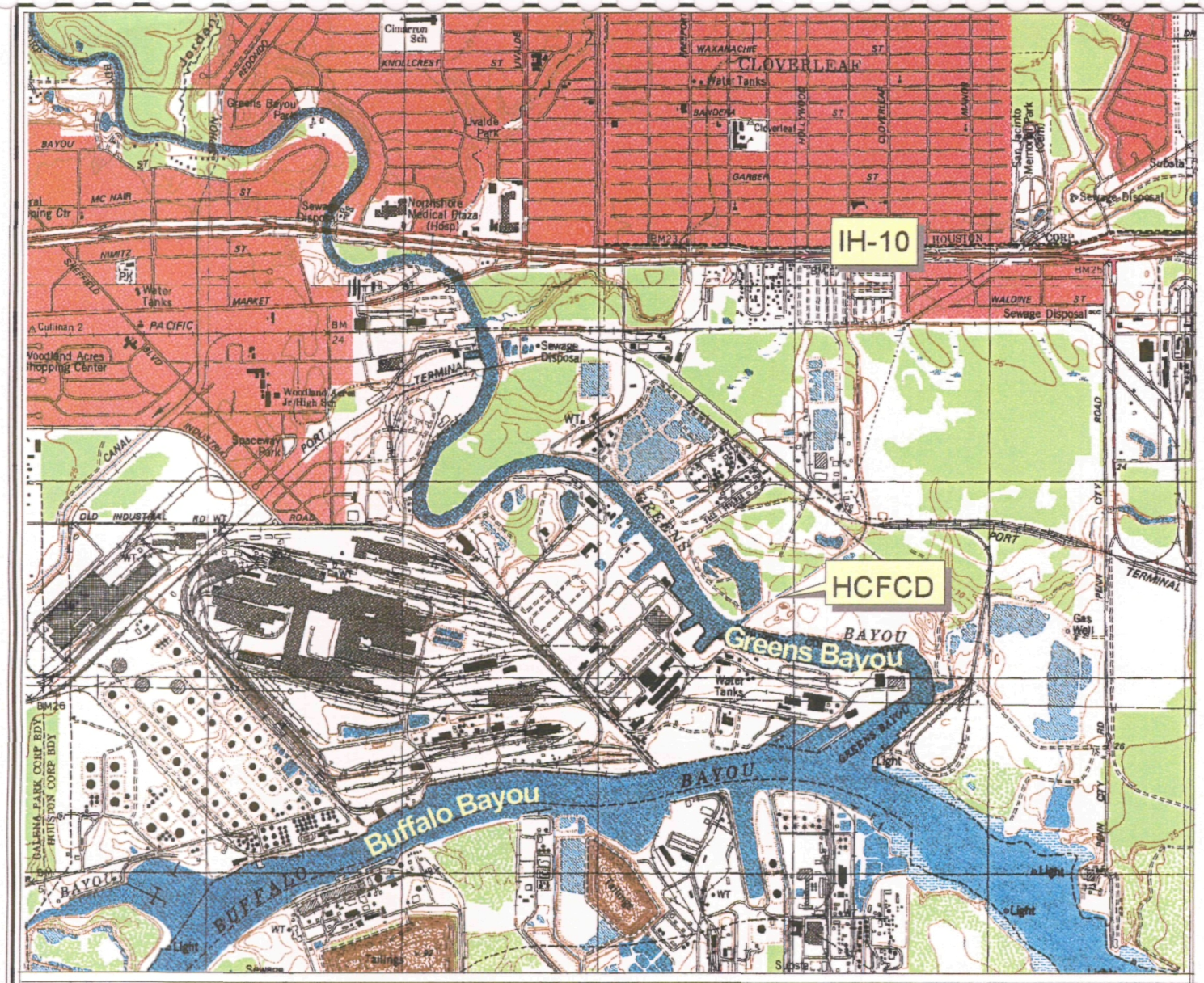
Greens Bayou Site

Houston (Harris County) Texas

N

Figure 1
Site Location Map
Page 3



0.9 0 0.9 1.8 Miles

Source

The base data sets used are the Jacinto City and Pasadena, TX 1:24,000 Digital Raster Graphic (DRG), which is a scanned image of a U.S. Geological Survey topographic map.
UTM NAD 27 Zone 15

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Greens Bayou Site

Houston (Harris County) Texas

N

Figure 2
Site Features Map
Page 4

Several entities have collected samples of Greens Bayou sediment since 1992. The U.S. Army Corps of Engineering first conducted sediment sampling of Greens Bayou in February 1992 (Ref. 6, pp. 2-1 and 2-2). The Fugro Environmental, Inc. on behalf of the James H. Glanville Company, collected sediment samples in the area of the Glanville dock, in Greens Bayou in June, 1995 (Ref. 6, p. 2-2). McBride-Ratcliff and Associates, Inc. on behalf of Brown & Root, collected sediment samples at the Greens Bayou marine fabrication yard docks in June, 1995 (Ref. 6, pp. 2-3 and 2-4). McBride-Ratcliff and Associates, Inc. on behalf of the Port of Houston Authority, collected sediment samples at the Bulk Materials Handling Plant docking facilities in February, 1997 (Ref. 6, pp. 2-4 and 2-5). The TNRCC collected sediment samples in Greens Bayou in July, 1997 (Ref. 6, pp. 2-2 and 2-3). Varying sample locations, methods, and testing parameters has resulted in various hazardous substances being detected (Ref. 6, pp. 2-1 through 2-5).

The pathway of concern is the surface water pathway. The groundwater pathway is not addressed for this site since drinking water is obtained from surface water upstream of Greens Bayou. No drinking water intakes are located along Greens Bayou or at any point downstream. Since the site is a water body, the soil and air pathways are not addressed. Greens Bayou is a fishery below IH-10 for catfish (Ref. 8). There is a fish advisory and closure for the Houston Ship Channel (Ref. 9, p. 537).

SOURCE DESCRIPTION

2.2 SOURCE CHARACTERIZATION

2.2.1 Source Identification

Number of the source: 1

Name and description of the source: Other (Contaminated Sediments)

The Greens Bayou Source 1 consists of contaminated sediments detected in the Harris County Flood Control Ditch and extending into Greens Bayou, see Figure 1. The contaminated sediments contain elevated pesticides, volatile and semivolatile organic compounds, and inorganic compounds.

Analytical data results indicate the source of sediment contamination was the Diamond Shamrock facility that manufactured DDT until 1970. The U.S. Corps of Engineers (USACE) has dredged Greens Bayou periodically and placed the dredged sediment in a disposal area that is used only for Greens Bayou sediment. The HCFCD is located between the former Diamond Shamrock facility and the Greens Bayou dredge disposal area (Ref. 6, Figure 2). Return water from dredging operations is discharged through an overflow weir to Greens Bayou.

The contaminated sediment will be defined as "the source" for further waste characterization in this section.

Location of the source, with reference to a map of the site:

See Figure 1, Site Location Map and Figure 2, Site Features Map. The contaminated area is identified as beginning at sediment sample SE-17 in the Harris County Flood Control Ditch and extending into Greens Bayou. Greens Bayou is tidally influenced and contamination entering from the Harris County Flood Control Ditch travels upstream as far as sediment sample SE-03 and downstream at least to the furthest sample location collected, SE-13. The area with the highest levels of contamination include the Harris County Flood Control Ditch from sediment sample SE-17 to SE-20 and Greens Bayou from sediment sample SE-08 to SE-13. The estimated length of documented contaminated sediment is approximately 0.42 miles of the Harris County Flood Control Ditch, and 2.47 miles of Greens Bayou, for a total of 2.89 miles, (15,259 feet or 4.65 kilometers).

Source type for HRS evaluation purposes: Other (Contaminated sediments).

1 0 1 Miles

Legend

- Background Sediment Sample
- Sediment Sample

Source

The base data sets used are the Jacinto City SEand SW and Pasadena NE and NW, TX Digital Orthoquarter Quadrangles (DOQQs), which are digital aerial photographs processed by the TNRCC GIS Section. UTM NAD 83 Zone 15

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Greens Bayou Site

Houston (Harris County) Texas

N

Figure 3 Sediment Sample Location Map (Using GPS Data)

Containment

Gas release to air: The air migration pathway was not evaluated; therefore, gas containment was not evaluated.

Particulate release to air: The air migration pathway was not evaluated; therefore, particulate containment was not evaluated.

Release to ground water: The ground water migration pathway with respect to the contaminated sediments was not evaluated for lack of identified ground water targets.

Release via overland migration and/or flood: The surface water pathway with respect to the contaminated sediments was evaluated. The contaminated sediments associated with the Harris County Flood Control Ditch and Greens Bayou will be evaluated as "All Sources" with evidence of hazardous substance migration from the source area. Evidence of migration was based on detected levels of attributable source contaminants substantiated during the SSI as being deposited along a 0.42 mile stretch of the Harris County Flood Control Ditch plus a 2.47 mile stretch of Greens Bayou. Therefore, the contaminated sediments were assigned a containment factor value of 10 as specified in the HRS Rule (Ref. 1, Table 4-2).

2.2.2 Hazardous Substances Associated with a Source

Based on the results of the June 12-13, 2001 SSI sampling event, the source area is defined as the contaminated sediments within the Harris County Flood Control Ditch and Greens Bayou. Table 1 below represents the sixteen (16) individual samples collected during the SSI that define the source area. For a complete list of hazardous substances that meet observed release criteria and their concentrations at each sample location, see Tables 6A and 6B. Locations of samples are depicted in Figure 3.

All source samples were collected with a stainless steel sediment coring device with dedicated stainless steel, decontaminated screw-on tips to hold dedicated, clean polyethylene zero-contamination tubes within the device. The source samples exhibited elevated concentrations of pesticides, volatile and semivolatile organic compounds, and inorganic compounds.

All samples were collected according to the EPA approved PA/SI state Quality Assurance Project Plan and sample locations were approved by the EPA prior to sample collection.

TABLE 1
Source Description
Contaminated Sediment Samples Collected from the Harris County Flood Control Ditch and Greens Bayou

CLP Sample ID and Location No.	Location	Sample/Depth	Date Collected	Location Reference
MF0793 F0AC6 SE-03	Greens Bayou approximately two miles upstream of the HCFCD	Composite Sample 0"-10" deep	6/13/01	Figure 3 Ref. 15, pp. 8 & 9; and 16, Photo #14
F0AD7 SE-14	Duplicate sample of SE-03 for QA/QC requirements	Composite Sample 0"-10" deep	6/13/01	Figure 3 Ref. 15, p. 29; and 16, Photo #14
MF0794 F0AC7 SE-04	Greens Bayou approximately 1.06 miles upstream of the HCFCD	Composite Sample 0"-14" deep	6/13/01	Figure 3 Ref. 15, pp. 10&11; and 16, Photo #13
MF0795 F0AC8 SE-05	Greens Bayou approximately 0.37 miles upstream of the HCFCD	Composite Sample 0"-10" deep	6/13/01	Figure 3 Ref. 15, pp. 12&13; and 16, Photo #12
MF0796 F0AC9 SE-06	Greens Bayou approximately 250 yards upstream of the HCFCD	Composite Sample 0"-8" deep	6/13/01	Figure 3 Ref. 15, pp. 14&15; and 16, Photo #11
MF0797 F0AD0 SE-07	Duplicate sample of SE-06 for QA/QC requirements.	Composite Sample 0"-8" deep	6/13/01	Figure 3 Ref. 15, pp. 14&15; and 16, Photo #11
MF0798 F0AD1 SE-08	Greens Bayou approximately 50 yards upstream of the HCFCD	Composite Sample 0"-12" deep	6/13/01	Figure 3 Ref. 15, pp. 16&17; and 16, Photo #10
MF0799 F0AD2 SE-09	Greens Bayou at its confluence with the HCFCD (PPE)	Composite Sample 0"-12" deep	6/13/01	Figure 3 Ref. 15, pp. 18&19; and Photo #9
MF07A0 F0AD3 SE-10	Greens Bayou approximately 50 yards downstream of the HCFCD	Composite Sample 0"-12" deep	6/13/01	Figure 3 Ref. 15, pp. 20&21; and 16, Photo #8
MF07A1 F0AD4 SE-11	Greens Bayou approximately 250 yards downstream of the HCFCD	Composite Sample 0"-12" deep	6/13/01	Figure 3 Ref. 15, pp. 22&23; and 16, Photo #7

TABLE 1 Source Description Contaminated Sediment Samples Collected from the Harris County Flood Control Ditch and Greens Bayou				
MF07A2 F0AD5 SE-12	Greens Bayou approximately 1/4 mile downstream of the HCFCD	Composite Sample 0"-12" deep	6/13/01	Figure 3 Ref. 15, pp. 24&25; and 16, Photo #6
MF07A3 F0AD6 SE-13	Greens Bayou approximately ½ mile downstream of the HCFCD	Composite Sample 0"-12" deep	6/13/01	Figure 3 Ref. 15, pp. 26&27; and 16, Photo #5
MF07A7 F0AE0 SE-17	HCFCD approximately 4/10 of a mile upstream of Greens Bayou	Composite Sample 0"-12" deep	6/12/01	Figure 3 Ref. 15, pp. 34&35; and 16, Photo #2
MF07A8 F0AE1 SE-18	HCFCD approximately 1/4 of a mile upstream of Greens Bayou	Composite Sample 0"-10" deep	6/12/01	Figure 3 Ref. 15, p. 37; and 16, Photo #1
MF07A9 F0AE2 SE-19	Duplicate sample of SE-18 for QA/QC requirements	Composite Sample 0"-10" deep	6/12/01	Figure 3 Ref. 15, pp. 38&39; and 16, Photo #1
MF07B0 F0AE3 SE-20	HCFCD approximately 15 yards upstream of Greens Bayou	Composite Sample 0"-12" deep	6/13/01	Figure 3 Ref. 15, p. 41; and 16, Photo #18

Notes: QA/QC = Quality Assurance/Quality Control CLP = Contract Laboratory Program

2.2.3 Hazardous Substances Available to a Pathway

Because containment for this source is greater than 0, the following substances associated with the source can migrate via the surface water migration pathway:

Arsenic	Cobalt	Copper
Benzene	Chlorobenzene	1,3-Dichlorobenzene
1,2,4-Trichlorobenzene	Hexachlorobenzene	
alpha-BHC (alpha-Hexachlorocyclohexane)		4,4'-DDE
beta-BHC (beta-Hexachlorocyclohexane)		4,4'-DDD
delta-BHC (delta-Hexachlorocyclohexane)		4,4'-DDT
gamma-Chlordane		

2.3 LIKELIHOOD OF RELEASE

Refer to Section 4.1.2.1 of this SSI Report for specific information related to the Likelihood of Release to the Surface Water Pathway.

2.4 WASTE CHARACTERIZATION

2.4.1 Selection of Substance Potentially Posing Greatest Hazard

All of the hazardous substances listed above are associated with this source.

Specific toxicity factors, HRS Section 2.4.1.1 and selection of the hazardous substances with the highest factor values (toxicity, persistence, and bioaccumulation), HRS Section 2.4.1.2, are presented under the Surface Water Migration Pathway section of this SSI report.

2.4.2 Hazardous Waste Quantity

2.4.2.1 Source Hazardous Waste Quantity

2.4.2.1.1 Hazardous Constituent Quantity (Tier A) - Not Evaluated (NE)

The information available is not sufficient to evaluate Tier A, as required in Section 2.4.2.1.1 of the HRS Rule. As a result, the evaluation of Hazardous Waste Quantity proceeds to the evaluation of Tier B, hazardous waste stream quantity (Ref. 1, Section 2.4.2.1.1).

2.4.2.1.2 Hazardous Wastestream Quantity (Tier B) - NE

The information available is not sufficient to evaluate Tier B, as required in Section 2.4.2.1.2 of the HRS Rule. As a result, the evaluation of Hazardous Waste Quantity proceeds to the evaluation of Tier C, volume (Ref. 1, Section 2.4.2.1.2).

2.4.2.1.3 Volume (Tier C) - > 0, but unknown

The information available is not sufficient to evaluate Tier C, as required in Section 2.4.2.1.3 of the HRS Rule, due to the fact that only a limited number of samples have been collected to date within the Harris County Flood Control Ditch and Greens Bayou "site"; therefore it is not possible to adequately determine a source volume (Tier C) for Source 1, Other (Contaminated Sediments) (Ref. 1, Section 2.4.2.1.3).

2.4.2.1.4 Area (Tier D) - NE

The information available is not sufficient to evaluate Tier D, as required in Section 2.4.2.1.4 of the HRS Rule.

Although the source area was not adequately determined and its extent is unknown, the value is greater than 0, but unknown.

Area of source (ft^2): > 0, but unknown.
Reference(s): Ref. 1, Section 2.4.2.1.4, Table 2-5.
Area Assigned Value: > 0, but unknown

2.4.2.1.5 Source Hazardous Waste Quantity Value

As described in the HRS Rule, the highest value assigned to a source from among the four tiers of hazardous constituent quantity (Tier A), hazardous wastestream quantity (Tier B), volume (Tier C) or area (Tier D) shall be selected as the source hazardous waste quantity value. (Ref. 1, Section 2.4.2.1).

TABLE 2

Source No. 1 - Other (Contaminated Sediments) Source Hazardous Waste Quantity	
Tier Measure	**Source Values**
Tier A, Constituent Quantity	NE
Tier B, Wastestream Quantity	NE
Tier C, Volume	> 0, but unknown
Tier D, Area	NE

NE = not evaluated.

TABLE 3

Source Number	Source Hazardous Waste Quantity Value	SITE SUMMARY OF SOURCE DESCRIPTIONS Containment				
		Ground Water	Surface Water	Soil Exposure Pathway	Gas	Air Particulate
1	> 0	NE	10	NE	NE	NE
TOTAL	> 0, but unknown					

NE = Not Evaluated

The sum of the source hazardous waste quantity values is assigned the Hazardous Waste Quantity Factor Value (Ref. 1, Section 2.4.2.2). The sum of the source hazardous waste quantity values for Greens Bayou, rounded to the nearest integer is > 0, but unknown.

3.0 GROUND WATER MIGRATION PATHWAY

3.0.1 General Considerations

Since the "site" is defined as the accumulated contaminated sediments within the Harris County Flood Control Ditch and Greens Bayou, the Groundwater and Groundwater to Surface Water Pathways will not be evaluated as they are inappropriate for this source type. The Surface Water Pathway will be evaluated to assess potential contaminant migration.

4.0 SURFACE WATER MIGRATION PATHWAY

4.1 OVERLAND/FLOOD MIGRATION COMPONENT

Groundwater samples were not collected as part of the SSI sampling event. The ground water to surface water migration component is not being evaluated. Therefore, only the Overland/Flood Migration to Surface Water Component will be evaluated for the watershed of concern (Ref. 1, Section 4.1).

4.1.1 General Considerations

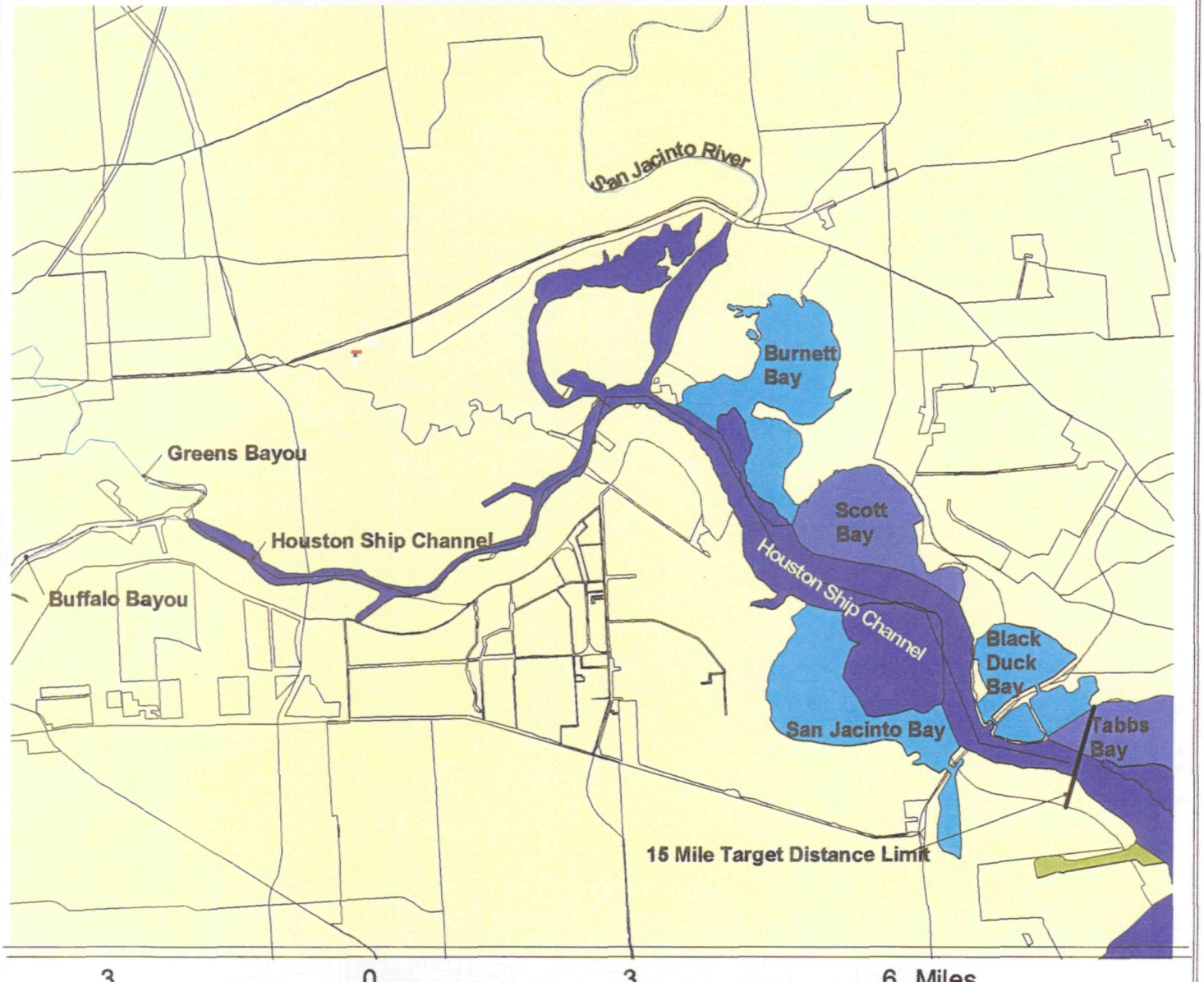
State of Texas Water Quality Segments

The Texas Surface Water Quality Standards (Title 30, Chapter 307 of the Texas Administrative Code) establishes explicit water quality goals throughout the State. Regional hydrologic and geologic diversity is given consideration by dividing major river basins, bay and estuaries into defined segments (referred to as classified and designated segments). Segment-specified standards identify appropriate uses for specific water bodies (aquatic life, contact or non-contact recreation, drinking water, etc.) and list upper and lower limits for common indicators (criteria) of water quality such as dissolved oxygen, temperature, pH, dissolved minerals, and fecal coliform bacteria. Other standards, such as toxic criteria to protect aquatic life and human health, are applied statewide. The Texas Water Quality Segments in the surface water migration pathway of Greens Bayou site are described below.

Greens Bayou - Segment 1006 Houston Ship Channel

Greens Bayou generally flows in a southeasterly direction, with a turn to the southwest, before its confluence with Buffalo Bayou. Greens Bayou flows approximately one mile, from the Harris County Flood Control Ditch to Buffalo Bayou, as shown in Figure 4. Segment 1006 is tidally influenced and is used as a shipping route (Ref. 10, p. 4).

This segment is classified "Water Quality Limited With Advanced Treatment Required." Designated uses include: industrial water supply and navigation (Ref. 9, p. 537). Segment 1006 is a fishery below IH-10, for catfish and blue crabs (Ref. 8; and 9, p. 537). A restricted consumption advisory for the general population and a no consumption advisory for children and women of child-bearing age have been issued by the Texas Department of Health.



Source

The base data sets used are certified by the TNRCC GIS Section.
The map projection is the Texas State Mapping System.

TNRCC *Protecting Texas by Reducing and Preventing Pollution*

Greens Bayou Site

Houston (Harris County) Texas

N

Figure 4
Surface Water Pathway
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Buffalo Bayou - Segment 1006 Houston Ship Channel

Buffalo Bayou generally flows in an easterly direction, and includes a 6.5 mile distance from the confluence with Greens Bayou to Segment 1005 Houston Ship Channel/San Jacinto River, as shown in Figure 4. Segment 1006 is tidally influenced and is used as a shipping route (Ref. 9, p. 537).

This segment is classified "Water Quality Limited With Advanced Treatment Required." Designated uses include: industrial water supply and navigation (Ref. 9, p. 537). Segment 1006 is a fishery for catfish and blue crabs (Ref. 8; and 9, p. 537). A restricted consumption advisory for the general population and a no consumption advisory for children and women of child-bearing age have been issued by the Texas Department of Health.

Houston Ship Channel/San Jacinto River - Segment 1005

The Houston Ship Channel Buffalo Bayou generally flows in a southeasterly direction, and includes a 7.5 mile distance from the confluence with Segment 1006 and extending to the end of the fifteen mile target distance limit, as shown in Figure 4. Segment 1005 is tidally influenced and is used as a shipping route (Ref. 9, p. 531; and 10, p. 4).

This segment is classified "Water Quality Limited With Advanced Treatment Required." Designated uses include: noncontact recreation and high quality aquatic habitat (Ref. 9, p. 531). Segment 1005 is a fishery for catfish and blue crabs (Ref. 8; and 9, p. 531). A restricted consumption advisory for the general population and a no consumption advisory for children and women of child-bearing age have been issued by the Texas Department of Health.

4.1.1.1 Definition of Hazardous Substance Migration Path for Overland/Flood Migration Component

Overland Segment, Probable Point of Entry (PPE), Number of Watersheds

As described in the HRS Rule, Section 4.1.1.1, there is no overland segment for hazardous substance migration from a source area that consists of contaminated sediments with no identified source, and the hazardous substance migration path consists solely of the in-water segment (Ref. 1, Section 4.1.1.1). For the Greens Bayou site, the source area begins at the furthest upstream sediment sample location that meets observed release criteria, which is SE-17 in the Harris County Flood Control Ditch. There is one (1) PPE for this site, identified as sample location SE-09 in Greens Bayou, there is also only one watershed.

4.1.1.2 Target Distance Limit

As specified in the HRS Rule, Section 4.1.1.2, the target distance limit (TDL) is measured from the PPE to the most distant downstream observed release location and if the hazardous substance migration path is reversed by tides, the upstream targets will be evaluated as far as documentation supports the tidal run could carry substances from the PPE (Ref. 1, Section 4.1.1.2).

For the Greens Bayou site, the target distance limit was determined to begin at sediment sample location SE-17 (PPE) located near the former Diamond Shamrock DDT manufacturing facility. The Harris County Flood Control Ditch extends from sample location SE-17 to Greens Bayou, approximately 0.42 miles downstream. From the confluence of the Harris County Flood Control Ditch and Greens Bayou, hazardous substances are documented to travel upstream approximately two miles, and reach sample location SE-03. Hazardous substances also travel from the confluence of the Harris County Flood Control Ditch and Greens Bayou approximately 0.47 miles, at least as far as the furthest downstream sample collected at location SE-13. The 15-mile TDL is located in the Houston Ship Channel, as shown in Figure 4.

Definition of In-Water Segments/Target Distance Limit

The Target Distance Limit (TDL) for this site is comprised of five (5) Hazard Ranking System (HRS) In-Water Segments which are included within two (2) State of Texas Water Quality Stream Segments. The components of these HRS In-Water segments are discussed below:

(1) HRS In-Water Segment No. 1 (Harris County Flood Control Ditch Level II Release): Approximately a 0.42 mile distance between SE-17 and SE-20 is classified as a Level II release.

(2) HRS In-Water Segment No. 2 (Greens Bayou Level II Release):
The 2.47 mile distance from SE-03 to SE-13 is classified as Level II release. The entire segment is located in Stream Segment 1006 Houston Ship Channel of the San Jacinto River Basin.

(3) HRS In-Water Segment No. 3 (Greens Bayou Potential Release): Approximately a 0.53 mile distance from sediment sample SE-13 to Buffalo Bayou, A.K.A. the Houston Ship Channel. The entire segment is located in Stream Segment 1006 Houston Ship Channel of the San Jacinto River Basin.

(4) HRS In-Water Segment No. 4 (Houston Ship Channel Potential Release): Approximately a 6.5 mile distance from the confluence of Greens Bayou and Buffalo Bayou to the confluence of Buffalo Bayou with the San Jacinto River. The entire segment is located in Stream Segment 1006 Houston Ship Channel of the San Jacinto River Basin.

(5) HRS In-Water Segment No. 5 (Houston Ship Channel/San Jacinto River Potential Release): Approximately a 7.8 mile distance from the confluence of Buffalo Bayou and the San Jacinto River to the end of the 15 mile target distance limit. The entire segment is located in Stream Segment 1005 Houston Ship Channel/San Jacinto River of the San Jacinto River Basin.

4.1.1.3 Evaluation of Overland/Flood Migration Component

As described in the HRS Rule, Section 4.1.1.3, since there is only one watershed area, the resulting score for that watershed will become the overland/flood migration component score for the site. In addition, since there were no identified drinking water targets located within the defined TDL, the overland/flood migration component will be evaluated for human food chain and environmental threats, based on three factor categories: likelihood of release, waste characteristics and targets. The resulting Overland/Flood Migration pathway score will be used to evaluate the Surface Water Migration Pathway site score (Ref. 1, Section 4.1.1.3).

4.1.2 Drinking Water Threat

The drinking water threat was not evaluated due to lack of drinking water targets located along the overland/flood migration pathway within the identified TDL. Documentation for an observed release follows, then evaluation will proceed to HRS Rule Sections 4.1.3 and 4.1.4 for evaluation of the human food chain and environmental threats (Ref. 1).

4.1.2.1.1 Observed Release

An observed release can be documented in the HRS system by two methods: (a) direct observation and (b) chemical analysis (Ref. 1, Section 2.3). The chemical analysis method was used for this report.

Chemical Analysis

Establishing an observed release by chemical analysis requires attributing the hazardous substances to the site. First, naturally occurring background concentrations of the hazardous substances must be determined. Second, it must be demonstrated that the concentrations of the hazardous substances in a release sample are significantly above the highest identified background level and some portion of the significant increase must be attributed to the site. In order to document a significant increase above background levels, the hazardous substances must be present in concentrations of at least three times (3x) above the highest identified background level if the hazardous substances are present in the background sample. Or, if the hazardous substances have not been detected in the background samples, then the hazardous substances must be present at concentrations both above the release's and the highest background samples' laboratory Sample Quantitation Limit (SQL) (Ref. 1, Section 2.3).

Background Concentrations

A total of four (4) background samples were collected. Two were collected from upstream locations in Greens Bayou and two were collected from upstream locations in the Harris County Flood Control Ditch. These background samples were collected upstream from site sources for attribution of site contaminants. Table 4 provides a summary of the background samples collected for the SSI. Table 4 separates background samples to be compared with the Harris County Flood Control Ditch and background samples to be compared with Greens Bayou sediment samples. Tables 5A and 5B indicate the highest designated background levels for the inorganic and organic hazardous substances of concern for the site. Table 5A is for use with comparison to the Harris County Flood Control Ditch samples and 5B is for use with Greens Bayou sediment samples. All sediment samples were collected using a sediment coring sampling tool with dedicated tips and zero contamination tubes.

Background samples SE-01 and SE-02 were composite samples collected near the south or southwest bank of Greens Bayou in areas where sediments would collect upstream of IH-10. These two background sediment samples are for comparison with all other Greens Bayou target samples.

Background sediment samples SE-15 and SE-16 were composite samples collected at upstream locations of the Harris County Flood Control Ditch. These two background samples are to be used for comparison with all sediment samples collected in the Harris County Flood Control Ditch.

TABLE 4 Surface Water Pathway

Background Samples (SE-01 & SE-02) were Collected from Greens Bayou

Background Samples (SE-15 & SE-16) were Collected from the Harris County Flood Control Ditch

CLP Sample ID	Sample Location	Sample Depth	Date Collected	Location Reference (Figure 3)
SE-01 MF0791 F0AC4	Greens Bayou approximately 0.81 miles upstream of IH-10	Composite 0"- 12"	06/13/01	Ref. 15, p. 6; and 16, Photos 16 & 17
SE-02 MF0792 F0AC5	Greens Bayou approximately 0.38 miles upstream of IH-10	Composite 0"- 10"	06/13/01	Ref. 15, p. 7; and 16, Photo 15
SE-15 MF07A5 F0AD8	Harris County Flood Control Ditch, approximately 0.10 miles downstream of IH-10	Composite 0"- 15"	06/12/01	Ref. 15, pp. 30 & 31; and 16, Photo 4
SE-16 MF07A6 F0AD9	Harris County Flood Control Ditch, approximately 0.08 miles downstream of IH-10	Composite 0" - 18"	06/12/01	Ref. 15, pp. 32 & 33; and 16, Photo 3

Notes: QA/QC = Quality Assurance/Quality Control

TABLE 5A Surface Water Pathway
Summary of Highest Inorganic and Organic Harris County Flood Control Ditch Background Concentrations
(SE-15 and SE-16)

Constituent	Station ID/ CLP No.	Highest Concentration [SQL]	3 x Highest Background Concentration	Reference
4,4'-DDT	SE-15 F0AD8	6.6JB [4.3] μg/Kg	**19.8 μg/Kg**	Ref. 15, pp. 30 and 31; and 13, p. 196
gamma-Chlordane	SE-16 F0AD9	5 [2.6] μg/Kg	**15 μg/Kg**	Ref. 15, pp. 32 and 33; and 13, p. 197
Aluminum	SE-16 MF07A6	6350 [57.9] mg/Kg	**19050 mg/Kg**	Ref. 15, pp. 32 and 33; and 12, p. 30
Arsenic	SE-16 MF07A6	4.4 [2.9] mg/Kg	**11.7 mg/Kg**	Ref. 15, pp. 32 and 33; and 12, p. 30
Chromium	SE-16 MF07A6	53.1 [2.9] mg/Kg	**159.3 mg/Kg**	Ref. 15, pp. 32 and 33; and 12, p. 30
Copper	SE-16 MF07A6	46.9 [7.2] mg/Kg	**140.7 mg/Kg**	Ref. 15, pp. 32 and 33; and 12, p. 30
Iron	SE-16 MF07A6	9290 [28.9] mg/Kg	**27870 mg/Kg**	Ref. 15, pp. 32 and 33; and 12, p. 30
Manganese	SE-16 MF07A6	390 [4.3] mg/Kg	**1170 mg/Kg**	Ref. 15, pp. 32 and 33; and 12, p. 30
Zinc	SE-16 MF07A6	257 [5.8] mg/Kg	**771 mg/Kg**	Ref. 15, pp. 32 and 33; and 12, p. 30

[SQL] = The sample quantitation limit. SQL for metals is mg/Kg and the SQL for organics is μg/Kg.
J, J^, Jv = The value is estimated concentration because one or more of the quality control criteria have not been met. It is included to show that the substance has been qualitatively identified as present in this source. J^ indicates a high bias and Jv indicates a low bias.

TABLE 5B Surface Water Pathway
Summary of Highest Inorganic Greens Bayou Background Concentrations
(SE-01 and SE-02) (No organics were detected above the SQL)

Inorganic Constituent and Cyanide	Station ID/ CLP No.	Highest Concentration [SQL] mg/Kg	3 x Highest Background Concentration mg/Kg	Reference
Aluminum	SE-01 MF0791	1810 [51.0]	**5430**	Ref. 15, p. 6; and 12, p. 16
Chromium	SE-01 MF0791	3.2 [2.5]	**9.6**	Ref. 15, p. 6; and 12, p. 16
Iron	SE-01 MF0791	2270 [25.5]	**6810**	Ref. 15, p. 6; and 12, p. 16
Manganese	SE-02 MF0792	63.0 [3.7]	**1896**	Ref. 15, p. 7; and 12, p. 17
Zinc	SE-01 MF0791	26.2 [5.1]	**78.6**	Ref. 15, p. 6; and 12, p. 16

[SQL] = The sample quantitation limit. SQL for metals is mg/Kg

All samples were collected according to the EPA approved state Quality Assurance Project Plan and sample locations were approved by the EPA prior to sample collection.

Contaminated Samples

The following samples meet the observed release criteria and are presented below indicating inorganic, organic, and pesticide hazardous substances with their concentrations and SQLs. Several pesticides were detected at high levels in the Harris County Flood Control Ditch. These same pesticides were observed in Greens Bayou at its confluence with the Harris County Flood Control Ditch. Greens Bayou is tidally influenced and the pesticides can be found as far as two miles upstream, at sample location SE-03, as See Figure 3. The pesticides were also observed 0.47 miles downstream, at the furthest downstream sample SE-13. Based on the very high levels of pesticides still detected at sample location SE-13, the release may extend even further downstream. The extent of contamination downstream was not determined due to the stair-step dredging that occurs beyond the point of sediment sample SE-13, which is the beginning point of the federal navigation channel.

It should be noted that due to laboratory dilution of Greens Bayou sediment sample SE-11/ F0AD4, the SQLs for pesticides were increased approximately 1,000 fold and negated the highest level of detection of 4,4'-DDT (1,800 μg/Kg) in Greens Bayou from qualifying as an observed release.

The following samples were qualified as "releases" based on the criteria outlined in the HRS Rule, (Ref. 1, Section 2.3 and Table 2-3).

TABLE 6A Surface Water Pathway Contaminated Sediment Samples Collected from the Harris County Flood Control Ditch

CLP Sample ID	Sample Location	Sample Depth	Date Collected	Location Reference
SE-17 F0AE0 MF07A7	Approximately 0.4 miles upstream of Greens Bayou	Composite 0"- 12"	06/12/01	Figure 3 Ref. 15, pp. 34 & 35 Photo #2
SE-18 F0AE1 MF07A8	Approximately 0.25 miles upstream of Greens Bayou	Composite 0"- 10"	06/12/01	Figure 3 Ref. 15, p. 37 Photo #1
SE-19 F0AE2 MF07A9	Duplicate sample of SE-18 for QA/QC requirements	Composite 0"- 10"	06/12/01	Figure 3 Ref. 15, p. 37 Photo #1
SE-20 F0AE3 MF07B0	Approximately 15 yards upstream of Greens Bayou	Composite 0"- 12"	06/13/01	Figure 3 Ref. 15, p. 41 Photo #18

TABLE 6A CONTINUED Surface Water Pathway Contaminated Sediment Samples Collected from the Harris County Flood Control Ditch				
Sample ID	**Hazardous Substance**	**Concentration**	**[SQL]**	**Reference**
SE-17 F0AE0 Pesticides	alpha-BHC	1900 µg/Kg	[1100]	Ref. 13, p. 199
	beta-BHC	4100 µg/Kg	[1100]	Ref. 13, p. 199
	delta-BHC	50LJ µg/Kg	[110]	Ref. 13, p. 198
	gamma-BHC	43LJ µg/Kg	[110]	Ref. 13, p. 198
	heptachlor	ND	[110]	Ref. 13, p. 198
	dieldrin	ND	[220]	Ref. 13, p. 198
	4,4'-DDE	340 µg/Kg	[220]	Ref. 13, p. 198
	4,4'-DDD	3500J µg/Kg	[220]	Ref. 13, p. 198
	4,4'-DDT	26000 µg/Kg	[2200]	Ref. 13, p. 199
	alpha-Chlordane	ND	[110]	Ref. 13, p. 198
	gamma-Chlordane	25LJ µg/Kg	[110]	Ref. 13, p. 198
	aroclor-1248	ND	[2200]	Ref. 13, p. 198
SE-17 F0AE0 Volatiles	benzene	46 µg/Kg	[13]	Ref. 13, p. 86
	chlorobenzene	73 µg/Kg	[13]	Ref. 13, p. 87
	1,3-Dichlorobenzene	4LJ µg/Kg	[13]	Ref. 13, p. 86
	1,2,4-Trichlorobenzene	ND	[13]	Ref. 13, p. 87
SE-17 F0AE0 Semi-volatiles	hexachlorobenzene	4200 µg/Kg	[880]	Ref. 13, p. 156
	bis(2-Ethylhexyl)phthalate	200LJ µg/Kg	[440]	Ref. 13, p. 153

TABLE 6A CONTINUED Surface Water Pathway Contaminated Sediment Samples Collected from Taylor Bayou				
Sample ID	**Hazardous Substance**	**Concentration**	**[SQL]**	**Reference**
SE-17 MF07A7 Inorganics	aluminum	2180 mg/Kg	[52.6]	Ref. 12, p. 31
	arsenic	8.3 mg/Kg	[2.6]	Ref. 12, p. 31
	chromium	10.2 mg/Kg	[2.6]	Ref. 12, p. 31
	cobalt	31.7 mg/Kg	[13.2]	Ref. 12, p. 31
	copper	8.2 mg/Kg	[6.6]	Ref. 12, p. 31
	iron	3850 mg/Kg	[26.3]	Ref. 12, p. 31
	manganese	131 mg/Kg	[3.9]	Ref. 12, p. 31
	sodium	2020 mg/Kg	[1316]	Ref. 12, p. 31
	zinc	39.4 mg/Kg	[5.3]	Ref. 12, p. 31

TABLE 6A CONTINUED Surface Water Pathway
Contaminated Sediment Samples Collected from Taylor Bayou

Sample ID	Hazardous Substance	Concentration	[SQL]	Reference
SE-18 F0AE1 Pesticides	alpha-BHC	860 µg/Kg	[98]	Ref. 13, p. 200
	beta-BHC	8500J^ µg/Kg	[980]	Ref. 13, p. 201
	delta-BHC	140 µg/Kg	[98]	Ref. 13, p. 200
	gamma-BHC	64LJ µg/Kg	[98]	Ref. 13, p. 200
	heptachlor	ND	[98]	Ref. 13, p. 200
	dieldrin	ND	[190]	Ref. 13, p. 200
	4,4'-DDE	930 µg/Kg	[190]	Ref. 13, p. 200
	4,4'-DDD	9700 µg/Kg	[1900]	Ref. 13, p. 201
	4,4'-DDT	14000 µg/Kg	[1900]	Ref. 13, p. 201
	alpha-Chlordane	ND	[98]	Ref. 13, p. 200
	gamma-Chlordane	24LJ µg/Kg	[98]	Ref. 13, p. 200
	aroclor-1248	ND	[1900]	Ref. 13, p. 200
SE-18 F0AE1 Volatiles	benzene	2LJ µg/Kg	[11]	Ref. 13, p. 89
	chlorobenzene	250J^ µg/Kg	[11]	Ref. 13, p. 90
	1,3-Dichlorobenzene	11 µg/Kg	[11]	Ref. 13, p. 90
	1,2,4-Trichlorobenzene	23Jv µg/Kg	[11]	Ref. 13, p. 90
SE-18 F0AE1 Semi-volatiles	hexachlorobenzene	8400Jv µg/Kg	[1900]	Ref. 13, p. 162
	bis(2-Ethylhexyl)phthalate	45LJ µg/Kg	[380]	Ref. 13, p. 159

TABLE 6A CONTINUED – Surface Water Pathway Contaminated Sediment Samples Collected from Taylor Bayou				
Sample ID	**Hazardous Substance**	**Concentration**	**[SQL]**	**Reference**
SE-18 MF07A8 Inorganics	aluminum	1650 mg/Kg	[48.4]	Ref. 12, p. 32
	arsenic	9.9 mg/Kg	[2.4]	Ref. 12, p. 32
	chromium	5.1 mg/Kg	[2.4]	Ref. 12, p. 32
	cobalt	2.0L mg/Kg	[12.1]	Ref. 12, p. 32
	copper	4.5L mg/Kg	[6.0]	Ref. 12, p. 32
	iron	1270 mg/Kg	[24.2]	Ref. 12, p. 32
	manganese	16.7 mg/Kg	[3.6]	Ref. 12, p. 32
	sodium	267L mg/Kg	[1209]	Ref. 12, p. 32
	zinc	28.1 mg/Kg	[4.8]	Ref. 12, p. 32

TABLE 6A CONTINUED Surface Water Pathway Contaminated Sediment Samples Collected from Taylor Bayou				
Sample ID	**Hazardous Substance**	**Concentration**	**[SQL]**	**Reference**
SE-19 F0AE2 Pesticides	alpha-BHC	820 µg/Kg	[97]	Ref. 13, p. 202
	beta-BHC	3900Jv µg/Kg	[970]	Ref. 13, p. 203
	delta-BHC	78LJ µg/Kg	[97]	Ref. 13, p. 202
	gamma-BHC	30LJ µg/Kg	[97]	Ref. 13, p. 202
	heptachlor	ND	[97]	Ref. 13, p. 202
	dieldrin	ND	[190]	Ref. 13, p. 202
	4,4'-DDE	1100 µg/Kg	[190]	Ref. 13, p. 202
	4,4'-DDD	8800 µg/Kg	[1900]	Ref. 13, p. 203
	4,4'-DDT	12000 µg/Kg	[1900]	Ref. 13, p. 203
	alpha-Chlordane	ND	[97]	Ref. 13, p. 202
	gamma-Chlordane	14LJ µg/Kg	[97]	Ref. 13, p. 202
	aroclor-1248	ND	[1900]	Ref. 13, p. 202
SE-19 F0AE2 Volatiles	benzene	1LJ µg/Kg	[10]	Ref. 13, p. 95
	chlorobenzene	160J^ µg/Kg	[10]	Ref. 13, p. 96
	1,3-Dichlorobenzene	16 µg/Kg	[10]	Ref. 13, p. 96
	1,2,4-Trichlorobenzene	76J^ µg/Kg	[10]	Ref. 13, p. 96
SE-19 F0AE2 Semi-volatiles	hexachlorobenzene	18000J^ µg/Kg	[3800]	Ref. 13, p. 168
	bis(2-Ethylhexyl)phthalate	39LJ µg/Kg	[380]	Ref. 13, p. 165

TABLE 6A CONTINUED Surface Water Pathway Contaminated Sediment Samples Collected from Taylor Bayou				
Sample ID	**Hazardous Substance**	**Concentration**	**[SQL]**	**Reference**
SE-19 MF07A9 Inorganics	aluminum	1060 mg/Kg	[47.3]	Ref. 12, p. 33
	arsenic	13 mg/Kg	[2.4]	Ref. 12, p. 33
	chromium	3.4 mg/Kg	[2.4]	Ref. 12, p. 33
	cobalt	3.1L mg/Kg	[11.8]	Ref. 12, p. 33
	copper	4.1L mg/Kg	[5.9]	Ref. 12, p. 33
	iron	1470 mg/Kg	[23.6]	Ref. 12, p. 33
	manganese	20.7 mg/Kg	[3.5]	Ref. 12, p. 33
	sodium	174L mg/Kg	[1182]	Ref. 12, p. 33
	zinc	18.6 mg/Kg	[4.7]	Ref. 12, p. 33

TABLE 6A CONTINUED Surface Water Pathway Contaminated Sediment Samples Collected from Taylor Bayou				
Sample ID	**Hazardous Substance**	**Concentration**	**[SQL]**	**Reference**
SE-20 F0AE3 Pesticides	alpha-BHC	10000 μg/Kg	[1000]	Ref. 13, p. 205
	beta-BHC	5000 μg/Kg	[1000]	Ref. 13, p. 205
	delta-BHC	32LJ μg/Kg	[100]	Ref. 13, p. 204
	gamma-BHC	49LJ μg/Kg	[100]	Ref. 13, p. 204
	heptachlor	ND	[100]	Ref. 13, p. 204
	dieldrin	ND	[200]	Ref. 13, p. 204
	4,4'-DDE	260J μg/Kg	[200]	Ref. 13, p. 204
	4,4'-DDD	2200 μg/Kg	[200]	Ref. 13, p. 204
	4,4'-DDT	9400 μg/Kg	[2000]	Ref. 13, p. 205
	alpha-Chlordane	ND	[100]	Ref. 13, p. 204
	gamma-Chlordane	ND	[100]	Ref. 13, p. 204
	aroclor-1248	ND	[2000]	Ref. 13, p. 204
SE-20 F0AE3 Volatiles	benzene	2LJ μg/Kg	[12]	Ref. 13, p. 101
	chlorobenzene	110J μg/Kg	[12]	Ref. 13, p. 102
	1,3-Dichlorobenzene	ND	[12]	Ref. 13, p. 102
	1,2,4-Trichlorobenzene	ND	[12]	Ref. 13, p. 102
SE-20 F0AE3 Semi-volatiles	hexachlorobenzene	990 μg/Kg	[410]	Ref. 13, p. 171
	bis(2-Ethylhexyl)phthalate	130LJ μg/Kg	[410]	Ref. 13, p. 171

TABLE 6A CONTINUED Surface Water Pathway Contaminated Sediment Samples Collected from Taylor Bayou				
Sample ID	**Hazardous Substance**	**Concentration**	**[SQL]**	**Reference**
SE-20 MF07B0 Inorganics	aluminum	1980 mg/Kg	[55.1]	Ref. 12, p. 34
	arsenic	22.9 mg/Kg	[2.8]	Ref. 12, p. 34
	chromium	8.4 mg/Kg	[2.8]	Ref. 12, p. 34
	cobalt	9.2L mg/Kg	[13.8]	Ref. 12, p. 34
	copper	11.6 mg/Kg	[6.9]	Ref. 12, p. 34
	iron	3180 mg/Kg	[27.5]	Ref. 12, p. 34
	manganese	115 mg/Kg	[4.1]	Ref. 12, p. 34
	sodium	387L mg/Kg	[1377]	Ref. 12, p. 34
	zinc	59.8 mg/Kg	[5.5]	Ref. 12, p. 34

ND = Not detected. Concentrations for these constituents were not detected at the reported quantitation limit in sediment samples.
NA = Not applicable
[SQL] = The sample quantitation limit. SQL for metals is mg/Kg and the SQL for organics is μg/Kg.
J, J^, Jv = The value is an estimated concentration because one or more of the quality control criteria have not been met. It is included to show that the substance has been qualitatively identified as present in this sample. J^ indicates a high bias and Jv indicates a low bias.
L = Reported concentration is between the IDL and CRDL.
IDL = Instrument detection limit.
CRDL = Contract required detection limit.
B = This result may be high biased because of laboratory/field contamination. The reported concentration is above 5X or 10X the concentration reported in the method/field blank.
UC = Reported concentration should be used as a raised detection limit because of apparent blank contamination.
Shaded samples = The sample met observed release criteria for that hazardous substance.

TABLE 6B Surface Water Pathway
Contaminated Sediment Samples Collected from Greens Bayou

CLP Sample ID	Sample Location	Sample Depth	Date Collected	Location Reference
SE-03 F0AC6 MF0793	Greens Bayou approximately two miles upstream of the HCFCD	Composite 0"-10"	6/13/01	Figure 3 Ref. 15, pp. 8 & 9; and 16, Photo # 14
SE-14 F0AD7	Duplicate sample of SE-03 for QA/QC requirements	Composite 0"-10"	6/13/01	Figure 3 Ref. 15, p. 29; and 16, Photo # 14
SE-04 F0AC7 MF0794	Greens Bayou approximately 1.06 miles upstream of the HCFCD	Composite 0"-14"	6/13/01	Figure 3 Ref. 15, pp. 10&11; and 16, Photo # 13
SE-05 F0AC8 MF0795	Greens Bayou approximately 0.37 miles upstream of the HCFCD	Composite 0"-10"	6/13/01	Figure 3 Ref. 15, pp. 12&13; and 16 Photo # 12
SE-06 F0AC9 MF0796	Greens Bayou approximately 250 yards upstream of the HCFCD	Composite 0"-8"	6/13/01	Figure 3 Ref. 15, pp. 14&15; and 16, Photo # 11
SE-07 F0AD0 MF0797	Duplicate sample of SE-06 for QA/QC requirements.	Composite 0"-8"	6/13/01	Figure 3 Ref. 15, pp. 14&15; and 16, Photo # 11
SE-08 F0AD1 MF0798	Greens Bayou approximately 50 yards upstream of the HCFCD	Composite 0"-12"	6/13/01	Figure 3 Ref. 15, pp. 16&17; and 16, Photo # 10
SE-09 F0AD2 MF0799	Greens Bayou at its confluence with the HCFCD (PPE)	Composite 0"-12"	6/13/01	Figure 3 Ref. 15, pp. 18&19; and 16, Photo # 9
SE-10 F0AD3 MF07A0	Greens Bayou approximately 50 yards downstream of the HCFCD	Composite 0"-12"	6/13/01	Figure 3 Ref. 15, pp. 20&21; and 16, Photo # 8

TABLE 6B Surface Water Pathway Contaminated Sediment Samples Collected from Greens Bayou				
CLP Sample ID	**Sample Location**	**Sample Depth**	**Date Collected**	**Location Reference**
SE-11 F0AD4 MF07A1	Greens Bayou approximately 250 yards downstream of the HCFCD	Composite 0"-12"	6/13/01	Figure 3 Ref. 15, pp. 22&23; and 16, Photo # 7
SE-12 F0AD5 MF07A2	Greens Bayou approximately 1/4 mile downstream of the HCFCD	Composite 0"-12"	6/13/01	Figure 3 Ref. 15, pp. 24&25; and 16, Photo # 6
SE-13 F0AD6 MF07A3	Greens Bayou approximately ½ mile downstream of the HCFCD	Composite 0"-12"	6/13/01	Figure 3 Ref. 15, pp. 26&27; and 16, Photo # 5

TABLE 6B CONTINUED Surface Water Pathway Contaminated Sediment Samples Collected from Greens Bayou				
Sample ID	**Hazardous Substance**	**Concentration**	**[SQL]**	**Reference**
SE-03 F0AC6 Pesticides	alpha-BHC	3.9J^ µg/Kg	[2.0]	Ref. 13, p. 175
	beta-BHC	1.9LJ µg/Kg	[2.0]	Ref. 13, p. 175
	delta-BHC	ND	[2.0]	Ref. 13, p. 175
	gamma-BHC	ND	[2.0]	Ref. 13, p. 175
	heptachlor	0.42LJ µg/Kg	[2.0]	Ref. 13, p. 175
	dieldrin	3.4LJ µg/Kg	[3.8]	Ref. 13, p. 175
	4,4'-DDE	1.7LJ µg/Kg	[3.8]	Ref. 13, p. 175
	4,4'-DDD	1.0LJ µg/Kg	[3.8]	Ref. 13, p. 175
	4,4'-DDT	1.2LJB µg/Kg	[3.8]	Ref. 13, p. 175
	alpha-Chlordane	ND	[2.0]	Ref. 13, p. 175
	gamma-Chlordane	1.2LJ µg/Kg	[2.0]	Ref. 13, p. 175
	aroclor-1248	290J^ µg/Kg	[38]	Ref. 13, p. 175
SE-03 F0AC6 Volatiles	benzene	ND	[11]	Ref. 13, p. 44
	chlorobenzene	ND	[11]	Ref. 13, p. 45
	1,3-Dichlorobenzene	ND	[11]	Ref. 13, p. 45
	1,2,4-Trichlorobenzene	ND	[11]	Ref. 13, p. 45
SE-03 F0AC6 Semi-volatiles	hexachlorobenzene	ND	[380]	Ref. 13, p. 111
	bis(2-Ethylhexyl)phthalate	87LJ µg/Kg	[380]	Ref. 13, p. 111

TABLE 6B CONTINUED Surface Water Pathway Contaminated Sediment Samples Collected from Taylor Bayou				
Sample ID	**Hazardous Substance**	**Concentration**	**[SQL]**	**Reference**
SE-03 MF0793 Inorganics	aluminum	1330 mg/Kg	[48.1]	Ref. 12, p. 18
	arsenic	ND	[2.4]	Ref. 12, p. 18
	chromium	2.0L mg/Kg	[2.4]	Ref. 12, p. 18
	cobalt	2.5L mg/Kg	[12.0]	Ref. 12, p. 18
	copper	6.2 mg/Kg	[6.0]	Ref. 12, p. 18
	iron	1410 mg/Kg	[24.0]	Ref. 12, p. 18
	manganese	53.8 mg/Kg	[3.6]	Ref. 12, p. 18
	sodium	155L mg/Kg	[1202]	Ref. 12, p. 18
	zinc	29.9 mg/Kg	[4.8]	Ref. 12, p. 18

TABLE 6B CONTINUED Surface Water Pathway
Contaminated Sediment Samples Collected from Greens Bayou

Sample ID	Hazardous Substance	Concentration	[SQL]	Reference
SE-14 F0AD7 Pesticides	alpha-BHC	1.4LJv μg/Kg	[1.9]	Ref. 13, p. 195
	beta-BHC	1.0LJ μg/Kg	[1.9]	Ref. 13, p. 195
	delta-BHC	ND	[1.9]	Ref. 13, p. 195
	gamma-BHC	ND	[1.9]	Ref. 13, p. 195
	heptachlor	ND	[1.9]	Ref. 13, p. 195
	dieldrin	1.5LJ μg/Kg	[3.7]	Ref. 13, p. 195
	4,4'-DDE	1.1LJ μg/Kg	[3.7]	Ref. 13, p. 195
	4,4'-DDD	0.62LJ μg/Kg	[3.7]	Ref. 13, p. 195
	4,4'-DDT	0.87LJB μg/Kg	[3.7]	Ref. 13, p. 195
	alpha-Chlordane	ND	[1.9]	Ref. 13, p. 195
	gamma-Chlordane	1.1LJ μg/Kg	[1.9]	Ref. 13, p. 195
	aroclor-1248	NDJv	[37]	Ref. 13, p. 195
SE-14 F0AD7 Volatiles	benzene	ND	[11]	Ref. 13, p. 77
	chlorobenzene	ND	[11]	Ref. 13, p. 78
	1,3-Dichlorobenzene	ND	[11]	Ref. 13, p. 78
	1,2,4-Trichlorobenzene	ND	[11]	Ref. 13, p. 78
SE-14 F0AD7 Semi-volatiles	hexachlorobenzene	ND	[370]	Ref. 13, p. 144
	bis(2-Ethylhexyl)phthalate	78LJ μg/Kg	[370]	Ref. 13, p. 144

TABLE 6B CONTINUED Surface Water Pathway Contaminated Sediment Samples Collected from Taylor Bayou				
Sample ID	**Hazardous Substance**	**Concentration**	**[SQL]**	**Reference**
SE-14 MF07A4 Inorganics	aluminum	1970 mg/Kg	[48.4]	Ref. 12, p. 28
	arsenic	ND	[2.4]	Ref. 12, p. 28
	chromium	8.3 mg/Kg	[2.4]	Ref. 12, p. 28
	cobalt	2.1L mg/Kg	[12.1]	Ref. 12, p. 28
	copper	5.9L mg/Kg	[6.0]	Ref. 12, p. 28
	iron	1700 mg/Kg	[24.2]	Ref. 12, p. 28
	manganese	54.2 mg/Kg	[3.6]	Ref. 12, p. 28
	sodium	231L mg/Kg	[1209]	Ref. 12, p. 28
	zinc	19.5 mg/Kg	[4.8]	Ref. 12, p. 28

TABLE 6B CONTINUED Surface Water Pathway
Contaminated Sediment Samples Collected from Greens Bayou

Sample ID	Hazardous Substance	Concentration	[SQL]	Reference
SE-04 F0AC7 Pesticides	alpha-BHC	2.9 μg/Kg	[1.9]	Ref. 13, p. 176
	beta-BHC	2.4 μg/Kg	[1.9]	Ref. 13, p. 176
	delta-BHC	ND	[1.9]	Ref. 13, p. 176
	gamma-BHC	ND	[1.9]	Ref. 13, p. 176
	heptachlor	0.2LJ μg/Kg	[1.9]	Ref. 13, p. 176
	dieldrin	0.63LJ μg/Kg	[3.8]	Ref. 13, p. 176
	4,4'-DDE	0.48LJ μg/Kg	[3.8]	Ref. 13, p. 176
	4,4'-DDD	0.92LJ μg/Kg	[3.8]	Ref. 13, p. 176
	4,4'-DDT	3.1LJ μg/Kg	[3.8]	Ref. 13, p. 176
	alpha-Chlordane	0.28LJ μg/Kg	[1.9]	Ref. 13, p. 176
	gamma-Chlordane	0.25LJ μg/Kg	[1.9]	Ref. 13, p. 176
	aroclor-1248	ND	[38]	Ref. 13, p. 176
SE-04 F0AC7 Volatiles	benzene	ND	[11]	Ref. 13, p. 47
	chlorobenzene	ND	[11]	Ref. 13, p. 48
	1,3-Dichlorobenzene	ND	[11]	Ref. 13, p. 48
	1,2,4-Trichlorobenzene	ND	[11]	Ref. 13, p. 48
SE-04 F0AC7 Semi-volatiles	hexachlorobenzene	ND	[380]	Ref. 13, p. 114
	bis(2-Ethylhexyl)phthalate	100LJ μg/Kg	[380]	Ref. 13, p. 114

