GW - 21

MONITORING REPORTS

DATE: 1999

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ENVIRONMENTAL BUREAU
OIL CONSERVATION DIVISION

ARCADIS GERAGHTY & MILLER

Annual Groundwater Monitoring Report, January - December 1999 Volume 2

Indian Basin Remediation Project
Eddy County, New Mexico

PREPARED FOR

Marathon Oil Company

ARCADIS GERAGHTY & MILLER

Annual Groundwater Monitoring Report, January - December 1999 Volume 2

Indian Basin Remediation Project
Eddy County, New Mexico

PREPARED FOR

Marathon Oil Company

Appendices (cont'd from Volume I)

H Laboratory Analytical Reports

January 1999 Groundwater Sampling Event

April 1999 Groundwater Sampling Event

December 1999 Groundwater Sampling Event

Initial Sampling of Phase I Wells, July 1999

Monthly Air Stripper Monitoring, 1999

Appendix H

Laboratory Analytical Reports

January 1999 Groundwater
Sampling Event

RECEIVED
FEB 09 1999

Pinnacle Lab ID number **902010**
February 05, 1999

GERAGHTY & MILLER, INC.
1030 ANDREWS HWY. SUITE 120
MIDLAND, TX 79701

Project Name INDIAN BASIN
Project Number NP000443.0001

Attention: ALAN REED

On 2/3/99 Pinnacle Laboratories. Inc. Inc., (ADHS License No. AZ0592), received a request to analyze **aqueous** samples. The samples were analyzed with EPA methodology or equivalent methods. The results of these analyses and the quality control data, which follow each set of analyses, are enclosed.

If you have any questions or comments, please do not hesitate to contact us at (505)344-3777.

Kimberly D. McNeill
Project Manager

H. Mitchell Rubenstein, Ph. D.
General Manager

MR: mt

Enclosure

CLIENT	: GERAGHTY & MILLER, INC.	PINNACLE ID	: 902010
PROJECT #	: NP000443.0001	DATE RECEIVED	: 2/3/99
PROJECT NAME	: INDIAN BASIN	REPORT DATE	: 2/5/99

PIN ID. #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	MW-60	AQUEOUS	2/1/99
02	MW-60 EB	AQUEOUS	2/1/99
03	MW-61A	AQUEOUS	2/1/99
04	MW-61A EB	AQUEOUS	2/1/99
05	MW-66	AQUEOUS	2/1/99
06	MW-66 EB	AQUEOUS	2/1/99
07	MW-71	AQUEOUS	2/1/99
08	MW-71 EB	AQUEOUS	2/1/99
09	MW-87	AQUEOUS	2/2/99
10	MW-87 EB	AQUEOUS	2/2/99
11	MW-87A	AQUEOUS	2/2/99
12	MW-87A EB	AQUEOUS	2/2/99
13	MW-88	AQUEOUS	2/1/99
14	MW-88 EB	AQUEOUS	2/1/99
15	MW-89	AQUEOUS	2/1/99
16	MW-89 EB	AQUEOUS	2/1/99
17	MW-96	AQUEOUS	2/2/99
18	MW-96 EB	AQUEOUS	2/2/99
19	MW-97	AQUEOUS	2/2/99
20	MW-111	AQUEOUS	2/1/99
21	MW-111 EB	AQUEOUS	2/1/99
22	TRIP BLANK	AQUEOUS	1/25/99

GAS CHROMATOGRAPHY RESULTS

TEST : EPA 8021 MODIFIED
CLIENT : GERAGHTY & MILLER, INC. PINNACLE I.D.: 902010
PROJECT # : NP000443.0001
PROJECT NAME : INDIAN BASIN

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
01	MW-60	AQUEOUS	2/1/99	NA	2/3/99	1
02	MW-60 EB	AQUEOUS	2/1/99	NA	2/3/99	1
03	MW-61A	AQUEOUS	2/1/99	NA	2/4/99	1

PARAMETER	DET. LIMIT	UNITS	MW-60	MW-60 EB	MW-61A
BENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
TOLUENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
ETHYLBENZENE	0.5	**UG/L**	< 0.5	< 0.5	**12**
TOTAL XYLENES	0.5	**UG/L**	< 0.5	< 0.5	**54**
SURROGATE:					
BROMOFLUOROBENZENE (%)			NA	NA	116
SURROGATE LIMITS	(80 - 120)				
TRIFLUOROTOLUENE			98	108	NA
SURROGATE LIMITS	(69 - 117)				

CHEMIST NOTES:
N/A

GAS CHROMATOGRAPHY RESULTS

TEST : EPA 8021 MODIFIED
CLIENT : GERAGHTY & MILLER, INC. PINNACLE I.D.: 902010
PROJECT # : NP000443.0001
PROJECT NAME : INDIAN BASIN

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
04	MW-61A EB	AQUEOUS	2/1/99	NA	2/3/99	1
05	MW-66	AQUEOUS	2/1/99	NA	2/4/99	1
06	MW-66 EB	AQUEOUS	2/1/99	NA	2/3/99	1

PARAMETER	DET. LIMIT	UNITS	MW-61A EB	MW-66	MW-66 EB
BENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
TOLUENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
ETHYLBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
TOTAL XYLENES	0.5	UG/L	< 0.5	< 0.5	< 0.5
SURROGATE:					
BROMOFLUOROBENZENE (%)			NA	NA	NA
SURROGATE LIMITS	(80 - 120)				
TRIFLUOROTOLUENE			105	94	99
SURROGATE LIMITS	(69 - 117)				

CHEMIST NOTES:
N/A

GAS CHROMATOGRAPHY RESULTS

TEST : EPA 8021 MODIFIED
CLIENT : GERAGHTY & MILLER, INC. PINNACLE I.D.: 902010
PROJECT # : NP000443.0001
PROJECT NAME : INDIAN BASIN

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
07	MW-71	AQUEOUS	2/1/99	NA	2/4/99	1
08	MW-71 EB	AQUEOUS	2/1/99	NA	2/3/99	1
09	MW-87	AQUEOUS	2/2/99	NA	2/3/99	1

PARAMETER	DET. LIMIT	UNITS	MW-71	MW-71 EB	MW-87
BENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
TOLUENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
ETHYLBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
TOTAL XYLENES	0.5	UG/L	< 0.5	< 0.5	< 0.5
SURROGATE:					
BROMOFLUOROBENZENE (%)			NA	NA	NA
SURROGATE LIMITS	(80 - 120)				
TRIFLUOROTOLUENE			109	107	105
SURROGATE LIMITS	(69 - 117)				

CHEMIST NOTES:
N/A

GAS CHROMATOGRAPHY RESULTS

TEST : EPA 8021 MODIFIED
CLIENT : GERAGHTY & MILLER, INC. PINNACLE I.D.: 902010
PROJECT # : NP000443.0001
PROJECT NAME : INDIAN BASIN

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
10	MW-87 EB	AQUEOUS	2/2/99	NA	2/3/99	1
11	MW-87A	AQUEOUS	2/2/99	NA	2/4/99	1
12	MW-87A EB	AQUEOUS	2/2/99	NA	2/4/99	1

PARAMETER	DET. LIMIT	UNITS	MW-87 EB	MW-87A	MW-87A EB
BENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
TOLUENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
ETHYLBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
TOTAL XYLENES	0.5	UG/L	< 0.5	< 0.5	< 0.5
SURROGATE:					
BROMOFLUOROBENZENE (%)			NA	102	105
SURROGATE LIMITS	(80 - 120)				
TRIFLUOROTOLUENE			106	NA	NA
SURROGATE LIMITS	(69 - 117)				

CHEMIST NOTES:
N/A

GAS CHROMATOGRAPHY RESULTS

TEST : EPA 8021 MODIFIED
CLIENT : GERAGHTY & MILLER, INC. PINNACLE I.D.: 902010
PROJECT # : NP000443.0001
PROJECT NAME : INDIAN BASIN

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
13	MW-88	AQUEOUS	2/1/99	NA	2/4/99	1
14	MW-88 EB	AQUEOUS	2/1/99	NA	2/4/99	1
15	MW-89	AQUEOUS	2/1/99	NA	2/4/99	1

PARAMETER	DET. LIMIT	UNITS	MW-88	MW-88 EB	MW-89
BENZENE	0.5	**UG/L**	**1.6**	< 0.5	**11**
TOLUENE	0.5	**UG/L**	**1.8**	< 0.5	**1.3**
ETHYLBENZENE	0.5	**UG/L**	**1.6**	< 0.5	< 0.5
TOTAL XYLENES	0.5	**UG/L**	**4.8**	< 0.5	< 0.5
SURROGATE:					
BROMOFLUOROBENZENE (%)			105	108	107
SURROGATE LIMITS	(80 - 120)				
TRIFLUOROTOLUENE			NA	NA	NA
SURROGATE LIMITS	(69 - 117)				

CHEMIST NOTES:
N/A

GAS CHROMATOGRAPHY RESULTS

TEST : EPA 8021 MODIFIED
CLIENT : GERAGHTY & MILLER, INC. PINNACLE I.D.: 902010
PROJECT # : NP000443.0001
PROJECT NAME : INDIAN BASIN

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
16	MW-89 EB	AQUEOUS	2/1/99	NA	2/4/99	1
17	MW-96	AQUEOUS	2/2/99	NA	2/3/99	1
18	MW-96 EB	AQUEOUS	2/2/99	NA	2/3/99	1

PARAMETER	DET. LIMIT	UNITS	MW-89 EB	MW-96	MW-96 EB
BENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
TOLUENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
ETHYLBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
TOTAL XYLENES	0.5	UG/L	< 0.5	< 0.5	< 0.5
SURROGATE:					
BROMOFLUOROBENZENE (%)			105	117	106
SURROGATE LIMITS	(80 - 120)				
TRIFLUOROTOLUENE			NA	NA	NA
SURROGATE LIMITS	(69 - 117)				

CHEMIST NOTES:
N/A

GAS CHROMATOGRAPHY RESULTS

TEST : EPA 8021 MODIFIED
CLIENT : GERAGHTY & MILLER, INC. PINNACLE I.D.: 902010
PROJECT # : NP000443.0001
PROJECT NAME : INDIAN BASIN

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
19	MW-97	AQUEOUS	2/2/99	NA	2/3/99	1
20	MW-111	AQUEOUS	2/1/99	NA	2/3/99	1
21	MW-111 EB	AQUEOUS	2/1/99	NA	2/3/99	1

PARAMETER	DET. LIMIT	UNITS	MW-97	MW-111	MW-111 EB
BENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
TOLUENE	0.5	**UG/L**	< 0.5	**0.8**	< 0.5
ETHYLBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
TOTAL XYLENES	0.5	UG/L	< 0.5	< 0.5	< 0.5
SURROGATE:					
BROMOFLUOROBENZENE (%)			103	103	103
SURROGATE LIMITS	(80 - 120)				
TRIFLUOROTOLUENE			NA	NA	NA
SURROGATE LIMITS	(69 - 117)				

CHEMIST NOTES:
N/A

GAS CHROMATOGRAPHY RESULTS

TEST : EPA 8021 MODIFIED
CLIENT : GERAGHTY & MILLER, INC. PINNACLE I.D.: 902010
PROJECT # : NP000443.0001
PROJECT NAME : INDIAN BASIN

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
22	TRIP BLANK	AQUEOUS	1/25/99	NA	2/4/99	1

PARAMETER	DET. LIMIT	UNITS	TRIP BLANK
BENZENE	0.5	UG/L	< 0.5
TOLUENE	0.5	UG/L	< 0.5
ETHYLBENZENE	0.5	UG/L	< 0.5
TOTAL XYLENES	0.5	UG/L	< 0.5

SURROGATE:

BROMOFLUOROBENZENE (%)		107
SURROGATE LIMITS	(80 - 120)	
TRIFLUOROTOLUENE		NA
SURROGATE LIMITS	(69 - 117)	

CHEMIST NOTES:
N/A

GAS CHROMATOGRAPHY RESULTS
REAGENT BLANK

TEST	: EPA 8021 MODIFIED	PINNACLE I.D.	: 902010
BLANK I. D.	: 020399	DATE EXTRACTED	: NA
CLIENT	: GERAGHTY & MILLER, INC.	DATE ANALYZED	: 2/3/99
PROJECT #	: NP000443.0001	SAMPLE MATRIX	: AQUEOUS
PROJECT NAME	: INDIAN BASIN		

PARAMETER		UNITS	
BENZENE		UG/L	<0.5
TOLUENE		UG/L	<0.5
ETHYLBENZENE		UG/L	<0.5
TOTAL XYLENES		UG/L	<0.5
SURROGATE:			
BROMOFLUOROBENZENE (%)			NA
SURROGATE LIMITS:	(80 - 120)		
TRIFLUOROTOLUENE			108
SURROGATE LIMITS	(69 - 117)		

GAS CHROMATOGRAPHY RESULTS
REAGENT BLANK

TEST	: EPA 8021 MODIFIED	PINNACLE I.D.	: 902010
BLANK I. D.	: 020499	DATE EXTRACTED	: NA
CLIENT	: GERAGHTY & MILLER, INC.	DATE ANALYZED	: 2/4/99
PROJECT #	: NP000443.0001	SAMPLE MATRIX	: AQUEOUS
PROJECT NAME	: INDIAN BASIN		

PARAMETER		UNITS	
BENZENE		UG/L	<0.5
TOLUENE		UG/L	<0.5
ETHYLBENZENE		UG/L	<0.5
TOTAL XYLENES		UG/L	<0.5
SURROGATE:			
BROMOFLUOROBENZENE (%)			NA
SURROGATE LIMITS:	(80 - 120)		
TRIFLUOROTOLUENE			108
SURROGATE LIMITS	(69 - 117)		

GAS CHROMATOGRAPHY RESULTS
REAGENT BLANK

TEST	: EPA 8021 MODIFIED	PINNACLE I.D.	: 902010
BLANK I. D.	: 020399	DATE EXTRACTED	: NA
CLIENT	: GERAGHTY & MILLER, INC.	DATE ANALYZED	: 2/3/99
PROJECT #	: NP000443.0001	SAMPLE MATRIX	: AQUEOUS
PROJECT NAME	: INDIAN BASIN		

PARAMETER		UNITS	
BENZENE		UG/L	<0.5
TOLUENE		UG/L	<0.5
ETHYLBENZENE		UG/L	<0.5
TOTAL XYLENES		UG/L	<0.5
SURROGATE:			
BROMOFLUOROBENZENE (%)			100
SURROGATE LIMITS:	(80 - 120)		
TRIFLUOROTOLUENE			NA
SURROGATE LIMITS	(69 - 117)		

GAS CHROMATOGRAPHY RESULTS
REAGENT BLANK

TEST	: EPA 8021 MODIFIED	PINNACLE I.D.	: 902010
BLANK I. D.	: 020499	DATE EXTRACTED	: NA
CLIENT	: GERAGHTY & MILLER, INC.	DATE ANALYZED	: 2/4/99
PROJECT #	: NP000443.0001	SAMPLE MATRIX	: AQUEOUS
PROJECT NAME	: INDIAN BASIN		

PARAMETER		UNITS	
BENZENE		UG/L	<0.5
TOLUENE		UG/L	<0.5
ETHYLBENZENE		UG/L	<0.5
TOTAL XYLENES		UG/L	<0.5
SURROGATE:			
BROMOFLUOROBENZENE (%)			108
SURROGATE LIMITS:	(80 - 120)		
TRIFLUOROTOLUENE			NA
SURROGATE LIMITS	(69 - 117)		

GAS CHROMATOGRAPHY QUALITY CONTROL
MSMSD

TEST	: EPA 8021 MODIFIED		
MSMSD #	: 902010-10	PINNACLE I.D.	: 902010
CLIENT	: GERAGHTY & MILLER, INC.	DATE EXTRACTED	: NA
PROJECT #	: NP000443.0001	DATE ANALYZED	: 2/3/99
PROJECT NAME	: INDIAN BASIN	SAMPLE MATRIX	: AQUEOUS
		UNITS	: UG/L

PARAMETER	SAMPLE RESULT	CONC SPIKE	SPIKED SAMPLE	% REC	DUP SPIKE	DUP % REC	RPD	REC LIMITS	RPD LIMITS
BENZENE	<0.5	10.0	10.2	102	9.9	99	3	(80 - 120)	20
TOLUENE	<0.5	10.0	10.1	101	9.9	99	2	(80 - 120)	20
ETHYLBENZENE	<0.5	10.0	10.5	105	10.4	104	1	(80 - 120)	20
TOTAL XYLENES	<0.5	30.0	30.1	100	29.9	100	1	(80 - 120)	20

CHEMIST NOTES:
N/A

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative Percent Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

GAS CHROMATOGRAPHY QUALITY CONTROL
MSMSD

TEST	: EPA 8021 MODIFIED		
MSMSD #	: 902010-17	PINNACLE I.D.	: 902010
CLIENT	: GERAGHTY & MILLER, INC.	DATE EXRACTED	: NA
PROJECT #	: NP000443.0001	DATE ANALYZED	: 2/4/99
PROJECT NAME	: INDIAN BASIN	SAMPLE MATRIX	: AQUEOUS
		UNITS	: UG/L

PARAMETER	SAMPLE RESULT	CONC SPIKE	SPIKED SAMPLE	% REC	DUP SPIKE	DUP % REC	RPD	REC LIMITS	RPD LIMITS
BENZENE	<0.5	10.0	10.7	107	10.5	105	2	(80 - 120)	20
TOLUENE	<0.5	10.0	10.6	106	10.7	107	1	(80 - 120)	20
ETHYLBENZENE	<0.5	10.0	11.3	113	11.4	114	1	(80 - 120)	20
TOTAL XYLENES	<0.5	30.0	30.9	103	31.2	104	1	(80 - 120)	20

CHEMIST NOTES:
N/A

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative Percent Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

P. 18
FROM MARATHON OIL COMPANY 9156878305
2-07-200 3:28PM

GERAGHTY & MILLER, INC.
Environment and Infrastructure
a heidemij company

Laboratory Task Order No. 902010

CHAIN-OF-CUSTODY RECORD

Page 1 of 2

Project Number NP000443.0001
Project Location Indian Basin
Laboratory Pinnacle
Sampler(s)/Affiliation Brady Kolb

SAMPLE IDENTITY	Code	Date/Time Sampled	Time ~~Lab ID~~	SAMPLE BOTTLE / CONTAINER DESCRIPTION: BTEX 8020 40ml VOA							Lab ID #		TOTAL
mw-60	L	2-1-99	1900	2							01		2
MW-60 EB	L	2-1-99	1900	2							02		2
mw-61A	L	2-1-99	1420	3							03		3
MW-61A-EB	L	2-1-99	1420	2							04		2
mw-66	L	2-1-99	1330	3							05		3
mw-66 EB	L	2-1-99	1330	2							06		2
MW-71	L	2-1-99	1650	2							07		2
mw-71 EB	L	2-1-99	1650	2							08		2
MW-87	L	2-2-99	1030	2							09		2
mw-87EB	L	2-2-99	1030	2							10		2
MW-87A	L	2-2-99	0930	2							11		2
mw-87A EB	L	2-2-99	0930	2							12		2
mw-88	L	2-1-99	1530	2							13		2
mw-88 EB	L	2-1-99	1530	2							14		2
mw-89	L	2-1-99	1230	3							15		3
												Total No. of Bottles/ Containers	33

Sample Code: L = Liquid; S = Solid; A = Air

				Seal Intact?
Relinquished by: Brady Thomas Kolb	Organization: Arcadis	Date 1 / 1	Time	
Received by: Francine Sisco	Organization: Pinnacle Labs	Date 2 / 3 / 99	Time 1130	(Yes) No N/A
Relinquished by:	Organization:	Date 1 / 1	Time	Seal Intact?
Received by:	Organization:	Date 1 / 1	Time	Yes No N/A

Special Instructions/Remarks: 2C

Delivery Method: ☐ In Person ☒ Common Carrier Fed Ex ☐ Lab Courier ☐ Other
SPECIFY SPECIFY

P. 19
FROM MARATHON OIL COMPANY 9156878305
2-07-200 3:29PM

GERAGHTY & MILLER, INC.
Environment and Infrastructure
a heidemij company

Laboratory Task Order No. 902010

CHAIN-OF-CUSTODY RECORD

Project Number N9000443.0001
Project Location Indian Basin
Laboratory Pinnacle
Sampler(s)/Affiliation Brady Kolb

SAMPLE IDENTITY	Code	Date/Time Sampled	Time ~~Lab ID~~	SAMPLE BOTTLE / CONTAINER DESCRIPTION: BTEX 8020	40ml VOA						Lab ID #		TOTAL
MW-89 EB	L	2-1-99	1230	2							16		2
MW-96	L	2-2-99	1200	2							17		2
MW-96 EB	L	2-2-99	1200	2	one of other three MW-96 Bottles is a EB						18		2
MW-97	L	2-2-99	1300	2							19		2
MW-111	L	2-1-99	1050	3							20		3
MW-111 EB	L	2-1-99	1050	2							21		2
Trip Blank	L			1							22		1

Sample Code: L = Liquid; S = Solid; A = Air

Total No. of Bottles/ Containers: 14

Relinquished by: Brady Kolb	Organization: Arcadis	Date 2/3/99	Time 1130	Seal Intact?	
Received by: Francine Smith	Organization: Pinnacle Labs	Date 2/3/99	Time 1130	Yes	No N/A
Relinquished by:	Organization:	Date / /	Time	Seal Intact?	
Received by:	Organization:	Date / /	Time	Yes	No N/A

Special Instructions/Remarks: 2°C

Delivery Method: ☐ In Person ☒ Common Carrier Fed Ex ☐ Lab Courier ☐ Other
SPECIFY SPECIFY

April 1999 Groundwater
Sampling Event

CORE LABORATORIES

ANALYTICAL REPORT

JOB NUMBER: 904487

Prepared For:

Marathon Oil Company
125 West Missouri Street
P.O. Box 552
Midland, TX 79702-0552

Attention: Mr. Paul Peacock

Date: 05/11/99

Signature

5/11/99
Date

Name: Les Arnold

Title: Laboratory Manager

2400 Cumberland Drive
Valparaiso, IN 46383

PHONE: 219-464-2389
FAX..: 219-462-2953

The analytical results, opinions or interpretations contained in this report are based upon information and material supplied by the client for whose exclusive and confidential use this report has been made. The analytical results, opinions or interpretations expressed represent the best judgment of Core Laboratories. Core Laboratories, however, makes no warranty or representation, express or implied, of any type, and expressly disclaims same as to the productivity, proper operations or profitableness of any oil, gas, coal or other mineral, property, well or sand in connection with which such report is used or relied upon for any reason whatsoever. This report shall not be reproduced, in whole or in part, without the written approval of Core Laboratories.

CORE LABORATORIES

SAMPLE INFORMATION
Date: 05/11/99

Job Number.: 904487
Customer...: Marathon Oil Company
Attn.....: Mr. Paul Peacock

Project Number.....: 96000703
Customer Project ID....: INDIAN BASIN
Project Description....: MOC - Midland Groundwater

Laboratory Sample ID	Customer Sample ID	Sample Matrix	Date Sampled	Time Sampled	Date Received	Time Received
904487-1	MW-106	Water	04/29/1999	11:05	04/30/1999	10:09
904487-2	TRIP BLANK	Water			04/30/1999	10:09

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CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 904487

Date: 05/11/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN ATTN: Mr. Paul Peacock

Customer Sample ID: MW-106
Date Sampled.....: 04/29/1999
Time Sampled.....: 11:05
Sample Matrix.....: Water

Laboratory Sample ID: 904487-1
Date Received.....: 04/30/1999
Time Received.....: 10:09

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 325.2	Chloride	12	10	mg/L	05/07/99	dmw
EPA 8260B	Volatile Organic Compounds					
	Benzene	<5	5	ug/L	05/01/99	weh
	Ethylbenzene	<5	5	ug/L	05/01/99	weh
	Toluene	<5	5	ug/L	05/01/99	weh
	Xylenes (total)	<10	10	ug/L	05/01/99	weh

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CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 904487 Date: 05/11/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN ATTN: Mr. Paul Peacock

Customer Sample ID: TRIP BLANK
Date Sampled.....:
Time Sampled.....:
Sample Matrix.....: Water

Laboratory Sample ID: 904487-2
Date Received.....: 04/30/1999
Time Received.....: 10:09

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8260B	Volatile Organic Compounds					
	Benzene	<5	5	ug/L	05/01/99	weh
	Ethylbenzene	<5	5	ug/L	05/01/99	weh
	Toluene	<5	5	ug/L	05/01/99	weh
	Xylenes (total)	<10	10	ug/L	05/01/99	weh

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CORE LABORATORIES

QUALITY CONTROL RESULTS

Job Number.: 904487 Report Date.: 05/11/99

CUSTOMER: Marathon Oil Company PROJECT: MOC - Midland Groundwater ATTN: Mr. Paul Peacock

Test Method.....: EPA 325.2 Batch.....: 39652 Analyst...: dmw
Method Description.: Chloride (Colorimetric) Units.....: mg/L
Parameter.....: Chloride

QC	Lab ID	Reagent	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits	Date	Time
CAL		V16003402	49.95		50.000000					05/07/1999	0830
CAL		V16003402	40.04		400.000000					05/07/1999	0837
CAL		V16003402	19.66		20.000000					05/07/1999	0843
CAL		V16003402	10.47		10.000000					05/07/1999	0850
CAL		V16003402	4.94		5.000000					05/07/1999	0857
CAL		V16003402	2.038		2.000000					05/07/1999	0903
CAL		V16003402	1.115		1.000000					05/07/1999	0910
ICV		V17087H	21.194654		20		106.0	%	85-115	05/07/1999	0911
ICB			0.358224							05/07/1999	0911
CCV		V17087H	21.154135		20		105.8	%	85-115	05/07/1999	0926
CCB			0.105250							05/07/1999	0927
MD	904624-2		19.347301			19.187965	0.8	R	20	05/07/1999	0928
CCV		V17087H	21.420635		20		107.1	%	85-115	05/07/1999	0936
CCB			0.238059							05/07/1999	0936
MS	904613-2	V16003402	35.342041		20.000000	13.960527	106.9	%	75-125	05/07/1999	0938
CCV		V17087H	21.912283		20		109.6	%	85-115	05/07/1999	0948
CCB			0.263044							05/07/1999	0949
MD	904736-2		8.525041			8.035011	5.9	R	20	05/07/1999	0950
MS	904736-2	V16003402	29.415205		20.000000	8.035011	106.9	%	75-125	05/07/1999	0950
MD	904675-5		1.072602			0.921413	0.151189	A	1.000000	05/07/1999	0952
MS	904675-5	V16003402	22.170218		20.000000	0.921413	106.2	%	75-125	05/07/1999	0952
MS	904624-2	V16003402	37.550377		20.000000	19.187965	91.8	%	75-125	05/07/1999	0953
CCV		V17087H	21.572289		20		107.9	%	85-115	05/07/1999	0959
CCB			0.317625							05/07/1999	1000

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

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QUALITY CONTROL RESULTS

Job Number.: 904487 Report Date.: 05/11/99

CUSTOMER: Marathon Oil Company PROJECT: MOC - Midland Groundwater ATTN: Mr. Paul Peacock

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
MB	Method Blank				04/30/1999	2156

Test Method.....: EPA 8260B Batch.....: 39296 Analyst...: weh
Method Description.: Volatile Organic Compounds Units.....: ug/L

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
o-Xylene	ND						
1,2-Dichlorobenzene	ND						
1,2,4-Trimethylbenzene	ND						
Isopropylbenzene	ND						
Trichlorofluoromethane	ND						
1,3-Dichlorobenzene	ND						
1,4-Dichlorobenzene	ND						
Dichlorodifluoromethane	ND						
1,2,3-Trichloropropane	ND						
1,1,1,2-Tetrachloroethane	ND						
m&p-Xylenes	ND						
Bromobenzene	ND						
Acrylonitrile	ND						
Chloroethylvinyl ether	ND						
Dibromomethane	ND						
tert-Butyl methyl ether (MTBE)	ND						
Acrolein	ND						
Acetone	ND						
Benzene	ND						
Bromodichloromethane	ND						
Bromoform	ND						
Bromomethane	ND						
2-Butanone	ND						
Carbon disulfide	ND						
Carbon tetrachloride	ND						
Dibromochloromethane	ND						
Chlorobenzene	ND						
Chloroethane	ND						
Chloroform	ND						
Chloromethane	ND						
1,1-Dichloroethane	ND						
1,2-Dichloroethane	ND						
1,1-Dichloroethene	ND						
trans-1,2-Dichloroethene	ND						
cis-1,2-Dichloroethene	ND						
1,2-Dichloropropane	ND						
cis-1,3-Dichloropropene	ND						
trans-1,3-Dichloropropene	ND						
Ethylbenzene	ND						
2-Hexanone	ND						
Methylene chloride	ND						
4-Methyl-2-pentanone (MIBK)	ND						
Styrene	ND						
1,1,2,2-Tetrachloroethane	ND						
Tetrachloroethene	ND						
Toluene	ND						
1,1,1-Trichloroethane	ND						
1,1,2-Trichloroethane	ND						
Trichloroethene	ND						
Vinyl acetate	ND						

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

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QUALITY CONTROL RESULTS

Job Number.: 904487 Report Date.: 05/11/99

CUSTOMER: Marathon Oil Company PROJECT: MOC - Midland Groundwater ATTN: Mr. Paul Peacock

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
MB	Method Blank				04/30/1999	2156

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Vinyl chloride	ND						
Xylenes (total)	ND						

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
LCS	Laboratory Control Sample	CLPVOAMS2			04/30/1999	2228

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	47.47		50		94.9	%	67-130
Chlorobenzene	48.46		50		96.9	%	74-116
1,1-Dichloroethene	40.14		50		80.3	%	51-141
Toluene	48.13		50		96.3	%	75-114
Trichloroethene	47.10		50		94.2	%	72-114

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
MS	Matrix Spike	CLPVOAMS2	904305-1	5000	05/01/1999	0102

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	45.52		50	ND	91.0	%	67-130
Chlorobenzene	46.85		50	ND	93.7	%	74-116
1,1-Dichloroethene	40.18		50	ND	80.4	%	51-141
Toluene	46.50		50	ND	93.0	%	75-114
Trichloroethene	46.48		50	ND	93.0	%	72-114

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
MSD	Matrix Spike Duplicate	CLPVOAMS2	904305-1	5000	05/01/1999	0133

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	46.09	45.52	50	ND	92.2	%	67-130
					1.2	R	30
Chlorobenzene	47.42	46.85	50	ND	94.8	%	74-116
					1.2	R	30
1,1-Dichloroethene	39.98	40.18	50	ND	80.0	%	51-141
					0.5	R	30
Toluene	46.73	46.50	50	ND	93.5	%	75-114
					0.5	R	30
Trichloroethene	46.90	46.48	50	ND	93.8	%	72-114
					0.9	R	30

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

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SURROGATE RECOVERIES REPORT

Job Number.: 904487 Report Date.: 05/11/99

CUSTOMER: Marathon Oil Company PROJECT: MOC - Midland Groundwater ATTN: Mr. Paul Peacock

Method.....: Volatile Organic Compounds Batch.....: 39296
Method Code.....: 826TCL Analyst.....: weh

Surrogate	Units
1,2-Dichloroethane-d4 (surrogate)	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		48.50	50.00	97.0	76-120		04/30/1999	2156
		LCS		49.95	50.00	99.9	76-120		04/30/1999	2228
904165-1			50	49.22	50.00	98.4	76-120		04/30/1999	2258
904469-1			200	49.13	50.00	98.3	76-120		05/01/1999	0000
904305-1			5000	48.91	50.00	97.8	76-120		05/01/1999	0031
904305-1		MS	5000	48.76	50.00	97.5	76-120		05/01/1999	0102
904305-1		MSD	5000	49.32	50.00	98.6	76-120		05/01/1999	0133
904487-2				49.62	50.00	99.2	76-120		05/01/1999	0204
904487-1				49.41	50.00	98.8	76-120		05/01/1999	0234

Surrogate	Units
BFB (Surrogate)	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		52.03	50.00	104.1	85-115		04/30/1999	2156
		LCS		52.24	50.00	104.5	85-115		04/30/1999	2228
904165-1			50	52.26	50.00	104.5	85-115		04/30/1999	2258
904469-1			200	52.15	50.00	104.3	85-115		05/01/1999	0000
904305-1			5000	52.64	50.00	105.3	85-115		05/01/1999	0031
904305-1		MS	5000	51.87	50.00	103.7	85-115		05/01/1999	0102
904305-1		MSD	5000	51.95	50.00	103.9	85-115		05/01/1999	0133
904487-2				51.84	50.00	103.7	85-115		05/01/1999	0204
904487-1				52.21	50.00	104.4	85-115		05/01/1999	0234

Surrogate	Units
Toluene-d8	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		49.64	50.00	99.3	85-112		04/30/1999	2156
		LCS		50.54	50.00	101.1	85-112		04/30/1999	2228
904165-1			50	50.90	50.00	101.8	85-112		04/30/1999	2258
904469-1			200	50.68	50.00	101.4	85-112		05/01/1999	0000
904305-1			5000	50.47	50.00	100.9	85-112		05/01/1999	0031
904305-1		MS	5000	50.14	50.00	100.3	85-112		05/01/1999	0102
904305-1		MSD	5000	49.99	50.00	100.0	85-112		05/01/1999	0133
904487-2				50.11	50.00	100.2	85-112		05/01/1999	0204
904487-1				50.76	50.00	101.5	85-112		05/01/1999	0234

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QUALITY ASSURANCE FOOTER

METHOD REFERENCES

(1) EPA SW-846, Test Methods for Evaluating Solid Waste, Third Edition, September 1986, July 1992, and September 1994 updates
(2) Standard Methods for the Examination of Water and Wastewater, 18th Edition, 1992
(3) EPA 600/4-79-020, Methods of Chemical Analysis for Waters and Wastes, March 1983
(4) Federal Register, Friday, October 26, 1984 (40 CFR Part 136)
(5) American Society for Testing and Materials, Volumes 5.01, 5.02, 5.03, 1992
(6) EPA 600/4-89-001, Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Fresh Water Organisms
(7) EPA 600/4-90-027, Methods for Measuring the Acute Toxicity of Effluent and Receiving Waters to Fresh Water and Marine Organisms, Fourth Edition

COMMENTS

All methods of chemical analysis have a statistical uncertainty associated with the results. Unless otherwise indicated, the data in this report are within the limits of uncertainty as specified in the referenced method. Quality control acceptance criteria are based either on actual laboratory performance or on limits specified in the referenced method. The date and time of analysis indicated on the QA report may not reflect the actual time of analysis for QC samples. All data reported on an "as received" basis unless otherwise indicated. Data reported in the QA report may be lower than sample data due to dilution of samples into the calibration range of the analysis. Sample concentrations for solid samples are calculated on an as received (wet) basis. Unless otherwise indicated, volatiles by gas chromatography (GC) are reported from a single column. Volatiles analyses by GC on low level soil extractions are conducted at room temperature.

FLAGS, FOOTNOTES, AND ABBREVIATIONS (as needed)

NA = Not analyzed
N/A = Not applicable
ug/L = Micrograms per liter
mg/L = Milligrams per liter
ND = Not detected at a value greater than the reporting limit
NC = Not calculable due to values lower than the detection limit
N.I. = Not Ignitable
S.I. = Sustains Ignition
I(NS) = Ignites, but does not Sustain Ignition
RPD = Relative Percent Difference
(a) = Surrogate recoveries were outside acceptable ranges due to matrix effects.
(b) = Surrogate recoveries were not calculated due to dilution of the sample below the detectable range for the surrogate.
(c) = Matrix spike recoveries were outside acceptable ranges due to matrix effects.
(d) = Relative Percent Difference (RPD) for duplicate analysis outside acceptance limits due to actual differences in the sample matrix.
(e) = The limit listed for flammability indicates the upper limit for the test. Samples are not tested at temperatures above 140 Fahrenheit since only samples which will sustain ignition at temperatures below 140 are considered flammable.
(f) = Results for this hydrocarbon range did not match a typical hydrocarbon pattern. Results were quantified using a diesel standard, however, the hydrocarbon pattern did not match a diesel pattern.
(g) = Results for this hydrocarbon range did not match a typical hydrocarbon pattern. Results were quantified using a gasoline standard, however, the hydrocarbon pattern did not match a gasoline pattern.
(h) = High dilution due to matrix effects

QC SAMPLE IDENTIFICATIONS

MB = Method Blank
RB = Reagent Blank
ICB = Initial Calibration Blank
CCB = Continuing Calibration Blank
CS = Calibration Standard
ICB = Initial Calibration Verification
CCV = Continuing Calibration Verification
SB = Storage Blank
MS = Matrix Spike
MSD = Matrix Spike Duplicate
MD = Matrix Duplicate
BS = Blank Spike
SS = Surrogate Spike
LCS = Laboratory Control Standard
RS = Reference Standard

SUBCONTRACTED LABORATORY LOCATIONS

Core Laboratories:	Aurora, Colorado	*AU
	Casper, Wyoming	*CA
	Corpus Christi, Texas	*CC
	Edison, New Jersey	*ED
	Houston, Texas (Env)	*HE
	Houston, Texas (Pet)	*HP
	Indianapolis, Indiana	*IN
	Lake Charles, Louisiana	*LC
	Long Beach, California	*LB
	Tampa, Florida	*TP
	Valparaiso, Indiana	*VP
Aquatic Testing Laboratories:		
	Ventura, California	*AT

2400 Cumberland Drive
Valparaiso, IN 46383

rpjsckl | Job Sample Receipt Checklist Report 04/30/99 | V2

Job Number.....: 904487 Location.: 57211 Customer Job ID.....: Job Check List Date.: 04/30/99
Project Number.: 96000651 Project Description.: Marathon Oil Co., Midland, Tx Project Manager.....: lpa
Customer.....: Marathon Oil Company Contact.: Mr. Paul Peacock

Questions ?	(Y/N)	Comments
Chain-of-Custody Present?	Y	
Custody seal on shipping container?	Y	
...If "yes", custody seal intact?	Y	
Custody seals on sample containers?		
...If "yes", custody seal intact?		
Samples chilled?	Y	
Temperature of cooler acceptable? (4 deg C +/- 2).	Y	4.0 deg C
Samples received intact (good condition)?	Y	
Volatile samples acceptable? (no headspace)	Y	
Correct containers used?	Y	
Adequate sample volume provided?	Y	
Samples preserved correctly?	Y	
Samples received within holding-time?	Y	
Agreement between COC and sample labels?	Y	
Additional		
Comments		
Sample Custodian Signature.		

ARCADIS GERAGHTY & MILLER

Laboratory Task Order No./P.O. No. _____

CHAIN-OF-CUSTODY RECORD

Page ____ of ____

904487

Project Number/Name: NP000443.0001 MT004

Project Location: Marathon Indian Basin

Laboratory: Core Lab

Project Manager: Alan Reed

Sampler(s)/Affiliation: Arcadis Geraghty & Miller

DM/BK

	Sample ID/Location	Matrix	Date ~~Time~~ Sampled	Time ~~Lab ID~~	ANALYSIS / METHOD / SIZE: TDS, Chlorides	BTEX					Remarks	Total
1	MW-106	L	4-29-99	1105	1	2						3
2	Trip Blank	L	—	—	—	2						2

CORE LABORATORIES

ANALYTICAL REPORT

JOB NUMBER: 904337

Prepared For:

Marathon Oil Company
125 West Missouri Street
P.O. Box 552
Midland, TX 79702-0552

Attention: Mr. Paul Peacock

Date: 05/06/99

Les Arnold
Signature

5/6/99
Date

Name: Les Arnold

Title: Laboratory Manager

2400 Cumberland Drive
Valparaiso, IN 46383

PHONE: 219-464-2389
FAX..: 219-462-2953

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CORE LABORATORIES

SAMPLE INFORMATION
Date: 05/06/99

Job Number.: 904337
Customer...: Marathon Oil Company
Attn.....: Mr. Paul Peacock

Project Number.....: 96000703
Customer Project ID....: NP00043.0001 MT004
Project Description....: MOC - Midland Groundwater

Laboratory Sample ID	Customer Sample ID	Sample Matrix	Date Sampled	Time Sampled	Date Received	Time Received
904337-1	MW-57	Water	04/20/1999	09:30	04/27/1999	12:00
904337-2	EB-2	Water	04/20/1999	00:00	04/27/1999	12:00
904337-3	MW-60	Water	04/20/1999	10:30	04/27/1999	12:00
904337-4	DUP-2	Water	04/20/1999	00:00	04/27/1999	12:00
904337-5	MW-87	Water	04/20/1999	11:45	04/27/1999	12:00
904337-6	MW-87A	Water	04/20/1999	12:30	04/27/1999	12:00
904337-7	MW-61A	Water	04/20/1999	17:50	04/27/1999	12:00
904337-8	MW-111	Water	04/21/1999	10:30	04/27/1999	12:00
904337-9	MW-89	Water	04/21/1999	11:30	04/27/1999	12:00
904337-10	MW-66	Water	04/21/1999	12:30	04/27/1999	12:00
904337-11	MW-88	Water	04/21/1999	14:30	04/27/1999	12:00
904337-12	MW-71	Water	04/21/1999	15:40	04/27/1999	12:00
904337-13	MW-62	Water	04/21/1999	16:30	04/27/1999	12:00
904337-14	MW-64	Water	04/21/1999	18:00	04/27/1999	12:00
904337-15	MW-96	Water	04/22/1999	09:00	04/27/1999	12:00
904337-16	EB-1	Water	04/20/1999	00:00	04/27/1999	12:00
904337-17	DUP-1	Water	04/20/1999	00:00	04/27/1999	12:00
904337-18	MW-50	Water	04/20/1999	15:36	04/27/1999	12:00
904337-19	MW-61	Water	04/20/1999	16:30	04/27/1999	12:00
904337-20	MW-43	Water	04/20/1999	11:30	04/27/1999	12:00
904337-21	MW-46	Water	04/20/1999	14:20	04/27/1999	12:00
904337-22	MW-49	Water	04/20/1999	14:50	04/27/1999	12:00
904337-23	MW-41	Water	04/20/1999	10:42	04/27/1999	12:00
904337-24	MW-44	Water	04/20/1999	12:05	04/27/1999	12:00
904337-25	MW-54	Water	04/22/1999	17:30	04/27/1999	12:00
904337-26	MW-55	Water	04/22/1999	19:00	04/27/1999	12:00

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CORELAB

CORE LABORATORIES

SAMPLE INFORMATION
Date:

Job Number.: 904337
Customer...: Marathon Oil Company
Attn.....: Mr. Paul Peacock

Project Number.....: 96000703
Customer Project ID....: NP00043.0001 MT004
Project Description....: MOC - Midland Groundwater

Laboratory Sample ID	Customer Sample ID	Sample Matrix	Date Sampled	Time Sampled	Date Received	Time Received
904337-27	MW-79	Water	04/22/1999	10:00	04/27/1999	12:00
904337-28	MW-78	Water	04/22/1999	20:00	04/27/1999	12:00
904337-29	MW-90	Water	04/23/1999	10:40	04/27/1999	12:00
904337-30	MW-91	Water	04/23/1999	11:45	04/27/1999	12:00
904337-31	MW-97	Water	04/22/1999	10:15	04/27/1999	12:00
904337-32	MW-67	Water	04/22/1999	11:30	04/27/1999	12:00
904337-33	MW-108	Water	04/22/1999	13:00	04/27/1999	12:00
904337-34	MW-95	Water	04/22/1999	14:30	04/27/1999	12:00
904337-35	MW-63	Water	04/22/1999	15:40	04/27/1999	12:00
904337-36	MW-70	Water	04/22/1999	16:50	04/27/1999	12:00
904337-37	MW-94	Water	04/22/1999	18:00	04/27/1999	12:00
904337-38	SW-3	Water	04/23/1999	08:30	04/27/1999	12:00
904337-39	SW-1	Water	04/23/1999	09:00	04/27/1999	12:00
904337-40	SW-2	Water	04/23/1999	13:00	04/27/1999	12:00
904337-41	TRIP BLANK	Water	04/23/1999	00:00	04/27/1999	12:00

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LABORATORY TEST RESULTS

Job Number: 904337

Date: 05/06/99

CUSTOMER: Marathon Oil Company | PROJECT: NP00043.0001 MT004 | ATTN: Mr. Paul Peacock

Customer Sample ID: MW-57
Date Sampled.....: 04/20/1999
Time Sampled.....: 09:30
Sample Matrix.....: Water

Laboratory Sample ID: 904337-1
Date Received.....: 04/27/1999
Time Received.....: 12:00

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8260B	Volatile Organic Compounds					
	Benzene	<5	5	ug/L	04/29/99	weh
	Ethylbenzene	<5	5	ug/L	04/29/99	weh
	Toluene	<5	5	ug/L	04/29/99	weh
	Xylenes (total)	<10	10	ug/L	04/29/99	weh

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CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 904337

Date: 05/06/99

CUSTOMER: Marathon Oil Company | PROJECT: NP00043.0001 MT004 | ATTN: Mr. Paul Peacock

Customer Sample ID: EB-2
Date Sampled.....: 04/20/1999
Time Sampled.....: 00:00
Sample Matrix.....: Water

Laboratory Sample ID: 904337-2
Date Received.....: 04/27/1999
Time Received.....: 12:00

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8260B	Volatile Organic Compounds					
	Benzene	<5	5	ug/L	04/28/99	weh
	Ethylbenzene	<5	5	ug/L	04/28/99	weh
	Toluene	<5	5	ug/L	04/28/99	weh
	Xylenes (total)	<10	10	ug/L	04/28/99	weh

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LABORATORY TEST RESULTS

Job Number: 904337

Date: 05/06/99

CUSTOMER: Marathon Oil Company | PROJECT: NP00043.0001 MT004 | ATTN: Mr. Paul Peacock

Customer Sample ID: MW-60
Date Sampled.....: 04/20/1999
Time Sampled.....: 10:30
Sample Matrix.....: Water

Laboratory Sample ID: 904337-3
Date Received.....: 04/27/1999
Time Received.....: 12:00

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8260B	Volatile Organic Compounds					
	Benzene	<5	5	ug/L	04/28/99	weh
	Ethylbenzene	<5	5	ug/L	04/28/99	weh
	Toluene	<5	5	ug/L	04/28/99	weh
	Xylenes (total)	<10	10	ug/L	04/28/99	weh

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LABORATORY TEST RESULTS

Job Number: 904337 Date: 05/06/99

CUSTOMER: Marathon Oil Company PROJECT: NP00043.0001 MT004 ATTN: Mr. Paul Peacock

Customer Sample ID: DUP-2
Date Sampled.....: 04/20/1999
Time Sampled.....: 00:00
Sample Matrix.....: Water

Laboratory Sample ID: 904337-4
Date Received.....: 04/27/1999
Time Received.....: 12:00

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8260B	Volatile Organic Compounds					
	Benzene	ND	5	ug/L	04/27/99	weh
	Ethylbenzene	ND	5	ug/L	04/27/99	weh
	Toluene	ND	5	ug/L	04/27/99	weh
	Xylenes (total)	ND	10	ug/L	04/27/99	weh

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LABORATORY TEST RESULTS

Job Number: 904337

Date: 05/06/99

CUSTOMER: Marathon Oil Company | PROJECT: NP00043.0001 MT004 | ATTN: Mr. Paul Peacock

Customer Sample ID: MW-87
Date Sampled.....: 04/20/1999
Time Sampled.....: 11:45
Sample Matrix.....: Water

Laboratory Sample ID: 904337-5
Date Received.....: 04/27/1999
Time Received.....: 12:00

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8260B	Volatile Organic Compounds					
	Benzene	<5	5	ug/L	04/28/99	weh
	Ethylbenzene	<5	5	ug/L	04/28/99	weh
	Toluene	<5	5	ug/L	04/28/99	weh
	Xylenes (total)	<10	10	ug/L	04/28/99	weh

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LABORATORY TEST RESULTS

Job Number: 904337

Date: 05/06/99

CUSTOMER: Marathon Oil Company PROJECT: NP00043.0001 MT004 ATTN: Mr. Paul Peacock

Customer Sample ID: MW-87A
Date Sampled.....: 04/20/1999
Time Sampled.....: 12:30
Sample Matrix.....: Water

Laboratory Sample ID: 904337-6
Date Received.....: 04/27/1999
Time Received.....: 12:00

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8260B	Volatile Organic Compounds					
	Benzene	<5	5	ug/L	04/28/99	weh
	Ethylbenzene	<5	5	ug/L	04/28/99	weh
	Toluene	<5	5	ug/L	04/28/99	weh
	Xylenes (total)	<10	10	ug/L	04/28/99	weh

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LABORATORY TEST RESULTS

Job Number: 904337

Date: 05/06/99

CUSTOMER: Marathon Oil Company | PROJECT: NP00043.0001 MT004 | ATTN: Mr. Paul Peacock

Customer Sample ID: MW-61A
Date Sampled.....: 04/20/1999
Time Sampled.....: 17:50
Sample Matrix.....: Water

Laboratory Sample ID: 904337-7
Date Received.....: 04/27/1999
Time Received.....: 12:00

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8260B	Volatile Organic Compounds					
	Benzene	<5	5	ug/L	04/30/99	weh
	Ethylbenzene	15	5	ug/L	04/30/99	weh
	Toluene	<5	5	ug/L	04/30/99	weh
	Xylenes (total)	40	10	ug/L	04/30/99	weh

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LABORATORY TEST RESULTS

Job Number: 904337

Date: 05/06/99

CUSTOMER: Marathon Oil Company | PROJECT: NP00043.0001 MT004 | ATTN: Mr. Paul Peacock

Customer Sample ID: MW-111
Date Sampled.....: 04/21/1999
Time Sampled.....: 10:30
Sample Matrix.....: Water

Laboratory Sample ID: 904337-8
Date Received.....: 04/27/1999
Time Received.....: 12:00

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8260B	Volatile Organic Compounds					
	Benzene	<5	5	ug/L	04/28/99	weh
	Ethylbenzene	<5	5	ug/L	04/28/99	weh
	Toluene	<5	5	ug/L	04/28/99	weh
	Xylenes (total)	<10	10	ug/L	04/28/99	weh

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LABORATORY TEST RESULTS

Job Number: 904337

Date: 05/06/99

CUSTOMER: Marathon Oil Company | PROJECT: NP00043.0001 MT004 | ATTN: Mr. Paul Peacock

Customer Sample ID: MW-89
Date Sampled.....: 04/21/1999
Time Sampled.....: 11:30
Sample Matrix.....: Water

Laboratory Sample ID: 904337-9
Date Received.....: 04/27/1999
Time Received.....: 12:00

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8260B	Volatile Organic Compounds					
	Benzene	<5	5	ug/L	04/28/99	weh
	Ethylbenzene	<5	5	ug/L	04/28/99	weh
	Toluene	<5	5	ug/L	04/28/99	weh
	Xylenes (total)	<10	10	ug/L	04/28/99	weh

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LABORATORY TEST RESULTS

Job Number: 904337

Date: 05/06/99

CUSTOMER: Marathon Oil Company PROJECT: NP00043.0001 MT004 ATTN: Mr. Paul Peacock

Customer Sample ID: MW-66
Date Sampled.....: 04/21/1999
Time Sampled.....: 12:30
Sample Matrix.....: Water

Laboratory Sample ID: 904337-10
Date Received.....: 04/27/1999
Time Received.....: 12:00

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8260B	Volatile Organic Compounds					
	Benzene	<5	5	ug/L	04/28/99	weh
	Ethylbenzene	<5	5	ug/L	04/28/99	weh
	Toluene	<5	5	ug/L	04/28/99	weh
	Xylenes (total)	<10	10	ug/L	04/28/99	weh

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LABORATORY TEST RESULTS

Job Number: 904337 Date: 05/06/99

CUSTOMER: Marathon Oil Company PROJECT: NP00043.0001 MT004 ATTN: Mr. Paul Peacock

Customer Sample ID: MW-88
Date Sampled.....: 04/21/1999
Time Sampled.....: 14:30
Sample Matrix.....: Water

Laboratory Sample ID: 904337-11
Date Received.....: 04/27/1999
Time Received.....: 12:00

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8260B	Volatile Organic Compounds					
	Benzene	<5	5	ug/L	04/29/99	weh
	Ethylbenzene	<5	5	ug/L	04/29/99	weh
	Toluene	<5	5	ug/L	04/29/99	weh
	Xylenes (total)	<10	10	ug/L	04/29/99	weh

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LABORATORY TEST RESULTS

Job Number: 904337 Date: 05/06/99

CUSTOMER: Marathon Oil Company PROJECT: NP00043.0001 MT004 ATTN: Mr. Paul Peacock

Customer Sample ID: MW-71
Date Sampled.....: 04/21/1999
Time Sampled.....: 15:40
Sample Matrix.....: Water

Laboratory Sample ID: 904337-12
Date Received.....: 04/27/1999
Time Received.....: 12:00

