INNER HARBOR NAVIGATION CANAL
LOCK REPLACEMENT PROJECT
ORLEANS PARISH, LOUISIANA

DESIGN DOCUMENTATION REPORT NO. 1
SITE PREPARATION AND DEMOLITION
VOLUME NO. 7 OF 8

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SEDIMENT AND ABANDONED BARGE REPORT

APPROVAL PAGE

IHNC East Bank Sediments Report

Environmental Support to
IHNC Lock Replacement Project
New Orleans, Louisiana

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1 INTRODUCTION

This document is one of five reports prepared as Environmental Support to the Inner Harbor Navigational Canal (IHNC) New Lock and Connecting Channels, Demolition Design Memorandum. The purpose of this document is to identify and characterize the materials within the Canal (i.e. sediments and abandoned barges) along the east bank industrial area that are subject to environmental and safety regulations. Canal sediments adjacent to the east bank industrial area are planned to be disturbed and excavated to create a stable bank as part of the site preparation and structure demolition activities at the east bank area. Abandoned barges along the bank will also be disposed of off site. Eventually, the east bank soil and sediment will be excavated for placement of a bypass channel during construction of the new lock.

The work was completed in accordance with the final scope of work provided by the U.S. Army Corps of Engineers (USACE), dated August 30, 1999. The specific tasks that were completed during the course of this project along the east bank industrial area of the IHNC included:

- The collection of sediments along the east bank of the IHNC for analysis of volatile organic compound (VOC), semi-volatile organic compound (SVOC), 8 RCRA metals, total petroleum hydrocarbon (TPH), oil and grease, and pesticides/PCB analysis;
- The review of Louisiana Oil Spill Coordinator's Office (LOSCO) documents and the confirmation of abandoned barges identified along the east bank of the IHNC;
- A review of regulatory requirements pertained to the handling and disposal of impacted sediment identified along the east bank of the IHNC; and
- Determination of disposal options and estimated costs for the removal of sediments and barge debris during the course of completing the bypass channel.

This report provides the following:

- Summary of the site investigation completed along the east bank of the IHNC;
- Inventory and classification of regulated materials (sediments and abandoned barges) identified along the east bank;
- Regulatory review;
- Waste handling and management;
- Treatment/Disposal requirements; and
- Detailed estimated cost data.

1.1 Site Description

The IHNC opened in 1923 and is located in the metropolitan area of New Orleans. The canal was constructed to allow the movement of barge traffic from the Mississippi River to Lake Pontchartrain and the inter-coastal waterways (IWW) of the Gulf Coast. The focus of this document is the sediments and abandoned barges along the canal extension of the industrialized portion of the IHNC east bank between Florida and North Claiborne Avenues along Surekote Road (Figures 1 and 2). In this industrialized area are several active and inactive facilities that were associated with steel fabrication, shipbuilding, marine vessel repair and servicing, marine supplies, petroleum related facilities, barge leasing, and other commercial businesses.

Six sites along Surekote Road make up the east bank industrial area, Boland Marine (2500 Surekote Road), McDonough Marine (2300 Surekote Road), Indian Towing Company (2200 Surekote Road), Mayer Yacht/Distributors Oil (2100 Surekote Road), Saucer Marine (1910 Surekote Road), and International Tank Terminal (1800 Surekote Road).

1.2 Site Location

The site is located on the canal slope of the east bank of the IHNC in an industrial area south of Florida Avenue and along Surekote Road in New Orleans, LA. Figure 1, Site Location Map, presents a generalized map of the project area and Figure 2, Site Plot Plan, presents the east bank of the IHNC with site names and structures.

1.3 Site History

Boland Marine

The Boland Marine property, located at 2500 Surekote Road, has historically been used for ship repairs. Operated by Boland Marine for nearly twenty years, the site is now occupied by an unaffiliated ship repair company. From the mid 1970s to the early 1990s, Boland Marine developed and utilized site facilities for storage, office space, painting operations, and fabrication/welding.

McDonough Marine

The McDonough Marine property, located at 2300 Surekote Road, has been used for barge leasing and chartering services for more than three decades. Originally operating under the name McDonough Marine, this company has been known as Marmac Corporation since 1972. Several buildings are located on the site. These buildings have been used for office space, parking, machining, painting operations, and bulk materials storage.

Indian Towing Company

The Indian Towing Company (Indian) began operations at 2200 Surekote Road in 1954. In addition to being a nautical towing company, Indian used the Surekote location for the sale, storage, and repair of marine equipment. Since its establishment along the IHNC, Indian had a rocky relationship with the Dock Board. On numerous occasions, the Dock Board sited Indian with lease violations. The nature of these infractions included unauthorized subletting, illegal barge discharging, and general disregard for the environment. Known operations conducted at the Indian site by subleasees include paint manufacturing and distributing, vegetable oil handling, boat manufacturing, and fueling services

Mayer Yacht/Distributors Oil

Mayer Yacht currently performs boat repairs on the property located at 2100 Surekote Road. Originally developed in 1951, the site has primarily been used for fueling operations, boat repairs, and the distribution of marine supplies. Since developing this property, Mayer Yacht has had a shaky relationship with the dock board. Mayer Yacht has been cited for several lease violations relating to unauthorized subletting, inadequate record keeping, and a general disregard for the environment.

Saucer Marine Service

Saucer Marine Service began leasing the property located at 1910 Surekote Road in 1954 using the site for ship building practices for the next four decades. Located on the property are several buildings formerly used for storage, offices, warehousing, and machining. Vacant concrete slabs are the only indication of previous structures on the Saucer property.

International Tank Terminal

The site referred to as the International Tank Terminal (ITT) is located at 1800 Surekote Road. Former operations at this site include steel fabrication, trucking, and ship repairs. One building remains on the site. A vacant concrete slab on the ITT property is assumed to have been the foundation for a former workhouse. The activities conducted in association with the workhouse are unknown. Tanks of undisclosed size and contents were located on the property at one time. Sandblast materials can still be found on the ground surface at the north end of the site. A rodent eradication experiment station bordered the ITT property to the south.

1.4 Geology

The east bank of the IHNC is comprised of approximately 32 acres. The area investigated for the Bypass Channel excavation site is approximately 4,200 feet long and by approximately 400 feet wide and is roughly bounded by the canal, the floodwall, Florida Avenue and North Claiborne Avenue. The industrial east bank of the IHNC is underlain at the near surface by fill material. This material is a mixture of shells, limestone gravel, fine grain sand, clay, and silt which has a reported thickness of 14 feet to 16 feet across the site. The coarser materials (shells, limestone gravel and sand) typically constitute the ground surface and are irregularly distributed throughout the industrialized areas of the east bank. A majority of the sand stockpiled at ground surface is blast sand that was associated with the former industrial operations located along the east bank of the IHNC. The fill material may also contain concrete blocks, bricks, metallic plates and sheets, metallic rods, timbers, and blasting sand.

Below the coarser grained materials at the near surface, the fill grades to a more clayey soil. The contact between these clays and the underlying natural clays of the original IHNC ground surface is not well defined. Underlying the fill material are interbedded organic-rich clays of high moisture contents typical of deposits in swamp environments. These interbedded clays have an average thickness of about eight feet.

1.5 Hydrogeology

A perched water table exists between the floodwall and the canal at the east industrial bank of the IHNC. Depths to the shallow water table are reported to be in the range of 0.1 to 3.25 feet. Movement of groundwater under the east bank is influenced by the physical conditions at each industrial site. Physical conditions include the topography of the ground surface, the nature of the contact between the coarse material and the fine grain clays and silts within the fill material, buried building foundations and utilities, surface drainage systems, and the activities of nearby pumping stations..

2 SITE INVESTIGATION

2.1 Sampling Rationale

Sediment samples were collected along the east bank of the canal at various locations, as shown on Figure 3, Sediment Sampling Location Map. A total of 60 samples from 22 sampling locations were collected including quality assurance/quality control (QA/QC) samples during the course of this project. These samples were collected and analyzed to assess the presence or absence, as well as the preliminary extent and magnitude, of impact at and around suspected discharge points and/or potential source areas identified during previous investigations and site visits. Sediments encountered during sample collection consisted of sand (SP), silty sand (SM), fat clay (CH), organic clay (OH), silt (ML), and gravel. Sandblast material (sand), metal debris and shells were also intermingled with the collected sediments.

The sediment sampling strategy involved the collection of sediment samples from locations that were based on current and past industrial activities, surface water and industrial discharge points, and documented environmental impact areas along the east bank of the canal. The selection of sample locations were biased toward areas with increased probability of environmental impact, source areas or areas receiving surface runoff/industrial discharge. The sediment sample identification numbers, sampling locations, and the rationale for each location are shown on Table 1.

Table 1 – Sediment Sampling Rationale

Sample Identification	Sample Location	Rationale – Location	Environmental Impact
IEBS01-HS	International Tank 0 to 3 feet of water.	Adjacent bulk tank storage area.	Surface water runoff from the adjacent bank containing the former tank farm.
IEBS02-HS	International Tank 0 to 3 feet of water.	Large area of metal debris and scrap metal along the bank of the canal.	Surface water runoff from the adjacent bank containing metal debris.
IEBS03-HS	Saucer Marine 0 to 3 feet of water.	Discharge area for surface runoff from a small storm water discharge canal	Surface water runoff from the adjacent industrial facilities located along the canal.
IEBS04-BS	Saucer Marine 0 to 15 feet of water.	Adjacent to abandoned barges located along the east bank of the canal.	Releases of various petroleum hydrocarbons associated with past fueling operations.
IEBS05-HS	Saucer Marine 0 to 3 feet of water.	Adjacent to abandoned barges.	Releases of various petroleum hydrocarbons.
IEBS06-BS	Saucer Marine 0 to 15 feet of water.	Adjacent to abandoned barges located along the east bank of the canal.	Releases of various petroleum hydrocarbons and bulk chemicals from abandoned barges.
IEBS07-HS	Saucer Marine 0 to 3 feet of water.	Large area of mixed-waste debris and scrap metal along the bank of the canal.	Surface water runoff from the adjacent bank containing the mixed-waste debris.
IEBS08-HS	Mayer Yacht/Distributors Oil 0 to 3 feet of water.	Adjacent to a boat slip.	Releases of various petroleum hydrocarbons and bulk chemicals from past fueling operations.

IEBS09-HS	Mayer Yacht/Distributors Oil 0 to 3 feet of water.	Adjacent to an area of petroleum impacted soils associated with a former UST system.	Surface water runoff from the adjacent bank containing petroleum impacted soils.
IEBS10-HS	Mayer Yacht/Distributors Oil 0 to 3 feet of water.	Adjacent to a former bulk storage tank area and petroleum impacted soils.	Surface water runoff from the adjacent bank containing petroleum impacted soils.
IEBS11-HS	Indian Towing 0 to 3 feet of water.	Adjacent to a former fueling shed and petroleum impacted soils.	Surface water runoff from the adjacent bank containing petroleum impacted soils.
IEBS12-HS	Indian Towing 0 to 3 feet of water.	Adjacent to petroleum impacted soils.	Surface water runoff from the adjacent bank containing petroleum impacted soils.
IEBS13-HS	McDonough Marine 0 to 3 feet of water.	Adjacent to a former fueling shed and petroleum impacted soils.	Surface water runoff from the adjacent bank containing petroleum impacted soils.
IEBS14-HS	McDonough Marine 0 to 3 feet of water.	Adjacent to petroleum impacted soils.	Surface water runoff from the adjacent bank containing petroleum impacted soils.
IEBS015-BS	McDonough Marine 0 to 15 feet of water.	Adjacent to the wharf.	Surface water runoff and industrial activities on the wharf.
IEBS16-BS	Boland Marine 0 to 10 feet of water.	Adjacent to the wharf.	Surface water runoff and industrial activities on the wharf.
IEBS17-HS	Boland Marine 0 to 3 feet of water.	Adjacent to the wharf and a discharge pipe.	Surface water runoff and industrial activities on the wharf.
IEBS18-HS	Boland Marine 0 to 3 feet of water.	Adjacent to the wharf and a discharge pipe.	Surface water runoff and industrial activities on the wharf.
IEBS19-HS	Boland Marine 0 to 3 feet of water.	Adjacent to the wharf and a discharge pipe.	Surface water runoff and industrial activities on the wharf.
IEBS20-HS	Boland Marine 0 to 3 feet of water.	Adjacent to the wharf and a discharge pipe.	Surface water runoff and industrial activities on the wharf.
IEBS21-BS	Boland Marine 0 to 15 feet of water.	Adjacent to the wharf.	Surface water runoff and industrial activities on the wharf.
IEBS22-HS Assumed Background	Near Claiborne Bridge 0 to 3 feet of water.	Adjacent to the bank with little evidence of past industrial activities.	Surface water runoff.

2.2 Sampling Locations

The location of each sample was coordinated with the USACE project manager prior to initiating field activities. John J. Avery & Associates used a transit traverse to tie each sampling location to a benchmark located near the Florida Street Bridge. In addition, actual geographical coordinates of each location were obtained using a Global Positioning System (GPS) unit. Sediment sample locations with identification numbers can be found on the following Table and on Figure 3. The John S. Avery & Associates Survey Report can be found in Appendix A. It should also be noted that the elevations provided in the Avery Report represent canal bottom elevations.

Table 2 – Sediment Sampling Locations

Sample Identification	Sample Location	Latitude	Longitude	Distance from Canal Bank
IEBS01-HS	International Tank	29°58'11.134"N	90°01'27.18988'	3-4'
IEBS02-HS	International Tank	29°58'14.198"N	90°01'25.84339"	3-4'
IEBS03-HS	Saucer Marine	29°58'15.743"N	90°01'25.46337"	4-5'
IEBS04-BS	Saucer Marine	29°58'18.740"N	90°01'25.21795"	10'
IEBS05-HS	Saucer Marine	29°58'20.051"N	90°01'24.740"W	4-5'
IEBS06-BS	Saucer Marine	29°58'23.096"N	90°01'24.771"W	5-6'
IEBS07-HS	Saucer Marine	29°58'23.243"N	90°01'24.326"W	3-4'
IEBS08-HS	Mayer Yacht/ Distributors Oil	29°58'26.554"N	90°01'21.648"W	3-4'
IEBS09-HS	Mayer Yacht Distributors Oil	29°58'27.711"N	90°01'23.277"W	1-2'
IEBS10-HS	Mayer Yacht Distributors Oil	29°58'29.436"N	90°01'22.784"W	1-2'
IEBS11-HS	Indian Towing	29°58'29.853"N	90°01'22.208"W	3-4'
IEBS12-HS	Indian Towing	29°58'31.126"N	90°01'21.940"W	3-4'
IEBS13-HS	McDonough Marine	29°58'33.015"N	90°01'21.545"W	3-4'
IEBS14-HS	McDonough Marine	29°58'34.101"N	90°01'21.282"W	3-4'
IEBS15-BS	McDonough Marine	29°58'35.010"N	90°01'20.757'W	3-4'
IEBS16-BS	Boland Marine	29°58'38.393"N	90°01'19.295"W	4-5'
IEBS17-HS	Boland Marine	29°58'39.854"N	90°01'18.904"W	5-6'
IEBS18-HS	Boland Marine	29°58'41.511"N	90°01'18.359"W	5-6'
IEBS19-HS	Boland Marine	29°58'42.425"N	90°01'18.056"W	5-6'
IEBS20-HS	Boland Marine	29°58'42.901"N	90°01'17.896"W	5-6'
IEBS21-BS	Boland Marine	29°58'44.772"N	90°01'17.286"W	5-6'
IEBS22-HS (Assumed Background)	Near Clairborne Bridge	29°58'09.309"N	90°01'27.893"W	3-4'

Boland Marine

Six sampling locations were identified along the wharf at Boland Marine. These sampling points were adjacent to several potential discharge points along the canal and adjacent to an area that formerly housed large electrical transformers. Five sampling points were located between the wharf and the bank of the canal and one was located on the canal side of the wharf.

McDonough Marine

Three sediment samples were collected along the waterfront of McDonough Marine. These sampling points were adjacent to a former fueling shed and areas of petroleum impacted soils, as well as marine repair work areas.

Indian Towing

Two sediment samples were collected along the waterfront at Indian Towing. These sampling points were adjacent to a former fueling shed and areas of petroleum impacted soils.

Mayer Yacht/Distributors Oil

A total of three sediment samples were collected from the waterfront at Mayer Yacht/Distributors Oil. Two samples were collected from an area with petroleum impacted soils and were adjacent to a former petroleum bulk storage area. The third sample was collected from a boat slip located on the subject property.

Saucer Marine

Five sediment samples were collected from the waterfront of Saucer Marine. Three samples were collected from the sediments in and around abandoned barges located along the east bank of the canal. The two remaining samples were collected from a storm water discharge point and from an area adjacent to a large mixed waste mound.

International Tank Terminal

Two sediment samples were collected from the waterfront of International Tank Terminal. These samples were collected from areas with documented environmental impact or adjacent to an area noted in earlier USACE's reports to have been used for the bulk storage of petroleum hydrocarbons.

2.3 Field Sampling and Analysis

The samples collected were identified in the field by sample identification numbers. A total of 22 sediment samples and six QA/QC samples were submitted to Pace Laboratories (PACE) of St. Rose, Louisiana for analysis. PACE has an interim Louisiana State Certification and an expired USACE validation which they plan to renew. Pace also maintains several other federal and state agency certifications and validations. A second set of QA/QC samples was submitted to Southwest Laboratories at the request of USACE. Southwest Laboratories is located in Broken Arrow, Oklahoma and is certified by USACE and the State of Oklahoma. A complete set of the laboratory reports including the sample Chain of Custody and cooler receipt/sample log-in sheet provided by PACE can be viewed in Appendix B. A complete set of the laboratory reports including the sample Chain of Custody and cooler receipt/sample log-in sheet provided by Southwest Laboratories can be viewed in Appendix C. A summary of the analytical results can be found in Tables 4 through 8.

2.3.1 Sediment Sampling Procedures

On September 7 through 9, 1999, Dames & Moore field personnel collected sediment samples from 22 locations along the east bank of the Inner Harbor Navigation Channel. The samples were obtained from underwater locations in areas where impacts were anticipated due to on-shore marine services activities and or waste handling practices.

The sediment samples were obtained using one of two different sampling techniques. The first technique involved the use of a manual stainless steel core barrel or stainless steel hand core sediment sampler. The other technique involved the use of a John Deere 590 track-hoe and the same stainless steel sampling devices. It should be noted that the use of a John Deere 590 track-hoe was a deviation from the Sample and Analysis Plan (SAP) dated August 30, 1999. In areas where the water depth was relatively shallow or where track-hoe access was limited, the field team used the manual stainless steel sampling devices. The sediment samples were obtained by advancing the core barrel of the sampling device into the sediments and rotating the device using a top-mounted cross bar. The samples were collected within acetate liners in the hand core barrel. The sampling device was advanced to a depth of three to five feet below the mud line. The device was then removed from the sediment and retrieved to the surface for sample preparation. A portion of each sediment sample was placed into a jar for field screening. The acetate tube was then capped on both ends and labeled for shipment to the laboratory. The acetate tubes were placed on ice in a cooler to maintain an inside temperature of 1 to 4 degrees Celsius. The sampling device was decontaminated between sampling locations using an alconox and deionized/distilled water solution followed by a deionized/distilled water rinse.

In locations where water was too deep or the bottom of the channel had been rip rapped, a John Deere 590 trackhoe was used to collect the sediments. The bucket and arm of the trackhoe was extended downward into the sediment to a depth of approximately five feet to collect the sample. The field team then used a hand held core barrel with acetate liner to collect the sample. The sampling device was pushed into the sediment in the track-hoe bucket at the proper angle so that the interval from three to five feet was sampled for analysis. At the southern-most sampling locations, rip-rap was present and it was difficult to reach the depth of five feet. The sediment samples were collected at the maximum depth penetrated with the bucket, approximately two to three feet. As with the other sampling procedure, a portion of the sample was used for field screening and the reminder was submitted to the laboratory for analysis. The same labeling and sampling handling procedures were used for this sampling method. The remaining sediment was then logged by the field personnel and placed back in the channel at approximately the same sampling location. The track-hoe bucket was then agitated beneath the water surface to remove any remaining sediment. The track-hoe bucket was steam-cleaned prior to the start and after the completion of the field activities.

2.3.2 Sediment Sample Analysis

One sediment sample was collected from each location. Seventeen of the environmental sediment samples were analyzed for VOCs by SW-846, Method 8260; twelve samples were analyzed for SVOCs by SW-846, Method 8270; fifteen samples were analyzed for the RCRA metals by SW-846, Method 7471 for mercury and Method 6010 for all others. Thirteen of the samples were analyzed for pesticides/PCBs by SW-846, Method 8080; twenty of the environmental samples were analyzed for gasoline range organics (GRO) by SW-846, Method 8015B (C6-C10) for diesel range organics (DRO) by Louisiana TPH Diesel and Oil Range Organics (C10-C20 and C20-C28) Method and oil and grease by Method SW-9071. The QA/QC, matrix spike, and matrix spike duplicate (MS/MSD) samples were analyzed for all of the above

mentioned analytical parameters except the IEBS-08 samples which were not analyzed for pesticides/PCBs.

2.3.3 Deviations

The SAP approved for the IHNC East Bank Sediment investigation was generally followed with some deviations, including the movement of various sampling points and changes in sediment sampling procedures. Sampling points were moved to accommodate either of the following: on-

site industrial activities, nature of the canal sediments, and the location of suspected areas of environmental impact along the bank of the canal. Sampling procedures in deep water (greater than three feet) were deviated from a barge-mounted drilling rig to a track-hoe with a 20-foot arm.

Sampling points were re-located at approximately 10% of the sediment sampling locations. Dames & Moore field personnel, working with McDonough Marine and Mayer Yacht personnel, re-located sampling points to avoid disrupting activities at these facilities. Sampling points were moved at areas underlain with very coarse material and/or metal debris which would not allow for the penetration of the hand core sampler,

A John Deere 590 track-hoe and a stainless steel hand core sediment sampler were used to obtain sediment samples from water depths greater than three feet. The track-hoe was positioned along the bank of the canal and the bucket was positioned in the vicinity of the sampling point. The bucket was lowered into the water and the underlying sediment to a depth of approximately four to five feet below the mudline. A section of canal sediment was obtained and the hand core sediment sampler was used to collect the sample from the bucket.

2.3.4 Data Validation and Usability

Samples analyzed by Pace Analytical, Inc. (Pace) of St. Rose, Louisiana were received in two laboratory reports. The quality control associated with the two packages (Episodes TTZ and TUO) displays similar characteristics and this discussion applies to the entire data set unless the text indicates otherwise. The data packages were reviewed for conformance to holding time requirements; blank contamination; MS/MSD, surrogate, and laboratory control sample (LCS) recoveries; and duplicate precision.

Some general observations that may be of interest to the data user are: (1) the laboratory analytical results are reported on an as-received basis (i.e., not corrected for dry weight as required by the SW-846 methods employed); (2) many of the samples displayed percent moistures of 50% or greater such that when dry weight correction factors are applied analytical results could more than double; and, (3) analysis of sample IEBS11 BS was cancelled for reasons not explained in the laboratory narrative. In the case of the VOCs, the QC acceptance limits proposed by the laboratory were unusually wide in comparison to historical industry norms. The review employed acceptance windows of 75% - 125% to assess recoveries of spikes. On the issue of dry weight, the LDEQ position is that soil sample results should be reported on a wet weight basis. The LDEQ feels that chemical concentrations reported in wet weight are representative of actual environmental conditions and therefore are appropriate for estimating exposure concentrations for the assessment to potential health risks.

2.3.4.1 Volatile Organic Compounds

Quality control among VOC samples was acceptable with the following exceptions: (1) positive results for methylene chloride were flagged "J" (estimated) and non-detects were flagged either "UJ" (estimated detection limit) or "R" (unusable) due to LCS recoveries less than the lower control limit. Matrix effects were evident in the results reported in Episode TTZ. A number of VOC compounds were flagged "UJ" as a result. Positive results for acetone were flagged "J" in some samples for the same reason. The QA and QC samples associated with the sample BACKGROUND display low levels of acetone not identified in the original field sample.

All other QC criteria were met.

2.3.4.2 Semivolatile Organic Compounds (SVOCs)

In Episode TTZ, benzoic acid was flagged "R" due to LCS failure. Hexachlorocyclo-pentadiene and hexachloroethane were flagged "R" due to severe matrix effects giving rise to very poor recoveries. The three dichlorbenzenes and pentachlorophenol were flagged "UJ" for the same reason.

In Episode TUO, benzoic acid displayed similar behavior, however in this episode some positive detections were reported. These were flagged "J". 4,6-Dinitro-2-methylphenol was also flagged "R" due to LCS failures. Hexachlorocyclopentadiene, hexachloro-ethane, and pentachlorophenol were flagged "R" due to severe matrix effects giving rise to very poor recoveries. The three dichlorbenzenes were flagged "UJ" for the same reason.

The QA sample associated with the sample BACKGROUND displays positive results for three polynuclear aromatic hydrocarbons (PAHs) not identified in the original field sample or the associated QC sample.

All other QC criteria were met.

2.3.4.3 Pesticides/PCBs

Endosulfan I and endosulfan II were flagged "R" in all samples due to severe matrix effects giving rise to very poor recoveries. The QA and QC samples associated with the sample BACKGROUND display positive detections for PCB-1254 not identified in the original field sample. The original sample displays a positive detection for 4,4'-DDE not identified in the QA or QC samples.

All other QC criteria were met.

2.3.4.4 Diesel Range Organics

All DRO results were positive and were flagged "J" due to matrix spike recoveries greater than the upper control limit. A positive bias is indicated. All other QC criteria were met.

2.3.4.5 Gasoline Range Organics

All QC criteria were met.

2.3.4.6 Metals

Cadmium, mercury, selenium and silver results in all samples were flagged as estimated values or estimated detection limits due to matrix spike recoveries less than the lower control limit. A negative bias is indicated. Significant variability is expressed in the results for barium and lead among the original sample, the QA sample, and the QC sample. All other QC criteria were met.

2.3.4.7 Oil and Grease

All oil and grease results were positive and were flagged "J" due to matrix spike recoveries greater than the upper control limit. A positive bias is indicated. All other QC criteria were met.

2.3.4.8 Usability

The analytical data, other than for those compounds flagged "R" due to LCS or matrix spike failures, are usable for purposes of risk-assessment, engineering design, compliance assessment, and/or other forms of decision making. However, the data user should be aware of the limitations expressed herein.

2.4 ANALYTICAL RESULTS

2.4.1 Volatile Organic Compounds

VOCs were reported below the laboratory detection limits for all compounds except acetone, 2-butanone, methylene chloride, and styrene. Acetone was detected in 14 of the 20 samples ranging 0.0102 parts per million (mg/kg) to 0.109 mg/kg, with the highest concentration being detected at IEBS-15. 2-butanone was detected in four of the 20 samples analyzed ranging from 0.0149 to 0.0225 mg/kg. Methylene chloride was detected in seven of the 20 samples analyzed ranging from 0.00552 to 0.00807 mg/kg. Styrene was detected at 0.00541 mg/kg from sample IEBS-09. Analytical results for volatile organic compounds can be found in Table 3.

It should also be noted that the above analytes, acetone and methylene chloride, are common laboratory solvents which may be artifacts of laboratory storage or analysis.

Table 3
Volatile Organic Compounds Detected in the East Bank Sediment Samples [1,2]

Sample Location	Acetone	2-Butanone	Methylene Chloride	Styrene
IEBS01-HS	24.5	ND (10)	ND (5)	ND (5)
IEBS03-HS	ND (10)	ND (10)	ND (5)	ND (5)
IEBS04-BS	25.1	ND (10)	5.78	ND (5)
IEBS05-HS	75.2	14.9	ND (5)	ND (5)
IEBS06-BS	ND (10)	ND (10)	7.37	ND (10)
IEBS08-HS	55.3	ND (10)	6.53	ND (5)
IEBS09-HS	75.7	ND (10)	5.52	5.41
IEBS10-HS	96.6	20.7	5.52	ND (5)
IEBS11-HS	63.3	15.1	ND (5)	ND (5)
IEBS13-HS	25.3	ND (10)	8.07	ND (5)
IEBS14-BS	ND (10)	ND (10)	5.69	ND (5)
IEBS15-HS	109	22.5	ND (5)	ND (5)
IEBS16-BS	ND (10)	ND (10)	ND (5)	ND (5)

IEBS17-HS	ND (10)	ND (10)	ND (5)	ND (5)
IEBS18-HS	29	ND (10)	ND (5)	ND (5)
IEBS20-HS	11.6	ND (10)	ND (5)	ND (5)
IEBS21-HS	14.3	ND (10)	ND (5)	ND (5)
IEBS22-HS	ND (10)	ND (10)	ND (5)	ND (5)
IEBS22-HS QA	13.5	ND (10)	ND (5)	ND (5)
IEBS22-HS QC	10.2	ND (10)	ND (5)	ND (5)

Notes: [1] Only the volatile organic compounds that were detected are included in this table.
[2] Concentrations are in parts per billion (ppb).
ND (10) = non detect at the specified detection limit.

2.4.2 Semi-Volatile Organic Compounds

Semi-volatile organic compounds were reported in 9 of the 13 sediment samples analyzed. Acenaphthalene was only detected in IEBS-08 at 1.63 mg/kg. Benzo(b)fluoranthene was detected in two samples at concentrations of 0.504 and 0.630 mg/kg. Benzo(k)fluoranthene was also detected in the above samples from 0.00054 and 0.000537 mg/kg. Benzoic acid was detected in IEBS-05 at 1.05 mg/kg and IEBS-10 at 1.18 mg/kg. Benzo(a)pyrene was detected at 0.378 mg/kg in IEBS-16 and at 0.423 mg/kg in IEBS-21. Chrysene was detected in IEBS-16 at 0.671 mg/kg and in IEBS-21 at 0.561 mg/kg. Bis(2 ethylhexyl)phthalate was detected in five sediment samples ranging in concentration from 0.506 to 2.23 mg/kg. Fluoranthene was also detected in five sediment samples ranging from 0.4 to 1.49 mg/kg. The compound n-nitrosodiphenylamine was detected at 1.22 mg/kg in sediment sample IEBS-21. Phenanthrene was detected in three samples, ranging from 0.452 to 0.68 mg/kg. Pyrene was detected in six samples ranging from 0.338 to 1.21 mg/kg. Analytical results for semi-volatile organic compounds can be found in Table 4.

2.4.3 RCRA 8 Metals

Six of the 8 RCRA metals were detected at the site. Arsenic was detected in all samples analyzed (except IEBS-16) ranging from 1.02 to 16.9 mg/kg. Barium was also detected in all of the sediment samples (except IEBS-10) ranging from 50.9 to 585 mg/kg. Cadmium was detected in only one sample IEBS-14, at a concentration of 12 mg/kg. Chromium was detected in each sample ranging from 1.64 to 628 mg/kg. Lead was detected in all of the sediment samples with concentrations ranging from 2.3 to 1,370 mg/kg. Mercury was detected in one sediment sample, IEBS-14 at a concentration of 1.1 mg/kg. Selenium and silver were not detected in any of the sediment samples. Analytical results can be found in Table 5.

Table 5
Metal Compounds Detected in the East Bank Sediments[1]

Sample Location	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
IEBS01-HS	***4.94***	585	ND (0.5)	9.58	94.8	ND (0.1)	ND (0.5)	ND (1)
IEBS02-HS	**16.9**	225	ND (0.5)	628	33.7	ND (0.1)	ND (0.5)	ND (1)
IEBS03-HS	***11.2***	169	ND (0.5)	8.25	**1,370**	ND (0.1)	ND (0.5)	ND (1)
IEBS05-HS	***4.31***	224	ND (0.5)	11.4	43.6	ND (0.1)	ND (0.5)	ND (1)
IEBS07-HS	**1.28**	219	ND (0.5)	14.5	182	ND (0.1)	ND (0.5)	ND (1)
IEBS08-HS	***3.13***	58.7	ND (0.5)	7.82	9.56	ND (0.1)	ND (0.5)	ND (1)
IEBS10-HS	**1.02**	ND (20)	ND (0.5)	1.64	2.3	ND (0.1)	ND (0.5)	ND (1)
IEBS11-HS	***3.16***	117	ND (0.5)	12.2	12.8	ND (0.1)	ND (0.5)	ND (1)
IEBS13-HS	***3.55***	110	ND (0.5)	13.2	132	ND (0.1)	ND (0.5)	ND (1)
IEBS14-BS	***13***	437	12	50.6	**967**	1.1	ND (0.5)	ND (1)

IEBS16-BS	ND (1)	60.9	ND (0.5)	20.5	83.8	ND (0.1)	ND (0.5)	ND (1)
IEBS20-HS	***6.34***	210	ND (0.5)	351	281	ND (0.1)	ND (0.5)	ND (1)
IEBS21-HS	**1.71**	100	ND (0.5)	21.9	278	ND (0.1)	ND (0.5)	ND (1)
IEBS22-HS	***3.55***	50.9	ND (0.5)	11.1	42.3	ND (0.1)	ND (0.5)	ND (1)
IEBS22-HS QA	***4.28***	86.7	ND (0.5)	17.6	87.6	ND (0.1)	ND (0.5)	ND (1)
IEBS22-HS QC	**2.6**	63.3	ND (0.5)	17.9	236	ND (0.1)	ND (0.5)	ND (1)

Notes: [1] Concentrations are in parts per million (mg/kg)
Bold = concentration exceeds the MO-1 guidelines for soil for a non-industrial site ($SOIL_{NI}$) as presented in Section 2.3.2 of the report.
Bold = concentration exceeds the MO-1 guidelines for soil for a non-industrial site ($SOIL_{NI}$) and an industrial site ($SOIL_I$) as presented in Section 2.3.2 of the report
ND (0.5) = non detect at the specified detection limit
QA = quality assurance sample
QC = quality control sample

2.4.4 Pesticides/PCBs

The pesticide 4,4'-DDE was detected in IEBS-16 at 0.153 mg/kg and IEBS-22 at 0.0034 mg/kg. Endosulfan was also detected in (IEBS-16) at 0.05 mg/kg. Aroclor at two locations, IEBS-16 and IEBS-22 (Background). Aroclor was also detected in the QA/QC samples from IEBS-22. No other PCB analytes were detected. Analytical results for pesticides/PCBs can be found in Table 6.

TABLE 6
Pesticide/PCB Compounds Detected in the East Bank Sediments[1,2]

Sample Location	4,4'-DDE	Endosulfan I	Aroclor 1254
IEBS01-HS	ND (66)	ND (34)	ND (666)
IEBS02-HS	ND (66)	ND (34)	ND (666)
IEBS03-HS	ND (66)	ND (34)	ND (666)
IEBS05-HS	ND (66)	ND (34)	ND (666)
IEBS07-HS	ND (66)	ND (34)	ND (666)
IEBS10-HS	ND (3.3)	ND (1.7)	ND (33.3)
IEBS11-HS	ND (3.3)	ND (1.7)	ND (33.3)
IEBS14-BS	ND (66)	ND (34)	ND (666)
IEBS16-BS	153	50	***4,850***
IEBS20-HS	ND (66)	ND (34)	ND (666)
IEBS21-HS	ND (66)	ND (34)	ND (666)
IEBS22-HS	3.34	ND (1.7)	105
IEBS22-HS QA	ND (3.3)	ND (1.7)	75.2
IEBS22-HS QC	ND (3.3)	ND (1.7)	64.1

Notes: [1] Only the pesticide/PCBs compounds that were detected are included on this table.
[2] Concentrations are in parts per billion (ppb).
Bold = concentration exceeds the MO-1 guidelines for soil for a non-industrial site ($SOIL_{ni}$) as presented in Section 2.3.2 of the report.

Bold = concentration exceeds the MO-1 guidelines for soil for a non-industrial site ($SOIL_{ni}$) and an industrial site ($SOIL_i$) as presented in Section 2.3.2 of the report
ND (3.3) = non detect at the specified concentration
QA = quality assurance sample
QC = quality control sample

2.4.5 Total Petroleum Hydrocarbons/Oil and Grease

Diesel range hydrocarbons were detected in 18 sediment samples ranging 10 to 2,930 :g/kg or ppb. Gasoline range hydrocarbons were only detected in one sample, IEBS-05, at 23,700 mg/kg. The detectable concentrations of oil and grease ranged from 194 to 24,200 mg/kg. Analytical results for petroleum hydrocarbons can be found on Table 7.

TABLE 7
Total Petroleum Hydrocarbons (DRO and GRO) and Oil/Grease Compounds Detected in the East Bank Sediments[1]

Sample Location	Diesel Range Organics [1]	Gasoline Range Organics [2]	Oil and Grease [1]
IEBS01-HS	ND (163)	ND (5000)	**5,310**
IEBS03-HS	21.7	ND (5000)	241
IEBS04-BS	57.1	ND (5000)	**4,340**
IEBS05-HS	63.4	**23,700**	**1,990**
IEBS06-BS	ND (6.5)	ND (5000)	ND (50)
IEBS08-HS	58.2	ND (5000)	ND (50)
IEBS09-HS	10	ND (5000)	**24,200**
IEBS10-HS	ND (6.5)	ND (5000)	194
IEBS11-HS	ND (6.5)	ND (5000)	729
IEBS12-HS	9.29	ND (5000)	403
IEBS13-HS	262	ND (5000)	**3,940**
IEBS14-BS	558	ND (5000)	**2,620**
IEBS15HS	**2,930**	ND (5000)	**7,640**
IEBS16-BS	32.6	ND (5000)	412
IEBS17-HS	275	ND (5000)	**1,530**
IEBS18-HS	**704**	ND (5000)	NS
IEBS19-BS	86.8	ND (5000)	1,240
IEBS20-HS	102	ND (5000)	**3,510**
IEBS21-HS	351	ND (5000)	**2,190**
IEBS22-HS	85	ND (5000)	647
IEBS22-HS QA	101	ND (5000)	852
IEBS22-HS QC	86.3	ND (5000)	1,080

Notes: [1] Diesel Range Organic/Oil and Grease concentrations are in parts per million (mg/kg).
[2] Gasoline Range Organic concentrations are in parts per billion (ppb)
Bold = concentration exceeds the MO-1 guidelines for soil for a non-industrial site ($SOIL_{ni}$) as presented in Section 2.3.2 of the report.
Bold = concentration exceeds the MO-1 guidelines at soil for a non-industrial site ($SOIL_{ni}$) and at an industrial site ($SOIL_i$) as presented in Section 2.3.2 of the report
ND (5000) = non detect at the specified detection limit.
QA = quality assurance sample.
QC = quality control sample.

2.5 ENVIRONMENTAL IMPACT

As a result of this investigation, there appears to be a limited amount of environmental impact in the sediments along the east bank of the industrial canal. Constituents of concern are semi-volatile organic compounds petroleum hydrocarbons, the metals arsenic and lead, and the PCB Aroclor 1254. Sediment samples with detectable concentrations above the non-industrial and/or industrial standards established by the Louisiana Department of Environmental Quality (LDEQ) were considered to be impacted and

represented potential areas of concern (see Figures 5 and 6). It should be noted that the areas of potential environmental impact are arbitrary and the volumes presented in this report are subject to change as more data is assimilated.

2.5.1 RECAP Overview

The management and disposal options for the sediments along the east bank of the IHNC could fall under the framework of the RECAP of the LDEQ. This program is a mechanism by which past and present releases can be addressed by the LDEQ. The program consists of a tiered framework which is comprised of a Screening Option (SO) and three Management Options (MO). The tiered Management Options allow site evaluations and corrective actions to be site specific. Each tier of the RECAP are briefly described in the following text.

Management Option 1 (MO-1) provides LDEQ derived standards for various constituents of concern in soil and groundwater. The standards presented in this option are weighted toward future site conditions and usage, with the most conservative standards being directed toward the non-industrial/residential exposure scenario. For this report, Dames & Moore has assumed that the sediments failing this management option for non-industrial and industrial exposure scenarios are impacted and may require special handling during the course of the IHNC Lock Replacement Project. The standards are protective of human health and the environment and were derived for non-industrial (residential) and industrial exposure scenarios. MO-1 can be used to document that an area of concern does not pose a threat to human health or the environment and therefore, would not warrant further action. MO-1 standards for soil and groundwater can be found in Table 2 of the RECAP document dated December 20, 1998. If the area of concern or constituents of concern do not meet the criteria for management under MO-1, environmental impact may be addressed under MO-2 or MO-3.

Management Option 2 (MO-2) provides the option of using site-specific data with specified analytical models to evaluate constituent fate and transport at a site of environmental impact. The results of this site-specific evaluation are used in conjunction with reasonable maximum exposure assumptions to identify site-specific MO-2 RECAP standards. These standards represent constituent concentrations in soil and groundwater that are protective of human health and the environment under site-specific conditions. If exposure/source concentrations are less than or equal to the site-specific MO-2 limiting RECAP Standards, then the LDEQ may require no further action. If the site does not meet the criteria for management under this tier (MO-2), environmental impact may be addressed under MO-3.

Management Option 3 (MO-3) provides the option of using site-specific data for the evaluation of exposure and the evaluation of environmental fate and transport at a site. The results of this site-specific evaluation can be used to estimate health risks or to develop site-specific MO-3 RS.

The SO serves as a mechanism by which areas of potential environmental impact can be identified for further evaluation under one of the MOs. If the exposure/source concentrations are less than or equal to the standards of the SO, then the LDEQ may require no further action. These Screening Standards (SS) may also be used to screen out areas of a facility, media, or constituents of concern that do not warrant further evaluation. The SS can be found in Table 1 of the RECAP document dated December 20, 1998.

2.5.2 RECAP MO-1 Standards

Analytical results of the various compounds were compared to the RECAP standards for Management Option 1 (MO-1). This standard was used to determine environmental impact in sediments along the canal. **Due to the fact that the sediment was in contact with another media (surface water), the RECAP screening option for soil could not be used.** The RECAP standards according to the MO-1 for soils in both non-industrial ($SOIL_{ni}$) and industrial ($SOIL_i$) sites, are presented below in Table 8.

Table 8 – RECAP Standards (1999 update)

Regulatory Levels for Volatile Organic Compounds (mg/kg)			
MO-1 $SOIL_{ni}$ (SSni)		MO-1 $SOIL_i$ (SSi)	
Acetone	1,600	Acetone	14,000
2-butanone	NL	2-butanone	NL
Methylene Chloride	18	Methylene Chloride	44
Styrene	4,500	Styrene	41,000
Regulatory Levels for Semi-Volatile Organic Compounds (mg/kg)			
MO-1 $SOIL_{ni}$ (SSni)		MO-1 $SOIL_i$ (SSi)	
Acenaphthene	2,600	Acenaphthene	39,000
Benzo(b)fluoranthene	0.56	Benzo(b)fluoranthene	3.6
Benzo(k)fluoranthene	5.5	Benzo(k)fluoranthene	35
Benzoic Acid	NL	Benzoic Acid	NL
Benzo(a)pyrene	0.33	Benzo(a)pyrene	0.36
Chrysene	61	Chrysene	400
Bis(2 ethylhexyl)phthalate	32	Bis(2 ethylhexyl)phthalate	210
Fluoranthene	2,000	Fluoranthene	36,000
n-nitrosodiphenylamine	83	n-nitrosodiphenylamine	470
Phenanthrene	NL	Phenanthrene	NL
Pyrene	1,500	Pyrene	27,000
Regulatory Levels for Pesticides/Herbicides (mg/kg)			
MO-1 $SOIL_{ni}$ (SSni)		MO-1 $SOIL_i$ (SSi)	
4-4' - DDE *	1.6	4, 4' – DDE	12
Endosulfan 1 **	310	Endosulfan	5,300
Aroclor 1254 ***	0.19	Aroclor	1.1
Regulatory Levels for Metals (mg/kg)			
MO-1 $SOIL_{ni}$ (SSni)		MO-1 $SOIL_i$ (SSi)	
Arsenic	.38	Arsenic	3.0
Barium	5,200	Barium	130,000
Cadmium	37	Cadmium	940
Chromium	110,000 (III) 220 VI	Chromium	1,000,0000 (III) and 5600 (VI)
Lead	400	Lead	1,700
Mercury	22	Mercury	560
Regulatory Levels for TPH/Oil and Grease (mg/kg)			
TPH-DRO	610	TPH-DRO	5,000
TPH-GRO	610	TPH-GRO	5,000
Oil and Grease	1,400	Oil and Grease	10,000

NL =not listed
* as DDE
** as Endosulfan
*** as PCB

2.5.2.1 Volatile Organic Compounds

Volatile organic compounds were reported below the laboratory detection limits (0.05 and 0.01 mg/kg) for all compounds except acetone, 2-butanone, methylene chloride, and styrene. Acetone was detected in the range of 0.0102 to 0.109 mg/kg, below the MO-1 non-industrial and industrial standards of 1,600 and 14,000 mg/kg respectively. 2-butanone was detected in the range of 0.0149 to 0.0225 mg/kg. At this time, the LDEQ has not established a standard for 2-butanone. The concentrations for methylene chloride were in the range of 0.00552 to 0.00807 mg/kg and are below MO-1 standards 18 and 44 mg/kg. Styrene was detected at 0.00541 mg/kg which is below the MO-1 non-industrial and industrial standards of 4,500 and 41,000 mg/kg respectively.

2.5.2.2 Semi Volatile Organic Compounds

Semi-volatile organic compounds, such as acenaphthalene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzoic acid, benzo(a)pyrene, chrysene, bis(2 ethylhexyl)phthalate, fluoranthene, n-nitrosodiphenylamine, phenanthrene, and pyrene, were detected in nine of the 13 sediment samples analyzed. Of the semi-volatile organic compounds listed above, all but benzo(a)pyrene were found to be below the MO-1 non-industrial and industrial standards listed on Table 2 of the RECAP document.

Benzo(a)pyrene was reported to be above the RECAP MO-1 standards of 0.33 mg/kg for non-industrial conditions and 0.36 mg/kg for industrial conditions. This analyte was detected in sediment samples collected adjacent to the bank along Boland Marine, as shown in Figure 5.

2.5.2.3 RCRA 8 Metals

Detectable concentrations of arsenic were above the non-industrial standard of 0.38 mg/kg and 11 of the 15 sediment samples were above the industrial standard of 3.0 mg/kg. Barium was also detected but at concentrations below the MO-1 non-industrial and industrial standards of 5,200 and 130,000 mg/kg, respectively. Chromium was detected at concentrations below the MO-1 standards of 220 mg/kg and 5,600 mg/kg for chromium VI and 110,000 and 1,000,000 mg/kg for chromium III. Lead concentrations were reported above the MO-1 non-industrial standard of 400 mg/kg in two samples. Mercury and Cadmium were detected in one sample at concentrations below the MO-1 standards of 22 and 560 mg/kg for mercury and 37 and 940 mg/kg for Cadmium. Selenium and Silver were reported at concentrations below the laboratory detection limits of 0.5 and 1.0 mg/kg respectively.

Although the sediment samples collected were not analyzed by the Toxicity Characteristic Leaching Procedures (TCLP), the theoretical conversion of total concentration values to TCLP values using a dilution factor of 20 found chromium and lead concentrations at several locations to have failed the Toxicity Characteristic Regulatory Levels of 5 mg/kg. Converted concentrations of chromium above 5 mg/kg were reported in two of the 16 samples collected and converted lead above 5 mg/kg were reported in seven of the 16 samples collected.

Arsenic above the RECAP MO-1 standards was reported in several of the sediment samples collected. **Potential areas of concern have been highlighted on Figure 6.** Lead was also reported at two locations to be above the RECAP MO-1 standards. **It should be noted that the metals detected in the sediment samples collected may be associated with the adjacent soils and represent background concentrations.**

2.5.2.4 Pesticides/PCBs

Aroclor 1254 was the only PCB detected in the samples collected. The detectable concentration of Aroclor 1254 was above the MO-1 non-industrial and industrial standards of 0.19 and 1.1 mg/kg, respectively. Aroclor 1254 was detected in the sediment sample (IEBS16) collected at a location adjacent to a former transformer unit located at Boland Marine, see Figure 7.

2.5.2.5 Total Petroleum Hydrocarbons/Oil and Grease

Total petroleum hydrocarbons (DRO and GRO) with oil and grease were detected in several of the sediment samples collected along the east bank of the IHNC, as shown on Figure 8. Gasoline range hydrocarbons above the RECAP MO-1 standards (610 and 5,000 mg/kg) were not reported in the samples collected. Diesel range hydrocarbons above the RECAP MO-1 standards (610 and 5,000 mg/kg) were reported in the sample samples collected along the wharf of Boland Marine and along the banks of McDonough Marine, Mayer Yacht/Distributor's Oil and International Tank.

Oil and Grease was detected above the MO-1 standard of 1,400 mg/kg for non-industrial sites in 10 of the samples collected. The highest concentration of oil and grease was 24,200 mg/kg which was not only above the MO-1 standard for non-industrial sites but above the MO-1 standard for industrial sites of 10,000 mg/kg. Oil and grease was detected in the sediment samples collected in the vicinity of abandoned barges along the bank of Saucer Marine and along the banks of Boland Marine, McDonough Marine, Mayer Yacht/Distributor's Oil and International Tank.

The areas of impact associated with petroleum hydrocarbons appear to be associated with past industrial activities.

2.6 BARGE INVENTORY

Nine abandoned vessels (barges) have been identified by the Louisiana Oil Spill Coordinator's Office (LOSCO) along the waterfront of Saucer Marine. The LOSCO report on these vessels can be found in Appendix D. Photographs of these vessels can be found in Appendix E.

A review of these documents and a site reconnaissance of the waterfront at Saucer Marine by Dames & Moore personnel on September 9, 1999 confirmed the LOSCO Identification Number and the presence of each vessel. The vessels were also inspected for the presence of environmental impact and for the potential to have caused environmental impact in the surrounding sediments. Each vessel was observed to be in various stages of decay and all were observed to be submerged or partially submerged. No evidence of on-going release was observed at the time of the site visit. Analytical data for the sediment samples collected in the vicinity of the barges indicate evidence of environmental impact that may have been a result of past releases from those barges. It has been documented that a fuel dispensing system was located on one of the barges (LOSCO #36-042) located at Saucer Marine.

Gasoline range hydrocarbons with oil and grease above the RECAP MO-1 standards were reported in the samples collected in the vicinity of these barges located along Saucer Marine.

3 REGULATORY REVIEW

The management and disposal options for the sediments along the east bank of the IHNC could fall under the same regulatory requirements as that required for the shallow soils along the east bank industrial area. After the sediments have been removed from the canal and dewatered, the sediment should be considered as soil and managed as such. Dewatered sediment with analytical results meeting the RECAP standards for MO-1 should be considered as "clean" and may be stockpiled for re-use on site or removed for off-site disposal. Two locations have been identified by the USACE for depositing the "clean" materials removed from the IHNC. Excavated materials may be either discharged directly to the Mississippi River or placed at a wetlands mitigation site located to the northeast of the project area.

Materials with analytical results less than the RECAP standards for MO-1 may be considered by the LDEQ to be suitable for re-use at industrial sites. A complete list of LDEQ RECAP standards can be found in Tables 1 and 2 of the RECAP document dated December 20, 1998. Revisions to the RECAP document have been proposed for December 1999.

It should be noted that prior to the re-use of any materials from the IHNC, approval from the LDEQ must be granted. Supplementary sampling and analysis may be required at locations where previously analyzed samples were not tested for all probable constituents of concern. These sample locations would be considered as data gaps and would require additional sampling.

3.1 Hazardous and Industrial Solid Waste

Industrial Solid Waste is defined as solid waste generated by a manufacturing, industrial, or mining process, or which is contaminated by solid waste generated by such a process. Such waste may include, but is not limited to, waste resulting from the following manufacturing processes: electric power generation; fertilizer/agricultural chemicals; food and related products; by-products; inorganic chemicals; iron and steel manufacturing; leather and leather products; nonferrous metals manufacturing/foundries; organic chemicals; plastics and resins manufacturing; pulp and paper industry; rubber and miscellaneous plastic products; stone; glass, clay and concrete products; textile manufacturing; and transportation equipment. This does not include hazardous waste regulated under the Louisiana Hazardous Waste Regulations or under federal law, or waste which is subject to regulation under the Office of Conservation's Statewide Order No. 29-B, or by other agencies (LAC 33:VII.115).

Persons who generate industrial solid waste or persons who transport, process, or dispose of solid waste must, within 30 days after becoming subject to the solid waste regulations, notify the administrative authority (Louisiana Department of Environmental Quality) in writing of this activity (LAC 33:VII.503.A1). Generators must also submit annual reports to the administrative authority listing the types and quantities, in wet-weight tons per year, of industrial solid waste they have disposed of off site. This report must include the name of the transporter(s) who removed the industrial solid waste from the site and the permitted solid waste processing or disposal facility or facilities that processed or disposed of the waste. This form may be obtained from the Solid Waste Division and must be submitted by August 1 of each reporting year. Generators must maintain, for two years, all records concerning the types and quantities of industrial solid waste disposed of off site (LAC 33:VII.701).

No solid waste shall be stored or allowed to accumulate long enough to cause a nuisance, health hazard, or detriment to the environment as determined by the administrative authority (LAC 33:VII.703.A1).

A solid waste that exhibits the characteristic of toxicity, but is not listed as a hazardous waste in LAC 33:V.4901, has the Hazardous Waste Number that corresponds to the toxic contaminant causing it to be hazardous. The Hazardous Waste Number can be found in Table 5 of the LAC 33:V.4901 document. The maximum concentration of lead in soil that has undergone TCLP is 5.0 milligrams per liter (mg/L). Any amount of contaminate below that threshold does not have to be treated as hazardous waste (LAC 33:V.4903).

If a categorically hazardous waste is discharged without authorization and threatens or results in an emergency condition (that causes danger to public health and safety, causes significant adverse impact to the land, water or air, or severe property damage), the discharger must notify the Department of Public Safety 24-hour Louisiana Hazardous Materials Hotline at 504-925-6595 within one hour of the discharge and in accordance with other provisions of the LAC 33:I.Chapter 39. For all other non-emergency conditions, notification to Louisiana Hazardous Materials Hotline must be given within 24 hours of the discharge (LAC 33:V.105.J).

Samples which are collected for the sole purpose of testing to determine its characteristics or composition, are not subject to any requirements of LAC 33:V.Subpart I or to the notification requirements of LAC 33:V.Subpart I, Subsection A. When the sample is being transported to a laboratory for the purpose of testing or the sample is being stored by the sample collector before transport to a laboratory for testing (LAC 33:V.105.D.4a). In order to be eligible for the above referenced exemption, a sample collector shipping samples to a laboratory must comply with the Louisiana Department of Public Safety (LDPS), U.S. Postal Service (USPS) or any other applicable shipping requirements (LAC 33:V.105.D.4b).

A generator who transports, or offers for transportation, hazardous waste for off-site treatment, storage, or disposal must prepare a manifest before transporting the waste off site pursuant to the requirements of LAC 33:V.1107 – 1111. All generators must comply with the requirements of LAC 33:V.1511. Each generator shall prepare a contingency plan. The contingency plan must include the information as specified in LAC 33:V.1513.A, B, C, D.2, and F. The contingency plan shall include a section describing emergency response procedure as specified in LAC 33:V.1513.F.

4 DISPOSAL/TREATMENT OPTIONS

Assuming LDEQ rules that the MO-1 standards are applicable for the sediments along the east bank of the IHNC, the RECAP document would be used to develop a management plan for the removal and disposal of impacted sediments observed along the east bank of the IHNC. As discussed in Section 2.5.1, the RECAP document outlines a tiered framework which is comprised of four options; a Screening Option (SO) and three Management Options (MO-1, MO-2, and MO-3). The SO and MO-1 options have LDEQ derived RECAP standards for soil and groundwater contaminant levels which are subdivided into non-industrial (residential) and industrial standards. MO-2 and MO-3 management options rely on fate and transport models to develop site specific clean up standards. This tiered management framework allows for site evaluation and corrective action efforts to be tailored to site-specific conditions and risk.

The screening option and the three management options of the RECAP program are primarily tailored to rehabilitate soil and groundwater conditions to site-specific clean up standards based on current and or future site development plans. The future utilization of a site which follows the RECAP document clean up procedures generally does not require off site soil re-use. In other words, the environmental impact at a particular site are remediated to site-specific conditions and remain at the site of concern. For the IHNC project, the sediments and shallow soils along the east bank of the IHNC between Florida and Claiborne Avenues are to be excavated and relocated due to the construction of a by-pass channel. Therefore, due to future site use the RECAP document section on soil re-use for on-site and off-site disposal may be ruled applicable by the LDEQ.

4.1 Soil Re-Use

Re-using materials on site or off site requires written authorization from the LDEQ. The Department approves soil re-use on a case by case site specific basis. Confirmatory samples of the materials to be managed are required prior to requesting LDEQ re-use approval. In addition, a description of the source site conditions, proposed receptors, and management procedures prior to re-use should be provided to the Department. It should be noted that the LDEQ does not have a re-use classification for sediments. Therefore, the sediments removed along the banks of the industrial canal will be managed as soil after de-watering using the soil re-use standards presented in the RECAP document.

Two locations have been identified for depositing the clean materials excavated from the IHNC project area. A portion of the excavated clean material may be discharged directly into the Mississippi River, south of the project area. Clean material may also be placed at the mitigation site, located to the northeast on the project area. This mitigation site will be a constructed wetland area, developed to compensate for wetlands damaged at the grading site. Materials (sediments and soils) with concentrations below the RECAP Soni standards should also pass standards for aqueous disposal at the Mississippi River and the mitigation site. Both of these sites are ecologically sensitive non-industrial areas and therefore, the most conservative soil standards must be met.

Materials meeting the RECAP standards for industrial sites may be used as backfill around the new lock proposed at the IHNC project area or disposed at the Mississippi River Gulf Outlet (MRGO) site. Materials disposed at the MRGO site will be placed along the south bank of the MRGO/IWW and confined. Materials previously exceeding the industrial standards which, following treatment (chemical, thermal, extraction, or washing) meet the industrial standards, may be used as lock backfill or placed to the MRGO site.

Material containing petroleum hydrocarbons may be incorporated into bituminous pavement with permission from the LDEQ. After locating a bituminous pavement plant willing to accept the impacted materials, site specific information and soil laboratory data must be submitted to the Department for review. The LDEQ decides on a case by case basis if petroleum impacted materials may be re-used as asphalt concrete components.

4.2 Soil Treatment Options

Materials that do not meet the RECAP standards for non-industrial and industrial sites may be treated thermally, biologically, or chemically, by various treatment options (i.e., soil washing, or land-spreading). The shallow soils and sediments at the IHNC project area are primarily impacted with arsenic, SVOCs, and petroleum hydrocarbons.

Thermal Treatment

Material remediation by thermal treatment is designed to remediate material impacted with petroleum hydrocarbons and solvents. Remediation is done by rapidly volatilizing the volatile compounds from the material, then thermally destructing them in an air pollution control system. The major mechanical components of the unit consist of; a control house, soil feed system including a weigh scale, a rotary drum desorber, a treated material handling system, a bag house and a thermal oxidizer air pollution control system. Auxiliary systems include fuel, and water delivery systems and a process control, monitoring and interlock system.

Some of the materials at the IHNC project area may require only chemical treatment, only thermal treatment, or thermal treatment followed by chemical treatment depending on the material contaminants. Following treatment, laboratory samples are collected and analyzed. Materials meeting the LDEQ RECAP standards may then be deposited at an appropriate receptor. Materials transported to non-industrial and/or industrial receptor sites must meet the non-industrial and industrial standards presented in Table 2 of the RECAP document.

Biological Treatment (Land-spreading)

The potential for biological treatment of materials at the IHNC site applies to materials impacted with semi-volatile organic compounds, volatile organic compounds, and petroleum hydrocarbons. The most applicable biological treatment method for this site is land-spreading, also known as land-farming. Traditional in situ treatment methods (soil vapor extraction a.k.a. SVE and/or bioventing) are not feasible at this site for several reasons. First, both of these methods require system installation that would become an issue with future site development plans. These systems would interfere with related site activities such as the excavation of the bypass channel and the demolition of existing structures. Secondly, several systems, all requiring routine monitoring and maintenance, would need to be constructed throughout the site to accommodate individual source areas.

Land-spreading is an ex situ treatment method and is most effective at temperatures above forty (40) degrees Fahrenheit. Materials impacted with semi-volatile, volatile, and petroleum hydrocarbons would be excavated and placed on an impermeable and petroleum retardant tarpaulin. A berm constructed of straw or equivalent and covered by the above mentioned tarpaulin should serve to contain the contaminated materials and associated runoff. Materials placed in these bio-cells should not exceed a thickness of twelve (12) inches and should be turned weekly. Mixing/turning of the soils promotes exposure to the atmosphere that facilitates volatilization and biodegradation. Runoff collected in the bio-cells could be sampled and

analyzed prior to being drained. Materials can also be sampled monthly to track the treatment process. Land-spread treatment methods require approximately three to six months per bio-cell depending on weather conditions and organic activities in the cell.

Chemical Treatment

Chemical treatment by the Maectite® process adapts a mineralogical process found in nature. Toxic metals, such as lead and arsenic, are permanently substituted into stable, non-leaching mineral crystalline forms which do not break down. The treatment process applies reagents to the impacted soil that initiates the formation of a heavy metal-bearing mixed crystal species of the apatite family. This treatment process may be done directly to impacted soil (in situ), in containment cells (ex situ), or upstream in a waste generating process (in-line). The process can reduce overall volume of impacted material by the reduction of carbonates in the soil to CO_2, the release of water via evaporation, or by the formation of inherently compact, dense crystalline structures.

Off-Site Landfill Disposal (Dig and Haul)

Soils which, when excavated from the IHNC site, do not comply with SOni or SOi, are not being considered for treatment or re-use in pavement, and pass TCLP may be disposed of in a landfill licensed to accept industrial solid waste. **It should be noted that soils removed from the site that have failed TCLP must be disposed of in a hazardous waste landfill**. Hazardous waste disposal is not anticipated to be required for the IHNC site. Louisiana Department of Environmental Quality Regulations Title 33, Part V (Hazardous Waste) and Part VII (Solid Waste) should be followed for all materials being placed in a landfill.

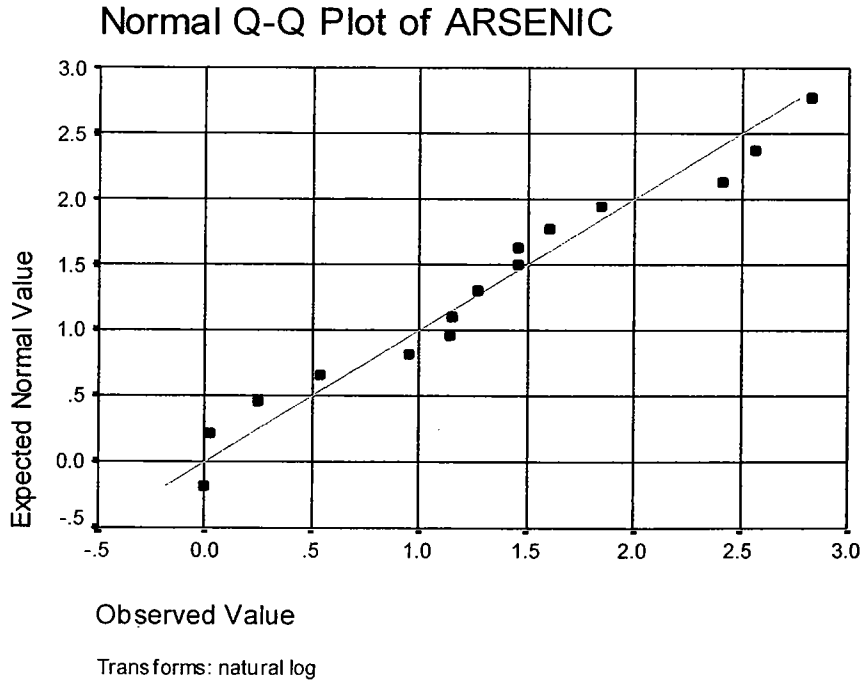
5 Background Arsenic Levels

In Section 2.4 and 2.5, all sediment samples including sample IEBS 22 (assumed background sample) yielded arsenic (As) concentration levels above the LDEQ RECAP standard for arsenic. Likewise, the LDEQ recognizes that the arsenic detected in the soils considered as native or as natural background would also fail the RECAP standard. It should be noted that the RECAP standard presented by the LDEQ is a risked-based screening standard.

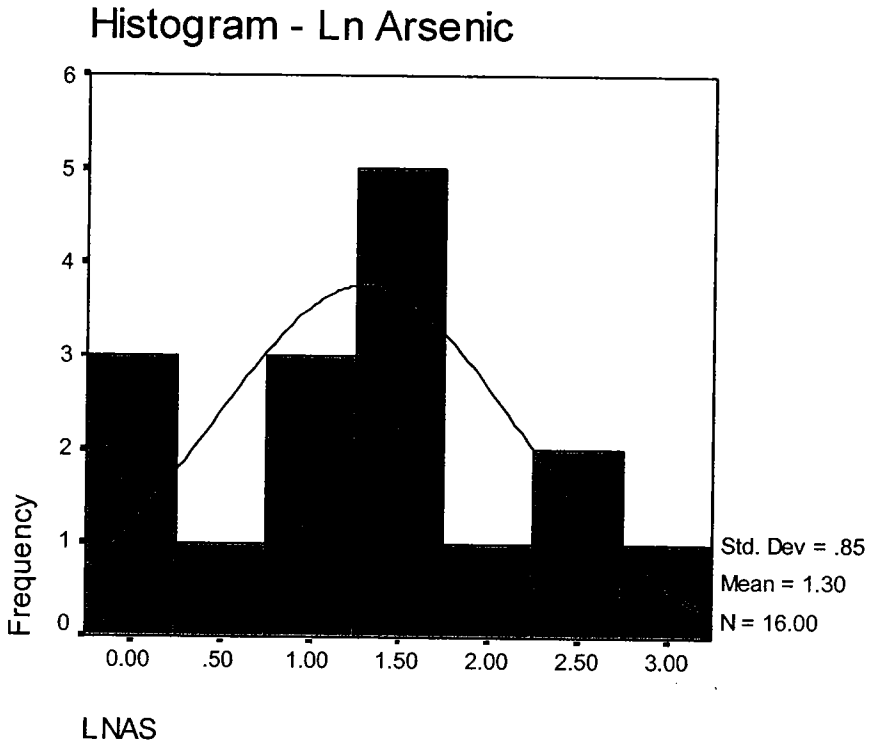
The following discussion is one attempt to investigate what can be considered as representative of background arsenic at the IHNC.

Sixteen values for arsenic are included in this censored data data set (i.e. non-detect samples have been given assigned values and are included in the statistical analysis). These sixteen values were not considered to be normally distributed and, therefore were transformed by taking the natural log to obtain a log normal distribution. (A "Normal Q-Q Plot" is included to support the log normal distribution assumption.) It should also be noted that the data considered in this statistical evaluation included QA/QA and non-detect data. For the non-detect samples, the laboratory reporting limit was assigned and used in the statistical analysis. This is a more conservative approach than EPA protocol which utilizes half the laboratory detection limit in statistical analysis.

Arsenic	Ln Arsenic
4.94	1.60
16.90	2.83
11.20	2.42
4.31	1.46
1.28	0.25
3.13	1.14
1.02	0.02
3.16	1.15
3.55	1.27
13.00	2.56
1.00	0.00
6.34	1.85
1.71	0.54
3.55	1.27
4.28	1.45
2.60	0.96

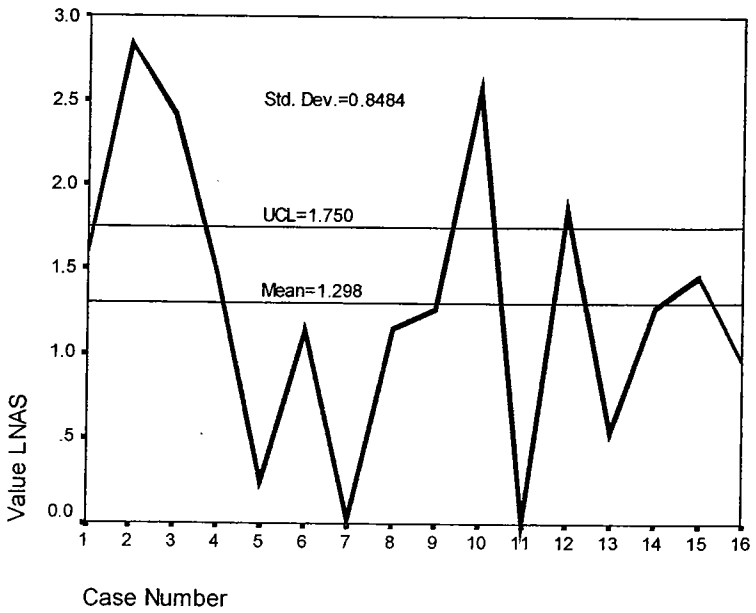


A histogram with Ln Arsenic is included below with the normal distribution line super-imposed. For these 16 samples, the mean is 1.3 (3.67 mg/kg) and the standard deviation is 0.85 (2.34 n



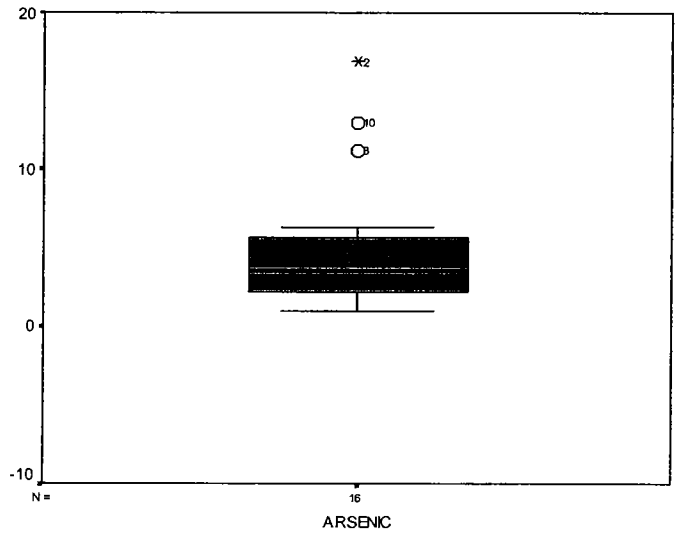
Descriptive statistics were generated for this data set using MS Excel 97 SR-2. They are listed in the table below. The 95% confidence level is 0.452095. When added to the mean we get a 95% Upper Confidence Limit (UCL) of 1.75 (5.75 mg/kg). (The 99% UCL is 1.925 or 6.86 mg/kg.)

Ln Arsenic – Descriptive Statistics	
Mean	1.298125
Standard Error	0.212107
Median	1.27
Mode	1.27
Standard Deviation	0.848428
Sample Variance	0.71983
Kurtosis	-0.48064
Skewness	0.163538
Range	2.83
Minimum	0
Maximum	2.83
Sum	20.77
Count	16
Confidence Level (95%)	0.452095
Confidence Level (99%)	0.625



Ln Arsenic values are plotted above by case number (numbered samples). Also plotted is the mean and 95% UCL. Four values from left to right, fall outside the 95% UCL; they are: 2.83 (16.9 mg/kg), 2.42 (11.2 mg/kg), 2.56 (13 mg/kg), and 1.85 (6.34 mg/kg). (The 99% UCL (1.925) would capture the 1.85 (6.34 mg/kg) value, but three values would remain above the limit.)

The boxplot below also identifies these three Arsenic values (not Ln Arsenic). The shaded portion of the box is the middle 50 percent (25th to 75th percentile). The top and bottom horizontal lines indicate the smallest and largest values that are not outliers or extremes. Outliers (there are 2) are values more than 1.5 box lengths from the 75th percentile. Extremes (there is one) are values more than 3 box lengths from the 75th percentile.



Although many of the arsenic concentrations detected in the sediments of the IHNC exceed the LDEQ RECAP standards for re-use at non-industrial and industrial settings, the majority appear to be in the range of natural background levels for arsenic. A recent study by Kenneth E. Landrum (1995, Gulf Coast Association of Geological Societies Transactions) found average arsenic concentrations in the sediments of the estuarine complex of the St. Bernard Geomorphic Region to be 17 mg/kg. This arsenic concentration is an average of 125 sediment samples including sediments collected from Lake Ponchartrain, the IHNC and the MRGO.

The analytical data from this investigation along with the analytical data collected from the sediments of the west bank and center canal should be compiled and presented to the LDEQ with a request for variance to the RECAP standards. If a variance is granted and arsenic concentrations in the sediments of the IHNC are considered as background, the USACE may be able to use the material as clean fill around the new lock or discharge it directly to the Mississippi River.

It should be noted that the arsenic issue would likely have to be addressed for any material used as backfill around the new lock. This is especially true if the background concentrations of arsenic in the fill material are above the LDEQ RECAP standard for a non-industrial site.

6 WASTE MANAGEMENT

This section describes the procedures that the Contractor shall employ to remove and segregate the materials identified in this and previous documents concerning the site conditions along the east bank of the IHNC. The primary focus of the following text will be directed toward the excavation, segregation and removal of the sediment under the foot print of the proposed bypass channel. Impacted sediments will also be excavated and segregated based on the LDEQ approved treatment and/or disposal option presented by the USACE.

Safety and health protocols shall be detailed in a Site Safety and Health Plan (SSHP) submitted for approval prior to site work. The SSHP shall include an Accident Prevention Plan with Activity Hazard Analysis (AHAs) detailing material handling procedures. The contractor will also provide the USACE a detailed Sampling and Analyses Plan (SAP) for confirmation sampling. The SAP will follow the requirements as outlined in the USACE EM200-1-3 Document, dated September 1, 1994, including revisions or updates.

The Contractor shall maintain a project log at the Contractor Field Office. This log shall be updated at the conclusion of each workday to indicate:

- The quantity of material that has been excavated, segregated and removed from the site,
- The quantity of material that has been staged for on site or off-site treatment,
- The quantity of material that has been staged for off-site disposal, and
- The number and location of confirmation samples collected.

Dames & Moore has assumed that the sediments around various sampling locations have been impacted by current and past industrial activities along the east bank industrial corridor of the IHNC. The analytical data collected during this investigation indicates that the sediments are impacted with SVOCs, metals (arsenic and lead), and petroleum hydrocarbons. These constituents of concern were reported at concentrations above the LDEQ RECAP standards for industrial and non-industrial sites. The following table presents an inventory of the sediments to be managed as "Special Waste" during the course of constructing the bypass channel. The table also presents the estimated quantities of impacted material at each site along the east bank of the canal. The areas of concern outlined on Figures 5 through 8 and the volumes presented on Table 8 assume that the east bank sediments can be managed under the RECAP MO-1 standards.

It should also be noted that the areas of potential environmental impact are arbitrary and the volumes presented on Table 8 are subject to change as more data is gathered during the IHNC Lock Replacement Project.

At this time the areas of impact should be considered as data gaps which may require additional sampling in order to fully delineate the areas of concern.

Table 8
Proposed Excavated Soil Inventory - IHNC

Site Name	Impacted Material	Quantity (yd^3)
Boland Marine	TPH/Oil & Grease	754
	SVOC	357
	*Arsenic	236
	**PCBs	78
McDonough Marine	TPH/Oil and Grease	7220
	SVOC	0
	*Arsenic/Lead	249
Indian Towing	TPH/Oil and Grease	0
	SVOC	0
	*Arsenic	102
Mayer Yacht/Distributor Oil	TPH	167
	SVOC	0
	*Arsenic/Lead	135
Saucer Marine	TPH/Oil & Grease	434
	SVOC	0
	*Arsenic	780
International Tank Terminal	TPH/Oil & Grease	195
	SVOC	0
	*Arsenic	591

* Arsenic concentrations in this shallow sediment inventory of the IHNC eastbank are probably related to site backround levels (i.e. naturally occurring with local/regional anthropogenic contributions not related to site-specific industrial activities of the eastbank) and therefore may be considered as background sediment by the LDEQ.

** Volume estimates have been calculated based on the (impacted) areas outlined in Figure 5 through 8 with an assumed depth of five feet.

7 DATA GAPS

After a review of the analytical data gathered during this project, some data gaps were identified. The data gaps are as follows:

- Empirical TCLP data for elevated metal concentrations should be obtained. Additional sampling should be completed at the points of concern and analyzed by TCLP methods.

- The areas of concerns identified during this project should be further characterized with additional sampling in order to fully delineate the boundaries of impact.

- Arsenic data from the west bank, east bank and from the center of the canal should be compiled, reviewed, and compared to the background concentrations presented in the literature. This data should be sufficient to support the need for a variance request from the LDEQ concerning detectable concentrations of arsenic as background.

8 CONCLUSION

8.1 Recapitulation

- The IHNC opened in 1923 and is located in the metropolitan area of New Orleans. The canal was constructed to allow for the movement of barge traffic from the Mississippi River to Lake Pontchartrian and the inter-coastal waterways of the Gulf Cost.

- Industrialization of the east bank area began in the 1960s and today approximately 50% of the industrialized facilities are unoccupied or abandoned.

- Sediment in contact with another media (surface water) can not be screened using the screening options presented in Table 1 of the LDEQ RECAP document.

- Sediment which has been excavated and dewatered may be viewed by the LDEQ as applicable for the standards presented in Table 2 of the LDEQ RECAP document. Sediments with analytical results meeting the LDEQ RECAP standards may be considered by the LDEQ as "clean".

- Re-using sediments after dewatering on site or off site requires written authorization from the LDEQ.

- The sediments at the IHNC project area are contaminated with metals (predominantly arsenic), SVOCs, and petroleum hydrocarbons.

- Sediments that do not meet the RECAP standards may be treated thermally, biologically, or chemically by various treatment options (i.e., soil washing, or land-spreading). Each of the aforementioned methods would require confirmatory analytical soil testing prior to consideration of usage onsite or offsite.

- Although many of the arsenic concentrations detected in the sediments for reuse at non-industrial and industrial settings, the majority appear to be in the range of natural background levels for arsenic in the sediments of the estuarine complex of the St. Bernard Geomorphic Region of Louisiana.

8.2 Conclusions

The removal of impacted sediments can be economically performed with land based equipment using mainly water access and/or limited land access from the west and north.

9 REFERENCES

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March 1997, New Lock and Connecting Channels – Evaluation Report, Volumes 1-9.

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July 1994, Final Report – IHNC Drums and Containers Testing, Collection and Disposal, Saucer Marine, Indian Towing and Boland Marine Sites.

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Louisiana Department of Environmental Quality, Corrective Action Group
December 1998, Risk Evaluation/Corrective Action Program (RECAP)

Louisiana Oil Spill Coordinator's Office, CMS, Inc.
Report, 1994, Statewide Abandoned Vessel inventory – New Orleans Zone.

Landrum, Kenneth E., 1995, Gulf Coast Association of Geological Societies Transactions, Accumulation and Trace-Metal variability of Estuarine Sediments, St. Bernard Delta, Geomorphic Region, Louisiana.

Figures

FIGURE 1

Site Location Map

Adapted from U.S. Geological Survey
NEW ORLEANS EAST
QUADRANGLE
7.5 Minute Series (Topographic)
1992

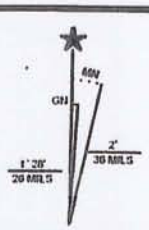


Figure 1
SITE LOCATION MAP

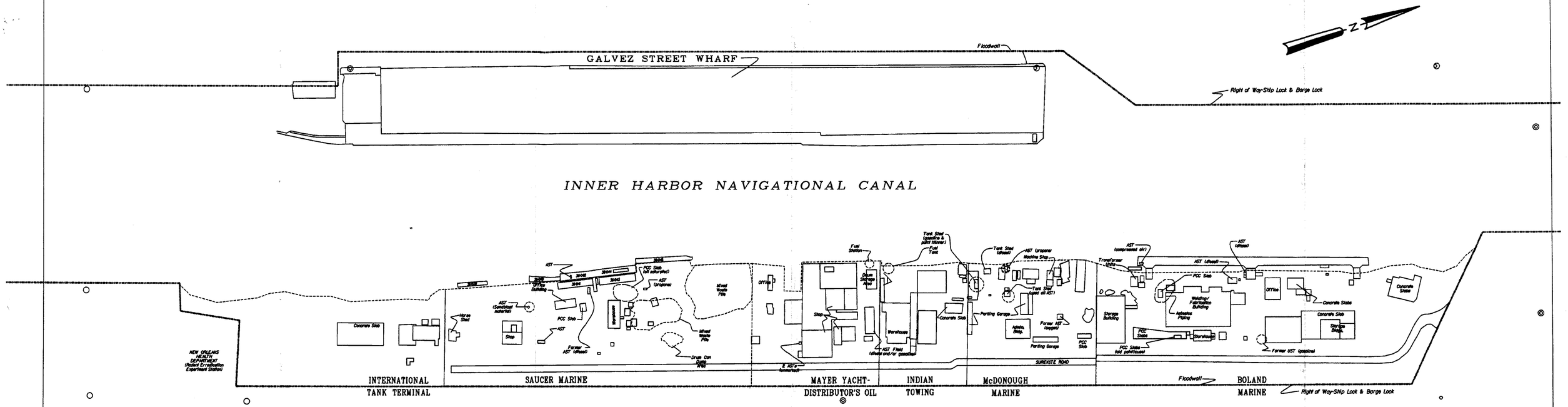
Inner Harbor Navigation Canal
New Orleans, Louisiana

Scale: 1:24 000
Contour Interval: 10'

DAMES & MOORE

FIGURE 2

Site Plot Plan



LEGEND

PCC - Portland Cement Concrete

36-039 - Abandoned Barges with LOSCO ID Number

100 50 0 100 200 300 400

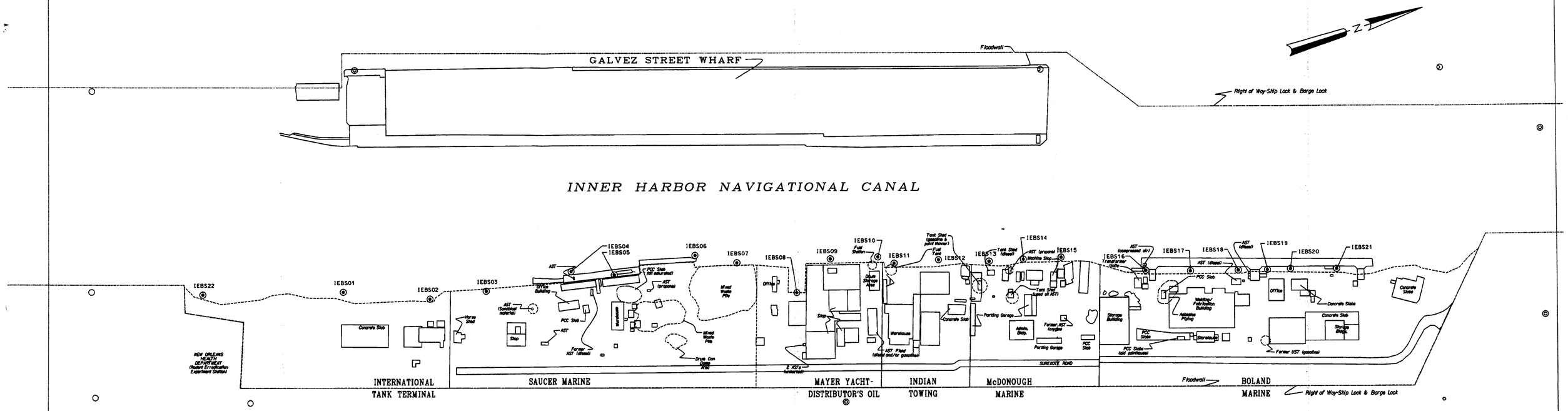
Graphic Scale in Feet

Base Map furnished by U.S. Corps of Engineers, New Orleans District for use in this study by Dames & Moore Group.

FIGURE 2
SITE PLOT PLAN
INNER HARBOR NAVIGATIONAL CANAL
NEW ORLEANS, LOUISIANA

FIGURE 3

Sediment Sampling Locations



LEGEND

PCC – Portland Cement Concrete

100 50 0 100 200 300 400

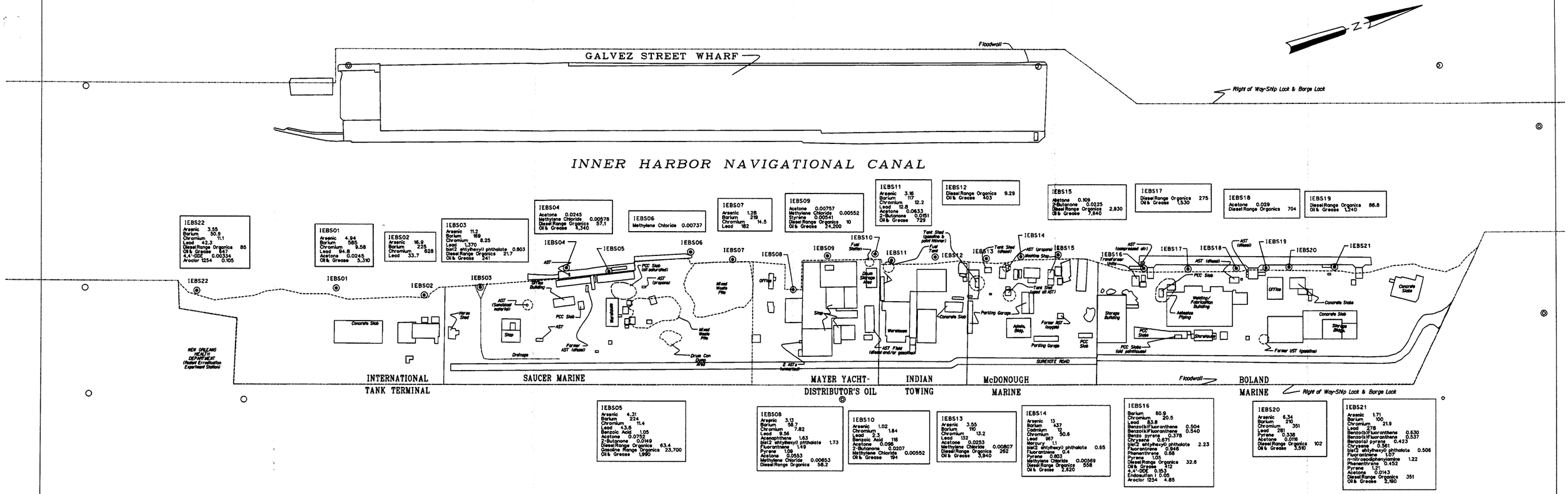
Graphic Scale in Feet

Base Map furnished by U.S. Corps of Engineers, New Orleans District for use in this study by Dames & Moore Group.

FIGURE 3
SEDIMENT SAMPLING LOCATIONS
INNER HARBOR NAVIGATIONAL CANAL
NEW ORLEANS, LOUISIANA

FIGURE 4

Sediment Sample Analytical Results



LEGEND

PCC - Portland Cement Concrete

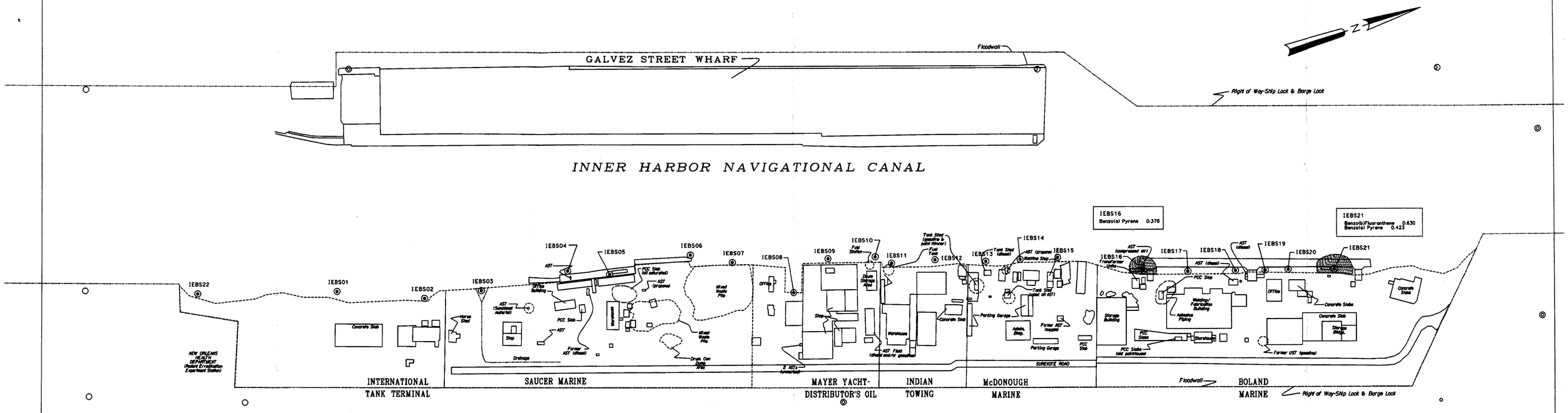
NOTE: Concentrations shown in milligrams/kilogram (mg/Kg)

Base Map furnished by U.S. Corps of Engineers, New Orleans District for use in this study by Dames & Moore Group.

FIGURE 4
SEDIMENT SAMPLE ANALYTICAL RESULTS
INNER HARBOR NAVIGATIONAL CANAL
NEW ORLEANS, LOUISIANA

FIGURE 5

Sediment Failing SOILni and/or SOILi for Semi-Volatiles



LEGEND

PCC – Portland Cement Concrete

– Potential area exceeding RECAPSMD-1 standards

NOTE: Concentrations shown in milligrams/kilogram (mg/Kg)

100 50 0 100 200 300 400

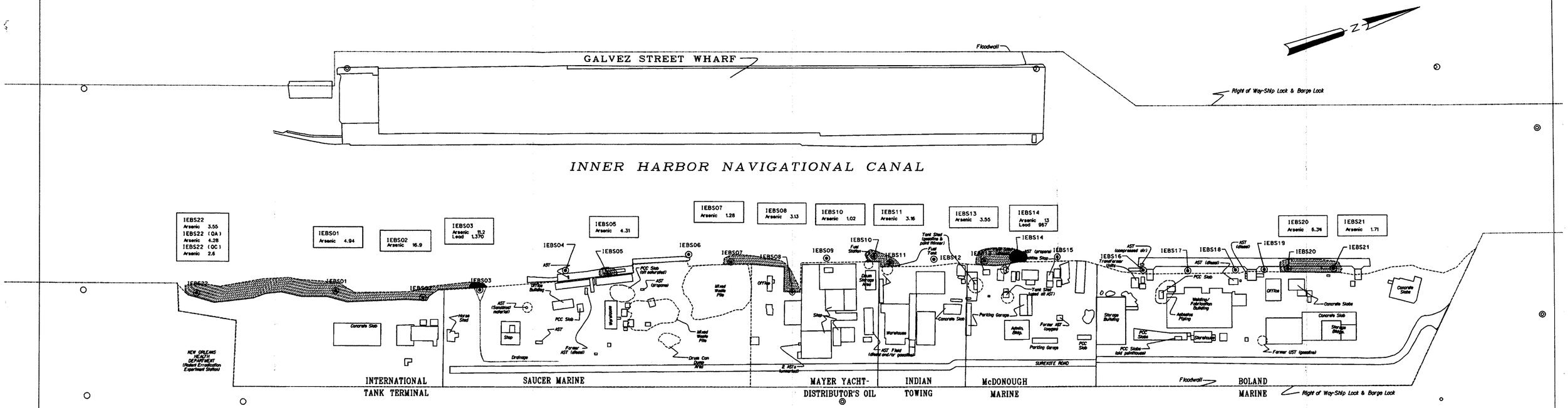
Graphic Scale in Feet

Base Map furnished by U.S. Corps of Engineers, New Orleans District for use in this study by Dames & Moore Group.

FIGURE 5
SEDIMENT FAILING SOILni AND/OR SOILi
FOR SEMI-VOLATILES
INNER HARBOR NAVIGATIONAL CANAL
NEW ORLEANS, LOUISIANA

FIGURE 6

Sediment SOILni and/or SOILi for RCRA Metals



LEGEND

PCC – Portland Cement Concrete

– Potential area exceeding RECAPSMD-1 standards for Arsenic

– Potential area exceed RECAPSMD-1 standards for Lead

NOTE: Concentrations shown in milligrams/kilogram (mg/Kg)

100 50 0 100 200 300 400

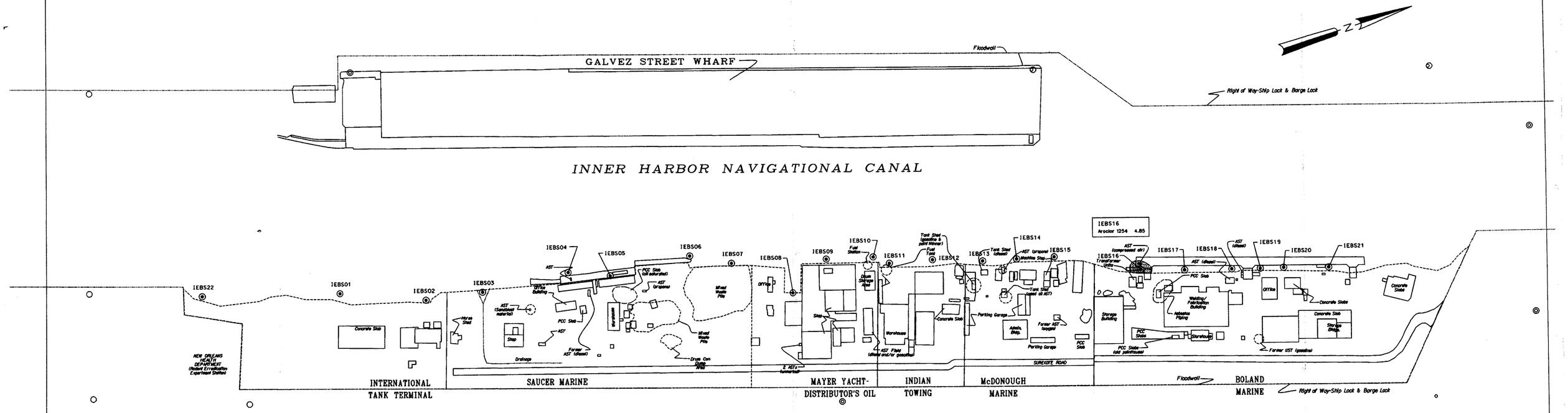
Graphic Scale in Feet

Base Map furnished by U.S. Corps of Engineers, New Orleans District for use in this study by Dames & Moore Group.

FIGURE 6
SEDIMENT FAILING SOILni AND/OR SOILi
FOR RCRA METALS
INNER HARBOR NAVIGATIONAL CANAL
NEW ORLEANS, LOUISIANA

FIGURE 7

Sediment Failing SOILni and/or SOILi for Pesticides and PCBs



LEGEND

PCC - Portland Cement Concrete

-Potential area exceeding RECAPSMO-1 standards

NOTE: Concentrations shown in milligrams/kilogram (mg/Kg)

100 50 0 100 200 300 400

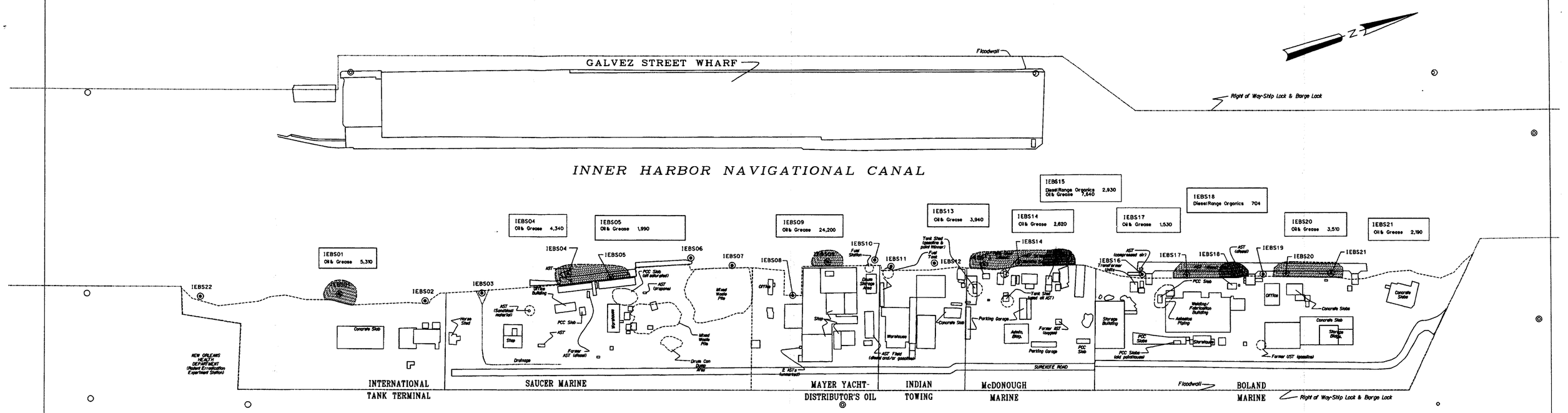
Graphic Scale in Feet

Base Map furnished by U.S. Corps of Engineers, New Orleans District for use in this study by Dames & Moore Group.

FIGURE 7
SEDIMENT FAILING SOILni AND/OR SOILi
FOR PESTICIDES & PBCs
INNER HARBOR NAVIGATIONAL CANAL
NEW ORLEANS, LOUISIANA

FIGURE 8

Sediment Failing SOILni and/or SOILi for TPH



LEGEND

PCC – Portland Cement Concrete

–Potential area exceeding RECAPSMD-1 standards for Oil & Grease

–Potential area exceeding RECAPSMD-1 standards for Deisel Rangr Organics

NOTE: Concentrations shown in milligrams/kilogram (mg/Kg)

100 50 0 100 200 300 400

Graphic Scale in Feet

Base Map furnished by U.S. Corps of Engineers, New Orleans District for use in this study by Dames & Moore Group.

FIGURE 8
SEDIMENT FAILING SOILni AND/OR SOILi
FOR TPH AND OIL & GREASE
INNER HARBOR NAVIGATIONAL CANAL
NEW ORLEANS, LOUISIANA

Appendix A

APPENDIX A

John J. Avery & Associates Survey Report

COMPANY: John J. Avery & Associates, Inc., 5413 Powell St., Ste. "A", Harahan, LA 70123					
PROJECT: Inner Harbor Navigation Canal - Sediment Sampling Locations for Dames & Moore					
Horizontal Datums: Geographic NAD83 and Louisiana State Plane Coordinates - South Zone					
Vertical Datum: NGVD29					
Horizontal and Vertical Units: U.S. Survey Feet					
Latitude	Longitude	Northing	Easting	Elev	Description
29°58'11.134"N	90°01'27.18988"	536862.837	3695326.270	2.4	iebs 01
29°58'14.198"N	90°01'25.84339"	537173.680	3695441.152	1.4	iebs 02
29°58'15.743"N	90°01'25.46337"	537330.069	3695472.790	2.5	iebs 03
29°58'18.740"N	90°01'25.21795"	537633.045	3695490.913	2.1	ibes 04
29°58'20.051"N	90°01'24.740"W	537765.962	3695531.152	2.0	iebs 05
29°58'23.096"N	90°01'24.771"W	538073.520	3695525.231	-0.4	iebs 06
29°58'23.243"N	90°01'24.326"W	538088.793	3695564.165	1.4	iebs 07
29°58'26.554"N	90°01'21.648"W	538425.984	3695795.823	-2.3	iebs 08
29°58'27.711"N	90°01'23.277"W	538541.190	3695651.273	-5.2	iebs 09
29°58'29.436"N	90°01'22.784"W	538716.011	3695692.602	0.0	iebs 10
29°58'29.853"N	90°01'22.208"W	538758.617	3695742.788	0.8	iebs 11
29°58'31.126"N	90°01'21.940"W	538887.468	3695764.913	1.4	iebs 12
29°58'33.015"N	90°01'21.545"W	539078.679	3695797.478	-1.1	iebs 13
29°58'34.101"N	90°01'21.282W"	539188.587	3695819.334	-0.8	iebs 14
29°58'35.010"N	90°01'20.757W"	539280.968	3695864.430	0.6	iebs 15
29°58'38.393"N	90°01'19.295"W	539624.205	3695989.122	-2.6	iebs 16
29°58'39.854"N	90°01'18.904"W	539772.136	3696021.757	-12.9	iebs 17
29°58'41.511"N	90°01'18.359"W	539940.040	3696067.833	-7.7	iebs 18
29°58'42.425"N	90°01'18.056"W	540032.711	3696093.416	-7.6	iebs 19
29°58'42.901"N	90°01'17.896"W	540080.930	3696106.897	-8.0	iebs 20
29°58'44.772"N	90°01'17.286"W	540270.500	3696158.363	-7.7	iebs 21
29°58'09.309"N	90°01'27.893"W	536677.757	3695266.514	1.4	background 22

9/29/99

Appendix B

APPENDIX B

Pace Analytical

Pace Analytical

Pace Analytical Services, Inc.
1000 Riverbend Blvd, Suite F
St. Rose, LA 70087
Tel: 504-469-0333
Fax: 504-469-0555

Douglas Kuhn
Dames & Moore
6310 Lamar Avenue Suite 135
Overlank Park, KS 66202

Project: 1HNC-PHASE III
Site:
Episode: TUO

To: Douglas E Kuhn

Enclosed please find the analytical results for sample(s) received by Pace Analytical Services, Inc. - New Orleans.

This report contains a summary of the quality control data associated with the analyses as well as copies of the chain-of-custody documents.

You may direct any inquires concerning this report to your Project Manager, or any one of the Project Managers listed below:

Ms. Karen H. Brown, Manager, Ext. 15
Mr. William R. Shackelford, Ext. 16
Ms. Cindy Olavesen, Ext. 26

Sincerely,

Karen H Brown
Project Manager

10/5/99
Date

Enclosures

Pace Analytical Services, Inc. - New Orleans
Sample Cross Reference Summary

Episode: TUO Client: Dames & Moore

Project: 1HNC-PHASE III

Site:

Lab ID	Client ID	Description	Matrix	Collected	Received
TUO-001	IEBS-07-HS		Soil	09/09/99	09/10/99
TUO-002	IEBS-09-HS		Soil	09/09/99	09/10/99
TUO-003	IEBS-06-HS		Soil	09/09/99	09/10/99
TUO-004	IEBS-04-HS		Soil	09/09/99	09/10/99
TUO-005	IEBS-10-HS		Soil	09/09/99	09/10/99
TUO-006	IEBS-05-HS		Soil	09/09/99	09/10/99
TUO-007	IEBS-14-HS		Soil	09/09/99	09/10/99
TUO-008	IEBS-15-HS		Soil	09/09/99	09/10/99
TUO-009	IEBS-08-HS		Soil	09/09/99	09/10/99
TUO-010	IEBS-08-HS	MATRIX SPIKE	Soil	09/09/99	09/10/99
TUO-011	IEBS-08-HS	MATRIX SPIKE DUPLICATE	Soil	09/09/99	09/10/99
TUO-012	IEBS-13-HS		Soil	09/09/99	09/10/99

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Moisture - Multiple Samples

Parameter: Soil Moisture

Client: DAMES & MOORE

Episode: TUO

Lab ID	Client ID	Batch	Result	Analysis
TUO-001	IEBS-07-HS	31778	16	21-Sep-99
TUO-002	IEBS-09-HS	31778	57	21-Sep-99
TUO-003	IEBS-06-HS	31778	08	21-Sep-99
TUO-004	IEBS-04-HS	31778	22	21-Sep-99
TUO-005	IEBS-10-HS	31778	72	21-Sep-99
TUO-006	IEBS-05-HS	31778	70	21-Sep-99
TUO-007	IEBS-14-HS	31778	28	21-Sep-99
TUO-008	IEBS-15-HS	31778	23	21-Sep-99
TUO-009	IEBS-08-HS	31778	47	21-Sep-99
TUO-010	IEBS-08-HS	31778	46	21-Sep-99
TUO-011	IEBS-08-HS	31778	46	21-Sep-99
TUO-012	IEBS-13-HS	31778	25	21-Sep-99

Narrative for Episode TUO

Semivolatile Organics

The extracts for samples TUO-010MS and TUO-011MSD did not correspond well to the parent sample TUO-009 in appearance. The matrix spike extracts were viscous and considerably darker in color. The aliquot of sample TUO-009 had been taken from one container; samples TUO-010MS and TUO-011MSD were taken from a second container. All three extracts were analyzed at a dilution due to their appearance. A reanalysis of the sample was performed without dilution in order to provide lower reporting limits for the sample. To confirm that the extraction of the sample had been done properly the sample was re-extracted and reanalyzed. Results were similar to the original analysis. The differences in the extracts were apparently due to non-homogeneity of the sample.

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID:	IEBS-09-HS	**Client:**	DAMES & MOORE
Project:	1HNC-PHASE III	**Site:**	None
Lab ID:	TUO-002	**Episode:**	TUO
Description:	None	**Matrix:**	Soil
Method:	SW 8260 Volatile Organics	**Prep Level:**	Soil
		Units:	ug/kg
Prep Factor:	1.00	**Leached:**	n/a
		Prepared:	

Sample Qu:
% Moisture: wet
Batch: 31677
Target List: 8260LOW
Analyzed: 20-Sep-99 12:20 KC

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
67-64-1	Acetone (2-Propanone, Dimethyl ketone)	1	75.7	A11	10.0	
71-43-2	Benzene	1	ND		5.00	
75-27-4	Bromodichloromethane	1	ND		5.00	
75-25-2	Bromoform	1	ND		5.00	
74-83-9	Bromomethane (Methyl bromide)	1	ND		10.0	
78-93-3	2-Butanone (Methyl ethyl ketone)	1	ND		10.0	
75-15-0	Carbon disulfide	1	ND		5.00	
56-23-5	Carbon tetrachloride	1	ND		5.00	
108-90-7	Chlorobenzene	1	ND		5.00	
75-00-3	Chloroethane	1	ND		10.0	
67-66-3	Chloroform	1	ND		5.00	
74-87-3	Chloromethane (Methyl chloride)	1	ND		10.0	
124-48-1	Dibromochloromethane	1	ND		5.00	
75-34-3	1,1-Dichloroethane	1	ND		5.00	
107-06-2	1,2-Dichloroethane (Ethylene dichloride)	1	ND		5.00	
75-35-4	1,1-Dichloroethene (Dichloroethylene)	1	ND		5.00	
540-59-0	1,2-Dichloroethene (total)	1	ND		5.00	
78-87-5	1,2-Dichloropropane	1	ND		5.00	
10061-01-5	cis-1,3-Dichloropropene	1	ND		5.00	
10061-02-6	trans-1,3-Dichloropropene	1	ND		5.00	
100-41-4	Ethylbenzene	1	ND		5.00	
591-78-6	2-Hexanone	1	ND		10.0	
75-09-2	Methylene chloride (Dichloromethane)	1	5.52	A11	5.00	
108-10-1	4-Methyl-2-pentanone (MIBK)	1	ND		10.0	
100-42-5	Styrene	1	5.41		5.00	
79-34-5	1,1,2,2-Tetrachloroethane	1	ND		5.00	
127-18-4	Tetrachloroethene (Perchloroethylene)	1	ND		5.00	
108-88-3	Toluene	1	ND		5.00	
71-55-6	1,1,1-Trichloroethane (Methyl chloroform)	1	ND		5.00	
79-00-5	1,1,2-Trichloroethane	1	ND		5.00	
79-01-6	Trichloroethene (Trichloroethylene)	1	ND		5.00	
75-01-4	Vinyl chloride (Chloroethene)	1	ND		10.0	
1330-20-7	Xylene (total)	1	ND		5.00	

33 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:28:01

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID: IEBS-06-HS
Client: DAMES & MOORE
Project: 1HNC-PHASE III
Site: None
Lab ID: TUO-003
Episode: TUO
Sample Qu:
Description: None
Matrix: Soil
% Moisture: wet
Method: SW 8260 Volatile Organics
Prep Level: Soil
Batch: 31677
Units: ug/kg
Target List: 8260LOW
Prep Factor: 1.00
Leached: n/a
Prepared:
Analyzed: 20-Sep-99 12:50 KC

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
67-64-1	Acetone (2-Propanone, Dimethyl ketone)	1	ND		10.0	
71-43-2	Benzene	1	ND		5.00	
75-27-4	Bromodichloromethane	1	ND		5.00	
75-25-2	Bromoform	1	ND		5.00	
74-83-9	Bromomethane (Methyl bromide)	1	ND		10.0	
78-93-3	2-Butanone (Methyl ethyl ketone)	1	ND		10.0	
75-15-0	Carbon disulfide	1	ND		5.00	
56-23-5	Carbon tetrachloride	1	ND		5.00	
108-90-7	Chlorobenzene	1	ND		5.00	
75-00-3	Chloroethane	1	ND		10.0	
67-66-3	Chloroform	1	ND		5.00	
74-87-3	Chloromethane (Methyl chloride)	1	ND		10.0	
124-48-1	Dibromochloromethane	1	ND		5.00	
75-34-3	1,1-Dichloroethane	1	ND		5.00	
107-06-2	1,2-Dichloroethane (Ethylene dichloride)	1	ND		5.00	
75-35-4	1,1-Dichloroethene (Dichloroethylene)	1	ND		5.00	
540-59-0	1,2-Dichloroethene (total)	1	ND		5.00	
78-87-5	1,2-Dichloropropane	1	ND		5.00	
10061-01-5	cis-1,3-Dichloropropene	1	ND		5.00	
10061-02-6	trans-1,3-Dichloropropene	1	ND		5.00	
100-41-4	Ethylbenzene	1	ND		5.00	
591-78-6	2-Hexanone	1	ND		10.0	
75-09-2	Methylene chloride (Dichloromethane)	1	7.37	A11	5.00	
108-10-1	4-Methyl-2-pentanone (MIBK)	1	ND		10.0	
100-42-5	Styrene	1	ND		5.00	
79-34-5	1,1,2,2-Tetrachloroethane	1	ND		5.00	
127-18-4	Tetrachloroethene (Perchloroethylene)	1	ND		5.00	
108-88-3	Toluene	1	ND		5.00	
71-55-6	1,1,1-Trichloroethane (Methyl chloroform)	1	ND		5.00	
79-00-5	1,1,2-Trichloroethane	1	ND		5.00	
79-01-6	Trichloroethene (Trichloroethylene)	1	ND		5.00	
75-01-4	Vinyl chloride (Chloroethene)	1	ND		10.0	
1330-20-7	Xylene (total)	1	ND		5.00	

33 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
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Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID: IEBS-04-HS
Client: DAMES & MOORE
Project: 1HNC-PHASE III
Site: None
Lab ID: TUO-004
Episode: TUO
Sample Qu:
Description: None
Matrix: Soil
% Moisture: wet
Method: SW 8260 Volatile Organics
Prep Level: Soil
Batch: 31677
Units: ug/kg
Target List: 8260LOW
Prep Factor: 1.00
Leached: n/a
Prepared:
Analyzed: 20-Sep-99 13:19 KC

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
67-64-1	Acetone (2-Propanone, Dimethyl ketone)	1	25.1	A11	10.0	
71-43-2	Benzene	1	ND		5.00	
75-27-4	Bromodichloromethane	1	ND		5.00	
75-25-2	Bromoform	1	ND		5.00	
74-83-9	Bromomethane (Methyl bromide)	1	ND		10.0	
78-93-3	2-Butanone (Methyl ethyl ketone)	1	ND		10.0	
75-15-0	Carbon disulfide	1	ND		5.00	
56-23-5	Carbon tetrachloride	1	ND		5.00	
108-90-7	Chlorobenzene	1	ND		5.00	
75-00-3	Chloroethane	1	ND		10.0	
67-66-3	Chloroform	1	ND		5.00	
74-87-3	Chloromethane (Methyl chloride)	1	ND		10.0	
124-48-1	Dibromochloromethane	1	ND		5.00	
75-34-3	1,1-Dichloroethane	1	ND		5.00	
107-06-2	1,2-Dichloroethane (Ethylene dichloride)	1	ND		5.00	
75-35-4	1,1-Dichloroethene (Dichloroethylene)	1	ND		5.00	
540-59-0	1,2-Dichloroethene (total)	1	ND		5.00	
78-87-5	1,2-Dichloropropane	1	ND		5.00	
10061-01-5	cis-1,3-Dichloropropene	1	ND		5.00	
10061-02-6	trans-1,3-Dichloropropene	1	ND		5.00	
100-41-4	Ethylbenzene	1	ND		5.00	
591-78-6	2-Hexanone	1	ND		10.0	
75-09-2	Methylene chloride (Dichloromethane)	1	5.78	A11	5.00	
108-10-1	4-Methyl-2-pentanone (MIBK)	1	ND		10.0	
100-42-5	Styrene	1	ND		5.00	
79-34-5	1,1,2,2-Tetrachloroethane	1	ND		5.00	
127-18-4	Tetrachloroethene (Perchloroethylene)	1	ND		5.00	
108-88-3	Toluene	1	ND		5.00	
71-55-6	1,1,1-Trichloroethane (Methyl chloroform)	1	ND		5.00	
79-00-5	1,1,2-Trichloroethane	1	ND		5.00	
79-01-6	Trichloroethene (Trichloroethylene)	1	ND		5.00	
75-01-4	Vinyl chloride (Chloroethene)	1	ND		10.0	
1330-20-7	Xylene (total)	1	ND		5.00	

33 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:28:02

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID: IEBS-10-HS
Client: DAMES & MOORE
Project: 1HNC-PHASE III
Site: None
Lab ID: TUO-005
Episode: TUO
Sample Qu: M2
Description: None
Matrix: Soil
% Moisture: wet
Method: SW 8260 Volatile Organics
Prep Level: Soil
Batch: 31677
Units: ug/kg
Target List: 8260LOW
Prep Factor: 1.00
Leached: n/a
Prepared:
Analyzed: 20-Sep-99 13:48 KC

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
67-64-1	Acetone (2-Propanone, Dimethyl ketone)	1	96.6	A11	10.0	
71-43-2	Benzene	1	ND		5.00	
75-27-4	Bromodichloromethane	1	ND		5.00	
75-25-2	Bromoform	1	ND		5.00	
74-83-9	Bromomethane (Methyl bromide)	1	ND		10.0	
78-93-3	2-Butanone (Methyl ethyl ketone)	1	20.7		10.0	
75-15-0	Carbon disulfide	1	ND		5.00	
56-23-5	Carbon tetrachloride	1	ND		5.00	
108-90-7	Chlorobenzene	1	ND		5.00	
75-00-3	Chloroethane	1	ND		10.0	
67-66-3	Chloroform	1	ND		5.00	
74-87-3	Chloromethane (Methyl chloride)	1	ND		10.0	
124-48-1	Dibromochloromethane	1	ND		5.00	
75-34-3	1,1-Dichloroethane	1	ND		5.00	
107-06-2	1,2-Dichloroethane (Ethylene dichloride)	1	ND		5.00	
75-35-4	1,1-Dichloroethene (Dichloroethylene)	1	ND		5.00	
540-59-0	1,2-Dichloroethene (total)	1	ND		5.00	
78-87-5	1,2-Dichloropropane	1	ND		5.00	
10061-01-5	cis-1,3-Dichloropropene	1	ND		5.00	
10061-02-6	trans-1,3-Dichloropropene	1	ND		5.00	
100-41-4	Ethylbenzene	1	ND		5.00	
591-78-6	2-Hexanone	1	ND		10.0	
75-09-2	Methylene chloride (Dichloromethane)	1	5.52	A11	5.00	
108-10-1	4-Methyl-2-pentanone (MIBK)	1	ND		10.0	
100-42-5	Styrene	1	ND		5.00	
79-34-5	1,1,2,2-Tetrachloroethane	1	ND		5.00	
127-18-4	Tetrachloroethene (Perchloroethylene)	1	ND		5.00	
108-88-3	Toluene	1	ND		5.00	
71-55-6	1,1,1-Trichloroethane (Methyl chloroform)	1	ND		5.00	
79-00-5	1,1,2-Trichloroethane	1	ND		5.00	
79-01-6	Trichloroethene (Trichloroethylene)	1	ND		5.00	
75-01-4	Vinyl chloride (Chloroethene)	1	ND		10.0	
1330-20-7	Xylene (total)	1	ND		5.00	

33 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:28:02

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID:	IEBS-10-HS	Client:	DAMES & MOORE
Project:	1HNC-PHASE III	Site:	None
Lab ID:	TUO-005	Episode:	TUO
Description:	None	Matrix:	Soil
Method:	SW 8270 Semivolatile Organics	Prep Level:	Soil
		Units:	ug/kg
Prep Factor:	1.00	Leached:	n/a
		Prepared:	16-Sep-99

Sample Qu:
% Moisture: wet
Batch: 31726
Target List: 8270LOW
Analyzed: 17-Sep-99 12:55 JA

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
83-32-9	Acenaphthene	1	ND		333	
208-96-8	Acenaphthylene	1	ND		333	
120-12-7	Anthracene	1	ND		333	
56-55-3	Benzo(a)anthracene	1	ND		333	
205-99-2	Benzo(b)fluoranthene	1	ND		333	
207-08-09	Benzo(k)fluoranthene	1	ND		333	
65-85-0	Benzoic acid	1	1180		833	
191-24-2	Benzo(g,h,i)perylene	1	ND		333	
50-32-8	Benzo(a)pyrene	1	ND		333	
100-51-6	Benzyl alcohol	1	ND		333	
101-55-3	4-Bromophenyl phenyl ether	1	ND		333	
85-68-7	Butylbenzylphthalate	1	ND		333	
106-47-8	4-Chloroaniline (p-Chloroaniline)	1	ND		333	
111-91-1	bis(2-Chloroethoxy)methane	1	ND		333	
111-44-4	bis(2-Chloroethyl) ether	1	ND		333	
108-60-1	bis(2-Chloroisopropyl) ether	1	ND		333	
59-50-7	4-Chloro-3-methylphenol (p-Chloro-m-cresol)	1	ND		333	
91-58-7	2-Chloronaphthalene	1	ND		333	
95-57-8	2-Chlorophenol (o-Chlorophenol)	1	ND		333	
7005-72-3	4-Chlorophenyl phenyl ether	1	ND		333	
218-01-9	Chrysene	1	ND		333	
53-70-3	Dibenz(a,h)anthracene	1	ND		333	
132-64-9	Dibenzofuran	1	ND		333	
84-74-2	Di-n-butylphthalate	1	ND		333	
95-50-1	1,2-Dichlorobenzene (o-Dichlorobenzene)	1	ND		333	
541-73-1	1,3-Dichlorobenzene (m-Dichlorobenzene)	1	ND		333	
106-46-7	1,4-Dichlorobenzene (p-Dichlorobenzene)	1	ND		333	
91-94-1	3,3'-Dichlorobenzidine	1	ND		667	
120-83-2	2,4-Dichlorophenol	1	ND		333	
84-66-2	Diethylphthalate	1	ND		333	
105-67-9	2,4-Dimethylphenol	1	ND		333	
131-11-3	Dimethylphthalate	1	ND		333	
534-52-1	4,6-Dinitro-2-methylphenol (4,6-Dinitro-o-cresol)	1	ND		833	
51-28-5	2,4-Dinitrophenol	1	ND		833	

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:28:02

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID: IEBS-10-HS
Client: DAMES & MOORE
Project: 1HNC-PHASE III
Site: None
Lab ID: TUO-005
Episode: TUO
Sample Qu:
Description: None
Matrix: Soil
% Moisture: wet
Method: SW 8270 Semivolatile Organics
Prep Level: Soil
Batch: 31726
Units: ug/kg
Target List: 8270LOW
Prep Factor: 1.00
Leached: n/a
Prepared: 16-Sep-99
Analyzed: 17-Sep-99 12:55 JA

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
121-14-2	2,4-Dinitrotoluene	1	ND		333	
606-20-2	2,6-Dinitrotoluene	1	ND		333	
117-84-0	Di-n-octylphthalate	1	ND		333	
117-81-7	bis(2-Ethylhexyl)phthalate	1	ND		333	
206-44-0	Fluoranthene	1	ND		333	
86-73-7	Fluorene	1	ND		333	
118-74-1	Hexachlorobenzene	1	ND		333	
87-68-3	Hexachlorobutadiene	1	ND		333	
77-47-4	Hexachlorocyclopentadiene	1	ND		333	
67-72-1	Hexachloroethane	1	ND		333	
193-39-5	Indeno(1,2,3-cd)pyrene	1	ND		333	
78-59-1	Isophorone	1	ND		333	
91-57-6	2-Methylnaphthalene	1	ND		333	
95-48-7	2-Methylphenol (o-Cresol)	1	ND		333	
106-44-5	4-Methylphenol (p-Cresol)	1	ND		333	
91-20-3	Naphthalene	1	ND		333	
88-74-4	2-Nitroaniline (o-Nitroaniline)	1	ND		333	
99-09-2	3-Nitroaniline (m-Nitroaniline)	1	ND		833	
100-01-6	4-Nitroaniline (p-Nitroaniline)	1	ND		833	
98-95-3	Nitrobenzene	1	ND		833	
88-75-5	2-Nitrophenol (o-Nitrophenol)	1	ND		333	
100-02-7	4-Nitrophenol (p-Nitrophenol)	1	ND		333	
86-30-6	N-Nitrosodiphenylamine (Diphenylamine)	1	ND		833	
621-64-7	N-Nitroso-di-n-propylamine	1	ND	A10	333	
87-86-5	Pentachlorophenol	1	ND		333	
85-01-8	Phenanthrene	1	ND		833	
108-95-2	Phenol	1	ND		333	
129-00-0	Pyrene	1	ND		333	
120-82-1	1,2,4-Trichlorobenzene	1	ND		333	
95-95-4	2,4,5-Trichlorophenol	1	ND		333	
88-06-2	2,4,6-Trichlorophenol	1	ND		833	
		1	ND		333	

65 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:28:03

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID: IEBS-05-HS	**Client:** DAMES & MOORE		
Project: 1HNC-PHASE III	**Site:** None		
Lab ID: TUO-006	**Episode:** TUO	**Sample Qu:**	
Description: None	**Matrix:** Soil	**% Moisture:** wet	
Method: SW 8260 Volatile Organics	**Prep Level:** Soil	**Batch:** 31677	
	Units: ug/kg	**Target List:** 8260LOW	
Prep Factor: 1.00 **Leached:** n/a	**Prepared:**	**Analyzed:** 20-Sep-99 14:17 KC	

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
67-64-1	Acetone (2-Propanone, Dimethyl ketone)	1	75.2	A11	10.0	
71-43-2	Benzene	1	ND		5.00	
75-27-4	Bromodichloromethane	1	ND		5.00	
75-25-2	Bromoform	1	ND		5.00	
74-83-9	Bromomethane (Methyl bromide)	1	ND		10.0	
78-93-3	2-Butanone (Methyl ethyl ketone)	1	14.9		10.0	
75-15-0	Carbon disulfide	1	ND		5.00	
56-23-5	Carbon tetrachloride	1	ND		5.00	
108-90-7	Chlorobenzene	1	ND		5.00	
75-00-3	Chloroethane	1	ND		10.0	
67-66-3	Chloroform	1	ND		5.00	
74-87-3	Chloromethane (Methyl chloride)	1	ND		10.0	
124-48-1	Dibromochloromethane	1	ND		5.00	
75-34-3	1,1-Dichloroethane	1	ND		5.00	
107-06-2	1,2-Dichloroethane (Ethylene dichloride)	1	ND		5.00	
75-35-4	1,1-Dichloroethene (Dichloroethylene)	1	ND		5.00	
540-59-0	1,2-Dichloroethene (total)	1	ND		5.00	
78-87-5	1,2-Dichloropropane	1	ND		5.00	
10061-01-5	cis-1,3-Dichloropropene	1	ND		5.00	
10061-02-6	trans-1,3-Dichloropropene	1	ND		5.00	
100-41-4	Ethylbenzene	1	ND		5.00	
591-78-6	2-Hexanone	1	ND		10.0	
75-09-2	Methylene chloride (Dichloromethane)	1	ND		5.00	
108-10-1	4-Methyl-2-pentanone (MIBK)	1	ND		10.0	
100-42-5	Styrene	1	ND		5.00	
79-34-5	1,1,2,2-Tetrachloroethane	1	ND		5.00	
127-18-4	Tetrachloroethene (Perchloroethylene)	1	ND		5.00	
108-88-3	Toluene	1	ND		5.00	
71-55-6	1,1,1-Trichloroethane (Methyl chloroform)	1	ND		5.00	
79-00-5	1,1,2-Trichloroethane	1	ND		5.00	
79-01-6	Trichloroethene (Trichloroethylene)	1	ND		5.00	
75-01-4	Vinyl chloride (Chloroethene)	1	ND		10.0	
1330-20-7	Xylene (total)	1	ND		5.00	

33 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:28:03

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID: IEBS-05-HS
Project: 1HNC-PHASE III
Lab ID: TUO-006
Description: None
Method: SW 8270 Semivolatile Organics

Client: DAMES & MOORE
Site: None
Episode: TUO
Matrix: Soil
Prep Level: Soil
Units: ug/kg
Prepared: 16-Sep-99

Sample Qu:
% Moisture: wet
Batch: 31726
Target List: 8270LOW
Analyzed: 17-Sep-99 13:37 JA

Prep Factor: 1.00
Leached: n/a

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
83-32-9	Acenaphthene	1	ND		333	
208-96-8	Acenaphthylene	1	ND		333	
120-12-7	Anthracene	1	ND		333	
56-55-3	Benzo(a)anthracene	1	ND		333	
205-99-2	Benzo(b)fluoranthene	1	ND		333	
207-08-09	Benzo(k)fluoranthene	1	ND		333	
65-85-0	Benzoic acid	1	1050		833	
191-24-2	Benzo(g,h,i)perylene	1	ND		333	
50-32-8	Benzo(a)pyrene	1	ND		333	
100-51-6	Benzyl alcohol	1	ND		333	
101-55-3	4-Bromophenyl phenyl ether	1	ND		333	
85-68-7	Butylbenzylphthalate	1	ND		333	
106-47-8	4-Chloroaniline (p-Chloroaniline)	1	ND		333	
111-91-1	bis(2-Chloroethoxy)methane	1	ND		333	
111-44-4	bis(2-Chloroethyl) ether	1	ND		333	
108-60-1	bis(2-Chloroisopropyl) ether	1	ND		333	
59-50-7	4-Chloro-3-methylphenol (p-Chloro-m-cresol)	1	ND		333	
91-58-7	2-Chloronaphthalene	1	ND		333	
95-57-8	2-Chlorophenol (o-Chlorophenol)	1	ND		333	
7005-72-3	4-Chlorophenyl phenyl ether	1	ND		333	
218-01-9	Chrysene	1	ND		333	
53-70-3	Dibenz(a,h)anthracene	1	ND		333	
132-64-9	Dibenzofuran	1	ND		333	
84-74-2	Di-n-butylphthalate	1	ND		333	
95-50-1	1,2-Dichlorobenzene (o-Dichlorobenzene)	1	ND		333	
541-73-1	1,3-Dichlorobenzene (m-Dichlorobenzene)	1	ND		333	
106-46-7	1,4-Dichlorobenzene (p-Dichlorobenzene)	1	ND		333	
91-94-1	3,3'-Dichlorobenzidine	1	ND		667	
120-83-2	2,4-Dichlorophenol	1	ND		333	
84-66-2	Diethylphthalate	1	ND		333	
105-67-9	2,4-Dimethylphenol	1	ND		333	
131-11-3	Dimethylphthalate	1	ND		333	
534-52-1	4,6-Dinitro-2-methylphenol (4,6-Dinitro-o-cresol)	1	ND		833	
51-28-5	2,4-Dinitrophenol	1	ND		833	

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID:	IEBS-05-HS	**Client:**	DAMES & MOORE
Project:	1HNC-PHASE III	**Site:**	None
Lab ID:	TUO-006	**Episode:**	TUO
Description:	None	**Matrix:**	Soil
Method:	SW 8270 Semivolatile Organics	**Prep Level:**	Soil
		Units:	ug/kg
Prep Factor:	1.00	**Leached:**	n/a
		Prepared:	16-Sep-99

Sample Qu:
% Moisture: wet
Batch: 31726
Target List: 8270LOW
Analyzed: 17-Sep-99 13:37 JA

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
121-14-2	2,4-Dinitrotoluene	1	ND		333	
606-20-2	2,6-Dinitrotoluene	1	ND		333	
117-84-0	Di-n-octylphthalate	1	ND		333	
117-81-7	bis(2-Ethylhexyl)phthalate	1	ND		333	
206-44-0	Fluoranthene	1	ND		333	
86-73-7	Fluorene	1	ND		333	
118-74-1	Hexachlorobenzene	1	ND		333	
87-68-3	Hexachlorobutadiene	1	ND		333	
77-47-4	Hexachlorocyclopentadiene	1	ND		333	
67-72-1	Hexachloroethane	1	ND		333	
193-39-5	Indeno(1,2,3-cd)pyrene	1	ND		333	
78-59-1	Isophorone	1	ND		333	
91-57-6	2-Methylnaphthalene	1	ND		333	
95-48-7	2-Methylphenol (o-Cresol)	1	ND		333	
106-44-5	4-Methylphenol (p-Cresol)	1	ND		333	
91-20-3	Naphthalene	1	ND		333	
88-74-4	2-Nitroaniline (o-Nitroaniline)	1	ND		833	
99-09-2	3-Nitroaniline (m-Nitroaniline)	1	ND		833	
100-01-6	4-Nitroaniline (p-Nitroaniline)	1	ND		833	
98-95-3	Nitrobenzene	1	ND		333	
88-75-5	2-Nitrophenol (o-Nitrophenol)	1	ND		333	
100-02-7	4-Nitrophenol (p-Nitrophenol)	1	ND		833	
86-30-6	N-Nitrosodiphenylamine (Diphenylamine)	1	ND	A10	333	
621-64-7	N-Nitroso-di-n-propylamine	1	ND		333	
87-86-5	Pentachlorophenol	1	ND		833	
85-01-8	Phenanthrene	1	ND		333	
108-95-2	Phenol	1	ND		333	
129-00-0	Pyrene	1	ND		333	
120-82-1	1,2,4-Trichlorobenzene	1	ND		333	
95-95-4	2,4,5-Trichlorophenol	1	ND		833	
88-06-2	2,4,6-Trichlorophenol	1	ND		333	

65 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID: IEBS-14-HS
Project: 1HNC-PHASE III
Lab ID: TUO-007
Description: None
Method: SW 8260 Volatile Organics

Client: DAMES & MOORE
Site: None
Episode: TUO
Matrix: Soil
Prep Level: Soil
Units: ug/kg
Prepared:

Sample Qu:
% Moisture: wet
Batch: 31677
Target List: 8260LOW
Analyzed: 20-Sep-99 14:47 KC

Prep Factor: 1.00 Leached: n/a

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
67-64-1	Acetone (2-Propanone, Dimethyl ketone)	1	ND		10.0	
71-43-2	Benzene	1	ND		5.00	
75-27-4	Bromodichloromethane	1	ND		5.00	
75-25-2	Bromoform	1	ND		5.00	
74-83-9	Bromomethane (Methyl bromide)	1	ND		10.0	
78-93-3	2-Butanone (Methyl ethyl ketone)	1	ND		10.0	
75-15-0	Carbon disulfide	1	ND		5.00	
56-23-5	Carbon tetrachloride	1	ND		5.00	
108-90-7	Chlorobenzene	1	ND		5.00	
75-00-3	Chloroethane	1	ND		10.0	
67-66-3	Chloroform	1	ND		5.00	
74-87-3	Chloromethane (Methyl chloride)	1	ND		10.0	
124-48-1	Dibromochloromethane	1	ND		5.00	
75-34-3	1,1-Dichloroethane	1	ND		5.00	
107-06-2	1,2-Dichloroethane (Ethylene dichloride)	1	ND		5.00	
75-35-4	1,1-Dichloroethene (Dichloroethylene)	1	ND		5.00	
540-59-0	1,2-Dichloroethene (total)	1	ND		5.00	
78-87-5	1,2-Dichloropropane	1	ND		5.00	
10061-01-5	cis-1,3-Dichloropropene	1	ND		5.00	
10061-02-6	trans-1,3-Dichloropropene	1	ND		5.00	
100-41-4	Ethylbenzene	1	ND		5.00	
591-78-6	2-Hexanone	1	ND		10.0	
75-09-2	Methylene chloride (Dichloromethane)	1	5.69	A11	5.00	
108-10-1	4-Methyl-2-pentanone (MIBK)	1	ND		10.0	
100-42-5	Styrene	1	ND		5.00	
79-34-5	1,1,2,2-Tetrachloroethane	1	ND		5.00	
127-18-4	Tetrachloroethene (Perchloroethylene)	1	ND		5.00	
108-88-3	Toluene	1	ND		5.00	
71-55-6	1,1,1-Trichloroethane (Methyl chloroform)	1	ND		5.00	
79-00-5	1,1,2-Trichloroethane	1	ND		5.00	
79-01-6	Trichloroethene (Trichloroethylene)	1	ND		5.00	
75-01-4	Vinyl chloride (Chloroethene)	1	ND		10.0	
1330-20-7	Xylene (total)	1	ND		5.00	

