

#E3

MEMORANDUM

DATE: September 26, 1996

TO: Mr. Jim Hanifen, Louisiana Department of Wildlife and Fisheries
Ms. Heather Finley, Louisiana Department of Wildlife and Fisheries
Ms. Linda Pace, Louisiana Department of Natural Resources
Mr. Chris Pieller, Louisiana Department of Environmental Quality
Mr. Gus Stacey, Office of the Governor
Ms. Marion Boulden, Office of the Governor

FROM: Mr. Keith Nichols, C-K Associates, Inc.

RE: Marathon Pipe Line Company
Field Sampling and Laboratory Analysis Workplan for Delineating Blind
River and Its Tributaries
C-K Associates' Project No. 26-540

CC: Mr. Jim Scialabba

Acting at the request of and on behalf of our client, Marathon Pipe Line Company (Marathon), C-K Associates, Inc. (C-K Associates) is submitting the strategy for delineating Blind River and its tributaries.

Enclosed you will find the field sampling and laboratory analysis workplan for your review. Based on our communications, it is my understanding that you will participate in one of the three field collection days (September 30, 1996, and October 1 and 2, 1996) to delineate the areal extent of residual petroleum hydrocarbon constituents in sediments of Blind River and Tributaries #5, #6, and #7.

As a reminder, we will be meeting at 0630 hours at the St. James Boat Club on each field collection day. If you have any questions or require additional information, please contact me at (504) 755-1000.

MARATHON PIPE LINE COMPANY

Field Sampling and Laboratory Analysis Work Plan For Delineating the Areal Extent of Residual Petroleum Hydrocarbon Constituents in Sediments of Blind River and Its Tributaries Affected By the Airline Highway Gasoline Release

I. Objective:

- A) Delineation of the areal extent of any residual petroleum hydrocarbon constituents that may be quantifiable in the sediments of a designated reach of Blind River and three designated tributaries that are known or reasonably believed to have been affected by the May 24, 1996 pipeline rupture and release of gasoline.
- B) Assessment of whether any residual petroleum hydrocarbon constituents that may be quantified represent a continuing threat of injury to aquatic and riparian wetland habitats and wildlife and fisheries resources.

II. Limits of Investigation Area:

- A) A designated reach of Blind River beginning at a point 1,313 feet (0.25 mile) northwest of the Airline Highway bridge and extending upstream to a point 7,547 feet (1.43 miles) west of the Airline Highway bridge. The intervening distance between these two points is 6,234 feet (1.18 miles). These two points are the locations of previous sampling locations identified as (1) "BR06" (C-K Associates, Inc. 5/25 and 5/26/96) and (2) "BR03" (C-K Associates, Inc., 5/25 and 5/26/96) or "11R/11L" (Terra Consulting Group 6/5/96), respectively.
- B) Tributaries of Blind River known/believed to have been affected by the gasoline release.
 - 1) "Tributary 5" (synonyms: "Railroad Slough" or "South Forested Slough")
Tributary 5 is a natural slough that enters the left descending bank of Blind River approximately 4,135 feet (0.78 mile) west-northwest of the Airline Highway bridge.
 - 2) "Tributary 6" (synonym: "Logging Ditch")
Tributary 6 is a man-made logging channel adjacent to Tributary 5 and that enters the left descending bank of Blind River between the mouths of Tributaries 5 and 7.
 - 3) "Tributary 7" (synonym: "Small Forested Slough")
Tributary 7 is a natural slough that enters the left descending bank of Blind River approximately 4,565 feet (0.86 mile) west-northwest of the Airline Highway bridge.

III. Target Analytes and Analytical Methods:

- A) Benzene, Toluene, Ethylbenzene and Total Xylenes (BTEX)
U.S. EPA Method 8260 (SW-846) Volatile Organic Compounds (VOCs) by Gas Chromatography (GC)/Mass Spectrometry (MS). The laboratory will be required to extend the GC run to include elution and quantitation of naphthalene if present.
- B) Total Petroleum Hydrocarbons - Gasoline Range Organics (TPH-GRO)
U.S. EPA Method 8015 Modified (SW-846) Non-halogenated VOCs by GC with Flame Ionization Detection (GC/FID).
- C) Total Organic Carbon (TOC) U.S. EPA Method 9060 (SW-846)
- D) Semivolatile Organic Compounds (Semivolatiles)
U.S. EPA Method 8270 (SW-846) Semivolatiles by GC/MS. (Samples will be extracted and held pending a decision to analyze based on the results of Method 8260 and 8015 analyses.)