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8260B	Volatile Organic Compounds					
	Benzene	<5	5	ug/L	04/29/99	weh
	Ethylbenzene	<5	5	ug/L	04/29/99	weh
	Toluene	<5	5	ug/L	04/29/99	weh
	Xylenes (total)	<10	10	ug/L	04/29/99	weh

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LABORATORY TEST RESULTS

Job Number: 904337

Date: 05/06/99

CUSTOMER: Marathon Oil Company PROJECT: NP00043.0001 MT004 ATTN: Mr. Paul Peacock

Customer Sample ID: MW-62
Date Sampled.....: 04/21/1999
Time Sampled.....: 16:30
Sample Matrix.....: Water

Laboratory Sample ID: 904337-13
Date Received.....: 04/27/1999
Time Received.....: 12:00

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8260B	Volatile Organic Compounds					
	Benzene	<5	5	ug/L	04/30/99	weh
	Ethylbenzene	18	5	ug/L	04/30/99	weh
	Toluene	<5	5	ug/L	04/30/99	weh
	Xylenes (total)	20	10	ug/L	04/30/99	weh

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LABORATORY TEST RESULTS

Job Number: 904337 Date: 05/06/99

CUSTOMER: Marathon Oil Company PROJECT: NP00043.0001 MT004 ATTN: Mr. Paul Peacock

Customer Sample ID: MW-64
Date Sampled.....: 04/21/1999
Time Sampled.....: 18:00
Sample Matrix.....: Water

Laboratory Sample ID: 904337-14
Date Received.....: 04/27/1999
Time Received.....: 12:00

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8260B	Volatile Organic Compounds					
	Benzene	<5	5	ug/L	04/28/99	weh
	Ethylbenzene	<5	5	ug/L	04/28/99	weh
	Toluene	<5	5	ug/L	04/28/99	weh
	Xylenes (total)	<10	10	ug/L	04/28/99	weh

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LABORATORY TEST RESULTS

Job Number: 904337

Date: 05/06/99

CUSTOMER: Marathon Oil Company | PROJECT: NP00043.0001 MT004 | ATTN: Mr. Paul Peacock

Customer Sample ID: MW-96
Date Sampled.....: 04/22/1999
Time Sampled.....: 09:00
Sample Matrix.....: Water

Laboratory Sample ID: 904337-15
Date Received.....: 04/27/1999
Time Received.....: 12:00

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8260B	Volatile Organic Compounds					
	Benzene	<5	5	ug/L	04/28/99	weh
	Ethylbenzene	<5	5	ug/L	04/28/99	weh
	Toluene	<5	5	ug/L	04/28/99	weh
	Xylenes (total)	<10	10	ug/L	04/28/99	weh

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LABORATORY TEST RESULTS

Job Number: 904337

Date: 05/06/99

CUSTOMER: Marathon Oil Company | PROJECT: NP00043.0001 MT004 | ATTN: Mr. Paul Peacock

Customer Sample ID: EB-1
Date Sampled.....: 04/20/1999
Time Sampled.....: 00:00
Sample Matrix.....: Water

Laboratory Sample ID: 904337-16
Date Received.....: 04/27/1999
Time Received.....: 12:00

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8260B	Volatile Organic Compounds					
	Benzene	<5	5	ug/L	04/28/99	weh
	Ethylbenzene	<5	5	ug/L	04/28/99	weh
	Toluene	<5	5	ug/L	04/28/99	weh
	Xylenes (total)	<10	10	ug/L	04/28/99	weh

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LABORATORY TEST RESULTS

Job Number: 904337 Date: 05/06/99

CUSTOMER: Marathon Oil Company PROJECT: NP00043.0001 MT004 ATTN: Mr. Paul Peacock

Customer Sample ID: DUP-1
Date Sampled.....: 04/20/1999
Time Sampled.....: 00:00
Sample Matrix.....: Water

Laboratory Sample ID: 904337-17
Date Received.....: 04/27/1999
Time Received.....: 12:00

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8260B	Volatile Organic Compounds					
	Benzene	140	5	ug/L	04/30/99	weh
	Ethylbenzene	<5	5	ug/L	04/30/99	weh
	Toluene	<5	5	ug/L	04/30/99	weh
	Xylenes (total)	<10	10	ug/L	04/30/99	weh

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LABORATORY TEST RESULTS

Job Number: 904337 Date: 05/06/99

CUSTOMER: Marathon Oil Company PROJECT: NP00043.0001 MT004 ATTN: Mr. Paul Peacock

Customer Sample ID: MW-50
Date Sampled.....: 04/20/1999
Time Sampled.....: 15:36
Sample Matrix.....: Water

Laboratory Sample ID: 904337-18
Date Received.....: 04/27/1999
Time Received.....: 12:00

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8260B	Volatile Organic Compounds					
	Benzene	<5	5	ug/L	04/28/99	weh
	Ethylbenzene	<5	5	ug/L	04/28/99	weh
	Toluene	<5	5	ug/L	04/28/99	weh
	Xylenes (total)	<10	10	ug/L	04/28/99	weh

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LABORATORY TEST RESULTS

Job Number: 904337

Date: 05/06/99

CUSTOMER: Marathon Oil Company | PROJECT: NP00043.0001 MT004 | ATTN: Mr. Paul Peacock

Customer Sample ID: MW-61
Date Sampled.....: 04/20/1999
Time Sampled.....: 16:30
Sample Matrix.....: Water

Laboratory Sample ID: 904337-19
Date Received.....: 04/27/1999
Time Received.....: 12:00

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8260B	Volatile Organic Compounds					
	Benzene	<5	5	ug/L	04/30/99	weh
	Ethylbenzene	<5	5	ug/L	04/30/99	weh
	Toluene	<5	5	ug/L	04/30/99	weh
	Xylenes (total)	<10	10	ug/L	04/30/99	weh

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CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 904337 Date: 05/06/99

CUSTOMER: Marathon Oil Company PROJECT: NP00043.0001 MT004 ATTN: Mr. Paul Peacock

Customer Sample ID: MW-43
Date Sampled.....: 04/20/1999
Time Sampled.....: 11:30
Sample Matrix.....: Water

Laboratory Sample ID: 904337-20
Date Received.....: 04/27/1999
Time Received.....: 12:00

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8260B	Volatile Organic Compounds					
	Benzene	12	5	ug/L	04/30/99	weh
	Ethylbenzene	<5	5	ug/L	04/30/99	weh
	Toluene	<5	5	ug/L	04/30/99	weh
	Xylenes (total)	<10	10	ug/L	04/30/99	weh

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CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 904337 Date: 05/06/99

CUSTOMER: Marathon Oil Company PROJECT: NP00043.0001 MT004 ATTN: Mr. Paul Peacock

Customer Sample ID: MW-46
Date Sampled.....: 04/20/1999
Time Sampled.....: 14:20
Sample Matrix.....: Water

Laboratory Sample ID: 904337-21
Date Received.....: 04/27/1999
Time Received.....: 12:00

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8260B	Volatile Organic Compounds					
	Benzene	210	20	ug/L	05/03/99	weh
	Ethylbenzene	11	5	ug/L	04/30/99	weh
	Toluene	<5	5	ug/L	04/30/99	weh
	Xylenes (total)	20	10	ug/L	04/30/99	weh

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CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 904337

Date: 05/06/99

CUSTOMER: Marathon Oil Company | PROJECT: NP00043.0001 MT004 | ATTN: Mr. Paul Peacock

Customer Sample ID: MW-49
Date Sampled.....: 04/20/1999
Time Sampled.....: 14:50
Sample Matrix.....: Water

Laboratory Sample ID: 904337-22
Date Received.....: 04/27/1999
Time Received.....: 12:00

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8260B	Volatile Organic Compounds					
	Benzene	81	5	ug/L	04/29/99	weh
	Ethylbenzene	32	5	ug/L	04/29/99	weh
	Toluene	<5	5	ug/L	04/29/99	weh
	Xylenes (total)	<10	10	ug/L	04/29/99	weh

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LABORATORY TEST RESULTS

Job Number: 904337

Date: 05/06/99

CUSTOMER: Marathon Oil Company | PROJECT: NP00043.0001 MT004 | ATTN: Mr. Paul Peacock

Customer Sample ID: MW-41
Date Sampled.....: 04/20/1999
Time Sampled.....: 10:42
Sample Matrix.....: Water

Laboratory Sample ID: 904337-23
Date Received.....: 04/27/1999
Time Received.....: 12:00

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8260B	Volatile Organic Compounds					
	Benzene	150	5	ug/L	04/29/99	weh
	Ethylbenzene	<5	5	ug/L	04/29/99	weh
	Toluene	<5	5	ug/L	04/29/99	weh
	Xylenes (total)	<10	10	ug/L	04/29/99	weh

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LABORATORY TEST RESULTS

Job Number: 904337

Date: 05/06/99

CUSTOMER: Marathon Oil Company PROJECT: NP00043.0001 MT004 ATTN: Mr. Paul Peacock

Customer Sample ID: MW-44
Date Sampled.....: 04/20/1999
Time Sampled.....: 12:05
Sample Matrix.....: Water

Laboratory Sample ID: 904337-24
Date Received.....: 04/27/1999
Time Received.....: 12:00

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8260B	Volatile Organic Compounds					
	Benzene	91	5	ug/L	04/29/99	weh
	Ethylbenzene	16	5	ug/L	04/29/99	weh
	Toluene	<5	5	ug/L	04/29/99	weh
	Xylenes (total)	<10	10	ug/L	04/29/99	weh

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LABORATORY TEST RESULTS

Job Number: 904337 Date: 05/06/99

CUSTOMER: Marathon Oil Company PROJECT: NP00043.0001 MT004 ATTN: Mr. Paul Peacock

Customer Sample ID: MW-54
Date Sampled.....: 04/22/1999
Time Sampled.....: 17:30
Sample Matrix.....: Water

Laboratory Sample ID: 904337-25
Date Received.....: 04/27/1999
Time Received.....: 12:00

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8260B	Volatile Organic Compounds					
	Benzene	<5	5	ug/L	04/28/99	weh
	Ethylbenzene	<5	5	ug/L	04/28/99	weh
	Toluene	<5	5	ug/L	04/28/99	weh
	Xylenes (total)	<10	10	ug/L	04/28/99	weh

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LABORATORY TEST RESULTS

Job Number: 904337

Date: 05/06/99

CUSTOMER: Marathon Oil Company | PROJECT: NP00043.0001 MT004 | ATTN: Mr. Paul Peacock

Customer Sample ID: MW-55
Date Sampled.....: 04/22/1999
Time Sampled.....: 19:00
Sample Matrix.....: Water

Laboratory Sample ID: 904337-26
Date Received.....: 04/27/1999
Time Received.....: 12:00

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8260B	Volatile Organic Compounds					
	Benzene	100	5	ug/L	04/29/99	weh
	Ethylbenzene	13	5	ug/L	04/29/99	weh
	Toluene	<5	5	ug/L	04/29/99	weh
	Xylenes (total)	<10	10	ug/L	04/29/99	weh

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LABORATORY TEST RESULTS

Job Number: 904337 Date: 05/06/99

CUSTOMER: Marathon Oil Company PROJECT: NP00043.0001 MT004 ATTN: Mr. Paul Peacock

Customer Sample ID: MW-79
Date Sampled.....: 04/22/1999
Time Sampled.....: 10:00
Sample Matrix.....: Water

Laboratory Sample ID: 904337-27
Date Received.....: 04/27/1999
Time Received.....: 12:00

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8260B	Volatile Organic Compounds					
	Benzene	<5	5	ug/L	04/28/99	weh
	Ethylbenzene	<5	5	ug/L	04/28/99	weh
	Toluene	<5	5	ug/L	04/28/99	weh
	Xylenes (total)	<10	10	ug/L	04/28/99	weh

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LABORATORY TEST RESULTS

Job Number: 904337

Date: 05/06/99

CUSTOMER: Marathon Oil Company PROJECT: NP00043.0001 MT004 ATTN: Mr. Paul Peacock

Customer Sample ID: MW-78
Date Sampled.....: 04/22/1999
Time Sampled.....: 20:00
Sample Matrix.....: Water

Laboratory Sample ID: 904337-28
Date Received.....: 04/27/1999
Time Received.....: 12:00

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8260B	Volatile Organic Compounds					
	Benzene	<5	5	ug/L	04/28/99	weh
	Ethylbenzene	<5	5	ug/L	04/28/99	weh
	Toluene	<5	5	ug/L	04/28/99	weh
	Xylenes (total)	<10	10	ug/L	04/28/99	weh

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LABORATORY TEST RESULTS

Job Number: 904337

Date: 05/06/99

CUSTOMER: Marathon Oil Company | PROJECT: NP00043.0001 MT004 | ATTN: Mr. Paul Peacock

Customer Sample ID: MW-90
Date Sampled.....: 04/23/1999
Time Sampled.....: 10:40
Sample Matrix.....: Water

Laboratory Sample ID: 904337-29
Date Received.....: 04/27/1999
Time Received.....: 12:00

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8260B	Volatile Organic Compounds					
	Benzene	<5	5	ug/L	04/28/99	weh
	Ethylbenzene	<5	5	ug/L	04/28/99	weh
	Toluene	<5	5	ug/L	04/28/99	weh
	Xylenes (total)	<10	10	ug/L	04/28/99	weh

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LABORATORY TEST RESULTS

Job Number: 904337 Date: 05/06/99

CUSTOMER: Marathon Oil Company PROJECT: NP00043.0001 MT004 ATTN: Mr. Paul Peacock

Customer Sample ID: MW-91
Date Sampled.....: 04/23/1999
Time Sampled.....: 11:45
Sample Matrix.....: Water

Laboratory Sample ID: 904337-30
Date Received.....: 04/27/1999
Time Received.....: 12:00

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8260B	Volatile Organic Compounds					
	Benzene	19	5	ug/L	04/29/99	weh
	Ethylbenzene	8	5	ug/L	04/29/99	weh
	Toluene	<5	5	ug/L	04/29/99	weh
	Xylenes (total)	<10	10	ug/L	04/29/99	weh

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LABORATORY TEST RESULTS

Job Number: 904337

Date: 05/06/99

CUSTOMER: Marathon Oil Company PROJECT: NP00043.0001 MT004 ATTN: Mr. Paul Peacock

Customer Sample ID: MW-97
Date Sampled.....: 04/22/1999
Time Sampled.....: 10:15
Sample Matrix.....: Water

Laboratory Sample ID: 904337-31
Date Received.....: 04/27/1999
Time Received.....: 12:00

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8260B	Volatile Organic Compounds					
	Benzene	<5	5	ug/L	04/28/99	weh
	Ethylbenzene	<5	5	ug/L	04/28/99	weh
	Toluene	<5	5	ug/L	04/28/99	weh
	Xylenes (total)	<10	10	ug/L	04/28/99	weh

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LABORATORY TEST RESULTS

Job Number: 904337

Date: 05/06/99

CUSTOMER: Marathon Oil Company PROJECT: NP00043.0001 MT004 ATTN: Mr. Paul Peacock

Customer Sample ID: MW-67
Date Sampled.....: 04/22/1999
Time Sampled.....: 11:30
Sample Matrix.....: Water

Laboratory Sample ID: 904337-32
Date Received.....: 04/27/1999
Time Received.....: 12:00

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8260B	Volatile Organic Compounds					
	Benzene	<5	5	ug/L	04/28/99	weh
	Ethylbenzene	<5	5	ug/L	04/28/99	weh
	Toluene	<5	5	ug/L	04/28/99	weh
	Xylenes (total)	<10	10	ug/L	04/28/99	weh

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LABORATORY TEST RESULTS

Job Number: 904337

Date: 05/06/99

CUSTOMER: Marathon Oil Company | PROJECT: NP00043.0001 MT004 | ATTN: Mr. Paul Peacock

Customer Sample ID: MW-108
Date Sampled.....: 04/22/1999
Time Sampled.....: 13:00
Sample Matrix.....: Water

Laboratory Sample ID: 904337-33
Date Received.....: 04/27/1999
Time Received.....: 12:00

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8260B	Volatile Organic Compounds					
	Benzene	<5	5	ug/L	04/29/99	weh
	Ethylbenzene	<5	5	ug/L	04/29/99	weh
	Toluene	<5	5	ug/L	04/29/99	weh
	Xylenes (total)	<10	10	ug/L	04/29/99	weh

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LABORATORY TEST RESULTS

Job Number: 904337

Date: 05/06/99

CUSTOMER: Marathon Oil Company | PROJECT: NP00043.0001 MT004 | ATTN: Mr. Paul Peacock

Customer Sample ID: MW-95
Date Sampled.....: 04/22/1999
Time Sampled.....: 14:30
Sample Matrix.....: Water

Laboratory Sample ID: 904337-34
Date Received.....: 04/27/1999
Time Received.....: 12:00

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8260B	Volatile Organic Compounds					
	Benzene	<5	5	ug/L	04/29/99	weh
	Ethylbenzene	<5	5	ug/L	04/29/99	weh
	Toluene	<5	5	ug/L	04/29/99	weh
	Xylenes (total)	<10	10	ug/L	04/29/99	weh

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LABORATORY TEST RESULTS

Job Number: 904337

Date: 05/06/99

CUSTOMER: Marathon Oil Company PROJECT: NP00043.0001 MT004 ATTN: Mr. Paul Peacock

Customer Sample ID: MW-63
Date Sampled.....: 04/22/1999
Time Sampled.....: 15:40
Sample Matrix.....: Water

Laboratory Sample ID: 904337-35
Date Received.....: 04/27/1999
Time Received.....: 12:00

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8260B	Volatile Organic Compounds					
	Benzene	<5	5	ug/L	04/29/99	weh
	Ethylbenzene	<5	5	ug/L	04/29/99	weh
	Toluene	<5	5	ug/L	04/29/99	weh
	Xylenes (total)	<10	10	ug/L	04/29/99	weh

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LABORATORY TEST RESULTS

Job Number: 904337

Date: 05/06/99

CUSTOMER: Marathon Oil Company PROJECT: NP00043.0001 MT004 ATTN: Mr. Paul Peacock

Customer Sample ID: MW-70
Date Sampled.....: 04/22/1999
Time Sampled.....: 16:50
Sample Matrix.....: Water

Laboratory Sample ID: 904337-36
Date Received.....: 04/27/1999
Time Received.....: 12:00

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8260B	Volatile Organic Compounds					
	Benzene	<5	5	ug/L	04/29/99	weh
	Ethylbenzene	<5	5	ug/L	04/29/99	weh
	Toluene	<5	5	ug/L	04/29/99	weh
	Xylenes (total)	<10	10	ug/L	04/29/99	weh

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LABORATORY TEST RESULTS

Job Number: 904337

Date: 05/06/99

CUSTOMER: Marathon Oil Company PROJECT: NP00043.0001 MT004 ATTN: Mr. Paul Peacock

Customer Sample ID: MW-94
Date Sampled.....: 04/22/1999
Time Sampled.....: 18:00
Sample Matrix.....: Water

Laboratory Sample ID: 904337-37
Date Received.....: 04/27/1999
Time Received.....: 12:00

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8260B	Volatile Organic Compounds					
	Benzene	<5	5	ug/L	04/28/99	weh
	Ethylbenzene	<5	5	ug/L	04/28/99	weh
	Toluene	<5	5	ug/L	04/28/99	weh
	Xylenes (total)	<10	10	ug/L	04/28/99	weh

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LABORATORY TEST RESULTS

Job Number: 904337 Date: 05/06/99

CUSTOMER: Marathon Oil Company PROJECT: NP00043.0001 MT004 ATTN: Mr. Paul Peacock

Customer Sample ID: SW-3
Date Sampled.....: 04/23/1999
Time Sampled.....: 08:30
Sample Matrix.....: Water

Laboratory Sample ID: 904337-38
Date Received.....: 04/27/1999
Time Received.....: 12:00

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8260B	Volatile Organic Compounds					
	Benzene	<5	5	ug/L	04/29/99	weh
	Ethylbenzene	<5	5	ug/L	04/29/99	weh
	Toluene	<5	5	ug/L	04/29/99	weh
	Xylenes (total)	<10	10	ug/L	04/29/99	weh

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LABORATORY TEST RESULTS

Job Number: 904337 Date: 05/06/99

CUSTOMER: Marathon Oil Company PROJECT: NP00043.0001 MT004 ATTN: Mr. Paul Peacock

Customer Sample ID: SW-1
Date Sampled.....: 04/23/1999
Time Sampled.....: 09:00
Sample Matrix.....: Water

Laboratory Sample ID: 904337-39
Date Received.....: 04/27/1999
Time Received.....: 12:00

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8260B	Volatile Organic Compounds					
	Benzene	<5	5	ug/L	04/29/99	weh
	Ethylbenzene	<5	5	ug/L	04/29/99	weh
	Toluene	<5	5	ug/L	04/29/99	weh
	Xylenes (total)	<10	10	ug/L	04/29/99	weh

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CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 904337

Date: 05/06/99

CUSTOMER: Marathon Oil Company | PROJECT: NP00043.0001 MT004 | ATTN: Mr. Paul Peacock

Customer Sample ID: SW-2
Date Sampled.....: 04/23/1999
Time Sampled.....: 13:00
Sample Matrix.....: Water

Laboratory Sample ID: 904337-40
Date Received.....: 04/27/1999
Time Received.....: 12:00

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8260B	Volatile Organic Compounds					
	Benzene	<5	5	ug/L	04/29/99	weh
	Ethylbenzene	<5	5	ug/L	04/29/99	weh
	Toluene	<5	5	ug/L	04/29/99	weh
	Xylenes (total)	<10	10	ug/L	04/29/99	weh

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CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 904337 Date: 05/06/99

CUSTOMER: Marathon Oil Company PROJECT: NP00043.0001 MT004 ATTN: Mr. Paul Peacock

Customer Sample ID: TRIP BLANK
Date Sampled.....: 04/23/1999
Time Sampled.....: 00:00
Sample Matrix.....: Water

Laboratory Sample ID: 904337-41
Date Received.....: 04/27/1999
Time Received.....: 12:00

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8260B	Volatile Organic Compounds					
	Benzene	<5	5	ug/L	04/28/99	weh
	Ethylbenzene	<5	5	ug/L	04/28/99	weh
	Toluene	<5	5	ug/L	04/28/99	weh
	Xylenes (total)	<10	10	ug/L	04/28/99	weh

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QUALITY CONTROL RESULTS

Job Number.: 904337 Report Date.: 05/06/99

CUSTOMER: Marathon Oil Company PROJECT: MOC - Midland Groundwater ATTN: Mr. Paul Peacock

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
MB	Method Blank				04/27/1999	0940

Test Method.....: EPA 8260B Batch.....: 39022 Analyst...: weh
Method Description.: Volatile Organic Compounds Units.....: ug/L

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Bromochloromethane	ND						
1,3-Dichlorobenzene	ND						
2-Chloroethylvinyl ether	ND						
m&p-Xylenes	ND						
Acrolein	ND						
1,4-Dichlorobenzene	ND						
1,2,4-Trimethylbenzene	ND						
Isopropylbenzene	ND						
o-Xylene	ND						
Bromobenzene	ND						
Trichlorofluoromethane	ND						
1,1,1,2-Tetrachloroethane	ND						
omomethane	ND						
ylonitrile	ND						
tert-Butyl methyl ether (MTBE)	ND						
Dichlorodifluoromethane	ND						
1,2,3-Trichloropropane	ND						
1,2-Dichlorobenzene	ND						
Acetone	ND						
Benzene	ND						
Bromodichloromethane	ND						
Bromoform	ND						
Bromomethane	ND						
2-Butanone	ND						
Carbon disulfide	ND						
Carbon tetrachloride	ND						
Dibromochloromethane	ND						
Chlorobenzene	ND						
Chloroethane	ND						
Chloroform	ND						
Chloromethane	ND						
1,1-Dichloroethane	ND						
1,2-Dichloroethane	ND						
1,1-Dichloroethene	ND						
trans-1,2-Dichloroethene	ND						
cis-1,2-Dichloroethene	ND						
1,2-Dichloropropane	ND						
cis-1,3-Dichloropropene	ND						
trans-1,3-Dichloropropene	ND						
Ethylbenzene	ND						
2-Hexanone	ND						
Methylene chloride	ND						
4-Methyl-2-pentanone (MIBK)	ND						
Styrene	ND						
1,1,2,2-Tetrachloroethane	ND						
Tetrachloroethene	ND						
uene	ND						
,,1-Trichloroethane	ND						
1,1,2-Trichloroethane	ND						
Trichloroethene	ND						

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

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QUALITY CONTROL RESULTS

Job Number.: 904337 Report Date.: 05/06/99

CUSTOMER: Marathon Oil Company PROJECT: MOC - Midland Groundwater ATTN: Mr. Paul Peacock

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
MB	Method Blank				04/27/1999	0940

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Vinyl acetate	ND						
Vinyl chloride	ND						
Xylenes (total)	ND						

LCS	Laboratory Control Sample	CLPVOAMS2			04/27/1999 1011

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	48.91		50		97.8	%	67-130
Chlorobenzene	48.46		50		96.9	%	74-116
1,1-Dichloroethene	49.30		50		98.6	%	51-141
Toluene	48.92		50		97.8	%	75-114
Trichloroethene	50.02		50		100.0	%	72-114

S	Matrix Spike	CLPVOAMS2	904337-4		04/27/1999 1713

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	48.55		50	ND	97.1	%	67-130
Chlorobenzene	47.40		50	ND	94.8	%	74-116
1,1-Dichloroethene	48.42		50	ND	96.8	%	51-141
Toluene	48.95		50	ND	97.9	%	75-114
Trichloroethene	49.77		50	ND	99.5	%	72-114

MSD	Matrix Spike Duplicate	CLPVOAMS2	904337-4		04/27/1999 1743

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	48.88	48.55	50	ND	97.8	%	67-130
					0.7	R	30
Chlorobenzene	46.92	47.40	50	ND	93.8	%	74-116
					1.0	R	30
1,1-Dichloroethene	48.66	48.42	50	ND	97.3	%	51-141
					0.5	R	30
Toluene	48.55	48.95	50	ND	97.1	%	75-114
					0.8	R	30
Trichloroethene	49.03	49.77	50	ND	98.1	%	72-114
					1.5	R	30

Test Method.....: EPA 8260B Batch.....: 39039 Analyst...: weh
Method Description.: Volatile Organic Compounds Units.....: ug/L

MB	Method Blank					04/27/1999 2354

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
m&p-Xylenes	ND						
Dibromomethane	ND						
tert-Butyl methyl ether (MTBE)	ND						

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

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QUALITY CONTROL RESULTS

Job Number.: 904337 Report Date.: 05/06/99

CUSTOMER: Marathon Oil Company PROJECT: MOC - Midland Groundwater ATTN: Mr. Paul Peacock

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
MB	Method Blank				04/27/1999	2354

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
o-Xylene	ND						
Dichlorodifluoromethane	ND						
1,2-Dichlorobenzene	ND						
Trichlorofluoromethane	ND						
1,2,4-Trimethylbenzene	ND						
1,4-Dichlorobenzene	ND						
Isopropylbenzene	ND						
1,3-Dichlorobenzene	ND						
Acrylonitrile	ND						
Acrolein	ND						
1,1,1,2-Tetrachloroethane	ND						
1,2,3-Trichloropropane	ND						
2-Chloroethylvinyl ether	ND						
Bromobenzene	ND						
Acetone	ND						
Benzene	ND						
ıodichloromethane	ND						
..inoform	ND						
Bromomethane	ND						
2-Butanone	ND						
Carbon disulfide	ND						
Carbon tetrachloride	ND						
Dibromochloromethane	ND						
Chlorobenzene	ND						
Chloroethane	ND						
Chloroform	ND						
Chloromethane	ND						
1,1-Dichloroethane	ND						
1,2-Dichloroethane	ND						
1,1-Dichloroethene	ND						
trans-1,2-Dichloroethene	ND						
cis-1,2-Dichloroethene	ND						
1,2-Dichloropropane	ND						
cis-1,3-Dichloropropene	ND						
trans-1,3-Dichloropropene	ND						
Ethylbenzene	ND						
2-Hexanone	ND						
Methylene chloride	ND						
4-Methyl-2-pentanone (MIBK)	ND						
Styrene	ND						
1,1,2,2-Tetrachloroethane	ND						
Tetrachloroethene	ND						
Toluene	ND						
1,1,1-Trichloroethane	ND						
1,1,2-Trichloroethane	ND						
Trichloroethene	ND						
Vinyl acetate	ND						
Vinyl chloride	ND						
Xylenes (total)	ND						

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

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QUALITY CONTROL RESULTS

Job Number.: 904337 Report Date.: 05/06/99

CUSTOMER: Marathon Oil Company PROJECT: MOC - Midland Groundwater ATTN: Mr. Paul Peacock

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
LCS	Laboratory Control Sample	CLPVOAMS2			04/28/1999	0024

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	49.51		50		99.0	%	67-130
Chlorobenzene	48.37		50		96.7	%	74-116
1,1-Dichloroethene	49.44		50		98.9	%	51-141
Toluene	49.94		50		99.9	%	75-114
Trichloroethene	50.31		50		100.6	%	72-114

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
MS	Matrix Spike	CLPVOAMS2	904337-5		04/28/1999	0259

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	49.32		50	1	98.6	%	67-130
Chlorobenzene	47.85		50	ND	95.7	%	74-116
1,1-Dichloroethene	47.88		50	ND	95.8	%	51-141
Toluene	49.28		50	1	98.6	%	75-114
Trichloroethene	49.66		50	ND	99.3	%	72-114

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
MSD	Matrix Spike Duplicate	CLPVOAMS2	904337-5		04/28/1999	0329

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	48.65	49.32	50	1	97.3	%	67-130
					1.4	R	30
Chlorobenzene	47.18	47.85	50	ND	94.4	%	74-116
					1.4	R	30
1,1-Dichloroethene	46.22	47.88	50	ND	92.4	%	51-141
					3.5	R	30
Toluene	49.24	49.28	50	1	98.5	%	75-114
					0.1	R	30
Trichloroethene	49.66	49.66	50	ND	99.3	%	72-114
					0.0	R	30

Test Method.....: EPA 8260B Batch.....: 39104 Analyst...: weh
Method Description.: Volatile Organic Compounds Units.....: ug/L

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
MB	Method Blank				04/28/1999	1455

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Dichlorodifluoromethane	ND						
Dibromomethane	ND						
Bromobenzene	ND						
1,2,3-Trichloropropane	ND						
1,2-Dichlorobenzene	ND						
1,3-Dichlorobenzene	ND						
1,4-Dichlorobenzene	ND						
Trichlorofluoromethane	ND						
Chloroethylvinyl ether	ND						
1,1,1,2-Tetrachloroethane	ND						
m&p-Xylenes	ND						
tert-Butyl methyl ether (MTBE)	ND						

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

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QUALITY CONTROL RESULTS

Job Number.: 904337 Report Date.: 05/06/99

CUSTOMER: Marathon Oil Company PROJECT: MOC - Midland Groundwater ATTN: Mr. Paul Peacock

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
MB	Method Blank				04/28/1999	1455

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
o-Xylene	ND						
Acrolein	ND						
1,2,4-Trimethylbenzene	ND						
Isopropylbenzene	ND						
Acrylonitrile	ND						
Acetone	ND						
Benzene	ND						
Bromodichloromethane	ND						
Bromoform	ND						
Bromomethane	ND						
2-Butanone	ND						
Carbon disulfide	ND						
Carbon tetrachloride	ND						
Dibromochloromethane	ND						
Chlorobenzene	ND						
Chloroethane	ND						
[illegible]roform	ND						
[illegible]romethane	ND						
1,1-Dichloroethane	ND						
1,2-Dichloroethane	ND						
1,1-Dichloroethene	ND						
trans-1,2-Dichloroethene	ND						
cis-1,2-Dichloroethene	ND						
1,2-Dichloropropane	ND						
cis-1,3-Dichloropropene	ND						
trans-1,3-Dichloropropene	ND						
Ethylbenzene	ND						
2-Hexanone	ND						
Methylene chloride	ND						
4-Methyl-2-pentanone (MIBK)	ND						
Styrene	ND						
1,1,2,2-Tetrachloroethane	ND						
Tetrachloroethene	ND						
Toluene	ND						
1,1,1-Trichloroethane	ND						
1,1,2-Trichloroethane	ND						
Trichloroethene	ND						
Vinyl acetate	ND						
Vinyl chloride	ND						
Xylenes (total)	ND						

LCS	Laboratory Control Sample	CLPVOAMS2			04/28/1999	1527

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	48.25		50		96.5	%	67-130
Chlorobenzene	49.03		50		98.1	%	74-116
1,1-Dichloroethene	46.32		50		92.6	%	51-141
Toluene	49.06		50		98.1	%	75-114
[illegible]hloroethene	49.38		50		98.8	%	72-114

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

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QUALITY CONTROL RESULTS

Job Number.: 904337 Report Date.: 05/06/99

CUSTOMER: Marathon Oil Company PROJECT: MOC - Midland Groundwater ATTN: Mr. Paul Peacock

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
MS	Matrix Spike	CLPVOAMS2	904358-2		04/28/1999	2140

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	58.40		50	11.12	94.6	%	67-130
Chlorobenzene	47.10		50	ND	94.2	%	74-116
1,1-Dichloroethene	44.98		50	ND	90.0	%	51-141
Toluene	75.66		50	28.91	93.5	%	75-114
Trichloroethene	47.36		50	ND	94.7	%	72-114

MSD	Matrix Spike Duplicate	CLPVOAMS2	904358-2		04/28/1999	2211

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	58.57	58.40	50	11.12	94.9	%	67-130
					0.3	R	30
Chlorobenzene	47.11	47.10	50	ND	94.2	%	74-116
					0.0	R	30
1,1-Dichloroethene	45.94	44.98	50	ND	91.9	%	51-141
					2.1	R	30
Toluene	76.49	75.66	50	28.91	95.2	%	75-114
					1.1	R	30
Trichloroethene	47.50	47.36	50	ND	95.0	%	72-114
					0.3	R	30

Test Method.....: EPA 8260B Batch.....: 39123 Analyst...: weh
Method Description.: Volatile Organic Compounds Units.....: ug/L

MB	Method Blank				04/28/1999	1155

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
m&p-Xylenes	ND						
1,3-Dichlorobenzene	ND						
1,4-Dichlorobenzene	ND						
o-Xylene	ND						
1,2,4-Trimethylbenzene	ND						
Isopropylbenzene	ND						
Dichlorodifluoromethane	ND						
Dibromomethane	ND						
Bromobenzene	ND						
1,2,3-Trichloropropane	ND						
1,1,1,2-Tetrachloroethane	ND						
tert-Butyl methyl ether (MTBE)	ND						
Acrylonitrile	ND						
Acrolein	ND						
2-Chloroethylvinyl ether	ND						
Trichlorofluoromethane	ND						
1,2-Dichlorobenzene	ND						
Acetone	ND						
Benzene	ND						
Dibromodichloromethane	ND						
Bromoform	ND						
Bromomethane	ND						
2-Butanone	ND						

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

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QUALITY CONTROL RESULTS

Job Number.: 904337 Report Date.: 05/06/99

CUSTOMER: Marathon Oil Company PROJECT: MOC - Midland Groundwater ATTN: Mr. Paul Peacock

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
MB	Method Blank				04/28/1999	1155

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Carbon disulfide	ND						
Carbon tetrachloride	ND						
Dibromochloromethane	ND						
Chlorobenzene	ND						
Chloroethane	ND						
Chloroform	ND						
Chloromethane	ND						
1,1-Dichloroethane	ND						
1,2-Dichloroethane	ND						
1,1-Dichloroethene	ND						
trans-1,2-Dichloroethene	ND						
cis-1,2-Dichloroethene	ND						
1,2-Dichloropropane	ND						
cis-1,3-Dichloropropene	ND						
trans-1,3-Dichloropropene	ND						
Ethylbenzene	ND						
"exanone	ND						
ıylene chloride	ND						
4-Methyl-2-pentanone (MIBK)	ND						
Styrene	ND						
1,1,2,2-Tetrachloroethane	ND						
Tetrachloroethene	ND						
Toluene	ND						
1,1,1-Trichloroethane	ND						
1,1,2-Trichloroethane	ND						
Trichloroethene	ND						
Vinyl acetate	ND						
Vinyl chloride	ND						
Xylenes (total)	ND						

LCS	Laboratory Control Sample	CLPVOAMS2			04/28/1999	1242

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	52.37		50		104.7	%	67-130
Chlorobenzene	50.95		50		101.9	%	74-116
1,1-Dichloroethene	54.66		50		109.3	%	51-141
Toluene	52.05		50		104.1	%	75-114
Trichloroethene	49.08		50		98.2	%	72-114

MS	Matrix Spike	CLPVOAMS2	904337-37		04/28/1999	1418

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	53.14		50	1	106.3	%	67-130
Chlorobenzene	51.91		50	ND	103.8	%	74-116
1,1-Dichloroethene	53.09		50	ND	106.2	%	51-141
Toluene	52.65		50	1	105.3	%	75-114
'chloroethene	51.18		50	ND	102.4	%	72-114

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

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QUALITY CONTROL RESULTS

Job Number.: 904337 Report Date.: 05/06/99

CUSTOMER: Marathon Oil Company PROJECT: MOC - Midland Groundwater ATTN: Mr. Paul Peacock

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
MSD	Matrix Spike Duplicate	CLPVOAMS2	904337-37		04/28/1999	1449

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	52.37	53.14	50	1	104.7	%	67-130
					1.5	R	30
Chlorobenzene	51.93	51.91	50	ND	103.9	%	74-116
					0.0	R	30
1,1-Dichloroethene	52.69	53.09	50	ND	105.4	%	51-141
					0.8	R	30
Toluene	52.49	52.65	50	1	105.0	%	75-114
					0.3	R	30
Trichloroethene	51.62	51.18	50	ND	103.2	%	72-114
					0.9	R	30

Test Method.....: EPA 8260B Batch.....: 39127 Analyst...: weh
Method Description.: Volatile Organic Compounds Units.....: ug/L

	Method Blank				04/29/1999	0352

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
1,4-Dichlorobenzene	ND						
1,3-Dichlorobenzene	ND						
1,2-Dichlorobenzene	ND						
o-Xylene	ND						
1,2,4-Trimethylbenzene	ND						
Isopropylbenzene	ND						
tert-Butyl methyl ether (MTBE)	ND						
Dichlorodifluoromethane	ND						
m&p-Xylenes	ND						
Dibromomethane	ND						
Acrolein	ND						
Bromobenzene	ND						
Trichlorofluoromethane	ND						
2-Chloroethylvinyl ether	ND						
1,2,3-Trichloropropane	ND						
1,1,1,2-Tetrachloroethane	ND						
Acrylonitrile	ND						
Acetone	ND						
Benzene	ND						
Bromodichloromethane	ND						
Bromoform	ND						
Bromomethane	ND						
2-Butanone	ND						
Carbon disulfide	ND						
Carbon tetrachloride	ND						
Dibromochloromethane	ND						
Chlorobenzene	ND						
Chloroethane	ND						
Chloroform	ND						
Chloromethane	ND						
'-Dichloroethane	ND						
.-Dichloroethane	ND						
1,1-Dichloroethene	ND						
trans-1,2-Dichloroethene	ND						

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

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CORE LABORATORIES

QUALITY CONTROL RESULTS

Job Number.: 904337

Report Date.: 05/06/99

CUSTOMER: Marathon Oil Company | PROJECT: MOC - Midland Groundwater | ATTN: Mr. Paul Peacock

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
MB	Method Blank				04/29/1999	0352

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
cis-1,2-Dichloroethene	ND						
1,2-Dichloropropane	ND						
cis-1,3-Dichloropropene	ND						
trans-1,3-Dichloropropene	ND						
Ethylbenzene	ND						
2-Hexanone	ND						
Methylene chloride	ND						
4-Methyl-2-pentanone (MIBK)	ND						
Styrene	ND						
1,1,2,2-Tetrachloroethane	ND						
Tetrachloroethene	ND						
Toluene	ND						
1,1,1-Trichloroethane	ND						
1,1,2-Trichloroethane	ND						
Trichloroethene	ND						
Vinyl acetate	ND						
[illegible]yl chloride	ND						
[illegible]enes (total)	ND						

LCS	Laboratory Control Sample	CLPVOAMS2			04/29/1999	0424

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	47.72		50		95.4	%	67-130
Chlorobenzene	48.27		50		96.5	%	74-116
1,1-Dichloroethene	45.84		50		91.7	%	51-141
Toluene	47.83		50		95.7	%	75-114
Trichloroethene	47.53		50		95.1	%	72-114

MS	Matrix Spike	CLPVOAMS2	904269-1	10	04/29/1999	0526

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	47.85		50	ND	95.7	%	67-130
Chlorobenzene	47.78		50	ND	95.6	%	74-116
1,1-Dichloroethene	46.94		50	ND	93.9	%	51-141
Toluene	48.21		50	ND	96.4	%	75-114
Trichloroethene	47.81		50	ND	95.6	%	72-114

MSD	Matrix Spike Duplicate	CLPVOAMS2	904269-1	10	04/29/1999	0557

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	49.33	47.85	50	ND	98.7	%	67-130
					3.0	R	30
Chlorobenzene	48.85	47.78	50	ND	97.7	%	74-116
					2.2	R	30
[illegible]1-Dichloroethene	45.96	46.94	50	ND	91.9	%	51-141
					2.1	R	30
Toluene	49.08	48.21	50	ND	98.2	%	75-114
					1.8	R	30

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

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CORE LABORATORIES

QUALITY CONTROL RESULTS

Job Number.: 904337 Report Date.: 05/06/99

CUSTOMER: Marathon Oil Company PROJECT: MOC - Midland Groundwater ATTN: Mr. Paul Peacock

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
MSD	Matrix Spike Duplicate	CLPVOAMS2	904269-1	10	04/29/1999	0557

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Trichloroethene	49.52	47.81	50	ND	99.0	%	72-114
					3.5	R	30

Test Method.....: EPA 8260B Batch.....: 39196 Analyst...: weh
Method Description.: Volatile Organic Compounds Units.....: ug/L

MB	Method Blank				04/29/1999	1426

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
m&p-Xylenes	ND						
1,2-Dichlorobenzene	ND						
Dibromomethane	ND						
Bromobenzene	ND						
[illegible]-Dichlorobenzene	ND						
[illegible]-Dichlorobenzene	ND						
1,2,3-Trichloropropane	ND						
Dichlorodifluoromethane	ND						
1,1,1,2-Tetrachloroethane	ND						
o-Xylene	ND						
1,2,4-Trimethylbenzene	ND						
Isopropylbenzene	ND						
Trichlorofluoromethane	ND						
2-Chloroethylvinyl ether	ND						
tert-Butyl methyl ether (MTBE)	ND						
Acrylonitrile	ND						
Acrolein	ND						
Acetone	ND						
Benzene	ND						
Bromodichloromethane	ND						
Bromoform	ND						
Bromomethane	ND						
2-Butanone	ND						
Carbon disulfide	ND						
Carbon tetrachloride	ND						
Dibromochloromethane	ND						
Chlorobenzene	ND						
Chloroethane	ND						
Chloroform	ND						
Chloromethane	ND						
1,1-Dichloroethane	ND						
1,2-Dichloroethane	ND						
1,1-Dichloroethene	ND						
trans-1,2-Dichloroethene	ND						
cis-1,2-Dichloroethene	ND						
1,2-Dichloropropane	ND						
cis-1,3-Dichloropropene	ND						
trans-1,3-Dichloropropene	ND						
[illegible]ylbenzene	ND						
[illegible]dexanone	ND						
Methylene chloride	ND						
4-Methyl-2-pentanone (MIBK)	ND						

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

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QUALITY CONTROL RESULTS

Job Number.: 904337 Report Date.: 05/06/99

CUSTOMER: Marathon Oil Company PROJECT: MOC - Midland Groundwater ATTN: Mr. Paul Peacock

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
MB	Method Blank				04/29/1999	1426

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Styrene	ND						
1,1,2,2-Tetrachloroethane	ND						
Tetrachloroethene	ND						
Toluene	ND						
1,1,1-Trichloroethane	ND						
1,1,2-Trichloroethane	ND						
Trichloroethene	ND						
Vinyl acetate	ND						
Vinyl chloride	ND						
Xylenes (total)	ND						

LCS	Laboratory Control Sample	CLPVOAMS2			04/29/1999	1457

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
zene	47.27		50		94.5	%	67-130
orobenzene	48.29		50		96.6	%	74-116
1,1-Dichloroethene	43.38		50		86.8	%	51-141
Toluene	48.30		50		96.6	%	75-114
Trichloroethene	48.42		50		96.8	%	72-114

MS	Matrix Spike	CLPVOAMS2	904269-2	10	04/29/1999	1600

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	47.27		50	ND	94.5	%	67-130
Chlorobenzene	48.35		50	ND	96.7	%	74-116
1,1-Dichloroethene	43.29		50	ND	86.6	%	51-141
Toluene	48.50		50	ND	97.0	%	75-114
Trichloroethene	48.47		50	ND	96.9	%	72-114

MSD	Matrix Spike Duplicate	CLPVOAMS2	904269-2	10	04/29/1999	1631

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	46.87	47.27	50	ND	93.7	%	67-130
					0.8	R	30
Chlorobenzene	48.20	48.35	50	ND	96.4	%	74-116
					0.3	R	30
1,1-Dichloroethene	40.97	43.29	50	ND	81.9	%	51-141
					5.5	R	30
Toluene	48.76	48.50	50	ND	97.5	%	75-114
					0.5	R	30
Trichloroethene	48.57	48.47	50	ND	97.1	%	72-114
					0.2	R	30

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QUALITY CONTROL RESULTS

Job Number.: 904337

Report Date.: 05/06/99

CUSTOMER: Marathon Oil Company | PROJECT: MOC - Midland Groundwater | ATTN: Mr. Paul Peacock

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time

Test Method.....: EPA 8260B
Method Description.: Volatile Organic Compounds

Batch.....: 39279
Units.....: ug/L

Analyst...: weh

MB	Method Blank				04/30/1999	0358

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
1,4-Dichlorobenzene	ND						
1,3-Dichlorobenzene	ND						
1,2-Dichlorobenzene	ND						
2-Chloroethylvinyl ether	ND						
Trichlorofluoromethane	ND						
Acrolein	ND						
Acrylonitrile	ND						
1,2,4-Trimethylbenzene	ND						
o-Xylene	ND						
tert-Butyl methyl ether (MTBE)	ND						
1,1,1,2-Tetrachloroethane	ND						
1,2,3-Trichloropropane	ND						
[illegible]obenzene	ND						
[illegible]omomethane	ND						
Dichlorodifluoromethane	ND						
m&p-Xylenes	ND						
Isopropylbenzene	ND						
Acetone	ND						
Benzene	ND						
Bromodichloromethane	ND						
Bromoform	ND						
Bromomethane	ND						
2-Butanone	ND						
Carbon disulfide	ND						
Carbon tetrachloride	ND						
Dibromochloromethane	ND						
Chlorobenzene	ND						
Chloroethane	ND						
Chloroform	ND						
Chloromethane	ND						
1,1-Dichloroethane	ND						
1,2-Dichloroethane	ND						
1,1-Dichloroethene	ND						
trans-1,2-Dichloroethene	ND						
cis-1,2-Dichloroethene	ND						
1,2-Dichloropropane	ND						
cis-1,3-Dichloropropene	ND						
trans-1,3-Dichloropropene	ND						
Ethylbenzene	ND						
2-Hexanone	ND						
Methylene chloride	ND						
4-Methyl-2-pentanone (MIBK)	ND						
Styrene	ND						
1,1,2,2-Tetrachloroethane	ND						
Tetrachloroethene	ND						
Toluene	ND						
[illegible],1-Trichloroethane	ND						
[illegible],2-Trichloroethane	ND						
Trichloroethene	ND						
Vinyl acetate	ND						

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

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QUALITY CONTROL RESULTS

Job Number.: 904337

Report Date.: 05/06/99

CUSTOMER: Marathon Oil Company | PROJECT: MOC - Midland Groundwater | ATTN: Mr. Paul Peacock

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
MB	Method Blank				04/30/1999	0358

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Vinyl chloride	ND						
Xylenes (total)	ND						

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
LCS	Laboratory Control Sample	CLPVOAMS2			04/30/1999	0429

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	48.22		50		96.4	%	67-130
Chlorobenzene	48.93		50		97.9	%	74-116
1,1-Dichloroethene	42.04		50		84.1	%	51-141
Toluene	49.02		50		98.0	%	75-114
Trichloroethene	48.08		50		96.2	%	72-114

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
MS	Matrix Spike	CLPVOAMS2	904291-1	10	04/30/1999	0531

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	46.36		50	ND	92.7	%	67-130
Chlorobenzene	47.09		50	ND	94.2	%	74-116
1,1-Dichloroethene	42.14		50	ND	84.3	%	51-141
Toluene	47.68		50	ND	95.4	%	75-114
Trichloroethene	46.60		50	ND	93.2	%	72-114

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
MSD	Matrix Spike Duplicate	CLPVOAMS2	904291-1	10	04/30/1999	0602

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	47.90	46.36	50	ND	95.8	%	67-130
					3.3	R	30
Chlorobenzene	47.75	47.09	50	ND	95.5	%	74-116
					1.4	R	30
1,1-Dichloroethene	42.52	42.14	50	ND	85.0	%	51-141
					0.9	R	30
Toluene	48.52	47.68	50	ND	97.0	%	75-114
					1.7	R	30
Trichloroethene	47.56	46.60	50	ND	95.1	%	72-114
					2.0	R	30

Test Method.....: EPA 8260B
Method Description.: Volatile Organic Compounds

Batch.....: 39369
Units.....: ug/L

Analyst...: weh

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
MB	Method Blank				05/03/1999	1009

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
·Dichlorobenzene	ND						
Xylenes	ND						
1,4-Dichlorobenzene	ND						
o-Xylene	ND						

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

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QUALITY CONTROL RESULTS

Job Number.: 904337 Report Date.: 05/06/99

CUSTOMER: Marathon Oil Company PROJECT: MOC - Midland Groundwater ATTN: Mr. Paul Peacock

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
MB	Method Blank				05/03/1999	1009

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
1,2,4-Trimethylbenzene	ND						
Isopropylbenzene	ND						
Dichlorodifluoromethane	ND						
Dibromomethane	ND						
Bromobenzene	ND						
1,2,3-Trichloropropane	ND						
1,1,1,2-Tetrachloroethane	ND						
tert-Butyl methyl ether (MTBE)	ND						
Acrylonitrile	ND						
Acrolein	ND						
2-Chloroethylvinyl ether	ND						
1,2-Dichlorobenzene	ND						
Trichlorofluoromethane	ND						
Acetone	ND						
Benzene	ND						
Bromodichloromethane	ND						
[illegible]omoform	ND						
[illegible]momethane	ND						
2-Butanone	ND						
Carbon disulfide	ND						
Carbon tetrachloride	ND						
Dibromochloromethane	ND						
Chlorobenzene	ND						
Chloroethane	ND						
Chloroform	ND						
Chloromethane	ND						
1,1-Dichloroethane	ND						
1,2-Dichloroethane	ND						
1,1-Dichloroethene	ND						
trans-1,2-Dichloroethene	ND						
cis-1,2-Dichloroethene	ND						
1,2-Dichloropropane	ND						
cis-1,3-Dichloropropene	ND						
trans-1,3-Dichloropropene	ND						
Ethylbenzene	ND						
2-Hexanone	ND						
Methylene chloride	ND						
4-Methyl-2-pentanone (MIBK)	ND						
Styrene	ND						
1,1,2,2-Tetrachloroethane	ND						
Tetrachloroethene	ND						
Toluene	ND						
1,1,1-Trichloroethane	ND						
1,1,2-Trichloroethane	ND						
Trichloroethene	ND						
Vinyl acetate	ND						
Vinyl chloride	ND						
Xylenes (total)	ND						

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

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QUALITY CONTROL RESULTS

Job Number.: 904337 Report Date.: 05/06/99

CUSTOMER: Marathon Oil Company PROJECT: MOC - Midland Groundwater ATTN: Mr. Paul Peacock

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
LCS	Laboratory Control Sample	CLPVOAMS2			05/03/1999	1040

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	44.30		50		88.6	%	67-130
Chlorobenzene	46.52		50		93.0	%	74-116
1,1-Dichloroethene	36.53		50		73.1	%	51-141
Toluene	47.38		50		94.8	%	75-114
Trichloroethene	49.48		50		99.0	%	72-114

MS	Matrix Spike	CLPVOAMS2	904488-1		05/03/1999	1142

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	44.26		50	ND	88.5	%	67-130
Chlorobenzene	47.11		50	ND	94.2	%	74-116
1,1-Dichloroethene	35.50		50	ND	71.0	%	51-141
Toluene	47.09		50	ND	94.2	%	75-114
Trichloroethene	49.67		50	ND	99.3	%	72-114