33 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID:	IEBS-14-HS	**Client:**	DAMES & MOORE
Project:	1HNC-PHASE III	**Site:**	None
Lab ID:	TUO-007	**Episode:**	TUO
Description:	None	**Matrix:**	Soil
Method:	SW 8270 Semivolatile Organics	**Prep Level:**	Soil
		Units:	ug/kg
Prep Factor:	1.00	**Leached:**	n/a
		Prepared:	16-Sep-99

Sample Qu:
% Moisture: wet
Batch: 31726
Target List: 8270LOW
Analyzed: 21-Sep-99 15:29 JA

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
83-32-9	Acenaphthene	1	ND		333	
208-96-8	Acenaphthylene	1	ND		333	
120-12-7	Anthracene	1	ND		333	
56-55-3	Benzo(a)anthracene	1	ND		333	
205-99-2	Benzo(b)fluoranthene	1	ND		333	
207-08-09	Benzo(k)fluoranthene	1	ND		333	
65-85-0	Benzoic acid	1	ND		833	
191-24-2	Benzo(g,h,i)perylene	1	ND		333	
50-32-8	Benzo(a)pyrene	1	ND		333	
100-51-6	Benzyl alcohol	1	ND		333	
101-55-3	4-Bromophenyl phenyl ether	1	ND		333	
85-68-7	Butylbenzylphthalate	1	ND		333	
106-47-8	4-Chloroaniline (p-Chloroaniline)	1	ND		333	
111-91-1	bis(2-Chloroethoxy)methane	1	ND		333	
111-44-4	bis(2-Chloroethyl) ether	1	ND		333	
108-60-1	bis(2-Chloroisopropyl) ether	1	ND		333	
59-50-7	4-Chloro-3-methylphenol (p-Chloro-m-cresol)	1	ND		333	
91-58-7	2-Chloronaphthalene	1	ND		333	
95-57-8	2-Chlorophenol (o-Chlorophenol)	1	ND		333	
7005-72-3	4-Chlorophenyl phenyl ether	1	ND		333	
218-01-9	Chrysene	1	ND		333	
53-70-3	Dibenz(a,h)anthracene	1	ND		333	
132-64-9	Dibenzofuran	1	ND		333	
84-74-2	Di-n-butylphthalate	1	ND		333	
95-50-1	1,2-Dichlorobenzene (o-Dichlorobenzene)	1	ND		333	
541-73-1	1,3-Dichlorobenzene (m-Dichlorobenzene)	1	ND		333	
106-46-7	1,4-Dichlorobenzene (p-Dichlorobenzene)	1	ND		333	
91-94-1	3,3'-Dichlorobenzidine	1	ND		667	
120-83-2	2,4-Dichlorophenol	1	ND		333	
84-66-2	Diethylphthalate	1	ND		333	
105-67-9	2,4-Dimethylphenol	1	ND		333	
131-11-3	Dimethylphthalate	1	ND		333	
534-52-1	4,6-Dinitro-2-methylphenol (4,6-Dinitro-o-cresol)	1	ND		833	
51-28-5	2,4-Dinitrophenol	1	ND		833	

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:28:04

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID: IEBS-14-HS
Project: 1HNC-PHASE III
Lab ID: TUO-007
Description: None
Method: SW 8270 Semivolatile Organics

Client: DAMES & MOORE
Site: None
Episode: TUO
Matrix: Soil
Prep Level: Soil
Units: ug/kg
Prepared: 16-Sep-99

Sample Qu:
% Moisture: wet
Batch: 31726
Target List: 8270LOW
Analyzed: 21-Sep-99 15:29 JA

Prep Factor: 1.00
Leached: n/a

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
121-14-2	2,4-Dinitrotoluene	1	ND		333	
606-20-2	2,6-Dinitrotoluene	1	ND		333	
117-84-0	Di-n-octylphthalate	1	ND		333	
117-81-7	bis(2-Ethylhexyl)phthalate	1	650		333	
206-44-0	Fluoranthene	1	400		333	
86-73-7	Fluorene	1	ND		333	
118-74-1	Hexachlorobenzene	1	ND		333	
87-68-3	Hexachlorobutadiene	1	ND		333	
77-47-4	Hexachlorocyclopentadiene	1	ND		333	
67-72-1	Hexachloroethane	1	ND		333	
193-39-5	Indeno(1,2,3-cd)pyrene	1	ND		333	
78-59-1	Isophorone	1	ND		333	
91-57-6	2-Methylnaphthalene	1	ND		333	
95-48-7	2-Methylphenol (o-Cresol)	1	ND		333	
106-44-5	4-Methylphenol (p-Cresol)	1	ND		333	
91-20-3	Naphthalene	1	ND		333	
88-74-4	2-Nitroaniline (o-Nitroaniline)	1	ND		333	
99-09-2	3-Nitroaniline (m-Nitroaniline)	1	ND		833	
100-01-6	4-Nitroaniline (p-Nitroaniline)	1	ND		833	
98-95-3	Nitrobenzene	1	ND		833	
88-75-5	2-Nitrophenol (o-Nitrophenol)	1	ND		333	
100-02-7	4-Nitrophenol (p-Nitrophenol)	1	ND		333	
86-30-6	N-Nitrosodiphenylamine (Diphenylamine)	1	ND		833	
621-64-7	N-Nitroso-di-n-propylamine	1	ND	A10	333	
87-86-5	Pentachlorophenol	1	ND		333	
85-01-8	Phenanthrene	1	ND		833	
108-95-2	Phenol	1	ND		333	
129-00-0	Pyrene	1	ND		333	
120-82-1	1,2,4-Trichlorobenzene	1	603		333	
95-95-4	2,4,5-Trichlorophenol	1	ND		333	
88-06-2	2,4,6-Trichlorophenol	1	ND		833	
		1	ND		333	

65 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:28:04

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID: IEBS-15-HS
Client: DAMES & MOORE
Project: 1HNC-PHASE III
Site: None
Lab ID: TUO-008
Episode: TUO
Sample Qu: M1 M2
Description: None
Matrix: Soil
% Moisture: wet
Method: SW 8260 Volatile Organics
Prep Level: Soil
Batch: 31677
Units: ug/kg
Target List: 8260LOW
Prep Factor: 1.00
Leached: n/a
Prepared:
Analyzed: 21-Sep-99 15:49 KC

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
67-64-1	Acetone (2-Propanone, Dimethyl ketone)	1	109	A11	10.0	
71-43-2	Benzene	1	ND		5.00	
75-27-4	Bromodichloromethane	1	ND		5.00	
75-25-2	Bromoform	1	ND		5.00	
74-83-9	Bromomethane (Methyl bromide)	1	ND		10.0	
78-93-3	2-Butanone (Methyl ethyl ketone)	1	22.5		10.0	
75-15-0	Carbon disulfide	1	ND		5.00	
56-23-5	Carbon tetrachloride	1	ND		5.00	
108-90-7	Chlorobenzene	1	ND		5.00	
75-00-3	Chloroethane	1	ND		10.0	
67-66-3	Chloroform	1	ND		5.00	
74-87-3	Chloromethane (Methyl chloride)	1	ND		10.0	
124-48-1	Dibromochloromethane	1	ND		5.00	
75-34-3	1,1-Dichloroethane	1	ND		5.00	
107-06-2	1,2-Dichloroethane (Ethylene dichloride)	1	ND		5.00	
75-35-4	1,1-Dichloroethene (Dichloroethylene)	1	ND		5.00	
540-59-0	1,2-Dichloroethene (total)	1	ND		5.00	
78-87-5	1,2-Dichloropropane	1	ND		5.00	
10061-01-5	cis-1,3-Dichloropropene	1	ND		5.00	
10061-02-6	trans-1,3-Dichloropropene	1	ND		5.00	
100-41-4	Ethylbenzene	1	ND		5.00	
591-78-6	2-Hexanone	1	ND		10.0	
75-09-2	Methylene chloride (Dichloromethane)	1	ND		5.00	
108-10-1	4-Methyl-2-pentanone (MIBK)	1	ND		10.0	
100-42-5	Styrene	1	ND		5.00	
79-34-5	1,1,2,2-Tetrachloroethane	1	ND		5.00	
127-18-4	Tetrachloroethene (Perchloroethylene)	1	ND		5.00	
108-88-3	Toluene	1	ND		5.00	
71-55-6	1,1,1-Trichloroethane (Methyl chloroform)	1	ND		5.00	
79-00-5	1,1,2-Trichloroethane	1	ND		5.00	
79-01-6	Trichloroethene (Trichloroethylene)	1	ND		5.00	
75-01-4	Vinyl chloride (Chloroethene)	1	ND		10.0	
1330-20-7	Xylene (total)	1	ND		5.00	

33 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:28:05

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID: IEBS-08-HS
Client: DAMES & MOORE
Project: 1HNC-PHASE III
Site: None
Lab ID: TUO-009
Episode: TUO
Sample Qu:
Description: None
Matrix: Soil
% Moisture: wet
Method: SW 8260 Volatile Organics
Prep Level: Soil
Batch: 31677
Units: ug/kg
Target List: 8260LOW
Prep Factor: 1.00
Leached: n/a
Prepared:
Analyzed: 20-Sep-99 15:45 KC

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
67-64-1	Acetone (2-Propanone, Dimethyl ketone)	1	55.3	A11	10.0	
71-43-2	Benzene	1	ND		5.00	
75-27-4	Bromodichloromethane	1	ND		5.00	
75-25-2	Bromoform	1	ND		5.00	
74-83-9	Bromomethane (Methyl bromide)	1	ND		10.0	
78-93-3	2-Butanone (Methyl ethyl ketone)	1	ND		10.0	
75-15-0	Carbon disulfide	1	ND		5.00	
56-23-5	Carbon tetrachloride	1	ND		5.00	
108-90-7	Chlorobenzene	1	ND		5.00	
75-00-3	Chloroethane	1	ND		10.0	
67-66-3	Chloroform	1	ND		5.00	
74-87-3	Chloromethane (Methyl chloride)	1	ND		10.0	
124-48-1	Dibromochloromethane	1	ND		5.00	
75-34-3	1,1-Dichloroethane	1	ND		5.00	
107-06-2	1,2-Dichloroethane (Ethylene dichloride)	1	ND		5.00	
75-35-4	1,1-Dichloroethene (Dichloroethylene)	1	ND		5.00	
540-59-0	1,2-Dichloroethene (total)	1	ND		5.00	
78-87-5	1,2-Dichloropropane	1	ND		5.00	
10061-01-5	cis-1,3-Dichloropropene	1	ND		5.00	
10061-02-6	trans-1,3-Dichloropropene	1	ND		5.00	
100-41-4	Ethylbenzene	1	ND		5.00	
591-78-6	2-Hexanone	1	ND		10.0	
75-09-2	Methylene chloride (Dichloromethane)	1	6.53	A11	5.00	
108-10-1	4-Methyl-2-pentanone (MIBK)	1	ND		10.0	
100-42-5	Styrene	1	ND		5.00	
79-34-5	1,1,2,2-Tetrachloroethane	1	ND		5.00	
127-18-4	Tetrachloroethene (Perchloroethylene)	1	ND		5.00	
108-88-3	Toluene	1	ND		5.00	
71-55-6	1,1,1-Trichloroethane (Methyl chloroform)	1	ND		5.00	
79-00-5	1,1,2-Trichloroethane	1	ND		5.00	
79-01-6	Trichloroethene (Trichloroethylene)	1	ND		5.00	
75-01-4	Vinyl chloride (Chloroethene)	1	ND		10.0	
1330-20-7	Xylene (total)	1	ND		5.00	

33 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:28:05

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID: IEBS-08-HS
Client: DAMES & MOORE
Project: 1HNC-PHASE III
Site: None
Lab ID: TUO-009
Episode: TUO
Sample Qu:
Description: None
Matrix: Soil
% Moisture: wet
Method: SW 8270 Semivolatile Organics
Prep Level: Soil
Batch: 31726
Units: ug/kg
Target List: 8270LOW
Prep Factor: 1.00
Leached: n/a
Prepared: 16-Sep-99
Analyzed: 23-Sep-99 15:39 JA

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
83-32-9	Acenaphthene	1	1630	N	333	
208-96-8	Acenaphthylene	1	ND	N	333	
120-12-7	Anthracene	1	ND	N	333	
56-55-3	Benzo(a)anthracene	1	ND	N	333	
205-99-2	Benzo(b)fluoranthene	1	ND	N	333	
207-08-09	Benzo(k)fluoranthene	1	ND	N	333	
65-85-0	Benzoic acid	1	ND	N	833	
191-24-2	Benzo(g,h,i)perylene	1	ND	N	333	
50-32-8	Benzo(a)pyrene	1	ND	N	333	
100-51-6	Benzyl alcohol	1	ND	N	333	
101-55-3	4-Bromophenyl phenyl ether	1	ND	N	333	
85-68-7	Butylbenzylphthalate	1	ND	N	333	
106-47-8	4-Chloroaniline (p-Chloroaniline)	1	ND	N	333	
111-91-1	bis(2-Chloroethoxy)methane	1	ND	N	333	
111-44-4	bis(2-Chloroethyl) ether	1	ND	N	333	
108-60-1	bis(2-Chloroisopropyl) ether	1	ND	N	333	
59-50-7	4-Chloro-3-methylphenol (p-Chloro-m-cresol)	1	ND	N	333	
91-58-7	2-Chloronaphthalene	1	ND	N	333	
95-57-8	2-Chlorophenol (o-Chlorophenol)	1	ND	N	333	
7005-72-3	4-Chlorophenyl phenyl ether	1	ND	N	333	
218-01-9	Chrysene	1	ND	N	333	
53-70-3	Dibenz(a,h)anthracene	1	ND	N	333	
132-64-9	Dibenzofuran	1	ND	N	333	
84-74-2	Di-n-butylphthalate	1	ND	N	333	
95-50-1	1,2-Dichlorobenzene (o-Dichlorobenzene)	1	ND	N	333	
541-73-1	1,3-Dichlorobenzene (m-Dichlorobenzene)	1	ND	N	333	
106-46-7	1,4-Dichlorobenzene (p-Dichlorobenzene)	1	ND	N	333	
91-94-1	3,3'-Dichlorobenzidine	1	ND	N	667	
120-83-2	2,4-Dichlorophenol	1	ND	N	333	
84-66-2	Diethylphthalate	1	ND	N	333	
105-67-9	2,4-Dimethylphenol	1	ND	N	333	
131-11-3	Dimethylphthalate	1	ND	N	333	
534-52-1	4,6-Dinitro-2-methylphenol (4,6-Dinitro-o-cresol)	1	ND	N	833	
51-28-5	2,4-Dinitrophenol	1	ND	N	833	

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:28:05

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID: IEBS-08-HS
Client: DAMES & MOORE
Project: 1HNC-PHASE III
Site: None
Lab ID: TUO-009
Episode: TUO
Sample Qu:
Description: None
Matrix: Soil
% Moisture: wet
Method: SW 8270 Semivolatile Organics
Prep Level: Soil
Batch: 31726
Units: ug/kg
Target List: 8270LOW
Prep Factor: 1.00
Leached: n/a
Prepared: 16-Sep-99
Analyzed: 23-Sep-99 15:39 JA

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
121-14-2	2,4-Dinitrotoluene	1	ND	N	333	
606-20-2	2,6-Dinitrotoluene	1	ND	N	333	
117-84-0	Di-n-octylphthalate	1	ND	N	333	
117-81-7	bis(2-Ethylhexyl)phthalate	1	1780	N	333	
206-44-0	Fluoranthene	1	1490	N	333	
86-73-7	Fluorene	1	ND	N	333	
118-74-1	Hexachlorobenzene	1	ND	N	333	
87-68-3	Hexachlorobutadiene	1	ND	N	333	
77-47-4	Hexachlorocyclopentadiene	1	ND	N	333	
67-72-1	Hexachloroethane	1	ND	N	333	
193-39-5	Indeno(1,2,3-cd)pyrene	1	ND	N	333	
78-59-1	Isophorone	1	ND	N	333	
91-57-6	2-Methylnaphthalene	1	ND	N	333	
95-48-7	2-Methylphenol (o-Cresol)	1	ND	N	333	
106-44-5	4-Methylphenol (p-Cresol)	1	ND	N	333	
91-20-3	Naphthalene	1	ND	N	333	
88-74-4	2-Nitroaniline (o-Nitroaniline)	1	ND	N	333	
99-09-2	3-Nitroaniline (m-Nitroaniline)	1	ND	N	833	
100-01-6	4-Nitroaniline (p-Nitroaniline)	1	ND	N	833	
98-95-3	Nitrobenzene	1	ND	N	833	
88-75-5	2-Nitrophenol (o-Nitrophenol)	1	ND	N	333	
100-02-7	4-Nitrophenol (p-Nitrophenol)	1	ND	N	333	
86-30-6	N-Nitrosodiphenylamine (Diphenylamine)	1	ND	N	833	
621-64-7	N-Nitroso-di-n-propylamine	1	ND	N A10	333	
87-86-5	Pentachlorophenol	1	ND	N	333	
85-01-8	Phenanthrene	1	ND	N	833	
108-95-2	Phenol	1	ND	N	333	
129-00-0	Pyrene	1	ND	N	333	
120-82-1	1,2,4-Trichlorobenzene	1	1090	N	333	
95-95-4	2,4,5-Trichlorophenol	1	ND	N	333	
88-06-2	2,4,6-Trichlorophenol	1	ND	N	833	
		1	ND	N	333	

65 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

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Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID: IEBS-08-HS		Client: DAMES & MOORE	
Project: 1HNC-PHASE III		Site: None	
Lab ID: TUO-010MS		Episode: TUO	Sample Qu:
Description: MATRIX SPIKE		Matrix: Soil	% Moisture: wet
Method: SW 8260 Volatile Organics		Prep Level: Soil	Batch: 31677
		Units: ug/kg	Target List: 8260LOW
Prep Factor: 1.00	Leached: n/a	Prepared:	Analyzed: 20-Sep-99 16:44 KC

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
67-64-1	Acetone (2-Propanone, Dimethyl ketone)	1	95.5		10.0	
71-43-2	Benzene	1	43.5		5.00	
75-27-4	Bromodichloromethane	1	36.1		5.00	
75-25-2	Bromoform	1	33.4		5.00	
74-83-9	Bromomethane (Methyl bromide)	1	52.8		10.0	
78-93-3	2-Butanone (Methyl ethyl ketone)	1	41.9		10.0	
75-15-0	Carbon disulfide	1	42.5		5.00	
56-23-5	Carbon tetrachloride	1	35.8		5.00	
108-90-7	Chlorobenzene	1	37.5		5.00	
75-00-3	Chloroethane	1	56.6		10.0	
67-66-3	Chloroform	1	42.3		5.00	
74-87-3	Chloromethane (Methyl chloride)	1	68.3		10.0	
124-48-1	Dibromochloromethane	1	31.6		5.00	
75-34-3	1,1-Dichloroethane	1	47.1		5.00	
107-06-2	1,2-Dichloroethane (Ethylene dichloride)	1	39.9		5.00	
75-35-4	1,1-Dichloroethene (Dichloroethylene)	1	57.9		5.00	
540-59-0	1,2-Dichloroethene (total)	1	94.3		5.00	
78-87-5	1,2-Dichloropropane	1	42.7		5.00	
10061-01-5	cis-1,3-Dichloropropene	1	32.6		5.00	
10061-02-6	trans-1,3-Dichloropropene	1	33.6		5.00	
100-41-4	Ethylbenzene	1	40.8		5.00	
591-78-6	2-Hexanone	1	40.8		10.0	
75-09-2	Methylene chloride (Dichloromethane)	1	49.7		5.00	
108-10-1	4-Methyl-2-pentanone (MIBK)	1	37.0		10.0	
100-42-5	Styrene	1	28.0		5.00	
79-34-5	1,1,2,2-Tetrachloroethane	1	39.9		5.00	
127-18-4	Tetrachloroethene (Perchloroethylene)	1	33.3		5.00	
108-88-3	Toluene	1	44.4		5.00	
71-55-6	1,1,1-Trichloroethane (Methyl chloroform)	1	43.5		5.00	
79-00-5	1,1,2-Trichloroethane	1	39.4		5.00	
79-01-6	Trichloroethene (Trichloroethylene)	1	42.3		5.00	
75-01-4	Vinyl chloride (Chloroethene)	1	68.3		10.0	
1330-20-7	Xylene (total)	1	111		5.00	

33 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:28:06

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID: IEBS-08-HS
Client: DAMES & MOORE
Project: 1HNC-PHASE III
Site: None
Lab ID: TUO-010MS2
Episode: TUO
Sample Qu: D2
Description: MATRIX SPIKE
Matrix: Soil
% Moisture: wet
Method: SW 8270 Semivolatile Organics
Prep Level: Soil
Batch: 31726
Units: ug/kg
Target List: 8270LOW
Prep Factor: 1.00
Leached: n/a
Prepared: 16-Sep-99
Analyzed: 17-Sep-99 18:38 JA

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
83-32-9	Acenaphthene	5	3710	N D2	1670	
208-96-8	Acenaphthylene	5	ND	N D2	1670	
120-12-7	Anthracene	5	1970	N D2	1670	
56-55-3	Benzo(a)anthracene	5	3440	N D2	1670	
205-99-2	Benzo(b)fluoranthene	5	3070	N D2	1670	
207-08-09	Benzo(k)fluoranthene	5	3780	N D2	1670	
65-85-0	Benzoic acid	5	ND	N D2	4170	
191-24-2	Benzo(g,h,i)perylene	5	ND	N D2	1670	
50-32-8	Benzo(a)pyrene	5	3130	N D2	1670	
100-51-6	Benzyl alcohol	5	ND	N D2	1670	
101-55-3	4-Bromophenyl phenyl ether	5	ND	N D2	1670	
85-68-7	Butylbenzylphthalate	5	ND	N D2	1670	
106-47-8	4-Chloroaniline (p-Chloroaniline)	5	ND	N D2	1670	
111-91-1	bis(2-Chloroethoxy)methane	5	ND	N D2	1670	
111-44-4	bis(2-Chloroethyl) ether	5	ND	N D2	1670	
108-60-1	bis(2-Chloroisopropyl) ether	5	ND	N D2	1670	
59-50-7	4-Chloro-3-methylphenol (p-Chloro-m-cresol)	5	ND	N D2	1670	
91-58-7	2-Chloronaphthalene	5	ND	N D2	1670	
95-57-8	2-Chlorophenol (o-Chlorophenol)	5	ND	N D2	1670	
7005-72-3	4-Chlorophenyl phenyl ether	5	ND	N D2	1670	
218-01-9	Chrysene	5	3350	N D2	1670	
53-70-3	Dibenz(a,h)anthracene	5	ND	N D2	1670	
132-64-9	Dibenzofuran	5	ND	N D2	1670	
84-74-2	Di-n-butylphthalate	5	ND	N D2	1670	
95-50-1	1,2-Dichlorobenzene (o-Dichlorobenzene)	5	ND	N D2	1670	
541-73-1	1,3-Dichlorobenzene (m-Dichlorobenzene)	5	ND	N D2	1670	
106-46-7	1,4-Dichlorobenzene (p-Dichlorobenzene)	5	ND	N D2	1670	
91-94-1	3,3'-Dichlorobenzidine	5	ND	N D2	3340	
120-83-2	2,4-Dichlorophenol	5	ND	N D2	1670	
84-66-2	Diethylphthalate	5	ND	N D2	1670	
105-67-9	2,4-Dimethylphenol	5	ND	N D2	1670	
131-11-3	Dimethylphthalate	5	ND	N D2	1670	
534-52-1	4,6-Dinitro-2-methylphenol (4,6-Dinitro-o-cresol)	5	ND	N D2	4170	
51-28-5	2,4-Dinitrophenol	5	ND	N D2	4170	

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:28:06

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID:	IEBS-08-HS	**Client:**	DAMES & MOORE
Project:	1HNC-PHASE III	**Site:**	None
Lab ID:	TUO-010MS2	**Episode:**	TUO
Description:	MATRIX SPIKE	**Matrix:**	Soil
Method:	SW 8270 Semivolatile Organics	**Prep Level:**	Soil
		Units:	ug/kg
Prep Factor:	1.00	**Leached:**	n/a
		Prepared:	16-Sep-99

Sample Qu: D2
% Moisture: wet
Batch: 31726
Target List: 8270LOW
Analyzed: 17-Sep-99 18:38 JA

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
121-14-2	2,4-Dinitrotoluene	5	ND	N D2	1670	
606-20-2	2,6-Dinitrotoluene	5	ND	N D2	1670	
117-84-0	Di-n-octylphthalate	5	1680	N D2	1670	
117-81-7	bis(2-Ethylhexyl)phthalate	5	ND	N D2	1670	
206-44-0	Fluoranthene	5	7930	N D2	1670	
86-73-7	Fluorene	5	ND	N D2	1670	
118-74-1	Hexachlorobenzene	5	ND	N D2	1670	
87-68-3	Hexachlorobutadiene	5	ND	N D2	1670	
77-47-4	Hexachlorocyclopentadiene	5	ND	N D2	1670	
67-72-1	Hexachloroethane	5	ND	N D2	1670	
193-39-5	Indeno(1,2,3-cd)pyrene	5	ND	N D2	1670	
78-59-1	Isophorone	5	ND	N D2	1670	
91-57-6	2-Methylnaphthalene	5	ND	N D2	1670	
95-48-7	2-Methylphenol (o-Cresol)	5	ND	N D2	1670	
106-44-5	4-Methylphenol (p-Cresol)	5	ND	N D2	1670	
91-20-3	Naphthalene	5	ND	N D2	1670	
88-74-4	2-Nitroaniline (o-Nitroaniline)	5	ND	N D2	4170	
99-09-2	3-Nitroaniline (m-Nitroaniline)	5	ND	N D2	4170	
100-01-6	4-Nitroaniline (p-Nitroaniline)	5	ND	N D2	4170	
98-95-3	Nitrobenzene	5	ND	N D2	1670	
88-75-5	2-Nitrophenol (o-Nitrophenol)	5	ND	N D2	1670	
100-02-7	4-Nitrophenol (p-Nitrophenol)	5	ND	N D2	4170	
86-30-6	N-Nitrosodiphenylamine (Diphenylamine)	5	ND	N D2 A10	1670	
621-64-7	N-Nitroso-di-n-propylamine	5	ND	N D2	1670	
87-86-5	Pentachlorophenol	5	ND	N D2	4170	
85-01-8	Phenanthrene	5	ND	N D2	1670	
108-95-2	Phenol	5	ND	N D2	1670	
129-00-0	Pyrene	5	6620	N D2	1670	
120-82-1	1,2,4-Trichlorobenzene	5	ND	N D2	1670	
95-95-4	2,4,5-Trichlorophenol	5	ND	N D2	4170	
88-06-2	2,4,6-Trichlorophenol	5	ND	N D2	1670	

65 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID: IEBS-08-HS
Client: DAMES & MOORE
Project: 1HNC-PHASE III
Site: None
Lab ID: TUO-011MSD
Episode: TUO
Sample Qu:
Description: MATRIX SPIKE DUPLICATE
Matrix: Soil
% Moisture: wet
Method: SW 8260 Volatile Organics
Prep Level: Soil
Batch: 31677
Units: ug/kg
Target List: 8260LOW
Prep Factor: 1.00
Leached: n/a
Prepared:
Analyzed: 20-Sep-99 17:13 KC

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
67-64-1	Acetone (2-Propanone, Dimethyl ketone)	1	101		10.0	
71-43-2	Benzene	1	45.4		5.00	
75-27-4	Bromodichloromethane	1	38.3		5.00	
75-25-2	Bromoform	1	38.0		5.00	
74-83-9	Bromomethane (Methyl bromide)	1	54.4		10.0	
78-93-3	2-Butanone (Methyl ethyl ketone)	1	46.9		10.0	
75-15-0	Carbon disulfide	1	44.0		5.00	
56-23-5	Carbon tetrachloride	1	37.8		5.00	
108-90-7	Chlorobenzene	1	40.9		5.00	
75-00-3	Chloroethane	1	57.7		10.0	
67-66-3	Chloroform	1	43.1		5.00	
74-87-3	Chloromethane (Methyl chloride)	1	68.5		10.0	
124-48-1	Dibromochloromethane	1	35.1		5.00	
75-34-3	1,1-Dichloroethane	1	49.0		5.00	
107-06-2	1,2-Dichloroethane (Ethylene dichloride)	1	41.5		5.00	
75-35-4	1,1-Dichloroethene (Dichloroethylene)	1	59.6		5.00	
540-59-0	1,2-Dichloroethene (total)	1	95.3		5.00	
78-87-5	1,2-Dichloropropane	1	44.7		5.00	
10061-01-5	cis-1,3-Dichloropropene	1	35.2		5.00	
10061-02-6	trans-1,3-Dichloropropene	1	34.7		5.00	
100-41-4	Ethylbenzene	1	41.1		5.00	
591-78-6	2-Hexanone	1	45.0		10.0	
75-09-2	Methylene chloride (Dichloromethane)	1	51.2		5.00	
108-10-1	4-Methyl-2-pentanone (MIBK)	1	42.2		10.0	
100-42-5	Styrene	1	30.9		5.00	
79-34-5	1,1,2,2-Tetrachloroethane	1	43.2		5.00	
127-18-4	Tetrachloroethene (Perchloroethylene)	1	34.3		5.00	
108-88-3	Toluene	1	43.1		5.00	
71-55-6	1,1,1-Trichloroethane (Methyl chloroform)	1	45.1		5.00	
79-00-5	1,1,2-Trichloroethane	1	39.5		5.00	
79-01-6	Trichloroethene (Trichloroethylene)	1	44.1		5.00	
75-01-4	Vinyl chloride (Chloroethene)	1	68.8		10.0	
1330-20-7	Xylene (total)	1	123		5.00	

33 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

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Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID:	IEBS-08-HS	**Client:**	DAMES & MOORE
Project:	1HNC-PHASE III	**Site:**	None
Lab ID:	TUO-011MSD2	**Episode:**	TUO
Description:	MATRIX SPIKE DUPLICATE	**Matrix:**	Soil
Method:	SW 8270 Semivolatile Organics	**Prep Level:**	Soil
		Units:	ug/kg
Prep Factor:	1.00	**Leached:**	n/a
		Prepared:	16-Sep-99

Sample Qu: D2 **% Moisture:** wet **Batch:** 31726 **Target List:** 8270LOW **Analyzed:** 17-Sep-99 19:20 JA

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
83-32-9	Acenaphthene	5	3150	N D2	1670	
208-96-8	Acenaphthylene	5	ND	N D2	1670	
120-12-7	Anthracene	5	1800	N D2	1670	
56-55-3	Benzo(a)anthracene	5	3130	N D2	1670	
205-99-2	Benzo(b)fluoranthene	5	2780	N D2	1670	
207-08-09	Benzo(k)fluoranthene	5	3260	N D2	1670	
65-85-0	Benzoic acid	5	ND	N D2	4170	
191-24-2	Benzo(g,h,i)perylene	5	ND	N D2	1670	
50-32-8	Benzo(a)pyrene	5	2750	N D2	1670	
100-51-6	Benzyl alcohol	5	ND	N D2	1670	
101-55-3	4-Bromophenyl phenyl ether	5	ND	N D2	1670	
85-68-7	Butylbenzylphthalate	5	ND	N D2	1670	
106-47-8	4-Chloroaniline (p-Chloroaniline)	5	ND	N D2	1670	
111-91-1	bis(2-Chloroethoxy)methane	5	ND	N D2	1670	
111-44-4	bis(2-Chloroethyl) ether	5	ND	N D2	1670	
108-60-1	bis(2-Chloroisopropyl) ether	5	ND	N D2	1670	
59-50-7	4-Chloro-3-methylphenol (p-Chloro-m-cresol)	5	ND	N D2	1670	
91-58-7	2-Chloronaphthalene	5	ND	N D2	1670	
95-57-8	2-Chlorophenol (o-Chlorophenol)	5	ND	N D2	1670	
7005-72-3	4-Chlorophenyl phenyl ether	5	ND	N D2	1670	
218-01-9	Chrysene	5	3100	N D2	1670	
53-70-3	Dibenz(a,h)anthracene	5	ND	N D2	1670	
132-64-9	Dibenzofuran	5	ND	N D2	1670	
84-74-2	Di-n-butylphthalate	5	ND	N D2	1670	
95-50-1	1,2-Dichlorobenzene (o-Dichlorobenzene)	5	ND	N D2	1670	
541-73-1	1,3-Dichlorobenzene (m-Dichlorobenzene)	5	ND	N D2	1670	
106-46-7	1,4-Dichlorobenzene (p-Dichlorobenzene)	5	ND	N D2	1670	
91-94-1	3,3'-Dichlorobenzidine	5	ND	N D2	3340	
120-83-2	2,4-Dichlorophenol	5	ND	N D2	1670	
84-66-2	Diethylphthalate	5	ND	N D2	1670	
105-67-9	2,4-Dimethylphenol	5	ND	N D2	1670	
131-11-3	Dimethylphthalate	5	ND	N D2	1670	
534-52-1	4,6-Dinitro-2-methylphenol (4,6-Dinitro-o-cresol)	5	ND	N D2	4170	
51-28-5	2,4-Dinitrophenol	5	ND	N D2	4170	

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
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Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

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Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID: IEBS-08-HS
Client: DAMES & MOORE
Project: 1HNC-PHASE III
Site: None
Lab ID: TUO-011MSD2
Episode: TUO
Sample Qu: D2
Description: MATRIX SPIKE DUPLICATE
Matrix: Soil
% Moisture: wet
Method: SW 8270 Semivolatile Organics
Prep Level: Soil
Batch: 31726
Units: ug/kg
Target List: 8270LOW
Prep Factor: 1.00
Leached: n/a
Prepared: 16-Sep-99
Analyzed: 17-Sep-99 19:20 JA

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
121-14-2	2,4-Dinitrotoluene	5	ND	N D2	1670	
606-20-2	2,6-Dinitrotoluene	5	ND	N D2	1670	
117-84-0	Di-n-octylphthalate	5	ND	N D2	1670	
117-81-7	bis(2-Ethylhexyl)phthalate	5	ND	N D2	1670	
206-44-0	Fluoranthene	5	7300	N D2	1670	
86-73-7	Fluorene	5	ND	N D2	1670	
118-74-1	Hexachlorobenzene	5	ND	N D2	1670	
87-68-3	Hexachlorobutadiene	5	ND	N D2	1670	
77-47-4	Hexachlorocyclopentadiene	5	ND	N D2	1670	
67-72-1	Hexachloroethane	5	ND	N D2	1670	
193-39-5	Indeno(1,2,3-cd)pyrene	5	ND	N D2	1670	
78-59-1	Isophorone	5	ND	N D2	1670	
91-57-6	2-Methylnaphthalene	5	ND	N D2	1670	
95-48-7	2-Methylphenol (o-Cresol)	5	ND	N D2	1670	
106-44-5	4-Methylphenol (p-Cresol)	5	ND	N D2	1670	
91-20-3	Naphthalene	5	ND	N D2	1670	
88-74-4	2-Nitroaniline (o-Nitroaniline)	5	ND	N D2	1670	
99-09-2	3-Nitroaniline (m-Nitroaniline)	5	ND	N D2	4170	
100-01-6	4-Nitroaniline (p-Nitroaniline)	5	ND	N D2	4170	
98-95-3	Nitrobenzene	5	ND	N D2	4170	
88-75-5	2-Nitrophenol (o-Nitrophenol)	5	ND	N D2	1670	
100-02-7	4-Nitrophenol (p-Nitrophenol)	5	ND	N D2	1670	
86-30-6	N-Nitrosodiphenylamine (Diphenylamine)	5	ND	N D2	4170	
621-64-7	N-Nitroso-di-n-propylamine	5	ND	N D2 A10	1670	
87-86-5	Pentachlorophenol	5	ND	N D2	1670	
85-01-8	Phenanthrene	5	ND	N D2	4170	
108-95-2	Phenol	5	ND	N D2	1670	
129-00-0	Pyrene	5	ND	N D2	1670	
120-82-1	1,2,4-Trichlorobenzene	5	6040	N D2	1670	
95-95-4	2,4,5-Trichlorophenol	5	ND	N D2	1670	
88-06-2	2,4,6-Trichlorophenol	5	ND	N D2	4170	

65 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
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Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
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Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID:	IEBS-13-HS	**Client:**	DAMES & MOORE
Project:	1HNC-PHASE III	**Site:**	None
Lab ID:	TUO-012	**Episode:**	TUO
Description:	None	**Matrix:**	Soil
Method:	SW 8260 Volatile Organics	**Prep Level:**	Soil
		Units:	ug/kg
Prep Factor:	1.00	**Leached:**	n/a
		Prepared:	

Sample Qu:
% Moisture: wet
Batch: 31677
Target List: 8260LOW
Analyzed: 20-Sep-99 17:43 KC

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
67-64-1	Acetone (2-Propanone, Dimethyl ketone)	1	25.3	A11	10.0	
71-43-2	Benzene	1	ND		5.00	
75-27-4	Bromodichloromethane	1	ND		5.00	
75-25-2	Bromoform	1	ND		5.00	
74-83-9	Bromomethane (Methyl bromide)	1	ND		10.0	
78-93-3	2-Butanone (Methyl ethyl ketone)	1	ND		10.0	
75-15-0	Carbon disulfide	1	ND		5.00	
56-23-5	Carbon tetrachloride	1	ND		5.00	
108-90-7	Chlorobenzene	1	ND		5.00	
75-00-3	Chloroethane	1	ND		10.0	
67-66-3	Chloroform	1	ND		5.00	
74-87-3	Chloromethane (Methyl chloride)	1	ND		10.0	
124-48-1	Dibromochloromethane	1	ND		5.00	
75-34-3	1,1-Dichloroethane	1	ND		5.00	
107-06-2	1,2-Dichloroethane (Ethylene dichloride)	1	ND		5.00	
75-35-4	1,1-Dichloroethene (Dichloroethylene)	1	ND		5.00	
540-59-0	1,2-Dichloroethene (total)	1	ND		5.00	
78-87-5	1,2-Dichloropropane	1	ND		5.00	
10061-01-5	cis-1,3-Dichloropropene	1	ND		5.00	
10061-02-6	trans-1,3-Dichloropropene	1	ND		5.00	
100-41-4	Ethylbenzene	1	ND		5.00	
591-78-6	2-Hexanone	1	ND		10.0	
75-09-2	Methylene chloride (Dichloromethane)	1	8.07	A11	5.00	
108-10-1	4-Methyl-2-pentanone (MIBK)	1	ND		10.0	
100-42-5	Styrene	1	ND		5.00	
79-34-5	1,1,2,2-Tetrachloroethane	1	ND		5.00	
127-18-4	Tetrachloroethene (Perchloroethylene)	1	ND		5.00	
108-88-3	Toluene	1	ND		5.00	
71-55-6	1,1,1-Trichloroethane (Methyl chloroform)	1	ND		5.00	
79-00-5	1,1,2-Trichloroethane	1	ND		5.00	
79-01-6	Trichloroethene (Trichloroethylene)	1	ND		5.00	
75-01-4	Vinyl chloride (Chloroethene)	1	ND		10.0	
1330-20-7	Xylene (total)	1	ND		5.00	

33 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

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Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID: IEBS-07-HS
Client: DAMES & MOORE
Project: 1HNC-PHASE III
Site: None
Lab ID: TUO-001
Episode: TUO
Sample Qu: D2
Description: None
Matrix: Soil
% Moisture: wet
Method: SW 8080 Pesticides/PCBs
Prep Level: Soil
Batch: 31674
Units: ug/kg
Target List: 8080LOW
Prep Factor: 1.00
Leached: n/a
Prepared: 14-Sep-99
Analyzed: 23-Sep-99 0:30 ML

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
309-00-2	Aldrin	20	ND	D2	34.0	
319-84-6	alpha-BHC	20	ND	D2	34.0	
319-85-7	beta-BHC	20	ND	D2	34.0	
319-86-9	delta-BHC	20	ND	D2	34.0	
58-89-9	gamma-BHC (Lindane)	20	ND	D2	34.0	
57-74-9	Chlordane (technical)	20	ND	D2	334	
72-54-9	4,4'-DDD (p,p'-DDD)	20	ND	D2	66.0	
72-55-9	4,4'-DDE (p,p'-DDE)	20	ND	D2	66.0	
50-29-3	4,4'-DDT (p,p'-DDT)	20	ND	D2	66.0	
60-57-1	Dieldrin	20	ND	D2	66.0	
959-98-8	Endosulfan I (alpha-Endosulfan)	20	ND	D2	34.0	
33213-65-9	Endosulfan II (beta-Endosulfan)	20	ND	D2	66.0	
1031-07-8	Endosulfan sulfate	20	ND	D2	66.0	
72-20-8	Endrin	20	ND	D2	66.0	
7421-36-3	Endrin aldehyde	20	ND	D2	66.0	
76-44-8	Heptachlor	20	ND	D2	34.0	
1024-57-3	Heptachlor epoxide	20	ND	D2	34.0	
72-43-5	Methoxychlor	20	ND	D2	334	
8001-35-2	Toxaphene	20	ND	D2	1600	
12674-11-2	Aroclor-1016	20	ND	D2	666	
11104-28-2	Aroclor-1221	20	ND	D2	666	
11141-16-5	Aroclor-1232	20	ND	D2	666	
53469-21-9	Aroclor-1242	20	ND	D2	666	
12672-29-6	Aroclor-1248	20	ND	D2	666	
11097-69-1	Aroclor-1254	20	ND	D2	666	
1109-82-5	Aroclor-1260	20	ND	D2	666	

26 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

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Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID:	IEBS-09-HS	**Client:**	DAMES & MOORE
Project:	1HNC-PHASE III	**Site:**	None
Lab ID:	TUO-002	**Episode:**	TUO
Description:	None	**Matrix:**	Soil
Method:	Louisiana TPH Diesel & Oil Range Organics (C10-C20 &C20-C28)	**Prep Level:**	Soil
		Units:	mg/kg
Prep Factor:	1.00	**Leached:**	n/a
		Prepared:	14-Sep-99

Sample Qu:
% Moisture: wet
Batch: 31686
Target List: TPHLALOW
Analyzed: 22-Sep-99 14:34 SRT

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
	TPH - Diesel Range Organics	1	10.0		6.50	

1 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:28:49

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID: IEBS-09-HS
Client: DAMES & MOORE
Project: 1HNC-PHASE III
Site: None
Lab ID: TUO-002
Episode: TUO
Sample Qu:
Description: None
Matrix: Soil
% Moisture: wet
Method: SW 8015B TPH Gasoline Range Organics (C6-C10)
Prep Level: Soil
Batch: 31711
Units: ug/kg
Target List: TPHGPTMED
Prep Factor: 1.00
Leached: n/a
Prepared: 18-Sep-99
Analyzed: 20-Sep-99 11:50 KN

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
	TPH - Gasoline Range Organics	1	ND		5000	

1 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:28:50

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID: IEBS-06-HS		Client: DAMES & MOORE	
Project: 1HNC-PHASE III		Site: None	
Lab ID: TUO-003		Episode: TUO	Sample Qu:
Description: None		Matrix: Soil	% Moisture: wet
Method: Louisiana TPH Diesel & Oil Range Organics (C10-C20 &C20-C28)		Prep Level: Soil	Batch: 31686
		Units: mg/kg	Target List: TPHLALOW
Prep Factor: 1.00	Leached: n/a	Prepared: 14-Sep-99	Analyzed: 22-Sep-99 16:19 SRT

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
	TPH - Diesel Range Organics	1	ND		6.50	

1 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:28:50

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID: IEBS-06-HS		**Client:** DAMES & MOORE	
Project: 1HNC-PHASE III		**Site:** None	
Lab ID: TUO-003		**Episode:** TUO	**Sample Qu:**
Description: None		**Matrix:** Soil	**% Moisture:** wet
Method: SW 8015B TPH Gasoline Range Organics (C6-C10)		**Prep Level:** Soil	**Batch:** 31711
		Units: ug/kg	**Target List:** TPHGPTMED
Prep Factor: 1.00	**Leached:** n/a	**Prepared:** 18-Sep-99	**Analyzed:** 21-Sep-99 21:38 KN

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
	TPH - Gasoline Range Organics	1	ND		5000	

1 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

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Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID: IEBS-04-HS		Client: DAMES & MOORE	
Project: 1HNC-PHASE III		Site: None	
Lab ID: TUO-004		Episode: TUO	Sample Qu:
Description: None		Matrix: Soil	% Moisture: wet
Method: Louisiana TPH Diesel & Oil Range Organics (C10-C20 &C20-C28)		Prep Level: Soil	Batch: 31686
		Units: mg/kg	Target List: TPHLALOW
Prep Factor: 1.00	Leached: n/a	Prepared: 14-Sep-99	Analyzed: 22-Sep-99 18:56 SRT

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
	TPH - Diesel Range Organics	1	57.1		6.50	

1 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

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Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID: IEBS-04-HS		Client: DAMES & MOORE	
Project: 1HNC-PHASE III		Site: None	
Lab ID: TUO-004		Episode: TUO	Sample Qu:
Description: None		Matrix: Soil	% Moisture: wet
Method: SW 8015B TPH Gasoline Range Organics (C6-C10)		Prep Level: Soil	Batch: 31711
		Units: ug/kg	Target List: TPHGPTMED
Prep Factor: 1.00	Leached: n/a	Prepared: 18-Sep-99	Analyzed: 20-Sep-99 12:29 KN

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
	TPH - Gasoline Range Organics	1	ND		5000	

1 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:28:50

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID:	IEBS-10-HS	Client:	DAMES & MOORE
Project:	1HNC-PHASE III	Site:	None
Lab ID:	TUO-005	Episode:	TUO
Description:	None	Matrix:	Soil
Method:	Louisiana TPH Diesel & Oil Range Organics (C10-C20 &C20-C28)	Prep Level:	Soil
		Units:	mg/kg
Prep Factor:	1.00	Leached:	n/a
		Prepared:	14-Sep-99

Sample Qu:
% Moisture: wet
Batch: 31686
Target List: TPHLALOW
Analyzed: 22-Sep-99 16:45 SRT

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
	TPH - Diesel Range Organics	1	ND		6.50	

1 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:28:51

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID: IEBS-10-HS		Client: DAMES & MOORE	
Project: 1HNC-PHASE III		Site: None	
Lab ID: TUO-005		Episode: TUO	Sample Qu:
Description: None		Matrix: Soil	% Moisture: wet
Method: SW 8015B TPH Gasoline Range Organics (C6-C10)		Prep Level: Soil	Batch: 31711
		Units: ug/kg	Target List: TPHGPTMED
Prep Factor: 1.00	Leached: n/a	Prepared: 18-Sep-99	Analyzed: 21-Sep-99 17:04 KN

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
	TPH - Gasoline Range Organics	1	ND		5000	

1 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

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Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID:	IEBS-10-HS	Client:	DAMES & MOORE
Project:	1HNC-PHASE III	Site:	None
Lab ID:	TUO-005	Episode:	TUO
Description:	None	Matrix:	Soil
Method:	SW 8080 Pesticides/PCBs	Prep Level:	Soil
		Units:	ug/kg
Prep Factor:	1.00	Leached:	n/a
		Prepared:	14-Sep-99

Sample Qu:
% Moisture: wet
Batch: 31674
Target List: 8080LOW
Analyzed: 23-Sep-99 12:19 ML

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
309-00-2	Aldrin	1	ND		1.70	
319-84-6	alpha-BHC	1	ND		1.70	
319-85-7	beta-BHC	1	ND		1.70	
319-86-9	delta-BHC	1	ND		1.70	
58-89-9	gamma-BHC (Lindane)	1	ND		1.70	
57-74-9	Chlordane (technical)	1	ND		16.7	
72-54-9	4,4'-DDD (p,p'-DDD)	1	ND		3.30	
72-55-9	4,4'-DDE (p,p'-DDE)	1	ND		3.30	
50-29-3	4,4'-DDT (p,p'-DDT)	1	ND		3.30	
60-57-1	Dieldrin	1	ND		3.30	
959-98-8	Endosulfan I (alpha-Endosulfan)	1	ND		1.70	
33213-65-9	Endosulfan II (beta-Endosulfan)	1	ND		3.30	
1031-07-8	Endosulfan sulfate	1	ND		3.30	
72-20-8	Endrin	1	ND		3.30	
7421-36-3	Endrin aldehyde	1	ND		3.30	
76-44-8	Heptachlor	1	ND		1.70	
1024-57-3	Heptachlor epoxide	1	ND		1.70	
72-43-5	Methoxychlor	1	ND		16.7	
8001-35-2	Toxaphene	1	ND		80.0	
12674-11-2	Aroclor-1016	1	ND		33.3	
11104-28-2	Aroclor-1221	1	ND		33.3	
11141-16-5	Aroclor-1232	1	ND		33.3	
53469-21-9	Aroclor-1242	1	ND		33.3	
12672-29-6	Aroclor-1248	1	ND		33.3	
11097-69-1	Aroclor-1254	1	ND		33.3	
1109-82-5	Aroclor-1260	1	ND		33.3	

26 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

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Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID:	IEBS-05-HS	Client:	DAMES & MOORE
Project:	1HNC-PHASE III	Site:	None
Lab ID:	TUO-006	Episode:	TUO
Description:	None	Matrix:	Soil
Method:	Louisiana TPH Diesel & Oil Range Organics (C10-C20 &C20-C28)	Prep Level:	Soil
		Units:	mg/kg
Prep Factor:	1.00	Prepared:	14-Sep-99
Leached:	n/a		

Sample Qu: D1
% Moisture: wet
Batch: 31686
Target List: TPHLALOW
Analyzed: 24-Sep-99 14:10 SRT

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
	TPH - Diesel Range Organics	5	63.4	D1	32.5	

1 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

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Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID:	IEBS-05-HS	Client:	DAMES & MOORE
Project:	1HNC-PHASE III	Site:	None
Lab ID:	TUO-006	Episode:	TUO
Description:	None	Matrix:	Soil
Method:	SW 8015B TPH Gasoline Range Organics (C6-C10)	Prep Level:	Soil
		Units:	ug/kg
Prep Factor:	1.00	Leached:	n/a
		Prepared:	18-Sep-99

Sample Qu:
% Moisture: wet
Batch: 31711
Target List: TPHGPTMED
Analyzed: 21-Sep-99 17:43 KN

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
	TPH - Gasoline Range Organics	1	23700		5000	

1 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

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Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID: IEBS-05-HS
Client: DAMES & MOORE
Project: 1HNC-PHASE III
Site: None
Lab ID: TUO-006
Episode: TUO
Sample Qu: D2
Description: None
Matrix: Soil
% Moisture: wet
Method: SW 8080 Pesticides/PCBs
Prep Level: Soil
Batch: 31674
Units: ug/kg
Target List: 8080LOW
Prep Factor: 1.00
Leached: n/a
Prepared: 14-Sep-99
Analyzed: 23-Sep-99 1:35 ML

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
309-00-2	Aldrin	20	ND	D2	34.0	
319-84-6	alpha-BHC	20	ND	D2	34.0	
319-85-7	beta-BHC	20	ND	D2	34.0	
319-86-9	delta-BHC	20	ND	D2	34.0	
58-89-9	gamma-BHC (Lindane)	20	ND	D2	34.0	
57-74-9	Chlordane (technical)	20	ND	D2	334	
72-54-9	4,4'-DDD (p,p'-DDD)	20	ND	D2	66.0	
72-55-9	4,4'-DDE (p,p'-DDE)	20	ND	D2	66.0	
50-29-3	4,4'-DDT (p,p'-DDT)	20	ND	D2	66.0	
60-57-1	Dieldrin	20	ND	D2	66.0	
959-98-8	Endosulfan I (alpha-Endosulfan)	20	ND	D2	34.0	
33213-65-9	Endosulfan II (beta-Endosulfan)	20	ND	D2	66.0	
1031-07-8	Endosulfan sulfate	20	ND	D2	66.0	
72-20-8	Endrin	20	ND	D2	66.0	
7421-36-3	Endrin aldehyde	20	ND	D2	66.0	
76-44-8	Heptachlor	20	ND	D2	34.0	
1024-57-3	Heptachlor epoxide	20	ND	D2	34.0	
72-43-5	Methoxychlor	20	ND	D2	334	
8001-35-2	Toxaphene	20	ND	D2	1600	
12674-11-2	Aroclor-1016	20	ND	D2	666	
11104-28-2	Aroclor-1221	20	ND	D2	666	
11141-16-5	Aroclor-1232	20	ND	D2	666	
53469-21-9	Aroclor-1242	20	ND	D2	666	
12672-29-6	Aroclor-1248	20	ND	D2	666	
11097-69-1	Aroclor-1254	20	ND	D2	666	
1109-82-5	Aroclor-1260	20	ND	D2	666	

26 compound(s) reported

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Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
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Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID:	IEBS-14-HS	Client:	DAMES & MOORE
Project:	1HNC-PHASE III	Site:	None
Lab ID:	TUO-007	Episode:	TUO
Description:	None	Matrix:	Soil
Method:	Louisiana TPH Diesel & Oil Range Organics (C10-C20 &C20-C28)	Prep Level:	Soil
		Units:	mg/kg
Prep Factor:	1.00	Leached:	n/a
		Prepared:	14-Sep-99

Sample Qu: D1
% Moisture: wet
Batch: 31686
Target List: TPHLALOW
Analyzed: 23-Sep-99 0:38 SRT

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
	TPH - Diesel Range Organics	10	558	D1	65.0	

1 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
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Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

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Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID: IEBS-14-HS		Client: DAMES & MOORE	
Project: 1HNC-PHASE III		Site: None	
Lab ID: TUO-007		Episode: TUO	Sample Qu:
Description: None		Matrix: Soil	% Moisture: wet
Method: SW 8015B TPH Gasoline Range Organics (C6-C10)		Prep Level: Soil	Batch: 31711
		Units: ug/kg	Target List: TPHGPTMED
Prep Factor: 1.00	Leached: n/a	Prepared: 18-Sep-99	Analyzed: 21-Sep-99 18:22 KN

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
	TPH - Gasoline Range Organics	1	ND		5000	

1 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
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Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
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Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID:	IEBS-14-HS	**Client:**	DAMES & MOORE
Project:	1HNC-PHASE III	**Site:**	None
Lab ID:	TUO-007	**Episode:**	TUO
Description:	None	**Matrix:**	Soil
Method:	SW 8080 Pesticides/PCBs	**Prep Level:**	Soil
		Units:	ug/kg
Prep Factor:	1.00	**Leached:**	n/a
		Prepared:	14-Sep-99

Sample Qu: D2
% Moisture: wet
Batch: 31674
Target List: 8080LOW
Analyzed: 23-Sep-99 2:07 ML

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
309-00-2	Aldrin	20	ND	D2	34.0	
319-84-6	alpha-BHC	20	ND	D2	34.0	
319-85-7	beta-BHC	20	ND	D2	34.0	
319-86-9	delta-BHC	20	ND	D2	34.0	
58-89-9	gamma-BHC (Lindane)	20	ND	D2	34.0	
57-74-9	Chlordane (technical)	20	ND	D2	334	
72-54-9	4,4'-DDD (p,p'-DDD)	20	ND	D2	66.0	
72-55-9	4,4'-DDE (p,p'-DDE)	20	ND	D2	66.0	
50-29-3	4,4'-DDT (p,p'-DDT)	20	ND	D2	66.0	
60-57-1	Dieldrin	20	ND	D2	66.0	
959-98-8	Endosulfan I (alpha-Endosulfan)	20	ND	D2	34.0	
33213-65-9	Endosulfan II (beta-Endosulfan)	20	ND	D2	66.0	
1031-07-8	Endosulfan sulfate	20	ND	D2	66.0	
72-20-8	Endrin	20	ND	D2	66.0	
7421-36-3	Endrin aldehyde	20	ND	D2	66.0	
76-44-8	Heptachlor	20	ND	D2	34.0	
1024-57-3	Heptachlor epoxide	20	ND	D2	34.0	
72-43-5	Methoxychlor	20	ND	D2	334	
8001-35-2	Toxaphene	20	ND	D2	1600	
12674-11-2	Aroclor-1016	20	ND	D2	666	
11104-28-2	Aroclor-1221	20	ND	D2	666	
11141-16-5	Aroclor-1232	20	ND	D2	666	
53469-21-9	Aroclor-1242	20	ND	D2	666	
12672-29-6	Aroclor-1248	20	ND	D2	666	
11097-69-1	Aroclor-1254	20	ND	D2	666	
1109-82-5	Aroclor-1260	20	ND	D2	666	

26 compound(s) reported

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Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID: IEBS-15-HS		Client: DAMES & MOORE	
Project: 1HNC-PHASE III		Site: None	
Lab ID: TUO-008		Episode: TUO	Sample Qu: D1
Description: None		Matrix: Soil	% Moisture: wet
Method: Louisiana TPH Diesel & Oil Range Organics (C10-C20 &C20-C28)		Prep Level: Soil	Batch: 31686
		Units: mg/kg	Target List: TPHLALOW
Prep Factor: 5.00	Leached: n/a	Prepared: 14-Sep-99	Analyzed: 23-Sep-99 1:04 SRT

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
	TPH - Diesel Range Organics	10	2930	D1	325	

1 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

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Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID:	IEBS-15-HS	**Client:**	DAMES & MOORE
Project:	1HNC-PHASE III	**Site:**	None
Lab ID:	TUO-008	**Episode:**	TUO
Description:	None	**Matrix:**	Soil
Method:	SW 8015B TPH Gasoline Range Organics (C6-C10)	**Prep Level:**	Soil
		Units:	ug/kg
Prep Factor:	1.00	**Leached:**	n/a
		Prepared:	18-Sep-99

Sample Qu:
% Moisture: wet
Batch: 31711
Target List: TPHGPTMED
Analyzed: 21-Sep-99 19:01 KN

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
	TPH - Gasoline Range Organics	1	ND		5000	

1 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

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Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID: IEBS-08-HS
Project: 1HNC-PHASE III
Lab ID: TUO-009
Description: None
Method: Louisiana TPH Diesel & Oil Range Organics (C10-C20 &C20-C28)
Prep Factor: 1.00 Leached: n/a

Client: DAMES & MOORE
Site: None
Episode: TUO
Matrix: Soil
Prep Level: Soil
Units: mg/kg
Prepared: 16-Sep-99

Sample Qu:
% Moisture: wet
Batch: 31709
Target List: TPHLALOW
Analyzed: 23-Sep-99 3:16 SRT

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
	TPH - Diesel Range Organics	1	58.2		6.50	

1 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

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Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID:	IEBS-08-HS	Client:	DAMES & MOORE
Project:	1HNC-PHASE III	Site:	None
Lab ID:	TUO-009	Episode:	TUO
Description:	None	Matrix:	Soil
Method:	SW 8015B TPH Gasoline Range Organics (C6-C10)	Prep Level:	Soil
		Units:	ug/kg
Prep Factor:	1.00	Leached:	n/a
		Prepared:	18-Sep-99
		Sample Qu:	
		% Moisture:	wet
		Batch:	31711
		Target List:	TPHGPTMED
		Analyzed:	21-Sep-99 19:41 KN

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
	TPH - Gasoline Range Organics	1	ND		5000	

1 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

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Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID: IEBS-08-HS
Client: DAMES & MOORE
Project: 1HNC-PHASE III
Site: None
Lab ID: TUO-010MS
Episode: TUO
Sample Qu:
Description: MATRIX SPIKE
Matrix: Soil
% Moisture: wet
Method: Louisiana TPH Diesel & Oil Range Organics (C10-C20 &C20-C28)
Prep Level: Soil
Batch: 31709
Units: mg/kg
Target List: TPHLALOW
Prep Factor: 1.00
Leached: n/a
Prepared: 16-Sep-99
Analyzed: 23-Sep-99 3:42 SRT

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
	TPH - Diesel Range Organics	1	143		6.50	

1 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

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Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID:	IEBS-08-HS	Client:	DAMES & MOORE
Project:	1HNC-PHASE III	Site:	None
Lab ID:	TUO-010MS	Episode:	TUO
Description:	MATRIX SPIKE	Matrix:	Soil
Method:	SW 8015B TPH Gasoline Range Organics (C6-C10)	Prep Level:	Soil
		Units:	ug/kg
Prep Factor:	1.00	Leached:	n/a
		Prepared:	18-Sep-99
		Analyzed:	21-Sep-99 22:37 KN
		Sample Qu:	
		% Moisture:	wet
		Batch:	31711
		Target List:	TPHGPTMED

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
	TPH - Gasoline Range Organics	1	40500		5000	

1 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:28:54

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID: IEBS-08-HS		Client: DAMES & MOORE	
Project: 1HNC-PHASE III		Site: None	
Lab ID: TUO-011MSD		Episode: TUO	Sample Qu:
Description: MATRIX SPIKE DUPLICATE		Matrix: Soil	% Moisture: wet
Method: Louisiana TPH Diesel & Oil Range Organics (C10-C20 &C20-C28)		Prep Level: Soil	Batch: 31709
		Units: mg/kg	Target List: TPHLALOW
Prep Factor: 1.00	Leached: n/a	Prepared: 16-Sep-99	Analyzed: 23-Sep-99 4:09 SRT

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
	TPH - Diesel Range Organics	1	192		6.50	

1 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:28:54

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID:	IEBS-08-HS	Client:	DAMES & MOORE
Project:	1HNC-PHASE III	Site:	None
Lab ID:	TUO-011MSD	Episode:	TUO
Description:	MATRIX SPIKE DUPLICATE	Matrix:	Soil
Method:	SW 8015B TPH Gasoline Range Organics (C6-C10)	Prep Level:	Soil
		Units:	ug/kg
Prep Factor:	1.00	Leached:	n/a
		Prepared:	18-Sep-99

Sample Qu:

% Moisture: wet

Batch: 31711

Target List: TPHGPTMED

Analyzed: 23-Sep-99 11:18 KN

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
	TPH - Gasoline Range Organics	1	30700		5000	

1 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:28:54

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID: IEBS-13-HS
Project: 1HNC-PHASE III
Lab ID: TUO-012
Description: None
Method: Louisiana TPH Diesel & Oil Range Organics (C10-C20 &C20-C28)
Prep Factor: 1.00 Leached: n/a

Client: DAMES & MOORE
Site: None
Episode: TUO
Matrix: Soil
Prep Level: Soil
Units: mg/kg
Prepared: 16-Sep-99

Sample Qu:
% Moisture: wet
Batch: 31709
Target List: TPHLALOW
Analyzed: 23-Sep-99 2:50 SRT

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
	TPH - Diesel Range Organics	10	262	DI	65.0	

1 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:28:54

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID:	IEBS-13-HS	Client:	DAMES & MOORE
Project:	1HNC-PHASE III	Site:	None
Lab ID:	TUO-012	Episode:	TUO
Description:	None	Matrix:	Soil
Method:	SW 8015B TPH Gasoline Range Organics (C6-C10)	Prep Level:	Soil
		Units:	ug/kg
Prep Factor:	1.00	Leached:	n/a
		Prepared:	18-Sep-99

Sample Qu:
% Moisture: wet
Batch: 31711
Target List: TPHGPTMED
Analyzed: 22-Sep-99 18:28 KN

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
	TPH - Gasoline Range Organics	1	ND		5000	

1 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

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Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Inorganic Parameters

Client ID: IEBS-07-HS
Client: DAMES & MOORE
Project: 1HNC-PHASE III
Site: None
Lab ID: TUO-001
Episode: TUO
Description: None
Matrix: Soil %Moisture: wet

ParameterName	Method	Batch	DF	PF	Result	Qu	Units	Reporting Limit	Prep.	Analysis		Reg. Limit
Arsenic	SW 6010	31693	1	1	1.28		mg/kg	1.00	15-Sep-99	16-Sep-99	15:28 KJR	
Barium	SW 6010	31693	1	1	219		mg/kg	20.0	15-Sep-99	16-Sep-99	15:28 KJR	
Cadmium	SW 6010	31693	1	1	ND		mg/kg	0.500	15-Sep-99	16-Sep-99	15:28 KJR	
Chromium	SW 6010	31693	1	1	14.5		mg/kg	1.00	15-Sep-99	16-Sep-99	15:28 KJR	
Lead	SW 6010	31693	1	1	182		mg/kg	0.300	15-Sep-99	16-Sep-99	15:28 KJR	
Mercury	SW 7471	31692	1	1	ND		mg/kg	0.100	15-Sep-99	15-Sep-99	14:12 DNT	
Selenium	SW 6010	31693	1	1	ND		mg/kg	0.500	15-Sep-99	16-Sep-99	15:28 KJR	
Silver	SW 6010	31693	1	1	ND		mg/kg	1.00	15-Sep-99	16-Sep-99	15:28 KJR	

8 parameter(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of final sample. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

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Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Inorganic Parameters

Client ID: IEBS-10-HS
Client: DAMES & MOORE
Project: 1HNC-PHASE III
Site: None
Lab ID: TUO-005
Episode: TUO
Description: None
Matrix: Soil
%Moisture: wet

ParameterName	Method	Batch	DF	PF	Result	Qu	Units	Reporting Limit	Prep.	Analysis		Reg. Limit
Arsenic	SW 6010	31693	1	1	1.02		mg/kg	1.00	15-Sep-99	16-Sep-99	15:34 KJR	
Barium	SW 6010	31693	1	1	ND		mg/kg	20.0	15-Sep-99	16-Sep-99	15:34 KJR	
Cadmium	SW 6010	31693	1	1	ND		mg/kg	0.500	15-Sep-99	16-Sep-99	15:34 KJR	
Chromium	SW 6010	31693	1	1	1.64		mg/kg	1.00	15-Sep-99	16-Sep-99	15:34 KJR	
Lead	SW 6010	31693	1	1	2.30		mg/kg	0.300	15-Sep-99	16-Sep-99	15:34 KJR	
Mercury	SW 7471	31692	1	1	ND		mg/kg	0.100	15-Sep-99	15-Sep-99	14:14 DNT	
Selenium	SW 6010	31693	1	1	ND		mg/kg	0.500	15-Sep-99	16-Sep-99	15:34 KJR	
Silver	SW 6010	31693	1	1	ND		mg/kg	1.00	15-Sep-99	16-Sep-99	15:34 KJR	

8 parameter(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of final sample. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

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Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Inorganic Parameters

Client ID: IEBS-05-HS
Project: 1HNC-PHASE III
Lab ID: TUO-006
Description: None

Client: DAMES & MOORE
Site: None
Episode: TUO
Matrix: Soil %Moisture: wet

ParameterName	Method	Batch	DF	PF	Result	Qu	Units	Reporting Limit	Prep.	Analysis		Reg. Limit
Arsenic	SW 6010	31693	1	1	4.31		mg/kg	1.00	15-Sep-99	16-Sep-99	15:39 KJR	
Barium	SW 6010	31693	1	1	224		mg/kg	20.0	15-Sep-99	16-Sep-99	15:39 KJR	
Cadmium	SW 6010	31693	1	1	ND		mg/kg	0.500	15-Sep-99	16-Sep-99	15:39 KJR	
Chromium	SW 6010	31693	1	1	11.4		mg/kg	1.00	15-Sep-99	16-Sep-99	15:39 KJR	
Lead	SW 6010	31693	1	1	43.6		mg/kg	0.300	15-Sep-99	16-Sep-99	15:39 KJR	
Mercury	SW 7471	31692	1	1	ND		mg/kg	0.100	15-Sep-99	15-Sep-99	14:20 DNT	
Selenium	SW 6010	31693	1	1	ND		mg/kg	0.500	15-Sep-99	16-Sep-99	15:39 KJR	
Silver	SW 6010	31693	1	1	ND		mg/kg	1.00	15-Sep-99	16-Sep-99	15:39 KJR	

8 parameter(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of final sample. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

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Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Inorganic Parameters

Client ID: IEBS-14-HS
Client: DAMES & MOORE
Project: 1HNC-PHASE III
Site: None
Lab ID: TUO-007
Episode: TUO
Description: None
Matrix: Soil
%Moisture: wet

ParameterName	Method	Batch	DF	PF	Result	Qu	Units	Reporting Limit	Prep.	Analysis		Reg. Limit
Arsenic	SW 6010	31693	1	1	13.0		mg/kg	1.00	15-Sep-99	16-Sep-99	15:44 KJR	
Barium	SW 6010	31693	1	1	437		mg/kg	20.0	15-Sep-99	16-Sep-99	15:44 KJR	
Cadmium	SW 6010	31693	1	1	12.0		mg/kg	0.500	15-Sep-99	16-Sep-99	15:44 KJR	
Chromium	SW 6010	31693	1	1	50.6		mg/kg	1.00	15-Sep-99	16-Sep-99	15:44 KJR	
Lead	SW 6010	31693	1	1	967		mg/kg	0.300	15-Sep-99	16-Sep-99	15:44 KJR	
Mercury	SW 7471	31692	1	1	1.10		mg/kg	0.100	15-Sep-99	15-Sep-99	14:22 DNT	
Selenium	SW 6010	31693	1	1	ND		mg/kg	0.500	15-Sep-99	16-Sep-99	15:44 KJR	
Silver	SW 6010	31693	1	1	ND		mg/kg	1.00	15-Sep-99	16-Sep-99	15:44 KJR	

8 parameter(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of final sample. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

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Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Inorganic Parameters

Client ID: IEBS-08-HS
Client: DAMES & MOORE
Project: 1HNC-PHASE III
Site: None
Lab ID: TUO-009
Episode: TUO
Description: None
Matrix: Soil
%Moisture: wet

ParameterName	Method	Batch	DF	PF	Result	Qu	Units	Reporting Limit	Prep.	Analysis		Reg. Limit
Arsenic	SW 6010	31693	1	1	3.13		mg/kg	1.00	15-Sep-99	16-Sep-99	15:50 KJR	
Barium	SW 6010	31693	1	1	58.7		mg/kg	20.0	15-Sep-99	16-Sep-99	15:50 KJR	
Cadmium	SW 6010	31693	1	1	ND		mg/kg	0.500	15-Sep-99	16-Sep-99	15:50 KJR	
Chromium	SW 6010	31693	1	1	7.82		mg/kg	1.00	15-Sep-99	16-Sep-99	15:50 KJR	
Lead	SW 6010	31693	1	1	9.56		mg/kg	0.300	15-Sep-99	16-Sep-99	15:50 KJR	
Mercury	SW 7471	31692	1	1	ND		mg/kg	0.100	15-Sep-99	15-Sep-99	14:04 DNT	
Selenium	SW 6010	31693	1	1	ND		mg/kg	0.500	15-Sep-99	16-Sep-99	15:50 KJR	
Silver	SW 6010	31693	1	1	ND		mg/kg	1.00	15-Sep-99	16-Sep-99	15:50 KJR	

8 parameter(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of final sample. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

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Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Inorganic Parameters

Client ID: IEBS-08-HS
Client: DAMES & MOORE
Project: 1HNC-PHASE III
Site: None
Lab ID: TUO-010S
Episode: TUO
Description: MATRIX SPIKE
Matrix: Soil
%Moisture: wet

ParameterName	Method	Batch	DF	PF	Result	Qu	Units	Reporting Limit	Prep.	Analysis		Reg. Limit
Arsenic	SW 6010	31693	1	1	337		mg/kg	1.00	15-Sep-99	16-Sep-99	16:12 KJR	
Barium	SW 6010	31693	1	1	423		mg/kg	20.0	15-Sep-99	16-Sep-99	16:12 KJR	
Cadmium	SW 6010	31693	1	1	7.23		mg/kg	0.500	15-Sep-99	16-Sep-99	16:12 KJR	
Chromium	SW 6010	31693	1	1	39.6		mg/kg	1.00	15-Sep-99	16-Sep-99	16:12 KJR	
Lead	SW 6010	31693	1	1	99.0		mg/kg	0.300	15-Sep-99	16-Sep-99	16:12 KJR	
Mercury	SW 7471	31692	1	1	0.487		mg/kg	0.100	15-Sep-99	15-Sep-99	14:06 DNT	
Selenium	SW 6010	31693	1	1	305		mg/kg	0.500	15-Sep-99	16-Sep-99	16:12 KJR	
Silver	SW 6010	31693	1	1	5.96		mg/kg	1.00	15-Sep-99	16-Sep-99	16:12 KJR	

8 parameter(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of final sample. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:29:41

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Inorganic Parameters

Client ID: IEBS-08-HS
Client: DAMES & MOORE
Project: 1HNC-PHASE III
Site: None
Lab ID: TUO-011SD
Episode: TUO
Description: MATRIX SPIKE DUPLICATE
Matrix: Soil
%Moisture: wet

ParameterName	Method	Batch	DF	PF	Result	Qu	Units	Reporting Limit	Prep.	Analysis		Reg. Limit
Arsenic	SW 6010	31693	1	1	335		mg/kg	1.00	15-Sep-99	16-Sep-99	16:17 KJR	
Barium	SW 6010	31693	1	1	410		mg/kg	20.0	15-Sep-99	16-Sep-99	16:17 KJR	
Cadmium	SW 6010	31693	1	1	7.15		mg/kg	0.500	15-Sep-99	16-Sep-99	16:17 KJR	
Chromium	SW 6010	31693	1	1	39.8		mg/kg	1.00	15-Sep-99	16-Sep-99	16:17 KJR	
Lead	SW 6010	31693	1	1	110		mg/kg	0.300	15-Sep-99	16-Sep-99	16:17 KJR	
Mercury	SW 7471	31692	1	1	0.494		mg/kg	0.100	15-Sep-99	15-Sep-99	14:08 DNT	
Selenium	SW 6010	31693	1	1	292		mg/kg	0.500	15-Sep-99	16-Sep-99	16:17 KJR	
Silver	SW 6010	31693	1	1	5.92		mg/kg	1.00	15-Sep-99	16-Sep-99	16:17 KJR	

8 parameter(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of final sample. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Inorganic Parameters

Client ID: IEBS-13-HS
Client: DAMES & MOORE
Project: 1HNC-PHASE III
Site: None
Lab ID: TUO-012
Episode: TUO
Description: None
Matrix: Soil
%Moisture: wet

ParameterName	Method	Batch	DF	PF	Result	Qu	Units	Reporting Limit	Prep.	Analysis		Reg. Limit
Arsenic	SW 6010	31693	1	1	3.55		mg/kg	1.00	15-Sep-99	16-Sep-99	16:29 KJR	
Barium	SW 6010	31693	1	1	110		mg/kg	20.0	15-Sep-99	16-Sep-99	16:29 KJR	
Cadmium	SW 6010	31693	1	1	ND		mg/kg	0.500	15-Sep-99	16-Sep-99	16:29 KJR	
Chromium	SW 6010	31693	1	1	13.2		mg/kg	1.00	15-Sep-99	16-Sep-99	16:29 KJR	
Lead	SW 6010	31693	1	1	132		mg/kg	0.300	15-Sep-99	16-Sep-99	16:29 KJR	
Mercury	SW 7471	31692	1	1	ND		mg/kg	0.100	15-Sep-99	15-Sep-99	14:10 DNT	
Selenium	SW 6010	31693	1	1	ND		mg/kg	0.500	15-Sep-99	16-Sep-99	16:29 KJR	
Silver	SW 6010	31693	1	1	ND		mg/kg	1.00	15-Sep-99	16-Sep-99	16:29 KJR	

8 parameter(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of final sample. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

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Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Inorganic Parameters

Client ID: IEBS-09-HS
Client: DAMES & MOORE
Project: 1HNC-PHASE III
Site: None
Lab ID: TUO-002
Episode: TUO
Description: None
Matrix: Soil
%Moisture: wet

ParameterName	Method	Batch	DF	PF	Result	Qu	Units	Reporting Limit	Prep.	Analysis	Reg. Limit
Oil & Grease	SW 9071	31777	1	1	24200		mg/kg	50.0		21-Sep-99 9:30 DM	

1 parameter(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of final sample. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

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Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Inorganic Parameters

Client ID: IEBS-06-HS
Client: DAMES & MOORE
Project: 1HNC-PHASE III
Site: None
Lab ID: TUO-003
Episode: TUO
Description: None
Matrix: Soil
%Moisture: wet

ParameterName	Method	Batch	DF	PF	Result	Qu	Units	Reporting Limit	Prep.	Analysis	Reg. Limit
Oil & Grease	SW 9071	31777	1	1	ND		mg/kg	50.0		21-Sep-99 9:30 DM	

1 parameter(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of final sample. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Inorganic Parameters

Client ID: IEBS-04-HS
Project: 1HNC-PHASE III
Lab ID: TUO-004
Description: None

Client: DAMES & MOORE
Site: None
Episode: TUO
Matrix: Soil %Moisture: wet

ParameterName	Method	Batch	DF	PF	Result	Qu	Units	Reporting Limit	Prep.	Analysis	Reg. Limit
Oil & Grease	SW 9071	31777	1	1	4340		mg/kg	50.0		21-Sep-99 9:30 DM	

1 parameter(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of final sample. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:30:35

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Inorganic Parameters

Client ID: IEBS-10-HS
Client: DAMES & MOORE
Project: 1HNC-PHASE III
Site: None
Lab ID: TUO-005
Episode: TUO
Description: None
Matrix: Soil
%Moisture: wet

ParameterName	Method	Batch	DF	PF	Result	Qu	Units	Reporting Limit	Prep.	Analysis		Reg. Limit
Oil & Grease	SW 9071	31777	1	1	194		mg/kg	50.0		21-Sep-99	9:30 DM	

1 parameter(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of final sample. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Inorganic Parameters

Client ID: IEBS-05-HS
Client: DAMES & MOORE
Project: 1HNC-PHASE III
Site: None
Lab ID: TUO-006
Episode: TUO
Description: None
Matrix: Soil
%Moisture: wet

ParameterName	Method	Batch	DF	PF	Result	Qu	Units	Reporting Limit	Prep.	Analysis	Reg. Limit
Oil & Grease	SW 9071	31777	1	1	1990		mg/kg	50.0		21-Sep-99 9:30 DM	

1 parameter(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of final sample. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

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Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Inorganic Parameters

Client ID: IEBS-14-HS
Client: DAMES & MOORE
Project: 1HNC-PHASE III
Site: None
Lab ID: TUO-007
Episode: TUO
Description: None
Matrix: Soil
%Moisture: wet

ParameterName	Method	Batch	DF	PF	Result	Qu	Units	Reporting Limit	Prep.	Analysis	Reg. Limit
Oil & Grease	SW 9071	31777	1	1	2620		mg/kg	50.0		21-Sep-99 9:30 DM	

1 parameter(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of final sample. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:30:33

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Inorganic Parameters

Client ID: IEBS-15-HS
Project: 1HNC-PHASE III
Lab ID: TUO-008
Description: None

Client: DAMES & MOORE
Site: None
Episode: TUO
Matrix: Soil %Moisture: wet

ParameterName	Method	Batch	DF	PF	Result	Qu	Units	Reporting Limit	Prep.	Analysis	Reg. Limit
Oil & Grease	SW 9071	31777	1	1	7640		mg/kg	50.0		21-Sep-99 9:30 DM	

1 parameter(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of final sample. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:30:33

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Inorganic Parameters

Client ID: IEBS-08-HS
Client: DAMES & MOORE
Project: 1HNC-PHASE III
Site: None
Lab ID: TUO-009
Episode: TUO
Description: None
Matrix: Soil
%Moisture: wet

ParameterName	Method	Batch	DF	PF	Result	Qu	Units	Reporting Limit	Prep.	Analysis		Reg. Limit
Oil & Grease	SW 9071	31777	1	1	ND		mg/kg	50.0		21-Sep-99	9:30 DM	

1 parameter(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of final sample. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:30:34

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Inorganic Parameters

Client ID: IEBS-08-HS
Project: 1HNC-PHASE III
Lab ID: TUO-010S
Description: MATRIX SPIKE

Client: DAMES & MOORE
Site: None
Episode: TUO
Matrix: Soil %Moisture: wet

ParameterName	Method	Batch	DF	PF	Result	Qu	Units	Reporting Limit	Prep.	Analysis	Reg. Limit
Oil & Grease	SW 9071	31777	1	1	2330		mg/kg	50.0		21-Sep-99 9:30 DM	

1 parameter(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of final sample. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:30:34

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Inorganic Parameters

Client ID: IEBS-08-HS
Client: DAMES & MOORE
Project: 1HNC-PHASE III
Site: None
Lab ID: TUO-011SD
Episode: TUO
Description: MATRIX SPIKE DUPLICATE
Matrix: Soil
%Moisture: wet

ParameterName	Method	Batch	DF	PF	Result	Qu	Units	Reporting Limit	Prep.	Analysis		Reg. Limit
Oil & Grease	SW 9071	31777	1	1	4060		mg/kg	50.0		21-Sep-99	9:30 DM	

1 parameter(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of final sample. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Inorganic Parameters

Client ID: IEBS-13-HS
Client: DAMES & MOORE
Project: 1HNC-PHASE III
Site: None
Lab ID: TUO-012
Episode: TUO
Description: None
Matrix: Soil
%Moisture: wet

ParameterName	Method	Batch	DF	PF	Result	Qu	Units	Reporting Limit	Prep.	Analysis	Reg. Limit
Oil & Grease	SW 9071	31777	1	1	3940		mg/kg	50.0		21-Sep-99 9:30 DM	

1 parameter(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of final sample. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:30:34

Report Qualifiers

Pace Analytical Services, Inc. - New Orleans

Single Episode

Episode: TUO

Qualifier	Qualifier Description
A10	N-Nitrosodiphenylamine is reported as diphenylamine.
A11	This analyte is a common solvent. Its presence in field samples may be an artifact of sample collection, transport, laboratory storage or analysis.
D1	The analysis was performed at a dilution due to the high analyte concentration.
D2	The analysis was performed at a dilution due to the presence of matrix interferences.
M1	The sample required reextraction and/or reanalysis due to surrogate recoveries outside the QC limits. Reanalysis yielded similar results, indicating a sample matrix effect. The results reported are from the original analysis.
M2	The sample required reanalysis due to internal standard response outside the QC limits. Reanalysis yielded similar results, indicating a sample matrix effect. The results reported are from the original analysis.
N	See narrative for a detailed explanation.
Q1	The matrix spike recoveries are poor. Acceptable method performance for this analyte has been demonstrated by the laboratory control sample recovery.
Q2	The matrix spike recoveries are poor due to the presence of matrix interferences. Acceptable method performance for this analyte has been demonstrated by the laboratory control sample recovery.
Q3	The matrix spike recoveries are poor due to the presence of this analyte in the sample at a concentration greater than 4 times the spiked amount. Acceptable method performance for this analyte has been demonstrated by the laboratory control sample.
Q4	The laboratory control sample recovery is poor. Acceptable method performance for this analyte has been demonstrated by the matrix spike recovery.

Pace Analytical Services, Inc. - New Orleans
Laboratory Quality Control Definitions

Our laboratory employs quality control (QC) measures to ensure the quality of our analytical data by defining its accuracy and precision. Presentation of the QC data with the report allows the data user the opportunity to evaluate these results and to gauge the method performance. In order to assist the understanding of these data, routine components of our QC program are defined below.

BATCH - A batch is a group of 20 samples or less of a given matrix and analysis by a specific protocol or analytical method.

BLANK - A method blank is a "clean" laboratory sample carried through the entire analytical process. One or more method blanks are prepared with each batch of samples. The analysis of method blanks demonstrates that method interferences caused by contaminants, reagents and glassware are known and minimized. A method blank should not contain any analytes of interest above the reporting limit. There are method allowances for common laboratory artifacts such as methylene chloride, acetone and bis-2-ethylhexyl phthalate.

LABORATORY CONTROL SPIKE - A laboratory control spike (LCS or blank spike) is a blank which has been spiked with known concentrations of target analytes. The LCS is carried through the entire analytical process. One or more LCS are prepared with each batch of samples. The percent recovery of the spiked analytes provides a measure of the accuracy of the analytical process in the absence of matrix effects.

MATRIX SPIKE - A matrix spike (MS) is a client sample which is spiked with known concentrations of target analytes. The MS is carried through the entire analytical process. One or more matrix spikes are prepared with every batch of samples. For organic methods, a matrix spike duplicate (MSD) is also prepared. The percent recovery of the spiked analytes provides a measure of the method accuracy in the selected sample and matrix.

DUPLICATE - A duplicate is a sample for which replicate aliquouts are carried through the entire analytical process. Comparison of the original results to those of the duplicate results provides a measure of the method precision in the sample and matrix. By convention, precision is measured for inorganic analyses using a sample and a sample duplicate, whereas for organics analyses, an MS/MSD are used.

SURROGATE - A surrogate is a non-target analyte which is added to all samples and QC samples prior to extraction or analysis. The percent recovery of the surrogate provides a measure of the method accuracy in each sample tested. Surrogates are used for organics methods only.

QC LIMITS - QC limits specify the expected percent recovery range for a spiked compound. QC limits may be set by method criteria or calculated from laboratory generated data. For many methods, these limits are advisory and do not require corrective action if exceeded.

Report of Quality Control

Pace Analytical Services, Inc. - New Orleans

Organic Protocol - Single Batch

Episode: TUO

Method: Low Soil GC/MS Volatile Organics | Batch: 31677 | Units: ug/kg

Parameter Name	LCS Spike	LCS %Rec	LCSD %Rec	MS Spike	MS %Rec	MSD %Rec	RPD %	QC Limits LCS	QC Limits MS/MSD	RPD Max	Qu
Acetone (2-Propanone, Dimethyl ketone)	50.0	101		50.0	80	91	6	0-189	0-187	50	
Acetone (2-Propanone, Dimethyl ketone)	50.0	87		50.0	133	165	19	0-189	0-187	50	
Benzene	50.0	105		50.0	93	94	1	67-124	43-142	50	
Benzene	50.0	102		50.0	87	91	4	67-124	43-142	50	
Bromodichloromethane	50.0	97		50.0	67	69	3	68-127	23-143	50	
Bromodichloromethane	50.0	92		50.0	72	77	6	68-127	23-143	50	
Bromoform	50.0	94		50.0	67	76	13	63-128	0-159	50	
Bromoform	50.0	101		50.0	50	55	11	63-128	0-159	50	
Bromomethane (Methyl bromide)	50.0	108		50.0	94	97	4	40-149	10-170	50	
Bromomethane (Methyl bromide)	50.0	125		50.0	106	109	3	40-149	10-170	50	
2-Butanone (Methyl ethyl ketone)	50.0	76		50.0	84	94	11	19-181	0-200	50	
2-Butanone (Methyl ethyl ketone)	50.0	80		50.0	98	111	12	19-181	0-200	50	
Carbon disulfide	50.0	100		50.0	85	88	3	46-129	7-151	50	
Carbon disulfide	50.0	88		50.0	71	74	4	46-129	7-151	50	
Carbon tetrachloride	50.0	96		50.0	72	76	5	55-146	28-157	50	
Carbon tetrachloride	50.0	107		50.0	70	71	0	55-146	28-157	50	
Chlorobenzene	50.0	101		50.0	75	82	9	69-122	34-143	50	
Chlorobenzene	50.0	106		50.0	82	82	0	69-122	34-143	50	
Chloroethane	50.0	115		50.0	109	113	3	21-181	24-175	50	
Chloroethane	50.0	125		50.0	113	115	2	21-181	24-175	50	
Chloroform	50.0	113		50.0	107	108	1	75-120	37-152	50	
Chloroform	50.0	94		50.0	85	86	2	75-120	37-152	50	
Chloromethane (Methyl chloride)	50.0	103		50.0	102	104	3	0-184	0-181	50	
Chloromethane (Methyl chloride)	50.0	152		50.0	137	137	0	0-184	0-181	50	
Dibromochloromethane	50.0	100		50.0	59	62	6	66-129	4-161	50	
Dibromochloromethane	50.0	85		50.0	63	70	10	66-129	4-161	50	
1,1-Dichloroethane	50.0	104		50.0	94	98	4	73-123	33-160	50	
1,1-Dichloroethane	50.0	97		50.0	94	92	2	73-123	33-160	50	
1,2-Dichloroethane (Ethylene dichloride)	50.0	92		50.0	80	83	4	63-138	22-159	50	
1,2-Dichloroethane (Ethylene dichloride)	50.0	99		50.0	88	92	5	63-138	22-159	50	
1,1-Dichloroethene (Dichloroethylene)	50.0	127		50.0	116	119	3	56-146	38-166	50	
1,1-Dichloroethene (Dichloroethylene)	50.0	98		50.0	87	90	3	56-146	38-166	50	
1,2-Dichloroethene (total)	100	106		100	94	95	1	68-126	46-140	50	
1,2-Dichloroethene (total)	100	113		100	101	104	3	68-126	46-140	50	
1,2-Dichloropropane	50.0	97		50.0	88	87	1	72-124	40-143	50	
1,2-Dichloropropane	50.0	101		50.0	85	89	5	72-124	40-143	50	
cis-1,3-Dichloropropene	50.0	98		50.0	64	65	2	66-124	11-146	50	
cis-1,3-Dichloropropene	50.0	95		50.0	65	70	8	66-124	11-146	50	
trans-1,3-Dichloropropene	50.0	98		50.0	67	69	3	56-135	0-158	50	
trans-1,3-Dichloropropene	50.0	98		50.0	63	65	3	56-135	0-158	50	
Ethylbenzene	50.0	109		50.0	75	77	3	64-122	23-143	50	
Ethylbenzene	50.0	101		50.0	82	82	1	64-122	23-143	50	

* denotes recovery outside of QC limits.
MS spike concentrations are not corrected for moisture content of the spiked sample.

10/4/99 16:11:26

Report of Quality Control

Pace Analytical Services, Inc. - New Orleans

Organic Protocol - Single Batch

Episode: TUO

Method: Low Soil GC/MS Volatile Organics Batch: 31677 Units: ug/kg

Parameter Name	LCS Spike	LCS %Rec	LCSD %Rec	MS Spike	MS %Rec	MSD %Rec	RPD %	QC Limits LCS	QC Limits MS/MSD	RPD Max	Qu
2-Hexanone	50.0	89		50.0	82	90	10	5-182	0-200	50	
2-Hexanone	50.0	87		50.0	87	97	11	5-182	0-200	50	
Methylene chloride (Dichloromethane)	50.0	111		50.0	86	89	3	0-140	0-136	50	
Methylene chloride (Dichloromethane)	50.0	56		50.0	50	52	4	0-140	0-136	50	
4-Methyl-2-pentanone (MIBK)	50.0	114		50.0	102	115	12	33-149	0-177	50	
4-Methyl-2-pentanone (MIBK)	50.0	87		50.0	74	84	13	33-149	0-177	50	
Styrene	50.0	100		50.0	56	62	10	73-116	6-145	50	
Styrene	50.0	111		50.0	74	80	9	73-116	6-145	50	
1,1,2,2-Tetrachloroethane	50.0	104		50.0	80	86	8	53-143	0-197	50	
1,1,2,2-Tetrachloroethane	50.0	107		50.0	89	91	2	53-143	0-197	50	
Tetrachloroethene (Perchloroethylene)	50.0	80		50.0	67	69	3	68-128	13-174	50	
Tetrachloroethene (Perchloroethylene)	50.0	101		50.0	73	71	3	68-128	13-174	50	
Toluene	50.0	105		50.0	86	84	3	64-129	34-149	50	
Toluene	50.0	99		50.0	85	83	3	64-129	34-149	50	
1,1,1-Trichloroethane (Methyl chloroform)	50.0	102		50.0	87	90	4	74-123	42-149	50	
1,1,1-Trichloroethane (Methyl chloroform)	50.0	120		50.0	104	105	1	74-123	42-149	50	
1,1,2-Trichloroethane	50.0	98		50.0	79	79	0	71-130	2-169	50	
1,1,2-Trichloroethane	50.0	91		50.0	81	82	2	71-130	2-169	50	
Trichloroethene (Trichloroethylene)	50.0	113		50.0	99	97	2	72-124	41-147	50	
Trichloroethene (Trichloroethylene)	50.0	102		50.0	85	88	4	72-124	41-147	50	
Vinyl chloride (Chloroethene)	50.0	152		50.0	137	138	1	10-172	16-159	50	
Vinyl chloride (Chloroethene)	50.0	110		50.0	106	108	2	10-172	16-159	50	
Xylene (total)	150	109		150	79	81	2	75-114	15-153	50	
Xylene (total)	150	102		150	74	82	10	75-114	15-153	50	

66 compound(s) reported

* denotes recovery outside of QC limits.
MS spike concentrations are not corrected for moisture content of the spiked sample.

Report of Quality Control

Pace Analytical Services, Inc. - New Orleans

Organic Protocol - Single Batch

Episode: TUO

Method: Low Soil GC/MS Semivolatile Organics | Batch: 31726 | Units: ug/kg

Parameter Name	LCS Spike	LCS %Rec	LCSD %Rec	MS Spike	MS %Rec	MSD %Rec	RPD %	QC Limits LCS	QC Limits MS/MSD	RPD Max	Qu
Acenaphthene	1660	61		1660	39	57	36	32-100	17-110	50	
Acenaphthylene	1660			1660	91	82	10	40-98	21-102	50	
Acenaphthylene	1660	63		1660	39	57	38	40-98	21-102	50	
Anthracene	1660	66		1660	47	67	35	38-106	14-118	50	
Anthracene	1660			1660	110	100	9	38-106	14-118	50	
Benzo(a)anthracene	1660	64		1660	41	59	34	37-109	10-121	50	
Benzo(b)fluoranthene	1660	81		1660	49	79	43	30-118	0-154	50	
Benzo(k)fluoranthene	1660	72		1660	53	77	34	30-113	0-138	50	
Benzoic acid	1660	6		1660	0	0	0	0-154	0-162	50	
Benzoic acid	1660			1660	0	0	0	0-154	0-162	50	
Benzo(g,h,i)perylene	1660	81		1660	33	45	27	24-118	0-127	50	
Benzo(g,h,i)perylene	1660			1660	75	65	13	24-118	0-127	50	
Benzo(a)pyrene	1660	82		1660	51	75	35	35-112	0-147	50	
Benzyl alcohol	1660	60		1660	35	55	44	4-121	8-114	50	
Benzyl alcohol	1660			1660	59	50	16	4-121	8-114	50	
4-Bromophenyl phenyl ether	1660	59		1660	37	52	35	36-112	22-114	50	
4-Bromophenyl phenyl ether	1660			1660	57	51	11	36-112	22-114	50	
Butylbenzylphthalate	1660	58		1660	40	58	38	34-114	11-126	50	
Butylbenzylphthalate	1660			1660	60	53	11	34-114	11-126	50	
4-Chloroaniline (p-Chloroaniline)	1660			1660	37	33	10	0-91	0-67	50	
4-Chloroaniline (p-Chloroaniline)	1660	73		1660	35	48	29	0-91	0-67	50	
bis(2-Chloroethoxy)methane	1660	61		1660	33	49	40	38-97	16-104	50	
bis(2-Chloroethoxy)methane	1660			1660	56	47	17	38-97	16-104	50	
bis(2-Chloroethyl) ether	1660	57		1660	27	40	40	32-101	12-109	50	
bis(2-Chloroethyl) ether	1660			1660	52	40	27	32-101	12-109	50	
bis(2-Chloroisopropyl) ether	1660			1660	52	37	33	14-120	1-118	50	
bis(2-Chloroisopropyl) ether	1660	59		1660	25	36	39	14-120	1-118	50	
4-Chloro-3-methylphenol (p-Chloro-m-cresol)	1660			1660	58	53	10	26-106	0-133	50	
4-Chloro-3-methylphenol (p-Chloro-m-cresol)	1660	68		1660	43	62	37	26-106	0-133	50	
2-Chloronaphthalene	1660	59		1660	34	51	39	40-96	22-103	50	
2-Chloronaphthalene	1660			1660	64	57	13	40-96	22-103	50	
2-Chlorophenol (o-Chlorophenol)	1660	61		1660	38	55	37	31-100	18-103	50	
2-Chlorophenol (o-Chlorophenol)	1660			1660	58	48	18	31-100	18-103	50	
4-Chlorophenyl phenyl ether	1660	60		1660	39	54	33	36-104	21-103	50	
4-Chlorophenyl phenyl ether	1660			1660	60	54	9	36-104	21-103	50	
Chrysene	1660	64		1660	41	60	33	36-106	0-135	50	
Dibenz(a,h)anthracene	1660			1660	64	56	13	29-115	4-123	50	
Dibenz(a,h)anthracene	1660	83		1660	37	50	29	29-115	4-123	50	
Dibenzofuran	1660			1660	86	78	9	39-99	17-109	50	
Dibenzofuran	1660	62		1660	40	57	34	39-99	17-109	50	
Di-n-butylphthalate	1660			1660	66	62	7	33-114	18-109	50	
Di-n-butylphthalate	1660	59		1660	40	56	33	33-114	18-109	50	

* denotes recovery outside of QC limits.
MS spike concentrations are not corrected for moisture content of the spiked sample.

Report of Quality Control

Pace Analytical Services, Inc. - New Orleans

Organic Protocol - Single Batch

Episode: TUO

Method: Low Soil GC/MS Semivolatile Organics Batch: 31726 Units: ug/kg

Parameter Name	LCS Spike	LCS %Rec	LCSD %Rec	MS Spike	MS %Rec	MSD %Rec	RPD %	QC Limits LCS	QC Limits MS/MSD	RPD Max	Qu
1,2-Dichlorobenzene (o-Dichlorobenzene)	1660	56		1660	14	20	33	33-92	14-96	50	
1,2-Dichlorobenzene (o-Dichlorobenzene)	1660			1660	37	20	58 *	33-92	14-96	50	
1,3-Dichlorobenzene (m-Dichlorobenzene)	1660	56		1660	12 *	17	35	33-91	14-94	50	Q1
1,3-Dichlorobenzene (m-Dichlorobenzene)	1660			1660	28	14	66 *	33-91	14-94	50	
1,4-Dichlorobenzene (p-Dichlorobenzene)	1660	55		1660	12 *	17	38	26-91	14-91	50	Q1
1,4-Dichlorobenzene (p-Dichlorobenzene)	1660			1660	30	15	65 *	26-91	14-91	50	
3,3'-Dichlorobenzidine	1660			1660	39	38	3	7-90	0-80	50	
3,3'-Dichlorobenzidine	1660	64		1660	39	54	31	7-90	0-80	50	
2,4-Dichlorophenol	1660	67		1660	38	55	35	40-103	19-108	50	
2,4-Dichlorophenol	1660			1660	56	48	16	40-103	19-108	50	
Diethylphthalate	1660	61		1660	40	56	34	37-106	19-106	50	
Diethylphthalate	1660			1660	64	61	6	37-106	19-106	50	
2,4-Dimethylphenol	1660			1660	60	51	15	30-104	6-112	50	
2,4-Dimethylphenol	1660	69		1660	42	59	35	30-104	6-112	50	
Dimethylphthalate	1660			1660	66	61	8	38-103	22-105	50	
Dimethylphthalate	1660	61		1660	39	56	35	38-103	22-105	50	
4,6-Dinitro-2-methylphenol (4,6-Dinitro-o-cres	1660	13 *		1660	32	45	35	18-131	0-135	50	Q4
2,4-Dinitrophenol	1660	4		1660	21	34	46	0-145	0-138	50	
2,4-Dinitrotoluene	1660			1660	53	48	10	37-103	23-107	50	
2,4-Dinitrotoluene	1660	63		1660	40	58	36	37-103	23-107	50	
2,6-Dinitrotoluene	1660			1660	51	48	7	34-107	23-106	50	
2,6-Dinitrotoluene	1660	61		1660	39	58	38	34-107	23-106	50	
Di-n-octylphthalate	1660	74		1660	57	89	44	30-121	2-142	50	
Di-n-octylphthalate	1660			1660	101	91	11	30-121	2-142	50	
bis(2-Ethylhexyl)phthalate	1660	62		1660	37	54	31	33-116	12-125	50	
Fluoranthene	1660	64		1660	57	82	30	34-107	11-110	50	
Fluorene	1660	63		1660	41	59	34	37-103	22-106	50	
Fluorene	1660			1660	80	68	14	37-103	22-106	50	
Hexachlorobenzene	1660	64		1660	41	56	31	37-110	24-110	50	
Hexachlorobenzene	1660			1660	58	53	9	37-110	24-110	50	
Hexachlorobutadiene	1660			1660	42	27	43	39-101	22-103	50	
Hexachlorobutadiene	1660	66		1660	27	38	34	39-101	22-103	50	
Hexachlorocyclopentadiene	1660	61		1660	4	10	91 *	8-112	0-116	50	
Hexachloroethane	1660			1660	12	0 *	200 *	30-94	12-99	50	
Hexachloroethane	1660	58		1660	14	20	36	30-94	12-99	50	
Indeno(1,2,3-cd)pyrene	1660	81		1660	36	48	27	27-115	0-126	50	
Indeno(1,2,3-cd)pyrene	1660			1660	85	72	15	27-115	0-126	50	
Isophorone	1660			1660	70	59	17	36-104	10-117	50	
Isophorone	1660	78		1660	44	67	41	36-104	10-117	50	
2-Methylnaphthalene	1660			1660	63	52	20	36-106	15-116	50	
2-Methylnaphthalene	1660	66		1660	37	53	36	36-106	15-116	50	
2-Methylphenol (o-Cresol)	1660	63		1660	37	54	36	29-108	13-109	50	

* denotes recovery outside of QC limits.
MS spike concentrations are not corrected for moisture content of the spiked sample.

Report of Quality Control

Pace Analytical Services, Inc. - New Orleans

Organic Protocol - Single Batch

Episode: TUO

Method: Low Soil GC/MS Semivolatile Organics Batch: 31726 Units: ug/kg

Parameter Name	LCS Spike	LCS %Rec	LCSD %Rec	MS Spike	MS %Rec	MSD %Rec	RPD %	QC Limits LCS	QC Limits MS/MSD	RPD Max	Qu
2-Methylphenol (o-Cresol)	1660			1660	62	52	17	29-108	13-109	50	
4-Methylphenol (p-Cresol)	1660			1660	61	54	14	31-103	15-107	50	
4-Methylphenol (p-Cresol)	1660	62		1660	37	54	37	31-103	15-107	50	
Naphthalene	1660			1660	87	56	43	38-93	9-115	50	
Naphthalene	1660	65		1660	32	47	37	38-93	9-115	50	
2-Nitroaniline (o-Nitroaniline)	1660	65		1660	43	63	39	16-117	0-123	50	
2-Nitroaniline (o-Nitroaniline)	1660			1660	52	48	7	16-117	0-123	50	
3-Nitroaniline (m-Nitroaniline)	1660	66		1660	41	59	36	0-102	0-89	50	
3-Nitroaniline (m-Nitroaniline)	1660			1660	47	44	7	0-102	0-89	50	
4-Nitroaniline (p-Nitroaniline)	1660			1660	47	44	7	0-121	0-96	50	
4-Nitroaniline (p-Nitroaniline)	1660	67		1660	47	64	31	0-121	0-96	50	
Nitrobenzene	1660	64		1660	32	48	39	38-95	16-105	50	
Nitrobenzene	1660			1660	50	40	22	38-95	16-105	50	
2-Nitrophenol (o-Nitrophenol)	1660			1660	51	41	23	41-99	12-116	50	
2-Nitrophenol (o-Nitrophenol)	1660	67		1660	37	56	42	41-99	12-116	50	
4-Nitrophenol (p-Nitrophenol)	1660	62		1660	38	55	38	15-117	10-116	50	
4-Nitrophenol (p-Nitrophenol)	1660			1660	41	40	2	15-117	10-116	50	
N-Nitrosodiphenylamine (Diphenylamine)	1660	60		1660	38	54	34	15-121	5-121	50	
N-Nitroso-di-n-propylamine	1660			1660	58	46	22	26-102	13-106	50	
N-Nitroso-di-n-propylamine	1660	59		1660	33	48	37	26-102	13-106	50	
Pentachlorophenol	1660			1660	16	0	200 *	27-106	0-132	50	
Pentachlorophenol	1660	17 *		1660	33	39	16	27-106	0-132	50	Q4
Phenanthrene	1660	63		1660	51	75	33	38-104	0-135	50	
Phenanthrene	1660			1660	82	76	7	38-104	0-135	50	
Phenol	1660			1660	56	50	9	27-102	19-101	50	
Phenol	1660	63		1660	39	58	36	27-102	19-101	50	
Pyrene	1660	62		1660	48	79	40	32-108	7-132	50	
1,2,4-Trichlorobenzene	1660	64		1660	28	40	36	32-99	23-99	50	
1,2,4-Trichlorobenzene	1660			1660	48	35	30	32-99	23-99	50	
2,4,5-Trichlorophenol	1660			1660	54	52	5	40-104	7-125	50	
2,4,5-Trichlorophenol	1660	59		1660	32	46	34	40-104	7-125	50	
2,4,6-Trichlorophenol	1660	58		1660	30	43	36	39-105	7-120	50	
2,4,6-Trichlorophenol	1660			1660	53	47	12	39-105	7-120	50	

117 compound(s) reported

* denotes recovery outside of QC limits.
MS spike concentrations are not corrected for moisture content of the spiked sample.

Report of Batch Surrogate Recovery

Pace Analytical Services, Inc. - New Orleans

Organic Protocol - Single Batch

Method: Low Soil GC/MS Volatile Organics **Episode:** TUO

Batch: 31677

Lab ID	Sur 1 %Rec	Sur 2 %Rec	Sur 3 %Rec	Sur 4 %Rec	Sur 5 %Rec	Sur 6 %Rec	Sur 7 %Rec	Sur 8 %Rec
31677BIK15	97	115	118					
31677BK20	85	98	98					
31677BM21	95	109	96					
31677BM22	92	104	96					
31677SK15	90	108	115					
31677SK20	89	93	94					
TTZ-003	93	113	122					
TTZ-004	90	120	119					
TTZ-005	93	110	119					
TTZ-006	89	115	118					
TTZ-007	87	115	117					
TTZ-009	91	109	121					
TTZ-010	90	116	118					
TTZ-011	90	112	117					
TTZ-013	89	115	117					
TTZ-014	93	112	118					
TTZ-015	91	108	118					
TTZ-016MS	94	112	117					
TTZ-017MSD	90	112	118					
TUO-002	93	100	98					
TUO-003	88	99	97					
TUO-004	86	100	102					
TUO-005	83	111	101					
TUO-005RE	87	150	99					
TUO-006	87	102	96					
TUO-007	87	89	99					
TUO-008	79	151	123					
TUO-008RE	79	113	123					
TUO-009	96	88	97					
TUO-010MS	95	95	96					
TUO-011MSD	87	91	97					
TUO-012	93	95	102					
QC limits:	**65 - 124**	**55 - 160**	**59 - 139**					

Sur 1: Toluene-d8 (S)
Sur 2: 4-Bromofluorobenzene (S)
Sur 3: Dibromofluoromethane (S)

* denotes surrogate recovery outside of QC limits.
D denotes surrogate recovery is outside of QC limits due to sample dilution, and is not considered an excursion.
A Lab ID consisting of a batch number with a B suffix is a method blank.
A Lab ID consisting of a batch number with a S suffix is an LCS.
A Lab ID with a MS suffix is a matrix spike.
A Lab ID with a MSD suffix is a matrix spike duplicate.

Report of Batch Surrogate Recovery

Pace Analytical Services, Inc. - New Orleans

Organic Protocol - Single Batch

Method: Low Soil GC/MS Semivolatile Organics **Episode:** TUO

Batch: 31726

Lab ID	Sur 1 %Rec	Sur 2 %Rec	Sur 3 %Rec	Sur 4 %Rec	Sur 5 %Rec	Sur 6 %Rec	Sur 7 %Rec	Sur 8 %Rec
31726B1	64	59	63	66	68	62		
31726B2	38	33	49	36	33	30		
31726B3	61	64	62	55	56	73		
31726S1	83	71	67	83	82	72		
TTZ-004	6 *	21	70	24	12 *	85		
TTZ-006	11 *	32	67	31	16	98		
TTZ-007	13	31	51	37	21	49		
TTZ-009	14	24	60	41	23	75		
TTZ-010	17	32	57	45	25	86		
TTZ-011	36	49	74	49	41	46		
TTZ-011RE	34	58	73	43	36	69		
TTZ-013	10 *	26	53	38	35	52		
TTZ-014	12 *	34	58	43	43	44		
TTZ-015	12 *	38	74	38	35	95		
TTZ-016MS	24	32	41	40	42	33		
TTZ-017MSD	34	40	55	51	53	46		
TUO-005	37	45	60	50	41	95		
TUO-006	12 *	36	65	38	24	93		
TUO-007	20	39	62	52	41	53		
TUO-009	36	50	53	48	38	78		
TUO-010MS2	46	63	64	59	55	88		
TUO-011MSD	43	54	60	52	50	73		
TYI-003	28	60	43	43	42	45		
TYI-003DL	48	68	64	59	27	29		
TYS-001	34	55	44	33	32	56		
QC limits:	13 - 119	21 - 112	8 - 128	17 - 112	14 - 104	1 - 138		

Sur 1: Nitrobenzene-d5 (S)
Sur 2: 2-Fluorobiphenyl (S)
Sur 3: Terphenyl-d14 (S)
Sur 4: Phenol-d5 (S)
Sur 5: 2-Fluorophenol (S)
Sur 6: 2,4,6-Tribromophenol (S)

* denotes surrogate recovery outside of QC limits.
D denotes surrogate recovery is outside of QC limits due to sample dilution, and is not considered an excursion.
A Lab ID consisting of a batch number with a B suffix is a method blank.
A Lab ID consisting of a batch number with a S suffix is an LCS.
A Lab ID with a MS suffix is a matrix spike.
A Lab ID with a MSD suffix is a matrix spike duplicate.

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Report of Method Blank

Pace Analytical Services, Inc. - New Orleans

Organic Protocol - Single Batch

Lab ID: 31677B1K15

Description: Low Soil Method Blank — Episode: TUO — % Moisture: n/a

Method: Low Soil GC/MS Volatile Organics — Batch: 31677 — Units: ug/kg

Prep Factor: 1 — Leached: n/a — Prepared: — Analyzed: 15-Sep-99 13:35 KC

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit
67-64-1	Acetone (2-Propanone, Dimethyl ketone)	1	ND		10.0
71-43-2	Benzene	1	ND		5.00
75-27-4	Bromodichloromethane	1	ND		5.00
75-25-2	Bromoform	1	ND		5.00
74-83-9	Bromomethane (Methyl bromide)	1	ND		10.0
78-93-3	2-Butanone (Methyl ethyl ketone)	1	ND		10.0
75-15-0	Carbon disulfide	1	ND		5.00
56-23-5	Carbon tetrachloride	1	ND		5.00
108-90-7	Chlorobenzene	1	ND		5.00
75-00-3	Chloroethane	1	ND		10.0
67-66-3	Chloroform	1	ND		5.00
74-87-3	Chloromethane (Methyl chloride)	1	ND		10.0
124-48-1	Dibromochloromethane	1	ND		5.00
75-34-3	1,1-Dichloroethane	1	ND		5.00
107-06-2	1,2-Dichloroethane (Ethylene dichloride)	1	ND		5.00
75-35-4	1,1-Dichloroethene (Dichloroethylene)	1	ND		5.00
540-59-0	1,2-Dichloroethene (total)	1	ND		5.00
78-87-5	1,2-Dichloropropane	1	ND		5.00
10061-01-5	cis-1,3-Dichloropropene	1	ND		5.00
10061-02-6	trans-1,3-Dichloropropene	1	ND		5.00
100-41-4	Ethylbenzene	1	ND		5.00
591-78-6	2-Hexanone	1	ND		10.0
75-09-2	Methylene chloride (Dichloromethane)	1	ND		5.00
108-10-1	4-Methyl-2-pentanone (MIBK)	1	ND		10.0
100-42-5	Styrene	1	ND		5.00
79-34-5	1,1,2,2-Tetrachloroethane	1	ND		5.00
127-18-4	Tetrachloroethene (Perchloroethylene)	1	ND		5.00
108-88-3	Toluene	1	ND		5.00
71-55-6	1,1,1-Trichloroethane (Methyl chloroform)	1	ND		5.00
79-00-5	1,1,2-Trichloroethane	1	ND		5.00
79-01-6	Trichloroethene (Trichloroethylene)	1	ND		5.00
75-01-4	Vinyl chloride (Chloroethene)	1	ND		10.0
1330-20-7	Xylene (total)	1	ND		5.00

33 compound(s) reported

ND denotes Not Detected at or above the reporting limit.
DF denotes Dilution Factor.
RL denotes sample Reporting Limit.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.

10/4/99 16:14:54

Report of Method Blank

Pace Analytical Services, Inc. - New Orleans

Organic Protocol - Single Batch

Lab ID: 31726B1

Description: Low Soil Method Blank | Episode: TUO | % Moisture: n/a

Method: Low Soil GC/MS Semivolatile Organics | Batch: 31726 | Units: ug/kg

Prep Factor: 1 | Leached: n/a | Prepared: 16-Sep-99 | Analyzed: 17-Sep-99 13:31 ML

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit
83-32-9	Acenaphthene	1	ND		333
208-96-8	Acenaphthylene	1	ND		333
120-12-7	Anthracene	1	ND		333
56-55-3	Benzo(a)anthracene	1	ND		333
205-99-2	Benzo(b)fluoranthene	1	ND		333
207-08-09	Benzo(k)fluoranthene	1	ND		333
65-85-0	Benzoic acid	1	ND		833
191-24-2	Benzo(g,h,i)perylene	1	ND		333
50-32-8	Benzo(a)pyrene	1	ND		333
100-51-6	Benzyl alcohol	1	ND		333
101-55-3	4-Bromophenyl phenyl ether	1	ND		333
85-68-7	Butylbenzylphthalate	1	ND		333
106-47-8	4-Chloroaniline (p-Chloroaniline)	1	ND		333
111-91-1	bis(2-Chloroethoxy)methane	1	ND		333
111-44-4	bis(2-Chloroethyl) ether	1	ND		333
108-60-1	bis(2-Chloroisopropyl) ether	1	ND		333
59-50-7	4-Chloro-3-methylphenol (p-Chloro-m-cresol)	1	ND		333
91-58-7	2-Chloronaphthalene	1	ND		333
95-57-8	2-Chlorophenol (o-Chlorophenol)	1	ND		333
7005-72-3	4-Chlorophenyl phenyl ether	1	ND		333
218-01-9	Chrysene	1	ND		333
53-70-3	Dibenz(a,h)anthracene	1	ND		333
132-64-9	Dibenzofuran	1	ND		333
84-74-2	Di-n-butylphthalate	1	ND		333
95-50-1	1,2-Dichlorobenzene (o-Dichlorobenzene)	1	ND		333
541-73-1	1,3-Dichlorobenzene (m-Dichlorobenzene)	1	ND		333
106-46-7	1,4-Dichlorobenzene (p-Dichlorobenzene)	1	ND		333
91-94-1	3,3'-Dichlorobenzidine	1	ND		667
120-83-2	2,4-Dichlorophenol	1	ND		333
84-66-2	Diethylphthalate	1	ND		333
105-67-9	2,4-Dimethylphenol	1	ND		333
131-11-3	Dimethylphthalate	1	ND		333
534-52-1	4,6-Dinitro-2-methylphenol (4,6-Dinitro-o-cresol)	1	ND		833
51-28-5	2,4-Dinitrophenol	1	ND		833
121-14-2	2,4-Dinitrotoluene	1	ND		333
606-20-2	2,6-Dinitrotoluene	1	ND		333
117-84-0	Di-n-octylphthalate	1	ND		333
117-81-7	bis(2-Ethylhexyl)phthalate	1	ND		333
206-44-0	Fluoranthene	1	ND		333

ND denotes Not Detected at or above the reporting limit.
DF denotes Dilution Factor.
RL denotes sample Reporting Limit.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.

10/4/99 16:14:54

Report of Method Blank

Pace Analytical Services, Inc. - New Orleans

Organic Protocol - Single Batch

Lab ID: 31726B1

Description: Low Soil Method Blank Episode: TUO % Moisture: n/a

Method: Low Soil GC/MS Semivolatile Organics Batch: 31726 Units: ug/kg

Prep Factor: 1 Leached: n/a Prepared: 16-Sep-99 Analyzed: 17-Sep-99 13:31 ML

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit
86-73-7	Fluorene	1	ND		333
118-74-1	Hexachlorobenzene	1	ND		333
87-68-3	Hexachlorobutadiene	1	ND		333
77-47-4	Hexachlorocyclopentadiene	1	ND		333
67-72-1	Hexachloroethane	1	ND		333
193-39-5	Indeno(1,2,3-cd)pyrene	1	ND		333
78-59-1	Isophorone	1	ND		333
91-57-6	2-Methylnaphthalene	1	ND		333
95-48-7	2-Methylphenol (o-Cresol)	1	ND		333
106-44-5	4-Methylphenol (p-Cresol)	1	ND		333
91-20-3	Naphthalene	1	ND		333
88-74-4	2-Nitroaniline (o-Nitroaniline)	1	ND		833
99-09-2	3-Nitroaniline (m-Nitroaniline)	1	ND		833
100-01-6	4-Nitroaniline (p-Nitroaniline)	1	ND		833
98-95-3	Nitrobenzene	1	ND		333
88-75-5	2-Nitrophenol (o-Nitrophenol)	1	ND		333
100-02-7	4-Nitrophenol (p-Nitrophenol)	1	ND		833
86-30-6	N-Nitrosodiphenylamine (Diphenylamine)	1	ND	A10	333
621-64-7	N-Nitroso-di-n-propylamine	1	ND		333
87-86-5	Pentachlorophenol	1	ND		833
85-01-8	Phenanthrene	1	ND		333
108-95-2	Phenol	1	ND		333
129-00-0	Pyrene	1	ND		333
120-82-1	1,2,4-Trichlorobenzene	1	ND		333
95-95-4	2,4,5-Trichlorophenol	1	ND		833
88-06-2	2,4,6-Trichlorophenol	1	ND		333

65 compound(s) reported

ND denotes Not Detected at or above the reporting limit.
DF denotes Dilution Factor.
RL denotes sample Reporting Limit.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.

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Report of Quality Control

Pace Analytical Services, Inc. - New Orleans

Organic Protocol - Single Batch

Episode: TUO

Method: Low Soil GC Organics Batch: 31686 Units: mg/kg

Parameter Name	LCS Spike	LCS %Rec	LCSD %Rec	MS Spike	MS %Rec	MSD %Rec	RPD %	QC Limits LCS	QC Limits MS/MSD	RPD Max	Qu
TPH - Diesel Range Organics	10.0	86		10.0	390 *	640 *	18	49-145	0-186	50	Q3

1 compound(s) reported

* denotes recovery outside of QC limits.
MS spike concentrations are not corrected for moisture content of the spiked sample.

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Report of Quality Control

Pace Analytical Services, Inc. - New Orleans

Organic Protocol - Single Batch

Episode: TUO

Method: Low Soil GC Organics Batch: 31709 Units: mg/kg

Parameter Name	LCS Spike	LCS %Rec	LCSD %Rec	MS Spike	MS %Rec	MSD %Rec	RPD %	QC Limits LCS	QC Limits MS/MSD	RPD Max	Qu
TPH - Diesel Range Organics	10.0	92		10.0	848 *	1338 *	29	49-145	0-186	50	Q3

1 compound(s) reported

* denotes recovery outside of QC limits.
MS spike concentrations are not corrected for moisture content of the spiked sample.

Report of Quality Control

Pace Analytical Services, Inc. - New Orleans

Organic Protocol - Single Batch

Episode: TUO

Method: Med Soil GC Organics Batch: 31711 Units: ug/kg

Parameter Name	LCS Spike	LCS %Rec	LCSD %Rec	MS Spike	MS %Rec	MSD %Rec	RPD %	QC Limits LCS	QC Limits MS/MSD	RPD Max	Qu
TPH - Gasoline Range Organics	50000	92	79	50000	77	57	28	55-133	9-158	50	

1 compound(s) reported

* denotes recovery outside of QC limits.
MS spike concentrations are not corrected for moisture content of the spiked sample.

10/4/99 16:15:01

Report of Quality Control

Pace Analytical Services, Inc. - New Orleans

Organic Protocol - Single Batch

Episode: TUO

Method: Low Soil GC Pesticides/PCBs and Chlorinated Hy Batch: 31674 Units: ug/kg

Parameter Name	LCS Spike	LCS %Rec	LCSD %Rec	MS Spike	MS %Rec	MSD %Rec	RPD %	QC Limits LCS	QC Limits MS/MSD	RPD Max	Qu
Aldrin	16.7	86		16.7	98	88	10	51-118	0-172	50	
alpha-BHC	16.7	79		16.7	84	71	17	26-134	11-134	50	
beta-BHC	16.7	86		16.7	107	102	5	59-104	2-146	50	
delta-BHC	16.7	104		16.7	110	98	12	59-131	4-186	50	
gamma-BHC (Lindane)	16.7	87		16.7	88	73	18	51-118	0-159	50	
4,4'-DDD (p,p'-DDD)	16.7	84		16.7	94	96	2	29-150	0-148	50	
4,4'-DDE (p,p'-DDE)	16.7	87		16.7	143	103	28	64-116	10-144	50	
4,4'-DDT (p,p'-DDT)	16.7	92		16.7	93	95	2	54-130	15-145	50	
Dieldrin	16.7	85		16.7	95	87	9	52-124	30-131	50	
Endosulfan I (alpha-Endosulfan)	16.7	81		16.7	0	0	0	54-116	0-146	50	Q2
Endosulfan II (beta-Endosulfan)	16.7	78		16.7	0 *	31	200 *	54-121	5-155	50	Q2
Endosulfan sulfate	16.7	86		16.7	91	81	11	51-134	0-163	50	
Endrin	16.7	93		16.7	104	101	3	5-177	0-187	50	
Endrin aldehyde	16.7	58		16.7	65	69	5	27-132	0-174	50	
Heptachlor	16.7	86		16.7	90	78	14	56-115	5-143	50	
Heptachlor epoxide	16.7	72		16.7	99	80	21	53-117	33-126	50	
Methoxychlor	16.7	93		16.7	107	129	19	50-150	14-162	50	

17 compound(s) reported

* denotes recovery outside of QC limits.
MS spike concentrations are not corrected for moisture content of the spiked sample.

10/4/99 16:15:01

Report of Batch Surrogate Recovery

Pace Analytical Services, Inc. - New Orleans

Organic Protocol - Single Batch

Method: Low Soil GC Pesticides/PCBs and Chlorinated Hydrocarbons **Episode:** TUO

Batch: 31674

Lab ID	Sur 1 %Rec	Sur 2 %Rec	Sur 3 %Rec	Sur 4 %Rec	Sur 5 %Rec	Sur 6 %Rec	Sur 7 %Rec	Sur 8 %Rec
31674BI	77	89	68	88				
31674SI	75	96	68	91				
TTZ-004	73	408 D	58	52				
TTZ-006	66	0 D	44	0 D				
TTZ-007	65	1195 D	53	101				
TTZ-009	72	73	66	70				
TTZ-010	117	121	73	100				
TTZ-011	68	265 D	67	60				
TTZ-012	102	91	85	92				
TTZ-013	80	110	72	103				
TTZ-014	62	108	62	83				
TTZ-015	78	96	72	91				
TTZ-016MS	68	138	71	130				
TTZ-017MSD	67	123	65	147				
TUO-001	141	109	71	84				
TUO-005	69	70	67	76				
TUO-006	87	126	73	96				
TUO-007	86	98	59	84				
QC limits:	0 - 169	1 - 200	7 - 160	13 - 187				

Sur 1: Tetrachloro-m-xylene (S)
Sur 2: Decachlorobiphenyl (S)
Sur 3: Tetrachloro-m-xylene (confirmation) (S)
Sur 4: Decachlorobiphenyl (confirmation) (S)

* denotes surrogate recovery outside of QC limits.
D denotes surrogate recovery is outside of QC limits due to sample dilution, and is not considered an excursion.
A Lab ID consisting of a batch number with a B suffix is a method blank.
A Lab ID consisting of a batch number with a S suffix is an LCS.
A Lab ID with a MS suffix is a matrix spike.
A Lab ID with a MSD suffix is a matrix spike duplicate.

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Report of Batch Surrogate Recovery

Pace Analytical Services, Inc. - New Orleans

Organic Protocol - Single Batch

Method: Low Soil GC Organics

Episode: TUO

Batch: 31686

Lab ID	Sur 1 %Rec	Sur 2 %Rec	Sur 3 %Rec	Sur 4 %Rec	Sur 5 %Rec	Sur 6 %Rec	Sur 7 %Rec	Sur 8 %Rec
31686B1	76							
31686S1	64							
TTZ-001	352 *							
TTZ-003	108							
TTZ-004	346 *							
TTZ-005	232 D							
TTZ-006	196 D							
TTZ-007	155							
TTZ-008	97							
TTZ-009	166 *							
TTZ-010	241 *							
TTZ-011	18 D							
TTZ-013	120							
TTZ-014	95							
TTZ-015	95							
TTZ-016MS	99							
TTZ-017MSD	139							
TUO-002	462 *							
TUO-003	128							
TUO-004	243 *							
TUO-005	113							
TUO-006	59							
TUO-007	171 D							
TUO-008	43							
QC limits:	22 - 165							

Sur 1: n-Pentacosane (S)

* denotes surrogate recovery outside of QC limits.
D denotes surrogate recovery is outside of QC limits due to sample dilution, and is not considered an excursion.
A Lab ID consisting of a batch number with a B suffix is a method blank.
A Lab ID consisting of a batch number with a S suffix is an LCS.
A Lab ID with a MS suffix is a matrix spike.
A Lab ID with a MSD suffix is a matrix spike duplicate.

10/4/99 16:15:23

Report of Batch Surrogate Recovery

Pace Analytical Services, Inc. - New Orleans

Organic Protocol - Single Batch

Method: Low Soil GC Organics **Episode:** TUO

Batch: 31709

Lab ID	Sur 1 %Rec	Sur 2 %Rec	Sur 3 %Rec	Sur 4 %Rec	Sur 5 %Rec	Sur 6 %Rec	Sur 7 %Rec	Sur 8 %Rec
31709B1	82							
31709S1	82							
TUO-009	456 *							
TUO-010MS	222 *							
TUO-011MSD	141							
TUO-012	172 D							
QC limits:	22 - 165							

Sur 1: n-Pentacosane (S)

* denotes surrogate recovery outside of QC limits.
D denotes surrogate recovery is outside of QC limits due to sample dilution, and is not considered an excursion.
A Lab ID consisting of a batch number with a B suffix is a method blank.
A Lab ID consisting of a batch number with a S suffix is an LCS.
A Lab ID with a MS suffix is a matrix spike.
A Lab ID with a MSD suffix is a matrix spike duplicate.

10/4/99 16:15:23

Report of Batch Surrogate Recovery

Pace Analytical Services, Inc. - New Orleans

Organic Protocol - Single Batch

Method: Med Soil GC Organics

Episode: TUO

Batch: 31711

Lab ID	Sur 1 %Rec	Sur 2 %Rec	Sur 3 %Rec	Sur 4 %Rec	Sur 5 %Rec	Sur 6 %Rec	Sur 7 %Rec	Sur 8 %Rec
31711B2	95							
31711S1	91							
31711S2	83							
TUO-002	39							
TUO-003	61							
TUO-004	68							
TUO-005	57							
TUO-006	53							
TUO-007	95							
TUO-008	88							
TUO-009	75							
TUO-010MS	76							
TUO-011MSD	75							
TUO-012	74							
TXA-004	67							
TZA-001	94							
TZA-002	72							
TZA-003	97							
QC limits:	36 - 160							

Sur 1: 1,2,4-Trichlorobenzene (S)

* denotes surrogate recovery outside of QC limits.
D denotes surrogate recovery is outside of QC limits due to sample dilution, and is not considered an excursion.
A Lab ID consisting of a batch number with a B suffix is a method blank.
A Lab ID consisting of a batch number with a S suffix is an LCS.
A Lab ID with a MS suffix is a matrix spike.
A Lab ID with a MSD suffix is a matrix spike duplicate.

10/4/99 16:15:23

Report of Method Blank

Pace Analytical Services, Inc. - New Orleans

Organic Protocol - Single Batch

Lab ID: 31686B1

Description: Low Soil Method Blank | Episode: TUO | % Moisture: n/a

Method: Low Soil GC Organics | Batch: 31686 | Units: mg/kg

Prep Factor: 1 | Leached: n/a | Prepared: 14-Sep-99 | Analyzed: 22-Sep-99 13:15 SRT

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit
	TPH - Diesel Range Organics	1	ND		6.50

1 compound(s) reported

ND denotes Not Detected at or above the reporting limit.
DF denotes Dilution Factor.
RL denotes sample Reporting Limit.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.

10/4/99 16:15:27

Report of Method Blank

Pace Analytical Services, Inc. - New Orleans

Organic Protocol - Single Batch

Lab ID: 31709B1
Description: Low Soil Method Blank
Method: Low Soil GC Organics
Prep Factor: 1 Leached: n/a

Episode: TUO % Moisture: n/a
Batch: 31709 Units: mg/kg
Prepared: 16-Sep-99 Analyzed: 23-Sep-99 1:57 SRT

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit
	TPH - Diesel Range Organics	1	ND		6.50

1 compound(s) reported

ND denotes Not Detected at or above the reporting limit.
DF denotes Dilution Factor.
RL denotes sample Reporting Limit.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.

10/4/99 16:15:27

Report of Method Blank

Pace Analytical Services, Inc. - New Orleans

Organic Protocol - Single Batch

Lab ID: 31674B1

Description: Low Soil Method Blank Episode: TUO % Moisture: n/a

Method: Low Soil GC Pesticides/PCBs and Chlorinated Hy Batch: 31674 Units: ug/kg

Prep Factor: 1 Leached: n/a Prepared: 14-Sep-99 Analyzed: 22-Sep-99 11:27 ML

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit
309-00-2	Aldrin	1	ND		1.70
319-84-6	alpha-BHC	1	ND		1.70
319-85-7	beta-BHC	1	ND		1.70
319-86-9	delta-BHC	1	ND		1.70
58-89-9	gamma-BHC (Lindane)	1	ND		1.70
57-74-9	Chlordane (technical)	1	ND		16.7
72-54-9	4,4'-DDD (p,p'-DDD)	1	ND		3.30
72-55-9	4,4'-DDE (p,p'-DDE)	1	ND		3.30
50-29-3	4,4'-DDT (p,p'-DDT)	1	ND		3.30
60-57-1	Dieldrin	1	ND		3.30
959-98-8	Endosulfan I (alpha-Endosulfan)	1	ND		1.70
33213-65-9	Endosulfan II (beta-Endosulfan)	1	ND		3.30
1031-07-8	Endosulfan sulfate	1	ND		3.30
72-20-8	Endrin	1	ND		3.30
7421-36-3	Endrin aldehyde	1	ND		3.30
76-44-8	Heptachlor	1	ND		1.70
1024-57-3	Heptachlor epoxide	1	ND		1.70
72-43-5	Methoxychlor	1	ND		16.7
8001-35-2	Toxaphene	1	ND		80.0
12674-11-2	Aroclor-1016	1	ND		33.3
11104-28-2	Aroclor-1221	1	ND		33.3
11141-16-5	Aroclor-1232	1	ND		33.3
53469-21-9	Aroclor-1242	1	ND		33.3
12672-29-6	Aroclor-1248	1	ND		33.3
11097-69-1	Aroclor-1254	1	ND		33.3
1109-82-5	Aroclor-1260	1	ND		33.3

26 compound(s) reported

ND denotes Not Detected at or above the reporting limit.
DF denotes Dilution Factor.
RL denotes sample Reporting Limit.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.