TABLE 6B CONTINUED Surface Water Pathway Contaminated Sediment Samples Collected from Taylor Bayou				
Sample ID	**Hazardous Substance**	**Concentration**	**[SQL]**	**Reference**
SE-04 MF0794 Inorganics	aluminum	1080 mg/Kg	[49.7]	Ref. 12, p. 19
	arsenic	1.2LUC mg/Kg	[2.5]	Ref. 12, p. 19
	chromium	2.8 mg/Kg	[2.5]	Ref. 12, p. 19
	cobalt	1.3LJv mg/Kg	[12.4]	Ref. 12, p. 19
	copper	8.4 mg/Kg	[6.2]	Ref. 12, p. 19
	iron	1650 mg/Kg	[24.8]	Ref. 12, p. 19
	manganese	58.6 mg/Kg	[3.7]	Ref. 12, p. 19
	sodium	244L mg/Kg	[1242]	Ref. 12, p. 19
	zinc	32.8 mg/Kg	[5.0]	Ref. 12, p. 19

TABLE 6B CONTINUED Surface Water Pathway Contaminated Sediment Samples Collected from Greens Bayou				
Sample ID	**Hazardous Substance**	**Concentration**	**[SQL]**	**Reference**
SE-05 F0AC8 Pesticides	alpha-BHC	40 μg/Kg	[9.7]	Ref. 13, p. 179
	beta-BHC	12 μg/Kg	[1.9]	Ref. 13, p. 178
	delta-BHC	ND	[1.9]	Ref. 13, p. 178
	gamma-BHC	ND	[1.9]	Ref. 13, p. 178
	heptachlor	ND	[1.9]	Ref. 13, p. 178
	dieldrin	0.55LJ μg/Kg	[3.8]	Ref. 13, p. 178
	4,4'-DDE	3.0LJ μg/Kg	[3.8]	Ref. 13, p. 178
	4,4'-DDD	3.1LJ μg/Kg	[3.8]	Ref. 13, p. 178
	4,4'-DDT	7.1 μg/Kg	[3.8]	Ref. 13, p. 178
	alpha-Chlordane	1.6LJ μg/Kg	[1.9]	Ref. 13, p. 178
	gamma-Chlordane	1.6LJ μg/Kg	[1.9]	Ref. 13, p. 178
	aroclor-1248	ND	[38]	Ref. 13, p. 178
SE-05 F0AC8 Volatiles	benzene	ND	[11]	Ref. 13, p. 50
	chlorobenzene	120J μg/Kg	[11]	Ref. 13, p. 50
	1,3-Dichlorobenzene	ND	[11]	Ref. 13, p. 50
	1,2,4-Trichlorobenzene	ND	[11]	Ref. 13, p. 50
SE-05 F0AC8 Semi-volatiles	hexachlorobenzene	ND	[380]	Ref. 13, p. 117
	bis(2-Ethylhexyl)phthalate	130LJ μg/Kg	[380]	Ref. 13, p. 117

TABLE 6B CONTINUED Surface Water Pathway Contaminated Sediment Samples Collected from Taylor Bayou				
Sample ID	**Hazardous Substance**	**Concentration**	**[SQL]**	**Reference**
SE-05 MF0795 Inorganics	aluminum	1280 mg/Kg	[49.3]	Ref. 12, p. 20
	arsenic	1.6LUC mg/Kg	[2.5]	Ref. 12, p. 20
	chromium	2.1L mg/Kg	[2.5]	Ref. 12, p. 20
	cobalt	1.1LJv mg/Kg	[12.3]	Ref. 12, p. 20
	copper	3.9L mg/Kg	[6.2]	Ref. 12, p. 20
	iron	1260 mg/Kg	[24.7]	Ref. 12, p. 20
	manganese	40.7 mg/Kg	[3.7]	Ref. 12, p. 20
	sodium	121L mg/Kg	[1233]	Ref. 12, p. 20
	zinc	12.0 mg/Kg	[4.9]	Ref. 12, p. 20

TABLE 6B CONTINUED Surface Water Pathway
Contaminated Sediment Samples Collected from Greens Bayou

Sample ID	Hazardous Substance	Concentration	[SQL]	Reference
SE-06 F0AC9 Pesticides	alpha-BHC	5.6J µg/Kg	[2.4]	Ref. 13, p. 180
	beta-BHC	6.6J^ µg/Kg	[2.4]	Ref. 13, p. 180
	delta-BHC	1.1LJ µg/Kg	[2.4]	Ref. 13, p. 180
	gamma-BHC	1.6LJ µg/Kg	[2.4]	Ref. 13, p. 180
	heptachlor	1.9LJ µg/Kg	[2.4]	Ref. 13, p. 180
	dieldrin	4.8J µg/Kg	[4.6]	Ref. 13, p. 180
	4,4'-DDE	14J µg/Kg	[4.6]	Ref. 13, p. 180
	4,4'-DDD	36J^ µg/Kg	[4.6]	Ref. 13, p. 180
	4,4'-DDT	43J^ µg/Kg	[4.6]	Ref. 13, p. 180
	alpha-Chlordane	2.3LJ µg/Kg	[2.4]	Ref. 13, p. 180
	gamma-Chlordane	4.7J^ µg/Kg	[2.4]	Ref. 13, p. 180
	aroclor-1248	ND	[46]	Ref. 13, p. 180
SE-06 F0AC9 Volatiles	benzene	ND	[14]	Ref. 13, p. 53
	chlorobenzene	ND	[14]	Ref. 13, p. 54
	1,3-Dichlorobenzene	ND	[14]	Ref. 13, p. 54
	1,2,4-Trichlorobenzene	ND	[14]	Ref. 13, p. 54
SE-06 F0AC9 Semi-volatiles	hexachlorobenzene	ND	[460]	Ref. 13, p. 120
	bis(2-Ethylhexyl)phthalate	400LJ µg/Kg	[460]	Ref. 13, p. 120

TABLE 6B CONTINUED Surface Water Pathway Contaminated Sediment Samples Collected from Taylor Bayou				
Sample ID	**Hazardous Substance**	**Concentration**	**[SQL]**	**Reference**
SE-06 MF0796 Inorganics	aluminum	5770 mg/Kg	[62.7]	Ref. 12, p. 21
	arsenic	2.7LUC mg/Kg	[3.1]	Ref. 12, p. 21
	chromium	10 mg/Kg	[3.1]	Ref. 12, p. 21
	cobalt	5.0L mg/Kg	[15.7]	Ref. 12, p. 21
	copper	16.7 mg/Kg	[7.8]	Ref. 12, p. 21
	iron	8800 mg/Kg	[31.3]	Ref. 12, p. 21
	manganese	182 mg/Kg	[4.7]	Ref. 12, p. 21
	sodium	852L mg/Kg	[1567]	Ref. 12, p. 21
	zinc	95.8 mg/Kg	[6.3]	Ref. 12, p. 21

TABLE 6B CONTINUED Surface Water Pathway Contaminated Sediment Samples Collected from Greens Bayou				
Sample ID	**Hazardous Substance**	**Concentration**	**[SQL]**	**Reference**
SE-07 F0AD0 Pesticides	alpha-BHC	5.8J µg/Kg	[2.3]	Ref. 13, p. 182
	beta-BHC	3.2Jv µg/Kg	[2.3]	Ref. 13, p. 182
	delta-BHC	ND	[2.3]	Ref. 13, p. 182
	gamma-BHC	ND	[2.3]	Ref. 13, p. 182
	heptachlor	2.9 µg/Kg	[2.3]	Ref. 13, p. 182
	dieldrin	2.9LJ µg/Kg	[4.5]	Ref. 13, p. 182
	4,4'-DDE	7.5J µg/Kg	[4.5]	Ref. 13, p. 182
	4,4'-DDD	14Jv µg/Kg	[4.5]	Ref. 13, p. 182
	4,4'-DDT	2.1LJv µg/Kg	[4.5]	Ref. 13, p. 182
	alpha-Chlordane	2.2LJ µg/Kg	[2.3]	Ref. 13, p. 182
	gamma-Chlordane	1.9LJv µg/Kg	[2.3]	Ref. 13, p. 182
	aroclor-1248	ND	[45]	Ref. 13, p. 182
SE-07 F0AD0 Volatiles	benzene	ND	[14]	Ref. 13, p. 56
	chlorobenzene	ND	[14]	Ref. 13, p. 57
	1,3-Dichlorobenzene	ND	[14]	Ref. 13, p. 57
	1,2,4-Trichlorobenzene	ND	[14]	Ref. 13, p. 57
SE-07 F0AD0 Semi-volatiles	hexachlorobenzene	ND	[450]	Ref. 13, p. 123
	bis(2-Ethylhexyl)phthalate	550 µg/Kg	[450]	Ref. 13, p. 123

TABLE 6B CONTINUED Surface Water Pathway Contaminated Sediment Samples Collected from Taylor Bayou				
Sample ID	**Hazardous Substance**	**Concentration**	**[SQL]**	**Reference**
SE-07 MF0797 Inorganics	aluminum	5380 mg/Kg	[57.7]	Ref. 12, p. 22
	arsenic	3.3UC mg/Kg	[2.9]	Ref. 12, p. 22
	chromium	9.3 mg/Kg	[2.9]	Ref. 12, p. 22
	cobalt	4.8L mg/Kg	[14.4]	Ref. 12, p. 22
	copper	15.6 mg/Kg	[7.2]	Ref. 12, p. 22
	iron	6660 mg/Kg	[28.9]	Ref. 12, p. 22
	manganese	137 mg/Kg	[4.3]	Ref. 12, p. 22
	sodium	936L mg/Kg	[1443]	Ref. 12, p. 22
	zinc	84.1 mg/Kg	[5.8]	Ref. 12, p. 22

TABLE 6B CONTINUED Surface Water Pathway Contaminated Sediment Samples Collected from Greens Bayou				
Sample ID	**Hazardous Substance**	**Concentration**	**[SQL]**	**Reference**
SE-08 F0AD1 Pesticides	alpha-BHC	120 μg/Kg	[10]	Ref. 13, p. 183
	beta-BHC	18J μg/Kg	[10]	Ref. 13, p. 183
	delta-BHC	23 μg/Kg	[10]	Ref. 13, p. 183
	gamma-BHC	11 μg/Kg	[10]	Ref. 13, p. 183
	heptachlor	ND	[10]	Ref. 13, p. 183
	dieldrin	ND	[20]	Ref. 13, p. 183
	4,4'-DDE	15LJ μg/Kg	[20]	Ref. 13, p. 183
	4,4'-DDD	120 μg/Kg	[20]	Ref. 13, p. 183
	4,4'-DDT	1200 μg/Kg	[20]	Ref. 13, p. 184
	alpha-Chlordane	ND	[10]	Ref. 13, p. 183
	gamma-Chlordane	1.8LJ μg/Kg	[10]	Ref. 13, p. 183
	aroclor-1248	ND	[200]	Ref. 13, p. 183
SE-08 F0AD1 Volatiles	benzene	ND	[12]	Ref. 13, p. 59
	chlorobenzene	160J μg/Kg	[12]	Ref. 13, p. 60
	1,3-Dichlorobenzene	ND	[12]	Ref. 13, p. 60
	1,2,4-Trichlorobenzene	ND	[12]	Ref. 13, p. 60
SE-08 F0AD1 Semi-volatiles	hexachlorobenzene	ND	[410]	Ref. 13, p. 126
	bis(2-Ethylhexyl)phthalate	190LJ μg/Kg	[410]	Ref. 13, p. 126

TABLE 6B CONTINUED Surface Water Pathway Contaminated Sediment Samples Collected from Taylor Bayou				
Sample ID	**Hazardous Substance**	**Concentration**	**[SQL]**	**Reference**
SE-08 MF0798 Inorganics	aluminum	2890 mg/Kg	[55.6]	Ref. 12, p. 23
	arsenic	2.8LUC mg/Kg	[2.8]	Ref. 12, p. 23
	chromium	6.4 mg/Kg	[2.8]	Ref. 12, p. 23
	cobalt	3.8L mg/Kg	[13.9]	Ref. 12, p. 23
	copper	10.7 mg/Kg	[6.9]	Ref. 12, p. 23
	iron	4050 mg/Kg	[27.8]	Ref. 12, p. 23
	manganese	520 mg/Kg	[4.2]	Ref. 12, p. 23
	sodium	686L mg/Kg	[1389]	Ref. 12, p. 23
	zinc	54.8 mg/Kg	[5.6]	Ref. 12, p. 23

TABLE 6B CONTINUED Surface Water Pathway
Contaminated Sediment Samples Collected from Greens Bayou

Sample ID	Hazardous Substance	Concentration	[SQL]	Reference
SE-09 F0AD2 Pesticides	alpha-BHC	23 μg/Kg	[1.9]	Ref. 13, p. 185
	beta-BHC	26J μg/Kg	[1.9]	Ref. 13, p. 185
	delta-BHC	ND	[1.9]	Ref. 13, p. 185
	gamma-BHC	0.36LJ μg/Kg	[1.9]	Ref. 13, p. 185
	heptachlor	ND	[1.9]	Ref. 13, p. 185
	dieldrin	ND	[3.8]	Ref. 13, p. 185
	4,4'-DDE	8.4J μg/Kg	[3.8]	Ref. 13, p. 185
	4,4'-DDD	48 μg/Kg	[3.8]	Ref. 13, p. 185
	4,4'-DDT	80 μg/Kg	[3.8]	Ref. 13, p. 185
	alpha-Chlordane	2.3J μg/Kg	[1.9]	Ref. 13, p. 185
	gamma-Chlordane	4 μg/Kg	[1.9]	Ref. 13, p. 185
	aroclor-1248	ND	[38]	Ref. 13, p. 185
SE-09 F0AD2 Volatiles	benzene	ND	[11]	Ref. 13, p. 62
	chlorobenzene	5LJ μg/Kg	[11]	Ref. 13, p. 63
	1,3-Dichlorobenzene	ND	[11]	Ref. 13, p. 63
	1,2,4-Trichlorobenzene	ND	[11]	Ref. 13, p. 63
SE-09 F0AD2 Semi-volatiles	hexachlorobenzene	180LJ μg/Kg	[410]	Ref. 13, p. 129
	bis(2-Ethylhexyl)phthalate	52LJ μg/Kg	[410]	Ref. 13, p. 129

TABLE 6B CONTINUED Surface Water Pathway Contaminated Sediment Samples Collected from Taylor Bayou				
Sample ID	**Hazardous Substance**	**Concentration**	**[SQL]**	**Reference**
SE-09 MF0799 Inorganics	aluminum	1020 mg/Kg	[48.2]	Ref. 12, p. 24
	arsenic	1.2L mg/Kg	[2.4]	Ref. 12, p. 24
	chromium	2.9 mg/Kg	[2.4]	Ref. 12, p. 24
	cobalt	1.8L mg/Kg	[12.0]	Ref. 12, p. 24
	copper	6.9 mg/Kg	[6.0]	Ref. 12, p. 24
	iron	1680 mg/Kg	[24.1]	Ref. 12, p. 24
	manganese	62.7 mg/Kg	[3.6]	Ref. 12, p. 24
	sodium	161L mg/Kg	[1205]	Ref. 12, p. 24
	zinc	27.9 mg/Kg	[4.8]	Ref. 12, p. 24

TABLE 6B CONTINUED Surface Water Pathway
Contaminated Sediment Samples Collected from Greens Bayou

Sample ID	Hazardous Substance	Concentration	[SQL]	Reference
SE-10 F0AD3 Pesticides	alpha-BHC	13 μg/Kg	[11]	Ref. 13, p. 187
	beta-BHC	15J μg/Kg	[11]	Ref. 13, p. 187
	delta-BHC	1.9LJ μg/Kg	[11]	Ref. 13, p. 187
	gamma-BHC	ND	[11]	Ref. 13, p. 187
	heptachlor	ND	[11]	Ref. 13, p. 187
	dieldrin	3.0LJ μg/Kg	[21]	Ref. 13, p. 187
	4,4'-DDE	190J μg/Kg	[21]	Ref. 13, p. 187
	4,4'-DDD	990 μg/Kg	[21]	Ref. 13, p. 187
	4,4'-DDT	1100 μg/Kg	[21]	Ref. 13, p. 187
	alpha-Chlordane	ND	[11]	Ref. 13, p. 187
	gamma-Chlordane	14J μg/Kg	[11]	Ref. 13, p. 187
	aroclor-1248	ND	[210]	Ref. 13, p. 187
SE-10 F0AD3 Volatiles	benzene	ND	[13]	Ref. 13, p. 65
	chlorobenzene	82J μg/Kg	[13]	Ref. 13, p. 66
	1,3-Dichlorobenzene	ND	[13]	Ref. 13, p. 66
	1,2,4-Trichlorobenzene	ND	[13]	Ref. 13, p. 66
SE-10 F0AD3 Semi-volatiles	hexachlorobenzene	65LJ μg/Kg	[380]	Ref. 13, p. 132
	bis(2-Ethylhexyl)phthalate	150LJ μg/Kg	[380]	Ref. 13, p. 132

TABLE 6B CONTINUED Surface Water Pathway Contaminated Sediment Samples Collected from Taylor Bayou				
Sample ID	**Hazardous Substance**	**Concentration**	**[SQL]**	**Reference**
SE-10 MF07A0 Inorganics	aluminum	2520 mg/Kg	[53.2]	Ref. 12, p. 25
	arsenic	1.1L mg/Kg	[2.7]	Ref. 12, p. 25
	chromium	5.8 mg/Kg	[2.7]	Ref. 12, p. 25
	cobalt	2.7L mg/Kg	[13.3]	Ref. 12, p. 25
	copper	10.1 mg/Kg	[6.6]	Ref. 12, p. 25
	iron	3420 mg/Kg	[26.6]	Ref. 12, p. 25
	manganese	101 mg/Kg	[4.0]	Ref. 12, p. 25
	sodium	627L mg/Kg	[1330]	Ref. 12, p. 25
	zinc	54.1 mg/Kg	[5.3]	Ref. 12, p. 25

TABLE 6B CONTINUED Surface Water Pathway
Contaminated Sediment Samples Collected from Greens Bayou

Sample ID	Hazardous Substance	Concentration	[SQL]	Reference
SE-11 F0AD4 Pesticides	alpha-BHC	22000 μg/Kg	[10K]	Ref. 13, pp. 190
	beta-BHC	7600 μg/Kg	[1000]	Ref. 13, pp. 189
	delta-BHC	ND	[1000]	Ref. 13, pp. 189
	gamma-BHC	120LJ μg/Kg	[1000]	Ref. 13, pp. 189
	heptachlor	ND	[1000]	Ref. 13, pp. 189
	dieldrin	ND	[2000]	Ref. 13, pp. 189
	4,4'-DDE	ND	[2000]	Ref. 13, pp. 189
	4,4'-DDD	510LJ μg/Kg	[2000]	Ref. 13, pp. 189
	4,4'-DDT	1800LJ μg/Kg	[2000]	Ref. 13, pp. 189
	alpha-Chlordane	ND	[1000]	Ref. 13, pp. 189
	gamma-Chlordane	ND	[1000]	Ref. 13, pp. 189
	aroclor-1248	ND	[20K]	Ref. 13, pp. 189
SE-11 F0AD4 Volatiles	benzene	2LJ μg/Kg	[12]	Ref. 13, pp. 68
	chlorobenzene	8LJ μg/Kg	[12]	Ref. 13, pp. 69
	1,3-Dichlorobenzene	ND	[12]	Ref. 13, pp. 69
	1,2,4-Trichlorobenzene	ND	[12]	Ref. 13, pp. 69
SE-11 F0AD4 Semi-volatiles	hexachlorobenzene	1200 μg/Kg	[420]	Ref. 13, pp. 135
	bis(2-Ethylhexyl)phthalate	120LJ μg/Kg	[420]	Ref. 13, pp. 135

TABLE 6B CONTINUED Surface Water Pathway Contaminated Sediment Samples Collected from Taylor Bayou				
Sample ID	**Hazardous Substance**	**Concentration**	**[SQL]**	**Reference**
SE-11 MF07A1 Inorganics	aluminum	1090 mg/Kg	[48.4]	Ref. 12, p. 26
	arsenic	1.4L mg/Kg	[2.4]	Ref. 12, p. 26
	chromium	3 mg/Kg	[2.4]	Ref. 12, p. 26
	cobalt	1.7L mg/Kg	[12.1]	Ref. 12, p. 26
	copper	7.9 mg/Kg	[6.1]	Ref. 12, p. 26
	iron	1560 mg/Kg	[24.2]	Ref. 12, p. 26
	manganese	47.0 mg/Kg	[3.6]	Ref. 12, p. 26
	sodium	161L mg/Kg	[1211]	Ref. 12, p. 26
	zinc	23.6 mg/Kg	[4.8]	Ref. 12, p. 26

TABLE 6B CONTINUED Surface Water Pathway
Contaminated Sediment Samples Collected from Greens Bayou

Sample ID	Hazardous Substance	Concentration	[SQL]	Reference
SE-12 F0AD5 Pesticides	alpha-BHC	2700 μg/Kg	[200]	Ref. 13, p. 192
	beta-BHC	680 μg/Kg	[200]	Ref. 13, p. 192
	delta-BHC	5.1LJ μg/Kg	[20]	Ref. 13, p. 191
	gamma-BHC	5.6LJ μg/Kg	[20]	Ref. 13, p. 191
	heptachlor	ND	[20]	Ref. 13, p. 191
	dieldrin	ND	[39]	Ref. 13, p. 191
	4,4'-DDE	22LJ μg/Kg	[39]	Ref. 13, p. 191
	4,4'-DDD	110J μg/Kg	[39]	Ref. 13, p. 191
	4,4'-DDT	260J μg/Kg	[39]	Ref. 13, p. 191
	alpha-Chlordane	11LJ μg/Kg	[20]	Ref. 13, p. 191
	gamma-Chlordane	14LJ μg/Kg	[20]	Ref. 13, p. 191
	aroclor-1248	ND	[390]	Ref. 13, p. 191
SE-12 F0AD5 Volatiles	benzene	ND	[12]	Ref. 13, p. 71
	chlorobenzene	5LJ μg/Kg	[12]	Ref. 13, p. 72
	1,3-Dichlorobenzene	ND	[12]	Ref. 13, p. 72
	1,2,4-Trichlorobenzene	ND	[12]	Ref. 13, p. 72
SE-12 F0AD5 Semi-volatiles	hexachlorobenzene	290LJ μg/Kg	[400]	Ref. 13, p. 138
	bis(2-Ethylhexyl)phthalate	200LJ μg/Kg	[400]	Ref. 13, p. 138

TABLE 6B CONTINUED Surface Water Pathway Contaminated Sediment Samples Collected from Taylor Bayou				
Sample ID	**Hazardous Substance**	**Concentration**	**[SQL]**	**Reference**
SE-12 MF07A2 Inorganics	aluminum	2210 mg/Kg	[51.3]	Ref. 12, p. 27
	arsenic	1.1L mg/Kg	[2.6]	Ref. 12, p. 27
	chromium	4.8 mg/Kg	[2.6]	Ref. 12, p. 27
	cobalt	2.9L mg/Kg	[12.8]	Ref. 12, p. 27
	copper	10.8 mg/Kg	[6.4]	Ref. 12, p. 27
	iron	3230 mg/Kg	[25.7]	Ref. 12, p. 27
	manganese	97.2 mg/Kg	[3.9]	Ref. 12, p. 27
	sodium	295L mg/Kg	[1284]	Ref. 12, p. 27
	zinc	44.9 mg/Kg	[5.1]	Ref. 12, p. 27

TABLE 6B CONTINUED Surface Water Pathway Contaminated Sediment Samples Collected from Greens Bayou				
Sample ID	**Hazardous Substance**	**Concentration**	**[SQL]**	**Reference**
SE-13 F0AD6 Pesticides	alpha-BHC	680 μg/Kg	[110]	Ref. 13, p. 194
	beta-BHC	58 μg/Kg	[11]	Ref. 13, p. 193
	delta-BHC	ND	[11]	Ref. 13, p. 193
	gamma-BHC	1.6LJ μg/Kg	[11]	Ref. 13, p. 193
	heptachlor	2.4LJ μg/Kg	[11]	Ref. 13, p. 193
	dieldrin	3.2LJ μg/Kg	[21]	Ref. 13, p. 193
	4,4'-DDE	21J μg/Kg	[21]	Ref. 13, p. 193
	4,4'-DDD	69 μg/Kg	[21]	Ref. 13, p. 193
	4,4'-DDT	650J μg/Kg	[21]	Ref. 13, p. 193
	alpha-Chlordane	10LJ μg/Kg	[11]	Ref. 13, p. 193
	gamma-Chlordane	17 μg/Kg	[11]	Ref. 13, p. 193
	aroclor-1248	ND	[210]	Ref. 13, p. 193
SE-13 F0AD6 Volatiles	benzene	ND	[13]	Ref. 13, p. 74
	chlorobenzene	2LJ μg/Kg	[13]	Ref. 13, p. 75
	1,3-Dichlorobenzene	ND	[13]	Ref. 13, p. 75
	1,2,4-Trichlorobenzene	ND	[13]	Ref. 13, p. 75
SE-13 F0AD6 Semi-volatiles	hexachlorobenzene	ND	[420]	Ref. 13, p. 141
	bis(2-Ethylhexyl)phthalate	270LJ μg/Kg	[420]	Ref. 13, p. 141

ND = Not detected. Concentrations for these constituents were not detected at the reported quantitation limit in sediment samples.
NA = Not applicable
[SQL] = The sample quantitation limit. SQL for metals is mg/Kg and the SQL for organics is μg/Kg.
J, J^, Jv = The value is an estimated concentration because one or more of the quality control criteria have not been met. It is included to show that the substance has been qualitatively identified as present in this sample. J^ indicates a high bias and Jv indicates a low bias.
L = Reported concentration is between the IDL and CRDL.
IDL = Instrument detection limit.
CRDL = Contract required detection limit.
B = This result may be high biased because of laboratory/field contamination. The reported concentration is above 5X or 10X the concentration reported in the method/field blank.
UC = Reported concentration should be used as a raised detection limit because of apparent blank contamination.
K= One thousand
M= Reported concentration should be used as a raised quantitation limit because of interferences an/or laboratory contamination
Shaded samples = The sample met observed release criteria for that hazardous substance.

Note: Insufficient sample volume was collected to perform inorganic analysis for SE-13.

Hazardous Substances Released

Using the chemical analysis method, sample results revealed elevated concentrations of the following constituents qualifying as observed releases to the surface water migratory pathway when compared to unaffected background levels (Ref. 1, Section 2.3):

alpha-BHC (alpha-hexachlorocyclohexane)	4,4'-DDE
beta-BHC (beta-hexachlorocyclohexane)	4,4'-DDD
delta-BHC(delta-hexachlorocyclohexane)	4,4'-DDT
gamma-BHC (Lindane)	alpha-chlordane
heptachlor	gamma-chlordane
dieldrin	aroclor-1248
benzene	1,3-dichlorobenzene
chlorobenzene	1,2,4-trichlorobenzene
hexachlorobenzene	bis(2-ethylhexyl)phthalate
aluminum	iron
arsenic	manganese
chromium	sodium
cobalt	zinc
copper	

Attribution

Since **alpha-BHC, beta-BHC, delta-BHC, gamma-BHC, heptachlor, dieldrin, 4,4'-DDE, 4,4'-DDD, 4,4'-DDT, alpha-chlordane, gamma-chlordane, aroclor-1248, benzene, chlorobenzene, 1,3-dichlorobenzene, 1,2,4-trichlorobenzene, hexachlorobenzene, bis(2-ethylhexyl)phthalate, aluminum, arsenic, chromium, cobalt, copper, iron, manganese, sodium, and zinc** have been documented to be present in the site source, Source No. 1 - Other (Contaminated Sediments) associated with the Harris County Flood Control Ditch and Greens Bayou and are available to the surface water pathway as specified in HRS Rule Section 2.2.3, the detected contaminants as listed above (and shown in Tables 6A and 6B) indicate an observed release to the surface water migratory pathway in the watershed being evaluated (Ref. 1, Section 2.3).

Attribution To Potential Sources

The analytical data results indicate the source of contamination to Greens Bayou is a facility that has released or discharged contaminants to the Harris County Flood Control Ditch in the area of sediment sample locations SE-17 to SE-20, see Figure 3. GB Biosciences is an adjacent facility that has historically manufactured pesticides, including DDT (Ref. 6, p. 1-1).

The following list contains contaminants that are present at more than one sample location in either Greens Bayou or the Harris County Flood Control Ditch.

alpha-BHC (alpha-hexachlorocyclohexane)
beta-BHC (beta-hexachlorocyclohexane)
delta-BHC(delta-hexachlorocyclohexane)
lindane
4,4'-DDE
4,4'-DDD
4,4'-DDT
gamma-chlordane
chlorobenzene
hexachlorobenzene
arsenic
copper

From this list of contaminants, only copper appears to have a source other than the Harris County Flood Control Ditch. Beta-BHC, delta-BHC, 4,4'-DDE, 4,4'-DDD, 4,4'-DDT, gamma-chlordane, chlorobenzene, hexachlorobenzene, and arsenic were all detected at higher levels in the Harris County Flood Control Ditch than in Greens Bayou. Since the levels of hazardous substances documented in Greens Bayou's sediment samples exceed three times background samples, but are generally lower than Harris County Flood Control Ditch samples, the observed releases must be attributed to the Harris County Flood Control Ditch.

4.1.3 Human Food Chain Threat

As described in the HRS Rule, the human food chain threat for the watershed of concern will be evaluated based on three factor categories: likelihood of release, waste characteristics and targets (Ref. 1, Section 4.1.3).

4.1.3.1 Human Food Chain Threat - Likelihood of Release

Observed releases are documented by chemical analysis in Greens Bayou sediment. Observed releases in the Greens Bayou Fishery, include alpha-BHC, beta-BHC, delta-BHC, lindane, heptachlor, dieldrin, 4,4'-DDE, 4,4'-DDD, 4,4'-DDT, alpha-chlordane, gamma-chlordane, aroclor-1248, chlorobenzene, hexachlorobenzene, bis(2-ethylhexyl)phthalate, aluminum, chromium, copper, iron, manganese, and zinc (Ref. 12, pp. 8-10; and 13, pp. 13-29). The sediment samples in the Greens Bayou Fishery with observed releases begins at SE-03 and extends at least to SE-13, this is a 2.47 mile length of documented affected fishery. The Texas Parks and Wildlife Department verified the area of concern to be a fishery (Ref. 8). A Greens Bayou fish tissue study was performed in 2000. The study revealed elevated concentrations of DDT in Blue Crabs, near the confluence of the Harris County Flood Control Ditch and Greens Bayou (Ref. 14, pp. 5-8). PREscore assigns a Level II release for the 2.47 mile stretch of Greens Bayou for the human food chain threat.

4.1.3.2 Human Food Chain Threat - Waste Characteristics

4.1.3.2.1 Toxicity/Persistence/Bioaccumulation

The following Human Food Chain Toxicity, Persistence and Bioaccumulation Potential Factor Values have been assigned to those substances associated with Source No. 1 and qualifying as observed releases, which have a containment factor greater than 0.

TABLE 7 Surface Water Pathway
Hazardous Substance Toxicity, Persistence and Bioaccumulation Potential

Hazardous Substance	Food Chain Toxicity Factor Value	Persistence Factor Value	Food Chain Bioaccumulation Potential Factor [1]	Tox/Per/Bio Factor Value	Reference
Arsenic	10,000	1.0	500	5.0E+06	Ref. 4
Benzene	100	0.4	5000	2.0E+05	Ref. 4
Chlordane, gamma-	10	1.0	50,000	5.0E+06	Ref. 4
Chlorobenzene	100	0.0007	50	3.50E+01	Ref. 4
Cobalt	1	1.0	0.5	5.00E-01	Ref. 4
Copper	0	1.0	50,000	0	Ref. 4
DDD	100	1.0	50,000	5.0E+06	Ref. 4
DDE	100	1.0	50,000	5.0E+06	Ref. 4
DDT	1,000	1.0	50,000	**5.0E+07**	Ref. 4
Dichlorobenzene, 1,3-	0	0.4	50	0	Ref. 4
Hexachlorobenzene	1,000	1.0	50,000	**5.0E+07**	Ref. 4
Hexachlorocyclohexane, alpha-	10,000	1.0	500	5.0E+06	Ref. 4
Hexachlorocyclohexane, beta-	100	1.0	500	5.0E+04	Ref. 4
Hexachlorocyclohexane, delta-	1	1.0	500	5.0E+02	Ref. 4
Lindane	10,000	1.0	500	5.0E+06	Ref. 4
Trichlorobenzene, 1,2,4-	100	0.4	500	2.0E+04	Ref. 4

Notes: [1] Salt water values were used for the bioaccumulation factor value determination.
Bold = indicates the highest toxicity/persistence/bioaccumulation factor value.

A review of Table 7 reveals the hazardous substances 4,4'-DDT and Hexachlorobenzene are the substances with the highest Human Food Chain Toxicity/Persistence/ Bioaccumulation Factor Value, with a value of 5.0E+07 (Ref. 1, Section 4.1.3.2.1.4, Table 4-16; and 4).

4.1.3.2.2 Hazardous Waste Quantity

TABLE 8 Surface Water Pathway Hazardous Waste Quantity		
Source Number	**Source Hazardous Waste Quantity Value (HRS Rule, Section 2.4.2.1.5)**	**Is Source Hazardous Constituent Quantity data complete? (Yes/No)**
1	> 0, but unknown	No
Sum of Values:	> 0, but unknown	

As described in the HRS Rule, Section 2.4.2.2, the sum of the source hazardous waste quantity values is assigned as the Hazardous Waste Quantity Factor Value (Ref. 1, Section 2.4.2.2). The sum of the source hazardous waste quantity values for Greens Bayou rounded to the nearest integer as shown in Table 8 above is > 0, but unknown.

4.1.3.3 Human Food Chain Threat - Targets

The sediment samples listed below meet the Federal Register's criteria of an observed release for the watershed. The hazardous substances detected in the samples have bioaccumulation potential factor values of 500 or greater (Ref. 1, Section 4.1.3.3; and 4). See Figure 3 and Table 6B for a description of these Greens Bayou sediment sample locations.

TABLE 9
ACTUAL HUMAN FOOD CHAIN CONTAMINATION
SURFACE WATER PATHWAY

CONTAMINATED SAMPLE

CLP Sample ID	Sample Location	Distance from Probable Point of Entry (SE-03 most upstream point)	Hazardous Substance	Reference
F0AC6	SE-03	0	alpha-BHC	Figure 3; Tables 6B & 7
F0AC7 & MF0794	SE-04	0.94 miles	alpha-BHC	Figure 3; Tables 6B & 7
			beta-BHC	
			copper	
F0AC8	SE-05	1.63 miles	alpha-BHC	Figure 3; Tables 6B & 7
			beta-BHC	
			4,4'-DDT	
F0AC9 & MF0796	SE-06	1.86 miles	alpha-BHC	Figure 3; Tables 6B & 7
			beta-BHC	
			4,4'-DDE	
			4,4'-DDD	
			4,4'-DDT	
			gamma-chlordane	
			copper	
F0AD0 & MF0797	SE-07	1.86 miles	alpha-BHC	Figure 3; Tables 6B & 7
			beta-BHC	
			4,4'-DDE	
			4,4'-DDD	
			copper	

TABLE 9 CONTINUED
ACTUAL HUMAN FOOD CHAIN CONTAMINATION
SURFACE WATER PATHWAY

CONTAMINATED SAMPLE

CLP Sample ID	Sample Location	Distance from Probable Point of Entry (SE-03 most upstream point)	Hazardous Substance	Reference
F0AD1 & MF0798	SE-08	1.95 miles	alpha-BHC	Figure 3; Tables 6B & 7
			beta-BHC	
			delta-BHC	
			lindane	
			4,4'-DDE	
			4,4'-DDD	
			4,4'-DDT	
			copper	
F0AD2 & MF0799	SE-09	2.00 miles	alpha-BHC	Figure 3; Tables 6B & 7
			beta-BHC	
			4,4'-DDD	
			4,4'-DDT	
			chlordane, gamma-	
			copper	
F0AD3 & MF07A0	SE-10	2.03 miles	alpha-BHC	Figure 3; Tables 6B & 7
			beta-BHC	
			4,4'-DDE	
			4,4'-DDD	
			4,4'-DDT	
			chlordane, gamma-	
			copper	
F0AD4 & MF07A1	SE-11	2.14 miles	alpha-BHC	Figure 3; Tables 6B & 7
			beta-BHC	
			hexachlorobenzene	
			copper	

TABLE 9 CONTINUED ACTUAL HUMAN FOOD CHAIN CONTAMINATION SURFACE WATER PATHWAY				
CONTAMINATED SAMPLE				
CLP Sample ID	Sample Location	Distance from Probable Point of Entry (SE-03 most upstream point)	Hazardous Substance	Reference
F0AD5 & MF07A2	SE-12	2.23 miles	alpha-BHC	Figure 3; Tables 6B & 7
			beta-BHC	
			4,4'-DDD	
			4,4'-DDT	
			copper	
F0AD6	SE-13	2.47 miles	alpha-BHC	Figure 3; Tables 6B & 7
			beta-BHC	
			4,4'-DDE	
			4,4'-DDD	
			4,4'-DDT	
			chlordane, gamma-	

Closed Fisheries

The Texas Department of Health issued a restricted consumption advisory for the general population and a no consumption advisory for children and women of child-bearing age, due to elevated levels of dioxin in blue crabs and catfish. Dioxins were not analyzed in the sediment samples collected in Greens Bayou.

Tissue Samples

A Greens Bayou fish tissue study was performed in 2000. A draft report documents the study revealed elevated concentrations of DDT in blue crabs, near the confluence of the Harris County Flood Control Ditch and Greens Bayou (Ref. 14, pp. 5-8).

Most Distant Level II Sample

Level II observed releases were documented along a 2.47 mile length of Greens Bayou classified as a fishery. The Level II observed releases are from sediment sample location SE-03 to SE-13. Sediment sample SE-03 is located approximately two miles upstream of the confluence of the Harris County Flood Control Ditch. Greens Bayou is tidally influenced. Sediment sample location is likely the extent of the upstream contaminated sediment plume. The extent of the downstream sediment plume is unknown. The furthest downstream sediment sample collected was at SE-13 which is 0.47 miles downstream of the Harris County Flood Control Ditch. Further downstream sampling was not conducted since Greens Bayou is dredged to 40 feet deep further downstream. Six hazardous substances qualified as observed releases at sediment sample location SE-13, at significant levels.

TABLE 10
EXTENT OF LEVEL II FISHERY
SURFACE WATER PATHWAY

Identity of Fishery	Extent of the Level II Fishery
Greens Bayou	2.47 miles or 3.98 kilometers

The total Level II impacted segment in Greens Bayou, measures 2.47 miles, from SE-03 to SE-13.

4.1.3.3.1 Food Chain Individual

The following sediment samples were collected in Greens Bayou. Sample analysis indicates the presence of several contaminants at Level II concentrations, in the following sediment sample locations: SE-03, SE-04, SE-05, SE-06, SE-07, SE-08, SE-09, SE-10, SE-11, SE-12, and SE-13 (Ref. 1, Section 4.1.3.3.1; 12, pp. 8-10; and 13, pp. 13-29). Of the contaminants detected, the ones with the highest Bioaccumulation Factor Values of 50,000 are gamma-chlordane, copper, DDD, DDE, DDT, and hexachlorobenzene (Ref. 4). The contaminants having the highest Toxicity/Persistence/ Bioaccumulation Factor of 5×10^7 are DDT and hexachlorobenzene.

The Texas Parks and Wildlife Department verified the area of concern in Greens Bayou is a fishery (Ref. 8). A Greens Bayou fish tissue study was performed in 2000. A draft report documents the study revealed elevated concentrations of DDT in Blue Crabs, near the confluence of the Harris County Flood Control Ditch and Greens Bayou (Ref. 14, pp. 5 - 8).

4.1.3.3.2 Population

In this SSI Report, the population factor has been evaluated based on Level II concentrations. Level I concentrations were not documented and potential human food chain concentrations would not significantly affect the overall site score.

4.1.3.3.2.1 Level I Concentrations

Level I concentrations were not documented in the fishery during the June 2001 SSI.

4.1.3.3.2.2 Level II Concentrations

The following table documents the estimated annual production of human food chain organisms of those fisheries that are subject to Level II concentrations.

TABLE 11
HUMAN FOOD CHAIN POPULATION VALUE
SURFACE WATER PATHWAY

Identity of Fishery	Annual Production (lbs)	Reference	Human Food Chain Population Value
Greens Bayou	>0	Ref. 8	.03

4.1.3.3.2.3 Potential Human Food Chain Contamination

The potential human food chain contamination area extends from SE-13 to the 15 mile TDL in the Houston Ship Channel see Figure 4. Since the inclusion of this component would not significantly affect the site score, the potential human food chain contamination factor value was not calculated.

4.1.4 Environmental Threat

As described in the HRS Rule, the environmental threat will be evaluated based on three factor categories: likelihood of release, waste characteristics, and targets (Ref. 1, Section 2.1.2).

4.1.4.1 Environmental Threat - Likelihood of Release

4.1.4.2 Environmental Threat - Waste Characteristics

4.1.4.2.1 Ecosystem Toxicity/Persistence/Bioaccumulation

TABLE 10 Surface Water Pathway
Hazardous Substance Toxicity, Persistence and Bioaccumulation Potential

Hazardous Substance	Ecosystem Toxicity Factor Value	Persistence Factor Value	Ecosystem Bioaccumulation Potential Factor [1]	Ecosystem Tox/Per/Bio Factor Value	Reference
alpha-BHC	1,000	1.0	5,000	5.0E+06	Ref. 4 & Table 6A
beta-BHC	—	1.0	5,000	0	Ref. 4 & Table 6A
delta-BHC	—	1.0	500	0	Ref. 4 & Table 6A
4,4'-DDE	10,000	1.0	50,000	**5.0E+08**	Ref. 4 & Table 6A
4,4'-DDD	10,000	1.0	50,000	**5.0E+08**	Ref. 4 & Table 6A
4,4'-DDT	10,000	1.0	50,000	**5.0E+08**	Ref. 4 & Table 6A
benzene	1,000	0.4	50,000	5.0E+07	Ref. 4 & Table 6A
chlorobenzene	100	0.0007	50	3.5E+00	Ref. 4 & Table 6A
1,3-dichlorobenzene	100	0.4	50	2E+03	Ref. 4 & Table 6A
1,2,4-trichlorobenzene	1,000	0.4	500	2E+05	Ref. 4 & Table 6A
hexachlorobenzene	10,000	1.0	50,000	**5.0E+08**	Ref. 4 & Table 6A
arsenic	10	1.0	500	5.0E+03	Ref. 4 & Table 6A
cobalt	---	1.0	5,000	0	Ref. 4 & Table 6A
sodium	---	1.0	0.5	0	Ref. 4 & Table 6A

Notes: [1] Salt water values were used for the bioaccumulation factor value determination.
Bold = indicates the highest toxicity/persistence/bioaccumulation factor value.
NA = Not available in the Superfund Chemical Data Matrix

Ecosystem Toxicity Factor Values for the hazardous substances documented as observed releases were derived from the EPA Superfund Chemical Data Matrix (SCDM) associated with the surface water migratory pathway (Ref. 4). Since the source is located in tidally influenced water, salt water values were selected for evaluation purposes. Selected values are shown in Table 10 above.

Ecosystem Persistence Factor Values were also derived using SCDM values associated with the surface water migratory pathway using persistence values for a river as the predominant water category (Ref. 4). As specified in the HRS Rule (Ref.1, Section 4.1.4.2.1.2) for contaminated sediments with no identified source, the furthest upstream location with an observed release is to be used at the point of measurement to determine predominant water category (Ref. 1, Section 4.1.4.2.1.2).
A review of Table 10 reveals the hazardous substances 4,4'-DDE, 4,4'-DDD, 4,4'-DDT, and hexachlorobenzene are the substances with the highest Ecosystem Toxicity/Persistence/ Bioaccumulation Factor Values.

4.1.4.2.2 Hazardous Waste Quantity

TABLE 11
Surface Water Pathway
Hazardous Waste Quantity

Source Number	Source Hazardous Waste Quantity Value (HRS Rule, Section 2.4.2.1.5)	Is Source Hazardous Constituent Quantity data complete? (Yes/No)
1	> 0, but unknown	No
Sum of Values:	> 0, but unknown	

As described in the HRS Rule (Ref. 1, Section 2.4.2.2) the sum of the source hazardous waste quantity values is assigned as the Hazardous Waste Quantity Factor Value. The sum of the source hazardous waste quantity values for the Harris County Flood Control Ditch, rounded to the nearest integer, as shown in Table 11 above is > 0, but unknown.

4.1.4.3 Environmental Threat - Targets

4.1.4.3.1 Sensitive Environments

Based upon the symbols indicated on the National Wetlands Inventory Map, the Harris County Flood Control Ditch is classified as a Estuarine/Subtidal/Open Water/ Subtidal/Excavated (E1OWLx) wetland (Ref. 17). During the site visit a narrow band of hydrophytic vegetation was noted along the banks of the Harris County Flood Control Ditch, for the 0.42 mile distance between sediment sample locations SE-17 and SE-20 (Ref. 16, Photos 1 and 2). A total of four (4) sediment samples were collected in the E1OWLx wetland, each sample with documented observed releases of hazardous substances, as shown in Figure 3. The wetland areas located along the Harris County Flood Control Ditch will be evaluated in this section.

4.1.4.3.1.1 Level I Concentrations

No Level I concentrations exist for this site.

4.1.4.3.1.2 Level II Concentrations

According to the HRS Rule, Section 4.1.4.3.1.2, if a hazardous substance is present and meets the observed release criteria, but does not meet or exceed relevant ecological-based benchmarks listed in HRS Rule, Table 4-22, it is considered a Level II concentration (Ref. 1, Section 4.1.4.3.1.2, and Table 4-22). Table 12 identifies the samples and hazardous substance identified within Greens Bayou that qualify as Level II samples with detected levels below applicable ambient aquatic life advisory (AALAC) or ambient water quality screening (AWQC) concentrations:

PARTIAL COMPLIANCE HISTORY OF DIAMOND/SDS BIOTECH/ FERMENTA/ISK BIOSCIENCES/GB BIOSCIENCES SITE 2237-9 HADEN ROAD, HOUSTON AIR ACCOUNT HG-0195-U, SWR 30552, WQ 00749

DATE	ACTION	DETAILS	REMARKS
02-22-74	LETTER	Results of joint EPA/TWQB survey – "effluent toxic to marine life."	atch
06-06-78	REPORT	TDWR inspection found "groundwater in contact with waste products."	atch
11-07-78	TDWR IOM	Sampling results show As & DDT at Confluence of HCFCD ditch with Greens Bayou.	atch
12-28-78	TDWR LTR	Whittington tells Diamond of As and DDT, sets 01-26-79 meeting.	atch
10-12-79	TDWR LTR	Whittington tells Diamond to remove contaminated sediments from HCFCD ditch and solve GW contamination.	MV IOM 2-14-01
09-25-84	COMP AGR	Compliance Agreement, SWR 30552 Signed by SDS. Enforcement action Withheld as part of the agreement.	atch
07-11-87	REPORT	EPA reports (plant now owned by SDS) significant mortality in bioassays.	atch
03-03-88	NOV(IHW?)	Manifesting and Financial Assurance violations	MV IOM 2-15-01
03-10-89	ORDER	AIR	Enf. ID 454 Case 2
04-24-89	NOV(IHW?)	Landban	MV IOM 2-15-01
07-07-89	SELF-RPT	Fermenta reports discharge of 11,000,000 gallons untreated stormwater to HCFCD ditch.	MV IOM 2-14-01 atch
09-06-89	SELF-RPT	4 thousand gallons discharge untreated ground water containing arsenic (2.7 – 3.1 (mg?) (mmg?)/l) to HCFCD ditch.	MV IOM 2-14-01 atch
01-23-90	NOV(IHW?)	Landban	MV IOM 2-15-01
06-22-90	ORDER	AIR	Enf. ID 454 Case 3
06-27-91	NOV	Inspection by Robert E. Musick	MV IOM 2-15-01

DATE	ACTION	DETAILS	REMARKS
03-08-92	LETTER	From TWC Watershed Mgt. Lethality in bioassay, ISK must conduct "toxicity reduction evaluation" per its Permit No. 00749.	MV IOM 2-14-01 atch
12-04-92	NOV	CEI by Nadia Hameed	MV IOM 2-15-01
03-22-93	MEMO	TWC phone memo to file. Leak of 540 gallons landfill leachate to HCFCD ditch.	MV IOM 2-14-01 ISK reports this 3-29-93 atch
10-24-94	NOV Air	Emission Control Equipment Violation Reg. VI, Rule 116.115	BD IOM 2-16-01 Resolved 12-13-94
01-24-95	NOV Air	Failure to Inform of Major Upsets General Rule 101.6, Rule 116.115	GB submits plan to correct 02-09-96 Enf. ID 454 Case 1 96-0778-AIR-E
04-25-95	NOV IHW NOV? WQ?	CME Inspection Doug Crist	Enf. ID 454 Case 6 MV IOM 2-15-01
6-14-95 to 6-26-95	INSPECTION	CEI by Roxanne Herrera. Seven violations.	RH IOM 1-9-98
09-06-95	NOV	Ravi Rao. Seven violations from 6/95 CEI. Resolved without penalty, 11-13-95.	MV IOM 2-15-01 RH IOM 1-9-98, p.4
09-16-95	NOV IHW	The second NOV in this case?	Enf. ID 454 Case 6
11-16-95	APPROVAL	Modification of Compliance Plan No. CP-50205 (Change locations of monitoring and recovery wells)	Agenda
12-11-95	JUDGMENT	AIR NIP case. Tube failure in IPN unit. ISK pays $7500 CP	atch
03-26-96	ORDER	WQ	Enf. ID 454 Case 5
12-04-96	ORDER	AIR Agreed Order Resolving 01-24-95 Violation (They may have done a SEP)	Paid $6300 AP Enf. ID 454 Case 1.
10-21-97 to 12-01-97	INSPECTION	CME by Roxanne Herrera. Nine violations. NOV issued 01-07-98.	RH IOM 1-9-98
12-XX-97	REVIEW	By Roxanne Herrera, Houston Office.	RH IOM 1-9-98

DATE	ACTION	DETAILS	REMARKS
01-07-98	NOV	Groundwater violations from RH CME	MV IOM 2-15-01 RH IOM 1-9-98
06-24-98	NOV?	Record review, no violations listed	MV IOM 2-15-01 May not have occurred.
1999	**REPORT**	**Port of Houston to TNRCC about DDT in Greens Bayou, made the basis of Enf. ID 454 Case 7.**	
07-14-99	JUDGMENT	AIR NIP Case. Tube failure in CTL unit. GB Biosciences paid $12,500 CP to TNRCC.	Enf. ID 454 Case 4 atch
11-13-00	NOE Air	This is the current case – DDT etc. found offsite in HCFCD ditch and Greens Bayou.	Enf. ID 454 Case 7 2000-1190-IHW-E

AP	Administrative Penalty
As	Arsenic
CEI	Compliance Evaluation Inspection
CME	Comprehensive Groundwater Monitoring System Evaluation
CP	Civil Penalty
CTL	Chlorothalonil
HCFCD	Harris County Flood Control District
IPN	Isophthalonitrile
MV	Mac Vilas, EC Austin
NOE	Notice of Enforcement
NOV	Notice of Violation
RH	Roxanne Herrera, (former?) Field Inv., Houston

Greens Bayou Facility
Time Line

1945 **Undeveloped**

1945 photo shows no plant development. PTRA tracks shown predating Greens Bayou facility and Haden Road. Some minor dredge disposal seen in southern portion of GDDA property.

1950 **Diamond Shamrock corporate (Diamond) family develops site for pesticide manufacture**

DDT manufacture begins

1952 Lindane manufacture begins

1952 photo shows early plant facilities. Haden Road can now be seen. HCFCD Ditch does not exist. Drainage from Diamond facility seen to go eastward through Area C-1 and then directly south to discharge into Greens Bayou. Drainage from west flows through Rec. Area and GDDA to discharge into Greens Bayou. Rec. Area pond not in existence.

1955

1956

1955 & 1956 photos show well developed drainage in East and West ditches from the Diamond facility south through Area C-1 to Greens Bayou. HCFCD Ditch still does not exist. SE corner of GDDA now bermed and drainage through GDDA appears to be managed. Rec. Area pond now seen in service.

1958 HCFCD completes construction of flood control ditch Segment P104-00-00 east of Diamond Shamrock facility

1964 & 1965 photos show new HCFCD Ditch and new Waste Disposal Area. Separate process drainage still exists through Area C-1 and entering the HCFCD Ditch at east corner of RWDA. New North Ditch for discharge from northern portion of facility into HCFCD Ditch

1964

1965

1966 Lindane manufacture ceases

1968 photo shows Waste Disposal Area well established. Facility still discharging East Ditch wastes directly into Area C-1 and HCFCD Ditch. North Ditch rerouted north of A-B Landfill and still discharging wastesinto HCFCD Ditch

1968

1970 DDT Manufacture ceases

1971 AB Landfill Closed and New Process Wastewater Treatment Ponds placed into operation

1972 1972 photo shows plant portion of East Ditch closed; Drainage through Area C-1 still connects to HCFCD Ditch at east corner of Waste Disposal Area. New Process Wastewater Treatment ponds in service.

1977 Process Wastewater Treatment System ponds upgraded. Untreated plant stormwater still discharged to HCFCD Ditch

1978 Waste Disposal Area (RWDA) closed and capped

Slurry cut-off wall installed around RWDA, adjacent HCFCD Ditch sediments placed into the site and a new cap installed

1980

1981 1981 photo shows recently closed general plant landfill (RWDA) with Area C-1 portion of East Ditch filled in and East Ditch flow re-routed directly eastward from the Diamond Shamrock facility into HCFCD Ditch.

1982 1982 photo shows new Stormwater Impoundment & treatment system and upgraded Wastewater Treatment System

1983 **SDS Biotech Corporation becomes owner/operator (Diamond Shamrock remains shareholder)**

1985 **Ownership of SDS Biotech transferred to the GB Biosciences corporate family**

1986 Groundwater remediation initiated west of HCFCD Ditch at RWDA.

1988 Groundwater RFI studies initiated at facility

1989 Initial voluntary sampling of HCFCD Ditch begins.

1993 Groundwater investigations completed and Phase 1 Groundwater RFI Reports issued

1994 Phase 1 Soil RFIs initiated and completed; HCFCD Ditch Characterization completed

1995 Culvert/Lining installed in north portions of HCFCD Ditch as stabilization measure.

1997 Phase II-a Groundwater RFI Report issued

1998 Phase 2 Soils RFI initiated

1999 Phase II-b groundwater RFI report issued; Corrective measures implemented in Area C-1

2000 Phase II Soil RFI report issued; Delineation Study of southern section of HCFCD Ditch completed.

2. **GB BIOSCIENCES CORPORATION INC.: 2237-39 Haden Road, Dec. 16, 1985 – Feb. 1998; 2239 Haden Road, March 1998 to Present**

Names Formerly Used:	-SDS Biotech Corporation [now GB Biosciences Holdings Inc.] -Fermenta Plant Protection Company -Fermenta ASC Corporation -ISK Biotech Corporation -ISK Biosciences Corporation

Dec. 1985 SDS Biotech Corporation was sold via stock transfer to (and became a subsidiary of) Catrev, Inc.* The plant site remained titled to SDS Biotech Corporation.

The plant site was deeded and operational control transferred from SDS Biotech Corporation to its wholly owned subsidiary, Fermenta Plant Protection Company, which then changed its name to Fermenta ASC Corporation.

Fermenta ASC Corporation changed its name to ISK Biotech Corporation [when ISK Enterprises, Inc. acquired and then merged into SDS Enterprises, Inc.**]

ISK Biotech Corporation changed its name to ISK Biosciences Corporation.

1998 ISK Biosciences Corporation changed its name to GB Biosciences Corporation Inc.

3. **ISK MAGNETICS INC.: 2237 Haden Road, February 1998 - Present**

ISK Magnetics, Inc. entered into a long-term lease with ISK Biosciences Corporation (now known as GB Biosciences Corporation Inc.) for the southeast portion of the main plant property, on which Magnetics built a magnetic iron oxide manufacturing facility.

1998 ISK Magnetics acquired the 19-acre southeast portion of the main plant property (previously leased) and the 63-acre "Recreation Area" portion of the 83-acre tract south of Haden Road.

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* In 1989, Catrev, Inc. changed its name to SDS Enterprises, Inc.

** In 1991, SDS Biotech Corporation changed its name to ISK Enterprises Corporation, and SDS Enterprises, Inc. changed its name to Ishihara Sangyo Kaisha Americas, Inc. (which in 1992 changed its name to ISK Americas, Inc.). In 1993, ISK Americas, Inc. merged down into ISK Enterprises Corporation and renamed the surviving entity ISK Americas, Inc. In 1998, this entity changed its name to GB Biosciences Holdings Inc.

Prepared by Heather C. Winett, Esquire (November 2000)

ATTACHMENT A

History of Corporate Ownership and Name Changes
Manufacturing plant located at 2237-2239 Haden Road, Harris County, Texas

There have been three separate and distinct corporate "families" that have owned and operated the site since manufacturing began around 1950-51. Two of these corporate families, Diamond Shamrock and GB Biosciences, have undergone numerous reorganizations and name changes, as detailed below. The "dividing" date between the Diamond Shamrock and GB Biosciences interests in the site is December 16, 1985. The third company, ISK Magnetics, became owner of a portion of the site in February 1998.

The site consists of two non-contiguous tracts. The tract containing the main operating plant (about 134.5 acres) lies north of Haden Road. The second tract (about 83 acres) lies south of Haden Road and contains the Old Retired Landfill, an electrical substation and a recreational area with a lake. In 1997, the site, previously known in its entirety as 2239 Haden Road, was subdivided. The subdivided portion, now known as 2237 Haden Road, was deeded to ISK Magnetics, Inc. in February 1998.

The manufacture of DDT occurred between 1950-51 and 1970. The manufacture of Lindane occurred between 1952 and 1966. The manufacture of these pesticides thus occurred solely during the tenure of the Diamond Shamrock corporate family. In November 1987, Diamond Shamrock (then known as Occidental Electrochemicals Corporation) merged into Occidental Chemical Corporation, a New York corporation, headquartered at Occidental Tower, 5005, LBJ Freeway, Dallas, Texas 75244.

The three corporate families are described as follows:

1. <u>DIAMOND SHAMROCK</u>: <u>2237-39 Haden Road, 1950 - December 16, 1985</u>

Names Used:	-Kolker Chemical Works -Diamond Alkali Company	-Diamond Shamrock Corporation -SDS Biotech Corporation

Vacant land was deeded to Diamond Alkali Company (incorporated in Delaware, 1928).

1950/51 Original plant built and operated by Kolker Chemical Works, Inc., which was acquired by the Diamond Alkali Company and continued to operate the plant as a subsidiary of Diamond Alkali.

Kolker Chemical Works, Inc. was reorganized into Diamond Alkali Organic Chemicals, Inc.

Diamond Alkali Company merged with the Shamrock Oil and Gas Company and changed its name to Diamond Shamrock Corporation.

SDS Biotech Corporation (incorporated July 1983) became the owner/operator of the plant by virtue of the plant being contributed as an assset by Diamond Shamrock into a joint venture with Showa Denko KK; SDS Biotech was thus owned 50-50 by Diamond Shamrock and Showa Denko KK.

Diamond Shamrock Corporation changed its name to Diamond Chemicals Company, and then again changed its name to Diamond Shamrock Chemicals Company.

The Diamond Shamrock/Showa Denko joint venture was terminated; Showa Denko's shares were transferred to a Diamond Shamrock affiliate (Vanderbilt Development Corporation) such that the Diamond Shamrock family 100% controlled SDS Biotech Corporation. SDS Biotech Corporation was then sold to, and became a subsidiary of, Catrev, Inc. (a subsidiary of Fermenta AB, a Swedish company). In 1986, Diamond Shamrock Chemicals Company changed its name to Occidental Electrochemicals Corporation and in 1987 merged into Occidental Chemical Corporation, the surviving entity.