MSD	Matrix Spike Duplicate	CLPVOAMS2	904488-1		05/03/1999	1214

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	44.08	44.26	50	ND	88.2	%	67-130
					0.4	R	30
Chlorobenzene	46.52	47.11	50	ND	93.0	%	74-116
					1.3	R	30
1,1-Dichloroethene	35.03	35.50	50	ND	70.1	%	51-141
					1.3	R	30
Toluene	46.99	47.09	50	ND	94.0	%	75-114
					0.2	R	30
Trichloroethene	48.83	49.67	50	ND	97.7	%	72-114
					1.7	R	30

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

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CORE LABORATORIES

SURROGATE RECOVERIES REPORT

Job Number.: 904337 Report Date.: 05/06/99

CUSTOMER: Marathon Oil Company PROJECT: MOC - Midland Groundwater ATTN: Mr. Paul Peacock

Method.....: Volatile Organic Compounds Batch.....: 39022
Method Code.....: 826TCL Analyst.....: weh

Surrogate	Units
1,2-Dichloroethane-d4 (surrogate)	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		49.17	50.00	98.3	76-120		04/27/1999	0940
		LCS		48.77	50.00	97.5	76-120		04/27/1999	1011
904171-1			10	49.28	50.00	98.6	76-120		04/27/1999	1156
904212-4	Oil		10000	48.71	50.00	97.4	80-120		04/27/1999	1227
904249-1			200	48.54	50.00	97.1	76-120		04/27/1999	1329
904250-1			200	48.60	50.00	97.2	76-120		04/27/1999	1400
904299-1			200	49.40	50.00	98.8	76-120		04/27/1999	1431
904337-4				48.79	50.00	97.6	76-120		04/27/1999	1642
904337-4		MS		48.21	50.00	96.4	76-120		04/27/1999	1713
904337-4		MSD		48.85	50.00	97.7	76-120		04/27/1999	1743
[illegible]4211-5			40000	48.47	50.00	96.9	76-120		04/27/1999	2018

Surrogate	Units
BFB (Surrogate)	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		50.49	50.00	101.0	85-115		04/27/1999	0940
		LCS		50.10	50.00	100.2	85-115		04/27/1999	1011
904171-1			10	50.55	50.00	101.1	85-115		04/27/1999	1156
904212-4	Oil		10000	50.73	50.00	101.5	85-110		04/27/1999	1227
904249-1			200	50.37	50.00	100.7	85-115		04/27/1999	1329
904250-1			200	49.68	50.00	99.4	85-115		04/27/1999	1400
904299-1			200	50.02	50.00	100.0	85-115		04/27/1999	1431
904337-4				50.02	50.00	100.0	85-115		04/27/1999	1642
904337-4		MS		50.71	50.00	101.4	85-115		04/27/1999	1713
904337-4		MSD		49.92	50.00	99.8	85-115		04/27/1999	1743
904211-5			40000	49.71	50.00	99.4	85-115		04/27/1999	2018

Surrogate	Units
Toluene-d8	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		50.11	50.00	100.2	85-112		04/27/1999	0940
		LCS		49.86	50.00	99.7	85-112		04/27/1999	1011
904171-1			10	50.62	50.00	101.2	85-112		04/27/1999	1156
904212-4	Oil		10000	51.06	50.00	102.1	85-112		04/27/1999	1227
[illegible]4249-1			200	50.39	50.00	100.8	85-112		04/27/1999	1329
[illegible]4250-1			200	50.16	50.00	100.3	85-112		04/27/1999	1400
904299-1			200	50.27	50.00	100.5	85-112		04/27/1999	1431
904337-4				50.11	50.00	100.2	85-112		04/27/1999	1642

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CORE LABORATORIES

SURROGATE RECOVERIES REPORT

Job Number.: 904337 Report Date.: 05/06/99

CUSTOMER: Marathon Oil Company PROJECT: MOC - Midland Groundwater ATTN: Mr. Paul Peacock

Surrogate	Units
Toluene-d8	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
904337-4		MS		49.83	50.00	99.7	85-112		04/27/1999	1713
904337-4		MSD		50.48	50.00	101.0	85-112		04/27/1999	1743
904211-5			40000	50.58	50.00	101.2	85-112		04/27/1999	2018

Method.....: Volatile Organic Compounds Batch.....: 39039
Method Code.....: 826TCL Analyst.....: weh

Surrogate	Units
1,2-Dichloroethane-d4 (surrogate)	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		48.12	50.00	96.2	76-120		04/27/1999	2354
		LCS		47.25	50.00	94.5	76-120		04/28/1999	0024
904337-2				48.41	50.00	96.8	76-120		04/28/1999	0055
904337-41				48.25	50.00	96.5	76-120		04/28/1999	0126
904337-3				47.39	50.00	94.8	76-120		04/28/1999	0157
904337-5				48.38	50.00	96.8	76-120		04/28/1999	0228
904337-5		MS		47.78	50.00	95.6	76-120		04/28/1999	0259
904337-5		MSD		49.70	50.00	99.4	76-120		04/28/1999	0329
904337-6				49.82	50.00	99.6	76-120		04/28/1999	0400
904337-8				49.13	50.00	98.3	76-120		04/28/1999	0431
904337-9				50.23	50.00	100.5	76-120		04/28/1999	0502
904337-10				49.60	50.00	99.2	76-120		04/28/1999	0533
904337-14				48.44	50.00	96.9	76-120		04/28/1999	0604
904337-15				48.34	50.00	96.7	76-120		04/28/1999	0635
904337-16				47.16	50.00	94.3	76-120		04/28/1999	0705
904337-18				49.03	50.00	98.1	76-120		04/28/1999	0736
904337-25				48.41	50.00	96.8	76-120		04/28/1999	0807
904337-27				48.14	50.00	96.3	76-120		04/28/1999	0838
904337-29				48.29	50.00	96.6	76-120		04/28/1999	0909

Surrogate	Units
BFB (Surrogate)	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		49.73	50.00	99.5	85-115		04/27/1999	2354
		LCS		49.56	50.00	99.1	85-115		04/28/1999	0024
904337-2				50.19	50.00	100.4	85-115		04/28/1999	0055
904337-41				50.00	50.00	100.0	85-115		04/28/1999	0126
904337-3				50.65	50.00	101.3	85-115		04/28/1999	0157
904337-5				50.22	50.00	100.4	85-115		04/28/1999	0228
904337-5		MS		49.17	50.00	98.3	85-115		04/28/1999	0259
904337-5		MSD		49.39	50.00	98.8	85-115		04/28/1999	0329

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CORE LABORATORIES

SURROGATE RECOVERIES REPORT

Job Number.: 904337 Report Date.: 05/06/99

CUSTOMER: Marathon Oil Company PROJECT: MOC - Midland Groundwater ATTN: Mr. Paul Peacock

Surrogate	Units
BFB (Surrogate)	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
904337-6				50.00	50.00	100.0	85-115		04/28/1999	0400
904337-8				50.03	50.00	100.1	85-115		04/28/1999	0431
904337-9				49.99	50.00	100.0	85-115		04/28/1999	0502
904337-10				49.47	50.00	98.9	85-115		04/28/1999	0533
904337-14				49.74	50.00	99.5	85-115		04/28/1999	0604
904337-15				50.00	50.00	100.0	85-115		04/28/1999	0635
904337-16				50.58	50.00	101.2	85-115		04/28/1999	0705
904337-18				50.31	50.00	100.6	85-115		04/28/1999	0736
904337-25				49.73	50.00	99.5	85-115		04/28/1999	0807
904337-27				49.71	50.00	99.4	85-115		04/28/1999	0838
904337-29				50.48	50.00	101.0	85-115		04/28/1999	0909

Surrogate	Units
.oluene-d8	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		49.78	50.00	99.6	85-112		04/27/1999	2354
		LCS		49.91	50.00	99.8	85-112		04/28/1999	0024
904337-2				50.16	50.00	100.3	85-112		04/28/1999	0055
904337-41				50.08	50.00	100.2	85-112		04/28/1999	0126
904337-3				50.19	50.00	100.4	85-112		04/28/1999	0157
904337-5				50.49	50.00	101.0	85-112		04/28/1999	0228
904337-5		MS		49.85	50.00	99.7	85-112		04/28/1999	0259
904337-5		MSD		50.08	50.00	100.2	85-112		04/28/1999	0329
904337-6				50.39	50.00	100.8	85-112		04/28/1999	0400
904337-8				50.29	50.00	100.6	85-112		04/28/1999	0431
904337-9				50.46	50.00	100.9	85-112		04/28/1999	0502
904337-10				50.21	50.00	100.4	85-112		04/28/1999	0533
904337-14				50.36	50.00	100.7	85-112		04/28/1999	0604
904337-15				50.32	50.00	100.6	85-112		04/28/1999	0635
904337-16				49.87	50.00	99.7	85-112		04/28/1999	0705
904337-18				50.67	50.00	101.3	85-112		04/28/1999	0736
904337-25				50.15	50.00	100.3	85-112		04/28/1999	0807
904337-27				50.36	50.00	100.7	85-112		04/28/1999	0838
904337-29				50.43	50.00	100.9	85-112		04/28/1999	0909

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CORE LABORATORIES

SURROGATE RECOVERIES REPORT

Job Number.: 904337 Report Date.: 05/06/99

CUSTOMER: Marathon Oil Company PROJECT: MOC - Midland Groundwater ATTN: Mr. Paul Peacock

Method.....: Volatile Organic Compounds Batch.....: 39104
Method Code.....: 826TCL Analyst.....: weh

Surrogate	Units
1,2-Dichloroethane-d4 (surrogate)	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		48.19	50.00	96.4	76-120		04/28/1999	1455
		LCS		49.48	50.00	99.0	76-120		04/28/1999	1527
904211-1			10000	49.29	50.00	98.6	76-120		04/28/1999	1629
904211-2			500	48.68	50.00	97.4	76-120		04/28/1999	1700
904211-3			200	49.55	50.00	99.1	76-120		04/28/1999	1731
904211-4			200	49.30	50.00	98.6	76-120		04/28/1999	1802
904206-2	Oil		10000	48.91	50.00	97.8	80-120		04/28/1999	1935
904358-2				46.89	50.00	93.8	76-120		04/28/1999	2037
904358-1				48.86	50.00	97.7	76-120		04/28/1999	2108
904358-2		MS		50.34	50.00	100.7	76-120		04/28/1999	2140
`4358-2		MSD		49.33	50.00	98.7	76-120		04/28/1999	2211
4349-1			200	49.74	50.00	99.5	76-120		04/28/1999	2242
904337-31				49.65	50.00	99.3	76-120		04/28/1999	2313
904337-32				50.09	50.00	100.2	76-120		04/28/1999	2344
904337-33				48.91	50.00	97.8	76-120		04/29/1999	0016
904337-34				49.54	50.00	99.1	76-120		04/29/1999	0047

Surrogate	Units
BFB (Surrogate)	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		50.13	50.00	100.3	85-115		04/28/1999	1455
		LCS		50.24	50.00	100.5	85-115		04/28/1999	1527
904211-1			10000	50.34	50.00	100.7	85-115		04/28/1999	1629
904211-2			500	50.04	50.00	100.1	85-115		04/28/1999	1700
904211-3			200	49.51	50.00	99.0	85-115		04/28/1999	1731
904211-4			200	49.17	50.00	98.3	85-115		04/28/1999	1802
904206-2	Oil		10000	50.20	50.00	100.4	85-110		04/28/1999	1935
904358-2				51.93	50.00	103.9	85-115		04/28/1999	2037
904358-1				51.54	50.00	103.1	85-115		04/28/1999	2108
904358-2		MS		50.90	50.00	101.8	85-115		04/28/1999	2140
904358-2		MSD		51.79	50.00	103.6	85-115		04/28/1999	2211
904349-1			200	51.44	50.00	102.9	85-115		04/28/1999	2242
904337-31				50.40	50.00	100.8	85-115		04/28/1999	2313
904337-32				51.26	50.00	102.5	85-115		04/28/1999	2344
904337-33				51.04	50.00	102.1	85-115		04/29/1999	0016
904337-34				51.03	50.00	102.1	85-115		04/29/1999	0047

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CORE LABORATORIES

SURROGATE RECOVERIES REPORT

Job Number.: 904337 Report Date.: 05/06/99

CUSTOMER: Marathon Oil Company PROJECT: MOC - Midland Groundwater ATTN: Mr. Paul Peacock

Surrogate	Units
Toluene-d8	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		50.62	50.00	101.2	85-112		04/28/1999	1455
		LCS		50.37	50.00	100.7	85-112		04/28/1999	1527
904211-1			10000	50.48	50.00	101.0	85-112		04/28/1999	1629
904211-2			500	50.16	50.00	100.3	85-112		04/28/1999	1700
904211-3			200	50.37	50.00	100.7	85-112		04/28/1999	1731
904211-4			200	50.16	50.00	100.3	85-112		04/28/1999	1802
904206-2	Oil		10000	50.04	50.00	100.1	85-112		04/28/1999	1935
904358-2				50.78	50.00	101.6	85-112		04/28/1999	2037
904358-1				50.34	50.00	100.7	85-112		04/28/1999	2108
904358-2		MS		50.19	50.00	100.4	85-112		04/28/1999	2140
904358-2		MSD		50.33	50.00	100.7	85-112		04/28/1999	2211
904349-1			200	50.29	50.00	100.6	85-112		04/28/1999	2242
904337-31				50.65	50.00	101.3	85-112		04/28/1999	2313
904337-32				50.96	50.00	101.9	85-112		04/28/1999	2344
337-33				50.28	50.00	100.6	85-112		04/29/1999	0016
337-34				50.12	50.00	100.2	85-112		04/29/1999	0047

Method.....: Volatile Organic Compounds Batch.....: 39123
Method Code.....: 826TCL Analyst.....: weh

Surrogate	Units
1,2-Dichloroethane-d4 (surrogate)	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		47.77	50.00	95.5	76-120		04/28/1999	1155
		LCS		49.20	50.00	98.4	76-120		04/28/1999	1242
903868-1				48.82	50.00	97.6	76-120		04/28/1999	1314
904337-37				50.74	50.00	101.5	76-120		04/28/1999	1346
904337-37		MS		51.80	50.00	103.6	76-120		04/28/1999	1418
904337-37		MSD		52.65	50.00	105.3	76-120		04/28/1999	1449
904337-28				53.30	50.00	106.6	76-120		04/28/1999	1521

Surrogate	Units
BFB (Surrogate)	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		49.38	50.00	98.8	85-115		04/28/1999	1155
		LCS		48.18	50.00	96.4	85-115		04/28/1999	1242
903868-1				48.77	50.00	97.5	85-115		04/28/1999	1314
337-37				48.07	50.00	96.1	85-115		04/28/1999	1346
337-37		MS		48.18	50.00	96.4	85-115		04/28/1999	1418
904337-37		MSD		48.45	50.00	96.9	85-115		04/28/1999	1449
904337-28				51.78	50.00	103.6	85-115		04/28/1999	1521

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CORE LABORATORIES

SURROGATE RECOVERIES REPORT

Job Number.: 904337 Report Date.: 05/06/99

CUSTOMER: Marathon Oil Company PROJECT: MOC - Midland Groundwater ATTN: Mr. Paul Peacock

Surrogate	Units
Toluene-d8	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		49.71	50.00	99.4	85-112		04/28/1999	1155
		LCS		49.62	50.00	99.2	85-112		04/28/1999	1242
903868-1				48.73	50.00	97.5	85-112		04/28/1999	1314
904337-37				49.61	50.00	99.2	85-112		04/28/1999	1346
904337-37		MS		49.20	50.00	98.4	85-112		04/28/1999	1418
904337-37		MSD		49.01	50.00	98.0	85-112		04/28/1999	1449
904337-28				51.87	50.00	103.7	85-112		04/28/1999	1521

Method.....: Volatile Organic Compounds Batch.....: 39127
Method Code.....: 826TCL Analyst.....: weh

Surrogate	Units
,2-Dichloroethane-d4 (surrogate)	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		48.82	50.00	97.6	76-120		04/29/1999	0352
		LCS		48.96	50.00	97.9	76-120		04/29/1999	0424
904269-1			10	49.14	50.00	98.3	76-120		04/29/1999	0455
904269-1		MS	10	49.34	50.00	98.7	76-120		04/29/1999	0526
904269-1		MSD	10	48.92	50.00	97.8	76-120		04/29/1999	0557
904337-35				48.59	50.00	97.2	76-120		04/29/1999	0628
904337-36				48.42	50.00	96.8	76-120		04/29/1999	0659
904337-38				48.28	50.00	96.6	76-120		04/29/1999	0730
904337-39				48.83	50.00	97.7	76-120		04/29/1999	0801
904337-40				49.14	50.00	98.3	76-120		04/29/1999	0832
904337-11				50.03	50.00	100.1	76-120		04/29/1999	1005
904337-12				50.37	50.00	100.7	76-120		04/29/1999	1036

Surrogate	Units
BFB (Surrogate)	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		50.82	50.00	101.6	85-115		04/29/1999	0352
		LCS		51.04	50.00	102.1	85-115		04/29/1999	0424
904269-1			10	50.81	50.00	101.6	85-115		04/29/1999	0455
904269-1		MS	10	50.23	50.00	100.5	85-115		04/29/1999	0526
904269-1		MSD	10	51.10	50.00	102.2	85-115		04/29/1999	0557
904337-35				51.81	50.00	103.6	85-115		04/29/1999	0628
904337-36				51.05	50.00	102.1	85-115		04/29/1999	0659
4337-38				52.37	50.00	104.7	85-115		04/29/1999	0730
4337-39				50.57	50.00	101.1	85-115		04/29/1999	0801
904337-40				51.13	50.00	102.3	85-115		04/29/1999	0832
904337-11				49.97	50.00	99.9	85-115		04/29/1999	1005

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CORE LABORATORIES

SURROGATE RECOVERIES REPORT

Job Number.: 904337 Report Date.: 05/06/99

CUSTOMER: Marathon Oil Company PROJECT: MOC - Midland Groundwater ATTN: Mr. Paul Peacock

Surrogate	Units
BFB (Surrogate)	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
904337-12				49.64	50.00	99.3	85-115		04/29/1999	1036

Surrogate	Units
Toluene-d8	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		50.43	50.00	100.9	85-112		04/29/1999	0352
		LCS		49.78	50.00	99.6	85-112		04/29/1999	0424
904269-1			10	50.70	50.00	101.4	85-112		04/29/1999	0455
904269-1		MS	10	50.46	50.00	100.9	85-112		04/29/1999	0526
904269-1		MSD	10	50.54	50.00	101.1	85-112		04/29/1999	0557
904337-35				50.29	50.00	100.6	85-112		04/29/1999	0628
904337-36				50.30	50.00	100.6	85-112		04/29/1999	0659
904337-38				50.45	50.00	100.9	85-112		04/29/1999	0730
904337-39				50.68	50.00	101.4	85-112		04/29/1999	0801
904337-40				50.24	50.00	100.5	85-112		04/29/1999	0832
904337-11				49.95	50.00	99.9	85-112		04/29/1999	1005
904337-12				49.98	50.00	100.0	85-112		04/29/1999	1036

Method.....: Volatile Organic Compounds
Method Code.....: 826TCL

Batch.....: 39196
Analyst.....: weh

Surrogate	Units
1,2-Dichloroethane-d4 (surrogate)	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		49.49	50.00	99.0	76-120		04/29/1999	1426
		LCS		50.14	50.00	100.3	76-120		04/29/1999	1457
904269-2			10	49.37	50.00	98.7	76-120		04/29/1999	1529
904269-2		MS	10	49.81	50.00	99.6	76-120		04/29/1999	1600
904269-2		MSD	10	50.25	50.00	100.5	76-120		04/29/1999	1631
904212-7	Oil		50	50.53	50.00	101.1	80-120		04/29/1999	1702
904206-1	Oil		1000	49.75	50.00	99.5	80-120		04/29/1999	1804
904206-2	Oil		30000	50.11	50.00	100.2	80-120		04/29/1999	1836
904206-3	Oil		5000	49.86	50.00	99.7	80-120		04/29/1999	1907
904358-1			10	49.59	50.00	99.2	76-120		04/29/1999	1941
904337-1				50.20	50.00	100.4	76-120		04/29/1999	2012
904337-23				49.05	50.00	98.1	76-120		04/29/1999	2043
904337-24				49.99	50.00	100.0	76-120		04/29/1999	2115
904337-22				50.65	50.00	101.3	76-120		04/29/1999	2145
904337-26				51.35	50.00	102.7	76-120		04/29/1999	2217
904337-30				49.22	50.00	98.4	76-120		04/29/1999	2248
904396-2				48.66	50.00	97.3	76-120		04/29/1999	2319

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SURROGATE RECOVERIES REPORT

Job Number.: 904337 Report Date.: 05/06/99

CUSTOMER: Marathon Oil Company PROJECT: MOC - Midland Groundwater ATTN: Mr. Paul Peacock

Surrogate	Units
1,2-Dichloroethane-d4 (surrogate)	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
904396-1				50.57	50.00	101.1	76-120		04/29/1999	2350
904395-1			5	51.98	50.00	104.0	76-120		04/30/1999	0021

Surrogate	Units
BFB (Surrogate)	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		50.95	50.00	101.9	85-115		04/29/1999	1426
		LCS		51.24	50.00	102.5	85-115		04/29/1999	1457
904269-2			10	50.59	50.00	101.2	85-115		04/29/1999	1529
[illegible]4269-2		MS	10	49.97	50.00	99.9	85-115		04/29/1999	1600
[illegible]269-2		MSD	10	50.06	50.00	100.1	85-115		04/29/1999	1631
904212-7	Oil		50	50.28	50.00	100.6	85-110		04/29/1999	1702
904206-1	Oil		1000	50.99	50.00	102.0	85-110		04/29/1999	1804
904206-2	Oil		30000	50.69	50.00	101.4	85-110		04/29/1999	1836
904206-3	Oil		5000	50.29	50.00	100.6	85-110		04/29/1999	1907
904358-1			10	51.24	50.00	102.5	85-115		04/29/1999	1941
904337-1				51.14	50.00	102.3	85-115		04/29/1999	2012
904337-23				50.68	50.00	101.4	85-115		04/29/1999	2043
904337-24				50.89	50.00	101.8	85-115		04/29/1999	2115
904337-22				51.37	50.00	102.7	85-115		04/29/1999	2145
904337-26				51.44	50.00	102.9	85-115		04/29/1999	2217
904337-30				51.26	50.00	102.5	85-115		04/29/1999	2248
904396-2				51.12	50.00	102.2	85-115		04/29/1999	2319
904396-1				50.50	50.00	101.0	85-115		04/29/1999	2350
904395-1			5	51.26	50.00	102.5	85-115		04/30/1999	0021

Surrogate	Units
Toluene-d8	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		50.37	50.00	100.7	85-112		04/29/1999	1426
		LCS		50.26	50.00	100.5	85-112		04/29/1999	1457
904269-2			10	50.27	50.00	100.5	85-112		04/29/1999	1529
904269-2		MS	10	49.84	50.00	99.7	85-112		04/29/1999	1600
904269-2		MSD	10	49.52	50.00	99.0	85-112		04/29/1999	1631
904212-7	Oil		50	50.50	50.00	101.0	85-112		04/29/1999	1702
904206-1	Oil		1000	49.48	50.00	99.0	85-112		04/29/1999	1804
904206-2	Oil		30000	49.40	50.00	98.8	85-112		04/29/1999	1836
904206-3	Oil		5000	49.53	50.00	99.1	85-112		04/29/1999	1907
[illegible]4358-1			10	49.39	50.00	98.8	85-112		04/29/1999	1941
[illegible]4337-1				50.31	50.00	100.6	85-112		04/29/1999	2012
904337-23				50.06	50.00	100.1	85-112		04/29/1999	2043
904337-24				51.06	50.00	102.1	85-112		04/29/1999	2115

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SURROGATE RECOVERIES REPORT

Job Number.: 904337

Report Date.: 05/06/99

CUSTOMER: Marathon Oil Company | PROJECT: MOC - Midland Groundwater | ATTN: Mr. Paul Peacock

Surrogate	Units
Toluene-d8	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
904337-22				52.64	50.00	105.3	85-112		04/29/1999	2145
904337-26				52.07	50.00	104.1	85-112		04/29/1999	2217
904337-30				50.71	50.00	101.4	85-112		04/29/1999	2248
904396-2				50.03	50.00	100.1	85-112		04/29/1999	2319
904396-1				50.34	50.00	100.7	85-112		04/29/1999	2350
904395-1			5	50.24	50.00	100.5	85-112		04/30/1999	0021

Method.....: Volatile Organic Compounds
Method Code.....: 826TCL

Batch.....: 39279
Analyst.....: weh

Surrogate	Units
*,2-Dichloroethane-d4 (surrogate)	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		48.86	50.00	97.7	76-120		04/30/1999	0358
		LCS		50.05	50.00	100.1	76-120		04/30/1999	0429
904291-1			10	48.55	50.00	97.1	76-120		04/30/1999	0500
904291-1		MS	10	48.85	50.00	97.7	76-120		04/30/1999	0531
904291-1		MSD	10	49.44	50.00	98.9	76-120		04/30/1999	0602
904394-2			5	49.97	50.00	99.9	76-120		04/30/1999	0633
904408-1			200	49.28	50.00	98.6	76-120		04/30/1999	0703
904415-1				48.57	50.00	97.1	76-120		04/30/1999	0734
904337-7				50.42	50.00	100.8	76-120		04/30/1999	0837
904337-13				50.72	50.00	101.4	76-120		04/30/1999	1050
904337-17				49.74	50.00	99.5	76-120		04/30/1999	1121
904337-19				48.67	50.00	97.3	76-120		04/30/1999	1152
904337-20				49.40	50.00	98.8	76-120		04/30/1999	1223
904337-21				49.55	50.00	99.1	76-120		04/30/1999	1254

Surrogate	Units
BFB (Surrogate)	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		50.64	50.00	101.3	85-115		04/30/1999	0358
		LCS		50.32	50.00	100.6	85-115		04/30/1999	0429
904291-1			10	50.07	50.00	100.1	85-115		04/30/1999	0500
904291-1		MS	10	50.60	50.00	101.2	85-115		04/30/1999	0531
904291-1		MSD	10	51.13	50.00	102.3	85-115		04/30/1999	0602
904394-2			5	54.70	50.00	109.4	85-115		04/30/1999	0633
904408-1			200	59.05	50.00	118.1	85-115	X	04/30/1999	0703
4415-1				56.04	50.00	112.1	85-115		04/30/1999	0734
904337-7				58.36	50.00	116.7	85-115	X	04/30/1999	0837
904337-13				55.51	50.00	111.0	85-115		04/30/1999	1050

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SURROGATE RECOVERIES REPORT

Job Number.: 904337 Report Date.: 05/06/99

CUSTOMER: Marathon Oil Company PROJECT: MOC - Midland Groundwater ATTN: Mr. Paul Peacock

Surrogate	Units
BFB (Surrogate)	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
904337-17				53.87	50.00	107.7	85-115		04/30/1999	1121
904337-19				54.21	50.00	108.4	85-115		04/30/1999	1152
904337-20				54.95	50.00	109.9	85-115		04/30/1999	1223
904337-21				55.06	50.00	110.1	85-115		04/30/1999	1254

Surrogate	Units
Toluene-d8	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		50.05	50.00	100.1	85-112		04/30/1999	0358
		LCS		50.53	50.00	101.1	85-112		04/30/1999	0429
291-1			10	50.33	50.00	100.7	85-112		04/30/1999	0500
904291-1		MS	10	50.30	50.00	100.6	85-112		04/30/1999	0531
904291-1		MSD	10	50.81	50.00	101.6	85-112		04/30/1999	0602
904394-2			5	47.67	50.00	95.3	85-112		04/30/1999	0633
904408-1			200	50.16	50.00	100.3	85-112		04/30/1999	0703
904415-1				50.44	50.00	100.9	85-112		04/30/1999	0734
904337-7				55.92	50.00	111.8	85-112		04/30/1999	0837
904337-13				53.46	50.00	106.9	85-112		04/30/1999	1050
904337-17				49.78	50.00	99.6	85-112		04/30/1999	1121
904337-19				49.73	50.00	99.5	85-112		04/30/1999	1152
904337-20				50.11	50.00	100.2	85-112		04/30/1999	1223
904337-21				54.11	50.00	108.2	85-112		04/30/1999	1254

Method.....: Volatile Organic Compounds Batch.....: 39369
Method Code.....: 826TCL Analyst.....: Weh

Surrogate	Units
1,2-Dichloroethane-d4 (surrogate)	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		50.82	50.00	101.6	76-120		05/03/1999	1009
		LCS		51.23	50.00	102.5	76-120		05/03/1999	1040
904488-1				51.45	50.00	102.9	76-120		05/03/1999	1111
904488-1		MS		51.03	50.00	102.1	76-120		05/03/1999	1142
904488-1		MSD		50.93	50.00	101.9	76-120		05/03/1999	1214
904337-21			5	52.18	50.00	104.4	76-120		05/03/1999	1245
904489-2				51.43	50.00	102.9	76-120		05/03/1999	1316
904489-4				52.22	50.00	104.4	76-120		05/03/1999	1347
[illegible]417-2			250	50.52	50.00	101.0	76-120		05/03/1999	1521
[illegible]503-1			200	50.28	50.00	100.6	76-120		05/03/1999	1553
904527-1			200	50.32	50.00	100.6	76-120		05/03/1999	1623
904536-1			200	50.19	50.00	100.4	76-120		05/03/1999	1654

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SURROGATE RECOVERIES REPORT

Job Number.: 904337 Report Date.: 05/06/99

CUSTOMER: Marathon Oil Company PROJECT: MOC - Midland Groundwater ATTN: Mr. Paul Peacock

Surrogate	Units
1,2-Dichloroethane-d4 (surrogate)	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
904305-1	Solid		120000	49.62	50.00	99.2	78-122		05/03/1999	1726
904570-1			200	50.36	50.00	100.7	76-120		05/03/1999	1931

Surrogate	Units
BFB (Surrogate)	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		49.36	50.00	98.7	85-115		05/03/1999	1009
		LCS		50.20	50.00	100.4	85-115		05/03/1999	1040
904488-1				49.48	50.00	99.0	85-115		05/03/1999	1111
[illegible]4488-1		MS		49.58	50.00	99.2	85-115		05/03/1999	1142
[illegible]488-1		MSD		49.93	50.00	99.9	85-115		05/03/1999	1214
904337-21			5	49.60	50.00	99.2	85-115		05/03/1999	1245
904489-2				49.69	50.00	99.4	85-115		05/03/1999	1316
904489-4				50.60	50.00	101.2	85-115		05/03/1999	1347
904417-2			250	49.50	50.00	99.0	85-115		05/03/1999	1521
904503-1			200	50.15	50.00	100.3	85-115		05/03/1999	1553
904527-1			200	50.72	50.00	101.4	85-115		05/03/1999	1623
904536-1			200	49.95	50.00	99.9	85-115		05/03/1999	1654
904305-1	Solid		120000	50.19	50.00	100.4	74-121		05/03/1999	1726
904570-1			200	49.98	50.00	100.0	85-115		05/03/1999	1931

Surrogate	Units
Toluene-d8	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		51.21	50.00	102.4	85-112		05/03/1999	1009
		LCS		51.16	50.00	102.3	85-112		05/03/1999	1040
904488-1				51.06	50.00	102.1	85-112		05/03/1999	1111
904488-1		MS		50.87	50.00	101.7	85-112		05/03/1999	1142
904488-1		MSD		50.65	50.00	101.3	85-112		05/03/1999	1214
904337-21			5	50.78	50.00	101.6	85-112		05/03/1999	1245
904489-2				54.11	50.00	108.2	85-112		05/03/1999	1316
904489-4				53.22	50.00	106.4	85-112		05/03/1999	1347
904417-2			250	51.00	50.00	102.0	85-112		05/03/1999	1521
904503-1			200	50.80	50.00	101.6	85-112		05/03/1999	1553
904527-1			200	50.62	50.00	101.2	85-112		05/03/1999	1623
904536-1			200	51.03	50.00	102.1	85-112		05/03/1999	1654
904305-1	Solid		120000	50.79	50.00	101.6	87-109		05/03/1999	1726
904570-1			200	51.15	50.00	102.3	85-112		05/03/1999	1931

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QUALITY ASSURANCE FOOTER

METHOD REFERENCES

(1) EPA SW-846, Test Methods for Evaluating Solid Waste, Third Edition, September 1986, July 1992, and September 1994 updates
(2) Standard Methods for the Examination of Water and Wastewater, 18th Edition, 1992
(3) EPA 600/4-79-020, Methods of Chemical Analysis for Waters and Wastes, March 1983
(4) Federal Register, Friday, October 26, 1984 (40 CFR Part 136)
(5) American Society for Testing and Materials, Volumes 5.01, 5.02, 5.03, 1992
(6) EPA 600/4-89-001, Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Fresh Water Organisms
(7) EPA 600/4-90-027, Methods for Measuring the Acute Toxicity of Effluent and Receiving Waters to Fresh Water and Marine Organisms, Fourth Edition

COMMENTS

All methods of chemical analysis have a statistical uncertainty associated with the results. Unless otherwise indicated, the data in this report are within the limits of uncertainty as specified in the referenced method. Quality control acceptance criteria are based either on actual laboratory performance or on limits specified in the referenced method. The date and time of analysis indicated on the QA report may not reflect the actual time of analysis for QC samples. All data reported on an "as received" basis unless otherwise indicated. Data reported in the QA report may be lower than sample data due to dilution of samples into the calibration range of the analysis. Sample concentrations for solid samples are calculated on an as received (wet) basis. Unless otherwise indicated, volatiles by gas chromatography (GC) are reported from a single column. Volatiles analyses by GC on low level soil extractions are conducted at room temperature.

FLAGS, FOOTNOTES, AND ABBREVIATIONS (as needed)

NA = Not analyzed
N/A = Not applicable
ug/L = Micrograms per liter
mg/L = Milligrams per liter
ND = Not detected at a value greater than the reporting limit
NC = Not calculable due to values lower than the detection limit
N.I. = Not Ignitable
S.I. = Sustains Ignition
I(NS) = Ignites, but does not Sustain Ignition
RPD = Relative Percent Difference
(a) = Surrogate recoveries were outside acceptable ranges due to matrix effects.
(b) = Surrogate recoveries were not calculated due to dilution of the sample below the detectable range for the surrogate.
(c) = Matrix spike recoveries were outside acceptable ranges due to matrix effects.
(d) = Relative Percent Difference (RPD) for duplicate analysis outside acceptance limits due to actual differences in the sample matrix.
(e) = The limit listed for flammability indicates the upper limit for the test. Samples are not tested at temperatures above 140 Fahrenheit since only samples which will sustain ignition at temperatures below 140 are considered flammable.
(f) = Results for this hydrocarbon range did not match a typical hydrocarbon pattern. Results were quantified using a diesel standard, however, the hydrocarbon pattern did not match a diesel pattern.
(g) = Results for this hydrocarbon range did not match a typical hydrocarbon pattern. Results were quantified using a gasoline standard, however, the hydrocarbon pattern did not match a gasoline pattern.
(h) = High dilution due to matrix effects

QC SAMPLE IDENTIFICATIONS

MB = Method Blank
RB = Reagent Blank
ICB = Initial Calibration Blank
CCB = Continuing Calibration Blank
CS = Calibration Standard
ICB = Initial Calibration Verification
CCV = Continuing Calibration Verification
SB = Storage Blank
MS = Matrix Spike
MSD = Matrix Spike Duplicate
MD = Matrix Duplicate
BS = Blank Spike
SS = Surrogate Spike
LCS = Laboratory Control Standard
RS = Reference Standard

SUBCONTRACTED LABORATORY LOCATIONS

Core Laboratories:	Aurora, Colorado	*AU
	Casper, Wyoming	*CA
	Corpus Christi, Texas	*CC
	Edison, New Jersey	*ED
	Houston, Texas (Env)	*HE
	Houston, Texas (Pet)	*HP
	Indianapolis, Indiana	*IN
	Lake Charles, Louisiana	*LC
	Long Beach, California	*LB
	Tampa, Florida	*TP
	Valparaiso, Indiana	*VP
Aquatic Testing Laboratories:		
	Ventura, California	*AT

2400 Cumberland Drive
Valparaiso, IN 46383

rpjsckl | Job Sample Receipt Checklist Report 04/27/99 | V2

Job Number.....: 904337 Location.: 57211 Customer Job ID.....: Job Check List Date.: 04/27/99
Project Number.: 96000703 Project Description.: MOC - Midland Groundwater Project Manager.....: lpa
Customer.....: Marathon Oil Company Contact.: Mr. Paul Peacock

Questions ?	(Y/N)	Comments
Chain-of-Custody Present?	Y	
Custody seal on shipping container?	Y	
...If "yes", custody seal intact?	Y	
Custody seals on sample containers?	N	
...If "yes", custody seal intact?		
Samples chilled?	Y	RECEIVED ON ICE PACK
Temperature of cooler acceptable? (4 deg C +/- 2).		
mples received intact (good condition)?	N	VOA'S BROKEN IN TRANSIT MW-50/60/90
Volatile samples acceptable? (no headspace)	N	BUBBLES IN SW-3,TRIP BLANK NOT FROM VALPO
Correct containers used?	Y	
Adequate sample volume provided?	Y	
Samples preserved correctly?	Y	
Samples received within holding-time?	Y	
Agreement between COC and sample labels?	Y	
Additional		
Comments		
Sample Custodian Signature		

ARCADIS GERAGHTY & MILLER

Laboratory Task Order No./P.O. No. _____

CHAIN-OF-CUSTODY RECORD

Page _____ of 3

Project Number/Name: NP000443.0001 MT004

Project Location: Marathon Indian Basin

Laboratory: Core Lab

Project Manager: Alan Reed

Sampler(s)/Affiliation: Arcadis Geraghty & Miller DM/BK

	Sample ID/Location	Matrix	Date ~~Time~~ Sampled	Time ~~Lab ID~~	ANALYSIS / METHOD / SIZE: BTEX						Remarks	Total
-1	MW-57	L	4-20-99	930	2							2
-2	EB-2			—	2							2
-3	MW-60			1030	2							2
-4	DUP-2			—	2							2
-5	MW-87			1145	2							2
-6	MW-87 A			1230	2							2
-7	MW-61 A			1750	2							2
-8	MW-111		4-21-99	1030	2							2
-9	MW-89			1130	2							2
-10	MW-66			1230	2							2
-11	MW-88			1430	2							2
-12	MW-71			1540	2							2
-13	MW-62			1630	2							2
-14	MW-64			1800	2							2
-15	MW-96		4-22-99	900	2							2

Total No. of Bottles/Containers: 30

Sample Matrix: L = Liquid; S = Solid; A = Air

Relinquished by: Bradley Thomas Kolb	Organization: Arcadis Geraghty & Miller	Date 4/27/99	Time 1200	Seal Intact? (Yes) No N/A
Received by: [signature]	Organization: CORE LAB			
Relinquished by: _____	Organization: _____	Date / /	Time _____	Seal Intact? Yes No N/A
Received by: _____	Organization: _____	Date / /	Time _____	

Special Instructions/Remarks: Bill to Paul Peacock at Marathon

Deliver, Method: ☐ In Person ☒ Common Carrier F ex ☐ Lab Courier ☐ Other _____

ARCADIS GERAGHTY & MILLER

Laboratory Task Order No./P.O. No. _____

CHAIN-OF-CUSTODY RECORD

Page _____ of 7

Project Number/Name: NP000443.0001 MT004

Project Location: Marathon Indian Basin

Laboratory: Core Lab

Project Manager: Alan Reed

Sampler(s)/Affiliation: Arcadis Geraghty & Miller DM/BK

	Sample ID/Location	Matrix	Date/~~Time~~ Sampled	Time ~~Lab ID~~	ANALYSIS / METHOD / SIZE: BTEX						Remarks	Total
-31	MW-97	L	4-22-99	1015	2							2
-32	MW-67			1130	2							2
-33	MW-~~98~~ 108			1300	2							2
-34	MW-95			1430	2							2
-35	MW-63			1540	2							2
-36	MW-70			1650	2							2
-37	MW-94			1800	2							2
-38	SW-3		4-23-99	830	2							2
-39	SW-1			900	2							2
-40	SW-2			1300	2							2
~~-41~~	~~MW-90~~			~~1040~~	~~2~~							~~2~~
~~-42~~	~~MW-91~~			~~1145~~	~~2~~							~~2~~
-43	Trip Blank			—	2							2

Total No. of Bottles/ Containers: 2~~5~~6 BTK

Sample Matrix: L = Liquid; S = Solid; A = Air

Relinquished by: [signature]	Organization: Arcadis Geraghty & Miller	Date / /	Time _____	Seal Intact?	
Received by: [signature]	Organization: CORELAB	Date 4/27/99	Time 1200	(Yes)	No N/A
Relinquished by: _____	Organization: _____	Date / /	Time _____	Seal Intact?	
Received by: _____	Organization: _____	Date / /	Time _____	Yes	No N/A

Special Instructions/Remarks: Bill to Paul Peacock at Marathon

Deliver, Method: ☐ In Person ☒ Common Carrier Fedex ☐ Lab Courier ☐ Other _____ (SPECIFY)

CRAGHEAD & TYLER, INC.
Environmental and Infrastructure
a heidemij company

Laboratory Task Order No. _____

CHAIN-OF-CUSTODY RECORD

Page 3 of 3

Project Number NP000443.0000/MT004

Project Location Marathon Indian Basin

Laboratory Core Lab

Sampler(s)/Affiliation AG&M
DM/BK

	SAMPLE IDENTITY	Code	Date ~~Time~~ Sampled	Time ~~Lab ID~~	SAMPLE BOTTLE / CONTAINER DESCRIPTION: BTEX									TOTAL
-16	EB-1	L	4-20-99	—	2									2
-17	DUP-1			—	2									2
-18	MW-50			1536	2									2
-19	MW-61			1630	2									2
-20	MW-43			1130	2									2
-21	MW-46			1420	2									2
-22	MW-49			1450	2									2
-23	MW-41			1042	2									2
-24	MW-44			1205	2									2
-25	MW-54		4-22-99	1730	2									2
-26	MW-55			1900	2									2
-27	MW-79			1000	2									2
-28	MW-78			2000	2									2
-29	MW-90		4-23-99	1040	2									2
-30	MW-91		4-23-99	1145	2									2
													Total No. of Bottles/ Containers	30

Sample Code: L = Liquid; S = Solid; A = Air

Relinquished by: Brad Thomas	Organization: Arcadis	Date / /	Time	Seal Intact? (Yes) No N/A
Received by:	Organization: CORE LAB	Date 4/27/99	Time 1200	
Relinquished by:	Organization:	Date / /	Time	Seal Intact? Yes No N/A
Received by:	Organization:	Date / /	Time	

Special Instructions/Remarks: Bill to Paul Peacock at Marathon

Delivery Method: ☐ In Person ☑ Common Carrier Fed Ex ☐ Lab Courier ☐ Other _____

CORE LABORATORIES

ANALYTICAL REPORT

JOB NUMBER: 904338

Prepared For:

Marathon Oil Company
125 West Missouri Street
P.O. Box 552
Midland, TX 79702-0552

Attention: Mr. Paul Peacock

Date: 05/06/99

Signature

5-6-99
Date

Name: Les Arnold

Title: Laboratory Manager

2400 Cumberland Drive
Valparaiso, IN 46383

PHONE: 219-464-2389
FAX..: 219-462-2953

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CORELAB

CORE LABORATORIES

SAMPLE INFORMATION
Date: 05/06/99

Job Number.: 904338
Customer...: Marathon Oil Company
Attn.....: Mr. Paul Peacock

Project Number.....: 96000703
Customer Project ID....: INDIAN BASIN
Project Description....: MOC - Midland Groundwater

Laboratory Sample ID	Customer Sample ID	Sample Matrix	Date Sampled	Time Sampled	Date Received	Time Received
904338-1	MW-50	Water	04/20/1999	15:36	04/27/1999	12:08
904338-2	MW-61	Water	04/20/1999	16:30	04/27/1999	12:08
904338-3	MW-43	Water	04/20/1999	11:30	04/27/1999	12:08
904338-4	MW-46	Water	04/20/1999	14:20	04/27/1999	12:08
904338-5	MW-49	Water	04/20/1999	14:50	04/27/1999	12:08
904338-6	MW-41	Water	04/20/1999	10:42	04/27/1999	12:08
904338-7	MW-44	Water	04/20/1999	12:05	04/27/1999	12:08
904338-8	MW-54	Water	04/20/1999	17:30	04/27/1999	12:08
904338-9	MW-55	Water	04/20/1999	19:00	04/27/1999	12:08
904338-10	MW-79	Water	04/20/1999	10:00	04/27/1999	12:08
904338-11	MW-78	Water	04/20/1999	20:00	04/27/1999	12:08
904338-12	MW-90	Water	04/20/1999	10:40	04/27/1999	12:08
904338-13	MW-91	Water	04/20/1999	11:45	04/27/1999	12:08
904338-14	MW-57	Water	04/20/1999	09:30	04/27/1999	12:08
904338-15	EB-2	Water	04/20/1999	00:00	04/27/1999	12:08
904338-16	MW-60	Water	04/20/1999	10:30	04/27/1999	12:08
904338-17	DUP-2	Water	04/20/1999	00:00	04/27/1999	12:08
904338-18	MW-87	Water	04/20/1999	11:45	04/27/1999	12:08
904338-19	MW-87A	Water	04/20/1999	12:30	04/27/1999	12:08
904338-20	MW-61A	Water	04/20/1999	17:50	04/27/1999	12:08
904338-21	MW-111	Water	04/21/1999	10:30	04/27/1999	12:08
904338-22	MW-89	Water	04/21/1999	11:30	04/27/1999	12:08
904338-23	MW-66	Water	04/21/1999	12:30	04/27/1999	12:08
904338-24	MW-88	Water	04/21/1999	14:30	04/27/1999	12:08
904338-25	MW-71	Water	04/21/1999	15:40	04/27/1999	12:08
904338-26	MW-62	Water	04/21/1999	16:30	04/27/1999	12:08

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CORE LAB

CORE LABORATORIES

SAMPLE INFORMATION
Date:

Job Number.: 904338
Customer...: Marathon Oil Company
Attn.....: Mr. Paul Peacock

Project Number.....: 96000703
Customer Project ID....: INDIAN BASIN
Project Description....: MOC - Midland Groundwater

Laboratory Sample ID	Customer Sample ID	Sample Matrix	Date Sampled	Time Sampled	Date Received	Time Received
904338-27	MW-64	Water	04/21/1999	18:00	04/27/1999	12:08
904338-28	MW-96	Water	04/22/1999	09:00	04/27/1999	12:08
904338-29	MW-97	Water	04/22/1999	10:15	04/27/1999	12:08
904338-30	MW-67	Water	04/22/1999	11:30	04/27/1999	12:08
904338-31	MW-108	Water	04/22/1999	13:00	04/27/1999	12:08
904338-32	MW-95	Water	04/22/1999	14:30	04/27/1999	12:08
904338-33	MW-63	Water	04/22/1999	15:40	04/27/1999	12:08
904338-34	MW-70	Water	04/22/1999	16:50	04/27/1999	12:08
904338-35	MW-94	Water	04/22/1999	18:00	04/27/1999	12:08
904338-36	SW-3	Water	04/23/1999	08:30	04/27/1999	12:08
904338-37	SW-1	Water	04/23/1999	09:00	04/27/1999	12:08
904338-38	SW-2	Water	04/23/1999	13:00	04/27/1999	12:08
904338-39	EB-1	Water	04/20/1999	00:00	04/27/1999	12:08
904338-40	DUP-1	Water	04/20/1999	00:00	04/27/1999	12:08

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CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 904338 Date: 05/06/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN ATTN: Mr. Paul Peacock

Customer Sample ID: MW-50
Date Sampled.....: 04/20/1999
Time Sampled.....: 15:36
Sample Matrix.....: Water

Laboratory Sample ID: 904338-1
Date Received.....: 04/27/1999
Time Received.....: 12:08

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 160.1	Solids, Total Dissolved (TDS)	6200	10	mg/L	05/02/99	mcw
EPA 325.2	Chloride	360	10	mg/L	04/29/99	kab

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CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 904338 Date: 05/06/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN ATTN: Mr. Paul Peacock

Customer Sample ID: MW-61
Date Sampled.....: 04/20/1999
Time Sampled.....: 16:30
Sample Matrix.....: Water

Laboratory Sample ID: 904338-2
Date Received.....: 04/27/1999
Time Received.....: 12:08

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 160.1	Solids, Total Dissolved (TDS)	2900	10	mg/L	05/02/99	mcw
EPA 325.2	Chloride	370	10	mg/L	04/29/99	kab

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CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 904338 Date: 05/06/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN ATTN: Mr. Paul Peacock

Customer Sample ID: MW-43
Date Sampled.....: 04/20/1999
Time Sampled.....: 11:30
Sample Matrix.....: Water

Laboratory Sample ID: 904338-3
Date Received.....: 04/27/1999
Time Received.....: 12:08

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 160.1	Solids, Total Dissolved (TDS)	1100	10	mg/L	05/02/99	mcw
EPA 325.2	Chloride	130	10	mg/L	04/29/99	kab

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CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 904338 Date: 05/06/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN ATTN: Mr. Paul Peacock

Customer Sample ID: MW-46
Date Sampled.....: 04/20/1999
Time Sampled.....: 14:20
Sample Matrix.....: Water

Laboratory Sample ID: 904338-4
Date Received.....: 04/27/1999
Time Received.....: 12:08

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 160.1	Solids, Total Dissolved (TDS)	580	10	mg/L	05/02/99	mcw
EPA 325.2	Chloride	31	10	mg/L	04/29/99	kab

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CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 904338 Date: 05/06/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN ATTN: Mr. Paul Peacock

Customer Sample ID: MW-49
Date Sampled.....: 04/20/1999
Time Sampled.....: 14:50
Sample Matrix.....: Water

Laboratory Sample ID: 904338-5
Date Received.....: 04/27/1999
Time Received.....: 12:08

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 160.1	Solids, Total Dissolved (TDS)	3000	10	mg/L	05/02/99	mcw
EPA 325.2	Chloride	410	10	mg/L	04/29/99	kab

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CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 904338 Date: 05/06/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN ATTN: Mr. Paul Peacock

Customer Sample ID: MW-41
Date Sampled.....: 04/20/1999
Time Sampled.....: 10:42
Sample Matrix.....: Water

Laboratory Sample ID: 904338-6
Date Received.....: 04/27/1999
Time Received.....: 12:08

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 160.1	Solids, Total Dissolved (TDS)	810	10	mg/L	05/02/99	mcw
EPA 325.2	Chloride	56	10	mg/L	04/29/99	kab

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CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 904338 Date: 05/06/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN ATTN: Mr. Paul Peacock

Customer Sample ID: MW-44
Date Sampled.....: 04/20/1999
Time Sampled.....: 12:05
Sample Matrix.....: Water

Laboratory Sample ID: 904338-7
Date Received.....: 04/27/1999
Time Received.....: 12:08

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 160.1	Solids, Total Dissolved (TDS)	910	10	mg/L	05/02/99	mcw
EPA 325.2	Chloride	94	10	mg/L	04/29/99	kab

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CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 904338 Date: 05/06/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN ATTN: Mr. Paul Peacock

Customer Sample ID: MW-54
Date Sampled.....: 04/20/1999
Time Sampled.....: 17:30
Sample Matrix.....: Water

Laboratory Sample ID: 904338-8
Date Received.....: 04/27/1999
Time Received.....: 12:08

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 160.1	Solids, Total Dissolved (TDS)	3400	10	mg/L	05/02/99	mcw
EPA 325.2	Chloride	180	10	mg/L	04/29/99	kab

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CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 904338

Date: 05/06/99

CUSTOMER: Marathon Oil Company | PROJECT: INDIAN BASIN | ATTN: Mr. Paul Peacock

Customer Sample ID: MW-55
Date Sampled.....: 04/20/1999
Time Sampled.....: 19:00
Sample Matrix.....: Water

Laboratory Sample ID: 904338-9
Date Received.....: 04/27/1999
Time Received.....: 12:08

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 160.1	Solids, Total Dissolved (TDS)	1000	10	mg/L	05/02/99	mcw
EPA 325.2	Chloride	160	10	mg/L	04/29/99	kab

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CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 904338

Date: 05/06/99

CUSTOMER: Marathon Oil Company | PROJECT: INDIAN BASIN | ATTN: Mr. Paul Peacock

Customer Sample ID: MW-79
Date Sampled.....: 04/20/1999
Time Sampled.....: 10:00
Sample Matrix.....: Water

Laboratory Sample ID: 904338-10
Date Received.....: 04/27/1999
Time Received.....: 12:08

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 160.1	Solids, Total Dissolved (TDS)	570	10	mg/L	05/02/99	mcw
EPA 325.2	Chloride	49	10	mg/L	04/29/99	kab