Report of Quality Control

Pace Analytical Services, Inc. - New Orleans

Multiple Parameters - Multiple Batches

Episode: TUO

Parameter Name	Batch	Blank	Units	LCS Spike	LCS %Rec	LCSD %Rec	MS Spike	MS %Rec	MSD %Rec	Dup RPD	QC Limits LCS	QC Limits MS/MSD	RPD Max	Qu
Mercury	31692	ND	mg/kg	2.17	97		0.500	97	99	1	54-146	75-125	20	
Mercury	31692	ND	mg/kg	2.17			0.500	40 *	26 *	43 *	54-146	75-125	20	
Antimony	31693	ND	mg/kg	33.0	83		100	53 *	52 *		18-182	75-125	20	Q1
Antimony	31693	ND	mg/kg	33.0			100	30 *	33 *		18-182	75-125	20	Q1
Arsenic	31693	ND	mg/kg	93.9			400	83	83		68-132	75-125	20	
Arsenic	31693	ND	mg/kg	93.9	94		400	87	89		68-132	75-125	20	
Barium	31693	ND	mg/kg	330			400	91	88		53-147	75-125	20	
Barium	31693	ND	mg/kg	330	92		400	100	97		53-147	75-125	20	
Beryllium	31693	ND	mg/kg	42.7			10.0	85	82		70-130	75-125	20	
Beryllium	31693	ND	mg/kg	42.7	85		10.0	92	92		70-130	75-125	20	
Cadmium	31693	ND	mg/kg	97.2			10.0	72 *	72 *		70-130	75-125	20	Q1
Cadmium	31693	ND	mg/kg	97.2	86		10.0	72 *	73 *		70-130	75-125	20	Q1
Chromium	31693	ND	mg/kg	46.0	86		40.0	111	103		70-130	75-125	20	
Chromium	31693	ND	mg/kg	46.0			40.0	79	80		70-130	75-125	20	
Copper	31693	ND	mg/kg	147	88		50.0	0 *	0 *		69-131	75-125	20	Q1
Copper	31693	ND	mg/kg	147			50.0	121	131 *		69-131	75-125	20	Q1
Lead	31693	ND	mg/kg	135			100	89	100		72-128	75-125	20	
Lead	31693	ND	mg/kg	135	92		100	137 *	124		72-128	75-125	20	Q1
Nickel	31693	ND	mg/kg	138			100	88	84		73-127	75-125	20	
Nickel	31693	ND	mg/kg	138	97		100	92	94		73-127	75-125	20	
Selenium	31693	ND	mg/kg	96.0			400	76	73 *		67-133	75-125	20	
Selenium	31693	ND	mg/kg	96.0	86		400	77	78		67-133	75-125	20	
Silver	31693	ND	mg/kg	86.7			10.0	60 *	59 *		37-163	75-125	20	Q1
Silver	31693	ND	mg/kg	86.7	64		10.0	53 *	53 *		37-163	75-125	20	Q1
Thallium	31693	ND	mg/kg	45.7			400	81	80		75-125	75-125	20	
Thallium	31693	ND	mg/kg	45.7	93		400	77	80		75-125	75-125	20	
Vanadium	31693	ND	mg/kg	65.1	78		100	100	100		68-132	75-125	20	
Vanadium	31693	ND	mg/kg	65.1			100	84	81		68-132	75-125	20	
Zinc	31693	ND	mg/kg	75.0	80		100	166 *	76		77-123	75-125	20	Q1
Zinc	31693	ND	mg/kg	75.0			100	119	133 *		77-123	75-125	20	

=(Count([ParaCode])) &" parameter(s) reported"
* denotes recovery outside of QC limits.
Spike amounts are not corrected for moisture content of the spiked sample.

10/4/99 16:15:33

Report of Quality Control

Pace Analytical Services, Inc. - New Orleans

Multiple Parameters - Multiple Batches

Episode: TUO

Parameter Name	Batch	Blank	Units	LCS Spike	LCS %Rec	LCSD %Rec	MS Spike	MS %Rec	MSD %Rec	Dup RPD	QC Limits LCS	QC Limits MS/MSD	RPD Max	Qu
Oil & Grease	31777	ND	mg/kg	4135	107		4063	57 *			80-120	75-125	20	Q1
Oil & Grease	31777	ND	mg/kg				3964	102			80-120	75-125	20	

=(Count([ParaCode])) " parameter(s) reported"
* denotes recovery outside of QC limits.
Spike amounts are not corrected for moisture content of the spiked sample.

10/4/99 16:15:38

Report Qualifiers

Pace Analytical Services, Inc. - New Orleans

Single Episode

Episode: TUO

Qualifier	Qualifier Description
A10	N-Nitrosodiphenylamine is reported as diphenylamine.
A11	This analyte is a common solvent. Its presence in field samples may be an artifact of sample collection, transport, laboratory storage or analysis.
D1	The analysis was performed at a dilution due to the high analyte concentration.
D2	The analysis was performed at a dilution due to the presence of matrix interferences.
M1	The sample required reextraction and/or reanalysis due to surrogate recoveries outside the QC limits. Reanalysis yielded similar results, indicating a sample matrix effect. The results reported are from the original analysis.
M2	The sample required reanalysis due to internal standard response outside the QC limits. Reanalysis yielded similar results, indicating a sample matrix effect. The results reported are from the original analysis.
N	See narrative for a detailed explanation.
Q1	The matrix spike recoveries are poor. Acceptable method performance for this analyte has been demonstrated by the laboratory control sample recovery.
Q2	The matrix spike recoveries are poor due to the presence of matrix interferences. Acceptable method performance for this analyte has been demonstrated by the laboratory control sample recovery.
Q3	The matrix spike recoveries are poor due to the presence of this analyte in the sample at a concentration greater than 4 times the spiked amount. Acceptable method performance for this analyte has been demonstrated by the laboratory control sample.
Q4	The laboratory control sample recovery is poor. Acceptable method performance for this analyte has been demonstrated by the matrix spike recovery.

The Right Che... ..ry, The Right Solution®

...-CUSTODY / Analytical Request Document

The Chain- ...stody is a LEGAL DOCUMENT. All relevant fields must be completed accur...

478982

Page: of

Required Client Information: Section A

Company: Dames & Moore
Address: 6310 Lamar Ave #35
Overland Park, KS
66202
Phone: (913)677-1490 Fax: (913)677-3818

Required Client Information: Section B

Report To: Doug Kuhn
Invoice To: Doug Kuhn
P.O.
Project Name: IHNC - Phase III
Project Number: 08678-049-149

Client Information (Check quote/contract):
Requested Due Date: | *TAT: 10

* Under 14 day turnaround subject to laboratory and contractual obligations and may result in a Rush Turnaround Surcharge.
Turn Around Time (TAT) in calender days.

To Be Completed by Pace Analytical and Client Section C

Quote Reference:
Project Manager: Todd / Karen
Project #:
Profile #:
Requested Analysis:

Section D Required Client Information:

SAMPLE ID — One character per box. (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Valid Matrix Codes: MATRIX / CODE — WATER WT, SOIL SL, OIL OL, WIPE WP, AIR AR, TISSUE TS, OTHER OT

Preservatives: Unpreserved, H_2SO_4, HNO_3, HCl, NaOH, $Na_2S_2O_3$

ITEM #	SAMPLE ID	MATRIX CODE	DATE COLLECTED mm / dd / yy	TIME COLLECTED mm:hh a/p	# Containers	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	VOC-8260	SVOC-8270	GRO	DRO	RCRA 8	Oil & Grease	PEST	PCB	Moisture Content		Remarks / Lab ID
1	1EBS-07-HS	OT	9/9/99		2	✓										✓		✓	✓	✓		Sediment
2	1EBS-09-HS	OT	〃		2	✓						✓		✓	✓		✓			✓		Sediment
3	1EBS-06-HS	OT	〃		2	✓						✓		✓	✓		✓			✓		
4	1EBS-04-HS	OT	〃		2	✓						✓		✓	✓		✓			✓		
5	1GBS-10-HS	OT	〃		2	✓						✓	✓	✓	✓	✓	✓	✓	✓	✓		
6	1EBS-05-HS	OT	〃		2	✓						✓	✓	✓	✓	✓	✓	✓	✓	✓		
7	1EBS-14-HS	OT	〃		2	✓						✓	✓	✓	✓	✓	✓	✓	✓	✓		
8	1EBS-15-HS	OT	〃		2	✓						✓		✓	✓		✓			✓		
9	1EBS-08-HS	OT	〃		2	✓						✓	✓	✓	✓	✓	✓			✓		
10	1EBS-08-HS-QA/QC	OT	〃		2	✓						✓	✓	✓	✓	✓	✓			✓		Sediment
11	1EBS-13-HS	OT	〃		2	✓						✓		✓	✓	✓	✓			✓		Sediment
12																						

Sample Condition		Sample Notes	Item No.	Relinquished By / Company	Date	Time	Accepted By / Company	Date	Time
Temp in °C:				[signature] / D&M	9/10/99	1216	[signature] / Pace	9/10/99	1216
Received on ICE:	(Y) / N								
Sealed Cooler:	Y / (N)								
Samples Intact:	(Y) / N								

Additional Comments:

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: DEK/ALS/DB
SIGNATURE of SAMPLER: [signature]
DATE Signed: (MM / DD / YY) 9/10/99

ORIGINAL

SEE REVERSE SIDE FOR INSTRUCTIONS

Pace Analytical Services, Inc. Form COC01.XLS 08/98

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID: IEBS21 HS
Project: 1 HNC-PHASE III
Lab ID: TTZ-007
Description: None
Method: SW 8270 Semivolatile Organics

Client: DAMES & MOORE
Site: None
Episode: TTZ
Matrix: Soil
Prep Level: Soil
Units: ug/kg

Sample Qu:
% Moisture: wet
Batch: 31726
Target List: 8270LOW

Prep Factor: 1.00 Leached: n/a
Prepared: 16-Sep-99 Analyzed: 21-Sep-99 16:15 JA

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
121-14-2	2,4-Dinitrotoluene	1	ND		333	
606-20-2	2,6-Dinitrotoluene	1	ND		333	
117-84-0	Di-n-octylphthalate	1	ND		333	
117-81-7	bis(2-Ethylhexyl)phthalate	1	506		333	
206-44-0	Fluoranthene	1	1070		333	
86-73-7	Fluorene	1	ND		333	
118-74-1	Hexachlorobenzene	1	ND		333	
87-68-3	Hexachlorobutadiene	1	ND		333	
77-47-4	Hexachlorocyclopentadiene	1	ND		333	
67-72-1	Hexachloroethane	1	ND		333	
193-39-5	Indeno(1,2,3-cd)pyrene	1	ND		333	
78-59-1	Isophorone	1	ND		333	
91-57-6	2-Methylnaphthalene	1	ND		333	
95-48-7	2-Methylphenol (o-Cresol)	1	ND		333	
106-44-5	4-Methylphenol (p-Cresol)	1	ND		333	
91-20-3	Naphthalene	1	ND		333	
88-74-4	2-Nitroaniline (o-Nitroaniline)	1	ND		833	
99-09-2	3-Nitroaniline (m-Nitroaniline)	1	ND		833	
100-01-6	4-Nitroaniline (p-Nitroaniline)	1	ND		833	
98-95-3	Nitrobenzene	1	ND		333	
88-75-5	2-Nitrophenol (o-Nitrophenol)	1	ND		333	
100-02-7	4-Nitrophenol (p-Nitrophenol)	1	ND		833	
86-30-6	N-Nitrosodiphenylamine (Diphenylamine)	1	1220	A10	333	
621-64-7	N-Nitroso-di-n-propylamine	1	ND		333	
87-86-5	Pentachlorophenol	1	ND		833	
85-01-8	Phenanthrene	1	452		333	
108-95-2	Phenol	1	ND		333	
129-00-0	Pyrene	1	1210		333	
120-82-1	1,2,4-Trichlorobenzene	1	ND		333	
95-95-4	2,4,5-Trichlorophenol	1	ND		833	
88-06-2	2,4,6-Trichlorophenol	1	ND		333	

65 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:24:14

Pace Analytical

Pace Analytical Services, Inc.
1000 Riverbend Blvd, Suite F
St. Rose, LA 70087
Tel: 504-469-0333
Fax: 504-469-0555

Douglas Kuhn
Dames & Moore
6310 Lamar Avenue Suite 135
Overlank Park, KS 66202

Project: 1 HNC-PHASE III
Site:
Episode: TTZ

To: Douglas E Kuhn

Enclosed please find the analytical results for sample(s) received by Pace Analytical Services, Inc. - New Orleans.

This report contains a summary of the quality control data associated with the analyses as well as copies of the chain-of-custody documents.

You may direct any inquires concerning this report to your Project Manager, or any one of the Project Managers listed below:

Ms. Karen H. Brown, Manager, Ext. 15
Mr. William R. Shackelford, Ext. 16
Ms. Cindy Olavesen, Ext. 26

Sincerely,

Karen H Brown
Project Manager

11/5/97
Date

Enclosures

Pace Analytical Services, Inc. - New Orleans
Sample Cross Reference Summary

Episode: TTZ Client: Dames & Moore

Project: 1 HNC-PHASE III

Site:

Lab ID	Client ID	Description	Matrix	Collected	Received
TTZ-001	IEBS12 BS		Soil	09/08/99	09/09/99
TTZ-002	IEBS11 BS	CANCELED	Soil	09/08/99	09/09/99
TTZ-003	IEBS18 BS		Soil	09/08/99	09/09/99
TTZ-004	IEBS16 BS		Soil	09/08/99	09/09/99
TTZ-005	IEBS17 BS		Soil	09/08/99	09/09/99
TTZ-006	IEBS20 HS		Soil	09/07/99	09/09/99
TTZ-007	IEBS21 HS		Soil	09/07/99	09/09/99
TTZ-008	IEBS19 HS		Soil	09/07/99	09/09/99
TTZ-009	IEBS11 BS		Soil	09/08/99	09/09/99
TTZ-010	IEBS03 HS		Soil	09/08/99	09/09/99
TTZ-011	IEBS01 HS		Soil	09/08/99	09/09/99
TTZ-012	IEBS02 HS		Soil	09/08/99	09/09/99
TTZ-013	BACKGROUND(IEBS-22-HS)		Soil	09/08/99	09/09/99
TTZ-014	IEBS22 HS QA		Soil	09/08/99	09/09/99
TTZ-015	IEBS22 HS QC		Soil	09/08/99	09/09/99
TTZ-016	IEBS22 HS MS	MATRIX SPIKE	Soil	09/08/99	09/09/99
TTZ-017	IEBS22 HS MSD	MATRIX SPIKE DUPLICATE	Soil	09/08/99	09/09/99

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Moisture - Multiple Samples

Parameter: Soil Moisture

Client: DAMES & MOORE

Episode: TTZ

Lab ID	Client ID	Batch	Result	Analysis
TTZ-001	IEBS12 BS	31778	66	21-Sep-99
TTZ-003	IEBS18 BS	31778	53	21-Sep-99
TTZ-004	IEBS16 BS	31778	17	21-Sep-99
TTZ-005	IEBS17 BS	31778	34	21-Sep-99
TTZ-006	IEBS20 HS	31778	58	21-Sep-99
TTZ-007	IEBS21 HS	31778	29	21-Sep-99
TTZ-008	IEBS19 HS	31778	51	21-Sep-99
TTZ-009	IEBS11 BS	31778	38	21-Sep-99
TTZ-010	IEBS03 HS	31778	37	21-Sep-99
TTZ-011	IEBS01 HS	31778	22	21-Sep-99
TTZ-012	IEBS02 HS	31778	18	21-Sep-99
TTZ-013	BACKGROUND(IEBS-22	31778	24	21-Sep-99
TTZ-014	IEBS22 HS QA	31778	21	21-Sep-99
TTZ-015	IEBS22 HS QC	31778	25	21-Sep-99
TTZ-016	IEBS22 HS MS	31778	27	21-Sep-99
TTZ-017	IEBS22 HS MSD	31778	27	21-Sep-99

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID: IEBS18 BS
Project: 1 HNC-PHASE III
Lab ID: TTZ-003
Description: None
Method: SW 8260 Volatile Organics

Client: DAMES & MOORE
Site: None
Episode: TTZ
Matrix: Soil
Prep Level: Soil
Units: ug/kg
Prepared:

Sample Qu:
% Moisture: wet
Batch: 31677
Target List: 8260LOW
Analyzed: 15-Sep-99 22:21 KC

Prep Factor: 1.00 Leached: n/a

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
67-64-1	Acetone (2-Propanone, Dimethyl ketone)	1	29.0	A11	10.0	
71-43-2	Benzene	1	ND		5.00	
75-27-4	Bromodichloromethane	1	ND		5.00	
75-25-2	Bromoform	1	ND		5.00	
74-83-9	Bromomethane (Methyl bromide)	1	ND		10.0	
78-93-3	2-Butanone (Methyl ethyl ketone)	1	ND		10.0	
75-15-0	Carbon disulfide	1	ND		5.00	
56-23-5	Carbon tetrachloride	1	ND		5.00	
108-90-7	Chlorobenzene	1	ND		5.00	
75-00-3	Chloroethane	1	ND		10.0	
67-66-3	Chloroform	1	ND		5.00	
74-87-3	Chloromethane (Methyl chloride)	1	ND		10.0	
124-48-1	Dibromochloromethane	1	ND		5.00	
75-34-3	1,1-Dichloroethane	1	ND		5.00	
107-06-2	1,2-Dichloroethane (Ethylene dichloride)	1	ND		5.00	
75-35-4	1,1-Dichloroethene (Dichloroethylene)	1	ND		5.00	
540-59-0	1,2-Dichloroethene (total)	1	ND		5.00	
78-87-5	1,2-Dichloropropane	1	ND		5.00	
10061-01-5	cis-1,3-Dichloropropene	1	ND		5.00	
10061-02-6	trans-1,3-Dichloropropene	1	ND		5.00	
100-41-4	Ethylbenzene	1	ND		5.00	
591-78-6	2-Hexanone	1	ND		10.0	
75-09-2	Methylene chloride (Dichloromethane)	1	ND		5.00	
108-10-1	4-Methyl-2-pentanone (MIBK)	1	ND		10.0	
100-42-5	Styrene	1	ND		5.00	
79-34-5	1,1,2,2-Tetrachloroethane	1	ND		5.00	
127-18-4	Tetrachloroethene (Perchloroethylene)	1	ND		5.00	
108-88-3	Toluene	1	ND		5.00	
71-55-6	1,1,1-Trichloroethane (Methyl chloroform)	1	ND		5.00	
79-00-5	1,1,2-Trichloroethane	1	ND		5.00	
79-01-6	Trichloroethene (Trichloroethylene)	1	ND		5.00	
75-01-4	Vinyl chloride (Chloroethene)	1	ND		10.0	
1330-20-7	Xylene (total)	1	ND		5.00	

33 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:24:10

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID:	IEBS16 BS	**Client:**	DAMES & MOORE
Project:	1 HNC-PHASE III	**Site:**	None
Lab ID:	TTZ-004	**Episode:**	TTZ
Description:	None	**Matrix:**	Soil
Method:	SW 8260 Volatile Organics	**Prep Level:**	Soil
		Units:	ug/kg
Prep Factor:	1.00	**Leached:**	n/a
		Prepared:	

Sample Qu:
% Moisture: wet
Batch: 31677
Target List: 8260LOW
Analyzed: 15-Sep-99 16:01 KC

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
67-64-1	Acetone (2-Propanone, Dimethyl ketone)	1	ND		10.0	
71-43-2	Benzene	1	ND		5.00	
75-27-4	Bromodichloromethane	1	ND		5.00	
75-25-2	Bromoform	1	ND		5.00	
74-83-9	Bromomethane (Methyl bromide)	1	ND		10.0	
78-93-3	2-Butanone (Methyl ethyl ketone)	1	ND		10.0	
75-15-0	Carbon disulfide	1	ND		5.00	
56-23-5	Carbon tetrachloride	1	ND		5.00	
108-90-7	Chlorobenzene	1	ND		5.00	
75-00-3	Chloroethane	1	ND		10.0	
67-66-3	Chloroform	1	ND		5.00	
74-87-3	Chloromethane (Methyl chloride)	1	ND		10.0	
124-48-1	Dibromochloromethane	1	ND		5.00	
75-34-3	1,1-Dichloroethane	1	ND		5.00	
107-06-2	1,2-Dichloroethane (Ethylene dichloride)	1	ND		5.00	
75-35-4	1,1-Dichloroethene (Dichloroethylene)	1	ND		5.00	
540-59-0	1,2-Dichloroethene (total)	1	ND		5.00	
78-87-5	1,2-Dichloropropane	1	ND		5.00	
10061-01-5	cis-1,3-Dichloropropene	1	ND		5.00	
10061-02-6	trans-1,3-Dichloropropene	1	ND		5.00	
100-41-4	Ethylbenzene	1	ND		5.00	
591-78-6	2-Hexanone	1	ND		10.0	
75-09-2	Methylene chloride (Dichloromethane)	1	ND		5.00	
108-10-1	4-Methyl-2-pentanone (MIBK)	1	ND		10.0	
100-42-5	Styrene	1	ND		5.00	
79-34-5	1,1,2,2-Tetrachloroethane	1	ND		5.00	
127-18-4	Tetrachloroethene (Perchloroethylene)	1	ND		5.00	
108-88-3	Toluene	1	ND		5.00	
71-55-6	1,1,1-Trichloroethane (Methyl chloroform)	1	ND		5.00	
79-00-5	1,1,2-Trichloroethane	1	ND		5.00	
79-01-6	Trichloroethene (Trichloroethylene)	1	ND		5.00	
75-01-4	Vinyl chloride (Chloroethene)	1	ND		10.0	
1330-20-7	Xylene (total)	1	ND		5.00	

33 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:24:11

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID:	IEBS16 BS	**Client:**	DAMES & MOORE
Project:	1 HNC-PHASE III	**Site:**	None
Lab ID:	TTZ-004	**Episode:**	TTZ
Description:	None	**Matrix:**	Soil
Method:	SW 8270 Semivolatile Organics	**Prep Level:**	Soil
		Units:	ug/kg
Prep Factor:	1.00	**Leached:**	n/a
		Prepared:	16-Sep-99

Sample Qu:
% Moisture: wet
Batch: 31726
Target List: 8270LOW
Analyzed: 17-Sep-99 21:29 JA

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
83-32-9	Acenaphthene	1	ND		333	
208-96-8	Acenaphthylene	1	ND		333	
120-12-7	Anthracene	1	ND		333	
56-55-3	Benzo(a)anthracene	1	ND		333	
205-99-2	Benzo(b)fluoranthene	1	504		333	
207-08-09	Benzo(k)fluoranthene	1	540		333	
65-85-0	Benzoic acid	1	ND		833	
191-24-2	Benzo(g,h,i)perylene	1	ND		333	
50-32-8	Benzo(a)pyrene	1	378		333	
100-51-6	Benzyl alcohol	1	ND		333	
101-55-3	4-Bromophenyl phenyl ether	1	ND		333	
85-68-7	Butylbenzylphthalate	1	ND		333	
106-47-8	4-Chloroaniline (p-Chloroaniline)	1	ND		333	
111-91-1	bis(2-Chloroethoxy)methane	1	ND		333	
111-44-4	bis(2-Chloroethyl) ether	1	ND		333	
108-60-1	bis(2-Chloroisopropyl) ether	1	ND		333	
59-50-7	4-Chloro-3-methylphenol (p-Chloro-m-cresol)	1	ND		333	
91-58-7	2-Chloronaphthalene	1	ND		333	
95-57-8	2-Chlorophenol (o-Chlorophenol)	1	ND		333	
7005-72-3	4-Chlorophenyl phenyl ether	1	ND		333	
218-01-9	Chrysene	1	671		333	
53-70-3	Dibenz(a,h)anthracene	1	ND		333	
132-64-9	Dibenzofuran	1	ND		333	
84-74-2	Di-n-butylphthalate	1	ND		333	
95-50-1	1,2-Dichlorobenzene (o-Dichlorobenzene)	1	ND		333	
541-73-1	1,3-Dichlorobenzene (m-Dichlorobenzene)	1	ND		333	
106-46-7	1,4-Dichlorobenzene (p-Dichlorobenzene)	1	ND		333	
91-94-1	3,3'-Dichlorobenzidine	1	ND		667	
120-83-2	2,4-Dichlorophenol	1	ND		333	
84-66-2	Diethylphthalate	1	ND		333	
105-67-9	2,4-Dimethylphenol	1	ND		333	
131-11-3	Dimethylphthalate	1	ND		333	
534-52-1	4,6-Dinitro-2-methylphenol (4,6-Dinitro-o-cresol)	1	ND		833	
51-28-5	2,4-Dinitrophenol	1	ND		833	

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID: IEBS16 BS
Client: DAMES & MOORE
Project: 1 HNC-PHASE III
Site: None
Lab ID: TTZ-004
Episode: TTZ
Sample Qu:
Description: None
Matrix: Soil
% Moisture: wet
Method: SW 8270 Semivolatile Organics
Prep Level: Soil
Batch: 31726
Units: ug/kg
Target List: 8270LOW
Prep Factor: 1.00
Leached: n/a
Prepared: 16-Sep-99
Analyzed: 17-Sep-99 21:29 JA

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
121-14-2	2,4-Dinitrotoluene	1	ND		333	
606-20-2	2,6-Dinitrotoluene	1	ND		333	
117-84-0	Di-n-octylphthalate	1	ND		333	
117-81-7	bis(2-Ethylhexyl)phthalate	1	2230		333	
206-44-0	Fluoranthene	1	946		333	
86-73-7	Fluorene	1	ND		333	
118-74-1	Hexachlorobenzene	1	ND		333	
87-68-3	Hexachlorobutadiene	1	ND		333	
77-47-4	Hexachlorocyclopentadiene	1	ND		333	
67-72-1	Hexachloroethane	1	ND		333	
193-39-5	Indeno(1,2,3-cd)pyrene	1	ND		333	
78-59-1	Isophorone	1	ND		333	
91-57-6	2-Methylnaphthalene	1	ND		333	
95-48-7	2-Methylphenol (o-Cresol)	1	ND		333	
106-44-5	4-Methylphenol (p-Cresol)	1	ND		333	
91-20-3	Naphthalene	1	ND		333	
88-74-4	2-Nitroaniline (o-Nitroaniline)	1	ND		833	
99-09-2	3-Nitroaniline (m-Nitroaniline)	1	ND		833	
100-01-6	4-Nitroaniline (p-Nitroaniline)	1	ND		833	
98-95-3	Nitrobenzene	1	ND		333	
88-75-5	2-Nitrophenol (o-Nitrophenol)	1	ND		333	
100-02-7	4-Nitrophenol (p-Nitrophenol)	1	ND		833	
86-30-6	N-Nitrosodiphenylamine (Diphenylamine)	1	ND	A10	333	
621-64-7	N-Nitroso-di-n-propylamine	1	ND		333	
87-86-5	Pentachlorophenol	1	ND		833	
85-01-8	Phenanthrene	1	680		333	
108-95-2	Phenol	1	ND		333	
129-00-0	Pyrene	1	1050		333	
120-82-1	1,2,4-Trichlorobenzene	1	ND		333	
95-95-4	2,4,5-Trichlorophenol	1	ND		833	
88-06-2	2,4,6-Trichlorophenol	1	ND		333	

65 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:24:12

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID: IEBS17 BS
Client: DAMES & MOORE
Project: 1 HNC-PHASE III
Site: None
Lab ID: TTZ-005
Episode: TTZ
Sample Qu:
Description: None
Matrix: Soil
% Moisture: wet
Method: SW 8260 Volatile Organics
Prep Level: Soil
Batch: 31677
Units: ug/kg
Target List: 8260LOW
Prep Factor: 1.00
Leached: n/a
Prepared:
Analyzed: 15-Sep-99 16:30 KC

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
67-64-1	Acetone (2-Propanone, Dimethyl ketone)	1	ND		10.0	
71-43-2	Benzene	1	ND		5.00	
75-27-4	Bromodichloromethane	1	ND		5.00	
75-25-2	Bromoform	1	ND		5.00	
74-83-9	Bromomethane (Methyl bromide)	1	ND		10.0	
78-93-3	2-Butanone (Methyl ethyl ketone)	1	ND		10.0	
75-15-0	Carbon disulfide	1	ND		5.00	
56-23-5	Carbon tetrachloride	1	ND		5.00	
108-90-7	Chlorobenzene	1	ND		5.00	
75-00-3	Chloroethane	1	ND		10.0	
67-66-3	Chloroform	1	ND		5.00	
74-87-3	Chloromethane (Methyl chloride)	1	ND		10.0	
124-48-1	Dibromochloromethane	1	ND		5.00	
75-34-3	1,1-Dichloroethane	1	ND		5.00	
107-06-2	1,2-Dichloroethane (Ethylene dichloride)	1	ND		5.00	
75-35-4	1,1-Dichloroethene (Dichloroethylene)	1	ND		5.00	
540-59-0	1,2-Dichloroethene (total)	1	ND		5.00	
78-87-5	1,2-Dichloropropane	1	ND		5.00	
10061-01-5	cis-1,3-Dichloropropene	1	ND		5.00	
10061-02-6	trans-1,3-Dichloropropene	1	ND		5.00	
100-41-4	Ethylbenzene	1	ND		5.00	
591-78-6	2-Hexanone	1	ND		10.0	
75-09-2	Methylene chloride (Dichloromethane)	1	ND		5.00	
108-10-1	4-Methyl-2-pentanone (MIBK)	1	ND		10.0	
100-42-5	Styrene	1	ND		5.00	
79-34-5	1,1,2,2-Tetrachloroethane	1	ND		5.00	
127-18-4	Tetrachloroethene (Perchloroethylene)	1	ND		5.00	
108-88-3	Toluene	1	ND		5.00	
71-55-6	1,1,1-Trichloroethane (Methyl chloroform)	1	ND		5.00	
79-00-5	1,1,2-Trichloroethane	1	ND		5.00	
79-01-6	Trichloroethene (Trichloroethylene)	1	ND		5.00	
75-01-4	Vinyl chloride (Chloroethene)	1	ND		5.00	
1330-20-7	Xylene (total)	1	ND		10.0	

33 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

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Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID:	IEBS20 HS	Client:	DAMES & MOORE
Project:	1 HNC-PHASE III	Site:	None
Lab ID:	TTZ-006	Episode:	TTZ
Description:	None	Matrix:	Soil
Method:	SW 8260 Volatile Organics	Prep Level:	Soil
		Units:	ug/kg
Prep Factor:	1.00	Leached:	n/a
		Prepared:	

Sample Qu:
% Moisture: wet
Batch: 31677
Target List: 8260LOW
Analyzed: 15-Sep-99 16:59 KC

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
67-64-1	Acetone (2-Propanone, Dimethyl ketone)	1	11.6	A11	10.0	
71-43-2	Benzene	1	ND		5.00	
75-27-4	Bromodichloromethane	1	ND		5.00	
75-25-2	Bromoform	1	ND		5.00	
74-83-9	Bromomethane (Methyl bromide)	1	ND		10.0	
78-93-3	2-Butanone (Methyl ethyl ketone)	1	ND		10.0	
75-15-0	Carbon disulfide	1	ND		5.00	
56-23-5	Carbon tetrachloride	1	ND		5.00	
108-90-7	Chlorobenzene	1	ND		5.00	
75-00-3	Chloroethane	1	ND		10.0	
67-66-3	Chloroform	1	ND		5.00	
74-87-3	Chloromethane (Methyl chloride)	1	ND		10.0	
124-48-1	Dibromochloromethane	1	ND		5.00	
75-34-3	1,1-Dichloroethane	1	ND		5.00	
107-06-2	1,2-Dichloroethane (Ethylene dichloride)	1	ND		5.00	
75-35-4	1,1-Dichloroethene (Dichloroethylene)	1	ND		5.00	
540-59-0	1,2-Dichloroethene (total)	1	ND		5.00	
78-87-5	1,2-Dichloropropane	1	ND		5.00	
10061-01-5	cis-1,3-Dichloropropene	1	ND		5.00	
10061-02-6	trans-1,3-Dichloropropene	1	ND		5.00	
100-41-4	Ethylbenzene	1	ND		5.00	
591-78-6	2-Hexanone	1	ND		10.0	
75-09-2	Methylene chloride (Dichloromethane)	1	ND		5.00	
108-10-1	4-Methyl-2-pentanone (MIBK)	1	ND		10.0	
100-42-5	Styrene	1	ND		5.00	
79-34-5	1,1,2,2-Tetrachloroethane	1	ND		5.00	
127-18-4	Tetrachloroethene (Perchloroethylene)	1	ND		5.00	
108-88-3	Toluene	1	ND		5.00	
71-55-6	1,1,1-Trichloroethane (Methyl chloroform)	1	ND		5.00	
79-00-5	1,1,2-Trichloroethane	1	ND		5.00	
79-01-6	Trichloroethene (Trichloroethylene)	1	ND		5.00	
75-01-4	Vinyl chloride (Chloroethene)	1	ND		10.0	
1330-20-7	Xylene (total)	1	ND		5.00	

33 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:24:12

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID: IEBS20 HS
Client: DAMES & MOORE
Project: 1 HNC-PHASE III
Site: None
Lab ID: TTZ-006
Episode: TTZ
Sample Qu:
Description: None
Matrix: Soil
% Moisture: wet
Method: SW 8270 Semivolatile Organics
Prep Level: Soil
Batch: 31726
Units: ug/kg
Target List: 8270LOW
Prep Factor: 1.00
Leached: n/a
Prepared: 16-Sep-99
Analyzed: 17-Sep-99 15:46 JA

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
83-32-9	Acenaphthene	1	ND		333	
208-96-8	Acenaphthylene	1	ND		333	
120-12-7	Anthracene	1	ND		333	
56-55-3	Benzo(a)anthracene	1	ND		333	
205-99-2	Benzo(b)fluoranthene	1	ND		333	
207-08-09	Benzo(k)fluoranthene	1	ND		333	
65-85-0	Benzoic acid	1	ND		833	
191-24-2	Benzo(g,h,i)perylene	1	ND		333	
50-32-8	Benzo(a)pyrene	1	ND		333	
100-51-6	Benzyl alcohol	1	ND		333	
101-55-3	4-Bromophenyl phenyl ether	1	ND		333	
85-68-7	Butylbenzylphthalate	1	ND		333	
106-47-8	4-Chloroaniline (p-Chloroaniline)	1	ND		333	
111-91-1	bis(2-Chloroethoxy)methane	1	ND		333	
111-44-4	bis(2-Chloroethyl) ether	1	ND		333	
108-60-1	bis(2-Chloroisopropyl) ether	1	ND		333	
59-50-7	4-Chloro-3-methylphenol (p-Chloro-m-cresol)	1	ND		333	
91-58-7	2-Chloronaphthalene	1	ND		333	
95-57-8	2-Chlorophenol (o-Chlorophenol)	1	ND		333	
7005-72-3	4-Chlorophenyl phenyl ether	1	ND		333	
218-01-9	Chrysene	1	ND		333	
53-70-3	Dibenz(a,h)anthracene	1	ND		333	
132-64-9	Dibenzofuran	1	ND		333	
84-74-2	Di-n-butylphthalate	1	ND		333	
95-50-1	1,2-Dichlorobenzene (o-Dichlorobenzene)	1	ND		333	
541-73-1	1,3-Dichlorobenzene (m-Dichlorobenzene)	1	ND		333	
106-46-7	1,4-Dichlorobenzene (p-Dichlorobenzene)	1	ND		333	
91-94-1	3,3'-Dichlorobenzidine	1	ND		667	
120-83-2	2,4-Dichlorophenol	1	ND		333	
84-66-2	Diethylphthalate	1	ND		333	
105-67-9	2,4-Dimethylphenol	1	ND		333	
131-11-3	Dimethylphthalate	1	ND		333	
534-52-1	4,6-Dinitro-2-methylphenol (4,6-Dinitro-o-cresol)	1	ND		833	
51-28-5	2,4-Dinitrophenol	1	ND		833	

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:24:13

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID:	IEBS20 HS	**Client:**	DAMES & MOORE
Project:	1 HNC-PHASE III	**Site:**	None
Lab ID:	TTZ-006	**Episode:**	TTZ
Description:	None	**Matrix:**	Soil
Method:	SW 8270 Semivolatile Organics	**Prep Level:**	Soil
		Units:	ug/kg
Prep Factor:	1.00	**Leached:**	n/a
		Prepared:	16-Sep-99

Sample Qu:
% Moisture: wet
Batch: 31726
Target List: 8270LOW
Analyzed: 17-Sep-99 15:46 JA

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
121-14-2	2,4-Dinitrotoluene	1	ND		333	
606-20-2	2,6-Dinitrotoluene	1	ND		333	
117-84-0	Di-n-octylphthalate	1	ND		333	
117-81-7	bis(2-Ethylhexyl)phthalate	1	ND		333	
206-44-0	Fluoranthene	1	ND		333	
86-73-7	Fluorene	1	ND		333	
118-74-1	Hexachlorobenzene	1	ND		333	
87-68-3	Hexachlorobutadiene	1	ND		333	
77-47-4	Hexachlorocyclopentadiene	1	ND		333	
67-72-1	Hexachloroethane	1	ND		333	
193-39-5	Indeno(1,2,3-cd)pyrene	1	ND		333	
78-59-1	Isophorone	1	ND		333	
91-57-6	2-Methylnaphthalene	1	ND		333	
95-48-7	2-Methylphenol (o-Cresol)	1	ND		333	
106-44-5	4-Methylphenol (p-Cresol)	1	ND		333	
91-20-3	Naphthalene	1	ND		333	
88-74-4	2-Nitroaniline (o-Nitroaniline)	1	ND		833	
99-09-2	3-Nitroaniline (m-Nitroaniline)	1	ND		833	
100-01-6	4-Nitroaniline (p-Nitroaniline)	1	ND		833	
98-95-3	Nitrobenzene	1	ND		333	
88-75-5	2-Nitrophenol (o-Nitrophenol)	1	ND		333	
100-02-7	4-Nitrophenol (p-Nitrophenol)	1	ND		833	
86-30-6	N-Nitrosodiphenylamine (Diphenylamine)	1	ND	A10	333	
621-64-7	N-Nitroso-di-n-propylamine	1	ND		333	
87-86-5	Pentachlorophenol	1	ND		833	
85-01-8	Phenanthrene	1	ND		333	
108-95-2	Phenol	1	ND		333	
129-00-0	Pyrene	1	338		333	
120-82-1	1,2,4-Trichlorobenzene	1	ND		333	
95-95-4	2,4,5-Trichlorophenol	1	ND		833	
88-06-2	2,4,6-Trichlorophenol	1	ND		333	

65 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:24:13

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID: IEBS21 HS
Client: DAMES & MOORE
Project: 1 HNC-PHASE III
Site: None
Lab ID: TTZ-007
Episode: TTZ
Sample Qu:
Description: None
Matrix: Soil
% Moisture: wet
Method: SW 8260 Volatile Organics
Prep Level: Soil
Batch: 31677
Units: ug/kg
Target List: 8260LOW
Prep Factor: 1.00
Leached: n/a
Prepared:
Analyzed: 15-Sep-99 17:29 KC

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
67-64-1	Acetone (2-Propanone, Dimethyl ketone)	1	14.3	A11	10.0	
71-43-2	Benzene	1	ND		5.00	
75-27-4	Bromodichloromethane	1	ND		5.00	
75-25-2	Bromoform	1	ND		5.00	
74-83-9	Bromomethane (Methyl bromide)	1	ND		10.0	
78-93-3	2-Butanone (Methyl ethyl ketone)	1	ND		10.0	
75-15-0	Carbon disulfide	1	ND		5.00	
56-23-5	Carbon tetrachloride	1	ND		5.00	
108-90-7	Chlorobenzene	1	ND		5.00	
75-00-3	Chloroethane	1	ND		10.0	
67-66-3	Chloroform	1	ND		5.00	
74-87-3	Chloromethane (Methyl chloride)	1	ND		10.0	
124-48-1	Dibromochloromethane	1	ND		5.00	
75-34-3	1,1-Dichloroethane	1	ND		5.00	
107-06-2	1,2-Dichloroethane (Ethylene dichloride)	1	ND		5.00	
75-35-4	1,1-Dichloroethene (Dichloroethylene)	1	ND		5.00	
540-59-0	1,2-Dichloroethene (total)	1	ND		5.00	
78-87-5	1,2-Dichloropropane	1	ND		5.00	
10061-01-5	cis-1,3-Dichloropropene	1	ND		5.00	
10061-02-6	trans-1,3-Dichloropropene	1	ND		5.00	
100-41-4	Ethylbenzene	1	ND		5.00	
591-78-6	2-Hexanone	1	ND		10.0	
75-09-2	Methylene chloride (Dichloromethane)	1	ND		5.00	
108-10-1	4-Methyl-2-pentanone (MIBK)	1	ND		10.0	
100-42-5	Styrene	1	ND		5.00	
79-34-5	1,1,2,2-Tetrachloroethane	1	ND		5.00	
127-18-4	Tetrachloroethene (Perchloroethylene)	1	ND		5.00	
108-88-3	Toluene	1	ND		5.00	
71-55-6	1,1,1-Trichloroethane (Methyl chloroform)	1	ND		5.00	
79-00-5	1,1,2-Trichloroethane	1	ND		5.00	
79-01-6	Trichloroethene (Trichloroethylene)	1	ND		5.00	
75-01-4	Vinyl chloride (Chloroethene)	1	ND		10.0	
1330-20-7	Xylene (total)	1	ND		5.00	

33 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

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Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID:	IEBS21 HS	**Client:**	DAMES & MOORE
Project:	1 HNC-PHASE III	**Site:**	None
Lab ID:	TTZ-007	**Episode:**	TTZ
Description:	None	**Matrix:**	Soil
Method:	SW 8270 Semivolatile Organics	**Prep Level:**	Soil
		Units:	ug/kg
Prep Factor:	1.00	**Leached:**	n/a
		Prepared:	16-Sep-99

Sample Qu:
% Moisture: wet
Batch: 31726
Target List: 8270LOW
Analyzed: 21-Sep-99 16:15 JA

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
83-32-9	Acenaphthene	1	ND		333	
208-96-8	Acenaphthylene	1	ND		333	
120-12-7	Anthracene	1	ND		333	
56-55-3	Benzo(a)anthracene	1	ND		333	
205-99-2	Benzo(b)fluoranthene	1	630		333	
207-08-09	Benzo(k)fluoranthene	1	537		333	
65-85-0	Benzoic acid	1	ND		833	
191-24-2	Benzo(g,h,i)perylene	1	ND		333	
50-32-8	Benzo(a)pyrene	1	423		333	
100-51-6	Benzyl alcohol	1	ND		333	
101-55-3	4-Bromophenyl phenyl ether	1	ND		333	
85-68-7	Butylbenzylphthalate	1	ND		333	
106-47-8	4-Chloroaniline (p-Chloroaniline)	1	ND		333	
111-91-1	bis(2-Chloroethoxy)methane	1	ND		333	
111-44-4	bis(2-Chloroethyl) ether	1	ND		333	
108-60-1	bis(2-Chloroisopropyl) ether	1	ND		333	
59-50-7	4-Chloro-3-methylphenol (p-Chloro-m-cresol)	1	ND		333	
91-58-7	2-Chloronaphthalene	1	ND		333	
95-57-8	2-Chlorophenol (o-Chlorophenol)	1	ND		333	
7005-72-3	4-Chlorophenyl phenyl ether	1	ND		333	
218-01-9	Chrysene	1	561		333	
53-70-3	Dibenz(a,h)anthracene	1	ND		333	
132-64-9	Dibenzofuran	1	ND		333	
84-74-2	Di-n-butylphthalate	1	ND		333	
95-50-1	1,2-Dichlorobenzene (o-Dichlorobenzene)	1	ND		333	
541-73-1	1,3-Dichlorobenzene (m-Dichlorobenzene)	1	ND		333	
106-46-7	1,4-Dichlorobenzene (p-Dichlorobenzene)	1	ND		333	
91-94-1	3,3'-Dichlorobenzidine	1	ND		667	
120-83-2	2,4-Dichlorophenol	1	ND		333	
84-66-2	Diethylphthalate	1	ND		333	
105-67-9	2,4-Dimethylphenol	1	ND		333	
131-11-3	Dimethylphthalate	1	ND		333	
534-52-1	4,6-Dinitro-2-methylphenol (4,6-Dinitro-o-cresol)	1	ND		833	
51-28-5	2,4-Dinitrophenol	1	ND		833	

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

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Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID: IEBS11 BS		Client: DAMES & MOORE	
Project: 1 HNC-PHASE III		Site: None	
Lab ID: TTZ-009		Episode: TTZ	Sample Qu:
Description: None		Matrix: Soil	% Moisture: wet
Method: SW 8260 Volatile Organics		Prep Level: Soil	Batch: 31677
		Units: ug/kg	Target List: 8260LOW
Prep Factor: 1.00	Leached: n/a	Prepared:	Analyzed: 15-Sep-99 17:58 KC

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
67-64-1	Acetone (2-Propanone, Dimethyl ketone)	1	63.3	A11	10.0	
71-43-2	Benzene	1	ND		5.00	
75-27-4	Bromodichloromethane	1	ND		5.00	
75-25-2	Bromoform	1	ND		5.00	
74-83-9	Bromomethane (Methyl bromide)	1	ND		10.0	
78-93-3	2-Butanone (Methyl ethyl ketone)	1	15.1		10.0	
75-15-0	Carbon disulfide	1	ND		5.00	
56-23-5	Carbon tetrachloride	1	ND		5.00	
108-90-7	Chlorobenzene	1	ND		5.00	
75-00-3	Chloroethane	1	ND		10.0	
67-66-3	Chloroform	1	ND		5.00	
74-87-3	Chloromethane (Methyl chloride)	1	ND		10.0	
124-48-1	Dibromochloromethane	1	ND		5.00	
75-34-3	1,1-Dichloroethane	1	ND		5.00	
107-06-2	1,2-Dichloroethane (Ethylene dichloride)	1	ND		5.00	
75-35-4	1,1-Dichloroethene (Dichloroethylene)	1	ND		5.00	
540-59-0	1,2-Dichloroethene (total)	1	ND		5.00	
78-87-5	1,2-Dichloropropane	1	ND		5.00	
10061-01-5	cis-1,3-Dichloropropene	1	ND		5.00	
10061-02-6	trans-1,3-Dichloropropene	1	ND		5.00	
100-41-4	Ethylbenzene	1	ND		5.00	
591-78-6	2-Hexanone	1	ND		10.0	
75-09-2	Methylene chloride (Dichloromethane)	1	ND		5.00	
108-10-1	4-Methyl-2-pentanone (MIBK)	1	ND		10.0	
100-42-5	Styrene	1	ND		5.00	
79-34-5	1,1,2,2-Tetrachloroethane	1	ND		5.00	
127-18-4	Tetrachloroethene (Perchloroethylene)	1	ND		5.00	
108-88-3	Toluene	1	ND		5.00	
71-55-6	1,1,1-Trichloroethane (Methyl chloroform)	1	ND		5.00	
79-00-5	1,1,2-Trichloroethane	1	ND		5.00	
79-01-6	Trichloroethene (Trichloroethylene)	1	ND		5.00	
75-01-4	Vinyl chloride (Chloroethene)	1	ND		10.0	
1330-20-7	Xylene (total)	1	ND		5.00	

33 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

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Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID: IEBS11 BS
Client: DAMES & MOORE
Project: 1 HNC-PHASE III
Site: None
Lab ID: TTZ-009
Episode: TTZ
Sample Qu:
Description: None
Matrix: Soil
% Moisture: wet
Method: SW 8270 Semivolatile Organics
Prep Level: Soil
Batch: 31726
Units: ug/kg
Target List: 8270LOW
Prep Factor: 1.00
Leached: n/a
Prepared: 16-Sep-99
Analyzed: 17-Sep-99 17:12 JA

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
83-32-9	Acenaphthene	1	ND		333	
208-96-8	Acenaphthylene	1	ND		333	
120-12-7	Anthracene	1	ND		333	
56-55-3	Benzo(a)anthracene	1	ND		333	
205-99-2	Benzo(b)fluoranthene	1	ND		333	
207-08-09	Benzo(k)fluoranthene	1	ND		333	
65-85-0	Benzoic acid	1	ND		833	
191-24-2	Benzo(g,h,i)perylene	1	ND		333	
50-32-8	Benzo(a)pyrene	1	ND		333	
100-51-6	Benzyl alcohol	1	ND		333	
101-55-3	4-Bromophenyl phenyl ether	1	ND		333	
85-68-7	Butylbenzylphthalate	1	ND		333	
106-47-8	4-Chloroaniline (p-Chloroaniline)	1	ND		333	
111-91-1	bis(2-Chloroethoxy)methane	1	ND		333	
111-44-4	bis(2-Chloroethyl) ether	1	ND		333	
108-60-1	bis(2-Chloroisopropyl) ether	1	ND		333	
59-50-7	4-Chloro-3-methylphenol (p-Chloro-m-cresol)	1	ND		333	
91-58-7	2-Chloronaphthalene	1	ND		333	
95-57-8	2-Chlorophenol (o-Chlorophenol)	1	ND		333	
7005-72-3	4-Chlorophenyl phenyl ether	1	ND		333	
218-01-9	Chrysene	1	ND		333	
53-70-3	Dibenz(a,h)anthracene	1	ND		333	
132-64-9	Dibenzofuran	1	ND		333	
84-74-2	Di-n-butylphthalate	1	ND		333	
95-50-1	1,2-Dichlorobenzene (o-Dichlorobenzene)	1	ND		333	
541-73-1	1,3-Dichlorobenzene (m-Dichlorobenzene)	1	ND		333	
106-46-7	1,4-Dichlorobenzene (p-Dichlorobenzene)	1	ND		333	
91-94-1	3,3'-Dichlorobenzidine	1	ND		667	
120-83-2	2,4-Dichlorophenol	1	ND		333	
84-66-2	Diethylphthalate	1	ND		333	
105-67-9	2,4-Dimethylphenol	1	ND		333	
131-11-3	Dimethylphthalate	1	ND		333	
534-52-1	4,6-Dinitro-2-methylphenol (4,6-Dinitro-o-cresol)	1	ND		833	
51-28-5	2,4-Dinitrophenol	1	ND		833	

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

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Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID:	IEBS11 BS	**Client:**	DAMES & MOORE
Project:	1 HNC-PHASE III	**Site:**	None
Lab ID:	TTZ-009	**Episode:**	TTZ
Description:	None	**Matrix:**	Soil
Method:	SW 8270 Semivolatile Organics	**Prep Level:**	Soil
		Units:	ug/kg
Prep Factor:	1.00	**Leached:**	n/a
		Prepared:	16-Sep-99

Sample Qu:
% Moisture: wet
Batch: 31726
Target List: 8270LOW
Analyzed: 17-Sep-99 17:12 JA

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
121-14-2	2,4-Dinitrotoluene	1	ND		333	
606-20-2	2,6-Dinitrotoluene	1	ND		333	
117-84-0	Di-n-octylphthalate	1	ND		333	
117-81-7	bis(2-Ethylhexyl)phthalate	1	ND		333	
206-44-0	Fluoranthene	1	ND		333	
86-73-7	Fluorene	1	ND		333	
118-74-1	Hexachlorobenzene	1	ND		333	
87-68-3	Hexachlorobutadiene	1	ND		333	
77-47-4	Hexachlorocyclopentadiene	1	ND		333	
67-72-1	Hexachloroethane	1	ND		333	
193-39-5	Indeno(1,2,3-cd)pyrene	1	ND		333	
78-59-1	Isophorone	1	ND		333	
91-57-6	2-Methylnaphthalene	1	ND		333	
95-48-7	2-Methylphenol (o-Cresol)	1	ND		333	
106-44-5	4-Methylphenol (p-Cresol)	1	ND		333	
91-20-3	Naphthalene	1	ND		333	
88-74-4	2-Nitroaniline (o-Nitroaniline)	1	ND		833	
99-09-2	3-Nitroaniline (m-Nitroaniline)	1	ND		833	
100-01-6	4-Nitroaniline (p-Nitroaniline)	1	ND		833	
98-95-3	Nitrobenzene	1	ND		333	
88-75-5	2-Nitrophenol (o-Nitrophenol)	1	ND		333	
100-02-7	4-Nitrophenol (p-Nitrophenol)	1	ND		833	
86-30-6	N-Nitrosodiphenylamine (Diphenylamine)	1	ND	A10	333	
621-64-7	N-Nitroso-di-n-propylamine	1	ND		333	
87-86-5	Pentachlorophenol	1	ND		833	
85-01-8	Phenanthrene	1	ND		333	
108-95-2	Phenol	1	ND		333	
129-00-0	Pyrene	1	ND		333	
120-82-1	1,2,4-Trichlorobenzene	1	ND		333	
95-95-4	2,4,5-Trichlorophenol	1	ND		833	
88-06-2	2,4,6-Trichlorophenol	1	ND		333	

65 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

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Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID: IEBS03 HS
Project: 1 HNC-PHASE III
Lab ID: TTZ-010
Description: None
Method: SW 8260 Volatile Organics

Client: DAMES & MOORE
Site: None
Episode: TTZ
Matrix: Soil
Prep Level: Soil
Units: ug/kg
Prepared:

Sample Qu:
% Moisture: wet
Batch: 31677
Target List: 8260LOW
Analyzed: 15-Sep-99 18:27 KC

Prep Factor: 1.00 Leached: n/a

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
67-64-1	Acetone (2-Propanone, Dimethyl ketone)	1	ND		10.0	
71-43-2	Benzene	1	ND		5.00	
75-27-4	Bromodichloromethane	1	ND		5.00	
75-25-2	Bromoform	1	ND		5.00	
74-83-9	Bromomethane (Methyl bromide)	1	ND		10.0	
78-93-3	2-Butanone (Methyl ethyl ketone)	1	ND		10.0	
75-15-0	Carbon disulfide	1	ND		5.00	
56-23-5	Carbon tetrachloride	1	ND		5.00	
108-90-7	Chlorobenzene	1	ND		5.00	
75-00-3	Chloroethane	1	ND		10.0	
67-66-3	Chloroform	1	ND		5.00	
74-87-3	Chloromethane (Methyl chloride)	1	ND		10.0	
124-48-1	Dibromochloromethane	1	ND		5.00	
75-34-3	1,1-Dichloroethane	1	ND		5.00	
107-06-2	1,2-Dichloroethane (Ethylene dichloride)	1	ND		5.00	
75-35-4	1,1-Dichloroethene (Dichloroethylene)	1	ND		5.00	
540-59-0	1,2-Dichloroethene (total)	1	ND		5.00	
78-87-5	1,2-Dichloropropane	1	ND		5.00	
10061-01-5	cis-1,3-Dichloropropene	1	ND		5.00	
10061-02-6	trans-1,3-Dichloropropene	1	ND		5.00	
100-41-4	Ethylbenzene	1	ND		5.00	
591-78-6	2-Hexanone	1	ND		10.0	
75-09-2	Methylene chloride (Dichloromethane)	1	ND		5.00	
108-10-1	4-Methyl-2-pentanone (MIBK)	1	ND		10.0	
100-42-5	Styrene	1	ND		5.00	
79-34-5	1,1,2,2-Tetrachloroethane	1	ND		5.00	
127-18-4	Tetrachloroethene (Perchloroethylene)	1	ND		5.00	
108-88-3	Toluene	1	ND		5.00	
71-55-6	1,1,1-Trichloroethane (Methyl chloroform)	1	ND		5.00	
79-00-5	1,1,2-Trichloroethane	1	ND		5.00	
79-01-6	Trichloroethene (Trichloroethylene)	1	ND		5.00	
75-01-4	Vinyl chloride (Chloroethene)	1	ND		10.0	
1330-20-7	Xylene (total)	1	ND		5.00	

33 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:24:15

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID:	IEBS03 HS	**Client:**	DAMES & MOORE
Project:	1 HNC-PHASE III	**Site:**	None
Lab ID:	TTZ-010	**Episode:**	TTZ
Description:	None	**Matrix:**	Soil
Method:	SW 8270 Semivolatile Organics	**Prep Level:**	Soil
		Units:	ug/kg
Prep Factor:	1.00	**Leached:**	n/a
		Prepared:	16-Sep-99

Sample Qu:
% Moisture: wet
Batch: 31726
Target List: 8270LOW
Analyzed: 17-Sep-99 17:55 JA

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
83-32-9	Acenaphthene	1	ND		333	
208-96-8	Acenaphthylene	1	ND		333	
120-12-7	Anthracene	1	ND		333	
56-55-3	Benzo(a)anthracene	1	ND		333	
205-99-2	Benzo(b)fluoranthene	1	ND		333	
207-08-09	Benzo(k)fluoranthene	1	ND		333	
65-85-0	Benzoic acid	1	ND		833	
191-24-2	Benzo(g,h,i)perylene	1	ND		333	
50-32-8	Benzo(a)pyrene	1	ND		333	
100-51-6	Benzyl alcohol	1	ND		333	
101-55-3	4-Bromophenyl phenyl ether	1	ND		333	
85-68-7	Butylbenzylphthalate	1	ND		333	
106-47-8	4-Chloroaniline (p-Chloroaniline)	1	ND		333	
111-91-1	bis(2-Chloroethoxy)methane	1	ND		333	
111-44-4	bis(2-Chloroethyl) ether	1	ND		333	
108-60-1	bis(2-Chloroisopropyl) ether	1	ND		333	
59-50-7	4-Chloro-3-methylphenol (p-Chloro-m-cresol)	1	ND		333	
91-58-7	2-Chloronaphthalene	1	ND		333	
95-57-8	2-Chlorophenol (o-Chlorophenol)	1	ND		333	
7005-72-3	4-Chlorophenyl phenyl ether	1	ND		333	
218-01-9	Chrysene	1	ND		333	
53-70-3	Dibenz(a,h)anthracene	1	ND		333	
132-64-9	Dibenzofuran	1	ND		333	
84-74-2	Di-n-butylphthalate	1	ND		333	
95-50-1	1,2-Dichlorobenzene (o-Dichlorobenzene)	1	ND		333	
541-73-1	1,3-Dichlorobenzene (m-Dichlorobenzene)	1	ND		333	
106-46-7	1,4-Dichlorobenzene (p-Dichlorobenzene)	1	ND		333	
91-94-1	3,3'-Dichlorobenzidine	1	ND		667	
120-83-2	2,4-Dichlorophenol	1	ND		333	
84-66-2	Diethylphthalate	1	ND		333	
105-67-9	2,4-Dimethylphenol	1	ND		333	
131-11-3	Dimethylphthalate	1	ND		333	
534-52-1	4,6-Dinitro-2-methylphenol (4,6-Dinitro-o-cresol)	1	ND		833	
51-28-5	2,4-Dinitrophenol	1	ND		833	

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:24:15

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID: IEBS03 HS
Client: DAMES & MOORE
Project: 1 HNC-PHASE III
Site: None
Lab ID: TTZ-010
Episode: TTZ
Sample Qu:
Description: None
Matrix: Soil
% Moisture: wet
Method: SW 8270 Semivolatile Organics
Prep Level: Soil
Batch: 31726
Units: ug/kg
Target List: 8270LOW
Prep Factor: 1.00
Leached: n/a
Prepared: 16-Sep-99
Analyzed: 17-Sep-99 17:55 JA

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
121-14-2	2,4-Dinitrotoluene	1	ND		333	
606-20-2	2,6-Dinitrotoluene	1	ND		333	
117-84-0	Di-n-octylphthalate	1	ND		333	
117-81-7	bis(2-Ethylhexyl)phthalate	1	803		333	
206-44-0	Fluoranthene	1	ND		333	
86-73-7	Fluorene	1	ND		333	
118-74-1	Hexachlorobenzene	1	ND		333	
87-68-3	Hexachlorobutadiene	1	ND		333	
77-47-4	Hexachlorocyclopentadiene	1	ND		333	
67-72-1	Hexachloroethane	1	ND		333	
193-39-5	Indeno(1,2,3-cd)pyrene	1	ND		333	
78-59-1	Isophorone	1	ND		333	
91-57-6	2-Methylnaphthalene	1	ND		333	
95-48-7	2-Methylphenol (o-Cresol)	1	ND		333	
106-44-5	4-Methylphenol (p-Cresol)	1	ND		333	
91-20-3	Naphthalene	1	ND		333	
88-74-4	2-Nitroaniline (o-Nitroaniline)	1	ND		333	
99-09-2	3-Nitroaniline (m-Nitroaniline)	1	ND		833	
100-01-6	4-Nitroaniline (p-Nitroaniline)	1	ND		833	
98-95-3	Nitrobenzene	1	ND		833	
88-75-5	2-Nitrophenol (o-Nitrophenol)	1	ND		333	
100-02-7	4-Nitrophenol (p-Nitrophenol)	1	ND		333	
86-30-6	N-Nitrosodiphenylamine (Diphenylamine)	1	ND		833	
621-64-7	N-Nitroso-di-n-propylamine	1	ND	A10	333	
87-86-5	Pentachlorophenol	1	ND		333	
85-01-8	Phenanthrene	1	ND		833	
108-95-2	Phenol	1	ND		333	
129-00-0	Pyrene	1	ND		333	
120-82-1	1,2,4-Trichlorobenzene	1	ND		333	
95-95-4	2,4,5-Trichlorophenol	1	ND		333	
88-06-2	2,4,6-Trichlorophenol	1	ND		833	
		1	ND		333	

65 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

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Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID:	IEBS01 HS	**Client:**	DAMES & MOORE
Project:	1 HNC-PHASE III	**Site:**	None
Lab ID:	TTZ-011	**Episode:**	TTZ
Description:	None	**Matrix:**	Soil
Method:	SW 8260 Volatile Organics	**Prep Level:**	Soil
		Units:	ug/kg
Prep Factor:	1.00	**Leached:**	n/a
		Prepared:	

Sample Qu:
% Moisture: wet
Batch: 31677
Target List: 8260LOW
Analyzed: 15-Sep-99 18:56 KC

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
67-64-1	Acetone (2-Propanone, Dimethyl ketone)	1	24.5	A11	10.0	
71-43-2	Benzene	1	ND		5.00	
75-27-4	Bromodichloromethane	1	ND		5.00	
75-25-2	Bromoform	1	ND		5.00	
74-83-9	Bromomethane (Methyl bromide)	1	ND		10.0	
78-93-3	2-Butanone (Methyl ethyl ketone)	1	ND		10.0	
75-15-0	Carbon disulfide	1	ND		5.00	
56-23-5	Carbon tetrachloride	1	ND		5.00	
108-90-7	Chlorobenzene	1	ND		5.00	
75-00-3	Chloroethane	1	ND		10.0	
67-66-3	Chloroform	1	ND		5.00	
74-87-3	Chloromethane (Methyl chloride)	1	ND		10.0	
124-48-1	Dibromochloromethane	1	ND		5.00	
75-34-3	1,1-Dichloroethane	1	ND		5.00	
107-06-2	1,2-Dichloroethane (Ethylene dichloride)	1	ND		5.00	
75-35-4	1,1-Dichloroethene (Dichloroethylene)	1	ND		5.00	
540-59-0	1,2-Dichloroethene (total)	1	ND		5.00	
78-87-5	1,2-Dichloropropane	1	ND		5.00	
10061-01-5	cis-1,3-Dichloropropene	1	ND		5.00	
10061-02-6	trans-1,3-Dichloropropene	1	ND		5.00	
100-41-4	Ethylbenzene	1	ND		5.00	
591-78-6	2-Hexanone	1	ND		10.0	
75-09-2	Methylene chloride (Dichloromethane)	1	ND		5.00	
108-10-1	4-Methyl-2-pentanone (MIBK)	1	ND		10.0	
100-42-5	Styrene	1	ND		5.00	
79-34-5	1,1,2,2-Tetrachloroethane	1	ND		5.00	
127-18-4	Tetrachloroethene (Perchloroethylene)	1	ND		5.00	
108-88-3	Toluene	1	ND		5.00	
71-55-6	1,1,1-Trichloroethane (Methyl chloroform)	1	ND		5.00	
79-00-5	1,1,2-Trichloroethane	1	ND		5.00	
79-01-6	Trichloroethene (Trichloroethylene)	1	ND		5.00	
75-01-4	Vinyl chloride (Chloroethene)	1	ND		10.0	
1330-20-7	Xylene (total)	1	ND		5.00	

33 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

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Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID: IEBS01 HS
Client: DAMES & MOORE
Project: 1 HNC-PHASE III
Site: None
Lab ID: TTZ-011
Episode: TTZ
Sample Qu: M2
Description: None
Matrix: Soil
% Moisture: wet
Method: SW 8270 Semivolatile Organics
Prep Level: Soil
Batch: 31726
Units: ug/kg
Target List: 8270LOW
Prep Factor: 1.00
Leached: n/a
Prepared: 16-Sep-99
Analyzed: 21-Sep-99 18:34 JA

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
83-32-9	Acenaphthene	1	ND		333	
208-96-8	Acenaphthylene	1	ND		333	
120-12-7	Anthracene	1	ND		333	
56-55-3	Benzo(a)anthracene	1	ND		333	
205-99-2	Benzo(b)fluoranthene	1	ND		333	
207-08-09	Benzo(k)fluoranthene	1	ND		333	
65-85-0	Benzoic acid	1	ND		833	
191-24-2	Benzo(g,h,i)perylene	1	ND		333	
50-32-8	Benzo(a)pyrene	1	ND		333	
100-51-6	Benzyl alcohol	1	ND		333	
101-55-3	4-Bromophenyl phenyl ether	1	ND		333	
85-68-7	Butylbenzylphthalate	1	ND		333	
106-47-8	4-Chloroaniline (p-Chloroaniline)	1	ND		333	
111-91-1	bis(2-Chloroethoxy)methane	1	ND		333	
111-44-4	bis(2-Chloroethyl) ether	1	ND		333	
108-60-1	bis(2-Chloroisopropyl) ether	1	ND		333	
59-50-7	4-Chloro-3-methylphenol (p-Chloro-m-cresol)	1	ND		333	
91-58-7	2-Chloronaphthalene	1	ND		333	
95-57-8	2-Chlorophenol (o-Chlorophenol)	1	ND		333	
7005-72-3	4-Chlorophenyl phenyl ether	1	ND		333	
218-01-9	Chrysene	1	ND		333	
53-70-3	Dibenz(a,h)anthracene	1	ND		333	
132-64-9	Dibenzofuran	1	ND		333	
84-74-2	Di-n-butylphthalate	1	ND		333	
95-50-1	1,2-Dichlorobenzene (o-Dichlorobenzene)	1	ND		333	
541-73-1	1,3-Dichlorobenzene (m-Dichlorobenzene)	1	ND		333	
106-46-7	1,4-Dichlorobenzene (p-Dichlorobenzene)	1	ND		333	
91-94-1	3,3'-Dichlorobenzidine	1	ND		667	
120-83-2	2,4-Dichlorophenol	1	ND		333	
84-66-2	Diethylphthalate	1	ND		333	
105-67-9	2,4-Dimethylphenol	1	ND		333	
131-11-3	Dimethylphthalate	1	ND		333	
534-52-1	4,6-Dinitro-2-methylphenol (4,6-Dinitro-o-cresol)	1	ND		833	
51-28-5	2,4-Dinitrophenol	1	ND		833	

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
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10/5/99 13:24:16

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID: IEBS01 HS
Client: DAMES & MOORE
Project: 1 HNC-PHASE III
Site: None
Lab ID: TTZ-011
Episode: TTZ
Sample Qu: M2
Description: None
Matrix: Soil
% Moisture: wet
Method: SW 8270 Semivolatile Organics
Prep Level: Soil
Batch: 31726
Units: ug/kg
Target List: 8270LOW
Prep Factor: 1.00
Leached: n/a
Prepared: 16-Sep-99
Analyzed: 21-Sep-99 18:34 JA

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
121-14-2	2,4-Dinitrotoluene	1	ND		333	
606-20-2	2,6-Dinitrotoluene	1	ND		333	
117-84-0	Di-n-octylphthalate	1	ND		333	
117-81-7	bis(2-Ethylhexyl)phthalate	1	ND		333	
206-44-0	Fluoranthene	1	ND		333	
86-73-7	Fluorene	1	ND		333	
118-74-1	Hexachlorobenzene	1	ND		333	
87-68-3	Hexachlorobutadiene	1	ND		333	
77-47-4	Hexachlorocyclopentadiene	1	ND		333	
67-72-1	Hexachloroethane	1	ND		333	
193-39-5	Indeno(1,2,3-cd)pyrene	1	ND		333	
78-59-1	Isophorone	1	ND		333	
91-57-6	2-Methylnaphthalene	1	ND		333	
95-48-7	2-Methylphenol (o-Cresol)	1	ND		333	
106-44-5	4-Methylphenol (p-Cresol)	1	ND		333	
91-20-3	Naphthalene	1	ND		333	
88-74-4	2-Nitroaniline (o-Nitroaniline)	1	ND		833	
99-09-2	3-Nitroaniline (m-Nitroaniline)	1	ND		833	
100-01-6	4-Nitroaniline (p-Nitroaniline)	1	ND		833	
98-95-3	Nitrobenzene	1	ND		333	
88-75-5	2-Nitrophenol (o-Nitrophenol)	1	ND		333	
100-02-7	4-Nitrophenol (p-Nitrophenol)	1	ND		833	
86-30-6	N-Nitrosodiphenylamine (Diphenylamine)	1	ND	A10	333	
621-64-7	N-Nitroso-di-n-propylamine	1	ND		333	
87-86-5	Pentachlorophenol	1	ND		833	
85-01-8	Phenanthrene	1	ND		333	
108-95-2	Phenol	1	ND		333	
129-00-0	Pyrene	1	ND		333	
120-82-1	1,2,4-Trichlorobenzene	1	ND		333	
95-95-4	2,4,5-Trichlorophenol	1	ND		833	
88-06-2	2,4,6-Trichlorophenol	1	ND		333	

65 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID: BACKGROUND(IEBS-22-HS)
Client: DAMES & MOORE
Project: I HNC-PHASE III
Site: None
Lab ID: TTZ-013
Episode: TTZ
Sample Qu:
Description: None
Matrix: Soil
% Moisture: wet
Method: SW 8260 Volatile Organics
Prep Level: Soil
Batch: 31677
Units: ug/kg
Target List: 8260LOW
Prep Factor: 1.00
Leached: n/a
Prepared:
Analyzed: 15-Sep-99 19:26 KC

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
67-64-1	Acetone (2-Propanone, Dimethyl ketone)	1	ND		10.0	
71-43-2	Benzene	1	ND		5.00	
75-27-4	Bromodichloromethane	1	ND		5.00	
75-25-2	Bromoform	1	ND		5.00	
74-83-9	Bromomethane (Methyl bromide)	1	ND		10.0	
78-93-3	2-Butanone (Methyl ethyl ketone)	1	ND		10.0	
75-15-0	Carbon disulfide	1	ND		5.00	
56-23-5	Carbon tetrachloride	1	ND		5.00	
108-90-7	Chlorobenzene	1	ND		5.00	
75-00-3	Chloroethane	1	ND		10.0	
67-66-3	Chloroform	1	ND		5.00	
74-87-3	Chloromethane (Methyl chloride)	1	ND		10.0	
124-48-1	Dibromochloromethane	1	ND		5.00	
75-34-3	1,1-Dichloroethane	1	ND		5.00	
107-06-2	1,2-Dichloroethane (Ethylene dichloride)	1	ND		5.00	
75-35-4	1,1-Dichloroethene (Dichloroethylene)	1	ND		5.00	
540-59-0	1,2-Dichloroethene (total)	1	ND		5.00	
78-87-5	1,2-Dichloropropane	1	ND		5.00	
10061-01-5	cis-1,3-Dichloropropene	1	ND		5.00	
10061-02-6	trans-1,3-Dichloropropene	1	ND		5.00	
100-41-4	Ethylbenzene	1	ND		5.00	
591-78-6	2-Hexanone	1	ND		10.0	
75-09-2	Methylene chloride (Dichloromethane)	1	ND		5.00	
108-10-1	4-Methyl-2-pentanone (MIBK)	1	ND		10.0	
100-42-5	Styrene	1	ND		5.00	
79-34-5	1,1,2,2-Tetrachloroethane	1	ND		5.00	
127-18-4	Tetrachloroethene (Perchloroethylene)	1	ND		5.00	
108-88-3	Toluene	1	ND		5.00	
71-55-6	1,1,1-Trichloroethane (Methyl chloroform)	1	ND		5.00	
79-00-5	1,1,2-Trichloroethane	1	ND		5.00	
79-01-6	Trichloroethene (Trichloroethylene)	1	ND		5.00	
75-01-4	Vinyl chloride (Chloroethene)	1	ND		10.0	
1330-20-7	Xylene (total)	1	ND		5.00	

33 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:24:16

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID:	BACKGROUND(IEBS-22-HS)	**Client:**	DAMES & MOORE
Project:	1 HNC-PHASE III	**Site:**	None
Lab ID:	TTZ-013	**Episode:**	TTZ
Description:	None	**Matrix:**	Soil
Method:	SW 8270 Semivolatile Organics	**Prep Level:**	Soil
		Units:	ug/kg
Prep Factor:	1.00	**Leached:**	n/a
		Prepared:	16-Sep-99

Sample Qu:
% Moisture: wet
Batch: 31726
Target List: 8270LOW
Analyzed: 17-Sep-99 16:38 ML

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
83-32-9	Acenaphthene	1	ND		333	
208-96-8	Acenaphthylene	1	ND		333	
120-12-7	Anthracene	1	ND		333	
56-55-3	Benzo(a)anthracene	1	ND		333	
205-99-2	Benzo(b)fluoranthene	1	ND		333	
207-08-09	Benzo(k)fluoranthene	1	ND		333	
65-85-0	Benzoic acid	1	ND		833	
191-24-2	Benzo(g,h,i)perylene	1	ND		333	
50-32-8	Benzo(a)pyrene	1	ND		333	
100-51-6	Benzyl alcohol	1	ND		333	
101-55-3	4-Bromophenyl phenyl ether	1	ND		333	
85-68-7	Butylbenzylphthalate	1	ND		333	
106-47-8	4-Chloroaniline (p-Chloroaniline)	1	ND		333	
111-91-1	bis(2-Chloroethoxy)methane	1	ND		333	
111-44-4	bis(2-Chloroethyl) ether	1	ND		333	
108-60-1	bis(2-Chloroisopropyl) ether	1	ND		333	
59-50-7	4-Chloro-3-methylphenol (p-Chloro-m-cresol)	1	ND		333	
91-58-7	2-Chloronaphthalene	1	ND		333	
95-57-8	2-Chlorophenol (o-Chlorophenol)	1	ND		333	
7005-72-3	4-Chlorophenyl phenyl ether	1	ND		333	
218-01-9	Chrysene	1	ND		333	
53-70-3	Dibenz(a,h)anthracene	1	ND		333	
132-64-9	Dibenzofuran	1	ND		333	
84-74-2	Di-n-butylphthalate	1	ND		333	
95-50-1	1,2-Dichlorobenzene (o-Dichlorobenzene)	1	ND		333	
541-73-1	1,3-Dichlorobenzene (m-Dichlorobenzene)	1	ND		333	
106-46-7	1,4-Dichlorobenzene (p-Dichlorobenzene)	1	ND		333	
91-94-1	3,3'-Dichlorobenzidine	1	ND		667	
120-83-2	2,4-Dichlorophenol	1	ND		333	
84-66-2	Diethylphthalate	1	ND		333	
105-67-9	2,4-Dimethylphenol	1	ND		333	
131-11-3	Dimethylphthalate	1	ND		333	
534-52-1	4,6-Dinitro-2-methylphenol (4,6-Dinitro-o-cresol)	1	ND		833	
51-28-5	2,4-Dinitrophenol	1	ND		833	

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:24:17

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID: BACKGROUND(IEBS-22-HS)
Client: DAMES & MOORE
Project: 1 HNC-PHASE III
Site: None
Lab ID: TTZ-013
Episode: TTZ
Sample Qu:
Description: None
Matrix: Soil
% Moisture: wet
Method: SW 8270 Semivolatile Organics
Prep Level: Soil
Batch: 31726
Units: ug/kg
Target List: 8270LOW
Prep Factor: 1.00
Leached: n/a
Prepared: 16-Sep-99
Analyzed: 17-Sep-99 16:38 ML

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
121-14-2	2,4-Dinitrotoluene	1	ND		333	
606-20-2	2,6-Dinitrotoluene	1	ND		333	
117-84-0	Di-n-octylphthalate	1	ND		333	
117-81-7	bis(2-Ethylhexyl)phthalate	1	ND		333	
206-44-0	Fluoranthene	1	ND		333	
86-73-7	Fluorene	1	ND		333	
118-74-1	Hexachlorobenzene	1	ND		333	
87-68-3	Hexachlorobutadiene	1	ND		333	
77-47-4	Hexachlorocyclopentadiene	1	ND		333	
67-72-1	Hexachloroethane	1	ND		333	
193-39-5	Indeno(1,2,3-cd)pyrene	1	ND		333	
78-59-1	Isophorone	1	ND		333	
91-57-6	2-Methylnaphthalene	1	ND		333	
95-48-7	2-Methylphenol (o-Cresol)	1	ND		333	
106-44-5	4-Methylphenol (p-Cresol)	1	ND		333	
91-20-3	Naphthalene	1	ND		333	
88-74-4	2-Nitroaniline (o-Nitroaniline)	1	ND		833	
99-09-2	3-Nitroaniline (m-Nitroaniline)	1	ND		833	
100-01-6	4-Nitroaniline (p-Nitroaniline)	1	ND		833	
98-95-3	Nitrobenzene	1	ND		333	
88-75-5	2-Nitrophenol (o-Nitrophenol)	1	ND		333	
100-02-7	4-Nitrophenol (p-Nitrophenol)	1	ND		833	
86-30-6	N-Nitrosodiphenylamine (Diphenylamine)	1	ND	A10	333	
621-64-7	N-Nitroso-di-n-propylamine	1	ND		333	
87-86-5	Pentachlorophenol	1	ND		833	
85-01-8	Phenanthrene	1	ND		333	
108-95-2	Phenol	1	ND		333	
129-00-0	Pyrene	1	ND		333	
120-82-1	1,2,4-Trichlorobenzene	1	ND		333	
95-95-4	2,4,5-Trichlorophenol	1	ND		833	
88-06-2	2,4,6-Trichlorophenol	1	ND		333	

65 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:24:17

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID:	IEBS22 HS QA	**Client:**	DAMES & MOORE
Project:	1 HNC-PHASE III	**Site:**	None
Lab ID:	TTZ-014	**Episode:**	TTZ
Description:	None	**Matrix:**	Soil
Method:	SW 8260 Volatile Organics	**Prep Level:**	Soil
		Units:	ug/kg
Prep Factor:	1.00	**Leached:**	n/a
		Prepared:	

Sample Qu:
% Moisture: wet
Batch: 31677
Target List: 8260LOW
Analyzed: 15-Sep-99 19:55 KC

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
67-64-1	Acetone (2-Propanone, Dimethyl ketone)	1	13.5	A11	10.0	
71-43-2	Benzene	1	ND		5.00	
75-27-4	Bromodichloromethane	1	ND		5.00	
75-25-2	Bromoform	1	ND		5.00	
74-83-9	Bromomethane (Methyl bromide)	1	ND		10.0	
78-93-3	2-Butanone (Methyl ethyl ketone)	1	ND		10.0	
75-15-0	Carbon disulfide	1	ND		5.00	
56-23-5	Carbon tetrachloride	1	ND		5.00	
108-90-7	Chlorobenzene	1	ND		5.00	
75-00-3	Chloroethane	1	ND		10.0	
67-66-3	Chloroform	1	ND		5.00	
74-87-3	Chloromethane (Methyl chloride)	1	ND		10.0	
124-48-1	Dibromochloromethane	1	ND		5.00	
75-34-3	1,1-Dichloroethane	1	ND		5.00	
107-06-2	1,2-Dichloroethane (Ethylene dichloride)	1	ND		5.00	
75-35-4	1,1-Dichloroethene (Dichloroethylene)	1	ND		5.00	
540-59-0	1,2-Dichloroethene (total)	1	ND		5.00	
78-87-5	1,2-Dichloropropane	1	ND		5.00	
10061-01-5	cis-1,3-Dichloropropene	1	ND		5.00	
10061-02-6	trans-1,3-Dichloropropene	1	ND		5.00	
100-41-4	Ethylbenzene	1	ND		5.00	
591-78-6	2-Hexanone	1	ND		10.0	
75-09-2	Methylene chloride (Dichloromethane)	1	ND		5.00	
108-10-1	4-Methyl-2-pentanone (MIBK)	1	ND		10.0	
100-42-5	Styrene	1	ND		5.00	
79-34-5	1,1,2,2-Tetrachloroethane	1	ND		5.00	
127-18-4	Tetrachloroethene (Perchloroethylene)	1	ND		5.00	
108-88-3	Toluene	1	ND		5.00	
71-55-6	1,1,1-Trichloroethane (Methyl chloroform)	1	ND		5.00	
79-00-5	1,1,2-Trichloroethane	1	ND		5.00	
79-01-6	Trichloroethene (Trichloroethylene)	1	ND		5.00	
75-01-4	Vinyl chloride (Chloroethene)	1	ND		10.0	
1330-20-7	Xylene (total)	1	ND		5.00	

33 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:24:17

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID: IEBS22 HS QA
Project: 1 HNC-PHASE III
Lab ID: TTZ-014
Description: None
Method: SW 8270 Semivolatile Organics

Client: DAMES & MOORE
Site: None
Episode: TTZ
Matrix: Soil
Prep Level: Soil
Units: ug/kg
Prepared: 16-Sep-99

Sample Qu:
% Moisture: wet
Batch: 31726
Target List: 8270LOW
Analyzed: 21-Sep-99 17:00 JA

Prep Factor: 1.00
Leached: n/a

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
83-32-9	Acenaphthene	1	ND		333	
208-96-8	Acenaphthylene	1	ND		333	
120-12-7	Anthracene	1	ND		333	
56-55-3	Benzo(a)anthracene	1	ND		333	
205-99-2	Benzo(b)fluoranthene	1	ND		333	
207-08-09	Benzo(k)fluoranthene	1	ND		333	
65-85-0	Benzoic acid	1	ND		833	
191-24-2	Benzo(g,h,i)perylene	1	ND		333	
50-32-8	Benzo(a)pyrene	1	ND		333	
100-51-6	Benzyl alcohol	1	ND		333	
101-55-3	4-Bromophenyl phenyl ether	1	ND		333	
85-68-7	Butylbenzylphthalate	1	ND		333	
106-47-8	4-Chloroaniline (p-Chloroaniline)	1	ND		333	
111-91-1	bis(2-Chloroethoxy)methane	1	ND		333	
111-44-4	bis(2-Chloroethyl) ether	1	ND		333	
108-60-1	bis(2-Chloroisopropyl) ether	1	ND		333	
59-50-7	4-Chloro-3-methylphenol (p-Chloro-m-cresol)	1	ND		333	
91-58-7	2-Chloronaphthalene	1	ND		333	
95-57-8	2-Chlorophenol (o-Chlorophenol)	1	ND		333	
7005-72-3	4-Chlorophenyl phenyl ether	1	ND		333	
218-01-9	Chrysene	1	ND		333	
53-70-3	Dibenz(a,h)anthracene	1	ND		333	
132-64-9	Dibenzofuran	1	ND		333	
84-74-2	Di-n-butylphthalate	1	ND		333	
95-50-1	1,2-Dichlorobenzene (o-Dichlorobenzene)	1	ND		333	
541-73-1	1,3-Dichlorobenzene (m-Dichlorobenzene)	1	ND		333	
106-46-7	1,4-Dichlorobenzene (p-Dichlorobenzene)	1	ND		333	
91-94-1	3,3'-Dichlorobenzidine	1	ND		667	
120-83-2	2,4-Dichlorophenol	1	ND		333	
84-66-2	Diethylphthalate	1	ND		333	
105-67-9	2,4-Dimethylphenol	1	ND		333	
131-11-3	Dimethylphthalate	1	ND		333	
534-52-1	4,6-Dinitro-2-methylphenol (4,6-Dinitro-o-cresol)	1	ND		833	
51-28-5	2,4-Dinitrophenol	1	ND		833	

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:24:18

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID:	IEBS22 HS QA	**Client:**	DAMES & MOORE
Project:	1 HNC-PHASE III	**Site:**	None
Lab ID:	TTZ-014	**Episode:**	TTZ
Description:	None	**Matrix:**	Soil
Method:	SW 8270 Semivolatile Organics	**Prep Level:**	Soil
		Units:	ug/kg
Prep Factor:	1.00	**Leached:**	n/a
		Prepared:	16-Sep-99

Sample Qu:
% Moisture: wet
Batch: 31726
Target List: 8270LOW
Analyzed: 21-Sep-99 17:00 JA

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
121-14-2	2,4-Dinitrotoluene	1	ND		333	
606-20-2	2,6-Dinitrotoluene	1	ND		333	
117-84-0	Di-n-octylphthalate	1	ND		333	
117-81-7	bis(2-Ethylhexyl)phthalate	1	ND		333	
206-44-0	Fluoranthene	1	588		333	
86-73-7	Fluorene	1	ND		333	
118-74-1	Hexachlorobenzene	1	ND		333	
87-68-3	Hexachlorobutadiene	1	ND		333	
77-47-4	Hexachlorocyclopentadiene	1	ND		333	
67-72-1	Hexachloroethane	1	ND		333	
193-39-5	Indeno(1,2,3-cd)pyrene	1	ND		333	
78-59-1	Isophorone	1	ND		333	
91-57-6	2-Methylnaphthalene	1	ND		333	
95-48-7	2-Methylphenol (o-Cresol)	1	ND		333	
106-44-5	4-Methylphenol (p-Cresol)	1	ND		333	
91-20-3	Naphthalene	1	ND		333	
88-74-4	2-Nitroaniline (o-Nitroaniline)	1	ND		833	
99-09-2	3-Nitroaniline (m-Nitroaniline)	1	ND		833	
100-01-6	4-Nitroaniline (p-Nitroaniline)	1	ND		833	
98-95-3	Nitrobenzene	1	ND		333	
88-75-5	2-Nitrophenol (o-Nitrophenol)	1	ND		333	
100-02-7	4-Nitrophenol (p-Nitrophenol)	1	ND		833	
86-30-6	N-Nitrosodiphenylamine (Diphenylamine)	1	ND	A10	333	
621-64-7	N-Nitroso-di-n-propylamine	1	ND		333	
87-86-5	Pentachlorophenol	1	ND		833	
85-01-8	Phenanthrene	1	597		333	
108-95-2	Phenol	1	ND		333	
129-00-0	Pyrene	1	483		333	
120-82-1	1,2,4-Trichlorobenzene	1	ND		333	
95-95-4	2,4,5-Trichlorophenol	1	ND		833	
88-06-2	2,4,6-Trichlorophenol	1	ND		333	

65 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:24:18

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID: IEBS22 HS QC
Client: DAMES & MOORE
Project: 1 HNC-PHASE III
Site: None
Lab ID: TTZ-015
Episode: TTZ
Sample Qu:
Description: None
Matrix: Soil
% Moisture: wet
Method: SW 8260 Volatile Organics
Prep Level: Soil
Batch: 31677
Units: ug/kg
Target List: 8260LOW
Prep Factor: 1.00
Leached: n/a
Prepared:
Analyzed: 15-Sep-99 20:24 KC

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
67-64-1	Acetone (2-Propanone, Dimethyl ketone)	1	10.2	A11	10.0	
71-43-2	Benzene	1	ND		5.00	
75-27-4	Bromodichloromethane	1	ND		5.00	
75-25-2	Bromoform	1	ND		5.00	
74-83-9	Bromomethane (Methyl bromide)	1	ND		10.0	
78-93-3	2-Butanone (Methyl ethyl ketone)	1	ND		10.0	
75-15-0	Carbon disulfide	1	ND		5.00	
56-23-5	Carbon tetrachloride	1	ND		5.00	
108-90-7	Chlorobenzene	1	ND		5.00	
75-00-3	Chloroethane	1	ND		10.0	
67-66-3	Chloroform	1	ND		5.00	
74-87-3	Chloromethane (Methyl chloride)	1	ND		10.0	
124-48-1	Dibromochloromethane	1	ND		5.00	
75-34-3	1,1-Dichloroethane	1	ND		5.00	
107-06-2	1,2-Dichloroethane (Ethylene dichloride)	1	ND		5.00	
75-35-4	1,1-Dichloroethene (Dichloroethylene)	1	ND		5.00	
540-59-0	1,2-Dichloroethene (total)	1	ND		5.00	
78-87-5	1,2-Dichloropropane	1	ND		5.00	
10061-01-5	cis-1,3-Dichloropropene	1	ND		5.00	
10061-02-6	trans-1,3-Dichloropropene	1	ND		5.00	
100-41-4	Ethylbenzene	1	ND		5.00	
591-78-6	2-Hexanone	1	ND		10.0	
75-09-2	Methylene chloride (Dichloromethane)	1	ND		5.00	
108-10-1	4-Methyl-2-pentanone (MIBK)	1	ND		10.0	
100-42-5	Styrene	1	ND		5.00	
79-34-5	1,1,2,2-Tetrachloroethane	1	ND		5.00	
127-18-4	Tetrachloroethene (Perchloroethylene)	1	ND		5.00	
108-88-3	Toluene	1	ND		5.00	
71-55-6	1,1,1-Trichloroethane (Methyl chloroform)	1	ND		5.00	
79-00-5	1,1,2-Trichloroethane	1	ND		5.00	
79-01-6	Trichloroethene (Trichloroethylene)	1	ND		5.00	
75-01-4	Vinyl chloride (Chloroethene)	1	ND		10.0	
1330-20-7	Xylene (total)	1	ND		5.00	

33 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:24:18

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID:	IEBS22 HS QC	**Client:**	DAMES & MOORE
Project:	1 HNC-PHASE III	**Site:**	None
Lab ID:	TTZ-015	**Episode:**	TTZ
Description:	None	**Matrix:**	Soil
Method:	SW 8270 Semivolatile Organics	**Prep Level:**	Soil
		Units:	ug/kg
Prep Factor:	1.00	**Leached:**	n/a
		Prepared:	16-Sep-99

Sample Qu:
% Moisture: wet
Batch: 31726
Target List: 8270LOW
Analyzed: 17-Sep-99 15:03 JA

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
83-32-9	Acenaphthene	1	ND		333	
208-96-8	Acenaphthylene	1	ND		333	
120-12-7	Anthracene	1	ND		333	
56-55-3	Benzo(a)anthracene	1	ND		333	
205-99-2	Benzo(b)fluoranthene	1	ND		333	
207-08-09	Benzo(k)fluoranthene	1	ND		333	
65-85-0	Benzoic acid	1	ND		833	
191-24-2	Benzo(g,h,i)perylene	1	ND		333	
50-32-8	Benzo(a)pyrene	1	ND		333	
100-51-6	Benzyl alcohol	1	ND		333	
101-55-3	4-Bromophenyl phenyl ether	1	ND		333	
85-68-7	Butylbenzylphthalate	1	ND		333	
106-47-8	4-Chloroaniline (p-Chloroaniline)	1	ND		333	
111-91-1	bis(2-Chloroethoxy)methane	1	ND		333	
111-44-4	bis(2-Chloroethyl) ether	1	ND		333	
108-60-1	bis(2-Chloroisopropyl) ether	1	ND		333	
59-50-7	4-Chloro-3-methylphenol (p-Chloro-m-cresol)	1	ND		333	
91-58-7	2-Chloronaphthalene	1	ND		333	
95-57-8	2-Chlorophenol (o-Chlorophenol)	1	ND		333	
7005-72-3	4-Chlorophenyl phenyl ether	1	ND		333	
218-01-9	Chrysene	1	ND		333	
53-70-3	Dibenz(a,h)anthracene	1	ND		333	
132-64-9	Dibenzofuran	1	ND		333	
84-74-2	Di-n-butylphthalate	1	ND		333	
95-50-1	1,2-Dichlorobenzene (o-Dichlorobenzene)	1	ND		333	
541-73-1	1,3-Dichlorobenzene (m-Dichlorobenzene)	1	ND		333	
106-46-7	1,4-Dichlorobenzene (p-Dichlorobenzene)	1	ND		333	
91-94-1	3,3'-Dichlorobenzidine	1	ND		667	
120-83-2	2,4-Dichlorophenol	1	ND		333	
84-66-2	Diethylphthalate	1	ND		333	
105-67-9	2,4-Dimethylphenol	1	ND		333	
131-11-3	Dimethylphthalate	1	ND		333	
534-52-1	4,6-Dinitro-2-methylphenol (4,6-Dinitro-o-cresol)	1	ND		833	
51-28-5	2,4-Dinitrophenol	1	ND		833	

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:24:18

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID:	IEBS22 HS QC	**Client:**	DAMES & MOORE
Project:	1 HNC-PHASE III	**Site:**	None
Lab ID:	TTZ-015	**Episode:**	TTZ
Description:	None	**Matrix:**	Soil
Method:	SW 8270 Semivolatile Organics	**Prep Level:**	Soil
		Units:	ug/kg
Prep Factor:	1.00	**Leached:**	n/a
		Prepared:	16-Sep-99

Sample Qu:
% Moisture: wet
Batch: 31726
Target List: 8270LOW
Analyzed: 17-Sep-99 15:03 JA

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
121-14-2	2,4-Dinitrotoluene	1	ND		333	
606-20-2	2,6-Dinitrotoluene	1	ND		333	
117-84-0	Di-n-octylphthalate	1	ND		333	
117-81-7	bis(2-Ethylhexyl)phthalate	1	ND		333	
206-44-0	Fluoranthene	1	ND		333	
86-73-7	Fluorene	1	ND		333	
118-74-1	Hexachlorobenzene	1	ND		333	
87-68-3	Hexachlorobutadiene	1	ND		333	
77-47-4	Hexachlorocyclopentadiene	1	ND		333	
67-72-1	Hexachloroethane	1	ND		333	
193-39-5	Indeno(1,2,3-cd)pyrene	1	ND		333	
78-59-1	Isophorone	1	ND		333	
91-57-6	2-Methylnaphthalene	1	ND		333	
95-48-7	2-Methylphenol (o-Cresol)	1	ND		333	
106-44-5	4-Methylphenol (p-Cresol)	1	ND		333	
91-20-3	Naphthalene	1	ND		333	
88-74-4	2-Nitroaniline (o-Nitroaniline)	1	ND		833	
99-09-2	3-Nitroaniline (m-Nitroaniline)	1	ND		833	
100-01-6	4-Nitroaniline (p-Nitroaniline)	1	ND		833	
98-95-3	Nitrobenzene	1	ND		333	
88-75-5	2-Nitrophenol (o-Nitrophenol)	1	ND		333	
100-02-7	4-Nitrophenol (p-Nitrophenol)	1	ND		833	
86-30-6	N-Nitrosodiphenylamine (Diphenylamine)	1	ND	A10	333	
621-64-7	N-Nitroso-di-n-propylamine	1	ND		333	
87-86-5	Pentachlorophenol	1	ND		833	
85-01-8	Phenanthrene	1	ND		333	
108-95-2	Phenol	1	ND		333	
129-00-0	Pyrene	1	ND		333	
120-82-1	1,2,4-Trichlorobenzene	1	ND		333	
95-95-4	2,4,5-Trichlorophenol	1	ND		833	
88-06-2	2,4,6-Trichlorophenol	1	ND		333	

65 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:24:19

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID: IEBS22 HS MS		**Client:** DAMES & MOORE	
Project: 1 HNC-PHASE III		**Site:** None	
Lab ID: TTZ-016MS		**Episode:** TTZ	**Sample Qu:**
Description: MATRIX SPIKE		**Matrix:** Soil	**% Moisture:** wet
Method: SW 8260 Volatile Organics		**Prep Level:** Soil	**Batch:** 31677
		Units: ug/kg	**Target List:** 8260LOW
Prep Factor: 1.00	**Leached:** n/a	**Prepared:**	**Analyzed:** 15-Sep-99 21:22 KC

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
67-64-1	Acetone (2-Propanone, Dimethyl ketone)	1	76.8		10.0	
71-43-2	Benzene	1	46.6		5.00	
75-27-4	Bromodichloromethane	1	33.3		5.00	
75-25-2	Bromoform	1	24.8		5.00	
74-83-9	Bromomethane (Methyl bromide)	1	46.9		10.0	
78-93-3	2-Butanone (Methyl ethyl ketone)	1	49.0		10.0	
75-15-0	Carbon disulfide	1	35.4		5.00	
56-23-5	Carbon tetrachloride	1	35.2		5.00	
108-90-7	Chlorobenzene	1	40.9		5.00	
75-00-3	Chloroethane	1	54.6		10.0	
67-66-3	Chloroform	1	53.5		5.00	
74-87-3	Chloromethane (Methyl chloride)	1	50.9		10.0	
124-48-1	Dibromochloromethane	1	29.4		5.00	
75-34-3	1,1-Dichloroethane	1	46.8		5.00	
107-06-2	1,2-Dichloroethane (Ethylene dichloride)	1	44.0		5.00	
75-35-4	1,1-Dichloroethene (Dichloroethylene)	1	43.7		5.00	
540-59-0	1,2-Dichloroethene (total)	1	101		5.00	
78-87-5	1,2-Dichloropropane	1	44.1		5.00	
10061-01-5	cis-1,3-Dichloropropene	1	32.0		5.00	
10061-02-6	trans-1,3-Dichloropropene	1	31.3		5.00	
100-41-4	Ethylbenzene	1	37.5		5.00	
591-78-6	2-Hexanone	1	43.4		10.0	
75-09-2	Methylene chloride (Dichloromethane)	1	26.5		5.00	
108-10-1	4-Methyl-2-pentanone (MIBK)	1	50.8		10.0	
100-42-5	Styrene	1	36.9		5.00	
79-34-5	1,1,2,2-Tetrachloroethane	1	44.3		5.00	
127-18-4	Tetrachloroethene (Perchloroethylene)	1	36.5		5.00	
108-88-3	Toluene	1	42.7		5.00	
71-55-6	1,1,1-Trichloroethane (Methyl chloroform)	1	51.9		5.00	
79-00-5	1,1,2-Trichloroethane	1	40.4		5.00	
79-01-6	Trichloroethene (Trichloroethylene)	1	49.6		5.00	
75-01-4	Vinyl chloride (Chloroethene)	1	53.1		10.0	
1330-20-7	Xylene (total)	1	118		5.00	

33 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:24:19

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID: IEBS22 HS MS
Client: DAMES & MOORE
Project: 1 HNC-PHASE III
Site: None
Lab ID: TTZ-016MS
Episode: TTZ
Sample Qu:
Description: MATRIX SPIKE
Matrix: Soil
% Moisture: wet
Method: SW 8270 Semivolatile Organics
Prep Level: Soil
Batch: 31726
Units: ug/kg
Target List: 8270LOW
Prep Factor: 1.00
Leached: n/a
Prepared: 16-Sep-99
Analyzed: 17-Sep-99 15:05 ML

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
83-32-9	Acenaphthene	1	677		333	
208-96-8	Acenaphthylene	1	644		333	
120-12-7	Anthracene	1	784		333	
56-55-3	Benzo(a)anthracene	1	757		333	
205-99-2	Benzo(b)fluoranthene	1	913		333	
207-08-09	Benzo(k)fluoranthene	1	978		333	
65-85-0	Benzoic acid	1	ND		833	
191-24-2	Benzo(g,h,i)perylene	1	595		333	
50-32-8	Benzo(a)pyrene	1	950		333	
100-51-6	Benzyl alcohol	1	580		333	
101-55-3	4-Bromophenyl phenyl ether	1	611		333	
85-68-7	Butylbenzylphthalate	1	659		333	
106-47-8	4-Chloroaniline (p-Chloroaniline)	1	588		333	
111-91-1	bis(2-Chloroethoxy)methane	1	543		333	
111-44-4	bis(2-Chloroethyl) ether	1	448		333	
108-60-1	bis(2-Chloroisopropyl) ether	1	409		333	
59-50-7	4-Chloro-3-methylphenol (p-Chloro-m-cresol)	1	710		333	
91-58-7	2-Chloronaphthalene	1	564		333	
95-57-8	2-Chlorophenol (o-Chlorophenol)	1	633		333	
7005-72-3	4-Chlorophenyl phenyl ether	1	641		333	
218-01-9	Chrysene	1	786		333	
53-70-3	Dibenz(a,h)anthracene	1	622		333	
132-64-9	Dibenzofuran	1	663		333	
84-74-2	Di-n-butylphthalate	1	666		333	
95-50-1	1,2-Dichlorobenzene (o-Dichlorobenzene)	1	ND		333	
541-73-1	1,3-Dichlorobenzene (m-Dichlorobenzene)	1	ND		333	
106-46-7	1,4-Dichlorobenzene (p-Dichlorobenzene)	1	ND		333	
91-94-1	3,3'-Dichlorobenzidine	1	ND		667	
120-83-2	2,4-Dichlorophenol	1	634		333	
84-66-2	Diethylphthalate	1	658		333	
105-67-9	2,4-Dimethylphenol	1	691		333	
131-11-3	Dimethylphthalate	1	651		333	
534-52-1	4,6-Dinitro-2-methylphenol (4,6-Dinitro-o-cresol)	1	ND		833	
51-28-5	2,4-Dinitrophenol	1	ND		833	

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:24:19

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID: IEBS22 HS MS		Client: DAMES & MOORE	
Project: 1 HNC-PHASE III		Site: None	
Lab ID: TTZ-016MS		Episode: TTZ	Sample Qu:
Description: MATRIX SPIKE		Matrix: Soil	% Moisture: wet
Method: SW 8270 Semivolatile Organics		Prep Level: Soil	Batch: 31726
		Units: ug/kg	Target List: 8270LOW
Prep Factor: 1.00	Leached: n/a	Prepared: 16-Sep-99	Analyzed: 17-Sep-99 15:05 ML

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
121-14-2	2,4-Dinitrotoluene	1	670		333	
606-20-2	2,6-Dinitrotoluene	1	649		333	
117-84-0	Di-n-octylphthalate	1	944		333	
117-81-7	bis(2-Ethylhexyl)phthalate	1	768		333	
206-44-0	Fluoranthene	1	1200		333	
86-73-7	Fluorene	1	727		333	
118-74-1	Hexachlorobenzene	1	679		333	
87-68-3	Hexachlorobutadiene	1	446		333	
77-47-4	Hexachlorocyclopentadiene	1	ND		333	
67-72-1	Hexachloroethane	1	ND		333	
193-39-5	Indeno(1,2,3-cd)pyrene	1	639		333	
78-59-1	Isophorone	1	733		333	
91-57-6	2-Methylnaphthalene	1	608		333	
95-48-7	2-Methylphenol (o-Cresol)	1	619		333	
106-44-5	4-Methylphenol (p-Cresol)	1	616		333	
91-20-3	Naphthalene	1	535		333	
88-74-4	2-Nitroaniline (o-Nitroaniline)	1	ND		833	
99-09-2	3-Nitroaniline (m-Nitroaniline)	1	ND		833	
100-01-6	4-Nitroaniline (p-Nitroaniline)	1	ND		833	
98-95-3	Nitrobenzene	1	537		333	
88-75-5	2-Nitrophenol (o-Nitrophenol)	1	610		333	
100-02-7	4-Nitrophenol (p-Nitrophenol)	1	ND		833	
86-30-6	N-Nitrosodiphenylamine (Diphenylamine)	1	635	A10	333	
621-64-7	N-Nitroso-di-n-propylamine	1	552		333	
87-86-5	Pentachlorophenol	1	ND		833	
85-01-8	Phenanthrene	1	1030		333	
108-95-2	Phenol	1	744		333	
129-00-0	Pyrene	1	1020		333	
120-82-1	1,2,4-Trichlorobenzene	1	467		333	
95-95-4	2,4,5-Trichlorophenol	1	ND		833	
88-06-2	2,4,6-Trichlorophenol	1	493		333	

65 compound(s) reported

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Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
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Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID:	IEBS22 HS MSD	**Client:**	DAMES & MOORE
Project:	1 HNC-PHASE III	**Site:**	None
Lab ID:	TTZ-017MSD	**Episode:**	TTZ
Description:	MATRIX SPIKE DUPLICATE	**Matrix:**	Soil
Method:	SW 8260 Volatile Organics	**Prep Level:**	Soil
		Units:	ug/kg
Prep Factor:	1.00	**Leached:**	n/a
		Prepared:	

Sample Qu:
% Moisture: wet
Batch: 31677
Target List: 8260LOW
Analyzed: 15-Sep-99 21:52 KC

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
67-64-1	Acetone (2-Propanone, Dimethyl ketone)	1	92.6		10.0	
71-43-2	Benzene	1	47.0		5.00	
75-27-4	Bromodichloromethane	1	34.3		5.00	
75-25-2	Bromoform	1	27.6		5.00	
74-83-9	Bromomethane (Methyl bromide)	1	48.6		10.0	
78-93-3	2-Butanone (Methyl ethyl ketone)	1	55.3		10.0	
75-15-0	Carbon disulfide	1	37.0		5.00	
56-23-5	Carbon tetrachloride	1	35.3		5.00	
108-90-7	Chlorobenzene	1	40.9		5.00	
75-00-3	Chloroethane	1	56.3		10.0	
67-66-3	Chloroform	1	54.0		5.00	
74-87-3	Chloromethane (Methyl chloride)	1	52.2		10.0	
124-48-1	Dibromochloromethane	1	31.1		5.00	
75-34-3	1,1-Dichloroethane	1	45.8		5.00	
107-06-2	1,2-Dichloroethane (Ethylene dichloride)	1	46.2		5.00	
75-35-4	1,1-Dichloroethene (Dichloroethylene)	1	45.2		5.00	
540-59-0	1,2-Dichloroethene (total)	1	104		5.00	
78-87-5	1,2-Dichloropropane	1	43.6		5.00	
10061-01-5	cis-1,3-Dichloropropene	1	32.5		5.00	
10061-02-6	trans-1,3-Dichloropropene	1	32.3		5.00	
100-41-4	Ethylbenzene	1	38.7		5.00	
591-78-6	2-Hexanone	1	48.6		10.0	
75-09-2	Methylene chloride (Dichloromethane)	1	27.6		5.00	
108-10-1	4-Methyl-2-pentanone (MIBK)	1	57.5		10.0	
100-42-5	Styrene	1	40.2		5.00	
79-34-5	1,1,2,2-Tetrachloroethane	1	45.4		5.00	
127-18-4	Tetrachloroethene (Perchloroethylene)	1	35.3		5.00	
108-88-3	Toluene	1	41.3		5.00	
71-55-6	1,1,1-Trichloroethane (Methyl chloroform)	1	52.6		5.00	
79-00-5	1,1,2-Trichloroethane	1	41.1		5.00	
79-01-6	Trichloroethene (Trichloroethylene)	1	48.6		5.00	
75-01-4	Vinyl chloride (Chloroethene)	1	54.2		10.0	
1330-20-7	Xylene (total)	1	121		5.00	

33 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
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Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
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10/5/99 13:24:20

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID: IEBS22 HS MSD	Client: DAMES & MOORE		
Project: 1 HNC-PHASE III	Site: None		
Lab ID: TTZ-017MSD	Episode: TTZ	Sample Qu:	
Description: MATRIX SPIKE DUPLICATE	Matrix: Soil	% Moisture: wet	
Method: SW 8270 Semivolatile Organics	Prep Level: Soil	Batch: 31726	
	Units: ug/kg	Target List: 8270LOW	
Prep Factor: 1.00 Leached: n/a	Prepared: 16-Sep-99	Analyzed: 17-Sep-99 15:51 ML	

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
83-32-9	Acenaphthene	1	978		333	
208-96-8	Acenaphthylene	1	948		333	
120-12-7	Anthracene	1	1120		333	
56-55-3	Benzo(a)anthracene	1	1070		333	
205-99-2	Benzo(b)fluoranthene	1	1420		333	
207-08-09	Benzo(k)fluoranthene	1	1380		333	
65-85-0	Benzoic acid	1	ND		833	
191-24-2	Benzo(g,h,i)perylene	1	782		333	
50-32-8	Benzo(a)pyrene	1	1360		333	
100-51-6	Benzyl alcohol	1	909		333	
101-55-3	4-Bromophenyl phenyl ether	1	868		333	
85-68-7	Butylbenzylphthalate	1	971		333	
106-47-8	4-Chloroaniline (p-Chloroaniline)	1	789		333	
111-91-1	bis(2-Chloroethoxy)methane	1	818		333	
111-44-4	bis(2-Chloroethyl) ether	1	670		333	
108-60-1	bis(2-Chloroisopropyl) ether	1	605		333	
59-50-7	4-Chloro-3-methylphenol (p-Chloro-m-cresol)	1	1030		333	
91-58-7	2-Chloronaphthalene	1	840		333	
95-57-8	2-Chlorophenol (o-Chlorophenol)	1	917		333	
7005-72-3	4-Chlorophenyl phenyl ether	1	892		333	
218-01-9	Chrysene	1	1100		333	
53-70-3	Dibenz(a,h)anthracene	1	829		333	
132-64-9	Dibenzofuran	1	938		333	
84-74-2	Di-n-butylphthalate	1	933		333	
95-50-1	1,2-Dichlorobenzene (o-Dichlorobenzene)	1	ND		333	
541-73-1	1,3-Dichlorobenzene (m-Dichlorobenzene)	1	ND		333	
106-46-7	1,4-Dichlorobenzene (p-Dichlorobenzene)	1	ND		333	
91-94-1	3,3'-Dichlorobenzidine	1	898		667	
120-83-2	2,4-Dichlorophenol	1	907		333	
84-66-2	Diethylphthalate	1	924		333	
105-67-9	2,4-Dimethylphenol	1	985		333	
131-11-3	Dimethylphthalate	1	925		333	
534-52-1	4,6-Dinitro-2-methylphenol (4,6-Dinitro-o-cresol)	1	ND		833	
51-28-5	2,4-Dinitrophenol	1	ND		833	

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:24:20

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID: IEBS22 HS MSD
Client: DAMES & MOORE
Project: 1 HNC-PHASE III
Site: None
Lab ID: TTZ-017MSD
Episode: TTZ
Sample Qu:
Description: MATRIX SPIKE DUPLICATE
Matrix: Soil
% Moisture: wet
Method: SW 8270 Semivolatile Organics
Prep Level: Soil
Batch: 31726
Units: ug/kg
Target List: 8270LOW
Prep Factor: 1.00
Leached: n/a
Prepared: 16-Sep-99
Analyzed: 17-Sep-99 15:51 ML

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
121-14-2	2,4-Dinitrotoluene	1	968		333	
606-20-2	2,6-Dinitrotoluene	1	958		333	
117-84-0	Di-n-octylphthalate	1	1480		333	
117-81-7	bis(2-Ethylhexyl)phthalate	1	1050		333	
206-44-0	Fluoranthene	1	1620		333	
86-73-7	Fluorene	1	1020		333	
118-74-1	Hexachlorobenzene	1	929		333	
87-68-3	Hexachlorobutadiene	1	629		333	
77-47-4	Hexachlorocyclopentadiene	1	ND		333	
67-72-1	Hexachloroethane	1	ND		333	
193-39-5	Indeno(1,2,3-cd)pyrene	1	837		333	
78-59-1	Isophorone	1	1110		333	
91-57-6	2-Methylnaphthalene	1	879		333	
95-48-7	2-Methylphenol (o-Cresol)	1	894		333	
106-44-5	4-Methylphenol (p-Cresol)	1	892		333	
91-20-3	Naphthalene	1	778		333	
88-74-4	2-Nitroaniline (o-Nitroaniline)	1	1050		833	
99-09-2	3-Nitroaniline (m-Nitroaniline)	1	972		833	
100-01-6	4-Nitroaniline (p-Nitroaniline)	1	1070		833	
98-95-3	Nitrobenzene	1	799		333	
88-75-5	2-Nitrophenol (o-Nitrophenol)	1	931		333	
100-02-7	4-Nitrophenol (p-Nitrophenol)	1	921		833	
86-30-6	N-Nitrosodiphenylamine (Diphenylamine)	1	894	A10	333	
621-64-7	N-Nitroso-di-n-propylamine	1	805		333	
87-86-5	Pentachlorophenol	1	ND		833	
85-01-8	Phenanthrene	1	1430		333	
108-95-2	Phenol	1	1070		333	
129-00-0	Pyrene	1	1530		333	
120-82-1	1,2,4-Trichlorobenzene	1	670		333	
95-95-4	2,4,5-Trichlorophenol	1	ND		833	
88-06-2	2,4,6-Trichlorophenol	1	710		333	

65 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:24:20

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID:	IEBS12 BS	Client:	DAMES & MOORE
Project:	1 HNC-PHASE III	Site:	None
Lab ID:	TTZ-001	Episode:	TTZ
Description:	None	Matrix:	Soil
Method:	Louisiana TPH Diesel & Oil Range Organics (C10-C20 &C20-C28)	Prep Level:	Soil
		Units:	mg/kg
Prep Factor:	1.00	Leached:	n/a
		Prepared:	14-Sep-99

Sample Qu:
% Moisture: wet
Batch: 31686
Target List: TPHLALOW
Analyzed: 22-Sep-99 15:53 SRT

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
	TPH - Diesel Range Organics	1	9.29		6.50	

1 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:25:02

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID: IEBS12 BS		Client: DAMES & MOORE	
Project: 1 HNC-PHASE III		Site: None	
Lab ID: TTZ-001		Episode: TTZ	Sample Qu:
Description: None		Matrix: Soil	% Moisture: wet
Method: SW 8015B TPH Gasoline Range Organics (C6-C10)		Prep Level: Soil	Batch: 31710
		Units: ug/kg	Target List: TPHGPTMED
Prep Factor: 1.00	Leached: n/a	Prepared: 18-Sep-99	Analyzed: 18-Sep-99 11:26 KN

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
	TPH - Gasoline Range Organics	1	ND		5000	

1 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:25:02

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID:	IEBS18 BS	Client:	DAMES & MOORE
Project:	1 HNC-PHASE III	Site:	None
Lab ID:	TTZ-003	Episode:	TTZ
Description:	None	Matrix:	Soil
Method:	Louisiana TPH Diesel & Oil Range Organics (C10-C20 &C20-C28)	Prep Level:	Soil
		Units:	mg/kg
Prep Factor:	1.00	Leached:	n/a
		Prepared:	14-Sep-99

Sample Qu: D1
% Moisture: wet
Batch: 31686
Target List: TPHLALOW
Analyzed: 24-Sep-99 13:44 SRT

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
	TPH - Diesel Range Organics	10	704	D1	65.0	

1 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:25:02

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID: IEBS18 BS		Client: DAMES & MOORE	
Project: 1 HNC-PHASE III		Site: None	
Lab ID: TTZ-003		Episode: TTZ	Sample Qu:
Description: None		Matrix: Soil	% Moisture: wet
Method: SW 8015B TPH Gasoline Range Organics (C6-C10)		Prep Level: Soil	Batch: 31710
		Units: ug/kg	Target List: TPHGPTMED
Prep Factor: 1.00	Leached: n/a	Prepared: 18-Sep-99	Analyzed: 18-Sep-99 12:06 KN

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
	TPH - Gasoline Range Organics	1	ND		5000	

1 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:25:03

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID:	IEBS16 BS	**Client:**	DAMES & MOORE
Project:	1 HNC-PHASE III	**Site:**	None
Lab ID:	TTZ-004	**Episode:**	TTZ
Description:	None	**Matrix:**	Soil
Method:	Louisiana TPH Diesel & Oil Range Organics (C10-C20 &C20-C28)	**Prep Level:**	Soil
		Units:	mg/kg
Prep Factor:	1.00	**Leached:**	n/a
		Prepared:	14-Sep-99
		Sample Qu:	
		% Moisture:	wet
		Batch:	31686
		Target List:	TPHLALOW
		Analyzed:	22-Sep-99 15:26 SRT

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
	TPH - Diesel Range Organics	1	32.6		6.50	

1 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:25:03

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID: IEBS16 BS		Client: DAMES & MOORE	
Project: 1 HNC-PHASE III		Site: None	
Lab ID: TTZ-004		Episode: TTZ	Sample Qu:
Description: None		Matrix: Soil	% Moisture: wet
Method: SW 8015B TPH Gasoline Range Organics (C6-C10)		Prep Level: Soil	Batch: 31710
		Units: ug/kg	Target List: TPHGPTMED
Prep Factor: 1.00	Leached: n/a	Prepared: 18-Sep-99	Analyzed: 18-Sep-99 12:45 KN

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
	TPH - Gasoline Range Organics	1	ND		5000	

1 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:25:03

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID:	IEBS16 BS	**Client:**	DAMES & MOORE
Project:	1 HNC-PHASE III	**Site:**	None
Lab ID:	TTZ-004	**Episode:**	TTZ
Description:	None	**Matrix:**	Soil
Method:	SW 8080 Pesticides/PCBs	**Prep Level:**	Soil
		Units:	ug/kg
Prep Factor:	1.00	**Leached:**	n/a
		Prepared:	14-Sep-99

Sample Qu: D2
% Moisture: wet
Batch: 31674
Target List: 8080LOW
Analyzed: 22-Sep-99 16:56 ML

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
309-00-2	Aldrin	20	ND	D2	34.0	
319-84-6	alpha-BHC	20	ND	D2	34.0	
319-85-7	beta-BHC	20	ND	D2	34.0	
319-86-9	delta-BHC	20	ND	D2	34.0	
58-89-9	gamma-BHC (Lindane)	20	ND	D2	34.0	
57-74-9	Chlordane (technical)	20	ND	D2	334	
72-54-9	4,4'-DDD (p,p'-DDD)	20	ND	D2	66.0	
72-55-9	4,4'-DDE (p,p'-DDE)	20	153	N D2	66.0	
50-29-3	4,4'-DDT (p,p'-DDT)	20	ND	D2	66.0	
60-57-1	Dieldrin	20	ND	D2	66.0	
959-98-8	Endosulfan I (alpha-Endosulfan)	20	50.0	D2	34.0	
33213-65-9	Endosulfan II (beta-Endosulfan)	20	ND	D2	66.0	
1031-07-8	Endosulfan sulfate	20	ND	D2	66.0	
72-20-8	Endrin	20	ND	D2	66.0	
7421-36-3	Endrin aldehyde	20	ND	D2	66.0	
76-44-8	Heptachlor	20	ND	D2	34.0	
1024-57-3	Heptachlor epoxide	20	ND	D2	34.0	
72-43-5	Methoxychlor	20	ND	D2	334	
8001-35-2	Toxaphene	20	ND	D2	1600	
12674-11-2	Aroclor-1016	20	ND	D2	666	
11104-28-2	Aroclor-1221	20	ND	D2	666	
11141-16-5	Aroclor-1232	20	ND	D2	666	
53469-21-9	Aroclor-1242	20	ND	D2	666	
12672-29-6	Aroclor-1248	20	ND	D2	666	
11097-69-1	Aroclor-1254	20	4850	D2	666	
1109-82-5	Aroclor-1260	20	ND	D2	666	

26 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:25:03

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID:	IEBS17 BS	Client:	DAMES & MOORE
Project:	1 HNC-PHASE III	Site:	None
Lab ID:	TTZ-005	Episode:	TTZ
Description:	None	Matrix:	Soil
Method:	Louisiana TPH Diesel & Oil Range Organics (C10-C20 &C20-C28)	Prep Level:	Soil
		Units:	mg/kg
Prep Factor:	1.00	Leached:	n/a
		Prepared:	14-Sep-99

Sample Qu: D1
% Moisture: wet
Batch: 31686
Target List: TPHLALOW
Analyzed: 24-Sep-99 13:18 SRT

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
	TPH - Diesel Range Organics	10	275	D1	65.0	

1 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:25:03

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID:	IEBS17 BS	Client:	DAMES & MOORE
Project:	1 HNC-PHASE III	Site:	None
Lab ID:	TTZ-005	Episode:	TTZ
Description:	None	Matrix:	Soil
Method:	SW 8015B TPH Gasoline Range Organics (C6-C10)	Prep Level:	Soil
		Units:	ug/kg
Prep Factor:	1.00	Leached:	n/a
		Prepared:	18-Sep-99

Sample Qu:
% Moisture: wet
Batch: 31710
Target List: TPHGPTMED
Analyzed: 18-Sep-99 13:24 KN

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
	TPH - Gasoline Range Organics	1	ND		5000	

1 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:25:04

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID: IEBS20 HS		Client: DAMES & MOORE	
Project: 1 HNC-PHASE III		Site: None	
Lab ID: TTZ-006		Episode: TTZ	Sample Qu: D1
Description: None		Matrix: Soil	% Moisture: wet
Method: Louisiana TPH Diesel & Oil Range Organics (C10-C20 &C20-C28)		Prep Level: Soil	Batch: 31686
		Units: mg/kg	Target List: TPHLALOW
Prep Factor: 1.00	Leached: n/a	Prepared: 14-Sep-99	Analyzed: 22-Sep-99 19:49 SRT

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
	TPH - Diesel Range Organics	10	102	D1	65.0	

1 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:25:04

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID: IEBS20 HS		Client: DAMES & MOORE	
Project: 1 HNC-PHASE III		Site: None	
Lab ID: TTZ-006		Episode: TTZ	Sample Qu:
Description: None		Matrix: Soil	% Moisture: wet
Method: SW 8015B TPH Gasoline Range Organics (C6-C10)		Prep Level: Soil	Batch: 31710
		Units: ug/kg	Target List: TPHGPTMED
Prep Factor: 1.00	Leached: n/a	Prepared: 18-Sep-99	Analyzed: 18-Sep-99 14:03 KN

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
	TPH - Gasoline Range Organics	1	ND		5000	

1 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:25:04

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID: IEBS20 HS
Client: DAMES & MOORE
Project: 1 HNC-PHASE III
Site: None
Lab ID: TTZ-006
Episode: TTZ
Sample Qu: D2
Description: None
Matrix: Soil
% Moisture: wet
Method: SW 8080 Pesticides/PCBs
Prep Level: Soil
Batch: 31674
Units: ug/kg
Target List: 8080LOW
Prep Factor: 1.00
Leached: n/a
Prepared: 14-Sep-99
Analyzed: 22-Sep-99 17:28 ML

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
309-00-2	Aldrin	20	ND	D2	34.0	
319-84-6	alpha-BHC	20	ND	D2	34.0	
319-85-7	beta-BHC	20	ND	D2	34.0	
319-86-9	delta-BHC	20	ND	D2	34.0	
58-89-9	gamma-BHC (Lindane)	20	ND	D2	34.0	
57-74-9	Chlordane (technical)	20	ND	D2	334	
72-54-9	4,4'-DDD (p,p'-DDD)	20	ND	D2	66.0	
72-55-9	4,4'-DDE (p,p'-DDE)	20	ND	D2	66.0	
50-29-3	4,4'-DDT (p,p'-DDT)	20	ND	D2	66.0	
60-57-1	Dieldrin	20	ND	D2	66.0	
959-98-8	Endosulfan I (alpha-Endosulfan)	20	ND	D2	34.0	
33213-65-9	Endosulfan II (beta-Endosulfan)	20	ND	D2	66.0	
1031-07-8	Endosulfan sulfate	20	ND	D2	66.0	
72-20-8	Endrin	20	ND	D2	66.0	
7421-36-3	Endrin aldehyde	20	ND	D2	66.0	
76-44-8	Heptachlor	20	ND	D2	34.0	
1024-57-3	Heptachlor epoxide	20	ND	D2	34.0	
72-43-5	Methoxychlor	20	ND	D2	334	
8001-35-2	Toxaphene	20	ND	D2	1600	
12674-11-2	Aroclor-1016	20	ND	D2	666	
11104-28-2	Aroclor-1221	20	ND	D2	666	
11141-16-5	Aroclor-1232	20	ND	D2	666	
53469-21-9	Aroclor-1242	20	ND	D2	666	
12672-29-6	Aroclor-1248	20	ND	D2	666	
11097-69-1	Aroclor-1254	20	ND	D2	666	
1109-82-5	Aroclor-1260	20	ND	D2	666	

26 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:25:04

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID:	IEBS21 HS	Client:	DAMES & MOORE
Project:	1 HNC-PHASE III	Site:	None
Lab ID:	TTZ-007	Episode:	TTZ
Description:	None	Matrix:	Soil
Method:	Louisiana TPH Diesel & Oil Range Organics (C10-C20 &C20-C28)	Prep Level:	Soil
		Units:	mg/kg
Prep Factor:	1.00	Leached:	n/a
		Prepared:	14-Sep-99

Sample Qu: D1
% Moisture: wet
Batch: 31686
Target List: TPHLALOW
Analyzed: 24-Sep-99 12:52 SRT

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
	TPH - Diesel Range Organics	10	351	DI	65.0	

1 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:25:04

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID: IEBS21 HS		Client: DAMES & MOORE	
Project: 1 HNC-PHASE III		Site: None	
Lab ID: TTZ-007		Episode: TTZ	Sample Qu:
Description: None		Matrix: Soil	% Moisture: wet
Method: SW 8015B TPH Gasoline Range Organics (C6-C10)		Prep Level: Soil	Batch: 31710
		Units: ug/kg	Target List: TPHGPTMED
Prep Factor: 1.00	Leached: n/a	Prepared: 18-Sep-99	Analyzed: 18-Sep-99 14:42 KN

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
	TPH - Gasoline Range Organics	1	ND		5000	

1 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:25:05

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID:	IEBS21 HS	Client:	DAMES & MOORE
Project:	1 HNC-PHASE III	Site:	None
Lab ID:	TTZ-007	Episode:	TTZ
Description:	None	Matrix:	Soil
Method:	SW 8080 Pesticides/PCBs	Prep Level:	Soil
		Units:	ug/kg
Prep Factor:	1.00	Leached:	n/a
		Prepared:	14-Sep-99

Sample Qu: D2
% Moisture: wet
Batch: 31674
Target List: 8080LOW
Analyzed: 22-Sep-99 18:00 ML

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
309-00-2	Aldrin	20	ND	D2	34.0	
319-84-6	alpha-BHC	20	ND	D2	34.0	
319-85-7	beta-BHC	20	ND	D2	34.0	
319-86-9	delta-BHC	20	ND	D2	34.0	
58-89-9	gamma-BHC (Lindane)	20	ND	D2	34.0	
57-74-9	Chlordane (technical)	20	ND	D2	334	
72-54-9	4,4'-DDD (p,p'-DDD)	20	ND	D2	66.0	
72-55-9	4,4'-DDE (p,p'-DDE)	20	ND	D2	66.0	
50-29-3	4,4'-DDT (p,p'-DDT)	20	ND	D2	66.0	
60-57-1	Dieldrin	20	ND	D2	66.0	
959-98-8	Endosulfan I (alpha-Endosulfan)	20	ND	D2	34.0	
33213-65-9	Endosulfan II (beta-Endosulfan)	20	ND	D2	66.0	
1031-07-8	Endosulfan sulfate	20	ND	D2	66.0	
72-20-8	Endrin	20	ND	D2	66.0	
7421-36-3	Endrin aldehyde	20	ND	D2	66.0	
76-44-8	Heptachlor	20	ND	D2	34.0	
1024-57-3	Heptachlor epoxide	20	ND	D2	34.0	
72-43-5	Methoxychlor	20	ND	D2	334	
8001-35-2	Toxaphene	20	ND	D2	1600	
12674-11-2	Aroclor-1016	20	ND	D2	666	
11104-28-2	Aroclor-1221	20	ND	D2	666	
11141-16-5	Aroclor-1232	20	ND	D2	666	
53469-21-9	Aroclor-1242	20	ND	D2	666	
12672-29-6	Aroclor-1248	20	ND	D2	666	
11097-69-1	Aroclor-1254	20	ND	D2	666	
1109-82-5	Aroclor-1260	20	ND	D2	666	

26 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:25:05

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID: IEBS19 HS
Project: 1 HNC-PHASE III
Lab ID: TTZ-008
Description: None
Method: Louisiana TPH Diesel & Oil Range Organics (C10-C20 &C20-C28)
Prep Factor: 1.00 Leached: n/a

Client: DAMES & MOORE
Site: None
Episode: TTZ
Matrix: Soil
Prep Level: Soil
Units: mg/kg
Prepared: 14-Sep-99

Sample Qu: D1
% Moisture: wet
Batch: 31686
Target List: TPHLALOW
Analyzed: 22-Sep-99 20:15 SRT

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
	TPH - Diesel Range Organics	10	86.8	D1	65.0	

1 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:25:05

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID: IEBS19 HS		Client: DAMES & MOORE	
Project: 1 HNC-PHASE III		Site: None	
Lab ID: TTZ-008		Episode: TTZ	Sample Qu:
Description: None		Matrix: Soil	% Moisture: wet
Method: SW 8015B TPH Gasoline Range Organics (C6-C10)		Prep Level: Soil	Batch: 31710
		Units: ug/kg	Target List: TPHGPTMED
Prep Factor: 1.00	Leached: n/a	Prepared: 18-Sep-99	Analyzed: 18-Sep-99 15:22 KN

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
	TPH - Gasoline Range Organics	1	ND		5000	

1 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:25:05

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID:	IEBS11 BS	Client:	DAMES & MOORE
Project:	1 HNC-PHASE III	Site:	None
Lab ID:	TTZ-009	Episode:	TTZ
Description:	None	Matrix:	Soil
Method:	Louisiana TPH Diesel & Oil Range Organics (C10-C20 &C20-C28)	Prep Level:	Soil
		Units:	mg/kg
Prep Factor:	1.00	Leached:	n/a
		Prepared:	14-Sep-99

Sample Qu:
% Moisture: wet
Batch: 31686
Target List: TPHLALOW
Analyzed: 22-Sep-99 14:08 SRT

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
	TPH - Diesel Range Organics	1	ND		6.50	

1 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:25:06

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID: IEBS11 BS		Client: DAMES & MOORE	
Project: 1 HNC-PHASE III		Site: None	
Lab ID: TTZ-009		Episode: TTZ	Sample Qu:
Description: None		Matrix: Soil	% Moisture: wet
Method: SW 8015B TPH Gasoline Range Organics (C6-C10)		Prep Level: Soil	Batch: 31710
		Units: ug/kg	Target List: TPHGPTMED
Prep Factor: 1.00	Leached: n/a	Prepared: 18-Sep-99	Analyzed: 18-Sep-99 16:01 KN

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
	TPH - Gasoline Range Organics	1	ND		5000	

1 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:25:06

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID: IEBS11 BS
Client: DAMES & MOORE
Project: 1 HNC-PHASE III
Site: None
Lab ID: TTZ-009
Episode: TTZ
Sample Qu:
Description: None
Matrix: Soil
% Moisture: wet
Method: SW 8080 Pesticides/PCBs
Prep Level: Soil
Batch: 31674
Units: ug/kg
Target List: 8080LOW
Prep Factor: 1.00
Leached: n/a
Prepared: 14-Sep-99
Analyzed: 23-Sep-99 9:37 ML

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
309-00-2	Aldrin	1	ND		1.70	
319-84-6	alpha-BHC	1	ND		1.70	
319-85-7	beta-BHC	1	ND		1.70	
319-86-9	delta-BHC	1	ND		1.70	
58-89-9	gamma-BHC (Lindane)	1	ND		1.70	
57-74-9	Chlordane (technical)	1	ND		16.7	
72-54-9	4,4'-DDD (p,p'-DDD)	1	ND		3.30	
72-55-9	4,4'-DDE (p,p'-DDE)	1	ND		3.30	
50-29-3	4,4'-DDT (p,p'-DDT)	1	ND		3.30	
60-57-1	Dieldrin	1	ND		3.30	
959-98-8	Endosulfan I (alpha-Endosulfan)	1	ND		1.70	
33213-65-9	Endosulfan II (beta-Endosulfan)	1	ND		3.30	
1031-07-8	Endosulfan sulfate	1	ND		3.30	
72-20-8	Endrin	1	ND		3.30	
7421-36-3	Endrin aldehyde	1	ND		3.30	
76-44-8	Heptachlor	1	ND		1.70	
1024-57-3	Heptachlor epoxide	1	ND		1.70	
72-43-5	Methoxychlor	1	ND		16.7	
8001-35-2	Toxaphene	1	ND		80.0	
12674-11-2	Aroclor-1016	1	ND		33.3	
11104-28-2	Aroclor-1221	1	ND		33.3	
11141-16-5	Aroclor-1232	1	ND		33.3	
53469-21-9	Aroclor-1242	1	ND		33.3	
12672-29-6	Aroclor-1248	1	ND		33.3	
11097-69-1	Aroclor-1254	1	ND		33.3	
1109-82-5	Aroclor-1260	1	ND		33.3	

26 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:25:06

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID:	IEBS03 HS	Client:	DAMES & MOORE
Project:	1 HNC-PHASE III	Site:	None
Lab ID:	TTZ-010	Episode:	TTZ
Description:	None	Matrix:	Soil
Method:	Louisiana TPH Diesel & Oil Range Organics (C10-C20 &C20-C28)	Prep Level:	Soil
		Units:	mg/kg
Prep Factor:	1.00	Leached:	n/a
		Prepared:	14-Sep-99

Sample Qu:
% Moisture: wet
Batch: 31686
Target List: TPHLALOW
Analyzed: 22-Sep-99 15:00 SRT

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
	TPH - Diesel Range Organics	1	21.7		6.50	

1 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:25:06

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID:	IEBS03 HS	**Client:**	DAMES & MOORE
Project:	1 HNC-PHASE III	**Site:**	None
Lab ID:	TTZ-010	**Episode:**	TTZ
Description:	None	**Matrix:**	Soil
Method:	SW 8015B TPH Gasoline Range Organics (C6-C10)	**Prep Level:**	Soil
		Units:	ug/kg
Prep Factor:	1.00	**Leached:**	n/a
		Prepared:	18-Sep-99

Sample Qu:
% Moisture: wet
Batch: 31710
Target List: TPHGPTMED
Analyzed: 18-Sep-99 16:40 KN

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
	TPH - Gasoline Range Organics	1	ND		5000	

1 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:25:06

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID:	IEBS03 HS	**Client:**	DAMES & MOORE
Project:	1 HNC-PHASE III	**Site:**	None
Lab ID:	TTZ-010	**Episode:**	TTZ
Description:	None	**Matrix:**	Soil
Method:	SW 8080 Pesticides/PCBs	**Prep Level:**	Soil
		Units:	ug/kg
Prep Factor:	1.00	**Leached:**	n/a
		Prepared:	14-Sep-99

Sample Qu: D2
% Moisture: wet
Batch: 31674
Target List: 8080LOW
Analyzed: 22-Sep-99 21:48 ML