IV. Sampling Transects and Sample Locations:

- A) Transects (see Figure 1):
 - 1) Ten (10) transects on designated reach of Blind River (BR03, BR05, BR06, BR19, BR20, BR21, BR22, BR23, BR24 and BR25)
 - 2) Three (3) transects on Tributary 5 (TB5-3.1, TB5-3.2 and TB5-3.3)
 - 3) Two (2) transects on Tributary 6 (TB6-1.1 and TB6-1.2)
 - 4) Two (2) transects on Tributary 7 (TB7-4.1 and TB7-4.2)
 - 5) One (1) control transect on Blind River located 1,850 feet (0.35 mile) northeast of Airline Highway bridge (BR26)
- B) Sample Locations:
 - 1) Littoral edge of channel along left descending bank (LDB)
 - 2) Mid-channel (MC)
 - 3) Littoral edge of channel along right descending bank (RDB)

Totals: 18 transects
 54 sediment sampling locations (see Exhibit 1)

The selected hydrocarbon delineation transects for Tributaries 5, 6, and 7 intersect the habitat injury and recovery assessment vegetation transects 3 (Plots 1 and 2), 1 (Plots 1 and 2), and 4 (Plots 1 and 2), respectively.

V. Sample Collection Procedures:

- A) Petit Ponar grab sampler (stainless steel) (approximately 6 inches x 6 inches square; sampling to a depth of four to six inches)
- B) Stainless steel spoon/spatula or shovel for sample collection in non-submerged wetland/littoral soils (sampling to a depth of four to six inches)
- C) Stainless steel trays to receive sample intact from Petit Ponar grab sampler or other sampling gear
- D) Stainless steel spoon or spatula for transferring samples from tray to sample containers
- E) Chemically-clean glass sample containers appropriate for target analytes and sediment media provided by contract laboratory
- F) Decontamination of equipment:
 - 1) Petit Ponar sampler, shovel, stainless steel trays and utensils for sample transfer
 - 2) Alconox wash followed by "reconditioning" with site water rinse
 - 3) Decontamination of equipment prior to first sampling location and between subsequent sampling locations
 - 4) Separate pairs of latex gloves for each location and decontamination
- F) Proper chain-of-custody procedures and documentation to be strictly followed

VI. Quality Control/Quality Assurance (QA/QC) Procedures:

- A) All appropriate field QA/QC protocols to be followed in accordance with U.S. EPA requirements and guidance
- B) Photodocumentation of field procedures
- C) Field log books and data form(s) (see Exhibit 2) for documenting observations, field data, etc.
- D) The sample containers are to be segregated in ice chest by target analyte and field collection day
- E) Field blanks: each field collection day has an individual BTEX field blank for laboratory analysis (deionized water in appropriate container provided by laboratory for BTEX analyses)

- F) Field duplicates: collected each field day for TOC and TPH-GRO
- G) Sample containers provided by contract laboratory and segregated by target analyte and field collection day
- H) Proper and applicable laboratory QA/QC procedures to be followed with strict adherence to specific requirements for U.S. EPA Methods 8260, 8015, 8270 and 9060
- I) Matrix spikes/matrix spike duplicates: performed on 1 per 20 samples by the laboratory
- J) Equipment rinsate blanks: collected after decontamination of the first sample collection (on each field collection day) for each target analyte using deionized water provided by the laboratory

VII. Microbial Activity Assays:

- A) Total Heterotrophic Activity and Nitrifying Activity Assays
- B) LSU Department of Agronomy (Dr. G. Breitenbeck)
- C) Blind River: LDB, MC and RDB on five (5) transects (BR03, BR21, BR23, BR24 and BR06)
- D) Tributaries: LDB, MC and RDB on all seven (7) transects

VIII. Macroinvertebrate Viability Assessment:

- A) Qualitative field screening and observations (no laboratory sorting and detailed taxonomic identifications) on each transect monitoring point on Blind River and submerged monitoring point on Tributaries #5, #6 and #7.
- B) Sieve sediment aliquots (collected using the Petit Ponar grab sampler) remaining after samples for hydrocarbon laboratory analyses have been secured [#35 (0.5 millimeter or 500 micron mesh size) ASTM Standard Sieve]
- C) A kicknet will be used at each LDB and RDB location to obtain macroinvertebrate fauna within the first centimeters of sediment
- D) Observe/note viability and relative numbers of macroinvertebrates (e.g. amphipods, oligochaetes, bivalves, gastropods, crawfish, other macro- and intermediate size crustacea, insect larvae, etc.) according to class, order, and family levels that are identifiable in the field.
- E) Documentation in field log books and macroinvertebrate data form (Exhibit 2)
- F) Photodocumentation as appropriate

IX. Water Quality Field Measurements:

- A) Multiprobe analyzer (YSI™ Model 610DM)
- B) *In situ* field measurement: conductivity, pH, temperature, salinity, and dissolved oxygen
- C) Field measurements will be obtained at each transect monitoring point on Blind River and on the tributaries (if submerged)

