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MONITORING ONLY PLAN REPORT FOR ECHO PIER NS MAYPORT FL

9/1/2001

U S ARMY CORPS OF ENGINEERS

MONITORING ONLY PLAN (MOP) REPORT

MAYPORT NAVAL STATION
ECHO PIER

MAYPORT, FLORIDA

PREPARED FOR

UNITED STATES NAVY
SOUTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
CHARLESTON, SOUTH CAROLINA

PREPARED BY

U.S. ARMY CORPS OF ENGINEERS
SAVANNAH DISTRICT
SAVANNAH, GEORGIA

SEPTEMBER 2001

INTRODUCTION

This Monitoring Only Plan (MOP) report for Echo Pier at Mayport Naval Station, Mayport, Florida is a result of a request by the Florida Department of Environmental Protection (FDEP) that the Southern Division, Naval Facilities Engineering Command (NAVFACENGCOM) Charleston, South Carolina perform supplemental sampling at the site.

BACKGROUND

In July of 1996, a leaking diesel fuel pipeline was discovered in the Echo-3 area of Echo Pier. Bechtel Environmental, Inc. was contracted by Southern Division to repair the pipeline, complete the Initial Remedial Action (IRA), and prepare a Contamination Assessment Report (CAR). The IRA involved recovery of free product, composed of diesel fuel released from the pipeline, plus removal of ground water and excavation of contaminated soil. The pipeline was repaired and placed back in service on 19 July 1996. The source of the contamination was believed to have been removed. The CAR, dated February 1997, recommended a No further Action (NFA) status for the site.

Upon review of the CAR, FDEP recommended a supplemental sampling event at the site. Based upon the results of the supplemental sampling event, Bechtel Inc. proposed a Monitoring Only Plan (MOP) in a Contamination Assessment Report Addendum (CARA), dated 13 May 1997. FDEP final approval of a MOP for the site was granted in a letter to Southern Division dated 16 June 1997. A copy of the letter is contained in attachment 1.

On 25 September 1997, eight-tenths of a foot of free product was discovered in monitoring well MP-EP-02. Subsequent discussion between Southern Division and FDEP resulted in a decision to proceed with the MOP monitoring of wells MP-EP-02 and MP-EP-03, and to perform free product monitoring and removal at all four wells (MP-EP-01 through MP-EP-04) at the site on an as-needed basis.

SUMMARY OF GROUND WATER MONITORING AND ANALYSIS

On 9 May 2001, site monitoring wells MP-EP-01, MP-EP-02, MP-EP-03, and MP-EP-04 were checked for free product petroleum using an oil/water interface probe and disposable teflon bailers. Prior to sampling, monitoring wells MP-EP-02 and MP-EP-03 were purged of a minimum of three volumes using a Teflon bailer. Well purging continued until field parameters (pH, specific conductance, and temperature) stabilized. Water level elevation data is contained in table 4 (attachment 5), and field water quality parameters for the sampled well are contained in table 5 (attachment 6). The ground-water samples were collected using a Teflon bailer and placed in appropriate containers. The samples were properly preserved, stored on ice, and delivered to the laboratory for analysis.

The monitoring well samples were analyzed for EPA Methods 602 (including MTBE) and 8310. Chain of custody was maintained on the samples throughout the sampling period. Sampling procedures were conducted according to U.S. Army Corps of Engineers, Savannah District's FDEP-approved Comprehensive Quality Assurance Plan No. 910026G. Laboratory analyses were performed according to the laboratory's FDEP-approved Generic Quality Assurance Plan.

Laboratory analytical results of the samples from wells MP-EP-02 and MP-EP-03, are shown in table 3 (attachment 3). No VOAs or PAHs were detected in either well.

Laboratory analytical data are contained in attachment 7.

SUMMARY OF SAMPLING EVENTS

Table 1 is a summary comparison of sampling events for total VOAs in all wells sampled on the indicated sampling events. Only wells MP-EP-02 and MP-EP-03 are being sampled for the MOP, and on four occasions, MP-EP-02 has not been sampled due to the presence of free product. It is noteworthy that the total VOA results for MP-EP-02 have remained quite stable in the absence of free product.

The next sampling event for laboratory analysis is scheduled for January 2002.

TABLE 1

TOTAL VOAs (EPA 602) ug/L

Well No.	December 1996 (CAR)	April 1997 (CARA)	November 1998 (MOP)	February 1999 (MOP)	May 1999 (MOP)	September 1999 (MOP)	January 2000 (MOP)	July 2000 (MOP)
MP-EP-01	2	BDL	NS	NS	NS	NS	NS	NS
MP-EP-02	27	33	21	NS[1]	NS[2]	29	NS[3]	NS[5]
MP-EP-03	BDL	BDL	BDL	BDL[4]	BDL	1	BDL	BDL
MP-EP-04	2	BDL	NS	NS	NS	NS	NS	NS

Well No.	October 2000 (MOP)	February 2001 (MOP)	May 2001 (MOP)	September 2001 (MOP)				
MP-EP-01	NS	NS	NS	NS				
MP-EP-02	5.2	1.8	BDL	BDL				
MP-EP-03	BDL	BDL	BDL	BDL				
MP-EP-04	NS	NS	NS	NS				

NS -- Not Sampled.
1 -- 0.97' of Free Product.
2 -- 0.02' of Free Product.
3 -- 0.14' of Free Product.
4 -- Laboratory detection limit for benzene was 2.0 ug/L.
5 -- 0.12' of Free Product.

FREE PRODUCT MONITORING AND REMOVAL

Free product monitoring and removal are being performed on all wells at the site. Four weekly product-monitoring events were performed on 13, 21, and 28 November and 5 December 1998. Beginning in January 1999, product-monitoring events have been performed on a monthly basis. The results of this monitoring are displayed in table 2 (attachment 2). Well MP-EP-02 is the only well that has contained free product, with a total of about 30 gallons removed to date. Product removed from wells is drummed for disposal.

CONCLUSION

Free product has not been found in well MP-EP-02 in the past 14 months, and the occurrence of contaminants in the two wells has been minimal.