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CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 904338 Date: 05/06/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN ATTN: Mr. Paul Peacock

Customer Sample ID: MW-78
Date Sampled.....: 04/20/1999
Time Sampled.....: 20:00
Sample Matrix.....: Water

Laboratory Sample ID: 904338-11
Date Received.....: 04/27/1999
Time Received.....: 12:08

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 160.1	Solids, Total Dissolved (TDS)	470	10	mg/L	05/02/99	mcw
EPA 325.2	Chloride	42	10	mg/L	04/29/99	kab

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CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 904338 Date: 05/06/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN ATTN: Mr. Paul Peacock

Customer Sample ID: MW-90
Date Sampled.....: 04/20/1999
Time Sampled.....: 10:40
Sample Matrix.....: Water

Laboratory Sample ID: 904338-12
Date Received.....: 04/27/1999
Time Received.....: 12:08

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 160.1	Solids, Total Dissolved (TDS)	740	10	mg/L	05/02/99	mcw
EPA 325.2	Chloride	51	10	mg/L	04/29/99	kab

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CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 904338 Date: 05/06/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN ATTN: Mr. Paul Peacock

Customer Sample ID: MW-91
Date Sampled.....: 04/20/1999
Time Sampled.....: 11:45
Sample Matrix.....: Water

Laboratory Sample ID: 904338-13
Date Received.....: 04/27/1999
Time Received.....: 12:08

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 160.1	Solids, Total Dissolved (TDS)	640	10	mg/L	05/02/99	mcw
EPA 325.2	Chloride	58	10	mg/L	04/29/99	kab

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CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 904338

Date: 05/06/99

CUSTOMER: Marathon Oil Company

PROJECT: INDIAN BASIN

ATTN: Mr. Paul Peacock

Customer Sample ID: MW-57
Date Sampled.....: 04/20/1999
Time Sampled.....: 09:30
Sample Matrix.....: Water

Laboratory Sample ID: 904338-14
Date Received.....: 04/27/1999
Time Received.....: 12:08

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 160.1	Solids, Total Dissolved (TDS)	500	10	mg/L	05/02/99	mcw
EPA 325.2	Chloride	44	10	mg/L	04/29/99	kab

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CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 904338

Date: 05/06/99

CUSTOMER: Marathon Oil Company

PROJECT: INDIAN BASIN

ATTN: Mr. Paul Peacock

Customer Sample ID: EB-2
Date Sampled.....: 04/20/1999
Time Sampled.....: 00:00
Sample Matrix.....: Water

Laboratory Sample ID: 904338-15
Date Received.....: 04/27/1999
Time Received.....: 12:08

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 160.1	Solids, Total Dissolved (TDS)	<10	10	mg/L	05/02/99	mcw
EPA 325.2	Chloride	<1.0	1.0	mg/L	04/29/99	kab

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CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 904338 Date: 05/06/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN ATTN: Mr. Paul Peacock

Customer Sample ID: MW-60
Date Sampled.....: 04/20/1999
Time Sampled.....: 10:30
Sample Matrix.....: Water

Laboratory Sample ID: 904338-16
Date Received.....: 04/27/1999
Time Received.....: 12:08

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 160.1	Solids, Total Dissolved (TDS)	690	10	mg/L	05/02/99	mcw
EPA 325.2	Chloride	9.1	1.0	mg/L	04/29/99	kab

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CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 904338 Date: 05/06/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN ATTN: Mr. Paul Peacock

Customer Sample ID: DUP-2
Date Sampled.....: 04/20/1999
Time Sampled.....: 00:00
Sample Matrix.....: Water

Laboratory Sample ID: 904338-17
Date Received.....: 04/27/1999
Time Received.....: 12:08

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 160.1	Solids, Total Dissolved (TDS)	710	10	mg/L	05/02/99	mcw
EPA 325.2	Chloride	9.1	1.0	mg/L	04/29/99	kab

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LABORATORY TEST RESULTS

Job Number: 904338

Date: 05/06/99

CUSTOMER: Marathon Oil Company

PROJECT: INDIAN BASIN

ATTN: Mr. Paul Peacock

Customer Sample ID: MW-87
Date Sampled.....: 04/20/1999
Time Sampled.....: 11:45
Sample Matrix.....: Water

Laboratory Sample ID: 904338-18
Date Received.....: 04/27/1999
Time Received.....: 12:08

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 160.1	Solids, Total Dissolved (TDS)	680	10	mg/L	05/02/99	mcw
EPA 325.2	Chloride	10	1.0	mg/L	04/29/99	kab

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CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 904338

Date: 05/06/99

CUSTOMER: Marathon Oil Company

PROJECT: INDIAN BASIN

ATTN: Mr. Paul Peacock

Customer Sample ID: MW-87A
Date Sampled.....: 04/20/1999
Time Sampled.....: 12:30
Sample Matrix.....: Water

Laboratory Sample ID: 904338-19
Date Received.....: 04/27/1999
Time Received.....: 12:08

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 160.1	Solids, Total Dissolved (TDS)	2500	10	mg/L	05/02/99	mcw
EPA 325.2	Chloride	120	10	mg/L	04/29/99	kab

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LABORATORY TEST RESULTS

Job Number: 904338 Date: 05/06/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN ATTN: Mr. Paul Peacock

Customer Sample ID: MW-61A
Date Sampled.....: 04/20/1999
Time Sampled.....: 17:50
Sample Matrix.....: Water

Laboratory Sample ID: 904338-20
Date Received.....: 04/27/1999
Time Received.....: 12:08

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 160.1	Solids, Total Dissolved (TDS)	730	10	mg/L	04/28/99	mcw
EPA 325.2	Chloride	11	10	mg/L	04/29/99	kab

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CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 904338 Date: 05/06/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN ATTN: Mr. Paul Peacock

Customer Sample ID: MW-111
Date Sampled.....: 04/21/1999
Time Sampled.....: 10:30
Sample Matrix.....: Water

Laboratory Sample ID: 904338-21
Date Received.....: 04/27/1999
Time Received.....: 12:08

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 160.1	Solids, Total Dissolved (TDS)	760	10	mg/L	04/28/99	mcw
EPA 325.2	Chloride	120	10	mg/L	04/29/99	kab

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CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 904338

Date: 05/06/99

CUSTOMER: Marathon Oil Company

PROJECT: INDIAN BASIN

ATTN: Mr. Paul Peacock

Customer Sample ID: MW-89
Date Sampled.....: 04/21/1999
Time Sampled.....: 11:30
Sample Matrix.....: Water

Laboratory Sample ID: 904338-22
Date Received.....: 04/27/1999
Time Received.....: 12:08

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 160.1	Solids, Total Dissolved (TDS)	710	10	mg/L	04/28/99	mcw
EPA 325.2	Chloride	55	1.0	mg/L	04/29/99	kab

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CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 904338 Date: 05/06/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN ATTN: Mr. Paul Peacock

Customer Sample ID: MW-66
Date Sampled.....: 04/21/1999
Time Sampled.....: 12:30
Sample Matrix.....: Water

Laboratory Sample ID: 904338-23
Date Received.....: 04/27/1999
Time Received.....: 12:08

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 160.1	Solids, Total Dissolved (TDS)	730	10	mg/L	04/28/99	mcw
EPA 325.2	Chloride	10	1.0	mg/L	04/29/99	kab

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CORE LABORATORIES

L A B O R A T O R Y T E S T R E S U L T S

Job Number: 904338 Date: 05/06/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN ATTN: Mr. Paul Peacock

Customer Sample ID: MW-88
Date Sampled.....: 04/21/1999
Time Sampled.....: 14:30
Sample Matrix.....: Water

Laboratory Sample ID: 904338-24
Date Received.....: 04/27/1999
Time Received.....: 12:08

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 160.1	Solids, Total Dissolved (TDS)	800	10	mg/L	04/28/99	mcw
EPA 325.2	Chloride	24	1.0	mg/L	04/29/99	kab

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CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 904338

Date: 05/06/99

CUSTOMER: Marathon Oil Company

PROJECT: INDIAN BASIN

ATTN: Mr. Paul Peacock

Customer Sample ID: MW-71
Date Sampled.....: 04/21/1999
Time Sampled.....: 15:40
Sample Matrix.....: Water

Laboratory Sample ID: 904338-25
Date Received.....: 04/27/1999
Time Received.....: 12:08

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 160.1	Solids, Total Dissolved (TDS)	1100	10	mg/L	04/28/99	mcw
EPA 325.2	Chloride	22	1.0	mg/L	04/29/99	kab

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CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 904338 Date: 05/06/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN ATTN: Mr. Paul Peacock

Customer Sample ID: MW-62
Date Sampled.....: 04/21/1999
Time Sampled.....: 16:30
Sample Matrix.....: Water

Laboratory Sample ID: 904338-26
Date Received.....: 04/27/1999
Time Received.....: 12:08

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 160.1	Solids, Total Dissolved (TDS)	550	10	mg/L	04/28/99	mcw
EPA 325.2	Chloride	82	10	mg/L	04/29/99	kab

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CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 904338

Date: 05/06/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN ATTN: Mr. Paul Peacock

Customer Sample ID: MW-64
Date Sampled.....: 04/21/1999
Time Sampled.....: 18:00
Sample Matrix.....: Water

Laboratory Sample ID: 904338-27
Date Received.....: 04/27/1999
Time Received.....: 12:08

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 160.1	Solids, Total Dissolved (TDS)	530	10	mg/L	04/28/99	mcw
EPA 325.2	Chloride	11	10	mg/L	04/29/99	kab

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CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 904338 Date: 05/06/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN ATTN: Mr. Paul Peacock

Customer Sample ID: MW-96
Date Sampled.....: 04/22/1999
Time Sampled.....: 09:00
Sample Matrix.....: Water

Laboratory Sample ID: 904338-28
Date Received.....: 04/27/1999
Time Received.....: 12:08

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 160.1	Solids, Total Dissolved (TDS)	520	10	mg/L	04/29/99	mcw
EPA 325.2	Chloride	13	1.0	mg/L	04/29/99	kab

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CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 904338

Date: 05/06/99

CUSTOMER: Marathon Oil Company

PROJECT: INDIAN BASIN

ATTN: Mr. Paul Peacock

Customer Sample ID: MW-97
Date Sampled.....: 04/22/1999
Time Sampled.....: 10:15
Sample Matrix.....: Water

Laboratory Sample ID: 904338-29
Date Received.....: 04/27/1999
Time Received.....: 12:08

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 160.1	Solids, Total Dissolved (TDS)	530	10	mg/L	04/29/99	mcw
EPA 325.2	Chloride	6.7	1.0	mg/L	04/29/99	kab

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CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 904338 Date: 05/06/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN ATTN: Mr. Paul Peacock

Customer Sample ID: MW-67
Date Sampled.....: 04/22/1999
Time Sampled.....: 11:30
Sample Matrix.....: Water

Laboratory Sample ID: 904338-30
Date Received.....: 04/27/1999
Time Received.....: 12:08

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 160.1	Solids, Total Dissolved (TDS)	460	10	mg/L	04/29/99	mcw
EPA 325.2	Chloride	6.8	1.0	mg/L	04/29/99	kab

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CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 904338 Date: 05/06/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN ATTN: Mr. Paul Peacock

Customer Sample ID: MW-108
Date Sampled.....: 04/22/1999
Time Sampled.....: 13:00
Sample Matrix.....: Water

Laboratory Sample ID: 904338-31
Date Received.....: 04/27/1999
Time Received.....: 12:08

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 160.1	Solids, Total Dissolved (TDS)	340	10	mg/L	04/29/99	mcw
EPA 325.2	Chloride	4.3	1.0	mg/L	04/29/99	kab

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CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 904338

Date: 05/06/99

CUSTOMER: Marathon Oil Company

PROJECT: INDIAN BASIN

ATTN: Mr. Paul Peacock

Customer Sample ID: MW-95
Date Sampled.....: 04/22/1999
Time Sampled.....: 14:30
Sample Matrix.....: Water

Laboratory Sample ID: 904338-32
Date Received.....: 04/27/1999
Time Received.....: 12:08

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 160.1	Solids, Total Dissolved (TDS)	340	10	mg/L	04/29/99	mcw
EPA 325.2	Chloride	5.6	1.0	mg/L	04/29/99	kab

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CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 904338 Date: 05/06/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN ATTN: Mr. Paul Peacock

Customer Sample ID: MW-63
Date Sampled.....: 04/22/1999
Time Sampled.....: 15:40
Sample Matrix.....: Water

Laboratory Sample ID: 904338-33
Date Received.....: 04/27/1999
Time Received.....: 12:08

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 160.1	Solids, Total Dissolved (TDS)	340	10	mg/L	04/29/99	mcw
EPA 325.2	Chloride	15	1.0	mg/L	04/29/99	kab

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CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 904338 Date: 05/06/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN ATTN: Mr. Paul Peacock

Customer Sample ID: MW-70
Date Sampled.....: 04/22/1999
Time Sampled.....: 16:50
Sample Matrix.....: Water

Laboratory Sample ID: 904338-34
Date Received.....: 04/27/1999
Time Received.....: 12:08

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 160.1	Solids, Total Dissolved (TDS)	310	10	mg/L	04/29/99	mcw
EPA 325.2	Chloride	11	1.0	mg/L	04/29/99	kab

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CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 904338 Date: 05/06/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN ATTN: Mr. Paul Peacock

Customer Sample ID: MW-94
Date Sampled.....: 04/22/1999
Time Sampled.....: 18:00
Sample Matrix.....: Water

Laboratory Sample ID: 904338-35
Date Received.....: 04/27/1999
Time Received.....: 12:08

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 160.1	Solids, Total Dissolved (TDS)	530	10	mg/L	04/29/99	mcw
EPA 325.2	Chloride	20	10	mg/L	04/29/99	kab

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CORELAB

CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 904338

Date: 05/06/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN ATTN: Mr. Paul Peacock

Customer Sample ID: SW-3
Date Sampled.....: 04/23/1999
Time Sampled.....: 08:30
Sample Matrix.....: Water

Laboratory Sample ID: 904338-36
Date Received.....: 04/27/1999
Time Received.....: 12:08

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 160.1	Solids, Total Dissolved (TDS)	380	10	mg/L	04/29/99	mcw
EPA 325.2	Chloride	11	1.0	mg/L	04/29/99	kab

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CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 904338 Date: 05/06/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN ATTN: Mr. Paul Peacock

Customer Sample ID: SW-1
Date Sampled.....: 04/23/1999
Time Sampled.....: 09:00
Sample Matrix.....: Water

Laboratory Sample ID: 904338-37
Date Received.....: 04/27/1999
Time Received.....: 12:08

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 160.1	Solids, Total Dissolved (TDS)	530	10	mg/L	04/29/99	mcw
EPA 325.2	Chloride	22	1.0	mg/L	04/29/99	kab

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CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 904338

Date: 05/06/99

CUSTOMER: Marathon Oil Company

PROJECT: INDIAN BASIN

ATTN: Mr. Paul Peacock

Customer Sample ID: SW-2
Date Sampled.....: 04/23/1999
Time Sampled.....: 13:00
Sample Matrix.....: Water

Laboratory Sample ID: 904338-38
Date Received.....: 04/27/1999
Time Received.....: 12:08

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 160.1	Solids, Total Dissolved (TDS)	670	10	mg/L	04/29/99	mcw
EPA 325.2	Chloride	44	10	mg/L	04/29/99	kab

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CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 904338 Date: 05/06/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN ATTN: Mr. Paul Peacock

Customer Sample ID: EB-1
Date Sampled.....: 04/20/1999
Time Sampled.....: 00:00
Sample Matrix.....: Water

Laboratory Sample ID: 904338-39
Date Received.....: 04/27/1999
Time Received.....: 12:08

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 160.1	Solids, Total Dissolved (TDS)	<10	10	mg/L	04/29/99	mcw
EPA 325.2	Chloride	<1.0	1.0	mg/L	04/29/99	kab

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CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 904338 Date: 05/06/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN ATTN: Mr. Paul Peacock

Customer Sample ID: DUP-1
Date Sampled.....: 04/20/1999
Time Sampled.....: 00:00
Sample Matrix.....: Water

Laboratory Sample ID: 904338-40
Date Received.....: 04/27/1999
Time Received.....: 12:08

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 160.1	Solids, Total Dissolved (TDS)	920	10	mg/L	04/29/99	mcw
EPA 325.2	Chloride	56	10	mg/L	04/29/99	kab

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CORE LABORATORIES

QUALITY CONTROL RESULTS

Job Number.: 904338 Report Date.: 05/06/99

CUSTOMER: Marathon Oil Company PROJECT: MOC - Midland Groundwater ATTN: Mr. Paul Peacock

Test Method.....: EPA 325.2 Batch.....: 39180 Analyst...: kab
Method Description.: Chloride (Colorimetric) Units.....: mg/L
Parameter.....: Chloride

QC	Lab ID	Reagent	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits	Date	Time
ICV		V17087H	21.515762		20		107.6	%	85-115	04/29/1999	1739
ICB			0.017585							04/29/1999	1739
MS	903559-1	V01019106	33.260780		20.000000	10.447925	114.1	%	75-125	04/29/1999	1741
MD	903559-1		10.111296			10.447925	3.3	R	20	04/29/1999	1741
CCV		V17087H	21.560480		20		107.8	%	85-115	04/29/1999	1754
CCB			-0.059368							04/29/1999	1754
MS	904338-15	V01019106	21.832067		20.000000	-0.040155	109.4	%	75-125	04/29/1999	1800
CCV		V17087H	21.455017		20		107.3	%	85-115	04/29/1999	1808
CCB			-0.197420							04/29/1999	1808
CCV		V17087H	21.779535		20		108.9	%	85-115	04/29/1999	1823
CCB			-0.080641							04/29/1999	1823
MS	904338-39	V01019106	21.836449		20.000000	-0.024135	109.3	%	75-125	04/29/1999	1836
MD	904338-39		-0.059623			-0.024135	0.035488	A	1.000000	04/29/1999	1836
CCV		V17087H	21.755526		20		108.8	%	85-115	04/29/1999	1837
CCB			-0.099816							04/29/1999	1838
MD	904424-2		8.831861			9.037980	2.3	R	20	04/29/1999	1842
	904424-2	V01019106	30.951975		20.000000	9.037980	109.6	%	75-125	04/29/1999	1842
CCV		V17087H	21.766184		20		108.8	%	85-115	04/29/1999	1844
CCB			0.012944							04/29/1999	1845
MD	904338-15		0.077177			-0.022487	0.099664	A	1.000000	04/29/1999	1848
MS	904338-28	V01019106	33.428402		20.000000	13.155224	101.4	%	75-125	04/29/1999	1851
MD	904338-28		13.501759			13.155224	2.6	R	20	04/29/1999	1856
CCB			0.052909							04/29/1999	1859
CCV		V17087H	21.370598		20		106.9	%	85-115	04/29/1999	1859

Test Method.....: EPA 160.1 Batch.....: 39161 Analyst...: mcw
Method Description.: Solids, Total Dissolved (TDS) Units.....: mg/L
Parameter.....: Solids, Total Dissolved (TDS)

QC	Lab ID	Reagent	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits	Date	Time
MB			-3.0							04/28/1999	1100
MD	904338-26		564			551	2.3	R	20	04/28/1999	1129
MS	904338-27	V184048A	1012		500.000000	527	97.0	%	75-125	04/28/1999	1136
LCS		V184048A	9982		10000		99.8	%	80-120	04/28/1999	1140

Test Method.....: EPA 160.1 Batch.....: 39178 Analyst...: mcw
Method Description.: Solids, Total Dissolved (TDS) Units.....: mg/L
Parameter.....: Solids, Total Dissolved (TDS)

QC	Lab ID	Reagent	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits	Date	Time
MB			-3.0							04/29/1999	0830
MD	904338-35		550			530	3.7	R	20	04/29/1999	0919
MS	904338-35	V184049C	1049		500.000000	530	103.8	%	75-125	04/29/1999	0925
LCS		V184049C	9975		10000		99.8	%	80-120	04/29/1999	0930

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

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QUALITY CONTROL RESULTS

Job Number.: 904338 Report Date.: 05/06/99

STOMER: Marathon Oil Company PROJECT: MOC - Midland Groundwater ATTN: Mr. Paul Peacock

st Method.....: EPA 160.1 Batch.....: 39179 Analyst...: mcw
thod Description.: Solids, Total Dissolved (TDS) Units.....: mg/L
rameter.....: Solids, Total Dissolved (TDS)

Lab ID	Reagent	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits	Date	Time
		5.0							04/29/1999	0930
904338-40		921			919	0.2	R	20	04/29/1999	1000
904338-40	V184049C	1416		500.000000	919	99.4	%	75-125	04/29/1999	1005
	V184049C	10047		10000		100.5	%	80-120	04/29/1999	1010

st Method.....: EPA 160.1 Batch.....: 39348 Analyst...: mcw
thod Description.: Solids, Total Dissolved (TDS) Units.....: mg/L
rameter.....: Solids, Total Dissolved (TDS)

Lab ID	Reagent	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits	Date	Time
		-5.0							05/02/1999	2130
904338-4		577			585	1.4	R	20	05/02/1999	2151
904338-4	V19121C	1084		500.000000	585	99.8	%	75-125	05/02/1999	2156
	V19121C	9849		10000		98.5	%	80-120	05/02/1999	2200

st Method.....: EPA 160.1 Batch.....: 39349 Analyst...: mcw
thod Description.: Solids, Total Dissolved (TDS) Units.....: mg/L
rameter.....: Solids, Total Dissolved (TDS)

Lab ID	Reagent	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits	Date	Time
		-4.0							05/02/1999	2200
904338-12		733			742	1.2	R	20	05/02/1999	2225
904338-12	V19121C	1245		500.000000	742	100.6	%	75-125	05/02/1999	2227
	V19121C	9598		10000		96.0	%	80-120	05/02/1999	2230

st Method.....: EPA 160.1 Batch.....: 39350 Analyst...: mcw
thod Description.: Solids, Total Dissolved (TDS) Units.....: mg/L
rameter.....: Solids, Total Dissolved (TDS)

Lab ID	Reagent	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits	Date	Time
		-2.0							05/02/1999	2230
904357-1		1500			1470	2.0	R	20	05/02/1999	2255
904357-1	V19121C	1937		500.000000	1470	93.4	%	75-125	05/02/1999	2257
	V19121C	9922		10000		99.2	%	80-120	05/02/1999	2300

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

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CORE LABORATORIES

QUALITY ASSURANCE FOOTER

METHOD REFERENCES

(1) EPA SW-846, Test Methods for Evaluating Solid Waste, Third Edition, September 1986, July 1992, and September 1994 updates
(2) Standard Methods for the Examination of Water and Wastewater, 18th Edition, 1992
(3) EPA 600/4-79-020, Methods of Chemical Analysis for Waters and Wastes, March 1983
(4) Federal Register, Friday, October 26, 1984 (40 CFR Part 136)
(5) American Society for Testing and Materials, Volumes 5.01, 5.02, 5.03, 1992
(6) EPA 600/4-89-001, Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Fresh Water Organisms
(7) EPA 600/4-90-027, Methods for Measuring the Acute Toxicity of Effluent and Receiving Waters to Fresh Water and Marine Organisms, Fourth Edition

COMMENTS

All methods of chemical analysis have a statistical uncertainty associated with the results. Unless otherwise indicated, the data in this report are within the limits of uncertainty as specified in the referenced method. Quality control acceptance criteria are based either on actual laboratory performance or on limits specified in the referenced method. The date and time of analysis indicated on the QA report may not reflect the actual time of analysis for QC samples. All data reported on an "as received" basis unless otherwise indicated. Data reported in the QA report may be lower than sample data due to dilution of samples into the calibration range of the analysis. Sample concentrations for solid samples are calculated on an as received (wet) basis. Unless otherwise indicated, volatiles by gas chromatography (GC) are reported from a single column. Volatiles analyses by GC on low level soil extractions are conducted at room temperature.

FLAGS, FOOTNOTES, AND ABBREVIATIONS (as needed)

NA = Not analyzed
N/A = Not applicable
ug/L = Micrograms per liter
mg/L = Milligrams per liter
ND = Not detected at a value greater than the reporting limit
NC = Not calculable due to values lower than the detection limit
N.I. = Not Ignitable
S.I. = Sustains Ignition
I(NS) = Ignites, but does not Sustain Ignition
RPD = Relative Percent Difference
(a) = Surrogate recoveries were outside acceptable ranges due to matrix effects.
(b) = Surrogate recoveries were not calculated due to dilution of the sample below the detectable range for the surrogate.
(c) = Matrix spike recoveries were outside acceptable ranges due to matrix effects.
(d) = Relative Percent Difference (RPD) for duplicate analysis outside acceptance limits due to actual differences in the sample matrix.
(e) = The limit listed for flammability indicates the upper limit for the test. Samples are not tested at temperatures above 140 Fahrenheit since only samples which will sustain ignition at temperatures below 140 are considered flammable.
(f) = Results for this hydrocarbon range did not match a typical hydrocarbon pattern. Results were quantified using a diesel standard, however, the hydrocarbon pattern did not match a diesel pattern.
(g) = Results for this hydrocarbon range did not match a typical hydrocarbon pattern. Results were quantified using a gasoline standard, however, the hydrocarbon pattern did not match a gasoline pattern.
(h) = High dilution due to matrix effects

QC SAMPLE IDENTIFICATIONS

MB = Method Blank
RB = Reagent Blank
ICB = Initial Calibration Blank
CCB = Continuing Calibration Blank
CS = Calibration Standard
ICB = Initial Calibration Verification
CCV = Continuing Calibration Verification
SB = Storage Blank
MS = Matrix Spike
MSD = Matrix Spike Duplicate
MD = Matrix Duplicate
BS = Blank Spike
SS = Surrogate Spike
LCS = Laboratory Control Standard
RS = Reference Standard

SUBCONTRACTED LABORATORY LOCATIONS

Core Laboratories:	Aurora, Colorado	*AU
	Casper, Wyoming	*CA
	Corpus Christi, Texas	*CC
	Edison, New Jersey	*ED
	Houston, Texas (Env)	*HE
	Houston, Texas (Pet)	*HP
	Indianapolis, Indiana	*IN
	Lake Charles, Louisiana	*LC
	Long Beach, California	*LB
	Tampa, Florida	*TP
	Valparaiso, Indiana	*VP
Aquatic Testing Laboratories:		
	Ventura, California	*AT

2400 Cumberland Drive
Valparaiso, IN 46383

rpjsckl | Job Sample Receipt Checklist Report 04/27/99 | V2

Job Number.....: 904338 Location.: 57211 Customer Job ID.....: Job Check List Date.: 04/27/99
Project Number.: 96000703 Project Description.: MOC - Midland Groundwater Project Manager.....: lpa
Customer.....: Marathon Oil Company Contact.: Mr. Paul Peacock

Questions ?	(Y/N)	Comments
Chain-of-Custody Present?	Y	
Custody seal on shipping container?		
...If "yes", custody seal intact?		
Custody seals on sample containers?		
...If "yes", custody seal intact?		
Samples chilled?	Y	
Temperature of cooler acceptable? (4 deg C +/- 2).		RECEIVED ON ICE
Samples received intact (good condition)?	Y	
Volatile samples acceptable? (no headspace)		N/A
Correct containers used?	Y	
Adequate sample volume provided?	Y	
Samples preserved correctly?	Y	
Samples received within holding-time?	N	SOME SAMPLES WERE RECEIVED OUT OF HOLD WITH OTHERS COMING UP WITHIN HO
Agreement between COC and sample labels?	Y	
Additional		
Comments		
Sample Custodian Signature		J.B.

ARCADIS GERAGHTY & MILLER

Laboratory Task Order No./P.O. No. _____

CHAIN-OF-CUSTODY RECORD

Page _____ of _____

Project Number/Name: NP000443.0001 MT004

Project Location: Marathon Indian Basin

Laboratory: Core Lab

Project Manager: Alan Reed

Sampler(s)/Affiliation: Arcadis Geraghty & Miller

DM/BK

904338

	Sample ID/Location	Matrix	Date ~~Time~~ Sampled	Time ~~Lab ID~~	ANALYSIS / METHOD / SIZE: TDS, Chlorides						Remarks	Total
1	MW-50	L	4-20-99	1536	1							1
2	MW-61		4-20-99	1630	1							1
3	MW-43			1130	1							1
4	MW-46			1420	1							1
5	MW-49			1450	1							1
6	MW-4			1042	1							1
7	MW-44			1205	1							1
8	MW-54		4-22-99	1730	1							1
9	MW-55		"	1900	1							1
10	MW-79			1000	1							1
11	MW-78			2000	1							1
12	MW-90		4-23-99	1040	1							1
13	MW-91		4-23-99	1145	1							1

Total No. of Bottles/ Containers: 13

Sample Matrix: L = Liquid; S = Solid; A = Air

				Seal Intact?
Relinquished by: Brad Lyttle Tom Kelly	Organization: Arcadis Geraghty & Miller	Date / /	Time _____	
Received by: Tom Bob	Organization: CORE	Date 4 / 27 / 99	Time 1200	(Yes) No N/A
Relinquished by: _____	Organization: _____	Date / /	Time _____	Seal Intact?
Received by: _____	Organization: _____	Date / /	Time _____	Yes No N/A

Special Instructions/Remarks: Bill to Paul Peacock at Marathon

Deliver, Method: ☐ In Person ☒ Common Carrier 1 Ex ☐ Lab Courier ☐ Other _____

ARCADIS GERAGHTY & MILLER

Laboratory Task Order No./P.O. No. _____

CHAIN-OF-CUSTODY RECORD

Page _____ of _____

Project Number/Name NP000443.0001 MT004

Project Location Marathon Indian Basin

Laboratory Core Lab

Project Manager Alan Reed

Sampler(s)/Affiliation Arcadis Geraghty & Miller

DM/BK

904338

	Sample ID/Location	Matrix	Date ~~Time~~ Sampled	Time ~~Lab ID~~	ANALYSIS / METHOD / SIZE: TDS, Chlorides						Remarks	Total
14	MW-57	L	4-20-99	930	1							1
15	EB-2			—	1							1
16	MW-60			1030	1							1
17	Dup-2			—	1							1
19	MW-87			1145	1							1
19	MW-87A			1230	1							1
20	MW-61A			1750	1							1
21	MW-111		4-21-99	1030	1							1
22	MW-89			1130	1							1
23	MW-66			1230	1							1
24	MW-88			1430	1							1
25	MW-71			1540	1							1
26	MW-62			1630	1							1
27	MW-64			1800	1							1
28	MW-96		4-22-99	900	1							1
											Total No. of Bottles/ Containers	15

Sample Matrix: L = Liquid; S = Solid; A = Air

Relinquished by: Bradley Hemmerle	Organization: Arcadis Geraghty & Miller	Date / /	Time _____	Seal Intact?	
Received by: Jim Bolo	Organization: COG	Date 4/27/99	Time 1200	(Yes) No N/A	
Relinquished by: _____	Organization: _____	Date / /	Time _____	Seal Intact?	
Received by: _____	Organization: _____	Date / /	Time _____	Yes No N/A	

Special Instructions/Remarks: Bill to Paul Peacock at Marathon

Deliver Method: ☐ In Person ☒ Common Carrier ___ d Ex (SPECIFY) ☐ Lab Courier ☐ Other _____ (SPECIFY)

ARCADIS GERAGHTY & MILLER

Laboratory Task Order No./P.O. No. _____

CHAIN-OF-CUSTODY RECORD

Page _____ of _____

Project Number/Name NP000443.0001 MT004

Project Location Marathon Indian Basin

Laboratory Core Lab

Project Manager Alan Reed

Sampler(s)/Affiliation Arcadis Geraghty & Miller

DM/BK

904338

	Sample ID/Location	Matrix	Date/~~Time~~ Sampled	Time ~~Lab ID~~	ANALYSIS / METHOD / SIZE: TDS, Chlorides						Remarks	Total
29	MW-97	L	4-22-99	1015	1							1
30	MW-67			1130	1							1
31	MW-108			1300	1							1
32	MW-95			1430	1							1
33	MW-63			1540	1							1
34	MW-70			1650	1							1
35	MW-94			1800	1							1
36	SW-3		4-23-99	830	1							1
37	SW-1			900	1							1
38	SW-2			1300	1							1
39	EB-1		4-20-99	-	1							1
40	DUP-1		4-20-99	-	1							

Total No. of Bottles/ Containers: 11

Sample Matrix: L = Liquid; S = Solid; A = Air

Relinquished by: Bradythomas Kelly	Organization: Arcadis Geraghty & Miller	Date / /	Time _____	Seal Intact?	
Received by: _____	Organization: Cox	Date 4/27/99	Time 1200	(Yes) No N/A	
Relinquished by: _____	Organization: _____	Date / /	Time _____	Seal Intact?	
Received by: _____	Organization: _____	Date / /	Time _____	Yes No N/A	

Special Instructions/Remarks: Bill to Paul Peacock at Marathon

Delivery Method: ☐ In Person ☒ Common Carrier d Ex ☐ Lab Courier ☐ Other _____

December 1999 Groundwater
Sampling Event

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ANALYTICAL REPORT

JOB NUMBER: 100242

Prepared For:

Marathon Oil Company
125 West Missouri Street
P.O. Box 552
Midland, TX 79702-0552

Attention: Mr. Paul Peacock

Date: 01/10/2000

Signature

1/10/00
Date

Name: Les Arnold

Title: Laboratory Manager

Severn Trent Laboratories
2400 Cumberland Drive
Valparaiso, IN 46383

PHONE: 219-464-2389
FAX..: 219-462-2953

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SAMPLE INFORMATION
Date: 01/10/2000

Job Number.: 100242
Customer...: Marathon Oil Company
Attn.....: Mr. Paul Peacock

Project Number.....: 96000651
Customer Project ID....: NP000443.0005
Project Description....: Marathon Oil Co., Midland, Tx

Laboratory Sample ID	Customer Sample ID	Sample Matrix	Date Sampled	Time Sampled	Date Received	Time Received
100242-1	MW54	Water	01/06/2000	13:00	01/08/2000	10:30

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LABORATORY TEST RESULTS

Job Number: 100242

Date: 01/10/2000

CUSTOMER: Marathon Oil Company | PROJECT: NP000443.0005 | ATTN: Mr. Paul Peacock

Customer Sample ID: MW54
Date Sampled.....: 01/06/2000
Time Sampled.....: 13:00
Sample Matrix.....: Water

Laboratory Sample ID: 100242-1
Date Received.....: 01/08/2000
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8260B	Volatile Organic Compounds					
	Benzene	ND	5	ug/L	01/08/00	weh
	Ethylbenzene	ND	5	ug/L	01/08/00	weh
	Toluene	ND	5	ug/L	01/08/00	weh
	Xylenes (total)	ND	10	ug/L	01/08/00	weh

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QUALITY CONTROL RESULTS

Job Number.: 100242 — Report Date.: 01/10/2000

CUSTOMER: Marathon Oil Company — PROJECT: Marathon Oil Co., Midland, Tx — ATTN: Mr. Paul Peacock

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time

Test Method.....: EPA 8260B — Batch.....: 51936 — Analyst...: weh
Method Description.: Volatile Organic Compounds — Units.....: ug/L

MB — Method Blank — 01/08/2000 1746

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	ND						
Ethylbenzene	ND						
Toluene	ND						
Xylenes (total)	ND						

LCS — Laboratory Control Sample — CLPVOAMS2 — 01/08/2000 1817

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	44.85		50		89.7	%	67-130
Toluene	43.41		50		86.8	%	75-114

MS — Matrix Spike — CLPVOAMS2 — 100242-1 — 01/08/2000 1919

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	44.70		50	ND	89.4	%	67-130
Toluene	43.79		50	ND	87.6	%	75-114

MSD — Matrix Spike Duplicate — CLPVOAMS2 — 100242-1 — 01/08/2000 1949

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	44.57	44.70	50	ND	89.1	%	67-130
					0.3	R	30
Toluene	43.45	43.79	50	ND	86.9	%	75-114
					0.8	R	30

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

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SURROGATE RECOVERIES REPORT

Job Number.: 100242

Report Date.: 01/10/2000

CUSTOMER: Marathon Oil Company PROJECT: Marathon Oil Co., Midland, Tx ATTN: Mr. Paul Peacock

Method.....: Volatile Organic Compounds
Method Code.....: 8260V1

Batch.....: 51936
Analyst.....: weh

Surrogate	Units
1,2-Dichloroethane-d4 (surrogate)	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		49.17	50.00	98.3	76-120		01/08/2000	1746
		LCS		49.47	50.00	98.9	76-120		01/08/2000	1817
100242-1				49.06	50.00	98.1	76-120		01/08/2000	1848
100242-1		MS		49.09	50.00	98.2	76-120		01/08/2000	1919
100242-1		MSD		48.54	50.00	97.1	76-120		01/08/2000	1949
100224-1				48.87	50.00	97.7	76-120		01/08/2000	2020
100224-4				48.79	50.00	97.6	76-120		01/08/2000	2051
100224-3				49.91	50.00	99.8	76-120		01/08/2000	2122
100224-6				49.52	50.00	99.0	76-120		01/08/2000	2153
100224-2				48.95	50.00	97.9	76-120		01/08/2000	2224
100224-5				49.88	50.00	99.8	76-120		01/08/2000	2255
100245-1				48.97	50.00	97.9	76-120		01/08/2000	2325
100245-3				49.48	50.00	99.0	76-120		01/08/2000	2356
100245-2				48.89	50.00	97.8	76-120		01/09/2000	0027

Surrogate	Units
BFB (Surrogate)	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		53.09	50.00	106.2	85-115		01/08/2000	1746
		LCS		52.30	50.00	104.6	85-115		01/08/2000	1817
100242-1				51.80	50.00	103.6	85-115		01/08/2000	1848
100242-1		MS		52.48	50.00	105.0	85-115		01/08/2000	1919
100242-1		MSD		51.61	50.00	103.2	85-115		01/08/2000	1949
100224-1				51.44	50.00	102.9	85-115		01/08/2000	2020
100224-4				51.87	50.00	103.7	85-115		01/08/2000	2051
100224-3				51.50	50.00	103.0	85-115		01/08/2000	2122
100224-6				51.41	50.00	102.8	85-115		01/08/2000	2153
100224-2				51.66	50.00	103.3	85-115		01/08/2000	2224
100224-5				51.40	50.00	102.8	85-115		01/08/2000	2255
100245-1				50.55	50.00	101.1	85-115		01/08/2000	2325
100245-3				51.44	50.00	102.9	85-115		01/08/2000	2356
100245-2				51.95	50.00	103.9	85-115		01/09/2000	0027

Surrogate	Units
Toluene-d8	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		50.05	50.00	100.1	85-112		01/08/2000	1746
		LCS		49.69	50.00	99.4	85-112		01/08/2000	1817

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SURROGATE RECOVERIES REPORT

Job Number.: 100242

Report Date.: 01/10/2000

CUSTOMER: Marathon Oil Company PROJECT: Marathon Oil Co., Midland, Tx ATTN: Mr. Paul Peacock

Surrogate	Units
Toluene-d8	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
100242-1				50.26	50.00	100.5	85-112		01/08/2000	1848
100242-1		MS		49.89	50.00	99.8	85-112		01/08/2000	1919
100242-1		MSD		49.56	50.00	99.1	85-112		01/08/2000	1949
100224-1				49.86	50.00	99.7	85-112		01/08/2000	2020
100224-4				50.00	50.00	100.0	85-112		01/08/2000	2051
100224-3				50.03	50.00	100.1	85-112		01/08/2000	2122
100224-6				49.91	50.00	99.8	85-112		01/08/2000	2153
100224-2				50.09	50.00	100.2	85-112		01/08/2000	2224
100224-5				50.41	50.00	100.8	85-112		01/08/2000	2255
100245-1				49.68	50.00	99.4	85-112		01/08/2000	2325
100245-3				49.65	50.00	99.3	85-112		01/08/2000	2356
100245-2				49.54	50.00	99.1	85-112		01/09/2000	0027

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QUALITY ASSURANCE FOOTER

METHOD REFERENCES

1. EPA SW-846, Test Methods for Evaluating Solid Waste Update I, IIA, IIB, III
2. Standard Methods for the Examination of Water and Wastewater, 18th Edition
3. EPA 600/4-79-020, Methods of Chemical Analysis for Waters and Wastes, March 1983
4. Federal Register, Friday, October 26, 1984 (40 CFR Part 136)
5. American Society for Testing and Materials, Volumes 5.01, 5.02, 5.03, 11.01,11.02,11.03,11.04
6. EPA Methods for Environmental Samples

COMMENTS

All methods of chemical analysis have a statistical uncertainty associated with the results. Unless otherwise indicated, the data in this report are within the limits of uncertainty as specified in the referenced method. Quality Control acceptance criteria are based either on actual laboratory performance or on limits specified in the referenced method. The date and time of analysis indicated on the QA report may not reflect the actual time of analysis for QC samples. All data are reported on an "as received" basis unless otherwise indicated. Data reported in the QA report may be lower than sample data due to dilution of samples into the calibration range of the analysis. Sample concentration for solid samples are calculated on an as received (wet) basis. Unless otherwise indicated, volatiles by gas chromatography (GC) are reported from a single column. Volatile analysis by GC on low level soil extractions are conducted at room temperature.

FLAGS, FOOTNOTES AND ABBREVIATIONS (as needed)

NA	=	Not Analyzed	ND	=	Not detected at a value greater than the reporting limit
N/A	=	Not applicable	NC	=	Not calculable due to values lower than the reporting limit
ug/L	=	Micrograms per liter	mg/L	=	Milligrams per liter
ug/Kg	=	Micrograms per kilogram	mg/kg	=	Milligrams per kilogram
U	=	Undetected			
J	=	Indicates value is > MDL, but < Reporting Limit			
B	=	Analyte was detected in the method blank analyzed with this sample.			
D	=	Surrogate recoveries are not calculated due to sample dilution.			
X	=	Surrogate recovery is outside quality control limits.			
Y	=	Spike or spike duplicate recovery is outside quality control limits.			
Z	=	Relative percent difference for a spike and spike duplicate is outside quality control limits. The precision of the method was impacted by matrix.			
^	=	Indicates value is above QC acceptance criteria.			

QC SAMPLE IDENTIFICATIONS

MB	=	Method Blank	SB	=	Storage Blank
RB	=	Reagent Blank	EB	=	Extraction Blank
PB	=	Preparation Blank	CALB	=	Calibration Blank
MD	=	Method Duplicate	RS	=	Reference Standard
LCS	=	Laboratory Control Sample	LCSD	=	Laboratory Control Sample Duplicate
MS	=	Matrix Spike	MSD	=	Matrix Spike Duplicate
ICB	=	Initial Calibration Blank	CCB	=	Continuing Calibration Blank
ICV	=	Initial Calibration Verification	ICB	=	Initial Calibration Blank
PDS	=	Post Digestion Spike	SS	=	Surrogate Spike
ISA	=	Interference Check standard "A"	ISB	=	Interference Check Standard "B"
ISCAB	=	Interference Check Sample AB	MSA	=	Method of Standard Additions
CAL	=	Calibration standard	SD	=	Serial Dilution
MST	=	TCLP Matrix Spike	MSQ	=	TCLP Matrix Spike Duplicate
PST	=	TCLP Post Digestion Spike	LCT	=	TCLP Laboratory Control Sample

rpjsckl | Job Sample Receipt Checklist Report 01/08/2000 | V2

Job Number.....: 100242 Location.: 57211 Customer Job ID.....: Job Check List Date.: 01/08/2000
Project Number.: 96000607 Project Description.: Wisconsin Steel Task 2 Monitoring Project Manager.....: tfm
Customer.....: ARCADIS Geraghty & Miller Contact.: Mr. Matthew Lasecki

Questions ?	(Y/N)	Comments
Chain-of-Custody Present?	Y	
Custody seal on shipping container?	Y	
...If "yes", custody seal intact?		
Custody seals on sample containers?	Y	
...If "yes", custody seal intact?		
Samples chilled?	Y	
Temperature of cooler acceptable? (4 deg C +/- 2).		RECEIVED ON ICE
Samples received intact (good condition)?	Y	
Volatile samples acceptable? (no headspace)	Y	
Correct containers used?	Y	
Adequate sample volume provided?	Y	
Samples preserved correctly?	Y	
Samples received within holding-time?	Y	
Agreement between COC and sample labels?	Y	
Additional		
Comments		
Sample Custodian Signature		

CAUGHTY & MILLER, INC.
Environment and Infrastructure
a heidemij company

Laboratory Task Order No._____

CHAIN-OF-CUSTODY RECORD

Page_____ of_____

Project Number NP000443.0005

Project Location MARATHON Indian Basin

Laboratory Core

Sampler(s)/Affiliation McNeese

SAMPLE IDENTITY	Code	Date/~~Time~~ Sampled	Time ~~Lab ID~~	SAMPLE BOTTLE / CONTAINER DESCRIPTION: BTEX HCl 40 ml	100242								TOTAL
MW54	L	1-6-00	1300	2									2

Sample Code: L = ~~Liquid~~; S = Solid; A = Air

Total No. of Bottles/ Containers: 2

Relinquished by: [signature]	Organization: Arcadis	Date 1/7/00	Time 1200	Seal ~~Intact~~? Yes No N/A
Received by: Dave McCann	Organization: STL	Date 1/8/00	Time 10:30	
Relinquished by:	Organization:	Date / /	Time	Seal Intact? Yes No N/A
Received by:	Organization:	Date / /	Time	

Special Instructions/Remarks:

Delivery Method: ☐ In Person ☑ Common Carrier Fed Ex ☐ Lab Courier ☐ Other

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ANALYTICAL REPORT

JOB NUMBER: 914451

Prepared For:

Marathon Oil Company
125 West Missouri Street
P.O. Box 552
Midland, TX 79702-0552

Attention: Mr. Paul Peacock

Date: 12/27/1999

RECEIVED
JAN 04 2000

Les Arnold
Signature

12/27/99
Date

Name: Les Arnold

Title: Laboratory Manager

Severn Trent Laboratories
2400 Cumberland Drive
Valparaiso, IN 46383

PHONE: 219-464-2389
FAX..: 219-462-2953

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SAMPLE INFORMATION
Date: 12/27/1999

Job Number.: 914451
Customer...: Marathon Oil Company
Attn.....: Mr. Paul Peacock

Project Number.....: 96000746
Customer Project ID....: MW-117A
Project Description....: INDIAN BASIN REMEDIATION STRIPPER

Laboratory Sample ID	Customer Sample ID	Sample Matrix	Date Sampled	Time Sampled	Date Received	Time Received
914451-1	MW-117A	Aqueous	12/16/1999	10:05	12/21/1999	14:00
914451-2	MW-121	Aqueous	12/16/1999	10:55	12/21/1999	14:00
914451-3	MW-122	Aqueous	12/16/1999	10:35	12/21/1999	14:00
914451-4	MW-61A	Aqueous	12/16/1999	16:15	12/21/1999	14:00
914451-5	TRIP BLANK	Aqueous			12/21/1999	14:00

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LABORATORY TEST RESULTS

Job Number: 914451

Date: 12/27/1999

CUSTOMER: Marathon Oil Company | PROJECT: MW-117A | ATTN: Mr. Paul Peacock

Customer Sample ID: MW-117A
Date Sampled.....: 12/16/1999
Time Sampled.....: 10:05
Sample Matrix.....: Aqueous

Laboratory Sample ID: 914451-1
Date Received.....: 12/21/1999
Time Received.....: 14:00

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8021B	BTEX					
	Benzene	<5.0	5.0	ug/L	12/23/99	weh
	Ethylbenzene	ND	5.0	ug/L	12/23/99	weh
	Toluene	ND	5.0	ug/L	12/23/99	weh
	m&p-Xylenes	ND	10.0	ug/L	12/23/99	weh
	o-Xylene	ND	5.0	ug/L	12/23/99	weh

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LABORATORY TEST RESULTS

Job Number: 914451

Date: 12/27/1999

CUSTOMER: Marathon Oil Company | PROJECT: MW-117A | ATTN: Mr. Paul Peacock

Customer Sample ID: MW-121
Date Sampled.....: 12/16/1999
Time Sampled.....: 10:55
Sample Matrix.....: Aqueous

Laboratory Sample ID: 914451-2
Date Received.....: 12/21/1999
Time Received.....: 14:00

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8021B	BTEX			-		
	Benzene	500	50	ug/L	12/23/99	weh
	Ethylbenzene	370	50	ug/L	12/23/99	weh
	Toluene	10	5.0	ug/L	12/23/99	weh
	m&p-Xylenes	20	10.0	ug/L	12/23/99	weh
	o-Xylene	ND	5.0	ug/L	12/23/99	weh

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LABORATORY TEST RESULTS

Job Number: 914451

Date: 12/27/1999

CUSTOMER: Marathon Oil Company PROJECT: MW-117A ATTN: Mr. Paul Peacock

Customer Sample ID: MW-122
Date Sampled.....: 12/16/1999
Time Sampled.....: 10:35
Sample Matrix.....: Aqueous

Laboratory Sample ID: 914451-3
Date Received.....: 12/21/1999
Time Received.....: 14:00

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8021B	BTEX			-		
	Benzene	11	5.0	ug/L	12/23/99	weh
	Ethylbenzene	<5.0	5.0	ug/L	12/23/99	weh
	Toluene	29	5.0	ug/L	12/23/99	weh
	m&p-Xylenes	22	10.0	ug/L	12/23/99	weh
	o-Xylene	<5.0	5.0	ug/L	12/23/99	weh

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LABORATORY TEST RESULTS

Job Number: 914451

Date: 12/27/1999

CUSTOMER: Marathon Oil Company | PROJECT: MW-117A | ATTN: Mr. Paul Peacock

Customer Sample ID: MW-61A
Date Sampled.....: 12/16/1999
Time Sampled.....: 16:15
Sample Matrix.....: Aqueous

Laboratory Sample ID: 914451-4
Date Received.....: 12/21/1999
Time Received.....: 14:00

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8021B	BTEX			-		
	Benzene	<5.0	5.0	ug/L	12/23/99	weh
	Ethylbenzene	<5.0	5.0	ug/L	12/23/99	weh
	Toluene	6.3	5.0	ug/L	12/23/99	weh
	m&p-Xylenes	16	10.0	ug/L	12/23/99	weh
	o-Xylene	11	5.0	ug/L	12/23/99	weh

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LABORATORY TEST RESULTS

Job Number: 914451

Date: 12/27/1999

CUSTOMER: Marathon Oil Company PROJECT: MW-117A ATTN: Mr. Paul Peacock

Customer Sample ID: TRIP BLANK
Date Sampled.....:
Time Sampled.....:
Sample Matrix.....: Aqueous

Laboratory Sample ID: 914451-5
Date Received.....: 12/21/1999
Time Received.....: 14:00

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8021B	BTEX					
	Benzene	ND	5.0	ug/L	12/22/99	weh
	Ethylbenzene	ND	5.0	ug/L	12/22/99	weh
	Toluene	ND	5.0	ug/L	12/22/99	weh
	m&p-Xylenes	ND	10.0	ug/L	12/22/99	weh
	o-Xylene	ND	5.0	ug/L	12/22/99	weh

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QUALITY CONTROL RESULTS

Job Number.: 914451 — Report Date.: 12/27/1999

CUSTOMER: Marathon Oil Company — PROJECT: INDIAN BASIN REMEDIATION STRIP — ATTN: Mr. Paul Peacock

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time

Test Method.....: EPA 8021B — Batch.....: 51266 — Analyst...: weh
Method Description.: BTEX — Units.....: ug/L

LCS	Laboratory Control Sample	8020MS1			12/22/1999	1020

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	48.448		50		96.9	%	70-130
Ethylbenzene	45.96		50		91.9	%	70-130
Toluene	46.97		50		93.9	%	70-130
m&p-Xylenes	88.77		100		88.8	%	70-130
o-Xylene	45.07		50		90.1	%	70-130

MB	Method Blank				12/22/1999	1056

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	ND						
Ethylbenzene	ND						
Toluene	ND						
m&p-Xylenes	ND						
o-Xylene	ND						

MS	Matrix Spike	8020MS1	914280-13		12/22/1999	1244

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	47.641		50	ND	95.3	%	70-130
Ethylbenzene	44.52		50	ND	89.0	%	70-130
Toluene	47.09		50	ND	94.2	%	70-130
m&p-Xylenes	86.07		100	ND	86.1	%	70-130
o-Xylene	43.48		50	ND	87.0	%	70-130

MSD	Matrix Spike Duplicate	8020MS1	914280-13		12/22/1999	1320

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	48.581	47.641	50	ND	97.2	%	70-130
					2.0	R	25
Ethylbenzene	46.08	44.52	50	ND	92.2	%	70-130
					3.4	R	25
Toluene	47.21	47.09	50	ND	94.4	%	70-130
					0.3	R	25
m&p-Xylenes	88.94	86.07	100	ND	88.9	%	70-130
					3.3	R	25
o-Xylene	45.22	43.48	50	ND	90.4	%	70-130
					3.9	R	25