Prepared by Heather C. Winett, Esquire (November 2000)

TABLE 12
Surface Water Pathway
Environmental Threat - Targets - Level II Concentrations

Sample Designation/ Identification No./ Location	Hazardous Substance	Concentration (mg/Kg or μg/Kg) [SQL] Level II	Ambient Aquatic Life Advisory Conc. (μg/L)[1]	In-Water Distance (miles)	Reference
SE-17 F0AE0 MF07A7 Wetland Sample within The Harris County Flood Control Ditch	alpha-BHC	1900 μg/Kg [1100]	NA	0.00 mi.	Ref. 12, p. 31; 13, pp.86, 87, 153, 156, 198, and 199; 15, pp. 34 and 35; 16, Photo 2.
	beta-BHC	4100 μg/Kg [1100]	NA		
	4,4'-DDE	340 μg/Kg [220]	NA		
	4,4'-DDD	3500J μg/Kg [2200]	NA		
	4,4'-DDT	26000 μg/Kg [2200]	1.0E-3		
	benzene	46 μg/Kg [13]	NA		
	chlorobenzene	73 μg/Kg [13]	NA		
	hexachlorobenzene	4200 μg/Kg [880]	NA		
	cobalt	31.7 mg/Kg [13.2]	NA		
	sodium	2020 mg/Kg [1316]	NA		
SE-18 F0AE1 MF07A8 Wetland Sample within The Harris County Flood Control Ditch	alpha-BHC	860 μg/Kg [98]	NA	0.17 mi.	Ref. 12, p. 32; 13, pp.89, 90, 159, 162, 200, and 201; 15, p. 37; 16, Photo 1.
	beta-BHC	8500J^ μg/Kg [980]	NA		
	delta-BHC	140 μg/Kg [98]	NA		
	4,4'-DDE	930 μg/Kg [190]	NA		
	4,4'-DDD	9700 μg/Kg [1900]	NA		
	4,4'-DDT	14000 μg/Kg [1900]	1.0E-3		
	chlorobenzene	250J^ μg/Kg [11]	NA		
	1,2,4-trichlorobenzene	23Jv μg/Kg [11]	NA		
	hexachlorobenzene	8400Jv μg/Kg [1900]	NA		

Based on sample results shown in Table 12, wetland areas located along the Harris County Flood Control Ditch were identified to contain Level II concentrations based on EPA referenced Ambient Aquatic Life Advisory Concentration (AALAC) values. Therefore, using the criteria listed in the HRS Rule Table 4-24, the Sensitive Environments Rating Value for the surface water drainage pathway subjected to Level II concentrations is assigned a Wetland Rating Value based on the following criteria (Ref. 1, Table 4-24):

As specified in the HRS Rule, Section 4.1.4.3.1.2, when measuring the affected length for a wetland area in rivers, use the length of the wetlands contiguous to the in-water segment of the hazardous substance migration path, i.e., wetland frontage along the shoreline of that portion subject to Level II concentrations as the value for length (Ref. 1).

Wetland Description -	Harris County Flood Control Ditch
Wetland Location -	Beginning at sediment sample SE-17 (F0AE0/MF07A7) and extending to SE-20 (F0AE3/MF07B0) on the Harris County Flood Control Ditch, see Figure 3.
Wetland Frontage -	2,218' (0.42 mi.)
Wetland Level of Contamination -	Level II
Reference(s) -	Ref. 12, pp. 31-33, and 34; 13, pp. 86, 87, 89, 90, 95, 96, 101, 102, 153, 156, 159, 162, 165, 168, 171, and 198 - 205.

4.1.4.3.1.3 Potential Contamination

Wetlands

Since Level II concentrations have been documented above, any value for potential wetland contamination would not significantly affect the site score. Therefore, potential contamination is not evaluated.

Sensitive Environments

Federally and state listed endangered species that may occur within a 4-mile radius of the site are the Houston Toad, Attwater's Greater Prairie-chicken, Brown Pelican, Wooping Crane, Atlantic Hawksbill Sea Turtle, and the Leatherback Sea Turtle (Ref. 18). Additional species, special features, and natural communities are listed as possibly occurring in the area of the site (Ref. 18).

5.0 SOIL EXPOSURE PATHWAY

5.0.1 General Considerations

The soil exposure pathway was not evaluated since this site is being evaluated as a sediment plume.

REFERENCE 1

federal register

Friday
December 14, 1990

Part II

Environmental Protection Agency

40 CFR Part 300
Hazard Ranking System; Final Rule

REFERENCE 2

United States
Environmental Protection
Agency

Office of Solid Waste
and Emergency
Response

Publication 9345.1-07
PB92-963377
EPA 540-R-92-026
November 1992

Superfund

EPA

Hazard Ranking System Guidance Manual

REFERENCE 3

United States
Environmental Protection
Agency

Office of Emergency and
Remedial Response
Washington DC 20460

EPA 540-R-92-021
Directive 9345.1-05
September 1992

Superfund

EPA

Guidance for Performing Site Inspections Under CERCLA

Interim Final

REFERENCE 4

United States
Environmental Protection
Agency

Office of Emergency and
Remedial Response
Washington, DC 20460

Publication 9345.1-21
EPA/540/R-96/028
PB96-963509
June 1996

Superfund

EPA

Superfund Chemical Data Matrix

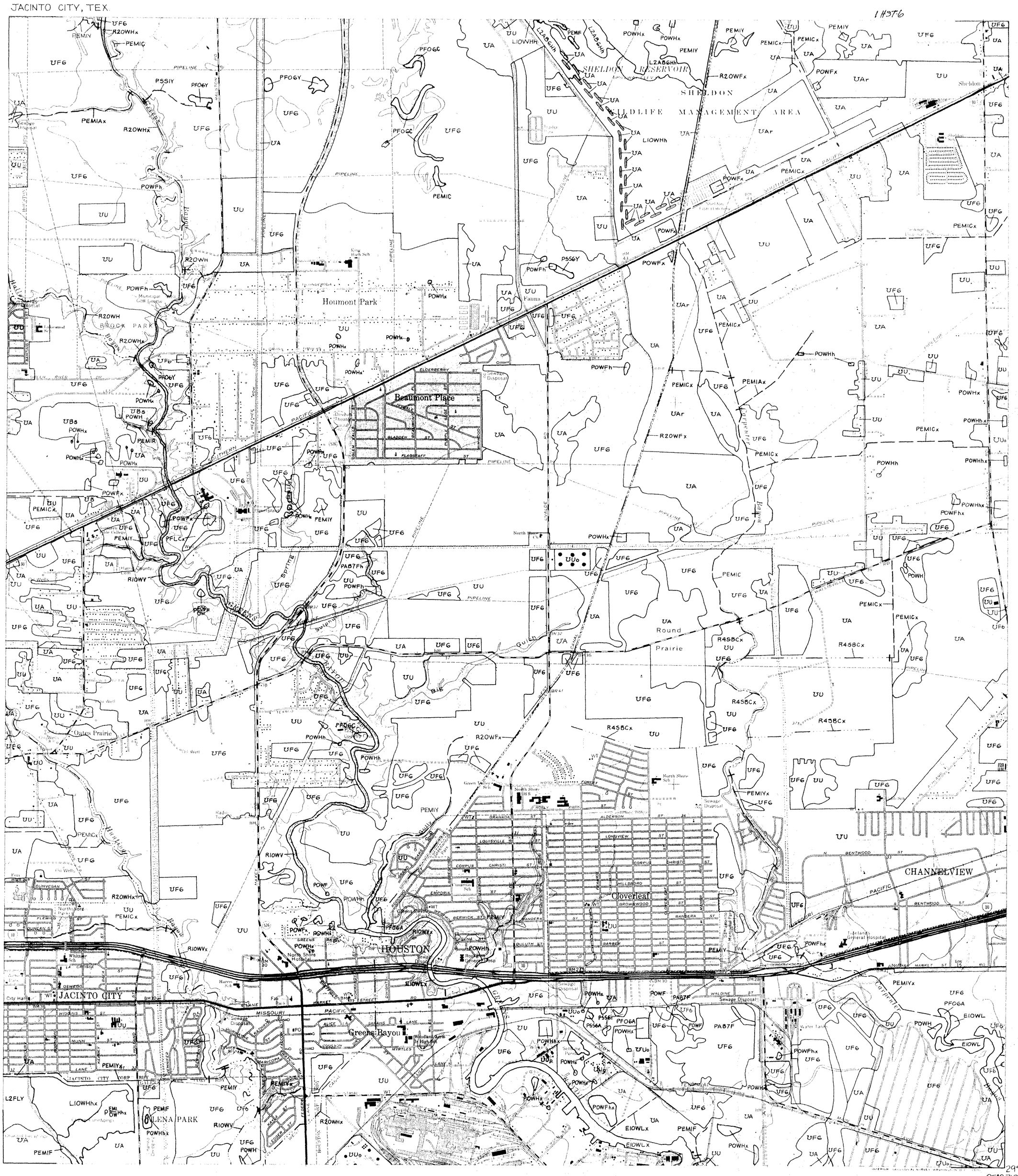
REFERENCE 5

NATIONAL WETLANDS INVENTORY

UNITED STATES DEPARTMENT OF THE INTERIOR

JACINTO CITY, TEX.

JACINTO CITY, TEX.



29°45'
95°07'30"

HOUSTON NW
HOUSTON

JACINTO CITY, TEX.

SCALE 1:24 000

Other information concerning the wetland resources depicted on this document may be available. For information, contact:
Regional Director (ARDE) Region II
U.S. Fish and Wildlife Service
P.O. Box 1306
Albuquerque, New Mexico 87103

For information on obtaining copies of map, contract:

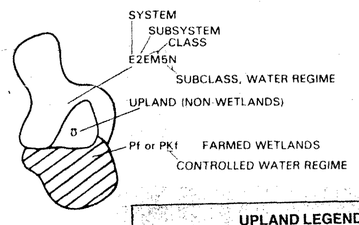
Information Transfer Specialist
National Coastal Ecosystems Team
U.S. Fish and Wildlife Service
1010 Gause Blvd.
Slidell, LA 70458

SPECIAL NOTE

This document was prepared primarily by stereoscopic analysis of high altitude aerial photographs. Wetlands were identified on the photographs based on vegetation, visible hydrology, and geography in accordance with **Classification of Wetlands and Deep-Water Habitats of the United States** (An Operational Draft), Cowardin, et al, 1977. The aerial photographs typically reflect conditions during the specific year and season when they were taken. In addition, there is a margin of error inherent in the use of the aerial photographs. Thus, a detailed on the ground and historical analysis of a single site may result in a revision of the wetland boundaries established through photographic interpretation. In addition, some small wetlands and those obscured by dense forest cover may not be included on this document.

Federal, State and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, State or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, State or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

SYMBOLOGY EXAMPLE



UPLAND LEGEND

UPLAND CLASSES	MODIFYING TERMS
UU-Urban or Developed	o-oil and/or gas
UA-Agricultural	r-rice field
UF-Forest	6-deciduous 7-evergreen 8-mixed
UR-Range	
UB-Barren	s-spoil d-dune

NOTES TO THE USER

- Wetlands which have been field examined are indicated on the map by an asterisk (*).
- Dominance type (either vegetative or sedentary animal) *can be added to the map* by the interested user.
- Additions or corrections to the wetlands information displayed on this map are solicited. Please forward such information to the address indicated.
- Some areas designated R4SB, R4SBW, or R4SBJ (*intermittent streams*) may not meet the definition of wetlands.

AERIAL PHOTOGRAPHY

DATE: 11 / / 79
SCALE: 1:65 000
TYPE: CIR
DATE: / /
SCALE:
TYPE:
DATE: / /
SCALE:
TYPE:

U.S. DEPARTMENT OF THE INTERIOR

FISH AND WILDLIFE SERVICE

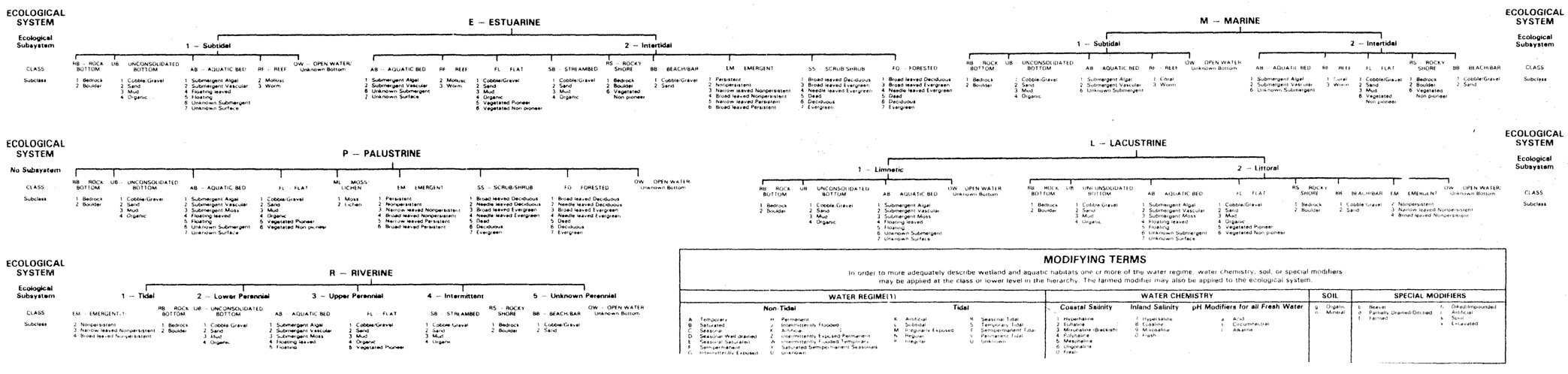
Prepared by Office of Biological Services for the National Wetlands Inventory and the National Coastal Ecosystems Team

Sponsored by the Minerals Management Service
U.S. Department of the Interior
Gulf of Mexico OCS Office
Metairie, Louisiana

Photointerpretation by:
Texas A&M University
College Station, Texas

WETLAND LEGEND

U – Primarily represents **upland** areas, but may include unclassified wetlands such as man-modified areas, non photo-identifiable areas and/or unintentional omissions.



MODIFYING TERMS

In order to more adequately describe wetland and aquatic habitats one or more of the water regime, water chemistry, soil, or special modifiers may be applied at the class or lower level in the hierarchy. The farmed modifier may also be applied to the ecological system.

WATER REGIME(1)		WATER CHEMISTRY		SOIL	SPECIAL MODIFIERS
Non-Tidal	Tidal	Coastal Salinity	Inland Salinity / pH Modifiers for all Fresh Water		
A Temporary B Saturated C Seasonal D Seasonal Well drained E Seasonal Saturated F Semipermanent G Intermittently Exposed H Permanent J Intermittently Flooded K Artificial Z Intermittently Exposed/Permanent Y Intermittently Flooded/Temporary V Saturated/Semipermanent/Seasonal U Unknown	K Artificial L Subtidal M Irregularly Exposed N Regular P Irregular R Seasonal Tidal S Temporary Tidal T Semipermanent Tidal V Permanent Tidal U Unknown	1 Hyperhaline 2 Euhaline 3 Mixohaline (Brackish) 4 Polyhaline 5 Mesohaline 6 Oligohaline 0 Fresh	7 Hypersaline 8 Eusaline 9 Mixosaline 0 Fresh a Acid c Circumneutral i Alkaline	g Organic n Mineral	b Beaver d Partially Drained/Ditched f Farmed r Diked/Impounded x Artificial s Spoil e Excavated

SCALE 1:24 000

1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 KILOMETER

REFERENCE 6

TECHNICAL REPORT

Final

Greens Bayou Sediment Delineation Plan

Greens Bayou Technical Work Group
Houston, Texas

February 2001

1 Introduction

1.1 Background

Greens Bayou is a tributary to the Houston Ship Channel (HSC) located in southeastern Texas, as shown on Figure 1. The federal navigation channels in Greens Bayou consist of a deep-draft channel with an authorized depth of 40 feet from the confluence with the HSC to Station 19+50 (0.37 miles) and a shallow-draft channel with an authorized depth of 15 feet from Station 19+50 to Mile 87+25 (1.28 miles). The navigation channel requires periodic maintenance dredging by the U.S. Army Corps of Engineers (USACE) to remove sediments encroaching into the authorized navigation depths. Private property owners along Greens Bayou utilize the channel to transport goods to and from their facilities and may also maintain their docks, slips and berthing areas through periodic dredging.

Greens Bayou channels have historically been dredged by cutterhead suction hydraulic dredges, and the dredged sediments pumped via pipeline to the Greens Dredge Disposal Area (GDDA). The Port of Houston Authority (PHA) has provided land, including the GDDA to the USACE for use in conjunction with its operation and maintenance of the navigation channel pursuant to agreements periodically executed by the parties. At its option, the PHA may also provide disposal capacity to private interests through individual arrangements. Return water from dredging operations can be discharged from the GDDA through an overflow weir to Greens Bayou. Weir discharges are subject to conditions in Section 401 Water Quality Certifications issued by the Texas Natural Resource Conservation Commission (TNRCC).

PHA has been investigating the presence and extent of DDT and other constituents that have migrated on to PHA property. Sediment sampling investigations by the Port, GB Biosciences (an adjacent facility that has historically manufactured pesticides, including DDT and other constituents), and others have identified the presence of DDT and related compounds in the Harris County Flood Control District (HCFCD) Ditch and Greens Bayou sediments. Source control is being addressed by GB Biosciences under a separate action plan, herein referred to as Path A. Work on this path is being implemented independently of delineation activities in Greens Bayou.

USACE postponed navigation dredging in Greens Bayou scheduled for early 2000, until technical evaluations identifying appropriate dredging and disposal options are complete. A four-path investigation is being pursued to develop the data necessary to determine the best course of action for Greens Bayou sediments. This investigation is intended to support the Conceptual Approach to Greens Bayou Sediment Management, a document and flow chart, which are currently under development.

The four investigation paths are defined as:

Path A - Harris County Flood Control District (HCFCD) ditch sediments and other source areas/media that contribute to Greens Bayou sediment contamination;

Path B - Bayou areas where sediments may remain unless human health or ecological risks prove unacceptable or the potential for future impacts to navigation channel areas is too great;

Path C - Bayou areas where minimum water depths must be maintained within the Federal navigation channel; and

Path D - Bayou areas where minimum water depths must be maintained for private berths and docks.

2 Previous Investigations

2.1 Available Data

Several entities have independently collected sediment samples in Greens Bayou since 1992. Because the purposes of these sampling efforts varied, so did the locations, sampling methods, and analytical tests. Nonetheless, these data provide a basis upon which to build a comprehensive site assessment program. This section describes these prior sampling efforts and the resulting analytical data presented in Table 1. For reference, the sample locations of these efforts are identified on Figure 2. These sample locations are referenced to Sediment Management Units (SMUs), which are described in Section 3.1.

2.1.1 USACE Sampling

The first sediment sampling in Greens Bayou relevant to the issues addressed in this plan was conducted by the USACE in February 1992, prior to routine maintenance dredging. Three samples were taken in the lower reach of Greens Bayou as shown in Figure 2. While specific documentation is not available, it has been reported that these samples were surface grabs. The analyses did not show detectable concentrations of DDT (detection limit not provided). However several other constituents were detected, specifically semi-volatile organic and inorganic compounds.

Eleven semi-volatile PAHs were detected during the 1992 sampling effort. Nine of these PAH compounds were reported at detectable concentrations at all three sample locations. These constituents included anthracene, benzo(*a*)anthracene, benzo(*b*)fluoranthene, chrysene, fluorene, phenanthrene, fluoranthene, naphthalene and pyrene. Anthracene concentrations ranged from 23,700 to 42,000 ug/kg. Benzo(*a*)anthracene, chrysene, fluorene, phenanthrene and pyrene had maximum concentrations of 73,000, 91,000, 34,900, 175,000, and 162,000 ug/kg, respectively. Benzo(*k*)fluoranthene and acenaphthene were detected at two of the three sample locations, and ranged in concentration from 9,800 to 19,400 ug/kg and from 15 to 387 ug/kg, respectively.

Five inorganic constituents were detected, including chromium, copper, lead, nickel and zinc, at all three sampling locations. The highest concentrations detected were for copper (40 ug/kg), followed by zinc at 37 ug/kg.

The USACE conducted additional sediment sampling in September 1994. Two locations were sampled, including areas in SMU 1-C-N and SMU 5-C-N (Figure 2). Analytical results indicate DDT and related constituents were below the detection limit of 0.01 mg/kg. Six inorganics, including barium, chromium, copper, lead, nickel and zinc were detected at both sampling locations. Concentrations of barium and zinc ranged from 250 to 290 mg/kg and from 60 to 120 mg/kg, respectively. Chromium, copper, lead and nickel ranged from 7 to 43 mg/kg.

Additional sediment sampling by the USACE was completed in December 1999. Efforts focused on three sampling locations, including areas within SMU 1-C-N, SMU 3-C-N, and SMU 5-C-N (Figure 2). Analytical results indicate DDT and related constituents were below the detection limit of 0.01 mg/kg. Semi-volatile organics (PAHs) and inorganics, however, were detected and results are described below.

A total of twelve PAH compounds were detected. Ten of these PAHs were found at all three sampling locations, including benzo(*a*)anthracene (29 to 47 ug/kg), benzo(*b*)fluoranthene (42 to 72 ug/kg), benzo(*k*)fluoranthene (32 to 62 ug/kg), benzo(*a*)pyrene (34 to 56 ug/kg), benzo(*ghi*)perylene (63 to 92 ug/kg),

higher concentration than the other inorganics (9,790 mg/kg). Concentration of the other inorganics (other than aluminum) ranged from 1 to 150 mg/kg.

Analytical results for sediments from the upstream reference location reported inorganic constituents above the detection limit. Sediments from the upstream reference location had a high concentration of aluminum (20,500 mg/kg). Barium, cadmium, chromium, copper, lead, manganese, nickel, selenium and zinc also had the highest detected concentrations in the reference location samples as compared to the two non-reference locations at the ISK Ditch and Brown & Root dock. DDT constituents were not detected in the reference samples.

Additional sediment sampling was conducted by the TNRCC in March 2000 (Figure 2). Analyses showed detectable concentrations of pesticide/PCB compounds in and around the HCFCD Ditch (SMU 4-R-E), including alpha-BHC (22.4 ug/kg), beta-BHC (43 and 547 ug/kg), DDD (176 and 1,950 ug/kg), DDE (125 ug/kg) and DDT (736 and 1,620 ug/kg). Total DDT concentrations ranged from 912 to 3,700 ug/kg.

2.1.4 Brown and Root Sampling

McBride-Ratcliff and Associates, Inc. (McBride-Ratcliff), on behalf of Brown & Root, conducted sediment sampling at the Greens Bayou marine fabrication yard docks in June 1995. A total of seven composite samples were collected from Greens Bayou in the vicinity of the marine fabrication yard docks (Figure 2). Sampling operations involved the use of a Geo Environmental geoprobe sampling rig that was placed on a barge. A 4-foot soil sampler was hydraulically advanced into the sediment using drive rods.

Analyses showed detectable concentrations of semi-volatile organics, inorganics and pesticides. Among detected pesticides were DDD, DDE, and DDT. The highest DDE concentration was found in Sample 2, with a value of 67.2 ug/kg. Several semi-volatile constituents were found in the majority of the 7 samples, including pyrene, phenanthrene, flouranthene, chrysene, benzo(e)pyrene, benzo(a)pyrene, benzo(k)fluoranthene, benzo(b)fluoranthene, and anthracene. Acenaphthene were also detected in one sample and anthracene was detected in 2 samples. Also, 3,6-dimethylphenanthrene was detected at sample location 3. The metals barium, chromium, copper, lead, nickel, and zinc were detected in all seven samples. Cadmium was also detected in four of the seven samples.

Additional sediment sampling was conducted by Fluor Daniel GTI during July 1998. Seven sediment samples were collected in Greens Bayou (80 feet from Brown & Root docks) in preparation for dredging in the areas of their docks, slips and berths (Figure 2). Samples were collected from the sediment surface to the anticipated dredging depth using a Lexan tube. A vertical section from the sediment collected was composited for analyses as a representative sample of material that would be placed into the GDDA. No sediment above the dredging depth existed at location E, so a surface sample was collected and analyzed. Of the seven samples taken along Greens Bayou, DDT was detected at all locations, with concentrations ranging from 4 to 170 ug/kg. Chlordane was also detected in SMU 5-L-N at 82 ug/kg.

PAHs were also detected in these samples, including acenaphthene (17 to 130 ug/kg), benzo(*a*)pyrene (51 to 170 ug/kg), fluoranthene (150 to 960 ug/kg) and naphthalene (10 to 16 ug/kg). All of these constituents, except naphthalene, were found at all seven sampling locations. Naphthalene was reported at concentrations above the detection limit in samples F and H only. Total PAHs and total petroleum hydrocarbons were detected across all sampling locations, with total PAH concentrations reported up to 1,260 mg/kg.

Inorganics were detected in Brown & Root sample locations along Greens Bayou, including arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc. The majority of these inorganics were detected across all sampling locations (mercury was not detected in samples H and K). Of these samples, zinc had the highest

and analyzed making these the most comprehensive sediment sampling activities in Greens Bayou to date. Samples were collected from SMU 5-R-E, SMU 5-C-N, SMU 4-R-E, SMU 4-C-N, SMU 3-R-E, SMU 3-L-N, and SMU 1-L-N. Core samples comprised a vertical section of the top three feet of sediment except at locations where refusal was reached at a depth less than 3 feet. Core samples were composited by depth for intervals of 0 – 1 ft, 1 – 2 ft, and 2 – 3 ft.

Three categories of chemical constituents were detected along Greens Bayou, including pesticides/PCBs, volatile organics and semi-volatile organics. Among detected pesticides/PCBs were alpha-BHC, beta-BHC, delta-BHC, gamma-BHC, DDD, DDE and DDT. The highest DDT concentrations were found in the O, P and Q samples, with values of 13,000, 94,000, and 2,900 ug/kg, respectively. Benzene was reported in 6 of 44 samples, and cyclohexane was found in 2 of 44 samples. Chlorobenzene was reported in 75% of the samples with a maximum concentration of 1,800 ug/kg.

2.2 Conclusions

Sediment sampling efforts in Greens Bayou by a variety of parties during the past 10 years have yielded a number of independent sediment quality measurements. The disparate purposes associated with each effort resulted in a variety of sampling procedures and a suite of completed chemical analyses (Table 1). Although the data provide useful sediment quality information on Greens Bayou, the contribution of disparate sampling, handling, and analytical methods to the variability of the data is unknown. However, sufficient sediment data from Greens Bayou are available to warrant attention to the presence of anthropogenic compounds that may be at levels of concern. A more thorough investigation is needed to determine if remedial actions are needed or if special conditions are necessary for safe removal and placement of dredged sediment for navigational purposes. The following describes the basis for this investigation and describes a comprehensive rationale and approach to obtaining the necessary data.

4 Sampling and Analysis in N SMUs

Areas of Greens Bayou that must be dredged for navigational reasons, within a reasonable amount of time, are within SMUs designated as "N". Dredging in these areas is necessitated by navigation demands. Dredging operations in Greens Bayou have used confined upland disposal, primarily the Greens Dredge Disposal Area, for the past 45 years.

4.1 Sample Locations

Figure 2 shows approximate, preliminary sample locations in all SMUs. The sample locations are evenly distributed within each SMU. Three sampling locations will be evenly distributed through each SMU except for 4-L-N and 4-C-N. Since these are near the HCFCD Ditch mouth, samples will be collected at five locations within these SMUs. Core samples will be collected from each sample location beginning at the sediment surface and extending either to refusal or the maximum expected dredging depth plus a 2-foot overdepth increment, whichever is reached first. Subsamples over depths that represent expected dredging practices will be collected from the core and analyzed for chemical, physical, and engineering properties as shown in Figure 3. The overdepth will be evaluated as one discrete sample. All SMUs will be sampled during this effort to provide a consistent data set for evaluating sediment constituents in Greens Bayou, even though some SMUs were recently sampled using similar protocols (1-L-N and 3-L-N) or dredged by the PHA (1-R-N).

4.2 Quantity of Samples

The quantity of samples proposed is based on past sampling practices, the volume of material to be characterized, evaluation of the results of previous sampling, and the sample number requirements for statistical data analysis. Previous sample results were evaluated statistically to generate descriptive statistics and estimates of variability. Summary statistics were generated for limited subsets of the available data, to determine applicability of parametric methods in estimating required sample numbers. Because of the heterogeneous nature of sediments, and the inherent spatial variability of contaminant concentrations, these methods typically result in an unrealistically high number of samples. Additionally, some of the data are not normally distributed, a key assumption of the procedure. Non-parametric procedures will most likely be more appropriate for data analysis because they require no assumptions regarding the sample distribution.

4.3 Contingency Samples

Prior to the collection of samples from the N SMUs, bathymetric surveys of Greens Bayou will be reviewed to determine the location of sediment shoals. Since shoaling may not occur in a pattern that coincides with the anticipated evenly distributed sample locations necessary for the collection of a thorough set of delineation samples, it may be necessary to supplement the total number of samples collected in the N SMUs. Where possible, locations shown on Figure 2 will be relocated up to 100 ft to place the sample within a shoal whose position may be ascertained from the available bathymetry. If relocation of greater than 100 ft would be required, a contingency sample will be collected from the shoal area, and the original delineation sample will remain at its original location.

4.7 Data Evaluation

Sediment data collection in the N SMUs is designed to provide information to evaluate impacts of dredged material disposal according to Clean Water Act Section 404(b)(1) guidelines, the Technical Framework, and State of Texas Water Quality Standards. The data should also support the evaluation of disposal alternatives for dredged sediment removed from these N SMUs.

5.4 Quality Assurance and Quality Control Procedures

QA/QC procedures for both sampling and laboratory analysis will be developed as part of a detailed sampling plan to be prepared by the contractor responsible for sediment sampling and laboratory analysis. It is expected that the QA/QC requirements of the TRRP process are the most stringent and will be used by the contractor. However, since the final data evaluation procedures are not fully set and due to the litigation potential of the project, the highest practical level of QA/QC will be implemented. To ensure the QA/QC procedures are adequate, the contractor will be required to submit a QAPP to the GBTWG for approval; approval must be granted before the contractor initiates any sampling efforts.

5.5 Data Evaluation

The TRRP process will be used to evaluate data obtained from sampling in E SMUs. The evaluation will consider both human health risk and ecological risk. The data will also be used to support a 404(b)(1) evaluation in the event that sediments must be dredged from E SMUs to protect human health or the environment in accordance with TRRP requirements. In addition, data will be evaluated to determine the potential for recontamination of sediment to be dredged in subsequent dredging events from N SMUs.

7 References

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TABLE 1. EXISTING SEDIMENT DATA FOR GREENS BAYOU AREA

Sampling Event	USACE Samples [1] February 29, 1992			USACE Samples [2] September 22, 1994		TNRCC Samples [3] – 7/23/97 (Ekman Grab Sample)			Brown and Root Samples (Fluor Daniel GTI) [4] – August 1998 (Core Samples, composited vertically for analysis)						
Sample ID	1	1A	1B	1	2	SS8	SS11	SS14	E	F	G	H	I	J	K
Location	Station 10+00	Station 5+00	Station 15+00	Station 10+00	Station 50+00	ISK Ditch Lat 29 45 13 63 Lon 95 10 28 43	Upstream for reference point Lat 29 45 39 64 Lon 95 11 9 31	Brown & Root Dock Lat 29 45 12.16 Lon 95 10 33 9	Adjacent the 42' channel section about 80' from west bulkhead	These proceed from downstream to upstream, each about 80' from the south side bulkhead; F is just upstream of the bend (about section 31+00, same as Anchor station F) and J is about section 42+00; others are about equally spaced between					80' from Yard C bulkhead about section 71+00
Water Depth (ft)						2	9	10							
PESTICIDES/PCBS															
Aldrin (ug/kg) *															
Alpha BHC (ug/kg)						1566									
Beta BHC (ug/kg)						2906									
Delta BHC (ug/kg)						556									
Gamma BHC (ug/kg)															
Chlordane (ug/kg)	<DL	<DL	<DL	<10 00	<10 00				<1 1	< 0 53	< 0 53	< 2 7	< 2 7	< 2.7	82 00
Chlorpyrifos (ug/kg) *															
4,4' DDD (ug/kg)															
4,4' DDE (ug/kg)						230									
4,4' DDT (ug/kg)	<DL	<DL	<DL	<10 00	<10 00	13608		62 34	100 0	7 7	6 4	170 0	140 0	170 0	4 40
Total DDT (ug/kg)															
Dicofol (ug/kg)						11158									
Dieldrin (ug/kg) *															
Endosulfan (ug/kg) *															
Endrin (ug/kg) *															
Guthion (ug/kg)						11 55									
HCB (ug/kg)						301		37 66							
Heptachlor (ug/kg) *															
Heptachlor Epoxide *															
Heptachloro-cyclohexane (ug/kg) *															
Pentachloro-benzene (ug/kg)						6 17									
Toxaphene (ug/kg) *	<DL	<DL	<DL	<50 00	<50 00				< 28	<14	<14	<68	<68	<14	<14
Total Pesticides (ug/kg) *															
Total PCBs (ug/kg) *	<DL	<DL	<DL	<50	<50				ND(3 0-22)	ND(1 5-11)	ND(1 5-11)	ND(7 5-55)	ND(7 5-55)	ND(7 5-55)	ND(1 5-11)
VOLATILE ORGANICS															
Benzene (ug/kg)															
Carbon tetrachloride (ug/kg) *															
Chloroform (ug/kg) *															
Cyclohexane (ug/kg)															
Tetrachloroethene (ug/kg) *															
Trichloroethene (ug/kg)															

See notes on page 11
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TABLE 1. EXISTING SEDIMENT DATA FOR GREENS BAYOU AREA

Sampling Event	USACE Samples[1] December 16, 1999				Brown and Root Samples (IT Group)[2] - March 2000 (Core Samples, composited vertically for analysis)							Port of Houston Authority (Anchor)[3]			
Sample ID	1	1B	2	2DUP	F	J	I	H	E1	E2	E3	E	E1	E2	E3
Location	Station 10+00 @cL	Station 15+00 @cL	Station 50+00 @cL	Station 50+00 @cL	C-Slip	B-yard	B-yard	B-yard	J D. Hughes Dock #2	J D Hughes Dock #3	J D Hughes Dock #4	Easting 3184595 Northing 13840135			
Water Depth (ft)															
PESTICIDES/PCBS															
Aldrin (ug/kg)*	<10.0	<10.0	<10.0	<10.0											
Alpha BHC (ug/kg)												2.1	3.7 Y	5.3 Y	2.7
Beta BHC (ug/kg)												15 Y	39.0	<0.96	4.2 Y
Delta BHC (ug/kg)												<0.98 J	<0.96	15 Y	12.0
Gamma BHC (ug/kg)												<0.98 J	<0.96	14 Y	51 Y
Chlordane (ug/kg)	<10.00	<10.00	<10.00	<10.00	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20				
Chlorpyrifos (ug/kg)*															
4,4' DDD (ug/kg)												28	170	44	41
4,4' DDE (ug/kg)												110.0	400.0	95.0	6.9
4,4' DDT (ug/kg)	<10.00	<10.00	<10.00	<10.00	28.50	0.97	53.70	5.02	<0.20	<0.20	1.07	14 Y	<1.9	<1.9	<1.9
Total DDT (ug/kg)												140.0	570.0	140.0	11.0
Dicofol (ug/kg)															
Dieldrin (ug/kg)*	<10.0	<10.0	<10.0	<10.0											
Endosulfan (ug/kg)*	<10.0	<10.0	<10.0	<10.0											
Endrin (ug/kg)*	<5.0	<5.0	<5.0	<5.0											
Guthion (ug/kg)															
HCB (ug/kg)															
Heptachlor (ug/kg)*	<10.0	<10.0	<10.0	<10.0											
Heptachlor Epoxide*															
Heptachloro-cyclohexane (ug/kg)*	<10.0	<10.0	<10.0	<10.0											
Pentachloro-benzene (ug/kg)															
Toxaphene (ug/kg)*	<50.00	<50.00	<50.00	<50.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00				
Total Pesticides (ug/kg)*	<300	<300	<300	<300											
Total PCBs (ug/kg)*	<1.00	<1.00	<1.00	<1.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00				
VOLATILE ORGANICS															
Benzene (ug/kg)												<1.5	5.30	32.00	15.00
Carbon tetrachloride (ug/kg)*												<1.5	<1.4	<1.3	<1.4
Chloroform (ug/kg)*												<1.5	<1.4	<1.3	<1.4
Cyclohexane (ug/kg)												<3.1	<2.9	7.60	4.40
Tetrachloroethene(ug/kg)*															
Trichloroethene (ug/kg)												<1.5	<1.4	<1.3	<1.7

See notes on page 11

TABLE 1. EXISTING SEDIMENT DATA FOR GREENS BAYOU AREA

Sampling Event	Port of Houston Authority (Anchor) [1]															
Sample ID	F	F1	F2	F3	I	I1	I2	I3	NN	N1	N2	N3	MM	M1	M2	M3
Location	Easting: 3184625 Northing: 13840859				Easting: 3183660 Northing: 13840784				Easting: 3183511 Northing: 13841157				Easting: 3182982 Northing: 13841209			
Water Depth (ft)																
PESTICIDES/PCBS																
Aldrin (ug/kg) *																
Alpha BHC (ug/kg)	0.96 Y	<0.96	1.1 Y	1.8	<0.98	0.8	1.7 Y	1.6	30.0	19.0	0.6	<0.93	140.0	1.0	<0.98	<0.97
Beta BHC (ug/kg)	2.3 Y	1.8 Y	<0.93	12.0	2.6	2.3	6.3	6.1	9.4	9.4	6.6	1.7	36.0	1.7	1.2	1.9
Delta BHC (ug/kg)	0.94 Y	1.5 Y	2.2	2.4 Y	<0.98	<0.97	<1.0	<0.9	0.8	<0.97	<0.92	<0.93	1.0	<0.98	<0.98	<0.97
Gamma BHC (ug/kg)	0.94 Y	<0.96	<0.93	<0.96	<0.98	<0.97	1.2 Y	<0.9	<0.93	<0.97	<0.92	<0.93	<0.99	<0.96	<0.98	<0.97
Chlordane (ug/kg)																
Chlorpyrifos (ug/kg) *																
4,4' DDD (ug/kg)	11	12	32	49	26	40	45	41	24	26	31	13	29	22	20	31
4,4' DDE (ug/kg)	6.2	5.2	26.0	68.0	13.0	14.0	26.0	38.0	6.6	16.0	12.0	3.5	5.4	4.6	3.6	15.0
4,4' DDT (ug/kg)	29.0	19.0	17.0	32.0	160.0	42.0	130.0	140.0	71.0	180.0	29.0	17.0	220.0	88.0	18.0	62.0
Total DDT (ug/kg)	46.0	36.0	75.0	150.0	200.0	96.0	220.0	220.0	100.0	220.0	62.0	34.0	250.0	95.0	42.0	130.0
Dicofol (ug/kg)																
Dieldrin (ug/kg) *																
Endosulfan (ug/kg) *																
Endrin (ug/kg) *																
Guthion (ug/kg)																
HCB (ug/kg)																
Heptachlor (ug/kg) *																
Heptachlor Epoxide *																
Heptachloro-cyclohexane (ug/kg) *																
Pentachloro-benzene (ug/kg)																
Toxaphene (ug/kg) *																
Total Pesticides (ug/kg) *																
Total PCBs (ug/kg) *																
VOLATILE ORGANICS																
Benzene (ug/kg)	<1.5	<1.7	<1.3	<1.3	<1.2	<1.0	<1.1	<1.1	<1.3	<1.3	<1.4	<1.2	<1.5	1.00	<1.1	<1.1
Carbon tetrachloride (ug/kg) *	<1.5	<1.7	<1.3	<1.3	<1.2	<1.0	<1.1	<1.1	<1.3	<1.3	<1.4	<1.2	<1.5	<1.0	<1.1	<1.1
Chloroform (ug/kg) *	<1.5	<1.7	<1.3	<1.3	<1.2	<1.0	<1.1	<1.1	<1.3	<1.3	<1.4	<1.2	<1.5	<1.0	<1.1	<1.1
Cyclohexane (ug/kg)	<3.0	<3.4	<2.7	<2.6	<2.5	<2.0	<2.1	<2.2	<2.6	<2.6	<2.8	<2.4	<2.9	<1.9	<2.2	<2.3
Tetrachloroethene (ug/kg) *																
Trichloroethene (ug/kg)	<1.5	<1.7	<1.3	<1.3	<1.2	<1.0	<1.1	<1.1	<1.3	<1.3	<1.4	1.10	<1.5	<1.0	<1.1	<1.1

See notes on page 11

TABLE 1. EXISTING SEDIMENT DATA FOR GREENS BAYOU AREA

Sampling Event	Port of Houston Authority (Anchor) †												
Sample ID	LL	O	O1	P	P1	P2	Q	Q1	Q2	R	R1	R2	R3
Location	Easting 3181973 Northing: 13841270	Easting: 3182244 Northing: 13841629		Easting: 3182102 Northing: 13841530			Easting: 3181808 Northing: 13841429			Easting: 3181440 Northing: 13841642			
Water Depth (ft)													
PESTICIDES/PCBS													
Aldrin (ug/kg) *													
Alpha BHC (ug/kg)	2.7 Y	97.0	23.0	55.0	62.0	230.0	<1.7	110 J	6.6	<0.88	<0.90	<0.88	<0.88
Beta BHC (ug/kg)	3.4	1900.0	460.0	2400.0	790 J	450.0	330.0	180 J	4.4 Y	60.0	2.0	<0.88	1.9 Y
Delta BHC (ug/kg)	<0.92	22.0	14.0	<19	40.0	55.0	1.5	6.1 J	1.9	<0.88	<0.90	<0.88	<0.88
Gamma BHC (ug/kg)	<0.92	27.0	9.3	<19	56.0	66.0	<0.95	<9.5	<1.8	<0.88	<0.90	<0.88	<0.88
Chlordane (ug/kg)													
Chlorpyrifos (ug/kg) *													
4,4' DDD (ug/kg)	65	910	3900	980	1200	11000	65 J	340 J	54	32 J	12	22 J	4.3
4,4' DDE (ug/kg)	27.0	120.0	600.0	130.0	200.0	140.0	16.0	42.0	13.0	3.6	2.6	7.0 J	1.6 J
4,4' DDT (ug/kg)	490.0	4800.0	8300.0	6700.0	7000.0	83000.0	670.0	2500.0	420.0	510.0	16.0	150.0	<1.8
Total DDT (ug/kg)	580.0	5800.0	13000.0	7800.0	8400.0	94000.0	750.0	2900.0	470.0	550.0	31.0	170.0	1.6
Dicofol (ug/kg)													
Dieldrin (ug/kg) *													
Endosulfan (ug/kg) *													
Endrin (ug/kg) *													
Guthion (ug/kg)													
HCB (ug/kg)													
Heptachlor (ug/kg) *													
Heptachlor Epoxide *													
Heptachloro-cyclohexane (ug/kg) *													
Pentachloro-benzene (ug/kg)													
Toxaphene (ug/kg) *													
Total Pesticides (ug/kg) *													
Total PCBs (ug/kg) *													
VOLATILE ORGANICS													
Benzene (ug/kg)	<1.5	<1.0	32.00	<1.1	<13	22.00	<1.2	<1.5	<1.1	<1.4	<1.4	<1.1	<1.1
Carbon tetrachloride (ug/kg) *	<1.5	<1.0	<1.0	<1.1	<13	<1.1	<1.2	<1.5	<1.1	<1.4	<1.4	<1.1	<1.1
Chloroform (ug/kg) *	<1.5	<1.0	<1.0	<1.1	<14	<1.1	<1.2	<1.5	<1.1	<1.4	<1.4	<1.1	<1.1
Cyclohexane (ug/kg)	<3.0	<3.2	<2.0	<1.9	<2.1	<26	<2.3	<2.5	<2.9	<2.7	<2.8	<2.3	<2.1
Tetrachloroethene (ug/kg) *													
Trichloroethene (ug/kg)	<1.5	<1.0	<1.0	<1.1	<14	<1.1	<1.2	<1.5	<1.1	<1.4	<1.4	<1.1	<1.1

See notes on page 11

TABLE 1. EXISTING SEDIMENT DATA FOR GREENS BAYOU AREA

Sampling Event	Port of Houston Authority (Anchor)[1]											TNRCC Samples 8 – 24,400 (Composites)	
Sample ID	S	S1	S2	S3	T	T1	T2	T3	U	U1	U2	1391	1396
Location	Easting 3181151 Northing 13842071				Easting 3180914 Northing 13842744				Easting 3179917 Northing 13843713			HCFCD ditch Lat 29 45 13 63 Lon 95 10 28 43	100 yds from HCFCD ditch Lat 29 45 13 49 Lon 95 10 25 28
Water Depth (ft)													
PESTICIDES/PCBS													
Aldrin (ug/kg) *												<21	<22
Alpha BHC (ug/kg)	<0.88	<0.99	<0.94	<0.90	0.5 J	<0.93	0.6 J	1.8 Y	<0.96	<0.90	<0.98	22.4	<23
Beta BHC (ug/kg)	3.1	1.2	2.9 Y	1.2 Y	1.6 Y	6.8	3.0	3.8 Y	0.92 J	0.68 J	0.51 J	547.0	43.3
Delta BHC (ug/kg)	<0.88	<0.99	<0.94	<0.90	<0.95	<0.93	3.8	3.6 Y	<0.96	<0.90	<0.98	<21	<22
Gamma BHC (ug/kg)	<0.88	<0.99	<0.94	<0.90	<0.95	<0.93	<0.93	<0.97	<0.96	<0.90	<0.98	<21	<22
Chlordane (ug/kg)												< 420	< 440
Chlorpyrifos (ug/kg) *													
4,4' DDD (ug/kg)	12 J	4.9	3.7	8.6	6.9 J	58	7.4	26	1.5 J	0.98 J	<2.0	176	1950
4,4' DDE (ug/kg)	7.6 J	2.2 Y	<1.9	2.8 Y	4.4 JY	13.0	4.1	22.0	1.8 J	<1.8	<2.0	< 42	125
4,4' DDT (ug/kg)	86 J	20.0	2.3 Y	12.0	7.0 JY	130.0	16.0	14.0	<1.9	<1.8	<2.0	736	1620
Total DDT (ug/kg)	110.0	25.0	3.7	21.0	6.9	200.0	28.0	61.0	3.3	1.0	<2.0	912	3700
Dicofol (ug/kg)													
Dieldrin (ug/kg) *												<42	<44
Endosulfan (ug/kg) *												< 42	< 42
Endrin (ug/kg) *												<42	< 44
Guthion (ug/kg)													
HCB (ug/kg)													
Heptachlor (ug/kg) *												< 21	< 22
Heptachlor Epoxide *												< 21	< 22
Heptachloro-cyclohexane (ug/kg) *													
Pentachloro-benzene (ug/kg)													
Toxaphene (ug/kg) *												< 4200	< 4400
Total Pesticides (ug/kg) *													
Total PCBs (ug/kg) *													
VOLATILE ORGANICS													
Benzene (ug/kg)	<1.6	<1.2	<1.1	<1.3	<1.5	<1.3	<1.3	<1.3	<1.3	<1.3	<1.0	< 6.5	< 7.0
Carbon tetrachloride (ug/kg) *	<1.6	<1.2	<1.1	<1.3	<1.5	<1.3	<1.3	<1.3	<1.3	<1.3	<1.0	< 6.5	< 7.0
Chloroform (ug/kg) *	<1.6	<1.2	<1.1	<1.3	<1.5	<1.3	<1.3	<1.3	<1.3	<1.3	<1.0	< 6.5	< 7.0
Cyclohexane (ug/kg)	<3.3	<2.4	<2.2	<2.6	<2.9	<2.7	<2.6	<2.6	<2.7	<2.6	<1.9		
Tetrachloroethene (ug/kg) *													
Trichloroethene (ug/kg)	<1.6	<1.2	<1.1	<1.3	<1.5	<1.3	<1.3	<1.3	<1.3	<1.3	<1.0		

See notes on page 11

Notes:

No Data Entered - Analytical results were not reported on referenced table either because analysis was not performed or because value was non-detect and only detected values were reported on the referenced table.

Y - Indicates raised reporting limit due to background interference or activity on the instrument. Compound is still not detected at or above the raised reporting limit.

J - Indicates an estimated value.

<DL - Indicates analyte/compound concentration was below the detection limit, which was not provided on the referenced table.

< (Number) - Analyte not detected Number in parentheses is associated reporting limit.

***** - Compound not detected above detection limit for any sample in sample set

ND (Number) - Indicates quantity not detected above method detection limit. Number in parentheses is associated detection limit

1 - Report: Unknown
Table. Barbour Terminal Barbour Terminal Channel; Greens Bayou Channel
^Results calculated on a wet weight basis

2 - Report: Unknown
Table: Houston Ship Channel: Brady Island Channel; Greens Bayou Channel; Light Draft Channel; Sims Bayou to Turning Basin- Channel, Upper Turning Basin and Turning Basin

3 - Report: Evaluation of Sediment Quality in the Vicinity of Permitted Discharges and Selected Land-use Practices: Galveston Bay
Table: Table 25. Organic compounds found in the Houston Ship Channel and Greens Bayou
^Only detected values are given

3a- The lat/long of this sample was changed from Lat 29 deg 45'15.62" Long 95 deg 10'28.43" to Lat 29 deg 45'13.63" Long 95 deg 10'28.43" as per converstation with TNRCC staff (6/00)

4 - Report: GB Biosciences Greens Bayou 2000, Letter Report Greens Bayou and Houston Ship Channel Sediment Sampling 9/3/98
Table: Table 1. August 3, 1998 Sediment Sampling Laboratory Results: Joe D. Hughes Facility- Greens Bayou, Houston, Texas

5 - Report: Unknown
Table: Houston Ship Channel: Greens Bayou Channel

6 - Report: Letter Report Greens Bayou and Houston Ship Channel Sediment Sampling 4/7/00
Table: Table 1. March 21, 2000 Sediment Analytical Results: Greens Bayou Fabrication Yard

7 - Report: Sediments Investigation. Greens Bayou, Houston, Texas
Table: Table 4. Analytical Chemistry and Bioassay Results

8 - Data taken directly from Accutest Report of Analysis

Table 3. Physical and Engineering Properties for Greens Bayou Sediment Samples

Property	Method
Grain-size distribution	ASTM D2487
Classification	ASTM D2216/D4318/D4 22
Moisture content	ASTM 160
Total Organic Carbon	ASTM D4129-88
Atterberg limits	ASTM D4318
Specific gravity	ASTM D854
pH	ASTM D2216/D4318/D422

Table 4
Analyte List
For Greens Bayou Sediment Samples

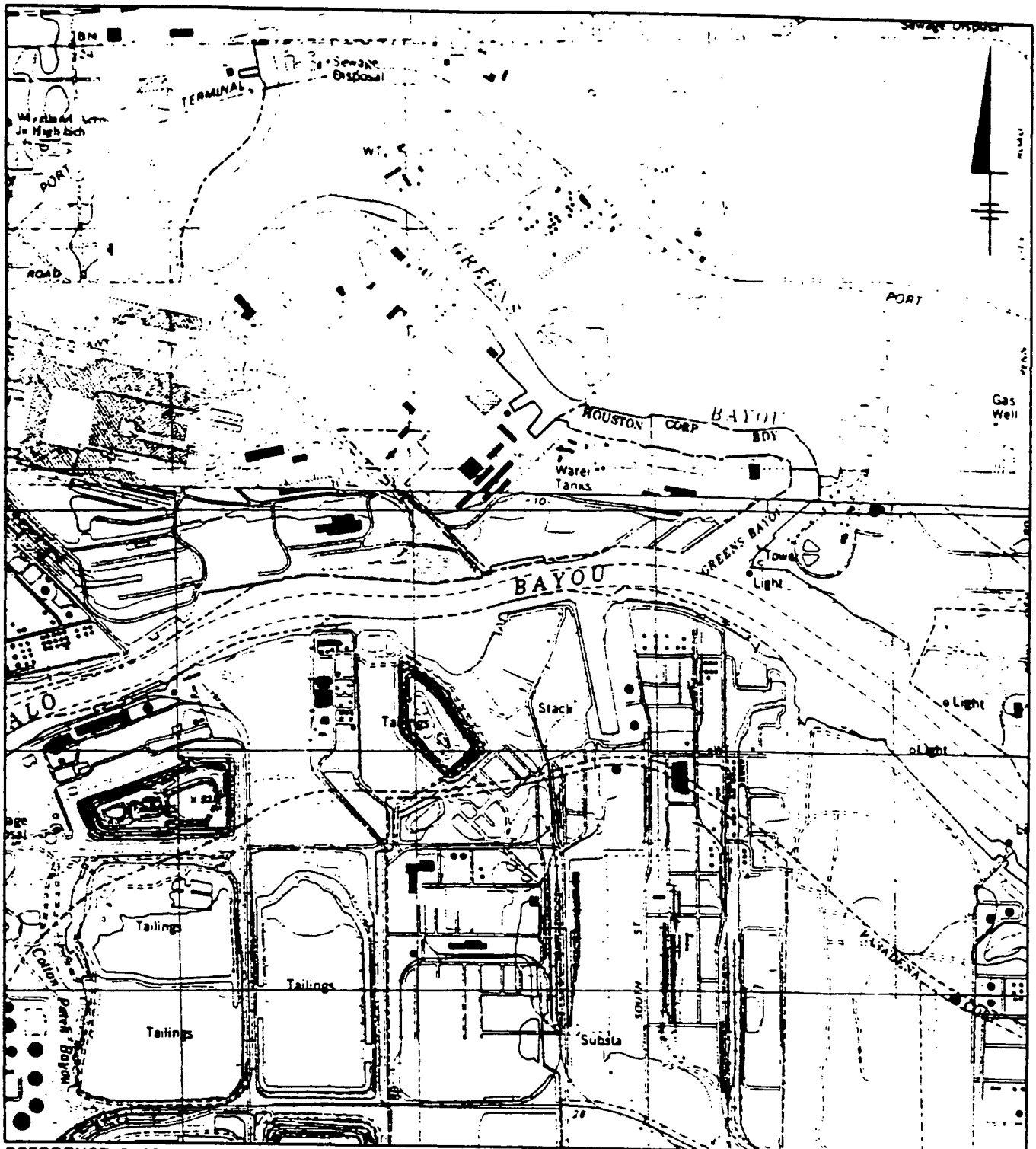
Parameter Type	Parameter
Pesticides	
Method: SW-846 8081A	alpha-BHC
	beta-BHC
	delta-BHC
	gamma-BHC
	Permethrin
	Mirex
	Heptachlor
	Aldrin
	Heptachlor epoxide
	Endosulfan I
	Dieldrin
	4,4'-DDE
	2,4'-DDE
	Endrin
	Endosulfan II
	4,4'-DDD
	2,4'-DDD
	Endosulfan sulfate
	4,4'-DDT
	2,4'-DDT
	Methoxychlor
	Endrin ketone
	Endrin aldehyde
	Alpha-Chlordane (cis-)
	Gamma-Chlordane (trans-)
	Trans-nonachlor
	Chlordane, total[1]
	Cis-nonachlor[2]
	Oxychlordane[2]
	Toxaphene
	Dicofol[1]
	Guthion[1]
	Aroclor 1016[3]
	Aroclor 1221[3]
	Aroclor 1232[3]
	Aroclor 1242[3]
	Aroclor 1248[3]
	Aroclor 1254[3]
	Aroclor 1260[3]
	PCBs, total[3]

Parameter Type	Parameter
Inorganics	
Method: SW-846 6010/7000 series	Antimony
	Arsenic
	Barium
	Beryllium
	Cadmium
	Calcium
	Chromium
	Cobalt
	Copper
	Iron
	Lead
	Magnesium
	Manganese
	Mercury
	Nickel
	Potassium
	Selenium
	Silver
	Sodium
	Thallium
	Tin[1]
	Vanadium
	Zinc
	Cyanide[4]
Other Parameters	Ammonia[5]
	Tributyl-tin[6]

*Plus 5 highest detected Tentatively Identified Compounds (TICs).

Notes:

1 Additional non-TCL/TAL analyte that will be analyzed for.
2 If possible, using the same column and conditions used for other 8081A analytes.
3 PCBs will be analyzed using SW-846 method 8082
4 Cyanide will be analyzed using SW-846 method 9010
5 Ammonia will be analyzed using EPA method 350.1, 350.2, or 350.3
6. Tributyl-tin will be analyzed using the method of Krone, et al. 1989. These analyses will be performed only on the surficial samples collected from each core location.



REFERENCE: BASE MAP SOURCE USGS 7.5 MINUTE QUADS. SERIES JACINTO CITY, TEXAS, 1982, AND PASADENA, TEXAS, 1995.

2000' 0 2000'

Approximate Scale: 1" = 2000'

AREA LOCATION

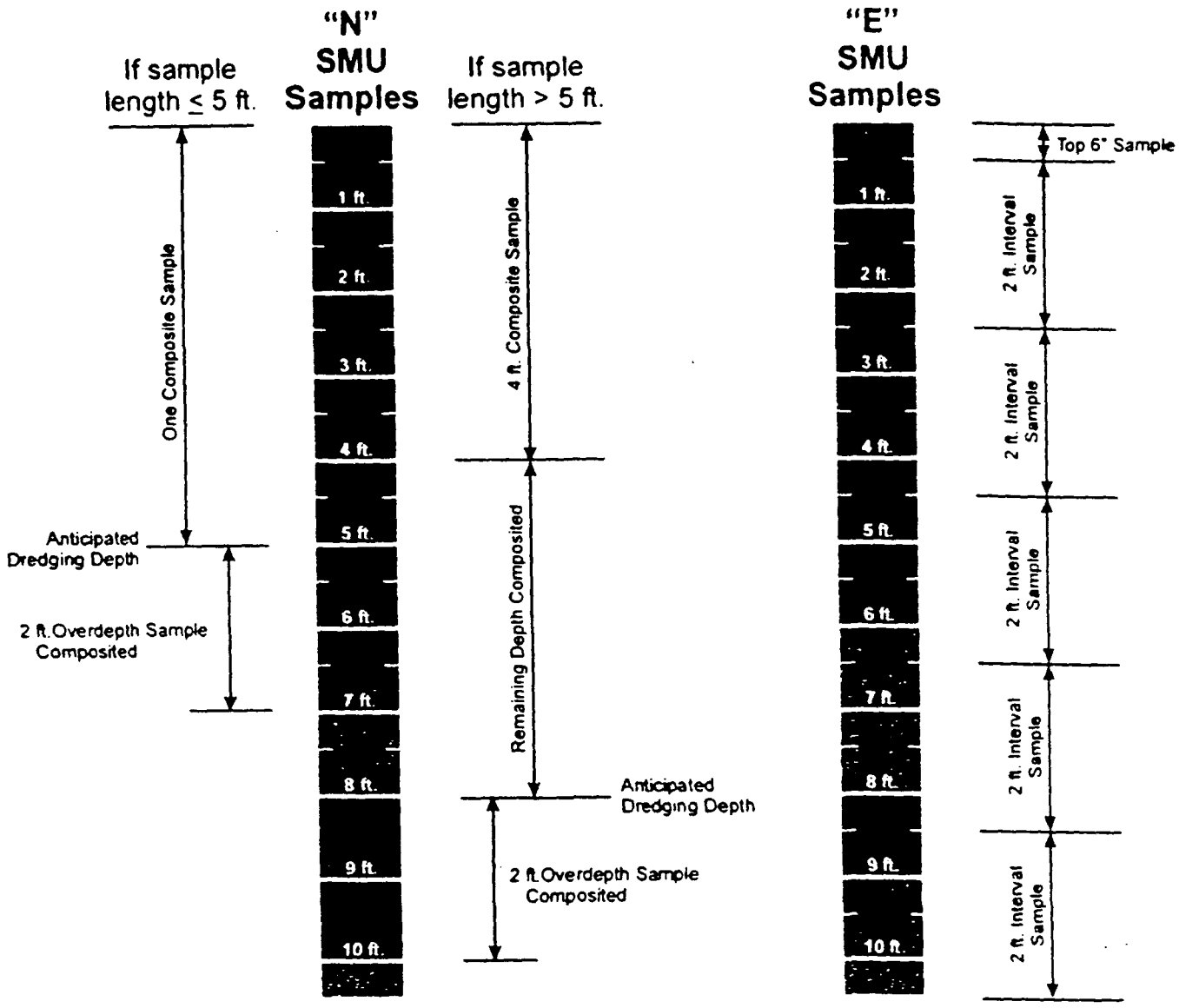
GREENS BAYOU
HOUSTON/JACINTO, TEXAS

GREENS BAYOU SEDIMENT DELINEATION PLAN

SITE LOCATION MAP

FIGURE
1

05/00 SYR-054-LBR
85710001/85710n01.cdr



GREENS BAYOU
HOUSTON/JACINTO, TEXAS

GREENS BAYOU SEDIMENT DELINEATION PLAN

CORE SAMPLE SPLITS

FIGURE 3

06/00 SYR D54-DJH LBR
857100C3/857109g02 CDR

REFERENCE 7

ATTN: JoAnn
512-239-4814

Chapter 292, Acts of the 40th Legislature,
Regular Session (1927)

Be it enacted by the Legislature of the State of Texas:

SECTION 1. That all right, title and interest of the State of Texas, to all lands hereinafter in this section described, to wit:

All islands and lands owned by the State of Texas, many of which are subject to overflow, known as Barnes Island, Alexander Island, Goat Island, Diamond Island and Hog Island in San Jacinto River above Lynchburg, and certain accretions formed by dredged material excavated from the channel and forming land attached to or near said Alexander Island, Hog Island between Goose Creek and Morgan Point, Atkinson Island, and all the submerged lands lying and being situated under the waters of Buffalo Bayou, San Jacinto River, White Oak Bayou, Bray's Bayou, Simms Bayou, Vinces Bayou, Hunting Bayou, Greens Bayou, Carpenters Bayou, Old River, Lost River, Goose Creek and Cedar Bayou, and all other streams within Harris County Navigation District tributary to the Houston Ship Channel, so far up said streams as the State may own same, together with all lands lying and being situated under the waters of Old River, Burnett's Bay, Crystal Lake, Scott's Bay, Peggy's Lake, Black Duck Bay, Tabbs Bay and San Jacinto Bay, and all other tidal flats or overflow land adjacent to or appurtenant to the above mentioned streams within the limits above mentioned except Mitchell's Bay and any area between said bay and the Houston Ship Channel, as now or hereafter located, is hereby granted to the Harris County Houston Ship Channel Navigation Digtrict, or its successors, for public purposes and for the development of commerce only, in accordance with the following provisions and stipulations herein contained; provided that inasmuch as it is the purpose of this Act to grant said lands to the public agency which is developing the Port of Houston, upon the creation by legislation of other public agency which shall supersede the said navigation district as the public agency developing the Port of Houston, the title to said lands shall be transferred from the navigation district to such public agency, either municipal or State, so provided, such public agency being referred to herein as the sucessors of the navigation district.