LIST OF ATTACHMENTS

- ATTACHMENT 1 - FDEP LETTER OF MOP APPROVAL
- ATTACHMENT 2 - TABLE 2 - SUMMARY OF FREE PRODUCT MONITORING
- ATTACHMENT 3 - TABLE 3 - SUMMARY OF SEPTEMBER 2001 MOP GROUND-WATER ANALYTICAL RESULTS
- ATTACHMENT 4 - DATA SUMMARY MAP OF SEPTEMBER 2001 MONITORING WELL ANALYTICAL RESULTS
- ATTACHMENT 5 - TABLE 4 - WATER LEVEL ELEVATION DATA FOR SEPTEMBER 2001
- ATTACHMENT 6 - TABLE 5 - FIELD WATER QUALITY PARAMETERS FOR SEPTEMBER 2001
- ATTACHMENT 7 - LABORATORY ANALYTICAL RESULTS (EPA 602 + MTBE AND EPA 8310) FOR SEPTEMBER 2001

ATTACHMENT 1

FDEP LETTER OF MOP APPROVAL

Department of Environmental Protection

Lawton Chiles
Governor

Twin Towers Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Virginia B. Wetherell
Secretary

June 16, 1997

Mr. H.J. Fraser-Rahim, P.E.
Southern Division
Naval Facilities Engineering Command
PO Box 190010
2155 Eagle Drive
North Charleston, South Carolina 29419

RE: Echo Pier Site, US Naval Station, Mayport, Florida

Dear Mr. Fraser-Rahim:

The Bureau of Waste Cleanup has reviewed the Contamination Assessment Report Addendum (CARA) and Monitoring Only Plan (MOP) proposal dated May 13, 1997 (received May 27, 1997), submitted for this site. The Department designates "source well" as the well located within or adjacent to the identified source of potential groundwater contamination. Likewise, the Department designates "perimeter well" as the well located near the limits of the groundwater contamination or downgradient from the source area. This order is based on monitoring well locations shown in Figure 1 of the Contamination Assessment Report Addendum dated May 13, 1997. The designated wells are:

Source Well: MP-EP-02.

Perimeter Well: MP-EP-03.

Pursuant to Rule 62-770.600(14), Florida Administrative Code (F.A.C.), the Department approves the "monitoring only" proposal. Pursuant to Rules 62-770.660 and 62-770.700(3), F.A.C., you are required to complete the monitoring program outlined below, and to submit the analytical results to the Department within sixty (60) days of sample collection. Each designated well shall be sampled quarterly for one year for EPA Method 602 constituents plus Methyl-tert-butylether (MTBE).

If contaminant concentrations in the designated wells increase above the concentrations listed below, then the resampling/supplemental assessment described in Rule 62-770.660(6) should be performed. If the contaminant concentrations in all wells do not decrease below Rule 62-770.730(5) target cleanup levels after the duration of the monitoring period, then additional monitoring, supplemental contamination assessment and/or remediation may be required.

ATTACHMENT 2

TABLE 2 - SUMMARY OF FREE PRODUCT MONITORING

TABLE 2

SUMMARY OF FREE PRODUCT MONITORING

ECHO PIER
MAYPORT NAVAL STATION
MAYPORT, FLORIDA

THICKNESS OF PRODUCT LAYER IN WELL (FEET)/PRODUCT REMOVED (GALLONS) *

MONITOR WELL	11/13/98	11/21/98	11/28/98	12/05/98	01/25/99	02/20/99	03/21/99	04/25/99	05/15/99	06/29/99	07/27/99	08/31/99	09/30/99
MP-EP-01	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MP-EP-02	0.72/15.0	0.54/6.0	0.03/1.5	0.26/2.5	0.26/1.3	0.97/0.9	0.27/5.0	0.26/6.0	0.02/0.4	0.01/0.0	0.0	0.0	0.0
MP-EP-03	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MP-EP-04	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

MONITOR WELL	12/18/99	01/10/00	03/08/00	04/29/00	06/03/00	07/08/00	08/12/00	10/13/00	12/18/00	01/19/01	02/02/01	03/09/01	05/09/01
MP-EP-01	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MP-EP-02	0.16/1.0	0.14/0.5	0.05/0.9	0.01/0.2	0.06/2.5	0.12/0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MP-EP-03	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MP-EP-04	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

MONITOR WELL	09/16/01												
MP-EP-01	0.0												
MP-EP-02	0.0												
MP-EP-03	0.0												
MP-EP-04	0.0												

Note: Product removed was actually a mixture of product and ground water.