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

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QUALITY CONTROL RESULTS

Job Number.: 914451 Report Date.: 12/27/1999

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN REMEDIATION STRIP ATTN: Mr. Paul Peacock

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
LCS	Laboratory Control Sample	8020MS1			12/22/1999	1842

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	48.951		50		97.9	%	70-130
Ethylbenzene	45.95		50		91.9	%	70-130
Toluene	47.03		50		94.1	%	70-130
m&p-Xylenes	89.17		100		89.2	%	70-130
o-Xylene	45.17		50		90.3	%	70-130

Test Method.....: EPA 8021B Batch.....: 51318 Analyst...: weh
Method Description.: BTEX Units.....: ug/L

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
LCS	Laboratory Control Sample	8020MS1			12/23/1999	0908

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	48.169		50		96.3	%	70-130
Ethylbenzene	46.22		50		92.4	%	70-130
Toluene	47.30		50		94.6	%	70-130
m&p-Xylenes	89.34		100		89.3	%	70-130
o-Xylene	45.57		50		91.1	%	70-130

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
MB	Method Blank				12/23/1999	0942

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	ND						
Ethylbenzene	ND						
Toluene	ND						
m&p-Xylenes	ND						
o-Xylene	ND						

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
MS	Matrix Spike	8020MS1	914451-1		12/23/1999	1051

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	50.909		50	2.808	96.2	%	70-130
Ethylbenzene	45.43		50	ND	90.9	%	70-130
Toluene	47.56		50	ND	95.1	%	70-130
m&p-Xylenes	87.66		100	ND	87.7	%	70-130
o-Xylene	43.65		50	ND	87.3	%	70-130

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
MSD	Matrix Spike Duplicate	8020MS1	914451-1		12/23/1999	1125

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	51.381	50.909	50	2.808	97.1	%	70-130
					0.9	R	25
Ethylbenzene	45.41	45.43	50	ND	90.8	%	70-130
					0.0	R	25
Toluene	47.63	47.56	50	ND	95.3	%	70-130
					0.1	R	25

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

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QUALITY CONTROL RESULTS

Job Number.: 914451

Report Date.: 12/27/1999

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN REMEDIATION STRIP ATTN: Mr. Paul Peacock

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
MSD	Matrix Spike Duplicate	8020MS1	914451-1		12/23/1999	1125

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
m&p-Xylenes	87.63	87.66	100	ND	87.6	%	70-130
					0.0	R	25
o-Xylene	43.23	43.65	50	ND	86.5	%	70-130
					1.0	R	25

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
LCS	Laboratory Control Sample	8020MS1			12/23/1999	1709

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	50.221		50		100.4	%	70-130
Ethylbenzene	45.13		50		90.3	%	70-130
Toluene	48.01		50		96.0	%	70-130
m&p-Xylenes	87.48		100		87.5	%	70-130
o-Xylene	44.18		50		88.4	%	70-130

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

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SURROGATE RECOVERIES REPORT

Job Number.: 914451

Report Date.: 12/27/1999

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN REMEDIATION STRIP ATTN: Mr. Paul Peacock

Method.....: BTEX
Method Code.....: 8021BX

Batch.....: 51266
Analyst.....: weh

Surrogate	Units
1,4-Difluorobenzene	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		LCS		50.82	50.00	101.6	78-118		12/22/1999	1020
		MB		50.62	50.00	101.2	78-118		12/22/1999	1056
914451-5				51.68	50.00	103.4	78-118		12/22/1999	1132
914280-13				50.64	50.00	101.3	78-118		12/22/1999	1208
914280-13		MS		51.43	50.00	102.9	78-118		12/22/1999	1244
914280-13		MSD		51.03	50.00	102.1	78-118		12/22/1999	1320
914280-2				51.77	50.00	103.5	78-118		12/22/1999	1356
914280-3				50.85	50.00	101.7	78-118		12/22/1999	1432
914280-4				53.32	50.00	106.6	78-118		12/22/1999	1507
914280-6				51.38	50.00	102.8	78-118		12/22/1999	1543
914280-8				51.70	50.00	103.4	78-118		12/22/1999	1618
914279-1				51.03	50.00	102.1	78-118		12/22/1999	1654
914279-15				52.31	50.00	104.6	78-118		12/22/1999	1730
914279-14			10	49.96	50.00	99.9	78-118		12/22/1999	1806
		LCS		52.18	50.00	104.4	78-118		12/22/1999	1842

Surrogate	Units
BFB (Surrogate)	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		LCS		48.19	50.00	96.4	86-110		12/22/1999	1020
		MB		46.60	50.00	93.2	86-110		12/22/1999	1056
914451-5				48.16	50.00	96.3	86-110		12/22/1999	1132
914280-13				47.04	50.00	94.1	86-110		12/22/1999	1208
914280-13		MS		48.64	50.00	97.3	86-110		12/22/1999	1244
914280-13		MSD		49.20	50.00	98.4	86-110		12/22/1999	1320
914280-2				48.43	50.00	96.9	86-110		12/22/1999	1356
914280-3				48.36	50.00	96.7	86-110		12/22/1999	1432
914280-4				51.65	50.00	103.3	86-110		12/22/1999	1507
914280-6				47.30	50.00	94.6	86-110		12/22/1999	1543
914280-8				49.05	50.00	98.1	86-110		12/22/1999	1618
914279-1				51.36	50.00	102.7	86-110		12/22/1999	1654
914279-15				51.30	50.00	102.6	86-110		12/22/1999	1730
914279-14			10	51.68	50.00	103.4	86-110		12/22/1999	1806
		LCS		49.12	50.00	98.2	86-110		12/22/1999	1842

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SURROGATE RECOVERIES REPORT

Job Number.: 914451 Report Date.: 12/27/1999

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN REMEDIATION STRIP ATTN: Mr. Paul Peacock

Method.....: BTEX Batch.....: 51318
Method Code.....: 8021BX Analyst.....: weh

Surrogate	Units
1,4-Difluorobenzene	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		LCS		50.95	50.00	101.9	78-118		12/23/1999	0908
		MB		51.48	50.00	103.0	78-118		12/23/1999	0942
914451-1				52.23	50.00	104.5	78-118		12/23/1999	1017
914451-1		MS		50.72	50.00	101.4	78-118		12/23/1999	1051
914451-1		MSD		52.31	50.00	104.6	78-118		12/23/1999	1125
914451-2				53.14	50.00	106.3	78-118		12/23/1999	1159
914451-3				52.24	50.00	104.5	78-118		12/23/1999	1233
914451-4				52.47	50.00	104.9	78-118		12/23/1999	1307
914451-2			10	50.29	50.00	100.6	78-118		12/23/1999	1449
914361-4	Dry Weight		1000	48.60	50.00	97.2	45-125		12/23/1999	1524
914361-5	Dry Weight		50	55.13	50.00	110.3	45-125		12/23/1999	1558
914361-4	Dry Weight		10000	56.06	50.00	112.1	45-125		12/23/1999	1635
		LCS		51.75	50.00	103.5	78-118		12/23/1999	1709

Surrogate	Units
BFB (Surrogate)	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		LCS		49.18	50.00	98.4	86-110		12/23/1999	0908
		MB		47.64	50.00	95.3	86-110		12/23/1999	0942
914451-1				48.33	50.00	96.7	86-110		12/23/1999	1017
914451-1		MS		47.88	50.00	95.8	86-110		12/23/1999	1051
914451-1		MSD		49.28	50.00	98.6	86-110		12/23/1999	1125
914451-2				54.08	50.00	108.2	86-110		12/23/1999	1159
914451-3				50.25	50.00	100.5	86-110		12/23/1999	1233
914451-4				50.55	50.00	101.1	86-110		12/23/1999	1307
914451-2			10	51.91	50.00	103.8	86-110		12/23/1999	1449
914361-4	Dry Weight		1000	53.02	50.00	106.0	58-130		12/23/1999	1524
914361-5	Dry Weight		50	53.09	50.00	106.2	58-130		12/23/1999	1558
914361-4	Dry Weight		10000	52.31	50.00	104.6	58-130		12/23/1999	1635
		LCS		48.67	50.00	97.3	86-110		12/23/1999	1709

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QUALITY ASSURANCE FOOTER

METHOD REFERENCES

1. EPA SW-846, Test Methods for Evaluating Solid Waste Update I, IIA, IIB, III
2. Standard Methods for the Examination of Water and Wastewater, 18th Edition
3. EPA 600/4-79-020, Methods of Chemical Analysis for Waters and Wastes, March 1983
4. Federal Register, Friday, October 26, 1984 (40 CFR Part 136)
5. American Society for Testing and Materials, Volumes 5.01, 5.02, 5.03, 11.01,11.02,11.03,11.04
6. EPA Methods for Environmental Samples

COMMENTS

All methods of chemical analysis have a statistical uncertainty associated with the results. Unless otherwise indicated, the data in this report are within the limits of uncertainty as specified in the referenced method. Quality Control acceptance criteria are based either on actual laboratory performance or on limits specified in the referenced method. The date and time of analysis indicated on the QA report may not reflect the actual time of analysis for QC samples. All data are reported on an "as received" basis unless otherwise indicated. Data reported in the QA report may be lower than sample data due to dilution of samples into the calibration range of the analysis. Sample concentration for solid samples are calculated on an as received (wet) basis. Unless otherwise indicated, volatiles by gas chromatography (GC) are reported from a single column. Volatile analysis by GC on low level soil extractions are conducted at room temperature.

FLAGS, FOOTNOTES AND ABBREVIATIONS (as needed)

NA	=	Not Analyzed	ND	=	Not detected at a value greater than the reporting limit
N/A	=	Not applicable	NC	=	Not calculable due to values lower than the reporting limit
ug/L	=	Micrograms per liter	mg/L	=	Milligrams per liter
ug/Kg	=	Micrograms per kilogram	mg/kg	=	Milligrams per kilogram
U	=	Undetected			
J	=	Indicates value is > MDL, but < Reporting Limit			
B	=	Analyte was detected in the method blank analyzed with this sample.			
D	=	Surrogate recoveries are not calculated due to sample dilution.			
X	=	Surrogate recovery is outside quality control limits.			
Y	=	Spike or spike duplicate recovery is outside quality control limits.			
Z	=	Relative percent difference for a spike and spike duplicate is outside quality control limits. The precision of the method was impacted by matrix.			
^	=	Indicates value is above QC acceptance criteria.			

QC SAMPLE IDENTIFICATIONS

MB	=	Method Blank	SB	=	Storage Blank
RB	=	Reagent Blank	EB	=	Extraction Blank
PB	=	Preparation Blank	CALB	=	Calibration Blank
MD	=	Method Duplicate	RS	=	Reference Standard
LCS	=	Laboratory Control Sample	LCSD	=	Laboratory Control Sample Duplicate
MS	=	Matrix Spike	MSD	=	Matrix Spike Duplicate
ICB	=	Initial Calibration Blank	CCB	=	Continuing Calibration Blank
ICV	=	Initial Calibration Verification	ICB	=	Initial Calibration Blank
PDS	=	Post Digestion Spike	SS	=	Surrogate Spike
ISA	=	Interference Check standard "A"	ISB	=	Interference Check Standard "B"
ISCAB	=	Interference Check Sample AB	MSA	=	Method of Standard Additions
CAL	=	Calibration standard	SD	=	Serial Dilution
MST	=	TCLP Matrix Spike	MSQ	=	TCLP Matrix Spike Duplicate
PST	=	TCLP Post Digestion Spike	LCT	=	TCLP Laboratory Control Sample

pjsckl | Job Sample Receipt Checklist Report 12/21/1999 | V2

Job Number.....: 914451 Location.: 57211 Customer Job ID.....: Job Check List Date.: 12/21/1999
Project Number.: 96000746 Project Description.: INDIAN BASIN REMEDIATION STRIPPER Project Manager.....: lpa
Customer.....: Marathon Oil Company Contact.: Mr. Paul Peacock

Questions ?	(Y/N)	Comments
Chain-of-Custody Present?	Y	
Custody seal on shipping container?		
...If "yes", custody seal intact?		
Custody seals on sample containers?		
...If "yes", custody seal intact?		
Samples chilled?	Y	
Temperature of cooler acceptable? (4 deg C +/- 2).		RECEIVED ON ICE
Samples received intact (good condition)?	Y	
Volatile samples acceptable? (no headspace)	Y	
Correct containers used?	Y	
Adequate sample volume provided?	Y	
Samples preserved correctly?	Y	
Samples received within holding-time?	Y	
Agreement between COC and sample labels?	Y	
Additional		
Comments		
Sample Custodian Signature		

ARCADIS GERAGHTY & MILLER Laboratory Task Order No./P.O. No. _____ **CHAIN-OF-CUSTODY RECORD** Page 1 of 2

Project Number/Name NP000443.0001 MT004
Project Location MARATHON INDIAN BASIN
Laboratory CORE LAB
Project Manager MIKE HANSEN
Sampler(s)/Affiliation MCNEESE/KVASNICKA

	Sample ID/Location	Matrix	Date Sampled	Time	ANALYSIS / METHOD / SIZE: BTEX (8021) 2-40ML VOA's						Remarks	Total
4	MW-61A	L	12/16/99	1615	2							2
5	TRIP BLANK	L			2							2

Sample Matrix: L = Liquid; S = Solid; A = Air

Total No. of Bottles/ Containers: 4

Relinquished by: Alan J. Reidy Jr.	Organization: AGE M	Date 12/20/99	Time 1430	Seal Intact?	
Received by: STL	Organization: STL	Date 12/21/99	Time 1400	(Yes) No N/A	
Relinquished by:	Organization:	Date / /	Time	Seal Intact?	
Received by:	Organization:	Date / /	Time	Yes No N/A	

Special Instructions/Remarks: SEND BILL TO PAUL PEACOCK - MARATHON

Delivery Method: ☐ In Person ☒ Common Carrier FED EX ☐ Lab Courier ☐ Other _____

ARCADIS GERAGHTY & MILLER Laboratory Task Order No./P.O. No. _____ **CHAIN-OF-CUSTODY RECORD** Page 2 of 2

Project Number/Name NP000443.0005 MT002
Project Location MARATHON INDIAN BASIN
Laboratory CORE LAB
Project Manager MIKE HANSEN
Sampler(s)/Affiliation McNEESE/KVASNICKA

	Sample ID/Location	Matrix	Date Sampled	TIME	ANALYSIS / METHOD / SIZE: BTEX (8021) 2-40 ML VOAS						Remarks	Total
1	MW-117A	L	12/16/99	1005	2							2
2	MW-121	L	12/16/99	1055	2							2
3	MW-122	L	12/16/99	1035	2							2

Sample Matrix: L = Liquid; S = Solid; A = Air

Total No. of Bottles/ Containers: 6

Relinquished by: Alan A. Reidy	Organization: AG&M	Date 12/20/99	Time 1430	Seal Intact? (Yes) No N/A
Received by: J. BT	Organization: STL	Date 12/21/99	Time 1400	
Relinquished by:	Organization:	Date / /	Time	Seal Intact? Yes No N/A
Received by:	Organization:	Date / /	Time	

Special Instructions/Remarks:
SEND BILL TO PAUL PEACOCK - MARATHON

Delivery Method: ☐ In Person ☒ Common Carrier FED EX ☐ Lab Courier ☐ Other _____

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ANALYTICAL REPORT

JOB NUMBER: 914040

Prepared For:

Marathon Oil Company
125 West Missouri Street
P.O. Box 552
Midland, TX 79702-0552

Attention: Mr. Paul Peacock

Date: 12/15/99

Les Arnold
Signature

12/15/99
Date

Name: Les Arnold

Title: Laboratory Manager

Severn Trent Laboratories
2400 Cumberland Drive
Valparaiso, IN 46383

PHONE: 219-464-2389
FAX..: 219-462-2953

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SAMPLE INFORMATION
Date: 12/15/99

Job Number.: 914040
Customer...: Marathon Oil Company
Attn.....: Mr. Paul Peacock

Project Number.....: 96000746
Customer Project ID....: INDIAN BASIN-AGM 443
Project Description....: INDIAN BASIN REMEDIATION STRIPPER

Laboratory Sample ID	Customer Sample ID	Sample Matrix	Date Sampled	Time Sampled	Date Received	Time Received
914040-1	MW-106	Aqueous	12/08/1999	16:30	12/11/1999	11:22
914040-2	MW-43	Aqueous	12/08/1999	14:55	12/11/1999	11:22
914040-3	MW-46	Aqueous	12/08/1999	15:35	12/11/1999	11:22
914040-4	MW-49	Aqueous	12/08/1999	15:05	12/11/1999	11:22
914040-5	MW-50	Aqueous	12/08/1999	15:20	12/11/1999	11:22
914040-6	MW-55	Aqueous	12/09/1999	09:50	12/11/1999	11:22
914040-7	MW-61	Aqueous	12/09/1999	09:12	12/11/1999	11:22
914040-8	MW-65	Aqueous	12/09/1999	11:45	12/11/1999	11:22
914040-9	MW-77	Aqueous	12/09/1999	11:55	12/11/1999	11:22
914040-10	MW-78	Aqueous	12/09/1999	12:10	12/11/1999	11:22
914040-11	MW-79	Aqueous	12/09/1999	10:45	12/11/1999	11:22
914040-12	MW-90	Aqueous	12/09/1999	12:30	12/11/1999	11:22
914040-13	MW-91	Aqueous	12/09/1999	11:40	12/11/1999	11:22
914040-14	MW-105	Aqueous	12/09/1999	13:50	12/11/1999	11:22
914040-15	MW-66	Aqueous	12/10/1999	10:45	12/11/1999	11:22
914040-16	MW-71	Aqueous	12/10/1999	09:20	12/11/1999	11:22
914040-17	MW-88	Aqueous	12/10/1999	10:00	12/11/1999	11:22
914040-18	MW-89	Aqueous	12/10/1999	11:25	12/11/1999	11:22
914040-19	DUPLICATE 1	Aqueous			12/11/1999	11:22
914040-20	TRIP BLAMK	Aqueous			12/11/1999	11:22

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LABORATORY TEST RESULTS

Job Number: 914040

Date: 12/15/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN-AGM 443 ATTN: Mr. Paul Peacock

Customer Sample ID: MW-106
Date Sampled.....: 12/08/1999
Time Sampled.....: 16:30
Sample Matrix.....: Aqueous

Laboratory Sample ID: 914040-1
Date Received.....: 12/11/1999
Time Received.....: 11:22

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8021B	BTEX					
	Benzene	ND	5.0	ug/L	12/12/99	weh
	Ethylbenzene	ND	5.0	ug/L	12/12/99	weh
	Toluene	ND	5.0	ug/L	12/12/99	weh
	m&p-Xylenes	ND	10.0	ug/L	12/12/99	weh
	o-Xylene	ND	5.0	ug/L	12/12/99	weh

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LABORATORY TEST RESULTS

Job Number: 914040 Date: 12/15/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN-AGM 443 ATTN: Mr. Paul Peacock

Customer Sample ID: MW-43
Date Sampled.....: 12/08/1999
Time Sampled.....: 14:55
Sample Matrix.....: Aqueous

Laboratory Sample ID: 914040-2
Date Received.....: 12/11/1999
Time Received.....: 11:22

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8021B	BTEX					
	Benzene	<5.0	5.0	ug/L	12/14/99	weh
	Ethylbenzene	6.2	5.0	ug/L	12/14/99	weh
	Toluene	11	5.0	ug/L	12/14/99	weh
	m&p-Xylenes	22	10.0	ug/L	12/14/99	weh
	o-Xylene	24	5.0	ug/L	12/14/99	weh

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LABORATORY TEST RESULTS

Job Number: 914040 Date: 12/15/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN-AGM 443 ATTN: Mr. Paul Peacock

Customer Sample ID: MW-46
Date Sampled.....: 12/08/1999
Time Sampled.....: 15:35
Sample Matrix.....: Aqueous

Laboratory Sample ID: 914040-3
Date Received.....: 12/11/1999
Time Received.....: 11:22

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8021B	BTEX					
	Benzene	50	5.0	ug/L	12/14/99	weh
	Ethylbenzene	34	5.0	ug/L	12/14/99	weh
	Toluene	43	5.0	ug/L	12/14/99	weh
	m&p-Xylenes	70	10.0	ug/L	12/14/99	weh
	o-Xylene	59	5.0	ug/L	12/14/99	weh

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LABORATORY TEST RESULTS

Job Number: 914040

Date: 12/15/99

CUSTOMER: Marathon Oil Company | PROJECT: INDIAN BASIN-AGM 443 | ATTN: Mr. Paul Peacock

Customer Sample ID: MW-49
Date Sampled.....: 12/08/1999
Time Sampled.....: 15:05
Sample Matrix.....: Aqueous

Laboratory Sample ID: 914040-4
Date Received.....: 12/11/1999
Time Received.....: 11:22

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8021B	BTEX					
	Benzene	32	5.0	ug/L	12/14/99	weh
	Ethylbenzene	58	5.0	ug/L	12/14/99	weh
	Toluene	68	5.0	ug/L	12/14/99	weh
	m&p-Xylenes	210	10.0	ug/L	12/14/99	weh
	o-Xylene	170	5.0	ug/L	12/14/99	weh

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LABORATORY TEST RESULTS

Job Number: 914040 Date: 12/15/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN-AGM 443 ATTN: Mr. Paul Peacock

Customer Sample ID: MW-50
Date Sampled.....: 12/08/1999
Time Sampled.....: 15:20
Sample Matrix.....: Aqueous

Laboratory Sample ID: 914040-5
Date Received.....: 12/11/1999
Time Received.....: 11:22

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8021B	BTEX					
	Benzene	ND	5.0	ug/L	12/12/99	weh
	Ethylbenzene	ND	5.0	ug/L	12/12/99	weh
	Toluene	ND	5.0	ug/L	12/12/99	weh
	m&p-Xylenes	ND	10.0	ug/L	12/12/99	weh
	o-Xylene	ND	5.0	ug/L	12/12/99	weh

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LABORATORY TEST RESULTS

Job Number: 914040 Date: 12/15/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN-AGM 443 ATTN: Mr. Paul Peacock

Customer Sample ID: MW-55
Date Sampled.....: 12/09/1999
Time Sampled.....: 09:50
Sample Matrix.....: Aqueous

Laboratory Sample ID: 914040-6
Date Received.....: 12/11/1999
Time Received.....: 11:22

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8021B	BTEX					
	Benzene	90	5.0	ug/L	12/14/99	weh
	Ethylbenzene	15	5.0	ug/L	12/14/99	weh
	Toluene	19	5.0	ug/L	12/14/99	weh
	m&p-Xylenes	<10.0	10.0	ug/L	12/14/99	weh
	o-Xylene	ND	5.0	ug/L	12/14/99	weh

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LABORATORY TEST RESULTS

Job Number: 914040 Date: 12/15/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN-AGM 443 ATTN: Mr. Paul Peacock

Customer Sample ID: MW-61
Date Sampled.....: 12/09/1999
Time Sampled.....: 09:12
Sample Matrix.....: Aqueous

Laboratory Sample ID: 914040-7
Date Received.....: 12/11/1999
Time Received.....: 11:22

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8021B	BTEX					
	Benzene	ND	5.0	ug/L	12/12/99	weh
	Ethylbenzene	ND	5.0	ug/L	12/12/99	weh
	Toluene	ND	5.0	ug/L	12/12/99	weh
	m&p-Xylenes	ND	10.0	ug/L	12/12/99	weh
	o-Xylene	ND	5.0	ug/L	12/12/99	weh

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LABORATORY TEST RESULTS

Job Number: 914040 Date: 12/15/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN-AGM 443 ATTN: Mr. Paul Peacock

Customer Sample ID: MW-65
Date Sampled.....: 12/09/1999
Time Sampled.....: 11:45
Sample Matrix.....: Aqueous

Laboratory Sample ID: 914040-8
Date Received.....: 12/11/1999
Time Received.....: 11:22

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8021B	BTEX					
	Benzene	ND	5.0	ug/L	12/12/99	weh
	Ethylbenzene	ND	5.0	ug/L	12/12/99	weh
	Toluene	ND	5.0	ug/L	12/12/99	weh
	m&p-Xylenes	ND	10.0	ug/L	12/12/99	weh
	o-Xylene	ND	5.0	ug/L	12/12/99	weh

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LABORATORY TEST RESULTS

Job Number: 914040 Date: 12/15/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN-AGM 443 ATTN: Mr. Paul Peacock

Customer Sample ID: MW-77
Date Sampled.....: 12/09/1999
Time Sampled.....: 11:55
Sample Matrix.....: Aqueous

Laboratory Sample ID: 914040-9
Date Received.....: 12/11/1999
Time Received.....: 11:22

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8021B	BTEX					
	Benzene	ND	5.0	ug/L	12/13/99	weh
	Ethylbenzene	ND	5.0	ug/L	12/13/99	weh
	Toluene	<5.0	5.0	ug/L	12/13/99	weh
	m&p-Xylenes	<10.0	10.0	ug/L	12/13/99	weh
	o-Xylene	<5.0	5.0	ug/L	12/13/99	weh

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LABORATORY TEST RESULTS

Job Number: 914040

Date: 12/15/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN-AGM 443 ATTN: Mr. Paul Peacock

Customer Sample ID: MW-78
Date Sampled.....: 12/09/1999
Time Sampled.....: 12:10
Sample Matrix.....: Aqueous

Laboratory Sample ID: 914040-10
Date Received.....: 12/11/1999
Time Received.....: 11:22

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8021B	BTEX					
	Benzene	<5.0	5.0	ug/L	12/14/99	weh
	Ethylbenzene	55	5.0	ug/L	12/14/99	weh
	Toluene	44	5.0	ug/L	12/14/99	weh
	m&p-Xylenes	230	10.0	ug/L	12/14/99	weh
	o-Xylene	190	5.0	ug/L	12/14/99	weh

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LABORATORY TEST RESULTS

Job Number: 914040

Date: 12/15/99

CUSTOMER: Marathon Oil Company | PROJECT: INDIAN BASIN-AGM 443 | ATTN: Mr. Paul Peacock

Customer Sample ID: MW-79
Date Sampled.....: 12/09/1999
Time Sampled.....: 10:45
Sample Matrix.....: Aqueous

Laboratory Sample ID: 914040-11
Date Received.....: 12/11/1999
Time Received.....: 11:22

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8021B	BTEX					
	Benzene	ND	5.0	ug/L	12/12/99	weh
	Ethylbenzene	ND	5.0	ug/L	12/12/99	weh
	Toluene	ND	5.0	ug/L	12/12/99	weh
	m&p-Xylenes	ND	10.0	ug/L	12/12/99	weh
	o-Xylene	ND	5.0	ug/L	12/12/99	weh

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LABORATORY TEST RESULTS

Job Number: 914040

Date: 12/15/99

CUSTOMER: Marathon Oil Company | PROJECT: INDIAN BASIN-AGM 443 | ATTN: Mr. Paul Peacock

Customer Sample ID: MW-90
Date Sampled.....: 12/09/1999
Time Sampled.....: 12:30
Sample Matrix.....: Aqueous

Laboratory Sample ID: 914040-12
Date Received.....: 12/11/1999
Time Received.....: 11:22

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8021B	BTEX					
	Benzene	ND	5.0	ug/L	12/12/99	weh
	Ethylbenzene	ND	5.0	ug/L	12/12/99	weh
	Toluene	ND	5.0	ug/L	12/12/99	weh
	m&p-Xylenes	ND	10.0	ug/L	12/12/99	weh
	o-Xylene	ND	5.0	ug/L	12/12/99	weh

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Job Number: 914040

Date: 12/15/99

CUSTOMER: Marathon Oil Company | PROJECT: INDIAN BASIN-AGM 443 | ATTN: Mr. Paul Peacock

Customer Sample ID: MW-91
Date Sampled.....: 12/09/1999
Time Sampled.....: 11:40
Sample Matrix.....: Aqueous

Laboratory Sample ID: 914040-13
Date Received.....: 12/11/1999
Time Received.....: 11:22

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8021B	BTEX					
	Benzene	140	5.0	ug/L	12/14/99	weh
	Ethylbenzene	5.2	5.0	ug/L	12/14/99	weh
	Toluene	15	5.0	ug/L	12/14/99	weh
	m&p-Xylenes	19	10.0	ug/L	12/14/99	weh
	o-Xylene	N.D.	5.0	ug/L	12/14/99	weh

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LABORATORY TEST RESULTS

Job Number: 914040 Date: 12/15/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN-AGM 443 ATTN: Mr. Paul Peacock

Customer Sample ID: MW-105
Date Sampled.....: 12/09/1999
Time Sampled.....: 13:50
Sample Matrix.....: Aqueous

Laboratory Sample ID: 914040-14
Date Received.....: 12/11/1999
Time Received.....: 11:22

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8021B	BTEX					
	Benzene	ND	5.0	ug/L	12/12/99	weh
	Ethylbenzene	ND	5.0	ug/L	12/12/99	weh
	Toluene	ND	5.0	ug/L	12/12/99	weh
	m&p-Xylenes	ND	10.0	ug/L	12/12/99	weh
	o-Xylene	ND	5.0	ug/L	12/12/99	weh

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LABORATORY TEST RESULTS

Job Number: 914040

Date: 12/15/99

CUSTOMER: Marathon Oil Company | PROJECT: INDIAN BASIN-AGM 443 | ATTN: Mr. Paul Peacock

Customer Sample ID: MW-66
Date Sampled.....: 12/10/1999
Time Sampled.....: 10:45
Sample Matrix.....: Aqueous

Laboratory Sample ID: 914040-15
Date Received.....: 12/11/1999
Time Received.....: 11:22

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8021B	BTEX					
	Benzene	ND	5.0	ug/L	12/12/99	weh
	Ethylbenzene	ND	5.0	ug/L	12/12/99	weh
	Toluene	ND	5.0	ug/L	12/12/99	weh
	m&p-Xylenes	ND	10.0	ug/L	12/12/99	weh
	o-Xylene	ND	5.0	ug/L	12/12/99	weh

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LABORATORY TEST RESULTS

Job Number: 914040

Date: 12/15/99

CUSTOMER: Marathon Oil Company | PROJECT: INDIAN BASIN-AGM 443 | ATTN: Mr. Paul Peacock

Customer Sample ID: MW-71
Date Sampled.....: 12/10/1999
Time Sampled.....: 09:20
Sample Matrix.....: Aqueous

Laboratory Sample ID: 914040-16
Date Received.....: 12/11/1999
Time Received.....: 11:22

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8021B	BTEX					
	Benzene	ND	5.0	ug/L	12/12/99	weh
	Ethylbenzene	ND	5.0	ug/L	12/12/99	weh
	Toluene	ND	5.0	ug/L	12/12/99	weh
	m&p-Xylenes	ND	10.0	ug/L	12/12/99	weh
	o-Xylene	ND	5.0	ug/L	12/12/99	weh

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LABORATORY TEST RESULTS

Job Number: 914040

Date: 12/15/99

CUSTOMER: Marathon Oil Company | PROJECT: INDIAN BASIN-AGM 443 | ATTN: Mr. Paul Peacock

Customer Sample ID: MW-88
Date Sampled.....: 12/10/1999
Time Sampled.....: 10:00
Sample Matrix.....: Aqueous

Laboratory Sample ID: 914040-17
Date Received.....: 12/11/1999
Time Received.....: 11:22

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8021B	BTEX					
	Benzene	ND	5.0	ug/L	12/12/99	weh
	Ethylbenzene	ND	5.0	ug/L	12/12/99	weh
	Toluene	ND	5.0	ug/L	12/12/99	weh
	m&p-Xylenes	ND	10.0	ug/L	12/12/99	weh
	o-Xylene	ND	5.0	ug/L	12/12/99	weh

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LABORATORY TEST RESULTS

Job Number: 914040 Date: 12/15/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN-AGM 443 ATTN: Mr. Paul Peacock

Customer Sample ID: MW-89
Date Sampled.....: 12/10/1999
Time Sampled.....: 11:25
Sample Matrix.....: Aqueous

Laboratory Sample ID: 914040-18
Date Received.....: 12/11/1999
Time Received.....: 11:22

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8021B	BTEX					
	Benzene	ND	5.0	ug/L	12/12/99	weh
	Ethylbenzene	ND	5.0	ug/L	12/12/99	weh
	Toluene	ND	5.0	ug/L	12/12/99	weh
	m&p-Xylenes	ND	10.0	ug/L	12/12/99	weh
	o-Xylene	ND	5.0	ug/L	12/12/99	weh

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LABORATORY TEST RESULTS

Job Number: 914040 Date: 12/15/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN-AGM 443 ATTN: Mr. Paul Peacock

Customer Sample ID: DUPLICATE 1
Date Sampled.....:
Time Sampled.....:
Sample Matrix.....: Aqueous

Laboratory Sample ID: 914040-19
Date Received.....: 12/11/1999
Time Received.....: 11:22

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8021B	BTEX					
	Benzene	ND	5.0	ug/L	12/12/99	weh
	Ethylbenzene	ND	5.0	ug/L	12/12/99	weh
	Toluene	ND	5.0	ug/L	12/12/99	weh
	m&p-Xylenes	ND	10.0	ug/L	12/12/99	weh
	o-Xylene	ND	5.0	ug/L	12/12/99	weh

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LABORATORY TEST RESULTS

Job Number: 914040

Date: 12/15/99

CUSTOMER: Marathon Oil Company | PROJECT: INDIAN BASIN-AGM 443 | ATTN: Mr. Paul Peacock

Customer Sample ID: TRIP BLAMK
Date Sampled.....:
Time Sampled.....:
Sample Matrix.....: Aqueous

Laboratory Sample ID: 914040-20
Date Received.....: 12/11/1999
Time Received.....: 11:22

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8021B	BTEX					
	Benzene	ND	5.0	ug/L	12/12/99	weh
	Ethylbenzene	ND	5.0	ug/L	12/12/99	weh
	Toluene	ND	5.0	ug/L	12/12/99	weh
	m&p-Xylenes	ND	10.0	ug/L	12/12/99	weh
	o-Xylene	ND	5.0	ug/L	12/12/99	weh

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QUALITY CONTROL RESULTS

Job Number.: 914040 Report Date.: 12/15/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN REMEDIATION STRIP ATTN: Mr. Paul Peacock

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time

Test Method.....: EPA 8021B Batch.....: 50720 Analyst...: weh
Method Description.: BTEX Units.....: ug/L

LCS	Laboratory Control Sample	8020MS1			12/12/1999	1058

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	49.898		50		99.8	%	70-130
Ethylbenzene	46.03		50		92.1	%	70-130
Toluene	47.48		50		95.0	%	70-130
m&p-Xylenes	89.29		100		89.3	%	70-130
o-Xylene	44.92		50		89.8	%	70-130

MB	Method Blank				12/12/1999	1133

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	ND						
Ethylbenzene	ND						
Toluene	ND						
m&p-Xylenes	ND						
o-Xylene	ND						

MS	Matrix Spike	8020MS1	914040-1		12/12/1999	1247

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	50.676		50	ND	101.4	%	70-130
Ethylbenzene	46.48		50	ND	93.0	%	70-130
Toluene	48.03		50	ND	96.1	%	70-130
m&p-Xylenes	90.24		100	ND	90.2	%	70-130
o-Xylene	45.55		50	ND	91.1	%	70-130

MSD	Matrix Spike Duplicate	8020MS1	914040-1		12/12/1999	1321

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	50.535	50.676	50	ND	101.1	%	70-130
					0.3	R	25
Ethylbenzene	46.20	46.48	50	ND	92.4	%	70-130
					0.6	R	25
Toluene	47.81	48.03	50	ND	95.6	%	70-130
					0.5	R	25
m&p-Xylenes	89.88	90.24	100	ND	89.9	%	70-130
					0.4	R	25
o-Xylene	45.32	45.55	50	ND	90.6	%	70-130
					0.5	R	25

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

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QUALITY CONTROL RESULTS

Job Number.: 914040

Report Date.: 12/15/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN REMEDIATION STRIP ATTN: Mr. Paul Peacock

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
LCS	Laboratory Control Sample	8020MS1			12/12/1999	2043

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	48.034		50		96.1	%	70-130
Ethylbenzene	43.42		50		86.8	%	70-130
Toluene	45.14		50		90.3	%	70-130
m&p-Xylenes	84.43		100		84.4	%	70-130
o-Xylene	42.57		50		85.1	%	70-130

Test Method.....: EPA 8021B
Method Description.: BTEX

Batch.....: 50772
Units.....: ug/L

Analyst...: weh

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
LCS	Laboratory Control Sample	8020MS1			12/13/1999	0901

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	50.672		50		101.3	%	70-130
Ethylbenzene	46.90		50		93.8	%	70-130
Toluene	48.28		50		96.6	%	70-130
m&p-Xylenes	90.90		100		90.9	%	70-130
o-Xylene	46.03		50		92.1	%	70-130

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
MB	Method Blank				12/13/1999	0935

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	ND						
Ethylbenzene	ND						
Toluene	ND						
m&p-Xylenes	ND						
o-Xylene	ND						

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
MS	Matrix Spike	8020MS1	914065-2		12/13/1999	1049

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	51.230		50	ND	102.5	%	70-130
Ethylbenzene	46.94		50	ND	93.9	%	70-130
Toluene	48.71		50	ND	97.4	%	70-130
m&p-Xylenes	91.02		100	ND	91.0	%	70-130
o-Xylene	45.83		50	ND	91.7	%	70-130

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
MSD	Matrix Spike Duplicate	8020MS1	914065-2		12/13/1999	1123

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	50.934	51.230	50	ND	101.9	%	70-130
					0.6	R	25
Ethylbenzene	46.26	46.94	50	ND	92.5	%	70-130
					1.5	R	25
Toluene	47.89	48.71	50	ND	95.8	%	70-130
					1.7	R	25

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

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QUALITY CONTROL RESULTS

Job Number.: 914040 Report Date.: 12/15/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN REMEDIATION STRIP ATTN: Mr. Paul Peacock

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
MSD	Matrix Spike Duplicate	8020MS1	914065-2		12/13/1999	1123

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
m&p-Xylenes	89.47	91.02	100	ND	89.5	%	70-130
					1.7	R	25
o-Xylene	45.19	45.83	50	ND	90.4	%	70-130
					1.4	R	25

LCS	Laboratory Control Sample	8020MS1			12/13/1999	1753

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	50.261		50		100.5	%	70-130
Ethylbenzene	44.87		50		89.7	%	70-130
Toluene	47.06		50		94.1	%	70-130
m&p-Xylenes	86.91		100		86.9	%	70-130
o-Xylene	43.82		50		87.6	%	70-130

Test Method.....: EPA 8021B Batch.....: 50839 Analyst...: weh
Method Description.: BTEX Units.....: ug/L

LCS	Laboratory Control Sample	8020MS1			12/14/1999	0827

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	49.778		50		99.6	%	70-130
Ethylbenzene	45.98		50		92.0	%	70-130
Toluene	47.41		50		94.8	%	70-130
m&p-Xylenes	89.19		100		89.2	%	70-130
o-Xylene	45.10		50		90.2	%	70-130

MB	Method Blank				12/14/1999	0901

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	ND						
Ethylbenzene	ND						
Toluene	ND						
m&p-Xylenes	ND						
o-Xylene	ND						

MS	Matrix Spike	8020MS1	914040-2	100	12/14/1999	1633

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	49.173		50	ND	98.3	%	70-130
Ethylbenzene	44.80		50	ND	89.6	%	70-130
Toluene	46.96		50	ND	93.9	%	70-130
m&p-Xylenes	87.26		100	ND	87.3	%	70-130
o-Xylene	43.77		50	ND	87.5	%	70-130

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QUALITY CONTROL RESULTS

Job Number.: 914040 Report Date.: 12/15/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN REMEDIATION STRIP ATTN: Mr. Paul Peacock

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
MSD	Matrix Spike Duplicate	8020MS1	914040-2	100	12/14/1999	1709

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	49.421	49.173	50	ND	98.8	%	70-130
					0.5	R	25
Ethylbenzene	44.31	44.80	50	ND	88.6	%	70-130
					1.1	R	25
Toluene	45.84	46.96	50	ND	91.7	%	70-130
					2.4	R	25
m&p-Xylenes	86.29	87.26	100	ND	86.3	%	70-130
					1.1	R	25
o-Xylene	43.45	43.77	50	ND	86.9	%	70-130
					0.7	R	25

LCS	Laboratory Control Sample	8020MS1			12/14/1999	1745

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	48.549		50		97.1	%	70-130
Ethylbenzene	44.51		50		89.0	%	70-130
Toluene	45.77		50		91.5	%	70-130
m&p-Xylenes	86.57		100		86.6	%	70-130
o-Xylene	43.72		50		87.4	%	70-130

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

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SURROGATE RECOVERIES REPORT

Job Number.: 914040 Report Date.: 12/15/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN REMEDIATION STRIP ATTN: Mr. Paul Peacock

Method.....: BTEX
Method Code.....: 8021BX
Batch.....: 50720
Analyst.....: weh

Surrogate	Units
1,4-Difluorobenzene	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		LCS		49.26	50.00	98.5	78-118		12/12/1999	1058
		MB		47.98	50.00	96.0	78-118		12/12/1999	1133
914040-1				49.36	50.00	98.7	78-118		12/12/1999	1210
914040-1		MS		51.73	50.00	103.5	78-118		12/12/1999	1247
914040-1		MSD		52.24	50.00	104.5	78-118		12/12/1999	1321
914040-5				52.24	50.00	104.5	78-118		12/12/1999	1355
914040-20				51.83	50.00	103.7	78-118		12/12/1999	1428
914040-11				52.24	50.00	104.5	78-118		12/12/1999	1501
914040-12				51.27	50.00	102.5	78-118		12/12/1999	1535
914040-14				51.68	50.00	103.4	78-118		12/12/1999	1609
914040-15				50.25	50.00	100.5	78-118		12/12/1999	1643
914040-8				50.56	50.00	101.1	78-118		12/12/1999	1717
914040-17				49.37	50.00	98.7	78-118		12/12/1999	1752
914040-18				49.91	50.00	99.8	78-118		12/12/1999	1826
914040-7				50.67	50.00	101.3	78-118		12/12/1999	1859
914040-16				50.85	50.00	101.7	78-118		12/12/1999	1934
914040-19				50.04	50.00	100.1	78-118		12/12/1999	2008
		LCS		49.50	50.00	99.0	78-118		12/12/1999	2043

Surrogate	Units
BFB (Surrogate)	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		LCS		46.25	50.00	92.5	86-110		12/12/1999	1058
		MB		43.81	50.00	87.6	86-110		12/12/1999	1133
914040-1				44.69	50.00	89.4	86-110		12/12/1999	1210
914040-1		MS		48.44	50.00	96.9	86-110		12/12/1999	1247
914040-1		MSD		48.56	50.00	97.1	86-110		12/12/1999	1321
914040-5				48.03	50.00	96.1	86-110		12/12/1999	1355
914040-20				47.63	50.00	95.3	86-110		12/12/1999	1428
914040-11				47.96	50.00	95.9	86-110		12/12/1999	1501
914040-12				47.09	50.00	94.2	86-110		12/12/1999	1535
914040-14				47.37	50.00	94.7	86-110		12/12/1999	1609
914040-15				46.28	50.00	92.6	86-110		12/12/1999	1643
914040-8				46.22	50.00	92.4	86-110		12/12/1999	1717
914040-17				45.29	50.00	90.6	86-110		12/12/1999	1752
914040-18				44.89	50.00	89.8	86-110		12/12/1999	1826
914040-7				46.04	50.00	92.1	86-110		12/12/1999	1859
914040-16				47.31	50.00	94.6	86-110		12/12/1999	1934
914040-19				45.76	50.00	91.5	86-110		12/12/1999	2008
		LCS		45.44	50.00	90.9	86-110		12/12/1999	2043

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SURROGATE RECOVERIES REPORT

Job Number.: 914040 Report Date.: 12/15/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN REMEDIATION STRIP ATTN: Mr. Paul Peacock

Method.....: BTEX
Method Code.....: 8021BX

Batch.....: 50772
Analyst.....: weh

Surrogate	Units
1,4-Difluorobenzene	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		LCS		53.46	50.00	106.9	78-118		12/13/1999	0901
		MB		52.50	50.00	105.0	78-118		12/13/1999	0935
914065-2				51.14	50.00	102.3	78-118		12/13/1999	1011
914065-2		MS		50.32	50.00	100.6	78-118		12/13/1999	1049
914065-2		MSD		51.13	50.00	102.3	78-118		12/13/1999	1123
914065-3				51.08	50.00	102.2	78-118		12/13/1999	1157
914065-1				50.99	50.00	102.0	78-118		12/13/1999	1231
914040-9				50.78	50.00	101.6	78-118		12/13/1999	1356
		LCS		50.55	50.00	101.1	78-118		12/13/1999	1753

Surrogate	Units
BFB (Surrogate)	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		LCS		50.75	50.00	101.5	86-110		12/13/1999	0901
		MB		48.01	50.00	96.0	86-110		12/13/1999	0935
914065-2				46.81	50.00	93.6	86-110		12/13/1999	1011
914065-2		MS		46.90	50.00	93.8	86-110		12/13/1999	1049
914065-2		MSD		47.14	50.00	94.3	86-110		12/13/1999	1123
914065-3				46.53	50.00	93.1	86-110		12/13/1999	1157
914065-1				45.16	50.00	90.3	86-110		12/13/1999	1231
914040-9				47.84	50.00	95.7	86-110		12/13/1999	1356
		LCS		46.28	50.00	92.6	86-110		12/13/1999	1753

Method.....: BTEX
Method Code.....: 8021BX

Batch.....: 50839
Analyst.....: weh

Surrogate	Units
1,4-Difluorobenzene	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		LCS		49.62	50.00	99.2	78-118		12/14/1999	0827
		MB		50.38	50.00	100.8	78-118		12/14/1999	0901
914040-2				50.10	50.00	100.2	78-118		12/14/1999	0941
914040-3				52.57	50.00	105.1	78-118		12/14/1999	1015
914040-4				49.82	50.00	99.6	78-118		12/14/1999	1056
914040-6				52.11	50.00	104.2	78-118		12/14/1999	1131
914040-10				52.86	50.00	105.7	78-118		12/14/1999	1210
914040-13				52.54	50.00	105.1	78-118		12/14/1999	1332

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SURROGATE RECOVERIES REPORT

Job Number.: 914040 Report Date.: 12/15/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN REMEDIATION STRIP ATTN: Mr. Paul Peacock

Surrogate	Units
1,4-Difluorobenzene	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
914040-2			100	51.79	50.00	103.6	78-118		12/14/1999	1558
914040-2		MS	100	50.22	50.00	100.4	78-118		12/14/1999	1633
914040-2		MSD	100	49.71	50.00	99.4	78-118		12/14/1999	1709
		LCS		48.88	50.00	97.8	78-118		12/14/1999	1745

Surrogate	Units
BFB (Surrogate)	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		LCS		46.92	50.00	93.8	86-110		12/14/1999	0827
		MB		46.16	50.00	92.3	86-110		12/14/1999	0901
914040-2				52.01	50.00	104.0	86-110		12/14/1999	0941
914040-3				51.89	50.00	103.8	86-110		12/14/1999	1015
914040-4				49.33	50.00	98.7	86-110		12/14/1999	1056
914040-6				50.07	50.00	100.1	86-110		12/14/1999	1131
914040-10				48.93	50.00	97.9	86-110		12/14/1999	1210
914040-13				51.26	50.00	102.5	86-110		12/14/1999	1332
914040-2			100	47.30	50.00	94.6	86-110		12/14/1999	1558
914040-2		MS	100	46.47	50.00	92.9	86-110		12/14/1999	1633
914040-2		MSD	100	45.63	50.00	91.3	86-110		12/14/1999	1709
		LCS		45.86	50.00	91.7	86-110		12/14/1999	1745

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QUALITY ASSURANCE FOOTER

METHOD REFERENCES

1. EPA SW-846, Test Methods for Evaluating Solid Waste Update I, IIA, IIB, III
2. Standard Methods for the Examination of Water and Wastewater, 18th Edition
3. EPA 600/4-79-020, Methods of Chemical Analysis for Waters and Wastes, March 1983
4. Federal Register, Friday, October 26, 1984 (40 CFR Part 136)
5. American Society for Testing and Materials, Volumes 5.01, 5.02, 5.03, 11.01,11.02,11.03,11.04
6. EPA Methods for Environmental Samples

COMMENTS

All methods of chemical analysis have a statistical uncertainty associated with the results. Unless otherwise indicated, the data in this report are within the limits of uncertainty as specified in the referenced method. Quality Control acceptance criteria are based either on actual laboratory performance or on limits specified in the referenced method. The date and time of analysis indicated on the QA report may not reflect the actual time of analysis for QC samples. All data are reported on an "as received" basis unless otherwise indicated. Data reported in the QA report may be lower than sample data due to dilution of samples into the calibration range of the analysis. Sample concentration for solid samples are calculated on an as received (wet) basis. Unless otherwise indicated, volatiles by gas chromatography (GC) are reported from a single column. Volatile analysis by GC on low level soil extractions are conducted at room temperature.

FLAGS, FOOTNOTES AND ABBREVIATIONS (as needed)

NA	=	Not Analyzed	ND	=	Not detected at a value greater than the reporting limit
N/A	=	Not applicable	NC	=	Not calculable due to values lower than the reporting limit
ug/L	=	Micrograms per liter	mg/L	=	Milligrams per liter
ug/Kg	=	Micrograms per kilogram	mg/kg	=	Milligrams per kilogram
U	=	Undetected			
J	=	Indicates value is > MDL, but < Reporting Limit			
B	=	Analyte was detected in the method blank analyzed with this sample.			
D	=	Surrogate recoveries are not calculated due to sample dilution.			
X	=	Surrogate recovery is outside quality control limits.			
Y	=	Spike or spike duplicate recovery is outside quality control limits.			
Z	=	Relative percent difference for a spike and spike duplicate is outside quality control limits. The precision of the method was impacted by matrix.			
^	=	Indicates value is above QC acceptance criteria.			

QC SAMPLE IDENTIFICATIONS

MB	=	Method Blank	SB	=	Storage Blank
RB	=	Reagent Blank	EB	=	Extraction Blank
PB	=	Preparation Blank	CALB	=	Calibration Blank
MD	=	Method Duplicate	RS	=	Reference Standard
LCS	=	Laboratory Control Sample	LCSD	=	Laboratory Control Sample Duplicate
MS	=	Matrix Spike	MSD	=	Matrix Spike Duplicate
ICB	=	Initial Calibration Blank	CCB	=	Continuing Calibration Blank
ICV	=	Initial Calibration Verification	ICB	=	Initial Calibration Blank
PDS	=	Post Digestion Spike	SS	=	Surrogate Spike
ISA	=	Interference Check standard "A"	ISB	=	Interference Check Standard "B"
ISCAB	=	Interference Check Sample AB	MSA	=	Method of Standard Additions
CAL	=	Calibration standard	SD	=	Serial Dilution
MST	=	TCLP Matrix Spike	MSQ	=	TCLP Matrix Spike Duplicate
PST	=	TCLP Post Digestion Spike	LCT	=	TCLP Laboratory Control Sample

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QUALITY ASSURANCE FOOTER

METHOD REFERENCES

1. EPA SW-846, Test Methods for Evaluating Solid Waste Update I, IIA, IIB, III
2. Standard Methods for the Examination of Water and Wastewater, 18th Edition
3. EPA 600/4-79-020, Methods of Chemical Analysis for Waters and Wastes, March 1983
4. Federal Register, Friday, October 26, 1984 (40 CFR Part 136)
5. American Society for Testing and Materials, Volumes 5.01, 5.02, 5.03, 11.01,11.02,11.03,11.04
6. EPA Methods for Environmental Samples

COMMENTS

All methods of chemical analysis have a statistical uncertainty associated with the results. Unless otherwise indicated, the data in this report are within the limits of uncertainty as specified in the referenced method. Quality Control acceptance criteria are based either on actual laboratory performance or on limits specified in the referenced method. The date and time of analysis indicated on the QA report may not reflect the actual time of analysis for QC samples. All data are reported on an "as received" basis unless otherwise indicated. Data reported in the QA report may be lower than sample data due to dilution of samples into the calibration range of the analysis. Sample concentration for solid samples are calculated on an as received (wet) basis. Unless otherwise indicated, volatiles by gas chromatography (GC) are reported from a single column. Volatile analysis by GC on low level soil extractions are conducted at room temperature.

FLAGS, FOOTNOTES AND ABBREVIATIONS (as needed)

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N/A	=	Not applicable	NC	=	Not calculable due to values lower than the reporting limit
ug/L	=	Micrograms per liter	mg/L	=	Milligrams per liter
ug/Kg	=	Micrograms per kilogram	mg/kg	=	Milligrams per kilogram
U	=	Undetected			
J	=	Indicates value is > MDL, but < Reporting Limit			
B	=	Analyte was detected in the method blank analyzed with this sample.			
D	=	Surrogate recoveries are not calculated due to sample dilution.			
X	=	Surrogate recovery is outside quality control limits.			
Y	=	Spike or spike duplicate recovery is outside quality control limits.			
Z	=	Relative percent difference for a spike and spike duplicate is outside quality control limits. The precision of the method was impacted by matrix.			
^	=	Indicates value is above QC acceptance criteria.			