Exhibit 1
Sample Location Identification Numbers

Date	Sample IDs				
Monday 9/30/96	BR03L ⁽¹⁾	BR05L	BR06L ⁽¹⁾	BR19L	BR20L
	BR03C ⁽¹⁾	BR05C	BR06C ⁽¹⁾	BR19C	BR20C
	BR03R ⁽¹⁾	BR05R	BR06R ⁽¹⁾	BR19R	BR20R
	BR21L ⁽¹⁾	BR22L	BR23L ⁽¹⁾	BR24L ⁽¹⁾	BR25L
	BR21C ⁽¹⁾	BR22C	BR23C ⁽¹⁾	BR24C ⁽¹⁾	BR25C
	BR21R ⁽¹⁾	BR22R	BR23R ⁽¹⁾	BR24R ⁽¹⁾	BR25R
	BR26L BR26C BR26R				
Tuesday 10/1/96	TR2 Plot 1 ⁽¹⁾	TR5 Plot 1 ⁽¹⁾	TR6 Plot 1 ⁽¹⁾	TR7 Plot 1 ⁽¹⁾	TR7 Plot 3 ⁽¹⁾
	TR2 Plot 2 ⁽¹⁾	TR5 Plot 2 ⁽¹⁾	TR6 Plot 2 ⁽¹⁾	TR7 Plot 2 ⁽¹⁾	TR7 Plot 4 ⁽¹⁾
	TR8 Plot 1 ⁽¹⁾	TR9 Plot 1 ⁽¹⁾			
	TR8 Plot 2 ⁽¹⁾				
Wednesday 10/2/96	TB5-3.1L ⁽¹⁾	TB5-3.2L ⁽¹⁾	TB5-3.3L ⁽¹⁾	TB6-1.1L ⁽¹⁾	TB6-1.2L ⁽¹⁾
	TB5-3.1C ⁽¹⁾	TB5-3.2C ⁽¹⁾	TB5-3.3C ⁽¹⁾	TB6-1.1C ⁽¹⁾	TB6-1.2C ⁽¹⁾
	TB5-3.1R ⁽¹⁾	TB5-3.2R ⁽¹⁾	TB5-3.3R ⁽¹⁾	TB6-1.1R ⁽¹⁾	TB6-1.2R ⁽¹⁾
	TB7-4.1L ⁽¹⁾	TB7-4.2L ⁽¹⁾			
	TB7-4.1C ⁽¹⁾	TB7-4.2C ⁽¹⁾			
	TB7-4.1R ⁽¹⁾	TB7-4.2R ⁽¹⁾			

⁽¹⁾ Microbial Bioassays and Macroinvertebrate Assessment

EXHIBIT 2

U.S. EPA Rapid Bioassessment Protocol I

Biosurvey Field Data Sheet

RELATIVE ABUNDANCE OF AQUATIC BIOTA

Periphyton	0	1	2	3	4	Slimes	0	1	2	3	4
Filamentous Algae	0	1	2	3	4	Macroinvertebrates	0	1	2	3	4
Macrophytes	0	1	2	3	4	Fish	0	1	2	3	4

0 = Absent/Not Observed 1 = Rare 2 = Common 3 = Abundant 4 = Dominant

MACROBENTHOS QUALITATIVE SAMPLE LIST (Indicate Relative Abundance R = Rare, C = Common, A = Abundant, D = Dominant)

Turbellaria	Megaloptera	Diptera
Bryozoa	Sialidae	Tipulidae
Oligochaeta	Corydalidae	Empididae
Hirudinea	Plecoptera	Simuliidae
Isopoda	Ephemeroptera	Tabanidae
Amphipoda	Trichoptera	Culicidae
Decapoda	Anisoptera	Chironomidae
Gastropoda	Zygoptera	Other
Pelecypoda	Hemiptera	
	Coleoptera	