Act of March 11, 1927, 40th Leg., R.S., Ch. 292,
S.B. No. 222, 25 Tex. Gen. Laws 437.

REFERENCE 8

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

TELEPHONE MEMO TO THE FILE

Please complete with typewriter or black pen.

Call to: Winston Denton - TXPWD

Call from: Gary Hazelwood - TNRCC

Date of call: 5-23-01

File no.:

Phone no.: (281) 335-0798

Subject: Greens Bayou SSI

Information for file: Winston Denton of Texas Parks and Wildlife Department provided information concerning the area of Greens Bayou that a SSI will be performed.

Greens Bayou south of IH-10 is a fishery, mostly catfish and carp.

There are fish consumption advisories and closures in the area of the site, due to high levels of dioxin in crabs and catfish.

Signed Gary Hazelwood

TNRCC-0225 (Rev. 09-01-93)

REFERENCE 9

The State of Texas Water Quality Inventory 94

SURFACE WATER QUALITY MONITORING PROGRAM

12th Edition, 1994 • Prepared Pursuant to Section 305(b) Federal Clean Water Act

Basin Summaries, Basin Maps, Segment Fact Sheets, and Water Quality Status Tables (Basins 1 - 12)

2

VOLUME TWO

SFR-11 ◆ 11/94

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

TNRCC

John Hall, *Chairman*
Pam Reed, *Commissioner*
Peggy Garner, *Commissioner*

Dan Pearson, *Executive Director*

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SFR-11, 11/94

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SEGMENT 1005 OF THE SAN JACINTO RIVER BASIN

NAME: Houston Ship Channel/San Jacinto River

DESCRIPTION: from the confluence with Galveston Bay at Morgan's Point in Harris/Chambers County to a point 100 meters (110 yards) downstream of IH 10 in Harris County

LENGTH/SURFACE AREA: 12 miles (19 kilometers)

SEGMENT CLASSIFICATION: Water Quality Limited SEGMENT RANK: 92
Cause: Advanced Waste Treatment Required

DESIGNATED WATER USES: Noncontact Recreation
High Quality Aquatic Habitat

USE ATTAINABILITY ANALYSIS: None

STATIONS MONITORED IN THE LAST FOUR YEARS ON SEGMENT: 2 OFF SEGMENT: 0

PUBLISHED STUDIES:

14 Aug 1978	Q,F,C,L	IS-26	(Kirkpatrick: Mar 1982)
03 Aug 1982	Q,F,C,L	IS-86-10	(Kirkpatrick: Dec 1986)
09 Jul 1984	Q,F,C,L	IS-87-06	(Kirkpatrick: Apr 1987)
25 Feb 1985	Q,F,C,L	IS-87-09	(Kirkpatrick: Jul 1987)
1969-90	F	As-09	(Guillen: Aug 1993)

AMBIENT TOXICITY MONITORING STATIONS: None

SUMMARY OF FISH KILLS: None

FISH CONSUMPTION ADVISORIES AND/OR CLOSURES: A restricted consumption advisory for the general population and a no consumption advisory for children and women of child-bearing age have been issued by the Texas Department of Health due to elevated levels of dioxin in blue crabs and catfish.

PERMITTED FACILITIES (FINAL):

Domestic	1 outfalls	0.01 MGD
Industrial	22 outfalls	37.24 MGD
Total	23 outfalls	37.25 MGD

SEGMENT SUMMARY:

Total phosphorus and orthophosphorus are elevated in this segment. Manganese levels in sediment are also elevated. A TMDL for heavy metals is being developed by the TNRCC.

SEGMENT 1005 Houston Ship Channel/San Jacinto River

TOXIC SUBSTANCES IN WATER

Storet Code	Parameter ug/L	Marine Acute Criteria	Marine Chronic Criteria	Number of Samples	Number of Detects	Minimum	Maximum	Mean	Number of Values Outside Acute Criteria	Mean Exceeds Chronic Criteria
01106	ALUMINUM	None	None	11	7	5.000	470.000	88.455	NA	NA
01000	ARSENIC	149.000	78.000	14	2	2.500	12.500	5.607	0	NO
01025	CADMIUM	45.620	10.020	14	0	0.500	5.000	1.107	0	NO
01220	CHROMIUM, HEXAVALENT	1100.000	50.000	0	NA	NA	NA	NA	NA	NO
01040	COPPER	16.270	4.370	14	3	2.000	5.000	2.651	0	NO
01049	LEAD	140.000	5.600	14	1	1.500	63.600	6.029	0	YES
71890	MERCURY	2.100	1.100	15	4	0.040	4.700	0.459	1	NO
01065	NICKEL	119.000	13.200	15	6	5.000	65.000	15.340	0	YES
01145	SELENIUM	564.000	136.000	14	0	2.500	12.500	5.000	0	NO
01090	ZINC	98.000	89.000	14	10	3.000	80.000	26.357	0	NO
39330	ALDRIN	1.300	None	3	0	0.002	0.100	0.036	0	NA
39350	CHLORDANE	0.090	0.004	3	0	0.002	0.002	0.002	0	NO
39370	DDT	0.130	0.001	3	0	0.001	0.001	0.001	0	NO
39380	DIELDRIN	0.710	0.002	3	0	0.001	0.001	0.001	0	NO
39388	ENDOSULFAN	0.034	0.009	3	0	0.004	0.004	0.004	0	NO
39390	ENDRIN	0.037	0.002	3	0	0.001	0.001	0.001	0	NO
39782	GAMMA-HEXACHLOROCYCLOHEXANE	0.160	None	3	0	0.002	0.015	0.007	0	NA
39410	HEPTACHLOR	0.053	0.004	3	0	0.002	0.002	0.002	0	NO
39530	MALATHION	None	0.010	3	0	0.005	0.005	0.005	NA	NO
39480	METHOXYCHLOR	None	0.030	3	0	0.015	0.015	0.015	NA	NO
39755	MIREX	None	0.001	0	NA	NA	NA	NA	NA	NO
39540	PARATHION	None	None	3	0	0.013	0.125	0.054	NA	NA
39516	PCBS	10.000	0.030	3	0	0.015	0.015	0.015	0	NO
39032	PENTACHLOROPHENOL	15.140	9.560	2	1	0.054	1.000	0.527	0	NO
39400	TOXAPHENE	0.210	0.000	3	0	0.000	0.000	0.000	0	NO
39740	2,4,5-T	259.000	12.000	2	0	0.034	2.500	1.267	0	NO

39481	METHOXYCHLOR	UG/KG	5.000	8	0	0.035	5.000	3.107	0
39541	PARATHION	UG/KG	1.500	8	0	0.275	5.250	1.574	0
39519	PCBS	UG/KG	18.700	8	1	2.060	184.700	30.979	1
39507	AROCLOR 1254	UG/KG	25.000	0	0	NA	NA	NA	0
39061	PENTACHLOROPHENOL	UG/KG	2.500	8	0	0.030	2.505	1.649	0
39761	SILVEX	UG/KG	5.000	5	1	0.530	5.000	3.764	0
39403	TOXAPHENE	UG/KG	25.000	8	0	0.565	25.000	14.875	0
39731	2,4-D	UG/KG	25.000	8	0	0.410	25.000	14.045	0
39741	2,4,5-T	UG/KG	5.000	8	1	0.090	5.880	3.608	1

SEGMENT 1006 OF THE SAN JACINTO RIVER BASIN

NAME: Houston Ship Channel

DESCRIPTION: from the confluence with the San Jacinto River in Harris County to a point immediately upstream of Greens Bayou in Harris County, including tidal portions of tributaries

LENGTH/SURFACE AREA: 6 miles (10 kilometers)

SEGMENT CLASSIFICATION: Water Quality Limited SEGMENT RANK: 29
Cause: Advanced Waste Treatment Required

DESIGNATED WATER USES: Industrial Water Supply and Navigation

USE ATTAINABILITY ANALYSIS: As a result of a UA the upstream boundary of this segment was moved downstream to the confluence of Greens Bayou.

STATIONS MONITORED IN THE LAST FOUR YEARS ON SEGMENT: 3 OFF SEGMENT: 1

PUBLISHED STUDIES:

14 Aug 1978	Q,F,C	IS-26	(Kirkpatrick: Mar 1982)
24 Oct 1979	Q,D,F,C,R	IS-31	(Ottmers: Apr 1982) Halls Bayou
03 Aug 1982	Q,F,C,L	IS-86-10	(Kirkpatrick: Dec 1986)
09 Jul 1984	Q,F,C,	IS-87-06	(Kirkpatrick: Apr 1987)
25 Feb 1985	Q,F,C,L,S	IS-87-09	(Kirkpatrick: Jul 1987)
1969-90	F	As-09	(Guillen: Aug 1993)

AMBIENT TOXICITY MONITORING STATIONS: 2
ON SEGMENT: 2
OFF SEGMENT: 0

SUMMARY OF FISH KILLS: 3

Waterbody	Date	Cause	Size of Kill
Reinhardt and Garners Bayous	02/16/89	Ethylene glycol urea salt used to de-ice airplanes	4,153,309
East Fork Patrick Bayou	03/21/90	Unknown	101-1,000
Patrick Bayou	09/10/90	Unknown	1,060

FISH CONSUMPTION ADVISORIES AND/OR CLOSURES: A restricted consumption advisory for the general population and a no consumption advisory for children and women of child-bearing age have been issued by the Texas Department of Health due to elevated levels of dioxin in blue crabs and catfish.

PERMITTED FACILITIES (FINAL):

Domestic	94 outfalls	69.43 MGD
Industrial	106 outfalls	189.84 MGD
Total	200 outfalls	259.27 MGD

SEGMENT SUMMARY:

Nitrite plus nitrate nitrogen, total phosphorus and orthophosphorus in water are elevated. Mercury, barium, cadmium, chromium, copper, lead, nickel, zinc, chlordane, DDT, PCB's, and hexachlorobenzene in sediment are elevated. Total maximum daily loads for arsenic, copper, lead, mercury, nickel, and zinc are being developed by the TNRCC.

SEGMENT 1006 Houston Ship Channel

TOXIC SUBSTANCES IN WATER

Storet Code	Parameter ug/L	Marine Acute Criteria	Marine Chronic Criteria	Number of Samples	Number of Detects	Minimum	Maximum	Mean	Number of Values Outside Acute Criteria	Mean Exceeds Chronic Criteria
01106	ALUMINUM	None	None	13	9	5.000	390.000	134.038	NA	NA
01000	ARSENIC	149.000	78.000	21	3	2.500	12.500	5.286	0	NO
01025	CADMIUM	45.620	10.020	21	0	0.500	5.010	1.143	0	NO
01220	CHROMIUM, HEXAVALENT	1100.000	50.000	0	NA	NA	NA	NA	NA	NO
01040	COPPER	16.270	4.370	21	5	2.000	31.000	4.945	2	YES
01049	LEAD	140.000	5.600	21	1	1.500	4.000	1.838	0	NO
71890	MERCURY	2.100	1.100	20	7	0.100	0.510	0.212	0	NO
01065	NICKEL	119.000	13.200	21	11	5.500	40.000	14.205	0	YES
01145	SELENIUM	564.000	136.000	21	0	2.500	12.500	4.833	0	NO
01090	ZINC	98.000	89.000	20	17	6.000	105.000	41.650	1	NO
39330	ALDRIN	1.300	None	0	NA	NA	NA	NA	NA	NA
39350	CHLORDANE	0.090	0.004	0	NA	NA	NA	NA	NA	NO
39370	DDT	0.130	0.001	0	NA	NA	NA	NA	NA	NO
39380	DIELDRIN	0.710	0.002	0	NA	NA	NA	NA	NA	NO
39388	ENDOSULFAN	0.034	0.009	0	NA	NA	NA	NA	NA	NO
39390	ENDRIN	0.037	0.002	0	NA	NA	NA	NA	NA	NO
39782	GAMMA-HEXACHLOROCYCLOHEXANE	0.160	None	0	NA	NA	NA	NA	NA	NA
39410	HEPTACHLOR	0.053	0.004	0	NA	NA	NA	NA	NA	NO
39530	MALATHION	None	0.010	0	NA	NA	NA	NA	NA	NO
39480	METHOXYCHLOR	None	0.030	0	NA	NA	NA	NA	NA	NO
39755	MIREX	None	0.001	0	NA	NA	NA	NA	NA	NO
39540	PARATHION	None	None	0	NA	NA	NA	NA	NA	NA
39516	PCBS	10.000	0.030	0	NA	NA	NA	NA	NA	NO
39032	PENTACHLOROPHENOL	15.140	9.560	0	NA	NA	NA	NA	NA	NO
39400	TOXAPHENE	0.210	0.000	0	NA	NA	NA	NA	NA	NO
39740	2,4,5-T	259.000	12.000	0	NA	NA	NA	NA	NA	NO

39481	METHOXYCHLOR	UG/KG	5.000	8	0	0.070	5.500	3.289	0
39541	PARATHION	UG/KG	1.500	8	0	0.035	2.100	1.141	0
39519	PCBS	UG/KG	18.700	8	3	0.595	619.200	107.209	3
39507	AROCLOR 1254	UG/KG	25.000	0	0	NA	NA	NA	0
39061	PENTACHLOROPHENOL	UG/KG	2.500	6	0	0.260	2.500	1.468	0
39761	SILVEX	UG/KG	5.000	3	0	0.165	5.000	1.898	0
39403	TOXAPHENE	UG/KG	25.000	8	0	0.050	25.000	13.351	0
39731	2,4-D	UG/KG	25.000	6	0	0.730	25.000	10.422	0
39741	2,4,5-T	UG/KG	5.000	6	0	0.205	5.000	2.258	0

REFERENCE 10

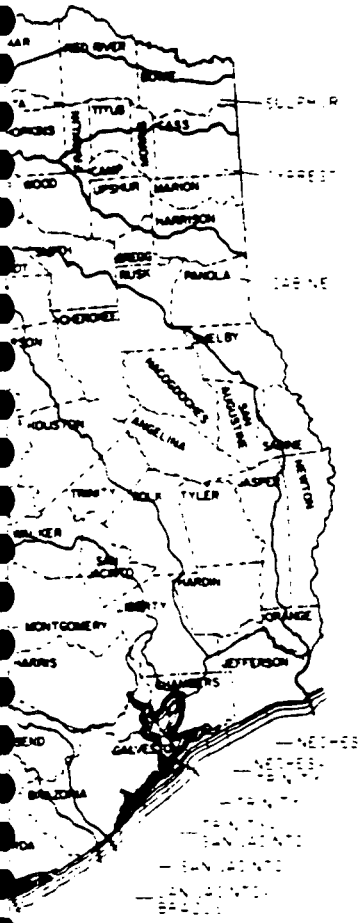
Segment Identification Maps for Texas River and Coastal Basins

LP 85-01

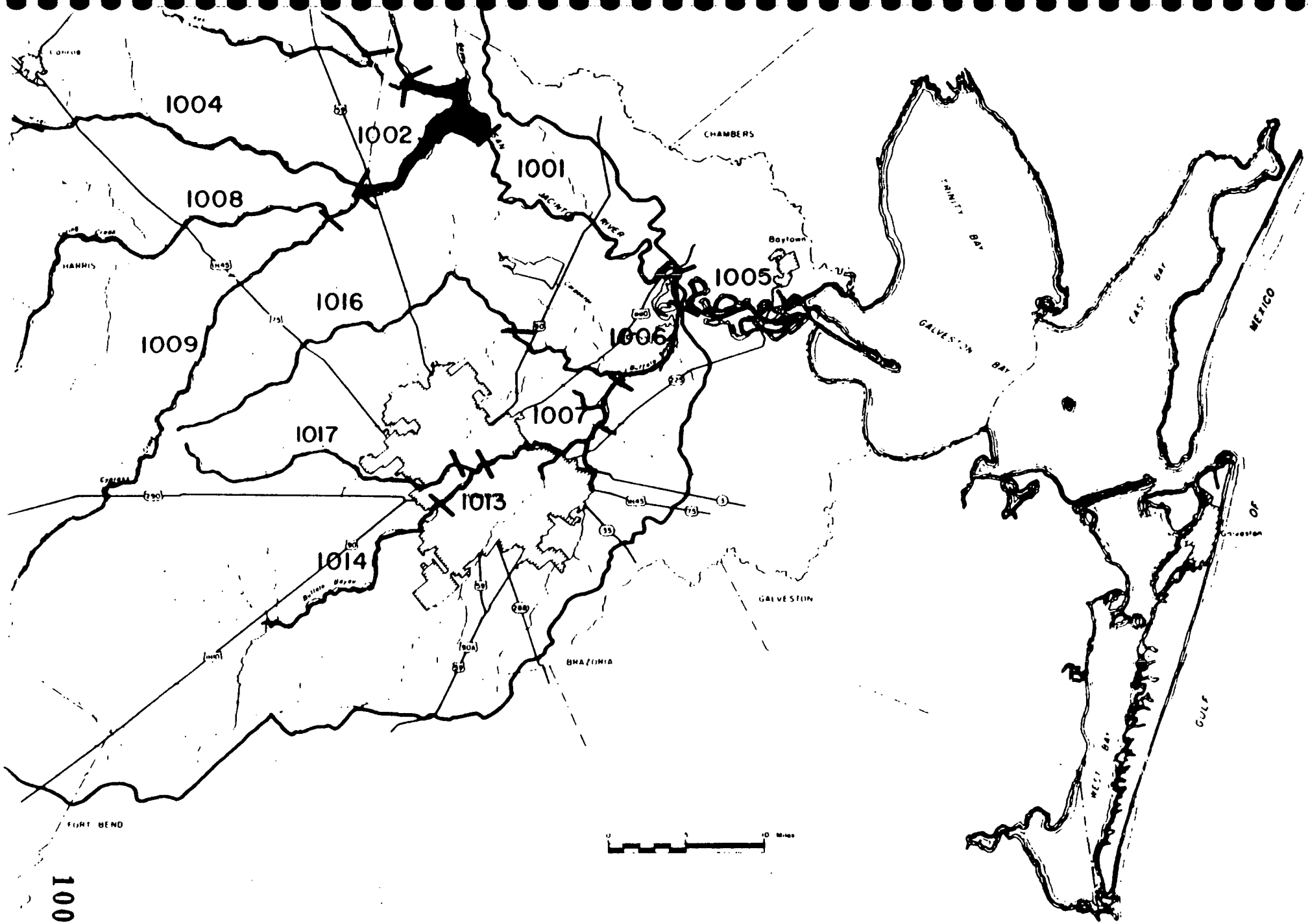
Texas Water Commission

November 1992

10001



Number	Name	Page
01	Canadian River	2
02	Red River	4
03	Sulphur River	6
04	Cypress Creek	8
05	Sabine River	10
06	Neches River	12
07	Neches-Trinity Coastal	14
08	Trinity River	16
09	Trinity-San Jacinto Coastal	18
10	San Jacinto River	20
11	San Jacinto-Brazos Coastal	22
12	Brazos River	24
13	Brazos-Colorado Coastal	26
14	Colorado River	28
15	Colorado-Lavaca Coastal	30
16	Lavaca River	32
17	Lavaca-Guadalupe Coastal	34
18	Guadalupe River	36
19	San Antonio River	38
20	San Antonio-Nueces Coastal	40
21	Nueces River	42
22	Nueces-Rio Grande Coastal	44
23	Rio Grande	46
24	Bays and Estuaries	48
25	Gulf of Mexico	56


1004
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TRINITY BAY
GALVESTON BAY
EAST BAY
MEXICO
OF
GULF
WEST BAY
GALVESTON
BRAZORIA
FORT BEND
JACINTO RIVER
0
5
10 Miles

10005

REFERENCE 11

RESERVED

REFERENCE 12

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
HOUSTON BRANCH
10625 FALLSTONE RD.
HOUSTON, TEXAS 77099

JUL 30 2001

MEMORANDUM

Date: July 26, 2001

Subject: Contract Laboratory Program Data Review

From: Marvelyn Humphrey, Alternate ESAT RPO, 6MD-HC

To: B. Rhotenberry, 6SF-RA

Site : GREENS BAYOU

Case#: 29393

SDG# : MF07A5

The EPA Region 6 Houston Branch ESAT data review team has completed a review of the submitted Contract Laboratory Program (CLP) data package for the referenced site. The samples analyzed and reviewed are detailed in the attached Regional data review report.

The data package is acceptable for regional use. Problems, if any, are listed in the report narrative.

If you have any questions regarding the data review report, please call me at (281) 983-2140.

Attachments
cc: R. Flores, Region 6 CLP/TPO
M. El-Feky, Region 6 Data Coordinator
Files (2)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
HOUSTON BRANCH
10625 FALLSTONE ROAD
HOUSTON, TEXAS 77099

INORGANIC REGIONAL DATA ASSESSMENT

CASE NO. 29393 SITE Greens Bayou
LABORATORY CHEM NO. OF SAMPLES 19
CONTRACT# 68-W0-0089 MATRIX Soil
SDG# MF07A5 REVIEWER (IF NOT ESD) ESAT
SOW# ILM04.1 REVIEWER'S NAME S. Meekins
ACCT# 150102DJN49 SF# 50102DZZ COMPLETION DATE July 20, 2001

SAMPLE NO.					
	MF0791	MF0795	MF0799	MF07A4	MF07A8
	MF0792	MF0796	MF07A0	MF07A5	MF07A9
	MF0793	MF0797	MF07A1	MF07A6	MF07B0
	MF0794	MF0798	MF07A2	MF07A7	

DATA ASSESSMENT SUMMARY

	ICP	HG	CYANIDE
1. HOLDING TIMES	O	O	O
2. CALIBRATIONS	O	O	O
3. BLANKS	M	O	M
4. MATRIX SPIKES	O	O	O
5. DUPLICATE ANALYSIS	O	O	O
6. ICP QC	M		
7. FAA QC			
8. LCS	O	O	O
9. SAMPLE VERIFICATION	O	O	O
10. OTHER QC	O	O	O
11. OVERALL ASSESSMENT	M	O	M

O = Data had no problems.
M = Data qualified because of major or minor problems.
Z = Data unacceptable.
N/A= Not applicable

ACTION ITEMS:

AREAS OF CONCERN: Laboratory blank concentrations affected some arsenic, beryllium, silver, and cyanide results. The potassium serial dilution difference was above 10 percent. One arsenic analysis had a coefficient of variation above 20 percent.

NOTABLE PERFORMANCE:

all beryllium results except the results for samples MF0796 and MF0797; and

the silver results for samples MF0795, MF0797, MF07A5, and MF07A9.

4. **Pre-digestion/Pre-distillation Matrix Spike Recovery:** Acceptable. The laboratory reported acceptable matrix spike recoveries.

5. **Duplicate Analysis:** Acceptable. The laboratory reported a duplicate difference for chromium that was only marginally above the technical QC limit, so the reviewer did not qualify the chromium results.

6. **ICP Quality Control:**

   Serial Dilution: Provisional. The laboratory reported an outlying serial dilution difference for potassium, so the reviewer qualified as estimated the potassium results. The serial dilution result was lower than the undiluted result, indicating that matrix interferences enhanced the signal for potassium. Therefore, the reviewer also qualified the potassium results as high biased.

   Interference Check Sample (ICS): Acceptable. Acceptable ICS results indicated satisfactory interelement and background corrections.

   Coefficient of Variation: Provisional. The reviewer qualified the arsenic result for sample MF0791 as estimated because of inconsistent replicate instrument readings.

7. **Furnace Atomic Absorption Quality Control:** Not Applicable.

8. **Laboratory Control Sample (LCS):** Acceptable. Acceptable LCS recoveries indicated satisfactory sample preparation and analysis.

9. **Sample Verification:** Acceptable. The laboratory correctly reported all sample results but was contacted about a CSF issue (see FAX Record Log).

   The laboratory responded to CCS and resubmitted corrected raw data page 349. The resubmitted page was placed at the beginning of the data package and should be used to replace the corresponding page in the CSF.

INORGANIC DATA QUALIFIER DEFINITIONS

The following definitions provide brief explanations of the ESAT-Region 6 qualifiers assigned to results in the inorganic data review process.

U Undetected at the laboratory reported detection limit (IDL).

L Reported concentration is between the IDL and the CRDL.

J Result is estimated because of outlying quality control parameters such as matrix spike, serial dilution, FAA spike recovery, etc.

R Result is unusable.

F A possibility of a false negative exists.

UC Reported concentration should be used as a raised detection limit because of apparent blank contamination.

^ High bias. Actual concentration may be lower than the concentration reported.

v Low bias. Actual concentration may be higher than the concentration reported.

INORGANIC DATA SUMMARY

Case No. : 29393 SDG : MF07A5 Reviewer : S. Meekins

Laboratory : CHEM Matrix : Soil Units : mg/Kg

EPA Sample #=>	MF07A8		MF07A9		MF07B0		MF0791		MF0792		MF0793		MF0794	
	RESULT	FLAG	RESULT	FLAG	RESULT	FLAG	RESULT	FLAG	RESULT	FLAG	RESULT	FLAG	RESULT	FLAG
ALUMINUM	1650		1060		1980		1810		1680		1330		1080	
ANTIMONY	1.2	U	1.2	U	1.3	U	1.2	U	1.2	U	1.2	U	1.2	U
ARSENIC	9.9		13.0		22.9		1.9	LUCJ	1.2	LUC	0.84	U	1.2	LUC
BARIUM	47.7	L	30.1	L	90.8		92.4		61.6		29.3	L	68.9	
BERYLLIUM	0.43	LUC	0.37	LUC	0.31	LUC	0.36	LUC	0.32	LUC	0.40	LUC	0.27	LUC
CADMIUM	0.10	U	0.10	U	0.11	U	0.10	U	0.10	U	0.10	U	0.10	U
CALCIUM	1840		6570		4420		5780		2480		2420		3140	
CHROMIUM	5.1		3.4		8.4		3.2		2.8		2.0	L	2.8	
COBALT	2.0	L	3.1	L	9.2	L	2.1	L	1.9	L	2.5	L	1.3	LJv
COPPER	4.5	L	4.1	L	11.6		5.8	L	4.5	L	6.2		8.4	
IRON	1270		1470		3180		2270		1970		1410		1650	
LEAD	10.9		7.4		22.0		11.5		7.5		5.2		7.1	
MAGNESIUM	258	L	312	L	610	L	738	L	558	L	325	L	524	L
MANGANESE	16.7		20.7		115		62.3		63.0		53.8		58.6	
MERCURY	0.11	L	0.06	U	0.07	U	0.06	U	0.06	U	0.06	U	0.06	U
NICKEL	3.7	L	2.5	LJ^	5.0	L	3.6	L	3.2	L	7.8	L	4.0	L
POTASSIUM	85.8	LJ^	59.6	LJ^	204	LJ^	235	LJ^	182	LJ^	116	LJ^	146	LJ^
SELENIUM	1.1	U	1.0	U	1.2	U	1.1	U	1.1	U	1.1	U	1.1	U
SILVER	0.17	U	0.24	LUC	0.19	U	0.18	U	0.17	U	0.17	U	0.17	U
SODIUM	267	L	174	L	387	L	310	L	284	L	155	L	224	L
THALLIUM	1.4	U	1.3	U	1.5	U	1.4	U	1.4	U	1.3	U	1.4	U
VANADIUM	6.7	L	12.1		11.3	L	5.2	L	5.8	L	3.7	L	3.2	L
ZINC	28.1		18.6		59.8		26.2		15.8		29.9		32.8	
CYANIDE	0.25	U	0.24	U	0.28	U	1.5	Jv	0.25	U	0.25	U	0.35	LJv
% Solids :	82.7		84.6		72.6		78.5		81.5		83.2		80.5	

INORGANIC/ORGANIC COMPLETE SDG FILE (CSF) INVENTORY CHECKLIST

Case No. 29393 SDG No. MF07A5 SDG Nos. To Follow _____ SAS No. _____ Date Rec 07/06/01

EPA Lab ID: CHEM

Lab Location: Englewood, NJ

Region: 6 Audit No.: 29393/MF07A5

Resubmitted CSF? Yes _____ No X

Box No(s): 1

COMMENTS:

20A. The laboratory did not list the location of the original mercury and cyanide raw data. The laboratory has been contacted.

Over for additional comments.

ORIGINALS	YES	NO	N/A
CUSTODY SEALS			
1. Present on package?	X		
2. Intact upon receipt?	X		
FORM DC-2			
3. Numbering scheme accurate?	X		
4. Are enclosed documents listed?	X		
5. Are listed documents enclosed?	X		
FORM DC-1			
6. Present?	X		
7. Complete?	X		
8. Accurate?	X		
CHAIN-OF-CUSTODY RECORD(s)			
9. Signed?	X		
10. Dated?	X		
TRAFFIC REPORT(s) PACKING LIST(s)			
11. Signed?	X		
12. Dated?	X		
AIRBILLS/AIRBILL STICKER			
13. Present?	X		
14. Signed?	X		
15. Dated?	X		
SAMPLE TAGS			
16: Does DC-1 list tags as being included?	X		
17. Present?	X		
OTHER DOCUMENTS			
18. Complete?	X		
19. Legible?	X		
20. Original?		X	
20a. If "NO", does the copy indicate where original documents are located?		X	

Audited by: Sonya Meekins — Sonya Meekins / ESAT Data Reviewer — Date 07/19/01

Audited by: _____ — _____ — Date _____

Audited by: _____ — _____ — Date _____

Signature — Printed Name/Title

TO BE COMPLETED BY CEAT

Date Recvd by CEAT: _____ Date Entered: _____ Date Reviewed: _____

Entered by: _____ _____

Reviewed by: _____ _____

Signature — Printed Name/Title

DC-2___

12011

EPA United States Environmental Protection Agency
Contract Laboratory Program

Inorganic Traffic Report & Chain of Custody Record
(For Inorganic CLP Analysis)

Case No. 29393

1. Project Code*	2. Account Code	3. Region No. 6	Sampling Co. TNRCC	5. Date Shipped 6/14/01	Carrier Airborne
Regional Information		Sampler (Name) Johnny Kennedy		Airbill Number 295236273 3	
Non-Superfund Program		Sampler Signature		6. Ship To: CHEMTECH	
Site Name Greens Bayou		A. Purpose* Lead: [X] SF [ ] PRP [ ] ST [ ] FED; Early Action: [ ] CLEM [ ] PA [ ] REM [ ] RI [X] SI [ ] ESI; Long-Term Action: [ ] FS [ ] RD [ ] RA [ ] O&M [ ] NPLD		CHEMTECH 110 Route 4 Englewood, NJ 07631	
City, State Houston TX	Site Spill ID			ATTN: Kamal Shet	

7. Matrix (Enter in Column A): 1. Surface Water 2. Ground Water 3. Leachate 4. Field 5. Soil/Sediment 6. Oil (High only) 7. Waste (High only) 8. Other (specify in Column A)

8. Preservative (Enter in Column D): 1. HCl 2. HNO3 3. NaOH 4. H_2SO_4 5. K_2CR_2O 6. Ice only 7. Other (sp ify in Colum D) N. Not Prese ed

CLP Sample Numbers (from labels)	A Matrix (from Box 7) Other:	B Conc.: Low Med High	C Sample Type: Comp./ Grab	D Preservative (from Box 8) Other:	E — RAS Analysis: Diss. Metals	Total Metals	Cyanide	Low Only: NO_2/NO_3	Fluoride	High Only: pH	Conduct.	F Regional Specific Tracking Number or Tag Numbers	G Station Location Identifier	H Mo/Day/ Year/Time Sample Collection	I Corresponding CLP Organic Sample No.	J Sampler Initials	K Field QC Qualifier (B = Blank S = S D = Duplicate R = Rinsate PE = Perform Ev — = Not a QC S)
MF07A0	5	Low	Comp	6		X	X					6-189117	SE-10	6/13/01 1030	FOAD3	JK	—
MF07A1	5	Low	Comp	6		X	X					6-189120	SE-11	6/13/01 1008	FOAD4	JK	—
MF07A2	5	Low	Comp	6		X	X					6-189123	SE-12	6/13/01 0955	FOAD5	JK	—
MF07B0	5	Low	Comp	6		X	X					6-189150	SE-20	6/13/01 1100	FOAE3	JK	—

Shipment for Case Complete? (Y/N)	Page 2 of 2	Sample(s) to be Used for Laboratory QC	Additional Sampler Signatures	Chain of Custody Seal Number(s)

Chain of Custody Record

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
[signature]	6/14/01 1240				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks: Is custody seal intact? Y/N/none	

Distribution: Green - Region Copy; White - Lab Copy for Return to Region; Pink - CLASS Copy; Yellow - Lab Copy for Return to CLASS

EPA Form 9110-1 (8/99)

See Reverse for Additional Standard Inst tions
*See Reverse for Purpose Code Definitio

396000

Page 12 of 14

12013

EPA United States Environmental Protection Agency Contract Laboratory Program

Inorganic Traffic Report & Chain of Custody Record

(For Inorganic CLP Analysis)

SAS No. (if applicable): !

Case No.: 29393

1. Project Code: | Account Code:

2. Region No.: 6 | Sampling Co.: TNRCC

4. Date Shipped: 6/14/01 | Carrier: AIRBORNE

Regional Information:

Sampler (Name): Johnny Kennedy

Airbill Number: 2952362733

Non-Superfund Program:

Sampler Signature: [signature]

5. Ship To: CHEMTECH, 110 ROUTE 4, ENGLEWOOD NJ 07631, ATTN: KAMAL SHET

Site Name: GREENS BAYOU

City, State: HOUSTON TX | Site Spill ID:

3. Purpose*: Lead: [X] SF, [ ] PRP, [ ] ST, [ ] FED; Early Action: [ ] CLEM, [ ] PA, [ ] REM, [ ] RI, [X] SI, [ ] ESI; Long-Term Action: [ ] FS, [ ] RD, [ ] RA, [ ] O&M, [ ] NPLD

6. Matrix (Enter in Column A): 1. Surface Water 2. Ground Water 3. Leachate 4. Field QC 5. Soil/Sediment 6. Oil (High only) 7. Waste (High only) 8. Other (specify in Column A)

7. Preservative (Enter in Column D): 1. HCl 2. HNO3 3. NaOH 4. H_2SO_4 5. $K_2CR_2O_7$ 6. Ice only 7. Other (specify in Column D) N. Not preserved

CLP Sample Numbers (from labels)	A Matrix (from Box 6) Other:	B Conc.: Low Med High	C Sample Type: Comp./ Grab	D Preservative (from Box 7) Other:	E – RAS Analysis: Diss. Metals	Total Metals	Cyanide	Low only: NO_2/NO_3	Fluoride	High only: pH	Conduct.	F Regional Specific Tracking Number or Tag Numbers	G Station Location Identifier	H Mo/Day/ Year/Time Sample Collection	I Corresponding CLP Organic Sample No.	J Sampler Initials	K Field QC Qualifier (B = Blank, S = Spik., D = Duplicate, H = Rinsate, PE = Perform Eval, — = Not a QC Sampl.)
MF0791	5	Low	Comp.	6		X	X					6-189188	SE-01	6/13/01 1340	FOAC4	JK	—
MF0792	5	Low	Comp.	6		X	X					6-189191	SE-02	6/13/01 1330	FOAC5	JK	—
MF0793	5	Low	Comp.	6		X	X					6-189194	SE-03	6/13/01 1320	FOAC6	JK	—
MF0794	5	Low	Comp	6		X	X					6-189096	SE-04	6/13/01 1305	FOAC7	JK	—
MF0795	5	Low	Comp	6		X	X					6-189099	SE-05	6/13/01 1250	FOAC8	JK	—
MF0796	5	Low	Comp	6		X	X					6-189102	SE-06	6/13/01 1245	FOAC9	JK	—
MF0797	5	Low	Comp	6		X	X					6-189105	SE-07	6/13/01 1240	FOAD0	JK	D(MF0796)
MF0794	5	Low	Comp	6		X	X					6-189129	SE-14	6/13/01 1325	FOAD7	JK	D(MF0793)
MF0798	5	Low	Comp	6		X	X					6-189111	SE-08	6/13/01 1050	FOAD1	JK	—
MF0799	5	Low	Comp	6		X	X					6-189114	SE-09	6/13/01 1040	FOAD2	JK	—

Shipment for Case Complete? (Y/N): Y | Page 1 of 2 | Sample(s) to be Used for Laboratory QC: | Additional Sampler Signatures: | Chain of Custody Seal Number(s):

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
[signature]	6/14/01 1200				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks: Is custody seal intact? Y/N/none	

DISTRIBUTION: Green - Region Copy; White - Lab Copy for Return to Region; Pink - SMO Copy; Yellow - Lab Copy for Return to SMO

EPA Form 9110-1

SEE REVERSE FOR ADDITIONAL STANDARD INSTRUCTIONS

*SEE REVERSE FOR PURPOSE CODE DEFINITIONS

Page 14 of 14

12015

EPA SAMPLE #

MF0792

INORGANIC ANALYSIS DATA SHEET

Lab Name: CHEMTECH CONSULTING GROUP Contract: 68-W0-0089

Lab Code: CHEM Case No.: 29393 SAS No.: SDG No.: MF07A5

Matrix (soil/water): SOIL Lab Sample ID: 1324R-07S

Level (low/med): LOW Date Received: 06/15/01

% Solids: 81.5

Concentration Units (ug/L or mg/Kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	1680			P
7440-36-0	Antimony	1.2	U		P
7440-38-2	Arsenic	1.2	B		P
7440-39-3	Barium	61.6			P
7440-41-7	Beryllium	0.32	B		P
7440-43-9	Cadmium	0.10	U		P
7440-70-2	Calcium	2480			P
7440-47-3	Chromium	2.8		*	P
7440-48-4	Cobalt	1.9	B		P
7440-50-8	Copper	4.5	B		P
7439-89-6	Iron	1970			P
7439-92-1	Lead	7.5			P
7439-95-4	Magnesium	558	B		P
7439-96-5	Manganese	63.0			P
7439-97-6	Mercury	0.06	U		CV
7440-02-0	Nickel	3.2	B		P
7440-09-7	Potassium	182	B	E	P
7782-49-2	Selenium	1.1	U		P
7440-22-4	Silver	0.17	U		P
7440-23-5	Sodium	284	B		P
7440-28-0	Thallium	1.4	U		P
7440-62-2	Vanadium	5.8	B		P
7440-66-6	Zinc	15.8			P
	Cyanide	0.25	U		CA

Color Before: GREY Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

EPA SAMPLE #

MF0794

INORGANIC ANALYSIS DATA SHEET

Lab Name: CHEMTECH CONSULTING GROUP Contract: 68-W0-0089

Lab Code: CHEM Case No.: 29393 SAS No.: SDG No.: MF07A5

Matrix (soil/water): SOIL Lab Sample ID: 1324R-09S

Level (low/med): LOW Date Received: 06/15/01

% Solids: 80.5

Concentration Units (ug/L or mg/Kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	1080			P
7440-36-0	Antimony	1.2	U		P
7440-38-2	Arsenic	1.2	B		P
7440-39-3	Barium	68.9			P
7440-41-7	Beryllium	0.27	B		P
7440-43-9	Cadmium	0.10	U		P
7440-70-2	Calcium	3140			P
7440-47-3	Chromium	2.8		*	P
7440-48-4	Cobalt	1.3	B		P
7440-50-8	Copper	8.4			P
7439-89-6	Iron	1650			P
7439-92-1	Lead	7.1			P
7439-95-4	Magnesium	524	B		P
7439-96-5	Manganese	58.6			P
7439-97-6	Mercury	0.06	U		CV
7440-02-0	Nickel	4.0	B		P
7440-09-7	Potassium	146	B	E	P
7782-49-2	Selenium	1.1	U		P
7440-22-4	Silver	0.17	U		P
7440-23-5	Sodium	224	B		P
7440-28-0	Thallium	1.4	U		P
7440-62-2	Vanadium	3.2	B		P
7440-66-6	Zinc	32.8			P
	Cyanide	0.35	B		CA

Color Before: BLACK Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE #

MF0796

Lab Name: CHEMTECH CONSULTING GROUP Contract: 68-W0-0089

Lab Code: CHEM Case No.: 29393 SAS No.: SDG No.: MF07A5

Matrix (soil/water): SOIL Lab Sample ID: 1324R-11S

Level (low/med): LOW Date Received: 06/15/01

% Solids: 63.8

Concentration Units (ug/L or mg/Kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	5770			P
7440-36-0	Antimony	1.5	U		P
7440-38-2	Arsenic	2.7	B		P
7440-39-3	Barium	262			P
7440-41-7	Beryllium	0.85	B		P
7440-43-9	Cadmium	0.13	U		P
7440-70-2	Calcium	18900			P
7440-47-3	Chromium	10		*	P
7440-48-4	Cobalt	5.0	B		P
7440-50-8	Copper	16.7			P
7439-89-6	Iron	8800			P
7439-92-1	Lead	26.8			P
7439-95-4	Magnesium	2750			P
7439-96-5	Manganese	182			P
7439-97-6	Mercury	0.08	U		CV
7440-02-0	Nickel	10.5	B		P
7440-09-7	Potassium	1010	B	E	P
7782-49-2	Selenium	1.4	U		P
7440-22-4	Silver	0.22	U		P
7440-23-5	Sodium	852	B		P
7440-28-0	Thallium	1.8	U		P
7440-62-2	Vanadium	13.8	B		P
7440-66-6	Zinc	95.8			P
	Cyanide	1.9			CA

Color Before: BLACK Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

U.S. EPA - CLP
1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE #

MF0798

Lab Name: CHEMTECH CONSULTING GROUP Contract: 68-W0-0089

Lab Code: CHEM Case No.: 29393 SAS No.: SDG No.: MF07A5

Matrix (soil/water): SOIL Lab Sample ID: 1324R-14S

Level (low/med): LOW Date Received: 06/15/01

% Solids: 72.0

Concentration Units (ug/L or mg/Kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	2890			P
7440-36-0	Antimony	1.4	U		P
7440-38-2	Arsenic	2.8	B		P
7440-39-3	Barium	139			P
7440-41-7	Beryllium	0.54	B		P
7440-43-9	Cadmium	0.11	U		P
7440-70-2	Calcium	12400			P
7440-47-3	Chromium	6.4		*	P
7440-48-4	Cobalt	3.8	B		P
7440-50-8	Copper	10.7			P
7439-89-6	Iron	4050			P
7439-92-1	Lead	19.8			P
7439-95-4	Magnesium	1420			P
7439-96-5	Manganese	520			P
7439-97-6	Mercury	0.07	U		CV
7440-02-0	Nickel	6.7	B		P
7440-09-7	Potassium	484	B	E	P
7782-49-2	Selenium	1.2	U		P
7440-22-4	Silver	0.19	U		P
7440-23-5	Sodium	686	B		P
7440-28-0	Thallium	1.6	U		P
7440-62-2	Vanadium	8.4	B		P
7440-66-6	Zinc	54.8			P
	Cyanide	0.28	U		CA

Color Before: BLACK Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

U.S. EPA - CLP
1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE #

MF07A0

Lab Name: CHEMTECH CONSULTING GROUP Contract: 68-W0-0089

Lab Code: CHEM Case No.: 29393 SAS No.: SDG No.: MF07A5

Matrix (soil/water): SOIL Lab Sample ID: 1324R-16S

Level (low/med): LOW Date Received: 06/15/01

% Solids: 75.2

Concentration Units (ug/L or mg/Kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	2520			P
7440-36-0	Antimony	1.3	U		P
7440-38-2	Arsenic	1.1	B		P
7440-39-3	Barium	123			P
7440-41-7	Beryllium	0.43	B		P
7440-43-9	Cadmium	0.11	U		P
7440-70-2	Calcium	7180			P
7440-47-3	Chromium	5.8		*	P
7440-48-4	Cobalt	2.7	B		P
7440-50-8	Copper	10.1			P
7439-89-6	Iron	3420			P
7439-92-1	Lead	16.7			P
7439-95-4	Magnesium	1110	B		P
7439-96-5	Manganese	101			P
7439-97-6	Mercury	0.07	U		CV
7440-02-0	Nickel	5.9	B		P
7440-09-7	Potassium	407	B	E	P
7782-49-2	Selenium	1.2	U		P
7440-22-4	Silver	0.19	U		P
7440-23-5	Sodium	627	B		P
7440-28-0	Thallium	1.5	U		P
7440-62-2	Vanadium	10.6	B		P
7440-66-6	Zinc	54.1			P
	Cyanide	0.27	U		CA

Color Before: BLACK Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

U.S. EPA - CLP
1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE #

MF07A2

Lab Name: CHEMTECH CONSULTING GROUP Contract: 68-W0-0089

Lab Code: CHEM Case No.: 29393 SAS No.: SDG No.: MF07A5

Matrix (soil/water): SOIL Lab Sample ID: 1324R-18S

Level (low/med): LOW Date Received: 06/15/01

% Solids: 77.9

Concentration Units (ug/L or mg/Kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	2210			P
7440-36-0	Antimony	1.3	U		P
7440-38-2	Arsenic	1.1	B		P
7440-39-3	Barium	136			P
7440-41-7	Beryllium	0.33	B		P
7440-43-9	Cadmium	0.10	U		P
7440-70-2	Calcium	5970			P
7440-47-3	Chromium	4.8		*	P
7440-48-4	Cobalt	2.9	B		P
7440-50-8	Copper	10.8			P
7439-89-6	Iron	3230			P
7439-92-1	Lead	12.7			P
7439-95-4	Magnesium	858	B		P
7439-96-5	Manganese	97.2			P
7439-97-6	Mercury	0.06	U		CV
7440-02-0	Nickel	3.9	B		P
7440-09-7	Potassium	291	B	E	P
7782-49-2	Selenium	1.1	U		P
7440-22-4	Silver	0.18	U		P
7440-23-5	Sodium	295	B		P
7440-28-0	Thallium	1.4	U		P
7440-62-2	Vanadium	6.7	B		P
7440-66-6	Zinc	44.9			P
	Cyanide	0.26	U		CA

Color Before: BLACK Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

U.S. EPA - CLP
1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE #

MF07A5

Lab Name: CHEMTECH CONSULTING GROUP Contract: 68-W0-0089

Lab Code: CHEM Case No.: 29393 SAS No.: SDG No.: MF07A5

Matrix (soil/water): SOIL Lab Sample ID: 1324R-01S

Level (low/med): LOW Date Received: 06/13/01

% Solids: 78.9

Concentration Units (ug/L or mg/Kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	3070			P
7440-36-0	Antimony	1.2	U		P
7440-38-2	Arsenic	3.9			P
7440-39-3	Barium	161			P
7440-41-7	Beryllium	0.25	B		P
7440-43-9	Cadmium	0.10	U		P
7440-70-2	Calcium	11300			P
7440-47-3	Chromium	31.2		*	P
7440-48-4	Cobalt	2.0	B		P
7440-50-8	Copper	17.8			P
7439-89-6	Iron	6070			P
7439-92-1	Lead	75.8			P
7439-95-4	Magnesium	892	B		P
7439-96-5	Manganese	264			P
7439-97-6	Mercury	0.06	U		CV
7440-02-0	Nickel	6.1	B		P
7440-09-7	Potassium	202	B	E	P
7782-49-2	Selenium	1.1	U		P
7440-22-4	Silver	0.26	B		P
7440-23-5	Sodium	261	B		P
7440-28-0	Thallium	1.4	U		P
7440-62-2	Vanadium	17.3			P
7440-66-6	Zinc	102			P
	Cyanide	0.26	U		CA

Color Before: BLACK Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

U.S. EPA - CLP
1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE #

MF07A7

Lab Name: CHEMTECH CONSULTING GROUP Contract: 68-W0-0089

Lab Code: CHEM Case No.: 29393 SAS No.: SDG No.: MF07A5

Matrix (soil/water): SOIL Lab Sample ID: 1324R-03S

Level (low/med): LOW Date Received: 06/13/01

% Solids: 76.0

Concentration Units (ug/L or mg/Kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	2180			P
7440-36-0	Antimony	1.3	U		P
7440-38-2	Arsenic	8.3			P
7440-39-3	Barium	65.6			P
7440-41-7	Beryllium	0.46	B		P
7440-43-9	Cadmium	0.11	U		P
7440-70-2	Calcium	4920			P
7440-47-3	Chromium	10.2		*	P
7440-48-4	Cobalt	31.7			P
7440-50-8	Copper	8.2			P
7439-89-6	Iron	3850			P
7439-92-1	Lead	16.2			P
7439-95-4	Magnesium	384	B		P
7439-96-5	Manganese	131			P
7439-97-6	Mercury	0.08	B		CV
7440-02-0	Nickel	9.8	B		P
7440-09-7	Potassium	175	B	E	P
7782-49-2	Selenium	1.2	U		P
7440-22-4	Silver	0.35	B		P
7440-23-5	Sodium	2020			P
7440-28-0	Thallium	1.5	U		P
7440-62-2	Vanadium	20.4			P
7440-66-6	Zinc	39.4			P
	Cyanide	0.27	U		CA

Color Before: BLACK Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

U.S. EPA - CLP
1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE #

MF07A9

Lab Name: CHEMTECH CONSULTING GROUP Contract: 68-W0-0089

Lab Code: CHEM Case No.: 29393 SAS No.: SDG No.: MF07A5

Matrix (soil/water): SOIL Lab Sample ID: 1324R-05S

Level (low/med): LOW Date Received: 06/13/01

% Solids: 84.6

Concentration Units (ug/L or mg/Kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	1060			P
7440-36-0	Antimony	1.2	U		P
7440-38-2	Arsenic	13.0			P
7440-39-3	Barium	30.1	B		P
7440-41-7	Beryllium	0.37	B		P
7440-43-9	Cadmium	0.10	U		P
7440-70-2	Calcium	6570			P
7440-47-3	Chromium	3.4		*	P
7440-48-4	Cobalt	3.1	B		P
7440-50-8	Copper	4.1	B		P
7439-89-6	Iron	1470			P
7439-92-1	Lead	7.4			P
7439-95-4	Magnesium	312	B		P
7439-96-5	Manganese	20.7			P
7439-97-6	Mercury	0.06	U		CV
7440-02-0	Nickel	2.5	B		P
7440-09-7	Potassium	59.6	B	E	P
7782-49-2	Selenium	1.0	U		P
7440-22-4	Silver	0.24	B		P
7440-23-5	Sodium	174	B		P
7440-28-0	Thallium	1.3	U		P
7440-62-2	Vanadium	12.1			P
7440-66-6	Zinc	18.6			P
	Cyanide	0.24	U		CA

Color Before: GREY Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

REFERENCE 13

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
HOUSTON BRANCH
10625 FALLSTONE RD.
HOUSTON, TEXAS 77099

AUG - 2 2001

MEMORANDUM

Date: July 31, 2001

Subject: Contract Laboratory Program Data Review

From: Marvelyn Humphrey, Alternate ESAT RPO, 6MD-HC

To: B. Rhotenberry, 6SF-RA

Site : GREENS BAYOU

Case#: 29393

SDG# : F0AD8

The EPA Region 6 Houston Branch ESAT data review team has completed a review of the submitted Contract Laboratory Program (CLP) data package for the referenced site. The samples analyzed and reviewed are detailed in the attached Regional data review report.

The data package is acceptable for regional use. Problems, if any, are listed in the report narrative.

If you have any questions regarding the data review report, please call me at (281) 983-2140.

Attachments
cc: R. Flores, Region 6 CLP/TPO
M. El-Feky, Region 6 Data Coordinator
Files (2)

13001

LOCKHEED MARTIN SERVICES GROUP
ESAT REGION VI
10101 SOUTHWEST FREEWAY, SUITE 500
HOUSTON, TX 77074

MEMORANDUM

Attached is the data review summary for Case # 29393
SDG # F0AD8
Site Greens Bayou

COMMENTS:

B. Field duplicate results are inconsistent for hexachlorobenzene, 1,2,4-trichlorobenzene, α-BHC, β-BHC, DDD, DDT, γ-chlordane, and AR1248.

III. OTHER AREAS OF CONCERN

The Pest/PCB method blanks showed non-target compound contaminant peaks on one column that interfered with α-chlordane detection at concentrations above the CRQL (OLM04.2, D-70/PEST, 12.1.2.4.1 and 12.1.2.4.3). This contamination caused raised quantitation limits for α-chlordane in Pest/PCB samples F0AD8 and F0AD9.

COMMENTS/CLARIFICATIONS
REGION VI CLP QA REVIEW

CASE 29393 **SDG** F0AD8 **SITE** Greens Bayou **LAB** AATSLA

The following is a summary of sample qualifiers used by Region 6 in reporting this CLP data:

No.	Acceptable	Provisional	Unacceptable
VOA	10	10	
BNA	18	2	
PEST	5	15	

COMMENTS: This SDG, contracted under SOW OLM04.2, consisted of 20 soil samples for complete organics analysis. The OTR/COC Records designated sample F0AD8 as the QC sample and samples F0AC6/F0AD7, F0AC9/F0AD0, and F0AE1/F0AE2 as field duplicate pairs. VOA samples F0AE0, F0AE1, and F0AE2 required analysis by modified SW846 Method 5035. All VOA and BNA samples were analyzed at the low levels. The CRQL's required %moisture correction for these soil samples, and diluted samples required additional CRQL correction. The corrected CRQL's were reported by the laboratory and are referred to as sample quantitation limits (SQL's) in this report. The data package arrived on time for the 21-day turnaround requirement, but CCS and hardcopy reviews detected the contractually noncompliant item below.

- All VOA samples except samples F0AD8, F0AD8MS/MSD, F0AD9, F0AE0, F0AE1, and F0AE2 were analyzed five days past the contractual holding time limits.

Level 3 (full) review was performed for this data package as requested by the TDF. The target compounds of interest for this SDG are anthracene, benzo(a)anthracene, benzo(b)- and benzo(k)-fluoranthene, chrysene, fluorene, phenanthrene, pyrene, α-BHC, β-BHC, DDD, DDE, and DDT although action limit information is not available to ESAT. Pesticides of interest were detected in all samples except sample F0AC5 from concentrations below the SQL's in samples F0AC4 and F0AD7 to very high concentrations in samples F0AD4, F0AD5, F0AE0, F0AE1, F0AE2, and F0AE3. One or more PAH's of interest were detected at concentrations below the SQL's in all BNA samples except samples F0AC5, F0AE1, and F0AE2.

VOA Acetone, methylene chloride, benzene, chlorobenzene, 1,3-dichlorobenzene, 1,2-dichlorobenzene, and/or 1,2,4-trichlorobenzene were detected at concentrations above the SQL's in 10 samples although 5 acetone and 2 methylene chloride concentrations were solely attributed to laboratory contamination.

Samples F0AE1 and F0AE2, analyzed using EnCore samples and following Method 5035, required reanalysis to bring a high target compound concentration within the calibration range and to rule out the possibility of carryover contamination, respectively.

ORGANIC QA REVIEW
CONTINUATION PAGE

CASE 29393 **SDG** F0AD8 **SITE** Greens Bayou **LAB** AATSLA

1. **Holding Times:** Provisional. All VOA samples except samples F0AD8, F0AD8MS/MSD, F0AD9, F0AE0, F0AE1, and F0AE2 were analyzed past the contractual holding time limit. Technical holding time limits have not yet been established for soil samples. However, per Region 6 guidelines, the reviewer qualified as estimated the chlorobenzene results for VOA samples F0AC8, F0AD1, F0AD3, and F0AE3 and the acetone result for VOA sample F0AD4 because the holding times exceeded 14 days.

2. **Tuning/Performance:** Acceptable. BFB and DFTPP analyses met GC/MS tuning criteria. The Pest/PCB analyses met instrument performance guidelines although δ-BHC/heptachlor, endosulfan I/DDE, endosulfan I/α-chlordane, and endosulfan II/DDD had overlapping retention time windows on one or both columns. The sample results were not affected by these chromatographic problems.

3. **Calibrations:** Provisional. Target analytes met contractual calibration criteria. Several VOA and BNA analytes failed technical %RSD and/or %D calibration criteria but were not detected in the associated samples at concentrations above the SQL's. However, the reviewer qualified as estimated the acetone result for VOA sample F0AD4 because acetone failed the technical %RSD criteria.

VOA sample F0AE1 was reanalyzed because the chlorobenzene concentration exceeded the calibration limit. The chlorobenzene concentration in the reanalysis is inconsistent with the original analysis probably due to sample inhomogeneity between EnCore and jar containers. The chlorobenzene result from the original EnCore analysis is recommended for use, but the concentration is qualified as estimated because it is above the calibration limit.

4. **Blanks:** Provisional. The method, storage, and instrument blanks met contractual QC guidelines. Target analytes detected at concentrations below contractual limits included acetone, methylene chloride, tetrachloroethene, di-n-butylphthalate, δ-BHC, DDT, methoxychlor, and/or endrin aldehyde. The reviewer qualified as undetected ("U") the acetone results for VOA samples F0AD8, F0AD9, F0AE0, F0AE1, and F0AE2 and the methylene chloride results for VOA samples F0AE1 and F0AE2, and the concentrations above the SQL's for these samples should be used as raised QL's ("M"). The DDT result for Pest/PCB sample F0AD8 is qualified as biased high (reviewer "B" flag), and the DDT results with concentrations below the SQL's should also be considered biased high for Pest/PCB samples F0AC4, F0AC6, and F0AD7. The following results (below the SQL's) should be considered as undetected and were flagged "U" at the SQL's:

- DDD, DDT, δ-BHC, and γ-chlordane results are estimated and biased high for sample F0AC9 and estimated and biased low for sample F0AD0.

- Hexachlorobenzene and 1,2,4-trichlorobenzene results are estimated and biased low for sample F0AE1/DL and estimated and biased high for sample F0AE2/DL.

- Beta-BHC results are estimated and biased high for sample F0AE1DL and estimated and biased low for sample F0AE2DL.

8. **Internal Standards (IS):** Acceptable. IS performance was acceptable for all VOA and BNA analyses.

9. **Compound Identity (ID)/Quantitation:** Provisional. All reported sample results met compound identification criteria.

VOA Acetone, methylene chloride, benzene, chlorobenzene, 1,3-dichlorobenzene, 1,2-dichlorobenzene, and/or 1,2,4-trichlorobenzene were detected at concentrations above the SQL's in samples F0AC8, F0AD1, F0AD3, F0AD4, F0AD8, F0AD9, F0AE0, F0AE1, F0AE2, and F0AE3. However, five acetone and two methylene chloride concentrations were solely attributed to laboratory contamination.