QC SAMPLE IDENTIFICATIONS

MB	=	Method Blank	SB	=	Storage Blank
RB	=	Reagent Blank	EB	=	Extraction Blank
PB	=	Preparation Blank	CALB	=	Calibration Blank
MD	=	Method Duplicate	RS	=	Reference Standard
LCS	=	Laboratory Control Sample	LCSD	=	Laboratory Control Sample Duplicate
MS	=	Matrix Spike	MSD	=	Matrix Spike Duplicate
ICB	=	Initial Calibration Blank	CCB	=	Continuing Calibration Blank
ICV	=	Initial Calibration Verification	ICB	=	Initial Calibration Blank
PDS	=	Post Digestion Spike	SS	=	Surrogate Spike
ISA	=	Interference Check standard "A"	ISB	=	Interference Check Standard "B"
ISCAB	=	Interference Check Sample AB	MSA	=	Method of Standard Additions
CAL	=	Calibration standard	SD	=	Serial Dilution
MST	=	TCLP Matrix Spike	MSQ	=	TCLP Matrix Spike Duplicate
PST	=	TCLP Post Digestion Spike	LCT	=	TCLP Laboratory Control Sample

rpjsckl | Job Sample Receipt Checklist Report 12/11/99 | V2

Job Number.....: 914040 Location.: 57211 Customer Job ID.....: Job Check List Date.: 12/11/99
Project Number.: 96000746 Project Description.: INDIAN BASIN REMEDIATION STRIPPER Project Manager.....: lpa
Customer.....: Marathon Oil Company Contact.: Mr. Paul Peacock

Questions ?	(Y/N)	Comments
Chain-of-Custody Present?	Y	
Custody seal on shipping container?	Y	
...If "yes", custody seal intact?	Y	
Custody seals on sample containers?		
...If "yes", custody seal intact?		
Samples chilled?	Y	
Temperature of cooler acceptable? (4 deg C +/- 2).		RECEIVED ON ICE
Samples received intact (good condition)?	Y	
Volatile samples acceptable? (no headspace)	Y	
Correct containers used?	Y	
Adequate sample volume provided?	Y	
Samples preserved correctly?	Y	
Samples received within holding-time?	Y	
Agreement between COC and sample labels?	Y	
Additional		
Comments		
Sample Custodian Signature		

ARCADIS GERAGHTY & MILLER

Laboratory Task Order No./P.O. No. _____

CHAIN-OF-CUSTODY RECORD

Page _____ of 2

914040

Project Number/Name: NP000443.0001 MT004

Project Location: Marathon Indian Basin

Laboratory: Core Lab

Project Manager: Mike Hansen

Sampler(s)/Affiliation: McNeese - AG&M Midland / Kvasnicka

	Sample ID/Location	Matrix	Date Sampled	Time	ANALYSIS / METHOD / SIZE: BTEX (8021) 2-40mL VOA's						Remarks	Total
1	MW 106	L	12-8-99	1630	2							2
2	MW 43			1455	2							2
3	MW 46			1535	2							2
4	MW 49			1505	2							2
5	MW 50			1520	2							2
6	MW 55		12-9-99	950	2							2
7	MW 61			912	2							2
8	MW 65			1145	2							2
9	MW 77			1155	2							2
10	MW 78			1210	2							2
11	MW 79			1045	2							2
12	MW 90			1230	2							2
13	MW 91			1140	2							2
14	MW 105			1350	2							2
DID NOT RECEIVE →	MW 106			1630	2						LISTED ABOVE/LKH/13	2

Sample Matrix: L = Liquid; S = Solid; A = Air

Total No. of Bottles/ Containers

Relinquished by: [signature]	Organization: AG&M	Date 12/10/99	Time 1800	Seal Intact?	
Received by: [signature]	Organization: STL	Date 12/11/99	Time _____	(Yes) No N/A	
Relinquished by: _____	Organization: _____	Date / /	Time _____	Seal Intact?	
Received by: _____	Organization: _____	Date / /	Time _____	Yes No N/A	

Special Instructions/Remarks: Bill directly to Paul Peacock, Marathon

Delivery Method: ☐ In Person ☒ Common Carrier Fed Ex (SPECIFY) ☐ Lab Courier ☐ Other _____ (SPECIFY)

ARCADIS GERAGHTY & MILLER

Laboratory Task Order No./P.O. No. _____

CHAIN-OF-CUSTODY RECORD

Page _____ of 2

914040

Project Number/Name: NP000443.0001 MT004

Project Location: Marathon Indian Basin

Laboratory: Core Lab

Project Manager: Mike Hansen

Sampler(s)/Affiliation: McNeese - AG&M Midland / Kvasnicka

	Sample ID/Location	Matrix	Date Sampled	Time	ANALYSIS / METHOD / SIZE: BTEX (8021) 2-40mL VOA's						Remarks	Total
15	MW 66	L	12-10-99	1045	2							2
16	MW 71		12-10-99	920	2							2
17	MW 88			1000	2							2
18	MW 89			1125	2							2
19	Dup 1		—	—	2							2
20	Trip Blank		—	—	2							2
											Total No. of Bottles/ Containers	

Sample Matrix: L = Liquid; S = Solid; A = Air

Relinquished by: [signature]	Organization: AG&M	Date 12/10/99	Time 1800	Seal Intact? Yes No N/A
Received by: [signature]	Organization: TL	Date 12/11/99	Time 1100	
Relinquished by:	Organization:	Date / /	Time	Seal Intact? Yes No N/A
Received by:	Organization:	Date / /	Time	

Special Instructions/Remarks: Bill directly to Paul Peacock, Marathon

Delivery Method: ☐ In Person ☒ Common Carrier Fed Ex (SPECIFY) ☐ Lab Courier ☐ Other _____ (SPECIFY)

AG 05 0597

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ANALYTICAL REPORT

JOB NUMBER: 914279

Prepared For:

Marathon Oil Company
125 West Missouri Street
P.O. Box 552
Midland, TX 79702-0552

Attention: Mr. Paul Peacock

Date: 12/23/1999

RECEIVED
JAN 04 2000

Les Arnold
Signature

12/23/99
Date

Name: Les Arnold

Title: Laboratory Manager

Severn Trent Laboratories
2400 Cumberland Drive
Valparaiso, IN 46383

PHONE: 219-464-2389
FAX..: 219-462-2953

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SAMPLE INFORMATION
Date: 12/23/1999

Job Number.: 914279
Customer...: Marathon Oil Company
Attn.....: Mr. Paul Peacock

Project Number.....: 96000746
Customer Project ID....: NP000443.0001MT004
Project Description....: INDIAN BASIN REMEDIATION STRIPPER

Laboratory Sample ID	Customer Sample ID	Sample Matrix	Date Sampled	Time Sampled	Date Received	Time Received
914279-1	MW-73	Aqueous	12/14/1999	14:30	12/16/1999	13:17
914279-2	MW-95	Aqueous	12/14/1999	11:50	12/16/1999	13:17
914279-3	MW-108	Aqueous	12/14/1999	09:30	12/16/1999	13:17
914279-4	MW-74	Aqueous	12/14/1999	15:00	12/16/1999	13:17
914279-5	MW-111	Aqueous	12/13/1999	10:30	12/16/1999	13:17
914279-6	FB-1	Aqueous	12/13/1999	12:00	12/16/1999	13:17
914279-7	MW-64	Aqueous	12/13/1999	14:45	12/16/1999	13:17
914279-8	MW-87A	Aqueous	12/13/1999	13:00	12/16/1999	13:17
914279-9	MW-87	Aqueous	12/13/1999	12:00	12/16/1999	13:17
914279-10	DUP-2	Aqueous	12/13/1999	12:00	12/16/1999	13:17
914279-11	MW-60	Aqueous	12/13/1999	11:30	12/16/1999	13:17
914279-12	MW-96	Aqueous	12/14/1999	10:20	12/16/1999	13:17
914279-13	MW-97	Aqueous	12/14/1999	09:47	12/16/1999	13:17
914279-14	MW-124	Aqueous	12/14/1999	15:40	12/16/1999	13:17
914279-15	MW-98	Aqueous	12/15/1999	10:00	12/16/1999	13:17
914279-16	TRIP BLANK	Aqueous			12/16/1999	13:17
914279-17	MW-118	Aqueous	12/15/1999	10:56	12/16/1999	13:17

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LABORATORY TEST RESULTS

Job Number: 914279

Date: 12/23/1999

CUSTOMER: Marathon Oil Company | PROJECT: NP000443.0001MT004 | ATTN: Mr. Paul Peacock

Customer Sample ID: MW-73
Date Sampled.....: 12/14/1999
Time Sampled.....: 14:30
Sample Matrix.....: Aqueous

Laboratory Sample ID: 914279-1
Date Received.....: 12/16/1999
Time Received.....: 13:17

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8021B	BTEX					
	Benzene	5.7	5.0	ug/L	12/22/99	weh
	Ethylbenzene	<5.0	5.0	ug/L	12/22/99	weh
	Toluene	<5.0	5.0	ug/L	12/22/99	weh
	m&p-Xylenes	<10.0	10.0	ug/L	12/22/99	weh
	o-Xylene	8.9	5.0	ug/L	12/22/99	weh

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LABORATORY TEST RESULTS

Job Number: 914279

Date: 12/23/1999

CUSTOMER: Marathon Oil Company | PROJECT: NP000443.0001MT004 | ATTN: Mr. Paul Peacock

Customer Sample ID: MW-95
Date Sampled.....: 12/14/1999
Time Sampled.....: 11:50
Sample Matrix.....: Aqueous

Laboratory Sample ID: 914279-2
Date Received.....: 12/16/1999
Time Received.....: 13:17

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8021B	BTEX					
	Benzene	<5.0	5.0	ug/L	12/20/99	weh
	Ethylbenzene	<5.0	5.0	ug/L	12/20/99	weh
	Toluene	<5.0	5.0	ug/L	12/20/99	weh
	m&p-Xylenes	<10.0	10.0	ug/L	12/20/99	weh
	o-Xylene	ND	5.0	ug/L	12/20/99	weh

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LABORATORY TEST RESULTS

Job Number: 914279

Date: 12/23/1999

CUSTOMER: Marathon Oil Company PROJECT: NP000443.0001MT004 ATTN: Mr. Paul Peacock

Customer Sample ID: MW-108
Date Sampled.....: 12/14/1999
Time Sampled.....: 09:30
Sample Matrix.....: Aqueous

Laboratory Sample ID: 914279-3
Date Received.....: 12/16/1999
Time Received.....: 13:17

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8021B	BTEX					
	Benzene	ND	5.0	ug/L	12/20/99	weh
	Ethylbenzene	<5.0	5.0	ug/L	12/20/99	weh
	Toluene	<5.0	5.0	ug/L	12/20/99	weh
	m&p-Xylenes	<10.0	10.0	ug/L	12/20/99	weh
	o-Xylene	ND	5.0	ug/L	12/20/99	weh

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LABORATORY TEST RESULTS

Job Number: 914279

Date: 12/23/1999

CUSTOMER: Marathon Oil Company PROJECT: NP000443.0001MT004 ATTN: Mr. Paul Peacock

Customer Sample ID: MW-74
Date Sampled.....: 12/14/1999
Time Sampled.....: 15:00
Sample Matrix.....: Aqueous

Laboratory Sample ID: 914279-4
Date Received.....: 12/16/1999
Time Received.....: 13:17

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8021B	BTEX					
	Benzene	100	100	ug/L	12/21/99	weh
	Ethylbenzene	990	100	ug/L	12/21/99	weh
	Toluene	3900	100	ug/L	12/21/99	weh
	m&p-Xylenes	4100	200	ug/L	12/21/99	weh
	o-Xylene	2600	100	ug/L	12/21/99	weh

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LABORATORY TEST RESULTS

Job Number: 914279

Date: 12/23/1999

CUSTOMER: Marathon Oil Company | PROJECT: NP000443.0001MT004 | ATTN: Mr. Paul Peacock

Customer Sample ID: MW-111
Date Sampled.....: 12/13/1999
Time Sampled.....: 10:30
Sample Matrix.....: Aqueous

Laboratory Sample ID: 914279-5
Date Received.....: 12/16/1999
Time Received.....: 13:17

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8021B	BTEX			-		
	Benzene	ND	5.0	ug/L	12/20/99	weh
	Ethylbenzene	ND	5.0	ug/L	12/20/99	weh
	Toluene	ND	5.0	ug/L	12/20/99	weh
	m&p-Xylenes	ND	10.0	ug/L	12/20/99	weh
	o-Xylene	ND	5.0	ug/L	12/20/99	weh

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LABORATORY TEST RESULTS

Job Number: 914279

Date: 12/23/1999

CUSTOMER: Marathon Oil Company | PROJECT: NP000443.0001MT004 | ATTN: Mr. Paul Peacock

Customer Sample ID: FB-1
Date Sampled.....: 12/13/1999
Time Sampled.....: 12:00
Sample Matrix.....: Aqueous

Laboratory Sample ID: 914279-6
Date Received.....: 12/16/1999
Time Received.....: 13:17

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8021B	BTEX			-		
	Benzene	ND	5.0	ug/L	12/20/99	weh
	Ethylbenzene	ND	5.0	ug/L	12/20/99	weh
	Toluene	ND	5.0	ug/L	12/20/99	weh
	m&p-Xylenes	ND	10.0	ug/L	12/20/99	weh
	o-Xylene	ND	5.0	ug/L	12/20/99	weh

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Job Number: 914279

Date: 12/23/1999

CUSTOMER: Marathon Oil Company | PROJECT: NP000443.0001MT004 | ATTN: Mr. Paul Peacock

Customer Sample ID: MW-64
Date Sampled.....: 12/13/1999
Time Sampled.....: 14:45
Sample Matrix.....: Aqueous

Laboratory Sample ID: 914279-7
Date Received.....: 12/16/1999
Time Received.....: 13:17

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8021B	BTEX					
	Benzene	ND	5.0	ug/L	12/20/99	weh
	Ethylbenzene	ND	5.0	ug/L	12/20/99	weh
	Toluene	<5.0	5.0	ug/L	12/20/99	weh
	m&p-Xylenes	<10.0	10.0	ug/L	12/20/99	weh
	o-Xylene	ND	5.0	ug/L	12/20/99	weh

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Job Number: 914279

Date: 12/23/1999

CUSTOMER: Marathon Oil Company | PROJECT: NP000443.0001MT004 | ATTN: Mr. Paul Peacock

Customer Sample ID: MW-87A
Date Sampled.....: 12/13/1999
Time Sampled.....: 13:00
Sample Matrix.....: Aqueous

Laboratory Sample ID: 914279-8
Date Received.....: 12/16/1999
Time Received.....: 13:17

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8021B	BTEX					
	Benzene	ND	5.0	ug/L	12/20/99	weh
	Ethylbenzene	ND	5.0	ug/L	12/20/99	weh
	Toluene	ND	5.0	ug/L	12/20/99	weh
	m&p-Xylenes	ND	10.0	ug/L	12/20/99	weh
	o-Xylene	ND	5.0	ug/L	12/20/99	weh

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Job Number: 914279

Date: 12/23/1999

CUSTOMER: Marathon Oil Company | PROJECT: NP000443.0001MT004 | ATTN: Mr. Paul Peacock

Customer Sample ID: MW-87
Date Sampled.....: 12/13/1999
Time Sampled.....: 12:00
Sample Matrix.....: Aqueous

Laboratory Sample ID: 914279-9
Date Received.....: 12/16/1999
Time Received.....: 13:17

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8021B	BTEX			-		
	Benzene	ND	5.0	ug/L	12/20/99	weh
	Ethylbenzene	ND	5.0	ug/L	12/20/99	weh
	Toluene	ND	5.0	ug/L	12/20/99	weh
	m&p-Xylenes	ND	10.0	ug/L	12/20/99	weh
	o-Xylene	ND	5.0	ug/L	12/20/99	weh

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Job Number: 914279

Date: 12/23/1999

CUSTOMER: Marathon Oil Company | PROJECT: NP000443.0001MT004 | ATTN: Mr. Paul Peacock

Customer Sample ID: DUP-2
Date Sampled.....: 12/13/1999
Time Sampled.....: 12:00
Sample Matrix.....: Aqueous

Laboratory Sample ID: 914279-10
Date Received.....: 12/16/1999
Time Received.....: 13:17

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8021B	BTEX			-		
	Benzene	ND	5.0	ug/L	12/21/99	weh
	Ethylbenzene	ND	5.0	ug/L	12/21/99	weh
	Toluene	ND	5.0	ug/L	12/21/99	weh
	m&p-Xylenes	ND	10.0	ug/L	12/21/99	weh
	o-Xylene	ND	5.0	ug/L	12/21/99	weh

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Job Number: 914279 Date: 12/23/1999

CUSTOMER: Marathon Oil Company PROJECT: NP000443.0001MT004 ATTN: Mr. Paul Peacock

Customer Sample ID: MW-60
Date Sampled.....: 12/13/1999
Time Sampled.....: 11:30
Sample Matrix.....: Aqueous

Laboratory Sample ID: 914279-11
Date Received.....: 12/16/1999
Time Received.....: 13:17

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8021B	BTEX					
	Benzene	ND	5.0	ug/L	12/21/99	weh
	Ethylbenzene	ND	5.0	ug/L	12/21/99	weh
	Toluene	ND	5.0	ug/L	12/21/99	weh
	m&p-Xylenes	ND	10.0	ug/L	12/21/99	weh
	o-Xylene	ND	5.0	ug/L	12/21/99	weh

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Job Number: 914279 Date: 12/23/1999

CUSTOMER: Marathon Oil Company PROJECT: NP000443.0001MT004 ATTN: Mr. Paul Peacock

Customer Sample ID: MW-96
Date Sampled.....: 12/14/1999
Time Sampled.....: 10:20
Sample Matrix.....: Aqueous

Laboratory Sample ID: 914279-12
Date Received.....: 12/16/1999
Time Received.....: 13:17

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8021B	BTEX			-		
	Benzene	ND	5.0	ug/L	12/21/99	weh
	Ethylbenzene	ND	5.0	ug/L	12/21/99	weh
	Toluene	ND	5.0	ug/L	12/21/99	weh
	m&p-Xylenes	ND	10.0	ug/L	12/21/99	weh
	o-Xylene	ND	5.0	ug/L	12/21/99	weh

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Job Number: 914279

Date: 12/23/1999

CUSTOMER: Marathon Oil Company | PROJECT: NP000443.0001MT004 | ATTN: Mr. Paul Peacock

Customer Sample ID: MW-97
Date Sampled.....: 12/14/1999
Time Sampled.....: 09:47
Sample Matrix.....: Aqueous

Laboratory Sample ID: 914279-13
Date Received.....: 12/16/1999
Time Received.....: 13:17

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8021B	BTEX					
	Benzene	<5.0	5.0	ug/L	12/21/99	weh
	Ethylbenzene	ND	5.0	ug/L	12/21/99	weh
	Toluene	ND	5.0	ug/L	12/21/99	weh
	m&p-Xylenes	ND	10.0	ug/L	12/21/99	weh
	o-Xylene	ND	5.0	ug/L	12/21/99	weh

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Job Number: 914279

Date: 12/23/1999

CUSTOMER: Marathon Oil Company | PROJECT: NP000443.0001MT004 | ATTN: Mr. Paul Peacock

Customer Sample ID: MW-124
Date Sampled.....: 12/14/1999
Time Sampled.....: 15:40
Sample Matrix.....: Aqueous

Laboratory Sample ID: 914279-14
Date Received.....: 12/16/1999
Time Received.....: 13:17

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8021B	BTEX					
	Benzene	79	50	ug/L	12/22/99	weh
	Ethylbenzene	210	50	ug/L	12/22/99	weh
	Toluene	<50	50	ug/L	12/22/99	weh
	m&p-Xylenes	1500	100	ug/L	12/22/99	weh
	o-Xylene	ND	50	ug/L	12/22/99	weh

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LABORATORY TEST RESULTS

Job Number: 914279 Date: 12/23/1999

CUSTOMER: Marathon Oil Company PROJECT: NP000443.0001MT004 ATTN: Mr. Paul Peacock

Customer Sample ID: MW-98
Date Sampled.....: 12/15/1999
Time Sampled.....: 10:00
Sample Matrix.....: Aqueous

Laboratory Sample ID: 914279-15
Date Received.....: 12/16/1999
Time Received.....: 13:17

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8021B	BTEX					
	Benzene	<5.0	5.0	ug/L	12/22/99	weh
	Ethylbenzene	<5.0	5.0	ug/L	12/22/99	weh
	Toluene	13	5.0	ug/L	12/22/99	weh
	m&p-Xylenes	46	10.0	ug/L	12/22/99	weh
	o-Xylene	17	5.0	ug/L	12/22/99	weh

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LABORATORY TEST RESULTS

Job Number: 914279

Date: 12/23/1999

CUSTOMER: Marathon Oil Company | PROJECT: NP000443.0001MT004 | ATTN: Mr. Paul Peacock

Customer Sample ID: TRIP BLANK
Date Sampled.....:
Time Sampled.....:
Sample Matrix.....: Aqueous

Laboratory Sample ID: 914279-16
Date Received.....: 12/16/1999
Time Received.....: 13:17

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8021B	BTEX					
	Benzene	ND	5.0	ug/L	12/20/99	weh
	Ethylbenzene	ND	5.0	ug/L	12/20/99	weh
	Toluene	ND	5.0	ug/L	12/20/99	weh
	m&p-Xylenes	ND	10.0	ug/L	12/20/99	weh
	o-Xylene	ND	5.0	ug/L	12/20/99	weh

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LABORATORY TEST RESULTS

Job Number: 914279 Date: 12/23/1999

CUSTOMER: Marathon Oil Company PROJECT: NP000443.0001MT004 ATTN: Mr. Paul Peacock

Customer Sample ID: MW-118
Date Sampled.....: 12/15/1999
Time Sampled.....: 10:56
Sample Matrix.....: Aqueous

Laboratory Sample ID: 914279-17
Date Received.....: 12/16/1999
Time Received.....: 13:17

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8021B	BTEX					
	Benzene	ND	5.0	ug/L	12/21/99	weh
	Ethylbenzene	ND	5.0	ug/L	12/21/99	weh
	Toluene	ND	5.0	ug/L	12/21/99	weh
	m&p-Xylenes	ND	10.0	ug/L	12/21/99	weh
	o-Xylene	ND	5.0	ug/L	12/21/99	weh

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QUALITY CONTROL RESULTS

Job Number.: 914279 Report Date.: 12/23/1999

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN REMEDIATION STRIP ATTN: Mr. Paul Peacock

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time

Test Method.....: EPA 8021B Batch.....: 51154 Analyst...: weh
Method Description.: BTEX Units.....: ug/L

LCS	Laboratory Control Sample	8020MS1			12/20/1999	0902

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	52.351		50		104.7	%	70-130
Ethylbenzene	49.61		50		99.2	%	70-130
Toluene	50.61		50		101.2	%	70-130
m&p-Xylenes	95.71		100		95.7	%	70-130
o-Xylene	48.64		50		97.3	%	70-130

MB	Method Blank				12/20/1999	0936

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	ND						
Ethylbenzene	ND						
Toluene	ND						
m&p-Xylenes	ND						
o-Xylene	ND						

MS	Matrix Spike	8020MS1	914279-2		12/20/1999	1054

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	54.834		50	1.563	106.5	%	70-130
Ethylbenzene	49.33		50	2.56	93.5	%	70-130
Toluene	53.57		50	1.84	103.5	%	70-130
m&p-Xylenes	92.05		100	2.30	89.8	%	70-130
o-Xylene	45.29		50	ND	90.6	%	70-130

MSD	Matrix Spike Duplicate	8020MS1	914279-2		12/20/1999	1128

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	50.087	54.834	50	1.563	97.0	%	70-130
					9.0	R	25
Ethylbenzene	48.11	49.33	50	2.56	91.1	%	70-130
					2.5	R	25
Toluene	48.40	53.57	50	1.84	93.1	%	70-130
					10.1	R	25
m&p-Xylenes	90.78	92.05	100	2.30	88.5	%	70-130
					1.4	R	25
o-Xylene	44.76	45.29	50	ND	89.5	%	70-130
					1.2	R	25

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QUALITY CONTROL RESULTS

Job Number.: 914279 Report Date.: 12/23/1999

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN REMEDIATION STRIP ATTN: Mr. Paul Peacock

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
LCS	Laboratory Control Sample	8020MS1			12/20/1999	2034

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	50.055		50		100.1	%	70-130
Ethylbenzene	46.25		50		92.5	%	70-130
Toluene	47.26		50		94.5	%	70-130
m&p-Xylenes	89.53		100		89.5	%	70-130
o-Xylene	45.45		50		90.9	%	70-130

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
MB	Method Blank				12/20/1999	2108

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	ND						
Ethylbenzene	ND						
Toluene	ND						
m&p-Xylenes	ND						
o-Xylene	ND						

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
MS	Matrix Spike	8020MS1	914279-8		12/20/1999	2249

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	49.958		50	ND	99.9	%	70-130
Ethylbenzene	46.03		50	ND	92.1	%	70-130
Toluene	47.57		50	ND	95.1	%	70-130
m&p-Xylenes	89.08		100	ND	89.1	%	70-130
o-Xylene	45.24		50	ND	90.5	%	70-130

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
MSD	Matrix Spike Duplicate	8020MS1	914279-8		12/20/1999	2323

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	50.207	49.958	50	ND	100.4	%	70-130
					0.5	R	25
Ethylbenzene	45.89	46.03	50	ND	91.8	%	70-130
					0.3	R	25
Toluene	47.37	47.57	50	ND	94.7	%	70-130
					0.4	R	25
m&p-Xylenes	88.79	89.08	100	ND	88.8	%	70-130
					0.3	R	25
o-Xylene	45.20	45.24	50	ND	90.4	%	70-130
					0.1	R	25

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
LCS	Laboratory Control Sample	8020MS1			12/21/1999	0426

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	50.959		50		101.9	%	70-130
Ethylbenzene	47.66		50		95.3	%	70-130
Toluene	48.66		50		97.3	%	70-130
p-Xylenes	91.87		100		91.9	%	70-130
o-Xylene	46.88		50		93.8	%	70-130

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

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QUALITY CONTROL RESULTS

Job Number.: 914279 Report Date.: 12/23/1999

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN REMEDIATION STRIP ATTN: Mr. Paul Peacock

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time

Test Method.....: EPA 8021B Batch.....: 51210 Analyst...: weh
Method Description.: BTEX Units.....: ug/L

LCS	Laboratory Control Sample	8020MS1			12/21/1999	1352

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	50.705		50		101.4	%	70-130
Ethylbenzene	46.86		50		93.7	%	70-130
Toluene	48.90		50		97.8	%	70-130
m&p-Xylenes	90.36		100		90.4	%	70-130
o-Xylene	45.96		50		91.9	%	70-130

MB	Method Blank				12/21/1999	1426

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	ND						
Ethylbenzene	ND						
Toluene	ND						
m&p-Xylenes	ND						
o-Xylene	ND						

MS	Matrix Spike	8020MS1	914327-6		12/21/1999	1825

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	235.404		50	192.952	84.9	%	70-130
Ethylbenzene	46.73		50	ND	93.5	%	70-130
Toluene	76.16		50	31.58	89.2	%	70-130
m&p-Xylenes	97.17		100	ND	97.2	%	70-130
o-Xylene	52.01		50	ND	104.0	%	70-130

MSD	Matrix Spike Duplicate	8020MS1	914327-6		12/21/1999	1859

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	239.800	235.404	50	192.952	93.7	%	70-130
					1.9	R	25
Ethylbenzene	46.85	46.73	50	ND	93.7	%	70-130
					0.3	R	25
Toluene	78.05	76.16	50	31.58	92.9	%	70-130
					2.5	R	25
m&p-Xylenes	96.56	97.17	100	ND	96.6	%	70-130
					0.6	R	25
o-Xylene	51.64	52.01	50	ND	103.3	%	70-130
					0.7	R	25

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

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QUALITY CONTROL RESULTS

Job Number.: 914279 Report Date.: 12/23/1999

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN REMEDIATION STRIP ATTN: Mr. Paul Peacock

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
LCS	Laboratory Control Sample	8020MS1			12/21/1999	2150

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	51.937		50		103.9	%	70-130
Ethylbenzene	48.15		50		96.3	%	70-130
Toluene	49.46		50		98.9	%	70-130
m&p-Xylenes	93.21		100		93.2	%	70-130
o-Xylene	47.44		50		94.9	%	70-130

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
MB	Method Blank				12/21/1999	2224

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	ND						
Ethylbenzene	ND						
Toluene	ND						
m&p-Xylenes	ND						
o-Xylene	ND						

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
MS	Matrix Spike	8020MS1	914280-7		12/21/1999	2332

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	51.282		50	1.605	99.4	%	70-130
Ethylbenzene	46.61		50	ND	93.2	%	70-130
Toluene	47.96		50	ND	95.9	%	70-130
m&p-Xylenes	90.54		100	ND	90.5	%	70-130
o-Xylene	45.93		50	ND	91.9	%	70-130

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
MSD	Matrix Spike Duplicate	8020MS1	914280-7		12/22/1999	0006

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	51.191	51.282	50	1.605	99.2	%	70-130
					0.2	R	25
Ethylbenzene	46.58	46.61	50	ND	93.2	%	70-130
					0.1	R	25
Toluene	47.79	47.96	50	ND	95.6	%	70-130
					0.4	R	25
m&p-Xylenes	90.46	90.54	100	ND	90.5	%	70-130
					0.1	R	25
o-Xylene	45.84	45.93	50	ND	91.7	%	70-130
					0.2	R	25

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
LCS	Laboratory Control Sample	8020MS1			12/22/1999	0548

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	50.910		50		101.8	%	70-130
Ethylbenzene	46.06		50		92.1	%	70-130
Toluene	48.71		50		97.4	%	70-130
m&p-Xylenes	89.01		100		89.0	%	70-130
o-Xylene	45.24		50		90.5	%	70-130

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

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QUALITY CONTROL RESULTS

Job Number.: 914279 Report Date.: 12/23/1999

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN REMEDIATION STRIP ATTN: Mr. Paul Peacock

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time

Test Method.....: EPA 8021B Batch.....: 51266 Analyst...: weh
Method Description.: BTEX Units.....: ug/L

LCS	Laboratory Control Sample	8020MS1			12/22/1999	1020

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	48.448		50		96.9	%	70-130
Ethylbenzene	45.96		50		91.9	%	70-130
Toluene	46.97		50		93.9	%	70-130
m&p-Xylenes	88.77		100		88.8	%	70-130
o-Xylene	45.07		50		90.1	%	70-130

MB	Method Blank				12/22/1999	1056

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	ND						
Ethylbenzene	ND						
Toluene	ND						
-Xylenes	ND						
ylene	ND						

MS	Matrix Spike	8020MS1	914280-13		12/22/1999	1244

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	47.641		50	ND	95.3	%	70-130
Ethylbenzene	44.52		50	ND	89.0	%	70-130
Toluene	47.09		50	ND	94.2	%	70-130
m&p-Xylenes	86.07		100	ND	86.1	%	70-130
o-Xylene	43.48		50	ND	87.0	%	70-130

MSD	Matrix Spike Duplicate	8020MS1	914280-13		12/22/1999	1320

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	48.581	47.641	50	ND	97.2	%	70-130
					2.0	R	25
Ethylbenzene	46.08	44.52	50	ND	92.2	%	70-130
					3.4	R	25
Toluene	47.21	47.09	50	ND	94.4	%	70-130
					0.3	R	25
m&p-Xylenes	88.94	86.07	100	ND	88.9	%	70-130
					3.3	R	25
o-Xylene	45.22	43.48	50	ND	90.4	%	70-130
					3.9	R	25

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

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QUALITY CONTROL RESULTS

Job Number.: 914279

Report Date.: 12/23/1999

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN REMEDIATION STRIP ATTN: Mr. Paul Peacock

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
LCS	Laboratory Control Sample	8020MS1			12/22/1999	1842

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	48.951		50		97.9	%	70-130
Ethylbenzene	45.95		50		91.9	%	70-130
Toluene	47.03		50		94.1	%	70-130
m&p-Xylenes	89.17		100		89.2	%	70-130
o-Xylene	45.17		50		90.3	%	70-130

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

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SURROGATE RECOVERIES REPORT

Job Number.: 914279 Report Date.: 12/23/1999

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN REMEDIATION STRIP ATTN: Mr. Paul Peacock

Method.....: BTEX
Method Code.....: 8021BX
Batch.....: 51154
Analyst.....: weh

Surrogate	Units
1,4-Difluorobenzene	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		LCS		48.62	50.00	97.2	78-118		12/20/1999	0902
		MB		49.47	50.00	98.9	78-118		12/20/1999	0936
914279-2				49.75	50.00	99.5	78-118		12/20/1999	1020
914279-2		MS		48.62	50.00	97.2	78-118		12/20/1999	1054
914279-2		MSD		49.37	50.00	98.7	78-118		12/20/1999	1128
914324-9			1000	47.43	50.00	94.9	78-118		12/20/1999	1203
914326-1			500	47.68	50.00	95.4	78-118		12/20/1999	1237
914327-1			100	56.04	50.00	112.1	78-118		12/20/1999	1347
914327-2			100	52.74	50.00	105.5	78-118		12/20/1999	1421
914327-3			100	49.11	50.00	98.2	78-118		12/20/1999	1455
914327-4			100	48.94	50.00	97.9	78-118		12/20/1999	1530
914327-5			100	51.76	50.00	103.5	78-118		12/20/1999	1604
914327-6			100	52.94	50.00	105.9	78-118		12/20/1999	1637
914327-7				46.76	50.00	93.5	78-118		12/20/1999	1711
914279-16				48.98	50.00	98.0	78-118		12/20/1999	1745
914280-14				48.64	50.00	97.3	78-118		12/20/1999	1819
914279-3				47.51	50.00	95.0	78-118		12/20/1999	1853
914279-5				47.81	50.00	95.6	78-118		12/20/1999	1927
914279-6				47.98	50.00	96.0	78-118		12/20/1999	2001
		LCS		50.87	50.00	101.7	78-118		12/20/1999	2034
		MB		49.18	50.00	98.4	78-118		12/20/1999	2108
914279-7				47.65	50.00	95.3	78-118		12/20/1999	2142
914279-8				48.85	50.00	97.7	78-118		12/20/1999	2215
914279-8		MS		47.87	50.00	95.7	78-118		12/20/1999	2249
914279-8		MSD		48.76	50.00	97.5	78-118		12/20/1999	2323
914279-9				47.65	50.00	95.3	78-118		12/20/1999	2357
914279-10				47.54	50.00	95.1	78-118		12/21/1999	0031
914279-11				47.12	50.00	94.2	78-118		12/21/1999	0104
914279-12				48.39	50.00	96.8	78-118		12/21/1999	0138
914279-13				50.64	50.00	101.3	78-118		12/21/1999	0212
914279-17				50.96	50.00	101.9	78-118		12/21/1999	0245
914280-1				50.67	50.00	101.3	78-118		12/21/1999	0319
914280-5				49.85	50.00	99.7	78-118		12/21/1999	0352
		LCS		50.09	50.00	100.2	78-118		12/21/1999	0426

Surrogate	Units
BFB (Surrogate)	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		LCS		49.37	50.00	98.7	86-110		12/20/1999	0902
		MB		48.16	50.00	96.3	86-110		12/20/1999	0936
914279-2				47.92	50.00	95.8	86-110		12/20/1999	1020
914279-2		MS		48.37	50.00	96.7	86-110		12/20/1999	1054
914279-2		MSD		48.67	50.00	97.3	86-110		12/20/1999	1128

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SURROGATE RECOVERIES REPORT

Job Number.: 914279 Report Date.: 12/23/1999

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN REMEDIATION STRIP ATTN: Mr. Paul Peacock

Surrogate	Units
BFB (Surrogate)	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
914324-9			1000	45.98	50.00	92.0	86-110		12/20/1999	1203
914326-1			500	46.71	50.00	93.4	86-110		12/20/1999	1237
914327-1			100	49.74	50.00	99.5	86-110		12/20/1999	1347
914327-2			100	48.44	50.00	96.9	86-110		12/20/1999	1421
914327-3			100	49.80	50.00	99.6	86-110		12/20/1999	1455
914327-4			100	49.43	50.00	98.9	86-110		12/20/1999	1530
914327-5			100	48.32	50.00	96.6	86-110		12/20/1999	1604
914327-6			100	49.10	50.00	98.2	86-110		12/20/1999	1637
914327-7				46.12	50.00	92.2	86-110		12/20/1999	1711
914279-16				46.51	50.00	93.0	86-110		12/20/1999	1745
914280-14				47.66	50.00	95.3	86-110		12/20/1999	1819
914279-3				46.42	50.00	92.8	86-110		12/20/1999	1853
914279-5				46.99	50.00	94.0	86-110		12/20/1999	1927
914279-6				47.45	50.00	94.9	86-110		12/20/1999	2001
		LCS		47.63	50.00	95.3	86-110		12/20/1999	2034
		MB		49.22	50.00	98.4	86-110		12/20/1999	2108
[illegible]4279-7				46.33	50.00	92.7	86-110		12/20/1999	2142
[illegible]4279-8				48.83	50.00	97.7	86-110		12/20/1999	2215
914279-8		MS		48.79	50.00	97.6	86-110		12/20/1999	2249
914279-8		MSD		49.74	50.00	99.5	86-110		12/20/1999	2323
914279-9				47.58	50.00	95.2	86-110		12/20/1999	2357
914279-10				47.03	50.00	94.1	86-110		12/21/1999	0031
914279-11				47.01	50.00	94.0	86-110		12/21/1999	0104
914279-12				43.35	50.00	86.7	86-110		12/21/1999	0138
914279-13				46.14	50.00	92.3	86-110		12/21/1999	0212
914279-17				46.29	50.00	92.6	86-110		12/21/1999	0245
914280-1				45.85	50.00	91.7	86-110		12/21/1999	0319
914280-5				45.99	50.00	92.0	86-110		12/21/1999	0352
		LCS		47.37	50.00	94.7	86-110		12/21/1999	0426

Method.....: BTEX Batch.....: 51210
Method Code.....: 8021BX Analyst.....: weh

Surrogate	Units
1,4-Difluorobenzene	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		LCS		53.11	50.00	106.2	78-118		12/21/1999	1352
		MB		51.96	50.00	103.9	78-118		12/21/1999	1426
914326-2				52.22	50.00	104.4	78-118		12/21/1999	1500
914327-1			2000	53.46	50.00	106.9	78-118		12/21/1999	1534
914327-2			2000	53.32	50.00	106.6	78-118		12/21/1999	1609
914327-4			1000	53.08	50.00	106.2	78-118		12/21/1999	1643
914327-5			1000	53.64	50.00	107.3	78-118		12/21/1999	1717
[illegible]14327-6			1000	53.41	50.00	106.8	78-118		12/21/1999	1751
[illegible]14327-6		MS		53.15	50.00	106.3	78-118		12/21/1999	1825
[illegible]14327-6		MSD		52.19	50.00	104.4	78-118		12/21/1999	1859

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SURROGATE RECOVERIES REPORT

Job Number.: 914279

Report Date.: 12/23/1999

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN REMEDIATION STRIP ATTN: Mr. Paul Peacock

Surrogate	Units
1,4-Difluorobenzene	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
914279-4			20	51.92	50.00	103.8	78-118		12/21/1999	2008
		LCS		54.18	50.00	108.4	78-118		12/21/1999	2150
		MB		53.25	50.00	106.5	78-118		12/21/1999	2224
914280-7				52.89	50.00	105.8	78-118		12/21/1999	2258
914280-7		MS		52.96	50.00	105.9	78-118		12/21/1999	2332
914280-7		MSD		53.34	50.00	106.7	78-118		12/22/1999	0006
914280-9				52.71	50.00	105.4	78-118		12/22/1999	0040
914280-10				52.60	50.00	105.2	78-118		12/22/1999	0114
914280-11				52.01	50.00	104.0	78-118		12/22/1999	0148
914280-12				53.15	50.00	106.3	78-118		12/22/1999	0223
		LCS		51.74	50.00	103.5	78-118		12/22/1999	0548

Surrogate	Units
BFB (Surrogate)	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		LCS		50.73	50.00	101.5	86-110		12/21/1999	1352
		MB		48.33	50.00	96.7	86-110		12/21/1999	1426
914326-2				48.83	50.00	97.7	86-110		12/21/1999	1500
914327-1			2000	49.37	50.00	98.7	86-110		12/21/1999	1534
914327-2			2000	48.98	50.00	98.0	86-110		12/21/1999	1609
914327-4			1000	49.14	50.00	98.3	86-110		12/21/1999	1643
914327-5			1000	49.95	50.00	99.9	86-110		12/21/1999	1717
914327-6			1000	49.36	50.00	98.7	86-110		12/21/1999	1751
914327-6		MS		49.08	50.00	98.2	86-110		12/21/1999	1825
914327-6		MSD		47.80	50.00	95.6	86-110		12/21/1999	1859
914279-4			20	52.49	50.00	105.0	86-110		12/21/1999	2008
		LCS		50.99	50.00	102.0	86-110		12/21/1999	2150
		MB		49.47	50.00	98.9	86-110		12/21/1999	2224
914280-7				49.00	50.00	98.0	86-110		12/21/1999	2258
914280-7		MS		50.56	50.00	101.1	86-110		12/21/1999	2332
914280-7		MSD		50.52	50.00	101.0	86-110		12/22/1999	0006
914280-9				48.53	50.00	97.1	86-110		12/22/1999	0040
914280-10				50.30	50.00	100.6	86-110		12/22/1999	0114
914280-11				47.12	50.00	94.2	86-110		12/22/1999	0148
914280-12				47.37	50.00	94.7	86-110		12/22/1999	0223
		LCS		48.38	50.00	96.8	86-110		12/22/1999	0548

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SURROGATE RECOVERIES REPORT

Job Number.: 914279 Report Date.: 12/23/1999

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN REMEDIATION STRIP ATTN: Mr. Paul Peacock

Method.....: BTEX
Method Code.....: 8021BX
Batch.....: 51266
Analyst.....: weh

Surrogate	Units
1,4-Difluorobenzene	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		LCS		50.82	50.00	101.6	78-118		12/22/1999	1020
		MB		50.62	50.00	101.2	78-118		12/22/1999	1056
914451-5				51.68	50.00	103.4	78-118		12/22/1999	1132
914280-13				50.64	50.00	101.3	78-118		12/22/1999	1208
914280-13		MS		51.43	50.00	102.9	78-118		12/22/1999	1244
914280-13		MSD		51.03	50.00	102.1	78-118		12/22/1999	1320
914280-2				51.77	50.00	103.5	78-118		12/22/1999	1356
914280-3				50.85	50.00	101.7	78-118		12/22/1999	1432
914280-4				53.32	50.00	106.6	78-118		12/22/1999	1507
914280-6				51.38	50.00	102.8	78-118		12/22/1999	1543
914280-8				51.70	50.00	103.4	78-118		12/22/1999	1618
914279-1				51.03	50.00	102.1	78-118		12/22/1999	1654
914279-15				52.31	50.00	104.6	78-118		12/22/1999	1730
914279-14			10	49.96	50.00	99.9	78-118		12/22/1999	1806
		LCS		52.18	50.00	104.4	78-118		12/22/1999	1842

Surrogate	Units
BFB (Surrogate)	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		LCS		48.19	50.00	96.4	86-110		12/22/1999	1020
		MB		46.60	50.00	93.2	86-110		12/22/1999	1056
914451-5				48.16	50.00	96.3	86-110		12/22/1999	1132
914280-13				47.04	50.00	94.1	86-110		12/22/1999	1208
914280-13		MS		48.64	50.00	97.3	86-110		12/22/1999	1244
914280-13		MSD		49.20	50.00	98.4	86-110		12/22/1999	1320
914280-2				48.43	50.00	96.9	86-110		12/22/1999	1356
914280-3				48.36	50.00	96.7	86-110		12/22/1999	1432
914280-4				51.65	50.00	103.3	86-110		12/22/1999	1507
914280-6				47.30	50.00	94.6	86-110		12/22/1999	1543
914280-8				49.05	50.00	98.1	86-110		12/22/1999	1618
914279-1				51.36	50.00	102.7	86-110		12/22/1999	1654
914279-15				51.30	50.00	102.6	86-110		12/22/1999	1730
914279-14			10	51.68	50.00	103.4	86-110		12/22/1999	1806
		LCS		49.12	50.00	98.2	86-110		12/22/1999	1842

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METHOD REFERENCES

1. EPA SW-846, Test Methods for Evaluating Solid Waste Update I, IIA, IIB, III
2. Standard Methods for the Examination of Water and Wastewater, 18th Edition
3. EPA 600/4-79-020, Methods of Chemical Analysis for Waters and Wastes, March 1983
4. Federal Register, Friday, October 26, 1984 (40 CFR Part 136)
5. American Society for Testing and Materials, Volumes 5.01, 5.02, 5.03, 11.01,11.02,11.03,11.04
6. EPA Methods for Environmental Samples

COMMENTS

All methods of chemical analysis have a statistical uncertainty associated with the results. Unless otherwise indicated, the data in this report are within the limits of uncertainty as specified in the referenced method. Quality Control acceptance criteria are based either on actual laboratory performance or on limits specified in the referenced method. The date and time of analysis indicated on the QA report may not reflect the actual time of analysis for QC samples. All data are reported on an "as received" basis unless otherwise indicated. Data reported in the QA report may be lower than sample data due to dilution of samples into the calibration range of the analysis. Sample concentration for solid samples are calculated on an as received (wet) basis. Unless otherwise indicated, volatiles by gas chromatography (GC) are reported from a single column. Volatile analysis by GC on low level soil extractions are conducted at room temperature.

FLAGS, FOOTNOTES AND ABBREVIATIONS (as needed)

NA	=	Not Analyzed	ND	=	Not detected at a value greater than the reporting limit
N/A	=	Not applicable	NC	=	Not calculable due to values lower than the reporting limit
ug/L	=	Micrograms per liter	mg/L	=	Milligrams per liter
ug/Kg	=	Micrograms per kilogram	mg/kg	=	Milligrams per kilogram
U	=	Undetected			
J	=	Indicates value is > MDL, but < Reporting Limit			
B	=	Analyte was detected in the method blank analyzed with this sample.			
D	=	Surrogate recoveries are not calculated due to sample dilution.			
X	=	Surrogate recovery is outside quality control limits.			
Y	=	Spike or spike duplicate recovery is outside quality control limits.			
Z	=	Relative percent difference for a spike and spike duplicate is outside quality control limits. The precision of the method was impacted by matrix.			
^	=	Indicates value is above QC acceptance criteria.			