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
309-00-2	Aldrin	20	ND	D2	34.0	
319-84-6	alpha-BHC	20	ND	D2	34.0	
319-85-7	beta-BHC	20	ND	D2	34.0	
319-86-9	delta-BHC	20	ND	D2	34.0	
58-89-9	gamma-BHC (Lindane)	20	ND	D2	34.0	
57-74-9	Chlordane (technical)	20	ND	D2	334	
72-54-9	4,4'-DDD (p,p'-DDD)	20	ND	D2	66.0	
72-55-9	4,4'-DDE (p,p'-DDE)	20	ND	D2	66.0	
50-29-3	4,4'-DDT (p,p'-DDT)	20	ND	D2	66.0	
60-57-1	Dieldrin	20	ND	D2	66.0	
959-98-8	Endosulfan I (alpha-Endosulfan)	20	ND	D2	34.0	
33213-65-9	Endosulfan II (beta-Endosulfan)	20	ND	D2	66.0	
1031-07-8	Endosulfan sulfate	20	ND	D2	66.0	
72-20-8	Endrin	20	ND	D2	66.0	
7421-36-3	Endrin aldehyde	20	ND	D2	66.0	
76-44-8	Heptachlor	20	ND	D2	34.0	
1024-57-3	Heptachlor epoxide	20	ND	D2	34.0	
72-43-5	Methoxychlor	20	ND	D2	334	
8001-35-2	Toxaphene	20	ND	D2	1600	
12674-11-2	Aroclor-1016	20	ND	D2	666	
11104-28-2	Aroclor-1221	20	ND	D2	666	
11141-16-5	Aroclor-1232	20	ND	D2	666	
53469-21-9	Aroclor-1242	20	ND	D2	666	
12672-29-6	Aroclor-1248	20	ND	D2	666	
11097-69-1	Aroclor-1254	20	ND	D2	666	
1109-82-5	Aroclor-1260	20	ND	D2	666	

26 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:25:07

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID: IEBS01 HS
Client: DAMES & MOORE
Project: 1 HNC-PHASE III
Site: None
Lab ID: TTZ-011
Episode: TTZ
Sample Qu: P2
Description: None
Matrix: Soil
% Moisture: wet
Method: Louisiana TPH Diesel & Oil Range Organics (C10-C20 &C20-C28)
Prep Level: Soil
Batch: 31686
Units: mg/kg
Target List: TPHLALOW
Prep Factor: 5.00
Leached: n/a
Prepared: 14-Sep-99
Analyzed: 24-Sep-99 14:36 SRT

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
	TPH - Diesel Range Organics	5	ND		163	

1 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:25:07

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID:	IEBS01 HS	**Client:**	DAMES & MOORE
Project:	1 HNC-PHASE III	**Site:**	None
Lab ID:	TTZ-011	**Episode:**	TTZ
Description:	None	**Matrix:**	Soil
Method:	SW 8015B TPH Gasoline Range Organics (C6-C10)	**Prep Level:**	Soil
		Units:	ug/kg
Prep Factor:	1.00	**Leached:**	n/a
		Prepared:	18-Sep-99

Sample Qu:
% Moisture: wet
Batch: 31710
Target List: TPHGPTMED
Analyzed: 18-Sep-99 17:19 KN

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
	TPH - Gasoline Range Organics	1	ND		5000	

1 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:25:07

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID: IEBS01 HS
Client: DAMES & MOORE
Project: 1 HNC-PHASE III
Site: None
Lab ID: TTZ-011
Episode: TTZ
Sample Qu: D2
Description: None
Matrix: Soil
% Moisture: wet
Method: SW 8080 Pesticides/PCBs
Prep Level: Soil
Batch: 31674
Units: ug/kg
Target List: 8080LOW
Prep Factor: 1.00
Leached: n/a
Prepared: 14-Sep-99
Analyzed: 23-Sep-99 11:15 ML

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
309-00-2	Aldrin	20	ND	D2	34.0	
319-84-6	alpha-BHC	20	ND	D2	34.0	
319-85-7	beta-BHC	20	ND	D2	34.0	
319-86-9	delta-BHC	20	ND	D2	34.0	
58-89-9	gamma-BHC (Lindane)	20	ND	D2	34.0	
57-74-9	Chlordane (technical)	20	ND	D2	334	
72-54-9	4,4'-DDD (p,p'-DDD)	20	ND	D2	66.0	
72-55-9	4,4'-DDE (p,p'-DDE)	20	ND	D2	66.0	
50-29-3	4,4'-DDT (p,p'-DDT)	20	ND	D2	66.0	
60-57-1	Dieldrin	20	ND	D2	66.0	
959-98-8	Endosulfan I (alpha-Endosulfan)	20	ND	D2	34.0	
33213-65-9	Endosulfan II (beta-Endosulfan)	20	ND	D2	66.0	
1031-07-8	Endosulfan sulfate	20	ND	D2	66.0	
72-20-8	Endrin	20	ND	D2	66.0	
7421-36-3	Endrin aldehyde	20	ND	D2	66.0	
76-44-8	Heptachlor	20	ND	D2	34.0	
1024-57-3	Heptachlor epoxide	20	ND	D2	34.0	
72-43-5	Methoxychlor	20	ND	D2	334	
8001-35-2	Toxaphene	20	ND	D2	1600	
12674-11-2	Aroclor-1016	20	ND	D2	666	
11104-28-2	Aroclor-1221	20	ND	D2	666	
11141-16-5	Aroclor-1232	20	ND	D2	666	
53469-21-9	Aroclor-1242	20	ND	D2	666	
12672-29-6	Aroclor-1248	20	ND	D2	666	
11097-69-1	Aroclor-1254	20	ND	D2	666	
1109-82-5	Aroclor-1260	20	ND	D2	666	

26 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:25:07

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID: IEBS02 HS		Client: DAMES & MOORE	
Project: 1 HNC-PHASE III		Site: None	
Lab ID: TTZ-012		Episode: TTZ	Sample Qu:
Description: None		Matrix: Soil	% Moisture: wet
Method: SW 8080 Pesticides/PCBs		Prep Level: Soil	Batch: 31674
		Units: ug/kg	Target List: 8080LOW
Prep Factor: 1.00	Leached: n/a	Prepared: 14-Sep-99	Analyzed: 22-Sep-99 22:20 ML

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
309-00-2	Aldrin	20	ND	D2	34.0	
319-84-6	alpha-BHC	20	ND	D2	34.0	
319-85-7	beta-BHC	20	ND	D2	34.0	
319-86-9	delta-BHC	20	ND	D2	34.0	
58-89-9	gamma-BHC (Lindane)	20	ND	D2	34.0	
57-74-9	Chlordane (technical)	20	ND	D2	334	
72-54-9	4,4'-DDD (p,p'-DDD)	20	ND	D2	66.0	
72-55-9	4,4'-DDE (p,p'-DDE)	20	ND	D2	66.0	
50-29-3	4,4'-DDT (p,p'-DDT)	20	ND	D2	66.0	
60-57-1	Dieldrin	20	ND	D2	66.0	
959-98-8	Endosulfan I (alpha-Endosulfan)	20	ND	D2	34.0	
33213-65-9	Endosulfan II (beta-Endosulfan)	20	ND	D2	66.0	
1031-07-8	Endosulfan sulfate	20	ND	D2	66.0	
72-20-8	Endrin	20	ND	D2	66.0	
7421-36-3	Endrin aldehyde	20	ND	D2	66.0	
76-44-8	Heptachlor	20	ND	D2	34.0	
1024-57-3	Heptachlor epoxide	20	ND	D2	34.0	
72-43-5	Methoxychlor	20	ND	D2	334	
8001-35-2	Toxaphene	20	ND	D2	1600	
12674-11-2	Aroclor-1016	20	ND	D2	666	
11104-28-2	Aroclor-1221	20	ND	D2	666	
11141-16-5	Aroclor-1232	20	ND	D2	666	
53469-21-9	Aroclor-1242	20	ND	D2	666	
12672-29-6	Aroclor-1248	20	ND	D2	666	
11097-69-1	Aroclor-1254	20	ND	D2	666	
1109-82-5	Aroclor-1260	20	ND	D2	666	

26 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:25:08

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID:	BACKGROUND(IEBS-22-HS)	Client:	DAMES & MOORE
Project:	1 HNC-PHASE III	Site:	None
Lab ID:	TTZ-013	Episode:	TTZ
Description:	None	Matrix:	Soil
Method:	Louisiana TPH Diesel & Oil Range Organics (C10-C20 &C20-C28)	Prep Level:	Soil
		Units:	mg/kg
Prep Factor:	1.00	Leached:	n/a
		Prepared:	14-Sep-99

Sample Qu:
% Moisture: wet
Batch: 31686
Target List: TPHLALOW
Analyzed: 22-Sep-99 20:42 SRT

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
	TPH - Diesel Range Organics	1	85.0		6.50	

1 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:25:08

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID:	BACKGROUND(IEBS-22-HS)	Client:	DAMES & MOORE
Project:	1 HNC-PHASE III	Site:	None
Lab ID:	TTZ-013	Episode:	TTZ
Description:	None	Matrix:	Soil
Method:	SW 8015B TPH Gasoline Range Organics (C6-C10)	Prep Level:	Soil
		Units:	ug/kg
Prep Factor:	1.00	Leached:	n/a
		Prepared:	18-Sep-99

Sample Qu:
% Moisture: wet
Batch: 31710
Target List: TPHGPTMED
Analyzed: 18-Sep-99 18:38 KN

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
	TPH - Gasoline Range Organics	1	ND		5000	

1 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:25:08

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID: BACKGROUND(IEBS-22-HS)
Client: DAMES & MOORE
Project: 1 HNC-PHASE III
Site: None
Lab ID: TTZ-013
Episode: TTZ
Sample Qu:
Description: None
Matrix: Soil
% Moisture: wet
Method: SW 8080 Pesticides/PCBs
Prep Level: Soil
Batch: 31674
Units: ug/kg
Target List: 8080LOW
Prep Factor: 1.00
Leached: n/a
Prepared: 14-Sep-99
Analyzed: 23-Sep-99 9:04 ML

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
309-00-2	Aldrin	1	ND		1.70	
319-84-6	alpha-BHC	1	ND		1.70	
319-85-7	beta-BHC	1	ND		1.70	
319-86-9	delta-BHC	1	ND		1.70	
58-89-9	gamma-BHC (Lindane)	1	ND		1.70	
57-74-9	Chlordane (technical)	1	ND		16.7	
72-54-9	4,4'-DDD (p,p'-DDD)	1	ND		3.30	
72-55-9	4,4'-DDE (p,p'-DDE)	1	3.44	N	3.30	
50-29-3	4,4'-DDT (p,p'-DDT)	1	ND		3.30	
60-57-1	Dieldrin	1	ND		3.30	
959-98-8	Endosulfan I (alpha-Endosulfan)	1	ND		1.70	
33213-65-9	Endosulfan II (beta-Endosulfan)	1	ND		3.30	
1031-07-8	Endosulfan sulfate	1	ND		3.30	
72-20-8	Endrin	1	ND		3.30	
7421-36-3	Endrin aldehyde	1	ND		3.30	
76-44-8	Heptachlor	1	ND		1.70	
1024-57-3	Heptachlor epoxide	1	ND		1.70	
72-43-5	Methoxychlor	1	ND		16.7	
8001-35-2	Toxaphene	1	ND		80.0	
12674-11-2	Aroclor-1016	1	ND		33.3	
11104-28-2	Aroclor-1221	1	ND		33.3	
11141-16-5	Aroclor-1232	1	ND		33.3	
53469-21-9	Aroclor-1242	1	ND		33.3	
12672-29-6	Aroclor-1248	1	ND		33.3	
11097-69-1	Aroclor-1254	1	105		33.3	
1109-82-5	Aroclor-1260	1	ND		33.3	

26 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID:	IEBS22 HS QA	Client:	DAMES & MOORE
Project:	1 HNC-PHASE III	Site:	None
Lab ID:	TTZ-014	Episode:	TTZ
Description:	None	Matrix:	Soil
Method:	Louisiana TPH Diesel & Oil Range Organics (C10-C20 &C20-C28)	Prep Level:	Soil
		Units:	mg/kg
Prep Factor:	1.00	Leached:	n/a
		Prepared:	14-Sep-99

Sample Qu:
% Moisture: wet
Batch: 31686
Target List: TPHLALOW
Analyzed: 22-Sep-99 19:23 SRT

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
	TPH - Diesel Range Organics	1	101		6.50	

1 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:25:09

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID: IEBS22 HS QA		Client: DAMES & MOORE	
Project: 1 HNC-PHASE III		Site: None	
Lab ID: TTZ-014		Episode: TTZ	Sample Qu:
Description: None		Matrix: Soil	% Moisture: wet
Method: SW 8015B TPH Gasoline Range Organics (C6-C10)		Prep Level: Soil	Batch: 31710
		Units: ug/kg	Target List: TPHGPTMED
Prep Factor: 1.00	Leached: n/a	Prepared: 18-Sep-99	Analyzed: 18-Sep-99 19:18 KN

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
	TPH - Gasoline Range Organics	1	ND		5000	

1 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:25:09

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID:	IEBS22 HS QA	Client:	DAMES & MOORE
Project:	1 HNC-PHASE III	Site:	None
Lab ID:	TTZ-014	Episode:	TTZ
Description:	None	Matrix:	Soil
Method:	SW 8080 Pesticides/PCBs	Prep Level:	Soil
		Units:	ug/kg
Prep Factor:	1.00	Leached:	n/a
		Prepared:	14-Sep-99

Sample Qu:
% Moisture: wet
Batch: 31674
Target List: 8080LOW
Analyzed: 23-Sep-99 10:09 ML

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
309-00-2	Aldrin	1	ND		1.70	
319-84-6	alpha-BHC	1	ND		1.70	
319-85-7	beta-BHC	1	ND		1.70	
319-86-9	delta-BHC	1	ND		1.70	
58-89-9	gamma-BHC (Lindane)	1	ND		1.70	
57-74-9	Chlordane (technical)	1	ND		16.7	
72-54-9	4,4'-DDD (p,p'-DDD)	1	ND		3.30	
72-55-9	4,4'-DDE (p,p'-DDE)	1	ND		3.30	
50-29-3	4,4'-DDT (p,p'-DDT)	1	ND		3.30	
60-57-1	Dieldrin	1	ND		3.30	
959-98-8	Endosulfan I (alpha-Endosulfan)	1	ND		1.70	
33213-65-9	Endosulfan II (beta-Endosulfan)	1	ND		3.30	
1031-07-8	Endosulfan sulfate	1	ND		3.30	
72-20-8	Endrin	1	ND		3.30	
7421-36-3	Endrin aldehyde	1	ND		3.30	
76-44-8	Heptachlor	1	ND		1.70	
1024-57-3	Heptachlor epoxide	1	ND		1.70	
72-43-5	Methoxychlor	1	ND		16.7	
8001-35-2	Toxaphene	1	ND		80.0	
12674-11-2	Aroclor-1016	1	ND		33.3	
11104-28-2	Aroclor-1221	1	ND		33.3	
11141-16-5	Aroclor-1232	1	ND		33.3	
53469-21-9	Aroclor-1242	1	ND		33.3	
12672-29-6	Aroclor-1248	1	ND		33.3	
11097-69-1	Aroclor-1254	1	75.2		33.3	
1109-82-5	Aroclor-1260	1	ND		33.3	

26 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:25:09

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID: IEBS22 HS QC
Client: DAMES & MOORE
Project: 1 HNC-PHASE III
Site: None
Lab ID: TTZ-015
Episode: TTZ
Sample Qu:
Description: None
Matrix: Soil
% Moisture: wet
Method: Louisiana TPH Diesel & Oil Range Organics (C10-C20 &C20-C28)
Prep Level: Soil
Batch: 31686
Units: mg/kg
Target List: TPHLALOW
Prep Factor: 1.00
Leached: n/a
Prepared: 14-Sep-99
Analyzed: 22-Sep-99 18:30 SRT

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
	TPH - Diesel Range Organics	1	86.3		6.50	

1 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:25:09

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID:	IEBS22 HS QC	Client:	DAMES & MOORE
Project:	1 HNC-PHASE III	Site:	None
Lab ID:	TTZ-015	Episode:	TTZ
Description:	None	Matrix:	Soil
Method:	SW 8015B TPH Gasoline Range Organics (C6-C10)	Prep Level:	Soil
		Units:	ug/kg
Prep Factor:	1.00	Leached:	n/a
		Prepared:	18-Sep-99

Sample Qu:
% Moisture: wet
Batch: 31710
Target List: TPHGPTMED
Analyzed: 18-Sep-99 19:57 KN

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
	TPH - Gasoline Range Organics	1	ND		5000	

1 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:25:09

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID: IEBS22 HS QC
Client: DAMES & MOORE
Project: 1 HNC-PHASE III
Site: None
Lab ID: TTZ-015
Episode: TTZ
Sample Qu:
Description: None
Matrix: Soil
% Moisture: wet
Method: SW 8080 Pesticides/PCBs
Prep Level: Soil
Batch: 31674
Units: ug/kg
Target List: 8080LOW
Prep Factor: 1.00
Leached: n/a
Prepared: 14-Sep-99
Analyzed: 23-Sep-99 10:42 ML

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
309-00-2	Aldrin	1	ND		1.70	
319-84-6	alpha-BHC	1	ND		1.70	
319-85-7	beta-BHC	1	ND		1.70	
319-86-9	delta-BHC	1	ND		1.70	
58-89-9	gamma-BHC (Lindane)	1	ND		1.70	
57-74-9	Chlordane (technical)	1	ND		16.7	
72-54-9	4,4'-DDD (p,p'-DDD)	1	ND		3.30	
72-55-9	4,4'-DDE (p,p'-DDE)	1	ND		3.30	
50-29-3	4,4'-DDT (p,p'-DDT)	1	ND		3.30	
60-57-1	Dieldrin	1	ND		3.30	
959-98-8	Endosulfan I (alpha-Endosulfan)	1	ND		1.70	
33213-65-9	Endosulfan II (beta-Endosulfan)	1	ND		3.30	
1031-07-8	Endosulfan sulfate	1	ND		3.30	
72-20-8	Endrin	1	ND		3.30	
7421-36-3	Endrin aldehyde	1	ND		3.30	
76-44-8	Heptachlor	1	ND		1.70	
1024-57-3	Heptachlor epoxide	1	ND		1.70	
72-43-5	Methoxychlor	1	ND		16.7	
8001-35-2	Toxaphene	1	ND		80.0	
12674-11-2	Aroclor-1016	1	ND		33.3	
11104-28-2	Aroclor-1221	1	ND		33.3	
11141-16-5	Aroclor-1232	1	ND		33.3	
53469-21-9	Aroclor-1242	1	ND		33.3	
12672-29-6	Aroclor-1248	1	ND		33.3	
11097-69-1	Aroclor-1254	1	64.1		33.3	
1109-82-5	Aroclor-1260	1	ND		33.3	

26 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:25:10

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID:	IEBS22 HS MS	Client:	DAMES & MOORE
Project:	1 HNC-PHASE III	Site:	None
Lab ID:	TTZ-016MS	Episode:	TTZ
Description:	MATRIX SPIKE	Matrix:	Soil
Method:	Louisiana TPH Diesel & Oil Range Organics (C10-C20 &C20-C28)	Prep Level:	Soil
		Units:	mg/kg
Prep Factor:	1.00	Leached:	n/a
		Prepared:	14-Sep-99

Sample Qu:

% Moisture: wet

Batch: 31686

Target List: TPHLALOW

Analyzed: 22-Sep-99 21:08 SRT

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
	TPH - Diesel Range Organics	1	124		6.50	

1 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:25:10

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID: IEBS22 HS MS		Client: DAMES & MOORE	
Project: 1 HNC-PHASE III		Site: None	
Lab ID: TTZ-016MS		Episode: TTZ	Sample Qu:
Description: MATRIX SPIKE		Matrix: Soil	% Moisture: wet
Method: SW 8015B TPH Gasoline Range Organics (C6-C10)		Prep Level: Soil	Batch: 31710
		Units: ug/kg	Target List: TPHGPTMED
Prep Factor: 1.00	Leached: n/a	Prepared: 18-Sep-99	Analyzed: 18-Sep-99 20:55 KN

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
	TPH - Gasoline Range Organics	1	47200		5000	

1 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:25:10

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID: IEBS22 HS MS		Client: DAMES & MOORE	
Project: 1 HNC-PHASE III		Site: None	
Lab ID: TTZ-016MS		Episode: TTZ	Sample Qu:
Description: MATRIX SPIKE		Matrix: Soil	% Moisture: wet
Method: SW 8080 Pesticides/PCBs		Prep Level: Soil	Batch: 31674
		Units: ug/kg	Target List: 8080LOW
Prep Factor: 1.00	Leached: n/a	Prepared: 14-Sep-99	Analyzed: 22-Sep-99 12:32 ML

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
309-00-2	Aldrin	1	16.3		1.70	
319-84-6	alpha-BHC	1	14.1		1.70	
319-85-7	beta-BHC	1	17.9		1.70	
319-86-9	delta-BHC	1	18.3		1.70	
58-89-9	gamma-BHC (Lindane)	1	14.8		1.70	
57-74-9	Chlordane (technical)	1	ND		16.7	
72-54-9	4,4'-DDD (p,p'-DDD)	1	15.7		3.30	
72-55-9	4,4'-DDE (p,p'-DDE)	1	27.3		3.30	
50-29-3	4,4'-DDT (p,p'-DDT)	1	15.6		3.30	
60-57-1	Dieldrin	1	15.9		3.30	
959-98-8	Endosulfan I (alpha-Endosulfan)	1	ND		1.70	
33213-65-9	Endosulfan II (beta-Endosulfan)	1	ND		3.30	
1031-07-8	Endosulfan sulfate	1	15.2		3.30	
72-20-8	Endrin	1	17.4		3.30	
7421-36-3	Endrin aldehyde	1	12.3		3.30	
76-44-8	Heptachlor	1	15.0		1.70	
1024-57-3	Heptachlor epoxide	1	16.6		1.70	
72-43-5	Methoxychlor	1	17.8		16.7	
8001-35-2	Toxaphene	1	ND		80.0	
12674-11-2	Aroclor-1016	1	ND		33.3	
11104-28-2	Aroclor-1221	1	ND		33.3	
11141-16-5	Aroclor-1232	1	ND		33.3	
53469-21-9	Aroclor-1242	1	ND		33.3	
12672-29-6	Aroclor-1248	1	ND		33.3	
11097-69-1	Aroclor-1254	1	372		33.3	
1109-82-5	Aroclor-1260	1	ND		33.3	

26 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:25:10

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID:	IEBS22 HS MSD	**Client:**	DAMES & MOORE
Project:	1 HNC-PHASE III	**Site:**	None
Lab ID:	TTZ-017MSD	**Episode:**	TTZ
Description:	MATRIX SPIKE DUPLICATE	**Matrix:**	Soil
Method:	Louisiana TPH Diesel & Oil Range Organics (C10-C20 &C20-C28)	**Prep Level:**	Soil
		Units:	mg/kg
Prep Factor:	1.00	**Leached:**	n/a
		Prepared:	14-Sep-99

Sample Qu:
% Moisture: wet
Batch: 31686
Target List: TPHLALOW
Analyzed: 22-Sep-99 21:34 SRT

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
	TPH - Diesel Range Organics	1	149		6.50	

1 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:25:11

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID:	IEBS22 HS MSD	Client:	DAMES & MOORE
Project:	1 HNC-PHASE III	Site:	None
Lab ID:	TTZ-017MSD	Episode:	TTZ
Description:	MATRIX SPIKE DUPLICATE	Matrix:	Soil
Method:	SW 8015B TPH Gasoline Range Organics (C6-C10)	Prep Level:	Soil
		Units:	ng/kg
Prep Factor:	1.00	Leached:	n/a
		Prepared:	18-Sep-99

Sample Qu:

% Moisture: wet

Batch: 31710

Target List: TPHGPTMED

Analyzed: 18-Sep-99 21:15 KN

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
	TPH - Gasoline Range Organics	1	48400		5000	

1 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:25:11

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Protocol

Client ID: IEBS22 HS MSD
Client: DAMES & MOORE
Project: 1 HNC-PHASE III
Site: None
Lab ID: TTZ-017MSD
Episode: TTZ
Sample Qu:
Description: MATRIX SPIKE DUPLICATE
Matrix: Soil
% Moisture: wet
Method: SW 8080 Pesticides/PCBs
Prep Level: Soil
Batch: 31674
Units: ug/kg
Target List: 8080LOW
Prep Factor: 1.00
Leached: n/a
Prepared: 14-Sep-99
Analyzed: 22-Sep-99 13:05 ML

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit	Reg. Limit
309-00-2	Aldrin	1	14.7		1.70	
319-84-6	alpha-BHC	1	11.9		1.70	
319-85-7	beta-BHC	1	17.1		1.70	
319-86-9	delta-BHC	1	16.3		1.70	
58-89-9	gamma-BHC (Lindane)	1	12.4		1.70	
57-74-9	Chlordane (technical)	1	ND		16.7	
72-54-9	4,4'-DDD (p,p'-DDD)	1	16.0		3.30	
72-55-9	4,4'-DDE (p,p'-DDE)	1	20.6		3.30	
50-29-3	4,4'-DDT (p,p'-DDT)	1	15.9		3.30	
60-57-1	Dieldrin	1	14.6		3.30	
959-98-8	Endosulfan I (alpha-Endosulfan)	1	ND		1.70	
33213-65-9	Endosulfan II (beta-Endosulfan)	1	5.38		3.30	
1031-07-8	Endosulfan sulfate	1	13.6		3.30	
72-20-8	Endrin	1	16.9		3.30	
7421-36-3	Endrin aldehyde	1	12.9		3.30	
76-44-8	Heptachlor	1	13.0		1.70	
1024-57-3	Heptachlor epoxide	1	13.4		1.70	
72-43-5	Methoxychlor	1	21.6		16.7	
8001-35-2	Toxaphene	1	ND		80.0	
12674-11-2	Aroclor-1016	1	ND		33.3	
11104-28-2	Aroclor-1221	1	ND		33.3	
11141-16-5	Aroclor-1232	1	ND		33.3	
53469-21-9	Aroclor-1242	1	ND		33.3	
12672-29-6	Aroclor-1248	1	ND		33.3	
11097-69-1	Aroclor-1254	1	177		33.3	
1109-82-5	Aroclor-1260	1	ND		33.3	

26 compound(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of extract. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:25:11

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Inorganic Parameters

Client ID: IEBS16 BS
Client: DAMES & MOORE
Project: 1 HNC-PHASE III
Site: None
Lab ID: TTZ-004
Episode: TTZ
Description: None
Matrix: Soil
%Moisture: wet

ParameterName	Method	Batch	DF	PF	Result	Qu	Units	Reporting Limit	Prep.	Analysis		Reg. Limit
Arsenic	SW 6010	31693	1	1	ND		mg/kg	1.00	15-Sep-99	16-Sep-99	14:29 KJR	
Barium	SW 6010	31693	1	1	60.9		mg/kg	20.0	15-Sep-99	16-Sep-99	14:29 KJR	
Cadmium	SW 6010	31693	1	1	ND		mg/kg	0.500	15-Sep-99	16-Sep-99	14:29 KJR	
Chromium	SW 6010	31693	1	1	20.5		mg/kg	1.00	15-Sep-99	16-Sep-99	14:29 KJR	
Lead	SW 6010	31693	1	1	83.8		mg/kg	0.300	15-Sep-99	16-Sep-99	14:29 KJR	
Mercury	SW 7471	31692	1	1	ND		mg/kg	0.100	15-Sep-99	15-Sep-99	13:46 DNT	
Selenium	SW 6010	31693	1	1	ND		mg/kg	0.500	15-Sep-99	16-Sep-99	14:29 KJR	
Silver	SW 6010	31693	1	1	ND		mg/kg	1.00	15-Sep-99	16-Sep-99	14:29 KJR	

8 parameter(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of final sample. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:25:51

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Inorganic Parameters

Client ID: IEBS03 HS
Project: 1 HNC-PHASE III
Lab ID: TTZ-010
Description: None

Client: DAMES & MOORE
Site: None
Episode: TTZ
Matrix: Soil **%Moisture:** wet

ParameterName	Method	Batch	DF	PF	Result	Qu	Units	Reporting Limit	Prep.	Analysis		Reg. Limit
Arsenic	SW 6010	31693	1	1	11.2		mg/kg	1.00	15-Sep-99	16-Sep-99	14:51 KJR	
Barium	SW 6010	31693	1	1	169		mg/kg	20.0	15-Sep-99	16-Sep-99	14:51 KJR	
Cadmium	SW 6010	31693	1	1	ND		mg/kg	0.500	15-Sep-99	16-Sep-99	14:51 KJR	
Chromium	SW 6010	31693	1	1	8.25		mg/kg	1.00	15-Sep-99	16-Sep-99	14:51 KJR	
Lead	SW 6010	31693	1	1	1370		mg/kg	0.300	15-Sep-99	16-Sep-99	14:51 KJR	
Mercury	SW 7471	31692	1	1	ND		mg/kg	0.100	15-Sep-99	15-Sep-99	13:58 DNT	
Selenium	SW 6010	31693	1	1	ND		mg/kg	0.500	15-Sep-99	16-Sep-99	14:51 KJR	
Silver	SW 6010	31693	1	1	ND		mg/kg	1.00	15-Sep-99	16-Sep-99	14:51 KJR	

8 parameter(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of final sample. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:25:52

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Inorganic Parameters

Client ID: IEBS01 HS
Client: DAMES & MOORE
Project: 1 HNC-PHASE III
Site: None
Lab ID: TTZ-011
Episode: TTZ
Description: None
Matrix: Soil
%Moisture: wet

ParameterName	Method	Batch	DF	PF	Result	Qu	Units	Reporting Limit	Prep.	Analysis		Reg. Limit
Arsenic	SW 6010	31693	1	1	4.94		mg/kg	1.00	15-Sep-99	16-Sep-99	15:06 KJR	
Barium	SW 6010	31693	1	1	585		mg/kg	20.0	15-Sep-99	16-Sep-99	15:06 KJR	
Cadmium	SW 6010	31693	1	1	ND		mg/kg	0.500	15-Sep-99	16-Sep-99	15:06 KJR	
Chromium	SW 6010	31693	1	1	9.58		mg/kg	1.00	15-Sep-99	16-Sep-99	15:06 KJR	
Lead	SW 6010	31693	1	1	94.8		mg/kg	0.300	15-Sep-99	16-Sep-99	15:06 KJR	
Mercury	SW 7471	31692	1	1	ND		mg/kg	0.100	15-Sep-99	15-Sep-99	14:00 DNT	
Selenium	SW 6010	31693	1	1	ND		mg/kg	0.500	15-Sep-99	16-Sep-99	15:06 KJR	
Silver	SW 6010	31693	1	1	ND		mg/kg	1.00	15-Sep-99	16-Sep-99	15:06 KJR	

8 parameter(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of final sample. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:25:53

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Inorganic Parameters

Client ID: IEBS02 HS
Client: DAMES & MOORE
Project: 1 HNC-PHASE III
Site: None
Lab ID: TTZ-012
Episode: TTZ
Description: None
Matrix: Soil %Moisture: wet

ParameterName	Method	Batch	DF	PF	Result	Qu	Units	Reporting Limit	Prep.	Analysis		Reg. Limit
Arsenic	SW 6010	31693	1	1	16.9		mg/kg	1.00	15-Sep-99	16-Sep-99	15:12 KJR	
Barium	SW 6010	31693	1	1	225		mg/kg	20.0	15-Sep-99	16-Sep-99	15:12 KJR	
Cadmium	SW 6010	31693	1	1	ND		mg/kg	0.500	15-Sep-99	16-Sep-99	15:12 KJR	
Chromium	SW 6010	31693	1	1	628		mg/kg	1.00	15-Sep-99	16-Sep-99	15:12 KJR	
Lead	SW 6010	31693	1	1	33.7		mg/kg	0.300	15-Sep-99	16-Sep-99	15:12 KJR	
Mercury	SW 7471	31692	1	1	ND		mg/kg	0.100	15-Sep-99	15-Sep-99	14:02 DNT	
Selenium	SW 6010	31693	1	1	ND		mg/kg	0.500	15-Sep-99	16-Sep-99	15:12 KJR	
Silver	SW 6010	31693	1	1	ND		mg/kg	1.00	15-Sep-99	16-Sep-99	15:12 KJR	

8 parameter(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of final sample. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

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Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Inorganic Parameters

Client ID: IEBS11 BS
Client: DAMES & MOORE
Project: 1 HNC-PHASE III
Site: None
Lab ID: TTZ-009
Episode: TTZ
Description: None
Matrix: Soil
%Moisture: wet

ParameterName	Method	Batch	DF	PF	Result	Qu	Units	Reporting Limit	Prep.	Analysis		Reg. Limit
Arsenic	SW 6010	31693	1	1	3.12		mg/kg	1.00	15-Sep-99	16-Sep-99	14:46 KJR	
Barium	SW 6010	31693	1	1	117		mg/kg	20.0	15-Sep-99	16-Sep-99	14:46 KJR	
Cadmium	SW 6010	31693	1	1	ND		mg/kg	0.500	15-Sep-99	16-Sep-99	14:46 KJR	
Chromium	SW 6010	31693	1	1	12.2		mg/kg	1.00	15-Sep-99	16-Sep-99	14:46 KJR	
Lead	SW 6010	31693	1	1	12.8		mg/kg	0.300	15-Sep-99	16-Sep-99	14:46 KJR	
Mercury	SW 7471	31692	1	1	ND		mg/kg	0.100	15-Sep-99	15-Sep-99	13:56 DNT	
Selenium	SW 6010	31693	1	1	ND		mg/kg	0.500	15-Sep-99	16-Sep-99	14:46 KJR	
Silver	SW 6010	31693	1	1	ND		mg/kg	1.00	15-Sep-99	16-Sep-99	14:46 KJR	

8 parameter(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of final sample. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

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Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Inorganic Parameters

Client ID: IEBS20 HS
Client: DAMES & MOORE
Project: 1 HNC-PHASE III
Site: None
Lab ID: TTZ-006
Episode: TTZ
Description: None
Matrix: Soil
%Moisture: wet

ParameterName	Method	Batch	DF	PF	Result	Qu	Units	Reporting Limit	Prep.	Analysis		Reg. Limit
Arsenic	SW 6010	31693	1	1	6.34		mg/kg	1.00	15-Sep-99	16-Sep-99	14:35 KJR	
Barium	SW 6010	31693	1	1	210		mg/kg	20.0	15-Sep-99	16-Sep-99	14:35 KJR	
Cadmium	SW 6010	31693	1	1	ND		mg/kg	0.500	15-Sep-99	16-Sep-99	14:35 KJR	
Chromium	SW 6010	31693	1	1	351		mg/kg	1.00	15-Sep-99	16-Sep-99	14:35 KJR	
Lead	SW 6010	31693	1	1	281		mg/kg	0.300	15-Sep-99	16-Sep-99	14:35 KJR	
Mercury	SW 7471	31692	1	1	ND		mg/kg	0.100	15-Sep-99	15-Sep-99	13:48 DNT	
Selenium	SW 6010	31693	1	1	ND		mg/kg	0.500	15-Sep-99	16-Sep-99	14:35 KJR	
Silver	SW 6010	31693	1	1	ND		mg/kg	1.00	15-Sep-99	16-Sep-99	14:35 KJR	

8 parameter(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of final sample. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

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Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Inorganic Parameters

Client ID: IEBS21 HS
Client: DAMES & MOORE
Project: 1 HNC-PHASE III
Site: None
Lab ID: TTZ-007
Episode: TTZ
Description: None
Matrix: Soil
%Moisture: wet

ParameterName	Method	Batch	DF	PF	Result	Qu	Units	Reporting Limit	Prep.	Analysis		Reg. Limit
Arsenic	SW 6010	31693	1	1	1.71		mg/kg	1.00	15-Sep-99	16-Sep-99	14:40 KJR	
Barium	SW 6010	31693	1	1	100		mg/kg	20.0	15-Sep-99	16-Sep-99	14:40 KJR	
Cadmium	SW 6010	31693	1	1	ND		mg/kg	0.500	15-Sep-99	16-Sep-99	14:40 KJR	
Chromium	SW 6010	31693	1	1	21.9		mg/kg	1.00	15-Sep-99	16-Sep-99	14:40 KJR	
Lead	SW 6010	31693	1	1	278		mg/kg	0.300	15-Sep-99	16-Sep-99	14:40 KJR	
Mercury	SW 7471	31692	1	1	ND		mg/kg	0.100	15-Sep-99	15-Sep-99	13:50 DNT	
Selenium	SW 6010	31693	1	1	ND		mg/kg	0.500	15-Sep-99	16-Sep-99	14:40 KJR	
Silver	SW 6010	31693	1	1	ND		mg/kg	1.00	15-Sep-99	16-Sep-99	14:40 KJR	

8 parameter(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of final sample. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

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8k

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Inorganic Parameters

Client ID: BACKGROUND(IEBS-22-HS) **Client:** DAMES & MOORE

Project: 1 HNC-PHASE III **Site:** None

Lab ID: TTZ-013 **Episode:** TTZ

Description: None **Matrix:** Soil **%Moisture:** wet

ParameterName	Method	Batch	DF	PF	Result	Qu	Units	Reporting Limit	Prep.	Analysis		Reg. Limit
Arsenic	SW 6010	31693	1	1	3.55		mg/kg	1.00	15-Sep-99	16-Sep-99	14:04 KJR	
Barium	SW 6010	31693	1	1	50.9		mg/kg	20.0	15-Sep-99	16-Sep-99	14:04 KJR	
Cadmium	SW 6010	31693	1	1	ND		mg/kg	0.500	15-Sep-99	16-Sep-99	14:04 KJR	
Chromium	SW 6010	31693	1	1	11.1		mg/kg	1.00	15-Sep-99	16-Sep-99	14:04 KJR	
Lead	SW 6010	31693	1	1	42.3		mg/kg	0.300	15-Sep-99	16-Sep-99	14:04 KJR	
Mercury	SW 7471	31692	1	1	ND		mg/kg	0.100	15-Sep-99	15-Sep-99	13:36 DNT	
Selenium	SW 6010	31693	1	1	ND		mg/kg	0.500	15-Sep-99	16-Sep-99	14:04 KJR	
Silver	SW 6010	31693	1	1	ND		mg/kg	1.00	15-Sep-99	16-Sep-99	14:04 KJR	

8 parameter(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of final sample. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:25:53

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Inorganic Parameters

Client ID: IEBS22 HS QA
Client: DAMES & MOORE
Project: 1 HNC-PHASE III
Site: None
Lab ID: TTZ-014D
Episode: TTZ
Description: None
Matrix: Soil
%Moisture: wet

ParameterName	Method	Batch	DF	PF	Result	Qu	Units	Reporting Limit	Prep.	Analysis		Reg. Limit
Arsenic	SW 6010	31693	1	1	4.28		mg/kg	1.00	15-Sep-99	16-Sep-99	15:18 KJR	
Barium	SW 6010	31693	1	1	86.7		mg/kg	20.0	15-Sep-99	16-Sep-99	15:18 KJR	
Cadmium	SW 6010	31693	1	1	ND		mg/kg	0.500	15-Sep-99	16-Sep-99	15:18 KJR	
Chromium	SW 6010	31693	1	1	17.6		mg/kg	1.00	15-Sep-99	16-Sep-99	15:18 KJR	
Lead	SW 6010	31693	1	1	87.6		mg/kg	0.300	15-Sep-99	16-Sep-99	15:18 KJR	
Mercury	SW 7471	31692	1	1	ND		mg/kg	0.100	15-Sep-99	15-Sep-99	13:42 DNT	
Selenium	SW 6010	31693	1	1	ND		mg/kg	0.500	15-Sep-99	16-Sep-99	15:18 KJR	
Silver	SW 6010	31693	1	1	ND		mg/kg	1.00	15-Sep-99	16-Sep-99	15:18 KJR	

8 parameter(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of final sample. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

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Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Inorganic Parameters

Client ID: IEBS22 HS QC
Client: DAMES & MOORE
Project: 1 HNC-PHASE III
Site: None
Lab ID: TTZ-015T
Episode: TTZ
Description: None
Matrix: Soil
%Moisture: wet

ParameterName	Method	Batch	DF	PF	Result	Qu	Units	Reporting Limit	Prep.	Analysis		Reg. Limit
Arsenic	SW 6010	31693	1	1	2.60		mg/kg	1.00	15-Sep-99	16-Sep-99	15:23 KJR	
Barium	SW 6010	31693	1	1	63.3		mg/kg	20.0	15-Sep-99	16-Sep-99	15:23 KJR	
Cadmium	SW 6010	31693	1	1	ND		mg/kg	0.500	15-Sep-99	16-Sep-99	15:23 KJR	
Chromium	SW 6010	31693	1	1	17.9		mg/kg	1.00	15-Sep-99	16-Sep-99	15:23 KJR	
Lead	SW 6010	31693	1	1	236		mg/kg	0.300	15-Sep-99	16-Sep-99	15:23 KJR	
Mercury	SW 7471	31692	1	1	ND		mg/kg	0.100	15-Sep-99	15-Sep-99	13:44 DNT	
Selenium	SW 6010	31693	1	1	ND		mg/kg	0.500	15-Sep-99	16-Sep-99	15:23 KJR	
Silver	SW 6010	31693	1	1	ND		mg/kg	1.00	15-Sep-99	16-Sep-99	15:23 KJR	

8 parameter(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of final sample. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

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Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Inorganic Parameters

Client ID: IEBS22 HS MS
Client: DAMES & MOORE
Project: 1 HNC-PHASE III
Site: None
Lab ID: TTZ-016S
Episode: TTZ
Description: MATRIX SPIKE
Matrix: Soil
%Moisture: wet

ParameterName	Method	Batch	DF	PF	Result	Qu	Units	Reporting Limit	Prep.	Analysis		Reg. Limit
Arsenic	SW 6010	31693	1	1	353		mg/kg	1.00	15-Sep-99	16-Sep-99	14:14 KJR	
Barium	SW 6010	31693	1	1	449		mg/kg	20.0	15-Sep-99	16-Sep-99	14:14 KJR	
Cadmium	SW 6010	31693	1	1	7.17		mg/kg	0.500	15-Sep-99	16-Sep-99	14:14 KJR	
Chromium	SW 6010	31693	1	1	55.6		mg/kg	1.00	15-Sep-99	16-Sep-99	14:14 KJR	
Lead	SW 6010	31693	1	1	179		mg/kg	0.300	15-Sep-99	16-Sep-99	14:14 KJR	
Mercury	SW 7471	31692	1	1	0.199		mg/kg	0.100	15-Sep-99	15-Sep-99	13:38 DNT	
Selenium	SW 6010	31693	1	1	307		mg/kg	0.500	15-Sep-99	16-Sep-99	14:14 KJR	
Silver	SW 6010	31693	1	1	5.27		mg/kg	1.00	15-Sep-99	16-Sep-99	14:14 KJR	

8 parameter(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of final sample. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

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Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Inorganic Parameters

Client ID: IEBS22 HS MSD
Client: DAMES & MOORE
Project: 1 HNC-PHASE III
Site: None
Lab ID: TTZ-017SD
Episode: TTZ
Description: MATRIX SPIKE DUPLICATE
Matrix: Soil
%Moisture: wet

ParameterName	Method	Batch	DF	PF	Result	Qu	Units	Reporting Limit	Prep.	Analysis		Reg. Limit
Arsenic	SW 6010	31693	1	1	361		mg/kg	1.00	15-Sep-99	16-Sep-99	14:18 KJR	
Barium	SW 6010	31693	1	1	438		mg/kg	20.0	15-Sep-99	16-Sep-99	14:18 KJR	
Cadmium	SW 6010	31693	1	1	7.25		mg/kg	0.500	15-Sep-99	16-Sep-99	14:18 KJR	
Chromium	SW 6010	31693	1	1	52.3		mg/kg	1.00	15-Sep-99	16-Sep-99	14:18 KJR	
Lead	SW 6010	31693	1	1	166		mg/kg	0.300	15-Sep-99	16-Sep-99	14:18 KJR	
Mercury	SW 7471	31692	1	1	0.129		mg/kg	0.100	15-Sep-99	15-Sep-99	13:40 DNT	
Selenium	SW 6010	31693	1	1	313		mg/kg	0.500	15-Sep-99	16-Sep-99	14:18 KJR	
Silver	SW 6010	31693	1	1	5.33		mg/kg	1.00	15-Sep-99	16-Sep-99	14:18 KJR	

8 parameter(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of final sample. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

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Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Inorganic Parameters

Client ID: IEBS12 BS
Client: DAMES & MOORE
Project: 1 HNC-PHASE III
Site: None
Lab ID: TTZ-001
Episode: TTZ
Description: None
Matrix: Soil - %Moisture: wet

ParameterName	Method	Batch	DF	PF	Result	Qu	Units	Reporting Limit	Prep.	Analysis	Reg. Limit
Oil & Grease	SW 9071	31743	1	1	403		mg/kg	50.0		17-Sep-99 9:00 DM	

1 parameter(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of final sample. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

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Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Inorganic Parameters

Client ID: IEBS16 BS
Client: DAMES & MOORE
Project: 1 HNC-PHASE III
Site: None
Lab ID: TTZ-004
Episode: TTZ
Description: None
Matrix: Soil
%Moisture: wet

ParameterName	Method	Batch	DF	PF	Result	Qu	Units	Reporting Limit	Prep.	Analysis	Reg. Limit
Oil & Grease	SW 9071	31743	1	1	412		mg/kg	50.0		17-Sep-99 9:00 DM	

1 parameter(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of final sample. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:26:50

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Inorganic Parameters

Client ID: IEBS17 BS
Client: DAMES & MOORE
Project: 1 HNC-PHASE III
Site: None
Lab ID: TTZ-005
Episode: TTZ
Description: None
Matrix: Soil
%Moisture: wet

ParameterName	Method	Batch	DF	PF	Result	Qu	Units	Reporting Limit	Prep.	Analysis	Reg. Limit
Oil & Grease	SW 9071	31743	1	1	1530		mg/kg	50.0		17-Sep-99 9:00 DM	

1 parameter(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of final sample. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

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Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Inorganic Parameters

Client ID: IEBS20 HS
Client: DAMES & MOORE
Project: 1 HNC-PHASE III
Site: None
Lab ID: TTZ-006
Episode: TTZ
Description: None
Matrix: Soil
%Moisture: wet

ParameterName	Method	Batch	DF	PF	Result	Qu	Units	Reporting Limit	Prep.	Analysis	Reg. Limit
Oil & Grease	SW 9071	31743	1	1	3510		mg/kg	50.0		17-Sep-99 9:00 DM	

1 parameter(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of final sample. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

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Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Inorganic Parameters

Client ID: IEBS21 HS
Client: DAMES & MOORE
Project: 1 HNC-PHASE III
Site: None
Lab ID: TTZ-007
Episode: TTZ
Description: None
Matrix: Soil
%Moisture: wet

ParameterName	Method	Batch	DF	PF	Result	Qu	Units	Reporting Limit	Prep.	Analysis	Reg. Limit
Oil & Grease	SW 9071	31743	1	1	2190		mg/kg	50.0		17-Sep-99 9:00 DM	

1 parameter(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of final sample. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

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Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Inorganic Parameters

Client ID: IEBS19 HS
Client: DAMES & MOORE
Project: 1 HNC-PHASE III
Site: None
Lab ID: TTZ-008
Episode: TTZ
Description: None
Matrix: Soil
%Moisture: wet

ParameterName	Method	Batch	DF	PF	Result	Qu	Units	Reporting Limit	Prep.	Analysis	Reg. Limit
Oil & Grease	SW 9071	31743	1	1	1240		mg/kg	50.0		17-Sep-99 9:00 DM	

1 parameter(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of final sample. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

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Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Inorganic Parameters

Client ID: IEBS11 BS
Client: DAMES & MOORE
Project: 1 HNC-PHASE III
Site: None
Lab ID: TTZ-009
Episode: TTZ
Description: None
Matrix: Soil
%Moisture: wet

ParameterName	Method	Batch	DF	PF	Result	Qu	Units	Reporting Limit	Prep.	Analysis	Reg. Limit
Oil & Grease	SW 9071	31743	1	1	729		mg/kg	50.0		17-Sep-99 9:00 DM	

1 parameter(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of final sample. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

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Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Inorganic Parameters

Client ID: IEBS03 HS
Client: DAMES & MOORE
Project: 1 HNC-PHASE III
Site: None
Lab ID: TTZ-010
Episode: TTZ
Description: None
Matrix: Soil
%Moisture: wet

ParameterName	Method	Batch	DF	PF	Result	Qu	Units	Reporting Limit	Prep.	Analysis		Reg. Limit
Oil & Grease	SW 9071	31743	1	1	241		mg/kg	50.0		17-Sep-99	9:00 DM	

1 parameter(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of final sample. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

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Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Inorganic Parameters

Client ID: IEBS01 HS
Client: DAMES & MOORE
Project: 1 HNC-PHASE III
Site: None
Lab ID: TTZ-011
Episode: TTZ
Description: None
Matrix: Soil
%Moisture: wet

ParameterName	Method	Batch	DF	PF	Result	Qu	Units	Reporting Limit	Prep.	Analysis	Reg. Limit
Oil & Grease	SW 9071	31743	1	1	5310		mg/kg	50.0		20-Sep-99 9:00 DM	

1 parameter(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of final sample. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:26:51

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Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Inorganic Parameters

Client ID: BACKGROUND(IEBS-22-HS)
Client: DAMES & MOORE
Project: 1 HNC-PHASE III
Site: None
Lab ID: TTZ-013
Episode: TTZ
Description: None
Matrix: Soil
%Moisture: wet

ParameterName	Method	Batch	DF	PF	Result	Qu	Units	Reporting Limit	Prep.	Analysis	Reg. Limit
Oil & Grease	SW 9071	31743	1	1	647		mg/kg	50.0		20-Sep-99 9:00 DM	

1 parameter(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of final sample. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

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Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Inorganic Parameters

Client ID: IEBS22 HS QA
Client: DAMES & MOORE
Project: 1 HNC-PHASE III
Site: None
Lab ID: TTZ-014D
Episode: TTZ
Description: None
Matrix: Soil
%Moisture: wet

ParameterName	Method	Batch	DF	PF	Result	Qu	Units	Reporting Limit	Prep.	Analysis		Reg. Limit
Oil & Grease	SW 9071	31743	1	1	852		mg/kg	50.0		20-Sep-99	9:00 DM	

1 parameter(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of final sample. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:26:52

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Inorganic Parameters

Client ID: IEBS22 HS QC
Project: 1 HNC-PHASE III
Lab ID: TTZ-015T
Description: None

Client: DAMES & MOORE
Site: None
Episode: TTZ
Matrix: Soil %Moisture: wet

ParameterName	Method	Batch	DF	PF	Result	Qu	Units	Reporting Limit	Prep.	Analysis	Reg. Limit
Oil & Grease	SW 9071	31743	1	1	1080		mg/kg	50.0		20-Sep-99 9:00 DM	

1 parameter(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of final sample. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:26:52

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Inorganic Parameters

Client ID: IEBS22 HS MS
Client: DAMES & MOORE
Project: 1 HNC-PHASE III
Site: None
Lab ID: TTZ-016S
Episode: TTZ
Description: MATRIX SPIKE
Matrix: Soil
%Moisture: wet

ParameterName	Method	Batch	DF	PF	Result	Qu	Units	Reporting Limit	Prep.	Analysis		Reg. Limit
Oil & Grease	SW 9071	31743	1	1	4530		mg/kg	50.0		20-Sep-99	9:00 DM	

1 parameter(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of final sample. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:26:52

Report of Laboratory Analysis

Pace Analytical Services, Inc. - New Orleans

Single Sample - Inorganic Parameters

Client ID: IEBS22 HS MSD
Client: DAMES & MOORE
Project: 1 HNC-PHASE III
Site: None
Lab ID: TTZ-017SD
Episode: TTZ
Description: MATRIX SPIKE DUPLICATE
Matrix: Soil
%Moisture: wet

ParameterName	Method	Batch	DF	PF	Result	Qu	Units	Reporting Limit	Prep.	Analysis	Reg. Limit
Oil & Grease	SW 9071	31743	1	1	5060		mg/kg	50.0		20-Sep-99 9:00 DM	

1 parameter(s) reported

ND denotes Not Detected at or above the adjusted reporting limit.
DF denotes Dilution Factor of final sample. The Prep Factor accounts for a non-routine sample size.
Reporting Limit is corrected for sample size, dilution and moisture content if applicable.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.
For moisture results, wet denotes result is not corrected for moisture and n/a denotes not applicable.

10/5/99 13:26:52

Report Qualifiers

Pace Analytical Services, Inc. - New Orleans

Single Episode

Episode: TTZ

Qualifier	Qualifier Description
A10	N-Nitrosodiphenylamine is reported as diphenylamine.
A11	This analyte is a common solvent. Its presence in field samples may be an artifact of sample collection, transport, laboratory storage or analysis.
D1	The analysis was performed at a dilution due to the high analyte concentration.
D2	The analysis was performed at a dilution due to the presence of matrix interferences.
G1	Interferences are present which caused poor surrogate recovery.
M2	The sample required reanalysis due to internal standard response outside the QC limits. Reanalysis yielded similar results, indicating a sample matrix effect. The results reported are from the original analysis.
N	See narrative for a detailed explanation.
P2	The sample extract could not be concentrated to the method specified final volume. The reporting limit is elevated accordingly.
Q1	The matrix spike recoveries are poor. Acceptable method performance for this analyte has been demonstrated by the laboratory control sample recovery.
Q2	The matrix spike recoveries are poor due to the presence of matrix interferences. Acceptable method performance for this analyte has been demonstrated by the laboratory control sample recovery.
Q3	The matrix spike recoveries are poor due to the presence of this analyte in the sample at a concentration greater than 4 times the spiked amount. Acceptable method performance for this analyte has been demonstrated by the laboratory control sample.
Q4	The laboratory control sample recovery is poor. Acceptable method performance for this analyte has been demonstrated by the matrix spike recovery.
Q6	The poor matrix spike recovery is attributed to the non-homogenous nature of the sample. Acceptable method performance for this analyte has been demonstrated by the laboratory control sample recovery.

Pace Analytical Services, Inc. - New Orleans
Laboratory Quality Control Definitions

Our laboratory employs quality control (QC) measures to ensure the quality of our analytical data by defining its accuracy and precision. Presentation of the QC data with the report allows the data user the opportunity to evaluate these results and to gauge the method performance. In order to assist the understanding of these data, routine components of our QC program are defined below.

BATCH - A batch is a group of 20 samples or less of a given matrix and analysis by a specific protocol or analytical method.

BLANK - A method blank is a "clean" laboratory sample carried through the entire analytical process. One or more method blanks are prepared with each batch of samples. The analysis of method blanks demonstrates that method interferences caused by contaminants, reagents and glassware are known and minimized. A method blank should not contain any analytes of interest above the reporting limit. There are method allowances for common laboratory artifacts such as methylene chloride, acetone and bis-2-ethylhexyl phthalate.

LABORATORY CONTROL SPIKE - A laboratory control spike (LCS or blank spike) is a blank which has been spiked with known concentrations of target analytes. The LCS is carried through the entire analytical process. One or more LCS are prepared with each batch of samples. The percent recovery of the spiked analytes provides a measure of the accuracy of the analytical process in the absence of matrix effects.

MATRIX SPIKE - A matrix spike (MS) is a client sample which is spiked with known concentrations of target analytes. The MS is carried through the entire analytical process. One or more matrix spikes are prepared with every batch of samples. For organic methods, a matrix spike duplicate (MSD) is also prepared. The percent recovery of the spiked analytes provides a measure of the method accuracy in the selected sample and matrix.

DUPLICATE - A duplicate is a sample for which replicate aliquouts are carried through the entire analytical process. Comparison of the original results to those of the duplicate results provides a measure of the method precision in the sample and matrix. By convention, precision is measured for inorganic analyses using a sample and a sample duplicate, whereas for organics analyses, an MS/MSD are used.

SURROGATE - A surrogate is a non-target analyte which is added to all samples and QC samples prior to extraction or analysis. The percent recovery of the surrogate provides a measure of the method accuracy in each sample tested. Surrogates are used for organics methods only.

QC LIMITS - QC limits specify the expected percent recovery range for a spiked compound. QC limits may be set by method criteria or calculated from laboratory generated data. For many methods, these limits are advisory and do not require corrective action if exceeded.

Report of Quality Control

Pace Analytical Services, Inc. - New Orleans

Organic Protocol - Single Batch

Episode: TTZ

Method: Low Soil GC/MS Volatile Organics Batch: 31677 Units: ug/kg

Parameter Name	LCS Spike	LCS %Rec	LCSD %Rec	MS Spike	MS %Rec	MSD %Rec	RPD %	QC Limits LCS	QC Limits MS/MSD	RPD Max	Qu
Acetone (2-Propanone, Dimethyl ketone)	50.0	101		50.0	80	91	6	0-189	0-187	50	
Acetone (2-Propanone, Dimethyl ketone)	50.0	87		50.0	133	165	19	0-189	0-187	50	
Benzene	50.0	105		50.0	93	94	1	67-124	43-142	50	
Benzene	50.0	102		50.0	87	91	4	67-124	43-142	50	
Bromodichloromethane	50.0	97		50.0	67	69	3	68-127	23-143	50	
Bromodichloromethane	50.0	92		50.0	72	77	6	68-127	23-143	50	
Bromoform	50.0	94		50.0	67	76	13	63-128	0-159	50	
Bromoform	50.0	101		50.0	50	55	11	63-128	0-159	50	
Bromomethane (Methyl bromide)	50.0	108		50.0	94	97	4	40-149	10-170	50	
Bromomethane (Methyl bromide)	50.0	125		50.0	106	109	3	40-149	10-170	50	
2-Butanone (Methyl ethyl ketone)	50.0	76		50.0	84	94	11	19-181	0-200	50	
2-Butanone (Methyl ethyl ketone)	50.0	80		50.0	98	111	12	19-181	0-200	50	
Carbon disulfide	50.0	100		50.0	85	88	3	46-129	7-151	50	
Carbon disulfide	50.0	88		50.0	71	74	4	46-129	7-151	50	
Carbon tetrachloride	50.0	96		50.0	72	76	5	55-146	28-157	50	
Carbon tetrachloride	50.0	107		50.0	70	71	0	55-146	28-157	50	
Chlorobenzene	50.0	101		50.0	75	82	9	69-122	34-143	50	
Chlorobenzene	50.0	106		50.0	82	82	0	69-122	34-143	50	
Chloroethane	50.0	115		50.0	109	113	3	21-181	24-175	50	
Chloroethane	50.0	125		50.0	113	115	2	21-181	24-175	50	
Chloroform	50.0	113		50.0	107	108	1	75-120	37-152	50	
Chloroform	50.0	94		50.0	85	86	2	75-120	37-152	50	
Chloromethane (Methyl chloride)	50.0	103		50.0	102	104	3	0-184	0-181	50	
Chloromethane (Methyl chloride)	50.0	152		50.0	137	137	0	0-184	0-181	50	
Dibromochloromethane	50.0	100		50.0	59	62	6	66-129	4-161	50	
Dibromochloromethane	50.0	85		50.0	63	70	10	66-129	4-161	50	
1,1-Dichloroethane	50.0	104		50.0	94	98	4	73-123	33-160	50	
1,1-Dichloroethane	50.0	97		50.0	94	92	2	73-123	33-160	50	
1,2-Dichloroethane (Ethylene dichloride)	50.0	92		50.0	80	83	4	63-138	22-159	50	
1,2-Dichloroethane (Ethylene dichloride)	50.0	99		50.0	88	92	5	63-138	22-159	50	
1,1-Dichloroethene (Dichloroethylene)	50.0	127		50.0	116	119	3	56-146	38-166	50	
1,1-Dichloroethene (Dichloroethylene)	50.0	98		50.0	87	90	3	56-146	38-166	50	
1,2-Dichloroethene (total)	100	106		100	94	95	1	68-126	46-140	50	
1,2-Dichloroethene (total)	100	113		100	101	104	3	68-126	46-140	50	
1,2-Dichloropropane	50.0	97		50.0	88	87	1	72-124	40-143	50	
1,2-Dichloropropane	50.0	101		50.0	85	89	5	72-124	40-143	50	
cis-1,3-Dichloropropene	50.0	98		50.0	64	65	2	66-124	11-146	50	
cis-1,3-Dichloropropene	50.0	95		50.0	65	70	8	66-124	11-146	50	
trans-1,3-Dichloropropene	50.0	98		50.0	67	69	3	56-135	0-158	50	
trans-1,3-Dichloropropene	50.0	98		50.0	63	65	3	56-135	0-158	50	
Ethylbenzene	50.0	109		50.0	75	77	3	64-122	23-143	50	
Ethylbenzene	50.0	101		50.0	82	82	1	64-122	23-143	50	

* denotes recovery outside of QC limits.
MS spike concentrations are not corrected for moisture content of the spiked sample.

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Report of Quality Control

Pace Analytical Services, Inc. - New Orleans

Organic Protocol - Single Batch

Episode: TTZ

Method: Low Soil GC/MS Volatile Organics Batch: 31677 Units: ug/kg

Parameter Name	LCS Spike	LCS %Rec	LCSD %Rec	MS Spike	MS %Rec	MSD %Rec	RPD %	QC Limits LCS	QC Limits MS/MSD	RPD Max	Qu
2-Hexanone	50.0	89		50.0	82	90	10	5-182	0-200	50	
2-Hexanone	50.0	87		50.0	87	97	11	5-182	0-200	50	
Methylene chloride (Dichloromethane)	50.0	111		50.0	86	89	3	0-140	0-136	50	
Methylene chloride (Dichloromethane)	50.0	56		50.0	50	52	4	0-140	0-136	50	
4-Methyl-2-pentanone (MIBK)	50.0	114		50.0	102	115	12	33-149	0-177	50	
4-Methyl-2-pentanone (MIBK)	50.0	87		50.0	74	84	13	33-149	0-177	50	
Styrene	50.0	100		50.0	56	62	10	73-116	6-145	50	
Styrene	50.0	111		50.0	74	80	9	73-116	6-145	50	
1,1,2,2-Tetrachloroethane	50.0	104		50.0	80	86	8	53-143	0-197	50	
1,1,2,2-Tetrachloroethane	50.0	107		50.0	89	91	2	53-143	0-197	50	
Tetrachloroethene (Perchloroethylene)	50.0	80		50.0	67	69	3	68-128	13-174	50	
Tetrachloroethene (Perchloroethylene)	50.0	101		50.0	73	71	3	68-128	13-174	50	
Toluene	50.0	105		50.0	86	84	3	64-129	34-149	50	
Toluene	50.0	99		50.0	85	83	3	64-129	34-149	50	
1,1,1-Trichloroethane (Methyl chloroform)	50.0	102		50.0	87	90	4	74-123	42-149	50	
1,1,1-Trichloroethane (Methyl chloroform)	50.0	120		50.0	104	105	1	74-123	42-149	50	
1,1,2-Trichloroethane	50.0	98		50.0	79	79	0	71-130	2-169	50	
1,1,2-Trichloroethane	50.0	91		50.0	81	82	2	71-130	2-169	50	
Trichloroethene (Trichloroethylene)	50.0	113		50.0	99	97	2	72-124	41-147	50	
Trichloroethene (Trichloroethylene)	50.0	102		50.0	85	88	4	72-124	41-147	50	
Vinyl chloride (Chloroethene)	50.0	152		50.0	137	138	1	10-172	16-159	50	
Vinyl chloride (Chloroethene)	50.0	110		50.0	106	108	2	10-172	16-159	50	
Xylene (total)	150	109		150	79	81	2	75-114	15-153	50	
Xylene (total)	150	102		150	74	82	10	75-114	15-153	50	

66 compound(s) reported

* denotes recovery outside of QC limits.
MS spike concentrations are not corrected for moisture content of the spiked sample.

10/4/99 15:37:25

Report of Quality Control

Pace Analytical Services, Inc. - New Orleans

Organic Protocol - Single Batch

Episode: TTZ

Method: Low Soil GC/MS Semivolatile Organics Batch: 31726 Units: ug/kg

Parameter Name	LCS Spike	LCS %Rec	LCSD %Rec	MS Spike	MS %Rec	MSD %Rec	RPD %	QC Limits LCS	QC Limits MS/MSD	RPD Max	Qu
Acenaphthene	1660	61		1660	39	57	36	32-100	17-110	50	
Acenaphthylene	1660			1660	91	82	10	40-98	21-102	50	
Acenaphthylene	1660	63		1660	39	57	38	40-98	21-102	50	
Anthracene	1660	66		1660	47	67	35	38-106	14-118	50	
Anthracene	1660			1660	110	100	9	38-106	14-118	50	
Benzo(a)anthracene	1660	64		1660	41	59	34	37-109	10-121	50	
Benzo(b)fluoranthene	1660	81		1660	49	79	43	30-118	0-154	50	
Benzo(k)fluoranthene	1660	72		1660	53	77	34	30-113	0-138	50	
Benzoic acid	1660	6		1660	0	0	0	0-154	0-162	50	
Benzoic acid	1660			1660	0	0	0	0-154	0-162	50	
Benzo(g,h,i)perylene	1660	81		1660	33	45	27	24-118	0-127	50	
Benzo(g,h,i)perylene	1660			1660	75	65	13	24-118	0-127	50	
Benzo(a)pyrene	1660	82		1660	51	75	35	35-112	0-147	50	
Benzyl alcohol	1660	60		1660	35	55	44	4-121	8-114	50	
Benzyl alcohol	1660			1660	59	50	16	4-121	8-114	50	
4-Bromophenyl phenyl ether	1660	59		1660	37	52	35	36-112	22-114	50	
4-Bromophenyl phenyl ether	1660			1660	57	51	11	36-112	22-114	50	
Butylbenzylphthalate	1660	58		1660	40	58	38	34-114	11-126	50	
Butylbenzylphthalate	1660			1660	60	53	11	34-114	11-126	50	
4-Chloroaniline (p-Chloroaniline)	1660			1660	37	33	10	0-91	0-67	50	
4-Chloroaniline (p-Chloroaniline)	1660	73		1660	35	48	29	0-91	0-67	50	
bis(2-Chloroethoxy)methane	1660	61		1660	33	49	40	38-97	16-104	50	
bis(2-Chloroethoxy)methane	1660			1660	56	47	17	38-97	16-104	50	
bis(2-Chloroethyl) ether	1660	57		1660	27	40	40	32-101	12-109	50	
bis(2-Chloroethyl) ether	1660			1660	52	40	27	32-101	12-109	50	
bis(2-Chloroisopropyl) ether	1660			1660	52	37	33	14-120	1-118	50	
bis(2-Chloroisopropyl) ether	1660	59		1660	25	36	39	14-120	1-118	50	
4-Chloro-3-methylphenol (p-Chloro-m-cresol)	1660			1660	58	53	10	26-106	0-133	50	
4-Chloro-3-methylphenol (p-Chloro-m-cresol)	1660	68		1660	43	62	37	26-106	0-133	50	
2-Chloronaphthalene	1660	59		1660	34	51	39	40-96	22-103	50	
2-Chloronaphthalene	1660			1660	64	57	13	40-96	22-103	50	
2-Chlorophenol (o-Chlorophenol)	1660	61		1660	38	55	37	31-100	18-103	50	
2-Chlorophenol (o-Chlorophenol)	1660			1660	58	48	18	31-100	18-103	50	
4-Chlorophenyl phenyl ether	1660	60		1660	39	54	33	36-104	21-103	50	
4-Chlorophenyl phenyl ether	1660			1660	60	54	9	36-104	21-103	50	
Chrysene	1660	64		1660	41	60	33	36-106	0-135	50	
Dibenz(a,h)anthracene	1660			1660	64	56	13	29-115	4-123	50	
Dibenz(a,h)anthracene	1660	83		1660	37	50	29	29-115	4-123	50	
Dibenzofuran	1660			1660	86	78	9	39-99	17-109	50	
Dibenzofuran	1660	62		1660	40	57	34	39-99	17-109	50	
Di-n-butylphthalate	1660			1660	66	62	7	33-114	18-109	50	
Di-n-butylphthalate	1660	59		1660	40	56	33	33-114	18-109	50	

* denotes recovery outside of QC limits.
MS spike concentrations are not corrected for moisture content of the spiked sample.

10/4/99 15:37:25

Report of Quality Control

Pace Analytical Services, Inc. - New Orleans

Organic Protocol - Single Batch

Episode: TTZ

Method: Low Soil GC/MS Semivolatile Organics Batch: 31726 Units: ug/kg

Parameter Name	LCS Spike	LCS %Rec	LCSD %Rec	MS Spike	MS %Rec	MSD %Rec	RPD %	QC Limits LCS	QC Limits MS/MSD	RPD Max	Qu
1,2-Dichlorobenzene (o-Dichlorobenzene)	1660	56		1660	14	20	33	33-92	14-96	50	
1,2-Dichlorobenzene (o-Dichlorobenzene)	1660			1660	37	20	58 *	33-92	14-96	50	
1,3-Dichlorobenzene (m-Dichlorobenzene)	1660	56		1660	12 *	17	35	33-91	14-94	50	Q1
1,3-Dichlorobenzene (m-Dichlorobenzene)	1660			1660	28	14	66 *	33-91	14-94	50	
1,4-Dichlorobenzene (p-Dichlorobenzene)	1660	55		1660	12 *	17	38	26-91	14-91	50	Q1
1,4-Dichlorobenzene (p-Dichlorobenzene)	1660			1660	30	15	65 *	26-91	14-91	50	
3,3'-Dichlorobenzidine	1660			1660	39	38	3	7-90	0-80	50	
3,3'-Dichlorobenzidine	1660	64		1660	39	54	31	7-90	0-80	50	
2,4-Dichlorophenol	1660	67		1660	38	55	35	40-103	19-108	50	
2,4-Dichlorophenol	1660			1660	56	48	16	40-103	19-108	50	
Diethylphthalate	1660	61		1660	40	56	34	37-106	19-106	50	
Diethylphthalate	1660			1660	64	61	6	37-106	19-106	50	
2,4-Dimethylphenol	1660			1660	60	51	15	30-104	6-112	50	
2,4-Dimethylphenol	1660	69		1660	42	59	35	30-104	6-112	50	
Dimethylphthalate	1660			1660	66	61	8	38-103	22-105	50	
Dimethylphthalate	1660	61		1660	39	56	35	38-103	22-105	50	
4,6-Dinitro-2-methylphenol (4,6-Dinitro-o-cres	1660	13 *		1660	32	45	35	18-131	0-135	50	Q4
2,4-Dinitrophenol	1660	4		1660	21	34	46	0-145	0-138	50	
2,4-Dinitrotoluene	1660			1660	53	48	10	37-103	23-107	50	
2,4-Dinitrotoluene	1660	63		1660	40	58	36	37-103	23-107	50	
2,6-Dinitrotoluene	1660			1660	51	48	7	34-107	23-106	50	
2,6-Dinitrotoluene	1660	61		1660	39	58	38	34-107	23-106	50	
Di-n-octylphthalate	1660	74		1660	57	89	44	30-121	2-142	50	
Di-n-octylphthalate	1660			1660	101	91	11	30-121	2-142	50	
bis(2-Ethylhexyl)phthalate	1660	62		1660	37	54	31	33-116	12-125	50	
Fluoranthene	1660	64		1660	57	82	30	34-107	11-110	50	
Fluorene	1660	63		1660	41	59	34	37-103	22-106	50	
Fluorene	1660			1660	80	68	14	37-103	22-106	50	
Hexachlorobenzene	1660	64		1660	41	56	31	37-110	24-110	50	
Hexachlorobenzene	1660			1660	58	53	9	37-110	24-110	50	
Hexachlorobutadiene	1660			1660	42	27	43	39-101	22-103	50	
Hexachlorobutadiene	1660	66		1660	27	38	34	39-101	22-103	50	
Hexachlorocyclopentadiene	1660	61		1660	4	10	91 *	8-112	0-116	50	
Hexachloroethane	1660			1660	12	0 *	200 *	30-94	12-99	50	
Hexachloroethane	1660	58		1660	14	20	36	30-94	12-99	50	
Indeno(1,2,3-cd)pyrene	1660	81		1660	36	48	27	27-115	0-126	50	
Indeno(1,2,3-cd)pyrene	1660			1660	85	72	15	27-115	0-126	50	
Isophorone	1660			1660	70	59	17	36-104	10-117	50	
Isophorone	1660	78		1660	44	67	41	36-104	10-117	50	
2-Methylnaphthalene	1660			1660	63	52	20	36-106	15-116	50	
2-Methylnaphthalene	1660	66		1660	37	53	36	36-106	15-116	50	
2-Methylphenol (o-Cresol)	1660	63		1660	37	54	36	29-108	13-109	50	

* denotes recovery outside of QC limits.
MS spike concentrations are not corrected for moisture content of the spiked sample.

Report of Quality Control

Pace Analytical Services, Inc. - New Orleans

Organic Protocol - Single Batch

Episode: TTZ

Method: Low Soil GC/MS Semivolatile Organics Batch: 31726 Units: ug/kg

Parameter Name	LCS Spike	LCS %Rec	LCSD %Rec	MS Spike	MS %Rec	MSD %Rec	RPD %	QC Limits LCS	QC Limits MS/MSD	RPD Max	Qu
2-Methylphenol (o-Cresol)	1660			1660	62	52	17	29-108	13-109	50	
4-Methylphenol (p-Cresol)	1660			1660	61	54	14	31-103	15-107	50	
4-Methylphenol (p-Cresol)	1660	62		1660	37	54	37	31-103	15-107	50	
Naphthalene	1660			1660	87	56	43	38-93	9-115	50	
Naphthalene	1660	65		1660	32	47	37	38-93	9-115	50	
2-Nitroaniline (o-Nitroaniline)	1660	65		1660	43	63	39	16-117	0-123	50	
2-Nitroaniline (o-Nitroaniline)	1660			1660	52	48	7	16-117	0-123	50	
3-Nitroaniline (m-Nitroaniline)	1660	66		1660	41	59	36	0-102	0-89	50	
3-Nitroaniline (m-Nitroaniline)	1660			1660	47	44	7	0-102	0-89	50	
4-Nitroaniline (p-Nitroaniline)	1660			1660	47	44	7	0-121	0-96	50	
4-Nitroaniline (p-Nitroaniline)	1660	67		1660	47	64	31	0-121	0-96	50	
Nitrobenzene	1660	64		1660	32	48	39	38-95	16-105	50	
Nitrobenzene	1660			1660	50	40	22	38-95	16-105	50	
2-Nitrophenol (o-Nitrophenol)	1660			1660	51	41	23	41-99	12-116	50	
2-Nitrophenol (o-Nitrophenol)	1660	67		1660	37	56	42	41-99	12-116	50	
4-Nitrophenol (p-Nitrophenol)	1660	62		1660	38	55	38	15-117	10-116	50	
4-Nitrophenol (p-Nitrophenol)	1660			1660	41	40	2	15-117	10-116	50	
N-Nitrosodiphenylamine (Diphenylamine)	1660	60		1660	38	54	34	15-121	5-121	50	
N-Nitroso-di-n-propylamine	1660			1660	58	46	22	26-102	13-106	50	
N-Nitroso-di-n-propylamine	1660	59		1660	33	48	37	26-102	13-106	50	
Pentachlorophenol	1660			1660	16	0	200 *	27-106	0-132	50	
Pentachlorophenol	1660	17 *		1660	33	39	16	27-106	0-132	50	Q4
Phenanthrene	1660	63		1660	51	75	33	38-104	0-135	50	
Phenanthrene	1660			1660	82	76	7	38-104	0-135	50	
Phenol	1660			1660	56	50	9	27-102	19-101	50	
Phenol	1660	63		1660	39	58	36	27-102	19-101	50	
Pyrene	1660	62		1660	48	79	40	32-108	7-132	50	
1,2,4-Trichlorobenzene	1660	64		1660	28	40	36	32-99	23-99	50	
1,2,4-Trichlorobenzene	1660			1660	48	35	30	32-99	23-99	50	
2,4,5-Trichlorophenol	1660			1660	54	52	5	40-104	7-125	50	
2,4,5-Trichlorophenol	1660	59		1660	32	46	34	40-104	7-125	50	
2,4,6-Trichlorophenol	1660	58		1660	30	43	36	39-105	7-120	50	
2,4,6-Trichlorophenol	1660			1660	53	47	12	39-105	7-120	50	

117 compound(s) reported

* denotes recovery outside of QC limits.
MS spike concentrations are not corrected for moisture content of the spiked sample.

10/4/99 15:37:25

Report of Batch Surrogate Recovery

Pace Analytical Services, Inc. - New Orleans

Organic Protocol - Single Batch

Method: Low Soil GC/MS Volatile Organics Episode: TTZ

Batch: 31677

Lab ID	Sur 1 %Rec	Sur 2 %Rec	Sur 3 %Rec	Sur 4 %Rec	Sur 5 %Rec	Sur 6 %Rec	Sur 7 %Rec	Sur 8 %Rec
31677B1K15	97	115	118					
31677BK20	85	98	98					
31677BM21	95	109	96					
31677BM22	92	104	96					
31677SK15	90	108	115					
31677SK20	89	93	94					
TTZ-003	93	113	122					
TTZ-004	90	120	119					
TTZ-005	93	110	119					
TTZ-006	89	115	118					
TTZ-007	87	115	117					
TTZ-009	91	109	121					
TTZ-010	90	116	118					
TTZ-011	90	112	117					
TTZ-013	89	115	117					
TTZ-014	93	112	118					
TTZ-015	91	108	118					
TTZ-016MS	94	112	117					
TTZ-017MSD	90	112	118					
TUO-002	93	100	98					
TUO-003	88	99	97					
TUO-004	86	100	102					
TUO-005	83	111	101					
TUO-005RE	87	150	99					
TUO-006	87	102	96					
TUO-007	87	89	99					
TUO-008	79	151	123					
TUO-008RE	79	113	123					
TUO-009	96	88	97					
TUO-010MS	95	95	96					
TUO-011MSD	87	91	97					
TUO-012	93	95	102					
QC limits:	**65 - 124**	**55 - 160**	**59 - 139**					

Sur 1: Toluene-d8 (S)
Sur 2: 4-Bromofluorobenzene (S)
Sur 3: Dibromofluoromethane (S)

* denotes surrogate recovery outside of QC limits.
D denotes surrogate recovery is outside of QC limits due to sample dilution, and is not considered an excursion.
A Lab ID consisting of a batch number with a B suffix is a method blank.
A Lab ID consisting of a batch number with a S suffix is an LCS.
A Lab ID with a MS suffix is a matrix spike.
A Lab ID with a MSD suffix is a matrix spike duplicate.

10/4/99 15:40:46

Report of Batch Surrogate Recovery

Pace Analytical Services, Inc. - New Orleans

Organic Protocol - Single Batch

Method: Low Soil GC/MS Semivolatile Organics Episode: TTZ

Batch: 31726

Lab ID	Sur 1 %Rec	Sur 2 %Rec	Sur 3 %Rec	Sur 4 %Rec	Sur 5 %Rec	Sur 6 %Rec	Sur 7 %Rec	Sur 8 %Rec
31726B1	64	59	63	66	68	62		
31726B2	38	33	49	36	33	30		
31726B3	61	64	62	55	56	73		
31726S1	83	71	67	83	82	72		
TTZ-004	6 *	21	70	24	12 *	85		
TTZ-006	11 *	32	67	31	16	98		
TTZ-007	13	31	51	37	21	49		
TTZ-009	14	24	60	41	23	75		
TTZ-010	17	32	57	45	25	86		
TTZ-011	36	49	74	49	41	46		
TTZ-011RE	34	58	73	43	36	69		
TTZ-013	10 *	26	53	38	35	52		
TTZ-014	12 *	34	58	43	43	44		
TTZ-015	12 *	38	74	38	35	95		
TTZ-016MS	24	32	41	40	42	33		
TTZ-017MSD	34	40	55	51	53	46		
TUO-005	37	45	60	50	41	95		
TUO-006	12 *	36	65	38	24	93		
TUO-007	20	39	62	52	41	53		
TUO-009	36	50	53	48	38	78		
TUO-010MS2	46	63	64	59	55	88		
TUO-011MSD	43	54	60	52	50	73		
TYI-003	28	60	43	43	42	45		
TYI-003DL	48	68	64	59	27	29		
TYS-001	34	55	44	33	32	56		
QC limits:	13 - 119	21 - 112	8 - 128	17 - 112	14 - 104	1 - 138		

Sur 1: Nitrobenzene-d5 (S)
Sur 2: 2-Fluorobiphenyl (S)
Sur 3: Terphenyl-d14 (S)
Sur 4: Phenol-d5 (S)
Sur 5: 2-Fluorophenol (S)
Sur 6: 2,4,6-Tribromophenol (S)

* denotes surrogate recovery outside of QC limits.
D denotes surrogate recovery is outside of QC limits due to sample dilution, and is not considered an excursion.
A Lab ID consisting of a batch number with a B suffix is a method blank.
A Lab ID consisting of a batch number with a S suffix is an LCS.
A Lab ID with a MS suffix is a matrix spike.
A Lab ID with a MSD suffix is a matrix spike duplicate.

10/4/99 15:40:46

Report of Method Blank

Pace Analytical Services, Inc. - New Orleans

Organic Protocol - Single Batch

Lab ID: 31677B1K15

Description: Low Soil Method Blank | Episode: TTZ | % Moisture: n/a

Method: Low Soil GC/MS Volatile Organics | Batch: 31677 | Units: ug/kg

Prep Factor: 1 | Leached: n/a | Prepared: | Analyzed: 15-Sep-99 13:35 KC

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit
67-64-1	Acetone (2-Propanone, Dimethyl ketone)	1	ND		10.0
71-43-2	Benzene	1	ND		5.00
75-27-4	Bromodichloromethane	1	ND		5.00
75-25-2	Bromoform	1	ND		5.00
74-83-9	Bromomethane (Methyl bromide)	1	ND		10.0
78-93-3	2-Butanone (Methyl ethyl ketone)	1	ND		10.0
75-15-0	Carbon disulfide	1	ND		5.00
56-23-5	Carbon tetrachloride	1	ND		5.00
108-90-7	Chlorobenzene	1	ND		5.00
75-00-3	Chloroethane	1	ND		10.0
67-66-3	Chloroform	1	ND		5.00
74-87-3	Chloromethane (Methyl chloride)	1	ND		10.0
124-48-1	Dibromochloromethane	1	ND		5.00
75-34-3	1,1-Dichloroethane	1	ND		5.00
107-06-2	1,2-Dichloroethane (Ethylene dichloride)	1	ND		5.00
75-35-4	1,1-Dichloroethene (Dichloroethylene)	1	ND		5.00
540-59-0	1,2-Dichloroethene (total)	1	ND		5.00
78-87-5	1,2-Dichloropropane	1	ND		5.00
10061-01-5	cis-1,3-Dichloropropene	1	ND		5.00
10061-02-6	trans-1,3-Dichloropropene	1	ND		5.00
100-41-4	Ethylbenzene	1	ND		5.00
591-78-6	2-Hexanone	1	ND		10.0
75-09-2	Methylene chloride (Dichloromethane)	1	ND		5.00
108-10-1	4-Methyl-2-pentanone (MIBK)	1	ND		10.0
100-42-5	Styrene	1	ND		5.00
79-34-5	1,1,2,2-Tetrachloroethane	1	ND		5.00
127-18-4	Tetrachloroethene (Perchloroethylene)	1	ND		5.00
108-88-3	Toluene	1	ND		5.00
71-55-6	1,1,1-Trichloroethane (Methyl chloroform)	1	ND		5.00
79-00-5	1,1,2-Trichloroethane	1	ND		5.00
79-01-6	Trichloroethene (Trichloroethylene)	1	ND		5.00
75-01-4	Vinyl chloride (Chloroethene)	1	ND		10.0
1330-20-7	Xylene (total)	1	ND		5.00

33 compound(s) reported

ND denotes Not Detected at or above the reporting limit.
DF denotes Dilution Factor.
RL denotes sample Reporting Limit.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.

10/4/99 15:40:51

Report of Method Blank

Pace Analytical Services, Inc. - New Orleans

Organic Protocol - Single Batch

Lab ID: 31726B1

Description: Low Soil Method Blank | Episode: TTZ | % Moisture: n/a

Method: Low Soil GC/MS Semivolatile Organics | Batch: 31726 | Units: ug/kg

Prep Factor: 1 | Leached: n/a | Prepared: 16-Sep-99 | Analyzed: 17-Sep-99 13:31 ML

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit
83-32-9	Acenaphthene	1	ND		333
208-96-8	Acenaphthylene	1	ND		333
120-12-7	Anthracene	1	ND		333
56-55-3	Benzo(a)anthracene	1	ND		333
205-99-2	Benzo(b)fluoranthene	1	ND		333
207-08-09	Benzo(k)fluoranthene	1	ND		333
65-85-0	Benzoic acid	1	ND		833
191-24-2	Benzo(g,h,i)perylene	1	ND		333
50-32-8	Benzo(a)pyrene	1	ND		333
100-51-6	Benzyl alcohol	1	ND		333
101-55-3	4-Bromophenyl phenyl ether	1	ND		333
85-68-7	Butylbenzylphthalate	1	ND		333
106-47-8	4-Chloroaniline (p-Chloroaniline)	1	ND		333
111-91-1	bis(2-Chloroethoxy)methane	1	ND		333
111-44-4	bis(2-Chloroethyl) ether	1	ND		333
108-60-1	bis(2-Chloroisopropyl) ether	1	ND		333
59-50-7	4-Chloro-3-methylphenol (p-Chloro-m-cresol)	1	ND		333
91-58-7	2-Chloronaphthalene	1	ND		333
95-57-8	2-Chlorophenol (o-Chlorophenol)	1	ND		333
7005-72-3	4-Chlorophenyl phenyl ether	1	ND		333
218-01-9	Chrysene	1	ND		333
53-70-3	Dibenz(a,h)anthracene	1	ND		333
132-64-9	Dibenzofuran	1	ND		333
84-74-2	Di-n-butylphthalate	1	ND		333
95-50-1	1,2-Dichlorobenzene (o-Dichlorobenzene)	1	ND		333
541-73-1	1,3-Dichlorobenzene (m-Dichlorobenzene)	1	ND		333
106-46-7	1,4-Dichlorobenzene (p-Dichlorobenzene)	1	ND		333
91-94-1	3,3'-Dichlorobenzidine	1	ND		667
120-83-2	2,4-Dichlorophenol	1	ND		333
84-66-2	Diethylphthalate	1	ND		333
105-67-9	2,4-Dimethylphenol	1	ND		333
131-11-3	Dimethylphthalate	1	ND		333
534-52-1	4,6-Dinitro-2-methylphenol (4,6-Dinitro-o-cresol)	1	ND		833
51-28-5	2,4-Dinitrophenol	1	ND		833
121-14-2	2,4-Dinitrotoluene	1	ND		333
606-20-2	2,6-Dinitrotoluene	1	ND		333
117-84-0	Di-n-octylphthalate	1	ND		333
117-81-7	bis(2-Ethylhexyl)phthalate	1	ND		333
206-44-0	Fluoranthene	1	ND		333

ND denotes Not Detected at or above the reporting limit.
DF denotes Dilution Factor.
RL denotes sample Reporting Limit.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.

10/4/99 15:40:51

Report of Method Blank

Pace Analytical Services, Inc. - New Orleans

Organic Protocol - Single Batch

Lab ID: 31726B1
Description: Low Soil Method Blank
Method: Low Soil GC/MS Semivolatile Organics
Prep Factor: 1
Leached: n/a
Episode: TTZ
Batch: 31726
Prepared: 16-Sep-99
% Moisture: n/a
Units: ug/kg
Analyzed: 17-Sep-99 13:31 ML

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit
86-73-7	Fluorene	1	ND		333
118-74-1	Hexachlorobenzene	1	ND		333
87-68-3	Hexachlorobutadiene	1	ND		333
77-47-4	Hexachlorocyclopentadiene	1	ND		333
67-72-1	Hexachloroethane	1	ND		333
193-39-5	Indeno(1,2,3-cd)pyrene	1	ND		333
78-59-1	Isophorone	1	ND		333
91-57-6	2-Methylnaphthalene	1	ND		333
95-48-7	2-Methylphenol (o-Cresol)	1	ND		333
106-44-5	4-Methylphenol (p-Cresol)	1	ND		333
91-20-3	Naphthalene	1	ND		333
88-74-4	2-Nitroaniline (o-Nitroaniline)	1	ND		333
99-09-2	3-Nitroaniline (m-Nitroaniline)	1	ND		833
100-01-6	4-Nitroaniline (p-Nitroaniline)	1	ND		833
98-95-3	Nitrobenzene	1	ND		833
88-75-5	2-Nitrophenol (o-Nitrophenol)	1	ND		333
100-02-7	4-Nitrophenol (p-Nitrophenol)	1	ND		333
86-30-6	N-Nitrosodiphenylamine (Diphenylamine)	1	ND		833
621-64-7	N-Nitroso-di-n-propylamine	1	ND	A10	333
87-86-5	Pentachlorophenol	1	ND		333
85-01-8	Phenanthrene	1	ND		833
108-95-2	Phenol	1	ND		333
129-00-0	Pyrene	1	ND		333
120-82-1	1,2,4-Trichlorobenzene	1	ND		333
95-95-4	2,4,5-Trichlorophenol	1	ND		333
88-06-2	2,4,6-Trichlorophenol	1	ND		833
		1	ND		333

65 compound(s) reported

ND denotes Not Detected at or above the reporting limit.
DF denotes Dilution Factor.
RL denotes sample Reporting Limit.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.

Report of Quality Control

Pace Analytical Services, Inc. - New Orleans

Organic Protocol - Single Batch

Episode: TTZ

Method: Low Soil GC Organics Batch: 31686 Units: mg/kg

Parameter Name	LCS Spike	LCS %Rec	LCSD %Rec	MS Spike	MS %Rec	MSD %Rec	RPD %	QC Limits LCS	QC Limits MS/MSD	RPD Max	Qu
TPH - Diesel Range Organics	10.0	86		10.0	390 *	640 *	18	49-145	0-186	50	Q3

1 compound(s) reported

* denotes recovery outside of QC limits.
MS spike concentrations are not corrected for moisture content of the spiked sample.

10/4/99 15:40:59

Report of Quality Control

Pace Analytical Services, Inc. - New Orleans

Organic Protocol - Single Batch

Episode: TTZ

Method: Med Soil GC Organics Batch: 31710 Units: ug/kg

Parameter Name	LCS Spike	LCS %Rec	LCSD %Rec	MS Spike	MS %Rec	MSD %Rec	RPD %	QC Limits LCS	QC Limits MS/MSD	RPD Max	Qu
TPH - Gasoline Range Organics	50000	108		50000	90	93	3	55-133	9-158	50	

1 compound(s) reported

* denotes recovery outside of QC limits.
MS spike concentrations are not corrected for moisture content of the spiked sample.

10/4/99 15:40:59

Report of Quality Control

Pace Analytical Services, Inc. - New Orleans

Organic Protocol - Single Batch

Episode: TTZ

Method: Low Soil GC Pesticides/PCBs and Chlorinated Hy Batch: 31674 Units: ug/kg

Parameter Name	LCS Spike	LCS %Rec	LCSD %Rec	MS Spike	MS %Rec	MSD %Rec	RPD %	QC Limits LCS	QC Limits MS/MSD	RPD Max	Qu
Aldrin	16.7	86		16.7	98	88	10	51-118	0-172	50	
alpha-BHC	16.7	79		16.7	84	71	17	26-134	11-134	50	
beta-BHC	16.7	86		16.7	107	102	5	59-104	2-146	50	
delta-BHC	16.7	104		16.7	110	98	12	59-131	4-186	50	
gamma-BHC (Lindane)	16.7	87		16.7	88	73	18	51-118	0-159	50	
4,4'-DDD (p,p'-DDD)	16.7	84		16.7	94	96	2	29-150	0-148	50	
4,4'-DDE (p,p'-DDE)	16.7	87		16.7	143	103	28	64-116	10-144	50	
4,4'-DDT (p,p'-DDT)	16.7	92		16.7	93	95	2	54-130	15-145	50	
Dieldrin	16.7	85		16.7	95	87	9	52-124	30-131	50	
Endosulfan I (alpha-Endosulfan)	16.7	81		16.7	0	0	0	54-116	0-146	50	Q2
Endosulfan II (beta-Endosulfan)	16.7	78		16.7	0 *	31	200 *	54-121	5-155	50	Q2
Endosulfan sulfate	16.7	86		16.7	91	81	11	51-134	0-163	50	
Endrin	16.7	93		16.7	104	101	3	5-177	0-187	50	
Endrin aldehyde	16.7	58		16.7	65	69	5	27-132	0-174	50	
Heptachlor	16.7	86		16.7	90	78	14	56-115	5-143	50	
Heptachlor epoxide	16.7	72		16.7	99	80	21	53-117	33-126	50	
Methoxychlor	16.7	93		16.7	107	129	19	50-150	14-162	50	

17 compound(s) reported

* denotes recovery outside of QC limits.
MS spike concentrations are not corrected for moisture content of the spiked sample.

10/4/99 15:40:59

Report of Batch Surrogate Recovery

Pace Analytical Services, Inc. - New Orleans

Organic Protocol - Single Batch

Method: Low Soil GC Pesticides/PCBs and Chlorinated Hydrocarbons

Episode: TTZ

Batch: 31674

Lab ID	Sur 1 %Rec	Sur 2 %Rec	Sur 3 %Rec	Sur 4 %Rec	Sur 5 %Rec	Sur 6 %Rec	Sur 7 %Rec	Sur 8 %Rec
31674B1	77	89	68	88				
31674S1	75	96	68	91				
TTZ-004	73	408 D	58	52				
TTZ-006	66	0 D	44	0 D				
TTZ-007	65	1195 D	53	101				
TTZ-009	72	73	66	70				
TTZ-010	117	121	73	100				
TTZ-011	68	265 D	67	60				
TTZ-012	102	91	85	92				
TTZ-013	80	110	72	103				
TTZ-014	62	108	62	83				
TTZ-015	78	96	72	91				
TTZ-016MS	68	138	71	130				
TTZ-017MSD	67	123	65	147				
TUO-001	141	109	71	84				
TUO-005	69	70	67	76				
TUO-006	87	126	73	96				
TUO-007	86	98	59	84				
QC limits:	0 - 169	1 - 200	7 - 160	13 - 187				

Sur 1: Tetrachloro-m-xylene (S)
Sur 2: Decachlorobiphenyl (S)
Sur 3: Tetrachloro-m-xylene (confirmation) (S)
Sur 4: Decachlorobiphenyl (confirmation) (S)

* denotes surrogate recovery outside of QC limits.
D denotes surrogate recovery is outside of QC limits due to sample dilution, and is not considered an excursion.
A Lab ID consisting of a batch number with a B suffix is a method blank.
A Lab ID consisting of a batch number with a S suffix is an LCS.
A Lab ID with a MS suffix is a matrix spike.
A Lab ID with a MSD suffix is a matrix spike duplicate.

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Report of Batch Surrogate Recovery

Pace Analytical Services, Inc. - New Orleans

Organic Protocol - Single Batch

Method: Low Soil GC Organics

Episode: TTZ

Batch: 31686

Lab ID	Sur 1 %Rec	Sur 2 %Rec	Sur 3 %Rec	Sur 4 %Rec	Sur 5 %Rec	Sur 6 %Rec	Sur 7 %Rec	Sur 8 %Rec
31686B1	76							
31686S1	64							
TTZ-001	352 *							
TTZ-003	108							
TTZ-004	346 *							
TTZ-005	232 D							
TTZ-006	196 D							
TTZ-007	155							
TTZ-008	97							
TTZ-009	166 *							
TTZ-010	241 *							
TTZ-011	18 D							
TTZ-013	120							
TTZ-014	95							
TTZ-015	95							
TTZ-016MS	99							
TTZ-017MSD	139							
TUO-002	462 *							
TUO-003	128							
TUO-004	243 *							
TUO-005	113							
TUO-006	59							
TUO-007	171 D							
TUO-008	43							
QC limits:	22 - 165							

Sur 1: n-Pentacosane (S)

* denotes surrogate recovery outside of QC limits.
D denotes surrogate recovery is outside of QC limits due to sample dilution, and is not considered an excursion.
A Lab ID consisting of a batch number with a B suffix is a method blank.
A Lab ID consisting of a batch number with a S suffix is an LCS.
A Lab ID with a MS suffix is a matrix spike.
A Lab ID with a MSD suffix is a matrix spike duplicate.

10/4/99 15:41:21

Report of Batch Surrogate Recovery

Pace Analytical Services, Inc. - New Orleans

Organic Protocol - Single Batch

Method: Med Soil GC Organics

Episode: TTZ

Batch: 31710

Lab ID	Sur 1 %Rec	Sur 2 %Rec	Sur 3 %Rec	Sur 4 %Rec	Sur 5 %Rec	Sur 6 %Rec	Sur 7 %Rec	Sur 8 %Rec
31710B1	112							
31710S1	108							
TTZ-001	113							
TTZ-003	89							
TTZ-004	63							
TTZ-005	97							
TTZ-006	79							
TTZ-007	99							
TTZ-008	81							
TTZ-009	97							
TTZ-010	83							
TTZ-011	95							
TTZ-013	99							
TTZ-014	94							
TTZ-015	92							
TTZ-016MS	98							
TTZ-017MSD	107							
QC limits:	36 - 160							

Sur 1: 1,2,4-Trichlorobenzene (S)

* denotes surrogate recovery outside of QC limits.
D denotes surrogate recovery is outside of QC limits due to sample dilution, and is not considered an excursion.
A Lab ID consisting of a batch number with a B suffix is a method blank.
A Lab ID consisting of a batch number with a S suffix is an LCS.
A Lab ID with a MS suffix is a matrix spike.
A Lab ID with a MSD suffix is a matrix spike duplicate.

10/4/99 15:41:22

Report of Method Blank

Pace Analytical Services, Inc. - New Orleans

Organic Protocol - Single Batch

Lab ID: 31686B1

Description: Low Soil Method Blank | Episode: TTZ | % Moisture: n/a

Method: Low Soil GC Organics | Batch: 31686 | Units: mg/kg

Prep Factor: 1 | Leached: n/a | Prepared: 14-Sep-99 | Analyzed: 22-Sep-99 13:15 SRT

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit
	TPH - Diesel Range Organics	1	ND		6.50

1 compound(s) reported

ND denotes Not Detected at or above the reporting limit.
DF denotes Dilution Factor.
RL denotes sample Reporting Limit.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.

10/4/99 15:41:26

Report of Method Blank

Pace Analytical Services, Inc. - New Orleans

Organic Protocol - Single Batch

Lab ID: 31710B1

Description: Med Soil Method Blank | Episode: TTZ | % Moisture: n/a

Method: Med Soil GC Organics | Batch: 31710 | Units: ug/kg

Prep Factor: 1 | Leached: n/a | Prepared: 18-Sep-99 | Analyzed: 18-Sep-99 10:55 KN

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit
	TPH - Gasoline Range Organics	1	ND		5000

1 compound(s) reported

ND denotes Not Detected at or above the reporting limit.
DF denotes Dilution Factor.
RL denotes sample Reporting Limit.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.

10/4/99 15:41:26

Report of Method Blank

Pace Analytical Services, Inc. - New Orleans

Organic Protocol - Single Batch

Lab ID: 31674B1

Description: Low Soil Method Blank Episode: TTZ % Moisture: n/a

Method: Low Soil GC Pesticides/PCBs and Chlorinated Hy Batch: 31674 Units: ug/kg

Prep Factor: 1 Leached: n/a Prepared: 14-Sep-99 Analyzed: 22-Sep-99 11:27 ML

CAS Number	Parameter	Dilution	Result	Qu	Reporting Limit
309-00-2	Aldrin	1	ND		1.70
319-84-6	alpha-BHC	1	ND		1.70
319-85-7	beta-BHC	1	ND		1.70
319-86-9	delta-BHC	1	ND		1.70
58-89-9	gamma-BHC (Lindane)	1	ND		1.70
57-74-9	Chlordane (technical)	1	ND		16.7
72-54-9	4,4'-DDD (p,p'-DDD)	1	ND		3.30
72-55-9	4,4'-DDE (p,p'-DDE)	1	ND		3.30
50-29-3	4,4'-DDT (p,p'-DDT)	1	ND		3.30
60-57-1	Dieldrin	1	ND		3.30
959-98-8	Endosulfan I (alpha-Endosulfan)	1	ND		1.70
33213-65-9	Endosulfan II (beta-Endosulfan)	1	ND		3.30
1031-07-8	Endosulfan sulfate	1	ND		3.30
72-20-8	Endrin	1	ND		3.30
7421-36-3	Endrin aldehyde	1	ND		3.30
76-44-8	Heptachlor	1	ND		1.70
1024-57-3	Heptachlor epoxide	1	ND		1.70
72-43-5	Methoxychlor	1	ND		16.7
8001-35-2	Toxaphene	1	ND		80.0
12674-11-2	Aroclor-1016	1	ND		33.3
11104-28-2	Aroclor-1221	1	ND		33.3
11141-16-5	Aroclor-1232	1	ND		33.3
53469-21-9	Aroclor-1242	1	ND		33.3
12672-29-6	Aroclor-1248	1	ND		33.3
11097-69-1	Aroclor-1254	1	ND		33.3
1109-82-5	Aroclor-1260	1	ND		33.3

26 compound(s) reported

ND denotes Not Detected at or above the reporting limit.
DF denotes Dilution Factor.
RL denotes sample Reporting Limit.
Qu lists qualifiers. Specific qualifiers are defined at the end of the report.

10/4/99 15:41:26

Report of Quality Control

Pace Analytical Services, Inc. - New Orleans

Multiple Parameters - Multiple Batches

Episode: TTZ

Parameter Name	Batch	Blank	Units	LCS Spike	LCS %Rec	LCSD %Rec	MS Spike	MS %Rec	MSD %Rec	Dup RPD	QC Limits LCS	QC Limits MS/MSD	RPD Max	Qu
Mercury	31692	ND	mg/kg	2.17	97		0.500	97	99	1	54-146	75-125	20	
Mercury	31692	ND	mg/kg	2.17			0.500	40 *	26 *	43 *	54-146	75-125	20	
Antimony	31693	ND	mg/kg	33.0	83		100	53 *	52 *		18-182	75-125	20	Q1
Antimony	31693	ND	mg/kg	33.0			100	30 *	33 *		18-182	75-125	20	Q1
Arsenic	31693	ND	mg/kg	93.9			400	83	83		68-132	75-125	20	
Arsenic	31693	ND	mg/kg	93.9	94		400	87	89		68-132	75-125	20	
Barium	31693	ND	mg/kg	330			400	91	88		53-147	75-125	20	
Barium	31693	ND	mg/kg	330	92		400	100	97		53-147	75-125	20	
Beryllium	31693	ND	mg/kg	42.7			10.0	85	82		70-130	75-125	20	
Beryllium	31693	ND	mg/kg	42.7	85		10.0	92	92		70-130	75-125	20	
Cadmium	31693	ND	mg/kg	97.2			10.0	72 *	72 *		70-130	75-125	20	Q1
Cadmium	31693	ND	mg/kg	97.2	86		10.0	72 *	73 *		70-130	75-125	20	Q1
Chromium	31693	ND	mg/kg	46.0	86		40.0	111	103		70-130	75-125	20	
Chromium	31693	ND	mg/kg	46.0			40.0	79	80		70-130	75-125	20	
Copper	31693	ND	mg/kg	147	88		50.0	0 *	0 *		69-131	75-125	20	Q1
Copper	31693	ND	mg/kg	147			50.0	121	131 *		69-131	75-125	20	Q1
Lead	31693	ND	mg/kg	135			100	89	100		72-128	75-125	20	
Lead	31693	ND	mg/kg	135	92		100	137 *	124		72-128	75-125	20	Q1
Nickel	31693	ND	mg/kg	138			100	88	84		73-127	75-125	20	
Nickel	31693	ND	mg/kg	138	97		100	92	94		73-127	75-125	20	
Selenium	31693	ND	mg/kg	96.0			400	76	73 *		67-133	75-125	20	
Selenium	31693	ND	mg/kg	96.0	86		400	77	78		67-133	75-125	20	
Silver	31693	ND	mg/kg	86.7			10.0	60 *	59 *		37-163	75-125	20	Q1
Silver	31693	ND	mg/kg	86.7	64		10.0	53 *	53 *		37-163	75-125	20	Q1
Thallium	31693	ND	mg/kg	45.7			400	81	80		75-125	75-125	20	
Thallium	31693	ND	mg/kg	45.7	93		400	77	80		75-125	75-125	20	
Vanadium	31693	ND	mg/kg	65.1	78		100	100	100		68-132	75-125	20	
Vanadium	31693	ND	mg/kg	65.1			100	84	81		68-132	75-125	20	
Zinc	31693	ND	mg/kg	75.0	80		100	166 *	76		77-123	75-125	20	Q1
Zinc	31693	ND	mg/kg	75.0			100	119	133 *		77-123	75-125	20	

=(Count([ParaCode])) -" parameter(s) reported"
* denotes recovery outside of QC limits.
Spike amounts are not corrected for moisture content of the spiked sample.

10/4/99 15:41:31

Report of Quality Control

Pace Analytical Services, Inc. - New Orleans

Multiple Parameters - Multiple Batches

Episode: TTZ

Parameter Name	Batch	Blank	Units	LCS Spike	LCS %Rec	LCSD %Rec	MS Spike	MS %Rec	MSD %Rec	Dup RPD	QC Limits LCS	QC Limits MS/MSD	RPD Max	Qu
Oil & Grease	31743	ND	mg/kg	3430	103		2989	130 *			80-120	75-125	20	Q6
Oil & Grease	31743	ND	mg/kg				3403	130 *			80-120	75-125	20	Q6

=(Count([ParaCode])) &" parameter(s) reported"
* denotes recovery outside of QC limits.
Spike amounts are not corrected for moisture content of the spiked sample.

10/4/99 15:41:37

Report Qualifiers

Pace Analytical Services, Inc. - New Orleans

Single Episode

Episode: TTZ

Qualifier	Qualifier Description
A10	N-Nitrosodiphenylamine is reported as diphenylamine.
A11	This analyte is a common solvent. Its presence in field samples may be an artifact of sample collection, transport, laboratory storage or analysis.
D1	The analysis was performed at a dilution due to the high analyte concentration.
D2	The analysis was performed at a dilution due to the presence of matrix interferences.
G1	Interferences are present which caused poor surrogate recovery.
M2	The sample required reanalysis due to internal standard response outside the QC limits. Reanalysis yielded similar results, indicating a sample matrix effect. The results reported are from the original analysis.
N	See narrative for a detailed explanation.
P2	The sample extract could not be concentrated to the method specified final volume. The reporting limit is elevated accordingly.
Q1	The matrix spike recoveries are poor. Acceptable method performance for this analyte has been demonstrated by the laboratory control sample recovery.
Q2	The matrix spike recoveries are poor due to the presence of matrix interferences. Acceptable method performance for this analyte has been demonstrated by the laboratory control sample recovery.
Q3	The matrix spike recoveries are poor due to the presence of this analyte in the sample at a concentration greater than 4 times the spiked amount. Acceptable method performance for this analyte has been demonstrated by the laboratory control sample.
Q4	The laboratory control sample recovery is poor. Acceptable method performance for this analyte has been demonstrated by the matrix spike recovery.
Q6	The poor matrix spike recovery is attributed to the non-homogenous nature of the sample. Acceptable method performance for this analyte has been demonstrated by the laboratory control sample recovery.

pace INCORPORATED
THE ASSURANCE OF QUALITY

136178

CHAIN-OF-CUSTODY RECORD
Analytical Request

Client: Dames & Moore
Address: 6310 Lamar, #135
Overland Park, KS 66202
Phone: (913) 677-1490

Report To: Doug Kuhn
Bill To: see above
P.O. # / Billing Reference: 08678-049-149
Project Name / No.: IHNC - Phase III

Pace Client No.
Pace Project Manager
Pace Project No.
*Requested Due Date:

Sampled By (PRINT): TTZ
Sampler Signature
Date Sampled: DEK/ALS/DB 9-7 / 9-8-99

ITEM NO.	SAMPLE DESCRIPTION	TIME	MATRIX	PACE NO.	NO. OF CONTAINERS	PRESERVATIVES: UNPRESERVED	H_2SO_4	HNO_3	VOA	ANALYSES REQUEST: VOC-8260	SVOC-8270	GRO (TPH)	DRO (TPH)	RCRA 8	Oil & Grease (413.1)	Pest	PCB	Mississippi List % Solid	REMARKS
1	IEBS 12 BS		Sed		2 ✓							✓	✓		✓		✓		(01)
2	IGBS 11 BS		Sed		2 ✓					✓	✓	✓	✓	✓	✓	✓	✓	✓	(01)
3	IEBS 18 BS		Sed		2 ✓					✓		✓	✓				✓		(01)
4	IEBS 16 BS		Sed		2 ✓					✓	✓	✓	✓	✓	✓	✓	✓	✓	(01)
5	IEBS 17 BS		Sed		2 ✓					✓		✓	✓		✓		✓		(01)
6	IEBS 20 HS		Sed		2 ✓					✓	✓	✓	✓	✓	✓	✓	✓	✓	(01)
7	IEBS 21 HS		Sed		2 ✓					✓	✓	✓	✓	✓	✓	✓	✓	✓	(01)
8	IEBS 19 HS		Sed		3 ✓							✓	✓		✓		✓		(01)

COOLER NOS.	BAILERS	SHIPMENT METHOD OUT / DATE	SHIPMENT METHOD RETURNED / DATE	ITEM NUMBER	RELINQUISHED BY / AFFILIATION	ACCEPTED BY / AFFILIATION	DATE	TIME
					TTZ	Robert Baron	9/9/99	1800

Additional Comments
Results as received

Temp 0.5°C KWB 9/9/99

SEE REVERSE SIDE FOR INSTRUCTIONS

pace INCORPORATED THE ASSURANCE OF QUALITY

186178

CHAIN-OF-CUSTODY RECORD
Analytical Request

Client: Dames & Moore
Address: 6310 Lamar #135
Overland Park, KS 66202
Phone: (913) 677-1490

Report To: Doug Kuhn
Bill To: see above
P.O. # / Billing Reference: 08678-049-145
Project Name / No.: IHNC - Phase III

Pace Client No.:
Pace Project Manager:
Pace Project No.:
*Requested Due Date:

Sampled By (PRINT): [signature]
Sampler Signature: DEK/ALS/DB
Date Sampled: 9-7/9-8-99

ITEM NO.	SAMPLE DESCRIPTION	TIME	MATRIX	PACE NO.	NO. OF CONTAINERS	UNPRESERVED	H_2SO_4	HNO_3	VOA			VOC-8260	SVOC-8270	GRO (TPH)	DRO (TPH)	RCRA 8	Oil & Grease	Pest	PCB	Moisture Content % solid	REMARKS
1	IEBS 11-BS		Sed		2	✓						✓	✓	✓	✓	✓	✓	✓	✓	✓	(01)
2	IEBS 03-HS		Sed		2	✓						✓	✓	✓	✓	✓	✓	✓	✓	✓	(01)
3	IEBS-01-HS		Sed		2	✓						✓	✓	✓	✓	✓	✓	✓	✓	✓	(01)
4	IEBS-02-HS		Sed		2	✓										✓		✓	✓	✓	(01)
5	Background (IEBS-22-HS)		Sed		2	✓						✓	✓	✓	✓	✓	✓	✓	✓	✓	(01)
6	IEBS-22-HS-QA		Sed		2	✓						✓	✓	✓	✓	✓	✓	✓	✓	✓	(01)
7	IEBS-22-HS-QC		Sed		2	✓						✓	✓	✓	✓	✓	✓	✓	✓	✓	(01)
8	IEBS-22-HS-MS/MSD		Sed		2	✓						✓	✓	✓	✓	✓	✓	✓	✓	✓	(01)

COOLER NOS.	BAILERS	SHIPMENT METHOD OUT / DATE	RETURNED / DATE	ITEM NUMBER	RELINQUISHED BY / AFFILIATION	ACCEPTED BY / AFFILIATION	DATE	TIME
					[signature]	[signature]	9/9/99	1900

Additional Comments
Results as received

Temp 0.6°C
KWB 9/9/99

SEE REVERSE SIDE FOR INSTRUCTIONS

Appendix C

APPENDIX C

Southwest Laboratories

APPENDIX D

LOSCO Reports

APPENDIX E

Photo Log

APPENDIX F

Sediment Sampling Logs

APPENDIX C

Southwest Laboratories

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

October 15, 1999

Doug Kahn
DAMES & MOORE
6310 Lamar #135
Overland Park, KS 66202-424

Project: **IHNC PHASE 3**
SWLO SDG: 40286
SWLO ID: 40286.01- 40286.04

Dear Mr. Kahn:

Please find enclosed our standard tabular report for your samples received in our laboratory on September 10, 1999. In order to perform TPH GRO, TPH DRO and Oil & Grease analysis per project requirements, sub-samples were forwarded to ATAS, Inc., Baton Rouge LA. Their findings are included this report.

Thank you for choosing Southwest Laboratory. In your review, if you should have any questions or require additional information, do not hesitate to call.

Sincerely,

Randy Staggs
Project Officer

Enclosures

1700 West Albany • Broken Arrow, OK 74012-1421 • Office (918) 251-2858 • Fax (918) 251-2599

Pace Analytical

The Right Chemistry, The Right Solution®

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurat

478983

Page: of

Required Client Information: Section A

Company: Dames & Moore
Address: 6310 Lamar #135
Overland Park, KS
Phone: (913)677-1450 Fax: (913)677-3818

Required Client Information: Section B

Report To: Doug Kuhn
Invoice To: Doug Kuhn
P.O.:
Project Name: THNC - Phase III
Project Number: 09678-049-149

Client Information (Check quote/contract):
Requested Due Date: *TAT: 10

* Under 14 day turnaround subject to laboratory and contractual obligations and may result in a Rush Turnaround Surcharge.
Turn Around Time (TAT) in calender days.

To Be Completed by Pace Analytical and Client: Section C

Quote Reference:
Project Manager:
Project #:
Profile #:

Section D Required Client Information:

SAMPLE ID
One character per box.
(A–Z, 0–9 / .-)
Sample IDs MUST BE UNIQUE

Valid Matrix Codes

MATRIX	CODE
WATER	WT
SOIL	SL
OIL	OL
WIPE	WP
AIR	AR
TISSUE	TS
OTHER	OT

Requested Analysis: VOC 8260, SVOC 8270, GRO (TPH), DRO (TPH), RCRA 8, Al & Iron, Pest, PCB

ITEM #	SAMPLE ID	MATRIX CODE	DATE COLLECTED (mm / dd / yy)	TIME COLLECTED (mm:hh a/p)	# Containers	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Remarks / Lab ID
1	IEBS-16-BS	OT			2	✓						Sediment
2	IEBS-11-BS	OT			2	✓						11
3	IEBS-09-HS	OT			2	✓						11
4	IEBS-05-HS	OT			2	✓						11
5												
6												
7												
8												
9												
10												
11												
12												

Sample Condition		Sample Notes	Item No.	Relinquished By / Company	Date	Time	Accepted By / Company	Date	Time
Temp in °C:	1.4°C			D&M	9/9/99	1900	Federal Express		
Received on ICE:	Y / N						Air bill # 813525281763		
Sealed Cooler:	Y / N			Fedex				9/10/99	10:00
Samples Intact:	Y / N						SW Labs		

Additional Comments:

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Doug Kuhn
SIGNATURE of SAMPLER:
DATE Signed: (MM / DD / YY) 9-9-99

SEE REVERSE SIDE FOR INSTRUCTIONS

SWLO Qualifier Flags

GENERAL
ADMINISTRATIVE

METHODOLOGY

SM	=	Standard Methods, 18th Edition, 1992
EPA	=	#EPA600 / 4-79-020, March 1985
SW	=	EPA Methodology, "#SW846", Final Update III, June, 1997

GENERAL QUALIFIER FLAGS

B	=	Analyte is detected in blank as well as sample
J	=	Estimated value: concentration is below limit of quantitation
T	=	Trace amount
U	=	Not detected
>	=	Concentration greater than value reported
E	=	Compound exceeds calibration range
D	=	Sample dilution run or surrogates diluted out Sample run at secondary dilution
I	=	Not quantifiable due to matrix interference
*	=	Surrogate outside of QC limits on both original and re-analysis
P	=	Pesticide Aroclor Flag used when >25% difference between two GC columns. The lower of the two values is reported.

TPH 8015

1	=	Analysis shows miscellaneous peaks, which cannot be identified as any specific pattern. Response factor for nearest eluting hydrocarbon standard was used to calculate concentration.
2	=	Pattern is similar to, but not identical to standard.
3	=	May be a weathered gasoline.

APPENDIX IX SEMIVOLATILES

1	=	Detected as Diphenylamine
2	=	Coelute on GC Column

TCLP SEMIVOLATILES

1	=	1-methyl phenol
2	=	Compounds Co-elute (3 & 4-methylphenol)
3	=	Combination of O, M, & P Cresols

DIOXINS

X	=	EMPC (Estimated Maximum Possible Concentration)
I *	=	EMPC – ether interference

SOUTHWEST LABORATORY OF OKLAHOMA
1700 West Albany, Suite A / Broken Arrow, OK 74012
918-251-2858

SDG NARRATIVE

September 30, 1999

CLIENT: D&MKSC

SDG No.: 40286

VOLATILE FRACTION

Four soil samples were submitted for Volatile Organic Analysis. The samples were analyzed by GC/MS following Method SW846-8260B.

No major problems occurred during the analyses of these samples.

Blanks: No problems.

Surrogates: No problems.

Laboratory Control Spikes: LCS1 and LCSD1 each contained three target compounds outside QC recovery limits (one high / two less than 10% low).

Internal Standards: No problems.

Matrix Spikes: No matrix spikes were submitted with this SDG. Analytical batch R990915A contained an MS/MSD from SWLO episode 40286 (not submitted).

Janet Williamson
Volatile Data Review

September 30, 1999

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany Broken Arrow, Oklahoma 74012 Office (918) 251-2858 Fax (918) 251-2599

DAMES & MOORE
6310 LAMAR AVENUE #135
OVERLAND PARK, KS 66202-424

Attn: JEFF DARLING

REPORT : 40286.01
QAQC# : R990915A
INSTR SEQ: 281956-BAVr
REPORTED : 10/14/99

PROJECT : IHNC PHASE 3
LAB# : 40286.01
SAMPLE #: EBS-16-BS
LOCATION:

MATRIX : Soil
METHOD : SW-846/8260B

SAMPLED : / /
SUBMITTED: 09/10/99

ANALYZED : 09/15/99
DILUTION : 1.00
%MOISTURE: 25.0
LEVEL : L

VOLATILE CLP
RESULTS REPORT IN ug/Kg ON A DRY WEIGHT BASIS

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	7	U	BROMODICHLOROMETHANE	7	U
VINYL CHLORIDE	7	U	CIS-1,3-DICHLOROPROPENE	7	U
BROMOMETHANE	7	U	4-METHYL-2-PENTANONE	7	U
CHLOROETHANE	7	U	TOLUENE	7	U
1,1-DICHLOROETHENE	7	U	TRANS-1,3-DICHLOROPROPENE	7	U
ACETONE	7	U	1,1,2-TRICHLOROETHANE	7	U
CARBON DISULFIDE	7	U	TETRACHLOROETHENE	7	U
METHYLENE CHLORIDE	7	U	2-HEXANONE	7	U
TRANS-1,2-DICHLOROETHENE	7	U	DIBROMOCHLOROMETHANE	7	U
1,1-DICHLOROETHANE	7	U	CHLOROBENZENE	7	U
CIS-1,2-DICHLOROETHENE	7	U	ETHYLBENZENE	7	U
2-BUTANONE	7	U	M,P-XYLENE	7	U
CHLOROFORM	7	U	O-XYLENE	7	U
1,1,1-TRICHLOROETHANE	7	U	STYRENE	7	U
CARBON TETRACHLORIDE	7	U	BROMOFORM	7	U
BENZENE	7	U	1,1,2,2-TETRACHLOROETHANE	7	U
1,2-DICHLOROETHANE	7	U	1,2-DICHLOROETHENE(TOTAL)	7	U
TRICHLOROETHENE	7	U	XYLENE (TOTAL)	7	U
1,2-DICHLOROPROPANE	7	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	92 %	BROMOFLUOROBENZENE	(74-121)	93 %
1,2-DICHLOROETHANE-D4	(80-120)	100 %	DIBROMOFLUOROMETHANE	(80-120)	83 %

SOUTHWEST LABORATORY OF OKLAHOMA, INC.
1700 West Albany Broken Arrow, Oklahoma 74012 Office (918) 251-2858 Fax (918) 251-2599

DAMES & MOORE
6310 LAMAR AVENUE #135
OVERLAND PARK, KS 66202-424

Attn: JEFF DARLING

REPORT : 40286.02
QAQC# : R990915A
INSTR SEQ: 281956-BAVr
REPORTED : 10/14/99

PROJECT : IHNC PHASE 3
LAB# : 40286.02
SAMPLE #: EBS-11-BS
LOCATION:

MATRIX : Soil
METHOD : SW-846/8260B

SAMPLED : / /
SUBMITTED: 09/10/99

ANALYZED : 09/15/99
DILUTION : 1.00
%MOISTURE: 41.0
LEVEL : L

VOLATILE CLP
RESULTS REPORT IN ug/Kg ON A DRY WEIGHT BASIS

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	8	U	BROMODICHLOROMETHANE	8	U
VINYL CHLORIDE	8	U	CIS-1,3-DICHLOROPROPENE	8	U
BROMOMETHANE	8	U	4-METHYL-2-PENTANONE	8	U
CHLOROETHANE	8	U	TOLUENE	8	U
1,1-DICHLOROETHENE	8	U	TRANS-1,3-DICHLOROPROPENE	8	U
ACETONE	25		1,1,2-TRICHLOROETHANE	8	U
CARBON DISULFIDE	8	U	TETRACHLOROETHENE	8	U
METHYLENE CHLORIDE	8	U	2-HEXANONE	8	U
TRANS-1,2-DICHLOROETHENE	8	U	DIBROMOCHLOROMETHANE	8	U
1,1-DICHLOROETHANE	8	U	CHLOROBENZENE	8	U
CIS-1,2-DICHLOROETHENE	8	U	ETHYLBENZENE	8	U
2-BUTANONE	8	U	M,P-XYLENE	8	U
CHLOROFORM	8	U	O-XYLENE	8	U
1,1,1-TRICHLOROETHANE	8	U	STYRENE	8	U
CARBON TETRACHLORIDE	8	U	BROMOFORM	8	U
BENZENE	8	U	1,1,2,2-TETRACHLOROETHANE	8	U
1,2-DICHLOROETHANE	8	U	1,2-DICHLOROETHENE(TOTAL)	8	U
TRICHLOROETHENE	8	U	XYLENE (TOTAL)	8	U
1,2-DICHLOROPROPANE	8	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117) 93	%	BROMOFLUOROBENZENE	(74-121) 91	%
1,2-DICHLOROETHANE-D4	(80-120) 112	%	DIBROMOFLUOROMETHANE	(80-120) 82	%

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DAMES & MOORE
6310 LAMAR AVENUE #135
OVERLAND PARK, KS 66202-424

Attn: JEFF DARLING

REPORT : 40286.03
QAQC# : R990915A
INSTR SEQ: 281956-BAVr
REPORTED : 10/14/99

PROJECT : IHNC PHASE 3
LAB# : 40286.03
SAMPLE #: EBS-08-HS
LOCATION:

MATRIX : Soil
METHOD : SW-846/8260B

SAMPLED : / /
SUBMITTED: 09/10/99

ANALYZED : 09/15/99
DILUTION : 1.00
%MOISTURE: 51.0
LEVEL : L

VOLATILE CLP
RESULTS REPORT IN ug/Kg ON A DRY WEIGHT BASIS

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	10	U	BROMODICHLOROMETHANE	10	U
VINYL CHLORIDE	10	U	CIS-1,3-DICHLOROPROPENE	10	U
BROMOMETHANE	10	U	4-METHYL-2-PENTANONE	10	U
CHLOROETHANE	10	U	TOLUENE	10	U
1,1-DICHLOROETHENE	10	U	TRANS-1,3-DICHLOROPROPENE	10	U
ACETONE	11		1,1,2-TRICHLOROETHANE	10	U
CARBON DISULFIDE	10	U	TETRACHLOROETHENE	10	U
METHYLENE CHLORIDE	10	U	2-HEXANONE	10	U
TRANS-1,2-DICHLOROETHENE	10	U	DIBROMOCHLOROMETHANE	10	U
1,1-DICHLOROETHANE	10	U	CHLOROBENZENE	10	U
CIS-1,2-DICHLOROETHENE	10	U	ETHYLBENZENE	10	U
2-BUTANONE	10	U	M,P-XYLENE	10	U
CHLOROFORM	10	U	O-XYLENE	10	U
1,1,1-TRICHLOROETHANE	10	U	STYRENE	10	U
CARBON TETRACHLORIDE	10	U	BROMOFORM	10	U
BENZENE	10	U	1,1,2,2-TETRACHLOROETHANE	10	U
1,2-DICHLOROETHANE	10	U	1,2-DICHLOROETHENE(TOTAL)	10	U
TRICHLOROETHENE	10	U	XYLENE (TOTAL)	10	U
1,2-DICHLOROPROPANE	10	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	90	%	BROMOFLUOROBENZENE	(74-121)	87	%
1,2-DICHLOROETHANE-D4	(80-120)	108	%	DIBROMOFLUOROMETHANE	(80-120)	80	%

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DAMES & MOORE
6310 LAMAR AVENUE #135
OVERLAND PARK, KS 66202-424

Attn: JEFF DARLING

REPORT : 40286.04
QAQC# : R990915A
INSTR SEQ: 281956-BAVr
REPORTED : 10/14/99

PROJECT : IHNC PHASE 3
LAB# : 40286.04
SAMPLE #: EBS-05-HS
LOCATION:

MATRIX : Soil
METHOD : SW-846/8260B

SAMPLED : / /
SUBMITTED: 09/10/99

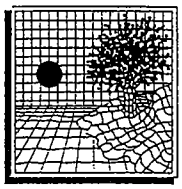
ANALYZED : 09/15/99
DILUTION : 1.00
%MOISTURE: 73.0
LEVEL : L

VOLATILE CLP
RESULTS REPORT IN ug/Kg ON A DRY WEIGHT BASIS

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	18	U	BROMODICHLOROMETHANE	18	U
VINYL CHLORIDE	18	U	CIS-1,3-DICHLOROPROPENE	18	U
BROMOMETHANE	18	U	4-METHYL-2-PENTANONE	18	U
CHLOROETHANE	33		TOLUENE	18	U
1,1-DICHLOROETHENE	18	U	TRANS-1,3-DICHLOROPROPENE	18	U
ACETONE	18	U	1,1,2-TRICHLOROETHANE	18	U
CARBON DISULFIDE	18	U	TETRACHLOROETHENE	18	U
METHYLENE CHLORIDE	18	U	2-HEXANONE	18	U
TRANS-1,2-DICHLOROETHENE	18	U	DIBROMOCHLOROMETHANE	18	U
1,1-DICHLOROETHANE	18	U	CHLOROBENZENE	18	U
CIS-1,2-DICHLOROETHENE	18	U	ETHYLBENZENE	18	U
2-BUTANONE	18	U	M,P-XYLENE	18	U
CHLOROFORM	18	U	O-XYLENE	18	U
1,1,1-TRICHLOROETHANE	18	U	STYRENE	18	U
CARBON TETRACHLORIDE	18	U	BROMOFORM	18	U
BENZENE	18	U	1,1,2,2-TETRACHLOROETHANE	18	U
1,2-DICHLOROETHANE	18	U	1,2-DICHLOROETHENE(TOTAL)	18	U
TRICHLOROETHENE	18	U	XYLENE (TOTAL)	18	U
1,2-DICHLOROPROPANE	18	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	93	%	BROMOFLUOROBENZENE	(74-121)	83	%
1,2-DICHLOROETHANE-D4	(80-120)	112	%	DIBROMOFLUOROMETHANE	(80-120)	83	%



SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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QUALITY CONTROL SECTION

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany Broken Arrow, Oklahoma 74012 Office (918) 251-2858 Fax (918) 251-2599

DAMES & MOORE
6310 LAMAR AVENUE #135
OVERLAND PARK, KS 66202-424

Attn: JEFF DARLING

REPORT : R990915A LB1
QAQC# : R990915A
INSTR SEQ: 281956-BAVr
REPORTED : 10/14/99

PROJECT : IHNC PHASE 3
SAMPLE #: R990915A LB1
LOCATION: LAB QC

MATRIX : S
METHOD : SW-846/8260B

ANALYZED : 09/15/99
DILUTION : 1.00
%MOISTURE: 0.0
LEVEL : L

VOLATILE CLP
RESULTS REPORT IN ug/Kg ON A DRY WEIGHT BASIS

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
CHLOROMETHANE	5	U	BROMODICHLOROMETHANE	5	U
VINYL CHLORIDE	5	U	CIS-1,3-DICHLOROPROPENE	5	U
BROMOMETHANE	5	U	4-METHYL-2-PENTANONE	5	U
CHLOROETHANE	5	U	TOLUENE	5	U
1,1-DICHLOROETHENE	5	U	TRANS-1,3-DICHLOROPROPENE	5	U
ACETONE	5	U	1,1,2-TRICHLOROETHANE	5	U
CARBON DISULFIDE	5	U	TETRACHLOROETHENE	5	U
METHYLENE CHLORIDE	5	U	2-HEXANONE	5	U
TRANS-1,2-DICHLOROETHENE	5	U	DIBROMOCHLOROMETHANE	5	U
1,1-DICHLOROETHANE	5	U	CHLOROBENZENE	5	U
CIS-1,2-DICHLOROETHENE	5	U	ETHYLBENZENE	5	U
2-BUTANONE	5	U	M,P-XYLENE	5	U
CHLOROFORM	5	U	O-XYLENE	5	U
1,1,1-TRICHLOROETHANE	5	U	STYRENE	5	U
CARBON TETRACHLORIDE	5	U	BROMOFORM	5	U
BENZENE	5	U	1,1,2,2-TETRACHLOROETHANE	5	U
1,2-DICHLOROETHANE	5	U	1,2-DICHLOROETHENE(TOTAL)	5	U
TRICHLOROETHENE	5	U	XYLENE (TOTAL)	5	U
1,2-DICHLOROPROPANE	5	U			

QA/QC SURROGATE RECOVERIES

TOLUENE-D8	(81-117)	87	%	BROMOFLUOROBENZENE	(74-121)	88	%
1,2-DICHLOROETHANE-D4	(80-120)	108	%	DIBROMOFLUOROMETHANE	(80-120)	80	%

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DAMES & MOORE
6310 LAMAR AVENUE #135
OVERLAND PARK, KS 66202-424
Attn: JEFF DARLING

REPORTED : 10/14/99

PROJECT : IHNC PHASE 3

MATRIX : S

LAB ID	QC BATCH	ANALYZED
LCS	R990915A	09/15/99 12:29
LCSD	R990915A	09/15/99 12:56

VOLATILE CLP
LABORATORY CONTROL SPIKE/SPIKE DUPLICATE RECOVERY

Parameter (ug/Kg)	SPIKED AMOUNT	SPIKE CONC.	SPIKE %Rec	DUP CONC.	DUP %Rec	RPD---	MAX RPD	LIMITS %Rec.
CHLOROMETHANE	50	27	54	30	61	11	20	38-130
VINYL CHLORIDE	50	36	71	42	85	18	36	34-153
BROMOMETHANE	50	38	77	43	85	11	32	16-188
CHLOROETHANE	50	61	123	44	87	34*	20	28-181
1,1-DICHLOROETHENE	50	47	94	54	107	13	25	61-152
ACETONE	50	66	133	53	106	23*	20	55-152
CARBON DISULFIDE	50	39	78	43	87	10	34	35-183
METHYLENE CHLORIDE	50	40	79	44	88	10	24	16-200
TRANS-1,2-DICHLOROETHENE	50	47	95	52	103	8	20	30-177
1,1-DICHLOROETHANE	50	54	107	58	116	8	22	48-149
CIS-1,2-DICHLOROETHENE	50	46	91	50	101	10	20	57-139
2-BUTANONE	50	52	105	50	101	4	41	20-180
CHLOROFORM	50	56	111	54	109	2	20	62-125
1,1,1-TRICHLOROETHANE	50	60	121*	60	121*	< 1	20	68-120
CARBON TETRACHLORIDE	50	57	114	55	111	3	20	48-140
BENZENE	50	55	110	55	109	< 1	20	58-133
1,2-DICHLOROETHANE	50	57	114	57	114	< 1	20	66-126
TRICHLOROETHENE	50	46	92	46	91	< 1	20	63-129
1,2-DICHLOROPROPANE	50	51	102	48	97	5	20	67-126
BROMODICHLOROMETHANE	50	41	82	39	79	4	20	78-116
CIS-1,3-DICHLOROPROPENE	50	48	96	46	93	3	20	73-125
4-METHYL-2-PENTANONE	50	55	109	58	116	6	20	45-151
TOLUENE	50	53	106	50	101	5	20	71-119
TRANS-1,3-DICHLOROPROPENE	50	49	98	47	94	4	20	70-129
1,1,2-TRICHLOROETHANE	50	40	81	38	76	7	39	54-146
TETRACHLOROETHENE	50	38	77	40	80	4	20	47-153
2-HEXANONE	50	52	103	54	107	4	24	38-155
DIBROMOCHLOROMETHANE	50	40	79*	41	83*	4	20	85-121
CHLOROBENZENE	50	53	106	52	103	2	20	81-114
ETHYLBENZENE	50	57	113	57	114	< 1	20	74-115
M,P-XYLENE	100	100	106	110	109	3	20	71-128
O-XYLENE	50	54	108	51	103	6	20	76-120
STYRENE	50	49	99	52	105	6	20	81-118
BROMOFORM	50	37	73*	36	73*	< 1	20	77-125

* = VALUES OUTSIDE OF QC LIMITS

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6310 LAMAR AVENUE #135
OVERLAND PARK, KS 66202-424
Attn: JEFF DARLING

REPORTED : 10/14/99

PROJECT : IHNC PHASE 3

MATRIX : S

LAB ID	QC BATCH	ANALYZED
LCS	R990915A	09/15/99 12:29
LCSD	R990915A	09/15/99 12:56

VOLATILE CLP
LABORATORY CONTROL SPIKE/SPIKE DUPLICATE RECOVERY

Parameter (ug/Kg)	SPIKED AMOUNT	SPIKE CONC.	SPIKE %Rec	DUP CONC.	DUP %Rec	RPD---	MAX RPD	LIMITS %Rec.
1,1,2,2-TETRACHLOROETHANE	50	47	94	48	96	3	20	52-145

QA/QC SURROGATE RECOVERIES

Parameter	SPIKE %Rec	DUP %Rec	Limits
TOLUENE-D8	106	91	81-117
BROMOFLUOROBENZENE	108	111	74-121
1,2-DICHLOROETHANE-D4	95	113	80-120
DIBROMOFLUOROMETHANE	86	81	80-120

SOUTHWEST LABORATORY OF OKLAHOMA
1700 West Albany, Suite A/ Broken Arrow, OK 74012
918-251-2858

SDG NARRATIVE

September 30, 1999

CONTRACT: D&MKSC

PROJECT: IHNC PHASE 3

SDG NO: 40286

SEMIVOLATILE FRACTION

Four soil samples were submitted for Semivolatile Organic analyses. The samples were analyzed by GC/MS following SW846-8270C.