ATTACHMENT 3

TABLE 3 - SUMMARY OF SEPTEMBER 2001 MOP GROUND-WATER ANALYTICAL RESULTS

TABLE 3

SUMMARY OF GROUND-WATER ANALYTICAL RESULTS

ECHO PIER
MAYPORT NAVAL STATION
MAYPORT FLORIDA

16 SEPTEMBER 2001

MONITOR WELL NUMBER

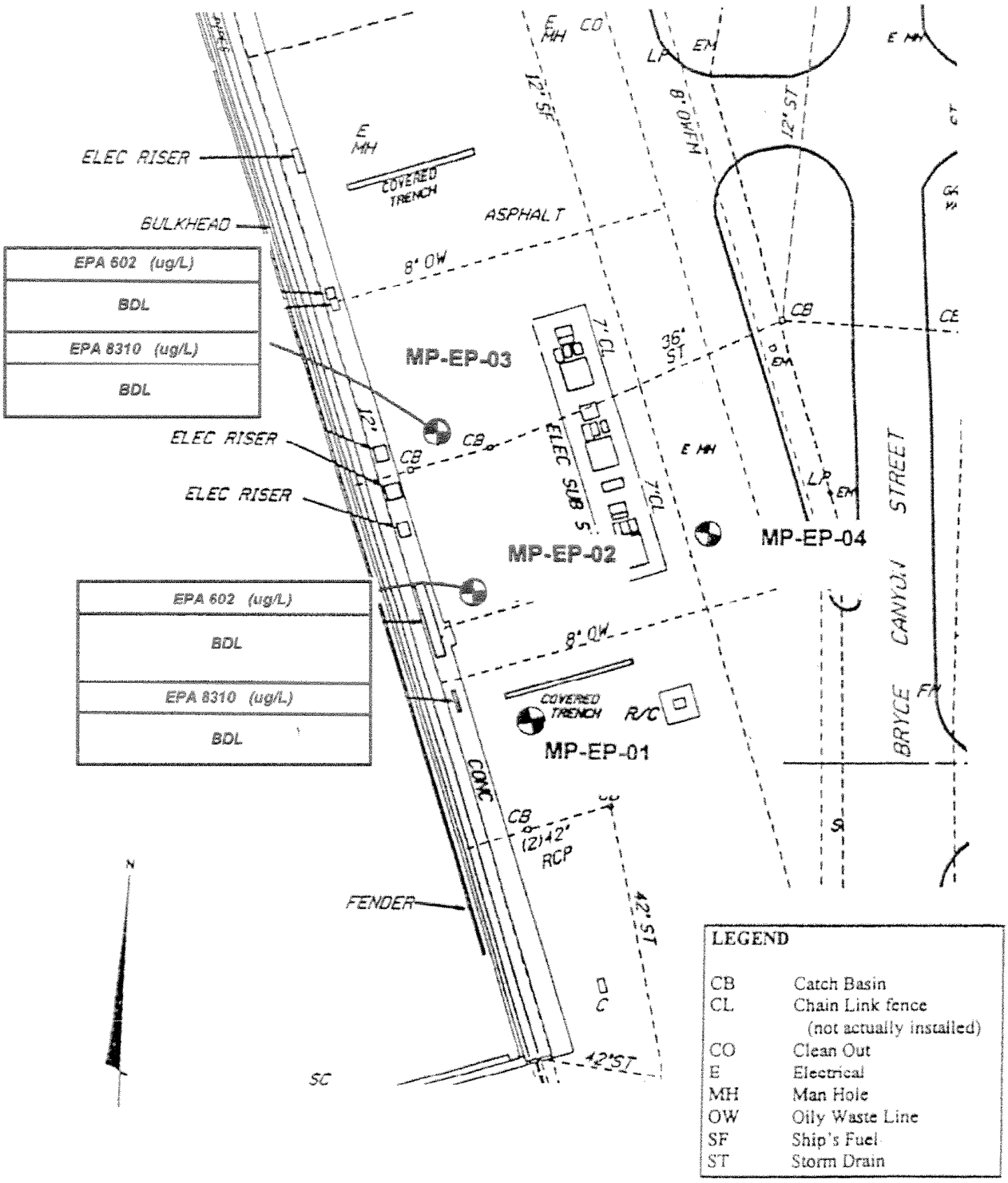
PARAMETER	MP-EP-02 05-01	MP-EP-02 05-01 DUPLICATE	MP-EP-03 05-01	MP EP BLANK	TRIP BLANK	MCL OR TARGET CLEANUP LEVEL
PURGEABLE AROMATICS (602) ug/L						
BENZENE	<1.0	<1.0	<1.0	<1.0	<1.0	1 ug/L
TOLUENE	<1.0	<1.0	<1.0	<1.0	<1.0	40 ug/L
ETHYLBENZENE	<1.0	<1.0	<1.0	<1.0	<1.0	30 ug/L
XYLENES (TOTAL)	<1.0	<1.0	<1.0	<1.0	<1.0	20 ug/L
METHYL-T-BUTYLETHER	<1.0	<1.0	<1.0	<1.0	<1.0	35 ug/L
EXTRACTABLE ORGANICS (8310) ug/L						
ACENAPHTHENE	<0.213	<1.0	<1.0	<1.0	NA	20 ug/L
ACENAPHTHYLENE	<1.06	<1.0	<1.0	<1.0	NA	210 ug/L
ANTHRACENE	<0.213	<0.20	<0.20	<0.20	NA	2100 ug/L
BENZO(A)ANTHRACENE	<0.213	<0.20	<0.20	<0.20	NA	0.2 ug/L
BENZO(A)PYRENE	<0.213	<0.20	<0.20	<0.20	NA	0.2 ug/L
BENZO(B)FLUORANTHENE	<0.213	<0.42	<0.42	<0.42	NA	0.2 ug/L
BENZO(G,H,I)PERYLENE	<1.06	<1.0	<1.0	<1.0	NA	210 ug/L
BENZO(K)FLUORANTHENE	<0.447	<0.42	<0.42	<0.42	NA	0.5 ug/L
CHRYSENE	<0.532	<0.5	<0.5	<0.5	NA	5 ug/L
DIBENZO(A,H)ANTHRACENE	<0.213	<0.20	<0.20	<0.20	NA	0.2 ug/l
FLUORANTHENE	<0.213	<0.20	<0.20	<0.20	NA	280 ug/L
FLUORENE	<1.06	<1.0	<1.0	<1.0	NA	280 ug/L
INDENO(1,2,3-CD)PYRENE	<0.213	<0.20	<0.20	<0.20	NA	0.2 ug/L
NAPHTHALENE	<1.06	<1.0	<1.0	<1.0	NA	20 ug/L
PHENANTHRENE	<0.521	<0.490	<0.490	<0.490	NA	210 ug/L
PYRENE	<1.06	<1.0	<1.0	<1.0	NA	210 ug/L
1- METHYLNAPHTHALENE	<1.06	<1.0	<1.0	<1.0	NA	
2- METHYLNAPHTHALENE	<1.06	<1.0	<1.0	<1.0	NA	

Notes: - NA = Not Analyzed

- Shaded values indicate value above regulatory limit.

ATTACHMENT 4

DATA SUMMARY MAP OF SEPTEMBER 2001 MONITORING WELL ANALYTICAL RESULTS



PIER ECHO MOP SAMPLING
MAYPORT NS, MAYPORT, FLORIDA

DATA SUMMARY MAP
MONITORING WELL ANALYTICAL RESULTS

16 SEPTEMBER 2001

MAP SOURCE: Contamination Assessment Report, Bechtel Inc. dated February 1997.

ATTACHMENT 5

TABLE 4 - SEPTEMBER 2001 WATER LEVEL ELEVATION DATA

TABLE 4

MONITOR WELL
WATER LEVEL DATA

ECHO PIER

MAYPORT NAVAL STATION
MAYPORT, FLORIDA

16 SEPTEMBER 2000

Well No.	Total Depth of Well BLS (ft.)	Top of Casing to Ground Surface (ft.)	Surveyed Top of Casing Elevation (MSL) *	Depth to Water from Top of Casing (ft.)	Elevation of Water Table (MSL) **
MP-EP-01	17.8	Flush	8.96	3.77	5.19
MP-EP-02	17.8	"	9.09	4.50	4.59
MP-EP-03	17.8	"	9.09	4.90	4.19
MP-EP-04	17.8	"	8.61	3.55	5.06

Notes: *- BLS = Below Land Surface*
- flush = Level with ground surface
** - Elevations referenced to MSL (Mean Sea Level).*

ATTACHMENT 6

TABLE 5 - SEPTEMBER 2001 FIELD WATER QUALITY PARAMETERS

TABLE 5

FIELD WATER QUALITY PARAMETERS

ECHO PIER

MAYPORT NAVAL STATION
MAYPORT, FLORIDA

16 SEPTEMBER 2001

Well No.	pH	Specific Conductance (umhos/cm)	Temperature (Degrees Celsius)
MP-EP-01	NS	NS	NS
MP-EP-02	6.52	1067	26.9
MP-EP-03	6.43	763	27.4
MP-EP-04	NS	NS	NS