Rare < 3

Common 3 - 9

Abundant > 10

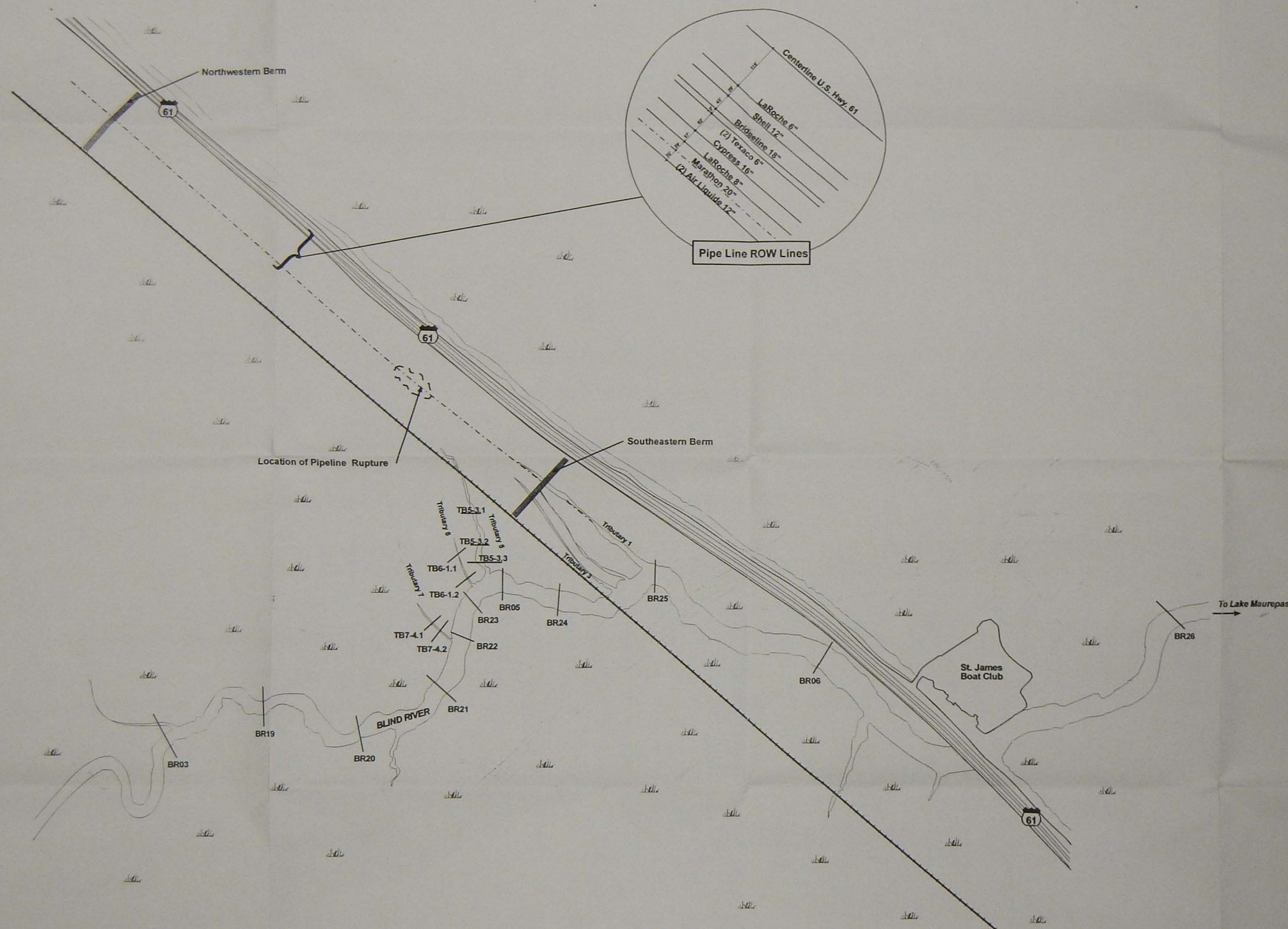
Dominant > 50 (Estimate)

Observations

The following figure is too large to be digitized:

Figure 1: Transect Locations for Delineating the Areal Extent of Residual Petroleum Hydrocarbon Constituents Sediments of Blind River and its Tributaries Affected by the Airline Highway Gasoline Release

A digital photo of the figure is provided. Should you need better a resolution please contact LOSCO to view the original hard copy of the figure.



LEGEND

— Sediment Sample Transects (18)

500 250 0 500
Approximate Scale in Feet

NOTE:
BASE MAP PROVIDED BY WOODWARD-CLYDE CONSULTANTS, INC., TITLED
"SEDIMENT SAMPLE TRANSECT LOCATIONS AIRLINE HIGHWAY RELEASE"
FILE NO. 96B195-3, DATED 06/23/96.

MARATHON PIPE LINE COMPANY
FINDLAY, OHIO

TRANSECT LOCATIONS FOR DELINEATING THE AREAL
EXTENT OF RESIDUAL PETROLEUM HYDROCARBON
CONSTITUENTS SEDIMENTS OF BLIND RIVER AND ITS
TRIBUTARIES AFFECTED BY THE AIRLINE HIGHWAY
GASOLINE RELEASE

ST. JAMES PARISH



Drawn by: JMB/HMC
Checked by: KEN
Approved by: MHS
Date: 06/25/96
Dwg. No.: C26-540-10

FIGURE 1

#E4