SWLO uses a 2uL injection for method SW846-8270C as allowed by the method and has added two extra "advisory surrogates (one acid and one base/neutral)" to the surrogate spiking mix. These surrogates are 1,2-dichlorobenzene-d4 and 2-chlorophenol-d4 and have advisory control limits. The surrogates, laboratory control spikes and matrix spikes are spiked at 75 ug/L (waters) and 2500ug/Kg (soils) for the acid surrogates and 50 ug/L (waters) and 1700 (actual 1667) ug/Kg (soils) for base/neutral surrogates. The instrument calibration range is from 10 ug/L to 80 ug/L for waters and 330 ug/Kg to 2700 ug/Kg for soils, which relates to 20 ng on column (low cal. std.) up to 160 ng on column (high cal. std.).

No major problems occurred during the analyses of these samples. Several samples had dilutions analyzed for target compounds above instruments linear range.

Blanks: Extraction blank (BL0913SA) had low level phthalate contamination below reporting limit.

Surrogates: EBS-11-BSDL had low recovery for advisory surrogate 1,2-dichlorobenzene-d4 at 15%. EBS-08-HS and EBS-05-HS had high recovery for terphenyl-d14 at 146% and 1735, respectively.

Matrix Spikes: EBS-16-BSMS/MSD had high spike recovery for 4-nitrophenol at 124% & 134% and 2,4-dinitrotoluene at 90% & 96%, respectively.

Laboratory Control Spikes: Laboratory control spikes (LC0913SA/LD0913SA) had 6 out of 22 spike recoveries (all acid compounds) outside of QC limits (high) ranging from 96% to 144%. Laboratory control spikes (LC0915SB /LD0915SB) had 6 out of 22 spike recoveries (all acid compounds) outside of QC limits (high) ranging from 96% to 132%. No corrective action was taken since these compounds were outside of QC limits high and analytes were not detected in samples.

Internal Standards: The following samples had internal standard areas outside of QC limits: EBS-11-BSDL, EBS-08-HS and EBS-05-HS.

Harry M. Borg
Organic Program Manager

September 30, 1999

SOUTHWEST LABORATORY OF OKLAHOMA, INC.
1700 West Albany Broken Arrow, Oklahoma 74012 Office (918) 251-2858 Fax (918) 251-2599

DAMES & MOORE
6310 LAMAR AVENUE #135
OVERLAND PARK, KS 66202-424

Attn: JEFF DARLING

REPORT : 40286.01
QAQC# : BL0915SB
INSTR SEQ:
REPORTED : 10/15/99

PROJECT : IHNC PHASE 3
LAB# : 40286.01
SAMPLE #: EBS-16-BS
LOCATION:

SAMPLED : / /
SUBMITTED: 09/10/99
PREPARED : 09/15/99
ANALYZED : 09/17/99

DILUTION: 1.00000
MATRIX : Soil
METHOD : SW 8270

%MOISTURE: 25.1
LEVEL : L

SEMIVOLATILES

RESULTS REPORTED IN ug/Kg ON A DRY WEIGHT BASIS

PARAMETER	RESULTS		PARAMETER	RESULTS	
PHENOL	140	J	ACENAPHTHENE	420	U
BIS(2-CHLOROETHYL)ETHER	420	U	2,4-DINITROPHENOL	1000	U
2-CHLOROPHENOL	420	U	4-NITROPHENOL	1000	U
1,3-DICHLOROBENZENE	420	U	DIBENZOFURAN	22	J
1,4-DICHLOROBENZENE	420	U	2,4-DINITROTOLUENE	420	U
1,2-DICHLOROBENZENE	420	U	DIETHYLPHTHALATE	420	U
2-METHYLPHENOL	420	U	4-CHLOROPHENYL-PHENYLETHER	420	U
BIS(2-CHLOROISOPROPYL)ETHER	420	U	FLUORENE	26	J
4-METHYLPHENOL	420	U	4-NITROANILINE	1000	U
N-NITROSO-DI-N-PROPYLAMINE	420	U	4,6-DINITRO-2-METHYLPHENOL	1000	U
HEXACHLOROETHANE	420	U	N-NITROSODIPHENYLAMINE	420	U
NITROBENZENE	420	U	4-BROMOPHENYL-PHENYLETHER	420	U
ISOPHORONE	420	U	HEXACHLOROBENZENE	420	U
2-NITROPHENOL	420	U	PENTACHLOROPHENOL	1000	U
2,4-DIMETHYLPHENOL	420	U	PHENANTHRENE	530	
BIS(2-CHLOROETHOXY)METHANE	420	U	ANTHRACENE	420	U
2,4-DICHLOROPHENOL	420	U	CARBAZOLE	90	J
1,2,4-TRICHLOROBENZENE	420	U	DI-N-BUTYL PHTHALATE	420	U
NAPHTHALENE	420	U	FLUORANTHENE	1800	
4-CHLOROANILINE	420	U	PYRENE	1800	
HEXACHLOROBUTADIENE	420	U	BUTYL BENZYL PHTHALATE	420	U
4-CHLORO-3-METHYLPHENOL	420	U	3,3'-DICHLOROBENZIDINE	420	U
2-METHYLNAPHTHALENE	420	U	BENZO(A)ANTHRACENE	430	
HEXACHLOROCYCLOPENTADIENE	420	U	CHRYSENE	620	
2,4,6-TRICHLOROPHENOL	420	U	BIS(2-ETHYLHEXYL)PHTHALATE	7700	E
2,4,5-TRICHLOROPHENOL	1000	U	DI-N-OCTYL PHTHALATE	420	U
2-CHLORONAPHTHALENE	420	U	BENZO(B)FLUORANTHENE	550	
2-NITROANILINE	1000	U	BENZO(K)FLUORANTHENE	620	

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DAMES & MOORE
6310 LAMAR AVENUE #135
OVERLAND PARK, KS 66202-424

Attn: JEFF DARLING

REPORT : 40286.01
QAQC# : BL0915SB
INSTR SEQ:
REPORTED : 10/15/99

PROJECT : IHNC PHASE 3
LAB# : 40286.01
SAMPLE #: EBS-16-BS
LOCATION:

SAMPLED : / /
SUBMITTED: 09/10/99
PREPARED : 09/15/99
ANALYZED : 09/17/99

DILUTION: 1.00000
MATRIX : Soil
METHOD : SW 8270

%MOISTURE: 25.1
LEVEL : L

SEMIVOLATILES

RESULTS REPORTED IN ug/Kg ON A DRY WEIGHT BASIS

PARAMETER	RESULTS		PARAMETER	RESULTS	
DIMETHYL PHTHALATE	420	U	BENZO(A)PYRENE	480	
ACENAPHTHYLENE	420	U	INDENO(1,2,3-CD)PYRENE	210	J
2,6-DINITROTOLUENE	420	U	DIBENZ(A,H)ANTHRACENE	90	J
`-NITROANILINE	1000	U	BENZO(G,H,I)PERYLENE	200	J

QA/QC SURROGATE RECOVERIES

NITROBENZENE-D5	(23-120)	81%	2-FLUOROPHENOL	(25-121)	81%
.-FLUOROBIPHENYL	(30-115)	91%	PHENOL-D5	(24-113)	74%
TERPHENYL-D14	(18-137)	107%	2,4,6-TRIBROMOPHENOL	(19-122)	78%

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6310 LAMAR AVENUE #135
OVERLAND PARK, KS 66202-424

Attn: JEFF DARLING

REPORT : 40286.01
QAQC# : BL0915SB
INSTR SEQ:
REPORTED : 10/15/99

PROJECT : IHNC PHASE 3
LAB# : 40286.01
SAMPLE #: EBS-16-BS
LOCATION:

SAMPLED : / /
SUBMITTED: 09/10/99
PREPARED : 09/15/99
ANALYZED : 09/27/99

DILUTION: 10.0000
MATRIX : Soil
METHOD : SW 8270
Dilution Run

%MOISTURE: 25.1
LEVEL : L

SEMIVOLATILES

RESULTS REPORTED IN ug/Kg ON A DRY WEIGHT BASIS

PARAMETER	RESULTS		PARAMETER	RESULTS	
PHENOL	4200	U	ACENAPHTHENE	4200	U
BIS(2-CHLOROETHYL)ETHER	4200	U	2,4-DINITROPHENOL	10000	U
2-CHLOROPHENOL	4200	U	4-NITROPHENOL	10000	U
,3-DICHLOROBENZENE	4200	U	DIBENZOFURAN	4200	U
1,4-DICHLOROBENZENE	4200	U	2,4-DINITROTOLUENE	4200	U
1,2-DICHLOROBENZENE	4200	U	DIETHYLPHTHALATE	4200	U
2-METHYLPHENOL	4200	U	4-CHLOROPHENYL-PHENYLETHER	4200	U
BIS(2-CHLOROISOPROPYL)ETHER	4200	U	FLUORENE	4200	U
4-METHYLPHENOL	4200	U	4-NITROANILINE	10000	U
N-NITROSO-DI-N-PROPYLAMINE	4200	U	4,6-DINITRO-2-METHYLPHENOL	10000	U
HEXACHLOROETHANE	4200	U	N-NITROSODIPHENYLAMINE	4200	U
NITROBENZENE	4200	U	4-BROMOPHENYL-PHENYLETHER	4200	U
ISOPHORONE	4200	U	HEXACHLOROBENZENE	4200	U
2-NITROPHENOL	4200	U	PENTACHLOROPHENOL	10000	U
2,4-DIMETHYLPHENOL	4200	U	PHENANTHRENE	600	J
BIS(2-CHLOROETHOXY)METHANE	4200	U	ANTHRACENE	4200	U
2,4-DICHLOROPHENOL	4200	U	CARBAZOLE	4200	U
1,2,4-TRICHLOROBENZENE	4200	U	DI-N-BUTYL PHTHALATE	4200	U
NAPHTHALENE	4200	U	FLUORANTHENE	2000	J
4-CHLOROANILINE	4200	U	PYRENE	1700	J
HEXACHLOROBUTADIENE	4200	U	BUTYL BENZYL PHTHALATE	4200	U
4-CHLORO-3-METHYLPHENOL	4200	U	3,3'-DICHLOROBENZIDINE	4200	U
2-METHYLNAPHTHALENE	4200	U	BENZO(A)ANTHRACENE	550	J
HEXACHLOROCYCLOPENTADIENE	4200	U	CHRYSENE	760	J
2,4,6-TRICHLOROPHENOL	4200	U	BIS(2-ETHYLHEXYL)PHTHALATE	5400	
2,4,5-TRICHLOROPHENOL	10000	U	DI-N-OCTYL PHTHALATE	4200	U
2-CHLORONAPHTHALENE	4200	U	BENZO(B)FLUORANTHENE	510	J
2-NITROANILINE	10000	U	BENZO(K)FLUORANTHENE	680	J

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany Broken Arrow, Oklahoma 74012 Office (918) 251-2858 Fax (918) 251-2599

DAMES & MOORE
6310 LAMAR AVENUE #135
OVERLAND PARK, KS 66202-424

Attn: JEFF DARLING

REPORT : 40286.01
QAQC# : BL0915SB
INSTR SEQ:
REPORTED : 10/15/99

PROJECT : IHNC PHASE 3
LAB# : 40286.01
SAMPLE #: EBS-16-BS
LOCATION:

SAMPLED : / /
SUBMITTED: 09/10/99
PREPARED : 09/15/99
ANALYZED : 09/27/99

DILUTION: 10.0000
MATRIX : Soil
METHOD : SW 8270
Dilution Run

%MOISTURE: 25.1
LEVEL : L

SEMIVOLATILES

RESULTS REPORTED IN ug/Kg ON A DRY WEIGHT BASIS

PARAMETER	RESULTS		PARAMETER	RESULTS	
DIMETHYL PHTHALATE	4200	U	BENZO(A)PYRENE	520	J
ACENAPHTHYLENE	4200	U	INDENO(1,2,3-CD)PYRENE	320	J
2,6-DINITROTOLUENE	4200	U	DIBENZ(A,H)ANTHRACENE	4200	U
3-NITROANILINE	10000	U	BENZO(G,H,I)PERYLENE	340	J

QA/QC SURROGATE RECOVERIES

NITROBENZENE-D5	(23-120)	72%	2-FLUOROPHENOL	(25-121)	73%
2-FLUOROBIPHENYL	(30-115)	87%	PHENOL-D5	(24-113)	67%
TERPHENYL-D14	(18-137)	111%	2,4,6-TRIBROMOPHENOL	(19-122)	96%

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DAMES & MOORE
6310 LAMAR AVENUE #135
OVERLAND PARK, KS 66202-424

Attn: JEFF DARLING

REPORT : 40286.02
QAQC# : BL0913SA
INSTR SEQ:
REPORTED : 10/15/99

PROJECT : IHNC PHASE 3
LAB# : 40286.02
SAMPLE #: EBS-11-BS
LOCATION:

SAMPLED : / /
SUBMITTED: 09/10/99
PREPARED : 09/13/99
ANALYZED : 09/17/99

DILUTION: 1.00000
MATRIX : Soil
METHOD : SW 8270

%MOISTURE: 41.1
LEVEL : L

SEMIVOLATILES

RESULTS REPORTED IN ug/Kg ON A DRY WEIGHT BASIS

PARAMETER	RESULTS		PARAMETER	RESULTS	
PHENOL	160	J	ACENAPHTHENE	560	U
BIS(2-CHLOROETHYL)ETHER	560	U	2,4-DINITROPHENOL	1400	U
2-CHLOROPHENOL	560	U	4-NITROPHENOL	1400	U
,3-DICHLOROBENZENE	560	U	DIBENZOFURAN	560	U
1,4-DICHLOROBENZENE	560	U	2,4-DINITROTOLUENE	560	U
1,2-DICHLOROBENZENE	560	U	DIETHYLPHTHALATE	560	U
2-METHYLPHENOL	560	U	4-CHLOROPHENYL-PHENYLETHER	560	U
BIS(2-CHLOROISOPROPYL)ETHER	560	U	FLUORENE	560	U
4-METHYLPHENOL	560	U	4-NITROANILINE	1400	U
N-NITROSO-DI-N-PROPYLAMINE	560	U	4,6-DINITRO-2-METHYLPHENOL	1400	U
HEXACHLOROETHANE	560	U	N-NITROSODIPHENYLAMINE	560	U
NITROBENZENE	560	U	4-BROMOPHENYL-PHENYLETHER	560	U
ISOPHORONE	560	U	HEXACHLOROBENZENE	560	U
2-NITROPHENOL	560	U	PENTACHLOROPHENOL	1400	U
2,4-DIMETHYLPHENOL	560	U	PHENANTHRENE	560	U
BIS(2-CHLOROETHOXY)METHANE	560	U	ANTHRACENE	560	U
2,4-DICHLOROPHENOL	560	U	CARBAZOLE	560	U
1,2,4-TRICHLOROBENZENE	560	U	DI-N-BUTYL PHTHALATE	560	U
NAPHTHALENE	560	U	FLUORANTHENE	560	U
4-CHLOROANILINE	560	U	PYRENE	560	U
HEXACHLOROBUTADIENE	560	U	BUTYL BENZYL PHTHALATE	560	U
4-CHLORO-3-METHYLPHENOL	560	U	3,3'-DICHLOROBENZIDINE	560	U
2-METHYLNAPHTHALENE	560	U	BENZO(A)ANTHRACENE	560	U
HEXACHLOROCYCLOPENTADIENE	560	U	CHRYSENE	560	U
2,4,6-TRICHLOROPHENOL	560	U	BIS(2-ETHYLHEXYL)PHTHALATE	26000	EB
2,4,5-TRICHLOROPHENOL	1400	U	DI-N-OCTYL PHTHALATE	560	U
2-CHLORONAPHTHALENE	560	U	BENZO(B)FLUORANTHENE	560	U
2-NITROANILINE	1400	U	BENZO(K)FLUORANTHENE	560	U

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OVERLAND PARK, KS 66202-424

Attn: JEFF DARLING

REPORT : 40286.02
QAQC# : BL0913SA
INSTR SEQ:
REPORTED : 10/15/99

PROJECT : IHNC PHASE 3
LAB# : 40286.02
SAMPLE #: EBS-11-BS
LOCATION:

SAMPLED : / /
SUBMITTED: 09/10/99
PREPARED : 09/13/99
ANALYZED : 09/17/99

DILUTION: 1.00000
MATRIX : Soil
METHOD : SW 8270

%MOISTURE: 41.1
LEVEL : L

SEMIVOLATILES

RESULTS REPORTED IN ug/Kg ON A DRY WEIGHT BASIS

PARAMETER	RESULTS		PARAMETER	RESULTS	
DIMETHYL PHTHALATE	560	U	BENZO(A)PYRENE	560	U
ACENAPHTHYLENE	560	U	INDENO(1,2,3-CD)PYRENE	560	U
2,6-DINITROTOLUENE	560	U	DIBENZ(A,H)ANTHRACENE	560	U
3-NITROANILINE	1400	U	BENZO(G,H,I)PERYLENE	560	U

QA/QC SURROGATE RECOVERIES

NITROBENZENE-D5	(23-120)	62%	2-FLUOROPHENOL	(25-121)	63%
2-FLUOROBIPHENYL	(30-115)	69%	PHENOL-D5	(24-113)	68%
TERPHENYL-D14	(18-137)	103%	2,4,6-TRIBROMOPHENOL	(19-122)	84%

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INSTR SEQ:
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PROJECT : IHNC PHASE 3
LAB# : 40286.02
SAMPLE #: EBS-11-BS
LOCATION:

SAMPLED : / /
SUBMITTED: 09/10/99
PREPARED : 09/13/99
ANALYZED : 09/17/99

DILUTION: 5.00000
MATRIX : Soil
METHOD : SW 8270
Dilution Run

%MOISTURE: 41.1
LEVEL : L

SEMIVOLATILES

RESULTS REPORTED IN ug/Kg ON A DRY WEIGHT BASIS

PARAMETER	RESULTS		PARAMETER	RESULTS	
PHENOL	2800	U	ACENAPHTHENE	2800	U
BIS(2-CHLOROETHYL)ETHER	2800	U	2,4-DINITROPHENOL	7100	U
2-CHLOROPHENOL	2800	U	4-NITROPHENOL	7100	U
,3-DICHLOROBENZENE	2800	U	DIBENZOFURAN	2800	U
1,4-DICHLOROBENZENE	2800	U	2,4-DINITROTOLUENE	2800	U
1,2-DICHLOROBENZENE	2800	U	DIETHYLPHTHALATE	2800	U
2-METHYLPHENOL	2800	U	4-CHLOROPHENYL-PHENYLETHER	2800	U
BIS(2-CHLOROISOPROPYL)ETHER	2800	U	FLUORENE	2800	U
4-METHYLPHENOL	2800	U	4-NITROANILINE	7100	U
N-NITROSO-DI-N-PROPYLAMINE	2800	U	4,6-DINITRO-2-METHYLPHENOL	7100	U
HEXACHLOROETHANE	2800	U	N-NITROSODIPHENYLAMINE	2800	U
NITROBENZENE	2800	U	4-BROMOPHENYL-PHENYLETHER	2800	U
ISOPHORONE	2800	U	HEXACHLOROBENZENE	2800	U
2-NITROPHENOL	2800	U	PENTACHLOROPHENOL	7100	U
2,4-DIMETHYLPHENOL	2800	U	PHENANTHRENE	2800	U
BIS(2-CHLOROETHOXY)METHANE	2800	U	ANTHRACENE	2800	U
2,4-DICHLOROPHENOL	2800	U	CARBAZOLE	2800	U
1,2,4-TRICHLOROBENZENE	2800	U	DI-N-BUTYL PHTHALATE	2800	U
NAPHTHALENE	2800	U	FLUORANTHENE	2800	U
4-CHLOROANILINE	2800	U	PYRENE	2800	U
HEXACHLOROBUTADIENE	2800	U	BUTYL BENZYL PHTHALATE	2800	U
4-CHLORO-3-METHYLPHENOL	2800	U	3,3'-DICHLOROBENZIDINE	2800	U
2-METHYLNAPHTHALENE	2800	U	BENZO(A)ANTHRACENE	2800	U
HEXACHLOROCYCLOPENTADIENE	2800	U	CHRYSENE	2800	U
2,4,6-TRICHLOROPHENOL	2800	U	BIS(2-ETHYLHEXYL)PHTHALATE	12000	B
2,4,5-TRICHLOROPHENOL	7100	U	DI-N-OCTYL PHTHALATE	2800	U
2-CHLORONAPHTHALENE	2800	U	BENZO(B)FLUORANTHENE	2800	U
2-NITROANILINE	7100	U	BENZO(K)FLUORANTHENE	2800	U

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PROJECT : IHNC PHASE 3
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SAMPLE #: EBS-11-BS
LOCATION:

SAMPLED : / /
SUBMITTED: 09/10/99
PREPARED : 09/13/99
ANALYZED : 09/17/99

DILUTION: 5.00000
MATRIX : Soil
METHOD : SW 8270
Dilution Run

%MOISTURE: 41.1
LEVEL : L

SEMIVOLATILES

RESULTS REPORTED IN ug/Kg ON A DRY WEIGHT BASIS

PARAMETER	RESULTS		PARAMETER	RESULTS	
DIMETHYL PHTHALATE	2800	U	BENZO(A)PYRENE	2800	U
ACENAPHTHYLENE	2800	U	INDENO(1,2,3-CD)PYRENE	2800	U
2,6-DINITROTOLUENE	2800	U	DIBENZ(A,H)ANTHRACENE	2800	U
3-NITROANILINE	7100	U	BENZO(G,H,I)PERYLENE	2800	U

QA/QC SURROGATE RECOVERIES

NITROBENZENE-D5	(23-120)	37%	2-FLUOROPHENOL	(25-121)	34%
2-FLUOROBIPHENYL	(30-115)	40%	PHENOL-D5	(24-113)	37%
TERPHENYL-D14	(18-137)	90%	2,4,6-TRIBROMOPHENOL	(19-122)	43%

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DAMES & MOORE
6310 LAMAR AVENUE #135
OVERLAND PARK, KS 66202-424

Attn: JEFF DARLING

PROJECT : IHNC PHASE 3
LAB# : 40286.03
SAMPLE #: EBS-08-HS
LOCATION:

DILUTION: 1.00000
MATRIX : Soil
METHOD : SW 8270

REPORT : 40286.03
QAQC# : BL0913SA
INSTR SEQ:
REPORTED : 10/15/99

SAMPLED : / /
SUBMITTED: 09/10/99
PREPARED : 09/13/99
ANALYZED : 09/17/99

%MOISTURE: 50.8
LEVEL : L

SEMIVOLATILES

RESULTS REPORTED IN ug/Kg ON A DRY WEIGHT BASIS

PARAMETER	RESULTS		PARAMETER	RESULTS	
PHENOL	460	J	ACENAPHTHENE	230	J
BIS(2-CHLOROETHYL)ETHER	680	U	2,4-DINITROPHENOL	1700	U
2-CHLOROPHENOL	680	U	4-NITROPHENOL	1700	U
,3-DICHLOROBENZENE	680	U	DIBENZOFURAN	60	J
1,4-DICHLOROBENZENE	680	U	2,4-DINITROTOLUENE	680	U
1,2-DICHLOROBENZENE	680	U	DIETHYLPHTHALATE	680	U
2-METHYLPHENOL	680	U	4-CHLOROPHENYL-PHENYLETHER	680	U
BIS(2-CHLOROISOPROPYL)ETHER	680	U	FLUORENE	93	J
4-METHYLPHENOL	680	U	4-NITROANILINE	1700	U
N-NITROSO-DI-N-PROPYLAMINE	680	U	4,6-DINITRO-2-METHYLPHENOL	1700	U
HEXACHLOROETHANE	680	U	N-NITROSODIPHENYLAMINE	680	U
NITROBENZENE	680	U	4-BROMOPHENYL-PHENYLETHER	680	U
ISOPHORONE	680	U	HEXACHLOROBENZENE	680	U
2-NITROPHENOL	680	U	PENTACHLOROPHENOL	1700	U
2,4-DIMETHYLPHENOL	680	U	PHENANTHRENE	410	J
BIS(2-CHLOROETHOXY)METHANE	680	U	ANTHRACENE	230	J
2,4-DICHLOROPHENOL	680	U	CARBAZOLE	110	J
1,2,4-TRICHLOROBENZENE	680	U	DI-N-BUTYL PHTHALATE	600	JB
NAPHTHALENE	48	J	FLUORANTHENE	5600	E
4-CHLOROANILINE	680	U	PYRENE	5700	E
HEXACHLOROBUTADIENE	680	U	BUTYL BENZYL PHTHALATE	680	U
4-CHLORO-3-METHYLPHENOL	680	U	3,3'-DICHLOROBENZIDINE	680	U
2-METHYLNAPHTHALENE	680	U	BENZO(A)ANTHRACENE	1300	
HEXACHLOROCYCLOPENTADIENE	680	U	CHRYSENE	1200	
2,4,6-TRICHLOROPHENOL	680	U	BIS(2-ETHYLHEXYL)PHTHALATE	67000	EB
2,4,5-TRICHLOROPHENOL	1700	U	DI-N-OCTYL PHTHALATE	680	U
2-CHLORONAPHTHALENE	680	U	BENZO(B)FLUORANTHENE	1200	
2-NITROANILINE	1700	U	BENZO(K)FLUORANTHENE	1500	

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OVERLAND PARK, KS 66202-424

Attn: JEFF DARLING

REPORT : 40286.03
QAQC# : BL0913SA
INSTR SEQ:
REPORTED : 10/15/99

PROJECT : IHNC PHASE 3
LAB# : 40286.03
SAMPLE #: EBS-08-HS
LOCATION:

SAMPLED : / /
SUBMITTED: 09/10/99
PREPARED : 09/13/99
ANALYZED : 09/17/99

DILUTION: 1.00000
MATRIX : Soil
METHOD : SW 8270

%MOISTURE: 50.8
LEVEL : L

SEMIVOLATILES

RESULTS REPORTED IN ug/Kg ON A DRY WEIGHT BASIS

PARAMETER	RESULTS		PARAMETER	RESULTS	
DIMETHYL PHTHALATE	680	U	BENZO(A)PYRENE	1300	
ACENAPHTHYLENE	210	J	INDENO(1,2,3-CD)PYRENE	400	J
2,6-DINITROTOLUENE	680	U	DIBENZ(A,H)ANTHRACENE	170	J
}-NITROANILINE	1700	U	BENZO(G,H,I)PERYLENE	400	J

QA/QC SURROGATE RECOVERIES

NITROBENZENE-D5	(23-120)	87%	2-FLUOROPHENOL	(25-121)	82%
!-FLUOROBIPHENYL	(30-115)	93%	PHENOL-D5	(24-113)	80%
TERPHENYL-D14	(18-137)	146% *	2,4,6-TRIBROMOPHENOL	(19-122)	86%

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OVERLAND PARK, KS 66202-424

Attn: JEFF DARLING

REPORT : 40286.03
QAQC# : BL0913SA
INSTR SEQ:
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PROJECT : IHNC PHASE 3
LAB# : 40286.03
SAMPLE #: EBS-08-HS
LOCATION:

SAMPLED : / /
SUBMITTED: 09/10/99
PREPARED : 09/13/99
ANALYZED : 09/17/99

DILUTION: 20.0000
MATRIX : Soil
METHOD : SW 8270
Dilution Run

%MOISTURE: 50.8
LEVEL : L

SEMIVOLATILES

RESULTS REPORTED IN ug/Kg ON A DRY WEIGHT BASIS

PARAMETER	RESULTS		PARAMETER	RESULTS	
PHENOL	14000	U	ACENAPHTHENE	14000	U
BIS(2-CHLOROETHYL)ETHER	14000	U	2,4-DINITROPHENOL	34000	U
2-CHLOROPHENOL	14000	U	4-NITROPHENOL	34000	U
,3-DICHLOROBENZENE	14000	U	DIBENZOFURAN	14000	U
1,4-DICHLOROBENZENE	14000	U	2,4-DINITROTOLUENE	14000	U
1,2-DICHLOROBENZENE	14000	U	DIETHYLPHTHALATE	14000	U
2-METHYLPHENOL	14000	U	4-CHLOROPHENYL-PHENYLETHER	14000	U
BIS(2-CHLOROISOPROPYL)ETHER	14000	U	FLUORENE	14000	U
4-METHYLPHENOL	14000	U	4-NITROANILINE	34000	U
N-NITROSO-DI-N-PROPYLAMINE	14000	U	4,6-DINITRO-2-METHYLPHENOL	34000	U
HEXACHLOROETHANE	14000	U	N-NITROSODIPHENYLAMINE	14000	U
NITROBENZENE	14000	U	4-BROMOPHENYL-PHENYLETHER	14000	U
ISOPHORONE	14000	U	HEXACHLOROBENZENE	14000	U
2-NITROPHENOL	14000	U	PENTACHLOROPHENOL	34000	U
2,4-DIMETHYLPHENOL	14000	U	PHENANTHRENE	14000	U
BIS(2-CHLOROETHOXY)METHANE	14000	U	ANTHRACENE	14000	U
2,4-DICHLOROPHENOL	14000	U	CARBAZOLE	14000	U
1,2,4-TRICHLOROBENZENE	14000	U	DI-N-BUTYL PHTHALATE	14000	U
NAPHTHALENE	14000	U	FLUORANTHENE	3800	J
4-CHLOROANILINE	14000	U	PYRENE	2700	J
HEXACHLOROBUTADIENE	14000	U	BUTYL BENZYL PHTHALATE	14000	U
4-CHLORO-3-METHYLPHENOL	14000	U	3,3'-DICHLOROBENZIDINE	14000	U
2-METHYLNAPHTHALENE	14000	U	BENZO(A)ANTHRACENE	860	J
HEXACHLOROCYCLOPENTADIENE	14000	U	CHRYSENE	870	J
2,4,6-TRICHLOROPHENOL	14000	U	BIS(2-ETHYLHEXYL)PHTHALATE	24000	B
2,4,5-TRICHLOROPHENOL	34000	U	DI-N-OCTYL PHTHALATE	14000	U
2-CHLORONAPHTHALENE	14000	U	BENZO(B)FLUORANTHENE	930	J
2-NITROANILINE	34000	U	BENZO(K)FLUORANTHENE	14000	U

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QAQC# : BL0913SA
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PROJECT : IHNC PHASE 3
LAB# : 40286.03
SAMPLE #: EBS-08-HS
LOCATION:

SAMPLED : / /
SUBMITTED: 09/10/99
PREPARED : 09/13/99
ANALYZED : 09/17/99

DILUTION: 20.0000
MATRIX : Soil
METHOD : SW 8270
Dilution Run

%MOISTURE: 50.8
LEVEL : L

SEMIVOLATILES

RESULTS REPORTED IN ug/Kg ON A DRY WEIGHT BASIS

PARAMETER	RESULTS		PARAMETER	RESULTS	
DIMETHYL PHTHALATE	14000	U	BENZO(A)PYRENE	710	J
ACENAPHTHYLENE	14000	U	INDENO(1,2,3-CD)PYRENE	14000	U
2,6-DINITROTOLUENE	14000	U	DIBENZ(A,H)ANTHRACENE	14000	U
-NITROANILINE	34000	U	BENZO(G,H,I)PERYLENE	14000	U

QA/QC SURROGATE RECOVERIES

NITROBENZENE-D5	(23-120)	65%	2-FLUOROPHENOL	(25-121)	50%
-FLUOROBIPHENYL	(30-115)	68%	PHENOL-D5	(24-113)	54%
TERPHENYL-D14	(18-137)	84%	2,4,6-TRIBROMOPHENOL	(19-122)	64%

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany Broken Arrow, Oklahoma 74012 Office (918) 251-2858 Fax (918) 251-2599

DAMES & MOORE
6310 LAMAR AVENUE #135
OVERLAND PARK, KS 66202-424

Attn: JEFF DARLING

REPORT : 40286.04
QAQC# : BL0913SA
INSTR SEQ:
REPORTED : 10/15/99

PROJECT : IHNC PHASE 3
LAB# : 40286.04
SAMPLE #: EBS-05-HS
LOCATION:

SAMPLED : / /
SUBMITTED: 09/10/99
PREPARED : 09/13/99
ANALYZED : 09/17/99

DILUTION: 1.00000
MATRIX : Soil
METHOD : SW 8270

%MOISTURE: 72.9
LEVEL : L

SEMIVOLATILES

RESULTS REPORTED IN ug/Kg ON A DRY WEIGHT BASIS

PARAMETER	RESULTS		PARAMETER	RESULTS	
PHENOL	580	J	ACENAPHTHENE	2200	
BIS(2-CHLOROETHYL)ETHER	1200	U	2,4-DINITROPHENOL	3100	U
2-CHLOROPHENOL	1200	U	4-NITROPHENOL	3100	U
1,3-DICHLOROBENZENE	1200	U	DIBENZOFURAN	1300	
1,4-DICHLOROBENZENE	1200	U	2,4-DINITROTOLUENE	1200	U
1,2-DICHLOROBENZENE	1200	U	DIETHYLPHTHALATE	1200	U
2-METHYLPHENOL	1200	U	4-CHLOROPHENYL-PHENYLETHER	1200	U
BIS(2-CHLOROISOPROPYL)ETHER	1200	U	FLUORENE	1600	
4-METHYLPHENOL	1200	U	4-NITROANILINE	3100	U
N-NITROSO-DI-N-PROPYLAMINE	1200	U	4,6-DINITRO-2-METHYLPHENOL	3100	U
HEXACHLOROETHANE	1200	U	N-NITROSODIPHENYLAMINE	1200	U
NITROBENZENE	1200	U	4-BROMOPHENYL-PHENYLETHER	1200	U
ISOPHORONE	170	J	HEXACHLOROBENZENE	1200	U
2-NITROPHENOL	1200	U	PENTACHLOROPHENOL	3100	U
2,4-DIMETHYLPHENOL	1200	U	PHENANTHRENE	7100	
BIS(2-CHLOROETHOXY)METHANE	1200	U	ANTHRACENE	1600	
2,4-DICHLOROPHENOL	1200	U	CARBAZOLE	1400	
1,2,4-TRICHLOROBENZENE	1200	U	DI-N-BUTYL PHTHALATE	1200	U
NAPHTHALENE	1300		FLUORANTHENE	6600	
4-CHLOROANILINE	1200	U	PYRENE	18000	E
HEXACHLOROBUTADIENE	1200	U	BUTYL BENZYL PHTHALATE	1200	U
4-CHLORO-3-METHYLPHENOL	1200	U	3,3'-DICHLOROBENZIDINE	1200	U
2-METHYLNAPHTHALENE	1200	U	BENZO(A)ANTHRACENE	4200	
HEXACHLOROCYCLOPENTADIENE	1200	U	CHRYSENE	5000	
2,4,6-TRICHLOROPHENOL	1200	U	BIS(2-ETHYLHEXYL)PHTHALATE	8500	B
2,4,5-TRICHLOROPHENOL	3100	U	DI-N-OCTYL PHTHALATE	1200	U
2-CHLORONAPHTHALENE	1200	U	BENZO(B)FLUORANTHENE	4300	
2-NITROANILINE	3100	U	BENZO(K)FLUORANTHENE	5000	

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OVERLAND PARK, KS 66202-424

Attn: JEFF DARLING

REPORT : 40286.04
QAQC# : BL0913SA
INSTR SEQ:
REPORTED : 10/15/99

PROJECT : IHNC PHASE 3
LAB# : 40286.04
SAMPLE #: EBS-05-HS
LOCATION:

SAMPLED : / /
SUBMITTED: 09/10/99
PREPARED : 09/13/99
ANALYZED : 09/17/99

DILUTION: 1.00000
MATRIX : Soil
METHOD : SW 8270

%MOISTURE: 72.9
LEVEL : L

SEMIVOLATILES

RESULTS REPORTED IN ug/Kg ON A DRY WEIGHT BASIS

PARAMETER	RESULTS		PARAMETER	RESULTS	
DIMETHYL PHTHALATE	1200	U	BENZO(A)PYRENE	4500	
ACENAPHTHYLENE	67	J	INDENO(1,2,3-CD)PYRENE	1800	
2,6-DINITROTOLUENE	1200	U	DIBENZ(A,H)ANTHRACENE	630	J
3-NITROANILINE	3100	U	BENZO(G,H,I)PERYLENE	2000	

QA/QC SURROGATE RECOVERIES

NITROBENZENE-D5	(23-120)	83%	2-FLUOROPHENOL	(25-121)	86%
2-FLUOROBIPHENYL	(30-115)	98%	PHENOL-D5	(24-113)	81%
TERPHENYL-D14	(18-137)	173% *	2,4,6-TRIBROMOPHENOL	(19-122)	84%

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Attn: JEFF DARLING

REPORT : 40286.04
QAQC# : BL0913SA
INSTR SEQ:
REPORTED : 10/15/99

PROJECT : IHNC PHASE 3
LAB# : 40286.04
SAMPLE #: EBS-05-HS
LOCATION:

SAMPLED : / /
SUBMITTED: 09/10/99
PREPARED : 09/13/99
ANALYZED : 09/27/99

DILUTION: 10.0000
MATRIX : Soil
METHOD : SW 8270
Dilution Run

%MOISTURE: 72.9
LEVEL : L

SEMIVOLATILES

RESULTS REPORTED IN ug/Kg ON A DRY WEIGHT BASIS

PARAMETER	RESULTS		PARAMETER	RESULTS	
PHENOL	12000	U	ACENAPHTHENE	2200	J
BIS(2-CHLOROETHYL)ETHER	12000	U	2,4-DINITROPHENOL	31000	U
2-CHLOROPHENOL	12000	U	4-NITROPHENOL	31000	U
,3-DICHLOROBENZENE	12000	U	DIBENZOFURAN	1500	J
1,4-DICHLOROBENZENE	12000	U	2,4-DINITROTOLUENE	12000	U
1,2-DICHLOROBENZENE	12000	U	DIETHYLPHTHALATE	12000	U
2-METHYLPHENOL	12000	U	4-CHLOROPHENYL-PHENYLETHER	12000	U
BIS(2-CHLOROISOPROPYL)ETHER	12000	U	FLUORENE	1900	J
4-METHYLPHENOL	12000	U	4-NITROANILINE	31000	U
N-NITROSO-DI-N-PROPYLAMINE	12000	U	4,6-DINITRO-2-METHYLPHENOL	31000	U
HEXACHLOROETHANE	12000	U	N-NITROSODIPHENYLAMINE	12000	U
NITROBENZENE	12000	U	4-BROMOPHENYL-PHENYLETHER	12000	U
ISOPHORONE	12000	U	HEXACHLOROBENZENE	12000	U
2-NITROPHENOL	12000	U	PENTACHLOROPHENOL	31000	U
2,4-DIMETHYLPHENOL	12000	U	PHENANTHRENE	7100	J
BIS(2-CHLOROETHOXY)METHANE	12000	U	ANTHRACENE	1900	J
2,4-DICHLOROPHENOL	12000	U	CARBAZOLE	1700	J
1,2,4-TRICHLOROBENZENE	12000	U	DI-N-BUTYL PHTHALATE	12000	U
NAPHTHALENE	1300	J	FLUORANTHENE	10000	J
4-CHLOROANILINE	12000	U	PYRENE	12000	J
HEXACHLOROBUTADIENE	12000	U	BUTYL BENZYL PHTHALATE	12000	U
4-CHLORO-3-METHYLPHENOL	12000	U	3,3'-DICHLOROBENZIDINE	12000	U
2-METHYLNAPHTHALENE	630	J	BENZO(A)ANTHRACENE	5000	J
HEXACHLOROCYCLOPENTADIENE	12000	U	CHRYSENE	5900	J
2,4,6-TRICHLOROPHENOL	12000	U	BIS(2-ETHYLHEXYL)PHTHALATE	5900	JB
2,4,5-TRICHLOROPHENOL	31000	U	DI-N-OCTYL PHTHALATE	12000	U
2-CHLORONAPHTHALENE	12000	U	BENZO(B)FLUORANTHENE	4600	J
2-NITROANILINE	31000	U	BENZO(K)FLUORANTHENE	4900	J

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DAMES & MOORE
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OVERLAND PARK, KS 66202-424

Attn: JEFF DARLING

REPORT : 40286.04
QAQC# : BL0913SA
INSTR SEQ:
REPORTED : 10/15/99

PROJECT : IHNC PHASE 3
LAB# : 40286.04
SAMPLE #: EBS-05-HS
LOCATION:

SAMPLED : / /
SUBMITTED: 09/10/99
PREPARED : 09/13/99
ANALYZED : 09/27/99

DILUTION: 10.0000
MATRIX : Soil
METHOD : SW 8270
Dilution Run

%MOISTURE: 72.9
LEVEL : L

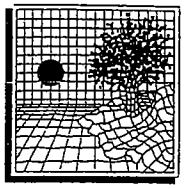
SEMIVOLATILES

RESULTS REPORTED IN ug/Kg ON A DRY WEIGHT BASIS

PARAMETER	RESULTS		PARAMETER	RESULTS	
DIMETHYL PHTHALATE	12000	U	BENZO(A)PYRENE	4000	J
ACENAPHTHYLENE	12000	U	INDENO(1,2,3-CD)PYRENE	2000	J
2,6-DINITROTOLUENE	12000	U	DIBENZ(A,H)ANTHRACENE	1200	J
-NITROANILINE	31000	U	BENZO(G,H,I)PERYLENE	2200	J

QA/QC SURROGATE RECOVERIES

NITROBENZENE-D5	(23-120)	71%	2-FLUOROPHENOL	(25-121)	77%
2-FLUOROBIPHENYL	(30-115)	88%	PHENOL-D5	(24-113)	76%
TERPHENYL-D14	(18-137)	124%	2,4,6-TRIBROMOPHENOL	(19-122)	105%



SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1709 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

QUALITY CONTROL SECTION

SOUTHWEST LABORATORY OF OKLAHOMA, INC.
1700 West Albany Broken Arrow, Oklahoma 74012 Office (918) 251-2858 Fax (918) 251-2599

DAMES & MOORE
6310 LAMAR AVENUE #135
OVERLAND PARK, KS 66202-424

Attn: JEFF DARLING

REPORT : SBLK LB1
QAQC# : BL0913SA
INSTR SEQ:
REPORTED : 10/15/99

PROJECT : IHNC PHASE 3
SAMPLE #: SBLK LB1
LOCATION: LAB QC

PREPARED : 09/13/99
ANALYZED : 09/16/99

DILUTION: 1.00000
MATRIX : S
METHOD : SW 8270

%MOISTURE: 0.0
LEVEL : L

SEMIVOLATILES

RESULTS REPORTED IN ug/Kg

PARAMETER	RESULTS		PARAMETER	RESULTS	
PHENOL	330	U	ACENAPHTHENE	330	U
BIS(2-CHLOROETHYL)ETHER	330	U	2,4-DINITROPHENOL	830	U
2-CHLOROPHENOL	330	U	4-NITROPHENOL	830	U
1,3-DICHLOROBENZENE	330	U	DIBENZOFURAN	330	U
,4-DICHLOROBENZENE	330	U	2,4-DINITROTOLUENE	330	U
1,2-DICHLOROBENZENE	330	U	DIETHYLPHTHALATE	330	U
2-METHYLPHENOL	330	U	4-CHLOROPHENYL-PHENYLETHER	330	U
BIS(2-CHLOROISOPROPYL)ETHER	330	U	FLUORENE	330	U
4-METHYLPHENOL	330	U	4-NITROANILINE	830	U
N-NITROSO-DI-N-PROPYLAMINE	330	U	4,6-DINITRO-2-METHYLPHENOL	830	U
HEXACHLOROETHANE	330	U	N-NITROSODIPHENYLAMINE	330	U
NITROBENZENE	330	U	4-BROMOPHENYL-PHENYLETHER	330	U
ISOPHORONE	330	U	HEXACHLOROBENZENE	330	U
2-NITROPHENOL	330	U	PENTACHLOROPHENOL	830	U
2,4-DIMETHYLPHENOL	330	U	PHENANTHRENE	330	U
BIS(2-CHLOROETHOXY)METHANE	330	U	ANTHRACENE	330	U
2,4-DICHLOROPHENOL	330	U	CARBAZOLE	330	U
1,2,4-TRICHLOROBENZENE	330	U	DI-N-BUTYL PHTHALATE	21	J
NAPHTHALENE	330	U	FLUORANTHENE	330	U
4-CHLOROANILINE	330	U	PYRENE	330	U
HEXACHLOROBUTADIENE	330	U	BUTYL BENZYL PHTHALATE	330	U
4-CHLORO-3-METHYLPHENOL	330	U	3,3'-DICHLOROBENZIDINE	330	U
2-METHYLNAPHTHALENE	330	U	BENZO(A)ANTHRACENE	330	U
HEXACHLOROCYCLOPENTADIENE	330	U	CHRYSENE	330	U
2,4,6-TRICHLOROPHENOL	330	U	BIS(2-ETHYLHEXYL)PHTHALATE	22	J
2,4,5-TRICHLOROPHENOL	830	U	DI-N-OCTYL PHTHALATE	330	U
2-CHLORONAPHTHALENE	330	U	BENZO(B)FLUORANTHENE	330	U
2-NITROANILINE	830	U	BENZO(K)FLUORANTHENE	330	U

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OVERLAND PARK, KS 66202-424

Attn: JEFF DARLING

REPORT : SBLK LB1
QAQC# : BL0913SA
INSTR SEQ:
REPORTED : 10/15/99

PROJECT : IHNC PHASE 3
SAMPLE #: SBLK LB1
LOCATION: LAB QC

PREPARED : 09/13/99
ANALYZED : 09/16/99

DILUTION: 1.00000
MATRIX : S
METHOD : SW 8270

%MOISTURE: 0.0
LEVEL : L

SEMIVOLATILES

RESULTS REPORTED IN ug/Kg

PARAMETER	RESULTS		PARAMETER	RESULTS	
DIMETHYL PHTHALATE	330	U	BENZO(A)PYRENE	330	U
ACENAPHTHYLENE	330	U	INDENO(1,2,3-CD)PYRENE	330	U
2,6-DINITROTOLUENE	330	U	DIBENZ(A,H)ANTHRACENE	330	U
3-NITROANILINE	830	U	BENZO(G,H,I)PERYLENE	330	U

QA/QC SURROGATE RECOVERIES

NITROBENZENE-D5	(23-120)	99%	2-FLUOROPHENOL	(25-121)	103%
2-FLUOROBIPHENYL	(30-115)	100%	PHENOL-D5	(24-113)	88%
ERPHENYL-D14	(18-137)	106%	2,4,6-TRIBROMOPHENOL	(19-122)	87%

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6310 LAMAR AVENUE #135
OVERLAND PARK, KS 66202-424
Attn: JEFF DARLING

REPORTED : 10/15/99

PROJECT : IHNC PHASE 3

MATRIX : S

PREPARED 09/13/99

LAB ID	QC BATCH	ANALYZED
LCS	BL0913SA	09/17/99 01:14
LCSD	BL0913SA	09/17/99 01:46

SEMIVOLATILES
LABORATORY CONTROL SPIKE/SPIKE DUPLICATE RECOVERY

Parameter (ug/Kg)	SPIKED AMOUNT	SPIKE CONC.	SPIKE %Rec	DUP CONC.	DUP %Rec	RPD	MAX RPD	LIMITS %Rec.
PHENOL	2500	2100	84	2400	96*	13	14	37- 95
2-CHLOROPHENOL	2500	2400	96	2600	104*	8	14	44- 96
1,4-DICHLOROBENZENE	1700	1400	82	1500	88	7	12	54- 90
N-NITROSO-DI-N-PROPYLAMIN	1700	1500	88	1600	94	6	9	44-110
1,2,4-TRICHLOROBENZENE	1700	1500	88	1600	94	6	13	50- 98
4-CHLORO-3-METHYLPHENOL	2500	2600	104*	2700	108*	4	15	40-101
ACENAPHTHENE	1700	1600	94	1600	94	< 1	16	49- 99
4-NITROPHENOL	2500	3500	140*	3600	144*	3	17	36-115
4-DINITROTOLUENE	1700	1600	94	1600	94	< 1	14	45- 96
PENTACHLOROPHENOL	2500	2400	96	2500	100	4	14	34-117
PYRENE	1700	1500	88	1600	94	6	14	37- 95

QA/QC SURROGATE RECOVERIES

Parameter	SPIKE %Rec	DUP %Rec	Limits
NITROBENZENE-D5	101	104	23-120
2-FLUOROPHENOL	100	110	25-121
2-FLUOROBIPHENYL	101	105	30-115
PHENOL-D5	91	98	24-113
TERPHENYL-D14	103	107	18-137
2,4,6-TRIBROMOPHENOL	72	73	19-122

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DAMES & MOORE
6310 LAMAR AVENUE #135
OVERLAND PARK, KS 66202-424

Attn: JEFF DARLING

REPORT : SBLK LB1
QAQC# : BL0915SB
INSTR SEQ:
REPORTED : 10/15/99

PROJECT : IHNC PHASE 3
SAMPLE #: SBLK LB1
LOCATION: LAB QC

PREPARED : 09/15/99
ANALYZED : 09/16/99

DILUTION: 1.00000
MATRIX : S
METHOD : SW 8270

%MOISTURE: 0.0
LEVEL : L

SEMIVOLATILES

RESULTS REPORTED IN ug/Kg

PARAMETER	RESULTS		PARAMETER	RESULTS	
PHENOL	330	U	ACENAPHTHENE	330	U
BIS(2-CHLOROETHYL)ETHER	330	U	2,4-DINITROPHENOL	830	U
2-CHLOROPHENOL	330	U	4-NITROPHENOL	830	U
1,3-DICHLOROBENZENE	330	U	DIBENZOFURAN	330	U
1,4-DICHLOROBENZENE	330	U	2,4-DINITROTOLUENE	330	U
1,2-DICHLOROBENZENE	330	U	DIETHYLPHTHALATE	330	U
2-METHYLPHENOL	330	U	4-CHLOROPHENYL-PHENYLETHER	330	U
BIS(2-CHLOROISOPROPYL)ETHER	330	U	FLUORENE	330	U
4-METHYLPHENOL	330	U	4-NITROANILINE	830	U
N-NITROSO-DI-N-PROPYLAMINE	330	U	4,6-DINITRO-2-METHYLPHENOL	830	U
HEXACHLOROETHANE	330	U	N-NITROSODIPHENYLAMINE	330	U
NITROBENZENE	330	U	4-BROMOPHENYL-PHENYLETHER	330	U
ISOPHORONE	330	U	HEXACHLOROBENZENE	330	U
2-NITROPHENOL	330	U	PENTACHLOROPHENOL	830	U
2,4-DIMETHYLPHENOL	330	U	PHENANTHRENE	330	U
BIS(2-CHLOROETHOXY)METHANE	330	U	ANTHRACENE	330	U
2,4-DICHLOROPHENOL	330	U	CARBAZOLE	330	U
1,2,4-TRICHLOROBENZENE	330	U	DI-N-BUTYL PHTHALATE	330	U
NAPHTHALENE	330	U	FLUORANTHENE	330	U
4-CHLOROANILINE	330	U	PYRENE	330	U
HEXACHLOROBUTADIENE	330	U	BUTYL BENZYL PHTHALATE	330	U
4-CHLORO-3-METHYLPHENOL	330	U	3,3'-DICHLOROBENZIDINE	330	U
2-METHYLNAPHTHALENE	330	U	BENZO(A)ANTHRACENE	330	U
HEXACHLOROCYCLOPENTADIENE	330	U	CHRYSENE	330	U
2,4,6-TRICHLOROPHENOL	330	U	BIS(2-ETHYLHEXYL)PHTHALATE	330	U
2,4,5-TRICHLOROPHENOL	830	U	DI-N-OCTYL PHTHALATE	330	U
2-CHLORONAPHTHALENE	330	U	BENZO(B)FLUORANTHENE	330	U
2-NITROANILINE	830	U	BENZO(K)FLUORANTHENE	330	U

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DAMES & MOORE
6310 LAMAR AVENUE #135
OVERLAND PARK, KS 66202-424

Attn: JEFF DARLING

REPORT : SBLK LB1
QAQC# : BL0915SB
INSTR SEQ:
REPORTED : 10/15/99

PROJECT : IHNC PHASE 3
SAMPLE #: SBLK LB1
LOCATION: LAB QC

PREPARED : 09/15/99
ANALYZED : 09/16/99

DILUTION: 1.00000
MATRIX : S
METHOD : SW 8270

%MOISTURE: 0.0
LEVEL : L

SEMIVOLATILES

RESULTS REPORTED IN ug/Kg

PARAMETER	RESULTS		PARAMETER	RESULTS	
DIMETHYL PHTHALATE	330	U	BENZO(A)PYRENE	330	U
ACENAPHTHYLENE	330	U	INDENO(1,2,3-CD)PYRENE	330	U
2,6-DINITROTOLUENE	330	U	DIBENZ(A,H)ANTHRACENE	330	U
3-NITROANILINE	830	U	BENZO(G,H,I)PERYLENE	330	U

QA/QC SURROGATE RECOVERIES

NITROBENZENE-D5	(23-120)	101%	2-FLUOROPHENOL	(25-121)	104%
2-FLUOROBIPHENYL	(30-115)	104%	PHENOL-D5	(24-113)	94%
'ERPHENYL-D14	(18-137)	102%	2,4,6-TRIBROMOPHENOL	(19-122)	82%

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6310 LAMAR AVENUE #135
OVERLAND PARK, KS 66202-424
Attn: JEFF DARLING

REPORTED : 10/15/99

PROJECT : IHNC PHASE 3

MATRIX : S

PREPARED 09/15/99

LAB ID	QC BATCH	ANALYZED
LCS	BL0915SB	09/17/99 02:18
LCSD	BL0915SB	09/17/99 02:51

SEMIVOLATILES
LABORATORY CONTROL SPIKE/SPIKE DUPLICATE RECOVERY

Parameter (ug/Kg)	SPIKED AMOUNT	SPIKE CONC.	SPIKE %Rec	DUP CONC.	DUP %Rec	RPD	MAX RPD	LIMITS %Rec.
PHENOL	2500	2200	88	2400	96*	9	14	37- 95
2-CHLOROPHENOL	2500	2500	100*	2600	104*	4	14	44- 96
1,4-DICHLOROBENZENE	1700	1400	82	1500	88	7	12	54- 90
N-NITROSO-DI-N-PROPYLAMIN	1700	1500	88	1600	94	6	9	44-110
1,2,4-TRICHLOROBENZENE	1700	1400	82	1500	88	7	13	50- 98
4-CHLORO-3-METHYLPHENOL	2500	2500	100	2600	104*	4	15	40-101
ACENAPHTHENE	1700	1500	88	1600	94	6	16	49- 99
4-NITROPHENOL	2500	3300	132*	3300	132*	< 1	17	36-115
4-DINITROTOLUENE	1700	1500	88	1600	94	6	14	45- 96
PENTACHLOROPHENOL	2500	2300	92	2400	96	4	14	34-117
PYRENE	1700	1600	94	1600	94	< 1	14	37- 95

QA/QC SURROGATE RECOVERIES

Parameter	SPIKE %Rec	DUP %Rec	Limits
NITROBENZENE-D5	101	104	23-120
2-FLUOROPHENOL	101	107	25-121
2-FLUOROBIPHENYL	100	104	30-115
PHENOL-D5	93	96	24-113
TERPHENYL-D14	106	102	18-137
2,4,6-TRIBROMOPHENOL	83	82	19-122

SOUTHWEST LABORATORY OF OKLAHOMA, INC.
1700 West Albany Broken Arrow, Oklahoma 74012 Office (918) 251-2858 Fax (918) 251-2599

DAMES & MOORE
6310 LAMAR AVENUE #135
OVERLAND PARK, KS 66202-424
Attn: JEFF DARLING

REPORTED : 10/15/99

PROJECT : IHNC PHASE 3

MATRIX : S

PREPARED 09/13/99

LAB ID	CLIENT ID	QC BATCH	ANALYZED
40286.01	EBS-16-BS	BL0915SB	09/17/99 05:31
40286.01 MS1	EBS-16-BS	BL0913SA	09/17/99 06:03
40286.01 SD1	EBS-16-BS	BL0915SB	09/17/99 06:35

SEMIVOLATILES
MATRIX SPIKE/SPIKE DUPLICATE RECOVERY

Parameter (ug/Kg)	SPIKED AMOUNT	SAMP CONC.	SPIKE CONC.	SPIKE %Rec	DUP CONC.	DUP %Rec	RPD	MAX RPD	LIMITS %Rec.
PHENOL	3100	140	2800	84	3100	88	5	35	26- 90
2-CHLOROPHENOL	3100	ND	2900	91	3000	92	< 1	50	25-102
1,4-DICHLOROBENZENE	2100	ND	1500	72	1600	70	2	27	28-104
N-NITROSO-DI-N-PROPYLAMIN	2100	ND	1700	82	1800	82	< 1	38	41-126
1,2,4-TRICHLOROBENZENE	2100	ND	1600	75	1700	76	< 1	23	38-107
4-CHLORO-3-METHYLPHENOL	3100	ND	3000	96	3400	102	6	33	26-103
ACENAPHTHENE	2100	ND	1800	87	2000	90	3	19	31-137
NITROPHENOL	3100	ND	3900	124*	4500	134*	8	50	11-114
2,4-DINITROTOLUENE	2100	ND	1900	90*	2100	96*	6	47	28- 89
PENTACHLOROPHENOL	3100	ND	2400	76	2900	86	11	47	17-109
PYRENE	2100	1800	4500	131	5000	141	4	36	35-142

QA/QC SURROGATE RECOVERIES

Parameter	SAMPLE %Rec	SPIKE %Rec	DUP %Rec	Limits
NITROBENZENE-D5	81	89	87	23-120
2-FLUOROPHENOL	81	90	89	25-121
2-FLUOROBIPHENYL	91	97	96	30-115
PHENOL-D5	74	85	88	24-113
TERPHENYL-D14	107	117	119	18-137
2,4,6-TRIBROMOPHENOL	78	82	82	19-122

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DAMES & MOORE
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OVERLAND PARK, KS 66202-424

Attn: JEFF DARLING

REPORT : 40286.01
QAQC# : BL0913SA
INSTR SEQ:
REPORTED : 10/15/99

PROJECT : IHNC PHASE 3
LAB# : 40286.01 MS1
SAMPLE #: EBS-16-BS MS1
LOCATION:

SAMPLED : / /
SUBMITTED: 09/10/99
PREPARED : 09/13/99
ANALYZED : 09/17/99

DILUTION: 1.00000
MATRIX : Soil
METHOD : SW 8270

%MOISTURE: 25.1
LEVEL : L

SEMIVOLATILES

RESULTS REPORTED IN ug/Kg ON A DRY WEIGHT BASIS

PARAMETER	RESULTS		PARAMETER	RESULTS	
PHENOL	2800		ACENAPHTHENE	1800	
BIS(2-CHLOROETHYL)ETHER	420	U	2,4-DINITROPHENOL	1000	U
2-CHLOROPHENOL	2900		4-NITROPHENOL	3900	E*
1,3-DICHLOROBENZENE	420	U	DIBENZOFURAN	24	J
1,4-DICHLOROBENZENE	1500		2,4-DINITROTOLUENE	1900	*
1,2-DICHLOROBENZENE	420	U	DIETHYLPHTHALATE	420	U
2-METHYLPHENOL	420	U	4-CHLOROPHENYL-PHENYLETHER	420	U
BIS(2-CHLOROISOPROPYL)ETHER	420	U	FLUORENE	28	J
4-METHYLPHENOL	420	U	4-NITROANILINE	1000	U
N-NITROSO-DI-N-PROPYLAMINE	1700		4,6-DINITRO-2-METHYLPHENOL	1000	U
HEXACHLOROETHANE	420	U	N-NITROSODIPHENYLAMINE	420	U
NITROBENZENE	420	U	4-BROMOPHENYL-PHENYLETHER	420	U
ISOPHORONE	420	U	HEXACHLOROBENZENE	420	U
2-NITROPHENOL	420	U	PENTACHLOROPHENOL	2400	
2,4-DIMETHYLPHENOL	420	U	PHENANTHRENE	580	
BIS(2-CHLOROETHOXY)METHANE	420	U	ANTHRACENE	420	U
2,4-DICHLOROPHENOL	420	U	CARBAZOLE	98	J
1,2,4-TRICHLOROBENZENE	1600		DI-N-BUTYL PHTHALATE	420	U
NAPHTHALENE	420	U	FLUORANTHENE	1800	
4-CHLOROANILINE	420	U	PYRENE	4500	E
HEXACHLOROBUTADIENE	420	U	BUTYL BENZYL PHTHALATE	420	U
4-CHLORO-3-METHYLPHENOL	3000		3,3'-DICHLOROBENZIDINE	420	U
2-METHYLNAPHTHALENE	420	U	BENZO(A)ANTHRACENE	420	J
HEXACHLOROCYCLOPENTADIENE	420	U	CHRYSENE	610	
2,4,6-TRICHLOROPHENOL	420	U	BIS(2-ETHYLHEXYL)PHTHALATE	8600	EB
2,4,5-TRICHLOROPHENOL	1000	U	DI-N-OCTYL PHTHALATE	420	U
2-CHLORONAPHTHALENE	420	U	BENZO(B)FLUORANTHENE	580	
2-NITROANILINE	1000	U	BENZO(K)FLUORANTHENE	530	

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OVERLAND PARK, KS 66202-424

Attn: JEFF DARLING

REPORT : 40286.01
QAQC# : BL0913SA
INSTR SEQ:
REPORTED : 10/15/99

PROJECT : IHNC PHASE 3
LAB# : 40286.01 MS1
SAMPLE #: EBS-16-BS MS1
LOCATION:

SAMPLED : / /
SUBMITTED: 09/10/99
PREPARED : 09/13/99
ANALYZED : 09/17/99

DILUTION: 1.00000
MATRIX : Soil
METHOD : SW 8270

%MOISTURE: 25.1
LEVEL : L

SEMIVOLATILES

RESULTS REPORTED IN ug/Kg ON A DRY WEIGHT BASIS

PARAMETER	RESULTS		PARAMETER	RESULTS	
DIMETHYL PHTHALATE	420	U	BENZO(A)PYRENE	450	
ACENAPHTHYLENE	420	U	INDENO(1,2,3-CD)PYRENE	180	J
2,6-DINITROTOLUENE	420	U	DIBENZ(A,H)ANTHRACENE	76	J
'-NITROANILINE	1000	U	BENZO(G,H,I)PERYLENE	170	J

QA/QC SURROGATE RECOVERIES

NITROBENZENE-D5	(23-120)	89%	2-FLUOROPHENOL	(25-121)	90%
'-FLUOROBIPHENYL	(30-115)	97%	PHENOL-D5	(24-113)	85%
TERPHENYL-D14	(18-137)	117%	2,4,6-TRIBROMOPHENOL	(19-122)	82%

SOUTHWEST LABORATORY OF OKLAHOMA
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918-251-2858

SDG NARRATIVE

CLIENT: D&MKSC

PROJECT: IHNC PHASE 3

EPISODE: 40286

FRACTION: Pesticides

6 soil samples including MS and MSD were extracted by SW846 method 3550 and analyzed for pesticides by SW846 method 8081.

The matrixes of these soil samples caused problems with their analysis by causing interference peaks in the sample chromatograms and degrading instrument performance. It should be noted that when multi-responding compounds or large numbers of "interference" peaks are present in a sample, false positives of single response compounds are common. Since ECD detection is not a definitive means of detection, single-response analytes in the presence of multi-responders or interference will be reported, per the method, if a peak is within a target analyte's retention time window on both columns, then it is reported as that target analyte). This alleviates the possibility that false negative results will be reported. However, this may lead to false positives. The end data user should be aware of the limitations of the method and take appropriate care. One of the best ways to identify false positives is when compounds are found in the undiluted analysis at concentrations requiring dilution and they are not found at all in the diluted analysis.

When analyzed undiluted these samples caused breakdown of pesticides in the calibration verification standards following their injection (making the data non-compliant according to method 8000/8081A). The calibration verification standards analyzed before these samples met method 8000/8081A continuing calibration criteria. When diluted 10X the samples met acceptance criteria. A non-compliant undiluted analysis and a compliant 10X dilution analysis was performed for these samples. Forms for the undiluted and the dilution data have been submitted.

Blanks: No corrective action required.

Surrogates: Several sample surrogate recoveries were outside of control limits, most likely due to matrix interference. No corrective action was taken since the sample at least one surrogate recovery was within control limits and the matrix interference was evident in the sample chromatograms.

Laboratory Control Spikes: 3 of 20 RPDs were outside of control limits. No corrective action required.

Matrix Spikes: 3 out of 20 RPDs and 16 out of 40 recoveries were outside of control limits, no corrective action was taken since the Laboratory Control Spikes were within control limits.

Jeff Cummins
for
Drew Cowan
GC Supervisor
Dc

October 6, 1999

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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DAMES & MOORE
6310 LAMAR AVENUE #135
OVERLAND PARK, KS 66202-424

Attn: JEFF DARLING

REPORT : 40286.01
QAQC# : BL0913SC
INSTR SEQ:
REPORTED : 10/14/99

PROJECT : IHNC PHASE 3
LAB# : 40286.01
SAMPLE #: EBS-16-BS
LOCATION:

MATRIX : Soil
METHOD : SW 8081A

SAMPLED : / /
SUBMITTED: 09/10/99
PREPARED : 09/13/99
ANALYZED : 10/01/99
DILUTION : 1.00
%MOISTURE: 25.0

PESTICIDE/PCB
RESULTS REPORT IN ug/kg ON A DRY WEIGHT BASIS

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
ALPHA-BHC	1.7	U	ENDOSULFAN II	3.3	U
BETA-BHC	1.7	U	4'4'-DDD	3.3	U
DELTA-BHC	1.7	U	ENDOSULFAN SO4	3.3	U
GAMMA-BHC (LINDANE)	1.7	U	4,4'-DDT	3.3	U
'EPTACHLOR	1.7	U	ENDRIN ALDEHYDE	3.3	U
ALDRIN	1.7	U	METHOXYCHLOR	17	U
HEPTACHLOR EPOXIDE	1.7	U	ALPHA-CHLORDANE	1.7	U
ENDOSULFAN I	71	PE	GAMMA-CHLORDANE	100	PE
DIELDRIN	40	P	TOXAPHENE	110	U
4,4'-DDE	3.3	U	ENDRIN KETONE	3.3	U
ENDRIN	3.3	U			

QA/QC SURROGATE RECOVERIES

TETRACHLORO-M-XYLENE	(47-118)	108%	DECACHLOROBIPHENYL	(52-143)	101%

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Attn: JEFF DARLING

REPORT : 40286.01
QAQC# : BL0913SC
INSTR SEQ:
REPORTED : 10/14/99

PROJECT : IHNC PHASE 3
LAB# : 40286.01
SAMPLE #: EBS-16-BS
LOCATION:

MATRIX : Soil
METHOD : SW 8081A

SAMPLED : / /
SUBMITTED: 09/10/99
PREPARED : 09/13/99
ANALYZED : 10/01/99
DILUTION : 10.00
%MOISTURE: 25.0

Dilution Run

PESTICIDE/PCB
RESULTS REPORT IN ug/kg ON A DRY WEIGHT BASIS

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
ALPHA-BHC	17	U	ENDOSULFAN II	33	U
BETA-BHC	17	U	4'4'-DDD	33	U
DELTA-BHC	17	U	ENDOSULFAN SO4	120	D
GAMMA-BHC (LINDANE)	17	U	4,4'-DDT	33	U
HEPTACHLOR	17	U	ENDRIN ALDEHYDE	33	U
ALDRIN	17	U	METHOXYCHLOR	170	U
HEPTACHLOR EPOXIDE	17	U	ALPHA-CHLORDANE	17	U
ENDOSULFAN I	17	U	GAMMA-CHLORDANE	150	DP
DIELDRIN	33	U	TOXAPHENE	1100	U
4,4'-DDE	110	DP	ENDRIN KETONE	33	U
ENDRIN	33	U			

QA/QC SURROGATE RECOVERIES

TETRACHLORO-M-XYLENE	(47-118)	76%	DECACHLOROBIPHENYL	(52-143)	132%

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DAMES & MOORE
6310 LAMAR AVENUE #135
OVERLAND PARK, KS 66202-424

Attn: JEFF DARLING

REPORT : 40286.02
QAQC# : BL0913SC
INSTR SEQ:
REPORTED : 10/14/99

PROJECT : IHNC PHASE 3
LAB# : 40286.02
SAMPLE #: EBS-11-BS
LOCATION:

MATRIX : Soil
METHOD : SW 8081A

SAMPLED : / /
SUBMITTED: 09/10/99
PREPARED : 09/13/99
ANALYZED : 10/02/99
DILUTION : 1.00
%MOISTURE: 41.1

PESTICIDE/PCB
RESULTS REPORT IN ug/kg ON A DRY WEIGHT BASIS

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
ALPHA-BHC	2.2	U	ENDOSULFAN II	4.2	U
BETA-BHC	2.2	U	4'4'-DDD	4.2	U
DELTA-BHC	2.2	U	ENDOSULFAN SO4	25	
GAMMA-BHC (LINDANE)	2.2	U	4,4'-DDT	4.2	U
HEPTACHLOR	2.3	P	ENDRIN ALDEHYDE	4.2	U
ALDRIN	2.2	U	METHOXYCHLOR	22	U
HEPTACHLOR EPOXIDE	2.2	U	ALPHA-CHLORDANE	2.2	U
ENDOSULFAN I	2.2	U	GAMMA-CHLORDANE	17	P
DIELDRIN	12	P	TOXAPHENE	140	U
4,4'-DDE	17	P	ENDRIN KETONE	38	P
ENDRIN	4.2	U			

QA/QC SURROGATE RECOVERIES

TETRACHLORO-M-XYLENE	(47-118)	82%	DECACHLOROBIPHENYL	(52-143)	92%

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OVERLAND PARK, KS 66202-424

Attn: JEFF DARLING

REPORT : 40286.02
QAQC# : BL0913SC
INSTR SEQ:
REPORTED : 10/14/99

PROJECT : IHNC PHASE 3
LAB# : 40286.02
SAMPLE #: EBS-11-BS
LOCATION:

SAMPLED : / /
SUBMITTED: 09/10/99
PREPARED : 09/13/99
ANALYZED : 10/01/99
DILUTION : 10.00
%MOISTURE: 41.1

MATRIX : Soil
METHOD : SW 8081A Dilution Run

PESTICIDE/PCB
RESULTS REPORT IN ug/kg ON A DRY WEIGHT BASIS

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
ALPHA-BHC	22	U	ENDOSULFAN II	42	U
BETA-BHC	22	U	4'4'-DDD	42	U
DELTA-BHC	22	U	ENDOSULFAN SO4	57	D
GAMMA-BHC (LINDANE)	22	U	4,4'-DDT	42	U
EPTACHLOR	22	U	ENDRIN ALDEHYDE	42	U
ALDRIN	22	U	METHOXYCHLOR	220	U
HEPTACHLOR EPOXIDE	22	U	ALPHA-CHLORDANE	22	U
ENDOSULFAN I	22	U	GAMMA-CHLORDANE	24	DP
DIELDRIN	42	U	TOXAPHENE	1400	U
4,4'-DDE	42	U	ENDRIN KETONE	42	U
ENDRIN	42	U			

QA/QC SURROGATE RECOVERIES

TETRACHLORO-M-XYLENE	(47-118)	73%	DECACHLOROBIPHENYL	(52-143)	1268% D

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DAMES & MOORE
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OVERLAND PARK, KS 66202-424

Attn: JEFF DARLING

REPORT : 40286.03
QAQC# : BL0913SC
INSTR SEQ:
REPORTED : 10/14/99

PROJECT : IHNC PHASE 3
LAB# : 40286.03
SAMPLE #: EBS-08-HS
LOCATION:

MATRIX : Soil
METHOD : SW 8081A

SAMPLED : / /
SUBMITTED: 09/10/99
PREPARED : 09/13/99
ANALYZED : 10/02/99
DILUTION : 1.00
%MOISTURE: 50.8

PESTICIDE/PCB
RESULTS REPORT IN ug/kg ON A DRY WEIGHT BASIS

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
ALPHA-BHC	2.6	U	ENDOSULFAN II	5.1	U
BETA-BHC	2.6	U	4'4'-DDD	5.1	U
DELTA-BHC	2.6	U	ENDOSULFAN SO4	20	P
GAMMA-BHC (LINDANE)	2.6	U	4,4'-DDT	5.1	U
HEPTACHLOR	2.6	U	ENDRIN ALDEHYDE	5.1	U
ALDRIN	2.6	U	METHOXYCHLOR	26	U
HEPTACHLOR EPOXIDE	2.6	U	ALPHA-CHLORDANE	2.6	U
ENDOSULFAN I	2.6	U	GAMMA-CHLORDANE	2.6	U
DIELDRIN	5.1	U	TOXAPHENE	170	U
4,4'-DDE	5.1	U	ENDRIN KETONE	5.1	U
ENDRIN	5.1	U			

QA/QC SURROGATE RECOVERIES

TETRACHLORO-M-XYLENE	(47-118)	168% *	DECACHLOROBIPHENYL	(52-143)	132%

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OVERLAND PARK, KS 66202-424

Attn: JEFF DARLING

REPORT : 40286.03
QAQC# : BL0913SC
INSTR SEQ:
REPORTED : 10/14/99

PROJECT : IHNC PHASE 3
LAB# : 40286.03
SAMPLE #: EBS-08-HS
LOCATION:

SAMPLED : / /
SUBMITTED: 09/10/99
PREPARED : 09/13/99
ANALYZED : 10/01/99
DILUTION : 10.00
%MOISTURE: 50.8

MATRIX : Soil
METHOD : SW 8081A Dilution Run

PESTICIDE/PCB
RESULTS REPORT IN ug/kg ON A DRY WEIGHT BASIS

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
ALPHA-BHC	26	U	ENDOSULFAN II	51	U
BETA-BHC	26	U	4'4'-DDD	51	U
DELTA-BHC	26	U	ENDOSULFAN SO4	51	U
GAMMA-BHC (LINDANE)	26	U	4,4'-DDT	51	U
'EPTACHLOR	26	U	ENDRIN ALDEHYDE	51	U
ALDRIN	26	U	METHOXYCHLOR	260	U
HEPTACHLOR EPOXIDE	26	U	ALPHA-CHLORDANE	26	U
ENDOSULFAN I	26	U	GAMMA-CHLORDANE	26	U
DIELDRIN	51	U	TOXAPHENE	1700	U
4,4'-DDE	51	U	ENDRIN KETONE	51	U
ENDRIN	51	U			

QA/QC SURROGATE RECOVERIES

TETRACHLORO-M-XYLENE	(47-118)	126% D	DECACHLOROBIPHENYL	(52-143)	136%

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DAMES & MOORE
6310 LAMAR AVENUE #135
OVERLAND PARK, KS 66202-424

Attn: JEFF DARLING

REPORT : 40286.04
QAQC# : BL0913SC
INSTR SEQ:
REPORTED : 10/14/99

PROJECT : IHNC PHASE 3
LAB# : 40286.04
SAMPLE #: EBS-05-HS
LOCATION:

MATRIX : Soil
METHOD : SW 8081A

SAMPLED : / /
SUBMITTED: 09/10/99
PREPARED : 09/13/99
ANALYZED : 10/02/99
DILUTION : 1.00
%MOISTURE: 72.9

PESTICIDE/PCB
RESULTS REPORT IN ug/kg ON A DRY WEIGHT BASIS

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
ALPHA-BHC	9.9	P	ENDOSULFAN II	9.2	U
BETA-BHC	4.8	U	4'4'-DDD	16	P
DELTA-BHC	4.8	U	ENDOSULFAN SO4	25	P
GAMMA-BHC (LINDANE)	9.2	P	4,4'-DDT	9.2	U
'EPTACHLOR	4.8	U	ENDRIN ALDEHYDE	9.2	U
ALDRIN	46	P	METHOXYCHLOR	48	U
HEPTACHLOR EPOXIDE	4.8	U	ALPHA-CHLORDANE	18	P
ENDOSULFAN I	4.8	U	GAMMA-CHLORDANE	25	P
DIELDRIN	9.2	U	TOXAPHENE	310	U
4,4'-DDE	9.2	U	ENDRIN KETONE	31	
ENDRIN	9.2	U			

QA/QC SURROGATE RECOVERIES

TETRACHLORO-M-XYLENE	(47-118)	117%	DECACHLOROBIPHENYL	(52-143)	381% *

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OVERLAND PARK, KS 66202-424

Attn: JEFF DARLING

REPORT : 40286.04
QAQC# : BL0913SC
INSTR SEQ:
REPORTED : 10/14/99

PROJECT : IHNC PHASE 3
LAB# : 40286.04
SAMPLE #: EBS-05-HS
LOCATION:

MATRIX : Soil
METHOD : SW 8081A

SAMPLED : / /
SUBMITTED: 09/10/99
PREPARED : 09/13/99
ANALYZED : 10/01/99
DILUTION : 10.00
%MOISTURE: 72.9

Dilution Run

PESTICIDE/PCB
RESULTS REPORT IN ug/kg ON A DRY WEIGHT BASIS

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
ALPHA-BHC	48	U	ENDOSULFAN II	92	U
BETA-BHC	48	U	4'4'-DDD	92	U
DELTA-BHC	48	U	ENDOSULFAN SO4	92	U
GAMMA-BHC (LINDANE)	48	U	4,4'-DDT	92	U
'EPTACHLOR	48	U	ENDRIN ALDEHYDE	92	U
ALDRIN	48	U	METHOXYCHLOR	480	U
HEPTACHLOR EPOXIDE	48	U	ALPHA-CHLORDANE	48	U
ENDOSULFAN I	48	U	GAMMA-CHLORDANE	48	U
DIELDRIN	92	U	TOXAPHENE	3100	U
4,4'-DDE	92	U	ENDRIN KETONE	92	U
ENDRIN	92	U			

QA/QC SURROGATE RECOVERIES

TETRACHLORO-M-XYLENE	(47-118)	0% D	DECACHLOROBIPHENYL	(52-143)	169% D

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany Broken Arrow, Oklahoma 74012 Office (918) 251-2858 Fax (918) 251-2599

DAMES & MOORE
6310 LAMAR AVENUE #135
OVERLAND PARK, KS 66202-424

Attn: JEFF DARLING

REPORT : BL0913SC LB1
QAQC# : BL0913SC
INSTR SEQ:
REPORTED : 10/14/99

PROJECT : IHNC PHASE 3
SAMPLE #: BL0913SC LB1
LOCATION: LAB QC

MATRIX : S
METHOD : SW 8081A

PREPARED : 09/13/99
ANALYZED : 10/01/99
DILUTION : 1.00
%MOISTURE: 0.0

PESTICIDE/PCB
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
ALPHA-BHC	1.3	U	ENDOSULFAN II	2.5	U
BETA-BHC	1.3	U	4'4'-DDD	2.5	U
DELTA-BHC	1.3	U	ENDOSULFAN SO4	2.5	U
GAMMA-BHC (LINDANE)	1.3	U	4,4'-DDT	2.5	U
HEPTACHLOR	1.3	U	ENDRIN ALDEHYDE	2.5	U
LDRIN	1.3	U	METHOXYCHLOR	13	U
dEPTACHLOR EPOXIDE	1.3	U	ALPHA-CHLORDANE	1.3	U
ENDOSULFAN I	1.3	U	GAMMA-CHLORDANE	1.3	U
DIELDRIN	2.5	U	TOXAPHENE	83	U
4,4'-DDE	2.5	U	ENDRIN KETONE	2.5	U
ENDRIN	2.5	U			

QA/QC SURROGATE RECOVERIES

TETRACHLORO-M-XYLENE	(47-118)	89%	DECACHLOROBIPHENYL	(52-143)	91%

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DAMES & MOORE
6310 LAMAR AVENUE #135
OVERLAND PARK, KS 66202-424
Attn: JEFF DARLING

REPORTED : 10/14/99

PROJECT : IHNC PHASE 3

MATRIX : S

PREPARED: 09/13/99

LAB ID	QC BATCH	ANALYZED
LC0913SC	BL0913SC	10/01/99 18:19
LD0913SC	BL0913SC	10/01/99 18:47

PESTICIDE/PCB
LABORATORY CONTROL SPIKE/SPIKE DUPLICATE RECOVERY

Parameter (ug/kg)	SPIKED AMOUNT	SPIKE CONC.	SPIKE %Rec	DUP CONC.	DUP %Rec	RPD		MAX RPD	LIMITS %Rec.
ALPHA-BHC	8	6	75	8	100	28		29	47-122
BETA-BHC	8	7	83	8	102	21		32	37-125
DELTA-BHC	8	9	106	11	137	26		31	42-140
GAMMA-BHC (LINDANE)	8	7	81	9	105	25		31	42-129
HEPTACHLOR	8	8	93	10	118	24		29	10-170
ALDRIN	8	6	72	8	93	25		30	33-119
HEPTACHLOR EPOXIDE	8	7	85	9	103	20		29	40-124
)OSULFAN I	8	4	54	5	63	16		30	20-119
ELDRIN	8	7	89	10	117	26		30	42-134
4,4'-DDE	8	7	81	9	106	27		31	45-128
ENDRIN	8	10	117	12	145	22		30	23-170
ENDOSULFAN II	8	7	81	11	130	46	*	26	23-134
4'4'-DDD	8	10	114	13	155	30	*	29	30-168
ENDOSULFAN SO4	8	8	93	10	118	24		31	11-170
4,4'-DDT	8	8	97	12	138	35	*	29	44-157
METHOXYCHLOR	33	37	112	45	135	19		29	59-156
ENDRIN KETONE	8	9	106	10	123	15		28	37-170
ENDRIN ALDEHYDE	8	5	65	7	81	23		30	10-170
ALPHA-CHLORDANE	8	7	88	9	103	16		28	43-135
GAMMA-CHLORDANE	8	7	83	8	102	21		29	25-156

QA/QC SURROGATE RECOVERIES

Parameter	SPIKE %Rec	DUP %Rec	Limits
TETRACHLORO-M-XYLENE	87	109	47-118
DECACHLOROBIPHENYL	100	112	52-143

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DAMES & MOORE
6310 LAMAR AVENUE #135
OVERLAND PARK, KS 66202-424
Attn: JEFF DARLING

REPORTED : 10/14/99

PROJECT : IHNC PHASE 3

MATRIX : S

PREPARED: 09/13/99

LAB ID		CLIENT ID	QC BATCH	ANALYZED
40286.04		EBS-05-HS	BL0913SC	10/02/99 01:14
40286.04	MS1	EBS-05-HS	BL0913SC	10/02/99 01:41
40286.04	SD1	EBS-05-HS	BL0913SC	10/02/99 02:09

PESTICIDE/PCB
MATRIX SPIKE/SPIKE DUPLICATE RECOVERY

Parameter (ug/kg)	SPIKED AMOUNT	SAMP CONC.	SPIKE CONC.	SPIKE %Rec	DUP CONC.	DUP %Rec	RPD---		MAX RPD	LIMITS %Rec.
ALPHA-BHC	31	9.9	37	88	42	102	11		29	47-122
BETA-BHC	31	ND	66	214*	93	300*	34	*	32	37-125
DELTA-BHC	31	ND	130	414*	130	415*	< 1		31	42-140
GAMMA-BHC (LINDANE)	31	9.2	42	105	42	107	2		31	42-129
HEPTACHLOR	8.3	ND	ND	0	ND	0	< 1		0	0- 0
ALDRIN	31	46	76	95	98	168*	26		30	33-119
HEPTACHLOR EPOXIDE	8.3	ND	ND	0	ND	0	< 1		0	0- 0
ENDOSULFAN I	31	ND	14	44	14	45	2		30	20-119
DIELDRIN	31	ND	26	83	28	90	7		30	42-134
4,4'-DDE	31	ND	48	156*	49	158*	< 1		31	45-128
ENDRIN	31	ND	50	163	53	172*	5		30	23-170
ENDOSULFAN II	31	ND	40	129	24	77	50	*	26	23-134
4'4'-DDD	31	16	72	181*	58	138	21		29	30-168
ENDOSULFAN SO4	31	25	35	33	41	52	16		31	11-170
4,4'-DDT	31	ND	78	73	77	71	< 1		29	44-157
ENDRIN ALDEHYDE	31	ND	44	143	47	151	6		30	10-170
METHOXYCHLOR	120	ND	96	78	71	58*	29		29	59-156
ALPHA-CHLORDANE	31	18	45	85	40	69	11		28	43-135
GAMMA-CHLORDANE	31	25	73	153	49	78	38	*	29	25-156
ENDRIN KETONE	31	31	36	17*	28	0*	25		28	37-170

QA/QC SURROGATE RECOVERIES

Parameter	SAMPLE %Rec	SPIKE %Rec	DUP %Rec	Limits
TETRACHLORO-M-XYLENE	117	487*	91	47-118
DECACHLOROBIPHENYL	381*	201*	46*	52-143

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1700 West Albany Broken Arrow, Oklahoma 74012 Office (918) 251-2858 Fax (918) 251-2599

DAMES & MOORE
6310 LAMAR AVENUE #135
OVERLAND PARK, KS 66202-424

Attn: JEFF DARLING

REPORT : 40286.04
QAQC# : BL0913SC
INSTR SEQ:
REPORTED : 10/14/99

PROJECT : IHNC PHASE 3
LAB# : 40286.04 MS1
SAMPLE #: EBS-05-HS
LOCATION:

MATRIX : Soil
METHOD : SW 8081A

SAMPLED : / /
SUBMITTED: 09/10/99
PREPARED : 09/13/99
ANALYZED : 10/02/99
DILUTION : 1.00
%MOISTURE: 72.9

PESTICIDE/PCB
RESULTS REPORT IN ug/kg ON A DRY WEIGHT BASIS

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
ALPHA-BHC	37	P	ENDOSULFAN II	40	
BETA-BHC	66	P	4'4'-DDD	72	
DELTA-BHC	130	PE	ENDOSULFAN SO4	35	P
GAMMA-BHC (LINDANE)	42	P	4,4'-DDT	78	
HEPTACHLOR	4.8	U	ENDRIN ALDEHYDE	44	
ALDRIN	76	P	METHOXYCHLOR	96	
HEPTACHLOR EPOXIDE	4.8	U	ALPHA-CHLORDANE	45	P
ENDOSULFAN I	14	P	GAMMA-CHLORDANE	73	PE
DIELDRIN	26		TOXAPHENE	310	U
4,4'-DDE	48		ENDRIN KETONE	36	P
ENDRIN	50				

QA/QC SURROGATE RECOVERIES

TETRACHLORO-M-XYLENE	(47-118)	487% *	DECACHLOROBIPHENYL	(52-143)	201% *

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DAMES & MOORE
6310 LAMAR AVENUE #135
OVERLAND PARK, KS 66202-424

Attn: JEFF DARLING

REPORT : 40286.04
QAQC# : BL0913SC
INSTR SEQ:
REPORTED : 10/14/99

PROJECT : IHNC PHASE 3
LAB# : 40286.04 SD1
SAMPLE #: EBS-05-HS
LOCATION:

MATRIX : Soil
METHOD : SW 8081A

SAMPLED : / /
SUBMITTED: 09/10/99
PREPARED : 09/13/99
ANALYZED : 10/02/99
DILUTION : 1.00
%MOISTURE: 72.9

PESTICIDE/PCB
RESULTS REPORT IN ug/kg ON A DRY WEIGHT BASIS

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
ALPHA-BHC	42	P	ENDOSULFAN II	24	P
BETA-BHC	93	E	4'4'-DDD	58	P
DELTA-BHC	130	PE	ENDOSULFAN SO4	41	
GAMMA-BHC (LINDANE)	42	P	4,4'-DDT	77	
HEPTACHLOR	4.8	U	ENDRIN ALDEHYDE	47	
ALDRIN	98	PE	METHOXYCHLOR	71	
HEPTACHLOR EPOXIDE	4.8	U	ALPHA-CHLORDANE	40	P
ENDOSULFAN I	14	P	GAMMA-CHLORDANE	49	P
DIELDRIN	28		TOXAPHENE	310	U
4,4'-DDE	49	P	ENDRIN KETONE	28	P
ENDRIN	53				

QA/QC SURROGATE RECOVERIES

TETRACHLORO-M-XYLENE	(47-118)	91%	DECACHLOROBIPHENYL	(52-143)	46% *

SOUTHWEST LABORATORY OF OKLAHOMA
1700 West Albany, Suite A/ Broken Arrow, OK 74012
918-251-2858

SDG NARRATIVE

CLIENT: D&MKSC

PROJECT: IHNC PHASE 3

SDG NO: 40286

FRACTION: PCBs

4 soil sample were extracted by SW846 method 3550 and analyzed for PCBs by SW846 method 8082.

No major problems occurred during the analyses of these samples. 3 of the samples required sulfur cleanup (a mercury technique was used). Sample EBS-16-BS required dilution to bring a target analyte within calibration range.

Blanks: No corrective action required.

Surrogates: Several sample recoveries were outside of control limits, no corrective action was taken.

Laboratory Control Spikes: No corrective action required.

Matrix Spikes: 2 out of 4 recoveries slightly exceeded control limits, no corrective action was taken.

Drew Cowan
GC Supervisor
Dc

September 20, 1999

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany Broken Arrow, Oklahoma 74012 Office (918) 251-2858 Fax (918) 251-2599

DAMES & MOORE
6310 LAMAR AVENUE #135
OVERLAND PARK, KS 66202-424

Attn: JEFF DARLING

REPORT : 40286.02
QAQC# : BL0913SB-S
INSTR SEQ:
REPORTED : 10/14/99

PROJECT : IHNC PHASE 3
LAB# : 40286.02 MS1
SAMPLE #: EBS-11-BS
LOCATION:

MATRIX : Soil
METHOD : SW 8082

SAMPLED : / /
SUBMITTED: 09/10/99
PREPARED : 09/13/99
ANALYZED : 09/17/99
DILUTION : 1.00
%MOISTURE: 41.1

PCB
RESULTS REPORT IN ug/kg ON A DRY WEIGHT BASIS

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
AROCLOR-1016	440		AROCLOR-1248	56	U
AROCLOR-1221	56	U	AROCLOR-1254	56	U
AROCLOR-1232	56	U	AROCLOR-1260	560	
AROCLOR-1242	56	U			

QA/QC SURROGATE RECOVERIES

TETRACHLORO-M-XYLENE	(49-109)	72%	DECACHLOROBIPHENYL	(55-125)	97%

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DAMES & MOORE
6310 LAMAR AVENUE #135
OVERLAND PARK, KS 66202-424
Attn: JEFF DARLING

REPORTED : 10/14/99

PROJECT : IHNC PHASE 3

MATRIX : S

PREPARED: 09/13/99

LAB ID		CLIENT ID	QC BATCH	ANALYZED
40286.02		EBS-11-BS	BL0913SB-S	09/17/99 01:37
40286.02	MS1	EBS-11-BS	BL0913SB-S	09/17/99 02:01
40286.02	SD1	EBS-11-BS	BL0913SB-S	09/17/99 02:25

PCB
MATRIX SPIKE/SPIKE DUPLICATE RECOVERY

Parameter	(ug/kg)	SPIKED AMOUNT	SAMP CONC.	SPIKE CONC.	SPIKE %Rec	DUP CONC.	DUP %Rec	RPD---	MAX RPD	LIMITS %Rec.
AROCLOR-1016		510	ND	440	87	450	88	< 1	23	53-100
AROCLOR-1260		510	ND	560	110*	560	110*	< 1	24	50-107

QA/QC SURROGATE RECOVERIES

Parameter	SAMPLE %Rec	SPIKE %Rec	DUP %Rec	Limits
TETRACHLORO-M-XYLENE	81	72	79	49-109
DECACHLOROBIPHENYL	137*	97	116	55-125

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DAMES & MOORE
6310 LAMAR AVENUE #135
OVERLAND PARK, KS 66202-424

Attn: JEFF DARLING

REPORT : BL0913SB LB2
QAQC# : BL0913SB-S
INSTR SEQ:
REPORTED : 10/14/99

PROJECT : IHNC PHASE 3
SAMPLE #: BL0913SB LB2
LOCATION: LAB QC

MATRIX : S
METHOD : SW 8082

PREPARED : 09/13/99
ANALYZED : 09/16/99
DILUTION : 1.00
%MOISTURE: 0.0

PCB
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
AROCLOR-1016	33	U	AROCLOR-1248	33	U
AROCLOR-1221	33	U	AROCLOR-1254	33	U
AROCLOR-1232	33	U	AROCLOR-1260	33	U
AROCLOR-1242	33	U			

QA/QC SURROGATE RECOVERIES.

TETRACHLORO-M-XYLENE	(0- 0) 84	%	DECACHLOROBIPHENYL	(0- 0) 104	%

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DAMES & MOORE
5310 LAMAR AVENUE #135
OVERLAND PARK, KS 66202-424
Attn: JEFF DARLING

REPORTED : 10/14/99

PROJECT : IHNC PHASE 3

MATRIX : S

PREPARED: 09/13/99

LAB ID	QC BATCH	ANALYZED
LC0913SB	BL0913SB	09/15/99 15:04
LD0913SB	BL0913SB	09/15/99 15:29

PCB
LABORATORY CONTROL SPIKE/SPIKE DUPLICATE RECOVERY

Parameter	(ug/kg)	SPIKED AMOUNT	SPIKE CONC.	SPIKE %Rec	DUP CONC.	DUP %Rec	RPD---	MAX RPD	LIMITS %Rec.
AROCLOR-1016		300	270	89	280	95	6	23	53-100
AROCLOR-1260		300	320	106	320	107	< 1	24	50-107

QA/QC SURROGATE RECOVERIES

Parameter	SPIKE %Rec	DUP %Rec	Limits
TETRACHLORO-M-XYLENE	47*	87	49-109
DECACHLOROBIPHENYL	108	109	55-125

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DAMES & MOORE
6310 LAMAR AVENUE #135
OVERLAND PARK, KS 66202-424

Attn: JEFF DARLING

REPORT : BL0913SB LB1
QAQC# : BL0913SB
INSTR SEQ:
REPORTED : 10/14/99

PROJECT : IHNC PHASE 3
SAMPLE #: BL0913SB LB1
LOCATION: LAB QC

MATRIX : S
METHOD : SW 8082

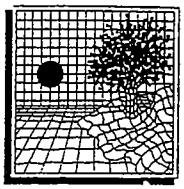
PREPARED : 09/13/99
ANALYZED : 09/15/99
DILUTION : 1.00
%MOISTURE: 0.0

PCB
RESULTS REPORT IN ug/kg

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
AROCLOR-1016	33	U	AROCLOR-1248	33	U
AROCLOR-1221	33	U	AROCLOR-1254	33	U
AROCLOR-1232	33	U	AROCLOR-1260	33	U
AROCLOR-1242	33	U			

QA/QC SURROGATE RECOVERIES

TETRACHLORO-M-XYLENE	(49-109)	82%	DECACHLOROBIPHENYL	(55-125)	102%



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QUALITY CONTROL SECTION

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany Broken Arrow, Oklahoma 74012 Office (918) 251-2858 Fax (918) 251-2599

DAMES & MOORE
6310 LAMAR AVENUE #135
OVERLAND PARK, KS 66202-424

Attn: JEFF DARLING

REPORT : 40286.04
QAQC# : BL0913SB-S
INSTR SEQ:
REPORTED : 10/14/99

PROJECT : IHNC PHASE 3
LAB# : 40286.04
SAMPLE #: EBS-05-HS
LOCATION:

MATRIX : Soil
METHOD : SW 8082

SAMPLED : / /
SUBMITTED: 09/10/99
PREPARED : 09/13/99
ANALYZED : 09/17/99
DILUTION : 1.00
%MOISTURE: 72.9

PCB
RESULTS REPORT IN ug/kg ON A DRY WEIGHT BASIS

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
AROCLOR-1016	120	U	AROCLOR-1248	120	U
AROCLOR-1221	120	U	AROCLOR-1254	120	U
AROCLOR-1232	120	U	AROCLOR-1260	290	
AROCLOR-1242	120	U			

QA/QC SURROGATE RECOVERIES

TETRACHLORO-M-XYLENE	(49-109)	75%	DECACHLOROBIPHENYL	(55-125)	95%

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DAMES & MOORE
6310 LAMAR AVENUE #135
OVERLAND PARK, KS 66202-424

Attn: JEFF DARLING

REPORT : 40286.03
QAQC# : BL0913SB-S
INSTR SEQ:
REPORTED : 10/14/99

PROJECT : IHNC PHASE 3
LAB# : 40286.03
SAMPLE #: EBS-08-HS
LOCATION:

MATRIX : Soil
METHOD : SW 8082

SAMPLED : / /
SUBMITTED: 09/10/99
PREPARED : 09/13/99
ANALYZED : 09/17/99
DILUTION : 1.00
%MOISTURE: 50.8

PCB
RESULTS REPORT IN ug/kg ON A DRY WEIGHT BASIS

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
AROCLOR-1016	67	U	AROCLOR-1248	540	
AROCLOR-1221	67	U	AROCLOR-1254	520	
AROCLOR-1232	67	U	AROCLOR-1260	280	P
AROCLOR-1242	67	U			

QA/QC SURROGATE RECOVERIES

TETRACHLORO-M-XYLENE	(49-109)	73%	DECACHLOROBIPHENYL	(55-125)	101%

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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DAMES & MOORE
6310 LAMAR AVENUE #135
OVERLAND PARK, KS 66202-424

Attn: JEFF DARLING

REPORT : 40286.02
QAQC# : BL0913SB-S
INSTR SEQ:
REPORTED : 10/14/99

PROJECT : IHNC PHASE 3
LAB# : 40286.02
SAMPLE #: EBS-11-BS
LOCATION:

MATRIX : Soil
METHOD : SW 8082

SAMPLED : / /
SUBMITTED: 09/10/99
PREPARED : 09/13/99
ANALYZED : 09/17/99
DILUTION : 1.00
%MOISTURE: 41.1

PCB
RESULTS REPORT IN ug/kg ON A DRY WEIGHT BASIS

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
AROCLOR-1016	56	U	AROCLOR-1248	56	U
AROCLOR-1221	56	U	AROCLOR-1254	56	U
AROCLOR-1232	56	U	AROCLOR-1260	56	U
AROCLOR-1242	56	U			

QA/QC SURROGATE RECOVERIES

TETRACHLORO-M-XYLENE	(49-109)	81%	DECACHLOROBIPHENYL	(55-125)	137% *

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany Broken Arrow, Oklahoma 74012 Office (918) 251-2858 Fax (918) 251-2599

DAMES & MOORE
6310 LAMAR AVENUE #135
OVERLAND PARK, KS 66202-424

Attn: JEFF DARLING

REPORT : 40286.01
QAQC# : BL0913SB
INSTR SEQ:
REPORTED : 10/14/99

PROJECT : IHNC PHASE 3
LAB# : 40286.01
SAMPLE #: EBS-16-BS
LOCATION:

MATRIX : Soil
METHOD : SW 8082

SAMPLED : / /
SUBMITTED: 09/10/99
PREPARED : 09/13/99
ANALYZED : 09/17/99
DILUTION : 10.00
%MOISTURE: 25.0

PCB
RESULTS REPORT IN ug/kg ON A DRY WEIGHT BASIS

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
AROCLOR-1016	440	U	AROCLOR-1248	440	U
AROCLOR-1221	440	U	AROCLOR-1254	10000	
AROCLOR-1232	440	U	AROCLOR-1260	440	U
AROCLOR-1242	440	U			

QA/QC SURROGATE RECOVERIES

TETRACHLORO-M-XYLENE	(49-109)	107%	DECACHLOROBIPHENYL	(55-125)	116%

SOUTHWEST LABORATORY OF OKLAHOMA, INC.
1700 West Albany Broken Arrow, Oklahoma 74012 Office (918) 251-2858 Fax (918) 251-2599

DAMES & MOORE
6310 LAMAR AVENUE #135
OVERLAND PARK, KS 66202-424

Attn: JEFF DARLING

REPORT : 40286.02
QAQC# : BL0913SB-S
INSTR SEQ:
REPORTED : 10/14/99

PROJECT : IHNC PHASE 3
LAB# : 40286.02 SD1
SAMPLE #: EBS-11-BS
LOCATION:

MATRIX : Soil
METHOD : SW 8082

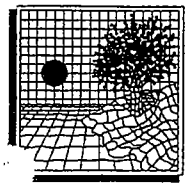
SAMPLED : / /
SUBMITTED: 09/10/99
PREPARED : 09/13/99
ANALYZED : 09/17/99
DILUTION : 1.00
%MOISTURE: 41.1

PCB
RESULTS REPORT IN ug/kg ON A DRY WEIGHT BASIS

PARAMETER	RESULTS**		PARAMETER	RESULTS**	
AROCLOR-1016	450		AROCLOR-1248	56	U
AROCLOR-1221	56	U	AROCLOR-1254	56	U
AROCLOR-1232	56	U	AROCLOR-1260	560	
AROCLOR-1242	56	U			

QA/QC SURROGATE RECOVERIES

TETRACHLORO-M-XYLENE	(49-109)	79%	DECACHLOROBIPHENYL	(55-125)	116%



SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany Broken Arrow, Oklahoma 74012 Office (918) 251-2858 Fax (918) 251-2599

DAMES & MOORE
6310 LAMAR AVENUE #135
OVERLAND PARK, KS 66202-424

REPORT : 40286.01

REPORTED : 10/14/99

Attn: JEFF DARLING

PROJECT : IHNC PHASE 3
LAB# : 40286.01
SAMPLE #: EBS-16-BS
LOCATION:
MATRIX : Soil

SAMPLED : / /
SUBMITTED: 09/10/99

%MOISTURE: 25.0

METAL PARAMETERS REPORTED ON A DRY WEIGHT BASIS

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.044	U	mg/kg	09/15/99	09/17/99	SW 7470A/7471A
ARSENIC	1.3	U	mg/kg	09/14/99	09/20/99	SW 6010A
LEAD	46.8		mg/kg	09/14/99	09/20/99	SW 6010A
SELENIUM	0.64	U	mg/kg	09/14/99	09/20/99	SW 6010A
BARIUM	29.3		mg/kg	09/14/99	09/20/99	SW 6010A
CADMIUM	0.62		mg/kg	09/14/99	09/20/99	SW 6010A
CHROMIUM	9.5		mg/kg	09/14/99	09/20/99	SW 6010A
SILVER	1.3	U	mg/kg	09/14/99	09/20/99	SW 6010A

SOUTHWEST LABORATORY OF OKLAHOMA, INC.
1700 West Albany Broken Arrow, Oklahoma 74012 Office (918) 251-2858 Fax (918) 251-2599

DAMES & MOORE
6310 LAMAR AVENUE #135
OVERLAND PARK, KS 66202-424

REPORT : 40286.03

REPORTED : 10/14/99

Attn: JEFF DARLING

PROJECT : IHNC PHASE 3
LAB# : 40286.03
SAMPLE #: EBS-08-HS
LOCATION:
MATRIX : Soil

SAMPLED : / /
SUBMITTED: 09/10/99

%MOISTURE: 50.8

METAL PARAMETERS REPORTED ON A DRY WEIGHT BASIS

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.18		mg/kg	09/15/99	09/17/99	SW 7470A/7471A
ARSENIC	10.4		mg/kg	09/14/99	09/20/99	SW 6010A
LEAD	35.7		mg/kg	09/14/99	09/20/99	SW 6010A
SELENIUM	1.5		mg/kg	09/14/99	09/20/99	SW 6010A
BARIUM	174		mg/kg	09/14/99	09/20/99	SW 6010A
CADMIUM	0.60	U	mg/kg	09/14/99	09/20/99	SW 6010A
CHROMIUM	18.4		mg/kg	09/14/99	09/20/99	SW 6010A
SILVER	2.0	U	mg/kg	09/14/99	09/20/99	SW 6010A

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany Broken Arrow, Oklahoma 74012 Office (918) 251-2858 Fax (918) 251-2599

DAMES & MOORE
6310 LAMAR AVENUE #135
OVERLAND PARK, KS 66202-424

REPORT : 40286.04

REPORTED : 10/14/99

Attn: JEFF DARLING

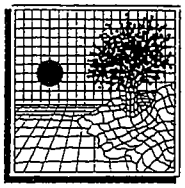
PROJECT : IHNC PHASE 3
LAB# : 40286.04
SAMPLE #: EBS-05-HS
LOCATION:
MATRIX : Soil

SAMPLED : / /
SUBMITTED: 09/10/99

%MOISTURE: 72.9

METAL PARAMETERS REPORTED ON A DRY WEIGHT BASIS

PARAMETER	RESULTS**		UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
MERCURY	0.16		mg/kg	09/15/99	09/17/99	SW 7470A/7471A
ARSENIC	15.5		mg/kg	09/14/99	09/20/99	SW 6010A
LEAD	182		mg/kg	09/14/99	09/20/99	SW 6010A
SELENIUM	1.8	U	mg/kg	09/14/99	09/20/99	SW 6010A
ARIUM	824		mg/kg	09/14/99	09/20/99	SW 6010A
CADMIUM	1.1	U	mg/kg	09/14/99	09/20/99	SW 6010A
CHROMIUM	50.1		mg/kg	09/14/99	09/20/99	SW 6010A
SILVER	3.6	U	mg/kg	09/14/99	09/20/99	SW 6010A



SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

QUALITY CONTROL SECTION

IN129/07-11-97

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

TRACE ICP
INORGANICS QUALITY CONTROL DATA SHEET
LCS/LCSD

MATRIX **SOIL**

EPISODE 40286
CLIENT D&MKSC

UNITS mg/kg
BATCH ID 990914I5

SAMPLE # METHOD BLANK
SPIKE # LCS
DUPLICATE # LCSD

PARAMETER	TEST CODE	METHOD BLANK AMT. FOUND	METHOD BLANK DET. LIMIT	LCS KNOWN CONC.	LCS AMT. FOUND	LCS %REC. % REC	LCS %REC. LIMITS		LCS FLAG	LCS DUPLICATE AMT. FOUND	LCS DUPLICATE %REC.	LCS DUPLICATE FLAG	RPD RPD	RPD LIMIT	RPD FLAG	DATE ANALYZED	ANALYST INITIALS	INSTR.
Arsenic	MT053	<1.0	1.0	8.0	7.3	91	80	120		7.6	95		4.0	20		20-Sep-99	SR	ICP#1
Barium	MT063	<1.0	1.0	25	24	94	80	120		24	94		0.0	20		20-Sep-99	SR	ICP#1
Cadmium	MT123	<0.3	0.3	5.0	4.7	94	80	120		4.7	94		0.0	20		20-Sep-99	SR	ICP#1
Calcium	MT143	<50.	50.0	500	475	95	80	120		475	95		0.0	20		20-Sep-99	SR	ICP#1
Lead	MT243	<0.3	0.3	8.0	8.6	108	80	120		8.5	106		1.2	20		20-Sep-99	SR	ICP#1
Selenium	MT383	<0.5	0.5	8.0	7.6	95	80	120		7.6	95		0.0	20		20-Sep-99	SR	ICP#1
Silver	MT403	<1.0	1.0	5.0	4.2	84	80	120		4.1	82		2.4	20		20-Sep-99	SR	ICP#1

NARRATIVE:
* = OUTSIDE QC LIMITS

40286
/TRACELCS REV 4.2
29-Sep-99
SST

N109/07-11-97

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

GFAA/CVAA METALS
INORGANICS QUALITY CONTROL DATA SHEET
LCS/LCSD

MATRIX SOIL

EPISODE 40286
CLIENT D&MKSC

BATCHID-F
BATCHID-CV 990915HG1

UNITS mg/kg
SAMPLE # METHOD BLANK
SPIKE # LCS
DUP # LCSD

PARAMETER	TEST CODE	METHOD BLANK AMT. FOUND	METHOD BLANK DET. LIMIT	LCS KNOWN CONC.	LCS AMT. FOUND	LCS %REC. % REC	%REC. LIMITS		LCS FLAG	LCS DUPLICATE AMT. FOUND	LCS DUPLICATE %REC.	LCS DUPLICATE FLAG	RPD RPD	RPD LIMITS	RPD FLAG	DATE ANALYZED	Analyst Initials	INSTR.
Mercury	MT310	<0.033	0.033	0.17	0.17	100	80	120		0.19	112		11.1	20		17-Sep-99	DI	PS200B

NARRATIVE:
* = OUTSIDE QC LIMITS

40286
/FLCSS
29-Sep-99
SST

REV 4.2

Appendix D

APPENDIX D

LOSCO Reports

STATEWIDE ABANDONED VESSEL INVENTORY
NEW ORLEANS ZONE

CONTRACT NO 100-4109-A

VESSEL NO. 36-039

SUBMITTED TO:

STATE OF LOUISIANA
OFFICE OF THE GOVERNOR
LOUISIANA OIL SPILL COORDINATOR'S OFFICE

PREPARED BY

CMS, INC.
108 ROYAL ST.
NEW ORLEANS, LOUISIANA 70130

VESSEL INVENTORY
Field Investigation Data Sheet

Date: 10/13/9 Time: 1515
Team Members:
CMS: RIEDEL
CMS: DOVE
CMS: RIVERA
Owner Name/Address:

I.D. #: 36 39
V.I.N.:
WL-F #:
USCG #:
Vessel Name:

Location: Lat. 29° 58' 15" N Long. 90° 1' 26" W Parish: Orleans Zone: NO Floating:
Waterway: INDUSTRIAL CANAL Nearest City: NEW ORLEANS Submerged:
Access: By Water: Y, By Land Y, Limitations: Partly Submerged: Y
Description: Barge: Tank Battery:, Tank:, Deck:, Hopper:, Other: DOUBLE DECK BARGE
Motor Vessel: Shrimper, Fishing:, Other:
Size: 32' x 110' Draft: 14" Type Rake: SCOW Transportable Condition: NO
Number of Bulkheads: 3, Drawing Attached: Y, Photo Attached: Y, Coded on Vessel Plan: Y
Condition: Housing:, Deck: H, Hull: H, Structure: H
Diver Required: N, Diver Report (1):
Abandoned/Derelict Condition Verified (1): Y

Condition Options:
S - Sound, F - Fair
H - Holed

Contents:

	Number	Condition	Volume Gallons	Number Vents	Activily Spilling	Access			Contents *
						Vent	Hatch	Other	
Above Deck Tanks	0								
Below Deck Tanks	1	H	160500	0	N	N	Y	N	1A
Other Containers	0								

Condition Code: S - Sound, F - Fair, H - Holed
Contents Code: O - Oil, OW - Oil in Water, A - Aqueous, E - Empty, SHW - Suspected Hazardous Waste

Risk Assessment:

	Safe	Requires Forced Ventilation	Safety Equipment Required
Vapor Analysis	Y	N	C
Liquid Analysis	Y	N	C
Structure	Y	N	C

Environmental Damage:
Evidence of Spill: Oil, HW:, Outside Vessel (2) sqft., On Deck:, In Hold:
Proximity to Sensitive Areas (mi.): Public Water System 3, Recreation: 2, Residential: 2, Environmental: 4, Habitat: 4

Samples taken for Field Testing: (record procedures employed and detailed results in log)

Sample ID	Location	Results	Sample ID	Location	Results	Sample ID	Location	Results
36 39 F01	TC	A	36 39 F06			36 39 F11		
36 39 F02			36 39 F07			36 39 F12		
36 39 F03			36 39 F08			36 39 F13		
36 39 F04			36 39 F09			36 39 F14		
36 39 F05			36 39 F10					

Samples Taken for Laboratory Testing:

Sample ID	Location	Used in Composite	Sample ID of Composite	Results
36 39 L01			36 39 C01	
36 39 L02			36 39 C02	
36 39 L03			36 39 C03	
36 39 L04			36 39 C04	
36 39 L05			36 39 C05	
36 39 L06			36 39 C06	
36 39 L07			36 39 C07	
36 39 L08			36 39 C08	

Note: (1) See log for detailed description
(2) Indicate area affected on site plan.
T: Top, B: Bottom, TC: Total Column
*: See associated log entry

Date: 10/13/9 Time: 1255

VESSEL INVENTORY

Field Investigation Data Sheet

Log Entries

I.D. #: 36 38

eneral Comments: RISK ASSESSMENT: INITIAL LEL 0%, RADIATION-NORMAL. WEATHER: WIND-W 5-10 KTS., TEMPERATURE- 67F, SKIES-OVERCAST, PRECIPITATION-SCATTERED SHOWERS. INDIVIDUALS/GROUPS CONTACTED. THERE IS NO IDENTIFICATION ON THIS VESSEL. NEITHER THE USCG NOR THE LA F & WL HAVE ANY DOCUMENTATION CONCERNING THE OWNERSHIP OF THIS VESSEL. OTHER SOURCES OF INFORMATION: BIBLIOGRAPHY-NO CHANGE. EMERGENCY AGENCIES NOTIFIED: NONE. THIS VESSEL IS A SMALL BARGE USED FOR FLOATING HIGH-LIFT, PERSONEL LIFT DEVICES, COMPRESSORS AND THE LIKE. ALSO USED FOR SPACES BETWEEN LARGE SHIPS AND THE PIER. THE VESSEL IS CURRENTLY UPSIDE DOWN. THERE ARE A FEW SMALL HOLES IN THE HULL. ALL SUBSTANCES ABOARD VESSEL TESTED AQUEOUS. VESSELS HULL CAPACITY IS 19,000 GALLONS.

Diver's Log:

Abandoned/Derelict Entry: THERE IS NO IDENTIFICATION ON THIS VESSEL. NEITHER THE USCG NOR THE LA F & WL HAVE ANY DOCUMENTATION CONCERNING THE OWNERSHIP OF THIS VESSEL.

Above Deck Tanks Contents:

Below Deck Tanks Contents: CONTAINS ONLY WATER.

Other Containers Contents:

Field Sample Logs: #1: START 1300 STOP 1305. 0% LEL, 0ppm H2S, 0ppm PCB, 0ppm Benzene, 0ppm HCN-2, pH 7, Specific Gravity 1. Non- Reactive with water and air, Oil/Grease-no. Evaluated as Water.

#2:

#3:

#4:

#5:

#6:

#7:

#8:

#9:

#10:

#11:

#12:

#13:

#14:

Daily and site safety briefing completed in accordance with Site Specific Health and Safety Plan.

Field sampling procedures/equipment:

LEL, O2, and H2S: GASTECH GT302 OVA Sensor

pH: pH Tester

HCN-2, Benzene: HAZMAT Response Kit, Detection Tubes

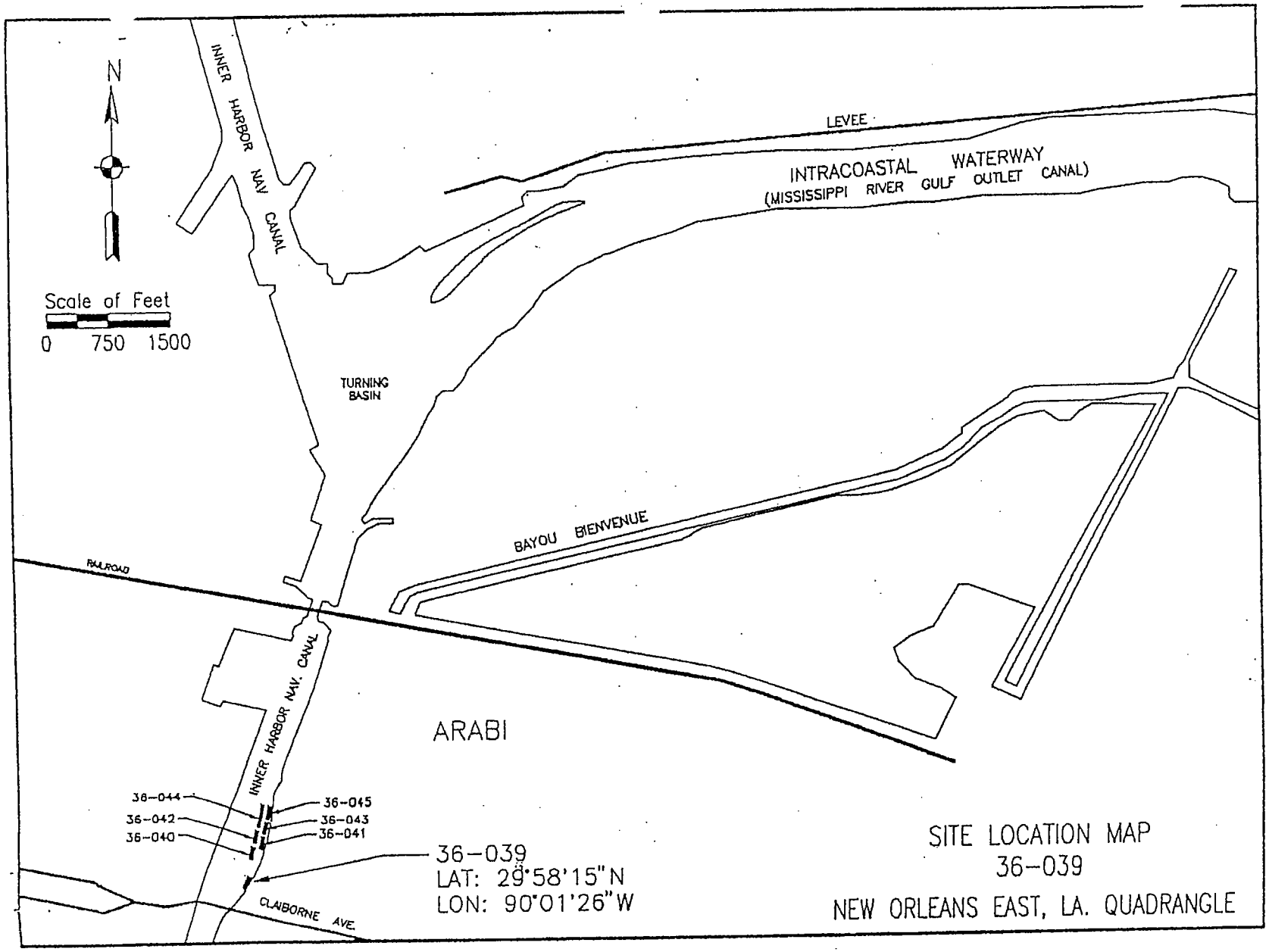
PCB: Dexil L2000

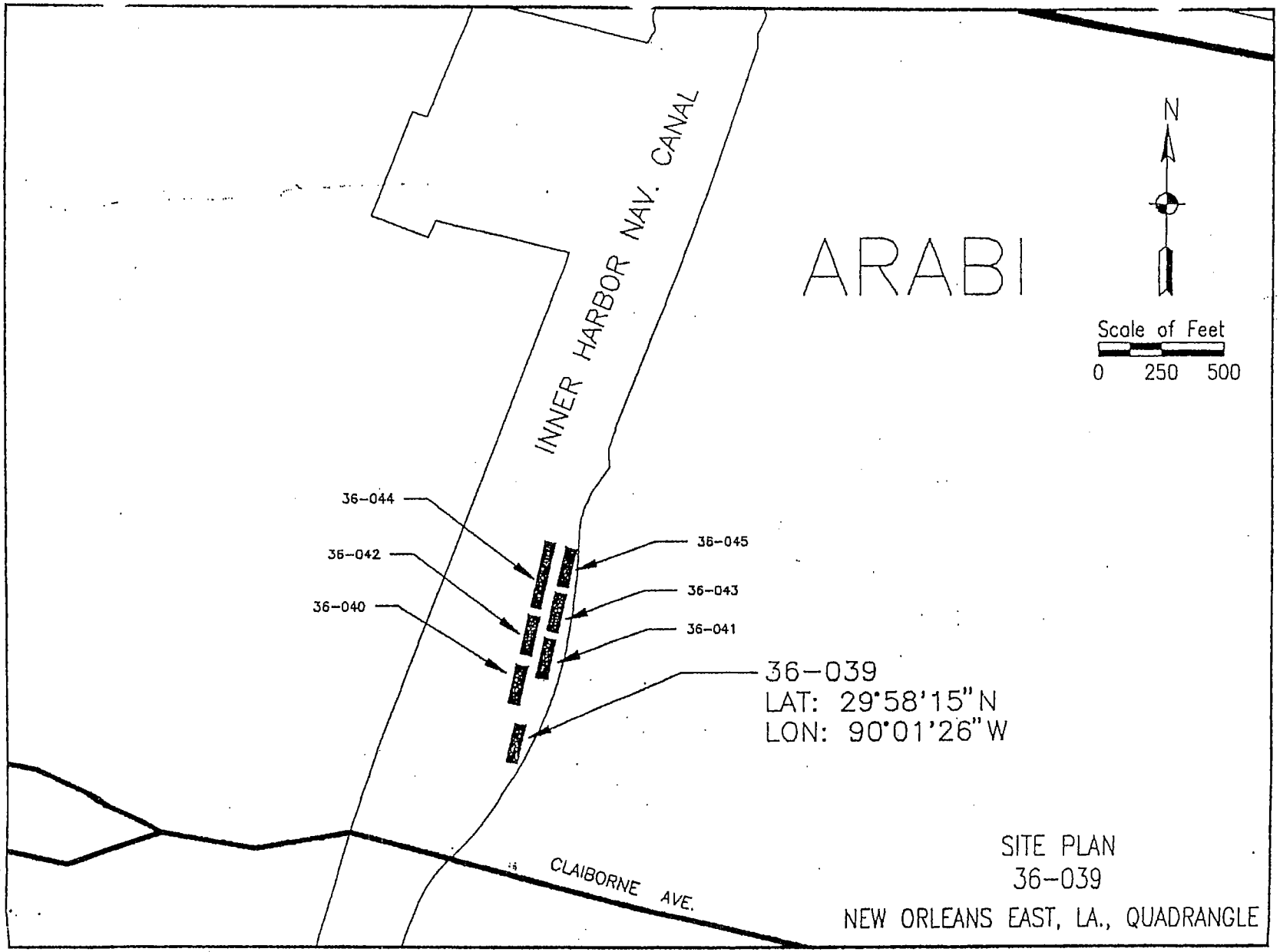
Specific Gravity: Cole-Parmer Hydrometer

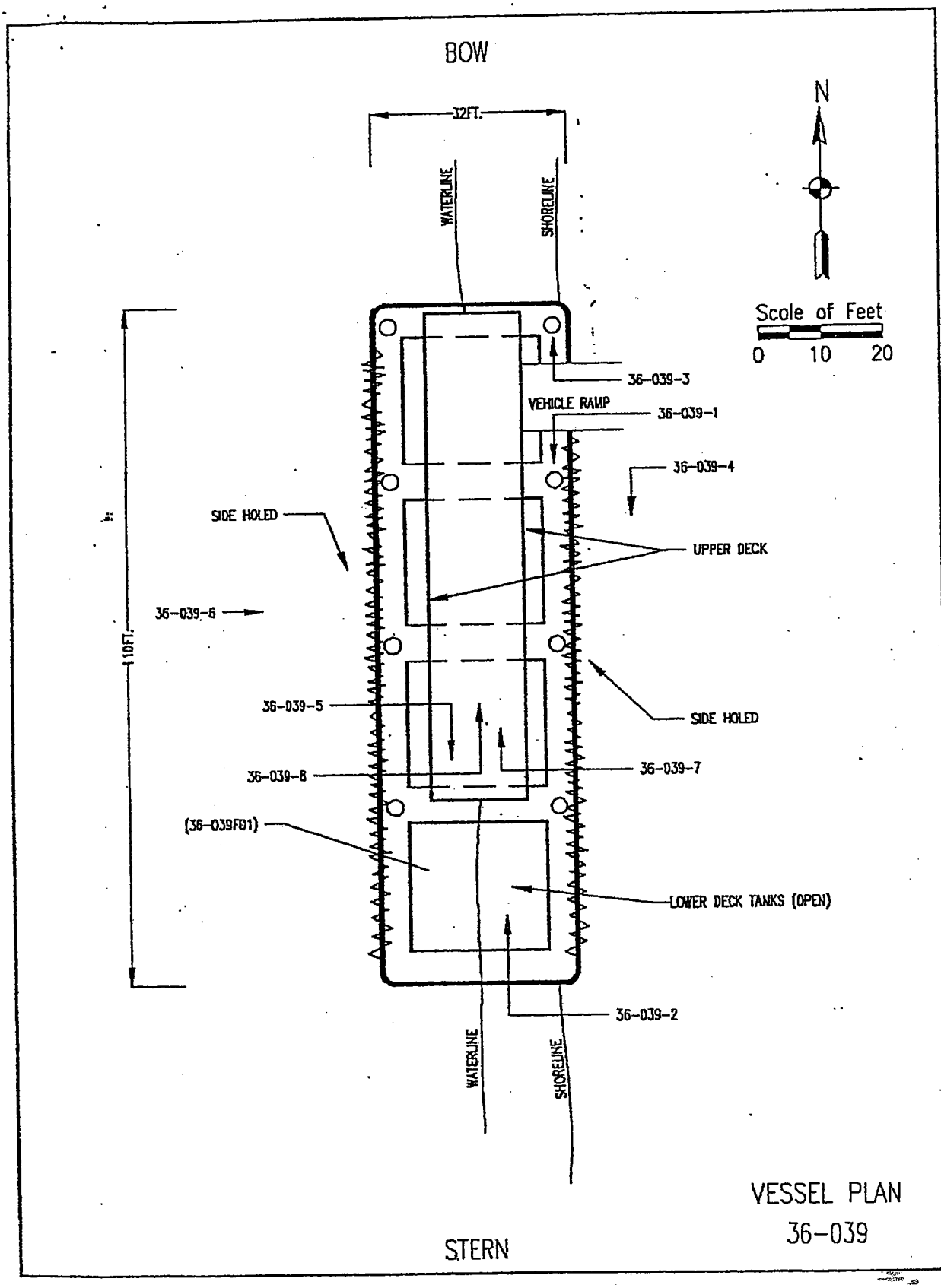
Reactivity: Sample reaction with air and deionized water

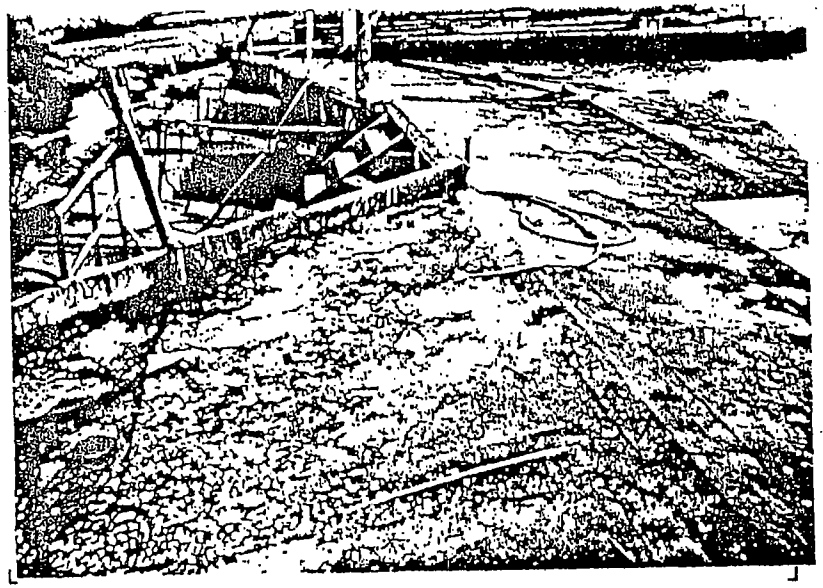
Radioactivity: Ludlum Model 18 Analyzer

Procedures IAW sampling protocal and laboratory requirements

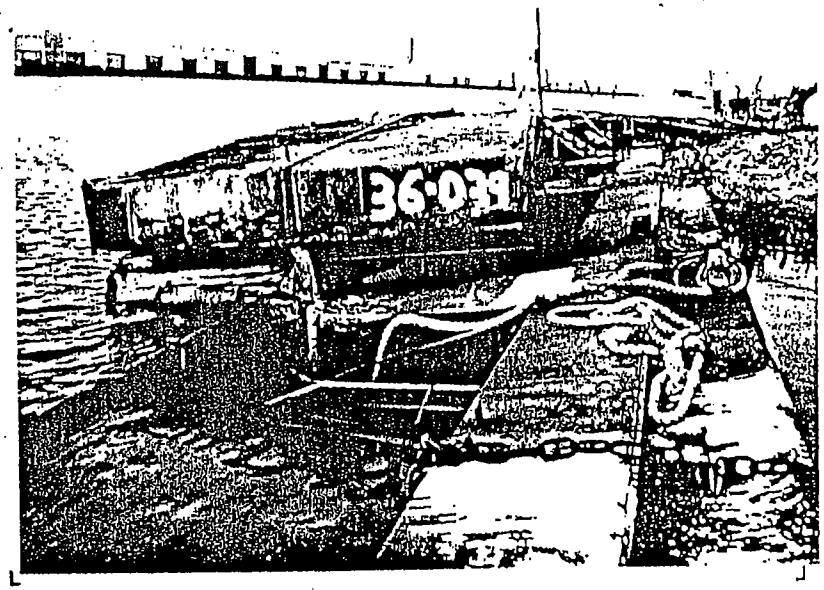

N
INNER HARBOR NAV CANAL
LEVEE
INTRACOASTAL WATERWAY
(MISSISSIPPI RIVER GULF OUTLET CANAL)
Scale of Feet
0 750 1500
TURNING BASIN
BAYOU BIENVENUE
RAILROAD
INNER HARBOR NAV. CANAL
ARABI
36-044
36-042
36-040
36-045
36-043
36-041
36-039
LAT: 29°58'15"N
LON: 90°01'26"W
CLAIBORNE AVE.
SITE LOCATION MAP
36-039
NEW ORLEANS EAST, LA. QUADRANGLE


INNER HARBOR NAV. CANAL
ARABI
N
Scale of Feet
0 250 500
36-044
36-042
36-040
36-045
36-043
36-041
36-039
LAT: 29°58'15"N
LON: 90°01'26"W
CLAIBORNE AVE.
SITE PLAN
36-039
NEW ORLEANS EAST, LA., QUADRANGLE


BOW
32FT.
WATERLINE
SHORELINE
N
Scale of Feet
0 10 20
36-039-3
VEHICLE RAMP
36-039-1
36-039-4
SIDE HOLED
UPPER DECK
36-039-6
110FT.
36-039-5
SIDE HOLED
36-039-8
36-039-7
(36-039FD1)
LOWER DECK TANKS (OPEN)
36-039-2
WATERLINE
SHORELINE
STERN
VESSEL PLAN
36-039



36-039-1



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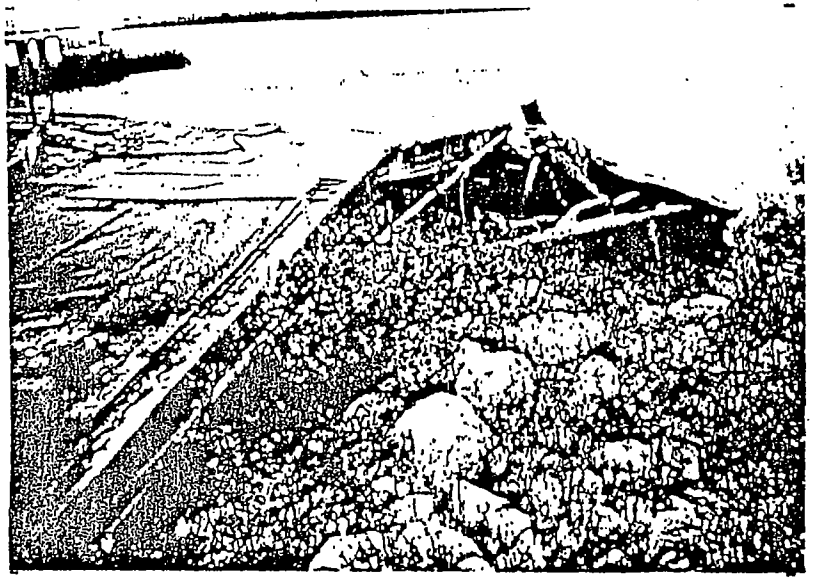

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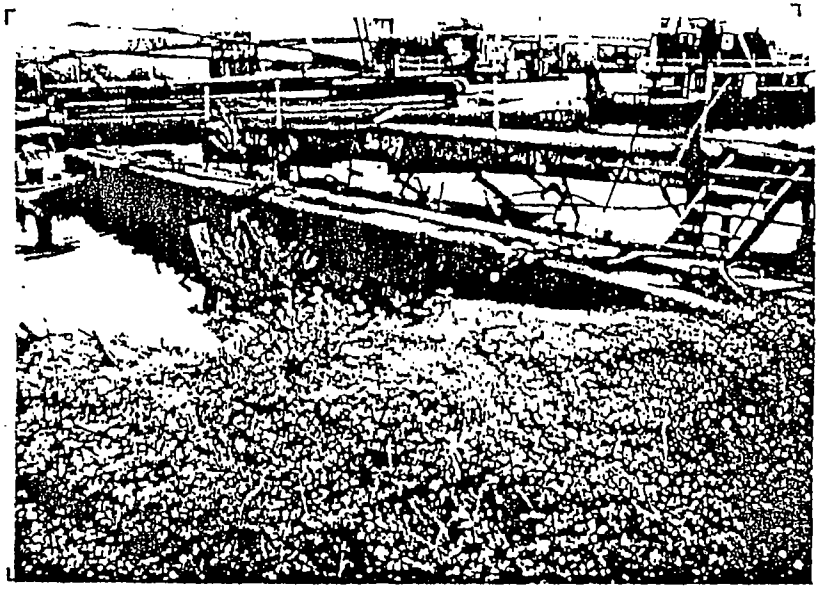

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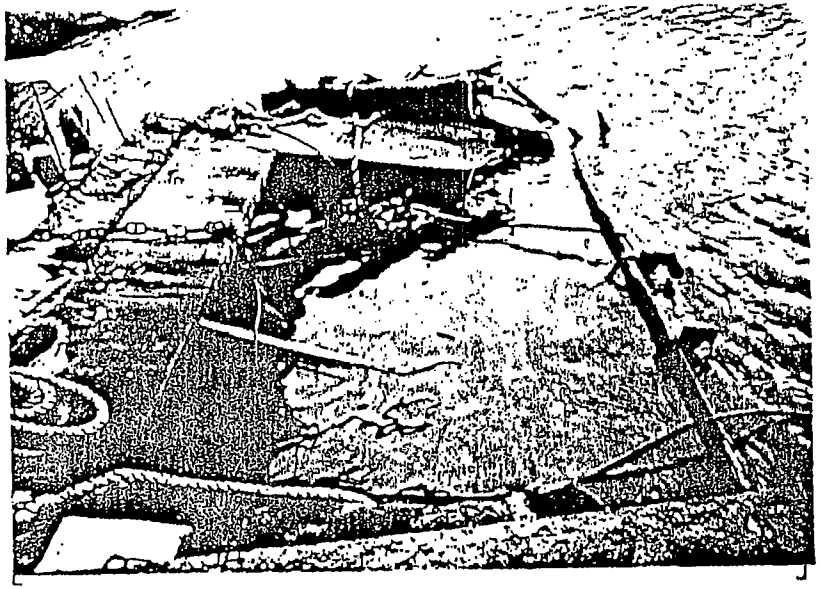
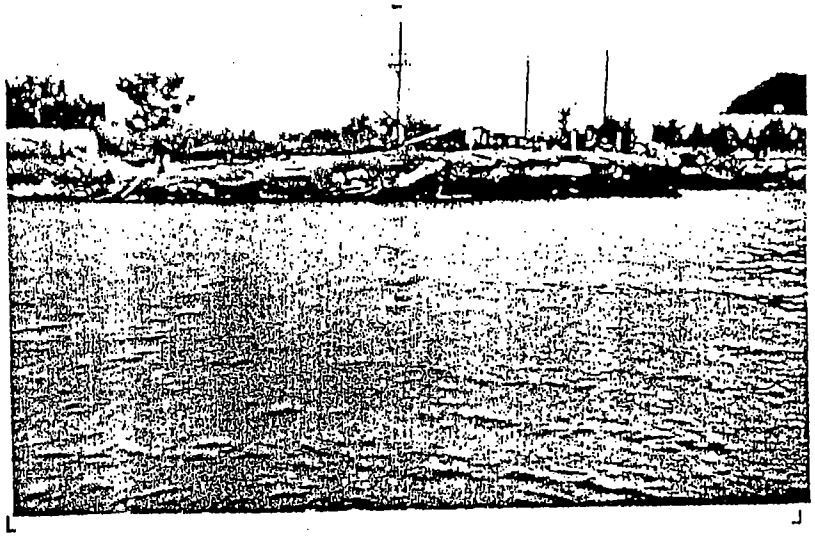
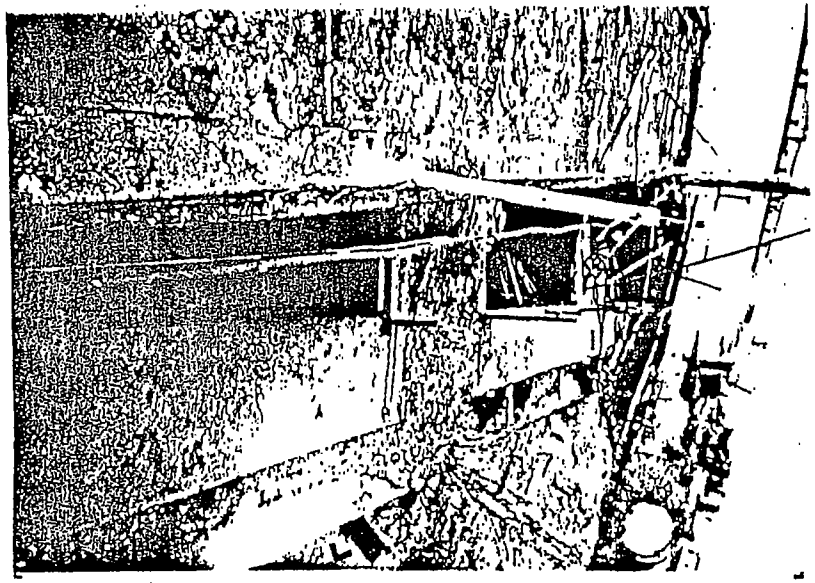


36-039-5



36-039-6



36-039-7

36-039-8

STATEWIDE ABANDONED VESSEL INVENTORY
NEW ORLEANS ZONE

CONTRACT NO 100-4109-A

VESSEL NO. 36-040

SUBMITTED TO:

STATE OF LOUISIANA
OFFICE OF THE GOVERNOR
LOUISIANA OIL SPILL COORDINATOR'S OFFICE

PREPARED BY

CMS, INC.
108 ROYAL ST.
NEW ORLEANS, LOUISIANA 70130

Date 10/13/94 Time: 1610

VESSEL INVENTORY
Field Investigation Data Sheet

I.D. #: 36 40
V.I.N.:
WL-F.#:
USCG #:
Vessel Name:

Team Members:
CMS: RIEDEL
CMS: DOVE
CMS: RIVERA

Owner Name/Address:
AUCER MARINE SERVICES
P. O. BOX 3067
NEW ORLEANS, LA

Location: Lat. 29° 58' 18" N Long. 90° 1' 25" W Parish: Orleans Zone: NO Floating:
Waterway: INDUSTRIAL CANAL Nearest City: NEW ORLEANS Submerged:
Access: By Water: Y, By Land Y, Limitations: Partly Submerged: Y
Description: Barge: Tank Battery:, Tank:, Deck: Y, Hopper:, Other:
Motor Vessel: Shrimper, Fishing:, Other:
Size: 32'x 110' Draft: 14" Type Rake: SCOW Transportable Condition: NO
Number of Bulkheads: 3, Drawing Attached: Y, Photo Attached: Y, Coded on Vessel Plan: Y
Condition: Housing:, Deck: H, Hull: H, Structure:
Diver Required: N, Diver Report (1):
Abandoned/Derelict Condition Verified (1): Y

Condition Options:
S - Sound, F - Fair
H - Holed

Contents:

	Number	Condition	Volume Gallons	Number Vents	Activily Spilling	Access			Contents *
						Vent	Hatch	Other	
Above Deck Tanks	0								
Below Deck Tanks	1	H	160000	0	N	N	Y	N	1A
Other Containers	10	F	50	10	N	N	N	Y	3O

Condition Code: S - Sound, F - Fair, H - Holed

Contents Code: O - Oil, OW - Oil in Water, A - Aqueous, E - Empty, SHW - Suspected Hazardous Waste

Risk Assessment:

	Safe	Requires Forced Ventilation	Safety Equipment Required
Vapor Analysis	Y	N	C
Liquid Analysis	Y	N	C
Structure	N	N	C

Environmental Damage:
Evidence of Spill: Oil, HW:, Outside Vessel (2) sqft., On Deck:, In Hold:
Proximity to Sensitive Areas (mi.): Public Water System 4, Recreation: 3, Residential: 2, Environmental: 2, Habitat: 2

Samples taken for Field Testing: (record procedures employed and detailed results in log)

Sample ID	Location	Results	Sample ID	Location	Results	Sample ID	Location	Results
36 40 F01	T	O	36 40 F06	TC	E	36 40 F11	TC	A
36 40 F02	B	O	36 40 F07	TC	E	36 40 F12	TC	A
36 40 F03	TC	O	36 40 F08	TC	E	36 40 F13	TC	A
36 40 F04	TC	E	36 40 F09	TC	E	36 40 F14	TC	A
36 40 F05	TC	O	36 40 F10	TC	E			

Samples Taken for Laboratory Testing:

Sample ID	Location	Used in Composite	Sample ID of Composite	Results
36 40 L01	T	N	36 40 C01	OW
36 40 L02	B	N	36 40 C02	O
36 40 L03	TC	N	36 40 C03	O
36 40 L04			36 40 C04	
36 40 L05	TC	N	36 40 C05	O
36 40 L06			36 40 C06	
36 40 L07			36 40 C07	
36 40 L08			36 40 C08	

Note: (1) See log for detailed description T: Top, B: Bottom, TC: Total Column
(2) Indicate area affected on site plan. *: See associated log entry

Date: 10/13/94 Time: 1610

VESSEL INVENTORY

I.D. #: 36 40

Field Investigation Data Sheet

Log Entries

eneral Comments: RISK ASSESSMENT: INITIAL LEL 0%, RADIATION-NORMAL. WEATHER: WIND WNW AT 7-10 KTS, TEMPERATURE- 67F, SKIES- CLOUDY, PRECIPITATION-SCATTERED SHOWERS. INDIVIDUALS/GROUPS CONTACTED: SAUCIER MARINE SERVICES INC. P.O. BOX 3067 NEW ORLEANS, LA. 70177-3067. LD. AQUIRED FROM BUILDING ON BEACH NEXT TO BARGES. OTHER SOURCES OF INFORMATION: BIBLIOGRAPHY-NO CHANGE. EMERGENCY AGENCIES NOTIFIED: NONE. THIS VESSEL HAS A 30 DEGREE LIST TO THE STARBOARD SIDE. THERE IS A CONVEX BOX ON DECK THAT IS OPEN AND EMPTY. THE VESSEL IS 1/2 UNDERWATER ON THE STARBOARD SIDE. THE DECK OF THE VESSEL IS EXTREMELY RUSTED AND ROTTED AND CAUTION SHOULD BE OBSERVED. SURVEY INDICATED ALL BULKHEADS TO BE HOLED. SAMPLING DONE INDICATED A SMALL AMOUNT OF OIL BASED PAINT PRODUCT TO BE ABOARD. DUE TO THE SMALL QUANTITY OF THE OIL/PRODUCT LOCATED ON THE VESSEL NO REMEDIAL ACTION PLAN WAS PREPARED. VESSEL HULL CAPACITY IS 160,000 GALLONS. PRIORITY RANKING IS 32.