QC SAMPLE IDENTIFICATIONS

MB	=	Method Blank	SB	=	Storage Blank
RB	=	Reagent Blank	EB	=	Extraction Blank
PB	=	Preparation Blank	CALB	=	Calibration Blank
MD	=	Method Duplicate	RS	=	Reference Standard
LCS	=	Laboratory Control Sample	LCSD	=	Laboratory Control Sample Duplicate
MS	=	Matrix Spike	MSD	=	Matrix Spike Duplicate
ICB	=	Initial Calibration Blank	CCB	=	Continuing Calibration Blank
ICV	=	Initial Calibration Verification	ICB	=	Initial Calibration Blank
PDS	=	Post Digestion Spike	SS	=	Surrogate Spike
ISA	=	Interference Check standard "A"	ISB	=	Interference Check Standard "B"
ISCAB	=	Interference Check Sample AB	MSA	=	Method of Standard Additions
CAL	=	Calibration standard	SD	=	Serial Dilution
MST	=	TCLP Matrix Spike	MSQ	=	TCLP Matrix Spike Duplicate
PST	=	TCLP Post Digestion Spike	LCT	=	TCLP Laboratory Control Sample

pjsckl | Job Sample Receipt Checklist Report 12/16/99 | V2

Job Number.....: 914279 Location.: 57211 Customer Job ID.....: Job Check List Date.: 12/16/99
Project Number.: 96000746 Project Description.: INDIAN BASIN REMEDIATION STRIPPER Project Manager.....: lpa
Customer.....: Marathon Oil Company Contact.: Mr. Paul Peacock

Questions ?	(Y/N)	Comments
Chain-of-Custody Present?	Y	
Custody seal on shipping container?		
...If "yes", custody seal intact?		
Custody seals on sample containers?		
...If "yes", custody seal intact?		
Samples chilled?	Y	
Temperature of cooler acceptable? (4 deg C +/- 2).		RECEIVED ON ICE
Samples received intact (good condition)?	Y	
Volatile samples acceptable? (no headspace)	Y	
Correct containers used?	Y	
Adequate sample volume provided?	Y	
Samples preserved correctly?	Y	
Samples received within holding-time?	Y	
Agreement between COC and sample labels?	Y	
Additional		
Comments		
Sample Custodian Signature		J. B/

GEI[illegible]HTY & MILLER, INC.
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Laboratory Task Order No. _____ 914279

CHAIN-OF-CUSTODY RECORD

Page 1 of 2

Project Number NP000443.0001 / MT004

Project Location MARATHON Indian Basin

Laboratory _____

Sampler(s)/Affiliation McNeese / Kvasnicka

	SAMPLE IDENTITY	Code	Date/~~Time~~ Sampled	Time ~~Lab ID~~	SAMPLE BOTTLE / CONTAINER DESCRIPTION: BTEX	40 ml HCl								TOTAL
1	MW 73	L	12-14-99	~~1439~~	2									2
2	MW 95			1150	2									2
3	MW 108			930	2									2
4	MW 74			1500	2									2
5	~~MW~~ MW 111		12-13-99	1030	2									2
6	~~FB~~ FB - 1		12-14-99	1200	2									2
7	MW 64		12-13-99	1445	2									2
8	MW 87A			1300	2									2
9	MW 87			1200	2									2
10	Dup - 2			1200	2									2
11	MW 60			1130	2									2
12	MW 96		12-14-99	1020	2									2
13	MW 97		"	947	2									2
14	MW 124		"	1540	2									2
15	MW 98		12-15-99	1000	2									2
16	Trip Blank	L	—	—	2									2

Sample Code: L = Liquid; S = Solid; A = Air

Total No. of Bottles/ Containers: ~~32~~ 32

Relinquished by: [signature]	Organization: ARCADIS	Date 12/15/99	Time 1200	Seal Intact? Yes No N/A
Received by: Jon B.b	Organization: STL	Date 12/16/99	Time 1230	
Relinquished by: _____	Organization: _____	Date / /	Time _____	Seal Intact? Yes No N/A
Received by: _____	Organization: _____	Date / /	Time _____	

Special Instructions/Remarks: Send Bill to Rod Peacock w/ MARATHON Oil

Delivery Method: ☐ In Person ☐ Common Carrier FedEx ☐ Lab Courier ☐ Other _____

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Laboratory Task Order No. _____

CHAIN-OF-CUSTODY RECORD

Page _____ of 2

914279

Project Number NP000443.0001, MT004

Project Location MARATHON Indian Basin

Laboratory _____

Sampler(s)/Affiliation McNeese / Kwasnicka
AG+M (Midland, Tx)

SAMPLE IDENTITY	Code	Date/~~Time~~ Sampled	Time ~~Lab ID~~	SAMPLE BOTTLE / CONTAINER DESCRIPTION: BTEX 40 ml Vial									TOTAL
1 MW 118	L	12-15-99	~~1400~~ 1205	2									2

Sample Code: L = Liquid; S = Solid; A = Air

Total No. of Bottles/ Containers: 2

Relinquished by: [signature]	Organization: ARCADIS	Date 12/15/99	Time 1200	Seal Intact? Yes No N/A
Received by: [signature]	Organization: STL	Date 12/16/99	Time 1230	
Relinquished by: _____	Organization: _____	Date / /	Time _____	Seal Intact? Yes No N/A
Received by: _____	Organization: _____	Date / /	Time _____	

Special Instructions/Remarks: Send Bill to Paul Peacock w/ Marathon Oil

Delivery Method: ☐ In Person ☑ Common Carrier Fed Ex ☐ Lab Courier ☐ Other _____

STL
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ANALYTICAL REPORT

JOB NUMBER: 100124

Prepared For:

Marathon Oil Company
125 West Missouri Street
P.O. Box 552
Midland, TX 79702-0552

Attention: Mr. Paul Peacock

Date: 01/11/2000

Signature

1/11/2000
Date

Name: Les Arnold

Title: Laboratory Manager

Severn Trent Laboratories
2400 Cumberland Drive
Valparaiso, IN 46383

PHONE: 219-464-2389
FAX..: 219-462-2953

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SAMPLE INFORMATION
Date: 01/11/2000

Job Number.: 100124
Customer...: Marathon Oil Company
Attn.....: Mr. Paul Peacock

Project Number.....: 96000746
Customer Project ID....: INDIAN BASIN
Project Description....: INDIAN BASIN REMEDIATION STRIPPER

Laboratory Sample ID	Customer Sample ID	Sample Matrix	Date Sampled	Time Sampled	Date Received	Time Received
100124-1	MW 119	Aqueous	12/28/1999	13:00	01/05/2000	10:00
100124-2	MW 127	Aqueous	12/28/1999	14:00	01/05/2000	10:00
100124-3	MW 128	Aqueous	12/28/1999	09:00	01/05/2000	10:00
100124-4	TRIP BLANK	Aqueous	01/04/2000	00:00	01/05/2000	10:00

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LABORATORY TEST RESULTS

Job Number: 100124 Date: 01/11/2000

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN ATTN: Mr. Paul Peacock

Customer Sample ID: MW 119
Date Sampled.....: 12/28/1999
Time Sampled.....: 13:00
Sample Matrix.....: Aqueous

Laboratory Sample ID: 100124-1
Date Received.....: 01/05/2000
Time Received.....: 10:00

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8021B	BTEX					
	Benzene	16	5.0	ug/L	01/10/00	weh
	Ethylbenzene	ND	5.0	ug/L	01/10/00	weh
	Toluene	ND	5.0	ug/L	01/10/00	weh
	m&p-Xylenes	ND	10.0	ug/L	01/10/00	weh
	o-Xylene	ND	5.0	ug/L	01/10/00	weh

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LABORATORY TEST RESULTS

Job Number: 100124 Date: 01/11/2000

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN ATTN: Mr. Paul Peacock

Customer Sample ID: MW 127
Date Sampled.....: 12/28/1999
Time Sampled.....: 14:00
Sample Matrix.....: Aqueous

Laboratory Sample ID: 100124-2
Date Received.....: 01/05/2000
Time Received.....: 10:00

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8021B	BTEX					
	Benzene	190	5.0	ug/L	01/10/00	weh
	Ethylbenzene	38	5.0	ug/L	01/10/00	weh
	Toluene	7.1	5.0	ug/L	01/10/00	weh
	m&p-Xylenes	16	10.0	ug/L	01/10/00	weh
	o-Xylene	ND	5.0	ug/L	01/10/00	weh

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LABORATORY TEST RESULTS

Job Number: 100124 Date: 01/11/2000

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN ATTN: Mr. Paul Peacock

Customer Sample ID: MW 128
Date Sampled.....: 12/28/1999
Time Sampled.....: 09:00
Sample Matrix.....: Aqueous

Laboratory Sample ID: 100124-3
Date Received.....: 01/05/2000
Time Received.....: 10:00

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8021B	BTEX					
	Benzene	11	5.0	ug/L	01/10/00	weh
	Ethylbenzene	<5.0	5.0	ug/L	01/10/00	weh
	Toluene	ND	5.0	ug/L	01/10/00	weh
	m&p-Xylenes	<10.0	10.0	ug/L	01/10/00	weh
	o-Xylene	ND	5.0	ug/L	01/10/00	weh

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LABORATORY TEST RESULTS

Job Number: 100124 Date: 01/11/2000

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN ATTN: Mr. Paul Peacock

Customer Sample ID: TRIP BLANK
Date Sampled.....: 01/04/2000
Time Sampled.....: 00:00
Sample Matrix.....: Aqueous

Laboratory Sample ID: 100124-4
Date Received.....: 01/05/2000
Time Received.....: 10:00

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8021B	BTEX					
	Benzene	ND	5.0	ug/L	01/10/00	weh
	Ethylbenzene	ND	5.0	ug/L	01/10/00	weh
	Toluene	ND	5.0	ug/L	01/10/00	weh
	m&p-Xylenes	ND	10.0	ug/L	01/10/00	weh
	o-Xylene	ND	5.0	ug/L	01/10/00	weh

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QUALITY CONTROL RESULTS

Job Number.: 100124

Report Date.: 01/11/2000

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN REMEDIATION STRIP ATTN: Mr. Paul Peacock

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time

Test Method.....: EPA 8021B
Method Description.: BTEX

Batch.....: 51997
Units.....: ug/L

Analyst...: weh

LCS	Laboratory Control Sample	8020MS1			01/10/2000	0826

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	46.112		50		92.2	%	70-130
Ethylbenzene	43.643		50		87.3	%	70-130
Toluene	44.819		50		89.6	%	70-130
m&p-Xylenes	86.116		100		86.1	%	70-130
o-Xylene	42.552		50		85.1	%	70-130

MB	Method Blank				01/10/2000	0903

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	ND						
Ethylbenzene	ND						
Toluene	ND						
m&p-Xylenes	ND						
o-Xylene	ND						

MS	Matrix Spike	8020MS1	100124-2		01/10/2000	1047

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	242.933		50	194.601	96.7	%	70-130
Ethylbenzene	80.135		50	38.283	83.7	%	70-130
Toluene	49.719		50	7.071	85.3	%	70-130
m&p-Xylenes	98.936		100	15.560	83.4	%	70-130
o-Xylene	43.333		50	ND	86.7	%	70-130

MSD	Matrix Spike Duplicate	8020MS1	100124-2		01/10/2000	1121

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	242.984	242.933	50	194.601	96.8	%	70-130
					0.0	R	25
Ethylbenzene	80.736	80.135	50	38.283	84.9	%	70-130
					0.7	R	25
Toluene	48.442	49.719	50	7.071	82.7	%	70-130
					2.6	R	25
m&p-Xylenes	99.754	98.936	100	15.560	84.2	%	70-130
					0.8	R	25
o-Xylene	43.673	43.333	50	ND	87.3	%	70-130
					0.8	R	25

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

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QUALITY CONTROL RESULTS

Job Number.: 100124

Report Date.: 01/11/2000

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN REMEDIATION STRIP ATTN: Mr. Paul Peacock

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
LCS	Laboratory Control Sample	8020MS1			01/10/2000	1531

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	48.080		50		96.2	%	70-130
Ethylbenzene	43.351		50		86.7	%	70-130
Toluene	45.565		50		91.1	%	70-130
m&p-Xylenes	85.854		100		85.9	%	70-130
o-Xylene	43.301		50		86.6	%	70-130

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

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SURROGATE RECOVERIES REPORT

Job Number.: 100124 Report Date.: 01/11/2000

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN REMEDIATION STRIP ATTN: Mr. Paul Peacock

Method.....: BTEX
Method Code.....: 8021BX

Batch.....: 51997
Analyst.....: weh

Surrogate	Units
1,4-Difluorobenzene	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		LCS		46.629	50.00	93.3	78-118		01/10/2000	0826
		MB		47.246	50.00	94.5	78-118		01/10/2000	0903
100124-4				47.317	50.00	94.6	78-118		01/10/2000	0939
100124-2				47.307	50.00	94.6	78-118		01/10/2000	1013
100124-2		MS		46.995	50.00	94.0	78-118		01/10/2000	1047
100124-2		MSD		46.971	50.00	93.9	78-118		01/10/2000	1121
100124-3				47.488	50.00	95.0	78-118		01/10/2000	1156
100124-1				46.807	50.00	93.6	78-118		01/10/2000	1230
100141-1			100	47.874	50.00	95.7	78-118		01/10/2000	1344
100141-2			10	46.824	50.00	93.6	78-118		01/10/2000	1457
		LCS		47.566	50.00	95.1	78-118		01/10/2000	1531

Surrogate	Units
BFB (Surrogate)	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		LCS		44.891	50.00	89.8	86-110		01/10/2000	0826
		MB		44.232	50.00	88.5	86-110		01/10/2000	0903
100124-4				43.371	50.00	86.7	86-110		01/10/2000	0939
100124-2				46.200	50.00	92.4	86-110		01/10/2000	1013
100124-2		MS		46.102	50.00	92.2	86-110		01/10/2000	1047
100124-2		MSD		46.365	50.00	92.7	86-110		01/10/2000	1121
100124-3				44.280	50.00	88.6	86-110		01/10/2000	1156
100124-1				46.840	50.00	93.7	86-110		01/10/2000	1230
100141-1			100	44.616	50.00	89.2	86-110		01/10/2000	1344
100141-2			10	44.278	50.00	88.6	86-110		01/10/2000	1457
		LCS		44.935	50.00	89.9	86-110		01/10/2000	1531

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QUALITY ASSURANCE FOOTER

METHOD REFERENCES

1. EPA SW-846, Test Methods for Evaluating Solid Waste Update I, IIA, IIB, III
2. Standard Methods for the Examination of Water and Wastewater, 18th Edition
3. EPA 600/4-79-020, Methods of Chemical Analysis for Waters and Wastes, March 1983
4. Federal Register, Friday, October 26, 1984 (40 CFR Part 136)
5. American Society for Testing and Materials, Volumes 5.01, 5.02, 5.03, 11.01,11.02,11.03,11.04
6. EPA Methods for Environmental Samples

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N/A	=	Not applicable	NC	=	Not calculable due to values lower than the reporting limit
ug/L	=	Micrograms per liter	mg/L	=	Milligrams per liter
ug/Kg	=	Micrograms per kilogram	mg/kg	=	Milligrams per kilogram
U	=	Undetected			
J	=	Indicates value is > MDL, but < Reporting Limit			
B	=	Analyte was detected in the method blank analyzed with this sample.			
D	=	Surrogate recoveries are not calculated due to sample dilution.			
X	=	Surrogate recovery is outside quality control limits.			
Y	=	Spike or spike duplicate recovery is outside quality control limits.			
Z	=	Relative percent difference for a spike and spike duplicate is outside quality control limits. The precision of the method was impacted by matrix.			
^	=	Indicates value is above QC acceptance criteria.			

QC SAMPLE IDENTIFICATIONS

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RB	=	Reagent Blank	EB	=	Extraction Blank
PB	=	Preparation Blank	CALB	=	Calibration Blank
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LCS	=	Laboratory Control Sample	LCSD	=	Laboratory Control Sample Duplicate
MS	=	Matrix Spike	MSD	=	Matrix Spike Duplicate
ICB	=	Initial Calibration Blank	CCB	=	Continuing Calibration Blank
ICV	=	Initial Calibration Verification	ICB	=	Initial Calibration Blank
PDS	=	Post Digestion Spike	SS	=	Surrogate Spike
ISA	=	Interference Check standard "A"	ISB	=	Interference Check Standard "B"
ISCAB	=	Interference Check Sample AB	MSA	=	Method of Standard Additions
CAL	=	Calibration standard	SD	=	Serial Dilution
MST	=	TCLP Matrix Spike	MSQ	=	TCLP Matrix Spike Duplicate
PST	=	TCLP Post Digestion Spike	LCT	=	TCLP Laboratory Control Sample

rpjsckl | Job Sample Receipt Checklist Report 01/05/2000 | V2

Job Number.....: 100124 Location.: 57211 Customer Job ID.....: Job Check List Date.: 01/05/2000
Project Number.: 96000746 Project Description.: INDIAN BASIN REMEDIATION STRIPPER Project Manager.....: lpa
Customer.....: Marathon Oil Company Contact.: Mr. Paul Peacock

Questions ?	(Y/N)	Comments
Chain-of-Custody Present?	Y	
Custody seal on shipping container?		
...If "yes", custody seal intact?		
Custody seals on sample containers?		
...If "yes", custody seal intact?		
Samples chilled?	Y	
Temperature of cooler acceptable? (4 deg C +/- 2).		RECEIVED ON ICE
Samples received intact (good condition)?	Y	
Volatile samples acceptable? (no headspace)	Y	SMALL AIR BUBBLES IN TRIP BLANKS
Correct containers used?	Y	
Adequate sample volume provided?	Y	
Samples preserved correctly?	Y	
Samples received within holding-time?	Y	
Agreement between COC and sample labels?	Y	
Additional		
Comments		
Sample Custodian Signature.. Jon Bob		

CRAGHTY & MILLER, INC.
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Laboratory Task Order No. 100124

CHAIN-OF-CUSTODY RECORD

Page ____ of ____

Project Number NP000443.0005

Project Location Marathon Indian Basin

Laboratory Core

Sampler(s)/Affiliation McNeese AG&M
Midland, Tx

	SAMPLE IDENTITY	Code	Date/~~Time~~ Sampled	Time ~~Lab ID~~	SAMPLE BOTTLE / CONTAINER DESCRIPTION: BTEX 40 ml (Bel)									TOTAL
1	MW 119	L	12-28-99	1300	2									2
2	MW 127	"		1400	2									2
3	MW 128	"	12-30-99	900	2									2
4	Trip Blank	"	1-4-2000		2									2

Sample Code: L = Liquid; S = Solid; A = Air

Total No. of Bottles/ Containers: 8

				Seal Intact?
Relinquished by:	Organization: Arcadis	Date 1 1	Time	
Received by:	Organization: a	Date 1 1 4 100	Time 1615	(Yes) No N/A
Relinquished by:	Organization: ARCADIS	Date 1 1 4 100	Time 1715	Seal Intact?
Received by:	Organization: STL	Date 1 5 00	Time 1000	Yes No N/A

Special Instructions/Remarks: Bill to Paul Peacock (Marathon)

Delivery Method: ☐ In Person ☒ Common Carrier Fed Ex ☐ Lab Courier ☐ Other ____ SPECIFY

Initial Sampling of Phase I Wells,
July 1999

CORE LABORATORIES

ANALYTICAL REPORT

JOB NUMBER: 908626

Prepared For:

Marathon Oil Company
125 West Missouri Street
P.O. Box 552
Midland, TX 79702-0552

Attention: Mr. Paul Peacock

Date: 08/11/99

Signature

8/11/99
Date

Name: Les Arnold

Title: Laboratory Manager

2400 Cumberland Drive
Valparaiso, IN 46383

PHONE: 219-464-2389
FAX..: 219-462-2953

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CORELAB

CORE LABORATORIES

SAMPLE INFORMATION
Date: 08/11/99

Job Number.: 908626
Customer...: Marathon Oil Company
Attn.....: Mr. Paul Peacock

Project Number.....: 96000651
Customer Project ID....: NP000443.0002.MT001
Project Description....: Marathon Oil Co., Midland, Tx

Laboratory Sample ID	Customer Sample ID	Sample Matrix	Date Sampled	Time Sampled	Date Received	Time Received
908626-1	MW-116	Aqueous	07/26/1999	10:30	08/03/1999	14:21
908626-2	MW-113	Aqueous	07/26/1999	13:30	08/03/1999	14:21
908626-3	MW-115	Aqueous	07/26/1999	14:00	08/03/1999	14:21
908626-4	TRIP BLANK	Aqueous			08/03/1999	14:21

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CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 908626 Date: 08/11/99

CUSTOMER: Marathon Oil Company PROJECT: NP000443.0002.MT001 ATTN: Mr. Paul Peacock

Customer Sample ID: MW-116
Date Sampled.....: 07/26/1999
Time Sampled.....: 10:30
Sample Matrix.....: Aqueous

Laboratory Sample ID: 908626-1
Date Received.....: 08/03/1999
Time Received.....: 14:21

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8260B	Volatile Organic Compounds					
	Benzene	ND	5	ug/L	08/05/99	weh
	Ethylbenzene	ND	5	ug/L	08/05/99	weh
	Toluene	ND	5	ug/L	08/05/99	weh
	Xylenes (total)	ND	10	ug/L	08/05/99	weh

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CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 908626

Date: 08/11/99

CUSTOMER: Marathon Oil Company PROJECT: NP000443.0002.MT001 ATTN: Mr. Paul Peacock

Customer Sample ID: MW-113
Date Sampled.....: 07/26/1999
Time Sampled.....: 13:30
Sample Matrix.....: Aqueous

Laboratory Sample ID: 908626-2
Date Received.....: 08/03/1999
Time Received.....: 14:21

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8260B	Volatile Organic Compounds					
	Benzene	140	10	ug/L	08/10/99	rjm
	Ethylbenzene	59	5	ug/L	08/08/99	rjm
	Toluene	<5	5	ug/L	08/08/99	rjm
	Xylenes (total)	390	10	ug/L	08/08/99	rjm

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LABORATORY TEST RESULTS

Job Number: 908626 Date: 08/11/99

CUSTOMER: Marathon Oil Company PROJECT: NP000443.0002.MT001 ATTN: Mr. Paul Peacock

Customer Sample ID: MW-115
Date Sampled.....: 07/26/1999
Time Sampled.....: 14:00
Sample Matrix.....: Aqueous

Laboratory Sample ID: 908626-3
Date Received.....: 08/03/1999
Time Received.....: 14:21

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8260B	Volatile Organic Compounds					
	Benzene	ND	5	ug/L	08/05/99	weh
	Ethylbenzene	ND	5	ug/L	08/05/99	weh
	Toluene	<5	5	ug/L	08/05/99	weh
	Xylenes (total)	10	10	ug/L	08/05/99	weh

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CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 908626

Date: 08/11/99

CUSTOMER: Marathon Oil Company PROJECT: NP000443.0002.MT001 ATTN: Mr. Paul Peacock

Customer Sample ID: TRIP BLANK
Date Sampled.....:
Time Sampled.....:
Sample Matrix.....: Aqueous

Laboratory Sample ID: 908626-4
Date Received.....: 08/03/1999
Time Received.....: 14:21

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8260B	Volatile Organic Compounds					
	Benzene	ND	5	ug/L	08/04/99	weh
	Ethylbenzene	ND	5	ug/L	08/04/99	weh
	Toluene	ND	5	ug/L	08/04/99	weh
	Xylenes (total)	ND	10	ug/L	08/04/99	weh

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CORE LABORATORIES

QUALITY CONTROL RESULTS

Job Number.: 908626 Report Date.: 08/11/99

CUSTOMER: Marathon Oil Company PROJECT: Marathon Oil Co., Midland, Tx ATTN: Mr. Paul Peacock

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time

Test Method.....: EPA 8260B Batch.....: 44338 Analyst...: weh
Method Description.: Volatile Organic Compounds Units.....: ug/L

MB	Method Blank				08/04/1999	0846

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	ND						
Ethylbenzene	ND						
Toluene	ND						
Xylenes (total)	ND						

LCS	Laboratory Control Sample	CLPVOAMS2			08/04/1999	0917

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	50.30		50		100.6	%	67-130
Toluene	49.16		50		98.3	%	75-114

MS	Matrix Spike	CLPVOAMS2	908620-2		08/04/1999	1121

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	53.77		50	7.39	92.8	%	67-130
Toluene	48.45		50	1.90	93.1	%	75-114

MSD	Matrix Spike Duplicate	CLPVOAMS2	908620-2		08/04/1999	1153

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	52.34	53.77	50	7.39	89.9	%	67-130
					2.7	R	30
Toluene	47.83	48.45	50	1.90	91.9	%	75-114
					1.3	R	30

Test Method.....: EPA 8260B Batch.....: 44347 Analyst...: weh
Method Description.: Volatile Organic Compounds Units.....: ug/L

MB	Method Blank				08/05/1999	0835

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	ND						
Ethylbenzene	ND						
Toluene	ND						
Xylenes (total)	ND						

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

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CORE LABORATORIES

QUALITY CONTROL RESULTS

Job Number.: 908626 Report Date.: 08/11/99

CUSTOMER: Marathon Oil Company PROJECT: Marathon Oil Co., Midland, Tx ATTN: Mr. Paul Peacock

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
LCS	Laboratory Control Sample	CLPVOAMS2			08/05/1999	0907

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	47.32		50		94.6	%	67-130
Toluene	45.94		50		91.9	%	75-114

MS	Matrix Spike	CLPVOAMS2	908675-1	5	08/05/1999	1040

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	47.98		50	ND	96.0	%	67-130
Toluene	46.19		50	ND	92.4	%	75-114

MSD	Matrix Spike Duplicate	CLPVOAMS2	908675-1	5	08/05/1999	1111

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	48.98	47.98	50	ND	98.0	%	67-130
					2.1	R	30
Toluene	46.28	46.19	50	ND	92.6	%	75-114
					0.2	R	30

Test Method.....: EPA 8260B Batch.....: 44497 Analyst...: rjm
Method Description.: Volatile Organic Compounds Units.....: ug/L

MS	Matrix Spike	CLPVOAMS2	908628-1	10	08/08/1999	0712

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Toluene	43.53		50	ND	87.1	%	75-114

MSD	Matrix Spike Duplicate	CLPVOAMS2	908628-1	10	08/08/1999	0743

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Toluene	41.14	43.53	50	ND	82.3	%	75-114
					5.6	R	30

MB	Method Blank				08/08/1999	1054

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Ethylbenzene	ND						
Toluene	ND						
Xylenes (total)	ND						

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

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QUALITY CONTROL RESULTS

Job Number.: 908626

Report Date.: 08/11/99

CUSTOMER: Marathon Oil Company PROJECT: Marathon Oil Co., Midland, Tx ATTN: Mr. Paul Peacock

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
LCS	Laboratory Control Sample	CLPVOAMS2			08/08/1999	1125

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Toluene	23.96		25.000000		95.8	%	75-114

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

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CORE LABORATORIES

SURROGATE RECOVERIES REPORT

Job Number.: 908626 Report Date.: 08/11/99

CUSTOMER: Marathon Oil Company PROJECT: Marathon Oil Co., Midland, Tx ATTN: Mr. Paul Peacock

Method.....: Volatile Organic Compounds Batch.....: 44338
Method Code.....: 8260V1 Analyst.....: weh

Surrogate	Units
1,2-Dichloroethane-d4 (surrogate)	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		52.08	50.00	104.2	76-120		08/04/1999	0846
		LCS		53.31	50.00	106.6	76-120		08/04/1999	0917
908443-2				53.57	50.00	107.1	76-120		08/04/1999	0949
908443-4				53.40	50.00	106.8	76-120		08/04/1999	1020
908620-2				54.56	50.00	109.1	76-120		08/04/1999	1051
908620-2		MS		52.62	50.00	105.2	76-120		08/04/1999	1121
908620-2		MSD		53.75	50.00	107.5	76-120		08/04/1999	1153
908620-1				53.73	50.00	107.5	76-120		08/04/1999	1223
908626-4				52.55	50.00	105.1	76-120		08/04/1999	1254

Surrogate	Units
BFB (Surrogate)	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		49.20	50.00	98.4	85-115		08/04/1999	0846
		LCS		48.03	50.00	96.1	85-115		08/04/1999	0917
908443-2				48.58	50.00	97.2	85-115		08/04/1999	0949
908443-4				47.83	50.00	95.7	85-115		08/04/1999	1020
908620-2				47.65	50.00	95.3	85-115		08/04/1999	1051
908620-2		MS		48.34	50.00	96.7	85-115		08/04/1999	1121
908620-2		MSD		48.30	50.00	96.6	85-115		08/04/1999	1153
908620-1				47.55	50.00	95.1	85-115		08/04/1999	1223
908626-4				47.99	50.00	96.0	85-115		08/04/1999	1254

Surrogate	Units
Toluene-d8	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		46.92	50.00	93.8	85-112		08/04/1999	0846
		LCS		47.17	50.00	94.3	85-112		08/04/1999	0917
908443-2				47.19	50.00	94.4	85-112		08/04/1999	0949
908443-4				46.94	50.00	93.9	85-112		08/04/1999	1020
908620-2				47.53	50.00	95.1	85-112		08/04/1999	1051
908620-2		MS		46.68	50.00	93.4	85-112		08/04/1999	1121
908620-2		MSD		47.53	50.00	95.1	85-112		08/04/1999	1153
908620-1				47.43	50.00	94.9	85-112		08/04/1999	1223
908626-4				47.32	50.00	94.6	85-112		08/04/1999	1254

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CORE LABORATORIES

SURROGATE RECOVERIES REPORT

Job Number.: 908626 Report Date.: 08/11/99

CUSTOMER: Marathon Oil Company PROJECT: Marathon Oil Co., Midland, Tx ATTN: Mr. Paul Peacock

Method.....: Volatile Organic Compounds Batch.....: 44347
Method Code.....: 8260V1 Analyst.....: weh

Surrogate	Units
1,2-Dichloroethane-d4 (surrogate)	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		51.85	50.00	103.7	76-120		08/05/1999	0835
		LCS		51.68	50.00	103.4	76-120		08/05/1999	0907
908648-1			5000	51.43	50.00	102.9	76-120		08/05/1999	0938
908675-1			5	51.06	50.00	102.1	76-120		08/05/1999	1009
908675-1		MS	5	50.20	50.00	100.4	76-120		08/05/1999	1040
908675-1		MSD	5	50.93	50.00	101.9	76-120		08/05/1999	1111
908334-6			800000	50.38	50.00	100.8	76-120		08/05/1999	1250
908334-5			400000	50.90	50.00	101.8	76-120		08/05/1999	1355
908626-1				50.11	50.00	100.2	76-120		08/05/1999	1427
908626-3				48.35	50.00	96.7	76-120		08/05/1999	1529

Surrogate	Units
BFB (Surrogate)	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		50.68	50.00	101.4	85-115		08/05/1999	0835
		LCS		49.36	50.00	98.7	85-115		08/05/1999	0907
908648-1			5000	46.27	50.00	92.5	85-115		08/05/1999	0938
908675-1			5	50.89	50.00	101.8	85-115		08/05/1999	1009
908675-1		MS	5	50.08	50.00	100.2	85-115		08/05/1999	1040
908675-1		MSD	5	49.15	50.00	98.3	85-115		08/05/1999	1111
908334-6			800000	49.54	50.00	99.1	85-115		08/05/1999	1250
908334-5			400000	42.55	50.00	85.1	85-115		08/05/1999	1355
908626-1				47.98	50.00	96.0	85-115		08/05/1999	1427
908626-3				46.20	50.00	92.4	85-115		08/05/1999	1529

Surrogate	Units
Toluene-d8	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		46.50	50.00	93.0	85-112		08/05/1999	0835
		LCS		48.06	50.00	96.1	85-112		08/05/1999	0907
908648-1			5000	48.80	50.00	97.6	85-112		08/05/1999	0938
908675-1			5	46.64	50.00	93.3	85-112		08/05/1999	1009
908675-1		MS	5	47.57	50.00	95.1	85-112		08/05/1999	1040
908675-1		MSD	5	48.04	50.00	96.1	85-112		08/05/1999	1111
908334-6			800000	47.12	50.00	94.2	85-112		08/05/1999	1250
908334-5			400000	46.34	50.00	92.7	85-112		08/05/1999	1355
908626-1				46.48	50.00	93.0	85-112		08/05/1999	1427
908626-3				51.08	50.00	102.2	85-112		08/05/1999	1529

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CORE LABORATORIES

SURROGATE RECOVERIES REPORT

Job Number.: 908626

Report Date.: 08/11/99

CUSTOMER: Marathon Oil Company

PROJECT: Marathon Oil Co., Midland, Tx ATTN: Mr. Paul Peacock

Method.....: Volatile Organic Compounds
Method Code.....: 826TCL

Batch.....: 44497
Analyst.....: rjm

Surrogate	Units
1,2-Dichloroethane-d4 (surrogate)	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
908626-2				50.06	50.00	100.1	76-120		08/08/1999	0130
908368-3	Solid		100	48.95	50.00	97.9	78-122		08/08/1999	0201
908368-10	Solid		100	40.40	50.00	80.8	78-122		08/08/1999	0232
908368-12	Solid		100	39.02	50.00	78.0	78-122		08/08/1999	0303
908368-13	Solid		100	35.65	50.00	71.3	78-122	X	08/08/1999	0334
908628-1			10	41.66	50.00	83.3	76-120		08/08/1999	0641
908628-1		MS	10	35.98	50.00	72.0	76-120	X	08/08/1999	0712
908628-1		MSD	10	34.68	50.00	69.4	76-120	X	08/08/1999	0743
		MB		51.73	50.00	103.5	76-120		08/08/1999	1054
		LCS		52.58	50.00	105.2	76-120		08/08/1999	1125
908674-1				51.94	50.00	103.9	76-120		08/08/1999	1157
908674-2				52.48	50.00	105.0	76-120		08/08/1999	1228
908762-2				52.07	50.00	104.1	76-120		08/08/1999	1259

Surrogate	Units
BFB (Surrogate)	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
908626-2				47.77	50.00	95.5	85-115		08/08/1999	0130
908368-3	Solid		100	45.44	50.00	90.9	71-121		08/08/1999	0201
908368-10	Solid		100	46.93	50.00	93.9	71-121		08/08/1999	0232
908368-12	Solid		100	54.63	50.00	109.3	71-121		08/08/1999	0303
908368-13	Solid		100	59.36	50.00	118.7	71-121		08/08/1999	0334
908628-1			10	53.55	50.00	107.1	85-115		08/08/1999	0641
908628-1		MS	10	53.65	50.00	107.3	85-115		08/08/1999	0712
908628-1		MSD	10	54.05	50.00	108.1	85-115		08/08/1999	0743
		MB		52.58	50.00	105.2	85-115		08/08/1999	1054
		LCS		51.74	50.00	103.5	85-115		08/08/1999	1125
908674-1				49.25	50.00	98.5	85-115		08/08/1999	1157
908674-2				49.48	50.00	99.0	85-115		08/08/1999	1228
908762-2				50.07	50.00	100.1	85-115		08/08/1999	1259

Surrogate	Units
Toluene-d8	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
908626-2				52.66	50.00	105.3	85-112		08/08/1999	0130
908368-3	Solid		100	47.39	50.00	94.8	87-109		08/08/1999	0201
908368-10	Solid		100	44.30	50.00	88.6	87-109		08/08/1999	0232
908368-12	Solid		100	47.53	50.00	95.1	87-109		08/08/1999	0303

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CORE LABORATORIES

SURROGATE RECOVERIES REPORT

Job Number.: 908626

Report Date.: 08/11/99

CUSTOMER: Marathon Oil Company

PROJECT: Marathon Oil Co., Midland, Tx ATTN: Mr. Paul Peacock

Surrogate	Units
Toluene-d8	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
908368-13	Solid		100	46.76	50.00	93.5	87-109		08/08/1999	0334
908628-1			10	41.66	50.00	83.3	85-112	X	08/08/1999	0641
908628-1		MS	10	46.58	50.00	93.2	85-112		08/08/1999	0712
908628-1		MSD	10	43.33	50.00	86.7	85-112		08/08/1999	0743
		MB		48.25	50.00	96.5	85-112		08/08/1999	1054
		LCS		48.83	50.00	97.7	85-112		08/08/1999	1125
908674-1				47.60	50.00	95.2	85-112		08/08/1999	1157
908674-2				47.68	50.00	95.4	85-112		08/08/1999	1228
908762-2				48.54	50.00	97.1	85-112		08/08/1999	1259

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CORE LABORATORIES

QUALITY ASSURANCE FOOTER

METHOD REFERENCES

1. EPA SW-846, Test Methods for Evaluating Solid Waste Update I, IIA, IIB, III
2. Standard Methods for the Examination of Water and Wastewater, 18th Edition
3. EPA 600/4-79-020, Methods of Chemical Analysis for Waters and Wastes, March 1983
4. Federal Register, Friday, October 26, 1984 (40 CFR Part 136)
5. American Society for Testing and Materials, Volumes 5.01, 5.02, 5.03, 11.01,11.02,11.03,11.04
6. EPA Methods for Environmental Samples

COMMENTS

All methods of chemical analysis have a statistical uncertainty associated with the results. Unless otherwise indicated, the data in this report are within the limits of uncertainty as specified in the referenced method. Quality Control acceptance criteria are based either on actual laboratory performance or on limits specified in the referenced method. The date and time of analysis indicated on the QA report may not reflect the actual time of analysis for QC samples. All data are reported on an "as received" basis unless otherwise indicated. Data reported in the QA report may be lower than sample data due to dilution of samples into the calibration range of the analysis. Sample concentration for solid samples are calculated on an as received (wet) basis. Unless otherwise indicated, volatiles by gas chromatography (GC) are reported from a single column. Volatile analysis by GC on low level soil extractions are conducted at room temperature.

FLAGS, FOOTNOTES AND ABBREVIATIONS (as needed)

NA	=	Not Analyzed	ND	=	Not detected at a value greater than the reporting limit
N/A	=	Not applicable	NC	=	Not calculable due to values lower than the reporting limit
ug/L	=	Micrograms per liter	mg/L	=	Milligrams per liter
ug/Kg	=	Micrograms per kilogram	mg/kg	=	Milligrams per kilogram
U	=	Undetected			
J	=	Indicates value is > MDL, but < Reporting Limit			
B	=	Analyte was detected in the method blank analyzed with this sample.			
D	=	Surrogate recoveries are not calculated due to sample dilution.			
X	=	Surrogate recovery is outside quality control limits.			
Y	=	Spike or spike duplicate recovery is outside quality control limits.			
Z	=	Relative percent difference for a spike and spike duplicate is outside quality control limits. The precision of the method was impacted by matrix.			
^	=	Indicates value is above QC acceptance criteria.			

QC SAMPLE IDENTIFICATIONS

MB	=	Method Blank	SB	=	Storage Blank
RB	=	Reagent Blank	EB	=	Extraction Blank
PB	=	Preparation Blank	CALB	=	Calibration Blank
MD	=	Method Duplicate	RS	=	Reference Standard
LCS	=	Laboratory Control Sample	LCSD	=	Laboratory Control Sample Duplicate
MS	=	Matrix Spike	MSD	=	Matrix Spike Duplicate
ICB	=	Initial Calibration Blank	CCB	=	Continuing Calibration Blank
ICV	=	Initial Calibration Verification	ICB	=	Initial Calibration Blank
PDS	=	Post Digestion Spike	SS	=	Surrogate Spike
ISA	=	Interference Check standard "A"	ISB	=	Interference Check Standard "B"
ISCAB	=	Interference Check Sample AB	MSA	=	Method of Standard Additions
CAL	=	Calibration standard	SD	=	Serial Dilution
MST	=	TCLP Matrix Spike	MSQ	=	TCLP Matrix Spike Duplicate
PST	=	TCLP Post Digestion Spike	LCT	=	TCLP Laboratory Control Sample

SUBCONTRACTED LABORATORY LOCATIONS

CORE Laboratories:	Anaheim, California	*AN	Aurora, Colorado	*AU
	Casper, Wyoming	*CA	Corpus Christi, Texas	*CC
	Houston, Texas (Env)	*HE	Houston, Texas (Pet)	*HP
	Other (Detailed in Case Narrative)	*XX		

rpjsckl | Job Sample Receipt Checklist Report 08/03/99 | V2

Job Number.....: 908626 Location.: 57211 Customer Job ID.....: Job Check List Date.: 08/03/99
Project Number.: 96000651 Project Description.: Marathon Oil Co., Midland, Tx Project Manager.....: lpa
Customer.....: Marathon Oil Company Contact.: Mr. Paul Peacock

Questions ?	(Y/N)	Comments
Chain-of-Custody Present?	Y	
Custody seal on shipping container?		
...If "yes", custody seal intact?		
Custody seals on sample containers?		
...If "yes", custody seal intact?		
Samples chilled?	Y	
Temperature of cooler acceptable? (4 deg C +/- 2).		RECEIVED ON ICE
Samples received intact (good condition)?	Y	
Volatile samples acceptable? (no headspace)	Y	
Correct containers used?	Y	
Adequate sample volume provided?	Y	
Samples preserved correctly?	Y	
Samples received within holding-time?	Y	
Agreement between COC and sample labels?	Y	
Additional		
Comments		
Sample Custodian Signature		

CORE LAB

CORE LABORATORIES, INC.

CHAIN OF CUSTODY RECORD

CUSTOMER INFORMATION	PROJECT INFORMATION
COMPANY: ARCADIS Geraghty + Miller	PROJECT NAME/NUMBER: NP000443.0002, MT001
SEND REPORT TO: Allen Reed	**BILLING INFORMATION**
ADDRESS: 1030 Andrews Hwy, Ste 120 Midland, TX 79701	BILL TO: IB Remediation Project ADDRESS:
PHONE: (915) 699-1381	PHONE:
FAX: (915) 699-1978	FAX: PO NO.:

LAB JOB NO. 908626

	SAMPLE NO.	SAMPLE DESCRIPTION	SAMPLE DATE	SAMPLE TIME	SAMPLE MATRIX	CONTAINER	PRESERV.	NUMBER OF CONTAINERS	ANALYSIS / METHOD REQUEST: BTEX	REMARKS / PRECAUTIONS
1	MW16		7-26-99	1030		40ml	Hcl	3	✓	
2	MW 113		7-27-99	1330		"	"	"	✓	
3	MW 115		7-27-99	1400		"	"	"	✓	
4		TRIP BLANCI						2	✓	

SAMPLER: DMcNeese, ARCADIS, Midland, TX | SHIPMENT METHOD: | AIRBILL NO.:

REQUIRED TURNAROUND:* ☐ SAME DAY ☐ 24 HOURS ☐ 48 HOURS ☐ 72 HOURS ☐ 5 DAYS ☐ 10 DAYS ☑ ROUTINE OTHER

1. RELINQUISHED BY: SIGNATURE:	DATE: 8-1-99	2. RELINQUISHED BY: SIGNATURE:	DATE:	3. RELINQUISHED BY: SIGNATURE:	DATE:
PRINTED NAME/COMPANY: Danny O. McNeese, ARCADIS	TIME: 1200	PRINTED NAME/COMPANY:	TIME:	PRINTED NAME/COMPANY:	TIME:
1. RECEIVED BY: SIGNATURE: Ja Bob	DATE: 8/3/99	2. RECEIVED BY: SIGNATURE:	DATE:	3. RECEIVED BY: SIGNATURE:	DATE:
PRINTED NAME/COMPANY: JB COR	TIME: 1400	PRINTED NAME/COMPANY:	TIME:	PRINTED NAME/COMPANY:	TIME:

* RUSH TURNAROUND MAY REQUIRE SURCHARGE

☐ Anaheim, CA
1250 E. Gene Autry Way
Anaheim, CA 92805
(714) 937-1094 Fax (714) 937-1170

☐ Aurora, CO
10703 E. Bethany Drive
Aurora, CO 80014
(303) 751-1780 Fax (303) 751-1784

☐ Carson, CA
21730 S. Wilmington Ave. - Suite 201
Carson, CA 90810-1640
(310) 513-2031 Fax (310) 513-2035

☐ Casper, WY
420 W. First Street
Casper, WY 82601
(307) 235-5741 Fax (307) 266-1676

☐ Corpus Christi, TX
1733 N. Padre Island Drive
Corpus Christi, TX 78408
(512) 289-2673 Fax (512) 289-2471

☐ Edison, NJ
284 Raritan Center Parkway
Edison, NJ 08837
(732) 225-6700 Fax (732) 225-6777

☐ Houston, TX (Env)
6310 Rothway Drive
Houston, TX 77040
(713) 690-4444 Fax (713) 690-5646

☐ Houston, TX (Pet)
8210 Mosley Road
Houston, TX 77075
(713) 943-9776 Fax (713) 943-3846

☐ Indianapolis, IN
7726 Moller Road
Indianapolis, IN 46268
(317) 875-5894 Fax (317) 872-6189

☐ Lake Charles, LA
3645 Begis Parkway
Sulphur, LA 70663
(318) 583-4926 Fax (318) 583-4929

☑ Valparaiso, IN
2400 Cumberland Drive
Valparaiso, IN 46383
(219) 464-2389 Fax (219) 462-2953

CORE LABORATORIES

ANALYTICAL REPORT

JOB NUMBER: 909263

Prepared For:

Marathon Oil Company
125 West Missouri Street
P.O. Box 552
Midland, TX 79702-0552

Attention: Mr. Paul Peacock

Date: 08/19/99

Les Arnold
Signature

8/19/99
Date

Name: Les Arnold

Title: Laboratory Manager

2400 Cumberland Drive
Valparaiso, IN 46383

PHONE: 219-464-2389
FAX..: 219-462-2953

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CORELAB

CORE LABORATORIES

SAMPLE INFORMATION
Date: 08/19/99

Job Number.: 909263
Customer...: Marathon Oil Company
Attn.....: Mr. Paul Peacock

Project Number.....: 96000746
Customer Project ID....: NP000443.0002.MT001
Project Description....: INDIAN BASIN REMEDIATION STRIPPER

Laboratory Sample ID	Customer Sample ID	Sample Matrix	Date Sampled	Time Sampled	Date Received	Time Received
909263-1	MW-114	Aqueous	08/11/1999	14:00	08/18/1999	10:36

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CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 909263

Date: 08/19/99

CUSTOMER: Marathon Oil Company | PROJECT: NP000443.0002.MT001 | ATTN: Mr. Paul Peacock

Customer Sample ID: MW-114
Date Sampled.....: 08/11/1999
Time Sampled.....: 14:00
Sample Matrix.....: Aqueous

Laboratory Sample ID: 909263-1
Date Received.....: 08/18/1999
Time Received.....: 10:36

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8260B	Volatile Organic Compounds					
	Benzene	ND	5	ug/L	08/19/99	weh
	Ethylbenzene	ND	5	ug/L	08/19/99	weh
	Toluene	ND	5	ug/L	08/19/99	weh
	Xylenes (total)	ND	10	ug/L	08/19/99	weh

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CORE LABORATORIES

QUALITY CONTROL RESULTS

Job Number.: 909263 Report Date.: 08/19/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN REMEDIATION STRIP ATTN: Mr. Paul Peacock

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time

Test Method.....: EPA 8260B Batch.....: 45057 Analyst...: weh
Method Description.: Volatile Organic Compounds Units.....: ug/L

MB	Method Blank				08/18/1999	0818

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	ND						
Ethylbenzene	ND						
Toluene	ND						
Xylenes (total)	ND						

LCS	Laboratory Control Sample	CLPVOAMS2			08/18/1999	0849

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	53.32		50		106.6	%	67-130
Toluene	53.57		50		107.1	%	75-114

MS	Matrix Spike	CLPVOAMS2	909264-8		08/18/1999	1022

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	52.89		50	ND	105.8	%	67-130
Toluene	53.47		50	ND	106.9	%	75-114

MSD	Matrix Spike Duplicate	CLPVOAMS2	909264-8		08/18/1999	1053

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	52.18	52.89	50	ND	104.4	%	67-130
					1.4	R	30
Toluene	52.76	53.47	50	ND	105.5	%	75-114
					1.3	R	30

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

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CORE LABORATORIES

SURROGATE RECOVERIES REPORT

Job Number.: 909263

Report Date.: 08/19/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN REMEDIATION STRIP ATTN: Mr. Paul Peacock

Method.....: Volatile Organic Compounds
Method Code.....: 826TCL

Batch.....: 45057
Analyst.....: weh

Surrogate	Units
1,2-Dichloroethane-d4 (surrogate)	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		49.99	50.00	100.0	76-120		08/18/1999	0818
		LCS		49.18	50.00	98.4	76-120		08/18/1999	0849
909264-7				51.40	50.00	102.8	76-120		08/18/1999	0920
909264-8				53.02	50.00	106.0	76-120		08/18/1999	0951
909264-8		MS		50.24	50.00	100.5	76-120		08/18/1999	1022
909264-8		MSD		51.61	50.00	103.2	76-120		08/18/1999	1053
909264-9				51.57	50.00	103.1	76-120		08/18/1999	1124
909264-10				51.16	50.00	102.3	76-120		08/18/1999	1156
909296-1			5	53.53	50.00	107.1	76-120		08/19/1999	0129
909292-2			5	52.25	50.00	104.5	76-120		08/19/1999	0200
909264-5			10	48.27	50.00	96.5	76-120		08/19/1999	0308
909263-1				51.59	50.00	103.2	76-120		08/19/1999	1227
909295-1				49.47	50.00	98.9	76-120		08/19/1999	1258

Surrogate	Units
BFB (Surrogate)	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		50.96	50.00	101.9	85-115		08/18/1999	0818
		LCS		51.80	50.00	103.6	85-115		08/18/1999	0849
909264-7				51.39	50.00	102.8	85-115		08/18/1999	0920
909264-8				53.37	50.00	106.7	85-115		08/18/1999	0951
909264-8		MS		51.78	50.00	103.6	85-115		08/18/1999	1022
909264-8		MSD		51.01	50.00	102.0	85-115		08/18/1999	1053
909264-9				52.54	50.00	105.1	85-115		08/18/1999	1124
909264-10				54.03	50.00	108.1	85-115		08/18/1999	1156
909296-1			5	52.74	50.00	105.5	85-115		08/19/1999	0129
909292-2			5	50.08	50.00	100.2	85-115		08/19/1999	0200
909264-5			10	51.41	50.00	102.8	85-115		08/19/1999	0308
909263-1				52.51	50.00	105.0	85-115		08/19/1999	1227
909295-1				51.83	50.00	103.7	85-115		08/19/1999	1258

Surrogate	Units
Toluene-d8	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		50.26	50.00	100.5	85-112		08/18/1999	0818
		LCS		49.64	50.00	99.3	85-112		08/18/1999	0849
909264-7				50.13	50.00	100.3	85-112		08/18/1999	0920
909264-8				49.40	50.00	98.8	85-112		08/18/1999	0951

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CORE LABORATORIES

SURROGATE RECOVERIES REPORT

Job Number.: 909263 Report Date.: 08/19/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN REMEDIATION STRIP ATTN: Mr. Paul Peacock

Surrogate	Units
Toluene-d8	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
909264-8		MS		50.00	50.00	100.0	85-112		08/18/1999	1022
909264-8		MSD		50.33	50.00	100.7	85-112		08/18/1999	1053
909264-9				49.73	50.00	99.5	85-112		08/18/1999	1124
909264-10				49.66	50.00	99.3	85-112		08/18/1999	1156
909296-1			5	49.60	50.00	99.2	85-112		08/19/1999	0129
909292-2			5	53.19	50.00	106.4	85-112		08/19/1999	0200
909264-5			10	50.38	50.00	100.8	85-112		08/19/1999	0308
909263-1				49.95	50.00	99.9	85-112		08/19/1999	1227
909295-1				50.02	50.00	100.0	85-112		08/19/1999	1258

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QUALITY ASSURANCE FOOTER

METHOD REFERENCES

1. EPA SW-846, Test Methods for Evaluating Solid Waste Update I, IIA, IIB, III
2. Standard Methods for the Examination of Water and Wastewater, 18th Edition
3. EPA 600/4-79-020, Methods of Chemical Analysis for Waters and Wastes, March 1983
4. Federal Register, Friday, October 26, 1984 (40 CFR Part 136)
5. American Society for Testing and Materials, Volumes 5.01, 5.02, 5.03, 11.01,11.02,11.03,11.04
6. EPA Methods for Environmental Samples

COMMENTS

All methods of chemical analysis have a statistical uncertainty associated with the results. Unless otherwise indicated, the data in this report are within the limits of uncertainty as specified in the referenced method. Quality Control acceptance criteria are based either on actual laboratory performance or on limits specified in the referenced method. The date and time of analysis indicated on the QA report may not reflect the actual time of analysis for QC samples. All data are reported on an "as received" basis unless otherwise indicated. Data reported in the QA report may be lower than sample data due to dilution of samples into the calibration range of the analysis. Sample concentration for solid samples are calculated on an as received (wet) basis. Unless otherwise indicated, volatiles by gas chromatography (GC) are reported from a single column. Volatile analysis by GC on low level soil extractions are conducted at room temperature.

FLAGS, FOOTNOTES AND ABBREVIATIONS (as needed)

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N/A	=	Not applicable	NC	=	Not calculable due to values lower than the reporting limit
ug/L	=	Micrograms per liter	mg/L	=	Milligrams per liter
ug/Kg	=	Micrograms per kilogram	mg/kg	=	Milligrams per kilogram
U	=	Undetected			
J	=	Indicates value is > MDL, but < Reporting Limit			
B	=	Analyte was detected in the method blank analyzed with this sample.			
D	=	Surrogate recoveries are not calculated due to sample dilution.			
X	=	Surrogate recovery is outside quality control limits.			
Y	=	Spike or spike duplicate recovery is outside quality control limits.			
Z	=	Relative percent difference for a spike and spike duplicate is outside quality control limits. The precision of the method was impacted by matrix.			
^	=	Indicates value is above QC acceptance criteria.			

QC SAMPLE IDENTIFICATIONS

MB	=	Method Blank	SB	=	Storage Blank
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PB	=	Preparation Blank	CALB	=	Calibration Blank
MD	=	Method Duplicate	RS	=	Reference Standard
LCS	=	Laboratory Control Sample	LCSD	=	Laboratory Control Sample Duplicate
MS	=	Matrix Spike	MSD	=	Matrix Spike Duplicate
ICB	=	Initial Calibration Blank	CCB	=	Continuing Calibration Blank
ICV	=	Initial Calibration Verification	ICB	=	Initial Calibration Blank
PDS	=	Post Digestion Spike	SS	=	Surrogate Spike
ISA	=	Interference Check standard "A"	ISB	=	Interference Check Standard "B"
ISCAB	=	Interference Check Sample AB	MSA	=	Method of Standard Additions
CAL	=	Calibration standard	SD	=	Serial Dilution
MST	=	TCLP Matrix Spike	MSQ	=	TCLP Matrix Spike Duplicate
PST	=	TCLP Post Digestion Spike	LCT	=	TCLP Laboratory Control Sample

SUBCONTRACTED LABORATORY LOCATIONS

CORE Laboratories:	Anaheim, California	*AN	Aurora, Colorado	*AU
	Casper, Wyoming	*CA	Corpus Christi, Texas	*CC
	Houston, Texas (Env)	*HE	Houston, Texas (Pet)	*HP
	Other (Detailed in Case Narrative)	*XX		

rpjsckl | Job Sample Receipt Checklist Report 08/18/99 | V2

Job Number.....: 909263 Location.: 57211 Customer Job ID.....: Job Check List Date.: 08/18/99
Project Number.: 96000746 Project Description.: INDIAN BASIN REMEDIATION STRIPPER Project Manager.....: lpa
Customer.....: Marathon Oil Company Contact.: Mr. Paul Peacock

Questions ?	(Y/N)	Comments
Chain-of-Custody Present?	Y	
Custody seal on shipping container?	Y	
...If "yes", custody seal intact?		
Custody seals on sample containers?		
...If "yes", custody seal intact?		
Samples chilled?	Y	
Temperature of cooler acceptable? (4 deg C +/- 2).	Y	5.8 deg C
Samples received intact (good condition)?	Y	ONE VIAL BROKE IN TRANSIT
Volatile samples acceptable? (no headspace)	Y	
Correct containers used?	Y	
Adequate sample volume provided?	Y	
Samples preserved correctly?	Y	
Samples received within holding-time?	Y	
Agreement between COC and sample labels?	Y	
Additional		
Comments		
Sample Custodian Signature	L.Bib	

GERAGHTY & MILLER, INC.
Environment and Infrastructure
a heidemij company

Laboratory Task Order No. _____

CHAIN-OF-CUSTODY RECORD

Page _____ of _____

Project Number NP0004.3.0002.MT001

Project Location MARATHON Indian Basin

Laboratory Core

Sampler(s)/Affiliation McNeese - AGM
Midland, TX

SAMPLE IDENTITY	Code	Date/~~Time~~ Sampled	Time ~~Lab ID~~	SAMPLE BOTTLE / CONTAINER DESCRIPTION: BTEX (HCl) 40 ml										TOTAL
MW-114	L	8-11-99	1400	3										3

Sample Code: L = Liquid; S = Solid; A = Air

Total No. of Bottles/ Containers: 3

Relinquished by: [signature]	Organization: ARCADIS	Date 8/16/99	Time 1700	Seal Intact? Yes No N/A
Received by: Tom Bubo	Organization: Core	Date 8/18/99	Time 1000	
Relinquished by: _____	Organization: _____	Date / /	Time _____	~~Seal Intact?~~ Yes No N/A
Received by: _____	Organization: _____	Date / /	Time _____	

Special Instructions/Remarks: _____

Delivery Method: ☐ In Person ☑ Common Carrier Fed Ex ☐ Lab Courier ☐ Other _____

ARCADIS GERAGHTY & MILLER

Monthly Air Stripper
Monitoring, 1999

PINNACLE LABORATORIES

2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

Pinnacle Lab ID number **901082**
February 18, 1999

MARATHON OIL COMPANY
P.O. BOX 552
MIDLAND, TX 79702-0552

Project Name IB REMEDIATION
Project Number (none)

Attention: PAUL PEACOCK

On 1/29/99 Pinnacle Laboratories, Inc. Inc., (ADHS License No. AZ0592), received a request to analyze **aqueous** samples. The samples were analyzed with EPA methodology or equivalent methods. The results of these analyses and the quality control data, which follow each set of analyses, are enclosed.

EPA method 8021 was performed by Pinnacle Laboratories, Inc., Albuquerque, NM.

All other parameters were performed by ESL (OR) Inc., Durham, OR.

If you have any questions or comments, please do not hesitate to contact us at (505)344-3777.