Note: NS = Not Sampled

ATTACHMENT 7

LABORATORY ANALYTICAL RESULTS FOR SEPTEMBER 2001 SAMPLING EVENT

TestAmerica
INCORPORATED

October 16, 2001 Page 1

CLIENT: USACE-SAVANNAH DISTRICT
100 WEST OGLETHORPE AVE.
SAVANNAH, GA 31402

ATTN: MARK HARVISON

Order Number: 16621
Project Name: ECHO PIER MAYPORT FL
Project Number:
Date Received: 09/17/01

Sample Identification	Lab Number	Collection Date and Time	
MP-EP-03-9-01	01-F23760	9/16/01	16:12
MP-EP-02-9-01	01-F23761	9/16/01	16:40
MP-EP-DUPL-9-01	01-F23762	9/16/01	16:40
MP-EP-BLK1-9-01	01-F23763	9/16/01	16:40
TRIP BLANK	01-F23764		

Approved By: _____

Mark Rusler, Director of Technical Services
Elizabeth A. Rich, Q.A. Officer

Florida Certification Number: E83012 / CQAP990129

Attachments: chain-of-custody/field sheet

4310 East Anderson Road / Orlando, FL 32812 / 407-851-2560 / Fax: 407-856-0886

CLIENT: USACE-SAVANNAH DISTRICT
100 WEST OGLETHORPE AVE.
SAVANNAH, GA 31402

ATTN: MARK HARVISON

Order Number: 16621
Project: ECHO PIER MAYPORT FL
Sample ID: MP-EP-03-9-01
Lab Number: 01-F23760
Date Collected: 09/16/01
Time Collected: 16:12
Date Received: 09/17/01

LABORATORY REPORT

Analyte	Result	Q	Units	Report Limit	Dil Factor	Date	Time	Analyst	Method	Batch
ORGANIC PARAMETERS										
Naphthalene	< 1.00	U	ug/l	1.00	1	10/ 1/01	2:54	GB	8310	8158
Acenapthene	< 1.00	U	ug/l	1.00	1	10/ 1/01	2:54	GB	8310	8158
Anthracene	< 0.200	U	ug/l	0.200	1	10/ 1/01	2:54	GB	8310	8158
Fluoranthene	< 0.200	U	ug/l	0.200	1	10/ 1/01	2:54	GB	8310	8158
Fluorene	< 1.00	U	ug/l	1.00	1	10/ 1/01	2:54	GB	8310	8158
Pyrene	< 1.00	U	ug/L	1.00	1	10/ 1/01	2:54	GB	8310	8158
Benzo(a)anthracene	< 0.200	U	ug/l	0.200	1	10/ 1/01	2:54	GB	8310	8158
Benzo(a)pyrene	< 0.200	U	ug/L	0.200	1	10/ 1/01	2:54	GB	8310	8158
Benzo(b)fluoranthene	< 0.200	U	ug/l	0.200	1	10/ 1/01	2:54	GB	8310	8158
Benzo(k)fluoranthene	< 0.420	U	ug/l	0.420	1	10/ 1/01	2:54	GB	8310	8158
Chrysene	< 0.500	U	ug/l	0.500	1	10/ 1/01	2:54	GB	8310	8158
Dibenzo(a,h)anthracene	< 0.200	U	ug/l	0.200	1	10/ 1/01	2:54	GB	8310	8158
Indeno(1,2,3-cd)pyrene	< 0.200	U	ug/l	0.200	1	10/ 1/01	2:54	GB	8310	8158
Acenaphthylene	< 1.00	U	ug/L	1.00	1	10/ 1/01	2:54	GB	8310	8158
Benzo(g,h,i)perylene	< 1.00	U	ug/l	1.00	1	10/ 1/01	2:54	GB	8310	8158
Phenanthrene	< 0.490	U	ug/l	0.490	1	10/ 1/01	2:54	GB	8310	8158
1-Methylnapthalene	< 1.00	U	ug/L	1.00	1	10/ 1/01	2:54	GB	8310	8158
2-Methylnapthalene	< 1.00	U	ug/L	1.00	1	10/ 1/01	2:54	GB	8310	8158
VOLATILE ORGANICS by GC										
Benzene	< 1.00	U	ug/l	1.00	1	9/19/01	19:27	CTH	602	7587
Chlorobenzene	< 1.00	U	ug/l	1.00	1	9/19/01	19:27	CTH	602/601	7587
1,2-Dichlorobenzene	< 1.00	U	ug/l	1.00	1	9/19/01	19:27	CTH	602/601	7587
1,3-Dichlorobenzene	< 1.00	U	ug/l	1.00	1	9/19/01	19:27	CTH	602/601	7587
1,4-Dichlorobenzene	< 1.00	U	ug/l	1.00	1	9/19/01	19:27	CTH	602/601	7587
Ethylbenzene	< 1.00	U	ug/l	1.00	1	9/19/01	19:27	CTH	602	7587
Toluene	< 1.00	U	ug/l	1.00	1	9/19/01	19:27	CTH	602	7587
m,p-Xylenes	< 1.00	U	ug/l	1.00	1	9/19/01	19:27	CTH	602	7587
o-Xylene	< 1.00	U	ug/l	1.00	1	9/19/01	19:27	CTH	602	7587
MTBE	< 1.00	U	ug/l	1.00	1	9/19/01	19:27	CTH	602	7587

CLIENT: USACE-SAVANNAH DISTRICT
Order No.: 16621
Lab No.: 01-F23760
Sample ID: MP-EP-03-9-01

LABORATORY REPORT CONTINUED

Sample Extraction Data

Parameter	Wt/Vol Extracted	Extract Vol	Date	Analyst	Method
PAH's	1000 ml	1.00 ml	9/19/01	PN	3510C

Surrogate	% Recovery	Target Range
VOA: Bromofluorobenzene	98	75.0 - 125
8310: p-Terphenyl-d14	30 #	36.0 - 117

CLIENT: USACE-SAVANNAH DISTRICT
100 WEST OGLETHORPE AVE.
SAVANNAH, GA 31402

ATTN: MARK HARVISON

Order Number: 16621
Project: ECHO PIER MAYPORT FL
Sample ID: MP-EP-02-9-01
Lab Number: 01-F23761
Date Collected: 09/16/01
Time Collected: 16:40
Date Received: 09/17/01