Diver's Log:

Abandoned/Derelict Entry: SAUCIER MARINE SERVICES INC. P.O. BOX 3067 NEW ORLEANS, LA. 70177-3067. LD. AQUIRED FROM BUILDING ON BEACH NEXT TO BARGES.

Above Deck Tanks Contents:

Below Deck Tanks Contents: CONTAINS ONLY WATER.

Other Containers Contents: (3) THREE CONTAIN OIL, (7) SEVEN ARE EMPTY.

Field Sample Logs: #1: START 1620 STOP 1625. 0% LEL, 0ppm H2S, 0ppm PCB, 0ppm Benzene, 0ppm HCN-2, pH 6, Specific Gravity < 1. Non- Reactive with water and air, Oil/Grease-yes. Included in sample 36-040-F01 and reported as lab sample no. 36-040-L01, sample no. 9410060129. Diesel Range Organics 7,730,000. Evaluated as approximately 15 gallons of oil/water.

#2: START 1630 STOP 1635. 0% LEL, 0ppm H2S, 0ppm PCB, 0ppm Benzene, 0ppm HCN-2, pH 6, Specific Gravity < 1. Non- Reactive with water and air, Oil/Grease-yes. Included in sample 36-040-F02 and reported as lab sample no. 36-040-L02, sample no. 9410190020. Diesel Range Organics 405,000, Evaluated as oil/water.

#3: START 1640 STOP 1645. 0% LEL, 0ppm H2S, 0ppm PCB, 0ppm Benzene, 0ppm HCN-2, pH 6, Specific Gravity < 1. Non- Reactive with water and air, Oil/Grease-yes. Included in sample 36-040-F03 and reported as lab sample no. 36-040-L03, sample no. 9410190021. Diesel Range Organics 523,000 Evaluated as oil.

#4: START 1650 STOP 1655. 0% LEL, 0ppm H2S, 0ppm PCB, 0ppm Benzene, 0ppm HCN-2, pH N/A, Specific Gravity N/A. Non- Reactive with water and air, Oil/Grease-no. Empty.

#5: START 1700 STOP 1705. 0% LEL, 0ppm H2S, 0ppm PCB, 0ppm Benzene, 0ppm HCN-2, pH 6, Specific Gravity < 1. Non- Reactive with water and air, Oil/Grease-yes. Included in sample 36-040-F05 and reported as lab sample no. 36-040-L05, sample no. 9410190022.. Diesel Range Organics 555,000. Evaluated as oil.

#6: START 1710 STOP 1715. 0% LEL, 0ppm H2S, 0ppm PCB, 0ppm Benzene, 0ppm HCN-2, pH N/A, Specific Gravity N/A. Non- Reactive with water and air, Oil/Grease-no. Empty.

#7: START 1720 STOP 1725. 0% LEL, 0ppm H2S, 0ppm PCB, 0ppm Benzene, 0ppm HCN-2, pH N/A, Specific Gravity N/A. Non- Reactive with water and air, Oil/Grease-no. Empty.

#8: START 1730 STOP 1735. 0% LEL, 0ppm H2S, 0ppm PCB, 0ppm Benzene, 0ppm HCN-2, pH N/A, Specific Gravity N/A. Non- Reactive with water and air, Oil/Grease-no. Empty.

#9: START 1740 STOP 1745. 0% LEL, 0ppm H2S, 0ppm PCB, 0ppm Benzene, 0ppm HCN-2, pH N/A, Specific Gravity N/A. Non- Reactive with water and air, Oil/Grease-no. Empty.

#10: START 1750 STOP 1755. 0% LEL, 0ppm H2S, 0ppm PCB, 0ppm Benzene, 0ppm HCN-2, pH N/A, Specific Gravity N/A. Non- Reactive with water and air, Oil/Grease-no. Empty.

#11: START 1800 STOP 1805. 0% LEL, 0ppm H2S, 0ppm PCB, 0ppm Benzene, 0ppm HCN-2, pH 7, Specific Gravity 1. Non- Reactive with water and air, Oil/Grease-no. Evaluated as Water.

#12: START 1810 STOP 1815. 0% LEL, 0ppm H2S, 0ppm PCB, 0ppm Benzene, 0ppm HCN-2, pH 7, Specific Gravity 1. Non- Reactive with water and air, Oil/Grease-no. Evaluated as Water.

#13: START 1820 STOP 1825. 0% LEL, 0ppm H2S, 0ppm PCB, 0ppm Benzene, 0ppm HCN-2, pH 7, Specific Gravity 1. Non- Reactive with water and air, Oil/Grease-no. Evaluated as Water.

#14: START 1830 STOP 1835. 0% LEL, 0ppm H2S, 0ppm PCB, 0ppm Benzene, 0ppm HCN-2, pH 7, Specific Gravity 1. Non- Reactive with water and air, Oil/Grease-no. Evaluated as Water.

Daily and site safety briefing completed in accordance with Site Specific Health and Safety Plan.

Field sampling procedures/equipment:
LEL, O2, and H2S: GASTECH GT302 OVA Sensor
pH: pH Tester
HCN-2, Benzene: HAZMAT Response Kit, Detection Tubes
PCB: Dexil L2000
Specific Gravity: Cole-Parmer Hydrometer
Reactivity: Sample reaction with air and deionized water
Radioactivity: Ludlum Model 18 Analyzer
Procedures IAW sampling protocal and laboratory requirements

VESSEL INVENTORY

I. D. #: 36 40

Field Investigation Data Sheet

Field Samples 15-60 Info and Log Entries

Samples taken for Field Testing: (record procedures employed and detailed results in log)

Sample ID	Location	Results	Sample ID	Location	Results	Sample ID	Location	Results
36 40 F15	TC	A	36 40 F31			36 40 F46		
36 40 F16	TC	A	36 40 F32			36 40 F47		
36 40 F17			36 40 F33			36 40 F48		
36 40 F18			36 40 F34			36 40 F49		
36 40 F19			36 40 F35			36 40 F50		
36 40 F20			36 40 F36			36 40 F51		
36 40 F21			36 40 F37			36 40 F52		
36 40 F22			36 40 F38			36 40 F53		
36 40 F23			36 40 F39			36 40 F54		
36 40 F24			36 40 F40			36 40 F55		
36 40 F25			36 40 F41			36 40 F56		
36 40 F26			36 40 F42			36 40 F57		
36 40 F27			36 40 F43			36 40 F58		
36 40 F28			36 40 F44			36 40 F59		
36 40 F29			36 40 F45			36 40 F60		
36 40 F30								

Field Sample Logs: #15: **START 1840 STOP 1845. 0% LEL, 0ppm H2S, 0ppm PCB, 0ppm Benzene, 0ppm HCN-2, pH 7, Specific Gravity 1. Non- Reactive with water and air, Oil/Grease-no. Evaluated as Water.**

#16: **START 1850 STOP 1855. 0% LEL, 0ppm H2S, 0ppm PCB, 0ppm Benzene, 0ppm HCN-2, pH 7, Specific Gravity 1. Non- Reactive with water and air, Oil/Grease-no. Evaluated as Water.**

#17:

#18:

#19:

#20:

#21:

#22:

#23:

#24:

#25:

#26:

#27:

#28:

#29:

#30:

#31:

#32:

#33:

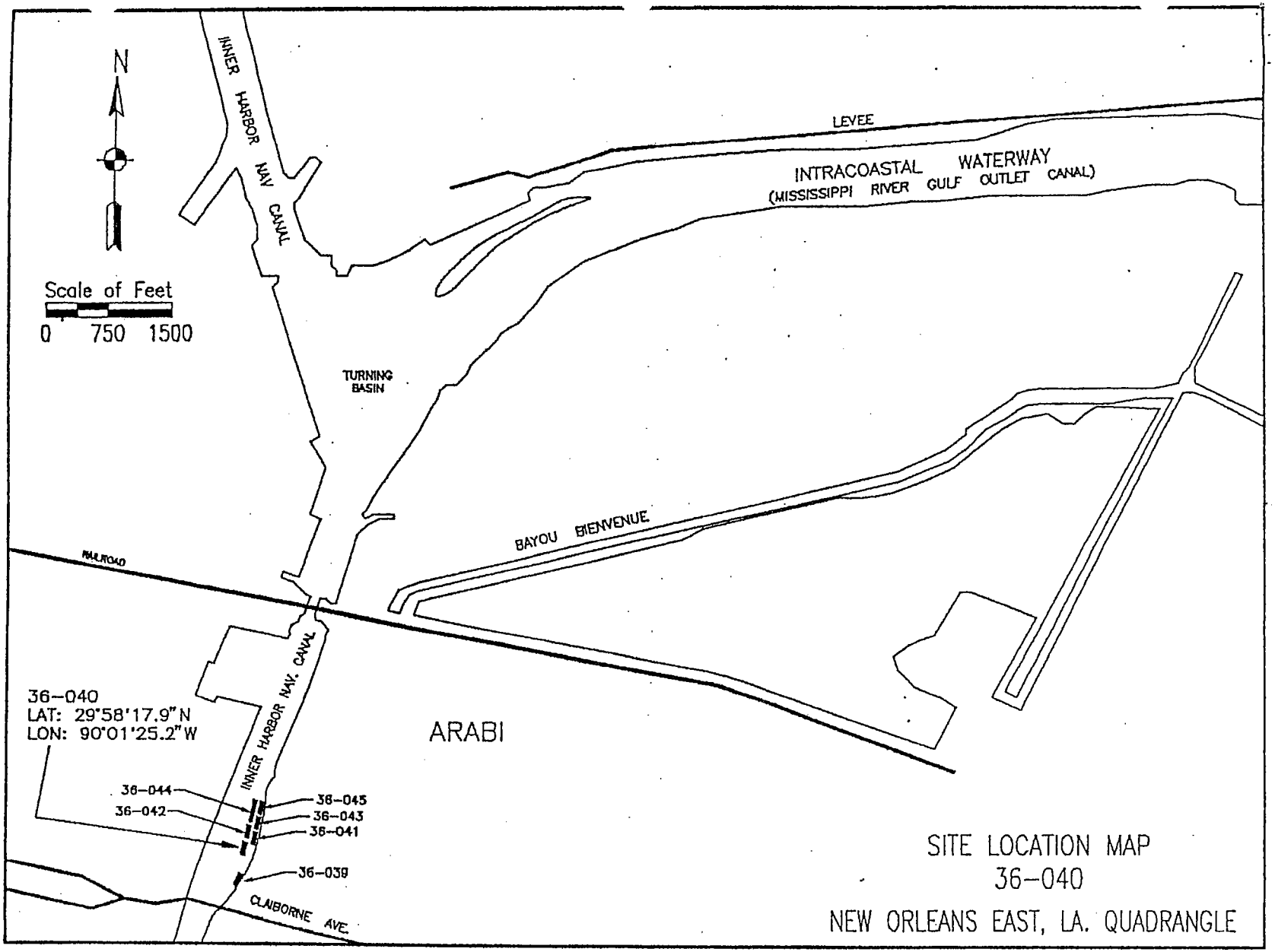
#34:

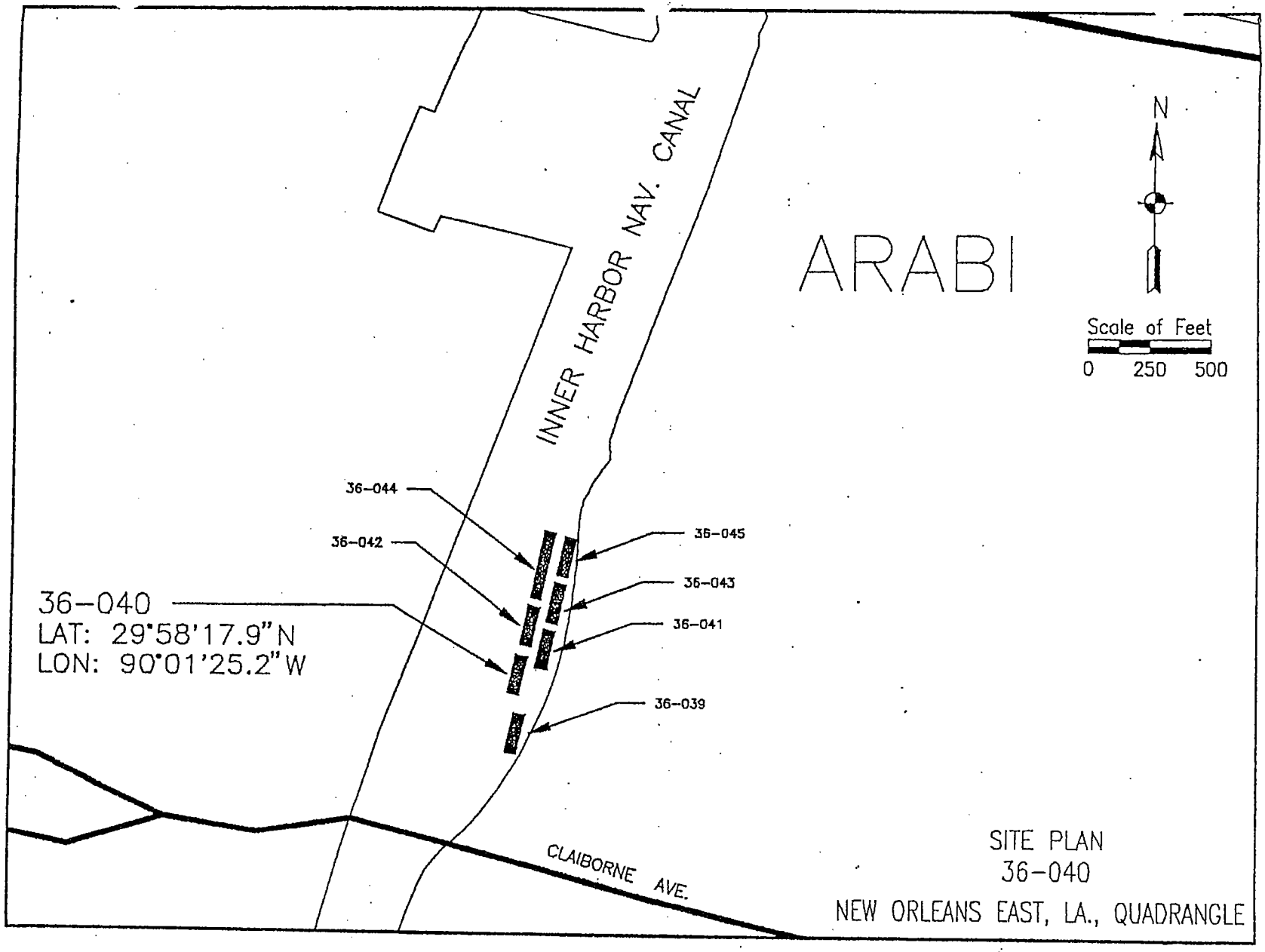
PRIORITY RANKING SYSTEM

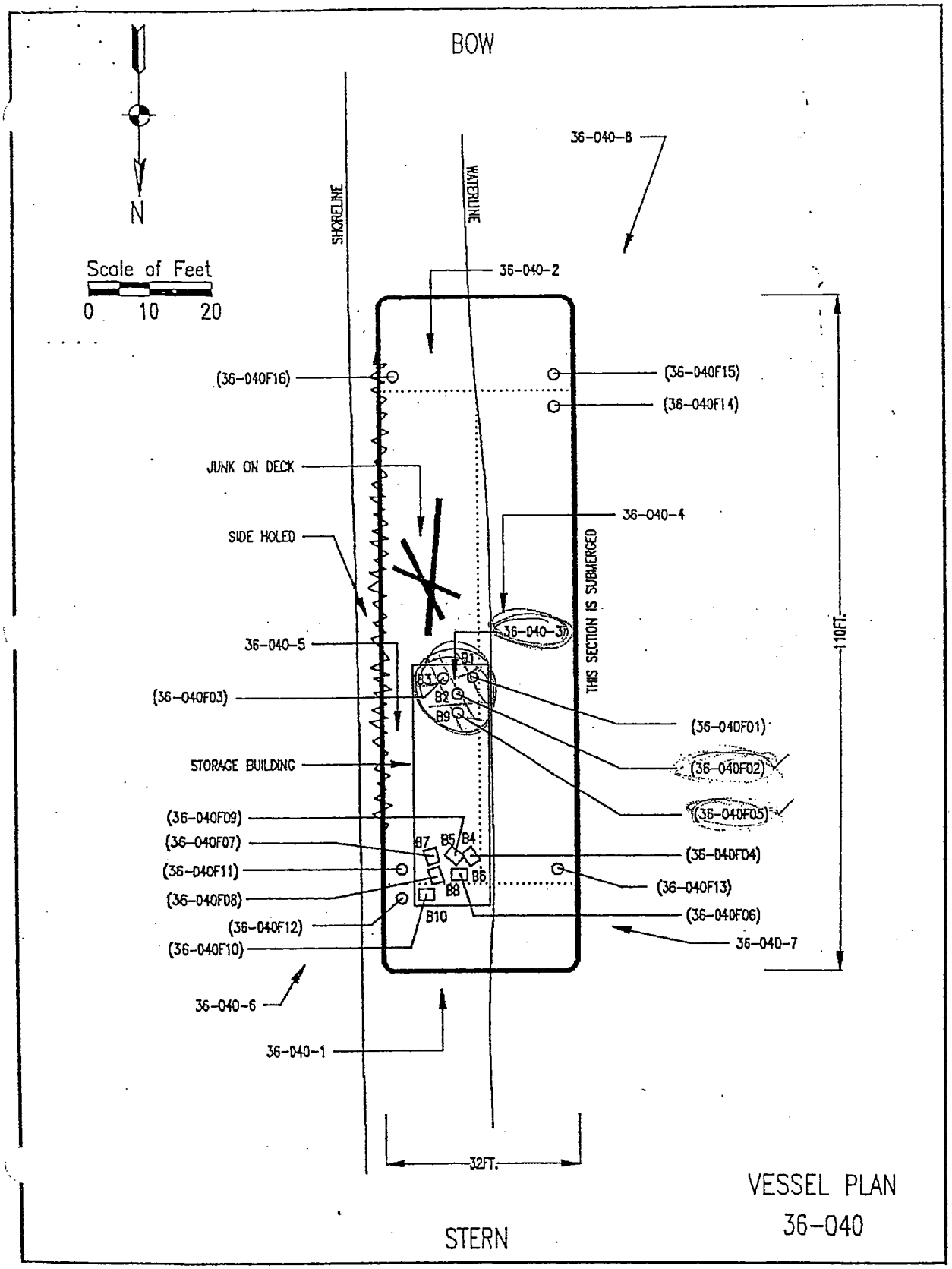
I. D. #: 36 40
Vessel Name or VIN:

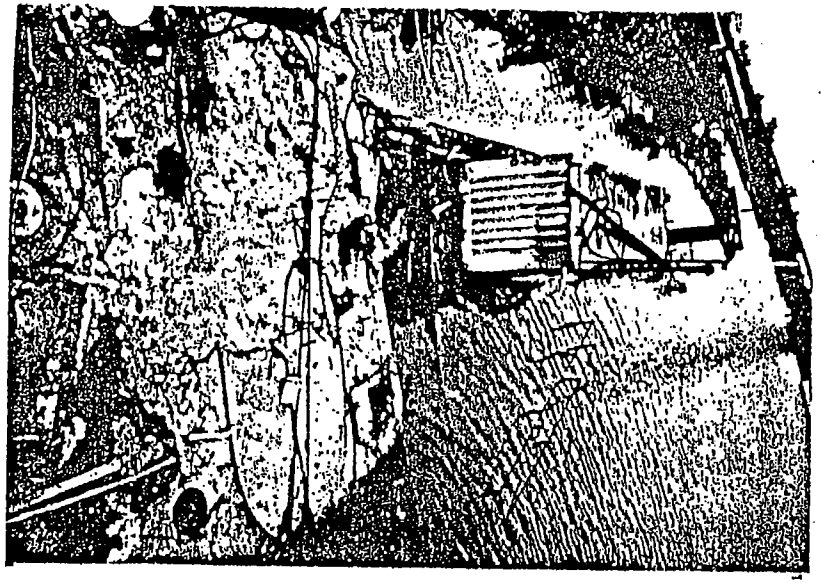
Category of Risk		Points	Total Points Possible	Priority
PROXIMITY TO SENSITIVE AREAS:	Public Water Systems	5		0
	Recreation Areas	5		0
	Residential Areas	5		0
	Sensitive Ecology	5		0
	Sensitive Habitat	5		0
			20 (1)	0
VISIBLE CONTAMINANT MIGRATION:	Contained in Immediate Area	10		0
	Extensive and Continuing	15		0
			15	0
POTENTIAL FOR OIL SPILL:				
Condition of Vessel:	Sound	0		0
	Fair (Minor Damage)	7		0
	Ruptured (Major Damage)	10		10
			10	10
Compartment/Tank Integrity	Sound	0		0
	Ruptured	10		0
Loose Containers		2		2
			12	2
Subject to Flooding:	Yes	8		4
	No	0		0
			8	4
Contents:	Oil	15		5
	Oil in Water (in excess of 29-B allowables)	10		0
	Empty	0		0
	Hazardous (Report Immediately)			
			15	5
ACCESS TO ILLEGAL DUMPING:				
From Surface Transport:	Adjacent Parking Available (with evidence of use - tire marks, oil visible)	10		0
	Adjacent Parking Available (no evidence of use)	7		0
	No Parking (but could be developed)	4		4
	Not Accessible	0		0
			10	4
From Water Transport:	Accessible with adequate depth and evidence of use (hose marks, fenders, oil on deck	10		0
	Accessible - no evidence of use	7		7
	Accessible - depth limitations	4		0
	Not accessible without dredging	0		0
			10	7
TOTAL PRIORITY RANKING POINTS				32

1) Unlikely that all sensitive areas present at one location.
Grade category of risk from "0" to "Total Possible Points" depending upon degree of risk.

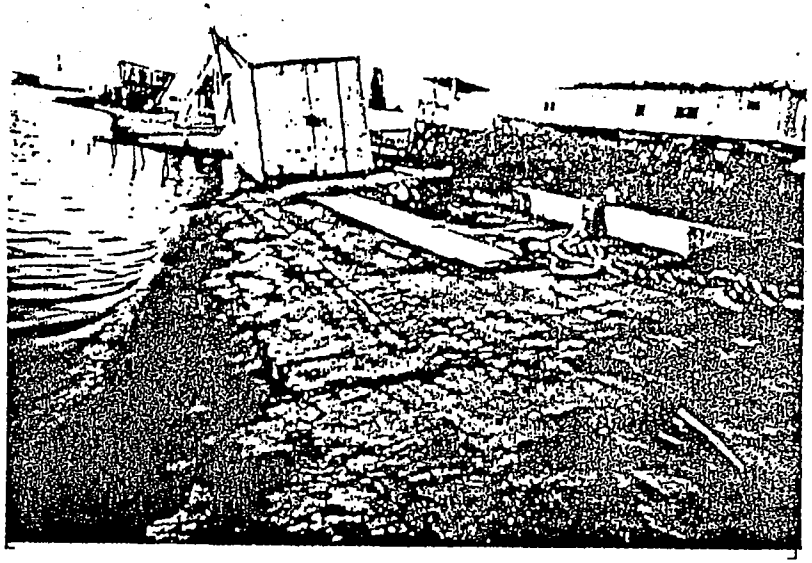

N
INNER HARBOR NAV CANAL
LEVEE
INTRACOASTAL WATERWAY
(MISSISSIPPI RIVER GULF OUTLET CANAL)
Scale of Feet
0 750 1500
TURNING BASIN
BAYOU BIENVENUE
RAILROAD
INNER HARBOR NAV. CANAL
36-040
LAT: 29°58'17.9"N
LON: 90°01'25.2"W
ARABI
36-044
36-042
36-045
36-043
36-041
36-039
CLAIBORNE AVE.
SITE LOCATION MAP
36-040
NEW ORLEANS EAST, LA. QUADRANGLE


INNER HARBOR NAV. CANAL
ARABI
N
Scale of Feet
0 250 500
36-044
36-042
36-040
LAT: 29°58'17.9"N
LON: 90°01'25.2"W
36-045
36-043
36-041
36-039
CLAIBORNE AVE.
SITE PLAN
36-040
NEW ORLEANS EAST, LA., QUADRANGLE

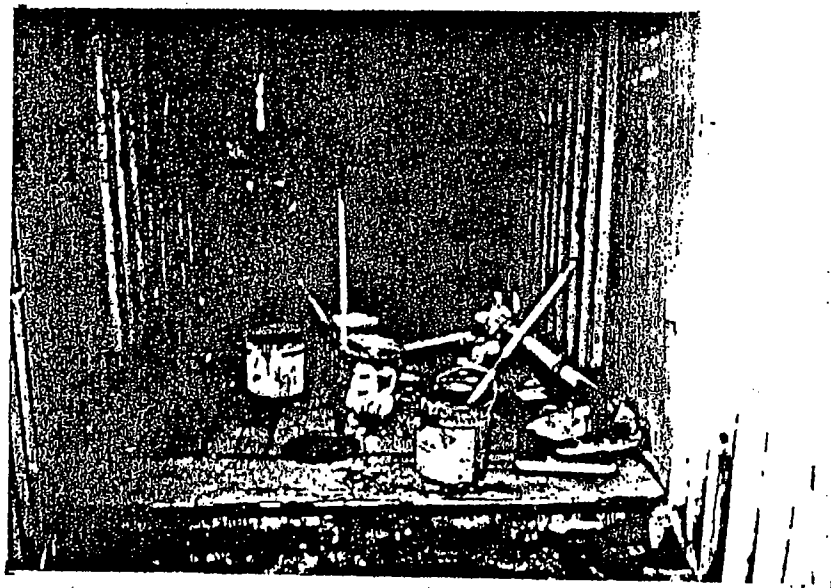

BOW
N
Scale of Feet
0 10 20
SHORELINE
WATERLINE
36-040-8
36-040-2
(36-040F16)
(36-040F15)
(36-040F14)
JUNK ON DECK
SIDE HOLED
36-040-4
THIS SECTION IS SUBMERGED
36-040-3
110FT.
36-040-5
B1
B3
B2
B9
(36-040F03)
(36-040F01)
(36-040F02)
(36-040F05)
STORAGE BUILDING
(36-040F09)
(36-040F07)
B7
B5
B4
(36-040F04)
(36-040F11)
B6
(36-040F13)
(36-040F08)
B8
(36-040F12)
B10
(36-040F06)
(36-040F10)
36-040-7
36-040-6
36-040-1
32FT.
STERN
VESSEL PLAN
36-040



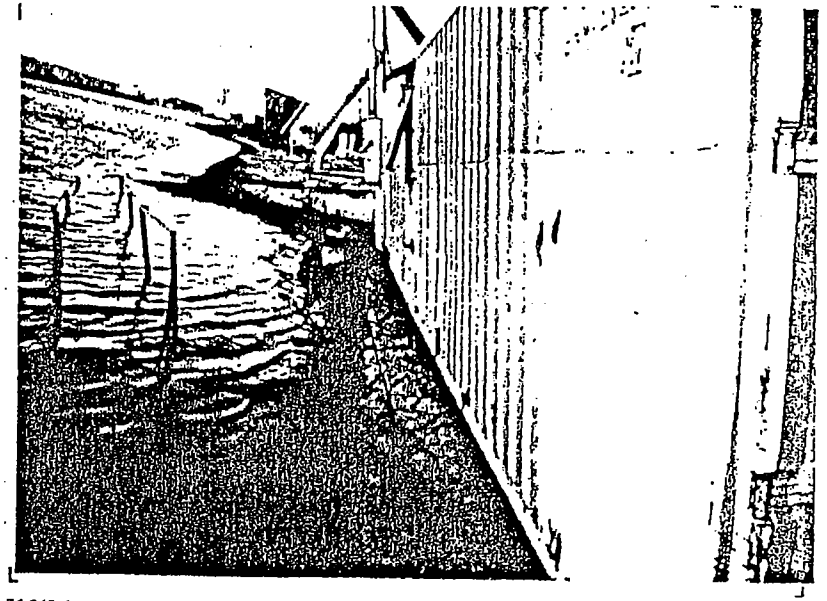
36-040-1



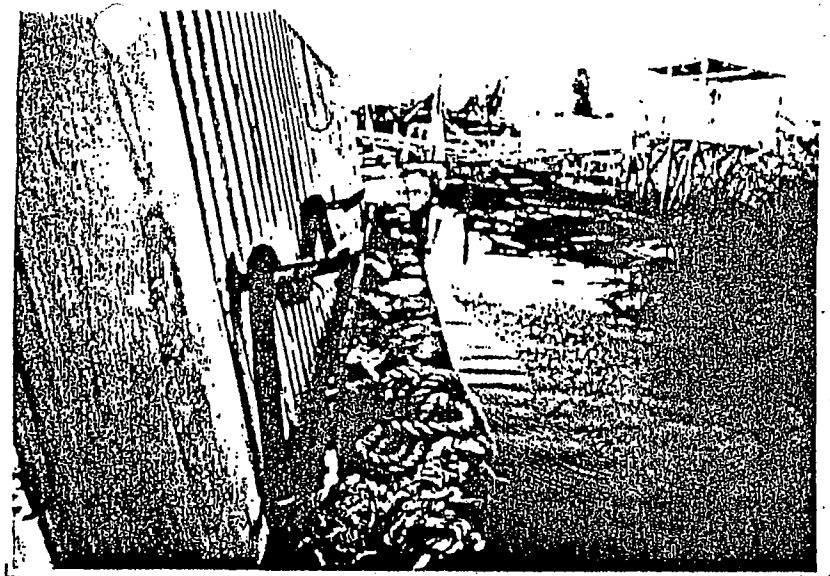
36-040-2



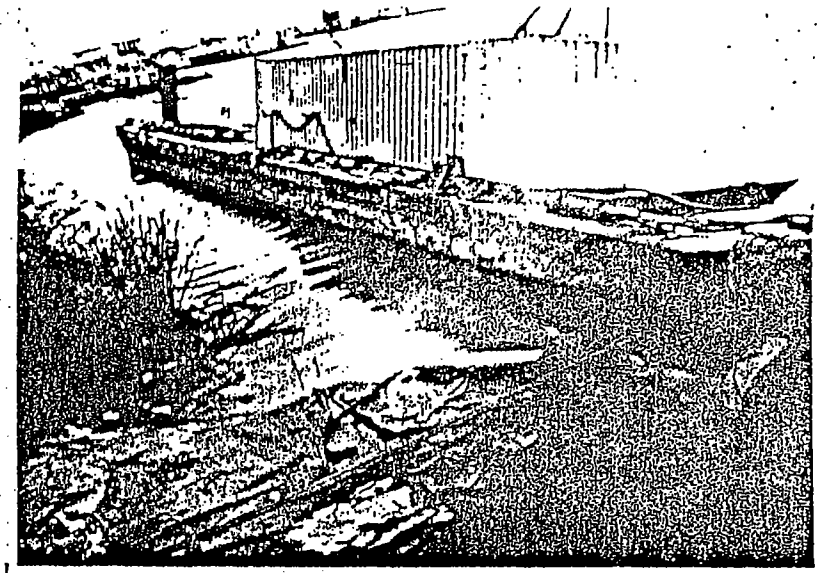
36-040-3



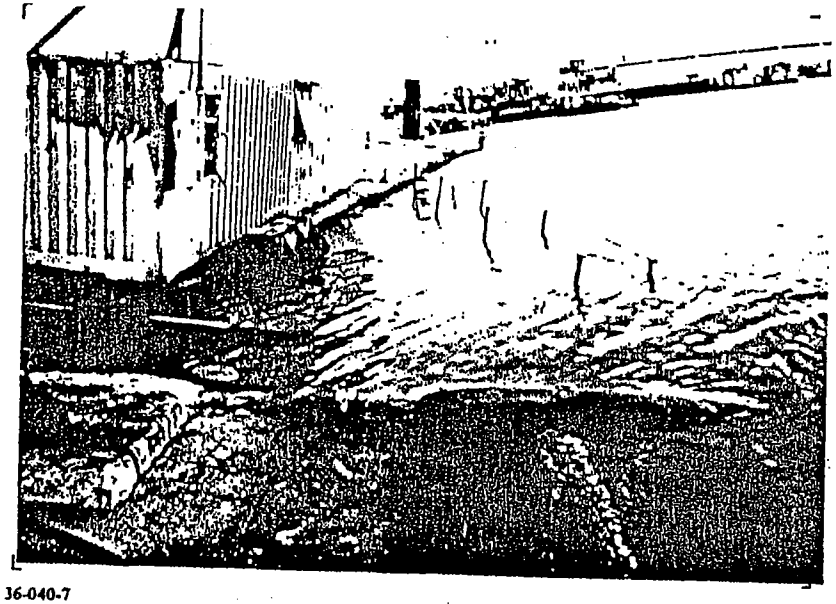
36-040-4



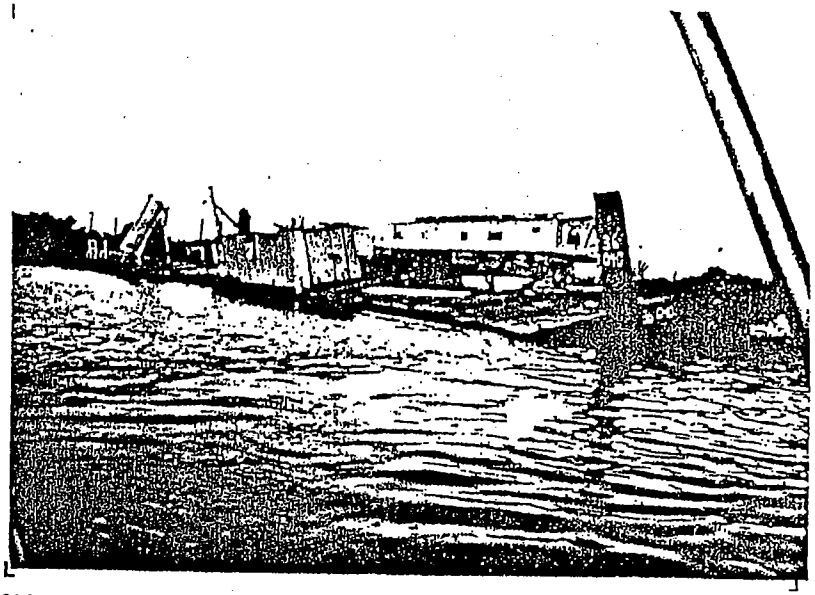
36-040-5



36-040-6



36-040-7



36-040-8

Inchcape Testing Services
Environmental Laboratories

7979 GSRI Ave.
Baton Rouge, LA 70820
(504) 769-4900
FAX (504) 767-5717

TO: CMS, INC.

GROUP NO. : 9404494
PROJECT NO. :
REPORT DATE : 10/28/94
MATRIX : SOLID
RECEIVE DATE: 10/18/94

SAMPLE NO. : 9410190020
CLIENT ID : 36-040-F02
SAMPLE DATE: 10/13/94
SAMPLE TIME: 16:30

ANALYST: eaj ANALYSIS DATE: 10/25/94 METHOD: 8015M
ANALYSIS TIME: 00:06 PREP REQ : Y PREP DATE : 10/21/94

PARAMETER	RESULT (mg/kg)	DILUTION	DET LIM (mg/kg)
Diesel Range Organics	405000	15000	30000

Inchcape Testing Services
Environmental Laboratories

7979 GSRI Ave.
Baton Rouge, LA 70820
(504) 769-4900
FAX (504) 767-5717

TO: CMS, INC.

GROUP NO. : 9404494
PROJECT NO. :
REPORT DATE : 10/28/94
MATRIX : SOLID
RECEIVE DATE: 10/18/94

SAMPLE NO. : 9410190021
CLIENT ID. : 36-040-F03
SAMPLE DATE: 10/13/94
SAMPLE TIME: 16:40

ANALYST: eaj ANALYSIS DATE: 10/25/94 METHOD: 8015M
ANALYSIS TIME: 00:26 PREP REQ : Y PREP DATE : 10/21/94

PARAMETER	RESULT (mg/kg)	DILUTION	DET LIM (mg/kg)
Diesel Range Organics	523000	15000	30000

36-040

Inchcape Testing Services
Environmental Laboratories

7979 GSRI Ave.
Baton Rouge, LA 70820
(504) 769-4900
FAX (504) 767-5717

ANALYTICAL RESULTS FOR SAMPLES TESTED BY

INCHCAPE TESTING SERVICES

ENVIRONMENTAL LABORATORIES

BATON ROUGE

REPORT TO: CMS, INC.
108 ROYAL STREET

NEW ORLEANS , LA 70130

ATTENTION: B. DOVE
CLIENT ID: 2507
GROUP NO : 9404494

Inchcape Testing Services
Environmental Laboratories

7979 GSRI Ave.
Baton Rouge, LA 70820
(504) 769-4900
FAX (504) 767-5717

Sample receipt at Inchcape Testing Services is documented for your designated sample(s). Chain-of-custody documentation, if provided, is included in this report. Sample analysis was performed in accordance with Environmental Protection Agency protocol or other approved methods.

 The results herein relate only to the sample(s) tested. Documented results are shown on the following page(s).

Charles P. Byrne
General Manager
Vice President
Inchcape Testing Services

Inchcape Testing Services
Environmental Laboratories

7979 GSRI Ave.
Baton Rouge, LA 70820
(504) 769-4900
FAX (504) 767-5717

TO: CMS, INC.

SAMPLE NO. : 9410190022
CLIENT ID : 36-040-F05
SAMPLE DATE: 10/13/94
SAMPLE TIME: 16:50

GROUP NO. : 9404494
PROJECT NO. :
REPORT DATE : 10/28/94
MATRIX : SOLID
RECEIVE DATE: 10/18/94

ANALYST: eaj ANALYSIS DATE: 10/25/94 METHOD: 8015M
ANALYSIS TIME: 01:06 PREP REQ : Y PREP DATE : 10/21/94

PARAMETER	RESULT (mg/kg)	DILUTION	DET LIM (mg/kg)
Diesel Range Organics	555000	15000	30000

SURROGATE DETAIL RESULTS

Sample#: 9410190018 Client ID: 36-034-F02
Matrix : SOLID

Surrogate Name	Percent Recovery	Acceptable Range	Method
O-TERPHENYL	DO	60 - 140	8015M

Sample#: 9410190019 Client ID: 36-040-F01
Matrix : WATER

Surrogate Name	Percent Recovery	Acceptable Range	Method
O-TERPHENYL	DO	60 - 140	8015M

Sample#: 9410190020 Client ID: 36-040-F02
Matrix : SOLID

Surrogate Name	Percent Recovery	Acceptable Range	Method
O-TERPHENYL	DO	60 - 140	8015M

Sample#: 9410190021 Client ID: 36-040-F03
Matrix : SOLID

Surrogate Name	Percent Recovery	Acceptable Range	Method
O-TERPHENYL	DO	60 - 140	8015M

Sample#: 9410190022 Client ID: 36-040-F05
Matrix : SOLID

Surrogate Name	Percent Recovery	Acceptable Range	Method
O-TERPHENYL	DO	60 - 140	8015M

DO = Diluted Out

I. cape Testing Services
West-Paine Laboratories
(504) 769-4900 • Fax (504) 767-5717

CHAIN OF CUSTODY RECORD

Lab use only:			
CMS	2507	9404494	10-27-94
Client Name	Client #	Group #	Due Date

Submitted by
Client: CMS, INC.
Address: 108 Royal St.
New Orleans, LA 70130
Contact: D Doue
Phone: (504) 527-0013
Fax: (504) 527-6008

Bill to
Client: CMS, INC.
Address: on file
Tampa-Office
Contact: on file
Phone: on file.

P. O. Number

Project Name/Number: 1045-100

Sampled By: M. Riedel - CMS

PRIORITY

ORIGINAL

Analytical Requests: TPH-D

Lab use only:
LAB M ☐ ☐
Gen Chem ☐ ☐
Metals ☐ ☐
GC/MS VOA ☐ ☐
GC/MS Semi-V ☐ ☐
GC/Semi-V ☑ ☑
GC ☐ ☐
Extractions ☐ ☑
Client Services ☐ ☐
Ship ☐ ☐
Info Request ☐ ☐

Matrix*	Date	Time (2400)	Comp	Grab	Sample Description	Preservatives	No. Containers	Remarks:	Lab ID
L	10/11	1145		✓	36-034-F0#2	NO	1	B1	-18
L	10/13	1630		✓	36-040-F01	NO	1	Top B-3	-19
SL	10/13	1630		✓	36-040-F02	NO	1	Bottom B-3	-20
SL	10/13	1640		✓	36-040-F03	NO	1	B-1	-21
SL	10/13	1650		✓	36-040-F05	NO	1	B-2	-22

Lab use only:
Custody Seal
used ☐ yes ☐ no
In tact ☐ yes ☐ no
Temperature °C _____

Turn Around Time: ☐ 24-48 hrs. (min. 100%) ☐ 3 days (75%) ☐ 1 week (50%) ☐ Standard Other _____

Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
[signature]	[signature]	10/17/94	2146
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
[signature]	Michelle Crockett	10/18/94	1410

Note: All Dates = 1994
Mail Hardcopy to Submitter

By submitting these samples, you agree to the terms and conditions contained in our most recent schedule of services.

___ Water
___ Solid
___ Oil
___ Sludge

STATEWIDE ABANDONED VESSEL INVENTORY
NEW ORLEANS ZONE

CONTRACT NO 100-4109-A

VESSEL NO. 36-041

SUBMITTED TO:

STATE OF LOUISIANA
OFFICE OF THE GOVERNOR
LOUISIANA OIL SPILL COORDINATOR'S OFFICE

PREPARED BY

CMS, INC.
108 ROYAL ST.
NEW ORLEANS, LOUISIANA 70130

Date: 10/14/9 Time: 920

Team Members:
CMS: RIEDEL
CMS: DOVE
CMS: RIVERA

ner Name/Address:
SAUCER MARINE SERVICES
P.O. BOX 3067
NEW ORLEANS, LA

VESSEL INVENTORY
Field Investigation Data Sheet

I.D. #: 36 41
V.I.N.:
WL-F #:
USCG #:
Vessel Name:

Location: Lat. 29° 58' 15" N Long. 90° 1' 27" W Parish: Orleans Zone: NO Floating:
Waterway: INDUSTRIAL CANAL Nearest City: NEW ORLEANS Submerged:
Access: By Water: Y, By Land Y, Limitations: Partly Submerged: Y
Description: Barge: Tank Battery: , Tank: , Deck: Y, Hopper: , Other:
Motor Vessel: Shrimper , Fishing: , Other:
Size: 24' x 140' Draft: 14" Type Rake: SCOW Transportable Condition: NO
Number of Bulkheads: 0, Drawing Attached: Y, Photo Attached: Y, Coded on Vessel Plan: Y
Condition: Housing: , Deck: H, Hull: H, Structure: H
Diver Required: N, Diver Report (1):
Abandoned/Derelict Condition Verified (1): Y

Condition Options:
S - Sound, F - Fair
H - Holed

Contents:

	Number	Condition	Volume Gallons	Number Vents	Activily Spilling	Access			Contents *
						Vent	Hatch	Other	
Above Deck Tanks	0								
Below Deck Tanks	1	H	153000	0	N	N	Y	N	1A
Other Containers	0								

Condition Code: S - Sound, F - Fair, H - Holed

Contents Code: O - Oil, OW - Oil in Water, A - Aqueous, E - Empty, SHW - Suspected Hazardous Waste

sk Assessment:

	Safe	Requires Forced Ventilation	Safety Equipment Required
Vapor Analysis	Y	N	C
Liquid Analysis	Y	N	C
Structure	N	N	C

Environmental Damage:
Evidence of Spill: Oil , HW: , Outside Vessel (2) sqft., On Deck: , In Hold:
Proximity to Sensitive Areas (mi.): Public Water System 2, Recreation: 3, Residential: 2, Environmental: 2, Habitat: 2

Samples taken for Field Testing: (record procedures employed and detailed results in log)

Sample ID	Location	Results	Sample ID	Location	Results	Sample ID	Location	Results
36 41 F01	TC	A	36 41 F06			36 41 F11		
36 41 F02			36 41 F07			36 41 F12		
36 41 F03			36 41 F08			36 41 F13		
36 41 F04			36 41 F09			36 41 F14		
36 41 F05			36 41 F10					

Samples Taken for Laboratory Testing:

Sample ID	Location	Used in Composite	Sample ID of Composite	Results
36 41 L01			36 41 C01	
36 41 L02			36 41 C02	
36 41 L03			36 41 C03	
36 41 L04			36 41 C04	
36 41 L05			36 41 C05	
36 41 L06			36 41 C06	
36 41 L07			36 41 C07	
36 41 L08			36 41 C08	

Note: (1) See log for detailed description
(2) Indicate area affected on site plan.

T: Top, B: Bottom, TC: Total Column
*: See associated log entry

Date: 10/14/9 Time: 920

VESSEL INVENTORY

I.D. #: 36 41

Field Investigation Data Sheet

Log Entries

neral Comments: RISK ASSESSMENT: INITIAL LEL 0%, RADIATION-NORMAL. WEATHER: WIND-W 7-10 KTS., TEMPERATURE- 68F, SKIES-OVERCAST, PRECIPITATION-NONE. INDIVIDUALS/GROUPS CONTACTED. THE NAME SAUCER MARINE SERVICES IN. P.O. BOX 3067 NEW ORLEANS, LA. 70177-3067 WAS AQUIRED FROM BUILDING ON BEACH NEXT TO BARGES. THEY ARE BELIEVED TO BE THE OWNERS OF THIS VESSEL. HOWEVER NEITHER THE USCG NOR THE LA F & WL HAVE ANY DOCUMENTATION CONCERNING THE OWNERSHIP OF THIS VESSEL. OTHER SOURCES OF INFORMATION: BIBLIOGRAPHY-NO CHANGE. EMERGENCY AGENCIES NOTIFIED: NONE. THIS VESSEL IS COMPLETELY HOLED THRU OUT THE VESSEL APPRENTLY SUPPLIED POWER TO ADJACENT BARGE FOR PUMPING OR SAND BLASTING OF OTHER VESSELS. NO BULKHEADS WERE FOUND, ONLY CROSSMEMBER SUPPORT BEAMS. THIS VESSEL IS ONE LARGE TANK. SAMPLING DONE INDICATED ALL AQUEOUS SUBSTANCES ABOARD VESSEL. HULL CAPACITY IS 153,000 GALLONS.

Diver's Log:

Abandoned/Derelict Entry: THE NAME SAUCER MARINE SERVICES IN. P.O. BOX 3067 NEW ORLEANS, LA. 70177-3067 WAS AQUIRED FROM BUILDING ON BEACH NEXT TO BARGES. THEY ARE BELIEVED TO BE THE OWNERS OF THIS VESSEL. HOWEVER NEITHER THE USCG NOR THE LA F & WL HAVE ANY DOCUMENTATION CONCERNING THE OWNERSHIP OF THIS VESSEL.

Above Deck Tanks Contents:

Below Deck Tanks Contents: CONTAINS ONLY WATER.

Other Containers Contents:

Field Sample Logs: #1: START 0920 STOP 0925. 0% LEL, 0ppm H2S, 0ppm PCB, 0ppm Benzene, 0ppm HCN-2, pH 7, Specific Gravity 1. Non- Reactive with water and air, Oil/Grease-no. Evaluated as Water.

#2:

#3:

#4:

#5:

#6:

#7:

#8:

#9:

#10:

#11:

#12:

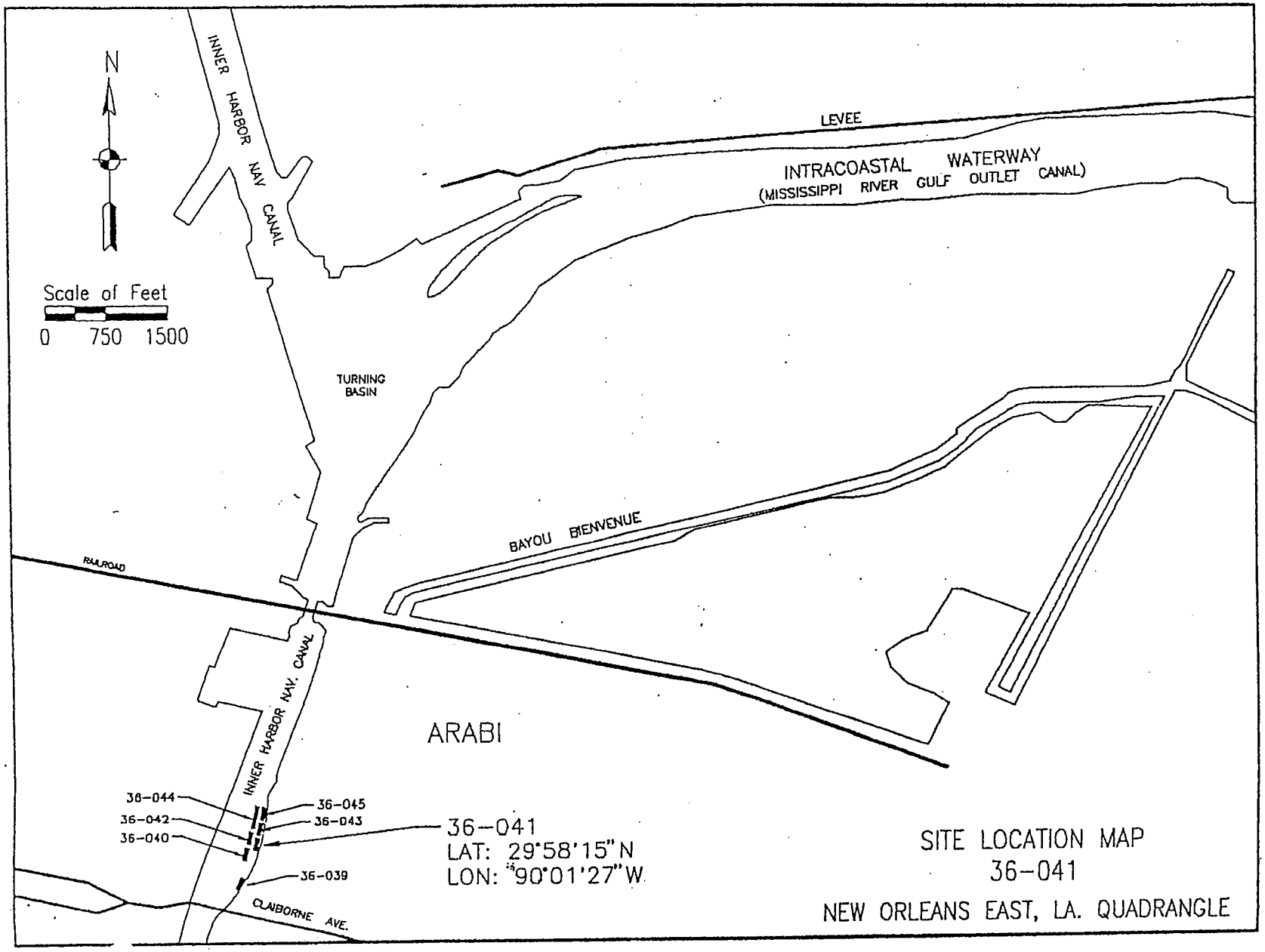
#13:

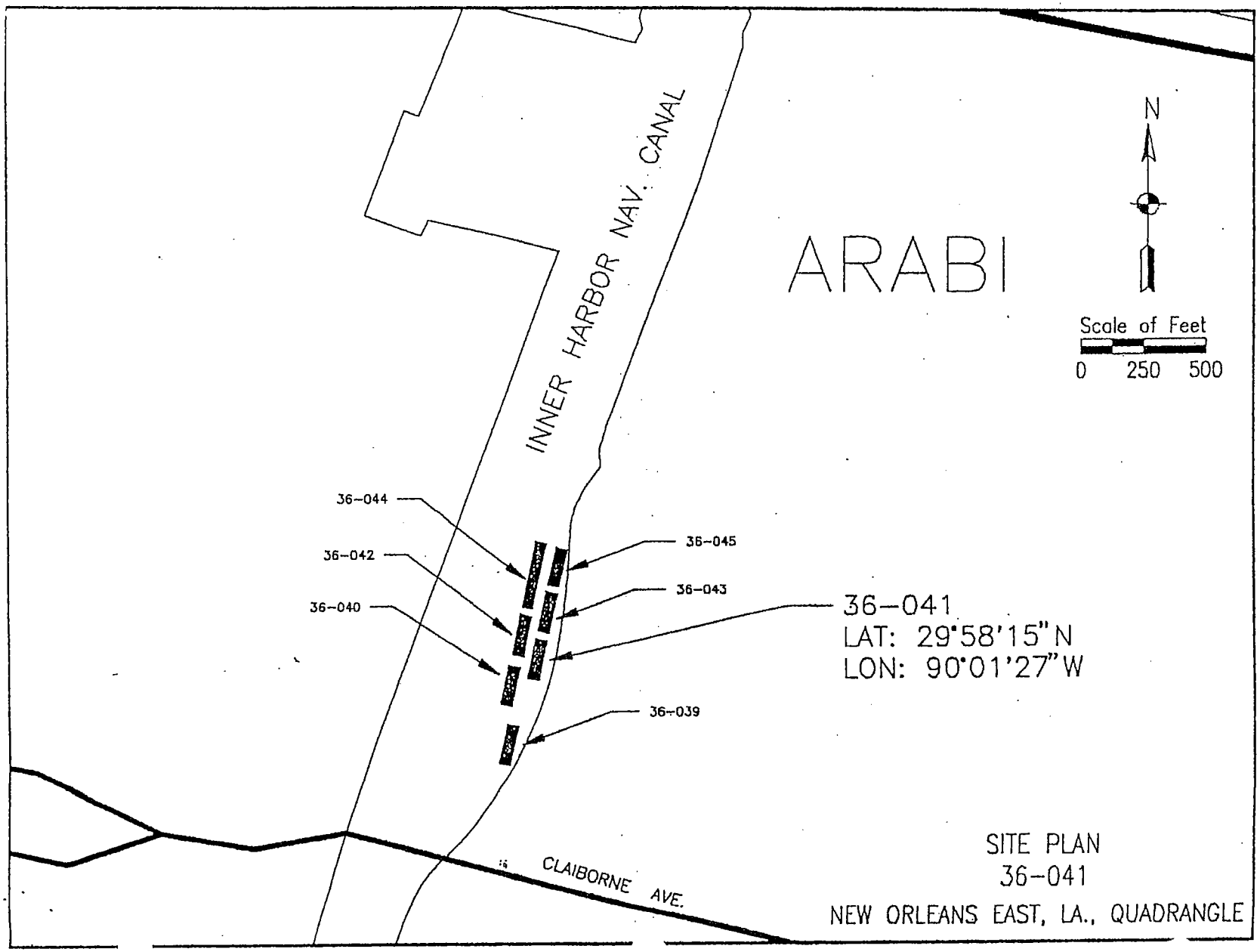
#14:

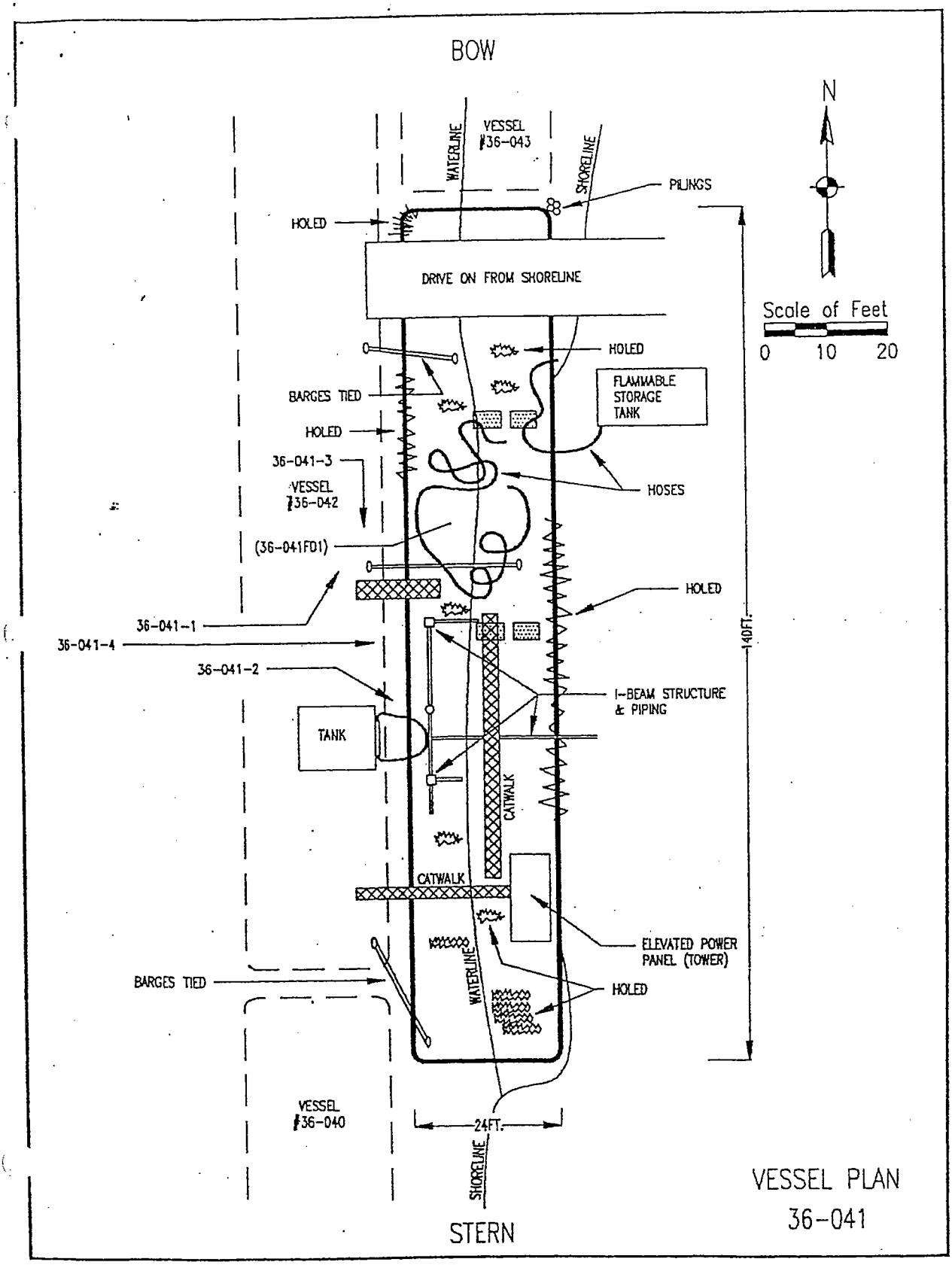
Daily and site safety briefing completed in accordance with Site Specific Health and Safety Plan.

Field sampling procedures/equipment:
LEL, O2, and H2S: GASTECH GT302 OVA Sensor
pH: pH Tester
HCN-2, Benzene: HAZMAT Response Kit, Detection Tubes
'CB: Dexil L2000
Specific Gravity: Cole-Parmer Hydrometer
Reactivity: Sample reaction with air and deionized water
Radioactivity: Ludlum Model 18 Analyzer

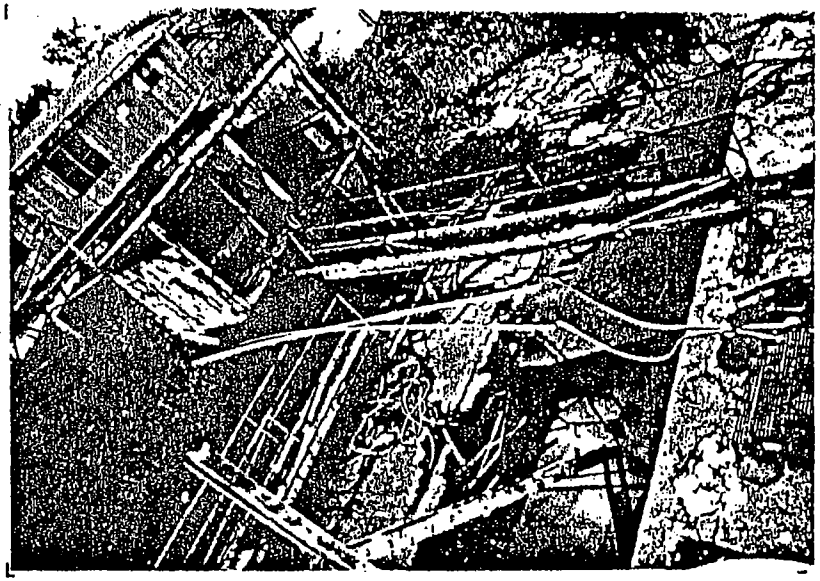
Procedures IAW sampling protocal and laboratory requirements


N
Scale of Feet
0 750 1500
INNER HARBOR NAV CANAL
LEVEE
INTRACOASTAL WATERWAY
(MISSISSIPPI RIVER GULF OUTLET CANAL)
TURNING BASIN
BAYOU BIENVENUE
RAILROAD
INNER HARBOR NAV. CANAL
ARABI
36-044
36-042
36-040
36-045
36-043
36-039
36-041
LAT: 29°58'15"N
LON: 90°01'27"W
CLAIBORNE AVE.
SITE LOCATION MAP
36-041
NEW ORLEANS EAST, LA. QUADRANGLE

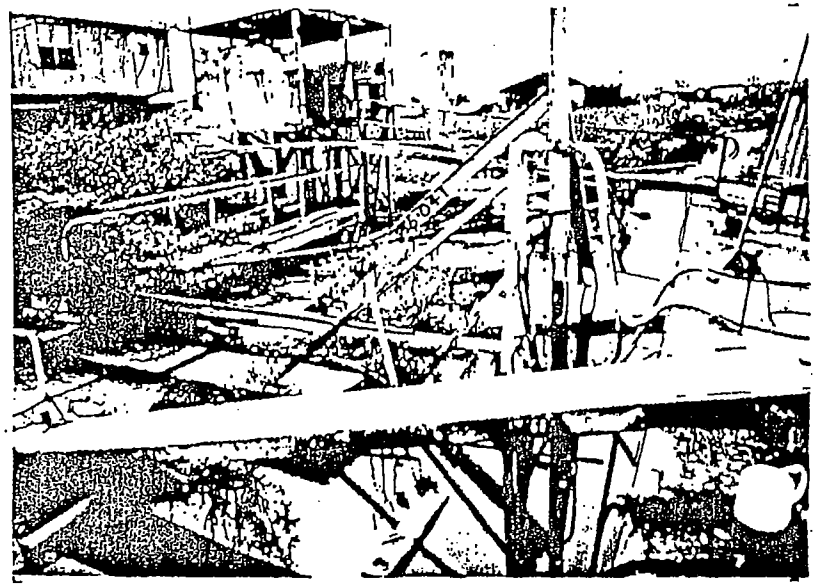

INNER HARBOR NAV. CANAL
ARABI
N
Scale of Feet
0 250 500
36-044
36-042
36-040
36-045
36-043
36-039
36-041
LAT: 29°58'15"N
LON: 90°01'27"W
CLAIBORNE AVE.
SITE PLAN
36-041
NEW ORLEANS EAST, LA., QUADRANGLE


BOW
N
VESSEL #36-043
WATERLINE
SHORELINE
PILINGS
HOLED
DRIVE ON FROM SHORELINE
Scale of Feet
0 10 20
HOLED
FLAMMABLE STORAGE TANK
BARGES TIED
HOLED
36-041-3
VESSEL #36-042
HOSES
(36-041FD1)
HOLED
36-041-1
36-041-4
36-041-2
140FT.
I-BEAM STRUCTURE & PIPING
TANK
CATWALK
CATWALK
ELEVATED POWER PANEL (TOWER)
BARGES TIED
WATERLINE
HOLED
VESSEL #36-040
24FT.
SHORELINE
STERN
VESSEL PLAN
36-041

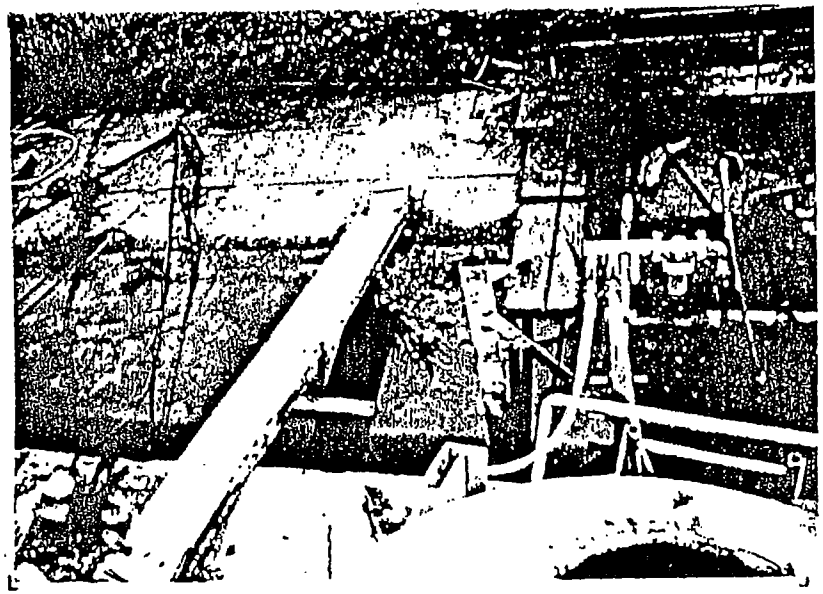
36-041-1



36-041-2



36-041-3



-041-4

STATEWIDE ABANDONED VESSEL INVENTORY
NEW ORLEANS ZONE

CONTRACT NO 100-4109-A

VESSEL NO. 36-042

SUBMITTED TO:

STATE OF LOUISIANA
OFFICE OF THE GOVERNOR
LOUISIANA OIL SPILL COORDINATOR'S OFFICE

PREPARED BY

CMS, INC.
108 ROYAL ST.
NEW ORLEANS, LOUISIANA 70130

Date: 10/14/9 Time: 1030

Team Members:
CMS: RIEDEL
CMS: DOVE
CMS: RIVERA

Owner Name/Address:
SAUCER MARINE SERVICES
P.O. BOX 3067
NEW ORLEANS , LA

VESSEL INVENTORY
Field Investigation Data Sheet

I.D. #: 36 42
V.I.N.:
WL-F #:
USCG #:
Vessel Name:

Location: Lat. 29° 58' 15" N Long. 90° 1' 27" N Parish: Orleans Zone: NO Floating:
Waterway: INDUSTRIAL CANAL Nearest City: NEW ORLEANS Submerged:
Access: By Water: Y , By Land Y , Limitations: HEAVY VEGITATION Partly Submerged:
Description: Barge: Tank Battery: , Tank: , Deck: Y , Hopper: , Other:
Motor Vessel: Shrimper , Fishing: , Other:
Size: 37' x 265' Draft: 18" Type Rake: CONV. Transportable Condition: NO
Number of Bulkheads: 0 , Drawing Attached: Y , Photo Attached: Y , Coded on Vessel Plan: Y
Condition: Housing: H , Deck: H , Hull: H , Structure: H
Diver Required: , Diver Report (1):
Abandoned/Derelict Condition Verified (1): Y

Condition Options:
S - Sound, F - Fair
H - Holed

Contents:

	Number	Condition	Volume Gallons	Number Vents	Activily Spilling	Access			Contents *
						Vent	Hatch	Other	
Above Deck Tanks	1	S	1000	0	N	N	N	Y	1A
Below Deck Tanks	1	H	670000	0	N	N	Y	N	1A
Other Containers	0								

Condition Code: S - Sound, F - Fair, H - Holed

Contents Code: O - Oil, OW - Oil in Water, A - Aqueous, E - Emp, SHW - Suspected Hazardous Waste

Risk Assessment:

	Safe	Requires Forced Ventilation	Safety Equipment Required
Vapor Analysis	Y	N	C
Liquid Analysis	Y	N	C
Structure	N	N	C

Environmental Damage:
Evidence of Spill: Oil , HW: , Outside Vessel (2) sqft., On Deck: , In Hold:
Proximity to Sensitive Areas (mi.): Public Water System 2, Recreation: 3, Residential: 2, Environmental: 2, Habitat:

Samples taken for Field Testing: (record procedures employed and detailed results in log)

Sample ID	Location	Results	Sample ID	Location	Results	Sample ID	Location	Results
36 42 F01	TC	A	36 42 F06			36 42 F11		
36 42 F02	TC	A	36 42 F07			36 42 F12		
36 42 F03			36 42 F08			36 42 F13		
36 42 F04			36 42 F09			36 42 F14		
36 42 F05			36 42 F10					

Samples Taken for Laboratory Testing:

Sample ID	Location	Used in Composite	Sample ID of Composite	Results
36 42 L01			36 42 C01	
36 42 L02			36 42 C02	
36 42 L03			36 42 C03	
36 42 L04			36 42 C04	
36 42 L05			36 42 C05	
36 42 L06			36 42 C06	
36 42 L07			36 42 C07	
36 42 L08			36 42 C08	

Note: (1) See log for detailed description
(2) Indicate area affected on site plan.

T: Top, B: Bottom, TC: Total Column
*: See associated log entry

Date: 10/14/9 Time: 1030

VESSEL INVENTORY

I.D. #: 36 42

Field Investigation Data Sheet

Log Entries

General Comments: RISK ASSESSMENT: INITIAL LEL 0%, RADIATION-NORMAL. WEATHER: WIND-SW 5-10 KTS., TEMPERATURE- 80F, SKIES-PARTLY CLOUDY, PRECIPITATION-NONE. INDIVIDUALS/GROUPS CONTACTED. THE NAME SAUCER MARINE SERVICES IN. P.O. BOX 3067 NEW ORLEANS, LA. 70177-3067 WAS AQUIRED FROM BUILDING ON BEACH NEXT TO BARGES. THEY ARE BELIEVED TO BE THE OWNERS OF THIS VESSEL. HOWEVER, NEITHER THE USCG NOR THE LA F & WL HAVE ANY DOCUMENTATION CONCERNING THE OWNERSHIP OF THIS VESSEL. OTHER SOURCES OF INFORMATION: BIBLIOGRAPHY-NO CHANGE. EMERGENCY AGENCIES NOTIFIED: NONE. THIS VESSEL IS COMPLETELY HOLED THRU OUT. VESSEL LIST AT 20 DEGREES PORT. CONCRETE BARGE WITH CROSS MEMBER SUPPORT AND COLUMNS, BUT NO BULKHEADS. CONCRETE IS DETERIORATING, COLLAPSING, AND CREATING ADDITIONAL HOLES. MACHINE SHOP, TOOL SHED AND OFFICE HAVE BEEN VANDILIZED. THERE IS MACHINES AND CUTTING EQUIPMENT IN THE SHED. HULL CAPACITY IS 670,600 GALLONS.

Diver's Log:

Abandoned/Derelict Entry: THE NAME SAUCER MARINE SERVICES IN. P.O. BOX 3067 NEW ORLEANS, LA. 70177-3067 WAS AQUIRED FROM BUILDING ON BEACH NEXT TO BARGES. THEY ARE BELIEVED TO BE THE OWNERS OF THIS VESSEL. HOWEVER, NEITHER THE USCG NOR THE LA F & WL HAVE ANY DOCUMENTATION CONCERNING THE OWNERSHIP OF THIS VESSEL.

Above Deck Tanks Contents: CONTAINS SAND.

Below Deck Tanks Contents: CONTAINS WATER.

Other Containers Contents:

Field Sample Logs: #1: START 1040 STOP 1045. 0% LEL, 0ppm H2S, 0ppm PCB, 0ppm Benzene, 0ppm HCN-2, pH 7, Specific Gravity 1. Non- Reactive with water and air, Oil/Grease-no. Evaluated as Water.

#2: START 1050 STOP 1055. 0% LEL, 0ppm H2S, 0ppm PCB, 0ppm Benzene, 0ppm HCN-2, pH 0, Specific Gravity 0. Reactive with water and air N/A, Oil/Grease-N/A. Evaluated as Sand.

#3:

#4:

#5:

#6:

#7:

#8:

#9:

#10:

#11:

#12:

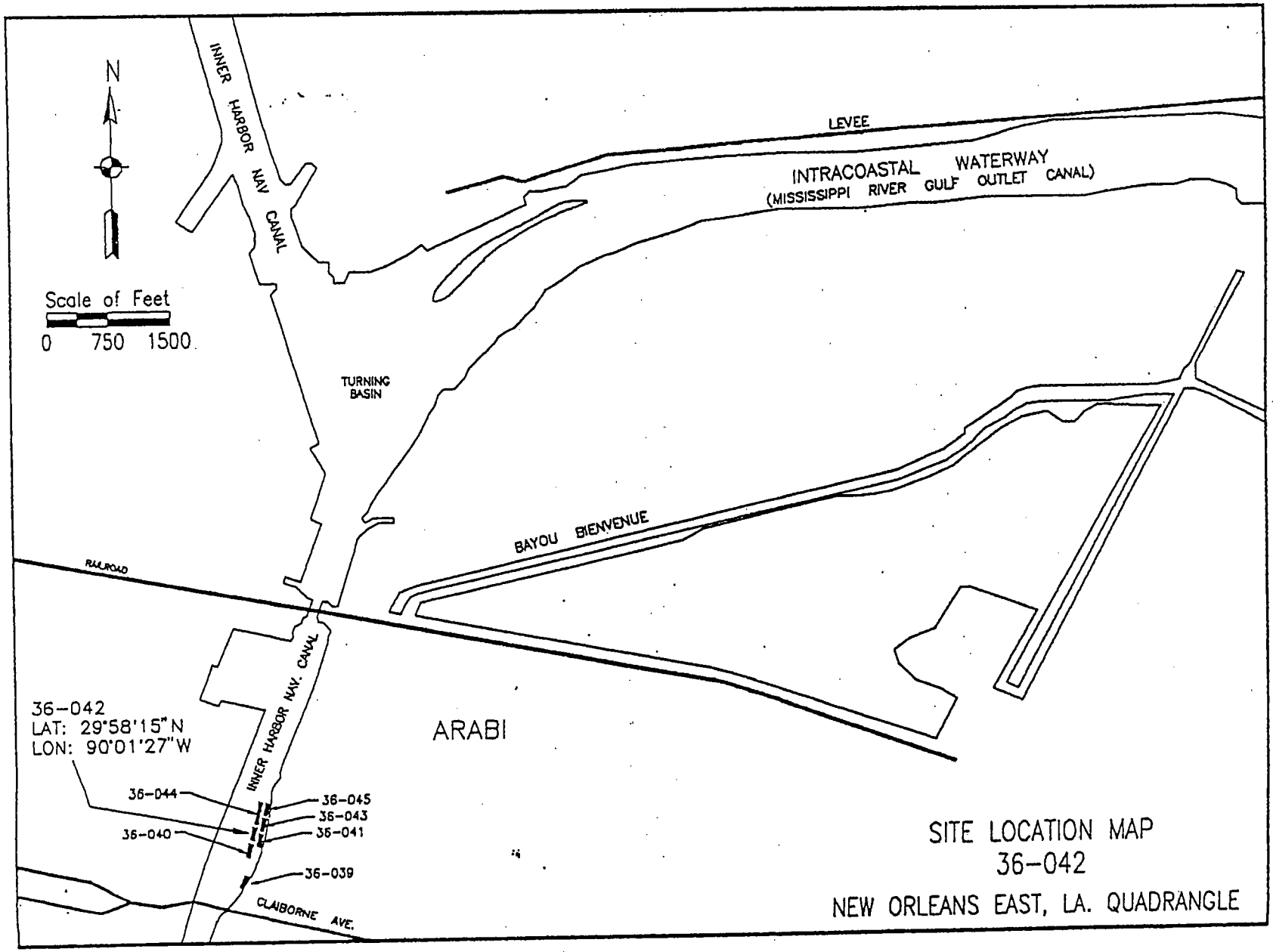
#13:

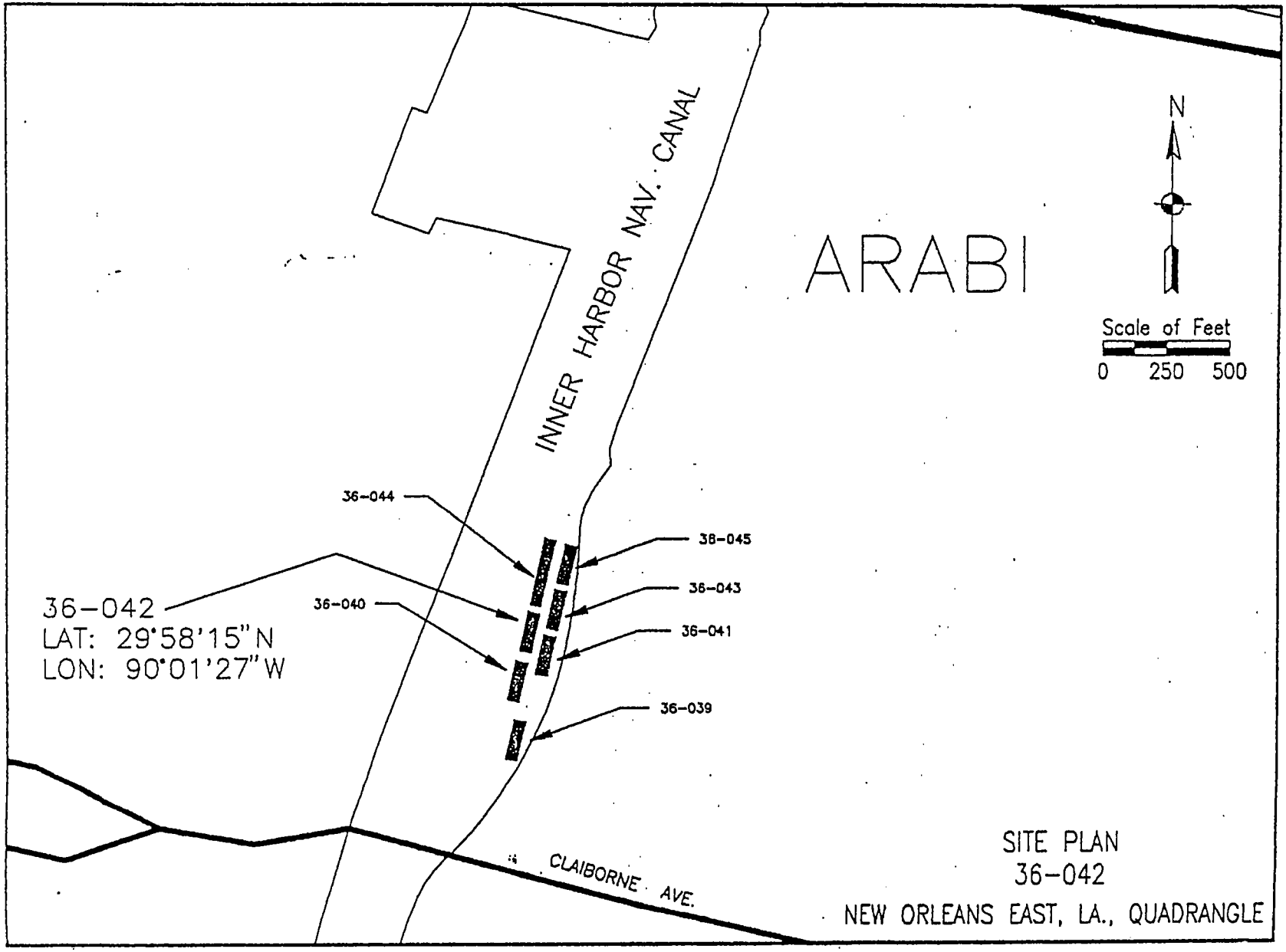
#14:

Daily and site safety briefing completed in accordance with Site Specific Health and Safety Plan.

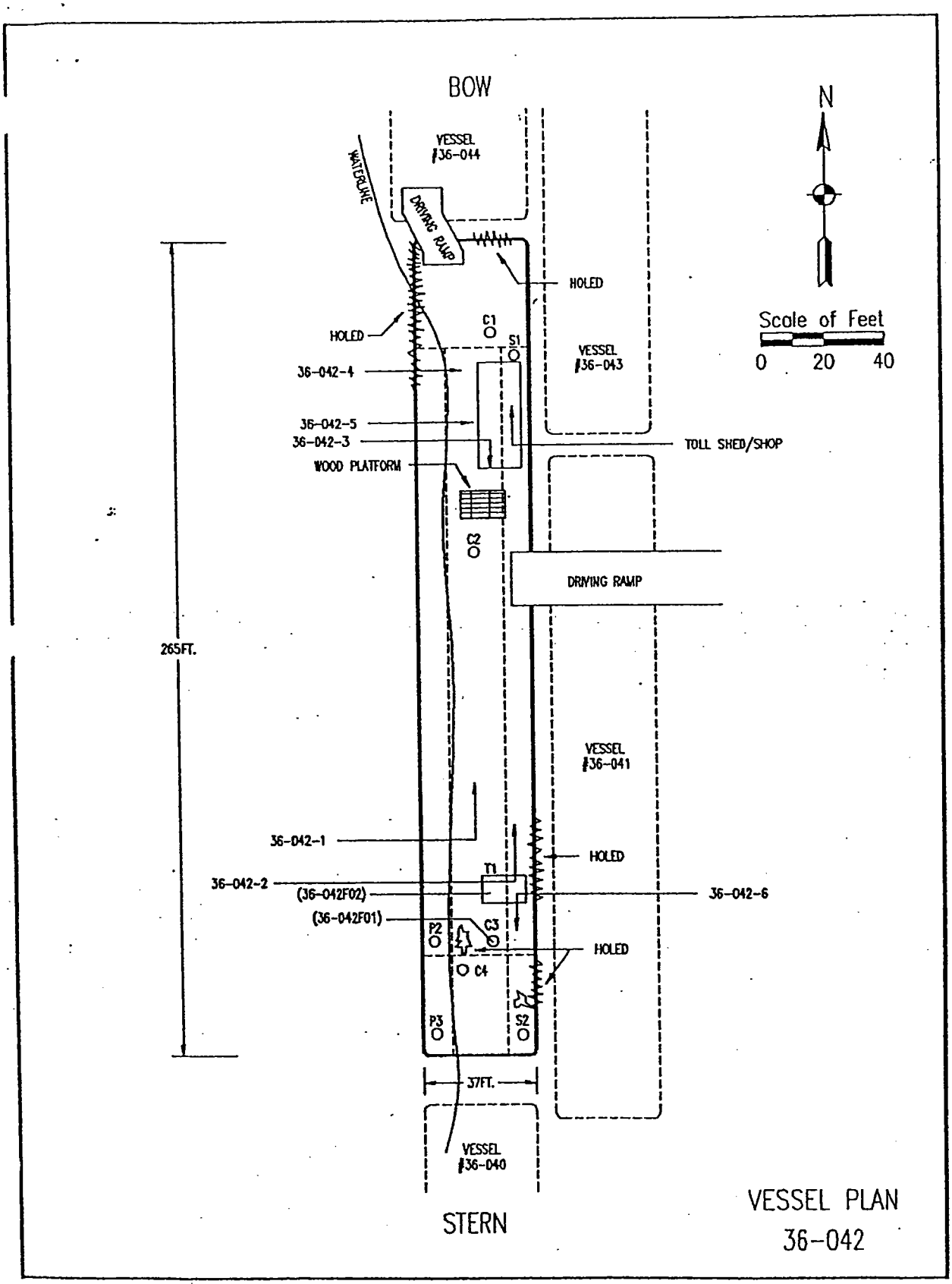
Field sampling procedures/equipment:
LEL, O2, and H2S: GASTECH GT302 OVA Sensor
pH: pH Tester
HCN-2, Benzene: HAZMAT Response Kit, Detection Tubes
PCB: Dexil L2000
Specific Gravity: Cole-Parmer Hydrometer
Reactivity: Sample reaction with air and deionized water
Radioactivity: Ludlum Model 19 Analyzer

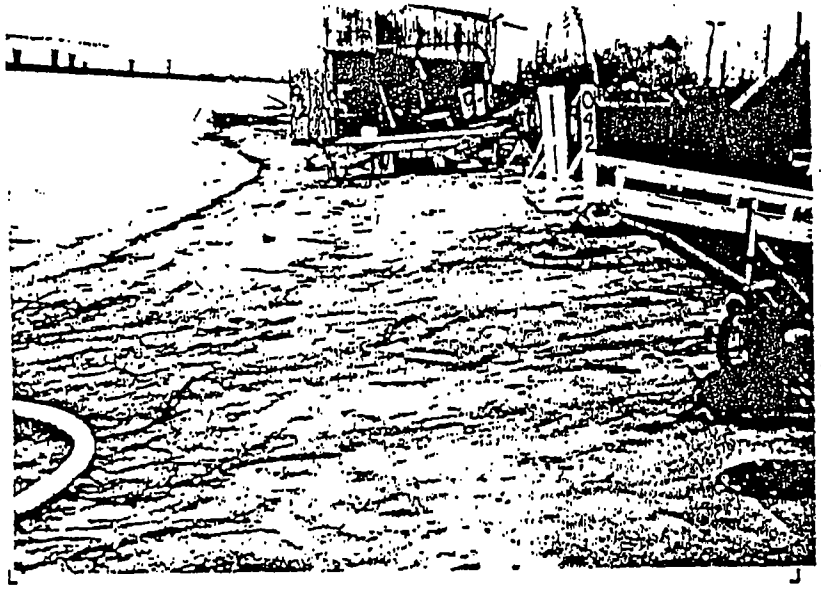
Radioactivity: Ludlum Model 18 Analyzer
Procedures IAW sampling protocal and laboratory requirements


N
INNER HARBOR NAV CANAL
LEVEE
INTRACOASTAL WATERWAY
(MISSISSIPPI RIVER GULF OUTLET CANAL)
Scale of Feet
0 750 1500
TURNING BASIN
BAYOU BIENVENUE
RAILROAD
INNER HARBOR NAV. CANAL
36-042
LAT: 29°58'15" N
LON: 90°01'27" W
ARABI
36-044
36-045
36-043
36-040
36-041
36-039
CLAIBORNE AVE.
SITE LOCATION MAP
36-042
NEW ORLEANS EAST, LA. QUADRANGLE



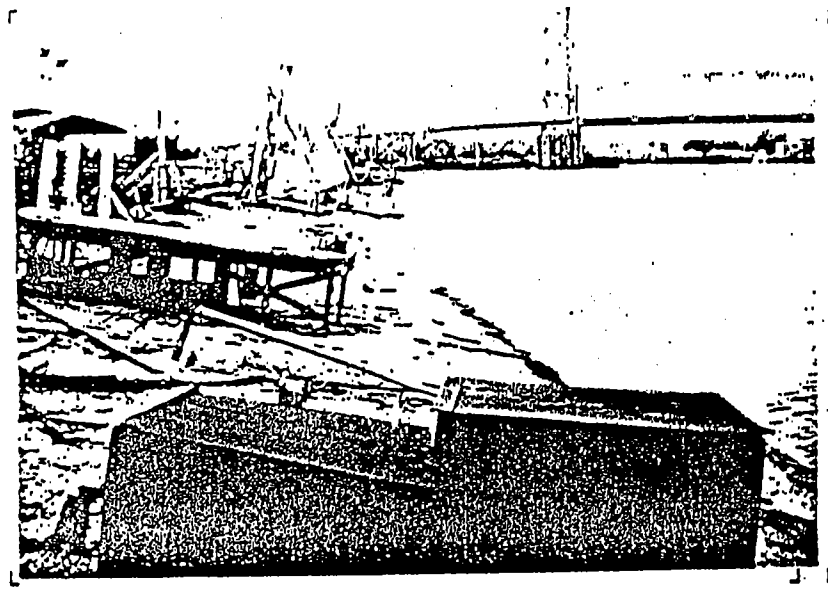
SITE PLAN
36-042
NEW ORLEANS EAST, LA., QUADRANGLE


BOW
N
Scale of Feet
0 20 40
VESSEL #36-044
WATERLINE
DRIVING RAMP
HOLED
HOLED
C1
S1
VESSEL #36-043
36-042-4
36-042-5
36-042-3
TOLL SHED/SHOP
WOOD PLATFORM
C2
DRIVING RAMP
265FT.
VESSEL #36-041
36-042-1
HOLED
T1
36-042-2
(36-042F02)
36-042-6
(36-042F01)
P2
C3
HOLED
C4
P3
S2
37FT.
VESSEL #36-040
STERN
VESSEL PLAN
36-042

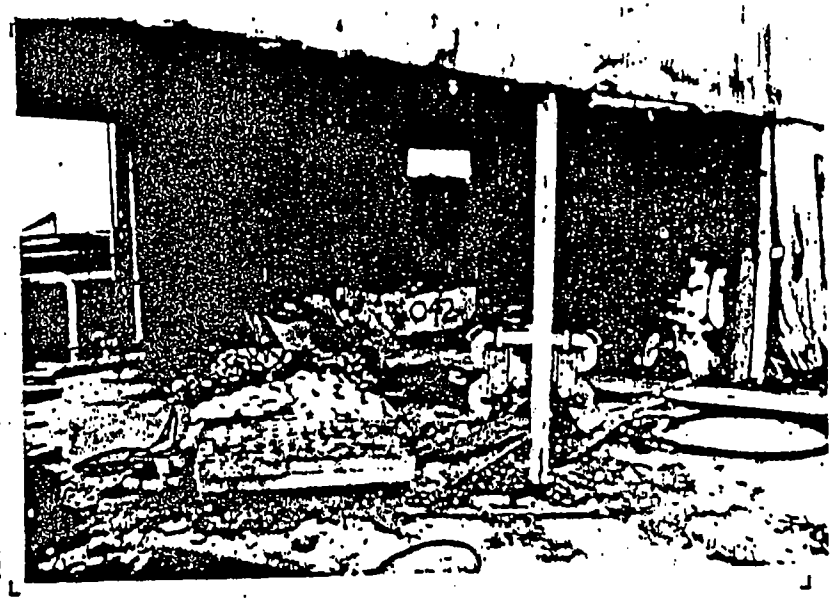


36-042-1

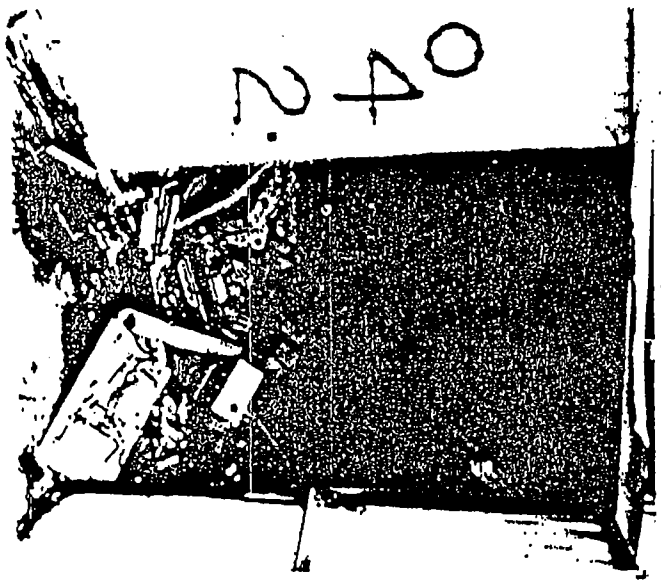
36-042-2



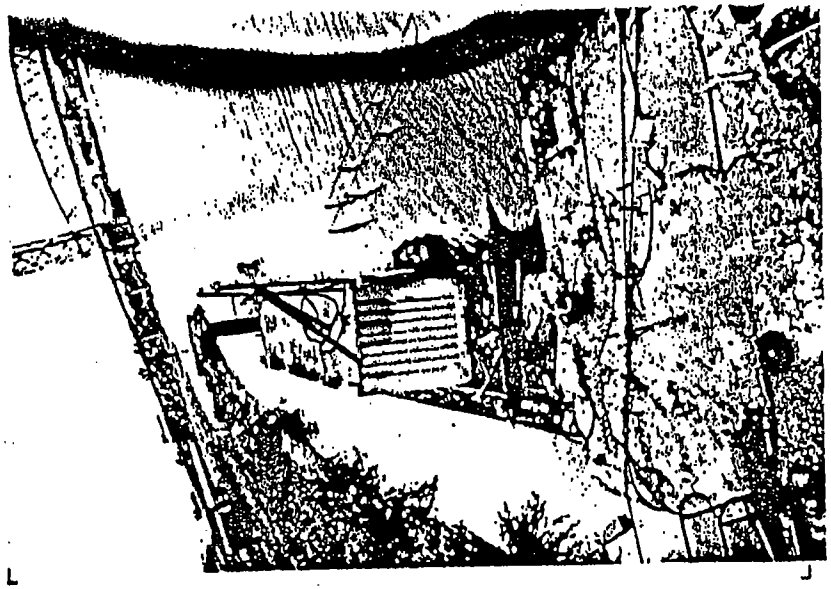
36-042-3



36-042-4



36-042-5



36-042-6

Date 10/21/94 Time: 930

VESSEL INVENTORY
Field Investigation Data Sheet

I.D. #: 36 43

Team Members:
CMS: RIEDEL
CMS: DOVE
CMS: RIVERA

V.I.N.:
WL-F #:
USCG #:
Vessel Name:

Owner Name/Address:

Location: Lat. 29° 58' 23" N Long. 90° .01' 24" W Parish: Orleans Zone: NO Floating:
Waterway: INDUSTRIAL CANAL Nearest City: NEW ORLEANS Submerged:
Access: By Water: Y, By Land Y, Limitations: HEAVY VEGITATION ON SHORE Partly Submerged: Y
Description: Barge: Tank Battery:, Tank:, Deck: Y, Hopper:, Other:
Motor Vessel: Shrimper, Fishing:, Other:
Size: 33'x 125' Draft: 14" Type Rake: SCOW Transportable Condition: NO
Number of Bulkheads: 0, Drawing Attached: Y, Photo Attached: Y, Coded on Vessel Plan: Y
Condition: Housing: H, Deck: H, Hull: H, Structure:
Diver Required: N, Diver Report (1):
Abandoned/Derelict Condition Verified (1): Y

Condition Options:
S - Sound, F - Fair
H - Holed

Contents:

	Number	Condition	Volume Gallons	Number Vents	Activily Spilling	Access			Contents *
						Vent	Hatch	Other	
Above Deck Tanks	1	S	750	2	N	Y	N	N	1E
Below Deck Tanks	1	H	213675	0	N	N	N	Y	1A
Other Containers	0								

Condition Code: S - Sound, F - Fair, H - Holed

Contents Code: O - Oil, OW - Oil in Water, A - Aqueous, E - Empty, SHW - Suspected Hazardous Waste

Risk Assessment:

	Safe	Requires Forced Ventilation	Safety Equipment Required
Vapor Analysis	Y	N	C
Liquid Analysis	Y	N	C
Structure	N	N	C

Environmental Damage:

Evidence of Spill: Oil, HW:, Outside Vessel (2) sqft., On Deck:, In Hold:
Proximity to Sensitive Areas (mi.): Public Water System 2, Recreation: 3, Residential: 2, Environmental: .5, Habitat: .5

Samples taken for Field Testing: (record procedures employed and detailed results in log)

Sample ID	Location	Results	Sample ID	Location	Results	Sample ID	Location	Results
36 43 F01	TC	E	36 43 F06			36 43 F11		
36 43 F02	TC	A	36 43 F07			36 43 F12		
36 43 F03			36 43 F08			36 43 F13		
36 43 F04			36 43 F09			36 43 F14		
36 43 F05			36 43 F10					

Samples Taken for Laboratory Testing:

Sample ID	Location	Used in Composite	Sample ID of Composite	Results
36 43 L01			36 43 C01	
36 43 L02			36 43 C02	
36 43 L03			36 43 C03	
36 43 L04			36 43 C04	
36 43 L05			36 43 C05	
36 43 L06			36 43 C06	
36 43 L07			36 43 C07	
36 43 L08			36 43 C08	

Note: (1) See log for detailed description
(2) Indicate area affected on site plan.

T: Top, B: Bottom, TC: Total Column
*: See associated log entry

Date: 10/21/9 Time: 930

VESSEL INVENTORY

I.D. #: 36 43

Field Investigation Data Sheet

Log Entries

General Comments: RISK ASSESSMENT: INITIAL LEL 0%, RADIATION-NORMAL. WEATHER: WIND-S AT 2-5 KTS., TEMPERATURE- 88F, SKIES-PARTLY CLOUDY, PRECIPITATION-NONE. INDIVIDUALS/GROUPS CONTACTED. THERE IS NO IDENTIFICATION ON THIS VESSEL. NEITHER THE USCG NOR THE LA F & WL HAVE ANY DOCUMENTATION CONCERNING THE OWNERSHIP OF THIS VESSEL. OTHER SOURCES OF INFORMATION: BIBLIOGRAPHY-NO CHANGE. EMERGENCY AGENCIES NOTIFIED: NONE. THIS VESSEL APPEARS TO BE PART OF A COHESIVE GROUP OF BARGES USED FOR REPAIR FACILITY AT ONE TIME. ALL BULKHEADS ARE HOLED AS EVIDENT BY PHOTO'S. THERE IS A 15 DEGREE LIST TO THE STARBOARD SIDE OF THIS VESSEL. INTERIOR OF HOUSING HOLED. DECK CONTAINS LOTS OF JUNK, ANY BARRELS INSIDE WERE OPEN FOR STORAGE OF METAL LINE, WELDING CABLES OR PIPE FITTINGS. ROOF COMPLETELY GONE AND OPEN TO AIR AND RAIN. CAUTION- WOOD DECK APPEARS TO BE SOUND BUT IS EXTREMELY DANGEROUS AND ROTTED. CAUTION SHOULD BE USED. HULL CAPACITY IS 213,675 GALLONS.

Diver's Log:

Abandoned/Derelict Entry: THERE IS NO IDENTIFICATION ON THIS VESSEL, NEITHER THE USCG NOR THE LA F & WL HAVE ANY DOCUMENTATION CONCERNING THE OWNERSHIP OF THIS VESSEL.

Above Deck Tanks Contents: (1) ONE 750 GALLON TANK-EMPTY.

Below Deck Tanks Contents: CONTAINS ONLY WATER.

Other Containers Contents:

Field Sample Logs:

#1: START 0950 STOP 0955. 0% LEL, 0ppm H2S, 0ppm PCB, 0ppm Benzene, 0ppm HCN-2, pH N/A, Specific Gravity N/A. Non- Reactive with water and air, Oil/Grease-no. (1) ONE 750 gallon tank - empty.

#2: START 1000 STOP 1005. 0% LEL, 0ppm H2S, 0ppm PCB, 0ppm Benzene, 0ppm HCN-2, pH 7, Specific Gravity 1. Non- Reactive with water and air, Oil/Grease-no. Evaluated as Water.

#3:

#4:

#5:

#6:

#7:

#8:

#9:

#10:

#11:

#12:

#13:

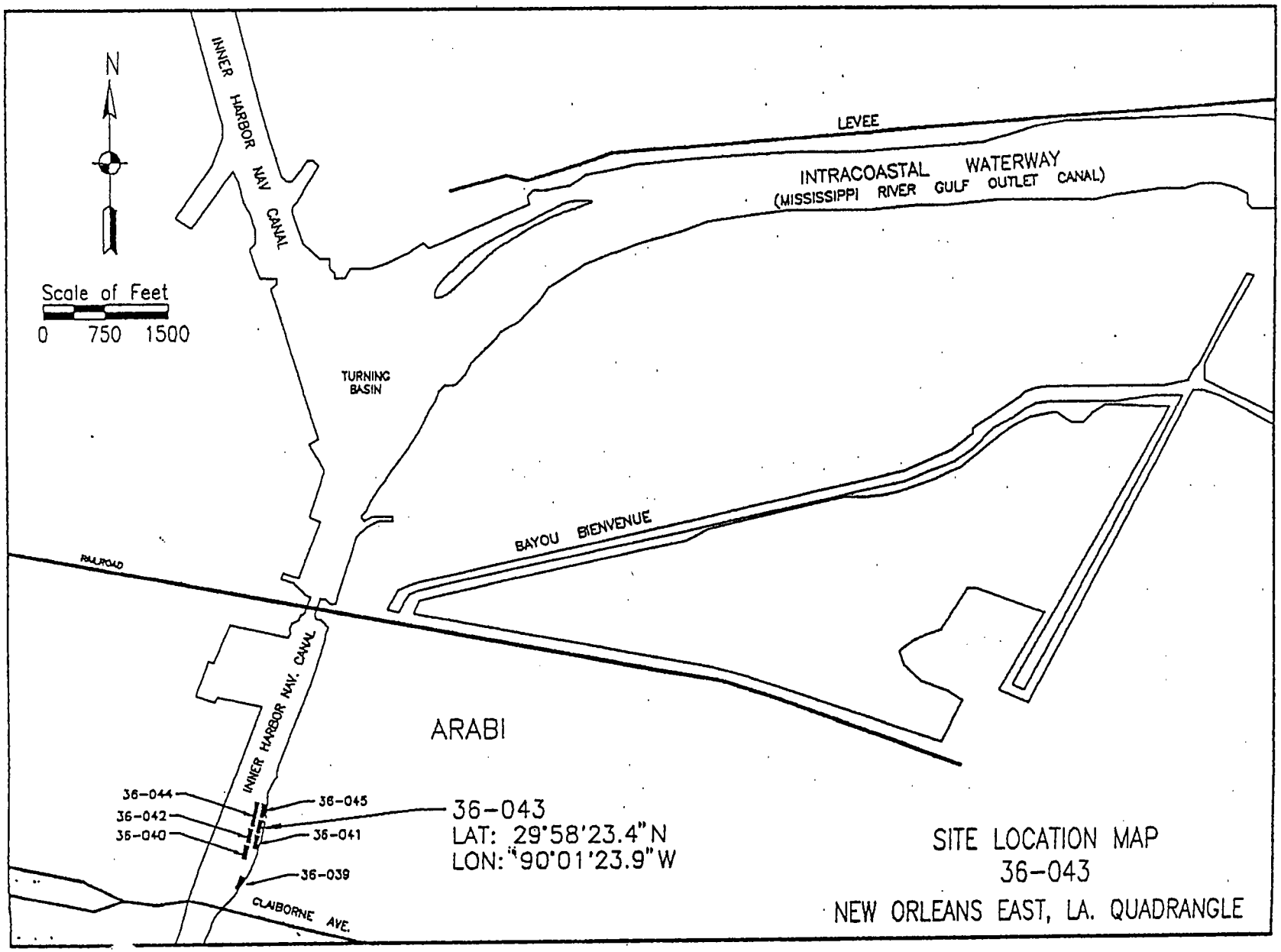
#14:

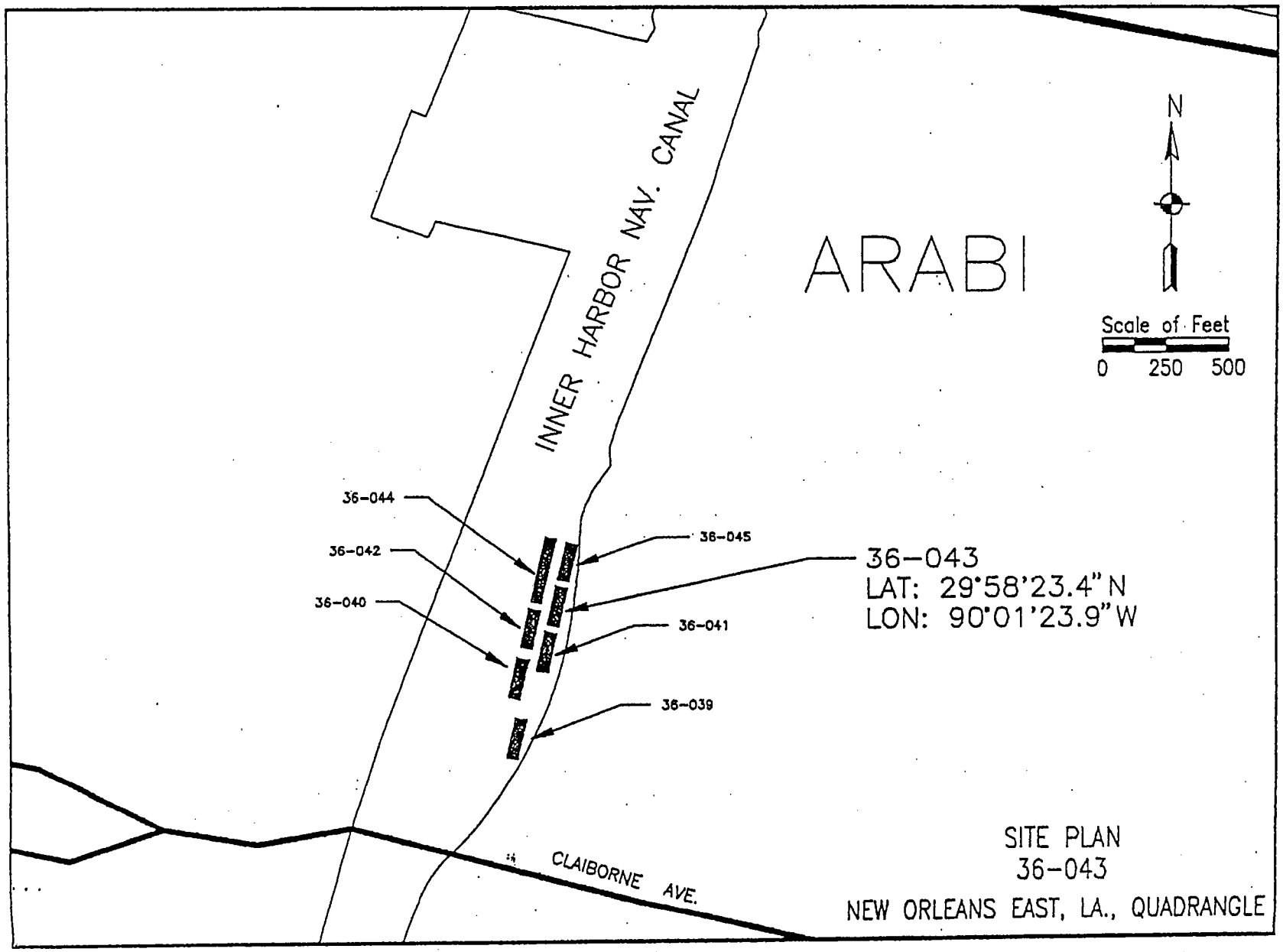
Daily and site safety briefing completed in accordance with Site Specific Health and Safety Plan.

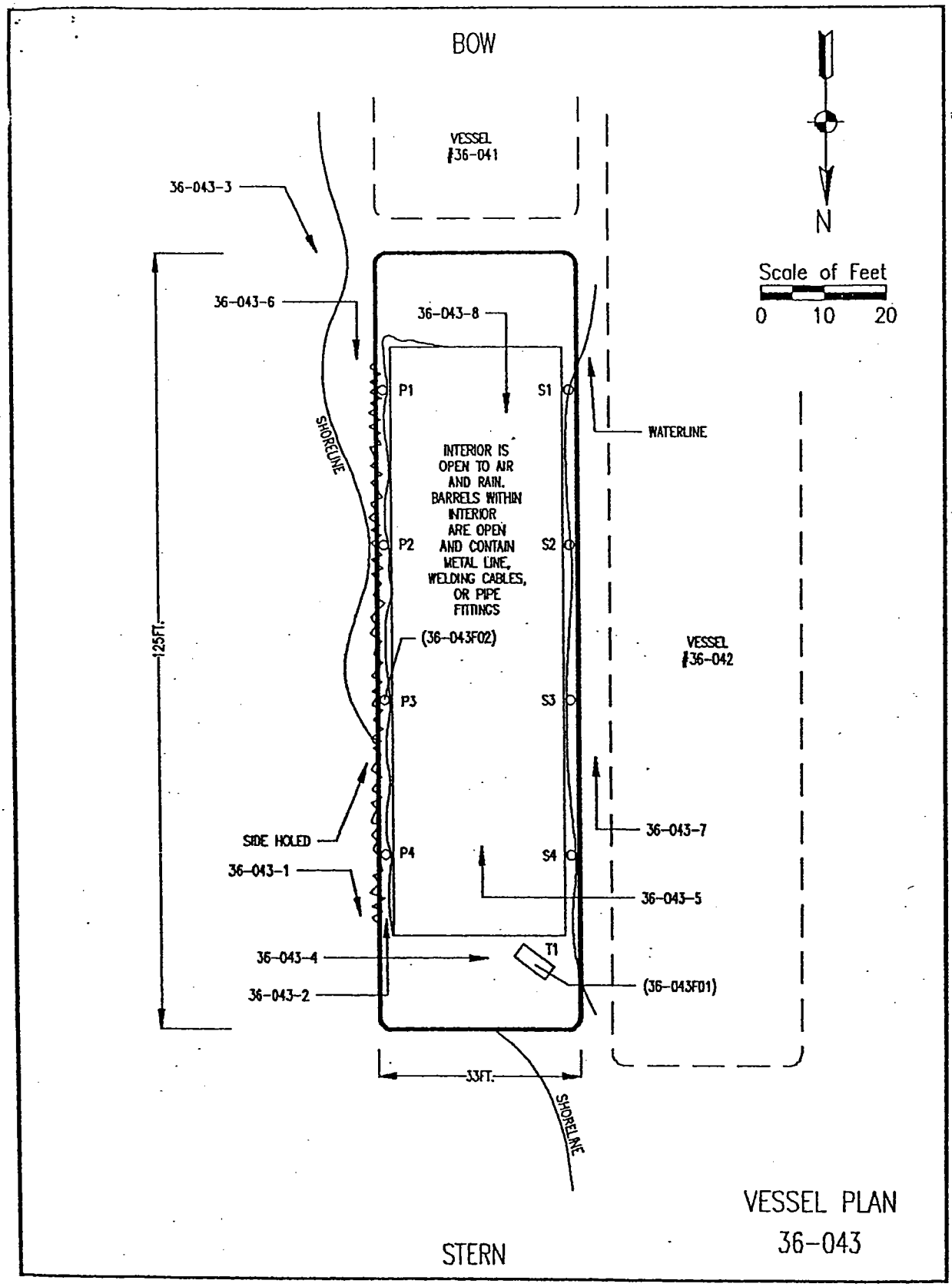
Field sampling procedures/equipment:

LEL, O2, and H2S: GASTECH GT302 OVA Sensor
pH: pH Tester
HCN-2, Benzene: HAZMAT Response Kit, Detection Tubes
PCB: Dexil L2000
Specific Gravity: Cole-Parmer Hydrometer
Reactivity: Sample reaction with air and deionized water
Radioactivity: Ludlum Model 18 Analyzer

Procedures IAW sampling protocal and laboratory requirements


N
INNER HARBOR NAV CANAL
LEVEE
INTRACOASTAL WATERWAY
(MISSISSIPPI RIVER GULF OUTLET CANAL)
Scale of Feet
0 750 1500
TURNING BASIN
BAYOU BIENVENUE
RAILROAD
INNER HARBOR NAV. CANAL
ARABI
36-044
36-042
36-040
36-045
36-041
36-039
36-043
LAT: 29°58'23.4"N
LON: 90°01'23.9"W
CLAIBORNE AVE.
SITE LOCATION MAP
36-043
NEW ORLEANS EAST, LA. QUADRANGLE


INNER HARBOR NAV. CANAL
ARABI
N
Scale of Feet
0 250 500
36-044
36-042
36-040
36-045
36-041
36-039
36-043
LAT: 29°58'23.4" N
LON: 90°01'23.9" W
CLAIBORNE AVE.
SITE PLAN
36-043
NEW ORLEANS EAST, LA., QUADRANGLE

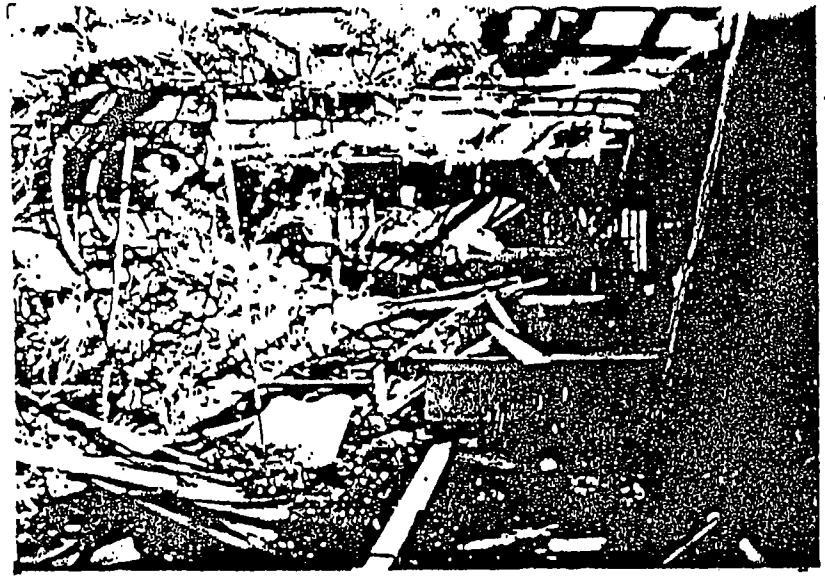

BOW
VESSEL #36-041
N
Scale of Feet
0 10 20
36-043-3
36-043-6
36-043-8
P1
S1
WATERLINE
SHORELINE
INTERIOR IS OPEN TO AIR AND RAIN. BARRELS WITHIN INTERIOR ARE OPEN AND CONTAIN METAL LINE, WELDING CABLES, OR PIPE FITTINGS
P2
S2
(36-043F02)
125FT.
VESSEL #36-042
P3
S3
SIDE HOLED
36-043-7
P4
S4
36-043-1
36-043-5
T1
36-043-4
(36-043F01)
36-043-2
33FT.
SHORELINE
VESSEL PLAN
36-043
STERN

36-043-1

36-043-2

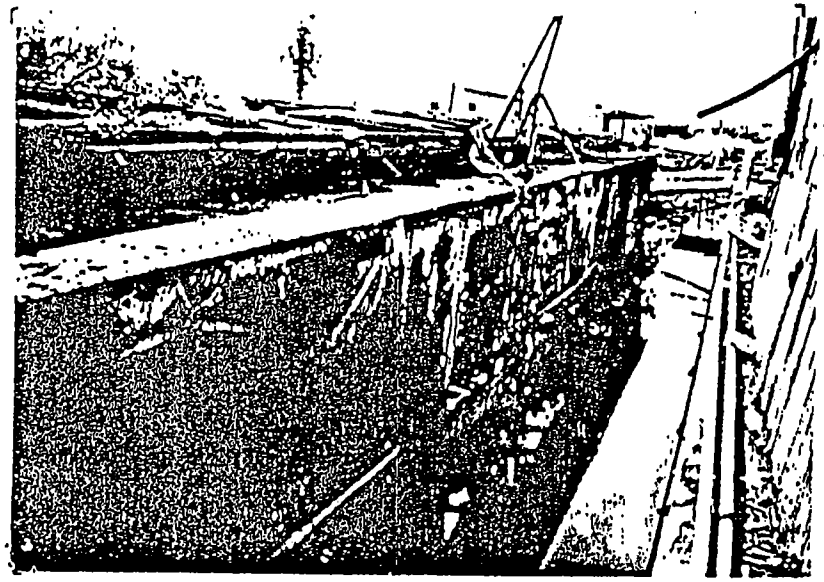
36-043-3

36-043-4



16-043-5

36-043-6



16-043-7

36-043-8

STATEWIDE ABANDONED VESSEL INVENTORY
NEW ORLEANS ZONE

CONTRACT NO 100-4109-A

VESSEL NO. 36-044

SUBMITTED TO:

STATE OF LOUISIANA
OFFICE OF THE GOVERNOR
LOUISIANA OIL SPILL COORDINATOR'S OFFICE

PREPARED BY

CMS, INC.
108 ROYAL ST.
NEW ORLEANS, LOUISIANA 70130

Date 10/21/94 Time: 1035

VESSEL INVENTORY
Field Investigation Data Sheet

I.D. #: 36 44
V.I.N.:
WL-F #:
USCG #:
Vessel Name:

Team Members:
CMS: RIEDEL
CMS: DOVE
CMS: RIVERA

Owner Name/Address:

Location: Lat. 29° 58' 23" N Long. 90° 1' 24" W Parish: Orleans Zone: NO Floating:
Waterway: INDUSTRIAL Nearest City: NEW ORLEANS Submerged:
Access: By Water: Y, By Land Y, Limitations: HEAVY VEGITATION BY LAND Partly Submerged: Y
Description: Barge: Tank Battery:, Tank:, Deck: Y, Hopper:, Other:
Motor Vessel: Shrimper, Fishing:, Other:
Size: 32'x 200' Draft: 14" Type Rake: CONV. Transportable Condition: NO
Number of Bulkheads: 5, Drawing Attached: Y, Photo Attached: Y, Coded on Vessel Plan: Y
Condition: Housing: S, Deck: H, Hull: H, Structure:
Diver Required: N, Diver Report (1):
Abandoned/Derelict Condition Verified (1): Y

Condition Options:
S - Sound, F - Fair
H - Holed

Contents:

	Number	Condition	Volume Gallons	Number Vents	Activily Spilling	Access			Contents *
						Vent	Hatch	Other	
Above Deck Tanks	0								
Below Deck Tanks	1	H	340480	0	N	N	N	Y	1A
Other Containers	0								

Condition Code: S - Sound, F - Fair, H - Holed
Contents Code: O - Oil, OW - Oil in Water, A - Aqueous, E - Empty, SHW - Suspected Hazardous Waste

Risk Assessment:

	Safe	Requires Forced Ventilation	Safety Equipment Required
Vapor Analysis	Y	N	C
Liquid Analysis	Y	N	C
Structure	Y	N	C

Environmental Damage:
Evidence of Spill: Oil, HW:, Outside Vessel (2) sqft., On Deck:, In Hold:
Proximity to Sensitive Areas (mi.): Public Water System 2, Recreation: 3, Residential: 2, Environmental: .5, Habitat: .5

Samples taken for Field Testing: (record procedures employed and detailed results in log)

Sample ID	Location	Results	Sample ID	Location	Results	Sample ID	Location	Results
36 44 F01	TC	A	36 44 F06			36 44 F11		
36 44 F02			36 44 F07			36 44 F12		
36 44 F03			36 44 F08			36 44 F13		
36 44 F04			36 44 F09			36 44 F14		
36 44 F05			36 44 F10					

Samples Taken for Laboratory Testing:

Sample ID	Location	Used in Composite	Sample ID of Composite	Results
36 44 L01			36 44 C01	
36 44 L02			36 44 C02	
36 44 L03			36 44 C03	
36 44 L04			36 44 C04	
36 44 L05			36 44 C05	
36 44 L06			36 44 C06	
36 44 L07			36 44 C07	
36 44 L08			36 44 C08	

Note: (1) See log for detailed description
(2) Indicate area affected on site plan.
T: Top, B: Bottom, TC: Total Column
*: See associated log entry

Date: 10/21/9 Time: 1035

VESSEL INVENTORY

I.D. #: 36 44

Field Investigation Data Sheet

Log Entries

General Comments: RISK ASSESSMENT: INITIAL LEL 0%, RADIATION-NORMAL. WEATHER: WIND-S AT 2-5 KTS., TEMPERATURE- 89F, SKIES-PARTLY CLOUDY, PRECIPITATION-NONE. INDIVIDUALS/GROUPS CONTACTED. THERE IS NO IDENTIFICATION ON THIS VESSEL. NEITHER THE USCG NOR THE LA F & WL HAVE ANY DOCUMENTATION CONCERNING THE OWNERSHIP OF THIS VESSEL. OTHER SOURCES OF INFORMATION: BIBLIOGRAPHY-NO CHANGE. EMERGENCY AGENCIES NOTIFIED: NONE. THIS VESSEL IS BROKEN WITH 30 DEGREE LIST TO STARBOARD SIDE. IT HAS A RAMP LEADING TO 36-042.FOR VEHICLES. THIS VESSEL IS HOLED THRU-OUT. SAMPLING DONE ABOARD VESSEL INDICATED ALL AQUEOUS SUBSTANCES. WATER WAS SEEN ESCAPING FROM BOTTOM PORT SIDE OF VESSEL AND PROVED BY PROBING WITH BOW HOOK TO IDENTIFY SOME HOLED AREAS INDICATED ON DRAWING. THE DECK HAS SCAFFOLDING/ JUNK ON IT. HULL CAPACITY IS 340480 GALLONS.