Sample F0AE1 was reanalyzed because of a high target analyte concentration, and sample F0AE2 was reanalyzed because the laboratory failed to run an instrument blank after sample F0AE1. The reanalysis results, obtained from regular sample jars, were very inconsistent with the original analysis results, obtained from EnCore jars, probably due to inhomogeneous sample matrices. Original analysis results for both samples are recommended for use because the EnCore jar results should be more reliable. However, the chlorobenzene result for sample F0AE1 and the chlorobenzene and 1,2,4-trichlorobenzene results for sample F0AE2 are qualified as estimated and biased high because of the discussed inconsistencies.

The laboratory apparently used the average RRF from the initial calibration instead of the contract-specified RRF50 for quantitation of positive hit concentrations in all samples and blanks except method blank VBLKAV and samples F0AD8, F0AD8MS/MSD, F0AD9, F0AE0, F0AE1, and F0AE2. In the reviewer's opinion, the reported sample results are technically valid. However, the laboratory was contacted to comply with the contractual requirement for compound quantitation.

ORGANIC QA REVIEW
CONTINUATION PAGE

CASE 29393 **SDG** F0AD8 **SITE** Greens Bayou **LAB** AATSLA

BNA Hexachlorobenzene results are qualified for samples F0AE1DL and F0AE2DL because of problems with field duplicate inconsistency.

PEST Some results are qualified for samples F0AC6, F0AC9, F0AD0, F0AD1, F0AD2, F0AD3, F0AD5, F0AD6(DL), F0AD7, F0AD8, F0AD9, F0AE0DL, F0AE1DL, F0AE2DL, and F0AE3 because of problems with laboratory contamination, field duplicate inconsistency, and compound quantitation.

Case No. : 29393 SDG : F0AD8 Reviewer : Mike Ferritta

Laboratory : AATSLA Matrix : Soil Units : ug/Kg

EPA SAMPLE NUMBER	F0AC4		F0AC5		F0AC6		F0AC7		F0AC8		F0AC9		F0AD0	
VOLATILE	RESULT	FLAG	RESULT	FLAG	RESULT	FLAG	RESULT	FLAG	RESULT	FLAG	RESULT	FLAG	RESULT	FLAG
Dichlorodifluoromethane	12	U	12	U	11	U	11	U	11	U	14	U	14	U
Chloromethane	12	U	12	U	11	U	11	U	11	U	14	U	14	U
Vinyl Chloride	12	U	12	U	11	U	11	U	11	U	14	U	14	U
Bromomethane	12	U	12	U	11	U	11	U	11	U	14	U	14	U
Chloroethane	12	U	12	U	11	U	11	U	11	U	14	U	14	U
Trichlorofluoromethane	12	U	12	U	11	U	11	U	11	U	14	U	14	U
1,1-Dichloroethene	12	U	12	U	11	U	11	U	11	U	14	U	14	U
1,1,2-Trichloro-1,2,2-trifluoroethane	12	U	12	U	11	U	11	U	11	U	14	U	14	U
Acetone	7	LJ	12	U	4	LJ	11	U	4	LJ	10	LJ	8	LJ
Carbon Disulfide	12	U	12	U	11	U	11	U	11	U	14	U	14	U
Methyl Acetate	12	U	12	U	11	U	11	U	11	U	14	U	14	U
Methylene Chloride	12	U	12	U	11	U	11	U	11	U	14	U	14	U
trans-1,2-Dichloroethene	12	U	12	U	11	U	11	U	11	U	14	U	14	U
Methyl tert-Butyl Ether	12	U	12	U	11	U	11	U	11	U	14	U	14	U
1,1-Dichloroethane	12	U	12	U	11	U	11	U	11	U	14	U	14	U
cis-1,2-Dichloroethene	12	U	12	U	11	U	11	U	11	U	14	U	14	U
2-Butanone	12	U	12	U	11	U	11	U	11	U	14	U	14	U
Chloroform	12	U	12	U	11	U	11	U	11	U	14	U	14	U
1,1,1-Trichloroethane	12	U	12	U	11	U	11	U	11	U	14	U	14	U
Cyclohexane	12	U	12	U	11	U	11	U	11	U	14	U	14	U
Carbon Tetrachloride	12	U	12	U	11	U	11	U	11	U	14	U	14	U
Benzene	12	U	12	U	11	U	11	U	11	U	14	U	14	U
1,2-Dichloroethane	12	U	12	U	11	U	11	U	11	U	14	U	14	U
Trichloroethene	12	U	12	U	11	U	11	U	11	U	14	U	14	U
Methylcyclohexane	12	U	12	U	11	U	11	U	11	U	14	U	14	U
1,2-Dichloropropane	12	U	12	U	11	U	11	U	11	U	14	U	14	U
Bromodichloromethane	12	U	12	U	11	U	11	U	11	U	14	U	14	U
cis-1,3-Dichloropropene	12	U	12	U	11	U	11	U	11	U	14	U	14	U
4-Methyl-2-pentanone	12	U	12	U	11	U	11	U	11	U	14	U	14	U
Toluene	11	LJ	12	U	11	U	11	U	11	U	14	U	14	U
trans-1,3-Dichloropropene	12	U	12	U	11	U	11	U	11	U	14	U	14	U
1,1,2-Trichloroethane	12	U	12	U	11	U	11	U	11	U	14	U	14	U
Tetrachloroethene	12	U	12	U	11	U	11	U	11	U	14	U	14	U
2-Hexanone	12	U	12	U	11	U	11	U	11	U	14	U	14	U
Dibromochloromethane	12	U	12	U	11	U	11	U	11	U	14	U	14	U
1,2-Dibromoethane	12	U	12	U	11	U	11	U	11	U	14	U	14	U
Chlorobenzene	12	U	12	U	11	U	11	U	120	J	14	U	14	U
Ethylbenzene	12	U	12	U	11	U	11	U	11	U	14	U	14	U
Xylenes (total)	12	U	12	U	11	U	11	U	11	U	14	U	14	U
Styrene	12	U	12	U	11	U	11	U	11	U	14	U	14	U
Bromoform	12	U	12	U	11	U	11	U	11	U	14	U	14	U
Isopropylbenzene	12	U	12	U	11	U	11	U	11	U	14	U	14	U
1,1,2,2-Tetrachloroethane	12	U	12	U	11	U	11	U	11	U	14	U	14	U
1,3-Dichlorobenzene	12	U	12	U	11	U	11	U	11	U	14	U	14	U
1,4-Dichlorobenzene	12	U	12	U	11	U	11	U	11	U	14	U	14	U
1,2-Dichlorobenzene	12	U	12	U	11	U	11	U	11	U	14	U	14	U
1,2-Dibromo-3-chloropropane	12	U	12	U	11	U	11	U	11	U	14	U	14	U
1,2,4-Trichlorobenzene	12	U	12	U	11	U	11	U	11	U	14	U	14	U
Sample wt (g) :	5.0		5.0		5.0		5.0		5.0		5.0		5.0	
%Moisture :	19		17		13		12		12		29		27	
Dilution Factor :	1.0		1.0		1.0		1.0		1.0		1.0		1.0	
Level :	LOW		LOW		LOW		LOW		LOW		LOW		LOW	
Number of TIC's :	1		1		0		0		0		0		0	

Note : For the results listed in the Data Summary Table, ESAT has replaced the laboratory assigned flags with ESAT Organic Data Qualifiers. The ESAT flags indicate the technical usability of the reported results

Case No. : 29393 SDG : F0AD8 Reviewer : Mike Fertitta

Laboratory : AATSLA Matrix : Soil Units : ug/Kg

EPA SAMPLE NUMBER	F0AD8		F0AD9		F0AE0		F0AE1		F0AE1DL		F0AE2		F0AE2DL	
VOLATILE	RESULT	FLAG	RESULT	FLAG	RESULT	FLAG	RESULT	FLAG	RESULT	FLAG	RESULT	FLAG	RESULT	FLAG
Dichlorodifluoromethane	13	U	18	U	13	U	11	U	11	U*	10	U	11	U*
Chloromethane	13	U	16	U	13	U	11	U	11	U*	10	U	11	U*
Vinyl Chloride	13	U	16	U	13	U	11	U	11	U*	10	U	11	U*
Bromomethane	13	U	16	U	13	U	11	U	11	U*	10	U	11	U*
Chloroethane	13	U	16	U	13	U	11	U	11	U*	10	U	11	U*
Trichlorofluoromethane	13	U	16	U	13	U	11	U	11	U*	1	LJ	11	U*
1,1-Dichloroethene	13	U	16	U	13	U	11	U	11	U*	10	U	11	U*
1,1,2-Trichloro-1,2,2-trifluoroethane	13	U	16	U	13	U	11	U	11	U*	10	U	11	U*
Acetone	24	UM	56	UM	17	UM	28	UM	11	U*	22	UM	11	U*
Carbon Disulfide	13	U	2	J	13	U	11	U	11	U*	10	U	11	U*
Methyl Acetate	13	U	16	U	13	U	11	U	11	U*	10	U	11	U*
Methylene Chloride	13	U	16	U	13	U	14	UM	13	*	13	UM	11	U
trans-1,2-Dichloroethene	13	U	16	U	13	U	11	U	11	U*	10	U	11	U*
Methyl tert-Butyl Ether	13	U	16	U	13	U	11	U	11	U*	10	U	11	U*
1,1-Dichloroethane	13	U	16	U	13	U	11	U	11	U*	10	U	11	U*
cis-1,2-Dichloroethene	13	U	16	U	13	U	11	U	11	U*	10	U	11	U*
2-Butanone	13	U	16	U	13	U	11	U	11	U*	10	U	11	U*
Chloroform	13	U	16	U	13	U	11	U	11	U*	10	U	11	U*
1,1,1-Trichloroethane	13	U	16	U	13	U	11	U	11	U*	10	U	11	U*
Cyclohexane	13	U	16	U	13	U	11	U	11	U*	10	U	11	U*
Carbon Tetrachloride	13	U	16	U	13	U	11	U	11	U*	10	U	11	U*
Benzene	13	UJv	16	U	46		2	LJ	11	U*	1	LJ	11	U*
1,2-Dichloroethane	13	U	16	U	13	U	11	U	11	U*	10	U	11	U*
Trichloroethene	13	UJv	16	U	13	U	11	U	11	U*	10	U	11	U*
Methylcyclohexane	13	U	16	U	13	U	11	U	11	U*	10	U	11	U*
1,2-Dichloropropane	13	U	16	U	13	U	11	U	11	U*	10	U	11	U*
Bromodichloromethane	13	U	16	U	13	U	11	U	11	U*	10	U	11	U*
cis-1,3-Dichloropropene	13	U	16	U	13	U	11	U	11	U*	10	U	11	U*
4-Methyl-2-pentanone	13	U	16	U	13	U	11	U	11	U*	10	U	11	U*
Toluene	13	UJv	2	LJ	13	U	11	U	11	U*	10	U	11	U*
trans-1,3-Dichloropropene	13	U	16	U	13	U	11	U	11	U*	10	U	11	U*
1,1,2-Trichloroethane	13	U	16	U	13	U	11	U	11	U*	10	U	11	U*
Tetrachloroethene	13	U	16	U	13	U	11	U	11	U*	10	U	1	*
2-Hexanone	13	U	16	U	13	U	11	U	11	U*	10	U	11	U*
Dibromochloromethane	13	U	16	U	13	U	11	U	11	U*	10	U	11	U*
1,2-Dibromoethane	13	U	16	U	13	U	11	U	11	U*	10	U	11	U*
Chlorobenzene	13	UJv	16	U	73		250	J^	34	*	160	J^	11	U*
Ethylbenzene	13	U	16	U	13	U	11	U	11	U*	10	U	11	U*
Xylenes (total)	13	U	16	U	13	U	11	U	11	U*	10	U	11	U*
Styrene	13	U	16	U	13	U	11	U	11	U*	10	U	11	U*
Bromoform	13	U	16	U	13	U	11	U	11	U*	10	U	11	U*
Isopropylbenzene	13	U	16	U	13	U	11	U	11	U*	10	U	11	U*
1,1,2,2-Tetrachloroethane	13	U	16	U	13	U	11	U	11	U*	10	U	11	U*
1,3-Dichlorobenzene	13	U	16	U	4	LJ	11		6	*	16		11	U*
1,4-Dichlorobenzene	13	U	16	U	2	LJ	7	LJ	11	U*	10	U	11	U*
1,2-Dichlorobenzene	13	U	16	U	13	U	8	LJ	4	*	14		11	U*
1,2-Dibromo-3-chloropropane	13	U	16	U	13	U	11	U	11	U*	10	U	11	U*
1,2,4-Trichlorobenzene	13	U	16	U	13	U	23	Jv	14	*	76	J^	3	*
Sample wt (g) :	5.0		5.0		5.2		5.1		5.0		6.3		5.0	
%Moisture :	24		35		25		13		13		12		12	
Dilution Factor :	1.0		1.0		1.0		1.0		1.0		1.0		1.0	
Level :	LOW		LOW		LOW		LOW		LOW		LOW		LOW	
Number of TIC's :	3		2		1		2		4		2		3	

Note : For the results listed in the Data Summary Table, ESAT has replaced the laboratory assigned flags with ESAT Organic Data Qualifiers. The ESAT flags indicate the technical usability of the reported results.

Case No. : 29393 SDG : F0AD8 Reviewer : Mike Fertitta

Laboratory : AATSLA Matrix : Soil Units : ug/Kg

EPA SAMPLE NUMBER	F0AC4		F0AC5		F0AC6		F0AC7		F0AC8		F0AC9		F0AD0	
SEMIVOLATILE	RESULT	FLAG	RESULT	FLAG	RESULT	FLAG	RESULT	FLAG	RESULT	FLAG	RESULT	FLAG	RESULT	FLAG
Benzaldehyde	410	U	400	U	380	U	380	U	380	U	460	U	450	U
Phenol	410	U	400	U	380	U	380	U	380	U	460	U	450	U
bis-(2-Chloroethyl) ether	410	U	400	U	380	U	380	U	380	U	460	U	450	U
2-Chlorophenol	410	U	400	U	380	U	380	U	380	U	460	U	450	U
2-Methylphenol	410	U	400	U	380	U	380	U	380	U	460	U	450	U
2,2'-oxybis(1-Chloropropane)	410	U	400	U	380	U	380	U	380	U	460	U	450	U
Acetophenone	410	U	400	U	380	U	380	U	380	U	460	U	450	U
4-Methylphenol	410	U	400	U	380	U	380	U	380	U	460	U	450	U
N-Nitroso-di-n-propylamine	410	U	400	U	380	U	380	U	380	U	460	U	450	U
Hexachloroethane	410	U	400	U	380	U	380	U	380	U	460	U	450	U
Nitrobenzene	410	U	400	U	380	U	380	U	380	U	460	U	450	U
Isophorone	410	U	400	U	380	U	380	U	380	U	460	U	450	U
2-Nitrophenol	410	U	400	U	380	U	380	U	380	U	460	U	450	U
2,4-Dimethylphenol	410	U	400	U	380	U	380	U	380	U	460	U	450	U
bis(2-Chloroethoxy)methane	410	U	400	U	380	U	380	U	380	U	460	U	450	U
2,4-Dichlorophenol	410	U	400	U	380	U	380	U	380	U	460	U	450	U
Naphthalene	410	U	400	U	380	U	380	U	380	U	460	U	450	U
4-Chloroaniline	410	U	400	U	380	U	380	U	380	U	460	U	450	U
Hexachlorobutadiene	410	U	400	U	380	U	380	U	380	U	460	U	450	U
Caprolactam	410	U	400	U	380	U	380	U	380	U	460	U	450	U
4-Chloro-3-methylphenol	410	U	400	U	380	U	380	U	380	U	460	U	450	U
2-Methylnaphthalene	410	U	400	U	380	U	380	U	380	U	460	U	450	U
Hexachlorocyclopentadiene	410	U	400	U	380	U	380	U	380	U	460	U	450	U
2,4,6-Trichlorophenol	410	U	400	U	380	U	380	U	380	U	460	U	450	U
2,4,5-Trichlorophenol	1000	U	1000	U	950	U	940	U	950	U	1200	U	1100	U
1,1'-Biphenyl	410	U	400	U	380	U	380	U	380	U	460	U	450	U
2-Chloronaphthalene	410	U	400	U	380	U	380	U	380	U	460	U	450	U
2-Nitroaniline	1000	U	1000	U	950	U	940	U	950	U	1200	U	1100	U
Dimethylphthalate	410	U	400	U	380	U	380	U	380	U	460	U	450	U
2,6-Dinitrotoluene	410	U	400	U	380	U	380	U	380	U	460	U	450	U
Acenaphthylene	410	U	400	U	380	U	380	U	380	U	460	U	450	U
3-Nitroaniline	1000	U	1000	U	950	U	940	U	950	U	1200	U	1100	U
Acenaphthene	410	U	400	U	380	U	380	U	380	U	460	U	450	U
2,4-Dinitrophenol	1000	U	1000	U	950	U	940	U	950	U	1200	U	1100	U
4-Nitrophenol	1000	U	1000	U	950	U	940	U	950	U	1200	U	1100	U
Dibenzofuran	410	U	400	U	380	U	380	U	380	U	460	U	450	U
2,4-Dinitrotoluene	410	U	400	U	380	U	380	U	380	U	460	U	450	U
Diethylphthalate	410	U	400	U	380	U	380	U	380	U	460	U	450	U
Fluorene	410	U	400	U	380	U	380	U	380	U	460	U	450	U
4-Chlorophenyl-phenyl ether	410	U	400	U	380	U	380	U	380	U	460	U	450	U
4-Nitroaniline	1000	U	1000	U	950	U	940	U	950	U	1200	U	1100	U
4,6-Dinitro-2-methylphenol	1000	U	1000	U	950	U	940	U	950	U	1200	U	1100	U
N-Nitrosodiphenylamine	410	U	400	U	380	U	380	U	380	U	460	U	450	U
4-Bromophenyl-phenylether	410	U	400	U	380	U	380	U	380	U	460	U	450	U
Hexachlorobenzene	410	U	400	U	380	U	380	U	380	U	460	U	450	U
Atrazine	410	U	400	U	380	U	380	U	380	U	460	U	450	U
Pentachlorophenol	1000	U	1000	U	950	U	940	U	950	U	1200	U	1100	U
Phenanthrene	410	U	400	U	380	U	380	U	44	LJ	460	U	450	U
Anthracene	410	U	400	U	380	U	380	U	380	U	460	U	450	U
Carbazole	410	U	400	U	380	U	380	U	380	U	460	U	450	U

Note : For the results listed in the Data Summary Table, ESAT has replaced the laboratory assigned flags with ESAT Organic Data Qualifiers. The ESAT flags indicate the technical usability of the reported results.

Case No. : 29393 SDG : F0AD8 Reviewer : Mike Fertitta

Laboratory : AATSLA Matrix : Soil Units : ug/Kg

EPA SAMPLE NUMBER	F0AD1		F0AD2		F0AD3		F0AD4		F0AD5		F0AD6		F0AD7	
SEMIVOLATILE	RESULT	FLAG	RESULT	FLAG	RESULT	FLAG	RESULT	FLAG	RESULT	FLAG	RESULT	FLAG	RESULT	FLAG
Benzaldehyde	410	U	380	U	420	U	400	U	390	U	420	U	370	U
Phenol	410	U	380	U	420	U	400	U	390	U	420	U	370	U
bis-(2-Chloroethyl) ether	410	U	380	U	420	U	400	U	390	U	420	U	370	U
2-Chlorophenol	410	U	380	U	420	U	400	U	390	U	420	U	370	U
2-Methylphenol	410	U	380	U	420	U	400	U	390	U	420	U	370	U
2,2'-oxybis(1-Chloropropane)	410	U	380	U	420	U	400	U	390	U	420	U	370	U
Acetophenone	410	U	380	U	420	U	400	U	390	U	420	U	370	U
4-Methylphenol	410	U	380	U	420	U	400	U	390	U	420	U	370	U
N-Nitroso-di-n-propylamine	410	U	380	U	420	U	400	U	390	U	420	U	370	U
Hexachloroethane	410	U	380	U	420	U	400	U	390	U	420	U	370	U
Nitrobenzene	410	U	380	U	420	U	400	U	390	U	420	U	370	U
Isophorone	410	U	380	U	420	U	400	U	390	U	420	U	370	U
2-Nitrophenol	410	U	380	U	420	U	400	U	390	U	420	U	370	U
2,4-Dimethylphenol	410	U	380	U	420	U	400	U	390	U	420	U	370	U
bis(2-Chloroethoxy)methane	410	U	380	U	420	U	400	U	390	U	420	U	370	U
2,4-Dichlorophenol	410	U	380	U	420	U	400	U	390	U	420	U	370	U
Naphthalene	410	U	380	U	420	U	400	U	390	U	420	U	370	U
4-Chloroaniline	410	U	380	U	420	U	400	U	390	U	420	U	370	U
Hexachlorobutadiene	410	U	380	U	420	U	400	U	390	U	420	U	370	U
Caprolactam	410	U	380	U	420	U	400	U	390	U	420	U	370	U
4-Chloro-3-methylphenol	410	U	380	U	420	U	400	U	390	U	420	U	370	U
2-Methylnaphthalene	410	U	380	U	420	U	400	U	42	LJ	44	LJ	370	U
Hexachlorocyclopentadiene	410	U	380	U	420	U	400	U	390	U	420	U	370	U
2,4,6-Trichlorophenol	410	U	380	U	420	U	400	U	390	U	420	U	370	U
2,4,5-Trichlorophenol	1000	U	940	U	1100	U	1000	U	990	U	1100	U	930	U
1,1'-Biphenyl	410	U	380	U	420	U	400	U	390	U	420	U	370	U
2-Chloronaphthalene	410	U	380	U	420	U	400	U	390	U	420	U	370	U
2-Nitroaniline	1000	U	940	U	1100	U	1000	U	990	U	1100	U	930	U
Dimethylphthalate	410	U	380	U	420	U	400	U	390	U	420	U	370	U
2,6-Dinitrotoluene	410	U	380	U	420	U	400	U	390	U	420	U	370	U
Acenaphthylene	410	U	380	U	420	U	400	U	390	U	420	U	370	U
3-Nitroaniline	1000	U	940	U	1100	U	1000	U	990	U	1100	U	930	U
Acenaphthene	410	U	380	U	420	U	400	U	390	U	51	LJ	370	U
2,4-Dinitrophenol	1000	U	940	U	1100	U	1000	U	990	U	1100	U	930	U
4-Nitrophenol	1000	U	940	U	1100	U	1000	U	990	U	1100	U	930	U
Dibenzofuran	410	U	380	U	420	U	400	U	390	U	420	U	370	U
2,4-Dinitrotoluene	410	U	380	U	420	U	400	U	390	U	420	U	370	U
Diethylphthalate	410	U	380	U	420	U	400	U	390	U	420	U	370	U
Fluorene	410	U	380	U	420	U	400	U	390	U	420	U	370	U
4-Chlorophenyl-phenyl ether	410	U	380	U	420	U	400	U	390	U	420	U	370	U
4-Nitroaniline	1000	U	940	U	1100	U	1000	U	990	U	1100	U	930	U
4,6-Dinitro-2-methylphenol	1000	U	940	U	1100	U	1000	U	990	U	1100	U	930	U
N-Nitrosodiphenylamine	410	U	380	U	420	U	400	U	390	U	420	U	370	U
4-Bromophenyl-phenylether	410	U	380	U	420	U	400	U	390	U	420	U	370	U
Hexachlorobenzene	410	U	180	LJ	65	LJ	1200		290	LJ	420	U	370	U
Atrazine	410	U	380	U	420	U	400	U	390	U	420	U	370	U
Pentachlorophenol	1000	U	940	U	1100	U	1000	U	990	U	1100	U	930	U
Phenanthrene	49	LJ	380	U	420	U	75	LJ	110	LJ	190	LJ	370	U
Anthracene	410	U	380	U	420	U	110	LJ	40	LJ	83	LJ	370	U
Carbazole	410	U	380	U	420	U	400	U	390	U	420	U	370	U

Note : For the results listed in the Data Summary Table, ESAT has replaced the laboratory assigned flags with ESAT Organic Data Qualifiers. The ESAT flags indicate the technical usability of the reported results.

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Case No. : 29393 SDG : F0AD8 Reviewer : Mike Ferritta

Laboratory : AATSLA Matrix : Soil Units : ug/Kg

EPA SAMPLE NUMBER	F0AD8		F0AD9		F0AE0		F0AE0DL		F0AE1		F0AE1DL		F0AE2	
SEMIVOLATILE	RESULT	FLAG	RESULT	FLAG	RESULT	FLAG	RESULT	FLAG	RESULT	FLAG	RESULT	FLAG	RESULT	FLAG
Benzaldehyde	51	LJ	510	U	440	U	880	U*	380	U	1900	U*	380	U
Phenol	430	U	510	U	440	U	880	U*	380	U	1900	U*	380	U
bis-(2-Chloroethyl) ether	430	U	510	U	440	U	880	U*	380	U	1900	U*	380	U
2-Chlorophenol	430	U	510	U	440	U	880	U*	380	U	1900	U*	380	U
2-Methylphenol	430	U	510	U	440	U	880	U*	380	U	1900	U*	380	U
2,2'-oxybis(1-Chloropropane)	430	U	510	U	440	U	880	U*	380	U	1900	U*	380	U
Acetophenone	430	U	510	U	440	U	880	U*	380	U	1900	U*	380	U
4-Methylphenol	430	U	510	U	440	U	880	U*	380	U	1900	U*	380	U
N-Nitroso-di-n-propylamine	430	U	510	U	440	U	880	U*	380	U	1900	U*	380	U
Hexachloroethane	430	U	510	U	440	U	880	U*	380	U	1900	U*	380	U
Nitrobenzene	430	U	510	U	440	U	880	U*	380	U	1900	U*	380	U
Isophorone	430	U	510	U	440	U	880	U*	380	U	1900	U*	380	U
2-Nitrophenol	430	U	510	U	440	U	880	U*	380	U	1900	U*	380	U
2,4-Dimethylphenol	430	U	510	U	440	U	880	U*	380	U	1900	U*	380	U
bis(2-Chloroethoxy)methane	430	U	510	U	440	U	880	U*	380	U	1900	U*	380	U
2,4-Dichlorophenol	430	U	510	U	440	U	880	U*	380	U	1900	U*	380	U
Naphthalene	430	U	510	U	440	U	880	U*	380	U	1900	U*	380	U
4-Chloroaniline	430	U	510	U	440	U	880	U*	380	U	1900	U*	380	U
Hexachlorobutadiene	430	U	510	U	440	U	880	U*	380	U	1900	U*	380	U
Caprolactam	430	U	510	U	440	U	880	U*	380	U	1900	U*	380	U
4-Chloro-3-methylphenol	430	U	510	U	440	U	880	U*	380	U	1900	U*	380	U
2-Methylnaphthalene	430	U	510	U	440	U	880	U*	380	U	1900	U*	380	U
Hexachlorocyclopentadiene	430	U	510	U	440	U	880	U*	380	U	1900	U*	380	U
2,4,6-Trichlorophenol	430	U	510	U	440	U	880	U*	380	U	1900	U*	380	U
2,4,5-Trichlorophenol	1100	U	1300	U	1100	U	2200	U*	950	U	4800	U*	940	U
1,1'-Biphenyl	430	U	510	U	440	U	880	U*	380	U	1900	U*	380	U
2-Chloronaphthalene	430	U	510	U	440	U	880	U*	380	U	1900	U*	380	U
2-Nitroaniline	1100	U	1300	U	1100	U	2200	U*	950	U	4800	U*	940	U
Dimethylphthalate	430	U	510	U	440	U	880	U*	380	U	1900	U*	380	U
2,6-Dinitrotoluene	430	U	510	U	440	U	880	U*	380	U	1900	U*	380	U
Acenaphthylene	430	U	510	U	440	U	880	U*	380	U	1900	U*	380	U
3-Nitroaniline	1100	U	1300	U	1100	U	2200	U*	950	U	4800	U*	940	U
Acenaphthene	430	U	510	U	440	U	880	U*	380	U	1900	U*	380	U
2,4-Dinitrophenol	1100	U	1300	U	1100	U	2200	U*	950	U	4800	U*	940	U
4-Nitrophenol	1100	U	1300	U	1100	U	2200	U*	950	U	4800	U*	940	U
Dibenzofuran	430	U	510	U	440	U	880	U*	380	U	1900	U*	380	U
2,4-Dinitrotoluene	430	U	510	U	440	U	880	U*	380	U	1900	U*	380	U
Diethylphthalate	430	U	510	U	440	U	880	U*	380	U	1900	U*	380	U
Fluorene	430	U	510	U	440	U	880	U*	380	U	1900	U*	380	U
4-Chlorophenyl-phenyl ether	430	U	510	U	440	U	880	U*	380	U	1900	U*	380	U
4-Nitroaniline	1100	U	1300	U	1100	U	2200	U*	950	U	4800	U*	940	U
4,6-Dinitro-2-methylphenol	1100	U	1300	U	1100	U	2200	U*	950	U	4800	U*	940	U
N-Nitrosodiphenylamine	430	U	510	U	440	U	880	U*	380	U	1900	U*	380	U
4-Bromophenyl-phenylether	430	U	510	U	440	U	880	U*	380	U	1900	U*	380	U
Hexachlorobenzene	430	U	510	U	4100	*	4200		8500	*	8400	Jv	14000	*
Atrazine	430	U	510	U	440	U	880	U*	380	U	1900	U*	380	U
Pentachlorophenol	1100	U	1300	U	1100	U	2200	U*	950	U	4800	U*	940	U
Phenanthrene	120	LJ	190	LJ	440	U	880	U*	380	U	1900	U*	380	U
Anthracene	430	U	64	LJ	440	U	880	U*	380	U	1900	U*	380	U
Carbazole	430	U	510	U	440	U	880	U*	380	U	1900	U*	380	U

Note : For the results listed in the Data Summary Table, ESAT has replaced the laboratory assigned flags with ESAT Organic Data Qualifiers. The ESAT flags indicate the technical usability of the reported results.

ORGANIC DATA SUMMARY

Case No. : 29393 SDG : F0AD8 Reviewer : Mike Fertitta

Laboratory : AATSLA Matrix : Soil Units : ug/Kg

EPA SAMPLE NUMBER	F0AE2DL		F0AE3											
SEMIVOLATILE	RESULT	FLAG	RESULT	FLAG	RESULT	FLAG	RESULT	FLAG	RESULT	FLAG	RESULT	FLAG	RESULT	FLAG
Benzaldehyde	3800	U *	61	LJ										
Phenol	3800	U *	410	U										
bis-(2-Chloroethyl) ether	3800	U *	410	U										
2-Chlorophenol	3800	U *	410	U										
2-Methylphenol	3800	U *	410	U										
2,2'-oxybis(1-Chloropropane)	3800	U *	410	U										
Acetophenone	3800	U *	410	U										
4-Methylphenol	3800	U *	410	U										
N-Nitroso-di-n-propylamine	3800	U *	410	U										
Hexachloroethane	3800	U *	410	U										
Nitrobenzene	3800	U *	410	U										
Isophorone	3800	U *	410	U										
2-Nitrophenol	3800	U *	410	U										
2,4-Dimethylphenol	3800	U *	410	U										
bis(2-Chloroethoxy)methane	3800	U *	410	U										
2,4-Dichlorophenol	3800	U *	410	U										
Naphthalene	3800	U *	410	U										
4-Chloroaniline	3800	U *	410	U										
Hexachlorobutadiene	3800	U *	410	U										
Caprolactam	3800	U *	410	U										
4-Chloro-3-methylphenol	3800	U *	410	U										
2-Methylnaphthalene	3800	U *	410	U										
Hexachlorocyclopentadiene	3800	U *	410	U										
2,4,6-Trichlorophenol	3800	U *	410	U										
2,4,5-Trichlorophenol	9400	U *	1000	U										
1,1'-Biphenyl	3800	U *	410	U										
2-Chloronaphthalene	3800	U *	410	U										
2-Nitroaniline	9400	U *	1000	U										
Dimethylphthalate	3800	U *	410	U										
2,6-Dinitrotoluene	3800	U *	410	U										
Acenaphthylene	3800	U *	410	U										
3-Nitroaniline	9400	U *	1000	U										
Acenaphthene	3800	U *	410	U										
2,4-Dinitrophenol	9400	U *	1000	U										
4-Nitrophenol	9400	U *	1000	U										
Dibenzofuran	3800	U *	410	U										
2,4-Dinitrotoluene	3800	U *	410	U										
Diethylphthalate	3800	U *	410	U										
Fluorene	3800	U *	410	U										
4-Chlorophenyl-phenyl ether	3800	U *	410	U										
4-Nitroaniline	9400	U *	1000	U										
4,6-Dinitro-2-methylphenol	9400	U *	1000	U										
N-Nitrosodiphenylamine	3800	U *	410	U										
4-Bromophenyl-phenylether	3800	U *	410	U										
Hexachlorobenzene	18000	J^	990											
Atrazine	3800	U *	410	U										
Pentachlorophenol	9400	U *	1000	U										
Phenanthrene	3800	U *	61	LJ										
Anthracene	3800	U *	410	U										
Carbazole	3800	U *	410	U										

Note . For the results listed in the Data Summary Table, ESAT has replaced the laboratory assigned flags with ESAT Organic Data Qualifiers. The ESAT flags indicate the technical usability of the reported results.

Case No. : 29393 SDG : F0AD8 Reviewer : Mike Fertitta

Laboratory : AATSLA Matrix : Soil Units : ug/Kg

EPA SAMPLE NUMBER	F0AC4		F0AC5		F0AC6		F0AC7		F0AC7DL		F0AC8		F0AC8DL	
PESTICIDES/PCBs	RESULT	FLAG	RESULT	FLAG	RESULT	FLAG	RESULT	FLAG	RESULT	FLAG	RESULT	FLAG	RESULT	FLAG
alpha-BHC	0.92	LJ	2.0	U	3.9	J^	2.9		2.4	*	42	*	40	
beta-BHC	1.8	LJ	2.0	U	1.9	LJ	2.4		2.6	*	12		13	*
delta-BHC	2.1	U	2.0	U	2.0	U	1.9	U	9.7	U *	1.9	U	9.7	U *
gamma-BHC (Lindane)	2.1	U	2.0	U	2.0	U	1.9	U	9.7	U *	1.9	U	9.7	U *
Heptachlor	2.1	U	2.0	U	0.42	LJ	0.21	LJ	9.7	U *	1.9	U	9.7	U *
Aldrin	2.1	U	2.0	U	2.0	U	1.9	U	9.7	U *	0.82	LJ	9.7	U *
Heptachlor epoxide	0.93	LJ	2.0	U	0.27	LJ	1.9	U	9.7	U *	0.91	LJ	0.61	*
Endosulfan I	2.1	U	2.0	U	2.0	U	1.9	U	9.7	U *	1.9	U	9.7	U *
Dieldrin	0.50	LJ	4.0	U	3.4	LJ	0.63	LJ	0.69	*	0.55	LJ	19	U *
4,4'-DDE	0.66	LJ	4.0	U	1.7	LJ	0.48	LJ	19	U *	3.0	LJ	1.7	*
Endrin	4.1	U	4.0	U	3.8	U	3.8	U	19	U *	3.8	U	19	U *
Endosulfan II	4.1	U	4.0	U	3.8	U	3.8	U	19	U *	3.8	U	19	U *
4,4'-DDD	0.58	LJ	4.0	U	1.0	LJ	0.92	LJ	0.76	*	3.1	LJ	2.6	*
Endosulfan sulfate	4.1	U	4.0	U	3.8	U	3.8	U	19	U *	3.8	U	19	U *
4,4'-DDT	0.84	LJB	4.0	U	1.2	LJB	3.1	LJ	3.1	*	7.1		6.0	*
Methoxychlor	21	U	20	U	2.0	U	19	U	97	U *	19	U	97	U *
Endrin ketone	0.56	LJ	4.0	U	0.81	LJ	0.48	LJ	19	U *	3.8	U	19	U *
Endrin aldehyde	4.1	U	4.0	U	0.82	LJ	3.8	U	19	U *	0.42	LJ	19	U *
alpha-Chlordane	2.1	U	2.0	U	2.0	U	0.28	LJ	9.7	U *	1.6	LJ	1.5	*
gamma-Chlordane	0.31	LJ	2.0	U	1.2	LJ	0.25	LJ	9.7	U *	1.6	LJ	2.6	*
Toxaphene	210	U	200	U	200	U	190	U	970	U *	190	U	970	U *
Aroclor-1016	41	U	40	U	38	U	38	U	190	U *	38	U	190	U *
Aroclor-1221	83	U	81	U	77	U	76	U	380	U *	76	U	380	U *
Aroclor-1232	41	U	40	U	38	U	38	U	190	U *	38	U	190	U *
Aroclor-1242	41	U	40	U	38	U	38	U	190	U *	38	U	190	U *
Aroclor-1248	41	U	40	U	290	J^	38	U	190	U *	38	U	190	U *
Aroclor-1254	41	U	40	U	38	U	38	U	190	U *	38	U	190	U *
Aroclor-1260	41	U	40	U	38	U	38	U	190	U *	38	U	190	U *
Sample wt (g) :	30.0		30.0		30.0		30.0		30.0		30.0		30.0	
%Moisture :	19		17		13		12		12		12		12	
Dilution Factor :	1.0		1.0		1.0		1.0		5.0		1.0		5.0	

Note : For the results listed in the Data Summary Table, ESAT has replaced the laboratory assigned flags with ESAT Organic Data Qualifiers. The ESAT flags indicate the technical usability of the reported results.

Case No. : 29393 SDG : F0AD8 Reviewer : Mike Ferritta

Laboratory : AATSLA Matrix : Soil Units : ug/Kg

EPA SAMPLE NUMBER	F0AD3		F0AD3DL		F0AD4		F0AD4DL		F0AD5		F0AD5DL		F0AD6	
PESTICIDES/PCBs	RESULT	FLAG	RESULT	FLAG	RESULT	FLAG	RESULT	FLAG	RESULT	FLAG	RESULT	FLAG	RESULT	FLAG
alpha-BHC	13		11	*	33000	*	22000		1600	*	2700		570	*
beta-BHC	15	J	13	*	7600		6400	*	440	*	680		58	
delta-BHC	1.9	LJ	110	U *	1000	U	10000	U *	5.1	LJ	200	U *	11	U
gamma-BHC (Lindane)	11	U	110	U *	120	LJ	10000	U *	5.6	LJ	200	U *	1.6	LJ
Heptachlor	11	U	110	U *	1000	U	10000	U *	20	U	200	U *	2.4	LJ
Aldrin	11	U	110	U *	1000	U	10000	U *	20	U	200	U *	2.7	LJ
Heptachlor epoxide	1.6	LJ	110	U *	1000	U	10000	U *	4.0	LJ	200	U *	4.0	LJ
Endosulfan I	11	U	110	U *	1000	U	10000	U *	20	U	200	U *	11	U
Dieldrin	3.0	LJ	210	U *	2000	U	20000	U *	39	U	390	U *	3.2	LJ
4,4'-DDE	190	J	160	*	2000	U	20000	U *	22	LJ	25	*	21	J
Endrin	21	U	210	U *	2000	U	20000	U *	39	U	390	U *	21	U
Endosulfan II	21	U	210	U *	2000	U	20000	U *	39	U	390	U *	21	U
4,4'-DDD	950	*	990		510	LJ	20000	U *	110	J	120	*	69	
Endosulfan sulfate	21	U	210	U *	2000	U	20000	U *	39	U	390	U *	21	U
4,4'-DDT	1100	*	1100		1800	LJ	1300	*	260	J	280	*	570	*
Methoxychlor	110	U	1100	U *	10000	U	100000	U *	200	U	2000	U *	110	U
Endrin ketone	21	U	210	U *	2000	U	20000	U *	39	U	390	U *	21	U
Endrin aldehyde	21	U	210	U *	2000	U	20000	U *	39	U	390	U *	21	U
alpha-Chlordane	11	U	110	U *	1000	U	10000	U *	11	LJ	200	U *	10	LJ
gamma-Chlordane	14	J	13	*	1000	U	10000	U *	14	LJ	200	U *	17	
Toxaphene	1100	U	11000	U *	100000	U	1000000	U *	2000	U	20000	U *	1100	U
Aroclor-1016	210	U	2100	U *	20000	U	200000	U *	390	U	3900	U *	210	U
Aroclor-1221	420	U	4200	U *	40000	U	400000	U *	800	U	8000	U *	420	U
Aroclor-1232	210	U	2100	U *	20000	U	200000	U *	390	U	3900	U *	210	U
Aroclor-1242	210	U	2100	U *	20000	U	200000	U *	390	U	3900	U *	210	U
Aroclor-1248	210	U	2100	U *	20000	U	200000	U *	390	U	3900	U *	210	U
Aroclor-1254	210	U	2100	U *	20000	U	200000	U *	390	U	3900	U *	210	U
Aroclor-1260	210	U	2100	U *	20000	U	200000	U *	390	U	3900	U *	210	U
Sample wt (g) :	30.0		30.0		30.0		30.0		30.0		30.0		30.0	
%Moisture :	21		21		17		17		16		16		21	
Dilution Factor :	5.0		50.0		500.0		5000.0		10.0		100.0		5.0	

Note : For the results listed in the Data Summary Table, ESAT has replaced the laboratory assigned flags with ESAT Organic Data Qualifiers. The ESAT flags indicate the technical usability of the reported results.

Case No. : 29393 SDG : F0AD8 Reviewer : Mike Fertitta

Laboratory : AATSLA Matrix : Soil Units : ug/Kg

EPA SAMPLE NUMBER	F0AE1DL		F0AE2		F0AE2DL		F0AE3		F0AE3DL					
PESTICIDES/PCBs	RESULT	FLAG	RESULT	FLAG	RESULT	FLAG	RESULT	FLAG	RESULT	FLAG	RESULT	FLAG	RESULT	FLAG
alpha-BHC	760	*	820		710	*	9000	*	10000					
beta-BHC	8500	J^	3900	*	3900	Jv	5100	*	5000					
delta-BHC	110	*	78	LJ	970	U *	32	LJ	1000	U *				
gamma-BHC (Lindane)	63	*	30	LJ	970	U *	49	LJ	1000	U *				
Heptachlor	980	U *	97	U	970	U *	100	U	1000	U *				
Aldrin	980	U *	97	U	970	U *	100	U	1000	U *				
Heptachlor epoxide	980	U *	97	U	970	U *	100	U	1000	U *				
Endosulfan I	980	U *	97	U	970	U *	100	U	1000	U *				
Dieldrin	1900	U *	190	U	1900	U *	200	U	2000	U *				
4,4'-DDE	850	*	1100		940	*	260	J	240	*				
Endrin	140	*	190	U	130	*	200	U	2000	U *				
Endosulfan II	1900	U *	190	U	1900	U *	200	U	2000	U *				
4,4'-DDD	9700		7100	*	8800		2200		2100	*				
Endosulfan sulfate	1900	U *	190	U	1900	U *	200	U	2000	U *				
4,4'-DDT	14000		9300	*	12000		8500	*	9400					
Methoxychlor	9800	U *	970	U	9700	U *	1000	U	10000	U *				
Endrin ketone	1900	U *	190	U	1900	U *	200	U	2000	U *				
Endrin aldehyde	1900	U *	190	U	1900	U *	200	U	2000	U *				
alpha-Chlordane	980	U *	97	U	970	U *	100	U	1000	U *				
gamma-Chlordane	980	U *	14	LJ	970	U *	100	U	1000	U *				
Toxaphene	98000	U *	9700	U	97000	U *	10000	U	100000	U *				
Aroclor-1016	19000	U *	1900	U	19000	U *	2000	U	20000	U *				
Aroclor-1221	39000	U *	3800	U	38000	U *	4100	U	41000	U *				
Aroclor-1232	19000	U *	1900	U	19000	U *	2000	U	20000	U *				
Aroclor-1242	19000	U *	1900	U	19000	U *	2000	U	20000	U *				
Aroclor-1248	19000	U *	1900	U	19000	U *	2000	U	20000	U *				
Aroclor-1254	19000	U *	1900	U	19000	U *	2000	U	20000	U *				
Aroclor-1260	19000	U *	1900	U	19000	U *	2000	U	20000	U *				
Sample wt (g) :	30.0		30.0		30.0		30.0		30.0					
%Moisture :	13		12		12		19		19					
Dilution Factor :	500.0		50.0		500.0		50.0		500.0					

Note : For the results listed in the Data Summary Table, ESAT has replaced the laboratory assigned flags with ESAT Organic Data Qualifiers. The ESAT flags indicate the technical usability of the reported results.

13029

INORGANIC/ORGANIC COMPLETE SDG FILE (CSF) INVENTORY CHECKLIST

Case No. 29393 SDG No. F0AD8 SDG Nos. To Follow SAS No. Date Rec 07/06/01

EPA Lab ID: AATSLA

Lab Location: Baton Rouge, LA

Region: 6 Audit No.: 29393/F0AD8

Re_Submitted CSF? Yes _____ No X

Box No(s): 1

COMMENTS:

Over for additional comments.

ORIGINALS	YES	NO	N/A
CUSTODY SEALS			
1. Present on package?	X		
2. Intact upon receipt?	X		
FORM DC-2			
3. Numbering scheme accurate?	X		
4. Are enclosed documents listed?	X		
5. Are listed documents enclosed?	X		
FORM DC-1			
6. Present?	X		
7. Complete?	X		
8. Accurate?	X		
CHAIN-OF-CUSTODY RECORD(s)			
9. Signed?	X		
10. Dated?	X		
TRAFFIC REPORT(s) PACKING LIST(s)			
11. Signed?	X		
12. Dated?	X		
AIRBILLS/AIRBILL STICKER			
13. Present?	X		
14. Signed?	X		
15. Dated?	X		
SAMPLE TAGS			
16. Does DC-1 list tags as being included?	X		
17. Present?	X		
OTHER DOCUMENTS			
18. Complete?	X		
19. Legible?	X		
20. Original?		X	
20a. If "NO", does the copy indicate where original documents are located?	X		

Audited by: Michael J. Fertitta — Michael J. Fertitta/Data Reviewer — Date 07/12/01

Audited by: _____ — _____ — Date _____

Audited by: _____ — _____ — Date _____

Signature — Printed Name/Title

TO BE COMPLETED BY CEAT

Date Recvd by CEAT: _____ Date Entered: _____ Date Reviewed: _____

Entered by: _____ _____

Reviewed by: _____ _____

Signature — Printed Name/Title

DC-2___

13031

FAX COMMUNICATION LOG

Continuation Page: 2
Laboratory/Contact: AATSLA/John Troost
In Reference to Case No. 29393 **SDG:** F0AD8

2. The reviewer was unable to reproduce results associated with the continuing calibration standards from instrument HPB (0913 on 06/28/01, 1752 on 06/29/01, and 1136 on 06/30/01). It appears that the average RRF's from the initial calibration were used for quantitation instead of the RRF50's for the continuing calibrations. Please resubmit the necessary corrections to Forms 1 and 2 for blanks VBLKBL, VBLKBO, VBLKBP, and VHBLKBS and samples F0AE2DL, F0AE1DL, F0AC4, F0AC5, F0AC6, F0AD5, F0AD7, F0AC9, F0AD0, F0AD1, F0AD3, F0AD6, F0AC7, F0AC8, F0AD2, F0AD4, and F0AE3 (pages 31, 45, 46, 53, 60, 66, 72, 73, 79, 85, 91, 92, 98, 99, 111, 112, 118, 119, 132, 133, 140, 141, 147, 192, 193, 216, 217, 226, 227, 332, 333, 340, 347, and 353).

C. PEST

1. Sample F0AD3DL: The integration of TCX on column CLPESTII (page 1319) is technically unacceptable. Please reintegrate TCX and resubmit the chromatogram and the adjusted percent recovery on Form 2 (page 1262).

2. Sample F0AD5DL: According to the raw data, page 1807, the % moisture reported on Form 1 should be 16, not 35. Please resubmit the necessary corrections to Forms 1 (page 1335) and 10 (page 1496).

NOTE: Any laboratory resubmission should be submitted either as an addendum to the original CSF with a revised Form DC-2 or submitted as a new CSF with a new Form DC-2 (OLM04.2, p. B-26, 2.7.3), except those containing only replacement pages. Custody seals are required for all CSF resubmission shipments.

Please respond to the above item **<u>within seven days</u>** to:

Mr. Mahmoud El-Feky
U.S. EPA Region 6 Laboratory
10625 Fallstone Road
Houston, TX 77099

If you have any questions, please contact me at (281) 983-2128.

M. El-Feky
Signature

7-24-01
Date

Distribution: (1) Lab Copy, (2) Region Copy, and (3) ESAT Copy

EPA United States Environmental Protection Agency
Contract Laboratory Program

Organic Traffic Report & Chain of Custody Record
(For Organic CLP Analysis)

Case No. 29393

1. Project Code
2. Region No: 6
Sampling Co.: TNRCC
4. Date Shipped: 6/14/01
Carrier: Airborne
Account Code
Sampler (Name): Johnny Kennedy
Airbill Number: 9764150593 6
Site Name: Greens Bayou
Sampler Signature: [signature]
5. Ship To: AATSLA
11950 Industriplex Blvd.
Baton Rouge, LA 70809
ATTN: Susan Stuart
City, State: Houston, TX
Site Spill ID
Op Unit
3. Purpose
Lead: [X] SF, [ ] PRP, [ ] ST, [ ] FED, [ ] DZ
Early Action: [ ] IA, [ ] PA, [ ] REM, [ ] RI, [X] SI, [ ] ESI
Long-Term Action: [ ] RIFS, [ ] RD, [ ] RA, [ ] O&M

6. Matrix (Enter in Column A)
1. Surface Water
2. Ground Water
3. Leachate
4. Field QC
5. Soil/Sediment
6. PE-water
7. PE-soil
8. Other (specify in Column A)

7. Preservative (Enter in Column D)
1. HCl
2. HNO3
3. NaHSO4
4. H2SO4
5. Ice only
6. CH3OH
7. Other (specif in Column D)
N. Not Preserve

CLP Sample Numbers (from labels)	A Matrix (from Box 6) Other	B Conc Low Med	C Sample Type: Comp / Grab	D Preservative (from Box 7) Other	E RAS Analysis TA (circle one) PR* 7 14 21 VOA	TA (circle one) PR* 7 14 21 BNA	TA (circle one) PR* 7 14 21 Pest/PCB	F Regional Specific Tracking Number or Tag Numbers	G Station Location Identifier	H Mo/Day/Year/Time Sample Collection	I Corresponding CLP Inorganic Sample No.	J Sampler Initials	K Field QC Qualifier (B = Blank S = Field Sp; D = Field Duplicate; R = Rinsate; PE = Perform Eval)
FOAC9	5	Low	Comp	5	X	X	X	6-189100-101	SE-06	6/13/01 1245	MF0796	JK	—
FOAD0	5	Low	Comp	5	X	X	X	6-189103-104	SE-07	6/13/01 1240	MF0797	JK	D(FOAC9)
FOAD1	5	Low	Comp	5	X	X	X	6-189109-110	SE-08	6/13/01 1050	MF0798	JK	—
FOAD3	5	Low	Comp	5	X	X	X	6-189115-116	SE-10	6/13/01 1030	MF07A0	JK	—
FOAD6	5	Low	Comp	5	X	X	X	6-189124-125	SE-13	6/13/01 0925	—	JK	—

Shipment for Case Complete? (Y/N) Y
Page 1 of 1
VOA MS/MSD Required? Y(N) Sample #:
BNA MS/MSD Required? Y(N) Sample #:
Pest/PCB MS/MSD Required? Y(N) Sample #:
Additional Sampler Signatures
Chain of Custody Seal Number(s)

*PR provides 7-day data turnaround in addition to preliminary results. Requests for preliminary results will increase analytical costs.

Chain of Custody Record

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
[signature]	6/14/01 1700				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks: Is custody seal intact? Y/N/none	

Distribution: Blue - Region Copy; White - Lab Copy for Return to SMO; Pink - SMO Copy; Yellow - Lab Copy for Return to Region

See Reverse for Additional Standard Instructi
**See Reverse for Purpose Code Definitions

EPA Form 9110-2 (2/99)

CLASS 99

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13035

EPA United States Environmental Protection Agency
Contract Laboratory Program

Organic Traffic Report & Chain of Custody Record
(For Organic CLP Analysis)

Case No. 29393

1. Project Code	2. Region No. 6	Sampling Co. TNRCC	4. Date Shipped 6/14/01
Carrier Airborne			
Account Code	Sampler (Name) Johnny Kennedy	Airbill Number 4764506032	
Site Name Greens Bayou	Sampler Signature [signature]	5. Ship To: AATSLA 11950 Industriplex Blvd. Baton Rouge, LA 70809 ATTN: Susan Stuart	
City, State Houston, TX	Site Spill ID	Op Unit	

3. Purpose**
Lead: [X] SF [ ] PRP [ ] ST [ ] FED [ ] DZ
Early Action: [ ] IA [ ] PA [ ] REM [ ] RI [X] SI [ ] ESI
Long-Term Action: [ ] RIFS [ ] RD [ ] RA [ ] O&M

6. Matrix (Enter in Column A)
1. Surface Water
2. Ground Water
3. Leachate
4. Field QC
5. Soil/Sediment
6. PE-water
7. PE-soil
8. Other (specify in Column A)

7. Preservative (Enter in Column D)
1. HCl
2. HNO3
3. NaHSO4
4. H2SO4
5. Ice only
6. CH3OH
7. Other (specify in Column D)
N. Not Preserved

CLP Sample Numbers (from labels)	A Matrix (from Box 6) Other:	B Conc: Low Med	C Sample Type: Comp./Grab	D Preservative (from Box 7) Other:	E RAS Analysis TA (circle one) PR* 7 14 (21) VOA	TA (circle one) PR* 7 14 (21) BNA	TA (circle one) PR* 7 14 (21) Pest/PCB	F Regional Specific Tracking Number or Tag Numbers	G Station Location Identifier	H Mo/Day/Year/Time Sample Collection	I Corresponding CLP Inorganic Sample No.	J Sampler Initials	K Field QC Qualifier (B = Blank, S = Field Sp, D = Field Duplicate, R = Rinsate, PE = Perform Eval)
FOAC7	5	Low	Comp	5	X	X	X	6-189094-095	SE-04	6/13/01 1305	MF0794	JK	—
FOAC8	5	Low	Comp	5	X	X	X	6-189097-098	SE-05	6/13/01 1250	MF0795	JK	—
FOAD2	5	Low	Comp	5	X	X	X	6-189112-113	SE-09	6/13/01 1040	MF0799	JK	—
FOAD4	5	Low	Comp	5	X	X	X	6-189118-119	SE-11	6/13/01 1008	MF07A1	JK	—
FOAE3	5	Low	Comp	5	X	X	X	6-189148-149	SE-20	6/13/01 1100	MF07B0	JK	—

Shipment for Case Complete? (Y/N) Y
Page 1 of 1
VOA MS/MSD Required? Y(N) Sample #:
BNA MS/MSD Required? Y(N) Sample #:
Pest/PCB MS/MSD Required? Y(N) Sample #:
Additional Sampler Signatures
Chain of Custody Seal Number(s)

*PR provides 7-day data turnaround in addition to preliminary results. Requests for preliminary results will increase analytical costs.

Chain of Custody Record

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
[signature]	6/14/01 1200				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks: Is custody seal intact? Y/N/none	

Distribution: Blue - Region Copy; Pink - SMO Copy; White - Lab Copy for Return to SMO; Yellow - Lab Copy for Return to Region

See Reverse for Additional Standard Instructions
**See Reverse for Purpose Code Definitions

EPA Form 9110-2 (2/99)

CLASS-9 01

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1B
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

F0AC4

Lab Name: AATSLA Contract: 68-W0-0081

Lab Code: AATSLA Case No.: 29393 SAS No.: SDG No.: F0AD8

Matrix: (soil/water) SOIL Lab Sample ID: 50572.01

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 180B33.D

Level: (low/med) LOW Date Received: 06/15/01

% Moisture: not dec. 19 Date Analyzed: 06/30/01

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
79-01-6	Trichloroethene	12	U
108-87-2	Methylcyclohexane	12	U
78-87-5	1,2-Dichloropropane	12	U
75-27-4	Bromodichloromethane	12	U
10061-01-5	cis-1,3-Dichloropropene	12	U
108-10-1	4-Methyl-2-Pentanone	12	U
108-88-3	Toluene	11	J
10061-02-6	trans-1,3-Dichloropropene	12	U
79-00-5	1,1,2-Trichloroethane	12	U
127-18-4	Tetrachloroethene	12	U
591-78-6	2-Hexanone	12	U
124-48-1	Dibromochloromethane	12	U
106-93-4	1,2-Dibromoethane	12	U
108-90-7	Chlorobenzene	12	U
100-41-4	Ethylbenzene	12	U
1330-20-7	Xylene (total)	12	U
100-42-5	Styrene	12	U
75-25-2	Bromoform	12	U
98-82-8	Isopropylbenzene	12	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
541-73-1	1,3-Dichlorobenzene	12	U
106-46-7	1,4-Dichlorobenzene	12	U
95-50-1	1,2-Dichlorobenzene	12	U
96-12-8	1,2-Dibromo-3-chloropropane	12	U
120-82-1	1,2,4-Trichlorobenzene	12	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

F0AC5

Lab Name: AATSLA Contract: 68-W0-0081

Lab Code: AATSLA Case No.: 29393 SAS No.: SDG No.: F0AD8

Matrix: (soil/water) SOIL Lab Sample ID: 50572.02

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 180B34.D

Level: (low/med) LOW Date Received: 06/15/01

% Moisture: not dec. 17 Date Analyzed: 06/30/01

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-71-8	Dichlorodifluoromethane	12	U
74-87-3	Chloromethane	12	U
75-01-4	Vinyl Chloride	12	U
74-83-9	Bromomethane	12	U
75-00-3	Chloroethane	12	U
75-69-4	Trichlorofluoromethane	12	U
75-35-4	1,1-Dichloroethene	12	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	12	U
67-64-1	Acetone	12	U
75-15-0	Carbon Disulfide	12	U
79-20-9	Methyl Acetate	12	U
75-09-2	Methylene Chloride	9	BJ
156-60-5	trans-1,2-Dichloroethene	12	U
1634-04-4	Methyl tert-Butyl Ether	12	U
75-34-3	1,1-Dichloroethane	12	U
156-59-2	cis-1,2-Dichloroethene	12	U
78-93-3	2-Butanone	12	U
67-66-3	Chloroform	12	U
71-55-6	1,1,1-Trichloroethane	12	U
110-82-7	Cyclohexane	12	U
56-23-5	Carbon Tetrachloride	12	U
71-43-2	Benzene	12	U
107-06-2	1,2-Dichloroethane	12	U

1F
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

F0AC5

Lab Name: AATSLA Contract: 68-W0-0081

Lab Code: AATSLA Case No.: 29393 SAS No.: SDG No.: F0AD8

Matrix: (soil/water) SOIL Lab Sample ID: 50572.02

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 180B34.D

Level: (low/med) LOW Date Received: 06/15/01

% Moisture: not dec. 17 Date Analyzed: 06/30/01

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 1 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	15.52	9	BJ
2.					
3.					
4.					
5.					
6.					
7.					
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27.					
28.					
29.					
30.					