LABORATORY REPORT

Analyte	Result	Q	Units	Report Limit	Dil Factor	Date	Time	Analyst	Method	Batch
ORGANIC PARAMETERS										
Naphthalene	< 1.06	U	ug/l	1.06	1	10/ 1/01	3:21	GB	8310	8158
Acenapthene	< 1.06	U	ug/l	1.06	1	10/ 1/01	3:21	GB	8310	8158
Anthracene	< 0.213	U	ug/l	0.213	1	10/ 1/01	3:21	GB	8310	8158
Fluoranthene	< 0.213	U	ug/l	0.213	1	10/ 1/01	3:21	GB	8310	8158
Fluorene	< 1.06	U	ug/l	1.06	1	10/ 1/01	3:21	GB	8310	8158
Pyrene	< 1.06	U	ug/L	1.06	1	10/ 1/01	3:21	GB	8310	8158
Benzo(a)anthracene	< 0.213	U	ug/l	0.213	1	10/ 1/01	3:21	GB	8310	8158
Benzo(a)pyrene	< 0.213	U	ug/L	0.213	1	10/ 1/01	3:21	GB	8310	8158
Benzo(b)fluoranthene	< 0.213	U	ug/l	0.213	1	10/ 1/01	3:21	GB	8310	8158
Benzo(k)fluoranthene	< 0.447	U	ug/l	0.447	1	10/ 1/01	3:21	GB	8310	8158
Chrysene	< 0.532	U	ug/l	0.532	1	10/ 1/01	3:21	GB	8310	8158
Dibenzo(a,h)anthracene	< 0.213	U	ug/l	0.213	1	10/ 1/01	3:21	GB	8310	8158
Indeno(1,2,3-cd)pyrene	< 0.213	U	ug/l	0.213	1	10/ 1/01	3:21	GB	8310	8158
Acenaphthylene	< 1.06	U	ug/L	1.06	1	10/ 1/01	3:21	GB	8310	8158
Benzo(g,h,i)perylene	< 1.06	U	ug/l	1.06	1	10/ 1/01	3:21	GB	8310	8158
Phenanthrene	< 0.521	U	ug/l	0.521	1	10/ 1/01	3:21	GB	8310	8158
1-Methylnapthalene	< 1.06	U	ug/L	1.06	1	10/ 1/01	3:21	GB	8310	8158
2-Methylnapthalene	< 1.06	U	ug/L	1.06	1	10/ 1/01	3:21	GB	8310	8158
VOLATILE ORGANICS by GC										
Benzene	< 1.00	U	ug/l	1.00	1	9/19/01	19:56	CTH	602	7587
Chlorobenzene	< 1.00	U	ug/l	1.00	1	9/19/01	19:56	CTH	602/601	7587
1,2-Dichlorobenzene	< 1.00	U	ug/l	1.00	1	9/19/01	19:56	CTH	602/601	7587
1,3-Dichlorobenzene	< 1.00	U	ug/l	1.00	1	9/19/01	19:56	CTH	602/601	7587
1,4-Dichlorobenzene	< 1.00	U	ug/l	1.00	1	9/19/01	19:56	CTH	602/601	7587
Ethylbenzene	< 1.00	U	ug/l	1.00	1	9/19/01	19:56	CTH	602	7587
Toluene	< 1.00	U	ug/l	1.00	1	9/19/01	19:56	CTH	602	7587
m,p-Xylenes	< 1.00	U	ug/l	1.00	1	9/19/01	19:56	CTH	602	7587
o-Xylene	< 1.00	U	ug/l	1.00	1	9/19/01	19:56	CTH	602	7587
MTBE	< 1.00	U	ug/l	1.00	1	9/19/01	19:56	CTH	602	7587

CLIENT: USACE-SAVANNAH DISTRICT
Order No.: 16621
Lab No.: 01-F23761
Sample ID: MP-EP-02-9-01

LABORATORY REPORT CONTINUED

Sample Extraction Data

Parameter	Wt/Vol Extracted	Extract Vol	Date	Analyst	Method
PAH's	940. ml	1.00 ml	9/19/01	PN	3510C

Surrogate	% Recovery	Target Range
VOA: Bromofluorobenzene	101	75.0 - 125
8310: p-Terphenyl-d14	26 #	36.0 - 117

CLIENT: USACE-SAVANNAH DISTRICT
100 WEST OGLETHORPE AVE.
SAVANNAH, GA 31402

ATTN: MARK HARVISON

Order Number: 16621
Project: ECHO PIER MAYPORT FL
Sample ID: MP-EP-DUPL-9-01
Lab Number: 01-F23762
Date Collected: 09/16/01
Time Collected: 16:40
Date Received: 09/17/01

LABORATORY REPORT

Analyte	Result	Q	Units	Report Limit	Dil Factor	Date	Time	Analyst	Method	Batch
ORGANIC PARAMETERS										
Naphthalene	< 1.00	U	ug/l	1.00	1	10/ 1/01	3:48	GB	8310	8158
Acenapthene	< 1.00	U	ug/l	1.00	1	10/ 1/01	3:48	GB	8310	8158
Anthracene	< 0.200	U	ug/l	0.200	1	10/ 1/01	3:48	GB	8310	8158
Fluoranthene	< 0.200	U	ug/l	0.200	1	10/ 1/01	3:48	GB	8310	8158
Fluorene	< 1.00	U	ug/l	1.00	1	10/ 1/01	3:48	GB	8310	8158
Pyrene	< 1.00	U	ug/L	1.00	1	10/ 1/01	3:48	GB	8310	8158
Benzo(a)anthracene	< 0.200	U	ug/l	0.200	1	10/ 1/01	3:48	GB	8310	8158
Benzo(a)pyrene	< 0.200	U	ug/L	0.200	1	10/ 1/01	3:48	GB	8310	8158
Benzo(b)fluoranthene	< 0.200	U	ug/l	0.200	1	10/ 1/01	3:48	GB	8310	8158
Benzo(k)fluoranthene	< 0.420	U	ug/l	0.420	1	10/ 1/01	3:48	GB	8310	8158
Chrysene	< 0.500	U	ug/l	0.500	1	10/ 1/01	3:48	GB	8310	8158
Dibenzo(a,h)anthracene	< 0.200	U	ug/l	0.200	1	10/ 1/01	3:48	GB	8310	8158
Indeno(1,2,3-cd)pyrene	< 0.200	U	ug/l	0.200	1	10/ 1/01	3:48	GB	8310	8158
Acenaphthylene	< 1.00	U	ug/L	1.00	1	10/ 1/01	3:48	GB	8310	8158
Benzo(g,h,i)perylene	< 1.00	U	ug/l	1.00	1	10/ 1/01	3:48	GB	8310	8158
Phenanthrene	< 0.490	U	ug/l	0.490	1	10/ 1/01	3:48	GB	8310	8158
1-Methylnapthalene	< 1.00	U	ug/L	1.00	1	10/ 1/01	3:48	GB	8310	8158
2-Methylnapthalene	< 1.00	U	ug/L	1.00	1	10/ 1/01	3:48	GB	8310	8158
VOLATILE ORGANICS by GC										
Benzene	< 1.00	U	ug/l	1.00	1	9/19/01	20:25	CTH	602	7587
Chlorobenzene	< 1.00	U	ug/l	1.00	1	9/19/01	20:25	CTH	602/601	7587
1,2-Dichlorobenzene	< 1.00	U	ug/l	1.00	1	9/19/01	20:25	CTH	602/601	7587
1,3-Dichlorobenzene	< 1.00	U	ug/l	1.00	1	9/19/01	20:25	CTH	602/601	7587
1,4-Dichlorobenzene	< 1.00	U	ug/l	1.00	1	9/19/01	20:25	CTH	602/601	7587
Ethylbenzene	< 1.00	U	ug/l	1.00	1	9/19/01	20:25	CTH	602	7587
Toluene	< 1.00	U	ug/l	1.00	1	9/19/01	20:25	CTH	602	7587
m,p-Xylenes	< 1.00	U	ug/l	1.00	1	9/19/01	20:25	CTH	602	7587
o-Xylene	< 1.00	U	ug/l	1.00	1	9/19/01	20:25	CTH	602	7587
MTBE	< 1.00	U	ug/l	1.00	1	9/19/01	20:25	CTH	602	7587