Diver's Log:

Abandoned/Derelict Entry: THERE IS NO IDENTIFICATION ON THIS VESSEL. NEITHER THE USCG NOR THE LA F & WL HAVE ANY DOCUMENTATION CONCERNING THE OWNERSHIP OF THIS VESSEL.

Above Deck Tanks Contents:

Below Deck Tanks Contents: CONTAINS ONLY WATER.

Other Containers Contents:

Field Sample Logs: #1: START 1045 STOP 1050. 0% LEL, 0ppm H2S, 0ppm PCB, 0ppm Benzene, 0ppm HCN-2, pH 7, Specific Gravity 1. Non- Reactive with water and air, Oil/Grease-no. Evaluated as Water.

#2:

#3:

#4:

#5:

#6:

#7:

#8:

#9:

#10:

#11:

#12:

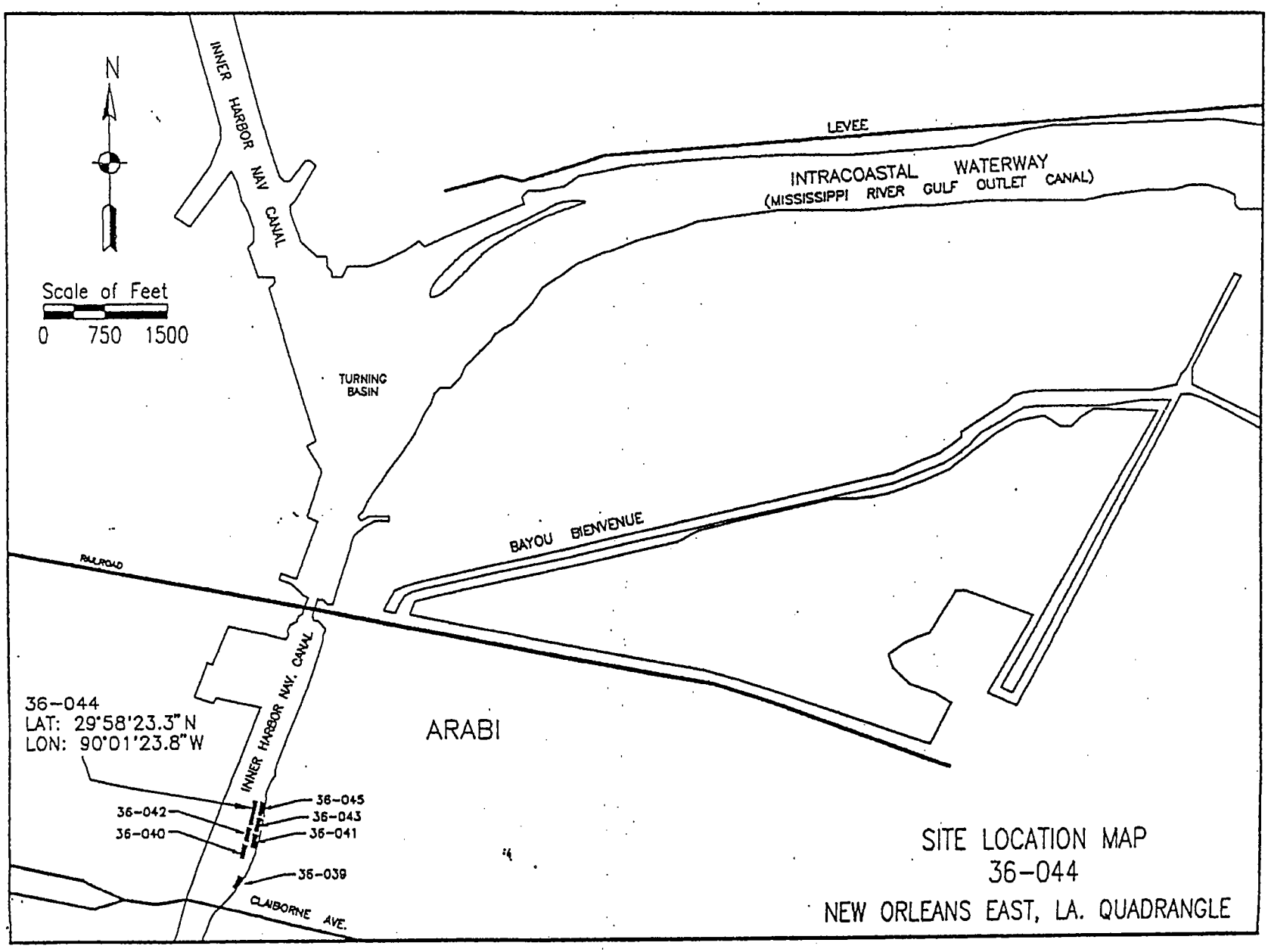
#13:

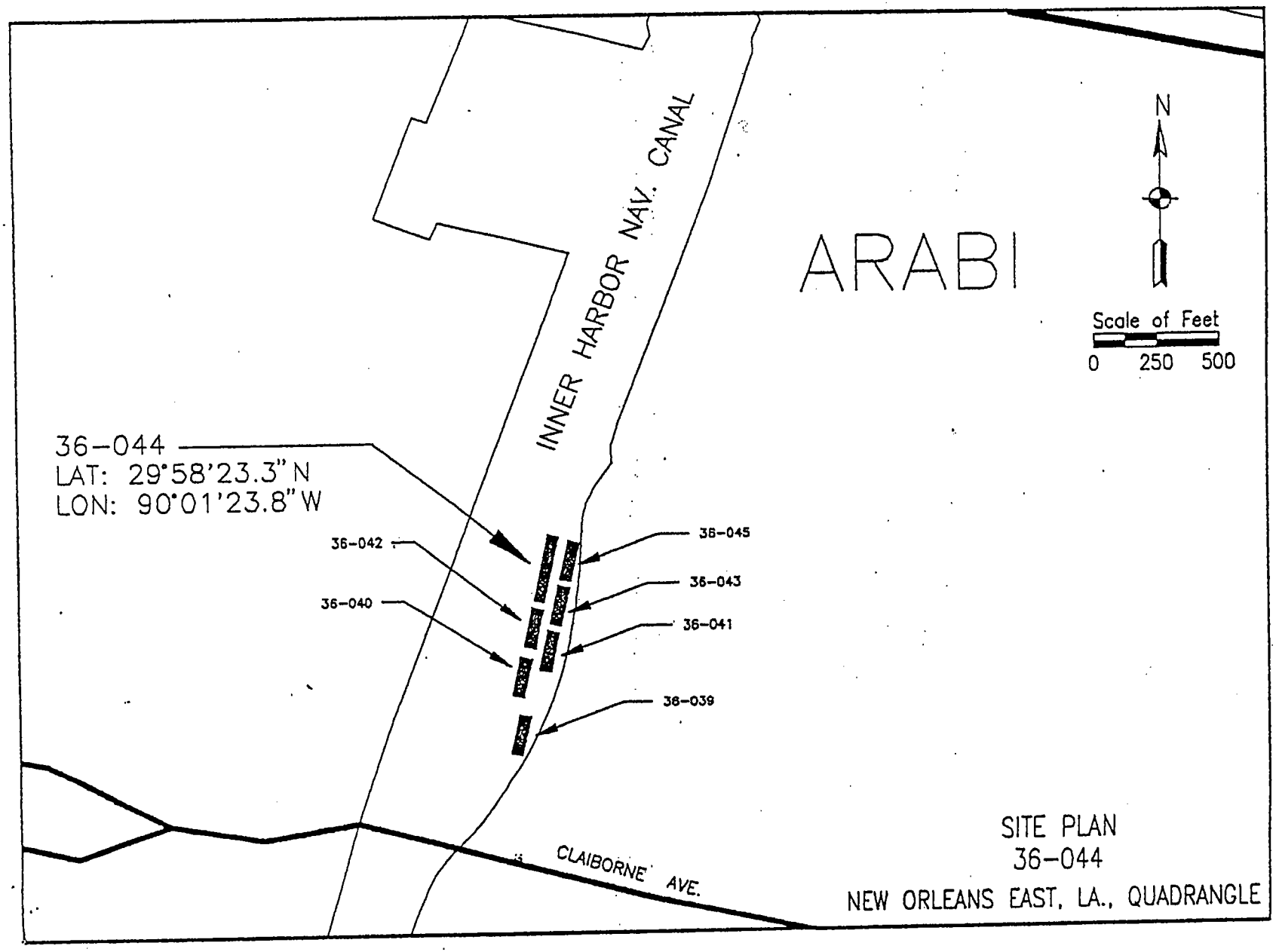
#14:

Daily and site safety briefing completed in accordance with Site Specific Health and Safety Plan.

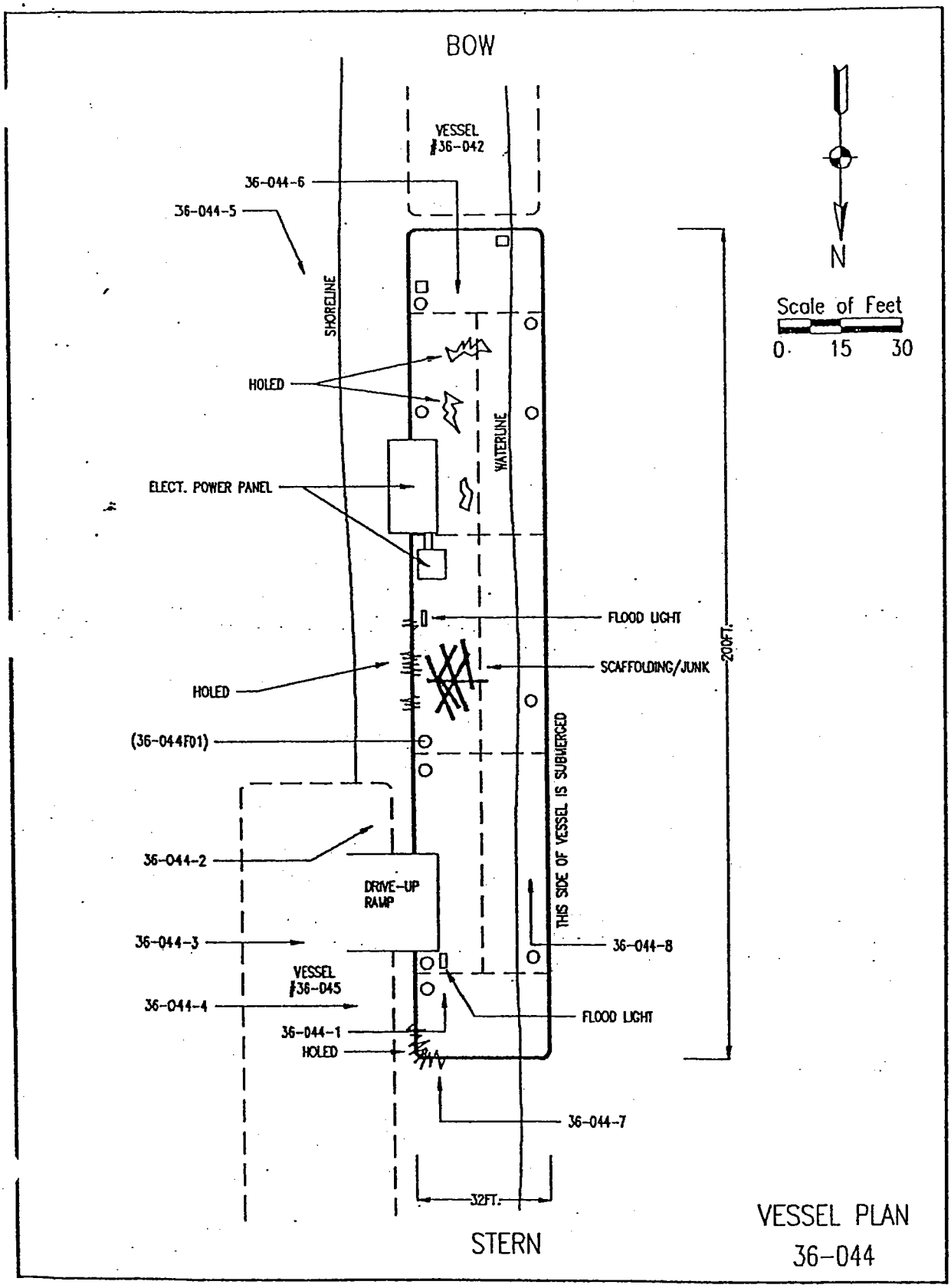
Field sampling procedures/equipment:

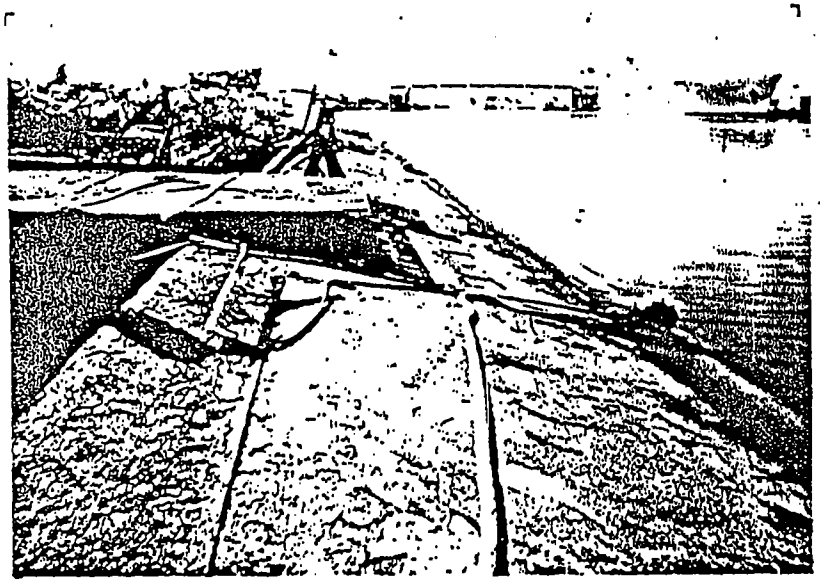
LEL, O2, and H2S: GASTECH GT302 OVA Sensor
pH: pH Tester
HCN-2, Benzene: HAZMAT Response Kit, Detection Tubes
PCB: Dexil L2000
Specific Gravity: Cole-Parmer Hydrometer
Reactivity: Sample reaction with air and deionized water
Radioactivity: Ludlum Model 18 Analyzer
Procedures IAW sampling protocal and laboratory requirements


N
INNER HARBOR NAV CANAL
LEVEE
INTRACOASTAL WATERWAY
(MISSISSIPPI RIVER GULF OUTLET CANAL)
Scale of Feet
0 750 1500
TURNING BASIN
BAYOU BIENVENUE
RAILROAD
INNER HARBOR NAV. CANAL
36-044
LAT: 29°58'23.3" N
LON: 90°01'23.8" W
ARABI
36-042
36-040
36-045
36-043
36-041
36-039
CLAIBORNE AVE.
SITE LOCATION MAP
36-044
NEW ORLEANS EAST, LA. QUADRANGLE

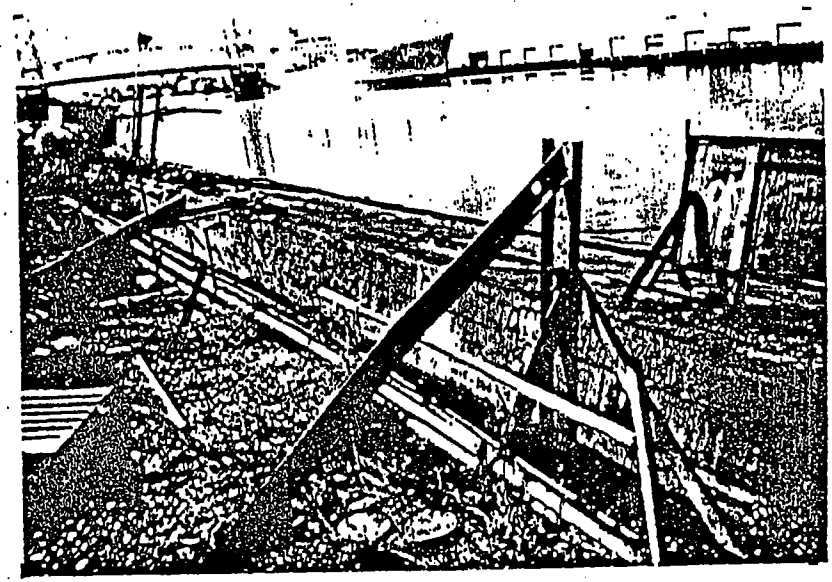


SITE PLAN
36-044
NEW ORLEANS EAST, LA., QUADRANGLE

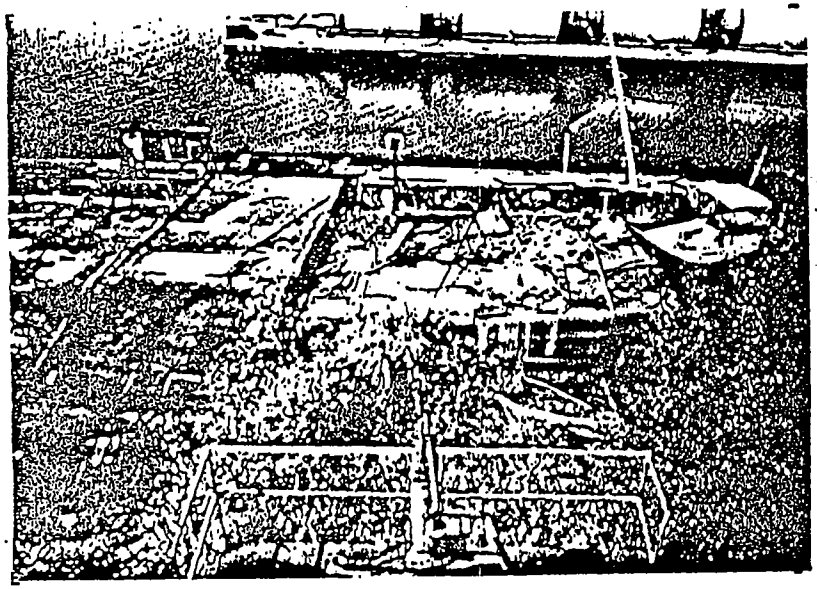

BOW
VESSEL #36-042
36-044-6
36-044-5
SHORELINE
HOLED
WATERLINE
ELECT. POWER PANEL
FLOOD LIGHT
SCAFFOLDING/JUNK
200FT.
HOLED
(36-044F01)
THIS SIDE OF VESSEL IS SUBMERGED
36-044-2
DRIVE-UP RAMP
36-044-3
36-044-8
VESSEL #36-045
36-044-4
FLOOD LIGHT
36-044-1
HOLED
36-044-7
32FT.
STERN
N
Scale of Feet
0 15 30
VESSEL PLAN
36-044



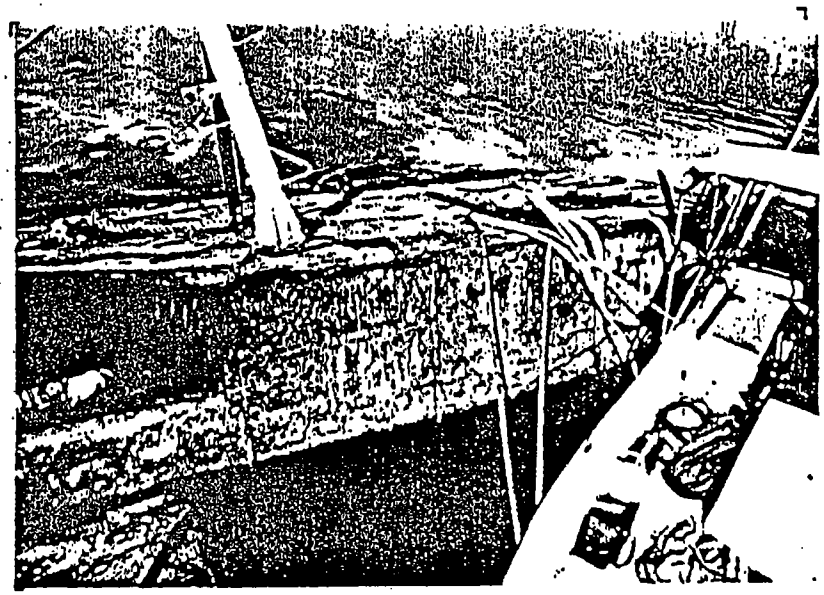
36-044-1



36-044-2



36-044-3



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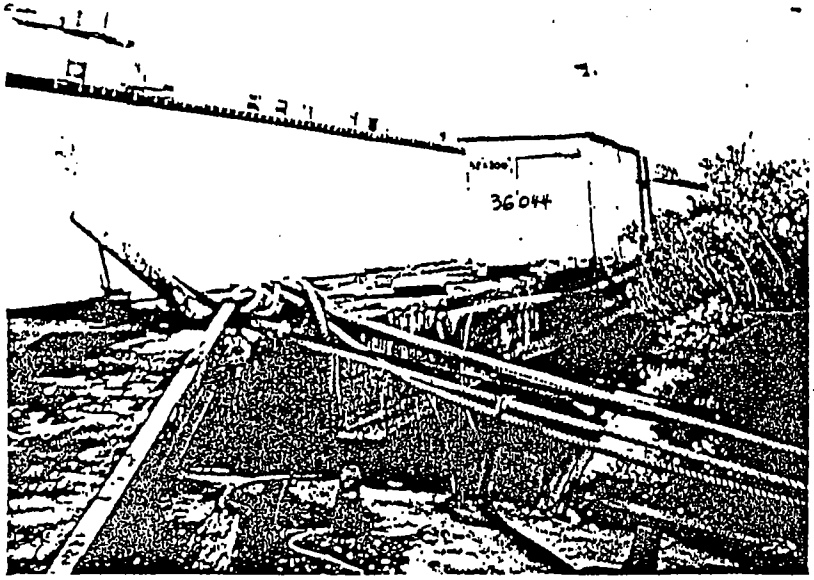
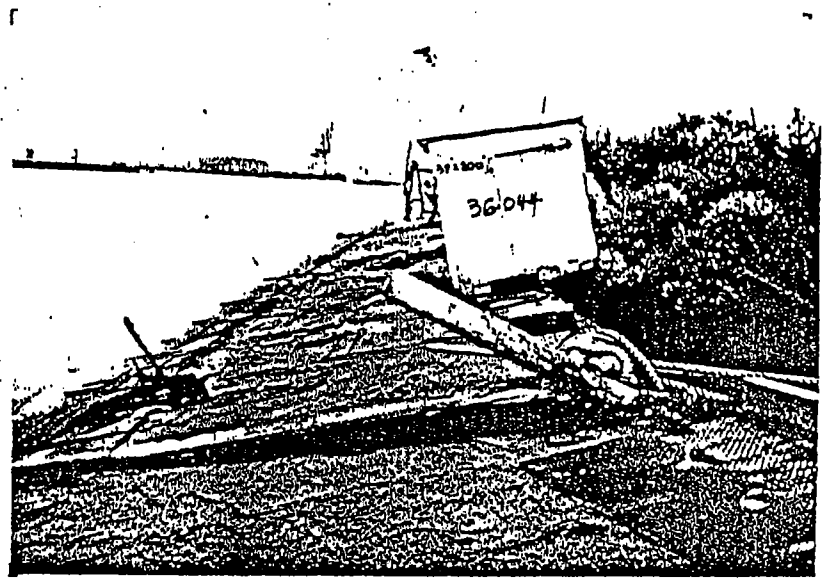
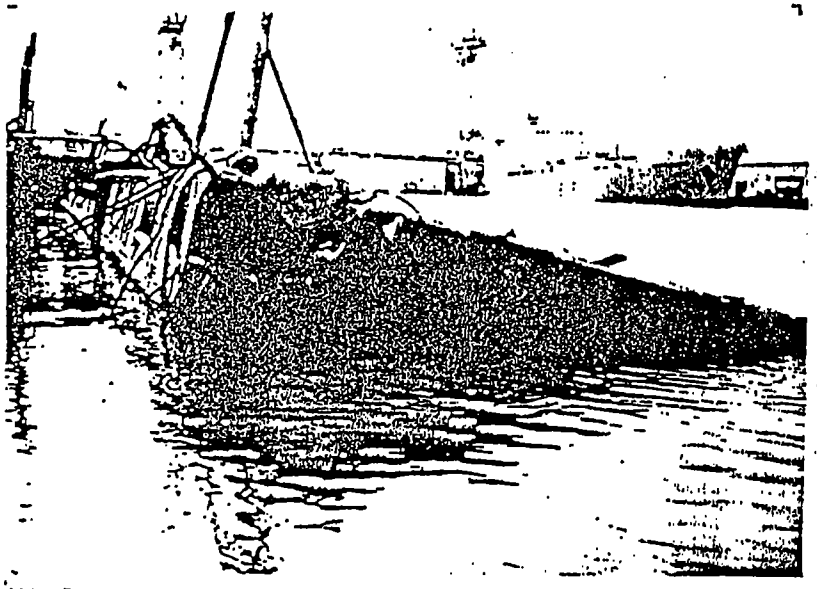


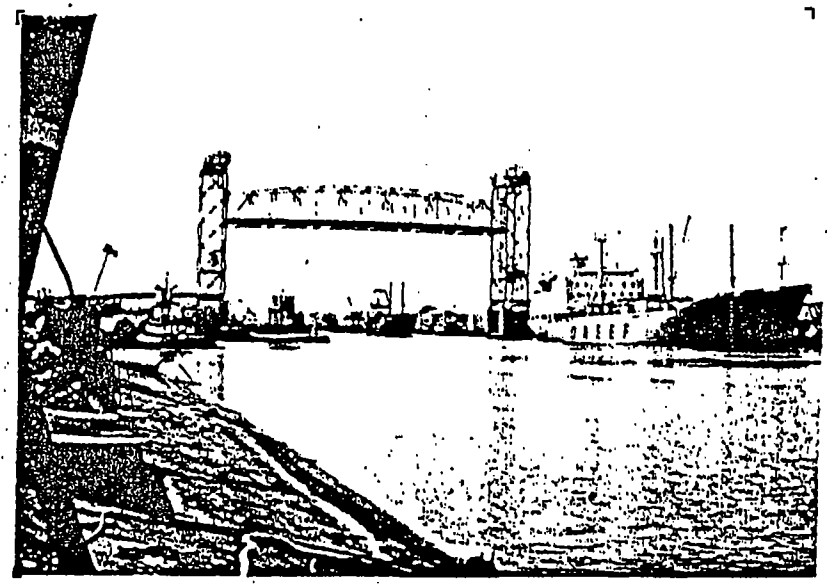
36-044-5



36-044-6



36-044-7



36-044-8

STATEWIDE ABANDONED VESSEL INVENTORY
NEW ORLEANS ZONE

CONTRACT NO 100-4109-A

VESSEL NO. 36-045

SUBMITTED TO:

STATE OF LOUISIANA
OFFICE OF THE GOVERNOR
LOUISIANA OIL SPILL COORDINATOR'S OFFICE

PREPARED BY

CMS, INC.
108 ROYAL ST.
NEW ORLEANS, LOUISIANA 70130

Date: 10/21/9 Time: 1125

VESSEL INVENTORY

I.D. #: 36 45

Field Investigation Data Sheet

Log Entries

General Comments: RISK ASSESSMENT: INITIAL LEL 0%, RADIATION-NORMAL. WEATHER: WIND-W 2-4 KTS., TEMPERATURE- 90F, SKIES-PARTLY CLOUDY, PRECIPITATION-NONE. INDIVIDUALS/GROUPS CONTACTED. THERE IS NO IDENTIFICATION ON THIS VESSEL. NEITHER THE USCG NOR THE LA F & WL HAVE ANY DOCUMENTATION CONCERNING THE OWNERSHIP OF THIS VESSEL. OTHER SOURCES OF INFORMATION: BIBLIOGRAPHY-NO CHANGE. EMERGENCY AGENCIES NOTIFIED: NONE. THIS VESSEL IS HOLED ALL OVER AS INDICATED BY PHOTO'S. ONLY TWO (2) HATCHES WERE LOCATED. ACCESS FOR SAMPLING WAS GAINED THRU DECK HOLES. ALL SAMPLING DONE INDICATED ONLY AQUEOUS SUBSTANCES ABOARD VESSEL. HULL CAPACITY IS 158,080 GALLONS.

Diver's Log:

Abandoned/Derelict Entry: THERE IS NO IDENTIFICATION ON THIS VESSEL. NEITHER THE USCG NOR THE LA F & WL HAVE ANY DOCUMENTATION CONCERNING THE OWNERSHIP OF THIS VESSEL.

Above Deck Tanks Contents:

Below Deck Tanks Contents: CONTAINS ONLY WATER.

Other Containers Contents:

Field Sample Logs: #1: START 1140 STOP 1145. 0% LEL, 0ppm H2S, 0ppm PCB, 0ppm Benzene, 0ppm HCN-2, pH 7, Specific Gravity 1. Non- Reactive with water and air, Oil/Grease-no. Evaluated as Water.

#2:

#3:

#4:

#5:

#6:

#7:

#8:

#9:

#10:

#11:

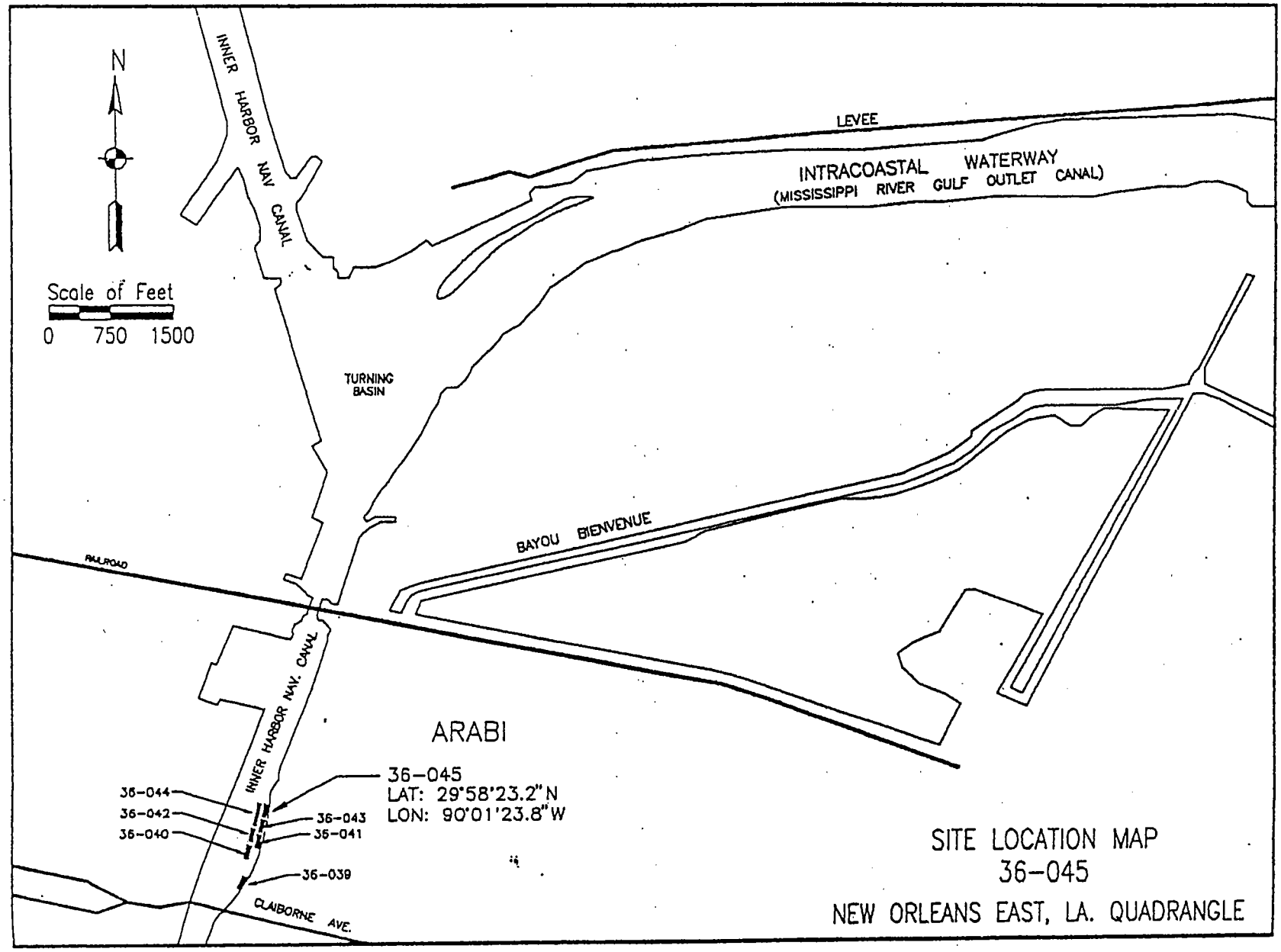
#12:

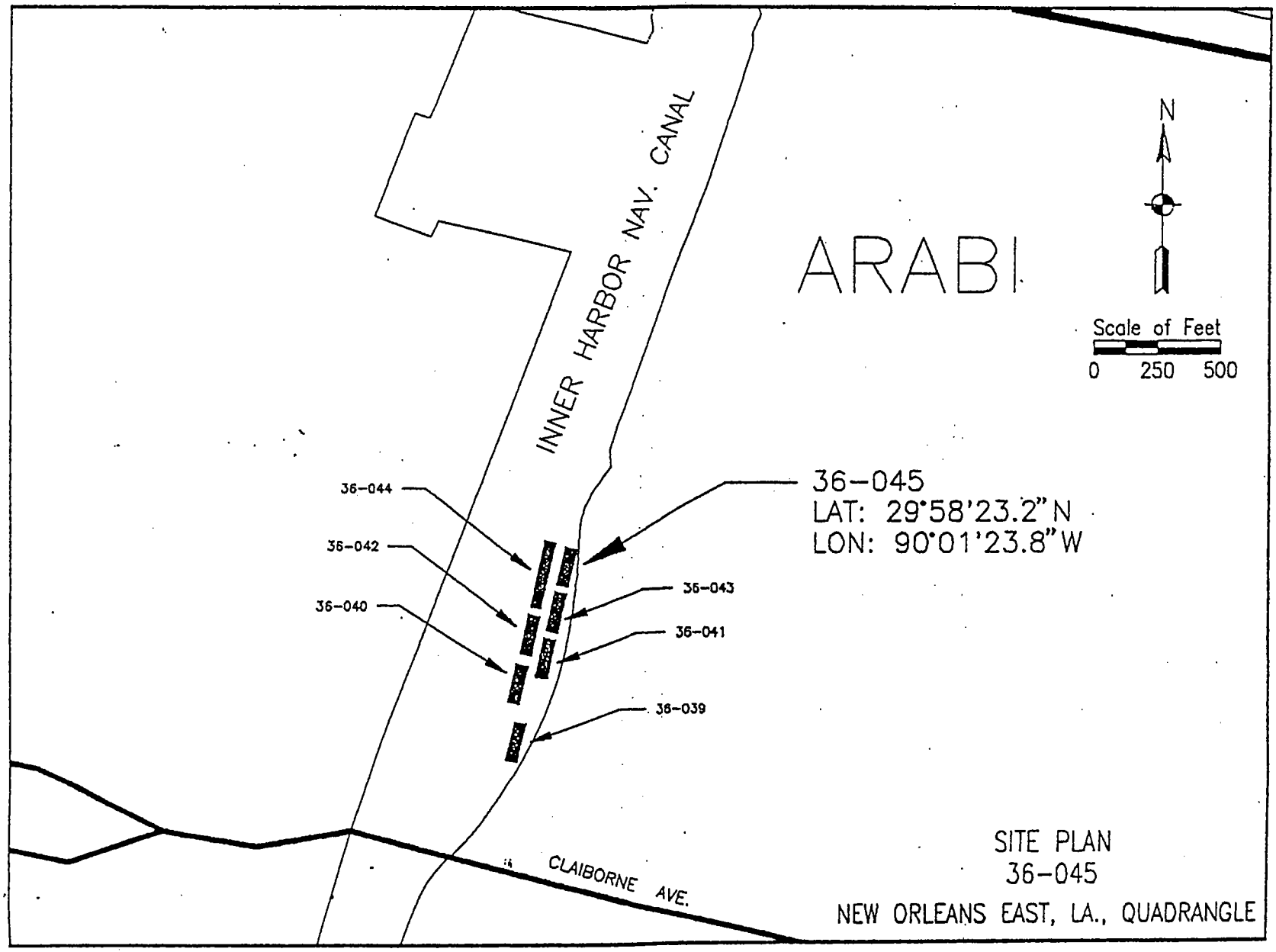
#13:

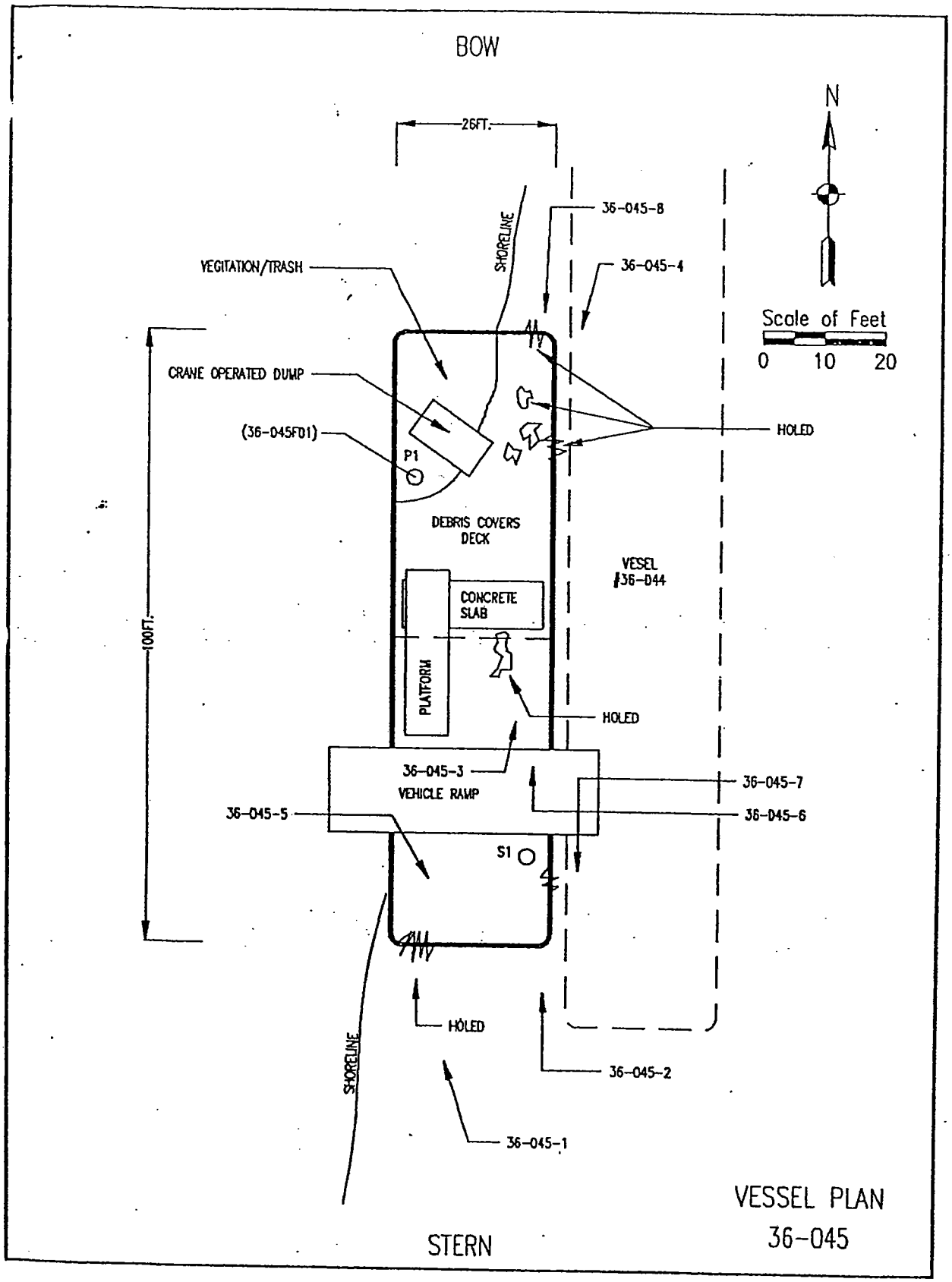
#14:

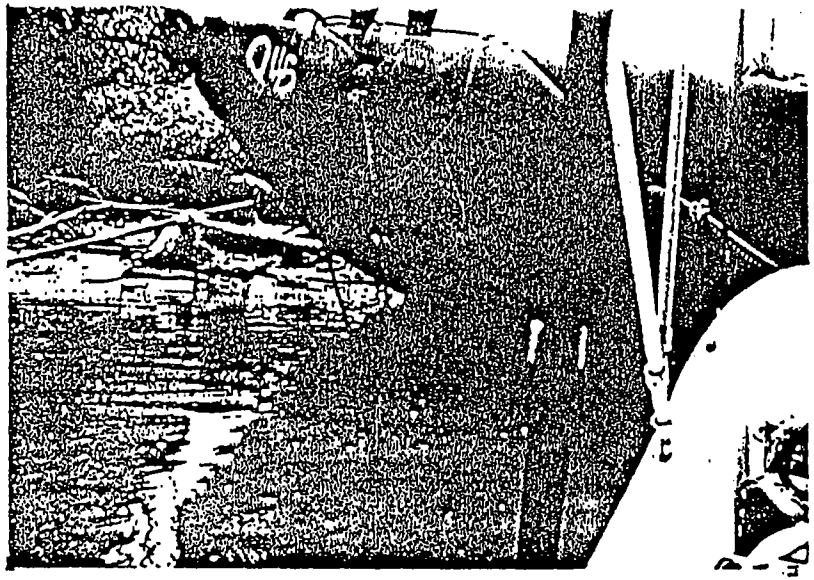
Daily and site safety briefing completed in accordance with Site Specific Health and Safety Plan.

Field sampling procedures/equipment:
LEL, O2, and H2S: GASTECH GT302 OVA Sensor
pH: pH Tester
HCN-2, Benzene: HAZMAT Response Kit, Detection Tubes
PCB: Dexil L2000
Specific Gravity: Cole-Parmer Hydrometer
Reactivity: Sample reaction with air and deionized water
Radioactivity: Ludlum Model 18 Analyzer
Procedures IAW sampling protocal and laboratory requirements

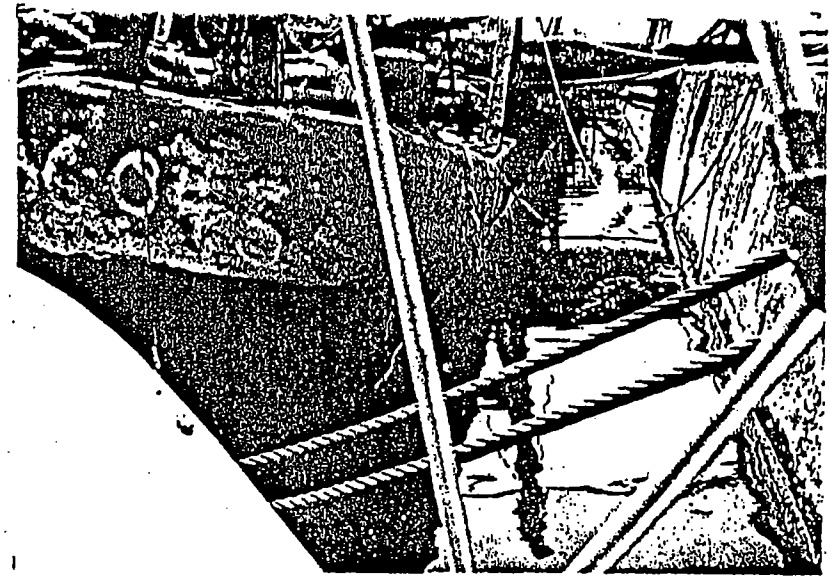

N
Scale of Feet
0 750 1500
INNER HARBOR NAV CANAL
LEVEE
INTRACOASTAL WATERWAY
(MISSISSIPPI RIVER GULF OUTLET CANAL)
TURNING BASIN
BAYOU BIENVENUE
RAILROAD
INNER HARBOR NAV. CANAL
ARABI
36-045
LAT: 29°58'23.2"N
LON: 90°01'23.8"W
36-044
36-042
36-040
36-043
36-041
36-039
CLAIBORNE AVE.
SITE LOCATION MAP
36-045
NEW ORLEANS EAST, LA. QUADRANGLE


INNER HARBOR NAV. CANAL
ARABI
N
Scale of Feet
0 250 500
36-044
36-042
36-040
36-045
LAT: 29°58'23.2"N
LON: 90°01'23.8"W
36-043
36-041
36-039
CLAIBORNE AVE.
SITE PLAN
36-045
NEW ORLEANS EAST, LA., QUADRANGLE

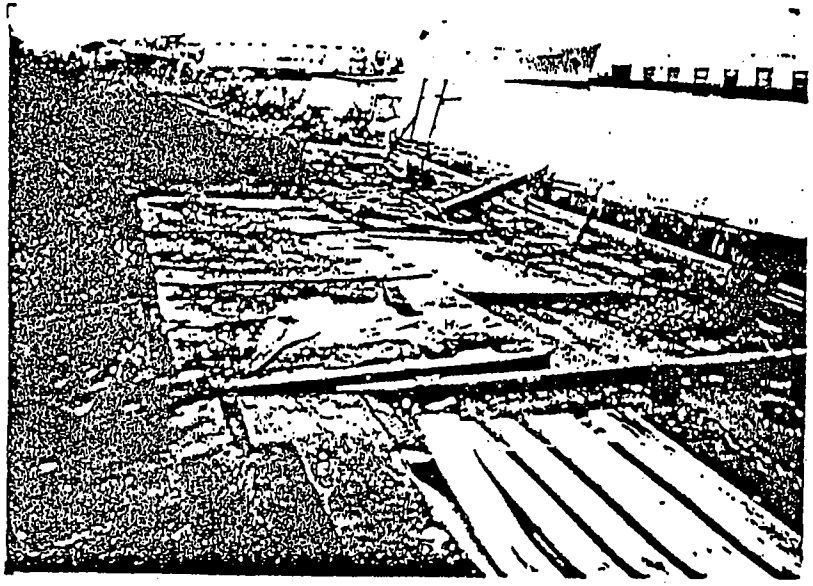

BOW
N
26FT.
36-045-8
SHORELINE
VEGITATION/TRASH
36-045-4
Scale of Feet
0 10 20
CRANE OPERATED DUMP
(36-045F01)
P1
HOLED
DEBRIS COVERS DECK
VESEL #36-044
CONCRETE SLAB
100FT.
PLATFORM
HOLED
36-045-3
VEHICLE RAMP
36-045-7
36-045-6
36-045-5
S1
HOLED
SHORELINE
36-045-2
36-045-1
STERN
VESSEL PLAN
36-045



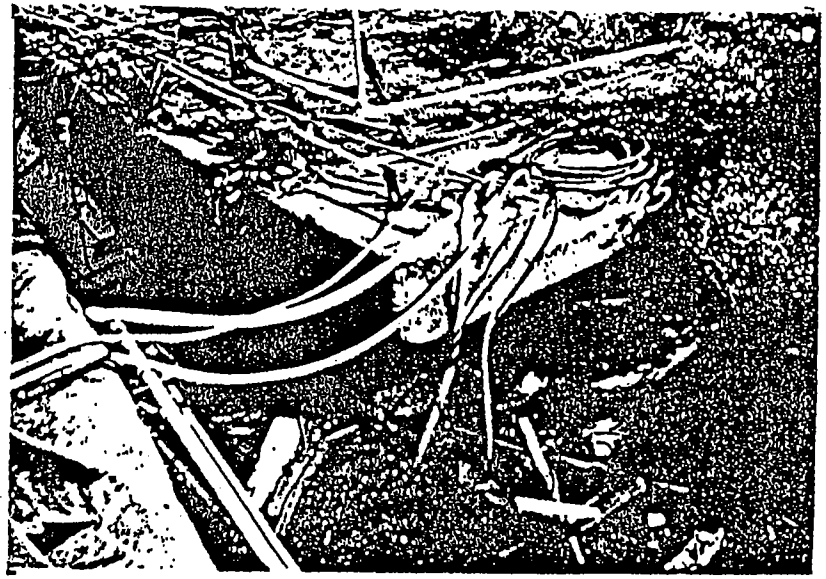
36-045-1



36-045-2



36-045-3



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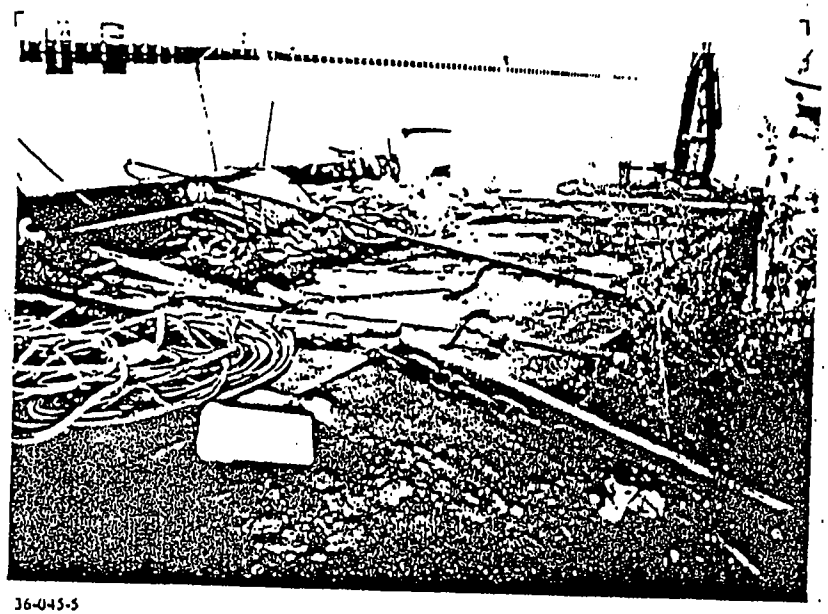
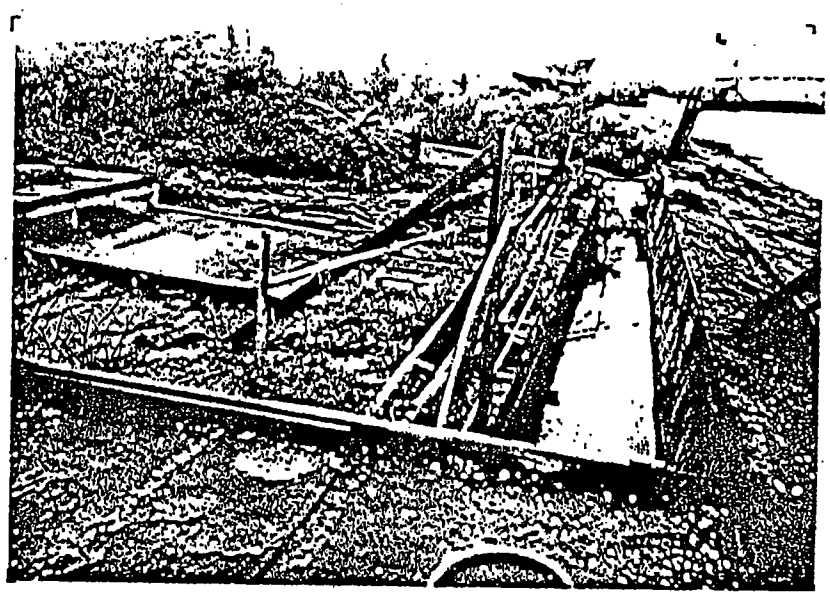
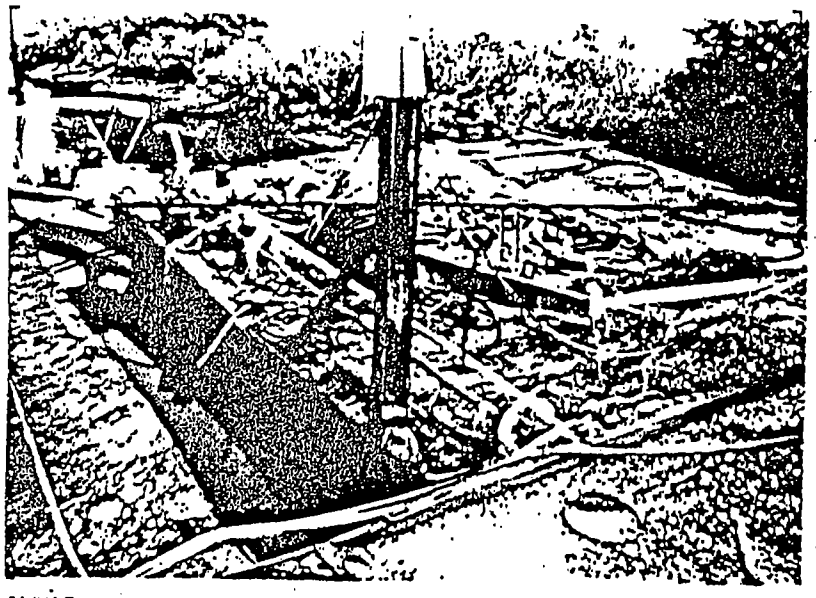


36-045-5



36-045-6



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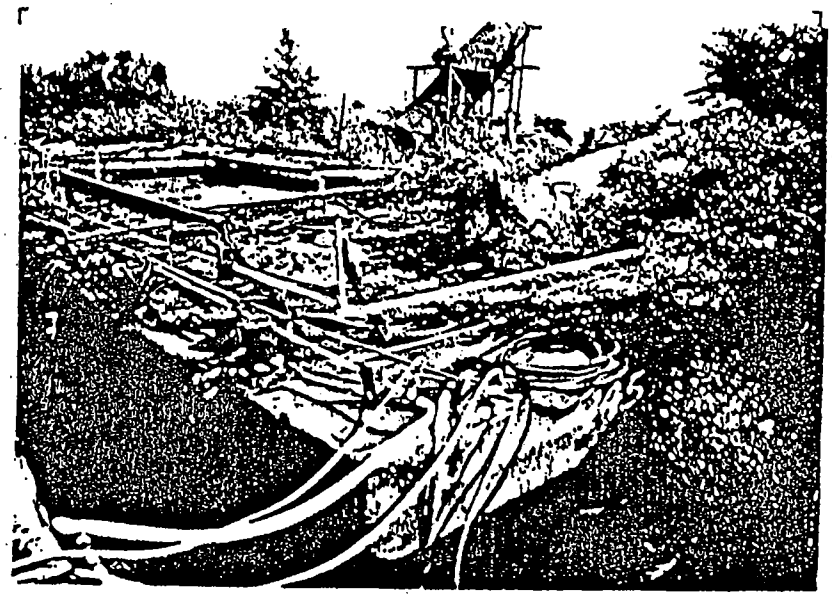


36-045-8

STATEWIDE ABANDONED VESSEL INVENTORY
NEW ORLEANS ZONE

CONTRACT NO 100-4109-A

VESSEL NO. 36-046

SUBMITTED TO:

STATE OF LOUISIANA
OFFICE OF THE GOVERNOR
LOUISIANA OIL SPILL COORDINATOR'S OFFICE

PREPARED BY

CMS, INC.
108 ROYAL ST.
NEW ORLEANS, LOUISIANA 70130

Date 10/21/94 Time: 1230

VESSEL INVENTORY
Field Investigation Data Sheet

I.D. #: 36 46
V.I.N.:
WL-F #:
USCG #:
Vessel Name:

Team Members:
CMS: RIEDEL
CMS: DOVE
CMS: RIVERA

Owner Name/Address:

Location: Lat. 29° 58' 26" N Long. 90° 1' 27" W Parish: Orleans Zone: NO Floating:
Waterway: INDUSTRIAL CANAL Nearest City: NEW ORLEANS Submerged:
Access: By Water: Y, By Land Y, Limitations: HEAVY VEGITATION AND MUD Partly Submerged:
Description: Barge: Tank Battery: __, Tank: __, Deck: Y, Hopper: __, Other:
Motor Vessel: Shrimper __, Fishing: __, Other:
Size: 12' x 40' Draft: 10" Type Rake: CONV. Transportable Condition: NO
Number of Bulkheads: 0, Drawing Attached: Y, Photo Attached: Y, Coded on Vessel Plan: Y
Condition: Housing: __, Deck: H, Hull: H, Structure: __
Diver Required: N, Diver Report (1): __
Abandoned/Derelict Condition Verified (1): Y

Condition Options:
S - Sound, F - Fair
H - Holed

Contents:

	Number	Condition	Volume Gallons	Number Vents	Activily Spilling	Access			Contents *
						Vent	Hatch	Other	
Above Deck Tanks	0								
Below Deck Tanks	1	H	21888	0	N	N	N	Y	1A
Other Containers	0								

Condition Code: S - Sound, F - Fair, H - Holed
Contents Code: O - Oil, OW - Oil in Water, A - Aqueous, E - Emp, SHW - Suspected Hazardous Waste

Risk Assessment:

	Safe	Requires Forced Ventilation	Safety Equipment Required
Vapor Analysis	Y	N	C
Liquid Analysis	Y	N	C
Structure	N	N	C

Environmental Damage:
Evidence of Spill: Oil __, HW: __, Outside Vessel (2) ____ sqft., On Deck: __, In Hold: __
Proximity to Sensitive Areas (mi.): Public Water System 2, Recreation: 3, Residential: 2, Environmental: .5, Habitat: .

Samples taken for Field Testing: (record procedures employed and detailed results in log)

Sample ID	Location	Results	Sample ID	Location	Results	Sample ID	Location	Results
36 46 F01	TC	A	36 46 F06			36 46 F11		
36 46 F02			36 46 F07			36 46 F12		
36 46 F03			36 46 F08			36 46 F13		
36 46 F04			36 46 F09			36 46 F14		
36 46 F05			36 46 F10					

Samples Taken for Laboratory Testing:

Sample ID	Location	Used in Composite	Sample ID of Composite	Results
36 46 L01			36 46 C01	
36 46 L02			36 46 C02	
36 46 L03			36 46 C03	
36 46 L04			36 46 C04	
36 46 L05			36 46 C05	
36 46 L06			36 46 C06	
36 46 L07			36 46 C07	
36 46 L08			36 46 C08	

Note: (1) See log for detailed description
(2) Indicate area affected on site plan.
T: Top, B: Bottom, TC: Total Column
*: See associated log entry

Date: 10/21/94 Time: 1230

VESSEL INVENTORY

I.D. #: 36 46

Field Investigation Data Sheet

Log Entries

General Comments: RISK ASSESSMENT: INITIAL LEL 0%, RADIATION-NORMAL. WEATHER: WIND-S 2-5 KTS., TEMPERATURE- 90F, SKIES-PARTLY CLOUDY, PRECIPITATION-NONE. INDIVIDUALS/GROUPS CONTACTED. THERE IS NO IDENTIFICATION ON THIS VESSEL. NEITHER THE USCG NOR THE LA F & WL HAVE ANY DOCUMENTATION CONCERNING THE OWNERSHIP OF THIS VESSEL. OTHER SOURCES OF INFORMATION: BIBLIOGRAPHY-NO CHANGE. EMERGENCY AGENCIES NOTIFIED: NONE. THIS VESSEL IS LOCATED UP AGAINST THE BANK OF CANAL. THE HULL AND DECK ARE HOLED. ALL SAMPLING DONE WAS FOUND TO BE AQUEOUS. HULL CAPACITY IS 21,888 GALLONS.

Diver's Log:

Abandoned/Derelict Entry: THERE IS NO IDENTIFICATION ON THIS VESSEL. NEITHER THE USCG NOR THE LA F & WL HAVE ANY DOCUMENTATION CONCERNING THE OWNERSHIP OF THIS VESSEL.

Above Deck Tanks Contents:

Below Deck Tanks Contents: CONTAINS ONLY WATER AND MUD.

Other Containers Contents:

Field Sample Logs: #1: START 1240 STOP 1245. 0% LEL, 0ppm H2S, 0ppm PCB, 0ppm Benzene, 0ppm HCN-2, pH 7, Specific Gravity 1. Non-Reactive with water and air, Oil/Grease-no. Evaluated as water and mud.

#2:

#3:

#4:

#5:

#6:

#7:

#8:

#9:

#10:

#11:

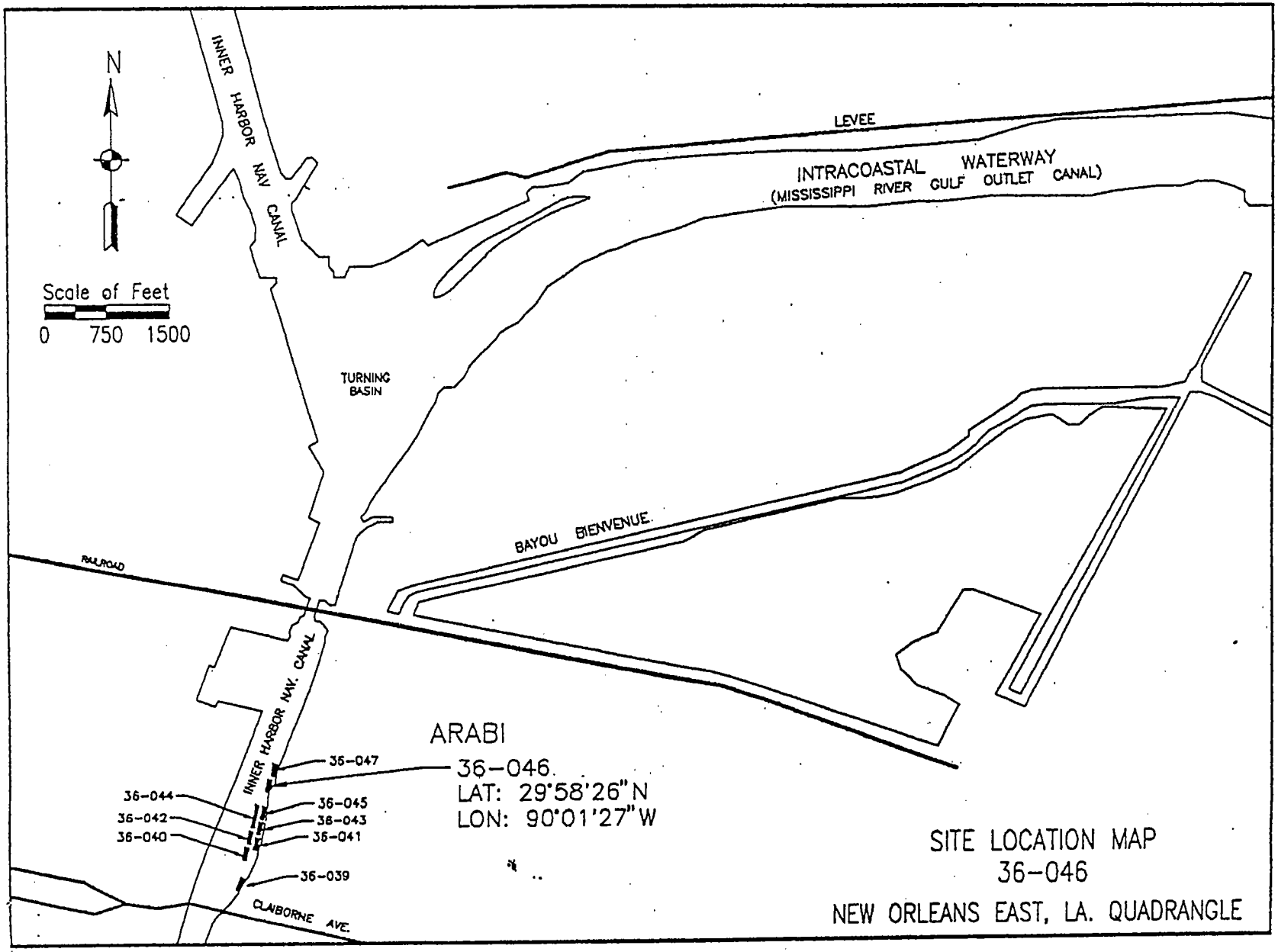
#12:

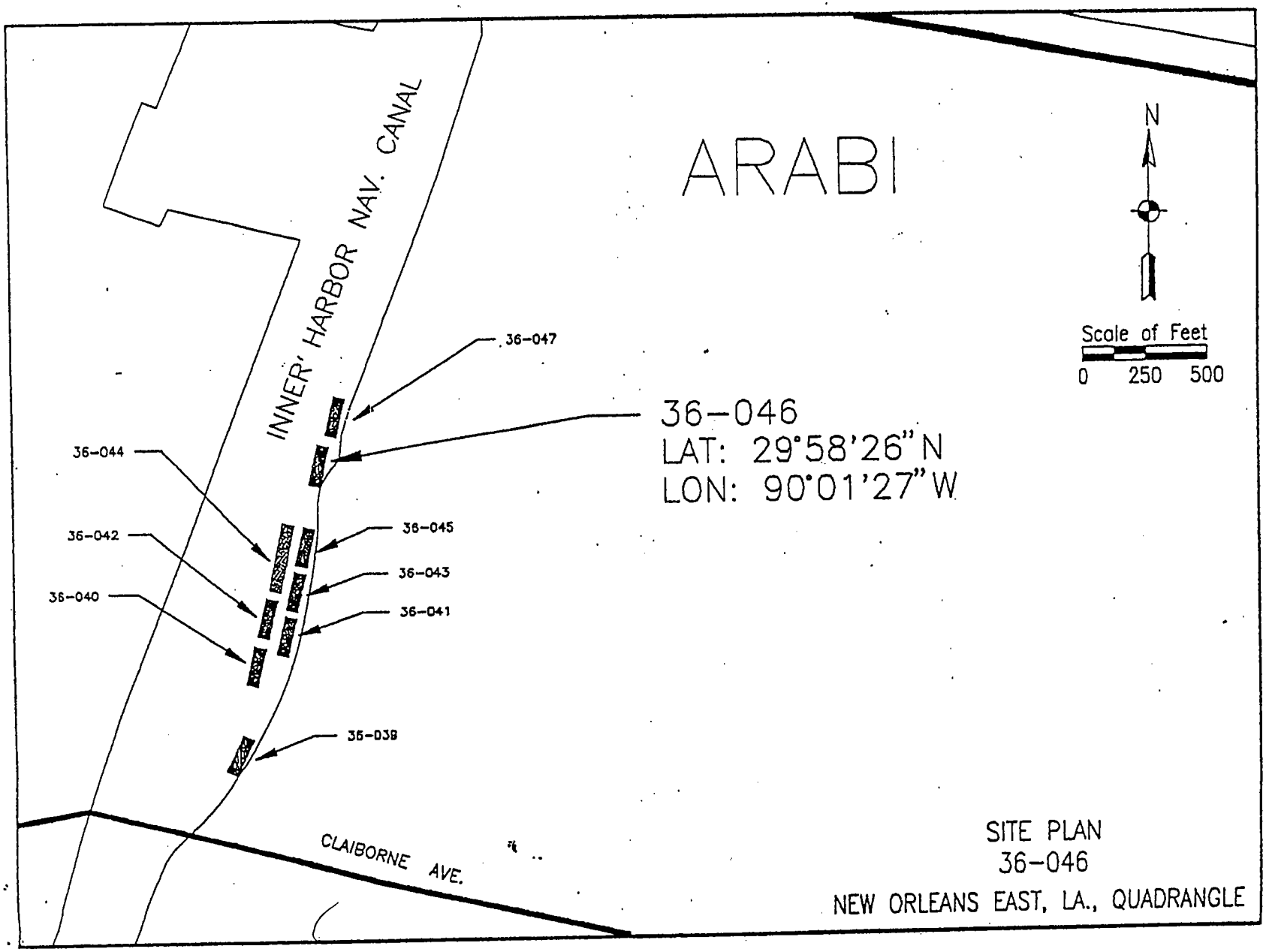
#13:

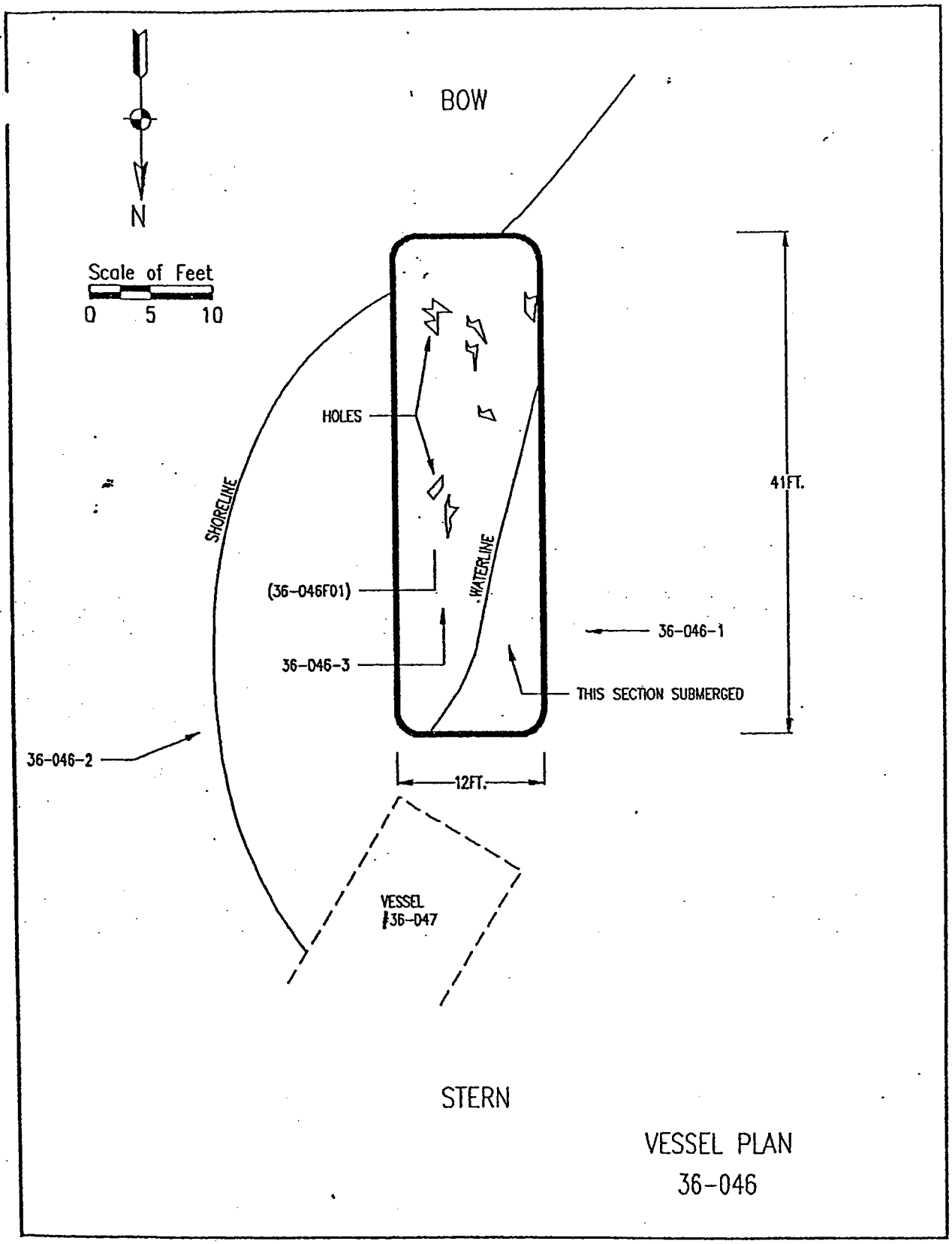
#14:

Daily and site safety briefing completed in accordance with Site Specific Health and Safety Plan.

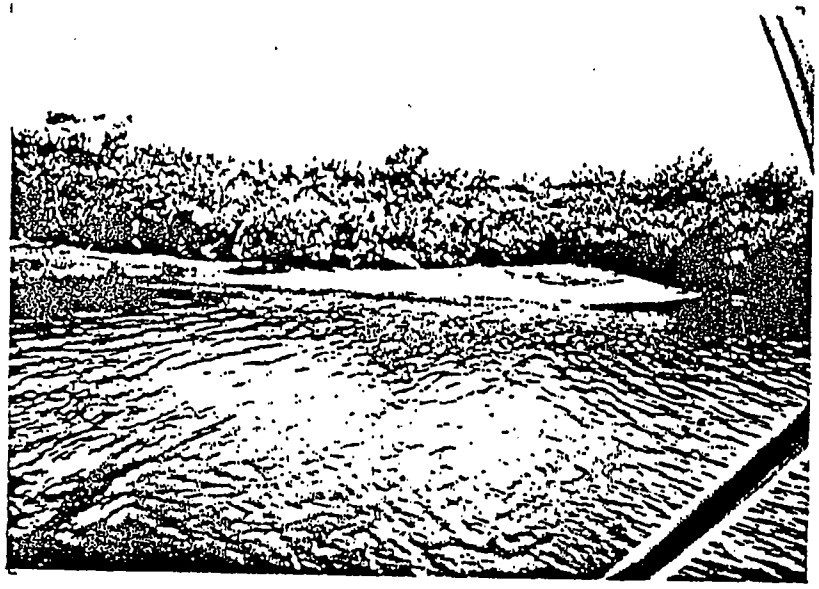
Field sampling procedures/equipment:
LEL, O2, and H2S: GASTECH GT302 OVA Sensor
pH: pH Tester
HCN-2, Benzene: HAZMAT Response Kit, Detection Tubes
PCB: Dexil L2000
Specific Gravity: Cole-Parmer Hydrometer
Reactivity: Sample reaction with air and deionized water
Radioactivity: Ludlum Model 18 Analyzer
Procedures IAW sampling protocal and laboratory requirements


N
INNER HARBOR NAV CANAL
LEVEE
INTRACOASTAL WATERWAY
(MISSISSIPPI RIVER GULF OUTLET CANAL)
Scale of Feet
0 750 1500
TURNING BASIN
BAYOU BIENVENUE
RAILROAD
INNER HARBOR NAV. CANAL
ARABI
36-046
LAT: 29°58'26"N
LON: 90°01'27"W
36-047
36-044
36-045
36-042
36-043
36-040
36-041
36-039
CLAIBORNE AVE.
SITE LOCATION MAP
36-046
NEW ORLEANS EAST, LA. QUADRANGLE

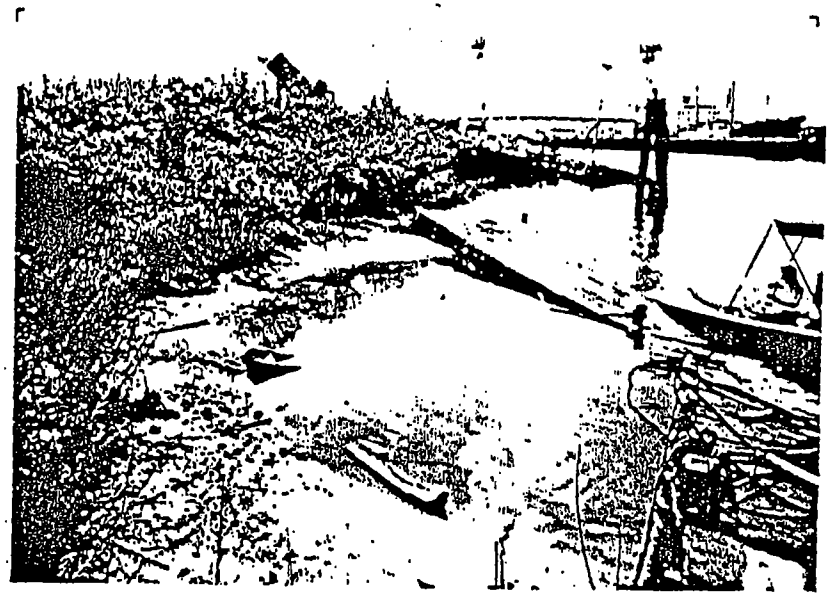

ARABI
INNER HARBOR NAV. CANAL
CLAIBORNE AVE.
N
Scale of Feet
0 250 500
36-047
36-046
LAT: 29°58'26"N
LON: 90°01'27"W
36-044
36-042
36-040
36-045
36-043
36-041
36-038
SITE PLAN
36-046
NEW ORLEANS EAST, LA., QUADRANGLE



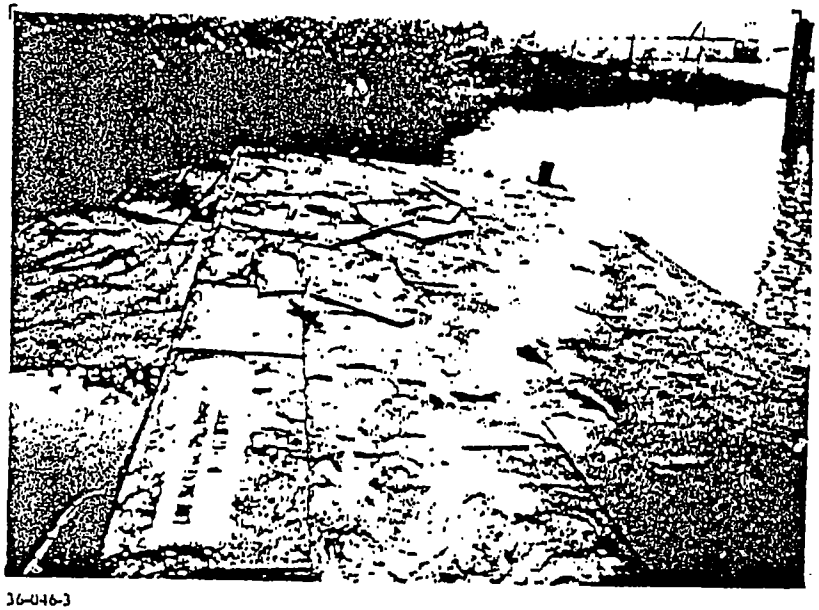
VESSEL PLAN
36-046



36-046-1



36-046-2



36-046-3

STATEWIDE ABANDONED VESSEL INVENTORY
NEW ORLEANS ZONE

CONTRACT NO 100-4109-A

VESSEL NO. 36-047

SUBMITTED TO:

STATE OF LOUISIANA
OFFICE OF THE GOVERNOR
LOUISIANA OIL SPILL COORDINATOR'S OFFICE

PREPARED BY

CMS, INC.
108 ROYAL ST.
NEW ORLEANS, LOUISIANA 70130

VESSEL INVENTORY
Field Investigation Data Sheet

--/21/94 Time: 1245

I.D. #: 36 47
V.I.N.: _____
WL-F #: _____
USCG #: _____
Vessel Name: _____

Team Members:
CMS: RIEDEL
CMS: DOVE
CMS: RIVERA

Owner Name/Address:

Location: Lat. 29° 58' 26" N Long. 90° 1' 27" W Parish: Orleans Zone: NO Floating: _
Waterway: INDUSTRIAL CANAL Nearest City: NEW ORLEANS Submerged: _
Access: By Water: Y, By Land Y, Limitations: HEAVY VEGITATION & MUD Partly Submerged: _
Description: Barge: Tank Battery: __, Tank: __, Deck: Y, Hopper: __, Other: _____
Motor Vessel: Shrimper __, Fishing: __, Other: _____
Size: 12'x 41' Draft: 10" Type Rake: CONV Transportable Condition: NO
Number of Bulkheads: 0, Drawing Attached: Y, Photo Attached: Y, Coded on Vessel Plan: Y
Condition: Housing: __, Deck: H, Hull: H, Structure: __
Diver Required: N, Diver Report (1): __
Abandoned/Derelict Condition Verified (1): Y

Condition Options:
S - Sound, F - Fair
H - Holed

Contents:

	Number	Condition	Volume Gallons	Number Vents	Activily Spilling	Access			Contents *
						Vent	Hatch	Other	
Above Deck Tanks	0								
Below Deck Tanks	1	H	22435	0	N	N	N	Y	1A
Other Containers	0								

Condition Code: S - Sound, F - Fair
H - Holed

Contents Code: O - Oil, OW - Oil in Water, A - Aqueous, E - Empt
SHW - Suspected Hazardous Waste

Risk Assessment:

	Safe	Requires Forced Ventilation	Safety Equipment Required
Vapor Analysis	Y	N	C
Liquid Analysis	Y	N	C
Structure	N	N	C

Environmental Damage:
Evidence of Spill: Oil __, HW: __, Outside Vessel (2) ____ sqft., On Deck: ___, In Hold: __
Proximity to Sensitive Areas (mi.): Public Water System 2, Recreation: 3, Residential: 2, Environmental: .5, Habitat: .5

Samples taken for Field Testing: (record procedures employed and detailed results in log)

Sample ID	Location	Results	Sample ID	Location	Results	Sample ID	Location	Results
36 47 F01	TC	A	36 47 F06			36 47 F11		
36 47 F02			36 47 F07			36 47 F12		
36 47 F03			36 47 F08			36 47 F13		
36 47 F04			36 47 F09			36 47 F14		
36 47 F05			36 47 F10					

Samples Taken for Laboratory Testing:

Sample ID	Location	Used in Composite	Sample ID of Composite	Results
36 47 L01			36 47 C01	
36 47 L02			36 47 C02	
36 47 L03			36 47 C03	
36 47 L04			36 47 C04	
36 47 L05			36 47 C05	
36 47 L06			36 47 C06	
36 47 L07			36 47 C07	
36 47 L08			36 47 C08	

Note: (1) See log for detailed description T: Top, B: Bottom, TC: Total Column
(2) Indicate area affected on site plan. *: See associated log entry

3/21/94 Time: 1245

VESSEL INVENTORY

I.D. #: 36 47

Field Investigation Data Sheet

Log Entries

General Comments: RISK ASSESSMENT: INITIAL LEL 0%, RADIATION-NORMAL. WEATHER: WIND-W 2-5 KTS., TEMPERATURE- 90F, SKIES-PARTLY CLOUDY, PRECIPITATION-NONE. INDIVIDUALS/GROUPS CONTACTED. THERE IS NO IDENTIFICATION ON THIS VESSEL. NEITHER THE USCG NOR THE LA F & WL HAVE ANY DOCUMENTATION CONCERNING THE OWNERSHIP OF THIS VESSEL. OTHER SOURCES OF INFORMATION: BIBLIOGRAPHY-NO CHANGE. EMERGENCY AGENCIES NOTIFIED: NONE. THIS VESSEL IS LOCATED UP AGAINST THE BANK OF THE INDUSTRIAL CANAL. THE VESSELS HULL AND DECK ARE COMPLETELY HOLED. ALL SAMPLING DONE INDICATED ONLY AQUEOUS SUBSTANCES ON BOARD. HULL CAPACITY IS 22,435 GALLONS.

Diver's Log:

Abandoned/Derelict Entry: THERE IS NO IDENTIFICATION ON THIS VESSEL. NEITHER THE USCG NOR THE LA F & WL HAVE ANY DOCUMENTATION CONCERNING THE OWNERSHIP OF THIS VESSEL.

Above Deck Tanks Contents:

Below Deck Tanks Contents: CONATINS ONLY WATER AND MUD.

Other Containers Contents:

Field Sample Logs: #1: START 1250 STOP 1255. 0% LEL, 0ppm H2S, 0ppm PCB, 0ppm Benzene, 0ppm HCN-2, pH 7, Specific Gravity 1. Non- Reactive with water and air, Oil/Grease-no. Evaluated as Water and Mud.

#2:

#3:

#4:

#5:

#6:

#7:

#8:

#9:

#10:

#11:

#12:

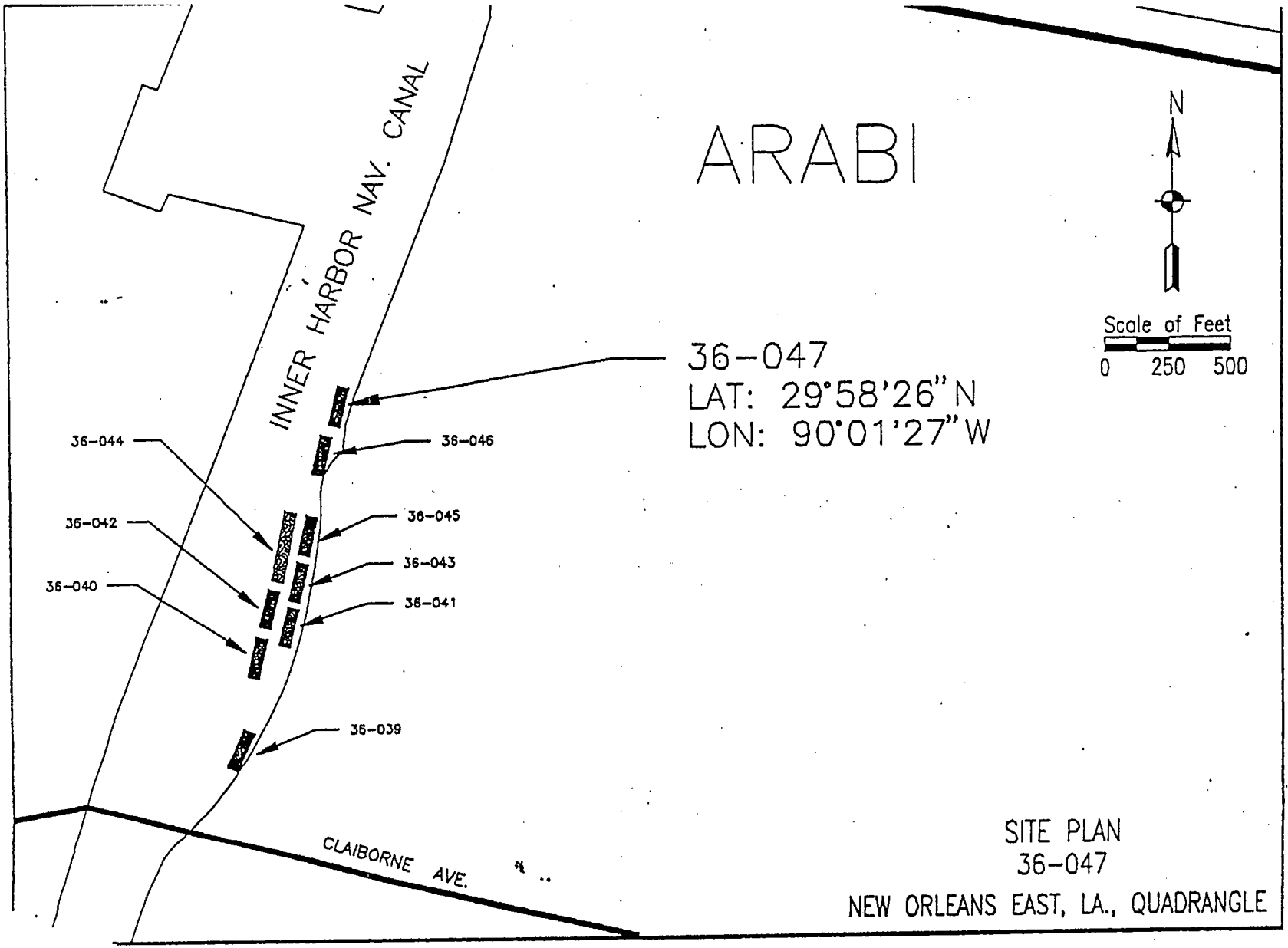
#13:

#14:

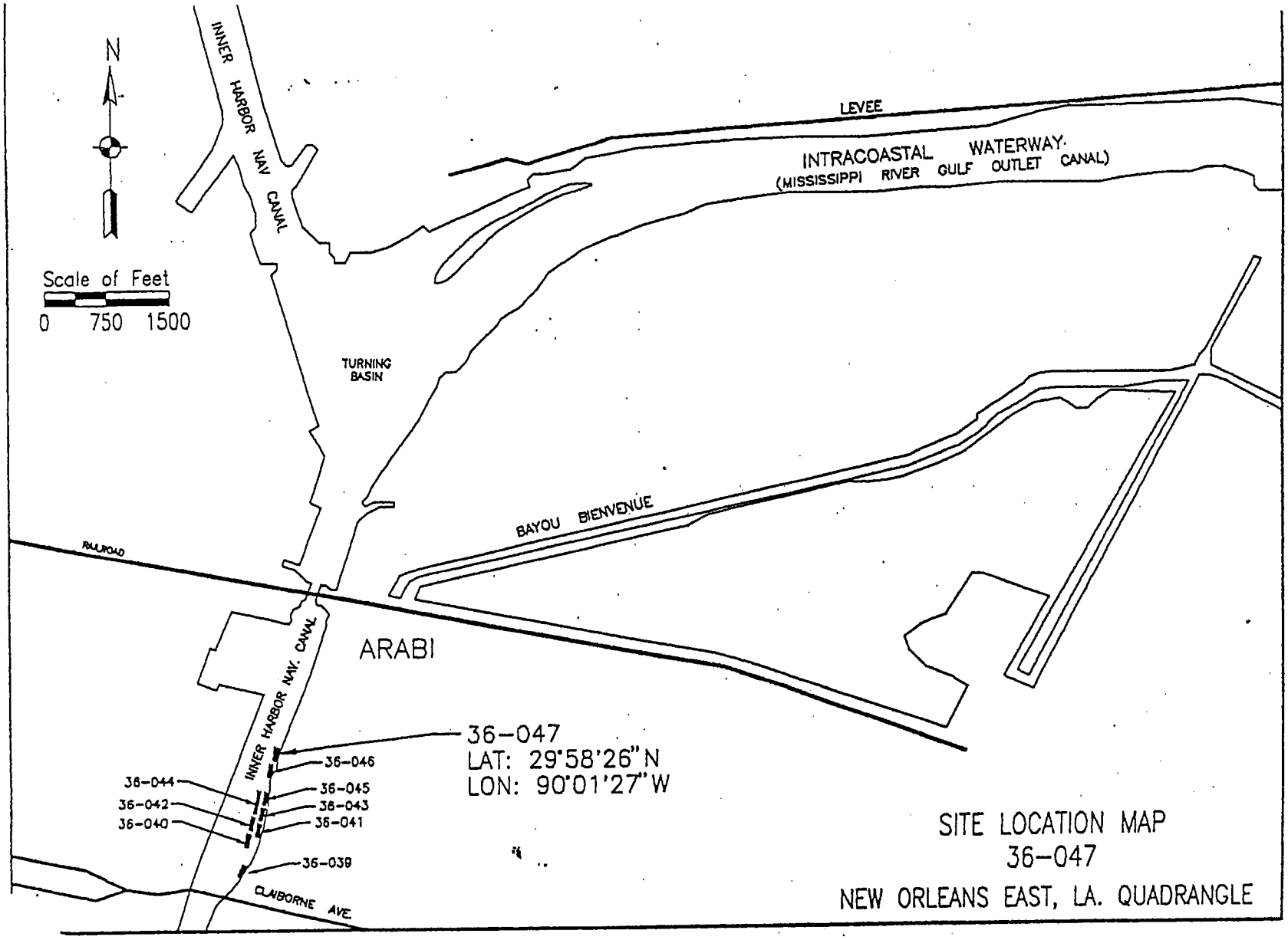
Daily and site safety briefing completed in accordance with Site Specific Health and Safety Plan.

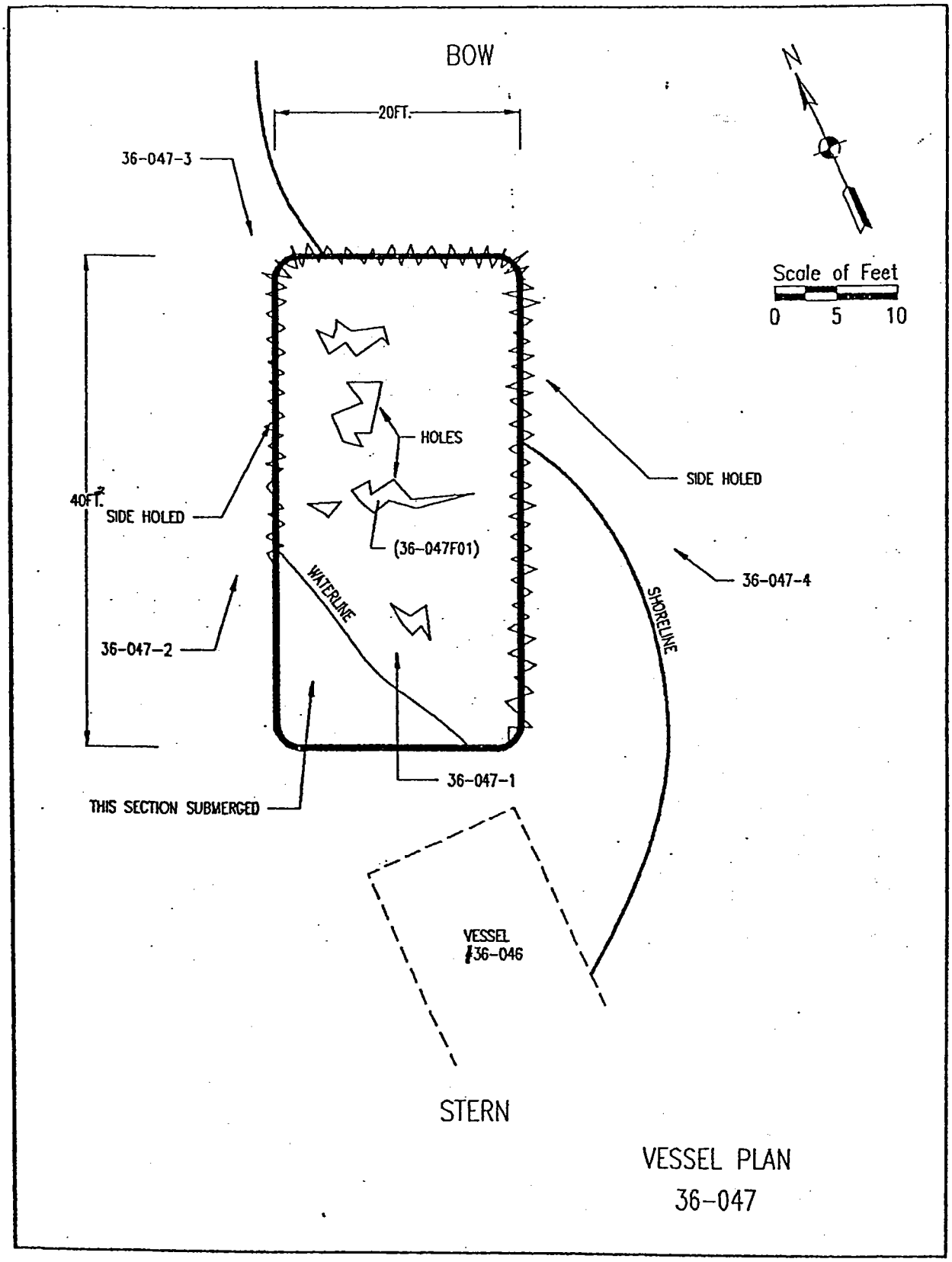
Field sampling procedures/equipment:

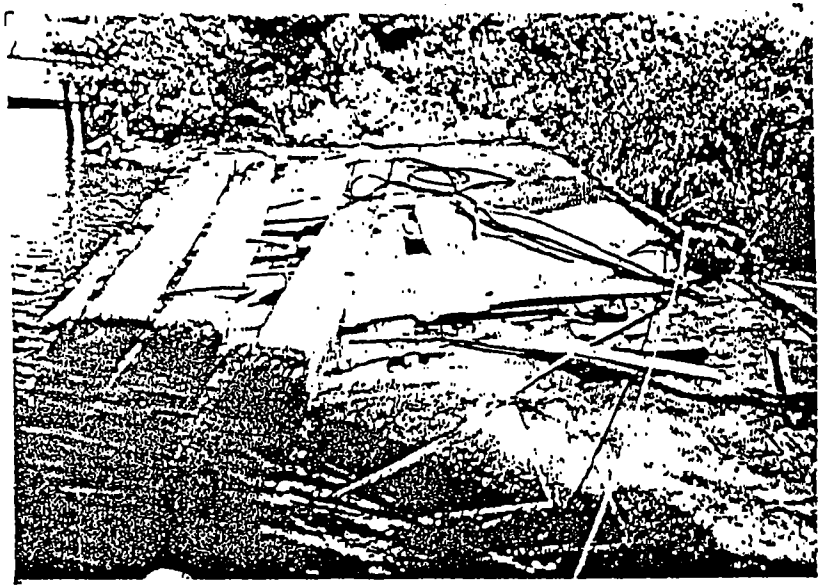
LEL, O2, and H2S: GASTECH GT302 OVA Sensor
pH: pH Tester
HCN-2, Benzene: HAZMAT Response Kit, Detection Tubes
PCB: Dexil L2000
Specific Gravity: Cole-Parmer Hydrometer
Reactivity: Sample reaction with air and deionized water
Radioactivity: Ludlum Model 18 Analyzer
Procedures IAW sampling protocal and laboratory requirements



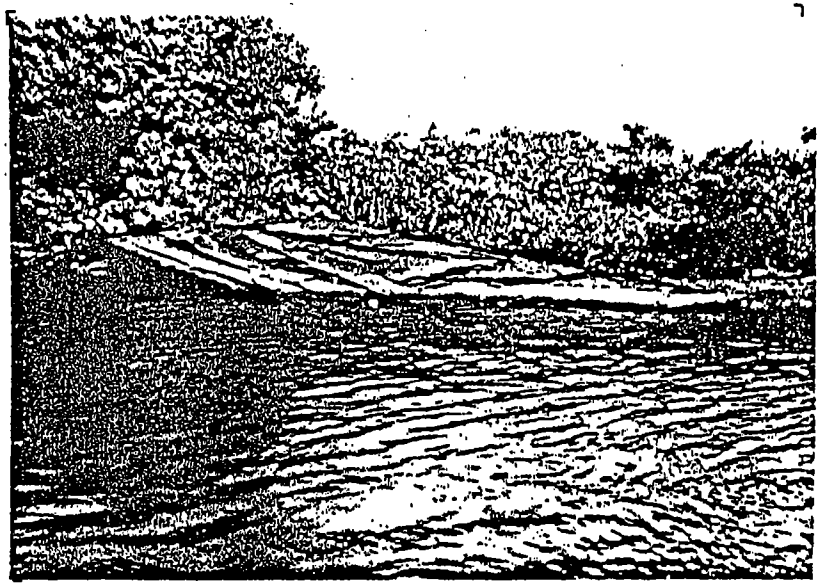
SITE PLAN
36-047
NEW ORLEANS EAST, LA., QUADRANGLE


N
Scale of Feet
0 750 1500
INNER HARBOR NAV CANAL
LEVEE
INTRACOASTAL WATERWAY
(MISSISSIPPI RIVER GULF OUTLET CANAL)
TURNING BASIN
BAYOU BIENVENUE
RAILROAD
ARABI
INNER HARBOR NAV. CANAL
36-047
LAT: 29°58'26" N
LON: 90°01'27" W
36-046
36-045
36-044
36-043
36-042
36-041
36-040
36-039
CLAIBORNE AVE.
SITE LOCATION MAP
36-047
NEW ORLEANS EAST, LA. QUADRANGLE


BOW
20FT.
36-047-3
N
Scale of Feet
0 5 10
HOLES
40FT.
SIDE HOLED
SIDE HOLED
(36-047F01)
36-047-4
WATERLINE
SHORELINE
36-047-2
36-047-1
THIS SECTION SUBMERGED
VESSEL
#36-046
STERN
VESSEL PLAN
36-047

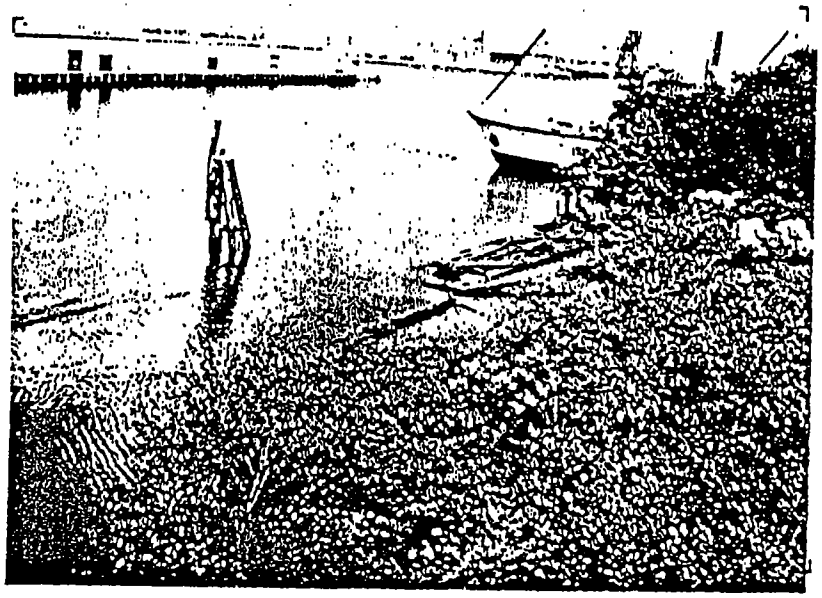


36-047-1



36-047-2

36-047-3



36-047-4

pollution from any unauthorized discharge of oil, reasonably believes that any directions orders given by the coordinator or the coordinator's designee under this Chapter unreasonably endanger public safety or natural resources or conflict with directions or orde of the federal on-scene coordinator, the party may refuse to comply with the direction orders.

B. The party shall state at the time of refusal the reasons for his failure to comply. T party shall give the coordinator written notice of the reason or the reasons for the refu within forty-eight hours of the refusal.

Added by Acts 1991, 1st Ex.Sess., No. 7, § 1, eff. April 23, 1991.

§ 2469. Derelict vessels and structures

A. A person may not leave, abandon, or maintain any structure or vessel involved in actual or threatened unauthorized discharge of oil in coastal waters or on public or priva lands or at a public or private port or dock, in a wrecked, derelict, or substantially dismantle condition, without the consent of the coordinator.

B. The coordinator shall locate, identify, mark, and analyze the contents of any abandone or derelict vessels or structures found within the state. If the vessel or structure contains o or oil based materials he shall establish a priority for removal of those vessels and structure on the basis of highest risk to human health and safety, the environment, and wildlife habita The coordinator shall compile a computerized list of all vessels or structures indicating th location, identity, and contents of each.

C. The coordinator may remove any vessel or structure described in Subsection A of thi Section and may recover the costs of removal from the owner or operator of the vessel o structure. In the event that the owner or operator cannot be located, the coordinator ma use the monies in the fund up to one million dollars in any fiscal year for the removal of an vessel or structure described in Subsection A of this Section.

D. The Department of Environmental Quality may petition the coordinator for th removal of any vessel or structure as described in Subsection A of this Section and the coordinator shall either comply or submit the matter to the interagency council for review.

E. The office of conservation in the Department of Natural Resources may petition the coordinator to abate an unauthorized discharge or the threat of a discharge from a facility or structure which the secretary certifies to be involved in an actual discharge or poses a threat of a discharge and for which the secretary certifies that the office of conservation cannot immediately locate a viable responsible party. Upon approval of the department's petition the coordinator shall reimburse the office of conservation for all expenses incurred, within the limits of provisions of this Section, and he shall seek reimbursement for the fund as provided elsewhere in this Chapter. The coordinator shall use monies in the fund for this purpose, which shall not exceed two million dollars in any fiscal year.

Added by Acts 1991, 1st Ex.Sess., No. 7, § 1, eff. April 23, 1991. Amended by Acts 1992, No. 426, § 1; Acts 1995, No. 740, § 1.

Historical and Statutory Notes

The 1992 amendment inserted a new subsec. B and redesignated existing subsecs. B and C as subsecs. C and D.

The 1995 amendment, in subsec. B, deleted "Before removing any abandoned or derelict vessels or structures" from the beginning of the first sentence and made an attendant capitalization change; and added subsec. E, relating to petitioning the coordinator.

§ 2469.1. Repealed by Acts 1995, No. 740, § 2

Historical and Statutory Notes

Former R.S. 30:2469.1, added by Acts 1992, No. 426, § 1, related to a study of facilities, sumps, pits, and reservoirs.

APPENDIX E

Photo Log

Photographic Log
IHNC Site – East Bank Industrial Area
New Orleans, Louisiana

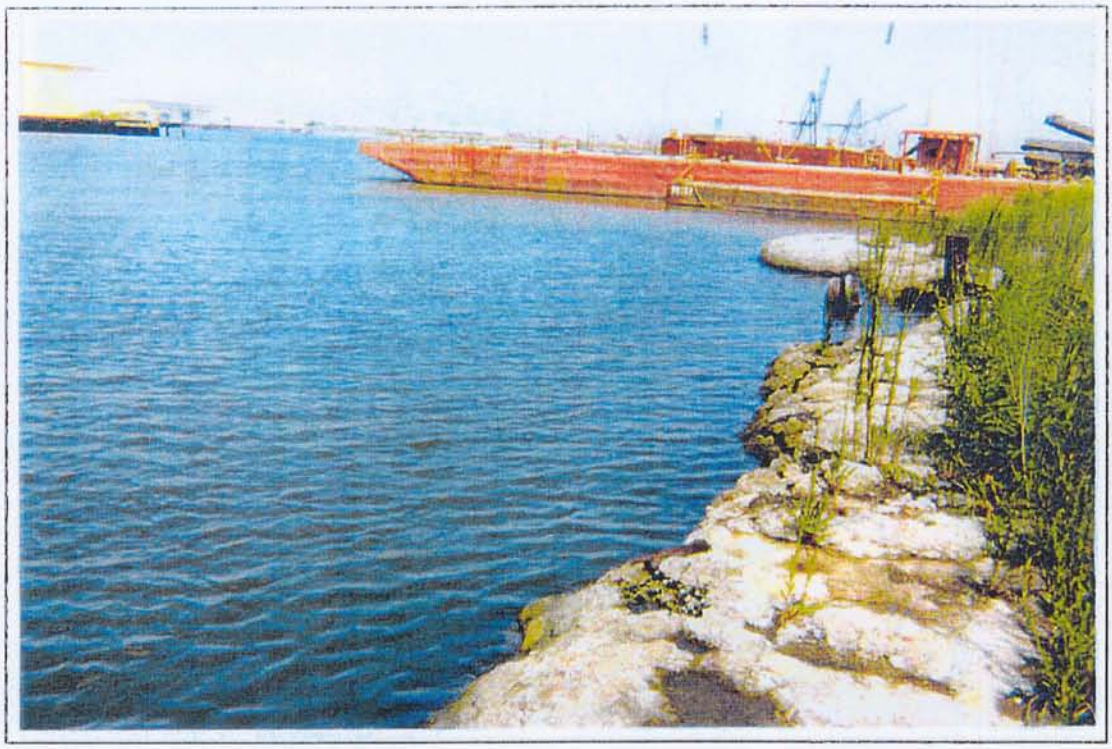
1. A view to the north from the wharf at Boland Marine. The Florida Avenue Bridge is located in the background of the photograph.

2. A view to the north-northeast along the waterfront of Boland Marine. Sampling Location IEBS-21.

Photographic Log
IHNC Site – East Bank Industrial Area
New Orleans, Louisiana

3. A view to the south-southwest along the waterfront of Boland Marine Sampling Location IEBS-18.

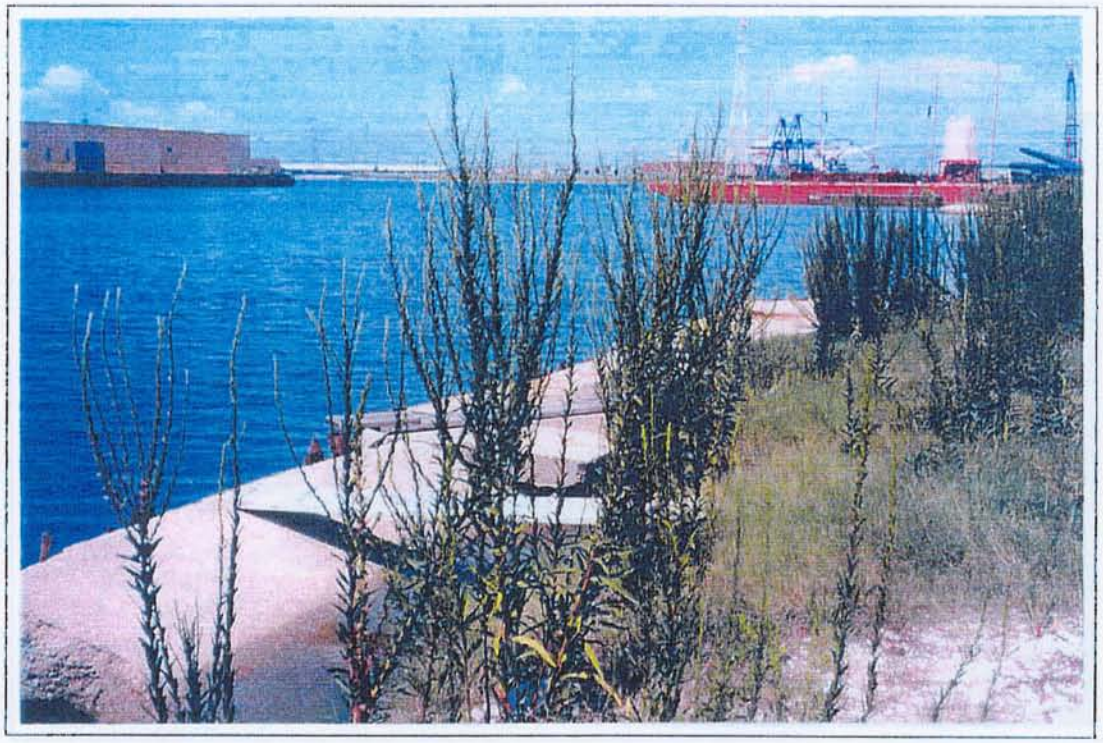
4. A view to the north-northeast along the waterfront of McDonough Marine. This is an active facility along the east bank of the IHNC. Sampling Location IEBS-15.



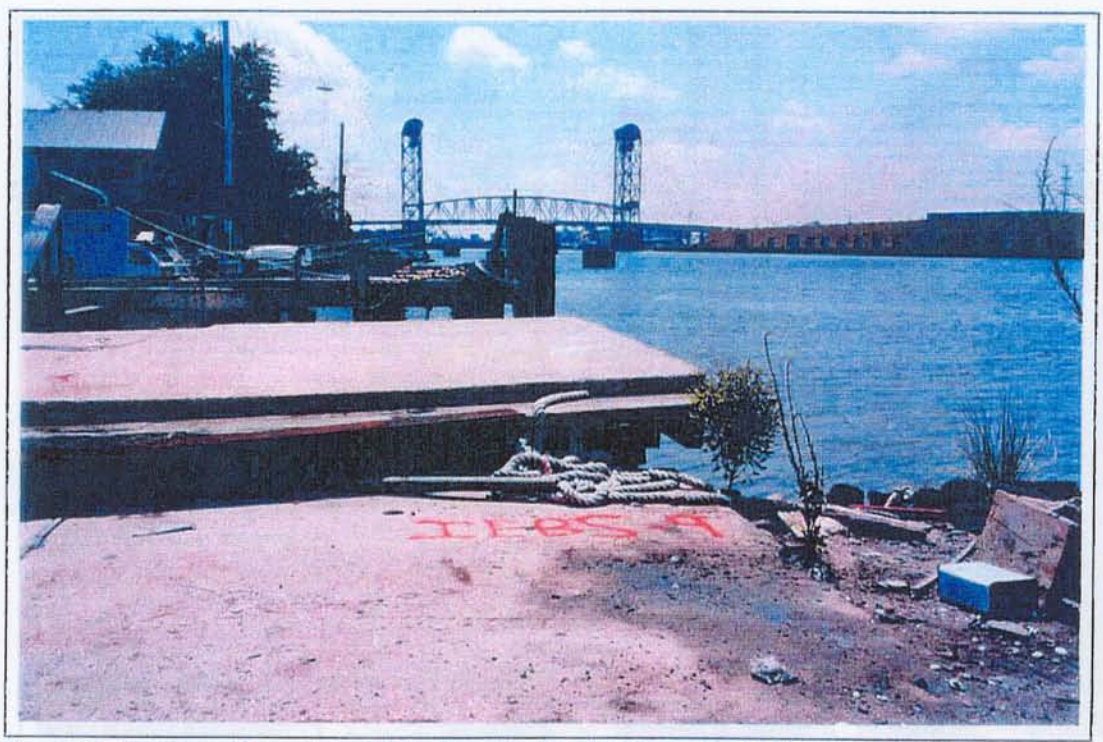
5. A view to the north-northeast along the waterfront of Indian Towing. McDonough Marine is located in the background of this photograph.

6 A view to the south-southwest along the waterfront of Mayer Yacht-Distributor's Oil. Sampling Location IEBS-11.

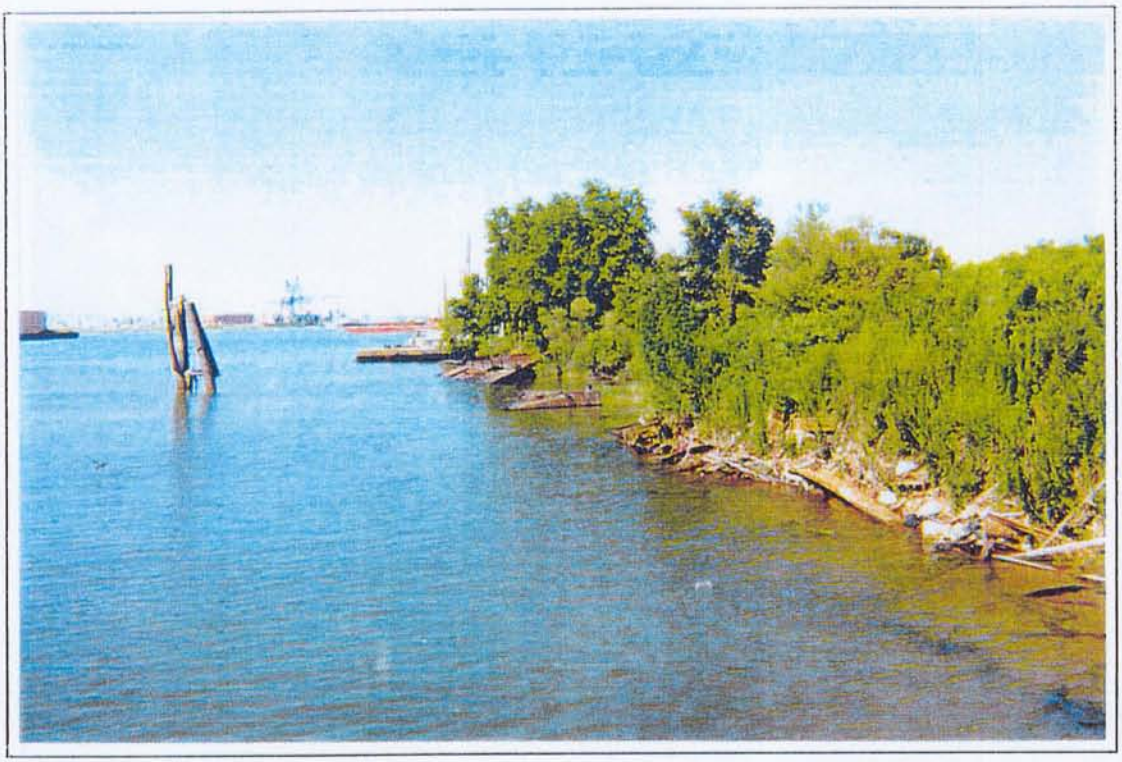
Photographic Log
IHNC Site – East Bank Industrial Area
New Orleans, Louisiana



7. A view to the north-northeast along the waterfront of Mayer Yacht-Distributor's Oil. Sampling Location IEBS-10.



8. A view to the south-southwest along the waterfront of Mayer Yacht-Distributor's Oil. Sampling Location IEBS-09.



9. A view to the north-northeast along the waterfront of Saucer Marine.

10 A view to the south-southwest along the waterfront of Saucer Marine. Several abandoned barges are located along the waterfront of Saucer Marine.

Photographic Log
HNC Site – East Bank Industrial Area
New Orleans, Louisiana

A view to the north-northeast along the waterfront of International Tank Terminal.

12. A view to the south-southwest along the waterfront of International Tank Terminal. The Claiborne Avenue Bridge is located in the background of the photograph.

Photographic Log
IHNC Site – East Bank Industrial Area
New Orleans, Louisiana

13. A view to the south-southwest of the Clairborne Avenue Bridge and the collection area for the background sediment sample associated with this project. Sampling Location IEBS-22.

14. A view to the north of Sampling Location IEBS-02.

Photographic Log
IHNC Site – East Bank Industrial Area
New Orleans, Louisiana

15. A view of a stormwater discharge point at Saucer Marine. Sampling Location IEBS-03.

16. A view to the south-southwest of abandoned barges along the waterfront of Saucer Marine. Sampling Location IEBS-05.

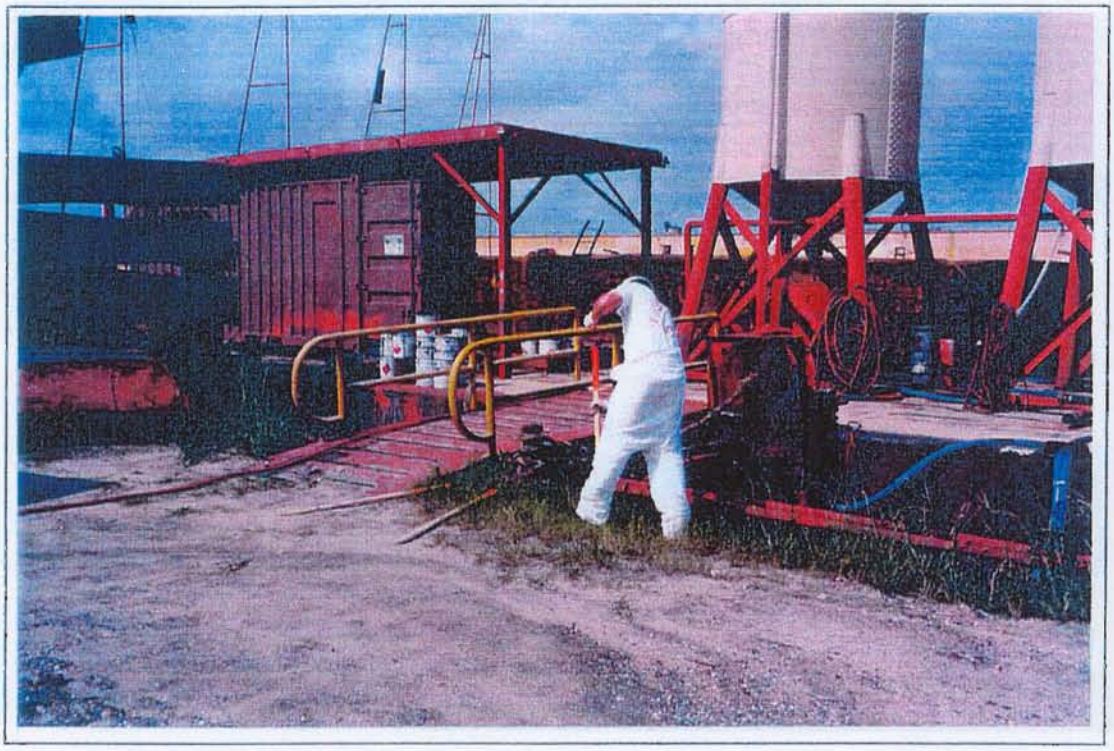
Photographic Log
IHNC Site – East Bank Industrial Area
New Orleans, Louisiana

17. A view of the waterfront at Saucer Marine and Sampling Location IEBS-07.

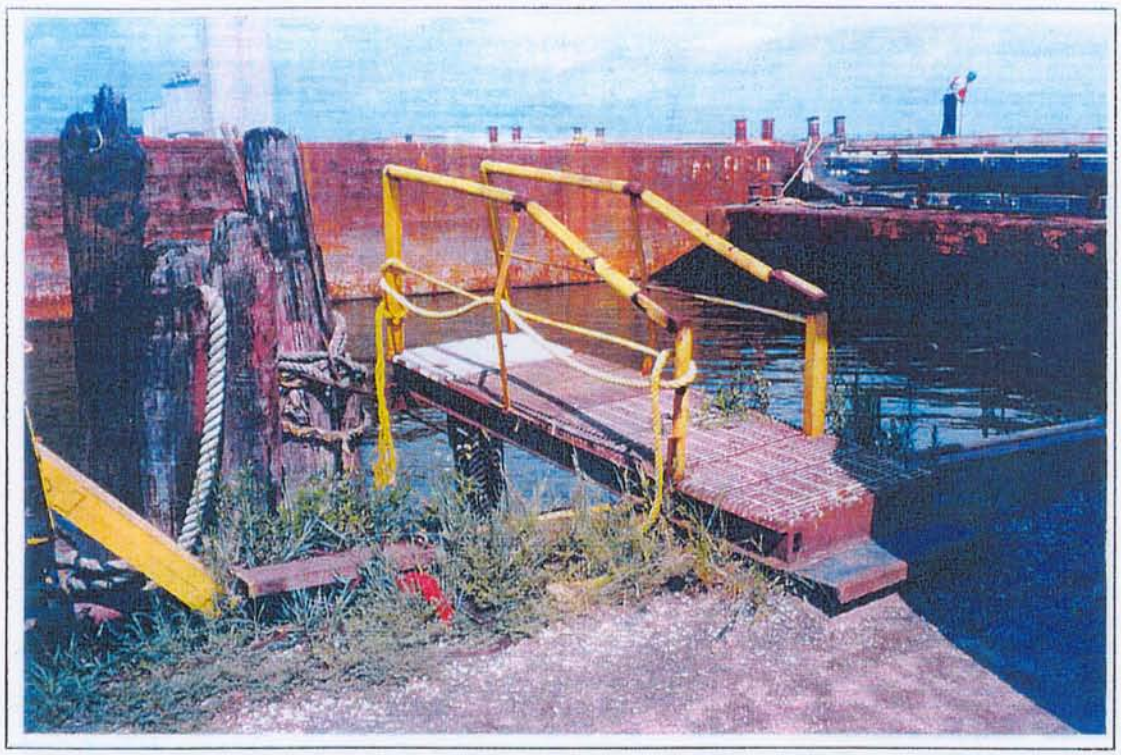
18. A view of the boat slip at Mayer Yacht-Distributor's Oil and Sampling Location IEBS-08

Photographic Log
IHNC Site – East Bank Industrial Area
New Orleans, Louisiana

19. A view to the south-southwest of Sampling Location IEBS-12.



20. A view to the southwest of Sampling Location IEBS-13.



21. A view to the west of Sampling Location IEBS-14.

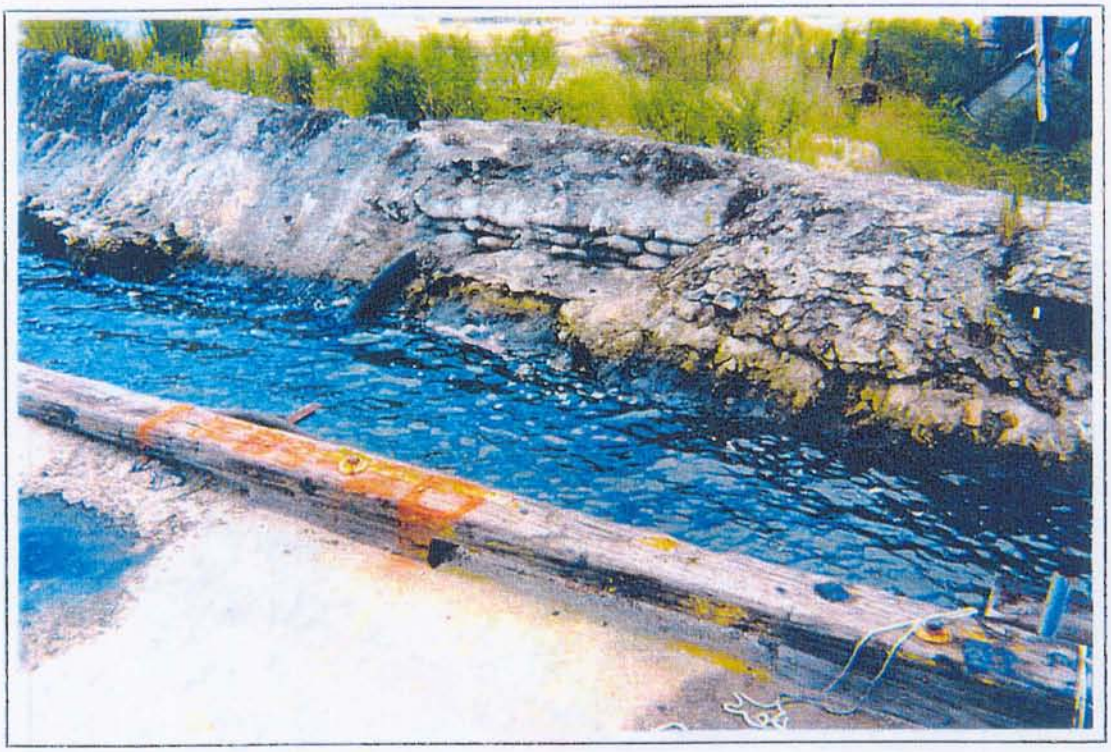
22. A view to the east of Sampling Location IEBS-16. Abandoned transformers can be observed in the background of the photograph.

Photographic Log
IHNC Site – East Bank Industrial Area
New Orleans, Louisiana

23. A view to the southeast of Sampling Location IEBS-19.

24. A view to the southeast of Sampling Location IEBS-20.

Photographic Log
IHNC Site – East Bank Industrial Area
New Orleans, Louisiana



25. A view to the northeast of Sampling Location IEBS-20.

26. Sediment comprised of metal debris, sand and shells collected from Sampling Location IEBS-02.

27. Sediment comprised of sand and shells collected from Sampling Location IEBS-11.

28. Sediment comprised of metal debris, a can, and silty sand/clay with shells collected from Sampling Location IEBS-12

29. Sediment comprised of sand and clay mixed with shells collected from Sampling Location IEBS-10. Metal debris was also observed in the sample.

30. Sediment comprised of fine sand and shells mixed with clay collected from Sampling Location IEBS-16.

Photographic Log
IHNC Site – East Bank Industrial Area
New Orleans, Louisiana

31. Sediment comprised of fine sand and shells mixed with clay collected from Sampling Location IEBS-18.

32. A view to the north of Barge 36-039

33. A view of the top deck of Barge 36-039.

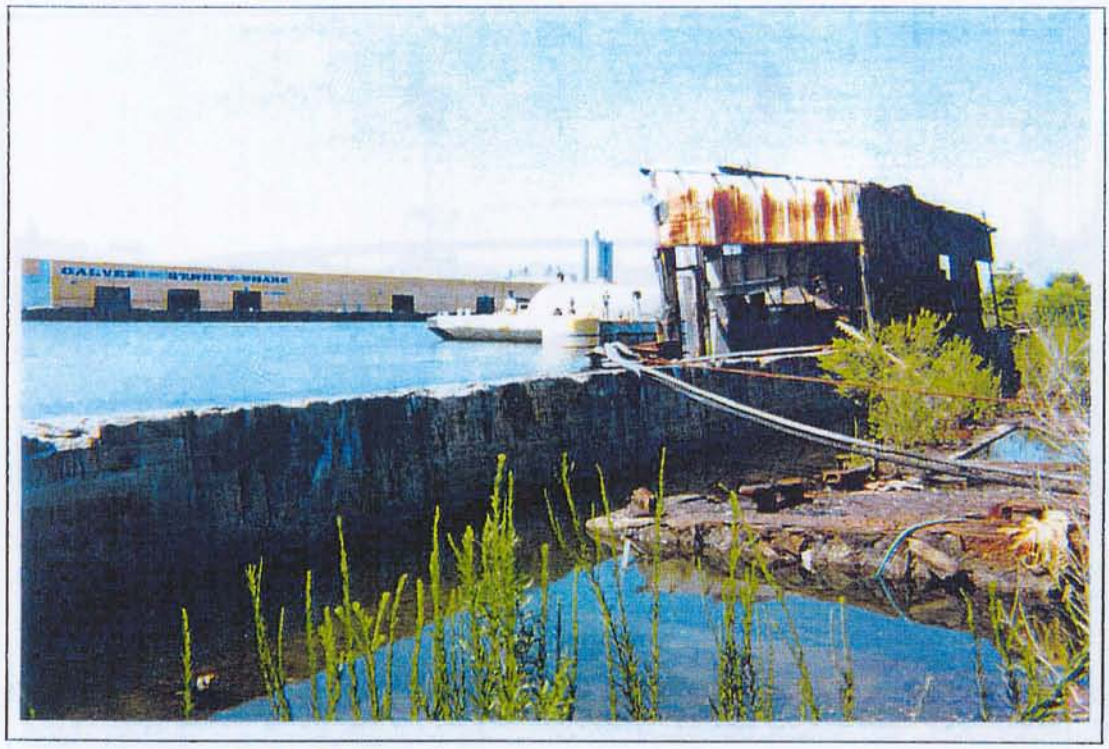
34. A view to the west of Barge 36-039.

35. A view to the south of Barge 36-039.

36. A view to the west of Barge 36-040.

37. A view to the south-southwest of Barge 36-040.

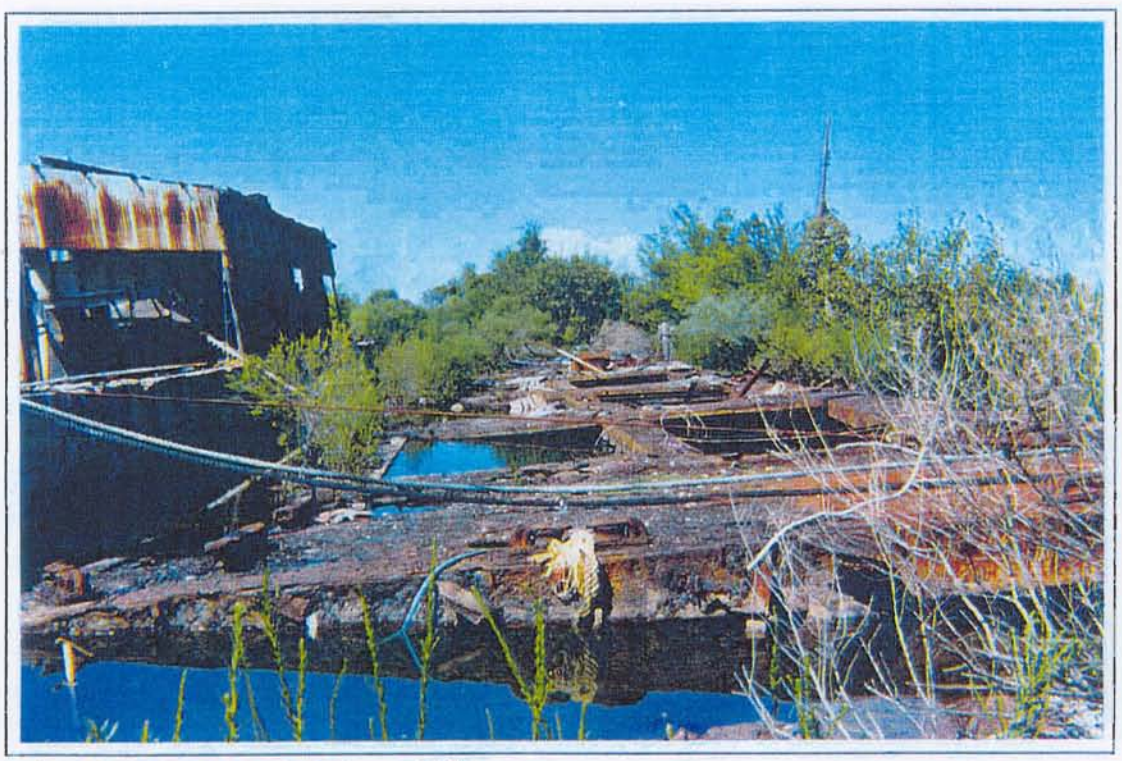
38. A view to the southwest of Barge 36-042. Barge 36-041 is in the foreground of the photograph.