1B
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

F0AC6

Lab Name: AATSLA Contract: 68-W0-0081

Lab Code: AATSLA Case No.: 29393 SAS No.: SDG No.: F0AD8

Matrix: (soil/water) SOIL Lab Sample ID: 50572.03

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 180B35.D

Level: (low/med) LOW Date Received: 06/15/01

% Moisture: not dec. 13 Date Analyzed: 06/30/01

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
79-01-6	Trichloroethene	11	U
108-87-2	Methylcyclohexane	11	U
78-87-5	1,2-Dichloropropane	11	U
75-27-4	Bromodichloromethane	11	U
10061-01-5	cis-1,3-Dichloropropene	11	U
108-10-1	4-Methyl-2-Pentanone	11	U
108-88-3	Toluene	11	U
10061-02-6	trans-1,3-Dichloropropene	11	U
79-00-5	1,1,2-Trichloroethane	11	U
127-18-4	Tetrachloroethene	11	U
591-78-6	2-Hexanone	11	U
124-48-1	Dibromochloromethane	11	U
106-93-4	1,2-Dibromoethane	11	U
108-90-7	Chlorobenzene	11	U
100-41-4	Ethylbenzene	11	U
1330-20-7	Xylene (total)	11	U
100-42-5	Styrene	11	U
75-25-2	Bromoform	11	U
98-82-8	Isopropylbenzene	11	U
79-34-5	1,1,2,2-Tetrachloroethane	11	U
541-73-1	1,3-Dichlorobenzene	11	U
106-46-7	1,4-Dichlorobenzene	11	U
95-50-1	1,2-Dichlorobenzene	11	U
96-12-8	1,2-Dibromo-3-chloropropane	11	U
120-82-1	1,2,4-Trichlorobenzene	11	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

F0AC7

Lab Name: AATSLA Contract: 68-W0-0081

Lab Code: AATSLA Case No.: 29393 SAS No.: SDG No.: F0AD8

Matrix: (soil/water) SOIL Lab Sample ID: 50572.11

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 180B43.D

Level: (low/med) LOW Date Received: 06/15/01

% Moisture: not dec. 12 Date Analyzed: 06/30/01

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-71-8	Dichlorodifluoromethane	11	U
74-87-3	Chloromethane	11	U
75-01-4	Vinyl Chloride	11	U
74-83-9	Bromomethane	11	U
75-00-3	Chloroethane	11	U
75-69-4	Trichlorofluoromethane	11	U
75-35-4	1,1-Dichloroethene	11	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	11	U
67-64-1	Acetone	11	U
75-15-0	Carbon Disulfide	11	U
79-20-9	Methyl Acetate	11	U
75-09-2	Methylene Chloride	4	BJ
156-60-5	trans-1,2-Dichloroethene	11	U
1634-04-4	Methyl tert-Butyl Ether	11	U
75-34-3	1,1-Dichloroethane	11	U
156-59-2	cis-1,2-Dichloroethene	11	U
78-93-3	2-Butanone	11	U
67-66-3	Chloroform	11	U
71-55-6	1,1,1-Trichloroethane	11	U
110-82-7	Cyclohexane	11	U
56-23-5	Carbon Tetrachloride	11	U
71-43-2	Benzene	11	U
107-06-2	1,2-Dichloroethane	11	U

1F
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

F0AC7

Lab Name: AATSLA Contract: 68-W0-0081

Lab Code: AATSLA Case No.: 29393 SAS No.: SDG No.: F0AD8

Matrix: (soil/water) SOIL Lab Sample ID: 50572.11

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 180B43.D

Level: (low/med) LOW Date Received: 06/15/01

% Moisture: not dec. 12 Date Analyzed: 06/30/01

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
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24.					
25.					
26.					
27.					
28.					
29.					
30.					

1B
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

F0AC8

Lab Name: AATSLA Contract: 68-W0-0081

Lab Code: AATSLA Case No.: 29393 SAS No.: SDG No.: F0AD8

Matrix: (soil/water) SOIL Lab Sample ID: 50572.12

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 180B44.D

Level: (low/med) LOW Date Received: 06/15/01

% Moisture: not dec. 12 Date Analyzed: 06/30/01

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
79-01-6	Trichloroethene	11	U
108-87-2	Methylcyclohexane	11	U
78-87-5	1,2-Dichloropropane	11	U
75-27-4	Bromodichloromethane	11	U
10061-01-5	cis-1,3-Dichloropropene	11	U
108-10-1	4-Methyl-2-Pentanone	11	U
108-88-3	Toluene	11	U
10061-02-6	trans-1,3-Dichloropropene	11	U
79-00-5	1,1,2-Trichloroethane	11	U
127-18-4	Tetrachloroethene	11	U
591-78-6	2-Hexanone	11	U
124-48-1	Dibromochloromethane	11	U
106-93-4	1,2-Dibromoethane	11	U
108-90-7	Chlorobenzene	120	
100-41-4	Ethylbenzene	11	U
1330-20-7	Xylene (total)	11	U
100-42-5	Styrene	11	U
75-25-2	Bromoform	11	U
98-82-8	Isopropylbenzene	11	U
79-34-5	1,1,2,2-Tetrachloroethane	11	U
541-73-1	1,3-Dichlorobenzene	11	U
106-46-7	1,4-Dichlorobenzene	11	U
95-50-1	1,2-Dichlorobenzene	11	U
96-12-8	1,2-Dibromo-3-chloropropane	11	U
120-82-1	1,2,4-Trichlorobenzene	11	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

F0AC9

Lab Name: AATSLA Contract: 68-W0-0081

Lab Code: AATSLA Case No.: 29393 SAS No.: SDG No.: F0AD8

Matrix: (soil/water) SOIL Lab Sample ID: 50572.06

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 180B38.D

Level: (low/med) LOW Date Received: 06/15/01

% Moisture: not dec. 29 Date Analyzed: 06/30/01

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-71-8	Dichlorodifluoromethane	14	U
74-87-3	Chloromethane	14	U
75-01-4	Vinyl Chloride	14	U
74-83-9	Bromomethane	14	U
75-00-3	Chloroethane	14	U
75-69-4	Trichlorofluoromethane	14	U
75-35-4	1,1-Dichloroethene	14	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	14	U
67-64-1	Acetone	10	J
75-15-0	Carbon Disulfide	14	U
79-20-9	Methyl Acetate	14	U
75-09-2	Methylene Chloride	8	BJ
156-60-5	trans-1,2-Dichloroethene	14	U
1634-04-4	Methyl tert-Butyl Ether	14	U
75-34-3	1,1-Dichloroethane	14	U
156-59-2	cis-1,2-Dichloroethene	14	U
78-93-3	2-Butanone	14	U
67-66-3	Chloroform	14	U
71-55-6	1,1,1-Trichloroethane	14	U
110-82-7	Cyclohexane	14	U
56-23-5	Carbon Tetrachloride	14	U
71-43-2	Benzene	14	U
107-06-2	1,2-Dichloroethane	14	U

1F
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

F0AC9

Lab Name: AATSLA Contract: 68-W0-0081

Lab Code: AATSLA Case No.: 29393 SAS No.: SDG No.: F0AD8

Matrix: (soil/water) SOIL Lab Sample ID: 50572.06

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 180B38.D

Level: (low/med) LOW Date Received: 06/15/01

% Moisture: not dec. 29 Date Analyzed: 06/30/01

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.					
2.					
3.					
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1B
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

F0AD0

Lab Name: AATSLA Contract: 68-W0-0081

Lab Code: AATSLA Case No.: 29393 SAS No.: SDG No.: F0AD8

Matrix: (soil/water) SOIL Lab Sample ID: 50572.07

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 180B39.D

Level: (low/med) LOW Date Received: 06/15/01

% Moisture: not dec. 27 Date Analyzed: 06/30/01

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
79-01-6	Trichloroethene	14	U
108-87-2	Methylcyclohexane	14	U
78-87-5	1,2-Dichloropropane	14	U
75-27-4	Bromodichloromethane	14	U
10061-01-5	cis-1,3-Dichloropropene	14	U
108-10-1	4-Methyl-2-Pentanone	14	U
108-88-3	Toluene	14	U
10061-02-6	trans-1,3-Dichloropropene	14	U
79-00-5	1,1,2-Trichloroethane	14	U
127-18-4	Tetrachloroethene	14	U
591-78-6	2-Hexanone	14	U
124-48-1	Dibromochloromethane	14	U
106-93-4	1,2-Dibromoethane	14	U
108-90-7	Chlorobenzene	14	U
100-41-4	Ethylbenzene	14	U
1330-20-7	Xylene (total)	14	U
100-42-5	Styrene	14	U
75-25-2	Bromoform	14	U
98-82-8	Isopropylbenzene	14	U
79-34-5	1,1,2,2-Tetrachloroethane	14	U
541-73-1	1,3-Dichlorobenzene	14	U
106-46-7	1,4-Dichlorobenzene	14	U
95-50-1	1,2-Dichlorobenzene	14	U
96-12-8	1,2-Dibromo-3-chloropropane	14	U
120-82-1	1,2,4-Trichlorobenzene	14	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

F0AD1

Lab Name: AATSLA Contract: 68-W0-0081

Lab Code: AATSLA Case No.: 29393 SAS No.: SDG No.: F0AD8

Matrix: (soil/water) SOIL Lab Sample ID: 50572.08

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 180B40.D

Level: (low/med) LOW Date Received: 06/15/01

% Moisture: not dec. 19 Date Analyzed: 06/30/01

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-71-8	Dichlorodifluoromethane	12	U
74-87-3	Chloromethane	12	U
75-01-4	Vinyl Chloride	12	U
74-83-9	Bromomethane	12	U
75-00-3	Chloroethane	12	U
75-69-4	Trichlorofluoromethane	12	U
75-35-4	1,1-Dichloroethene	12	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	12	U
67-64-1	Acetone	11	J
75-15-0	Carbon Disulfide	12	U
79-20-9	Methyl Acetate	12	U
75-09-2	Methylene Chloride	9	BJ
156-60-5	trans-1,2-Dichloroethene	12	U
1634-04-4	Methyl tert-Butyl Ether	12	U
75-34-3	1,1-Dichloroethane	12	U
156-59-2	cis-1,2-Dichloroethene	12	U
78-93-3	2-Butanone	12	U
67-66-3	Chloroform	12	U
71-55-6	1,1,1-Trichloroethane	12	U
110-82-7	Cyclohexane	12	U
56-23-5	Carbon Tetrachloride	12	U
71-43-2	Benzene	12	U
107-06-2	1,2-Dichloroethane	12	U

1F
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

F0AD1

Lab Name: AATSLA Contract: 68-W0-0081

Lab Code: AATSLA Case No.: 29393 SAS No.: SDG No.: F0AD8

Matrix: (soil/water) SOIL Lab Sample ID: 50572.08

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 180B40.D

Level: (low/med) LOW Date Received: 06/15/01

% Moisture: not dec. 19 Date Analyzed: 06/30/01

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.					
2.					
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1B
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

F0AD2

Lab Name: AATSLA Contract: 68-W0-0081

Lab Code: AATSLA Case No.: 29393 SAS No.: SDG No.: F0AD8

Matrix: (soil/water) SOIL Lab Sample ID: 50572.13

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 181B05.D

Level: (low/med) LOW Date Received: 06/15/01

% Moisture: not dec. 12 Date Analyzed: 06/30/01

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
79-01-6	Trichloroethene	11	U
108-87-2	Methylcyclohexane	11	U
78-87-5	1,2-Dichloropropane	11	U
75-27-4	Bromodichloromethane	11	U
10061-01-5	cis-1,3-Dichloropropene	11	U
108-10-1	4-Methyl-2-Pentanone	11	U
108-88-3	Toluene	11	U
10061-02-6	trans-1,3-Dichloropropene	11	U
79-00-5	1,1,2-Trichloroethane	11	U
127-18-4	Tetrachloroethene	11	U
591-78-6	2-Hexanone	11	U
124-48-1	Dibromochloromethane	11	U
106-93-4	1,2-Dibromoethane	11	U
108-90-7	Chlorobenzene	5	J
100-41-4	Ethylbenzene	11	U
1330-20-7	Xylene (total)	3	J
100-42-5	Styrene	11	U
75-25-2	Bromoform	11	U
98-82-8	Isopropylbenzene	2	J
79-34-5	1,1,2,2-Tetrachloroethane	11	U
541-73-1	1,3-Dichlorobenzene	11	U
106-46-7	1,4-Dichlorobenzene	3	J
95-50-1	1,2-Dichlorobenzene	11	U
96-12-8	1,2-Dibromo-3-chloropropane	11	U
120-82-1	1,2,4-Trichlorobenzene	11	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

F0AD3

Lab Name: AATSLA Contract: 68-W0-0081

Lab Code: AATSLA Case No.: 29393 SAS No.: SDG No.: F0AD8

Matrix: (soil/water) SOIL Lab Sample ID: 50572.09

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 180B41.D

Level: (low/med) LOW Date Received: 06/15/01

% Moisture: not dec. 21 Date Analyzed: 06/30/01

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-71-8	Dichlorodifluoromethane	13	U
74-87-3	Chloromethane	13	U
75-01-4	Vinyl Chloride	13	U
74-83-9	Bromomethane	13	U
75-00-3	Chloroethane	13	U
75-69-4	Trichlorofluoromethane	13	U
75-35-4	1,1-Dichloroethene	13	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	13	U
67-64-1	Acetone	7	J
75-15-0	Carbon Disulfide	13	U
79-20-9	Methyl Acetate	13	U
75-09-2	Methylene Chloride	6	BJ
156-60-5	trans-1,2-Dichloroethene	13	U
1634-04-4	Methyl tert-Butyl Ether	13	U
75-34-3	1,1-Dichloroethane	13	U
156-59-2	cis-1,2-Dichloroethene	13	U
78-93-3	2-Butanone	13	U
67-66-3	Chloroform	13	U
71-55-6	1,1,1-Trichloroethane	13	U
110-82-7	Cyclohexane	13	U
56-23-5	Carbon Tetrachloride	13	U
71-43-2	Benzene	13	U
107-06-2	1,2-Dichloroethane	13	U

1F
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

F0AD3

Lab Name: AATSLA Contract: 68-W0-0081

Lab Code: AATSLA Case No.: 29393 SAS No.: SDG No.: F0AD8

Matrix: (soil/water) SOIL Lab Sample ID: 50572.09

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 180B41.D

Level: (low/med) LOW Date Received: 06/15/01

% Moisture: not dec. 21 Date Analyzed: 06/30/01

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.					
2.					
3.					
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28.					
29.					
30.					

1B
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

F0AD4

Lab Name: AATSLA Contract: 68-W0-0081

Lab Code: AATSLA Case No.: 29393 SAS No.: SDG No.: F0AD8

Matrix: (soil/water) SOIL Lab Sample ID: 50572.14

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 181B06.D

Level: (low/med) LOW Date Received: 06/15/01

% Moisture: not dec. 17 Date Analyzed: 06/30/01

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
79-01-6	Trichloroethene	12	U
108-87-2	Methylcyclohexane	12	U
78-87-5	1,2-Dichloropropane	12	U
75-27-4	Bromodichloromethane	12	U
10061-01-5	cis-1,3-Dichloropropene	12	U
108-10-1	4-Methyl-2-Pentanone	12	U
108-88-3	Toluene	12	U
10061-02-6	trans-1,3-Dichloropropene	12	U
79-00-5	1,1,2-Trichloroethane	12	U
127-18-4	Tetrachloroethene	12	U
591-78-6	2-Hexanone	12	U
124-48-1	Dibromochloromethane	12	U
106-93-4	1,2-Dibromoethane	12	U
108-90-7	Chlorobenzene	8	J
100-41-4	Ethylbenzene	1	J
1330-20-7	Xylene (total)	6	J
100-42-5	Styrene	12	U
75-25-2	Bromoform	12	U
98-82-8	Isopropylbenzene	12	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
541-73-1	1,3-Dichlorobenzene	12	U
106-46-7	1,4-Dichlorobenzene	2	J
95-50-1	1,2-Dichlorobenzene	12	U
96-12-8	1,2-Dibromo-3-chloropropane	12	U
120-82-1	1,2,4-Trichlorobenzene	12	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

F0AD5

Lab Name: AATSLA Contract: 68-W0-0081

Lab Code: AATSLA Case No.: 29393 SAS No.: SDG No.: F0AD8

Matrix: (soil/water) SOIL Lab Sample ID: 50572.04

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 180B36.D

Level: (low/med) LOW Date Received: 06/15/01

% Moisture: not dec. 16 Date Analyzed: 06/30/01

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-71-8	Dichlorodifluoromethane	12	U
74-87-3	Chloromethane	12	U
75-01-4	Vinyl Chloride	12	U
74-83-9	Bromomethane	12	U
75-00-3	Chloroethane	12	U
75-69-4	Trichlorofluoromethane	12	U
75-35-4	1,1-Dichloroethene	12	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	12	U
67-64-1	Acetone	5	J
75-15-0	Carbon Disulfide	12	U
79-20-9	Methyl Acetate	12	U
75-09-2	Methylene Chloride	9	BJ
156-60-5	trans-1,2-Dichloroethene	12	U
1634-04-4	Methyl tert-Butyl Ether	12	U
75-34-3	1,1-Dichloroethane	12	U
156-59-2	cis-1,2-Dichloroethene	12	U
78-93-3	2-Butanone	12	U
67-66-3	Chloroform	12	U
71-55-6	1,1,1-Trichloroethane	12	U
110-82-7	Cyclohexane	12	U
56-23-5	Carbon Tetrachloride	12	U
71-43-2	Benzene	12	U
107-06-2	1,2-Dichloroethane	12	U

1F
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

F0AD5

Lab Name: AATSLA Contract: 68-W0-0081

Lab Code: AATSLA Case No.: 29393 SAS No.: SDG No.: F0AD8

Matrix: (soil/water) SOIL Lab Sample ID: 50572.04

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 180B36.D

Level: (low/med) LOW Date Received: 06/15/01

% Moisture: not dec. 16 Date Analyzed: 06/30/01

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 1 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	18.29	17	J
2.					
3.					
4.					
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6.					
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1B
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

F0AD6

Lab Name: AATSLA Contract: 68-W0-0081

Lab Code: AATSLA Case No.: 29393 SAS No.: SDG No.: F0AD8

Matrix: (soil/water) SOIL Lab Sample ID: 50572.10

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 180B42.D

Level: (low/med) LOW Date Received: 06/15/01

% Moisture: not dec. 21 Date Analyzed: 06/30/01

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
79-01-6	Trichloroethene	13	U
108-87-2	Methylcyclohexane	13	U
78-87-5	1,2-Dichloropropane	13	U
75-27-4	Bromodichloromethane	13	U
10061-01-5	cis-1,3-Dichloropropene	13	U
108-10-1	4-Methyl-2-Pentanone	13	U
108-88-3	Toluene	13	U
10061-02-6	trans-1,3-Dichloropropene	13	U
79-00-5	1,1,2-Trichloroethane	13	U
127-18-4	Tetrachloroethene	13	U
591-78-6	2-Hexanone	13	U
124-48-1	Dibromochloromethane	13	U
106-93-4	1,2-Dibromoethane	13	U
108-90-7	Chlorobenzene	2	J
100-41-4	Ethylbenzene	13	U
1330-20-7	Xylene (total)	13	U
100-42-5	Styrene	13	U
75-25-2	Bromoform	13	U
98-82-8	Isopropylbenzene	13	U
79-34-5	1,1,2,2-Tetrachloroethane	13	U
541-73-1	1,3-Dichlorobenzene	13	U
106-46-7	1,4-Dichlorobenzene	13	U
95-50-1	1,2-Dichlorobenzene	13	U
96-12-8	1,2-Dibromo-3-chloropropane	13	U
120-82-1	1,2,4-Trichlorobenzene	13	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

F0AD7

Lab Name: AATSLA Contract: 68-W0-0081

Lab Code: AATSLA Case No.: 29393 SAS No.: SDG No.: F0AD8

Matrix: (soil/water) SOIL Lab Sample ID: 50572.05

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 180B37.D

Level: (low/med) LOW Date Received: 06/15/01

% Moisture: not dec. 11 Date Analyzed: 06/30/01

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-71-8	Dichlorodifluoromethane	11	U
74-87-3	Chloromethane	11	U
75-01-4	Vinyl Chloride	11	U
74-83-9	Bromomethane	11	U
75-00-3	Chloroethane	11	U
75-69-4	Trichlorofluoromethane	11	U
75-35-4	1,1-Dichloroethene	11	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	11	U
67-64-1	Acetone	8	J
75-15-0	Carbon Disulfide	11	U
79-20-9	Methyl Acetate	11	U
75-09-2	Methylene Chloride	8	BJ
156-60-5	trans-1,2-Dichloroethene	11	U
1634-04-4	Methyl tert-Butyl Ether	11	U
75-34-3	1,1-Dichloroethane	11	U
156-59-2	cis-1,2-Dichloroethene	11	U
78-93-3	2-Butanone	11	U
67-66-3	Chloroform	11	U
71-55-6	1,1,1-Trichloroethane	11	U
110-82-7	Cyclohexane	11	U
56-23-5	Carbon Tetrachloride	11	U
71-43-2	Benzene	11	U
107-06-2	1,2-Dichloroethane	11	U

1F
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

F0AD7

Lab Name: AATSLA Contract: 68-W0-0081

Lab Code: AATSLA Case No.: 29393 SAS No.: SDG No.: F0AD8

Matrix: (soil/water) SOIL Lab Sample ID: 50572.05

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 180B37.D

Level: (low/med) LOW Date Received: 06/15/01

% Moisture: not dec. 11 Date Analyzed: 06/30/01

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.					
2.					
3.					
4.					
5.					
6.					
7.					
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10.					
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1B
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

F0AD8

Lab Name: AATSLA Contract: 68-W0-0081

Lab Code: AATSLA Case No.: 29393 SAS No.: SDG No.: F0AD8

Matrix: (soil/water) SOIL Lab Sample ID: 50498.01

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 173A21.D

Level: (low/med) LOW Date Received: 06/13/01

% Moisture: not dec. 24 Date Analyzed: 06/22/01

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
79-01-6	Trichloroethene	13	U
108-87-2	Methylcyclohexane	13	U
78-87-5	1,2-Dichloropropane	13	U
75-27-4	Bromodichloromethane	13	U
10061-01-5	cis-1,3-Dichloropropene	13	U
108-10-1	4-Methyl-2-Pentanone	13	U
108-88-3	Toluene	13	U
10061-02-6	trans-1,3-Dichloropropene	13	U
79-00-5	1,1,2-Trichloroethane	13	U
127-18-4	Tetrachloroethene	13	U
591-78-6	2-Hexanone	13	U
124-48-1	Dibromochloromethane	13	U
106-93-4	1,2-Dibromoethane	13	U
108-90-7	Chlorobenzene	13	U
100-41-4	Ethylbenzene	13	U
1330-20-7	Xylene (total)	13	U
100-42-5	Styrene	13	U
75-25-2	Bromoform	13	U
98-82-8	Isopropylbenzene	13	U
79-34-5	1,1,2,2-Tetrachloroethane	13	U
541-73-1	1,3-Dichlorobenzene	13	U
106-46-7	1,4-Dichlorobenzene	13	U
95-50-1	1,2-Dichlorobenzene	13	U
96-12-8	1,2-Dibromo-3-chloropropane	13	U
120-82-1	1,2,4-Trichlorobenzene	13	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

F0AD9

Lab Name: AATSLA Contract: 68-W0-0081

Lab Code: AATSLA Case No.: 29393 SAS No.: SDG No.: F0AD8

Matrix: (soil/water) SOIL Lab Sample ID: 50498.04

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 173A22.D

Level: (low/med) LOW Date Received: 06/13/01

% Moisture: not dec. 35 Date Analyzed: 06/22/01

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-71-8	Dichlorodifluoromethane	16	U
74-87-3	Chloromethane	16	U
75-01-4	Vinyl Chloride	16	U
74-83-9	Bromomethane	16	U
75-00-3	Chloroethane	16	U
75-69-4	Trichlorofluoromethane	16	U
75-35-4	1,1-Dichloroethene	16	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	16	U
67-64-1	Acetone	56	B
75-15-0	Carbon Disulfide	2	J
79-20-9	Methyl Acetate	16	U
75-09-2	Methylene Chloride	13	BJ
156-60-5	trans-1,2-Dichloroethene	16	U
1634-04-4	Methyl tert-Butyl Ether	16	U
75-34-3	1,1-Dichloroethane	16	U
156-59-2	cis-1,2-Dichloroethene	16	U
78-93-3	2-Butanone	16	U
67-66-3	Chloroform	16	U
71-55-6	1,1,1-Trichloroethane	16	U
110-82-7	Cyclohexane	16	U
56-23-5	Carbon Tetrachloride	16	U
71-43-2	Benzene	16	U
107-06-2	1,2-Dichloroethane	16	U

1F
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

F0AD9

Lab Name: AATSLA Contract: 68-W0-0081

Lab Code: AATSLA Case No.: 29393 SAS No.: SDG No.: F0AD8

Matrix: (soil/water) SOIL Lab Sample ID: 50498.04

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 173A22.D

Level: (low/med) LOW Date Received: 06/13/01

% Moisture: not dec. 35 Date Analyzed: 06/22/01

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 2

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	14.14	13	BJ
2.		UNKNOWN	20.11	15	BJ
3.					
4.					
5.					
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1B
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

F0AE0

Lab Name: AATSLA Contract: 68-W0-0081

Lab Code: AATSLA Case No.: 29393 SAS No.: SDG No.: F0AD8

Matrix: (soil/water) SOIL Lab Sample ID: 50498.05

Sample wt/vol: 5.2 (g/mL) G Lab File ID: 173A23.D

Level: (low/med) LOW Date Received: 06/13/01

% Moisture: not dec. 25 Date Analyzed: 06/22/01

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
79-01-6	Trichloroethene	13	U
108-87-2	Methylcyclohexane	13	U
78-87-5	1,2-Dichloropropane	13	U
75-27-4	Bromodichloromethane	13	U
10061-01-5	cis-1,3-Dichloropropene	13	U
108-10-1	4-Methyl-2-Pentanone	13	U
108-88-3	Toluene	13	U
10061-02-6	trans-1,3-Dichloropropene	13	U
79-00-5	1,1,2-Trichloroethane	13	U
127-18-4	Tetrachloroethene	13	U
591-78-6	2-Hexanone	13	U
124-48-1	Dibromochloromethane	13	U
106-93-4	1,2-Dibromoethane	13	U
108-90-7	Chlorobenzene	73	
100-41-4	Ethylbenzene	13	U
1330-20-7	Xylene (total)	13	U
100-42-5	Styrene	13	U
75-25-2	Bromoform	13	U
98-82-8	Isopropylbenzene	13	U
79-34-5	1,1,2,2-Tetrachloroethane	13	U
541-73-1	1,3-Dichlorobenzene	4	J
106-46-7	1,4-Dichlorobenzene	2	J
95-50-1	1,2-Dichlorobenzene	13	U
96-12-8	1,2-Dibromo-3-chloropropane	13	U
120-82-1	1,2,4-Trichlorobenzene	13	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

F0AE1

Lab Name: AATSLA Contract: 68-W0-0081

Lab Code: AATSLA Case No.: 29393 SAS No.: SDG No.: F0AD8

Matrix: (soil/water) SOIL Lab Sample ID: 50498.06

Sample wt/vol: 5.1 (g/mL) G Lab File ID: 173A24.D

Level: (low/med) LOW Date Received: 06/13/01

% Moisture: not dec. 13 Date Analyzed: 06/22/01

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-71-8	Dichlorodifluoromethane	11	U
74-87-3	Chloromethane	11	U
75-01-4	Vinyl Chloride	11	U
74-83-9	Bromomethane	11	U
75-00-3	Chloroethane	11	U
75-69-4	Trichlorofluoromethane	11	U
75-35-4	1,1-Dichloroethene	11	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	11	U
67-64-1	Acetone	28	B
75-15-0	Carbon Disulfide	11	U
79-20-9	Methyl Acetate	11	U
75-09-2	Methylene Chloride	14	B
156-60-5	trans-1,2-Dichloroethene	11	U
1634-04-4	Methyl tert-Butyl Ether	11	U
75-34-3	1,1-Dichloroethane	11	U
156-59-2	cis-1,2-Dichloroethene	11	U
78-93-3	2-Butanone	11	U
67-66-3	Chloroform	11	U
71-55-6	1,1,1-Trichloroethane	11	U
110-82-7	Cyclohexane	11	U
56-23-5	Carbon Tetrachloride	11	U
71-43-2	Benzene	2	J
107-06-2	1,2-Dichloroethane	11	U

1F
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

F0AE1

Lab Name: AATSLA Contract: 68-W0-0081

Lab Code: AATSLA Case No.: 29393 SAS No.: SDG No.: F0AD8

Matrix: (soil/water) SOIL Lab Sample ID: 50498.06

Sample wt/vol: 5.1 (g/mL) G Lab File ID: 173A24.D

Level: (low/med) LOW Date Received: 06/13/01

% Moisture: not dec. 13 Date Analyzed: 06/22/01

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 2 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	420-56-4	SILANE, FLUOROTRIMETHYL-	2.70	16	JN
2.	108-70-3	BENZENE, 1,3,5-TRICHLORO-	17.30	25	JN
3.					
4.					
5.					
6.					
7.					
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28.					
29.					
30.					

1B
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

F0AE1DL

Lab Name: AATSLA Contract: 68-W0-0081

Lab Code: AATSLA Case No.: 29393 SAS No.: SDG No.: F0AD8

Matrix: (soil/water) SOIL Lab Sample ID: 50498.06DL

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 179B12.D

Level: (low/med) LOW Date Received: 06/13/01

% Moisture: not dec. 13 Date Analyzed: 06/28/01

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
79-01-6	Trichloroethene	11	U
108-87-2	Methylcyclohexane	11	U
78-87-5	1,2-Dichloropropane	11	U
75-27-4	Bromodichloromethane	11	U
10061-01-5	cis-1,3-Dichloropropene	11	U
108-10-1	4-Methyl-2-Pentanone	11	U
108-88-3	Toluene	11	U
10061-02-6	trans-1,3-Dichloropropene	11	U
79-00-5	1,1,2-Trichloroethane	11	U
127-18-4	Tetrachloroethene	11	U
591-78-6	2-Hexanone	11	U
124-48-1	Dibromochloromethane	11	U
106-93-4	1,2-Dibromoethane	11	U
108-90-7	Chlorobenzene	34	D
100-41-4	Ethylbenzene	11	U
1330-20-7	Xylene (total)	11	U
100-42-5	Styrene	11	U
75-25-2	Bromoform	11	U
98-82-8	Isopropylbenzene	11	U
79-34-5	1,1,2,2-Tetrachloroethane	11	U
541-73-1	1,3-Dichlorobenzene	6	DJ
106-46-7	1,4-Dichlorobenzene	11	U
95-50-1	1,2-Dichlorobenzene	4	DJ
96-12-8	1,2-Dibromo-3-chloropropane	11	U
120-82-1	1,2,4-Trichlorobenzene	14	D

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

F0AE2

Lab Name: AATSLA Contract: 68-W0-0081

Lab Code: AATSLA Case No.: 29393 SAS No.: SDG No.: F0AD8

Matrix: (soil/water) SOIL Lab Sample ID: 50498.07

Sample wt/vol: 6.3 (g/mL) G Lab File ID: 173A25.D

Level: (low/med) LOW Date Received: 06/13/01

% Moisture: not dec. 12 Date Analyzed: 06/22/01

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-71-8	Dichlorodifluoromethane	10	U
74-87-3	Chloromethane	10	U
75-01-4	Vinyl Chloride	10	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-69-4	Trichlorofluoromethane	1	J
75-35-4	1,1-Dichloroethene	10	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	10	U
67-64-1	Acetone	22	B
75-15-0	Carbon Disulfide	10	U
79-20-9	Methyl Acetate	10	U
75-09-2	Methylene Chloride	13	B
156-60-5	trans-1,2-Dichloroethene	10	U
1634-04-4	Methyl tert-Butyl Ether	10	U
75-34-3	1,1-Dichloroethane	10	U
156-59-2	cis-1,2-Dichloroethene	10	U
78-93-3	2-Butanone	10	U
67-66-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	10	U
110-82-7	Cyclohexane	10	U
56-23-5	Carbon Tetrachloride	10	U
71-43-2	Benzene	1	J
107-06-2	1,2-Dichloroethane	10	U

1F
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

F0AE2

Lab Name: AATSLA Contract: 68-W0-0081

Lab Code: AATSLA Case No.: 29393 SAS No.: SDG No.: F0AD8

Matrix: (soil/water) SOIL Lab Sample ID: 50498.07

Sample wt/vol: 6.3 (g/mL) G Lab File ID: 173A25.D

Level: (low/med) LOW Date Received: 06/13/01

% Moisture: not dec. 12 Date Analyzed: 06/22/01

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 2 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	2.05	91	J
2.	108-70-3	BENZENE, 1,3,5-TRICHLORO-	17.30	39	JN
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
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1B
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

F0AE2DL

Lab Name: AATSLA Contract: 68-W0-0081

Lab Code: AATSLA Case No.: 29393 SAS No.: SDG No.: F0AD8

Matrix: (soil/water) SOIL Lab Sample ID: 50498.07DL

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 179B11.D

Level: (low/med) LOW Date Received: 06/13/01

% Moisture: not dec. 12 Date Analyzed: 06/28/01

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
79-01-6	Trichloroethene	11	U
108-87-2	Methylcyclohexane	11	U
78-87-5	1,2-Dichloropropane	11	U
75-27-4	Bromodichloromethane	11	U
10061-01-5	cis-1,3-Dichloropropene	11	U
108-10-1	4-Methyl-2-Pentanone	11	U
108-88-3	Toluene	11	U
10061-02-6	trans-1,3-Dichloropropene	11	U
79-00-5	1,1,2-Trichloroethane	11	U
127-18-4	Tetrachloroethene	1	BDJ
591-78-6	2-Hexanone	11	U
124-48-1	Dibromochloromethane	11	U
106-93-4	1,2-Dibromoethane	11	U
108-90-7	Chlorobenzene	11	U
100-41-4	Ethylbenzene	11	U
1330-20-7	Xylene (total)	11	U
100-42-5	Styrene	11	U
75-25-2	Bromoform	11	U
98-82-8	Isopropylbenzene	11	U
79-34-5	1,1,2,2-Tetrachloroethane	11	U
541-73-1	1,3-Dichlorobenzene	11	U
106-46-7	1,4-Dichlorobenzene	11	U
95-50-1	1,2-Dichlorobenzene	11	U
96-12-8	1,2-Dibromo-3-chloropropane	11	U
120-82-1	1,2,4-Trichlorobenzene	3	DJ

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

F0AE3

Lab Name: AATSLA Contract: 68-W0-0081

Lab Code: AATSLA Case No.: 29393 SAS No.: SDG No.: F0AD8

Matrix: (soil/water) SOIL Lab Sample ID: 50572.15

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 181B07.D

Level: (low/med) LOW Date Received: 06/15/01

% Moisture: not dec. 19 Date Analyzed: 06/30/01

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-71-8	Dichlorodifluoromethane	12	U
74-87-3	Chloromethane	12	U
75-01-4	Vinyl Chloride	12	U
74-83-9	Bromomethane	12	U
75-00-3	Chloroethane	12	U
75-69-4	Trichlorofluoromethane	12	U
75-35-4	1,1-Dichloroethene	12	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	12	U
67-64-1	Acetone	9	J
75-15-0	Carbon Disulfide	12	U
79-20-9	Methyl Acetate	12	U
75-09-2	Methylene Chloride	4	BJ
156-60-5	trans-1,2-Dichloroethene	12	U
1634-04-4	Methyl tert-Butyl Ether	12	U
75-34-3	1,1-Dichloroethane	12	U
156-59-2	cis-1,2-Dichloroethene	12	U
78-93-3	2-Butanone	12	U
67-66-3	Chloroform	12	U
71-55-6	1,1,1-Trichloroethane	12	U
110-82-7	Cyclohexane	12	U
56-23-5	Carbon Tetrachloride	12	U
71-43-2	Benzene	2	J
107-06-2	1,2-Dichloroethane	12	U

1F
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

F0AE3

Lab Name: AATSLA Contract: 68-W0-0081

Lab Code: AATSLA Case No.: 29393 SAS No.: SDG No.: F0AD8

Matrix: (soil/water) SOIL Lab Sample ID: 50572.15

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 181B07.D

Level: (low/med) LOW Date Received: 06/15/01

% Moisture: not dec. 19 Date Analyzed: 06/30/01

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 5 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	14.37	6	J
2.	95-72-7	BENZENE, 2-CHLORO-1,4-DIMETH	15.00	7	JN
3.		UNKNOWN	17.35	11	J
4.		UNKNOWN	18.43	16	J
5.		UNKNOWN	18.76	7	J
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1D
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

F0AC4

Lab Name: AATSLA Contract: 68-W0-0081

Lab Code: AATSLA Case No.: 29393 SAS No.: SDG No.: F0AD8

Matrix: (soil/water) SOIL Lab Sample ID: 50572.01

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 179F18.D

Level: (low/med) LOW Date Received: 06/15/01

% Moisture: 19 decanted: (Y/N) N Date Extracted: 06/19/01

Concentrated Extract Volume: 500 (uL) Date Analyzed: 06/28/01

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.6 Extraction: (Type) SONC

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	1000	U
100-02-7	4-Nitrophenol	1000	U
132-64-9	Dibenzofuran	410	U
121-14-2	2,4-Dinitrotoluene	410	U
84-66-2	Diethylphthalate	410	U
86-73-7	Fluorene	410	U
7005-72-3	4-Chlorophenyl-phenylether	410	U
100-01-6	4-Nitroaniline	1000	U
534-52-1	4,6-Dinitro-2-methylphenol	1000	U
86-30-6	N-Nitrosodiphenylamine (1)	410	U
101-55-3	4-Bromophenyl-phenylether	410	U
118-74-1	Hexachlorobenzene	410	U
1912-24-9	Atrazine	410	U
87-86-5	Pentachlorophenol	1000	U
85-01-8	Phenanthrene	410	U
120-12-7	Anthracene	410	U
86-74-8	Carbazole	410	U
84-74-2	Di-n-butylphthalate	410	U
206-44-0	Fluoranthene	62	J
129-00-0	Pyrene	68	J
85-68-7	Butylbenzylphthalate	410	U
91-94-1	3,3'-Dichlorobenzidine	410	U
56-55-3	Benzo(a)anthracene	410	U
218-01-9	Chrysene	49	J
117-81-7	bis(2-Ethylhexyl)phthalate	140	J
117-84-0	Di-n-octylphthalate	410	U
205-99-2	Benzo(b)fluoranthene	410	U
207-08-9	Benzo(k)fluoranthene	41	J
50-32-8	Benzo(a)pyrene	410	U
193-39-5	Indeno(1,2,3-cd)pyrene	410	U
53-70-3	Dibenz(a,h)anthracene	410	U
191-24-2	Benzo(g,h,i)perylene	410	U

(1) Cannot be seperated from Diphenylamine

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

F0AC5

Lab Name: AATSLA Contract: 68-W0-0081

Lab Code: AATSLA Case No.: 29393 SAS No.: SDG No.: F0AD8

Matrix: (soil/water) SOIL Lab Sample ID: 50572.02

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 179F19.D

Level: (low/med) LOW Date Received: 06/15/01

% Moisture: 17 decanted: (Y/N) N Date Extracted: 06/19/01

Concentrated Extract Volume: 500 (uL) Date Analyzed: 06/28/01

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.7 Extraction: (Type) SONC

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
100-52-7	Benzaldehyde	400	U
108-95-2	Phenol	400	U
111-44-4	bis(2-Chloroethyl)ether	400	U
95-57-8	2-Chlorophenol	400	U
95-48-7	2-Methylphenol	400	U
108-60-1	2,2'-oxybis(1-Chloropropane)	400	U
98-86-2	Acetophenone	400	U
106-44-5	4-Methylphenol	400	U
621-64-7	N-Nitroso-di-n-propylamine	400	U
67-72-1	Hexachloroethane	400	U
98-95-3	Nitrobenzene	400	U
78-59-1	Isophorone	400	U
88-75-5	2-Nitrophenol	400	U
105-67-9	2,4-Dimethylphenol	400	U
111-91-1	bis(2-Chloroethoxy)methane	400	U
120-83-2	2,4-Dichlorophenol	400	U
91-20-3	Naphthalene	400	U
106-47-8	4-Chloroaniline	400	U
87-68-3	Hexachlorobutadiene	400	U
105-60-2	Caprolactam	400	U
59-50-7	4-Chloro-3-methylphenol	400	U
91-57-6	2-Methylnaphthalene	400	U
77-47-4	Hexachlorocyclopentadiene	400	U
88-06-2	2,4,6-Trichlorophenol	400	U
95-95-4	2,4,5-Trichlorophenol	1000	U
92-52-4	1,1'-Biphenyl	400	U
91-58-7	2-Chloronaphthalene	400	U
88-74-4	2-Nitroaniline	1000	U
131-11-3	Dimethylphthalate	400	U
606-20-2	2,6-Dinitrotoluene	400	U
208-96-8	Acenaphthylene	400	U
99-09-2	3-Nitroaniline	1000	U
83-32-9	Acenaphthene	400	U

1G
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

F0AC5

Lab Name: AATSLA Contract: 68-W0-0081

Lab Code: AATSLA Case No.: 29393 SAS No.: SDG No.: F0AD8

Matrix: (soil/water) SOIL Lab Sample ID: 50572.02

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 179F19.D

Level: (low/med) LOW Date Received: 06/15/01

% Moisture: 17 decanted: (Y/N) N Date Extracted: 06/19/01

Concentrated Extract Volume: 500 (uL) Date Analyzed: 06/28/01

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.7 Extraction: (Type) SONC

Number TICs found: 5

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	2.69	130	J
2.		UNKNOWN	2.84	370	J
3.		UNKNOWN	3.77	130	J
4.		UNKNOWN	11.55	86	J
5.		UNKNOWN	17.08	140	J
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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

F0AC6

Lab Name: AATSLA Contract: 68-W0-0081

Lab Code: AATSLA Case No.: 29393 SAS No.: SDG No.: F0AD8

Matrix: (soil/water) SOIL Lab Sample ID: 50572.03

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 179F20.D

Level: (low/med) LOW Date Received: 06/15/01

% Moisture: 13 decanted: (Y/N) N Date Extracted: 06/19/01

Concentrated Extract Volume: 500 (uL) Date Analyzed: 06/28/01

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.8 Extraction: (Type) SONC

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	950	U
100-02-7	4-Nitrophenol	950	U
132-64-9	Dibenzofuran	380	U
121-14-2	2,4-Dinitrotoluene	380	U
84-66-2	Diethylphthalate	380	U
86-73-7	Fluorene	380	U
7005-72-3	4-Chlorophenyl-phenylether	380	U
100-01-6	4-Nitroaniline	950	U
534-52-1	4,6-Dinitro-2-methylphenol	950	U
86-30-6	N-Nitrosodiphenylamine (1)	380	U
101-55-3	4-Bromophenyl-phenylether	380	U
118-74-1	Hexachlorobenzene	380	U
1912-24-9	Atrazine	380	U
87-86-5	Pentachlorophenol	950	U
85-01-8	Phenanthrene	380	U
120-12-7	Anthracene	380	U
86-74-8	Carbazole	380	U
84-74-2	Di-n-butylphthalate	380	U
206-44-0	Fluoranthene	150	J
129-00-0	Pyrene	130	J
85-68-7	Butylbenzylphthalate	380	U
91-94-1	3,3'-Dichlorobenzidine	380	U
56-55-3	Benzo(a)anthracene	96	J
218-01-9	Chrysene	230	J
117-81-7	bis(2-Ethylhexyl)phthalate	87	J
117-84-0	Di-n-octylphthalate	380	U
205-99-2	Benzo(b)fluoranthene	310	J
207-08-9	Benzo(k)fluoranthene	280	J
50-32-8	Benzo(a)pyrene	190	J
193-39-5	Indeno(1,2,3-cd)pyrene	97	J
53-70-3	Dibenz(a,h)anthracene	380	U
191-24-2	Benzo(g,h,i)perylene	91	J

(1) Cannot be seperated from Diphenylamine

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

F0AC7

Lab Name: AATSLA Contract: 68-W0-0081

Lab Code: AATSLA Case No.: 29393 SAS No.: SDG No.: F0AD8

Matrix: (soil/water) SOIL Lab Sample ID: 50572.11

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 180F09.D

Level: (low/med) LOW Date Received: 06/15/01

% Moisture: 12 decanted: (Y/N) N Date Extracted: 06/19/01

Concentrated Extract Volume: 500 (uL) Date Analyzed: 06/29/01

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.9 Extraction: (Type) SONC

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
100-52-7	Benzaldehyde	380	U
108-95-2	Phenol	380	U
111-44-4	bis(2-Chloroethyl)ether	380	U
95-57-8	2-Chlorophenol	380	U
95-48-7	2-Methylphenol	380	U
108-60-1	2,2'-oxybis(1-Chloropropane)	380	U
98-86-2	Acetophenone	380	U
106-44-5	4-Methylphenol	380	U
621-64-7	N-Nitroso-di-n-propylamine	380	U
67-72-1	Hexachloroethane	380	U
98-95-3	Nitrobenzene	380	U
78-59-1	Isophorone	380	U
88-75-5	2-Nitrophenol	380	U
105-67-9	2,4-Dimethylphenol	380	U
111-91-1	bis(2-Chloroethoxy)methane	380	U
120-83-2	2,4-Dichlorophenol	380	U
91-20-3	Naphthalene	380	U
106-47-8	4-Chloroaniline	380	U
87-68-3	Hexachlorobutadiene	380	U
105-60-2	Caprolactam	380	U
59-50-7	4-Chloro-3-methylphenol	380	U
91-57-6	2-Methylnaphthalene	380	U
77-47-4	Hexachlorocyclopentadiene	380	U
88-06-2	2,4,6-Trichlorophenol	380	U
95-95-4	2,4,5-Trichlorophenol	940	U
92-52-4	1,1'-Biphenyl	380	U
91-58-7	2-Chloronaphthalene	380	U
88-74-4	2-Nitroaniline	940	U
131-11-3	Dimethylphthalate	380	U
606-20-2	2,6-Dinitrotoluene	380	U
208-96-8	Acenaphthylene	380	U
99-09-2	3-Nitroaniline	940	U
83-32-9	Acenaphthene	380	U

1G
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

F0AC7

Lab Name: AATSLA Contract: 68-W0-0081

Lab Code: AATSLA Case No.: 29393 SAS No.: SDG No.: F0AD8

Matrix: (soil/water) SOIL Lab Sample ID: 50572.11

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 180F09.D

Level: (low/med) LOW Date Received: 06/15/01

% Moisture: 12 decanted: (Y/N) N Date Extracted: 06/19/01

Concentrated Extract Volume: 500 (uL) Date Analyzed: 06/29/01

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.9 Extraction: (Type) SONC

Number TICs found: 9

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	2.68	170	J
2.		UNKNOWN	2.83	400	J
3.	541-02-6	CYCLOPENTASILOXANE, DECAMETH	3.76	140	JN
4.	2091-29-4	9-HEXADECENOIC ACID	8.51	170	JN
5.	57-10-3	HEXADECANOIC ACID	8.61	350	JN
6.		UNKNOWN	9.57	120	J
7.		UNKNOWN	10.91	230	J
8.		UNKNOWN	12.73	110	J
9.		UNKNOWN	14.20	130	J
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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

F0AC8

Lab Name: AATSLA Contract: 68-W0-0081

Lab Code: AATSLA Case No.: 29393 SAS No.: SDG No.: F0AD8

Matrix: (soil/water) SOIL Lab Sample ID: 50572.12

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 180F16.D

Level: (low/med) LOW Date Received: 06/15/01

% Moisture: 13 decanted: (Y/N) N Date Extracted: 06/19/01

Concentrated Extract Volume: 500 (uL) Date Analyzed: 06/29/01

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.2 Extraction: (Type) SONC

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	950	U
100-02-7	4-Nitrophenol	950	U
132-64-9	Dibenzofuran	380	U
121-14-2	2,4-Dinitrotoluene	380	U
84-66-2	Diethylphthalate	380	U
86-73-7	Fluorene	380	U
7005-72-3	4-Chlorophenyl-phenylether	380	U
100-01-6	4-Nitroaniline	950	U
534-52-1	4,6-Dinitro-2-methylphenol	950	U
86-30-6	N-Nitrosodiphenylamine (1)	380	U
101-55-3	4-Bromophenyl-phenylether	380	U
118-74-1	Hexachlorobenzene	380	U
1912-24-9	Atrazine	380	U
87-86-5	Pentachlorophenol	950	U
85-01-8	Phenanthrene	44	J
120-12-7	Anthracene	380	U
86-74-8	Carbazole	380	U
84-74-2	Di-n-butylphthalate	380	U
206-44-0	Fluoranthene	84	J
129-00-0	Pyrene	88	J
85-68-7	Butylbenzylphthalate	380	U
91-94-1	3,3'-Dichlorobenzidine	380	U
56-55-3	Benzo(a)anthracene	380	U
218-01-9	Chrysene	47	J
117-81-7	bis(2-Ethylhexyl)phthalate	130	J
117-84-0	Di-n-octylphthalate	380	U
205-99-2	Benzo(b)fluoranthene	49	J
207-08-9	Benzo(k)fluoranthene	380	U
50-32-8	Benzo(a)pyrene	39	J
193-39-5	Indeno(1,2,3-cd)pyrene	380	U
53-70-3	Dibenz(a,h)anthracene	380	U
191-24-2	Benzo(g,h,i)perylene	100	J

(1) Cannot be seperated from Diphenylamine

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

F0AC9

Lab Name: AATSLA Contract: 68-W0-0081

Lab Code: AATSLA Case No.: 29393 SAS No.: SDG No.: F0AD8

Matrix: (soil/water) SOIL Lab Sample ID: 50572.06

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 180F04.D

Level: (low/med) LOW Date Received: 06/15/01

% Moisture: 29 decanted: (Y/N) N Date Extracted: 06/19/01

Concentrated Extract Volume: 500 (uL) Date Analyzed: 06/29/01

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.3 Extraction: (Type) SONC

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
100-52-7	Benzaldehyde	460	U
108-95-2	Phenol	460	U
111-44-4	bis(2-Chloroethyl)ether	460	U
95-57-8	2-Chlorophenol	460	U
95-48-7	2-Methylphenol	460	U
108-60-1	2,2'-oxybis(1-Chloropropane)	460	U
98-86-2	Acetophenone	460	U
106-44-5	4-Methylphenol	460	U
621-64-7	N-Nitroso-di-n-propylamine	460	U
67-72-1	Hexachloroethane	460	U
98-95-3	Nitrobenzene	460	U
78-59-1	Isophorone	460	U
88-75-5	2-Nitrophenol	460	U
105-67-9	2,4-Dimethylphenol	460	U
111-91-1	bis(2-Chloroethoxy)methane	460	U
120-83-2	2,4-Dichlorophenol	460	U
91-20-3	Naphthalene	460	U
106-47-8	4-Chloroaniline	460	U
87-68-3	Hexachlorobutadiene	460	U
105-60-2	Caprolactam	460	U
59-50-7	4-Chloro-3-methylphenol	460	U
91-57-6	2-Methylnaphthalene	460	U
77-47-4	Hexachlorocyclopentadiene	460	U
88-06-2	2,4,6-Trichlorophenol	460	U
95-95-4	2,4,5-Trichlorophenol	1200	U
92-52-4	1,1'-Biphenyl	460	U
91-58-7	2-Chloronaphthalene	460	U
88-74-4	2-Nitroaniline	1200	U
131-11-3	Dimethylphthalate	460	U
606-20-2	2,6-Dinitrotoluene	460	U
208-96-8	Acenaphthylene	460	U
99-09-2	3-Nitroaniline	1200	U
83-32-9	Acenaphthene	460	U

1G
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

F0AC9

Lab Name: AATSLA Contract: 68-W0-0081

Lab Code: AATSLA Case No.: 29393 SAS No.: SDG No.: F0AD8

Matrix: (soil/water) SOIL Lab Sample ID: 50572.06

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 180F04.D

Level: (low/med) LOW Date Received: 06/15/01

% Moisture: 29 decanted: (Y/N) N Date Extracted: 06/19/01

Concentrated Extract Volume: 500 (uL) Date Analyzed: 06/29/01

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.3 Extraction: (Type) SONC

Number TICs found: 13

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	2.84	260	J
2.		UNKNOWN	3.76	130	J
3.	95-16-9	BENZOTHIAZOLE	4.35	190	JN
4.		UNKNOWN	4.71	120	J
5.		UNKNOWN	5.41	140	J
6.		DECAHYDRO-4,4,8,9,10-PENTAME	5.57	140	JN
7.		DECAHYDRO-4,4,8,9,10-PENTAME	5.80	220	JN
8.	3586-14-9	BENZENE, 1-METHYL-3-PHENOXY-	5.99	2000	JN
9.	57-10-3	HEXADECANOIC ACID	8.61	130	JN
10.		UNKNOWN	10.08	230	J
11.		UNKNOWN	10.93	390	J
12.		UNKNOWN	14.01	940	J
13.		UNKNOWN	14.43	1000	J
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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

F0AD0

Lab Name: AATSLA Contract: 68-W0-0081

Lab Code: AATSLA Case No.: 29393 SAS No.: SDG No.: F0AD8

Matrix: (soil/water) SOIL Lab Sample ID: 50572.07

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 180F05.D

Level: (low/med) LOW Date Received: 06/15/01

% Moisture: 27 decanted: (Y/N) N Date Extracted: 06/19/01

Concentrated Extract Volume: 500 (uL) Date Analyzed: 06/29/01

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.2 Extraction: (Type) SONC

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	1100	U
100-02-7	4-Nitrophenol	1100	U
132-64-9	Dibenzofuran	450	U
121-14-2	2,4-Dinitrotoluene	450	U
84-66-2	Diethylphthalate	450	U
86-73-7	Fluorene	450	U
7005-72-3	4-Chlorophenyl-phenylether	450	U
100-01-6	4-Nitroaniline	1100	U
534-52-1	4,6-Dinitro-2-methylphenol	1100	U
86-30-6	N-Nitrosodiphenylamine (1)	450	U
101-55-3	4-Bromophenyl-phenylether	450	U
118-74-1	Hexachlorobenzene	450	U
1912-24-9	Atrazine	450	U
87-86-5	Pentachlorophenol	1100	U
85-01-8	Phenanthrene	450	U
120-12-7	Anthracene	450	U
86-74-8	Carbazole	450	U
84-74-2	Di-n-butylphthalate	450	U
206-44-0	Fluoranthene	280	J
129-00-0	Pyrene	200	J
85-68-7	Butylbenzylphthalate	450	U
91-94-1	3,3'-Dichlorobenzidine	450	U
56-55-3	Benzo(a)anthracene	74	J
218-01-9	Chrysene	130	J
117-81-7	bis(2-Ethylhexyl)phthalate	550	
117-84-0	Di-n-octylphthalate	450	U
205-99-2	Benzo(b)fluoranthene	170	J
207-08-9	Benzo(k)fluoranthene	100	J
50-32-8	Benzo(a)pyrene	92	J
193-39-5	Indeno(1,2,3-cd)pyrene	450	U
53-70-3	Dibenz(a,h)anthracene	450	U
191-24-2	Benzo(g,h,i)perylene	450	U

(1) Cannot be seperated from Diphenylamine

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

F0AD1

Lab Name: AATSLA Contract: 68-W0-0081

Lab Code: AATSLA Case No.: 29393 SAS No.: SDG No.: F0AD8

Matrix: (soil/water) SOIL Lab Sample ID: 50572.08

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 180F06.D

Level: (low/med) LOW Date Received: 06/15/01

% Moisture: 19 decanted: (Y/N) N Date Extracted: 06/19/01

Concentrated Extract Volume: 500 (uL) Date Analyzed: 06/29/01

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.1 Extraction: (Type) SONC

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
100-52-7	Benzaldehyde	410	U
108-95-2	Phenol	410	U
111-44-4	bis(2-Chloroethyl)ether	410	U
95-57-8	2-Chlorophenol	410	U
95-48-7	2-Methylphenol	410	U
108-60-1	2,2'-oxybis(1-Chloropropane)	410	U
98-86-2	Acetophenone	410	U
106-44-5	4-Methylphenol	410	U
621-64-7	N-Nitroso-di-n-propylamine	410	U
67-72-1	Hexachloroethane	410	U
98-95-3	Nitrobenzene	410	U
78-59-1	Isophorone	410	U
88-75-5	2-Nitrophenol	410	U
105-67-9	2,4-Dimethylphenol	410	U
111-91-1	bis(2-Chloroethoxy)methane	410	U
120-83-2	2,4-Dichlorophenol	410	U
91-20-3	Naphthalene	410	U
106-47-8	4-Chloroaniline	410	U
87-68-3	Hexachlorobutadiene	410	U
105-60-2	Caprolactam	410	U
59-50-7	4-Chloro-3-methylphenol	410	U
91-57-6	2-Methylnaphthalene	410	U
77-47-4	Hexachlorocyclopentadiene	410	U
88-06-2	2,4,6-Trichlorophenol	410	U
95-95-4	2,4,5-Trichlorophenol	1000	U
92-52-4	1,1'-Biphenyl	410	U
91-58-7	2-Chloronaphthalene	410	U
88-74-4	2-Nitroaniline	1000	U
131-11-3	Dimethylphthalate	410	U
606-20-2	2,6-Dinitrotoluene	410	U
208-96-8	Acenaphthylene	410	U
99-09-2	3-Nitroaniline	1000	U
83-32-9	Acenaphthene	410	U

1G
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

F0AD1

Lab Name: AATSLA Contract: 68-W0-0081

Lab Code: AATSLA Case No.: 29393 SAS No.: SDG No.: F0AD8

Matrix: (soil/water) SOIL Lab Sample ID: 50572.08

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 180F06.D

Level: (low/med) LOW Date Received: 06/15/01

% Moisture: 19 decanted: (Y/N) N Date Extracted: 06/19/01

Concentrated Extract Volume: 500 (uL) Date Analyzed: 06/29/01

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.1 Extraction: (Type) SONC

Number TICs found: 14

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	2.84	150	J
2.		UNKNOWN	3.76	140	J
3.		UNKNOWN	5.41	90	J
4.		UNKNOWN	5.98	200	J
5.	544-63-8	TETRADECANOIC ACID	8.60	96	JN
6.	53-19-0	MITOTANE	10.07	140	JN
7.	72-54-8	1,1-DICHLORO-2,2-BIS(P-CHLOR	10.42	710	JN
8.	789-02-6	O,P'-DDT	10.47	530	JN
9.	72-54-8	1,1-DICHLORO-2,2-BIS(P-CHLOR	10.83	3900	JN
10.		UNKNOWN	10.92	140	J
11.		UNKNOWN	12.20	160	J
12.		UNKNOWN	13.99	140	J
13.		UNKNOWN	14.41	190	J
14.		UNKNOWN	17.06	110	J
15.					
16.					
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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

F0AD2

Lab Name: AATSLA Contract: 68-W0-0081

Lab Code: AATSLA Case No.: 29393 SAS No.: SDG No.: F0AD8

Matrix: (soil/water) SOIL Lab Sample ID: 50572.13

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 180F11.D

Level: (low/med) LOW Date Received: 06/15/01

% Moisture: 12 decanted: (Y/N) N Date Extracted: 06/19/01

Concentrated Extract Volume: 500 (uL) Date Analyzed: 06/29/01

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.8 Extraction: (Type) SONC

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	940	U
100-02-7	4-Nitrophenol	940	U
132-64-9	Dibenzofuran	380	U
121-14-2	2,4-Dinitrotoluene	380	U
84-66-2	Diethylphthalate	380	U
86-73-7	Fluorene	380	U
7005-72-3	4-Chlorophenyl-phenylether	380	U
100-01-6	4-Nitroaniline	940	U
534-52-1	4,6-Dinitro-2-methylphenol	940	U
86-30-6	N-Nitrosodiphenylamine (1)	380	U
101-55-3	4-Bromophenyl-phenylether	380	U
118-74-1	Hexachlorobenzene	180	J
1912-24-9	Atrazine	380	U
87-86-5	Pentachlorophenol	940	U
85-01-8	Phenanthrene	380	U
120-12-7	Anthracene	380	U
86-74-8	Carbazole	380	U
84-74-2	Di-n-butylphthalate	380	U
206-44-0	Fluoranthene	51	J
129-00-0	Pyrene	44	J
85-68-7	Butylbenzylphthalate	380	U
91-94-1	3,3'-Dichlorobenzidine	380	U
56-55-3	Benzo(a)anthracene	380	U
218-01-9	Chrysene	380	U
117-81-7	bis(2-Ethylhexyl)phthalate	52	J
117-84-0	Di-n-octylphthalate	380	U
205-99-2	Benzo(b)fluoranthene	380	U
207-08-9	Benzo(k)fluoranthene	380	U
50-32-8	Benzo(a)pyrene	380	U
193-39-5	Indeno(1,2,3-cd)pyrene	380	U
53-70-3	Dibenz(a,h)anthracene	380	U
191-24-2	Benzo(g,h,i)perylene	380	U