CLIENT: USACE-SAVANNAH DISTRICT
Order No.: 16621
Lab No.: 01-F23762
Sample ID: MP-EP-DUPL-9-01

LABORATORY REPORT CONTINUED

Sample Extraction Data

Parameter	Wt/Vol Extracted	Extract Vol	Date	Analyst	Method
PAH's	1000 ml	1.00 ml	9/19/01	PN	3510C

Surrogate	% Recovery	Target Range
VOA: Bromofluorobenzene	103	75.0 - 125
8310: p-Terphenyl-d14	29 #	36.0 - 117

CLIENT: USACE-SAVANNAH DISTRICT
100 WEST OGLETHORPE AVE.
SAVANNAH, GA 31402

ATTN: MARK HARVISON

Order Number: 16621
Project: ECHO PIER MAYPORT FL
Sample ID: MP-EP-BLK1-9-01
Lab Number: 01-F23763
Date Collected: 09/16/01
Time Collected: 16:40
Date Received: 09/17/01

LABORATORY REPORT

Analyte	Result	Q	Units	Report Limit	Dil Factor	Date	Time	Analyst	Method	Batch
ORGANIC PARAMETERS										
Naphthalene	< 1.00	U	ug/l	1.00	1	10/ 1/01	4:42	GB	8310	8158
Acenapthene	< 1.00	U	ug/l	1.00	1	10/ 1/01	4:42	GB	8310	8158
Anthracene	< 0.200	U	ug/l	0.200	1	10/ 1/01	4:42	GB	8310	8158
Fluoranthene	< 0.200	U	ug/l	0.200	1	10/ 1/01	4:42	GB	8310	8158
Fluorene	< 1.00	U	ug/l	1.00	1	10/ 1/01	4:42	GB	8310	8158
Pyrene	< 1.00	U	ug/L	1.00	1	10/ 1/01	4:42	GB	8310	8158
Benzo(a)anthracene	< 0.200	U	ug/l	0.200	1	10/ 1/01	4:42	GB	8310	8158
Benzo(a)pyrene	< 0.200	U	ug/L	0.200	1	10/ 1/01	4:42	GB	8310	8158
Benzo(b)fluoranthene	< 0.200	U	ug/l	0.200	1	10/ 1/01	4:42	GB	8310	8158
Benzo(k)fluoranthene	< 0.420	U	ug/l	0.420	1	10/ 1/01	4:42	GB	8310	8158
Chrysene	< 0.500	U	ug/l	0.500	1	10/ 1/01	4:42	GB	8310	8158
Dibenzo(a,h)anthracene	< 0.200	U	ug/l	0.200	1	10/ 1/01	4:42	GB	8310	8158
Indeno(1,2,3-cd)pyrene	< 0.200	U	ug/l	0.200	1	10/ 1/01	4:42	GB	8310	8158
Acenaphthylene	< 1.00	U	ug/L	1.00	1	10/ 1/01	4:42	GB	8310	8158
Benzo(g,h,i)perylene	< 1.00	U	ug/l	1.00	1	10/ 1/01	4:42	GB	8310	8158
Phenanthrene	< 0.490	U	ug/l	0.490	1	10/ 1/01	4:42	GB	8310	8158
1-Methylnapthalene	< 1.00	U	ug/L	1.00	1	10/ 1/01	4:42	GB	8310	8158
2-Methylnapthalene	< 1.00	U	ug/L	1.00	1	10/ 1/01	4:42	GB	8310	8158
VOLATILE ORGANICS by GC										
Benzene	< 1.00	U	ug/l	1.00	1	9/19/01	20:54	CTH	602	7587
Chlorobenzene	< 1.00	U	ug/l	1.00	1	9/19/01	20:54	CTH	602/601	7587
1,2-Dichlorobenzene	< 1.00	U	ug/l	1.00	1	9/19/01	20:54	CTH	602/601	7587
1,3-Dichlorobenzene	< 1.00	U	ug/l	1.00	1	9/19/01	20:54	CTH	602/601	7587
1,4-Dichlorobenzene	< 1.00	U	ug/l	1.00	1	9/19/01	20:54	CTH	602/601	7587
Ethylbenzene	< 1.00	U	ug/l	1.00	1	9/19/01	20:54	CTH	602	7587
Toluene	< 1.00	U	ug/l	1.00	1	9/19/01	20:54	CTH	602	7587
m,p-Xylenes	< 1.00	U	ug/l	1.00	1	9/19/01	20:54	CTH	602	7587
o-Xylene	< 1.00	U	ug/l	1.00	1	9/19/01	20:54	CTH	602	7587
MTBE	< 1.00	U	ug/l	1.00	1	9/19/01	20:54	CTH	602	7587

CLIENT: USACE-SAVANNAH DISTRICT
Order No.: 16621
Lab No.: 01-F23763
Sample ID: MP-EP-BLK1-9-01

LABORATORY REPORT CONTINUED

Sample Extraction Data

Parameter	Wt/Vol Extracted	Extract Vol	Date	Analyst	Method
PAH's	1000 ml	1.00 ml	9/19/01	PN	3510C

Surrogate	% Recovery	Target Range
VOA: Bromofluorobenzene	102	75.0 - 125
8310: p-Terphenyl-d14	25 #	36.0 - 117