39. A view to the north of Barge 36-042.

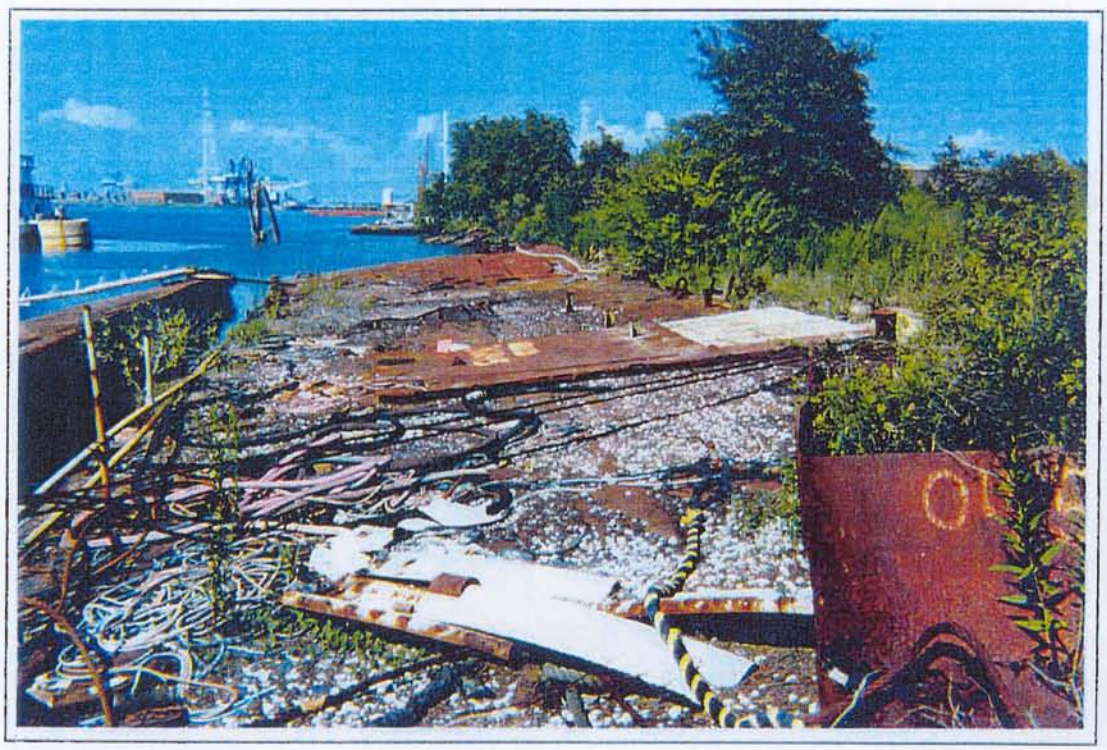
40. A view to the south of Barges 36-041 and 36-043.

41. A view to the north of Barges 36-041 and 36-043.



42. A view to the north of Barge 36-043.

43. A view to the south-southwest of Barge 36-044.



44. A view to the north-northeast of Barge 36-045.

45. A view of the Louisiana State ID number for Barge 36-045.

46. A view to the south-southwest of Barge 36-045.

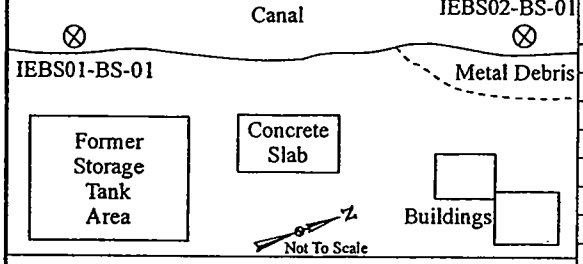
47. A view to the north of Barges 36-046 and 36-047 located along the waterfront of Saucer Marine.

Appendix F

APPENDIX F

Sediment Sampling Logs

LOCATION OF BORING



JOB NUMBER	CLIENT	LOCATION
08768-049-149	USACE - NOD	I. Tank Terminal

DRILLING METHOD: Track-Hoe

BORING NUMBER: IEBS01-BS-01

SHEET: 01 OF 01

SAMPLING METHOD: Track-Hoe Bucket

DRILLING: START TIME 1345 DATE 9/08/99; FINISH TIME 1400 DATE 9/08/99

SURFACE CONDITIONS: Water - Inner Harbor Navigational Canal

DRILLING CONTRACTOR Dames & Moore

DATUM

ELEVATION

SAMPLER TYPE	INCHES DRIVEN / INCHES RECOVERED	TIME	SAMPLE NUMBER / SAMPLE DEPTH	BLOWS/FT. SAMPLER	OVA AUGER	OVA SAMPLE	OVA CUTTINGS	DEPTH IN FEET	SOIL GRAPH
	36 / 36		IEBS01-BS-01			65.0		00	
								01	
								02	
								03	
								04	
								05	
								06	
								07	
								08	
								09	
								10	
								11	
								12	
								13	
								14	
								15	
								16	
								17	
								18	
								19	
								20	
								21	

DARK SAND with rocks and metal bars (1")

Slight Diesel Smell

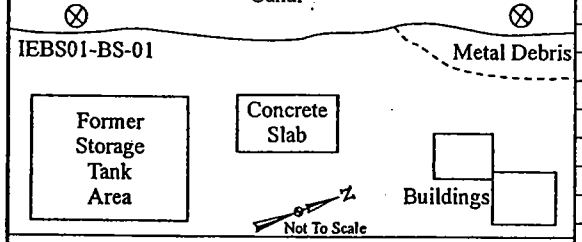
TD @ 3.0' below ground surface (bgs) - under water depth

BY Aaron Steigerwalt / Dave Bronson

DATE _____ CHECKED BY _____

Dames & Moore

LOCATION OF BORING



JOB NUMBER	CLIENT	LOCATION
08768-049-149	USACE - NOD	I. Tank Terminal

DRILLING METHOD: Track-Hoe

BORING NUMBER: IEBS02-BS-01

SHEET: 01 OF 01

SAMPLING METHOD: Track-Hoe Bucket

DRILLING: START TIME 1415 / FINISH TIME 1450

SURFACE CONDITIONS: Water - Inner Harbor Navigational Canal

DATE: 9/08/99 / 9/08/99

DRILLING CONTRACTOR Dames & Moore

DATUM ELEVATION

SAMPLER TYPE	INCHES DRIVEN / INCHES RECOVERED	TIME	SAMPLE NUMBER / SAMPLE DEPTH	BLOWS/FT. SAMPLER	OVA AUGER	OVA SAMPLE	OVA CUTTINGS	DEPTH IN FEET	SOIL GRAPH
	36 / 36		IEBS02-BS-01			0.0		00	
								01	
								02	
								03	
								04	
								05	
								06	
								07	
								08	
								09	
								10	
								11	
								12	
								13	
								14	
								15	
								16	
								17	
								18	
								19	
								20	
								21	

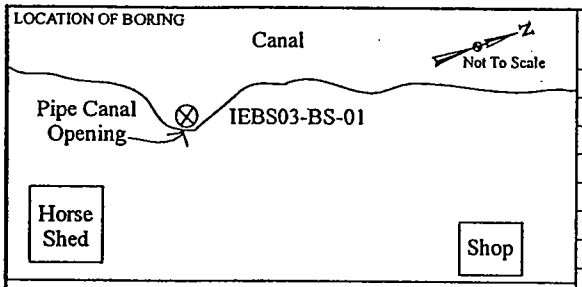
SANDY GRAVEL with metal rods and debris

TD @ 3.0' below ground surface (bgs) - under water depth

BY Aaron Steigerwalt / Dave Bronson

DATE _____ CHECKED BY _____

LOCATION OF BORING



JOB NUMBER	CLIENT	LOCATION
08768-049-149	USACE - NOD	Saucer Marine

DRILLING METHOD: Track-Hoe

BORING NUMBER: IEBS03-BS-01

SHEET: 01 OF 01

SAMPLING METHOD: Track-Hoe Bucket

DRILLING: START TIME 1500 / FINISH TIME 1525

SURFACE CONDITIONS: Water - Inner Harbor Navigational Canal

DATE: 9/08/99 / 9/08/99

DRILLING CONTRACTOR Dames & Moore

DATUM ELEVATION

SAMPLER TYPE	INCHES DRIVEN / INCHES RECOVERED	TIME	SAMPLE NUMBER / SAMPLE DEPTH	BLOWS/FT. SAMPLER	OVA AUGER	OVA SAMPLE	OVA CUTTINGS	DEPTH IN FEET	SOIL GRAPH
	36 / 36		IEBS03-BS-01			2.1		00	
								01	
								02	
								03	
								04	
								05	
								06	
								07	
								08	
								09	
								10	
								11	
								12	
								13	
								14	
								15	
								16	
								17	
								18	
								19	
								20	
								21	

DARK BLACK CLAY/GRAVEL with metal pieces

Slight Diesel Odor

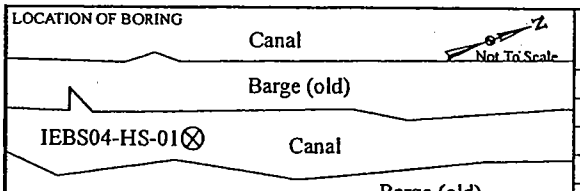
TD @ 3.0' below ground surface (bgs) - under water depth

BY Aaron Steigerwalt / Dave Bronson

DATE _____ CHECKED BY _____

Dames & Moore

LOCATION OF BORING



JOB NUMBER	CLIENT	LOCATION
08768-049-149	USACE - NOD	Saucer Marine

DRILLING METHOD: Hand Core Sediment Sampler (HCSS)

BORING NUMBER: IEBS04-HS-01

SHEET: 01 OF 01

SAMPLING METHOD: 2 ft. Sample Tube (ST) - Direct Push (DP)

DRILLING: START TIME 1500 / FINISH TIME 1525

SURFACE CONDITIONS: Water - Inner Harbor Navigational Canal

DATE: 9/09/99 / DATE: 9/09/99

DRILLING CONTRACTOR Dames & Moore

BY Aaron Steigerwalt / Dave Bronson

DATE _____ CHECKED BY _____

DATUM _____ ELEVATION _____

SAMPLER TYPE	INCHES DRIVEN / INCHES RECOVERED	TIME	SAMPLE NUMBER / SAMPLE DEPTH	BLOWS/FT. SAMPLER	OVA AUGER	OVA SAMPLE	OVA CUTTINGS	DEPTH IN FEET	SOIL GRAPH
	12 / 12		IEBS04-HS-01			7.8		00	
								01	
								02	
								03	
								04	
								05	
								06	
								07	
								08	
								09	
								10	
								11	
								12	
								13	
								14	
								15	
								16	
								17	
								18	
								19	
								20	
								21	

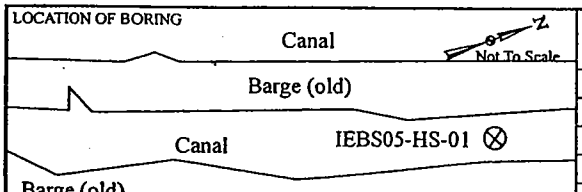
COARSE SAND

Refusal

TD @ 1.0' below ground surface (bgs) - under water depth

Dames & Moore

LOCATION OF BORING



JOB NUMBER	CLIENT	LOCATION
08768-049-149	USACE - NOD	Saucer Marine

DRILLING METHOD: Hand Core Sediment Sampler (HCSS)

BORING NUMBER: IEBS05-HS-01

SHEET: 01 OF 01

SAMPLING METHOD: 2 ft. Sample Tube (ST) - Direct Push (DP)

DRILLING: START TIME 1420 / FINISH TIME 1450

SURFACE CONDITIONS: Water - Inner Harbor Navigational Canal

DATE: 9/09/99 / DATE: 9/09/99

DRILLING CONTRACTOR Dames & Moore

BY Aaron Steigerwalt / Dave Bronson

CHECKED BY

DATE

DATUM

ELEVATION

SAMPLER TYPE	INCHES DRIVEN / INCHES RECOVERED	TIME	SAMPLE NUMBER / SAMPLE DEPTH	BLOWS/FT. SAMPLER	OVA AUGER	OVA SAMPLE	OVA CUTTINGS	DEPTH IN FEET	SOIL GRAPH
	60 / 60		IEBS05-HS-01			85.1		00	
								01	
								02	
								03	
								04	
								05	
								06	
								07	
								08	
								09	
								10	
								11	
								12	
								13	
								14	
								15	
								16	
								17	
								18	
								19	
								20	
								21	

DARK CLAY (soft)

High Diesel Smell

TD @ 5.0' below ground surface (bgs) - under water depth

Replicate Sample Collected

Dames & Moore

LOCATION OF BORING

Barge (old) ⊗ IEBS06-HS-01

Canal

Shore

Not To Scale

JOB NUMBER	CLIENT	LOCATION
08768-049-149	USACE - NOD	Saucer Marine

DRILLING METHOD: Hand Core Sediment Sampler (HCSS)

BORING NUMBER: IEBS06-HS-01

SHEET: 01 OF 01

SAMPLING METHOD: 2 ft. Sample Tube (ST) - Direct Push (DP)

DRILLING: START TIME 1615 / FINISH TIME 1710

SURFACE CONDITIONS: Water - Inner Harbor Navigational Canal

DATE: 9/09/99 / 9/09/99

DRILLING CONTRACTOR Dames & Moore

DATUM

ELEVATION

SAMPLER TYPE	INCHES DRIVEN / INCHES RECOVERED	TIME	SAMPLE NUMBER / SAMPLE DEPTH	BLOWS/FT. SAMPLER	OVA AUGER	OVA SAMPLE	OVA CUTTINGS	DEPTH IN FEET	SOIL GRAPH
	24 / 24		IEBS06-HS-01			1.0		00	
								01	
								02	
								03	
								04	
								05	
								06	
								07	
								08	
								09	
								10	
								11	
								12	
								13	
								14	
								15	
								16	
								17	
								18	
								19	
								20	
								21	

COARSE SAND

Refusal

TD @ 2.0' below ground surface (bgs) - under water depth

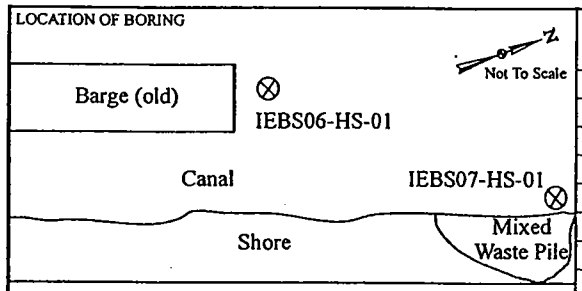
BY Aaron Steigerwalt / Dave Bronson

CHECKED BY

DATE

Dames & Moore

LOCATION OF BORING



JOB NUMBER	CLIENT	LOCATION
08768-049-149	USACE - NOD	Saucer Marine

DRILLING METHOD: Hand Core Sediment Sampler (HCSS)

BORING NUMBER: IEBS07-HS-01

SHEET: 01 OF 01

SAMPLING METHOD: 2 ft. Sample Tube (ST) - Direct Push (DP)

DRILLING: START TIME 1715 / FINISH TIME 1730

SURFACE CONDITIONS: Water - Inner Harbor Navigational Canal

DATE: 9/09/99 / 9/09/99

DRILLING CONTRACTOR Dames & Moore

DATUM

ELEVATION

SAMPLER TYPE	INCHES DRIVEN / INCHES RECOVERED	TIME	SAMPLE NUMBER / SAMPLE DEPTH	BLOWS/FT. SAMPLER	OVA AUGER	OVA SAMPLE	OVA CUTTINGS	DEPTH IN FEET	SOIL GRAPH
	24 / 24		IEBS07-HS-01			0.0		00	
								01	
								02	
								03	
								04	
								05	
								06	
								07	
								08	
								09	
								10	
								11	
								12	
								13	
								14	
								15	
								16	
								17	
								18	
								19	
								20	
								21	

COARSE SAND
Refusal

TD @ 2.0' below ground surface (bgs) - under water depth

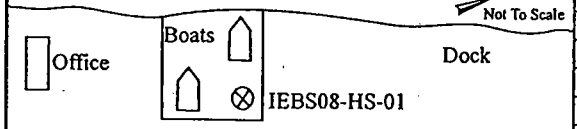
BY Aaron Steigerwalt / Dave Bronson

DATE

CHECKED BY

Dames & Moore

LOCATION OF BORING



JOB NUMBER	CLIENT	LOCATION
08768-049-149	USACE - NOD	Mayer Yacht

DRILLING METHOD: Hand Core Sediment Sampler (HCSS)

BORING NUMBER: IEBS08-HS-01

SHEET: 01 OF 01

SAMPLING METHOD: 2 ft. Sample Tube (ST) - Direct Push (DP)

DRILLING: START TIME 1145 / FINISH TIME 1220

SURFACE CONDITIONS: Water - Inner Harbor Navigational Canal

DATE: 9/09/99 / 9/09/99

DRILLING CONTRACTOR Dames & Moore

DATUM

ELEVATION

SAMPLER TYPE	INCHES DRIVEN / INCHES RECOVERED	TIME	SAMPLE NUMBER / SAMPLE DEPTH	BLOWS/FT. SAMPLER	OVA AUGER	OVA SAMPLE	OVA CUTTINGS	DEPTH IN FEET	SOIL GRAPH
	60 / 60		IEBS08-HS-01			1.5		00	
								01	
								02	
								03	
								04	
								05	
								06	
								07	
								08	
								09	
								10	
								11	
								12	
								13	
								14	
								15	
								16	
								17	
								18	
								19	
								20	
								21	

DARK CLAY (soft) with no rocks

TD @ 5.0' below ground surface (bgs) - under water depth

QA Sample Collected

QC Sample Collected

Replicate Sample Collected

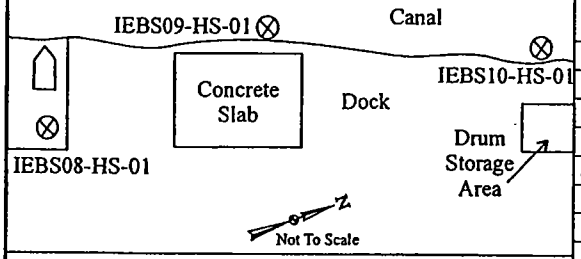
BY Aaron Steigerwalt / Dave Bronson

CHECKED BY

DATE

Dames & Moore

LOCATION OF BORING



JOB NUMBER	CLIENT	LOCATION
08768-049-149	USACE - NOD	Mayer Yacht

DRILLING METHOD: Hand Core Sediment Sampler (HCSS)

BORING NUMBER: IEBS09-HS-01

SHEET: 01 OF 01

SAMPLING METHOD: 2 ft. Sample Tube (ST) - Direct Push (DP)

DRILLING: START TIME 1230 / FINISH TIME 1300

SURFACE CONDITIONS: Water - Inner Harbor Navigational Canal

DATE: 9/09/99 / 9/09/99

DRILLING CONTRACTOR Dames & Moore

BY Aaron Steigerwalt / Dave Bronson

CHECKED BY

DATE

DATUM

ELEVATION

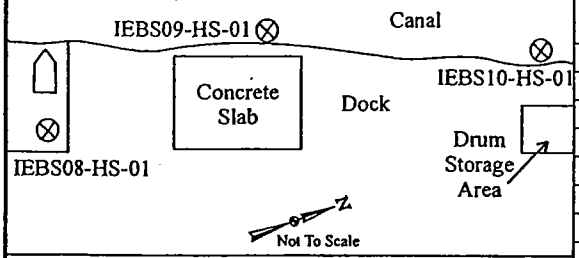
SAMPLER TYPE	INCHES DRIVEN / INCHES RECOVERED	TIME	SAMPLE NUMBER / SAMPLE DEPTH	BLOWS/FT. SAMPLER	OVA AUGER	OVA SAMPLE	OVA CUTTINGS	DEPTH IN FEET	SOIL GRAPH
	60 / 60		IEBS09-HS-01			82.0		00	
								01	
								02	
								03	
								04	
								05	
								06	
								07	
								08	
								09	
								10	
								11	
								12	
								13	
								14	
								15	
								16	
								17	
								18	
								19	
								20	
								21	

DARK CLAY/SAND (soft) with no rocks

TD @ 5.0' below ground surface (bgs) - under water depth

Dames & Moore

LOCATION OF BORING



JOB NUMBER	CLIENT	LOCATION
08768-049-149	USACE - NOD	Mayer Yacht

DRILLING METHOD: Hand Core Sediment Sampler (HCSS)

BORING NUMBER: IEBS10-HS-01

SHEET: 01 OF 01

SAMPLING METHOD: 2 ft. Sample Tube (ST) - Direct Push (DP)

DRILLING

START TIME	FINISH TIME
1305	1350
DATE	DATE
9/09/99	9/09/99

SURFACE CONDITIONS: Water - Inner Harbor Navigational Canal

DRILLING CONTRACTOR Dames & Moore

DATUM

ELEVATION

SAMPLER TYPE	INCHES DRIVEN / INCHES RECOVERED	TIME	SAMPLE NUMBER / SAMPLE DEPTH	BLOWS/FT. SAMPLER	OVA AUGER	OVA SAMPLE	OVA CUTTINGS	DEPTH IN FEET	SOIL GRAPH
	60 / 60		IEBS10-HS-01			1.5		00	
								01	
								02	
								03	
								04	
								05	
								06	
								07	
								08	
								09	
								10	
								11	
								12	
								13	
								14	
								15	
								16	
								17	
								18	
								19	
								20	
								21	

DARK CLAY/SAND (soft) with no rocks

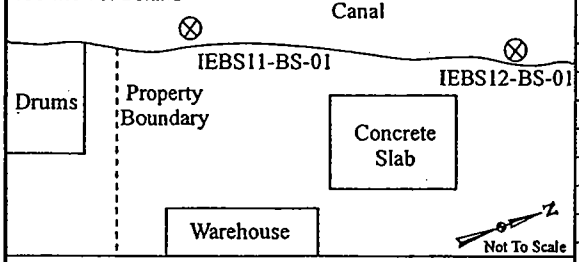
TD @ 5.0' below ground surface (bgs) - under water depth

BY Aaron Steigerwalt / Dave Bronson CHECKED BY

DATE

Dames & Moore

LOCATION OF BORING



JOB NUMBER	CLIENT	LOCATION
08768-049-149	USACE - NOD	Indian Towing

DRILLING METHOD: Track-Hoe

BORING NUMBER: IEBS11-BS-01

SHEET: 01 OF 01

SAMPLING METHOD: Track-Hoe Bucket

DRILLING: START TIME 1150 / FINISH TIME 1220

SURFACE CONDITIONS: Water - Inner Harbor Navigational Canal

DATE: 9/08/99 / 9/08/99

DRILLING CONTRACTOR Dames & Moore

DATUM

ELEVATION

SAMPLER TYPE	INCHES DRIVEN / INCHES RECOVERED	TIME	SAMPLE NUMBER / SAMPLE DEPTH	BLOWS/FT. SAMPLER	OVA AUGER	OVA SAMPLE	OVA CUTTINGS	DEPTH IN FEET	SOIL GRAPH
	60 / 60		IEBS11-BS-01			5.5		00	
								01	
								02	
								03	
								04	
								05	
								06	
								07	
								08	
								09	
								10	
								11	
								12	
								13	
								14	
								15	
								16	
								17	
								18	
								19	
								20	
								21	

PREDOMINATELY CLAY with some sand, rocks, and metal pipes

Sheen Present

Slight Thinner Odor

TD @ 5.0' below ground surface (bgs) - under water depth

Replicate Sample Collected

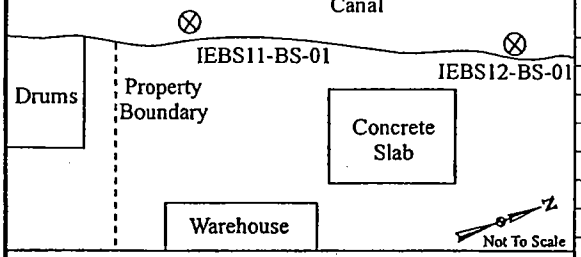
BY Aaron Steigerwalt / Dave Bronson

CHECKED BY

DATE

Dames & Moore

LOCATION OF BORING



JOB NUMBER	CLIENT	LOCATION
08768-049-149	USACE - NOD	Indian Towing

DRILLING METHOD: Track-Hoe

BORING NUMBER: IEBS12-BS-01

SHEET: 01 OF 01

SAMPLING METHOD: Track-Hoe Bucket

DRILLING: START TIME 1130 / FINISH TIME 1140

SURFACE CONDITIONS: Water - Inner Harbor Navigational Canal

DATE: 9/08/99 / 9/08/99

DRILLING CONTRACTOR Dames & Moore

DATUM

ELEVATION

SAMPLER TYPE	INCHES DRIVEN / INCHES RECOVERED	TIME	SAMPLE NUMBER / SAMPLE DEPTH	BLOWS/FT. SAMPLER	OVA AUGER	OVA SAMPLE	OVA CUTTINGS	DEPTH IN FEET	SOIL GRAPH
	60 / 60		IEBS12-BS-01			3.0		00	
								01	
								02	
								03	
								04	
								05	
								06	
								07	
								08	
								09	
								10	
								11	
								12	
								13	
								14	
								15	
								16	
								17	
								18	
								19	
								20	
								21	

DARK BLACK with large rocks, wire rope, paint can, metal scraps and metal piping

Slight Sheen

Slight Diesel Odor

TD @ 5.0' below ground surface (bgs) - under water depth

BY Aaron Steigerwalt / Dave Bronson

CHECKED BY

DATE

Dames & Moore

LOCATION OF BORING: Canal — Not To Scale

Barge

Dock — Canal — Dock

IEBS13-HS-01 ⊗ — IEBS14-HS-01 ⊗ Stairs Platform — IEBS15-HS-01 ⊗

DATUM: Land — ELEVATION

JOB NUMBER	CLIENT	LOCATION
08768-049-149	USACE - NOD	McDonough Marine

DRILLING METHOD: Hand Core Sediment Sampler (HCSS)

BORING NUMBER: IEBS13-HS-01

SHEET: 01 OF 01

SAMPLING METHOD: 2 ft. Sample Tube (ST) - Direct Push (DP)

DRILLING — START TIME: 0915 — FINISH TIME: 1010

SURFACE CONDITIONS: Water - Inner Harbor Navigational Canal

DATE: 9/09/99 — DATE: 9/09/99

DRILLING CONTRACTOR: Dames & Moore

BY: Aaron Steigerwalt / Dave Bronson

DATE: _____ CHECKED BY: _____

SAMPLER TYPE	INCHES DRIVEN / INCHES RECOVERED	TIME	SAMPLE NUMBER / SAMPLE DEPTH	BLOWS/FT. SAMPLER	OVA AUGER	OVA SAMPLE	OVA CUTTINGS	DEPTH IN FEET	SOIL GRAPH
	24 / 24		IEBS13-HS-01			8.5		00–01	

DARK SAND/CLAY, mostly sand
Highly packed/dense, possibly from sandblasting area

Refusal
TD @ 2.0' below ground surface (bgs) - under water depth

Dames & Moore

LOCATION OF BORING: Canal — Not To Scale

Barge

Dock — Canal — Dock

IEBS13-HS-01 ⊗ Stairs Platform IEBS14-HS-01 ⊗ IEBS15-HS-01 ⊗

DATUM: Land

ELEVATION

JOB NUMBER	CLIENT	LOCATION
08768-049-149	USACE - NOD	McDonough Marine

DRILLING METHOD: Hand Core Sediment Sampler (HCSS)

BORING NUMBER: IEBS14-HS-01

SHEET: 01 OF 01

SAMPLING METHOD: 2 ft. Sample Tube (ST) - Direct Push (DP)

DRILLING: START TIME 1015 — FINISH TIME 1100

SURFACE CONDITIONS: Water - Inner Harbor Navigational Canal

DATE: 9/09/99 — DATE: 9/09/99

DRILLING CONTRACTOR: Dames & Moore

BY: Aaron Steigerwalt / Dave Bronson

CHECKED BY: _____

DATE: _____

SAMPLER TYPE	INCHES DRIVEN / INCHES RECOVERED	TIME	SAMPLE NUMBER / SAMPLE DEPTH	BLOWS/FT. SAMPLER	OVA AUGER	OVA SAMPLE	OVA CUTTINGS	DEPTH IN FEET	SOIL GRAPH
	36 / 36		IEBS14-HS-01			6.5		00	
								01	
								02	
								03	
								04	
								05	
								06	
								07	
								08	
								09	
								10	
								11	
								12	
								13	
								14	
								15	
								16	
								17	
								18	
								19	
								20	
								21	

DARK CLAYEY SAND, highly packed/dense

Slight Diesel Smell

Refusal

TD @ 3.0' below ground surface (bgs) - under water depth

Dames & Moore

LOCATION OF BORING

Canal

Not To Scale

Barge

Dock | Canal | Dock

IEBS13-HS-01 ⊗ | IEBS14-HS-01 ⊗ Stairs Platform | ⊗ IEBS15-HS-01

DATUM Land

ELEVATION

JOB NUMBER	CLIENT	LOCATION
08768-049-149	USACE - NOD	McDonough Marine

DRILLING METHOD: Hand Core Sediment Sampler (HCSS)

BORING NUMBER: IEBS15-HS-01

SHEET: 01 OF 01

SAMPLING METHOD: 2 ft. Sample Tube (ST) - Direct Push (DP)

DRILLING START TIME: 1115 FINISH TIME: 1140

SURFACE CONDITIONS: Water - Inner Harbor Navigational Canal

DATE: 9/09/99 DATE: 9/09/99

DRILLING CONTRACTOR Dames & Moore

BY Aaron Steigerwalt / Dave Bronson

DATE _____ CHECKED BY _____

SAMPLER TYPE	INCHES DRIVEN / INCHES RECOVERED	TIME	SAMPLE NUMBER / SAMPLE DEPTH	BLOWS/FT. SAMPLER	OVA AUGER	OVA SAMPLE	OVA CUTTINGS	DEPTH IN FEET	SOIL GRAPH
	36 / 36		IEBS15-HS-01			9.0		00	
								01	
								02	
								03	
								04	
								05	
								06	
								07	
								08	
								09	
								10	
								11	
								12	
								13	
								14	
								15	
								16	
								17	
								18	
								19	
								20	
								21	

DARK CLAYEY SAND, highly dense

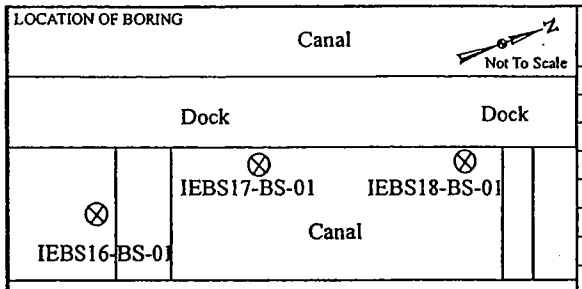
Slight Diesel Odor

Refusal

TD @ 3.0' below ground surface (bgs) - under water depth

Dames & Moore

LOCATION OF BORING



JOB NUMBER	CLIENT	LOCATION
08768-049-149	USACE - NOD	Boland Marine

DRILLING METHOD: Track-Hoe

BORING NUMBER: IEBS16-BS-01

SHEET: 01 OF 01

SAMPLING METHOD: Track-Hoe Bucket

DRILLING START TIME: 1055 FINISH TIME: 1120

SURFACE CONDITIONS: Water - Inner Harbor Navigational Canal

DRILLING DATE: 9/08/99 FINISH DATE: 9/08/99

DRILLING CONTRACTOR Dames & Moore

BY Aaron Steigerwalt / Dave Bronson

CHECKED BY

DATE

DATUM Land

ELEVATION

SAMPLER TYPE	INCHES DRIVEN / INCHES RECOVERED	TIME	SAMPLE NUMBER / SAMPLE DEPTH	BLOWS/FT. SAMPLER	OVA AUGER	OVA SAMPLE	OVA CUTTINGS	DEPTH IN FEET	SOIL GRAPH
	60 / 60		IEBS16-BS-01			3.0		00	
								01	
								02	
								03	
								04	
								05	
								06	
								07	
								08	
								09	
								10	
								11	
								12	
								13	
								14	
								15	
								16	
								17	
								18	
								19	
								20	
								21	

BLACKISH SAND with metal debris, fill (concrete)

Sheen

TD @ 5.0' below ground surface (bgs) - under water depth

Replicate Sample Collected

Dames & Moore

LOCATION OF BORING: Canal — Not To Scale

Dock — Dock

IEBS16-BS-01 ⊗ IEBS17-BS-01 ⊗ IEBS18-BS-01 ⊗

Canal

DATUM: Land — ELEVATION

JOB NUMBER	CLIENT	LOCATION
08768-049-149	USACE - NOD	Boland Marine

DRILLING METHOD: Track-Hoe

BORING NUMBER: IEBS17-BS-01

SHEET: 01 OF 01

SAMPLING METHOD: Track-Hoe Bucket

DRILLING: START TIME 1035 — FINISH TIME 1050

SURFACE CONDITIONS: Water - Inner Harbor Navigational Canal

DATE: 9/08/99 — DATE: 9/08/99

DRILLING CONTRACTOR: Dames & Moore

BY: Aaron Steigerwalt / Dave Bronson — CHECKED BY: — DATE:

SAMPLER TYPE	INCHES DRIVEN / INCHES RECOVERED	TIME	SAMPLE NUMBER / SAMPLE DEPTH	BLOWS/FT. SAMPLER	OVA AUGER	OVA SAMPLE	OVA CUTTINGS	DEPTH IN FEET	SOIL GRAPH
	60 / 60		IEBS17-BS-01			11.0		00	
								01	
								02	
								03	
								04	
								05	
								06	
								07	
								08	
								09	
								10	
								11	
								12	
								13	
								14	
								15	
								16	
								17	
								18	
								19	
								20	
								21	

BLACK SEDIMENT with metal debris, wood, sand, clay, and shells

Sheen Present

TD @ 5.0' below ground surface (bgs) - under water depth

Dames & Moore

LOCATION OF BORING

Canal

Not To Scale

Dock

Dock

IEBS16-BS-01

IEBS17-BS-01

IEBS18-BS-01

Canal

DATUM Land

ELEVATION

SAMPLER TYPE	INCHES DRIVEN / INCHES RECOVERED	TIME	SAMPLE NUMBER / SAMPLE DEPTH	BLOWS/FT. SAMPLER	OVA AUGER	OVA SAMPLE	OVA CUTTINGS	DEPTH IN FEET	SOIL GRAPH
	42 / 42		IEBS18-BS-01			4.0		00	
								01	
								02	
								03	
								04	
								05	
								06	
								07	
								08	
								09	
								10	
								11	
								12	
								13	
								14	
								15	
								16	
								17	
								18	
								19	
								20	
								21	

JOB NUMBER: 08768-049-149

CLIENT: USACE - NOD

LOCATION: Boland Marine

DRILLING METHOD: Track-Hoe

BORING NUMBER: IEBS18-BS-01

SHEET: 01 OF 01

SAMPLING METHOD: Track-Hoe Bucket

DRILLING START TIME: 1015

DRILLING FINISH TIME: 1035

SURFACE CONDITIONS: Water - Inner Harbor Navigational Canal

DATE: 9/08/99

DATE: 9/08/99

DARK BLACK SEDIMENT with metal debris, wood, sand, shells, and clay

Sheen Present On Sediment Pile

TD @ 3.5' below ground surface (bgs) - under water depth

DRILLING CONTRACTOR Dames & Moore

BY Aaron Steigerwalt / Dave Bronson

CHECKED BY

DATE

Dames & Moore

LOCATION OF BORING

Canal

Not To Scale

Dock

IEBS19-HS-01 ⊗ IEBS20-HS-01 ⊗ IEBS21-HS-01 ⊗

Canal

Land

DATUM

ELEVATION

JOB NUMBER	CLIENT	LOCATION
08768-049-149	USACE - NOD	Boland Marine

DRILLING METHOD: Hand Core Sediment Sampler (HCSS)

BORING NUMBER: IEBS19-HS-01

SHEET: 01 OF 01

SAMPLING METHOD: 2 ft. Sample Tube (ST) - Direct Push (DP)

DRILLING START TIME: 1435 DATE: 9/07/99

DRILLING FINISH TIME: 1600 DATE: 9/07/99

SURFACE CONDITIONS: Water - Inner Harbor Navigational Canal

DRILLING CONTRACTOR Dames & Moore

BY Aaron Steigerwalt / Dave Bronson CHECKED BY

DATE

SAMPLER TYPE	INCHES DRIVEN / INCHES RECOVERED	TIME	SAMPLE NUMBER / SAMPLE DEPTH	BLOWS/FT. SAMPLER	OVA AUGER	OVA SAMPLE	OVA CUTTINGS	DEPTH IN FEET	SOIL GRAPH
	36/36		IEBS19-HS-01			8.5		00	
								01	
								02	
								03	
								04	
								05	
								06	
								07	
								08	
								09	
								10	
								11	
								12	
								13	
								14	
								15	
								16	
								17	
								18	
								19	
								20	
								21	

BLACK SANDY CLAY with wood and debris

TD @ 3.0' below ground surface (bgs) - under water depth

Dames & Moore

LOCATION OF BORING: Canal (Not To Scale)

Dock

IEBS19-HS-01 ⊗ IEBS20-HS-01 ⊗ IEBS21-HS-01 ⊗

Canal

Land

DATUM ELEVATION

JOB NUMBER	CLIENT	LOCATION
08768-049-149	USACE - NOD	Boland Marine

DRILLING METHOD: Hand Core Sediment Sampler (HCSS)

BORING NUMBER: IEBS20-HS-01

SHEET: 01 OF 01

SAMPLING METHOD: 2 ft. Sample Tube (ST) - Direct Push (DP)

DRILLING: START TIME 1610 / FINISH TIME 1630

SURFACE CONDITIONS: Water - Inner Harbor Navigational Canal

DATE: 9/07/99 / 9/07/99

DRILLING CONTRACTOR Dames & Moore

BY Aaron Steigerwalt / Dave Bronson

CHECKED BY

DATE

SAMPLER TYPE	INCHES DRIVEN / INCHES RECOVERED	TIME	SAMPLE NUMBER / SAMPLE DEPTH	BLOWS/FT. SAMPLER	OVA AUGER	OVA SAMPLE	OVA CUTTINGS	DEPTH IN FEET	SOIL GRAPH
	36 / 36		IEBS20-HS-01			9.5		00	
								01	
								02	
								03	
								04	
								05	
								06	
								07	
								08	
								09	
								10	
								11	
								12	
								13	
								14	
								15	
								16	
								17	
								18	
								19	
								20	
								21	

BLACK SANDY CLAY with debris

TD @ 3.0' below ground surface (bgs) - under water depth

Dames & Moore

LOCATION OF BORING

Canal

Not To Scale

Dock

IEBS19-HS-01 ⊗ IEBS20-HS-01 ⊗ IEBS21-HS-01 ⊗

Canal

Land

DATUM ELEVATION

JOB NUMBER	CLIENT	LOCATION
08768-049-149	USACE - NOD	Boland Marine

DRILLING METHOD: Hand Core Sediment Sampler (HCSS)

BORING NUMBER: IEBS21-HS-01

SHEET: 01 OF 01

SAMPLING METHOD: 2 ft. Sample Tube (ST) - Direct Push (DP)

DRILLING — START TIME: 1640 — FINISH TIME: 1700

SURFACE CONDITIONS: Water - Inner Harbor Navigational Canal

DATE: 9/07/99 — DATE: 9/07/99

DRILLING CONTRACTOR Dames & Moore

BY Aaron Steigerwalt / Dave Bronson CHECKED BY

DATE

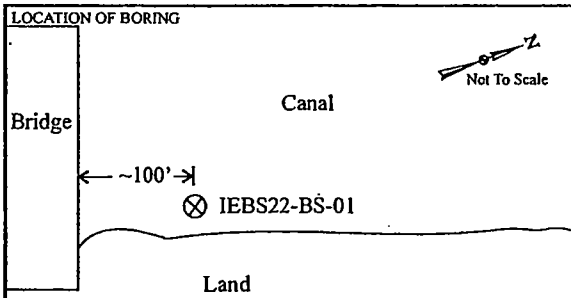
SAMPLER TYPE	INCHES DRIVEN / INCHES RECOVERED	TIME	SAMPLE NUMBER / SAMPLE DEPTH	BLOWS/FT. SAMPLER	OVA AUGER	OVA SAMPLE	OVA CUTTINGS	DEPTH IN FEET	SOIL GRAPH
	36 / 36		IEBS21-HS-01			6.5		00	
								01	
								02	
								03	
								04	
								05	
								06	
								07	
								08	
								09	
								10	
								11	
								12	
								13	
								14	
								15	
								16	
								17	
								18	
								19	
								20	
								21	

BLACKISH CLAY/SAND with wood debris

TD @ 3.0' below ground surface (bgs) - under water depth

Dames & Moore

LOCATION OF BORING



JOB NUMBER	CLIENT	LOCATION
08768-049-149	USACE - NOD	I. Tank Terminal

DRILLING METHOD: Track-Hoe

BORING NUMBER: IEBS22-BS-01

SHEET: 01 OF 01

SAMPLING METHOD: Track-Hoe Bucket

DRILLING: START TIME 1310 / FINISH TIME 1330

SURFACE CONDITIONS: Water - Inner Harbor Navigational Canal

DATE: 9/08/99 / DATE: 9/08/99

DATUM

ELEVATION

DRILLING CONTRACTOR Dames & Moore

BY Aaron Steigerwalt / Dave Bronson

CHECKED BY

DATE

SAMPLER TYPE	INCHES DRIVEN / INCHES RECOVERED	TIME	SAMPLE NUMBER / SAMPLE DEPTH	BLOWS/FT. SAMPLER	OVA AUGER	OVA SAMPLE	OVA CUTTINGS	DEPTH IN FEET	SOIL GRAPH
	36 / 36		IEBS22-BS-01			3.5		00	
								01	
								02	
								03	
								04	
								05	
								06	
								07	
								08	
								09	
								10	
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								12	
								13	
								14	
								15	
								16	
								17	
								18	
								19	
								20	
								21	

BLACK, DARK SAND with rocks and shells

TD @ 3.0' below ground surface (bgs) - under water depth

QA Sample Collected

QC Sample Collected

MS/MSD Sample Collected

Dames & Moore

Comments on:
Dames and Moore's Input to
Demolition Design Memorandum

SITE-SPECIFIC SAMPLING & ANALYSIS PLAN
IHNC EAST BANK SEDIMENTS

Inner Harbor Navigation Canal Lock Replacement Project
New Orleans, Louisiana
12 July 1999

Reviewer: George Bacuta, Jean Spadaro: ED-GE, New Orleans District, U.S. Army Corps of Engineers
Respondent: 1. Respondent Concurs (C), Does not Concur (D), or takes Exception (E),
2. Commentor Agrees (A) with response, or Does not Agree (D) with response.

COMMENT #	SECTION : ITEM / PAGE	PARAGRAPH / LINE	COMMENT	C, D, E[1]	RESPONSE	A OR D[2]
1 (Spadaro)	Title Page		Replace "IHNC New Lock and Connecting Channels" with "IHNC Lock Replacement Project"	C	The text has been revised.	
2 (Spadaro)	3.2 & 3.3/Page 6	Various	Replace "rational" with "rationale" as appropriate.	C	The text has been revised.	
3 (Spadaro)	4.7/Page 11	Para. 1/Line 1	Verify use of a backhoe bucket.	C	Has been removed from the SAP.	
4 (Spadaro)	Table 1		Include the required detection limits in Table 1.	C	Table has been re-numbered and revised.	
5 (Bacuta)	3.2 / Page 6	1st Para., 2nd sentence	Total number of samples of 60 sediment samples to be collected and tested is not consistent with the number of samples in Table 1 and Figure 2. Correct these inconsistencies.	C	The text has been revised.	
6 (Bacuta)	3.2 & 3.3.2 / Page 6; Table 1; 4.4.1 / Page 8	3rd Para. & last Para. on Page 6; 1st Para. on Page 8	EM-200-1-3 suggests sample frequency of 1/10 for QC sample and 1/20 for QA sample as well as recommends a second or referee laboratory (different from the contract laboratory analyzing the regular and QC samples) that perform testing of the QA samples for purposes of evaluating the contract laboratory performance. Suggest to indicate where appropriate the frequency of the QC samples and frequency of QA samples as well as the name of the second laboratory to analyze the QA sample. Make sure that the contract as well as the QA laboratory are government certified as to the parameters to be tested.	C	The text has been revised.	
7 (Bacuta)	4.2 / Page 7	2nd & 3rd Para. of Section 4.2	To be consistent with sediment sampling on the westbank (Galvez Street Wharf) and to collect enough volume of samples for possible QC and QA, suggest to sample till maximum depth of 5 feet below the Canal bottom or	C	The text has been revised.	

COMMENT #	SECTION : ITEM / PAGE	PARAGRAPH / LINE	COMMENT	C, D, E[1]	RESPONSE	A OR D[2]
			mudline. For sampling in deep waters, suggest also to utilize portable push technology (geoprobe or vibracore) to minimize stirring of sediments as well as save on cost in lieu of utilizing a full size drill rig. For sampling in shallow waters, a teflon coated sediment grab sampling technology (e.g. ponar grab) can be an attractive alternative, however this sampling method is limited to surface sediments (several centimeters or inches or 1 feet). If the suggested hard core sediment sampler has a safety, cost, flexibility and sampling depth advantage over the usual sediment grab sampler (e.g. Ponar grab), utilize this sampling tool. Other alternatives are hand auger or a tube sampler which can have a penetration to 3 feet below bottom surface.			
7 (Bacuta)	4.2 / Page 7	2nd & 3rd Para. of Section 4.2	When sampling method is selected, provide detail explanation of procedures undertaken or followed by the particular sampling methodology. Sediment sampling with the hard core sediment sampler as well as with a barge-mounted drill rig does not exists in the Dames and Moore SOP procedures attached as Appendix A.	C	The text has been revised.	
9 (Bacuta)	4.6 / Page 10		Indicate the accuracy of the surveying method (e.g. GPS) to be utilized. Indicate how the control points on the bank will be surveyed and tied to a survey point utilized by USACE.	C	The text has been revised.	
10 (Bacuta)	4.8 / Page 11	3rd Para. of Section 4.8, last sentence	For labelling information on containers used for investigative derived wastes, include information the "start date" for collection of waste in each container.	C	The text has been revised.	
11 (Bacuta)	5.0 / Page 11	1st Para. of Section 5.0	Indicate that the field logbook / field notes / soil boring log / sediment sample logs will be submitted and attached to the final report.	C	The text has been revised.	
12 (Bacuta)	Sample Numbering System or Sample Designation	General	Describe a sample numbering system / sample designation which is unique for the site and used to identify each sample for chemical analysis.	C	The text has been revised.	
13 (Bacuta)	Plan Format	General	The SAP format should follow suggestion for acceptable plan formats in EM-200-1-3. The SAP consists of the Field Sampling Plan (FSP) and a QAPP (Quality Assurance Project Plan). Table 3-3 (Example Sample Table) and Table 3-5 (Example QA Objectives Summary) essentially summarizes the FSP and QAPP of the SAP. Develop your SAP around these formats to be in compliance with the EM 200-1-3 guidance.	C	The SAP has been re-formatted to meet the requirements of the EM-200-1-3 formats.	

COMMENT #	SECTION : ITEM / PAGE	PARAGRAPH / LINE	COMMENT	C, D, E[1]	RESPONSE	A OR D[2]
14 (Bacuta)	Appendix B		Attach PACE Chain of Custody Form	C	A Pace Chain-of-Custody has been attached.	
15 (Bacuta)	VOC Samples		For VOC samples, provide requirement that would avoid significant loss of volatiles during collection, handling, transport, etc. With the current debate on VOC losses and with the SW 846 Update III recommended modification for VOC sample collection procedure (i.e. Method 5035), verify with LDEQ whether the State follow either the traditional VOC sample collection/handling procedure or the updated Method 5035 procedure. Suggest to utilize the acceptable State requirement.	C	Dames & Moore contacted the LDEQ which stated that the old method for VOC sample collection was acceptable.	

DAMES & MOORE

A DAMES & MOORE GROUP COMPANY

SAMPLING AND ANALYSIS PLAN

for

IHNC East Bank Sediments

Environmental Support to IHNC Lock Replacement Project
Contract Number: DACW29-97-D-0019
Delivery Number 0011
New Orleans COE

Dames & Moore Job Number 08768-049-149
August 30, 1999

APPROVAL PAGE

Quality Assurance Project Plan
for
IHNC East Bank Sediments

Environmental Support to
IHNC Lock Replacement Project

Contract Number: DACW29-97-D-0019
Delivery Order Number: 0011
New Orleans COE

Approved by:

Dames & Moore Certified Industrial Hygienist, Dennis W. Day — August 30, 1999

Dames & Moore QA Director, John E. Plevniak — August 30, 1999

Dames & Moore Project Manager, Douglas E. Kuhn — August 30, 1999

New Orleans COE Contracting Officers Representative, Brett Herr — August 30, 1999

New Orleans COE Technical Representative (TR)
Mr. George Bacuta and/or Ms. Jean Spadaro — August 30, 1999

TABLE OF CONTENTS

INTRODUCTION

This Quality Assurance Project Plan (QAPP) represents the first level of quality assurance/quality control (QA/QC) detail for US Army Corps of Engineers New Orleans District (USACE-NOD) at the east bank of the Inner Harbor Navigation Canal (IHNC), New Orleans, Louisiana. According to previous reports, nine abandoned barges are present along the east bank that may be sources of contamination to the sediments in the area. Other potential sources for environmental impact to the sediments along the east bank of the IHNC include past industrial activity and discharge from pipe drains and canal drains originating from existing and former industrial facilities along the east bank of the canal.

The Site Investigation comprises an overall strategy to determine whether or not the abandoned barges and past industrial activities are a source of contamination to the sediments along the IHNC. This investigation may be followed by additional work if contamination is detected in the area of concern.

This QAPP addresses the objectives of the site investigation. QAPP requirements will be modified and developed to address the objectives of the later work at the site. This QAPP, when combined with its companion document, the Field Sampling Plan (FSP), comprises the Sampling and Analysis Plan (SAP). The SAP documents are prepared following the USACE protocols as described in Engineering Manual, EM 200-1-3.

Quality assurance is defined as the integrated program designed for assuring reliability of monitoring and measurement data. Quality control is defined as the routine application of procedures for obtaining prescribed standards of performance in the monitoring and measuring process. Quality assurance procedures such as tracking, reviewing and auditing are implemented as necessary to ensure that all project work is performed in accordance with professional standards, regulations and guidelines, and specific project goals and requirements.

This QAPP addresses the requirements set forth in U.S. Environmental Protection Agency (EPA) guidance and regulations (40 CFR [Code of Federal Regulations] 300) including procedures to ensure the precision, accuracy, completeness, comparability and representativeness of all data collected and generated during the course of this Site Investigation. It is intended to guide field, laboratory and management personnel in all relevant aspects of data collection, management and control while on or off site.

Standard operating procedures (SOPS) for project activities are included in Appendix A of the Field Sampling Plan (FSP). Field activities will include sample collection and field measurements. Quality control of field data, tabulation, analyses, computations and interpretation of field data will be provided by technical project personnel. Equipment used to take field measurements will be maintained and calibrated and records of these activities kept, in accordance with established procedures.

1.0 PROJECT ORGANIZATION AND RESPONSIBILITIES

1.1 PROJECT ORGANIZATION

This project will involve the Planning, Programs and Project Management Division (CEMVN-PM) and Engineering Division (CEMVN-ED) of the US Army Corps of Engineers New Orleans District (USACE-NOD) as well as the staff of the Dames & Moore-Kansas City (DM-KSC). Preparation of plans and reports will be the responsibilities of DM-KSC under USCOE Contract Number DACW29-97-D-0019. DM-KSC will also handle supervision and oversight of all field activities as well as manage the testing of sediment samples. Drilling activities will be conducted by Professional Services Incorporated (PSI) of New Orleans via a contract with DM-KSC and Pace Analytical that is under contract with DM-KSC will be the designated contract laboratory.

At the New Orleans District Office, the following personnel will be responsible for the management of budget and schedules; final review of plans and reports; and coordination with the State regulatory agencies, if necessary.

Brett Herr - Contracting Officer Representative
Jean Spadaro - Project Manager
George Bacuta - Technical manager
Gary Brouse - Quality Assurance Manager

At the DM-KSC Office, the following personnel will be responsible for the management of budget and schedules; the preparation of plans and reports; the coordination with state agencies; the managing of subcontractors; the execution of the field sampling plan; the collection and submittal of sediment samples to the contracting laboratory; the completion of the abandoned barge inventory; and addressing site health and safety issues.

Doug Kuhn - Lead Consultant
Rick Horner - Project Manager
John Plevniak – Quality Assurance Manager
Aaron Steigerwalt – Field Site Manager
Dennis Day – Health & Safety Coordinator

1.2 RESPONSIBILITIES

The following is a summary of the responsibilities of the USACE-NOD, the DM-KSC office as well as the contract laboratory involved in this project:

1. Project Management (USACE-NOD)

   - funding and overall management of the project

2. Technical Engineering Support (DM-KSC)

- develop draft and final plans (Quality Assurance Project Plan (QAPP), Field Sampling Plan (FSP) and Site Specific Safety and Health Plan (SSHP)
- provide all office technical support related to the technical coordination, plan execution, field technical oversight and reconciliation of activities to the requirements of the plans
- provide technical information to LDEQ through USACE-NOD's Project Management on all required plans and results of USACE's investigations of IHNC
- conduct all field activities including abandoned barge inventory, sediment sampling, and GPS survey of sediment sampling locations
- provide sampling location results, field notes and records, input to the investigation report
- evaluate results of the sediment sampling investigation as well as sediment sampling and testing
- provide statistical analysis of data as the results would allow and provide data validation
- prepare a Sampling and Analysis Report (SAR) to document the results of the investigation of the east bank sediments and abandoned barges.
- test and dispose of Investigation Derived Materials

3. Contract Chemical Laboratory (Pace Analytical)

- will perform all required laboratory chemical analysis of sediment samples collected during the course of this project. Pace Analytical has an interim laboratory certification from the State of Louisiana and is in the process of having its laboratory re-validated by the USACE.

1.3 PROBLEM DEFINITION/BACKGROUND

The problem as defined should be first to determine how environmentally impacted are the sediments on the east bank of the canal between Florida Avenue and North Claiborne Avenue as well as the abandoned barges along the banks in this corridor. The results of this investigation should provide answers to the second problem, that is related (a) to the disposition of these sediments during demolition/slope stabilization of the banks (i.e. disposal) and (b) to the disposal of the abandoned barges. If the sediments are not impacted or are only slightly impacted, the sediments may be used in re-grading the slopes of the banks during the demolition of the east bank structures. If the sediments are highly impacted and hazardous (i.e. fail TCLP), these hazardous sediments will be collected and disposed properly such as a hazardous waste landfill. If the sediments are highly impacted but not hazardous (i.e. pass TCLP), an evaluation of this material will be made in order to determine the management of this material. Various

options for the management of this material include: re-use at the site with LDEQ approval, acceptable for re-use as dredge material for MRGO/mitigation sites, and/or has to be disposed at a industrial solid waste landfill. Note that the Canal sediments collected from the centerline of the canal and tested have a standing dredge disposal permit.

1.3.1 Site History

The project area is located along the east bank of the Inner Harbor Navigation Canal (IHNC), between Florida and North Claiborne Avenues, New Orleans, Orleans Parish, Louisiana. The project location covers and area of approximately 38 acres. Figure 1 presents a generalized map of the project location.

The IHNC opened in 1923, and is located in the metropolitan area of New Orleans. The canal was constructed in order to allow for the movement of barge traffic from the Mississippi River to Lake Pontchartrain and the inter-coastal waterways of the Gulf Coast. In this industrialized area are several active and inactive facilities that were associated with steel fabrication, shipbuilding, marine vessel repair and servicing, marine supplies, petroleum related facilities, barge leasing, and others.

Industrialization of the east bank area began in the 1960s and today approximately 50% of these industrialized facilities are currently unoccupied or abandoned. Six sites along Surekote Road make up the industrial east bank area (IEB). These sites are Boland Marine (2500 Surekote Road), McDonough Marine (2300 Surekote Road), Indian Towing Company (2200 Surekote Road), Mayer Yacht/Distributor Oil (2100 Surekote Road), Saucer Marine (1910 Surekote Road), and International Tank Terminal (1800 Surekote Road).

The Boland Marine property, located at 2500 Surekote Road, historically was used for ship repairs. Operated by Boland Marine for nearly twenty years, the site is now occupied by an unaffiliated ship repair company. From the mid 1970s to the early 1990s, Boland Marine developed and utilized site facilities for storage, office space, painting operations, and fabrication/welding. Signs of obvious site contamination, sandblast materials, discarded drums and electrical transformers were noted on the property. Previous investigations at this location have identified areas of environmental impact in the shallow soils that will be addressed by the USACE during the course of the lock replacement project. Approximately 6,879yd^3 of material has been estimated as impacted above LDEQ screening options for semi-volatile organic compounds (SVOC) and lead.

The McDonough Marine property, located at 2300 Surekote Road, was used for barge leasing and chartering services for more than three decades. Originally operating under the name McDonough Marine, this company has been known as Marmac Corporation since 1972. Sandblast materials were noted on the ground surface near the southwest property corner and discarded drums were abandoned near the paint house. Several ASTs have also been identified on the McDonough property. Previous investigations at this location have identified areas of environmental impact in the shallow soils that will be addressed by the USACE during the course of the lock replacement project. Approximately 381yd^3 of material has been estimated as impacted above LDEQ screening options for semi-volatile organic compounds (SVOC).

The Indian Towing Company began operations at 2200 Surekote Road in 1954. In addition to being a nautical towing company, Indian used the Surekote location for the sale, storage, and repair of marine equipment. It has been reported that on numerous occasions, the Dock Board sited Indian Towing with lease violations that included illegal barge discharging and general disregard for the environment. Previous investigations at this location have identified areas of environmental impact in the shallow soils that will be addressed by the USACE during the course of the lock replacement project. Approximately 1,527yd^3 of material has been estimated as impacted above LDEQ screening options for semi-volatile organic compounds (SVOC).

Mayer Yacht currently performs boat repairs on the property located at 2100 Surekote Road. Originally developed in 1951, the site was primarily used for fueling operations, boat repairs, and the distribution of marine supplies. Mayer Yacht was also cited for several lease violations that included a general disregard for the environment. Previous investigations at this location have identified areas of environmental impact in the shallow soils that will be addressed by the USACE during the course of the lock replacement project. Approximately 1,202yd^3 of material has been estimated as impacted above LDEQ screening options for total petroleum hydrocarbons (TPH).

Saucer Marine Service began leasing the property located at 1910 Surekote Road in 1954. Saucer Marine used this site for ship building practices over the next four decades. Several aboveground storage tanks, discarded 55-gallon drums and mixed waste mounds of sandblasting material have been documented at this location. Several abandoned barges have also been inventoried along the banks of Saucer Marine. Previous investigations at this location have identified areas of environmental impact in the shallow soils that will be addressed by the USACE during the course of the lock replacement project. Approximately 9,600yd^3 of material has been estimated as impacted above LDEQ screening options for semi-volatile organic compounds (SVOC) and TPH.

The site referred as the International Tank Terminal (ITT) is located at 1800 Surekote Road. Former operations at this site include steel fabrication, trucking, and ship repairs. Tanks of undisclosed size and contents were at one time located on the property. Sandblast materials were also reported to be present on the north end of the site. Previous investigations at this location have identified areas of environmental impact in the shallow soils that will be addressed by the USACE during the course of the lock replacement project. Approximately 1,261yd^3 of material has been estimated as impacted above LDEQ screening options for semi-volatile organic compounds (SVOC).

Several reports from previous investigations along the industrial east bank of the IHNC have been reviewed so that the above summary on Site History could be completed. These reports include USACE-NOD documents dated 1993, a Christopher Goodwin and Associates report dated 1992, a Materials Management Group report dated 1994, and a Abandoned Barge Inventory report completed by the State of Louisiana. Reports prepared by Dames & Moore, such as The Above Ground Structure Report, The Above Ground Storage Tank Report and the Mix-Waste Mound Report, were also reviewed and incorporated in the above section.

1.3.2 Proposed Remedial Action.

If the results of this investigation indicate that the sediments along the east bank of the IHNC are clean or slightly impacted with regulated compounds/chemicals at concentrations below the State of Louisiana RECAP criteria, the sediments will be used for stabilizing the slopes of the east bank. Sediments determined to be highly impacted and either not hazardous or hazardous, further investigations will be undertaken as well as proposed remedial action for the sediments will be addressed prior to the construction of the new lock

1.4 PROJECT/TASK DESCRIPTION (PROJECT DESCRIPTION)

This project consists of the collection and testing of sediment and possible sludge for VOC, semi-volatile, 8 RCRA metals, total petroleum hydrocarbons, oil/grease and pesticides/PCBs analyses. These samples will be collected adjacent to abandoned barges, industrial discharge points and "environmental hot spots' identified at industrial facilities along the east bank of the IHNC.

1.4.1 Field Sampling

The objectives of sampling procedures and field measurements are to obtain representative samples of sediment in areas adjacent to abandoned barges and other potential "environmental hot spots" associated with past industrial activities along the east bank of the IHNC. Contaminants from external off-site sources must be eliminated through the use of proper sampling techniques, proper sampling equipment, proper decontamination procedures and experienced field personnel.

Field measurements and sampling will be performed in accordance with accepted federal and state procedures. The FSP for this project specifies the standard operating procedures to be used. The details of the field procedures are provided in Section 4 of the FSP. The FSP follows USACE protocols as described in EM-200-1-3.

Should site conditions differ from the conditions defined in the FSP or the QAPP, the Site Manager and the Site Safety and Health Officer has the authority to alter or change the standard operating procedures so long as all relevant and appropriate regulations are addressed and in compliance.

1.5 DATA QUALITY OBJECTIVES FOR MEASUREMENT DATA

1.5.1 Quality Assurance Objectives

The overall quality assurance objective for measurement data is to ensure that the data generated are of documented quality and are legally defensible for the intended data uses. In order to achieve these objectives, data will be: (1) representative of actual site physical and chemical conditions, (2) comparable to previous and subsequent data, (3) complete to the extent that necessary conclusions may be reached, and (4) of known quantitative statistical significance in terms of precision and accuracy, at levels appropriate for each stated data use for the project. Quality assurance objectives for measurement data are usually expressed in terms of precision, accuracy, representativeness, completeness and comparability (also known as the PARCC parameters).

1.5.1.1 Precision

Precision is a measure of mutual agreement among individual measurements of the same property, usually under prescribed similar conditions. Precision is best expressed in terms of the standard deviation around the mean or relative percent difference (RPD) between two samples. Precision of reported results is a function of sample homogeneity, inherent field-related variability, shipping variability and laboratory analytical variability. Various measures of precision exist depending upon "prescribed similar conditions". Field duplicate (co-located) samples will provide a measure of the contribution to overall variability of field-related and to some extent laboratory-related sources.

Contribution of laboratory-related sources to overall variability is also measured through various laboratory QC samples (laboratory duplicates, etc.)

1.5.1.2 Accuracy

Accuracy is the degree of conformity of a measurement (or an average of measurements of the same parameter), X, with an excepted reference or true value, T, usually expressed as the difference between the two values, X-T, or the difference as a percentage of the reference or true value, I 00 (X-T)/T, and sometimes expressed as a ratio, (X/T) I 00 (equal to percent recovery). Accuracy is a measure of the bias in a system. Internal laboratory QC samples (matrix spikes, laboratory control spikes, blank spikes and standards) will also yield accuracy information.

Computer programs are used to report and store analytical data. Entry accuracy is checked by checking all output and comparing it against the laboratory data reports. Hard copies of the computer database will be printed and the information will be manually checked against the laboratory reports. As each database entry is checked, it will be highlighted. At the completion of the accuracy check, the hard copy will be filed as a checkpoint to serve as verification of the check. The proper collection, transfer and storage of data are the responsibility of the analyzing laboratory. The contract laboratory will perform an accuracy check of the reported data before the data is released to the Corps of Engineers.

1.5.1.3 Representativeness

Representativeness is the degree to which data accurately and precisely represent the true value of a characteristic of a population, parameter variations at a sampling point, a process condition or an environmental condition intended to be characterized.

Representativeness of reported results depends upon a number of considerations including, but not limited to, proper monitoring design, selection of appropriate field methodology, proper sample preparation, preservation and handling, selection and execution of appropriate analytical methodology, and proper sample identification and reporting of results.

1.5.1.4 Completeness

Completeness is a measure of the amount of valid data expressed as a percentage obtained from a measurement system compared to the amount that was expected to be obtained under normal conditions.

Field and analytical data may be specified at different completeness levels. The completeness criterion should be defined to be consistent with the project data quality objectives. In general, a completeness criterion of 90 percent data usable for specified project data uses is the completeness target for the site.

1.5.1.5 Comparability

Comparability is the confidence with which one data set can be compared to another. Comparability may be assessed by comparing sampling methodology, analytical methodology and units of reported data.

1.5.2 Data Quality Objectives

Data quality objectives (DQOS) are qualitative and quantitative statements specified to ensure that data of known and appropriate quality in support of remedial response activities and decisions are generated. DQOs are an integrated set of thought processes, which define data quality requirements based on identified end uses of the database.

Table 1.5-1 below describes analytical support levels for data collection, as given in EPA DQO guidance documents.

Table 1.5-1
Analytical Support Levels for Data Collection Activities

The analytical options available to support data collection activities are presented in five general levels (ref. EPA Data Quality Objective [DQO] Guidance). These levels are distinguished by the types of technology and documentation used, and their degree of sophistication as follows:

LEVEL V - Non-Standard Methods: Analyses, which may require method modification and/or development. CLP Special Analytical Services (SAS) are considered Level V. Required detection limits for Site groundwater analyses will be lower than standard detection limits, for several of the volatile organics.

LEVEL IV - CLP Routine Analytical Services (RAS): This level is characterized by rigorous QA/QC protocols and documentation and provides qualitative and quantitative analytical data. Some regions have obtained similar support via their own regional laboratories, university laboratories, or other commercial laboratories.

LEVEL III - Laboratory Analysis Using Methods Other than the CLP RAS: This level is used primarily in support of engineering studies using standard EPA approved procedures. Some procedures may be equivalent to CLP RAS without the CLP requirements for documentation.

LEVEL II - Field Analysis: This level is characterized by the use of portable analytical instruments which can be used on-site or in mobile laboratories stationed near a site (close-support labs). Depending upon the types of contaminants, sample matrix, and personnel skills, qualitative and quantitative data can be obtained.

LEVEL I - Field Screening: This level is characterized by the use of portable instruments which can provide real-time data to assist in the optimization of sampling point locations and for health and safety support. Data can be generated regarding the presence or absence of certain contaminants (especially volatiles) at sampling location.

For this site investigation activity: Level I will be used for health and safety monitoring as well as for screening sediment samples to be sent to an offsite laboratory for confirmatory testing. Level III will be used for testing sediment samples, the results of that will be the basis for determining the nature of contamination of the sediments and for classifying whether these sediments are not contaminated, slightly contaminated, highly contaminated but not hazardous, and highly contaminated and hazardous. Various disposal and/or remediation options will then be explored to determine the final disposition of these sediments.

The DQOs are developed using the following seven-stage process:

Stage 1 - State Problem
Are the sediments on the east bank of the IHNC contaminated as a result of activities at adjacent facilities and/or from releases associated with abandoned barges.

Do the abandoned barges contain hazardous or regulated wastes during the time of this investigation.

Stage 2 - Identify the Decision
If the sediments are impacted, additional investigations will be recommended to determine the nature and volume or extent of sediment contamination as well as explore most cost-effective disposal option(s).

Preliminary screening and a abandoned barge inventory completed by the Louisiana Oil Spill Coordinator Office (LOSCO) indicate that the abandoned barges in general do not contain hazardous/regulated materials. The LOSCO survey did report that one barge contained a tank which held a regulated substance. It was reported that the regulated material was removed from the barge and properly disposed off-site. Further investigation of the barges will be conducted to determine original barge contents as well as release pathways. If sediments samples collected immediately adjacent to the barges reveal analytical data that supports environmental impact and field evaluation indicates possible releases from the abandoned barges has occurred, further investigation will be initiated.

Stage 3 - Identify Inputs to the Decision
Analytical results of sediment samples collected and analyzed, near surface geology or soil/sediment stratigraphy, inventory of barges, contaminant release pathway evaluation. Sediment analytical results will be compared with background values as well as with State and Federal regulated cleanup criteria.

Stage 4 - Define the Site Boundaries

Spatial Boundary - The study area is the east bank of the IHNC between Florida Avenue and North Claiborne Avenue, New Orleans, Louisiana.

Temporal Boundary – Contamination of the sediments, if present, may have resulted from releases resulting from past and current activities of the adjacent industrial facilities as well as possibly from the abandoned barges. Project impacts due to time of year are negligible.

Time Frame Impacts on the Sampling parameters - Seasonal variations are not considered to be a factor in this project. The urgency of sample collection is primarily a function of the schedule for lock replacement. The project is located in an industrial area and the samples to be collected are sediments located below the Canal water line where human contact is assumed to be minimal.

Stage 5 - Develop a Decision Rule

If the results of the analytical data are below State and Federal regulated cleanup criteria as well as background values, the sediment along the east bank of the IHNC will be considered clean and may be re-used for grading of the east bank slope.

If the results of the analytical data are above State and federal regulated cleanup criteria as well as background values, the sediments along the east bank of the IHNC will be isolated and not used for grading the slope of the east bank. Additional investigations will be conducted to define the extent of the contamination in these sediments as well as explore disposal options for these impacted sediments.

Stage 6 - Acceptable Limits on Decision Errors

Because the goal of this investigation is to determine whether sediment collected from the east bank of the IHNC are contaminated with various compounds, the accuracy of every individual chemical laboratory measurement must be within tolerable limits. Precision (RPD) for field duplicates should be <50 RPD and for lab duplicates should be <25% R-PD. Laboratory accuracy for matrix spike recovery should be about 0-140% Recovery (compound specific).

The distinction between background sample concentrations and source concentrations must be statistically distinguishable, within a standard deviation for each data group such that if:

B = average background concentration,
D = average dump concentration, and
P = average plume concentration
SB = standard deviation for the background data, and
SD = standard deviation for the dump area data
... then
B+SB < D- SD, and
B <.IO(D)

Stage 7 - Optimize the Design

The main objective of this investigation is to investigate whether or not the abandoned barges or other drainage ways and past industrial activities are the source of the contamination impacting the sediment along the east bank of the IHNC. Twenty-two (22) sampling points are selected and strategically located in order to collect sediment samples from the east bank of the IHNC around potential source areas (barges, drainage ways, tanks, documented areas of environmental impact, discharge points, etc.). Field investigation is optimized by assuming each of these areas is a point source and by strategically placing sampling points between the barges or drainage ways and the canal to intercept and confirm the presence or absence of an assumed plume or runoff pathway migrating from these areas of concern. Data from the laboratory will be optimized after the evaluation of the outcome of data validation to be performed on the results of laboratory analysis of sediment samples.

These stages have been and will be undertaken in an interactive and iterative manner whereby all the elements of the DQO process are continually reviewed and applied during execution of data collection and assessment activities. As such, DQO's have been developed at the outset of the project and will be revised or expanded as needed based upon the results of each data collection activity.

2.0 MEASUREMENT/DATA ACQUISITION

2.1 SAMPLING METHODS REQUIREMENTS (SAMPLING PROCEDURES).

2.1.1 Field Sampling: Sediment Samples

Sediment samples will be obtained from 0 to 60 inches below the mud line using either a stainless steel core barrel or stainless steel hard core sediment sampler pending on canal water depth. In water depths greater than three feet, a barge mounted drill rig will be used to advance a stainless steel core barrel. When water depths are less than three feet, the sediment samples will be collected using a stainless steel hard core sediment sampler with acetate liner tubes. The sampling locations are shown on Figure 2 of the FSP. A total target number of 60 sediment samples will be collected including QA/QC samples during the course of this project. Sediment samples will be collected and sent for chemical analysis to evaluate the presence or absence as well as the preliminary extent and magnitude of the contamination at and around the suspected source areas. The sediment sampling strategy involves the collection of sediment samples for each sampling location which will be based on current and past industrial activities, surface water and industrial discharge points, and documented environmental impacts along the canal. The sample locations will be placed to increase the probability of detecting the source of contamination or any surface migration of the contamination

Collected sediment samples will be submitted to an off-site laboratory for VOC, SVOC, TPH by OA-1, TPH by OA-2, RCRA 8 metals, pesticides/herbicides, and PCB analyses. Samples will be sent to Pace Analytical of New Orleans with QA samples sent to Southwest Laboratories of Broken Bow, Oklahoma.

The following is an outline of sampling procedures:

- *Upon retrieval of the sediment sample, screen with PID and sub sample for Volatile Organic Analysis (VOA).*
- *Place sample into laboratory grade containers.*
- *Complete the boring log entry.*
- *Fill out field notebook, labels and chain of custody forms for analytical samples.*
- *Cool analytical samples to 4' C. Samples will be transported to the laboratory*

Upon collection of each sample and prior to sampling at new locations as well as upon completion of drilling and sampling operations for the day.

- *Decontaminate the sampling tools*

Soil/Sediment Samples -The following outlines field characterization of subsurface soil/sediment samples.

Organic Vapor Analysis - Upon immediate retrieval of the sampler, on-site environmental personnel (usually a certified field geologist, chemist, environmental engineer) will measure the sample using a PID. After the sample his been homogenized, environmental personnel will take a second organic vapor reading. The readings will be recorded on the HTW boring log.

Plugging of Boreholes - All boreholes will be grouted if necessary. Under no circumstance will a borehole be left opened after the conclusion of sampling activities at each site. All cuttings will be containerized and properly and safely secured at the IHNC site pending disposal.

Field Documentation - The following outlines procedures for field documentation and labeling for samples:

Immediately before the sample is collected, each container will be labeled with the following information: sample identification number, project number, date, time, analysis requested, preservation and name of person sampling. The labels will be covered with transparent plastic tape. After samples have been collected the sample bottles will be either taped at the lid or encased in a "zip-lock' type bag for shipment. A sample "travel blank' will be shipped with every ice chest of samples to be analyzed for organic volatiles. Pertinent information will be recorded in the bound field notebook and all chain of custody documents completed. The bound field notebook will have pre-numbered pages and entries will be made in indelible ink (Skilcraft - Black). Data from the sampling episode will also be recorded in the field log.

The samples will be delivered by the field sampling crew to Pace Laboratory in New Orleans and shipped via FEDERAL EXPRESS (FEDEX) or other overnight courier to the QA laboratories.

2.2 SAMPLING HANDLING AND CUSTODY REQUIREMENTS.

2.2.1 Sample Numbering.

Samples should be numbered according to the following pattern:

Sample Location (AAaa) - depth of sample interval (bb-cc') - sample qualifier (dd) where:

AA is the site name
aa is the sample location number
bb is the beginning of the sample interval, if necessary
cc is the end of the sample interval, if necessary
dd is the sample identification qualifier

Sample qualifiers should be as listed to maintain the "double blind" standard of quality assurance.

01 - Field Sample
02 - Quality Assurance Sample
03 - Quality Control Sample
04 - Rinsate Blank
05 - Trip Blank

For example:

IEBS01-HS(0-3)-01 indicates a sediment sample from location 1 of the Industrial East Bank Sediment (IEBS), taken by a hand core sediment sampler in water 0 to 3 feet deep, taken as a field sample. The qualifiers HS (for hand core sediment sample) and BS (for a barge sediment sample) are added as pre-fix to the sample number to identify sampling method.

2.2.2 Chain-of-Custody Requirements

The purpose of the chain-of-custody procedures is to document the identity of the sample, and its handling, from its first existence as a sample until information derived from it is introduced as evidence during legal proceedings. Custody records trace a sample from its collection through all transfers of custody until it is transferred to an analytical laboratory. Internal laboratory records then document the custody of the sample through its final disposition.

A sample is under custody if one or more of the following criteria are met:

- The sample is in the custodian's (sampler, lab personnel, etc.) possession.
- It is in the custodian's view after being in possession.
- It was in the custodian's possession and was locked up to prevent tampering.
- It is in a designated secure area.

Sample identification records and custody records to satisfy the requirements of EPA will be used. The National Enforcement Investigations Center (NEIC) Policies and Procedures Manual provides chain-of-custody and document control procedures. The remainder of this section discusses the chain-of-custody and document control requirements specified in the above document which are appropriate to this duty. These procedures will be followed. If any deviations occur, appropriate personnel will be notified and deviations will be noted in the field forms.

2.2.3 Field Custody Requirements

Chain-of-custody for samples collected in the field and transported or shipped to laboratories for analysis and study will be maintained. The field team will have a designated field sample custodian with overall responsibility for sample custody and for field document control. The custodian will ensure that the sampling teams have and use the appropriate identification and custody records, will resolve custody problems in the field and will handle the shipment of samples to the analytical laboratories.

2.2.4 Sample Labels

Each collected sample will have a completely filled-in sample label securely attached to it. Sample collection labels will be preprinted to ensure that the required information is provided on each label. Labels will include the sample identification number, project number, date, time, analysis requested, preservation and name of person sampling. The person who physically collects the sample is the sampler and will initial the sample label.

2.2.5 Chain-of-Custody Record Sheets

Custody records will be used for the samples collected at the site. The multi-part carbonless copy forms will be correlated with the sample collection labels; requested information will have the same heading on both. The sampler or sample custodian will complete a chain-of-custody record to accompany each sample shipment from the field to the laboratory.

The custody records will be used for either a single sample or a packaged lot of samples; more than one sample can usually be recorded on one form. More than one custody record sheet may be used for one shipment, if necessary. Their purpose is to document the transfer of a group of samples traveling together; when the group of samples changes, a new custody record is initiated. The original custody record travels with the samples; the initiator of the record keeps a copy. When custody of the same group of samples changes hands several times, some people will not have a copy of the custody record. This is acceptable as long as the original custody record shows that each person who had received custody has properly relinquished custody.

General use instructions follow:

Using a Multi-Part Custody Record Sheet

- *The originator fills in all requested information from the sample labels.*
- *The originator signs in the top left "Relinquished by" box and keeps the copy*
- *The original record sheet travels with the samples.*
- *The person receiving custody checks the sample label information against the custody record. He also checks sample condition and notes anything unusual under "Comments" on the custody form. The receiving laboratory should also maintain a "cooler receipt" form for each ice chest received. The information on this form should define the condition of the sample upon receipt, including physical condition, completeness of the chains-of-custody, and directions received by the laboratory concerning the samples.*
- *The person receiving custody signs in the adjacent "Received by" box and keeps the original.*
- *The Date/Time will be the same for both signatures since custody must be transferred to another person. When samples are shipped via common carrier (e.g., Federal Express), the date/time will not be the same for both signatures.*
- *When samples are shipped via common carrier, the original travels with the samples and the shipper (e.g., Field Sample Custodian) keeps the copy. The shipper also keeps all shipping papers, bills of lading, etc.*
- *In all cases, it must be readily seen that the same person receiving custody has relinquished it to the next custodian.*

No "Page 15" in report

Evidentiary audits are checks on all of the project documentation that could potentially be required for defensible data. An evidentiary audit will be performed at least once during the investigation by the Field QA Manager and a report submitted to the New Orleans District project manager. This audit should include items that relate to sample custody, sample documentation, sample numbering, adherence to SOPs and sampling methodology, sample labeling requirements, custody seal requirements, chain-of-custody, and other field methods, practices and procedures that relate to evidentiary concerns.

System and performance audits are conducted for laboratory procedures and analytical methods to be used for the sample analysis. The laboratory QAPP should define the system and performance audits and their frequency.

The field and lab personnel will be notified of any issues of concern while the audit is being conducted. All corrections that can be made immediately will be made concurrently with the audit. Subsequent to an audit, the appropriate QA manager will develop an audit report that summarizes the audit findings, including those areas found to be in nonconformance if any and the proposed corrective measures. This report will be prepared in memo form and submitted to the project managers and copied to the project file.

3.1.2 Corrective Actions

An important part of a quality assurance program is a well-defined, effective policy for correcting problems. The QA program operates to prevent problems, but it also serves to identify and correct those that exist. Usually these problems require either on the spot, immediate corrective action or long-term corrective action.

The corrective action system used during this study is designed to quickly identify problems, and solve them efficiently. The appropriate QA manager is responsible for the direction of this system and receives full support from management for its implementation. The essential steps are:

- *Identify and define the problem*
- *Assign responsibility for investigating the problem*
- *Determine a corrective action to eliminate the problem*
- *Assign and accept responsibility for implementing the corrective action*
- *Implement the corrective action*
- *Verify that the corrective action has eliminated the problem*
- *Document the problem identified, the corrective action taken and its effectiveness in eliminating the problem*

Corrective action procedures which will be used to resolve deficiencies found during routine activities or QA audits of field, laboratory or office activities will be as described in the following section.

3.1.2.1 Corrective Action Resulting from Routine Activities

Deficiencies found during normal routine activities will be resolved by implementing corrective action as part of normal operating procedures by staff. Corrective actions of this type will be noted in the field or

laboratory notebook; no other formal documentation is necessary unless further corrective action is required. If normal procedures do not solve the problem, the staff will document the problem in a formal memo addressed to the QA/QC managers and copied to the project file.

3.1.2.2 Corrective Action Resulting from QA Audits

Deficiencies encountered during a QA audit will be corrected as soon as possible. The appropriate QA manager with the project manager is responsible for completion of appropriate corrective action. The procedures used to expedite corrective action will be:

- *Auditor verbally notifies the work assignment manager and field and lab personnel immediately during audits of deficiencies found Work assignment manager institutes corrective action as soon as possible QA managers distributes the audit reports promptly*

3.2 REPORTS TO MANAGEMENT

During the site field sampling activities associated with the investigation, field logs and other related field documentation will be maintained. The evidentiary audit report and a narrative event report will be generated to document the activities associated with the field-sampling event. These reports will be distributed in accordance with paragraph 1.1 of this QAPP. Anytime during the studies, any significant deviation from work plans will be documented and distributed in accordance with this QAPP.

4.0 DATA VALIDATION AND USABILITY

4.1 DATA REVIEW, VALIDATION AND VERIFICATION REQUIREMENTS

4.1.1 General Approach

Data quality and utility depends on many factors, including sampling methods, sample preparation, analytical methods, quality control, and documentation. Subcontractors or other organizations, such as laboratories or sampling personnel, must be advised of all applicable documentation and procedural requirements. All data generated will be reviewed by NOD for completeness.

4.1.2 Final Reporting and Report Archival

Upon successful completion of the data assessment and validation process, all data generated for the investigation will be summarized in the final investigation report. Data summaries and results will be submitted with the studies final report.

Copies of all analytical data and/or final reports are retained in the laboratory files and, at the discretion of the laboratory manager, data will be stored on computer disks for a minimum of six months.

4.2 RECONCILIATION OF DATA QUALITY OBJECTIVES

Reconciliation of the results of the DQO process will be accomplished by identifying specific decision rule criteria and addressing the potential outcomes for each of those decisions. The specific decisions for the study are numbered and reconciled as follows:

- If detectable concentrations in the sediment samples collected from the industrial east bank of the IHNC are above background concentrations and/or State and Federal regulated cleanup criteria, then past and current industrial activities along the canal may represent potential source areas. Further investigations should be conducted to define the extent of environmental impact in the sediments along the IHNC.

- If detectable concentrations in the sediment samples collected from the industrial east bank of the IHNC are below background concentrations and/or State and Federal regulated cleanup criteria, then past and current industrial activities along the canal will not represent potential source areas. Therefore, the sediments of the industrial east bank of the IHNC will be considered as not impacted and re-used during the construction of the new lock. NOTE: Prior to the re-use of these materials, the Louisiana Department of Environmental Quality (LDEQ) should be notified and concur with the USACE conclusions. The LDEQ must give approval for the re-use of solid waste materials such as soil and sediments.

APPROVAL PAGE

Field Sampling Plan
for
IHNC East Bank Sediments

Environmental Support to
IHNC Lock Replacement Project

Contract Number: DACW29-97-D-0019
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New Orleans COE

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1.0 PROJECT DESCRIPTION

1.1 PROJECT OBJECTIVE AND INVESTIGATIVE STRATEGY

The objective of this project is to investigate whether canal sediments along the east bank of the Inner Harbor Navigation Canal (IHNC) between Florida and North Claiborne Avenues have been impacted by one or more sources in the area. The sediments along the east bank of the IHNC have the potential to be impacted as a result of the various industrial and marine activities that have occurred along the canal. Potential sources for environmental impact include existing contamination associated with past industrial activities, abandoned barges, and discharges from pipe drains and canal drains originating from existing and former industrial sites along the canal.

This investigation will be divided into two (2) tasks. The first task is to inventory the abandoned barges identified previously in the area of Saucer Marine. This inventory should aide in determining if the abandoned barges have the potential for environmental impacts on the surrounding canal sediments. After completion of the abandoned barge inventory, the second task involves collecting environmental samples of the canal sediments in the areas suspected to have been impacted by releases from the barges or from other previously mentioned potential sources. The sediment samples will be collected to a depth of up to 60-inches below the mud line along the east bank of the IHNC. The second task also includes submitting a portion of these sediment samples to an accredited laboratory for analyses and to survey the sediment sampling locations. The successful completion of these activities will allow for a determination on sediment conditions along the industrial east bank of the IHNC. These sediments will also be classified (i.e. hazardous, non-hazardous but regulated, etc.) for disposal/treatment purposes; and quantities will be estimated for determining the costs for the various disposal/treatment options.

1.2 SITE LOCATION AND HISTORY

The project area is located along the east bank of the Inner Harbor Navigation Canal (IHNC), between Florida and North Claiborne Avenues, New Orleans, Orleans Parish, Louisiana. The project location covers and area of approximately 38 acres. Figure 1 presents a generalized map of the project location.

The IHNC opened in 1923, and is located in the metropolitan area of New Orleans. The canal was constructed in order to allow for the movement of barge traffic from the Mississippi River to Lake Pontchartrain and the inter-coastal waterways of the Gulf Coast. In this industrialized area are several active and inactive facilities that were associated with steel fabrication, shipbuilding, marine vessel repair and servicing, marine supplies, petroleum related facilities, barge leasing, and others.

Industrialization of the east bank area began in the 1960s and today approximately 50% of these industrialized facilities are currently unoccupied or abandoned. Six sites along Surekote Road make up the east bank industrial area of the IHNC. These sites are Boland Marine (2500 Surekote Road), McDonough Marine (2300 Surekote Road), Indian Towing Company (2200 Surekote Road), Mayer Yacht/Distributor Oil (2100 Surekote Road), Saucer Marine (1910 Surekote Road), and International Tank Terminal (1800 Surekote Road).

For more details concerning site history on the facilities located along the industrial east bank of the IHNC, refer to the Site History Section of the Quality Assurance Project Plan.

1.3 SUMMARY OF EXISTING SITE DATA

1.3.1 Chemical Results

At this time analytical data from sediment samples collected along the east bank of the IHNC is not available.

1.4 GEOLOGY AND HYDROGEOLOGY

The east bank of the IHNC is comprised of approximately 38 acres. The area investigated for the Bypass Channel excavation site is about 4,200 ft long and about 400 feet wide and is roughly bounded by the canal, the floodwall, Florida Avenue and North Claiborne Avenue. The industrial east bank of the IHNC is underlain at the near surface by fill material. This material is a mixture of shells, limestone gravel, fine grain sand, clay and silt which has a reported thickness of 14 feet to 16 feet across the site. The coarser materials (shells, limestone gravel and sand) usually constitute the ground surface and are irregularly distributed throughout the industrialized areas of the east bank. A majority of the sand stockpiled at ground surface is blast sand that was associated with the former industrial operations that were located along the east bank of the IHNC. The fill material may also contain concrete blocks, bricks, metallic plates and sheets, metallic rods, timbers, and blasting sand.

Below the coarser grained materials at the near surface, the fill grades to a more clayey soil. The contact between these clays and the underlying natural clays of the original IHNC ground surface is not well defined. Underlying the fill material are interbedded organic-rich clays of high moisture contents typical of deposits in swamp environments. These interbedded clays have an average thickness of about eight feet.

The shallow water table between the floodwall and the canal at the east industrial bank of the IHNC is characteristic of a perched water table. Depths to the shallow water table are reported to be in the range of 0.1 foot to 3.25 feet. Movement of groundwater under the east bank is basically influenced by the physical conditions at each industrial site. Physical conditions include the topography of the ground surface, the nature of the contact between the coarse material and the fine grain clays and silts within the fill material, buried building foundations and utilities, surface drainage systems, and the activities of nearby pumping stations.

1.4.1 Preliminary Interpretation of Available Chemical, Geological and Hydrogeologic Data

Several potential source areas have been identified from previous investigations completed along the east bank of the canal, but these investigations have been focused on the shallow soils and past operations along the canal. Analytical data from these previous investigations have indicated several areas of concern which are impacted with total petroleum hydrocarbons, volatile organic hydrocarbons, semi-volatile organic compounds and various metals at concentrations above Louisiana Department of Environmental Quality (LDEQ) Soil Screening Options. It has also been noted that large areas of metal debris and industrial waste have been used as backfill along the canal.

Therefore, as a result of these areas of concern and the potential for runoff from these industrial sites, the USACE has requested that additional sampling of the sediments along the east bank of the IHNC be collected.

2.0 PROJECT ORGANIZATION AND RESPONSIBILITIES

2.1 PROJECT ORGANIZATION

This project will involve the Planning, Programs and Project Management Division (CEMVN-PM) and Engineering Division (CEMVN-ED) of the US Army Corps of Engineers New Orleans District (USACE-NOD) as well as the staff of the Dames & Moore-Kansas City (DM-KSC). Preparation of plans and reports will be the responsibilities of DM-KSC under USCOE Contract Number DACW29-97-D-0019. DM-KSC will also handle supervision and oversight of all field activities as well as manage the testing of sediment samples. Drilling activities will be conducted by Professional Services Incorporated (PSI) of New Orleans via a contract with DM-KSC and Pace Analytical that is under contract with DM-KSC will be the designated contract laboratory.

At the New Orleans District Office, the following personnel will be responsible for the management of budget and schedules; final review of plans and reports.

Brett Herr - Contracting Officer Representative
Jean Spadaro - Project Manager
George Bacuta - Technical manager
Gary Brouse - Quality Assurance Manager

At the DM-KSC office, the following personnel will be responsible for the management of budget and schedules; the preparation of plans and reports; the coordination with state agencies; the managing of subcontractors; the execution of the field sampling plan; the collection and submittal of sediment samples to the contracting laboratory; the completion of the abandoned barge inventory; and addressing site health and safety issues.

Doug Kuhn - Lead Consultant
Rick Horner - Project Manager
John Plevniak – Quality Assurance Manager
Aaron Steigerwalt – Field Site Manager
Dennis Day – Health & Safety Coordinator

2.2 RESPONSIBILITIES

The following is a summary of the responsibilities of the USACE-NOD, the DM-KSC office as well as the contract laboratory involved in this project:

1. Project Management (USACE-NOD)

   - funding and overall management of the project

2. Technical Engineering Support (DM-KSC)

   - develop draft and final plans (Quality Assurance Project Plan (QAPP), Field Sampling Plan (FSP) and Site Specific Safety and Health Plan (SSHP)

   - provide all office technical support related to the technical coordination, plan execution, field technical oversight and reconciliation of activities to the requirements of the plans

   - provide technical information to LDEQ through USACE-NOD's Project Management on all required plans and results of USACE's investigations of IHNC

   - conduct all field activities including abandoned barge inventory, sediment sampling, and GPS survey of sediment sampling locations

   - provide sampling location results, field notes and records, input to the investigation report

   - evaluate results of the sediment sampling investigation as well as sediment sampling and testing

   - provide statistical analysis of data as the results would allow and provide data validation prepare an investigation report

   - test and dispose of Investigation Derived Materials

3. Contract Chemical Laboratory (Pace Analytical)

   - will perform all required laboratory chemical analysis of sediment samples collected. Pace Analytical has an interim laboratory certification from the State of Louisiana and is in the process of having its laboratory re-validated by the USACE.

3.0 PROJECT SCOPE AND OBJECTIVES

The purpose of this field investigation is to sample and analyze sediments along the east bank shoreline of the IHNC and to review existing data from LOSCO on the abandoned barges identified along the canal. The objective is to determine if the sediment in the area is contaminated/impacted; if the sediment is contaminated, what is the source(s) of the contamination; and to develop handling and disposal requirements/protocols for the impacted/contaminated sediment. These determinations will, for the most part, be based on the analytical data generated from the sediment samples.

The primary method for achieving the goals of this project will be through the establishment of specific Data Quality Objectives (DQO). These objectives will specify the data type, quality, quantity, and uses and will become the basis for determining the data collection activities required for this project. The categories of data to be collected include screening data and definitive laboratory data.

Definitive laboratory data are produced using standard U.S. EPA or other reference methods, usually in an off-site laboratory. The data are analyte-specific and have the standardized Quality Control (QC) and documentation requirements necessary to verify all results. Definitive data are not restricted in their use unless quality control problems are encountered which require the data to be qualified. This type of data will be generated to identify the type and concentration of contaminants at the site.

A Quality Assurance/Quality Control (QA/QC) program will be implemented to ensure that the above objectives are met. Sample collection data quality will be controlled through the use of standard collection methods and field logbooks. Selected field procedures are discussed in Section 4.0 of this FSP. Adherence to these field procedures will ensure sample representativeness and minimal potential for sample contamination.

4.0 FIELD ACTIVITIES

4.1 CANAL SEDIMENT SAMPLING

4.1.1 Rationale

Sediment samples will be collected along the east bank of the canal at various locations, as shown on Figure 2. A total target number of 60 sediment samples (22 sediment sampling locations) will be collected including QA/QC samples during the course of this project. Sediment samples will be collected and sent for chemical analysis to evaluate the presence or absence as well as the preliminary extent and magnitude of the contamination at and around the suspected sources identified during previous investigations and site visits. A stainless steel hand core sediment sampler will be utilized to collect sediment samples in water depths less than three feet deep. In water greater than three feet deep, sediment samples will be collected from a barge using a small hydraulic push rig and stainless steel core barrel. Based on available site maps and previous site visits, the project area measures approximately 38 acres and represents the sediments located adjacent to the east bank industrial area of the IHNC.

The sediment sampling strategy involves the collection of sediment samples from locations that are based on current and past industrial activities, surface water and industrial discharge points, and documented environmental impact areas along the east bank of the canal. The selection of sample locations will be biased toward locations which increase the probability of detecting environmental impact, have it be at a source area or as a result from surface migration (runoff). The sediment sampling locations and the rationale for the locations are as shown on Table 1.

Table 1 – Sediment Sampling Rationale

Sample Identification	Sample Location	Rationale – Location	Environmental Impact
ITT01-HS	International Tank 0 to 3 feet of water.	Large area of metal debris and scrap metal along the bank of the canal.	Surface water runoff from the adjacent bank containing metal debris.
ITT02-HS	International Tank 0 to 3 feet of water.	Adjacent bulk tank storage area	Surface water runoff from the adjacent bank containing the former tank farm
SM01-HS	Saucer Marine 0 to 3 feet of water.	Discharge area for surface runoff from a small storm water discharge canal	Surface water runoff from the adjacent industrial facilities located along the canal.
SM02-BS	Saucer Marine 0 to 15 feet of water.	Adjacent to abandoned barges located along the east bank of the canal	Releases of various petroleum hydrocarbons associated with past fueling operations.
SM03-HS	Saucer Marine 0 to 3 feet of water.	Adjacent to abandoned barges.	Releases of various petroleum hydrocarbons.
SM04-BS	Saucer Marine 0 to 15 feet of water.	Adjacent to abandoned barges located along the east bank of the canal.	Releases of various petroleum hydrocarbons and bulk chemicals from abandoned barges.
SM05-HS	Saucer Marine 0 to 3 feet of water.	Large area of mixed-waste debris and scrap metal along the bank of the canal.	Surface water runoff from the adjacent bank containing the mixed-waste debris.
MY01-HS	Mayer Yacht/Distributor 0 to 3 feet of water.	Adjacent to a boat slip.	Releases of various petroleum hydrocarbons and bulk chemicals from past fueling operations.
MY02-HS	Mayer Yacht/Distributor 0 to 3 feet of water.	Adjacent to an area of petroleum impacted soils associated with a former UST system.	Surface water runoff from the adjacent bank containing petroleum impacted soils.
MY03-HS	Mayer Yacht/Distributor 0 to 3 feet of water.	Adjacent to a former bulk storage tank area and petroleum impacted soils.	Surface water runoff from the adjacent bank containing petroleum impacted soils.
IT01-HS	Indian Towing 0 to 3 feet of water.	Adjacent to a former fueling shed and petroleum impacted soils.	Surface water runoff from the adjacent bank containing petroleum impacted soils.
IT02-HS	Indian Towing 0 to 3 feet of water.	Adjacent to petroleum impacted soils	Surface water runoff from the adjacent bank containing petroleum impacted soils.
MM01-HS	McDonough Marine 0 to 3 feet of water.	Adjacent to a former fueling shed and petroleum impacted soils.	Surface water runoff from the adjacent bank containing petroleum impacted soils.
MM02-HS	McDonough Marine 0 to 3 feet of water.	Adjacent to petroleum impacted soils	Surface water runoff from the adjacent bank containing petroleum impacted soils.

MM03-BS	McDonough Marine 0 to 15 feet of water.	Adjacent to the wharf.	Surface water runoff and industrial activities on the wharf.
BM01-BS	Boland Marine 0 to 10 feet of water.	Adjacent to the wharf.	Surface water runoff and industrial activities on the wharf.
BM02-HS	Boland Marine 0 to 3 feet of water.	Adjacent to the wharf and a discharge pipe.	Surface water runoff and industrial activities on the wharf.
BM03-HS	Boland Marine 0 to 3 feet of water.	Adjacent to the wharf and a discharge pipe.	Surface water runoff and industrial activities on the wharf.
BM04-HS	Boland Marine 0 to 3 feet of water.	Adjacent to the wharf and a discharge pipe.	Surface water runoff and industrial activities on the wharf.
BM05-HS	Boland Marine 0 to 3 feet of water.	Adjacent to the wharf and a discharge pipe.	Surface water runoff and industrial activities on the wharf.
BM06-BS	Boland Marine 0 to 15 feet of water.	Adjacent to the wharf.	Surface water runoff and industrial activities on the wharf.
BM07-HS Background	Boland Marine 0 to 3 feet of water.	Adjacent to the bank with little evidence of past industrial activities	Surface water runoff.

Sediment samples will be collected from several locations along the canal as illustrated on Figure 2. As stated in Table 1, the rationale for each sampling location will be to assess the potential for environmental impact as associated with the various industrial and marine activities along the canal.

The sediment samples will be submitted to an off-site laboratory and analyzed for VOC by EPA Test Method 8260, SVOC by EPA Test Method 8270, TPH by Test Methods 8015 modified, RCRA 8 metals by EPA Test Methods 6000-7000, pesticides/herbicides by EPA Test Method 8150, and PCB by EPA Test Method 8082. Sediment samples collected during the course of this project will be sent to Pace Analytical of New Orleans.

4.1.1.1 Sediment Sampling Locations

The location of each sample shall be coordinated with the USACE project manager prior to initiating field activities. The proposed sediment sampling locations are presented on Figure 2. A compass and tape or transit traverse shall tie the sediment sampling locations to a permanent physical structure or a benchmark. In addition, geographical coordinates of each location shall be required by the USACE-NOD using a Global Positioning System (GPS) unit to record the actual geographical location of the sediment sampling locations. A topographical survey map of the project area utilizing a state certified surveyor will be employed later, as necessary, to establish detailed ground maps when work at the site would proceed to the construction of the by-pass channel.

4.1.1.2 Sample Collection and Field and Laboratory Analysis

Table 2 lists the sediment sample to be collected and sent to the contract laboratory for testing. Also listed in Table 2 are the sample identification number, sample location, sample depth, EPA Laboratory Method for sample analysis, analytical parameter, sample container, sample preservative and sample holding time.

TABLE 2 – Sample Container, Preservative and Holding Time Requirements, Sediment Sampling, IHNC, New Orleans, LA

Analytical Parameter	Container Volumes	Container	Preservation	Maximum Holding Time	Laboratory Detection Limits
VOC EPA Test Method 8260	4 ounces	G. Teflon-lined septum-glass	Cool to 4 C	14 days	5-10 ug/kg
SVOC EPA Test Method 8270	4 ounces	G. Teflon-lined septum-glass	Cool to 4 C	14 days	333-667 ug/kg
TPH Test Method 8015 modified Oil & Grease EPA Test Method 413.1	4 ounces	G. Teflon-lined septum-glass	Cool to 4 C	14 days	Gasoline – 5000 ug/kg Diesel – 10 mg/kg 5 mg/kg
RCRA 8 Metals EPA Test Methods 6000-70	4 ounces	G. Teflon-lined septum-glass	Cool to 4 C	14 days	0.1 – 20.0 mg/kg
Pesticides/Herbicides EPA Test Methods 8082	4 ounces	G. Teflon-lined septum-glass	Cool to 4 C	14 days	10-5000 ug/kg
PCBs EPA Test Methods 8080	4 ounces	G. Teflon-lined septum-glass	Cool to 4 C	14 days	10 ug/kg

4.1.1.3 Background, QA/QC and Frequency

Based on the shallow subsurface geology of the site area, the shallow ground water table, the anticipated direction of ground water flow and the anticipated direction of surface water run off; one sediment sample will be collected offsite in the vicinity of the North Claiborne Avenue Bridge over the IHNC to represent background conditions in the area of the site. The sample area is located south and west of the industrial area of the IHNC and may have been the least impacted due to past industrial activities. It is anticipated that this sediment sample may indicate impacts to the IHNC area from offsite sources.

Assessment of the sampling program for precision and bias will be made by collecting field replicates and matrix spike/matrix spike duplicate samples. The frequency of Quality Control (QC) samples is one for every ten field samples. The frequency for Quality Assurance (QA) samples is one for every twenty field samples. The total number of QC samples for this task order is seven and the total number of QA samples is four. One trip blank will accompany every cooler of samples sent to the laboratory for volatile organic analyses (VOA). It is anticipated that there will be a maximum of four trip blanks. A temperature blank (a VOA sampling vial filled with water) shall be included in every cooler and used to determine the internal temperature of the cooler upon receipt of the cooler at the laboratory. It is anticipated that there will be a maximum of four temperature blanks.

The trip blank consists of a VOA sample vial filled in the laboratory with ASTM Type II reagent grade water, transported to the sampling site, handled like an environmental sample and returned to the laboratory for analysis. Trip blanks are not opened in the field. Trip blanks are prepared only when VOA samples are to be submitted for analysis. Trip blanks are used to assess the potential introduction of contaminants from sample containers or during the transportation and storage procedures. One trip blank shall accompany each cooler of samples sent to the laboratory for analysis of volatiles.

A field replicate sample, also called a split, is a single sample divided into two equal parts for analysis. The sample containers are assigned an identification number in the field such that the laboratory personnel performing the analysis will not know that the sample is a replicate sample. Specific locations are designated for collection of field replicate samples prior to the beginning of sample collection in the field. Replicate sample results are used to assess precision.

A matrix spike/matrix spike duplicate pair (MS/MSD) is two aliquots of an environmental sample to which known concentrations of all analytes being determined by the method have been added. The exception is with tests such as pH and flash point for which spikes have no meaning. In these instances no MS/MSD will be conducted. The MS/MSD pair is carried through the entire analytical procedure in order to measure the effect of the environmental matrix on the analysis.

4.1.2 Sediment Sampling Procedures

4.1.2.1 Sampling Procedures

Dames & Moore field personnel will locate each barge and document the current condition of each barge hull. Emphasis will be directed toward the potential for environmental impact on the surrounding sediments as a result of previous releases. Each barge will be given an identification number and photographed. Once in the field, the field team will locate each barge and document the current condition of each barge hull. Emphasis will also be directed toward the potential for environmental impact on the surrounding sediments as a result of releases.

Sediment samples will be obtained from 0 to 24 inches below the mud line using either a stainless steel core barrel or stainless steel hard core sediment sampler pending on canal water depth. Each sediment sample will be placed into appropriate containers supplied by the laboratory. To prevent cross-contamination, sampling team members will don a new pair of disposable gloves prior to collecting each sediment sample. We anticipate two sets of samples will be collected at each sampling location.

In water depths greater than three feet, a barge mounted drill rig will be used to advance a stainless steel core barrel. When water depths are less than three feet, the sediment samples will be collected using a stainless steel hard core sediment sampler with acetate liner tubes. The sampling equipment will be decontaminated using the procedures described in Section 4.1.2.6.

Collected sediment samples will be submitted to an off-site laboratory (Pace Analytical) for volatile organic compounds (VOC), semi-volatile organic compounds (SVOC), total petroleum hydrocarbons (TPH), oil & grease, Resource Conservation & Recovery Act 8 (RCRA 8) metals, and pesticides & polychlorinated biphenyls (PCB).

Each shallow boring will be advanced to a maximum depth of 60 inches below the mud line. During sampling activities, the field engineer/geologist will record a soil description on the basis of visual observations in accordance with the Unified Soil Classification System. The nature and characteristics of any debris encountered will also be documented based on visual observations.

4.1.2.2 Sample Logs

A log of each sampling location will be prepared and recorded in the field logbook. The following information shall be recorded for each sampling location: sampling location, water depth, the depth and thickness of the sediment sample (recovery); lithologic description of each sample; sediment classification; and a description of any manmade materials or apparent environmental impact encountered. The field logbook shall be submitted to the USACE-NOD upon completion of field activities.

4.1.2.3 Field Measurement Procedures and Criteria

Screening data includes data produced by rapid field screening methods and are generally less precise than standard analytical methods. Screening level methods produce analyte or class of analyte identification at generally elevated detection levels. This type of data will be generated during screening of sediment sample headspace with a photo-ionization detector (PID). Screening data will be used to make a preliminary assessment of the extent of impact on the sediments along the east bank of the IHNC.

The collected sediment samples will be divided into a field split and an archive split. The archive splits will be placed in laboratory-provided glass jars, uniquely identified, and immediately placed in a chilled cooler for storage. The field splits will be placed into re-sealable plastic bags, placed in warm location for a minimum of 15 minutes, and then the sample headspace screened for volatile organic compounds utilizing a (PID). The sediment samples with the highest PID readings will be submitted for laboratory analysis. If elevated PID readings are not detected in the samples, selection will be based on odors, discoloration or other visual indications of contamination. One replicate sample will also be submitted for laboratory analysis.

4.1.2.4 Sampling for Chemical Analysis

The following field devices shall be utilized during sediment sampling and collection for chemical analysis:

Stainless Steel Hand Core Sediment Sampler
Stainless Steel Core Barrel Sampler
Acetate Liners
Stainless Steel Spoons and Bowls

4.1.2.5 Sample Containers and Preservation Techniques

Sample containers will be provided by the contracting laboratory. These containers will be either high density polyethylene or glass with Teflon-lined lids and will be pretreated with preservatives as applicable. Sample containers are purchased pre-cleaned and treated according to EPA specifications for the methods. Containers will be stored in clean areas to prevent exposure to fuels, solvents, and other contaminants.

The sample containers, after filled with samples collected with decontaminated sampling equipment, will be labeled appropriately and placed in a sample cooler containing ice or ice packs. Samples will be stored at approximately 4° C during storage and shipment to the laboratory. A temperature blank (a VOA sampling vial filled with water) shall be included in every cooler and used to determine the internal temperature of the cooler upon receipt at the laboratory. The samples will be delivered to the laboratory within 24 hours of sample collection.

4.1.2.6 Decontamination Procedures

Persons working on the site shall undergo decontamination before leaving the site. In most instances, removal of protective clothing will suffice for decontamination. Facilities for storage of reusable protective clothing and for the disposal of clothing contaminated beyond reuse will be constructed or placed on site. Also, facilities for decontaminating hands, boots, and gloves will be provided. These facilities will consist of detergent wash and rinse. Decontamination of personnel and miscellaneous small tools will be in accordance with the Site-Specific Safety and Health Plan.

Precautions will be taken to prevent the potential transfer of contamination from the sediment sampling location to another during field activities. Equipment used to collect the sediment samples will be decontaminated prior to use at each location. All equipment that may directly or indirectly contact

samples shall be decontaminated in a designated decontamination area. Any equipment used to collect sediment samples (core samplers, core barrel samplers, bowls, etc.) will be decontaminated prior to each use according to the following procedure:

Wash with non-phosphate detergent (Alconox) and potable water;
Rinse with distilled water;
Rinse with hexane;
Triple rinse with distilled water;
Air dry; and
Wrap in aluminum foil until use.

Decontamination fluids will be contained and transferred to a holding tank pending analysis, treatment, and/or proper disposal.

5.0 SAMPLE CUSTODY

Samples collected and sent for analysis shall be recorded in a Chain-of-Custody form (Attachment 1). This type of form will be supplied by Pace Analytical.

5.1 FIELD LOGBOOKS AND PHOTOGRAPHS

Field records sufficient to recreate all sampling and measurement activities will be maintained. The information shall be recorded with indelible ink in a permanently bound notebook with sequentially numbered pages. These records shall be archived in an easily accessible form and made available to the USACE upon request.

The on-site project engineer and/or the field engineer/geologist will maintain complete records of the soil sampling activities in a field logbook. The logbook will be bound, and all entries will be made in ink and signed by the sampler. At a minimum, the following information will be recorded in the field log book;

Date and time;
Weather conditions:
Personnel on site;
Date/time of sampling or other field activities;
Sample coding protocol;
Sample description/location;
Description of sampling methodology;
Sample device decontamination; and
General field observations.

Since site conditions may vary from one sampling location to another, the extent of information entered into the logbook may vary; however, sufficient information will be recorded to permit reconstruction of the sampling program.

Photographs of the sampling locations, unusual conditions as well as the site condition during field sampling shall be taken as part of the field documentation process.

All of the above mentioned information will be copied and attached to the final report for the site.

5.2 SAMPLE NUMBERING SYSTEM

Samples should be numbered according to the following pattern:

Sample Location (AAaa) - depth of sample interval (bb-cc') - sample qualifier (dd) where:

AA is the site name
aa is the sample location number
bb is the beginning of the sample interval, if necessary
cc is the end of the sample interval, if necessary
dd is the sample identification qualifier

Sample qualifiers should be as listed to maintain the "double blind" standard of quality assurance.

01 - Field Sample
02 - Quality Assurance Sample
03 - Quality Control Sample
04 - Rinsate Blank
05 - Trip Blank

For example:

ITT01-HS(0-3)-01 indicates a sediment sample from location 1, taken by a hand core sediment sampler in water 0 to 3 feet deep, taken as a field sample. The qualifiers HS (for hand core sediment sample) and BS (for a barge sediment sample) are added as pre-fix to the sample number to identify sampling method.

5.3 SAMPLE DOCUMENTATION

The following minimum information concerning the sample shall be required and consistent with the chain-of-custody form.

Unique sample identification
Date and time of sample collection
Source of sample (including name, location, and sample type)
Designation of matrix spike/matrix spike duplicate (MS/MSD)
Preservative used
Analyses required
Name of collector(s)
Pertinent field data (PID screening)
Serial numbers of custody seals and transportation cases (if used)
Custody transfer signatures and dates and times of sample transfer from the field to transporters and to the laboratory or laboratories
Bill of lading or transporter tracking number (if applicable)

5.3.1 Sample Labels or Tags

After sample collection in the field, the exterior of the sample containers will be decontaminated if gross contamination is present. The sample containers will be handled with gloves until decontaminated with a water rinse and wiped dry. Care will be taken to avoid damaging any temporary labeling during decontamination. After decontamination, permanent labels will be placed on clean sample container exteriors. All samples shall be uniquely identified, labeled, and documented in the field at the time of collection. Custody seals will be brought to the site for the shipping coolers. The sample labels and custody seals will be supplied by the specific laboratory tasked to complete each particular analysis.

5.3.2 Chain-of-Custody Records

A sample chain-of-custody form in Attachment 1 shall be completed with information pertinent to the samples collected at the time of sampling. This form will accompany the samples when submitted to the specific laboratory.

5.3.3 Receipt for Sample Forms

Upon receipt of the samples by the laboratory, the laboratory shall sign the chain-of-custody form indicating the time and date of receipt of the samples. The laboratory shall also record the condition of the cooler as well as the sample jars at the time of receipt. This record shall be supplied to USACE-NOD along with the analytical results in the final report for the site.

6.0 SAMPLE PACKAGING AND SHIPPING

The sample containers will be well cushioned with packing materials when they are placed in the insulated cooling chests for transportation to the laboratory. Care will be taken to seal bottle caps tightly and the sample jars will be placed in zip lock plastic bags. Samples should be maintained at 4 degrees C.

All sample containers shall be sealed in a manner that shall prevent or detect tampering if it occurs. In no case shall tape be used to seal sample containers. Samples shall be shipped along with the chain-of-custody, to the laboratory within 24 hours of sample collection.

7.0 INVESTIGATIVE-DERIVED WASTES

Waste may be classified as non-investigative waste or investigative derived waste. Non-investigative waste, such as litter and household garbage, shall be collected on an as-needed basis to maintain the site in a clean and orderly manner. This waste shall be containerized and transported to the designated sanitary landfill or collection bin. Acceptable containers shall be sealed boxes or plastic garbage bags.

Investigation derived waste shall be properly containerized and temporarily stored at each site prior to disposal. Depending on the constituents of concern, fencing or other special marking may be required. The number of containers shall be estimated on an as-needed basis. Acceptable containers shall be sealed U.S. Department of Transportation (DOT) -approved steel 55-gallon drums or small dumping bins with lids. The containers shall be transported in such a manner to prevent spillage or particulate loss to the atmosphere.

To facilitate handling, the containers shall be no more than half full when moved. The investigative derived waste shall be segregated at the site according to matrix (solid or liquid) and as to how it was derived (excavation, decontamination fluids, etc.). Each container shall be properly labeled with site identification, sampling point, depth, matrix, constituents of concern, and other pertinent information for handling.

Following the above guidelines, the waste materials generated during the sampling of the sediments along the IHNC will be managed to control potential releases of contaminated materials.

8.0 PROJECT SCHEDULE

A schedule of the various project task including preparation of plans, field sampling, laboratory analysis, preparation of the IHNC Sediment Sampling and Analysis Report as well as meetings with the USACE-NOD is provided in Appendix C.

FIGURE 1
Site Location Map

Adapted from U.S. Geological Survey
NEW ORLEANS EAST
QUADRANGLE
7.5 Minute Series (Topographic)
1992

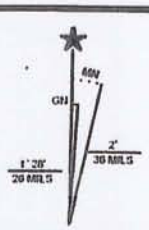


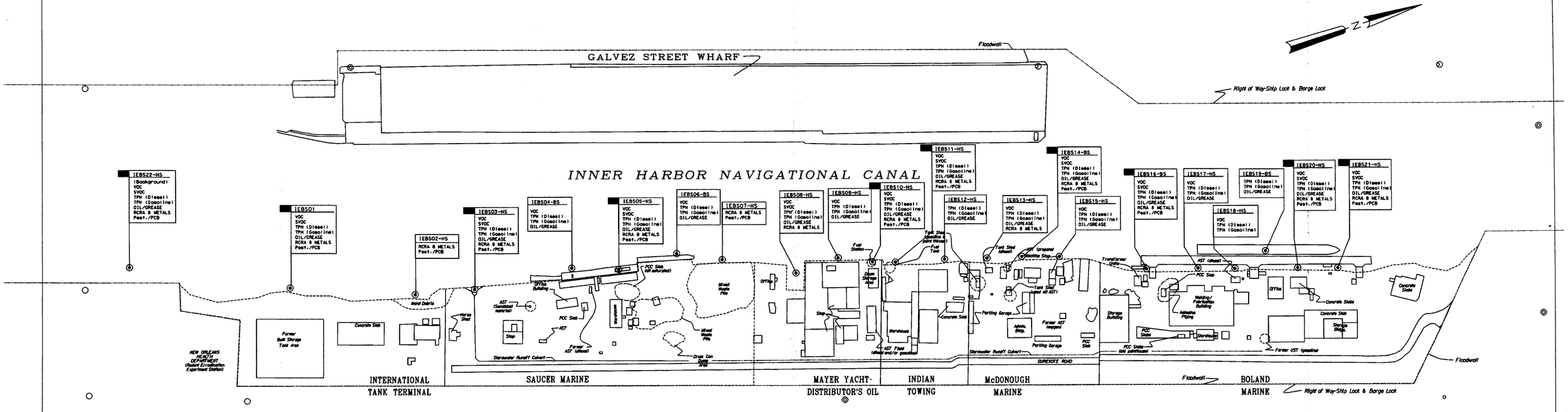
Figure 1
SITE LOCATION MAP

Inner Harbor Navigation Canal
New Orleans, Louisiana

Scale: 1:24 000
Contour Interval: 10'

DAMES & MOORE

FIGURE 2
Proposed Sediment Sampling Locations



LEGEND

PCC – Portland Cement Concrete

◉ – Proposed Sediment Samplig Locations

• – Secondary Sediment Sampling Locations

IEBS01-HS – Sediment Sampling by Hand/Stainless Steel Core Sampler

IEBS03-BS – Sediment Sampling by Drill Rig/Stainless Core Barrel Sampler

100 50 0 100 200 300 400

Graphic Scale in Feet

Base Map furnished by U.S. Corps of Engineers, New Orleans District for use in this study by Dames & Moore Group.

FIGURE 2
PHASE 3
PROPOSED SEDIMENT SAMPLING LOCATIONS
INNER HARBOR NAVIGATIONAL CANAL
NEW ORLEANS, LOUISIANA

APPENDIX A

STANDARD OPERATING PROCEDURES

DAME & MOORE

STANDARD OPERATING PROCEDURES

TABLE OF CONTENTS

1.0 DRILLING AND DECONTAMINATION PROCEDURES

This Standing Operating Procedure describes the techniques to be implemented for soil and rock coring, lithologic logging, and sample compositing. Equipment necessary for the implementation of these procedures is also summarized.

1.1 DRILLING METHODS

Several alternative methods for the collection of subsurface soil samples are described below.

For each drilling method, a boring log, based upon continuous, interval, or grab sampling, will be prepared in accordance with the lithologic logging procedures outlined in a later section of the SOP.

Where appropriate, temporary surface casing may be installed to preserve the integrity of the borehole and to prevent migration of groundwater through the borehole. Sealing of the surface casing will be specified based upon site geology and aquifer characteristics.

1.1.1 Hollow-stem Auger Method

Hollow-stem auger methods will be used in cases where shallow penetrative work is to be conducted in unconsolidated sediments. The hollow-stem auger drilling method uses hollow-stem augers with lock-bolt joined five-foot sections, drill rod, plug, and bit assembly. Auger diameter will be selected based upon auger availability, drilling rig capability, anticipated boring depth, sampler type, and intended boring use.

Drilling fluids will be used only when necessary to maintain borehole integrity. For example, if the drill rod assembly within the auger should become bound by flowing sands, potable water will be pumped to the top of the drill rod assembly and the assembly will be raised and lowered through the augers until they become unbound. The creation of a positive hydraulic gradient between the inside and outside of the augers could allow the completion of a borehole in flowing sands. The source, time and duration of use, and rate of flow of drilling water will be recorded on the boring log. A sample of the water used in drilling should be collected to evaluate the potential for contaminant introduction through the use of water I the drilling process.

1.2 SUBSURFACE SAMPLING METHODS

Drive-sampling methods will be used in the execution of hollow-stem auger and direct rotary drilling work in unconsolidated deposits. Interval and some continuous sampling of unconsolidated material can be performed with drive sampling devices such as split spoon or ring-line California split spoon samplers. The drive-sampling device will be driven 24 inches or until refusal by a 140 pound hammer free-falling 30 inches. Samples recovered from the standard split spoon are altered by the driving action and are considered "disturbed" samples (for the purpose of geotechnical evaluation). The California split spoon sampler recovers relatively undisturbed samples in brass or stainless steel liners.

The sampler is removed from the borehole after driving and split open. The sample is then logged and removed and the sampler is decontaminated before reassembly. If the standard split spoon samples are to be retained for future reference, they will be placed in sealable plastic bags and labeled according to standard Dames & Moore procedures.

Thin-wall sampling tube methods (California Split Spoon) will be used where undisturbed samples of fine-grained material are to obtained for saturated vertical hydraulic conductivity or other geotechnical analysis. Where a thin wall sampler (i.e. Shelby tube) is to be used, the sample may be obtained by pushed tube, piston sampler, Denison sampler, or Pitcher sampler methods.

In the case of the pushed-tube method, the tube will be attached to the sampler and pushed, I one continuous motion, into the material to be sampled. If the sample is to be retained for future reference or analysis, it will be trimmed, logged, and placed in sealable plastic bags. The sample should then be placed in "deep" end down in a plastic sample contained, sealed, and labeled. Once the tube is received at the laboratory, slough material will be removed from the tube and the actual sample length will be measured.

The bottom and top of the tube will be indicated on the tube in indelible marker. The following information will be noted on the side or top of the tube:

- Project Number and Name
- Sampling Date and Time
- Boring and Sample Numbers
- Sample Depth

The tube will then be transported to the laboratory. Efforts will be made to keep the tube vertical and avoid disturbance of the tube at all times. Environmental samples will be placed in a cooler and chilled to approximately 4 degrees Celsius.

CMO continuous sampling system methods may be specified where continuous soil cores are to be recovered by hollow-stem auger drilling methods. The continuous sampling system utilizes a core barrel which recovers a soil core from the interval drilled. The core barrel is recovered after each interval is drilled.

Representative samples of the soil cores can be placed in eight-ounce glass jars for future analysis. The entire length of the core can be placed in plastic-lined core boxes should it be necessary to retain them.

1.2.1 Samples for Laboratory Analysis

Sampling procedures to be followed in the collection of all lithologic samples for laboratory analysis are as follows:

- Prepare field record sheets and record relevant data in logbook.
- All equipment or material to be used for sampling will be kept out of contact with the ground or other potentially contaminated material by the use of plastic sheets. Any sampling equipment that comes in contact with the ground or other potentially contaminated material will be suitably decontaminated or disposed of.
- Use drilling methods discussed in the SOP to reach the desired sampling point(s).
- Decontaminate sampling equipment.
- Collect sample using appropriate sampling method described in this SOP.
- Make appropriate entries on lithologic log.
- Place sample in appropriate sample container.
- Enter appropriate information on sample container label and mount label on sample bottle.
- Place the properly labeled sample containers in an appropriate carrying container at required temperature.
- Either discard or decontaminate all items which contact the sample such as scoop, gloves, and beakers before proceeding to the next sampling location.
- Enter information pertaining to the sample to the chain-of-custody record, analysis request form, and field logbook.

Sample compositing will be conducted in accordance with the mixing bowl compositing procedures described in EPA (1983). The procedures are as follows:

- A stainless steel mixing bowl and stainless steel scoop are decontaminated as described in this SOP.
- The sample fractions are placed in equal volumes into the mixing bowl.
- The resultant composite sample is stirred until homogeneous (it may be necessary to break up soil aggregates with the scoop or a decontaminated stainless steel knife or spoon.
- The mixed sample is then spread evenly in the bottom of the bowl and quartered.
- Equal amounts of sample are taken from each quarter to fill each of the sample bottles.

1.3. LITHOLOGIC LOGGING

The lithologic logging procedures are presented below.

1.3.1 Logging Soil Borings

Soil borings may be augered by hand, or drilled by a truck-mounted drilling rig. Soil boring drilled with a rig are often completed as monitoring wells or piezometers. Whether dilled by hand or rig, stratigraphic logs of soil borings are usually completed by analyzing two types of samples: in-place material and cuttings. In-place samples may be degraded by the presence of "slough", which is defined as disturbed soil that may be the produce of cave-in from borehole walls, settling from fluid within the borehole, soil disturbed by drilling, or running sand or silt. Figure 2-2 shows the Soil Boring Log used by Dames & Moore.

The following is a list of equipment the geologist/engineer should bring to the site when supervising soil boring operations:

- Sample containers
- Knife, spatula, screwdriver or other similar devices to probe split spoon samples
- Tape measure with weight on end to measure depths
- Strainer to catch cuttings (rotary drilling)
- Grain-size chart

Hollow-stem augers and rotary drilling methods are the most commonly used drilling techniques for advancing soil borings. Both methods allow samples of the undisturbed material beneath the casing or augers to be retrieved. The two most commonly used sampling devices are split spoons (or split barrels) and thin-walled samplers (Shelby tubes).

Spilt spoons can be used to collect samples in all types of soil. They are attached to the drill rod string and lowered to the bottom of the borehole. The split spoon is driven into the subsurface wither by percussion or a hydraulic (electric) hammer.

Percussion methods require that blow counts be recorded as the spoon is advanced. A standard blow is defined as the drop of a 140-lb hammer from a height of 30 inches onto the driving point. Blow counts are defined as the number of blows required to advance the split spoon 0.5 feet. Because most sampling spoons are two feet long, counts are usually recorded as a series of four numbers separated by hyphenss. The "N" value, commonly used in geotechnical work, is the sum of the second and third blow counts.

"Refusal" is usually defined when a split spoon cannot be advanced 0.5 feet in 50 blows. The depth driven in 50 blows is noted to the nearest 0.1 feet. For example, blow counts for a sample encountering refusal at 1.2 feet might read "28-41-50/0.2".The depth interval for which the spoon is driven is recorded in the sample number column on the drilling log form. The blow counts should also be listed immediately below. Beneath the blow counts the amounts of in-place material recovered is recorded in parenthesis. This value represents the total amount of sample recovered in the spoon minus the slough at the top. The slough can be differentiated by probing the sample because it usually is much looser than the in-place material.

The sample is then examined and described. Photographs should be taken of unusual structures or contaminated zones. After the lithologic log is recorded, the sample should be collected in zip-lock plastic bags and/or glass sample containers. If samples are to be collected for laboratory analysis, the split spoon sampler will be decontaminated prior to its initial use and in between sampling points in the borehole.

Shelby tubes are used to collect samples of fine-grained material. They are pushed into the sampling interval by the hydraulics of the drill rig. Shelby tubes are usually used to collect samples of confining layers of permeability tests. The thin walls of the Shelby tube create minimal disturbance of the sample, compared to the driving action associated with split spoon sampling. Shelby tubes should not be driven by percussion, because the thin walls of the tube usually crumple when encountering resistance.

The geologist/engineer should note the depth to which the Shelby tube is advanced. Upon retrieval, the amount of recovery should be noted. The soil observed at the ends of the tube should be described. The ends of the tube should be sealed with end caps, tape, and was. All tubes should be properly labeled with indelible pen noting time, date, location, sample number, job number, and top and bottom of the tube.

If samples are not collected continuously, the geologist/engineer must log the soil intervals between samples without the benefit of viewing the undisturbed material. This especially difficult on auger rigs, because the cuttings brought to the surface represent a composite of material from the base of the augers to the ground surface. An unknown amount of lag time from the bottom of the augers to ground surface further complicates cuttings classification. A good technique to identify changes in strata is from listening to changes in the behavior of the drill rig. The driller usually is the best person to identify these changes, since he is most familiar with the drill rig.

For rotary drilling, subsurface soil classification from cuttings are slightly easier, because the cuttings come only from the depth interval of drilling. The geologist/engineer catches the cuttings with a strainer as they are lifted out of the borehole. Fine-grained materials may pass through the strainer. The presence of fine-grained materials might be noted by changes in the color of the drilling fluid. Drilling mud, however, may mask fine-grained materials present in the cuttings. The action of the drilling rig, as with hollow stem auger is an important means of identifying strata changes.

After a soil boring has reached the prescribed dept, the borehole may be completed as a monitoring well, or abandoned, according to appropriate procedures described below.

1.4 EQUIPMENT

All equipment may be assembled and tested prior to drilling or sampling. Subcontractors employed by Dames & Moore will be responsible for ensuring that all equipment in their use be in good operating condition. Items which may come in contact with the sample should be decontaminated according to the procedures described in this SOP. Between sampling locations, all items which have come in contact with the sample will be either discarded or decontaminated.

Equipment will be placed on plastic sheeting or otherwise prevented from coming in contact with the ground surface. If truck tailgate is used as an equipment bench, it should also be covered with plastic sheeting. Field instruments, buffer solutions, and sampling equipment should be kept out of direct sunlight to avoid temperature fluctuations.

1.5 DECONTAMINATION

All downhole drilling equipment such as augers, drill bits and drill rods will be decontaminated before use, between each drilling location, and at the completion of the drilling program. Downhole equipment and parts of the drill rig that may come in contact with downhole equipment will be decontaminated by spray-washing with a high-pressure steam spray apparatus.

All sampling equipment such as soil samplers or core barrels will be decontaminated prior to use in the field, between sampling points, and at the completion of the sampling program. The following procedures will be used:

- Prior to collection of the first sample, clean two buckets or tubs with potable water and detergent (e.g., Alconox or equivalent), and thoroughly rinse with potable water.

- Fill the first bucket with detergent and potable water.

- Clean equipment thoroughly in detergent water. Use brushes as necessary. Nylon brushes are preferred, but steel may be used in some instances.

- Rinse thoroughly in potable water.

- Triple rinse thoroughly with distilled water poured over equipment directly from the distilled water containers. Equipment used for collecting samples should be rinsed with deionited water prior to use.

If a pump is necessary to properly evacuate a well, it will be cleaned in the following manner:

- Clean the buckets with potable water and detergent, rinse with potable water, and final rinse with distilled water before cleaning equipment.

- Fill first bucket with detergent and potable water.

Sampling situations vary widely. No general rules can specify the extent of information that must be entered in the logbook. However, records shall contain sufficient information so that someone can reconstruct the sampling activity without relying on the collector's memory. The logbook shall be kept under strict chain-of-custody and stored in a location so as to make it accessible to the project QA manager.

APPENDIX B

PACE ANALYTICAL
CHAIN-OF-CUSTODY FORM

pace
INCORPORATED
THE ASSURANCE OF QUALITY

186178

CHAIN-OF-CUSTODY RECORD
Analytical Request

Client

Address

Phone

Report To:

Bill To:

P.O. # / Billing Reference

Project Name / No.

Pace Client No.

Pace Project Manager

Pace Project No.

*Requested Due Date:

Sampled By (PRINT):

Sampler Signature

Date Sampled

ITEM NO.	SAMPLE DESCRIPTION	TIME	MATRIX	PACE NO.	NO. OF CONTAINERS	PRESERVATIVES: UNPRESERVED	H_2SO_4	HNO_3	VOA	ANALYSES REQUEST	REMARKS
1											
2											
3											
4											
5											
6											
7											
8											

COOLER NOS.	BAILERS	SHIPMENT METHOD OUT / DATE	SHIPMENT METHOD RETURNED / DATE

Additional Comments

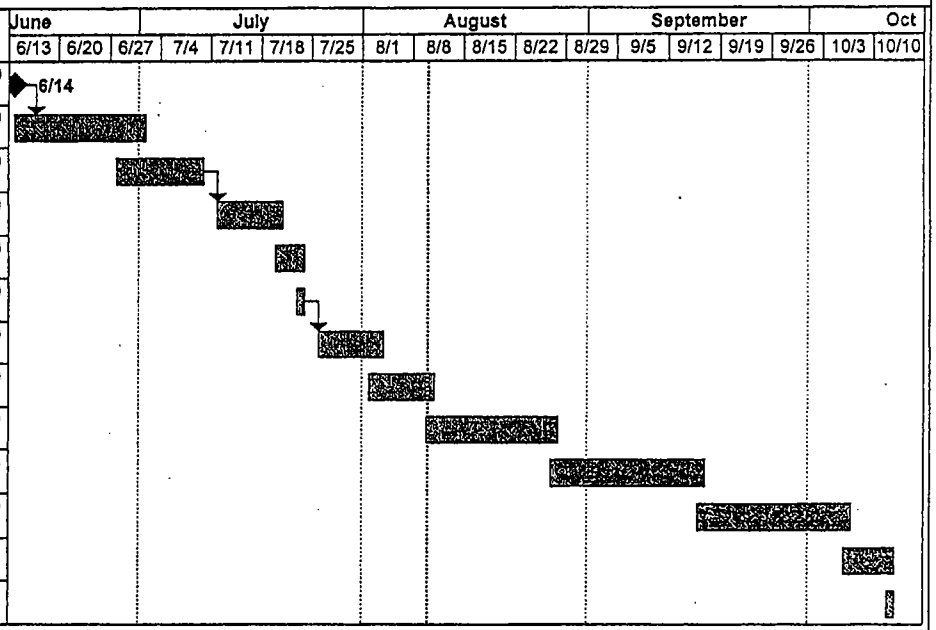
ITEM NUMBER	RELINQUISHED BY / AFFILIATION	ACCEPTED BY / AFFILIATION	DATE	TIME

APPENDIX C

Project Schedule

Inner Harbor Navigational Canal
New Orleans, Louisiana
Phase III Project Schedule

ID	Task Name	Duration	Start	Finish
1	Contract Award	0d	Mon 6/14/99	Mon 6/14/99
2	Document / Regulatory Review	14d	Mon 6/14/99	Thu 7/1/99
3	Plan Preparation (Draft)	10d	Mon 6/28/99	Fri 7/9/99
4	USACE REVIEW	7d	Mon 7/12/99	Tue 7/20/99
5	D&M Address Comments	4d	Tue 7/20/99	Fri 7/23/99
6	Final Plan Submittal	1d	Fri 7/23/99	Fri 7/23/99
7	Abandoned Barge Survey	7d	Mon 7/26/99	Tue 8/3/99
8	Sediment Sampling	7d	Mon 8/2/99	Tue 8/10/99
9	Laboratory Analyses	14d	Tue 8/10/99	Fri 8/27/99
10	Report Preparation (Draft)	15d	Fri 8/27/99	Thu 9/16/99
11	USACE REVIEW	15d	Thu 9/16/99	Wed 10/6/99
12	D&M Address Comments	5d	Wed 10/6/99	Tue 10/12/99
13	Final Report Submittal	1d	Tue 10/12/99	Tue 10/12/99



Project: 08768-049-149-KSC
Date: Tue 8/10/99

Task
Progress
Milestone
Summary
Rolled Up Task
Rolled Up Milestone
Rolled Up Progress