(1) Cannot be seperated from Diphenylamine

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

F0AD3

Lab Name: AATSLA Contract: 68-W0-0081

Lab Code: AATSLA Case No.: 29393 SAS No.: SDG No.: F0AD8

Matrix: (soil/water) SOIL Lab Sample ID: 50572.09

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 180F07.D

Level: (low/med) LOW Date Received: 06/15/01

% Moisture: 21 decanted: (Y/N) N Date Extracted: 06/19/01

Concentrated Extract Volume: 500 (uL) Date Analyzed: 06/29/01

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.0 Extraction: (Type) SONC

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
100-52-7	Benzaldehyde	420	U
108-95-2	Phenol	420	U
111-44-4	bis(2-Chloroethyl)ether	420	U
95-57-8	2-Chlorophenol	420	U
95-48-7	2-Methylphenol	420	U
108-60-1	2,2'-oxybis(1-Chloropropane)	420	U
98-86-2	Acetophenone	420	U
106-44-5	4-Methylphenol	420	U
621-64-7	N-Nitroso-di-n-propylamine	420	U
67-72-1	Hexachloroethane	420	U
98-95-3	Nitrobenzene	420	U
78-59-1	Isophorone	420	U
88-75-5	2-Nitrophenol	420	U
105-67-9	2,4-Dimethylphenol	420	U
111-91-1	bis(2-Chloroethoxy)methane	420	U
120-83-2	2,4-Dichlorophenol	420	U
91-20-3	Naphthalene	420	U
106-47-8	4-Chloroaniline	420	U
87-68-3	Hexachlorobutadiene	420	U
105-60-2	Caprolactam	420	U
59-50-7	4-Chloro-3-methylphenol	420	U
91-57-6	2-Methylnaphthalene	420	U
77-47-4	Hexachlorocyclopentadiene	420	U
88-06-2	2,4,6-Trichlorophenol	420	U
95-95-4	2,4,5-Trichlorophenol	1100	U
92-52-4	1,1'-Biphenyl	420	U
91-58-7	2-Chloronaphthalene	420	U
88-74-4	2-Nitroaniline	1100	U
131-11-3	Dimethylphthalate	420	U
606-20-2	2,6-Dinitrotoluene	420	U
208-96-8	Acenaphthylene	420	U
99-09-2	3-Nitroaniline	1100	U
83-32-9	Acenaphthene	420	U

1G
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

F0AD3

Lab Name: AATSLA Contract: 68-W0-0081

Lab Code: AATSLA Case No.: 29393 SAS No.: SDG No.: F0AD8

Matrix: (soil/water) SOIL Lab Sample ID: 50572.09

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 180F07.D

Level: (low/med) LOW Date Received: 06/15/01

% Moisture: 21 decanted: (Y/N) N Date Extracted: 06/19/01

Concentrated Extract Volume: 500 (uL) Date Analyzed: 06/29/01

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.0 Extraction: (Type) SONC

Number TICs found: 18

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	2.84	160	J
2. 95-16-9	BENZOTHIAZOLE	4.34	100	JN
3.	UNKNOWN	5.63	110	J
4.	UNKNOWN	5.98	100	J
5. 101-76-8	BENZENE, 1,1'-METHYLENEBIS[4	8.21	170	JN
6. 2642-80-0	1-CHLORO-2,2-BIS(P-CHLOROPHE	9.51	120	JN
7. 1022-22-6	DDMU	9.57	180	JN
8.	UNKNOWN	9.83	230	J
9. 53-19-0	MITOTANE	10.07	260	JN
10. 72-54-8	1,1-DICHLORO-2,2-BIS(P-CHLOR	10.42	940	JN
11. 50-29-3	CHLOROPHENOTHANE	10.82	720	JN
12.	UNKNOWN	10.86	230	J
13.	UNKNOWN	10.92	360	J
14.	UNKNOWN	12.10	220	J
15.	UNKNOWN	12.21	270	J
16.	UNKNOWN	13.99	130	J
17.	UNKNOWN	14.40	180	J
18. 14021-23-9	D-FRIEDOOLEAN-14-ENE, 3-METH	14.92	210	JN
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1D
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

F0AD4

Lab Name: AATSLA Contract: 68-W0-0081

Lab Code: AATSLA Case No.: 29393 SAS No.: SDG No.: F0AD8

Matrix: (soil/water) SOIL Lab Sample ID: 50572.14

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 180F12.D

Level: (low/med) LOW Date Received: 06/15/01

% Moisture: 17 decanted: (Y/N) N Date Extracted: 06/19/01

Concentrated Extract Volume: 500 (uL) Date Analyzed: 06/29/01

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.7 Extraction: (Type) SONC

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	1000	U
100-02-7	4-Nitrophenol	1000	U
132-64-9	Dibenzofuran	400	U
121-14-2	2,4-Dinitrotoluene	400	U
84-66-2	Diethylphthalate	400	U
86-73-7	Fluorene	400	U
7005-72-3	4-Chlorophenyl-phenylether	400	U
100-01-6	4-Nitroaniline	1000	U
534-52-1	4,6-Dinitro-2-methylphenol	1000	U
86-30-6	N-Nitrosodiphenylamine (1)	400	U
101-55-3	4-Bromophenyl-phenylether	400	U
118-74-1	Hexachlorobenzene	1200	
1912-24-9	Atrazine	400	U
87-86-5	Pentachlorophenol	1000	U
85-01-8	Phenanthrene	75	J
120-12-7	Anthracene	110	J
86-74-8	Carbazole	400	U
84-74-2	Di-n-butylphthalate	400	U
206-44-0	Fluoranthene	71	J
129-00-0	Pyrene	63	J
85-68-7	Butylbenzylphthalate	400	U
91-94-1	3,3'-Dichlorobenzidine	400	U
56-55-3	Benzo(a)anthracene	400	U
218-01-9	Chrysene	400	U
117-81-7	bis(2-Ethylhexyl)phthalate	120	J
117-84-0	Di-n-octylphthalate	400	U
205-99-2	Benzo(b)fluoranthene	400	U
207-08-9	Benzo(k)fluoranthene	400	U
50-32-8	Benzo(a)pyrene	400	U
193-39-5	Indeno(1,2,3-cd)pyrene	400	U
53-70-3	Dibenz(a,h)anthracene	400	U
191-24-2	Benzo(g,h,i)perylene	400	U

(1) Cannot be seperated from Diphenylamine

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

F0AD5

Lab Name: AATSLA Contract: 68-W0-0081

Lab Code: AATSLA Case No.: 29393 SAS No.: SDG No.: F0AD8

Matrix: (soil/water) SOIL Lab Sample ID: 50572.04

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 179F21.D

Level: (low/med) LOW Date Received: 06/15/01

% Moisture: 16 decanted: (Y/N) N Date Extracted: 06/19/01

Concentrated Extract Volume: 500 (uL) Date Analyzed: 06/28/01

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.6 Extraction: (Type) SONC

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
100-52-7	Benzaldehyde	390	U
108-95-2	Phenol	390	U
111-44-4	bis(2-Chloroethyl)ether	390	U
95-57-8	2-Chlorophenol	390	U
95-48-7	2-Methylphenol	390	U
108-60-1	2,2'-oxybis(1-Chloropropane)	390	U
98-86-2	Acetophenone	390	U
106-44-5	4-Methylphenol	390	U
621-64-7	N-Nitroso-di-n-propylamine	390	U
67-72-1	Hexachloroethane	390	U
98-95-3	Nitrobenzene	390	U
78-59-1	Isophorone	390	U
88-75-5	2-Nitrophenol	390	U
105-67-9	2,4-Dimethylphenol	390	U
111-91-1	bis(2-Chloroethoxy)methane	390	U
120-83-2	2,4-Dichlorophenol	390	U
91-20-3	Naphthalene	390	U
106-47-8	4-Chloroaniline	390	U
87-68-3	Hexachlorobutadiene	390	U
105-60-2	Caprolactam	390	U
59-50-7	4-Chloro-3-methylphenol	390	U
91-57-6	2-Methylnaphthalene	42	J
77-47-4	Hexachlorocyclopentadiene	390	U
88-06-2	2,4,6-Trichlorophenol	390	U
95-95-4	2,4,5-Trichlorophenol	990	U
92-52-4	1,1'-Biphenyl	390	U
91-58-7	2-Chloronaphthalene	390	U
88-74-4	2-Nitroaniline	990	U
131-11-3	Dimethylphthalate	390	U
606-20-2	2,6-Dinitrotoluene	390	U
208-96-8	Acenaphthylene	390	U
99-09-2	3-Nitroaniline	990	U
83-32-9	Acenaphthene	390	U

1G
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

F0AD5

Lab Name: AATSLA Contract: 68-W0-0081

Lab Code: AATSLA Case No.: 29393 SAS No.: SDG No.: F0AD8

Matrix: (soil/water) SOIL Lab Sample ID: 50572.04

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 179F21.D

Level: (low/med) LOW Date Received: 06/15/01

% Moisture: 16 decanted: (Y/N) N Date Extracted: 06/19/01

Concentrated Extract Volume: 500 (uL) Date Analyzed: 06/28/01

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.6 Extraction: (Type) SONC

Number TICs found: 25

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	2.69	150	J
2.		UNKNOWN	2.85	550	J
3.		UNKNOWN	2.89	110	J
4.		UNKNOWN	3.77	150	J
5.	95-16-9	BENZOTHIAZOLE	4.36	120	JN
6.		UNKNOWN	4.69	300	J
7.		UNKNOWN	4.82	190	J
8.		UNKNOWN	4.89	81	J
9.		UNKNOWN	4.95	120	J
10.		UNKNOWN	5.06	85	J
11.		UNKNOWN	5.42	200	J
12.	581-42-0	NAPHTHALENE, 2,6-DIMETHYL-	5.53	100	JN
13.		UNKNOWN	5.99	82	J
14.		UNKNOWN	7.04	100	J
15.		UNKNOWN	7.25	290	J
16.	58-89-9	LINDANE	7.30	1300	JN
17.		UNKNOWN	7.50	170	J
18.		UNKNOWN	8.52	150	J
19.		UNKNOWN	8.63	270	J
20.	72-54-8	1,1-DICHLORO-2,2-BIS(P-CHLOR	10.44	180	JN
21.	50-29-3	CHLOROPHENOTHANE	10.84	540	JN
22.		UNKNOWN	10.93	430	J
23.		UNKNOWN	14.01	210	J
24.		UNKNOWN	14.42	280	J
25.		UNKNOWN	14.94	210	J
26.					
27.					
28.					
29.					
30.					

1D
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

F0AD6

Lab Name: AATSLA Contract: 68-W0-0081

Lab Code: AATSLA Case No.: 29393 SAS No.: SDG No.: F0AD8

Matrix: (soil/water) SOIL Lab Sample ID: 50572.10

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 180F08.D

Level: (low/med) LOW Date Received: 06/15/01

% Moisture: 21 decanted: (Y/N) N Date Extracted: 06/19/01

Concentrated Extract Volume: 500 (uL) Date Analyzed: 06/29/01

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.6 Extraction: (Type) SONC

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	1100	U
100-02-7	4-Nitrophenol	1100	U
132-64-9	Dibenzofuran	420	U
121-14-2	2,4-Dinitrotoluene	420	U
84-66-2	Diethylphthalate	420	U
86-73-7	Fluorene	420	U
7005-72-3	4-Chlorophenyl-phenylether	420	U
100-01-6	4-Nitroaniline	1100	U
534-52-1	4,6-Dinitro-2-methylphenol	1100	U
86-30-6	N-Nitrosodiphenylamine (1)	420	U
101-55-3	4-Bromophenyl-phenylether	420	U
118-74-1	Hexachlorobenzene	420	U
1912-24-9	Atrazine	420	U
87-86-5	Pentachlorophenol	1100	U
85-01-8	Phenanthrene	190	J
120-12-7	Anthracene	83	J
86-74-8	Carbazole	420	U
84-74-2	Di-n-butylphthalate	420	U
206-44-0	Fluoranthene	290	J
129-00-0	Pyrene	250	J
85-68-7	Butylbenzylphthalate	420	U
91-94-1	3,3'-Dichlorobenzidine	420	U
56-55-3	Benzo(a)anthracene	86	J
218-01-9	Chrysene	170	J
117-81-7	bis(2-Ethylhexyl)phthalate	270	J
117-84-0	Di-n-octylphthalate	420	U
205-99-2	Benzo(b)fluoranthene	130	J
207-08-9	Benzo(k)fluoranthene	100	J
50-32-8	Benzo(a)pyrene	83	J
193-39-5	Indeno(1,2,3-cd)pyrene	420	U
53-70-3	Dibenz(a,h)anthracene	420	U
191-24-2	Benzo(g,h,i)perylene	420	U

(1) Cannot be seperated from Diphenylamine

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

F0AD7

Lab Name: AATSLA Contract: 68-W0-0081

Lab Code: AATSLA Case No.: 29393 SAS No.: SDG No.: F0AD8

Matrix: (soil/water) SOIL Lab Sample ID: 50572.05

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 180F03.D

Level: (low/med) LOW Date Received: 06/15/01

% Moisture: 11 decanted: (Y/N) N Date Extracted: 06/19/01

Concentrated Extract Volume: 500 (uL) Date Analyzed: 06/29/01

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.9 Extraction: (Type) SONC

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
100-52-7	Benzaldehyde	370	U
108-95-2	Phenol	370	U
111-44-4	bis(2-Chloroethyl)ether	370	U
95-57-8	2-Chlorophenol	370	U
95-48-7	2-Methylphenol	370	U
108-60-1	2,2'-oxybis(1-Chloropropane)	370	U
98-86-2	Acetophenone	370	U
106-44-5	4-Methylphenol	370	U
621-64-7	N-Nitroso-di-n-propylamine	370	U
67-72-1	Hexachloroethane	370	U
98-95-3	Nitrobenzene	370	U
78-59-1	Isophorone	370	U
88-75-5	2-Nitrophenol	370	U
105-67-9	2,4-Dimethylphenol	370	U
111-91-1	bis(2-Chloroethoxy)methane	370	U
120-83-2	2,4-Dichlorophenol	370	U
91-20-3	Naphthalene	370	U
106-47-8	4-Chloroaniline	370	U
87-68-3	Hexachlorobutadiene	370	U
105-60-2	Caprolactam	370	U
59-50-7	4-Chloro-3-methylphenol	370	U
91-57-6	2-Methylnaphthalene	370	U
77-47-4	Hexachlorocyclopentadiene	370	U
88-06-2	2,4,6-Trichlorophenol	370	U
95-95-4	2,4,5-Trichlorophenol	930	U
92-52-4	1,1'-Biphenyl	370	U
91-58-7	2-Chloronaphthalene	370	U
88-74-4	2-Nitroaniline	930	U
131-11-3	Dimethylphthalate	370	U
606-20-2	2,6-Dinitrotoluene	370	U
208-96-8	Acenaphthylene	370	U
99-09-2	3-Nitroaniline	930	U
83-32-9	Acenaphthene	370	U

1G
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

F0AD7

Lab Name: AATSLA Contract: 68-W0-0081

Lab Code: AATSLA Case No.: 29393 SAS No.: SDG No.: F0AD8

Matrix: (soil/water) SOIL Lab Sample ID: 50572.05

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 180F03.D

Level: (low/med) LOW Date Received: 06/15/01

% Moisture: 11 decanted: (Y/N) N Date Extracted: 06/19/01

Concentrated Extract Volume: 500 (uL) Date Analyzed: 06/29/01

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.9 Extraction: (Type) SONC

Number TICs found: 9

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	2.84	370	J
2.	541-02-6	CYCLOPENTASILOXANE, DECAMETH	3.76	120	JN
3.	57-10-3	HEXADECANOIC ACID	8.60	260	JN
4.		UNKNOWN	9.57	110	J
5.		UNKNOWN	10.91	230	J
6.	198-55-0	PERYLENE	13.13	140	JN
7.		UNKNOWN	14.20	86	J
8.		1,2:7,8-DIBENZPHENANTHRENE	14.91	250	JN
9.		UNKNOWN	17.07	84	J
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1D

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

F0AD8

Lab Name: AATSLA Contract: 68-W0-0081

Lab Code: AATSLA Case No.: 29393 SAS No.: SDG No.: F0AD8

Matrix: (soil/water) SOIL Lab Sample ID: 50498.01

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 169F10.D

Level: (low/med) LOW Date Received: 06/13/01

% Moisture: 24 decanted: (Y/N) N Date Extracted: 06/14/01

Concentrated Extract Volume: 500 (uL) Date Analyzed: 06/18/01

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.2 Extraction: (Type) SONC

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	1100	U
100-02-7	4-Nitrophenol	1100	U
132-64-9	Dibenzofuran	430	U
121-14-2	2,4-Dinitrotoluene	430	U
84-66-2	Diethylphthalate	430	U
86-73-7	Fluorene	430	U
7005-72-3	4-Chlorophenyl-phenylether	430	U
100-01-6	4-Nitroaniline	1100	U
534-52-1	4,6-Dinitro-2-methylphenol	1100	U
86-30-6	N-Nitrosodiphenylamine (1)	430	U
101-55-3	4-Bromophenyl-phenylether	430	U
118-74-1	Hexachlorobenzene	430	U
1912-24-9	Atrazine	430	U
87-86-5	Pentachlorophenol	1100	U
85-01-8	Phenanthrene	120	J
120-12-7	Anthracene	430	U
86-74-8	Carbazole	430	U
84-74-2	Di-n-butylphthalate	75	BJ
206-44-0	Fluoranthene	290	J
129-00-0	Pyrene	270	J
85-68-7	Butylbenzylphthalate	63	J
91-94-1	3,3'-Dichlorobenzidine	430	U
56-55-3	Benzo(a)anthracene	170	J
218-01-9	Chrysene	230	J
117-81-7	bis(2-Ethylhexyl)phthalate	290	J
117-84-0	Di-n-octylphthalate	430	U
205-99-2	Benzo(b)fluoranthene	280	J
207-08-9	Benzo(k)fluoranthene	180	J
50-32-8	Benzo(a)pyrene	220	J
193-39-5	Indeno(1,2,3-cd)pyrene	90	J
53-70-3	Dibenz(a,h)anthracene	430	U
191-24-2	Benzo(g,h,i)perylene	98	J

(1) Cannot be seperated from Diphenylamine

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

F0AD9

Lab Name: AATSLA Contract: 68-W0-0081

Lab Code: AATSLA Case No.: 29393 SAS No.: SDG No.: F0AD8

Matrix: (soil/water) SOIL Lab Sample ID: 50498.04

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 169F13.D

Level: (low/med) LOW Date Received: 06/13/01

% Moisture: 35 decanted: (Y/N) N Date Extracted: 06/14/01

Concentrated Extract Volume: 500 (uL) Date Analyzed: 06/18/01

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.4 Extraction: (Type) SONC

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
100-52-7	Benzaldehyde	510	U
108-95-2	Phenol	510	U
111-44-4	bis(2-Chloroethyl)ether	510	U
95-57-8	2-Chlorophenol	510	U
95-48-7	2-Methylphenol	510	U
108-60-1	2,2'-oxybis(1-Chloropropane)	510	U
98-86-2	Acetophenone	510	U
106-44-5	4-Methylphenol	510	U
621-64-7	N-Nitroso-di-n-propylamine	510	U
67-72-1	Hexachloroethane	510	U
98-95-3	Nitrobenzene	510	U
78-59-1	Isophorone	510	U
88-75-5	2-Nitrophenol	510	U
105-67-9	2,4-Dimethylphenol	510	U
111-91-1	bis(2-Chloroethoxy)methane	510	U
120-83-2	2,4-Dichlorophenol	510	U
91-20-3	Naphthalene	510	U
106-47-8	4-Chloroaniline	510	U
87-68-3	Hexachlorobutadiene	510	U
105-60-2	Caprolactam	510	U
59-50-7	4-Chloro-3-methylphenol	510	U
91-57-6	2-Methylnaphthalene	510	U
77-47-4	Hexachlorocyclopentadiene	510	U
88-06-2	2,4,6-Trichlorophenol	510	U
95-95-4	2,4,5-Trichlorophenol	1300	U
92-52-4	1,1'-Biphenyl	510	U
91-58-7	2-Chloronaphthalene	510	U
88-74-4	2-Nitroaniline	1300	U
131-11-3	Dimethylphthalate	510	U
606-20-2	2,6-Dinitrotoluene	510	U
208-96-8	Acenaphthylene	510	U
99-09-2	3-Nitroaniline	1300	U
83-32-9	Acenaphthene	510	U

1G
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

F0AD9

Lab Name: AATSLA Contract: 68-W0-0081

Lab Code: AATSLA Case No.: 29393 SAS No.: SDG No.: F0AD8

Matrix: (soil/water) SOIL Lab Sample ID: 50498.04

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 169F13.D

Level: (low/med) LOW Date Received: 06/13/01

% Moisture: 35 decanted: (Y/N) N Date Extracted: 06/14/01

Concentrated Extract Volume: 500 (uL) Date Analyzed: 06/18/01

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.4 Extraction: (Type) SONC

Number TICs found: 12

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	2.75	530	BJ
2.		UNKNOWN	2.90	630	BJ
3.		UNKNOWN	3.76	190	BJ
4.		UNKNOWN	3.83	230	BJ
5.		UNKNOWN	4.41	130	J
6.		UNKNOWN	5.88	240	J
7.		UNKNOWN	6.41	220	J
8.		UNKNOWN	6.49	140	J
9.		UNKNOWN	6.55	160	J
10.	57-10-3	HEXADECANOIC ACID	8.71	380	JN
11.		UNKNOWN	14.17	1000	J
12.		UNKNOWN	14.60	1800	J
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EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

F0AE0

Lab Name: AATSLA Contract: 68-W0-0081

Lab Code: AATSLA Case No.: 29393 SAS No.: SDG No.: F0AD8

Matrix: (soil/water) SOIL Lab Sample ID: 50498.05

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 169F14.D

Level: (low/med) LOW Date Received: 06/13/01

% Moisture: 25 decanted: (Y/N) N Date Extracted: 06/14/01

Concentrated Extract Volume: 500 (uL) Date Analyzed: 06/18/01

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.3 Extraction: (Type) SONC

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	1100	U
100-02-7	4-Nitrophenol	1100	U
132-64-9	Dibenzofuran	440	U
121-14-2	2,4-Dinitrotoluene	440	U
84-66-2	Diethylphthalate	440	U
86-73-7	Fluorene	440	U
7005-72-3	4-Chlorophenyl-phenylether	440	U
100-01-6	4-Nitroaniline	1100	U
534-52-1	4,6-Dinitro-2-methylphenol	1100	U
86-30-6	N-Nitrosodiphenylamine (1)	440	U
101-55-3	4-Bromophenyl-phenylether	440	U
118-74-1	Hexachlorobenzene	4100	E
1912-24-9	Atrazine	440	U
87-86-5	Pentachlorophenol	1100	U
85-01-8	Phenanthrene	440	U
120-12-7	Anthracene	440	U
86-74-8	Carbazole	440	U
84-74-2	Di-n-butylphthalate	45	BJ
206-44-0	Fluoranthene	79	J
129-00-0	Pyrene	91	J
85-68-7	Butylbenzylphthalate	440	U
91-94-1	3,3'-Dichlorobenzidine	440	U
56-55-3	Benzo(a)anthracene	440	U
218-01-9	Chrysene	52	J
117-81-7	bis(2-Ethylhexyl)phthalate	200	J
117-84-0	Di-n-octylphthalate	440	U
205-99-2	Benzo(b)fluoranthene	58	J
207-08-9	Benzo(k)fluoranthene	440	U
50-32-8	Benzo(a)pyrene	440	U
193-39-5	Indeno(1,2,3-cd)pyrene	440	U
53-70-3	Dibenz(a,h)anthracene	440	U
191-24-2	Benzo(g,h,i)perylene	440	U

(1) Cannot be seperated from Diphenylamine

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

F0AE0DL

Lab Name: AATSLA Contract: 68-W0-0081

Lab Code: AATSLA Case No.: 29393 SAS No.: SDG No.: F0AD8

Matrix: (soil/water) SOIL Lab Sample ID: 50498.05DL

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 169F19.D

Level: (low/med) LOW Date Received: 06/13/01

% Moisture: 25 decanted: (Y/N) N Date Extracted: 06/14/01

Concentrated Extract Volume: 500 (uL) Date Analyzed: 06/18/01

Injection Volume: 2.0 (uL) Dilution Factor: 2.0

GPC Cleanup: (Y/N) Y pH: 8.3 Extraction: (Type) SONC

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
100-52-7	Benzaldehyde	880	U
108-95-2	Phenol	880	U
111-44-4	bis(2-Chloroethyl)ether	880	U
95-57-8	2-Chlorophenol	880	U
95-48-7	2-Methylphenol	880	U
108-60-1	2,2'-oxybis(1-Chloropropane)	880	U
98-86-2	Acetophenone	880	U
106-44-5	4-Methylphenol	880	U
621-64-7	N-Nitroso-di-n-propylamine	880	U
67-72-1	Hexachloroethane	880	U
98-95-3	Nitrobenzene	880	U
78-59-1	Isophorone	880	U
88-75-5	2-Nitrophenol	880	U
105-67-9	2,4-Dimethylphenol	880	U
111-91-1	bis(2-Chloroethoxy)methane	880	U
120-83-2	2,4-Dichlorophenol	880	U
91-20-3	Naphthalene	880	U
106-47-8	4-Chloroaniline	880	U
87-68-3	Hexachlorobutadiene	880	U
105-60-2	Caprolactam	880	U
59-50-7	4-Chloro-3-methylphenol	880	U
91-57-6	2-Methylnaphthalene	880	U
77-47-4	Hexachlorocyclopentadiene	880	U
88-06-2	2,4,6-Trichlorophenol	880	U
95-95-4	2,4,5-Trichlorophenol	2200	U
92-52-4	1,1'-Biphenyl	880	U
91-58-7	2-Chloronaphthalene	880	U
88-74-4	2-Nitroaniline	2200	U
131-11-3	Dimethylphthalate	880	U
606-20-2	2,6-Dinitrotoluene	880	U
208-96-8	Acenaphthylene	880	U
99-09-2	3-Nitroaniline	2200	U
83-32-9	Acenaphthene	880	U

1G
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

F0AE0DL

Lab Name: AATSLA Contract: 68-W0-0081

Lab Code: AATSLA Case No.: 29393 SAS No.: SDG No.: F0AD8

Matrix: (soil/water) SOIL Lab Sample ID: 50498.05DL

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 169F19.D

Level: (low/med) LOW Date Received: 06/13/01

% Moisture: 25 decanted: (Y/N) N Date Extracted: 06/14/01

Concentrated Extract Volume: 500 (uL) Date Analyzed: 06/18/01

Injection Volume: 2.0 (uL) Dilution Factor: 2.0

GPC Cleanup: (Y/N) Y pH: 8.3 Extraction: (Type) SONC

Number TICs found: 27

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	2.74	700	BDJ
2.		UNKNOWN	2.80	590	BDJ
3.		UNKNOWN	2.90	710	BDJ
4.		UNKNOWN	3.92	420	DJ
5.		UNKNOWN	4.42	360	DJ
6.	55720-37-1	NAPHTHALENE, 1,3,7-TRICHLORO	7.17	290	DJN
7.	58-89-9	LINDANE	7.37	4400	DJN
8.	58-89-9	LINDANE	7.70	2700	DJN
9.	1897-45-6	TETRACHLOROISOPHTHALONITRILE	8.11	350	DJN
10.	101-76-8	BENZENE, 1,1'-METHYLENEBIS[4	8.30	840	DJN
11.	85-29-0	2,4'-DICHLOROBENZOPHENONE	9.07	390	DJN
12.		UNKNOWN	9.60	300	BDJ
13.	14835-94-0	O,P'-TDE OLEFIN	9.66	220	DJN
14.	83-05-6	2,2-BIS(4-CHLOROPHENYL)ACETI	9.92	210	DJN
15.	53-19-0	MITOTANE	10.17	1500	DJN
16.		UNKNOWN	10.34	240	DJ
17.	72-54-8	1,1-DICHLORO-2,2-BIS(P-CHLOR	10.52	4200	DJN
18.	789-02-6	O,P'-DDT	10.57	2100	DJN
19.		UNKNOWN	10.75	580	DJ
20.	50-29-3	CHLOROPHENOTHANE	10.94	10000	DJN
21.		UNKNOWN	11.01	390	BDJ
22.		UNKNOWN	11.05	180	BDJ
23.	40356-57-8	BENZENE, 1,1'-OXYBIS-, OCTAC	12.46	1500	DJN
24.		UNKNOWN	13.27	200	DJ
25.		UNKNOWN	15.08	180	DJ
26.		UNKNOWN	15.50	320	DJ
27.		UNKNOWN	17.29	230	DJ
28.					
29.					
30.					

1D
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

F0AE1

Lab Name: AATSLA Contract: 68-W0-0081

Lab Code: AATSLA Case No.: 29393 SAS No.: SDG No.: F0AD8

Matrix: (soil/water) SOIL Lab Sample ID: 50498.06

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 169F15.D

Level: (low/med) LOW Date Received: 06/13/01

% Moisture: 13 decanted: (Y/N) N Date Extracted: 06/14/01

Concentrated Extract Volume: 500 (uL) Date Analyzed: 06/18/01

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.4 Extraction: (Type) SONC

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	950	U
100-02-7	4-Nitrophenol	950	U
132-64-9	Dibenzofuran	380	U
121-14-2	2,4-Dinitrotoluene	380	U
84-66-2	Diethylphthalate	380	U
86-73-7	Fluorene	380	U
7005-72-3	4-Chlorophenyl-phenylether	380	U
100-01-6	4-Nitroaniline	950	U
534-52-1	4,6-Dinitro-2-methylphenol	950	U
86-30-6	N-Nitrosodiphenylamine (1)	380	U
101-55-3	4-Bromophenyl-phenylether	380	U
118-74-1	Hexachlorobenzene	8500	E
1912-24-9	Atrazine	380	U
87-86-5	Pentachlorophenol	950	U
85-01-8	Phenanthrene	380	U
120-12-7	Anthracene	380	U
86-74-8	Carbazole	380	U
84-74-2	Di-n-butylphthalate	380	U
206-44-0	Fluoranthene	380	U
129-00-0	Pyrene	380	U
85-68-7	Butylbenzylphthalate	380	U
91-94-1	3,3'-Dichlorobenzidine	380	U
56-55-3	Benzo(a)anthracene	380	U
218-01-9	Chrysene	380	U
117-81-7	bis(2-Ethylhexyl)phthalate	45	J
117-84-0	Di-n-octylphthalate	380	U
205-99-2	Benzo(b)fluoranthene	380	U
207-08-9	Benzo(k)fluoranthene	380	U
50-32-8	Benzo(a)pyrene	380	U
193-39-5	Indeno(1,2,3-cd)pyrene	380	U
53-70-3	Dibenz(a,h)anthracene	380	U
191-24-2	Benzo(g,h,i)perylene	380	U

(1) Cannot be seperated from Diphenylamine

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

F0AE1DL

Lab Name: AATSLA Contract: 68-W0-0081

Lab Code: AATSLA Case No.: 29393 SAS No.: SDG No.: F0AD8

Matrix: (soil/water) SOIL Lab Sample ID: 50498.06DL

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 169F20.D

Level: (low/med) LOW Date Received: 06/13/01

% Moisture: 13 decanted: (Y/N) N Date Extracted: 06/14/01

Concentrated Extract Volume: 500 (uL) Date Analyzed: 06/18/01

Injection Volume: 2.0 (uL) Dilution Factor: 5.0

GPC Cleanup: (Y/N) Y pH: 8.4 Extraction: (Type) SONC

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
100-52-7	Benzaldehyde	1900	U
108-95-2	Phenol	1900	U
111-44-4	bis(2-Chlorcethyl)ether	1900	U
95-57-8	2-Chlorophenol	1900	U
95-48-7	2-Methylphenol	1900	U
108-60-1	2,2'-oxybis(1-Chloropropane)	1900	U
98-86-2	Acetophenone	1900	U
106-44-5	4-Methylphenol	1900	U
621-64-7	N-Nitroso-di-n-propylamine	1900	U
67-72-1	Hexachloroethane	1900	U
98-95-3	Nitrobenzene	1900	U
78-59-1	Isophorone	1900	U
88-75-5	2-Nitrophenol	1900	U
105-67-9	2,4-Dimethylphenol	1900	U
111-91-1	bis(2-Chloroethoxy)methane	1900	U
120-83-2	2,4-Dichlorophenol	1900	U
91-20-3	Naphthalene	1900	U
106-47-8	4-Chloroaniline	1900	U
87-68-3	Hexachlorobutadiene	1900	U
105-60-2	Caprolactam	1900	U
59-50-7	4-Chloro-3-methylphenol	1900	U
91-57-6	2-Methylnaphthalene	1900	U
77-47-4	Hexachlorocyclopentadiene	1900	U
88-06-2	2,4,6-Trichlorophenol	1900	U
95-95-4	2,4,5-Trichlorophenol	4800	U
92-52-4	1,1'-Biphenyl	1900	U
91-58-7	2-Chloronaphthalene	1900	U
88-74-4	2-Nitroaniline	4800	U
131-11-3	Dimethylphthalate	1900	U
606-20-2	2,6-Dinitrotoluene	1900	U
208-96-8	Acenaphthylene	1900	U
99-09-2	3-Nitroaniline	4800	U
83-32-9	Acenaphthene	1900	U

1G
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

F0AE1DL

Lab Name: AATSLA Contract: 68-W0-0081

Lab Code: AATSLA Case No.: 29393 SAS No.: SDG No.: F0AD8

Matrix: (soil/water) SOIL Lab Sample ID: 50498.06DL

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 169F20.D

Level: (low/med) LOW Date Received: 06/13/01

% Moisture: 13 decanted: (Y/N) N Date Extracted: 06/14/01

Concentrated Extract Volume: 500 (uL) Date Analyzed: 06/18/01

Injection Volume: 2.0 (uL) Dilution Factor: 5.0

GPC Cleanup: (Y/N) Y pH: 8.4 Extraction: (Type) SONC

Number TICs found: 10

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	2.73	550	BDJ
2.		UNKNOWN	2.89	600	BDJ
3.	87-61-6	BENZENE, 1,2,3-TRICHLORO-	3.89	490	DJN
4.	58-89-9	LINDANE	7.69	5500	DJN
5.	1861-32-1	DCPA	9.06	550	DJN
6.	72-54-8	1,1-DICHLORO-2,2-BIS(P-CHLOR	10.16	3200	DJN
7.	72-54-8	1,1-DICHLORO-2,2-BIS(P-CHLOR	10.52	11000	DJN
8.	789-02-6	O,P'-DDT	10.56	590	DJN
9.	50-29-3	CHLOROPHENOTHANE	10.92	8400	DJN
10.	14021-23-9	D-FRIEDOOLEAN-14-ENE, 3-METH	15.06	690	DJN
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1D
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

F0AE2

Lab Name: AATSLA Contract: 68-W0-0081

Lab Code: AATSLA Case No.: 29393 SAS No.: SDG No.: F0AD8

Matrix: (soil/water) SOIL Lab Sample ID: 50498.07

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 169F16.D

Level: (low/med) LOW Date Received: 06/13/01

% Moisture: 12 decanted: (Y/N) N Date Extracted: 06/14/01

Concentrated Extract Volume: 500 (uL) Date Analyzed: 06/18/01

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.1 Extraction: (Type) SONC

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	940	U
100-02-7	4-Nitrophenol	940	U
132-64-9	Dibenzofuran	380	U
121-14-2	2,4-Dinitrotoluene	380	U
84-66-2	Diethylphthalate	380	U
86-73-7	Fluorene	380	U
7005-72-3	4-Chlorophenyl-phenylether	380	U
100-01-6	4-Nitroaniline	940	U
534-52-1	4,6-Dinitro-2-methylphenol	940	U
86-30-6	N-Nitrosodiphenylamine (1)	380	U
101-55-3	4-Bromophenyl-phenylether	380	U
118-74-1	Hexachlorobenzene	14000	E
1912-24-9	Atrazine	380	U
87-86-5	Pentachlorophenol	940	U
85-01-8	Phenanthrene	380	U
120-12-7	Anthracene	380	U
86-74-8	Carbazole	380	U
84-74-2	Di-n-butylphthalate	380	U
206-44-0	Fluoranthene	380	U
129-00-0	Pyrene	380	U
85-68-7	Butylbenzylphthalate	380	U
91-94-1	3,3'-Dichlorobenzidine	380	U
56-55-3	Benzo(a)anthracene	380	U
218-01-9	Chrysene	380	U
117-81-7	bis(2-Ethylhexyl)phthalate	39	J
117-84-0	Di-n-octylphthalate	380	U
205-99-2	Benzo(b)fluoranthene	380	U
207-08-9	Benzo(k)fluoranthene	380	U
50-32-8	Benzo(a)pyrene	380	U
193-39-5	Indeno(1,2,3-cd)pyrene	380	U
53-70-3	Dibenz(a,h)anthracene	380	U
191-24-2	Benzo(g,h,i)perylene	380	U

(1) Cannot be seperated from Diphenylamine

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

F0AE2DL

Lab Name: AATSLA Contract: 68-W0-0081

Lab Code: AATSLA Case No.: 29393 SAS No.: SDG No.: F0AD8

Matrix: (soil/water) SOIL Lab Sample ID: 50498.07DL

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 169F21.D

Level: (low/med) LOW Date Received: 06/13/01

% Moisture: 12 decanted: (Y/N) N Date Extracted: 06/14/01

Concentrated Extract Volume: 500 (uL) Date Analyzed: 06/18/01

Injection Volume: 2.0 (uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) Y pH: 8.1 Extraction: (Type) SONC

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
100-52-7	Benzaldehyde	3800	U
108-95-2	Phenol	3800	U
111-44-4	bis(2-Chloroethyl)ether	3800	U
95-57-8	2-Chlorophenol	3800	U
95-48-7	2-Methylphenol	3800	U
108-60-1	2,2'-oxybis(1-Chloropropane)	3800	U
98-86-2	Acetophenone	3800	U
106-44-5	4-Methylphenol	3800	U
621-64-7	N-Nitroso-di-n-propylamine	3800	U
67-72-1	Hexachloroethane	3800	U
98-95-3	Nitrobenzene	3800	U
78-59-1	Isophorone	3800	U
88-75-5	2-Nitrophenol	3800	U
105-67-9	2,4-Dimethylphenol	3800	U
111-91-1	bis(2-Chloroethoxy)methane	3800	U
120-83-2	2,4-Dichlorophenol	3800	U
91-20-3	Naphthalene	3800	U
106-47-8	4-Chloroaniline	3800	U
87-68-3	Hexachlorobutadiene	3800	U
105-60-2	Caprolactam	3800	U
59-50-7	4-Chloro-3-methylphenol	3800	U
91-57-6	2-Methylnaphthalene	3800	U
77-47-4	Hexachlorocyclopentadiene	3800	U
88-06-2	2,4,6-Trichlorophenol	3800	U
95-95-4	2,4,5-Trichlorophenol	9400	U
92-52-4	1,1'-Biphenyl	3800	U
91-58-7	2-Chloronaphthalene	3800	U
88-74-4	2-Nitroaniline	9400	U
131-11-3	Dimethylphthalate	3800	U
606-20-2	2,6-Dinitrotoluene	3800	U
208-96-8	Acenaphthylene	3800	U
99-09-2	3-Nitroaniline	9400	U
83-32-9	Acenaphthene	3800	U

1G
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

F0AE2DL

Lab Name: AATSLA Contract: 68-W0-0081

Lab Code: AATSLA Case No.: 29393 SAS No.: SDG No.: F0AD8

Matrix: (soil/water) SOIL Lab Sample ID: 50498.07DL

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 169F21.D

Level: (low/med) LOW Date Received: 06/13/01

% Moisture: 12 decanted: (Y/N) N Date Extracted: 06/14/01

Concentrated Extract Volume: 500 (uL) Date Analyzed: 06/18/01

Injection Volume: 2.0 (uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) Y pH: 8.1 Extraction: (Type) SONC

Number TICs found: 4

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	58-89-9	LINDANE	7.37	8100	DJN
2.	53-19-0	MITOTANE	10.16	3300	DJN
3.	72-54-8	1,1-DICHLORO-2,2-BIS(P-CHLOR	10.52	11000	DJN
4.	72-54-8	1,1-DICHLORO-2,2-BIS(P-CHLOR	10.91	3100	DJN
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1D
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

F0AE3

Lab Name: AATSLA Contract: 68-W0-0081

Lab Code: AATSLA Case No.: 29393 SAS No.: SDG No.: F0AD8

Matrix: (soil/water) SOIL Lab Sample ID: 50572.15

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 180F13.D

Level: (low/med) LOW Date Received: 06/15/01

% Moisture: 19 decanted: (Y/N) N Date Extracted: 06/19/01

Concentrated Extract Volume: 500 (uL) Date Analyzed: 06/29/01

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.6 Extraction: (Type) SONC

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	1000	U
100-02-7	4-Nitrophenol	1000	U
132-64-9	Dibenzofuran	410	U
121-14-2	2,4-Dinitrotoluene	410	U
84-66-2	Diethylphthalate	410	U
86-73-7	Fluorene	410	U
7005-72-3	4-Chlorophenyl-phenylether	410	U
100-01-6	4-Nitroaniline	1000	U
534-52-1	4,6-Dinitro-2-methylphenol	1000	U
86-30-6	N-Nitrosodiphenylamine (1)	410	U
101-55-3	4-Bromophenyl-phenylether	410	U
118-74-1	Hexachlorobenzene	990	
1912-24-9	Atrazine	410	U
87-86-5	Pentachlorophenol	1000	U
85-01-8	Phenanthrene	61	J
120-12-7	Anthracene	410	U
86-74-8	Carbazole	410	U
84-74-2	Di-n-butylphthalate	410	U
206-44-0	Fluoranthene	87	J
129-00-0	Pyrene	72	J
85-68-7	Butylbenzylphthalate	410	U
91-94-1	3,3'-Dichlorobenzidine	410	U
56-55-3	Benzo(a)anthracene	410	U
218-01-9	Chrysene	410	U
117-81-7	bis(2-Ethylhexyl)phthalate	130	J
117-84-0	Di-n-octylphthalate	410	U
205-99-2	Benzo(b)fluoranthene	48	J
207-08-9	Benzo(k)fluoranthene	410	U
50-32-8	Benzo(a)pyrene	410	U
193-39-5	Indeno(1,2,3-cd)pyrene	410	U
53-70-3	Dibenz(a,h)anthracene	410	U
191-24-2	Benzo(g,h,i)perylene	410	U

(1) Cannot be seperated from Diphenylamine

1E
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

F0AC4

Lab Name: AATSLA Contract: 68-W0-0081

Lab Code: AATSLA Case No.: 29393 SAS No.: SDG No.: F0AD8

Matrix: (soil/water) SOIL Lab Sample ID: 50572.01

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 19 Decanted: (Y/N) N Date Received: 06/15/01

Extraction: (Type) SONC Date Extracted: 06/19/01

Concentrated Extract Volume: 5000(uL) Date Analyzed: 06/29/01

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.6 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	0.92	PJ
319-85-7	beta-BHC	1.8	PJ
319-86-8	delta-BHC	2.1	U
58-89-9	gamma-BHC (Lindane)	2.1	U
76-44-8	Heptachlor	2.1	U
309-00-2	Aldrin	2.1	U
1024-57-3	Heptachlor epoxide	0.93	PJ
959-98-8	Endosulfan I	2.1	U
60-57-1	Dieldrin	0.50	J
72-55-9	4,4'-DDE	0.66	PJ
72-20-8	Endrin	4.1	U
33213-65-9	Endosulfan II	4.1	U
72-54-8	4,4'-DDD	0.58	J
1031-07-8	Endosulfan sulfate	0.33	PJ
50-29-3	4,4'-DDT	0.84	PJB
72-43-5	Methoxychlor	0.52	PJ
53494-70-5	Endrin ketone	0.56	J
7421-93-4	Endrin aldehyde	0.40	PJ
5103-71-9	alpha-Chlordane	2.1	U
5103-74-2	gamma-Chlordane	0.31	PJ
8001-35-2	Toxaphene	210	U
12674-11-2	Aroclor-1016	41	U
11104-28-2	Aroclor-1221	83	U
11141-16-5	Aroclor-1232	41	U
53469-21-9	Aroclor-1242	41	U
12672-29-6	Aroclor-1248	41	U
11097-69-1	Aroclor-1254	41	U
11096-82-5	Aroclor-1260	41	U

1E
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

F0AC6

Lab Name: AATSLA Contract: 68-W0-0081

Lab Code: AATSLA Case No.: 29393 SAS No.: SDG No.: F0AD8

Matrix: (soil/water) SOIL Lab Sample ID: 50572.03

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 13 Decanted: (Y/N) N Date Received: 06/15/01

Extraction: (Type) SONC Date Extracted: 06/19/01

Concentrated Extract Volume: 5000(uL) Date Analyzed: 06/30/01

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.8 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	3.9	
319-85-7	beta-BHC	1.9	PJ
319-86-8	delta-BHC	2.0	U
58-89-9	gamma-BHC (Lindane)	2.0	U
76-44-8	Heptachlor	0.42	PJ
309-00-2	Aldrin	2.0	U
1024-57-3	Heptachlor epoxide	0.27	PJ
959-98-8	Endosulfan I	2.0	U
60-57-1	Dieldrin	3.4	PJ
72-55-9	4,4'-DDE	1.7	PJ
72-20-8	Endrin	3.8	U
33213-65-9	Endosulfan II	3.8	U
72-54-8	4,4'-DDD	1.0	J
1031-07-8	Endosulfan sulfate	0.30	PJ
50-29-3	4,4'-DDT	1.2	PJB
72-43-5	Methoxychlor	0.74	PJ
53494-70-5	Endrin ketone	0.81	PJ
7421-93-4	Endrin aldehyde	0.82	PJ
5103-71-9	alpha-Chlordane	2.0	U
5103-74-2	gamma-Chlordane	1.2	PJ
8001-35-2	Toxaphene	200	U
12674-11-2	Aroclor-1016	38	U
11104-28-2	Aroclor-1221	77	U
11141-16-5	Aroclor-1232	38	U
53469-21-9	Aroclor-1242	38	U
12672-29-6	Aroclor-1248	290	P
11097-69-1	Aroclor-1254	38	U
11096-82-5	Aroclor-1260	38	U

1E
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

F0AC7DL

Lab Name: AATSLA Contract: 68-W0-0081

Lab Code: AATSLA Case No.: 29393 SAS No.: SDG No.: F0AD8

Matrix: (soil/water) SOIL Lab Sample ID: 50572.11D5

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 12 Decanted: (Y/N) N Date Received: 06/15/01

Extraction: (Type) SONC Date Extracted: 06/19/01

Concentrated Extract Volume: 5000(uL) Date Analyzed: 06/30/01

Injection Volume: 2.0(uL) Dilution Factor: 5.0

GPC Cleanup: (Y/N) Y pH: 7.9 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	2.4	DJ
319-85-7	beta-BHC	2.6	DJ
319-86-8	delta-BHC	9.7	U
58-89-9	gamma-BHC (Lindane)	9.7	U
76-44-8	Heptachlor	9.7	U
309-00-2	Aldrin	9.7	U
1024-57-3	Heptachlor epoxide	9.7	U
959-98-8	Endosulfan I	9.7	U
60-57-1	Dieldrin	0.69	DJ
72-55-9	4,4'-DDE	19	U
72-20-8	Endrin	19	U
33213-65-9	Endosulfan II	19	U
72-54-8	4,4'-DDD	0.76	DPJ
1031-07-8	Endosulfan sulfate	19	U
50-29-3	4,4'-DDT	3.1	DPJB
72-43-5	Methoxychlor	97	U
53494-70-5	Endrin ketone	19	U
7421-93-4	Endrin aldehyde	19	U
5103-71-9	alpha-Chlordane	9.7	U
5103-74-2	gamma-Chlordane	9.7	U
8001-35-2	Toxaphene	970	U
12674-11-2	Aroclor-1016	190	U
11104-28-2	Aroclor-1221	380	U
11141-16-5	Aroclor-1232	190	U
53469-21-9	Aroclor-1242	190	U
12672-29-6	Aroclor-1248	190	U
11097-69-1	Aroclor-1254	190	U
11096-82-5	Aroclor-1260	190	U

1E
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

F0AC8DL

Lab Name: AATSLA Contract: 68-W0-0081

Lab Code: AATSLA Case No.: 29393 SAS No.: SDG No.: F0AD8

Matrix: (soil/water) SOIL Lab Sample ID: 50572.12D5

Sample wt/vol: 30.0 (g/mL) G Lab File ID:

% Moisture: 12 Decanted: (Y/N) N Date Received: 06/15/01

Extraction: (Type) SONC Date Extracted: 06/19/01

Concentrated Extract Volume: 5000(uL) Date Analyzed: 06/30/01

Injection Volume: 2.0(uL) Dilution Factor: 5.0

GPC Cleanup: (Y/N) Y pH: 7.8 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	40	D
319-85-7	beta-BHC	13	D
319-86-8	delta-BHC	9.7	U
58-89-9	gamma-BHC (Lindane)	9.7	U
76-44-8	Heptachlor	9.7	U
309-00-2	Aldrin	9.7	U
1024-57-3	Heptachlor epoxide	0.61	DPJ
959-98-8	Endosulfan I	9.7	U
60-57-1	Dieldrin	19	U
72-55-9	4,4'-DDE	1.7	DPJ
72-20-8	Endrin	19	U
33213-65-9	Endosulfan II	19	U
72-54-8	4,4'-DDD	2.6	DJ
1031-07-8	Endosulfan sulfate	19	U
50-29-3	4,4'-DDT	6.0	DJB
72-43-5	Methoxychlor	97	U
53494-70-5	Endrin ketone	19	U
7421-93-4	Endrin aldehyde	19	U
5103-71-9	alpha-Chlordane	1.5	DPJ
5103-74-2	gamma-Chlordane	2.6	DPJ
8001-35-2	Toxaphene	970	U
12674-11-2	Aroclor-1016	190	U
11104-28-2	Aroclor-1221	380	U
11141-16-5	Aroclor-1232	190	U
53469-21-9	Aroclor-1242	190	U
12672-29-6	Aroclor-1248	190	U
11097-69-1	Aroclor-1254	190	U
11096-82-5	Aroclor-1260	190	U

1E
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

F0AC9DL

Lab Name: AATSLA Contract: 68-W0-0081

Lab Code: AATSLA Case No.: 29393 SAS No.: SDG No.: F0AD8

Matrix: (soil/water) SOIL Lab Sample ID: 50572.06D10

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 29 Decanted: (Y/N) N Date Received: 06/15/01

Extraction: (Type) SONC Date Extracted: 06/19/01

Concentrated Extract Volume: 5000(uL) Date Analyzed: 06/30/01

Injection Volume: 2.0(uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) Y pH: 8.3 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	0.97	DPJ
319-85-7	beta-BHC	5.4	DPJ
319-86-8	delta-BHC	24	U
58-89-9	gamma-BHC (Lindane)	24	U
76-44-8	Heptachlor	24	U
309-00-2	Aldrin	24	U
1024-57-3	Heptachlor epoxide	24	U
959-98-8	Endosulfan I	24	U
60-57-1	Dieldrin	4.9	DPJ
72-55-9	4,4'-DDE	14	DPJ
72-20-8	Endrin	46	U
33213-65-9	Endosulfan II	46	U
72-54-8	4,4'-DDD	34	DJ
1031-07-8	Endosulfan sulfate	1.7	DPJ
50-29-3	4,4'-DDT	44	DPJB
72-43-5	Methoxychlor	240	U
53494-70-5	Endrin ketone	1.2	DPJ
7421-93-4	Endrin aldehyde	46	U
5103-71-9	alpha-Chlordane	24	U
5103-74-2	gamma-Chlordane	5.6	DPJ
8001-35-2	Toxaphene	2400	U
12674-11-2	Aroclor-1016	460	U
11104-28-2	Aroclor-1221	940	U
11141-16-5	Aroclor-1232	460	U
53469-21-9	Aroclor-1242	460	U
12672-29-6	Aroclor-1248	460	U
11097-69-1	Aroclor-1254	460	U
11096-82-5	Aroclor-1260	460	U

1E
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

F0AD1

Lab Name: AATSLA Contract: 68-W0-0081

Lab Code: AATSLA Case No.: 29393 SAS No.: SDG No.: F0AD8

Matrix: (soil/water) SOIL Lab Sample ID: 50572.08D5

Sample wt/vol: 30.0 (g/mL) G Lab File ID: NBS75K.L

% Moisture: 19 Decanted: (Y/N) N Date Received: 06/15/01

Extraction: (Type) SONC Date Extracted: 06/19/01

Concentrated Extract Volume: 5000(uL) Date Analyzed: 06/30/01

Injection Volume: 2.0(uL) Dilution Factor: 5.0

GPC Cleanup: (Y/N) Y pH: 8.1 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	120	
319-85-7	beta-BHC	18	P
319-86-8	delta-BHC	23	
58-89-9	gamma-BHC (Lindane)	11	P
76-44-8	Heptachlor	10	U
309-00-2	Aldrin	10	U
1024-57-3	Heptachlor epoxide	10	U
959-98-8	Endosulfan I	10	U
60-57-1	Dieldrin	1.8	J
72-55-9	4,4'-DDE	15	PJ
72-20-8	Endrin	20	U
33213-65-9	Endosulfan II	20	U
72-54-8	4,4'-DDD	120	
1031-07-8	Endosulfan sulfate	20	U
50-29-3	4,4'-DDT	940	EBC
72-43-5	Methoxychlor	2.3	PJ
53494-70-5	Endrin ketone	20	U
7421-93-4	Endrin aldehyde	20	U
5103-71-9	alpha-Chlordane	10	U
5103-74-2	gamma-Chlordane	1.8	PJ
8001-35-2	Toxaphene	1000	U
12674-11-2	Aroclor-1016	200	U
11104-28-2	Aroclor-1221	410	U
11141-16-5	Aroclor-1232	200	U
53469-21-9	Aroclor-1242	200	U
12672-29-6	Aroclor-1248	200	U
11097-69-1	Aroclor-1254	200	U
11096-82-5	Aroclor-1260	200	U

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PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

F0AD2

Lab Name: AATSLA Contract: 68-W0-0081

Lab Code: AATSLA Case No.: 29393 SAS No.: SDG No.: F0AD8

Matrix: (soil/water) SOIL Lab Sample ID: 50572.13

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 12 Decanted: (Y/N) N Date Received: 06/15/01

Extraction: (Type) SONC Date Extracted: 06/19/01

Concentrated Extract Volume: 5000(uL) Date Analyzed: 06/29/01

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.8 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	23	
319-85-7	beta-BHC	26	P
319-86-8	delta-BHC	1.9	U
58-89-9	gamma-BHC (Lindane)	0.36	PJ
76-44-8	Heptachlor	1.9	U
309-00-2	Aldrin	1.9	U
1024-57-3	Heptachlor epoxide	1.2	J
959-98-8	Endosulfan I	1.9	U
60-57-1	Dieldrin	3.8	U
72-55-9	4,4'-DDE	8.4	P
72-20-8	Endrin	3.8	U
33213-65-9	Endosulfan II	3.8	U
72-54-8	4,4'-DDD	48	
1031-07-8	Endosulfan sulfate	3.8	U
50-29-3	4,4'-DDT	79	EB
72-43-5	Methoxychlor	0.52	PJ
53494-70-5	Endrin ketone	0.23	PJ
7421-93-4	Endrin aldehyde	3.8	U
5103-71-9	alpha-Chlordane	2.3	P
5103-74-2	gamma-Chlordane	4.0	
8001-35-2	Toxaphene	190	U
12674-11-2	Aroclor-1016	38	U
11104-28-2	Aroclor-1221	76	U
11141-16-5	Aroclor-1232	38	U
53469-21-9	Aroclor-1242	38	U
12672-29-6	Aroclor-1248	38	U
11097-69-1	Aroclor-1254	38	U
11096-82-5	Aroclor-1260	38	U

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PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

F0AD3

Lab Name: AATSLA Contract: 68-W0-0081

Lab Code: AATSLA Case No.: 29393 SAS No.: SDG No.: F0AD8

Matrix: (soil/water) SOIL Lab Sample ID: 50572.09D5

Sample wt/vol: 30.0 (g/mL) G Lab File ID: NBS75K.L

% Moisture: 21 Decanted: (Y/N) N Date Received: 06/15/01

Extraction: (Type) SONC Date Extracted: 06/19/01

Concentrated Extract Volume: 5000(uL) Date Analyzed: 06/30/01

Injection Volume: 2.0(uL) Dilution Factor: 5.0

GPC Cleanup: (Y/N) Y pH: 8.0 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	13	
319-85-7	beta-BHC	15	P
319-86-8	delta-BHC	1.9	PJ
58-89-9	gamma-BHC (Lindane)	0.97	PJ
76-44-8	Heptachlor	11	U
309-00-2	Aldrin	11	U
1024-57-3	Heptachlor epoxide	1.6	PJ
959-98-8	Endosulfan I	11	U
60-57-1	Dieldrin	3.0	PJ
72-55-9	4,4'-DDE	190	P
72-20-8	Endrin	21	U
33213-65-9	Endosulfan II	21	U
72-54-8	4,4'-DDD	950	EC
1031-07-8	Endosulfan sulfate	21	U
50-29-3	4,4'-DDT	1100	EBC
72-43-5	Methoxychlor	110	U
53494-70-5	Endrin ketone	1.8	J
7421-93-4	Endrin aldehyde	21	U
5103-71-9	alpha-Chlordane	11	U
5103-74-2	gamma-Chlordane	14	P
8001-35-2	Toxaphene	1100	U
12674-11-2	Aroclor-1016	210	U
11104-28-2	Aroclor-1221	420	U
11141-16-5	Aroclor-1232	210	U
53469-21-9	Aroclor-1242	210	U
12672-29-6	Aroclor-1248	210	U
11097-69-1	Aroclor-1254	210	U
11096-82-5	Aroclor-1260	210	U

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PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

F0AD4

Lab Name: AATSLA Contract: 68-W0-0081

Lab Code: AATSLA Case No.: 29393 SAS No.: SDG No.: F0AD8

Matrix: (soil/water) SOIL Lab Sample ID: 50572.14D500

Sample wt/vol: 30.0 (g/mL) G Lab File ID: NBS75K.L

% Moisture: 17 Decanted: (Y/N) N Date Received: 06/15/01

Extraction: (Type) SONC Date Extracted: 06/19/01

Concentrated Extract Volume: 5000(uL) Date Analyzed: 06/30/01

Injection Volume: 2.0(uL) Dilution Factor: 500.0

GPC Cleanup: (Y/N) Y pH: 7.7 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	33000	EC
319-85-7	beta-BHC	7600	C
319-86-8	delta-BHC	1000	U
58-89-9	gamma-BHC (Lindane)	120	J
76-44-8	Heptachlor	1000	U
309-00-2	Aldrin	1000	U
1024-57-3	Heptachlor epoxide	1000	U
959-98-8	Endosulfan I	1000	U
60-57-1	Dieldrin	2000	U
72-55-9	4,4'-DDE	2000	U
72-20-8	Endrin	2000	U
33213-65-9	Endosulfan II	2000	U
72-54-8	4,4'-DDD	510	JC
1031-07-8	Endosulfan sulfate	2000	U
50-29-3	4,4'-DDT	1800	JBC
72-43-5	Methoxychlor	10000	U
53494-70-5	Endrin ketone	2000	U
7421-93-4	Endrin aldehyde	2000	U
5103-71-9	alpha-Chlordane	1000	U
5103-74-2	gamma-Chlordane	1000	U
8001-35-2	Toxaphene	100000	U
12674-11-2	Aroclor-1016	20000	U
11104-28-2	Aroclor-1221	40000	U
11141-16-5	Aroclor-1232	20000	U
53469-21-9	Aroclor-1242	20000	U
12672-29-6	Aroclor-1248	20000	U
11097-69-1	Aroclor-1254	20000	U
11096-82-5	Aroclor-1260	20000	U

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PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

F0AD5

Lab Name: AATSLA Contract: 68-W0-0081

Lab Code: AATSLA Case No.: 29393 SAS No.: SDG No.: F0AD8

Matrix: (soil/water) SOIL Lab Sample ID: 50572.04D10

Sample wt/vol: 30.0 (g/mL) G Lab File ID: NBS75K.L

% Moisture: p1867 16 Decanted: (Y/N) N Date Received: 06/15/01

Extraction: (Type) SONC Date Extracted: 06/19/01

Concentrated Extract Volume: 5000(uL) Date Analyzed: 06/30/01

Injection Volume: 2.0(uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) Y pH: 7.6 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	1600	EC
319-85-7	beta-BHC	440	EC
319-86-8	delta-BHC	5.1	PJ
58-89-9	gamma-BHC (Lindane)	5.6	PJ
76-44-8	Heptachlor	20	U
309-00-2	Aldrin	20	U
1024-57-3	Heptachlor epoxide	4.0	J
959-98-8	Endosulfan I	20	U
60-57-1	Dieldrin	2.3	PJ
72-55-9	4,4'-DDE	22	PJ
72-20-8	Endrin	39	U
33213-65-9	Endosulfan II	39	U
72-54-8	4,4'-DDD	110	P
1031-07-8	Endosulfan sulfate	39	U
50-29-3	4,4'-DDT	260	PB
72-43-5	Methoxychlor	200	U
53494-70-5	Endrin ketone	39	U
7421-93-4	Endrin aldehyde	39	U
5103-71-9	alpha-Chlordane	11	PJ
5103-74-2	gamma-Chlordane	14	PJ
8001-35-2	Toxaphene	2000	U
12674-11-2	Aroclor-1016	390	U
11104-28-2	Aroclor-1221	800	U
11141-16-5	Aroclor-1232	390	U
53469-21-9	Aroclor-1242	390	U
12672-29-6	Aroclor-1248	390	U
11097-69-1	Aroclor-1254	390	U
11096-82-5	Aroclor-1260	390	U