CLIENT: USACE-SAVANNAH DISTRICT
100 WEST OGLETHORPE AVE.
SAVANNAH, GA 31402

ATTN: MARK HARVISON

Order Number: 16621
Project: ECHO PIER MAYPORT FL
Sample ID: TRIP BLANK
Lab Number: 01-F23764
Date Received: 09/17/01

LABORATORY REPORT

Analyte	Result	Q	Units	Report Limit	Dil Factor	Date	Time	Analyst	Method	Batch
VOLATILE ORGANICS by GC										
Benzene	< 1.00	U	ug/l	1.00	1	9/19/01	21:23	CTH	602	7587
Chlorobenzene	< 1.00	U	ug/l	1.00	1	9/19/01	21:23	CTH	602/601	7587
1,2-Dichlorobenzene	< 1.00	U	ug/l	1.00	1	9/19/01	21:23	CTH	602/601	7587
1,3-Dichlorobenzene	< 1.00	U	ug/l	1.00	1	9/19/01	21:23	CTH	602/601	7587
1,4-Dichlorobenzene	< 1.00	U	ug/l	1.00	1	9/19/01	21:23	CTH	602/601	7587
Ethylbenzene	< 1.00	U	ug/l	1.00	1	9/19/01	21:23	CTH	602	7587
Toluene	< 1.00	U	ug/l	1.00	1	9/19/01	21:23	CTH	602	7587
m,p-Xylenes	< 1.00	U	ug/l	1.00	1	9/19/01	21:23	CTH	602	7587
o-Xylene	< 1.00	U	ug/l	1.00	1	9/19/01	21:23	CTH	602	7587
MTBE	< 1.00	U	ug/l	1.00	1	9/19/01	21:23	CTH	602	7587

Surrogate	% Recovery	Target Range
VOA: Bromofluorobenzene	100	75.0 - 125

CLIENT: USACE-SAVANNAH DISTRICT
Order No.: 16621
Project: ECHO PIER MAYPORT FL

Qualifier Definitions:

B = results based upon colony counts outside the acceptable range
I = the reported value is between the laboratory method detection limit and the laboratory practical quantitation limit
J1 = surrogate recovery limits have been exceeded
J3 = the reported value failed to meet the established quality control criteria for either precision and/or accuracy
J4 = the sample matrix interfered with the ability to make an accurate determination
J5 = the data is questionable because of improper lab or field protocols
K = off-scale low, actual value is less than the value given
L = off-scale high, actual value is known to be greater than the value given
Q = sample held beyond acceptable holding time
U = the compound was analyzed for but not detected
V = the analyte was detected in both the sample and the associated method blank
Y = the laboratory analysis was from an unpreserved or improperly preserved sample
Z = too many colonies present (TNTC)
TIC = analyzed by MS T.I.C.(tentatively identified compound)

*TA = sampled by TestAmerica,Inc. Field Services

the # indicates reported value is outside method defined and/or charted laboratory control limit

CLIENT: USACE-SAVANNAH DISTRICT
Order No.: 16621
Project: ECHO PIER MAYPORT FL

PROJECT QUALITY CONTROL DATA

Matrix Spike Recovery

Analyte	Units	Orig. Val.	MS Val	Spike Conc	Recovery	Target Range	Batch	Sample Spiked
Benzene	ug/l	< 1.00	11.5	10.0	115.00	39.0 - 150	7587	01-F23760
Chlorobenzene	ug/l	< 1.00	12.3	10.0	123.00	38.0 - 150	7587	01-F23760
1,2-Dichlorobenzene	ug/l	< 1.00	7.40	10.0	74.00	0.0 - 208	7587	01-F23760
1,3-Dichlorobenzene	ug/l	< 1.00	8.30	10.0	83.00	7.0 - 187	7587	01-F23760
1,4-Dichlorobenzene	ug/l	< 1.00	8.90	10.0	89.00	42.0 - 143	7587	01-F23760
Ethylbenzene	ug/l	< 1.00	11.8	10.0	118.00	70.0 - 130	7587	01-F23760
Toluene	ug/l	< 1.00	12.1	10.0	121.00	46.0 - 148	7587	01-F23760
m,p-Xylenes	ug/l	< 1.00	23.1	20.0	115.50	70.0 - 130	7587	01-F23760
o-Xylene	ug/l	< 1.00	11.7	10.0	117.00	70.0 - 130	7587	01-F23760
MTBE	ug/l	< 1.00	10.0	10.0	100.00	70.0 - 130	7587	01-F23760

Laboratory Control Data

Analyte	Units	Known Val.	Analyzed Val	% Recovery	Target Range	Q.C. Batch
Naphthalene	ug/l	20.0	8.26	41.3	0 - 125	8158
Acenapthene	ug/l	20.0	13.2	66.0	9.9 - 108	8158
Anthracene	ug/l	20.0	13.6	68.0	25 - 114	8158
Fluoranthene	ug/l	20.0	13.8	69.0	38.5 - 151	8158
Fluorene	ug/l	20.0	11.7	58.5	14.8 - 150	8158
Pyrene	ug/L	20.0	14.6	73.0	39 - 129	8158
Benzo(a)anthracene	ug/l	20.0	15.9	79.5	39.5 - 140	8158
Benzo(a)pyrene	ug/L	20.0	16.6	83.0	37.6 - 141	8158
Benzo(b)fluoranthene	ug/l	20.0	16.3	81.5	43.4 - 146	8158
Benzo(k)fluoranthene	ug/l	20.0	16.1	80.5	41.7 - 149	8158
Chrysene	ug/l	20.0	16.9	84.5	42 - 146	8158
Dibenzo(a,h)anthracene	ug/l	20.0	17.0	85.0	37.2 - 151	8158
Indeno(1,2,3-cd)pyrene	ug/l	20.0	15.6	78.0	41.6 - 139	8158
Acenaphthylene	ug/L	20.0	13.1	65.5	11.6 - 101	8158
Benzo(g,h,i)perylene	ug/l	20.0	16.3	81.5	43.3 - 148	8158
Phenanthrene	ug/l	20.0	12.0	60.0	23.6 - 128	8158
1-Methylnapthalene	ug/L	20.0	11.4	57.0	50 - 150	8158
2-Methylnapthalene	ug/L	20.0	10.8	54.0	50 - 150	8158
Benzene	ug/l	10.0	9.50	95.0	39 - 150	7587
Chlorobenzene	ug/l	10.0	9.80	98.0	38 - 150	7587
1,2-Dichlorobenzene	ug/l	10.0	10.2	102.	0 - 208	7587
1,3-Dichlorobenzene	ug/l	10.0	9.90	99.0	7 - 187	7587
1,4-Dichlorobenzene	ug/l	10.0	10.0	100.	42 - 143	7587
Ethylbenzene	ug/l	10.0	9.90	99.0	70 - 130	7587
Toluene	ug/l	10.0	9.90	99.0	46 - 148	7587
m,p-Xylenes	ug/l	20.0	19.6	98.0	70 - 130	7587
o-Xylene	ug/l	10.0	9.70	97.0	70 - 130	7587
MTBE	ug/l	10.0	11.1	111.	70 - 130	7587

CLIENT: USACE-SAVANNAH DISTRICT
Order No.: 16621
Project: ECHO PIER MAYPORT FL

PROJECT QUALITY CONTROL DATA

Duplicates

Analyte	Units	Orig. Val.	Duplicate	RPD	Limit	Q.C. Batch	Duplicated
Naphthalene	ug/l	8.26	8.29	0.36	50.0	8158	known
Acenapthene	ug/l	13.2	10.1	26.61	50.0	8158	known
Anthracene	ug/l	13.6	15.0	9.79	50.0	8158	known
Fluoranthene	ug/l	13.8	15.0	8.33	50.0	8158	known
Fluorene	ug/l	11.7	12.8	8.98	50.0	8158	known
Pyrene	ug/L	14.6	15.4	5.33	50.0	8158	known
Benzo(a)anthracene	ug/l	15.9	16.5	3.70	50.0	8158	known
Benzo(a)pyrene	ug/L	16.6	16.8	1.20	50.0	8158	known
Benzo(b)fluoranthene	ug/l	16.3	16.7	2.42	50.0	8158	known
Benzo(k)fluoranthene	ug/l	16.1	16.6	3.06	50.0	8158	known
Chrysene	ug/l	16.9	17.4	2.92	50.0	8158	known
Dibenzo(a,h)anthracene	ug/l	17.0	17.3	1.75	50.0	8158	known
Indeno(1,2,3-cd)pyrene	ug/l	15.6	16.0	2.53	50.0	8158	known
Acenaphthylene	ug/L	13.1	13.1	0.00	50.0	8158	known
Benzo(g,h,i)perylene	ug/l	16.3	16.9	3.61	50.0	8158	known
Phenanthrene	ug/l	12.0	13.5	11.76	50.0	8158	known
1-Methylnapthalene	ug/L	11.4	9.67	16.42	50.0	8158	known
2-Methylnapthalene	ug/L	10.8	11.2	3.64	50.0	8158	known

Blank Data

Analyte	Blank Value	Units	Q.C. Batch
Naphthalene	< 1.00	ug/l	8158
Acenapthene	< 1.00	ug/l	8158
Anthracene	< 0.200	ug/l	8158
Fluoranthene	< 0.200	ug/l	8158
Fluorene	< 1.00	ug/l	8158
Pyrene	< 1.00	ug/L	8158
Benzo(a)anthracene	< 0.200	ug/l	8158
Benzo(a)pyrene	< 0.200	ug/L	8158
Benzo(b)fluoranthene	< 0.200	ug/l	8158
Benzo(k)fluoranthene	< 0.420	ug/l	8158
Chrysene	< 0.500	ug/l	8158
Dibenzo(a,h)anthracene	< 0.200	ug/l	8158
Indeno(1,2,3-cd)pyrene	< 0.200	ug/l	8158
Acenaphthylene	< 1.00	ug/L	8158
Benzo(g,h,i)perylene	< 1.00	ug/l	8158
Phenanthrene	< 0.490	ug/l	8158
1-Methylnapthalene	< 1.00	ug/L	8158
2-Methylnapthalene	< 1.00	ug/L	8158
Benzene	< 1.00	ug/l	7587
Chlorobenzene	< 1.00	ug/l	7587
1,2-Dichlorobenzene	< 1.00	ug/l	7587
1,3-Dichlorobenzene	< 1.00	ug/l	7587
1,4-Dichlorobenzene	< 1.00	ug/l	7587

CLIENT: USACE-SAVANNAH DISTRICT
Order No.: 16621
Project: ECHO PIER MAYPORT FL

PROJECT QUALITY CONTROL DATA

Blank Data

Analyte	Blank Value	Units	Q.C. Batch
Ethylbenzene	< 1.00	ug/l	7587
Toluene	< 1.00	ug/l	7587
m,p-Xylenes	< 1.00	ug/l	7587
o-Xylene	< 1.00	ug/l	7587
MTBE	< 1.00	ug/l	7587

1 of 1 (16021)

TestAmerica INCORPORATED

Nashville Division
2960 Foster Creighton
Nashville, TN 37204

Phone: 615-726-0177
Fax: 615-726-3404

To assist us in using the proper analytical methods, is this work being conducted for regulatory purposes?
Compliance Monitoring _____

Client Name: USACE Savannah District Client #: _____
Address: 100 West Oglethorpe Ave
City/State/Zip Code: Savannah, GA 31401
Project Manager: Mark Harvison
Telephone Number: (912) 652-5151 Fax: (912) 652-5311
Sampler Name: (Print Name) Jason Smith
Sampler Signature: [signature]

Project Name: Echo Pier Mayport Florida
Project #: _____
Site/Location ID: Echo Pier State: FL
Report To: Mark Harvison
Invoice To: _____
Quote #: _____ PO#: DO# 0237

TAT
___ Standard
___ Rush (surcharges may apply)
Date Needed: _____
Fax Results: Y N

QC Deliverables
___ None
___ Level 2 (Batch QC)
___ Level 3
___ Level 4
Other: _____

SAMPLE ID	Date Sampled	Time Sampled	G = Grab, C = Composite	Field Filtered	Matrix (SL - Sludge, DW - Drinking Water, GW - Groundwater, S - Soil/Solid, WW - Wastewater, Specify Other)	Preservation & # of Containers: HNO_3	HCl	NaOH	H_2SO_4	Methanol	None	Other (Specify) Ice	Analyze For: 602+MTBE	8310									REMARKS
MP-EP-03-9-01	9-16-01	1612	G		GW		3				1	X	3	1									F23760
MP-EP-02-9-01	9-16-01	1640	G		GW		3				1	X											61
MP-EP-Dup1-9-01	9-16-01	1640	G		GW		3				1	X											62
MP-EP-BLK1-9-01	9-16-01	1640	G		GW		3				1	X											63
TRIP BLANK													3										64

Special Instructions:

LABORATORY COMMENTS:
Init Lab Temp:
Rec Lab Temp: 6C

Relinquished By:	Date:	Time:	Received By:	Date:	Time:
H C Case	9-17-01	0845	[signature]	9/17/01	08:45
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:

Custody Seals: Y N N/A
Bottles Supplied by TestAmerica: Y N
Method of Shipment:

8x Liter amber