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PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

F0AD6

Lab Name: AATSLA Contract: 68-W0-0081

Lab Code: AATSLA Case No.: 29393 SAS No.: SDG No.: F0AD8

Matrix: (soil/water) SOIL Lab Sample ID: 50572.10D5

Sample wt/vol: 30.0 (g/mL) G Lab File ID: NBS75K.L

% Moisture: 21 Decanted: (Y/N) N Date Received: 06/15/01

Extraction: (Type) SONC Date Extracted: 06/19/01

Concentrated Extract Volume: 5000(uL) Date Analyzed: 06/30/01

Injection Volume: 2.0(uL) Dilution Factor: 5.0

GPC Cleanup: (Y/N) Y pH: 7.6 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	570	EC
319-85-7	beta-BHC	58	
319-86-8	delta-BHC	11	U
58-89-9	gamma-BHC (Lindane)	1.6	PJ
76-44-8	Heptachlor	2.4	J
309-00-2	Aldrin	2.7	J
1024-57-3	Heptachlor epoxide	4.0	J
959-98-8	Endosulfan I	11	U
60-57-1	Dieldrin	3.2	PJ
72-55-9	4,4'-DDE	21	P
72-20-8	Endrin	21	U
33213-65-9	Endosulfan II	21	U
72-54-8	4,4'-DDD	69	
1031-07-8	Endosulfan sulfate	0.71	PJ
50-29-3	4,4'-DDT	570	PEBC
72-43-5	Methoxychlor	110	U
53494-70-5	Endrin ketone	1.3	PJ
7421-93-4	Endrin aldehyde	21	U
5103-71-9	alpha-Chlordane	10	J
5103-74-2	gamma-Chlordane	17	
8001-35-2	Toxaphene	1100	U
12674-11-2	Aroclor-1016	210	U
11104-28-2	Aroclor-1221	420	U
11141-16-5	Aroclor-1232	210	U
53469-21-9	Aroclor-1242	210	U
12672-29-6	Aroclor-1248	210	U
11097-69-1	Aroclor-1254	210	U
11096-82-5	Aroclor-1260	210	U

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PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

F0AD7

Lab Name: AATSLA Contract: 68-W0-0081

Lab Code: AATSLA Case No.: 29393 SAS No.: SDG No.: F0AD8

Matrix: (soil/water) SOIL Lab Sample ID: 50572.05

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 11 Decanted: (Y/N) N Date Received: 06/15/01

Extraction: (Type) SONC Date Extracted: 06/19/01

Concentrated Extract Volume: 5000(uL) Date Analyzed: 06/30/01

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.9 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	1.4	J
319-85-7	beta-BHC	1.0	PJ
319-86-8	delta-BHC	1.9	U
58-89-9	gamma-BHC (Lindane)	1.9	U
76-44-8	Heptachlor	1.9	U
309-00-2	Aldrin	1.9	U
1024-57-3	Heptachlor epoxide	0.23	PJ
959-98-8	Endosulfan I	1.9	U
60-57-1	Dieldrin	1.5	PJ
72-55-9	4,4'-DDE	1.1	PJ
72-20-8	Endrin	3.7	U
33213-65-9	Endosulfan II	3.7	U
72-54-8	4,4'-DDD	0.62	PJ
1031-07-8	Endosulfan sulfate	0.22	PJ
50-29-3	4,4'-DDT	0.87	PJB
72-43-5	Methoxychlor	19	U
53494-70-5	Endrin ketone	0.68	J
7421-93-4	Endrin aldehyde	0.62	PJ
5103-71-9	alpha-Chlordane	1.9	U
5103-74-2	gamma-Chlordane	1.1	PJ
8001-35-2	Toxaphene	190	U
12674-11-2	Aroclor-1016	37	U
11104-28-2	Aroclor-1221	75	U
11141-16-5	Aroclor-1232	37	U
53469-21-9	Aroclor-1242	37	U
12672-29-6	Aroclor-1248	37	U
11097-69-1	Aroclor-1254	37	U
11096-82-5	Aroclor-1260	37	U

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PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

F0AD9

Lab Name: AATSLA Contract: 68-W0-0081

Lab Code: AATSLA Case No.: 29393 SAS No.: SDG No.: F0AD8

Matrix: (soil/water) SOIL Lab Sample ID: 50498.04

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 35 Decanted: (Y/N) N Date Received: 06/13/01

Extraction: (Type) SONC Date Extracted: 06/14/01

Concentrated Extract Volume: 5000(uL) Date Analyzed: 06/20/01

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.4 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	0.37	PJ
319-85-7	beta-BHC	2.6	U
319-86-8	delta-BHC	0.77	PJ
58-89-9	gamma-BHC (Lindane)	0.81	PJ
76-44-8	Heptachlor	2.6	U
309-00-2	Aldrin	2.6	U
1024-57-3	Heptachlor epoxide	0.92	PJ
959-98-8	Endosulfan I	1.1	J
60-57-1	Dieldrin	1.2	J
72-55-9	4,4'-DDE	2.4	J
72-20-8	Endrin	5.1	U
33213-65-9	Endosulfan II	0.73	PJ
72-54-8	4,4'-DDD	2.6	J
1031-07-8	Endosulfan sulfate	0.86	PJ
50-29-3	4,4'-DDT	2.3	PJB
72-43-5	Methoxychlor	26	U
53494-70-5	Endrin ketone	5.1	U
7421-93-4	Endrin aldehyde	0.82	PJB
5103-71-9	alpha-Chlordane	5.5	P
5103-74-2	gamma-Chlordane	5.0	
8001-35-2	Toxaphene	260	U
12674-11-2	Aroclor-1016	51	U
11104-28-2	Aroclor-1221	100	U
11141-16-5	Aroclor-1232	51	U
53469-21-9	Aroclor-1242	51	U
12672-29-6	Aroclor-1248	51	U
11097-69-1	Aroclor-1254	51	U
11096-82-5	Aroclor-1260	51	U

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PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

F0AE0DL

Lab Name: AATSLA Contract: 68-W0-0081

Lab Code: AATSLA Case No.: 29393 SAS No.: SDG No.: F0AD8

Matrix: (soil/water) SOIL Lab Sample ID: 50498.05D500

Sample wt/vol: 30.0 (g/mL) G Lab File ID: NBS75K.L

% Moisture: 25 Decanted: (Y/N) N Date Received: 06/13/01

Extraction: (Type) SONC Date Extracted: 06/14/01

Concentrated Extract Volume: 5000(uL) Date Analyzed: 06/21/01

Injection Volume: 2.0(uL) Dilution Factor: 500.0

GPC Cleanup: (Y/N) Y pH: 8.2 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	1900	DC
319-85-7	beta-BHC	4100	DBC
319-86-8	delta-BHC	1100	U
58-89-9	gamma-BHC (Lindane)	1100	U
76-44-8	Heptachlor	1100	U
309-00-2	Aldrin	1100	U
1024-57-3	Heptachlor epoxide	1100	U
959-98-8	Endosulfan I	1100	U
60-57-1	Dieldrin	2200	U
72-55-9	4,4'-DDE	330	DJC
72-20-8	Endrin	2200	U
33213-65-9	Endosulfan II	2200	U
72-54-8	4,4'-DDD	3500	DPC
1031-07-8	Endosulfan sulfate	2200	U
50-29-3	4,4'-DDT	26000	DBC
72-43-5	Methoxychlor	11000	U
53494-70-5	Endrin ketone	2200	U
7421-93-4	Endrin aldehyde	2200	U
5103-71-9	alpha-Chlordane	1100	U
5103-74-2	gamma-Chlordane	1100	U
8001-35-2	Toxaphene	110000	U
12674-11-2	Aroclor-1016	22000	U
11104-28-2	Aroclor-1221	45000	U
11141-16-5	Aroclor-1232	22000	U
53469-21-9	Aroclor-1242	22000	U
12672-29-6	Aroclor-1248	22000	U
11097-69-1	Aroclor-1254	22000	U
11096-82-5	Aroclor-1260	22000	U

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PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

F0AE1DL

Lab Name: AATSLA Contract: 68-W0-0081

Lab Code: AATSLA Case No.: 29393 SAS No.: SDG No.: F0AD8

Matrix: (soil/water) SOIL Lab Sample ID: 50498.06D500

Sample wt/vol: 30.0 (g/mL) G Lab File ID: FBNAREF.L

% Moisture: 13 Decanted: (Y/N) N Date Received: 06/13/01

Extraction: (Type) SONC Date Extracted: 06/14/01

Concentrated Extract Volume: 5000(uL) Date Analyzed: 06/21/01

Injection Volume: 2.0(uL) Dilution Factor: 500.0

GPC Cleanup: (Y/N) Y pH: 8.4 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	760	DJC
319-85-7	beta-BHC	8500	DBC
319-86-8	delta-BHC	110	DPJ
58-89-9	gamma-BHC (Lindane)	63	DJ
76-44-8	Heptachlor	980	U
309-00-2	Aldrin	980	U
1024-57-3	Heptachlor epoxide	980	U
959-98-8	Endosulfan I	980	U
60-57-1	Dieldrin	1900	U
72-55-9	4,4'-DDE	850	DJC
72-20-8	Endrin	140	DPJ
33213-65-9	Endosulfan II	1900	U
72-54-8	4,4'-DDD	9700	DC
1031-07-8	Endosulfan sulfate	1900	U
50-29-3	4,4'-DDT	14000	DBC
72-43-5	Methoxychlor	9800	U
53494-70-5	Endrin ketone	1900	U
7421-93-4	Endrin aldehyde	1900	U
5103-71-9	alpha-Chlordane	980	U
5103-74-2	gamma-Chlordane	980	U
8001-35-2	Toxaphene	98000	U
12674-11-2	Aroclor-1016	19000	U
11104-28-2	Aroclor-1221	39000	U
11141-16-5	Aroclor-1232	19000	U
53469-21-9	Aroclor-1242	19000	U
12672-29-6	Aroclor-1248	19000	U
11097-69-1	Aroclor-1254	19000	U
11096-82-5	Aroclor-1260	19000	U

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PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

F0AE2DL

Lab Name: AATSLA Contract: 68-W0-0081

Lab Code: AATSLA Case No.: 29393 SAS No.: SDG No.: F0AD8

Matrix: (soil/water) SOIL Lab Sample ID: 50498.07D500

Sample wt/vol: 30.0 (g/mL) G Lab File ID: NBS75K.L

% Moisture: 12 Decanted: (Y/N) N Date Received: 06/13/01

Extraction: (Type) SONC Date Extracted: 06/14/01

Concentrated Extract Volume: 5000(uL) Date Analyzed: 06/21/01

Injection Volume: 2.0(uL) Dilution Factor: 500.0

GPC Cleanup: (Y/N) Y pH: 8.1 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	710	DJC
319-85-7	beta-BHC	3900	DBC
319-86-8	delta-BHC	970	U
58-89-9	gamma-BHC (Lindane)	970	U
76-44-8	Heptachlor	970	U
309-00-2	Aldrin	970	U
1024-57-3	Heptachlor epoxide	970	U
959-98-8	Endosulfan I	970	U
60-57-1	Dieldrin	1900	U
72-55-9	4,4'-DDE	940	DJC
72-20-8	Endrin	130	DPJ
33213-65-9	Endosulfan II	1900	U
72-54-8	4,4'-DDD	8800	DC
1031-07-8	Endosulfan sulfate	1900	U
50-29-3	4,4'-DDT	12000	DBC
72-43-5	Methoxychlor	9700	U
53494-70-5	Endrin ketone	1900	U
7421-93-4	Endrin aldehyde	1900	U
5103-71-9	alpha-Chlordane	970	U
5103-74-2	gamma-Chlordane	970	U
8001-35-2	Toxaphene	97000	U
12674-11-2	Aroclor-1016	19000	U
11104-28-2	Aroclor-1221	38000	U
11141-16-5	Aroclor-1232	19000	U
53469-21-9	Aroclor-1242	19000	U
12672-29-6	Aroclor-1248	19000	U
11097-69-1	Aroclor-1254	19000	U
11096-82-5	Aroclor-1260	19000	U

1E
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

F0AE3DL

Lab Name: AATSLA Contract: 68-W0-0081

Lab Code: AATSLA Case No.: 29393 SAS No.: SDG No.: F0AD8

Matrix: (soil/water) SOIL Lab Sample ID: 50572.15D500

Sample wt/vol: 30.0 (g/mL) G Lab File ID: NBS75K.L

% Moisture: 19 Decanted: (Y/N) N Date Received: 06/15/01

Extraction: (Type) SONC Date Extracted: 06/19/01

Concentrated Extract Volume: 5000(uL) Date Analyzed: 06/30/01

Injection Volume: 2.0(uL) Dilution Factor: 500.0

GPC Cleanup: (Y/N) Y pH: 7.6 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	10000	DC
319-85-7	beta-BHC	5000	DC
319-86-8	delta-BHC	1000	U
58-89-9	gamma-BHC (Lindane)	1000	U
76-44-8	Heptachlor	1000	U
309-00-2	Aldrin	1000	U
1024-57-3	Heptachlor epoxide	1000	U
959-98-8	Endosulfan I	1000	U
60-57-1	Dieldrin	2000	U
72-55-9	4,4'-DDE	240	DPJ
72-20-8	Endrin	2000	U
33213-65-9	Endosulfan II	2000	U
72-54-8	4,4'-DDD	2100	DC
1031-07-8	Endosulfan sulfate	2000	U
50-29-3	4,4'-DDT	9400	DBC
72-43-5	Methoxychlor	10000	U
53494-70-5	Endrin ketone	2000	U
7421-93-4	Endrin aldehyde	2000	U
5103-71-9	alpha-Chlordane	1000	U
5103-74-2	gamma-Chlordane	1000	U
8001-35-2	Toxaphene	100000	U
12674-11-2	Aroclor-1016	20000	U
11104-28-2	Aroclor-1221	41000	U
11141-16-5	Aroclor-1232	20000	U
53469-21-9	Aroclor-1242	20000	U
12672-29-6	Aroclor-1248	20000	U
11097-69-1	Aroclor-1254	20000	U
11096-82-5	Aroclor-1260	20000	U

REFERENCE 14

This draft report is released on 3/24/01 for the purpose of review
under the authority of Lial F. Tischler, Texas PE No. 32768
It is not to be used for any regulatory purpose.

Greens Bayou
Crab and Fish Tissue Study

by

Tischler/Kocurek
Round Rock, Texas

March 2001

14001

Project organization

Tischler/Kocurek (T/K) contracted with EA Engineering, Science and Technology, Inc. (EA) of Carrollton, Texas to perform the field data collection and shipment of samples to the laboratory. EA also made all arrangements for the laboratory analysis of the samples, with T/K oversight and approval. The tissue samples were composited and analyzed by ToxScan, Inc. of Watsonville, California. T/K prepared the work plans, directed the project, and prepared this report.

Sampling sites

Fish, crab, or shellfish specimens were collected at three sampling stations on Greens Bayou and two stations on the Houston Ship Channel (HSC). These stations are identified as follows:

Station GB-1: In Greens Bayou at a distance not greater than 500 metres (m) downstream of the Interstate 10 highway bridge. This is the upstream reference station for the study.

Station GB-2: In Greens Bayou at the confluence of the Harris County Flood Control District (HCFD) drainage ditch and Greens Bayou. This is the location with the greatest measured sediment concentrations of the target analytes.

Station GB-3: In Greens Bayou just upstream from the confluence with the Houston Ship channel.

Station HSC-1: Upstream at least 1 kilometre (km) from the confluence of Greens Bayou with the Houston Ship Channel. The sampling team selected a suitable location in the field and identified the station with appropriate landmarks and by UTM coordinates.

Station HSC-2: Downstream at least 1 km from the confluence of Greens Bayou with the Houston Ship Channel. The sampling team selected a suitable location in the field and identified the station with appropriate landmarks and by UTM coordinates.

Figure 1 is a map showing the approximate location of each station.

The objective of sampling at three locations in Greens Bayou was to determine the concentrations of the target analytes in fish and crab tissue at locations upstream and downstream of the HCFCD ditch. The HSC sample locations represent upstream and downstream reference sites. Note that these stations represent areas in which samples were collected and not specific sites, because when trawls, seines, and similar methods are used for collection, finfish samples are collected across an area of water, not at a single point. In August 2000, samples were only collected at Stations GB-1, GB-2, and GB-3.

Sampling results

The species, number of composite samples, and number of individuals in each composite from the October 2000 event are shown in Table 1.

In the August 2000 study, only blue crabs were collected and single composite samples were prepared for each station. The number of individual animals per composite sample prepared was as follows: GB-1 — 8 animals; GB-2 — 6 animals; and GB-3 —7 animals.

All compositing was performed at the ToxScan laboratory. Whole organisms were used in preparation of the composites (i.e., not just edible tissues). All of the chemical concentration data from the two events were entered into a spreadsheet to allow comparisons by station and species. Tables 2, 3, and 4 summarize the whole body tissue chemical concentration data.

Table 2
Greens Bayou Fish and Crab Tissue Study
Blue Crab
(data are averages of 4 composite samples, µg/kg)

Constituent	GB-1	GB-2	GB-3	HSC-1	HSC-2
Percent Lipids	0.64	0.76	0.39	0.38	0.30
alpha-BHC	**0.40**	3.63	1.17	0.68	0.53
beta-BHC	**0.4**	**7.04**	**3.04**	<0.10	<0.10
delta-BHC	<0.10	**0.24**	**0.13**	<0.10	<0.10
gamma-BHC	**0.33**	1.19	**0.50**	**0.78**	0.42
4,4'-DDD	17	171	73	16	27
2,4'-DDD	**0.9**	6.6	3.20	2.6	2.2
4,4'-DDE	19	102	66	18	24
2,4'-DDE	3.6	7.1	4.55	8.8	8.0
4,4'-DDT	**0.6**	34.4	**3.80**	1	1.2
2,4'-DDT	**8.27**	16.3	**19.00**	10.6	13
Dicolfol	<3.0	**2**	**2**	<3.0	<3.0
Pentachlorobenzene	2.2	3.5	2.2	3.18	3.2
Hexachlorobenzene	3.9	24.4	8.8	5.2	5.4
Chlorobenzene	<10	<10	<10	<10	<10
Guthion	<20	<20	<20	<20	<20

Shading indicates 1 or more samples were less than the detection limit
GB-1: upstream near I10 bridge
GB-2: at mouth of HCFCD ditch
GB-3: at mouth of Greens Bayou
HSC-1: upstream of Greens Bayou confluence approximately 1 km
HSC-2: downstream of Greens Bayou confluence approximately 1 km

Blue crab was the most abundant species at all sampling stations. As shown in Table 2, the highest measured tissue concentrations were at station GB-2, immediately adjacent to the confluence of Greens Bayou and the HCFCD drainage ditch. Concentrations of all chemical constituents decrease moving downstream. The Houston Ship Channel stations upstream and downstream of the Greens Bayou confluence do not have significant differences in tissue concentrations and the concentrations measured are similar to the concentrations found at the upstream Greens Bayou station (GB-1).

location with the greatest sediment concentrations of chemicals, so this finding might be expected.

Table 4
Greens Bayou Fish and Crab Tissue Study
Other Fish
(data are averages of 3 composite samples, µg/kg)

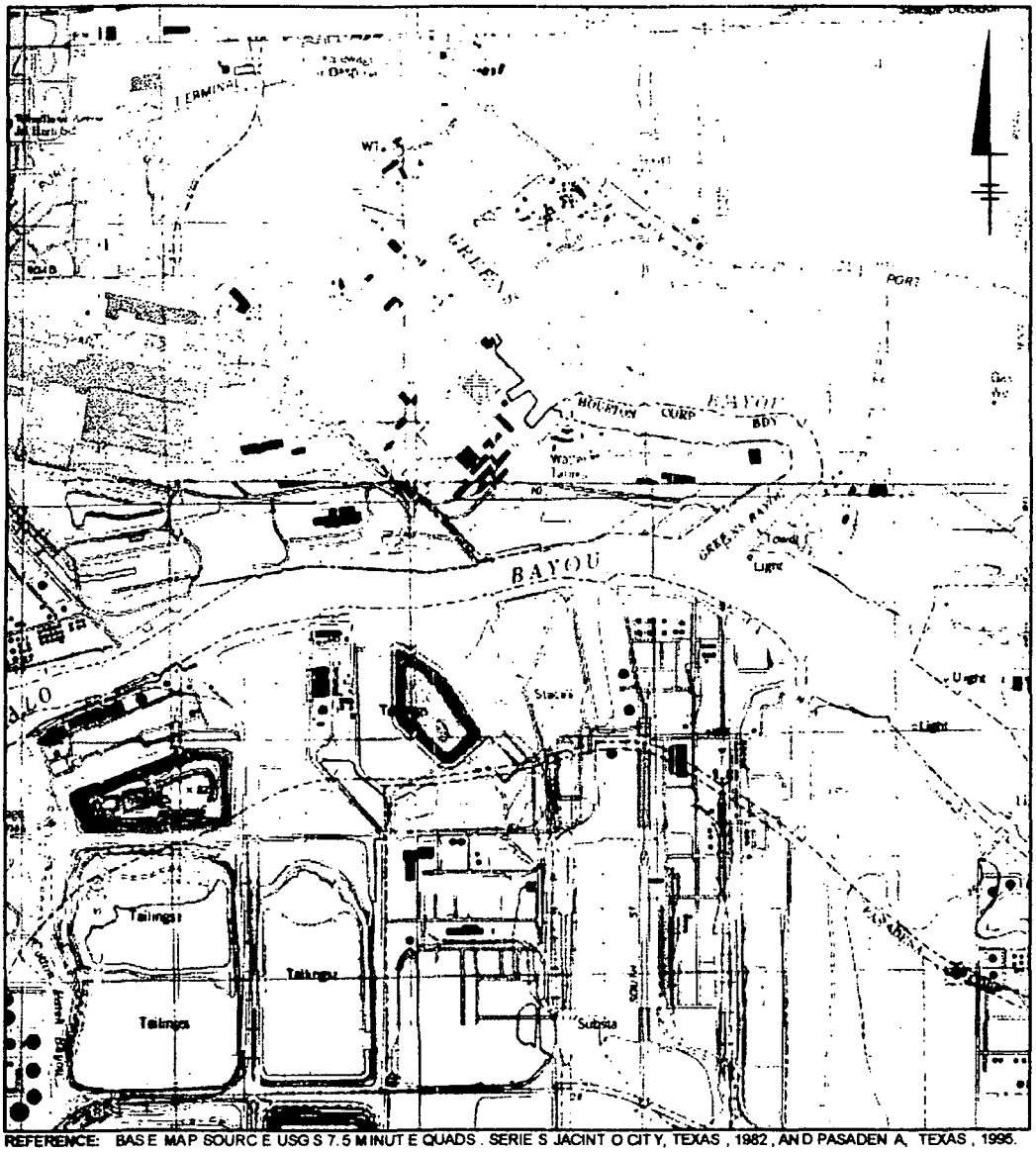
Constituent	Blue Catfish		Red Drum		Spotted Seatrout
Station	GB-1*	GB-2	GB-2	GB-3**	HSC-2
Percent Lipids	2.5	0.86	0.27	0.11	1.8
alpha-BHC	**0.38**	0.64	0.36	<0.10	0.29
beta-BHC	<0.40	<0.10	<0.10	<0.10	<0.10
delta-BHC	<0.40	<0.10	<0.10	<0.10	<0.10
gamma-BHC	**1.2**	**0.49**	0.51	0.23	0.37
4,4'-DDD	78	121	37	7.7	45
2,4'-DDD	12	15	4.6	5.3	12
4,4'-DDE	76	86	28.4	8.8	57
2,4'-DDE	13	11.2	6.3	1.5	11.6
4,4'-DDT	4.8	13.0	3.6	0.39	5.3
2,4'-DDT	43	77	15.7	2.9	14.6
Dicolfol	**10**	**5.1**	<3.0	<3.0	**7**
Pentachlorobenzene	**1.7**	0.88	**0.4**	<0.50	1.2
Hexachlorobenzene	13	9.4	1.7	0.79	11.3
Chlorobenzene	<10	<10	<10	<10	<10
Guthion	<20	<20	<20	<20	<20

Shading indicates 1 or more samples were less than the detection limit
*1 composite had concentrations 6X greater than the other 2 composites
**1 individual

Because fish are more mobile than blue crabs, the spatial concentration trends seen in the crab data are less evident in the fish data summarized in Tables 3 and 4 than in Table 2.

Conclusions

Whole organism tissue samples were collected and analyzed for specific chemical contaminants at three stations in Greens Bayou and two stations in the Houston Ship Channel. Samples were collected in August and October 2000. The following conclusions can be drawn from this screening study.



REFERENCE: BASE MAP SOURCE USGS 7.5 MINUTE QUADS. SERIES JACINTO CITY, TEXAS, 1982, AND PASADENA, TEXAS, 1995.

2000' 0 2000'

Approximate Scale: 1"= 2000'

AREA LOCATION

GREENS BAYOU
HOUSTON/JACINTO, TEXAS
GREENS BAYOU CRAB-FISH TISSUE STUDY

SITE LOCATION MAP

BBL BLASLAND, BOUCK & LEE, INC. engineers & scientists

FIGURE 1

05/0 0 SYR-D54-LBR
85710001/85710h01.cdr

14009

August 12, 2000

Work Plan
Chemical Analyses of Blue Crabs
Collected from Greens Bayou

Introduction

This work plan describes the methods, materials, and reporting for a study of the concentration of selected chemicals in samples of blue crab collected from Greens Bayou in Harris County, Texas. The target chemicals have been identified in sediment samples collected from Greens Bayou in the area from the confluence with the Houston Ship Channel to a distance of approximately one mile upstream. The objective of this study is to determine the body burden of the target chemicals in whole blue crabs collected in this area and at an upstream reference site. This study is designed to be a repeat of a similar study performed by the Texas Natural Resource Conservation Commission's (TNRCC) Houston regional office on March 3, 2000.

The work plan is based on the TNRCC *Surface Water Quality Monitoring Procedures Manual* (GI-253, June 1999)(SWQMPM), the U.S. Environmental Protection Agency (EPA) guidance document*Assessing Human Health Risks from Chemically Contaminated Fish and Shellfish: A Guidance Manual*(EPA-503/8-89-002), and EPA's *Guidance for Assessing Chemical Contaminant Data for Use in Fish Advisories, Volume 1, Fish Sampling and Analysis*, 2d edition (EPA 823-R-95-007). The TNRCC SWQMPM is adopted in this plan by reference as guidance for sampling, sample handling, and sample preservation.

Composite samples of whole crab tissue from 5 or more adult blue crab, collected at each sample site, will be analyzed for the target analytes. The number of individuals in the composite samples may be larger than this in order to obtain sufficient tissue sample for chemical analysis. Composite samples will be analyzed because they are more representative of the average body burden of chemicals in a population than are the concentrations in individual specimens.

This work plan was prepared by Tischler/Kocurek, on behalf of GB Biosciences™ (GBB).

Target Chemicals

The list of target analytes for the Greens Bayou study is based on data collected by the TNRCC [1] and Port of Houston Authority [2]. Chemicals found in the sediment samples that will be the target analytes for this study are the following:

4,4'-DDT	4,4'-DDE	4,4'-DDD
2,2'-DDT	2,4'-DDE	2,4'-DDD
a-BH C*	b- BHC	d- BHC
g-BH C (lindane)	Dicofol	Guthion
pentachlorobenzene	Hexachlorobenzene	Chlorobenzene
Chlordane		

* hexachlorocyclohexane

[1] Guillen, G, Whaylen, L., Broach, L., Smith, S., (December 1998), *Evaluation of Sediment Quality in the Vicinity of Permitted Discharges and Selected Land-Use Practices: Galveston Bay*, Draft, TNRCC.
[2] Anchor Environmental, LLC, (January 2000), *Sediment Investigation Greens Bayou Houston, Texas* prepared for Mayor, Day, Caldwell & Keeton, LLP, Houston.

14011

Note that collection of the crab sizes that are the goals for this sampling effort cannot be guaranteed, because the collection effort is ultimately controlled by site-specific conditions at the time of sampling. The field biologist will use best professional judgement in selecting the species that will form the composites at each sampling station.

A notebook will be prepared by the field crew that will include the following information, at a minimum:

- Latitude and longitude of each sample site.
- Description of each site so that it can be located on a county highway map and an assessment of whether or not any evidence exists that it is used for fishing.
- Physical description of the sampling site (channel width, depth, trawling distance, etc.).
- Method and time of sample collection.
- Hydrologic conditions during sample collection (high, low or neap tide).
- Carapace width for blue crabs.
- Condition of each crab specimen (deformities, wounds, infections, tumors, etc.).
- In-situ physical and chemical data (see below).

Each individual specimen will be assigned a numeric code that will be recorded on the shipping tag and in the field notebook. The numeric code will include the following information:

- Station number
- Species code
- Specimen identification number
- Composite identification number

The composite identification number will be used to identify for the laboratory which specimens are to be used to prepare each composite sample. There will be one composite sample prepared for each of the three stations. Each of these composite samples will be prepared by the laboratory from the individual crab specimens provided by the field team.

A chain-of-custody form will be completed by the field crew. This chain-of-custody form will stay with the samples until all analyses are completed by the laboratory. A duplicate of the completed form will be retained by the field crew.

Physical/Chemical Data

The field crew will measure the following physical and chemical constituents at each sampling station:

- pH
- water temperature
- salinity
- dissolved oxygen.

The shells will be removed from the crabs and the tissue removed. Composite tissue samples will be ground and homogenized. Homogenate not used for chemical analysis will be frozen and archived by the laboratory for a minimum of 3 months after the laboratory has issued its completed report.

The laboratory will select the specific analytical methods for measuring the target analytes in the tissue composite samples. The quantitation limit goals for each target analyte are given in the following table.

Analyte	Detection Limit Goal µg/kg	Quantitation Limit Goal µg/kg
4,4'-DDT	0.1-5	2-10
4,4'-DDD	0.1-5	2-10
4,4'-DDE	0.1-1	2-5
2,4'-DDT	0.1-5	2-10
2,4'-DDD	0.1-5	2-10
2,4'-DDE	0.1-1	2-5
a-BHC	0.1-0.5	2
b-BHC	0.1-0.5	2
d-BHC	0.1-0.5	2
g-BHC	0.1-0.5	2
Pentachlorobenzene	0.5	2
Chlorobenzene	1	5
Hexachlorobenzene	0.5	2
Guthion	20	100
Dicofol	3	15

Note that the detection and quantitation limits that are actually achieved will be a function of the sample size and any interferences that may be present.

The laboratory will also measure and report the lipid fraction (% lipids) in each tissue composite analyzed for the target chemicals.

The laboratory will provide its complete analytical reports for each composite sample analyzed. The laboratory report will include all QA/QC data for these analyses (standards, calibration, matrix spike recoveries).

Report

The report on the monitoring study will describe the study, from sample collection to analysis. The report will include the following major sections:

Location of sampling stations and their physical characteristics;
Weather and water conditions during sample collection;
Physical and chemical characteristics of the ambient water during collection;
Collection methods used at each station and times of collection;

October 3, 2000

Work Plan
Chemical Analyses of Fish
Collected from Greens Bayou

Introduction

This work plan describes the methods, materials, and reporting for a study of the concentration of selected chemicals in fish samples collected from Greens Bayou in Harris County, Texas. The target chemicals have been identified in sediment samples collected from Greens Bayou in the area from the confluence with the Houston Ship Channel to a distance of approximately one mile upstream. The objective of this study is to determine the body burden of the target chemicals in whole body composite samples of fish, crab, and shellfish collected in this area and at an upstream reference site.

The work plan is based on the Texas Natural Resource Conservation Commission's (TNRCC) *Surface Water Quality Monitoring Procedures Manual* (GI-253, June 1999)(SWQMPM), the U.S. Environmental Protection Agency (EPA) guidance document *Assessing Human Health Risks from Chemically Contaminated Fish and Shellfish: A Guidance Manual* (EPA-503/8-89-002), and EPA's *Guidance for Assessing Chemical Contaminant Data for Use in Fish Advisories, Volume 1, Fish Sampling and Analysis* 2d edition (EPA 823-R-95-007). The TNRCC SWQMPM is adopted in this plan by reference as guidance for sampling, sample handling, and sample preservation.

The study is designed as a screening study to monitor the accumulation of target chemicals in fish, crabs and shellfish in Greens Bayou and two stations in the Houston Ship Channel upstream and downstream from Greens Bayou. Because this effort is scoped as a screening study, composite, whole body samples of 5 or more adult fish (including crabs or shellfish) of each species, collected at each sample site, will be analyzed for the target analytes if possible. In the case of crabs or shellfish, the number of individuals in the composite samples may be larger than this in order to obtain sufficient sample for chemical analysis. Composite samples will be analyzed because they are more representative of the average body burden of chemicals in a population than are the concentrations in individual specimens.

This work plan was prepared by Tischler/Kocurek, on behalf of GB Biosciences™ (GBB).

Target Chemicals

The list of target analytes for the Greens Bayou study is based on data collected by the TNRCC [1] and Port of Houston Authority [2]. Chemicals found in the sediment samples that will be the target analytes for this study are the following:

[1] Guillen, G, Whaylen, L., Broach, L., Smith, S., (December 1998), *Evaluation of Sediment Quality in the Vicinity of Permitted Discharges and Selected Land-Use Practices: Galveston Bay*, Draft, TNRCC.
[2] Anchor Environmental, LLC, (January 2000), *Sediment Investigation Greens Bayou Houston, Texas* prepared for Mayor, Day, Caldwell & Keeton, LLP, Houston.

14017

representative of the aquatic ecosystem of the Houston Ship Channel and its tributaries. The species will be selected from the following list (selected from the TNRCC SWQMPM), assuming that populations at the time of sampling are sufficient to provide numbers and sizes of a particular species that will meet the study analytical requirements. If sufficient numbers and sizes of organisms cannot be selected from the following species list, then an alternate estuarine species listed in Chapter 6 of the SWQMPM shall be sampled.

Predators	Bottom-Feeders	Invertebrates
Atlantic croaker	Hardhead catfish	Blue crab (preferred)
Black drum	Gafftopsail catfish	Mussel
Red drum	Southern flounder	Clam
Spot	Common carp	
Spotted seatrout	Blue catfish	
Sand seatrout		

Because Greens Bayou and the Houston Ship Channel are subject to low dissolved oxygen concentrations during the warmer months of the year and the salinity in the bayou varies as a function of rainfall, some or all of the target species may not be present in sufficient numbers and/or sizes during the sampling event to satisfy the analytical requirements of the study. The decision as to which species to collect for analysis will be made by the fisheries biologist on the field team. However, at least one predator species and at least one bottom feeding species must be collected at each station for the study to be completed successfully. It is desirable, but not required, that the same species be collected at each of the 5 sampling stations.

Collection Methods

Fish, crab, and shellfish will be collected by a qualified contractor that is experienced in performing this type of study. The field crew will include at least one fisheries biologist.

Fish will be collected by active methods if practical. The active methods that will be used are hook and line, trawling, and/or seining. Electrofishing can be used if feasible. If passive methods such as trot lines, gill nets and trammel nets must be used to obtain a representative sample, the lines or nets shall be checked at least once every two hours to prevent sample deterioration.

Shellfish and crabs may be collected from shallow areas by a number of methods including pole-operated grabs, rakes, shovels, and hand-picking. Blue crabs are often caught in large numbers in the gill nets set for finfish and an adequate sample of crabs may be collected during netting if this method is employed.

The field crew will be responsible for determining the type of equipment to be used for collections and the specific locations at each sample site where sampling will be conducted. These selections will be based on the physical conditions at each site and the project objective of obtaining a representative sample. Before sampling is performed a scientific collection permit will be obtained from the Texas Parks and Wildlife Department (TPWD). The local TPWD and TNRCC offices will be notified when the date for sampling has been selected.

As described earlier in this plan, the goal is to collect whole body composite samples of fish, crab, or shellfish for adults of each of three species at each of the five sampling stations. The fish, crab or shellfish that are collected for this study will meet the suggested minimum sizes specified in Chapter 6 of the SWQMPM, if possible. Smaller individuals may be used to form

Physical/Chemical Data

The field crew will measure the following physical and chemical constituents at each sampling station:

pH
water temperature
salinity
specific conductance
dissolved oxygen.

A vertical profile of these parameters will be measured at each station. These measurements will be performed with a direct-reading, temperature-compensated instrument that will be calibrated before the start of the field survey. The calibration will be field-checked before and after each set of in situ measurements at a station.

Sample Packaging and Shipping

The compositing of the specimens will be performed by the analytical laboratory, as recommended in the SWQMPM. Therefore, whole fish, crabs, or shellfish will be packed, preserved, and shipped by the field crew. The specimens will be held in a live well (or ice chest) in native water before they are prepared for shipping. The selected fish specimens will be prepared for shipping as follows:

Rinse fish, if necessary, with ambient water.

Clip dorsal and pectoral spines from fish, if necessary to prevent puncture of wrapping.

Double-wrap each fish in aluminum foil with dull side toward fish. The aluminum foil should be precleaned with an acid rinse and a methanol rinse prior to use.

Place wrapped fish into zip-lock plastic bag.

Label each plastic bag with tag #, station location, and type of sample (muscle composite), species, number of fish in composite. Include the same label on waterproof material inside each zip-lock bag.

In accordance with TNRCC guidance, the samples shall be transported to the laboratory as follows:

If the samples can be shipped to the laboratory so that they arrive within 24 hours of collection, then pack the samples with ice in the ice chest that will be used to transport the samples.

If the samples cannot arrive at the laboratory within 24 hours of collection, the samples must be hard frozen before shipping. The frozen samples shall be shipped in an ice chest that is packed with dry ice.

Seal the ice chest with tape and label for shipping. Attach a completed chain-of-custody form to outside of ice chest.

Ship to laboratory to arrive within 24 hours or less of shipping.

Preparation of crabs or shellfish for shipping will be as follows:

Rinse each specimen with ambient water to remove any sediment.

Analyte	Detection Limit Goal µg/kg	Quantitation Limit Goal µg/kg
4,4'-DDT	0.1-5	2-10
4,4'-DDD	0.1-5	2-10
4,4'-DDE	0.1-1	2-5
2,4'-DDT	0.1-5	2-10
2,4'-DDD	0.1-5	2-10
2,4'-DDE	0.1-1	2-5
a-BHC	0.1-0.5	2
b-BHC	0.1-0.5	2
d-BHC	0.1-0.5	2
g-BHC	0.1-0.5	2
Pentachlorobenzene	0.5	2
Chlorobenzene	1	5
Hexachlorobenzene	0.5	2
Guthion	20	100
Dicofol	3	15

Report

The report on the monitoring study will describe the entire study, from sample collection to analysis. The report will include the following major sections:

Location of sampling stations and their physical characteristics;
Weather and water conditions during sample collection;
Physical and chemical characteristics of the ambient water during collection;
Collection methods used at each station and times of collection;
Descriptions of fish, crabs, and shellfish specimens (species, sex, length, and condition) used to prepare each composite sample;
Laboratory sample preparation and analytical procedures;
Analytical results for each target chemical in each composite sample; and
Interpretation of analytical results, as appropriate.

Field notes, the chain-of-custody sheets, and the detailed laboratory reports will be included in a separate appendix to the report.

TABLE 2. WATER QUALITY MEASUREMENTS MADE AT GREENS BAYOU AND THE HOUSTON SHIP CHANNEL USING AN HORIBA U-10 WATER CHECKER ON 24-26 OCTOBER 2000.

Station Location	Date	Time (Hours)	Depth (meters)	Temperature (C)	pH (S.U.)	Dissolved Oxygen (mg/L)	Salinity (%)	Conductivity (mS/cm)
GB-1	10/24/00	0925	Surface	23.7	7.05	3.07	0.09	2002
	10/24/00	0926	1M	23.7	7.08	2.59	0.13	2820
	10/24/00	0927	2M	23.7	6.97	1.45	0.48	9450
GB-2	10/24/00	1258	Surface	24.8	7.26	4.54	0.43	7940
	10/24/00	1259	1M	24.7	7.24	4.19	0.43	8000
	10/24/00	1300	2M	24.8	7.02	4.23	0.92	14800
GB-3	10/24/00	1348	Surface	24.7	7.18	3.76	0.66	11,600
	10/24/00	1349	1M	24.4	7.12	3.56	1.06	17,800
	10/24/00	1350	2M	24.2	7.09	3.50	1.16	19,500
HSC-1	10/24/00	1640	Surface	24.9	7.15	4.62	1.28	21,000
	10/24/00	1641	1M	24.7	7.13	4.40	1.27	21,100
	10/24/00	1642	2M	24.5	7.07	3.98	1.28	21,300
HSC-2	10/24/00	1150	Surface	24.4	7.20	4.20	1.27	21,000
	10/24/00	1152	1M	24.3	7.18	4.25	1.27	21,100
	10/24/00	1153	2M	24.1	7.16	4.08	1.27	21,200
GB-1	10/25/00	0918	Surface	23.8	7.50	3.31	0.09	2005
	10/25/00	0919	1M	23.9	7.38	2.70	0.11	2350
	10/25/00	0921	2M	24.0	7.01	0.95	0.9	15800
GB-2	10/25/00	0946	Surface	23.9	7.32	4.13	0.75	13,400
	10/25/00	0947	1M	24.0	7.31	3.50	0.78	13,500
	10/25/00	0948	2M	24.0	7.29	3.53	0.83	14,400
GB-3	10/25/00	1325	Surface	24.8	7.20	4.05	0.92	15,800
	10/25/00	1326	1M	24.5	7.16	3.54	1.00	17,000
	10/25/00	1327	2M	24.4	7.10	3.32	1.09	18,400
HSC-1	10/25/00	1012	Surface	24.0	7.20	3.25	1.22	20,400

Site HSC-1
(concentrations in µg/kg)

Date	Species	Sample Number	Individuals in Composite	Percent Lipids	alpha-BHC	beta-BHC	delta-BHC	gamma-BHC	4,4'-DDD	2,4'-DDD
October-00	Blue Crab	1	1	0.74	0.59	<0.10	<0.10	1.5	15	3.4
October-00	Blue Crab	2	1	0.16	0.55	<0.10		0.65	21	2.5
October-00	Blue Crab	3	2	0.25	0.90	<0.10	<0.10	<0.40	13	1.8
Average	Blue Crab			0.38	0.68	<0.10	<0.10	0.78	16	2.6
Std. Dev.				0.312	0.192			0.660	4.16	0.80

Site NIIC-2
(concentrations in µg/kg)

Date	Species	Sample Number	Individuals in Composite	Percent Lipids	alpha-BHC	beta-BHC	delta-BHC	gamma-BHC	4,4'-DDD	2,4'-DDD
October-00	Blue Crab	1	7	0.33	0.44	<0.10	<0.10	0.86	23	1.7
October-00	Blue Crab	2	7	0.41	0.64	<0.10	<0.10	<0.40	28	2.4
October-00	Blue Crab	3	6	0.16	0.5	<0.10	<0.10	<0.40	30	2.4
Average	Blue Crab			0.30	0.53	<0.10	<0.10	0.42	27	2.2
Std. Dev.				0.13	0.103			0.38	3.61	0.40
October-00	Spotted Seatrout	1	3	2.5	0.36	<0.10	<0.10	1.0	42	12
October-00	Spotted Seatrout	2	3	1.7	0.29	<0.10	<0.10	<0.10	34	12
October-00	Spotted Seatrout	3	2	1.1	0.23	<0.10	<0.10	<0.10	60	12
Average	Spotted Seatrout			1.8	0.3	<0.10	<0.10	0.37	45	12
Std. Dev.				0.70	0.07			0.55	13.32	0.00
October-00	Atlantic Croaker	1	4	4.1	<0.50	<0.50	<0.50	<0.50	190	5.7
October-00	Atlantic Croaker	2	3	2.4	<0.50	<0.50	<0.50	<0.50	130	14
October-00	Atlantic Croaker	3	3	2.8	0.51	<0.50	<0.50	<0.50	80	12
Average	Atlantic Croaker			3.0	0.34	<0.50	<0.50	<0.50	133	11
Std. Dev.				0.93	0.15				55.1	4.3

Site GB-1
(concentrations in µg/kg)

Date	Species	Sample Number	Individuals in Composite	Percent Lipids	alpha-BHC	beta-BHC	delta-BHC	gamma-BHC	4,4'-DDD	2,4'-DDD
October-00	Blue Crab	1	5	0.65	<0.40	<0.10	<0.10	<0.40	18	1.5
October-00	Blue Crab	2	5	0.29	0.69	<0.10	<0.10	<0.40	24	1.1
October-00	Blue Crab	3	4	0.89	0.56	<0.10	<0.10	0.56	16	<0.15
August-00	Blue Crab	1	6	0.74	0.18	1.2	<0.10	0.34	9.8	1.1
Average	Blue Crab			0.64	0.40	0.40	<0.10	0.33	17	0.9
Std. Dev.				0.26	0.261	0.261		0.17	5.85	0.64
October-00	Atlantic Croaker	1	6	3.4	0.55	<0.40	<0.40	1.8	140	16
October-00	Atlantic Croaker	2	6	3.0	0.51	<0.40	<0.40	1.1	120	15
October-00	Atlantic Croaker	3	7	2.4	<0.50	<0.50	<0.50	<0.50	150	21
Average	Atlantic Croaker			2.9	0.53	<0.50	<0.50	1.1	137	17
Std. Dev.				0.5	0.028			0.78	15	3
October-00	Blue Catfish	1	2	2.8	<0.40	<0.40	<0.40	1.5	30	8.3
October-00	Blue Catfish	2	2	0.21	<0.10	<0.10	<0.10	<0.10	14	3.4
October-00	Blue Catfish	3	2	4.6	0.89	<0.40	<0.40	1.9	190	23
October-00	Blue Catfish	3(dup)	2	4.6	0.84	<0.40	<0.40	2.4	180	23
Average	Blue Catfish			2.5	0.38	<0.40	<0.40	1.2	78	11.8
Std. Dev.				2.2	0.45			1.00	97.3	10.2

Site GB-2
(concentrations in µg/kg)

Date	Species	Sample Number	Individuals in Composite	Percent Lipids	alpha-BHC	beta-BHC	delta-BHC	gamma-BHC	4,4'-DDD	2,4'-DDD
October-00	Blue Crab	1	6	0.17	2.1	<0.10	<0.10	0.81	120	5.4
October-00	Blue Crab	1 (dup)	6	0.17	2	<0.10	<0.10	1.3	110	4.9
October-00	Blue Crab	2	6	0.15	0.71	<0.10	<0.10	0.65	14	0.88
October-00	Blue Crab	3	7	0.6	2.8	<0.10	<0.10	1.3	110	3.7
August-00	Blue Crab	1	6	2.1	9.2	28	0.81	1.5	450	17
Average	Blue Crab			0.76	3.83	7.0	0.24	1.19	171	6.5
Std. Dev.				0.92	3.80	13.98	0.38	0.37	191.4	7.12
October-00	Red Drum	1	1	<0.10	0.79	<0.10	<0.10	0.33	7	5.2
October-00	Red Drum	2	1	0.05	0.15	<0.10	<0.10	0.86	84	6.8
October-00	Red Drum	3	1	0.11	0.14	<0.10	<0.10	0.34	19	1.9
Average	Red Drum			0.27	0.36	<0.10	<0.10	0.51	37	4.5
Std. Dev.				0.33	0.37			0.30	41.4	2.50
October-00	Blue Catfish	1	3	1.4	0.22	<0.10	<0.10	0.64	47	10
October-00	Blue Catfish	2	3	0.9	0.5	<0.10	<0.10	0.79	220	22
October-00	Blue Catfish	3	2	0.27	1.2	<0.10	<0.10	<0.10	96	14
Average	Blue Catfish			0.86	0.64	<0.10	<0.10	0.49	121	15
Std. Dev.				0.57	0.60			0.38	89.2	6.1

Site GB-3
(concentrations in µg/kg)

Date	Species	Sample Number	Individuals in Composite	Percent Lipids	alpha-BHC	beta-BHC	delta-BHC	gamma-BHC	4,4'-DDD	2,4'-DDD	4,4'-DDE
October-00	Blue Crab	1	7	0.20	0.4	<0.10	<0.10	0.98	30	3.3	28
October-00	Blue Crab	2	7	0.25	0.78	<0.10	<0.10	<0.40	58	1.8	46
October-00	Blue Crab	3	7	0.18	1.1	<0.10	<0.10	<0.40	52	3	70
August-00	Blue Crab	1		0.94	2.4	12	0.37	0.81	150	4.7	120
Average	Blue Crab			0.39	1.17	3.04	0.13	0.6	73	3.20	66
Std. Dev.				0.37	0.87	5.98	0.16	0.41	53.1	1.19	39.9
October-00	Atlantic Croaker	1	1	1.1	0.18	<0.10	<0.10	0.30	26	4.7	44
October-00	Red Drum	1	1	0.11	<0.10	<0.10	<0.10	0.23	7.7	5.3	8.8

REFERENCE 15

National Brand
43-571
Made in USA

Greens Bayou SSI

TNRCC Sampling Team Members

Wesley Newberry
Marshall Cedilote
Gary Hazelwood
Johnny Kennedy

Case # 29393

June 11-13, 2001

6-12-01

8:00 Met with Wei Chen of Brown & Caldwell (713) 646-1120
Wei attended our safety meeting and accompanied the TNRCC sampling team to each of the Harris County Flood Control Ditch sample locations with the exception of SE-20 collected near the confluence with Greens Bayou. We were unable to access sample location SE-20 by foot. It will be collected by boat and walk in with waders.

Weather conditions are clear, sunny, humid and in the 90's°.

Background SE-02

6-13-01

1330 hours Johnny Kennedy collected background sediment sample SE-02 from the south bank upstream of IH10. Approximately 10" sample collection depth.

F061318C
29° 46' 33.89" N
95° 11' 47.00" W

Photograph #15 Facing West sample location SE-02 on south bank of Greens Bayou, upstream of IH10

[illegible]

6-13-01

SE-03

1320 hours Johnny Kennedy collected sediment sample SE03 and ~~Backup~~ duplicate SE-14 collected at a ditch entering Greens Bayou near Home Depot downstream of Market Street
Approximately 10" sample collection depth

F061318B

29° 46' 3.36"
95 11 18.22"

6-13-01

SE-04

1305 hours Johnny Kennedy collected sediment sample SE-04 around a bend in Greens Bayou, approximately 1 mile upstream of the HCFCD. Approximately 14" sample collection depth.

F061318A

29° 25' 36.56" N
95° 11' 18.95" W

6-13-01

SE-05

1250 hours Johnny Kennedy collected sediment sample SE-05 in Greens Bayou 30 yards just downstream of powerline, upstream of HCFCD approximately 3/4 mile. Approximately 10' sample collection depth.

F061317C

29° 45' 28.12" N
95° 10' 44.14" W

[signature]

6-13-01

SE-07

1240 hours Johnny Kennedy collected sediment sample SE-07 and duplicate SE-06 from Greens Bayou, upstream of the HCFCD directly across the Bayou from Brown and Root's "Slip C". Approximately 3/5 mile upstream of the HCFCD. Approximately 8" sample collection depth.

F061317B

Gary Hazlewood

6-13-01

SE-08

1050 hours Johnny Kennedy collected sediment sample SE-08 approximately 30 yards upstream of the confluence of HCFCD with Greens Bayou, from Greens Bayou. Approximately 12" sample collection depth.

F061315D

29° 45' 18.16"
95° 10' 35.68"

Jon Fitzhugh

6-13-01

SE-09

1040 hours Johnny Kennedy is collecting sediment sample SE-09 at the confluence of HCFCD and Greens Bayou in Greens Bayou. This is the PPE to Greens Bayou. Approximately 12" sample collection depth.

5061315C

29° 45' 13.41" N
95° 10' 29.63" W

6-13-01

SE-10

1030 hours Johnny Kennedy collected sediment sample SE-10 just downstream of the confluence of the HCFCD and Greens Bayou, in Greens Bayou. The sample was collected close to the north bank. Approximately 12" sample collection depth.

F061315B

29 45 12.77 N
95 10 27.41 W

6-13-01

SE-11

1008 hours Johnny Kennedy collected sediment sample SE-11 from Greens Bayou approximately 80 yards downstream of the HCFCD, next to the Greens Bayou Dredge disposal area. Approximately 12" sample collection depth.

F061315A Geoexplorer

29° 45' 11.94" N
95° 10' 21.02" W

6-13-01

SE-12

0955 Hours Johnny Kennedy collected sediment sample SE-12 from Greens Bayou approximately 180 yards downstream of the HCFCD, next to the Greens Bayou Dredge disposal area. Approximately 12" sample collection depth.

F061314C Geoexplorer

29° 45' 11.15" N
95° 10' 16.32" W

6-13-01

SE-13

0925 hours Johnny Kennedy collected sediment sample SE-13 from Greens Bayou approximately 4/10 mile upstream of the Houston Ship Channel across from Joe D Hughes. Approximately 12" sample collection depth. Insufficient volume was collected for inorganic analysis.

F061314A Geo explorer

6-12-01

Photo #4 Facing North
Wesley Newberry is collecting
sediment sample SE-15 from
the Harris County Flood Control Ditch

[illegible signature]

6-12-01

Photo #3 facing North
Westey Newberry is collecting
Sediment sample SE-16
Background sample 70 yards south
of I-H-10 at Ritchie Bros.
Auctioneers America from the
Harris County Flood Control Ditch

Westey Newberry

6-12-01

Photo #2 facing Southwest

Marshall Cedilote collecting sediment sample SG-17

Gary Hazelwood

6-12-01

SE-18

duplicate of SE-19
see page 39

6-12-01

SE-19

29° 45' 21.92" N

95° 10' 15.96" W

0920 hours Marshall Cardiate collected composite sediment sample SE-19 6" depth composites
Sample location is at the southeast corner of GB Biosciences retired landfill in the Harris County Flood Control Ditch. Approximately 10" sample collection depth.

Jay Daylmond

6-13-01

All sediment samples were collected with a coring tool with dedicated tips and zero contamination tubes. The port of Houston Authority split samples of all sample locations. All sediment samples were composite samples

Gary Hazelwood

REFERENCE 16

Site: Greens Bayou, Houston, Texas

Photograph 1 - Date: 6/12/2001 Photographer: Gary L. Hazelwood, TNRCC; Facing Southwest: Marshall Cedilote is collecting sediment sample SE-18 and duplicate SE-19, in the Harris County Flood Control Ditch (HCFCD), at the southeast corner of G B Biosciences' retired landfill.

Photograph 2 - Date: 6/12/2001 Photographer: Gary L. Hazelwood, TNRCC; facing Southwest: Marshall Cedilote is collecting sediment sample SE-17, in the HCFCD, approximately 50 yards downstream of the northeast corner of G B Biosciences' retired landfill, south of the inactive railroad tracks.

Site: Greens Bayou, Houston, Texas

Photograph 3 - Date: 6/12/2001 Photographer: Gary L. Hazelwood, TNRCC; Facing North. Wesley Newberry is collecting background sediment sample SE-16 from the HCFCD, approximately 70 yards south of IH-10, at Ritchie Bros. Auctioneers America.

Photograph 4 - Date: 6/12/2001 Photographer: Gary L. Hazelwood, TNRCC; Facing North: Wesley Newberry is collecting background sediment sample SE-15 from the HCFCD, approximately 90 yards south of IH-10, at Ritchie Bros. Auctioneers America.

Site: Greens Bayou, Houston, Texas

Photograph 5 - Date: 6/13/2001 Photographer: Gary L. Hazelwood, TNRCC; Facing West: Johnny Kennedy is collecting sediment sample SE-13 from Greens Bayou, approximately 0.4 miles upstream of the Houston Ship Channel, across the Bayou from Joe D Hughes.

Photograph 6 - Date: 6/13/2001 Photographer: Gary L. Hazelwood, TNRCC; Facing West: Johnny Kennedy is collecting sediment sample SE-12 from Greens Bayou, approximately 180 yards downstream of the HCFCD, next to the Greens Bayou Dredge Disposal Area.

Site: Greens Bayou, Houston, Texas

Photograph 7 - Date: 6/13/2001 Photographer: Gary L. Hazelwood, TNRCC; Facing Northwest. Johnny Kennedy is collecting sediment sample SE-11 from Greens Bayou, approximately 80 yards downstream of the HCFCD, next to the Greens Bayou Dredge Disposal Area.

Photograph 8 - Date: 6/13/2001 Photographer: Gary L. Hazelwood, TNRCC; Facing East: Johnny Kennedy is collecting sediment sample SE-10 from Greens Bayou, just downstream of the HCFCD.

Site: Greens Bayou, Houston, Texas

Photograph 9 - Date: 6/13/2001 Photographer: Gary L. Hazelwood, TNRCC; Facing East: Johnny Kennedy is collecting sediment sample SE-09 in Greens Bayou, at the confluence of Greens Bayou and the HCFCD. This is the PPE to the perennial Greens Bayou.

Photograph 10 - Date: 6/13/2001 Photographer: Gary L. Hazelwood, TNRCC; Facing Northwest: Johnny Kennedy is collecting sediment sample SE-08 from Greens Bayou, approximately 30 yards upstream of the HCFCD.

Site: Greens Bayou, Houston, Texas

Photograph 11 - Date: 6/13/2001 Photographer: Gary L. Hazelwood, TNRCC; Facing North: Johnny Kennedy is collecting sediment sample SE-06 and duplicate SE-07, from Greens Bayou, approximately 3/8 mile upstream of the HCFCD, directly across the bayou from Brown and Root's "Slip C".

Photograph 12 - Date: 6/13/2001 Photographer: Gary L. Hazelwood, TNRCC; Facing Northwest: Johnny Kennedy is collecting sediment sample SE-05 in Greens Bayou, approximately 30 yards downstream of a power line, approximately 3/4 mile upstream of the HCFCD.

Site: Greens Bayou, Houston, Texas

Photograph 13 - Date: 6/13/2001 Photographer: Gary L. Hazelwood, TNRCC; Facing West: Johnny Kennedy is collecting sediment sample SE-04 in Greens Bayou, approximately one mile upstream of the HCFCD.

Photograph 14 - Date: 6/13/2001 Photographer: Gary L. Hazelwood, TNRCC; Facing East: Marshall Cedilote is collecting sediment sample SE-03 and duplicate SE-14. The sample location is in Greens Bayou, at the confluence with a drainage ditch located near Home Depot.

Site: Greens Bayou, Houston, Texas

Photograph 15 - Date: 6/13/2001 Photographer: Gary L. Hazelwood, TNRCC; Facing West: A view of background sediment sample location SE-02 in Greens Bayou, upstream of IH-10.

Photograph 16 - Date: 6/13/2001 Photographer: Gary L. Hazelwood, TNRCC; Facing East: Johnny Kennedy is collecting background sediment sample SE-01 in Greens Bayou, downstream of Normandy Street.

Site: Greens Bayou, Houston, Texas

Photograph 17 - Date: 6/13/2001 Photographer: Gary L. Hazelwood, TNRCC; Facing West: A view of Normandy Street, taken twenty feet from sample location SE-01.

Photograph 18 - Date: 6/13/2001 Photographer: Gary L. Hazelwood, TNRCC; Facing Northeast: Sediment sample location SE-20 is located in the Harris County Flood Control Ditch, approximately 15 yards upstream of its confluence with Greens Bayou.

Site: Greens Bayou, Houston, Texas

Photograph 19 - Date: 6/13/2001 Photographer: Gary L. Hazelwood, TNRCC; Facing Northwest: Part of the Brown and Root Facility located on the southwest bank of Greens Bayou.

Photograph 20 - Date: 6/13/2001 Photographer: Gary L. Hazelwood, TNRCC; Facing South: A fisherman at the River Terrace Park boat ramp on the Houston Ship Channel.

REFERENCE 17

REFERENCE 18