Kimberly D. McNeill
Project Manager

H. Mitchell Rubenstein, Ph. D.
General Manager

MR: mt

Enclosure

MCR

FEB 2 1999

Environmental & Safety

PINNACLE LABORATORIES

2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

CLIENT	: MARATHON OIL COMPANY	PINNACLE ID	: 901082
PROJECT #	: (none)	DATE RECEIVED	: 1/29/99
PROJECT NAME	: IB REMEDIATION	REPORT DATE	: 2/18/99

PIN ID. #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	W. STRIPPER INLET	AQUEOUS	1/28/99
02	W. STRIPPER OUTLET	AQUEOUS	1/28/99
03	E. STRIPPER INLET	AQUEOUS	1/28/99
04	E. STRIPPER OUTLET	AQUEOUS	1/28/99
05	LYMAN	AQUEOUS	1/28/99

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Fax (505) 344-4413

PINNACLE LABORATORIES

GAS CHROMATOGRAPHY RESULTS

TEST : EPA 8021 MODIFIED
CLIENT : MARATHON OIL COMPANY
PROJECT # : (none)
PROJECT NAME : IB REMEDIATION

PINNACLE I.D.: 901082

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
01	W. STRIPPER INLET	AQUEOUS	1/28/99	NA	1/29/99	50
02	W. STRIPPER OUTLET	AQUEOUS	1/28/99	NA	2/1/99	10
	E. STRIPPER INLET	AQUEOUS	1/28/99	NA	1/29/99	50

PARAMETER	DET. LIMIT	UNITS	W. STRIPPER INLET	W. STRIPPER OUTLET	E. STRIPPER INLET
BENZENE	0.5	**UG/L**	**160**	**19**	**160**
TOLUENE	0.5	**UG/L**	**53**	**77**	**75**
ETHYLBENZENE	0.5	**UG/L**	**270**	**11**	**270**
TOTAL XYLENES	0.5	**UG/L**	**440**	**22**	**500**
SURROGATE:					
BROMOFLUOROBENZENE (%)			108	120	103
SURROGATE LIMITS	(80 - 120)				

CHEMIST NOTES:
N/A

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Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

PINNACLE LABORATORIES

GAS CHROMATOGRAPHY RESULTS

TEST : EPA 8021 MODIFIED
CLIENT : MARATHON OIL COMPANY
PROJECT # : (none)
PROJECT NAME : IB REMEDIATION

PINNACLE I.D.: 901082

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
04	E. STRIPPER OUTLET	AQUEOUS	1/28/99	NA	2/1/99	20
05	LYMAN	AQUEOUS	1/28/99	NA	1/29/99	1

RAMETER	DET. LIMIT	UNITS	E. STRIPPER OUTLET	LYMAN
BENZENE	0.5	**UG/L**	**24**	< 0.5
TOLUENE	0.5	**UG/L**	**120**	< 0.5
ETHYLBENZENE	0.5	**UG/L**	**29**	< 0.5
TOTAL XYLENES	0.5	**UG/L**	**470**	< 0.5
SURROGATE:				
BROMOFLUOROBENZENE (%)			100	102
SURROGATE LIMITS	(80 - 120)			

CHEMIST NOTES:
N/A

PINNACLE LABORATORIES

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GAS CHROMATOGRAPHY RESULTS
REAGENT BLANK

TEST	: EPA 8021 MODIFIED	PINNACLE I.D.	: 901082
BLANK I. D.	: 012899	DATE EXTRACTED	: NA
CLIENT	: MARATHON OIL COMPANY	DATE ANALYZED	: 1/28/99
PROJECT #	: (none)	SAMPLE MATRIX	: AQUEOUS
PROJECT NAME	: IB REMEDIATION		

PARAMETER	UNITS	
BENZENE	UG/L	<0.5
TOLUENE	UG/L	<0.5
ETHYLBENZENE	UG/L	<0.5
TOTAL XYLENES	UG/L	<0.5
SURROGATE:		
BROMOFLUOROBENZENE (%)		103
SURROGATE LIMITS:	(80 - 120)	

CHEMIST NOTES:
N/A

PINNACLE LABORATORIES

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Albuquerque. New Mexico 87107
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Fax (505) 344-4413

GAS CHROMATOGRAPHY RESULTS
REAGENT BLANK

TEST	: EPA 8021 MODIFIED	PINNACLE I.D.	: 901082
BLANK I. D.	: 012999	DATE EXTRACTED	: NA
CLIENT	: MARATHON OIL COMPANY	DATE ANALYZED	: 1/29/99
PROJECT #	: (none)	SAMPLE MATRIX	: AQUEOUS
PROJECT NAME	: IB REMEDIATION		

PARAMETER	UNITS	
BENZENE	UG/L	<0.5
TOLUENE	UG/L	<0.5
ETHYLBENZENE	UG/L	<0.5
TOTAL XYLENES	UG/L	<0.5
SURROGATE:		
BROMOFLUOROBENZENE (%)		113
SURROGATE LIMITS:	(80 - 120)	

CHEMIST NOTES:
N/A

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PINNACLE LABORATORIES

GAS CHROMATOGRAPHY RESULTS
REAGENT BLANK

TEST	: EPA 8021 MODIFIED	PINNACLE I.D.	: 901082
BLANK I. D.	: 020199	DATE EXTRACTED	: NA
CLIENT	: MARATHON OIL COMPANY	DATE ANALYZED	: 2/1/99
PROJECT #	: (none)	SAMPLE MATRIX	: AQUEOUS
PROJECT NAME	: IB REMEDIATION		

PARAMETER	UNITS	
BENZENE	UG/L	<0.5
TOLUENE	UG/L	<0.5
ETHYLBENZENE	UG/L	<0.5
TOTAL XYLENES	UG/L	<0.5
SURROGATE:		
BROMOFLUOROBENZENE (%)		108
SURROGATE LIMITS:	(80 - 120)	

CHEMIST NOTES:
N/A

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PINNACLE LABORATORIES

GAS CHROMATOGRAPHY QUALITY CONTROL
MSMSD

TEST	: EPA 8021 MODIFIED		
MSMSD #	: 901073-01	PINNACLE I.D.	: 901082
CLIENT	: MARATHON OIL COMPANY	DATE EXTRACTED	: NA
PROJECT #	: (none)	DATE ANALYZED	: 1/28/99
PROJECT NAME	: IB REMEDIATION	SAMPLE MATRIX	: AQUEOUS
		UNITS	: UG/L

PARAMETER	SAMPLE RESULT	CONC SPIKE	SPIKED SAMPLE	% REC	DUP SPIKE	DUP % REC	RPD	REC LIMITS	RPD LIMITS
BENZENE	<0.5	10.0	10.5	105	10.3	103	2	(80 - 120)	20
TOLUENE	0.53	10.0	10.6	101	10.4	99	2	(80 - 120)	20
ETHYLBENZENE	<0.5	10.0	11.4	114	10.9	109	4	(80 - 120)	20
TOTAL XYLENES	<0.5	30.0	31.5	105	30.5	102	3	(80 - 120)	20

CHEMIST NOTES:
N/A

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative Percent Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative Percent Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

Environmental Services Laboratory, Inc. E S L

17400 SW Upper Boones Ferry Road • Suite 270 • Portland, OR 97224 • (503) 670-8520

February 11, 1999

Kim McNeill
Pinnacle Laboratories
2709-D Pan American Fwy NE
Albuquerque, NM 87107
TEL: 505-344-3777
FAX (505) 344-4413

RE: 901082 / MOC Order No.: 9902014

Dear Kim McNeill,

Environmental Services Laboratory received 1 sample on 2/1/99 for the analyses presented in the following report.

The Samples were analyzed for the following tests:
CHLORIDE (Chloride)

There were no problems with the analyses and all data for associated QC met EPA or laboratory specifications except where noted in the Case Narrative. Results apply only to the samples analyzed. Reproduction of this report is permitted only in its entirety, without the written approval from the Laboratory.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

Kimberly Hill
Project Manager

Technical Review

Environmental Services Laboratory

Date: *11-Feb-99*

CLIENT:	Pinnacle Laboratories	**Client Sample ID:**	901082-01
Lab Order:	9902014	**Tag Number:**	
Project:	901082 / MOC	**Collection Date:**	1/28/99
Lab ID:	9902014-01A	**Matrix:**	AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
CHLORIDE		**CHLORIDE**				Analyst: **sld**
Chloride	ND	0.5		mg/L	1	2/9/99

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Environmental Services Laboratory

Date: *11-Feb-99*

CLIENT: Pinnacle Laboratories
Work Order: 9902014
Project: 901082 / MOC

QC SUMMARY REPORT
Method Blank

Sample ID: **MBLK** Batch ID: **NO INST_990** Test Code: **Chloride** Units: **mg/L** Analysis Date **2/9/99** Prep Date:

Client ID: **9902014** Run ID: **NO INST_990209A** SeqNo: **3327**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.5									

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

Environmental Services Laboratory

Date: *11-Feb-99*

CLIENT: Pinnacle Laboratories
Work Order: 9902014
Project: 901082 / MOC

QC SUMMARY REPORT
Sample Duplicate

Sample ID: **9902037-03A DUP** Batch ID: **NO INST_990** Test Code: **Chloride** Units: **mg/L** Analysis Date **2/9/99** Prep Date:
Client ID: **9902014** Run ID: **NO INST_990209A** SeqNo: **3331**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	3.8	0.5	0	0	0.0%	0	0	4.3	12.3%	20	

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

Environmental Services Laboratory

Date: *11-Feb-99*

CLIENT: Pinnacle Laboratories
Work Order: 9902014
Project: 901082 / MOC

QC SUMMARY REPORT
Sample Matrix Spike

Sample ID: **9902037-03A MS** Batch ID: **NO INST_990** Test Code: **Chloride** Units: **mg/L** Analysis Date **2/9/99** Prep Date:
Client ID: **9902014** Run ID: **NO INST_990209A** SeqNo: **3332**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	9	0.5	5	4.3	94.0%	75	125	0			

Sample ID: **9902037-03A MSD** Batch ID: **NO INST_990** Test Code: **Chloride** Units: **mg/L** Analysis Date **2/9/99** Prep Date:
Client ID: **9902014** Run ID: **NO INST_990209A** SeqNo: **3333**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	9.25	0.5	5	4.3	99.0%	75	125	9	2.7%	20	

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

Environmental Services Laboratory

Date: *11-Feb-99*

CLIENT: Pinnacle Laboratories
Work Order: 9902014
Project: 901082 / MOC

QC SUMMARY REPORT
Initial Calibration Verification Standard

Sample ID: **ICV** Batch ID: **NO INST_990** Test Code: **Chloride** Units: **mg/L** Analysis Date **2/9/99** Prep Date:

Client ID: **9902014** Run ID: **NO INST_990209A** SeqNo: **3328**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	10	0.5	10	0	100.0%	85	115	0			

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

Pinnacle Laboratories, Inc. **Interlab Chain of Custody** Date: 1/29 Page: 1 of 1 9[redacted]2014

Network Project Manager: Kimberly D. McNeill

Pinnacle Laboratories, Inc.
2709-D Pan American Freeway, NE
Albuquerque, New Mexico 87107
(505) 344-3777 Fax (505) 344-4413

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	Metals (8) RCRA	RCRA TCLP METALS	Metals-13 PP List	Metals-TAL		TOX	TOC	Gen Chemistry : Chloride		Oil and Grease	Volatile Organics GC/MS (8260)	BOD	COD	PESTICIDES/PCB (608/8080)	8270 BY GC/MS	PNA (8310)	8240 (TCLP 1311) ZHE	Herbicides (615/8150)	Base/Neutral Acid Compounds GC/MS (625/8270)	URANIUM	RADIUM 226+228	Gross Alpha/Beta	TO-14	NUMBER OF CONTAINERS
901082-01	1/28	0820	AQ	01								X																

PROJECT INFORMATION

PROJECT #: 901082
PROJ. NAME: MOC
QC LEVEL: (STD.) IV
QC REQUIRED: MS MSD BLANK
TAT: (STANDARD) RUSH!!

SAMPLE RECEIPT

Total Number of Containers
Chain of Custody Seals
Received Intact?
Received Good Cond./Cold
LAB NUMBER:

DUE DATE: 2/12
RUSH SURCHARGE: —
CLIENT DISCOUNT: —
SPECIAL C I ION
REQUIRED: YES (NO)

COMMENTS:

SAMPLES SENT TO:

PENSACOLA - STL-FL
X PORTLAND - ESL-OR
STL - CT
STL- NEW JERSEY
N. CREEK
BARRINGER
SEQUOIA

RELINQUISHED BY: 1.
Signature: Francine Torino Time: 1700
Printed Name: Francine Torino Date: 2/1/99
Pinnacle Laboratories, Inc.

RECEIVED BY: 1.
Signature: Time:
Printed Name Date:
Company

RELINQUISHED BY: 2.
Signature: Time:
Printed Name: Date:
Company

RECEIVED BY: 2
Signature: Time:
Printed Name: Date:
Company

Pinnacle Laboratories Inc.

CHAIN OF CUSTODY

DATE: 1-28-99 PAGE: 1 OF 1

PLI Accession #: 901082

SHADED AREAS ARE FOR LAB USE ONLY.

PLEASE FILL THIS FORM IN COMPLETELY.

PROJECT MANAGER: PAUL PEACOCK

COMPANY: MARATHON OIL CO
ADDRESS: P.O. BOX 552
MIDLAND TX
PHONE: 915 687-8312
FAX: 915 687-8305

BILL TO:
COMPANY: SAME AS ABOVE
ADDRESS:

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB I.D.	Petroleum Hydrocarbons (418.1) TRPH	(MOD.8015) Diesel/Direct Inject	(M8015) Gas/Purge & Trap	8021 (BTEX)/8015 (Gasoline) MTBE	8021 (BTEX) ☐ MTBE ☐ TMB ☐ PCE	8021 (TCL)	8021 (EDX)	8021 (HALO)	8021 (CUST)	504.1 EDB ☐ / DBCP ☐	8260 (TCL) Volatile Organics	8260 (Full) Volatile Organics	8260 (CUST) Volatile Organics	8260 (Landfill) Volatile Organics	Pesticides /PCB (608/8081/8082)	Herbicides (615/8151)	Base/Neutral/Acid Compounds GC/MS (625/8270)	Polynuclear Aromatics (610/8310/8270-SIMS)	General Chemistry:	Priority Pollutant Metals (13)	Target Analyte List Metals (23)	RCRA Metals (8)	RCRA Metals by TCLP (Method 1311)	Metals:	NUMBER OF CONTAINERS
W. STRIPPER INLET	1-28-99	8:50 AM	WATER	01			BTEX (8020) ✓							CHLORIDE															2
W. STRIPPER OUTLET	"	8:55 AM	"	02			✓							✓															2
E. STRIPPER INLET	"	8:59 AM	"	03			✓																						2
E. STRIPPER OUTLET	"	9:04 AM	"	04			✓																						2
LYMAN	"	8:22 AM	"	05			✓																						2
LYMAN	"	8:20 AM	"	05											✓														1

PROJECT INFORMATION

PROJ. NO.:
PROJ. NAME: TB Remediation
P.O. NO.:
SHIPPED VIA:

SAMPLE RECEIPT

NO. CONTAINERS	10
CUSTODY SEALS	Y / N / NA
RECEIVED INTACT	YES
[illegible] IC'	5°C

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

(RUSH) [ ] 24hr [ ] 48hr [ ] 72hr [ ] 1 WEEK (NORMAL) [✓]

CERTIFICATION REQUIRED: [ ] NM [ ] SDWA [ ] OTHER

METHANOL PRESERVATION [ ]

COMMENTS: FIXED FEE [ ]

-02 Rec'd 1 VOA Broken

RELINQUISHED BY: 1.

Signature: Brad Agulera Time: 9:15
Printed Name: Brad Agulera Date: 1-28-99
Company: Marathon Oil Co.
See reverse side (Force Magure)

RECEIVED BY: 1.

Signature: Time:
Printed Name: Date:
Company:

RELINQUISHED BY: 2.

Signature: Time:
Printed Name: Date
Company:

RECEIVED BY: (LAB) 2.

Signature: Francine Torrio Time: 1035
Printed Name: Francine Torrio Date: 1/29/99
Pinnacle Laboratories Inc.

11/10/98 PLI Inc.: Pinnacle Laboratories, Inc. • 2709-D Pan American Freeway, NE • Albuquerque, New Mexico 87107 • (505) 344-3777 • Fax (505) 344-4413 • E-mail: PIN_LAB@WORLDNET.ATT.NET

DISTRIBUTION: White, Pink, Canary - Originator

CORELAB

CORE LABORATORIES

ANALYTICAL REPORT

JOB NUMBER: 902015

Prepared For:

Marathon Oil Company
125 West Missouri Street
P.O. Box 552
Midland, TX 79702-0552

Attention: Mr. Paul Peacock

Date: 03/01/99

Les Arnold
Signature

3/1/99
Date

Name: Les Arnold

Title: Laboratory Manager

2400 Cumberland Drive
Valparaiso, IN 46383

PHONE: 219-464-2389
FAX..: 219-462-2953

MCR

MAR 05 1999

Environmental & Safety

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CORE LAB

CORE LABORATORIES

SAMPLE INFORMATION
Date: 03/01/99

Job Number.: 902015
Customer...: Marathon Oil Company
Attn.....: Mr. Paul Peacock

Project Number.....: 96000651
Customer Project ID....: INDIAN BASIN REM
Project Description....: Marathon Oil Co., Midland, Tx

Laboratory Sample ID	Customer Sample ID	Sample Matrix	Date Sampled	Time Sampled	Date Received	Time Received
902015-1	WEST AIR STRIPPER INFLUENT	Water	02/25/1999	00:00	02/26/1999	10:55
902015-2	WEST AIR STRIPPER EFFLUENT	Water	02/25/1999	00:00	02/26/1999	10:55
902015-3	EAST AIR STRIPPER INFLUENT	Water	02/25/1999	00:00	02/26/1999	10:55
902015-4	EAST AIR STRIPPER EFFLUENT	Water	02/25/1999	00:00	02/26/1999	10:55

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CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 902015 Date: 03/01/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN REM ATTN: Mr. Paul Peacock

Customer Sample ID: WEST AIR STRIPPER INFLUENT
Date Sampled.....: 02/25/1999
Time Sampled.....: 00:00
Sample Matrix.....: Water

Laboratory Sample ID: 902015-1
Date Received.....: 02/26/1999
Time Received.....: 10:55

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8015B	Nonhalogenated Organics using GC/FID					
	Diesel Range Organics	1.2	0.60	mg/L	03/01/99	jdb
EPA 8015B	Nonhalogenated Organics using GC/FID					
	Gasoline Range Organics	0.80	0.50	mg/L	02/26/99	weh
EPA 8260	Volatile Organic Compounds					
	Benzene	68	5	ug/L	02/28/99	weh
	Ethylbenzene	100	5	ug/L	02/28/99	weh
	Toluene	ND	5	ug/L	02/28/99	weh
	Xylenes (total)	170	20	ug/L	02/28/99	weh

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CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 902015 Date: 03/01/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN REM ATTN: Mr. Paul Peacock

Customer Sample ID: WEST AIR STRIPPER EFFLUENT
Date Sampled.....: 02/25/1999
Time Sampled.....: 00:00
Sample Matrix.....: Water

Laboratory Sample ID: 902015-2
Date Received.....: 02/26/1999
Time Received.....: 10:55

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8015B	Nonhalogenated Organics using GC/FID					
	Diesel Range Organics	<0.60	0.60	mg/L	03/01/99	jdb
EPA 8015B	Nonhalogenated Organics using GC/FID					
	Gasoline Range Organics	0.51	0.50	mg/L	02/26/99	weh
EPA 8260	Volatile Organic Compounds					
	Benzene	ND	5	ug/L	02/28/99	weh
	Ethylbenzene	ND	5	ug/L	02/28/99	weh
	Toluene	ND	5	ug/L	02/28/99	weh
	Xylenes (total)	<20	20	ug/L	02/28/99	weh

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CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 902015 Date: 03/01/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN REM ATTN: Mr. Paul Peacock

Customer Sample ID: EAST AIR STRIPPER INFLUENT
Date Sampled.....: 02/25/1999
Time Sampled.....: 00:00
Sample Matrix.....: Water

Laboratory Sample ID: 902015-3
Date Received.....: 02/26/1999
Time Received.....: 10:55

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8015B	Nonhalogenated Organics using GC/FID					
	Diesel Range Organics	1.9	0.60	mg/L	03/01/99	jdb
EPA 8015B	Nonhalogenated Organics using GC/FID					
	Gasoline Range Organics	0.68	0.50	mg/L	02/26/99	weh
EPA 8260	Volatile Organic Compounds					
	Benzene	69	5	ug/L	02/28/99	weh
	Ethylbenzene	91	5	ug/L	02/28/99	weh
	Toluene	ND	5	ug/L	02/28/99	weh
	Xylenes (total)	150	20	ug/L	02/28/99	weh

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CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 902015 Date: 03/01/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN REM ATTN: Mr. Paul Peacock

Customer Sample ID: EAST AIR STRIPPER EFFLUENT
Date Sampled.....: 02/25/1999
Time Sampled.....: 00:00
Sample Matrix.....: Water

Laboratory Sample ID: 902015-4
Date Received.....: 02/26/1999
Time Received.....: 10:55

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8015B	Nonhalogenated Organics using GC/FID					
	Diesel Range Organics	0.78	0.60	mg/L	03/01/99	jdb
EPA 8015B	Nonhalogenated Organics using GC/FID					
	Gasoline Range Organics	<0.50	0.50	mg/L	02/26/99	weh
EPA 8260	Volatile Organic Compounds					
	Benzene	ND	5	ug/L	02/28/99	weh
	Ethylbenzene	ND	5	ug/L	02/28/99	weh
	Toluene	ND	5	ug/L	02/28/99	weh
	Xylenes (total)	<20	20	ug/L	02/28/99	weh

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CORE LABORATORIES

QUALITY CONTROL RESULTS

Job Number.: 902015 Report Date.: 03/01/99

CUSTOMER: Marathon Oil Company PROJECT: Marathon Oil Co., Midland, Tx ATTN: Mr. Paul Peacock

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time

Test Method.....: EPA 8015B Batch.....: 36070 Analyst...: jdb
Method Description.: Nonhalogenated Organics using GC/FID Units.....: mg/L

MB	Method Blank				03/01/1999	1219

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Diesel Range Organics	ND						

LCS	Laboratory Control Sample	V16878B			03/01/1999	1239

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Diesel Range Organics	414		500.000000		82.8	%	70-130

MS	Matrix Spike	V16878B	902015-4		03/01/1999	1417

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
el Range Organics	421		500.000000	ND	84.2	%	70-130

MSD	Matrix Spike Duplicate	V16878B	902015-4		03/01/1999	1437

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Diesel Range Organics	486	421	500.000000	ND	97.2	%	70-130
					14.3	R	20

Test Method.....: EPA 8015B Batch.....: 36030 Analyst...: weh
Method Description.: Nonhalogenated Organics using GC/FID Units.....: mg/L

LCS	Laboratory Control Sample	GROSTD			02/26/1999	1445

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Gasoline Range Organics	9.550		10		95.5	%	70-130

MB	Method Blank				02/26/1999	1518

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Gasoline Range Organics	0.050						

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

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QUALITY CONTROL RESULTS

Job Number.: 902015 Report Date.: 03/01/99

CUSTOMER: Marathon Oil Company PROJECT: Marathon Oil Co., Midland, Tx ATTN: Mr. Paul Peacock

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
MS	Matrix Spike	GROSTD	902014-1		02/26/1999	1622

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Gasoline Range Organics	10.424		10	0.066	103.6	%	70-130

MSD	Matrix Spike Duplicate	GROSTD	902014-1		02/26/1999	1653

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Gasoline Range Organics	10.430	10.424	10	0.066	103.6	%	70-130
					0.1	R	20

LCS	Laboratory Control Sample	GROSTD			02/26/1999	1932

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Gasoline Range Organics	10.266		10		102.7	%	70-130

'st Method.....: EPA 8260 Batch.....: 36042 Analyst...: weh
..ethod Description.: Volatile Organic Compounds Units.....: ug/L

MB	Method Blank				02/28/1999	1236

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
o-Xylene	ND						
Acrolein	ND						
1,2,4-Trimethylbenzene	ND						
m&p-Xylenes	ND						
Isopropylbenzene	ND						
Trichlorofluoromethane	ND						
2-Chloroethylvinyl ether	ND						
Dichlorodifluoromethane	ND						
Dibromomethane	ND						
Bromobenzene	ND						
1,2,3-Trichloropropane	ND						
1,1,1,2-Tetrachloroethane	ND						
tert-Butyl methyl ether (MTBE)	ND						
1,2-Dichlorobenzene	ND						
1,3-Dichlorobenzene	ND						
1,4-Dichlorobenzene	ND						
Acrylonitrile	ND						
Acetone	ND						
Benzene	ND						
Bromodichloromethane	ND						
Bromoform	ND						
Bromomethane	ND						
2-Butanone	ND						
Carbon disulfide	ND						
Carbon tetrachloride	ND						
Dibromochloromethane	ND						
›robenzene	ND						
›roethane	ND						

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

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QUALITY CONTROL RESULTS

Job Number.: 902015 Report Date.: 03/01/99

CUSTOMER: Marathon Oil Company PROJECT: Marathon Oil Co., Midland, Tx ATTN: Mr. Paul Peacock

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
MB	Method Blank				02/28/1999	1236

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Chloroform	ND						
Chloromethane	ND						
1,1-Dichloroethane	ND						
1,2-Dichloroethane	ND						
1,1-Dichloroethene	ND						
trans-1,2-Dichloroethene	ND						
cis-1,2-Dichloroethene	ND						
1,2-Dichloropropane	ND						
cis-1,3-Dichloropropene	ND						
trans-1,3-Dichloropropene	ND						
Ethylbenzene	ND						
2-Hexanone	ND						
Methylene chloride	ND						
4-Methyl-2-pentanone (MIBK)	ND						
Styrene	ND						
1,1,2,2-Tetrachloroethane	ND						
Tetrachloroethene	ND						
Toluene	ND						
,1-Trichloroethane	ND						
,,2-Trichloroethane	ND						
Trichloroethene	ND						
Vinyl acetate	ND						
Vinyl chloride	ND						
Xylenes (total)	ND						

LCS	Laboratory Control Sample	CLPVOAMS2			02/28/1999	1308

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	51.14		50		102.3	%	67-127
Chlorobenzene	53.38		50		106.8	%	68-128
1,1-Dichloroethene	52.65		50		105.3	%	66-126
Toluene	46.90		50		93.8	%	72-132
Trichloroethene	52.24		50		104.5	%	74-134

MS	Matrix Spike	CLPVOAMS2	902043-1		02/28/1999	1945

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	51.37		50	ND	102.7	%	74-127
Chlorobenzene	50.42		50	ND	100.8	%	75-130
1,1-Dichloroethene	49.88		50	ND	99.8	%	59-172
Toluene	46.78		50	ND	93.6	%	76-125
Trichloroethene	50.00		50	ND	100.0	%	71-140

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

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QUALITY CONTROL RESULTS

Job Number.: 902015 Report Date.: 03/01/99

CUSTOMER: Marathon Oil Company PROJECT: Marathon Oil Co., Midland, Tx ATTN: Mr. Paul Peacock

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
MSD	Matrix Spike Duplicate	CLPVOAMS2	902043-1		02/28/1999	2017

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	52.44	51.37	50	ND	104.9	%	74-127
					2.1	R	30
Chlorobenzene	51.52	50.42	50	ND	103.0	%	75-130
					2.2	R	30
1,1-Dichloroethene	51.16	49.88	50	ND	102.3	%	59-172
					2.5	R	30
Toluene	46.43	46.78	50	ND	92.9	%	76-125
					0.8	R	30
Trichloroethene	50.96	50.00	50	ND	101.9	%	71-140
					1.9	R	30

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

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SURROGATE RECOVERIES REPORT

Job Number.: 902015 Report Date.: 03/01/99

CUSTOMER: Marathon Oil Company PROJECT: Marathon Oil Co., Midland, Tx ATTN: Mr. Paul Peacock

Method.....: Volatile Organic Compounds Batch.....: 36042
Method Code.....: 826TCL Analyst.....: weh

Surrogate	Units
1,2-Dichloroethane-d4 (surrogate)	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		41.25	50.00	82.5	76-120		02/28/1999	1236
		LCS		41.56	50.00	83.1	76-120		02/28/1999	1308
902015-1			5	42.33	50.00	84.7	76-120		02/28/1999	1339
902015-2			5	42.07	50.00	84.1	76-120		02/28/1999	1411
902015-3			5	42.15	50.00	84.3	76-120		02/28/1999	1443
902015-4			5	42.39	50.00	84.8	76-120		02/28/1999	1514
902023-1			200	46.10	50.00	92.2	76-120		02/28/1999	1603
902043-1				45.92	50.00	91.8	76-120		02/28/1999	1634
902043-1		MS		48.18	50.00	96.4	76-120		02/28/1999	1945
902043-1		MSD		49.98	50.00	100.0	76-120		02/28/1999	2017

Surrogate	Units
BFB (Surrogate)	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		47.79	50.00	95.6	86-115		02/28/1999	1236
		LCS		48.00	50.00	96.0	86-115		02/28/1999	1308
902015-1			5	48.76	50.00	97.5	86-115		02/28/1999	1339
902015-2			5	48.88	50.00	97.8	86-115		02/28/1999	1411
902015-3			5	49.16	50.00	98.3	86-115		02/28/1999	1443
902015-4			5	48.67	50.00	97.3	86-115		02/28/1999	1514
902023-1			200	46.41	50.00	92.8	86-115		02/28/1999	1603
902043-1				49.18	50.00	98.4	86-115		02/28/1999	1634
902043-1		MS		46.66	50.00	93.3	86-115		02/28/1999	1945
902043-1		MSD		47.99	50.00	96.0	86-115		02/28/1999	2017

Surrogate	Units
Toluene-d8	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		44.80	50.00	89.6	88-110		02/28/1999	1236
		LCS		44.20	50.00	88.4	88-110		02/28/1999	1308
902015-1			5	46.16	50.00	92.3	88-110		02/28/1999	1339
902015-2			5	46.11	50.00	92.2	88-110		02/28/1999	1411
902015-3			5	45.23	50.00	90.5	88-110		02/28/1999	1443
902015-4			5	45.65	50.00	91.3	88-110		02/28/1999	1514
902023-1			200	45.69	50.00	91.4	88-110		02/28/1999	1603
902043-1				45.63	50.00	91.3	88-110		02/28/1999	1634
2043-1		MS		45.70	50.00	91.4	88-110		02/28/1999	1945
.02043-1		MSD		45.49	50.00	91.0	88-110		02/28/1999	2017

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QUALITY ASSURANCE FOOTER

METHOD REFERENCES

(1) EPA SW-846, Test Methods for Evaluating Solid Waste, Third Edition, September 1986, July 1992, and September 1994 updates
(2) Standard Methods for the Examination of Water and Wastewater, 18th Edition, 1992
(3) EPA 600/4-79-020, Methods of Chemical Analysis for Waters and Wastes, March 1983
(4) Federal Register, Friday, October 26, 1984 (40 CFR Part 136)
(5) American Society for Testing and Materials, Volumes 5.01, 5.02, 5.03, 1992
(6) EPA 600/4-89-001, Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Fresh Water Organisms
(7) EPA 600/4-90-027, Methods for Measuring the Acute Toxicity of Effluent and Receiving Waters to Fresh Water and Marine Organisms, Fourth Edition

COMMENTS

All methods of chemical analysis have a statistical uncertainty associated with the results. Unless otherwise indicated, the data in this report are within the limits of uncertainty as specified in the referenced method. Quality control acceptance criteria are based either on actual laboratory performance or on limits specified in the referenced method. The date and time of analysis indicated on the QA report may not reflect the actual time of analysis for QC samples. All data reported on an "as received" basis unless otherwise indicated. Data reported in the QA report may be lower than sample data due to dilution of samples into the calibration range of the analysis. Sample concentrations for solid samples are calculated on an as received (wet) basis. Unless otherwise indicated, volatiles by gas chromatography (GC) are reported from a single column. Volatiles analyses by GC on low level soil extractions are conducted at room temperature.

FLAGS, FOOTNOTES, AND ABBREVIATIONS (as needed)

NA = Not analyzed
N/A = Not applicable
ug/L = Micrograms per liter
mg/L = Milligrams per liter
ND = Not detected at a value greater than the reporting limit
NC = Not calculable due to values lower than the detection limit
N.I. = Not Ignitable
S.I. = Sustains Ignition
I(NS) = Ignites, but does not Sustain Ignition
RPD = Relative Percent Difference
(a) = Surrogate recoveries were outside acceptable ranges due to matrix effects.
(b) = Surrogate recoveries were not calculated due to dilution of the sample below the detectable range for the surrogate.
(c) = Matrix spike recoveries were outside acceptable ranges due to matrix effects.
(d) = Relative Percent Difference (RPD) for duplicate analysis outside acceptance limits due to actual differences in the sample matrix.
(e) = The limit listed for flammability indicates the upper limit for the test. Samples are not tested at temperatures above 140 Fahrenheit since only samples which will sustain ignition at temperatures below 140 are considered flammable.
(f) = Results for this hydrocarbon range did not match a typical hydrocarbon pattern. Results were quantified using a diesel standard, however, the hydrocarbon pattern did not match a diesel pattern.
(g) = Results for this hydrocarbon range did not match a typical hydrocarbon pattern. Results were quantified using a gasoline standard, however, the hydrocarbon pattern did not match a gasoline pattern.
(h) = High dilution due to matrix effects

QC SAMPLE IDENTIFICATIONS

MB = Method Blank
RB = Reagent Blank
ICB = Initial Calibration Blank
CCB = Continuing Calibration Blank
CS = Calibration Standard
ICB = Initial Calibration Verification
CCV = Continuing Calibration Verification
SB = Storage Blank
MS = Matrix Spike
MSD = Matrix Spike Duplicate
MD = Matrix Duplicate
BS = Blank Spike
SS = Surrogate Spike
LCS = Laboratory Control Standard
RS = Reference Standard

SUBCONTRACTED LABORATORY LOCATIONS

Core Laboratories:	Aurora, Colorado	*AU
	Casper, Wyoming	*CA
	Corpus Christi, Texas	*CC
	Edison, New Jersey	*ED
	Houston, Texas (Env)	*HE
	Houston, Texas (Pet)	*HP
	Indianapolis, Indiana	*IN
	Lake Charles, Louisiana	*LC
	Long Beach, California	*LB
	Tampa, Florida	*TP
	Valparaiso, Indiana	*VP
Aquatic Testing Laboratories:		
	Ventura, California	*AT

2400 Cumberland Drive
Valparaiso, IN 46383

Job Number.....: 902015 Location.: 57211 Customer Job ID.....: Job Check List Date.: 02/26/99
Project Number.: 96000651 Project Description.: Marathon Oil Co., Midland, Tx Project Manager.....: lpa
Customer.....: Marathon Oil Company Contact.: Mr. Paul Peacock

Questions ?	(Y/N)	Comments
Chain-of-Custody Present?	Y	
Custody seal on shipping container?		
...If "yes", custody seal intact?		
Custody seals on sample containers?		
...If "yes", custody seal intact?		
Samples chilled?	Y	
Temperature of cooler acceptable? (4 deg C +/- 2).		
Samples received intact (good condition)?	N	WEST AIR STRIPPER EFFLUENT BOTTLE BROKEN IN TRANSIT
Volatile samples acceptable? (no headspace)	Y	
Correct containers used?	Y	
Adequate sample volume provided?	Y	
Samples preserved correctly?	Y	
Samples received within holding-time?	Y	
Agreement between COC and sample labels?	Y	
Additional		
Comments		
Sample Custodian Signature		

CORE LABORATORIES, INC.

2400 Cumberland Drive
Valparaiso, IN 46383

CHAIN OF CUSTODY RECORD

219/464-2389

Project

CUSTOMER INFORMATION	PROJECT INFORMATION
COMPANY: Marathon Oil Company	PROJECT NAME/NUMBER: Indian Basin Remediation
SEND REPORT TO: Paul Peacock	BILLING INFORMATION
ADDRESS: P.O. Box 552	BILL TO: Same
Midland, TX 79702	ADDRESS:
PHONE: 915/687-8312	PHONE:
FAX: 915/687-8305	FAX: PO NO.:

LAB JOB NO. 902015

NO.	SAMPLE DESCRIPTION	SAMPLE DATE	SAMPLE TIME	SAMPLE MATRIX	CONTAINER	PRESERV.	NUMBER OF CONTAINERS	BTEX Method 8021	TPH GRO Method 8015	TPH DRO Method 8015	REMARKS/PRECAUTIONS
	~~West Air Stripper~~										
1	West Air Stripper Influent	2/25/99		Water	4ml	HCL		X	X		
2	West Air Stripper Effluent	2/25/99			4ml	HCL		X	X		
3	East Air Stripper Influent	2/25/99			4ml	HCL		X	X		
4	East Air Stripper Effluent	2/25/99			4ml	HCL		X	X		
1	West Air Stripper Influent	2/25/99			16 oz	None				X	
2	West Air Stripper Effluent	2/25/99			16 oz	None				X	
3	East Air Stripper Influent	2/25/99			16 oz	None				X	
4	East Air Stripper Effluent	2/25/99			16 oz	None				X	

SAMPLER: | SHIPMENT METHOD: | AIRBILL NO.:

REQUIRED TURNAROUND:* ☐ SAME DAY ☐ 24 HOURS ☐ 48 HOURS ☐ 72 HOURS ☐ 5 DAYS ☐ 10 DAYS ☑ ROUTINE OTHER

1. RELINQUISHED BY:	DATE	2. RELINQUISHED BY:	DATE	3. RELINQUISHED BY:	DATE
SIGNATURE: Bigo Aguilera	2-25-99	SIGNATURE:		SIGNATURE:	
PRINTED NAME/COMPANY: Bigo Aguilera MOC	TIME: 11:55 AM	PRINTED NAME/COMPANY:	TIME	PRINTED NAME/COMPANY:	TIME
1. RECEIVED BY:	DATE	2. RECEIVED BY:	DATE	3. RECEIVED BY:	DATE
SIGNATURE: Jan Bobo	2/26/99	SIGNATURE:		SIGNATURE:	
PRINTED NAME/COMPANY: JS Cor	TIME: 1100	PRINTED NAME/COMPANY:	TIME	PRINTED NAME/COMPANY:	TIME

* RUSH TURNAROUND MAY REQUIRE SURCHARGE

☐ Anaheim, CA — 5293 E. Gene Autry Way, Anaheim, CA 92805 — (714) 937-1044 Fax (714) 937-1179

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02/24/99 15:35 FAX 219 462 2953 CORE LAB 002

CORE LABORATORIES

ANALYTICAL REPORT

JOB NUMBER: 903023

Prepared For:

Marathon Oil Company
125 West Missouri Street
P.O. Box 552
Midland, TX 79702-0552

Attention: Mr. Paul Peacock

Date: 04/19/99

Les Arnold
Signature

Name: Les Arnold

Title: Laboratory Manager

4-19-99
Date

2400 Cumberland Drive
Valparaiso, IN 46383

PHONE: 219-464-2389
FAX..: 219-462-2953

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CORELAB

CORE LABORATORIES

SAMPLE INFORMATION
Date: 04/19/99

Job Number.: 903023
Customer...: Marathon Oil Company
Attn.....: Mr. Paul Peacock

Project Number.....: 96000651
Customer Project ID....: AIR STRIPPERS
Project Description....: Marathon Oil Co., Midland, Tx

Laboratory Sample ID	Customer Sample ID	Sample Matrix	Date Sampled	Time Sampled	Date Received	Time Received
903023-1	WEST STRIPPER INFLUENT	Water	03/24/1999	09:45	03/25/1999	13:02
903023-2	WEST STRIPPER EFFLUENT	Water	03/24/1999	09:51	03/25/1999	13:02
903023-3	EAST STRIPPER INFLUENT	Water	03/24/1999	09:57	03/25/1999	13:02
903023-4	EAST STRIPPER EFFLUENT	Water	03/24/1999	10:03	03/25/1999	13:02

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CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 903023 Date: 04/19/99

CUSTOMER: Marathon Oil Company PROJECT: AIR STRIPPERS ATTN: Mr. Paul Peacock

Customer Sample ID: WEST STRIPPER INFLUENT
Date Sampled.....: 03/24/1999
Time Sampled.....: 09:45
Sample Matrix.....: Water

Laboratory Sample ID: 903023-1
Date Received.....: 03/25/1999
Time Received.....: 13:02

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8015B	8015B Nonhalogenated Organics (GC/FID)					
	Hexane	<100	100	ug/L	04/05/99	rjm
SW-846 3510B	Sep-Funnel Extraction for DRO					
	Separatory Funnel Liq/Liq Extraction	Complete			03/31/99	bjl
8015B Modified	Diesel Range Organics (C10 - C28)					
	C10 (Decane)	ND	0.50	mg/L	03/31/99	rjm
	C12 (Dodecane)	ND	0.50	mg/L	03/31/99	rjm
	C14 (Tetradecane)	ND	0.50	mg/L	03/31/99	rjm
	C16 (Hexadecane)	ND	0.10	mg/L	03/31/99	rjm
	C18 (Octadecane)	ND	0.10	mg/L	03/31/99	rjm
	C20 (Eicosane)	ND	0.10	mg/L	03/31/99	rjm
	C22 (Docosane)	ND	0.10	mg/L	03/31/99	rjm
	C24 (Tetracosane)	ND	0.10	mg/L	03/31/99	rjm
	C26 (Hexacosane)	ND	0.10	mg/L	03/31/99	rjm
	C28 (Octacosane)	ND	0.10	mg/L	03/31/99	rjm
EPA 8021B	BTEX					
	Benzene	ND	5.0	ug/L	04/01/99	weh
	Ethylbenzene	30	5.0	ug/L	04/01/99	weh
	Toluene	28	5.0	ug/L	04/01/99	weh
	m&p-Xylenes	44	10.0	ug/L	04/01/99	weh
	o-Xylene	10	5.0	ug/L	04/01/99	weh
EPA 8015B	Nonhalogenated Organics using GC/FID					
	Gasoline Range Organics	1.1	1.0	mg/L	04/16/99	rjm

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CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 903023 Date: 04/19/99

CUSTOMER: Marathon Oil Company PROJECT: AIR STRIPPERS ATTN: Mr. Paul Peacock

Customer Sample ID: WEST STRIPPER EFFLUENT
Date Sampled.....: 03/24/1999
Time Sampled.....: 09:51
Sample Matrix.....: Water

Laboratory Sample ID: 903023-2
Date Received.....: 03/25/1999
Time Received.....: 13:02

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 300.0	Bromide (Br)	<0.50	0.50	mg/L	03/31/99	rm
EPA 300.0	Chloride	53.3	1.0	mg/L	03/31/99	rm
EPA 300.0	Fluoride (F)	0.69	0.50	mg/L	03/31/99	rm
EPA 300.0	Sulfate (SO4)	212	1.0	mg/L	03/31/99	rm
EPA 6010B	Metals Analysis (ICAP)					
	Calcium (Ca)	136	0.5	mg/L	03/26/99	chh
	Magnesium (Mg)	63.6	0.1	mg/L	03/26/99	chh
	Potassium (K)	1.6	0.5	mg/L	03/26/99	chh
	Sodium (Na)	29.5	0.5	mg/L	03/30/99	chh
DA 8015B	8015B Nonhalogenated Organics (GC/FID)					
	Hexane	ND	100	ug/L	04/05/99	rjm
SW-846 3510B	Sep-Funnel Extraction for DRO					
	Separatory Funnel Liq/Liq Extraction	Complete			03/31/99	bjl
8015B Modified	Diesel Range Organics (C10 - C28)					
	C10 (Decane)	ND	0.50	mg/L	03/31/99	rjm
	C12 (Dodecane)	ND	0.50	mg/L	03/31/99	rjm
	C14 (Tetradecane)	ND	0.50	mg/L	03/31/99	rjm
	C16 (Hexadecane)	ND	0.10	mg/L	03/31/99	rjm
	C18 (Octadecane)	ND	0.10	mg/L	03/31/99	rjm
	C20 (Eicosane)	ND	0.10	mg/L	03/31/99	rjm
	C22 (Docosane)	ND	0.10	mg/L	03/31/99	rjm
	C24 (Tetracosane)	ND	0.10	mg/L	03/31/99	rjm
	C26 (Hexacosane)	ND	0.10	mg/L	03/31/99	rjm
	C28 (Octacosane)	ND	0.10	mg/L	03/31/99	rjm
EPA 3510B	Extraction (Sep. Funnel) SVOC					
	Separatory Funnel Liq/Liq Extraction	Complete			04/12/99	bjl
EPA 8270	Polynuclear Aromatic Hydrocarbons/8270					
	Acenaphthene	ND	10	ug/L	04/13/99	wds
	Acenaphthylene	ND	10	ug/L	04/13/99	wds
	Anthracene	ND	10	ug/L	04/13/99	wds
	Benzo(a)anthracene	ND	10	ug/L	04/13/99	wds
	Benzo(a)pyrene	ND	10	ug/L	04/13/99	wds
	Benzo(b)fluoranthene	ND	10	ug/L	04/13/99	wds
	Benzo(ghi)perylene	ND	10	ug/L	04/13/99	wds
	Benzo(k)fluoranthene	ND	10	ug/L	04/13/99	wds
	Chrysene	ND	10	ug/L	04/13/99	wds
	Dibenzo(a,h)anthracene	ND	10	ug/L	04/13/99	wds
	Fluoranthene	ND	10	ug/L	04/13/99	wds
	Fluorene	ND	10	ug/L	04/13/99	wds

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CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 903023 Date: 04/19/99

CUSTOMER: Marathon Oil Company PROJECT: AIR STRIPPERS ATTN: Mr. Paul Peacock

Customer Sample ID: WEST STRIPPER EFFLUENT
Date Sampled.....: 03/24/1999
Time Sampled.....: 09:51
Sample Matrix.....: Water

Laboratory Sample ID: 903023-2
Date Received.....: 03/25/1999
Time Received.....: 13:02

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
	Indeno(1,2,3-cd)pyrene	ND	10	ug/L	04/13/99	wds
	Naphthalene	ND	10	ug/L	04/13/99	wds
	Phenanthrene	ND	10	ug/L	04/13/99	wds
	Pyrene	ND	10	ug/L	04/13/99	wds
EPA 8021B	BTEX					
	Benzene	ND	5.0	ug/L	04/01/99	weh
	Ethylbenzene	ND	5.0	ug/L	04/01/99	weh
	Toluene	ND	5.0	ug/L	04/01/99	weh
	m&p-Xylenes	ND	10.0	ug/L	04/01/99	weh
	o-Xylene	ND	5.0	ug/L	04/01/99	weh
EPA 8015B	Nonhalogenated Organics using GC/FID					
	Gasoline Range Organics	<1.0	1.0	mg/L	04/16/99	rjm

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CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 903023 Date: 04/19/99

CUSTOMER: Marathon Oil Company PROJECT: AIR STRIPPERS ATTN: Mr. Paul Peacock

Customer Sample ID: EAST STRIPPER INFLUENT
Date Sampled.....: 03/24/1999
Time Sampled.....: 09:57
Sample Matrix.....: Water

Laboratory Sample ID: 903023-3
Date Received.....: 03/25/1999
Time Received.....: 13:02

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8015B	8015B Nonhalogenated Organics (GC/FID)					
	Hexane	ND	100	ug/L	04/05/99	rjm
SW-846 3510B	Sep-Funnel Extraction for DRO					
	Separatory Funnel Liq/Liq Extraction	Complete			03/31/99	bjl
8015B Modified	Diesel Range Organics (C10 - C28)					
	C10 (Decane)	<0.50	0.50	mg/L	03/31/99	rjm
	C12 (Dodecane)	ND	0.50	mg/L	03/31/99	rjm
	C14 (Tetradecane)	ND	0.50	mg/L	03/31/99	rjm
	C16 (Hexadecane)	ND	0.10	mg/L	03/31/99	rjm
	C18 (Octadecane)	ND	0.10	mg/L	03/31/99	rjm
	C20 (Eicosane)	ND	0.10	mg/L	03/31/99	rjm
	C22 (Docosane)	ND	0.10	mg/L	03/31/99	rjm
	C24 (Tetracosane)	ND	0.10	mg/L	03/31/99	rjm
	C26 (Hexacosane)	ND	0.10	mg/L	03/31/99	rjm
	C28 (Octacosane)	ND	0.10	mg/L	03/31/99	rjm
EPA 8021B	BTEX					
	Benzene	28	5.0	ug/L	04/01/99	weh
	Ethylbenzene	36	5.0	ug/L	04/01/99	weh
	Toluene	12	5.0	ug/L	04/01/99	weh
	m&p-Xylenes	51	10.0	ug/L	04/01/99	weh
	o-Xylene	11	5.0	ug/L	04/01/99	weh
EPA 8015B	Nonhalogenated Organics using GC/FID					
	Gasoline Range Organics	<1.0	1.0	mg/L	04/16/99	rjm

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CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 903023 Date: 04/19/99

CUSTOMER: Marathon Oil Company PROJECT: AIR STRIPPERS ATTN: Mr. Paul Peacock

Customer Sample ID: EAST STRIPPER EFFLUENT
Date Sampled.....: 03/24/1999
Time Sampled.....: 10:03
Sample Matrix.....: Water

Laboratory Sample ID: 903023-4
Date Received.....: 03/25/1999
Time Received.....: 13:02

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 300.0	Bromide (Br)	<0.50	0.50	mg/L	03/31/99	rm
EPA 300.0	Chloride	53.2	1.0	mg/L	03/31/99	rm
EPA 300.0	Fluoride (F)	0.69	0.50	mg/L	03/31/99	rm
EPA 300.0	Sulfate (SO4)	212	1.0	mg/L	03/31/99	rm
EPA 6010B	Metals Analysis (ICAP)					
	Calcium (Ca)	131	0.5	mg/L	03/26/99	chh
	Magnesium (Mg)	61.4	0.1	mg/L	03/26/99	chh
	Potassium (K)	1.7	0.5	mg/L	03/26/99	chh
	Sodium (Na)	30.3	0.5	mg/L	03/30/99	chh
EPA 8015B	8015B Nonhalogenated Organics (GC/FID)					
	Hexane	ND	100	ug/L	04/05/99	rjm
SW-846 3510B	Sep-Funnel Extraction for DRO					
	Separatory Funnel Liq/Liq Extraction	Complete			03/31/99	bjl
8015B Modified	Diesel Range Organics (C10 - C28)					
	C10 (Decane)	ND	0.50	mg/L	03/31/99	rjm
	C12 (Dodecane)	ND	0.50	mg/L	03/31/99	rjm
	C14 (Tetradecane)	ND	0.50	mg/L	03/31/99	rjm
	C16 (Hexadecane)	ND	0.10	mg/L	03/31/99	rjm
	C18 (Octadecane)	ND	0.10	mg/L	03/31/99	rjm
	C20 (Eicosane)	ND	0.10	mg/L	03/31/99	rjm
	C22 (Docosane)	ND	0.10	mg/L	03/31/99	rjm
	C24 (Tetracosane)	ND	0.10	mg/L	03/31/99	rjm
	C26 (Hexacosane)	ND	0.10	mg/L	03/31/99	rjm
	C28 (Octacosane)	ND	0.10	mg/L	03/31/99	rjm
EPA 3510B	Extraction (Sep. Funnel) SVOC					
	Separatory Funnel Liq/Liq Extraction	Complete			04/12/99	bjl
EPA 8270	Polynuclear Aromatic Hydrocarbons/8270					
	Acenaphthene	ND	10	ug/L	04/13/99	wds
	Acenaphthylene	ND	10	ug/L	04/13/99	wds
	Anthracene	ND	10	ug/L	04/13/99	wds
	Benzo(a)anthracene	ND	10	ug/L	04/13/99	wds
	Benzo(a)pyrene	ND	10	ug/L	04/13/99	wds
	Benzo(b)fluoranthene	ND	10	ug/L	04/13/99	wds
	Benzo(ghi)perylene	ND	10	ug/L	04/13/99	wds
	Benzo(k)fluoranthene	ND	10	ug/L	04/13/99	wds
	Chrysene	ND	10	ug/L	04/13/99	wds
	Dibenzo(a,h)anthracene	ND	10	ug/L	04/13/99	wds
	Fluoranthene	ND	10	ug/L	04/13/99	wds
	Fluorene	ND	10	ug/L	04/13/99	wds

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CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 903023 Date: 04/19/99

CUSTOMER: Marathon Oil Company PROJECT: AIR STRIPPERS ATTN: Mr. Paul Peacock

Customer Sample ID: EAST STRIPPER EFFLUENT
Date Sampled.....: 03/24/1999
Time Sampled.....: 10:03
Sample Matrix.....: Water

Laboratory Sample ID: 903023-4
Date Received.....: 03/25/1999
Time Received.....: 13:02

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
	Indeno(1,2,3-cd)pyrene	ND	10	ug/L	04/13/99	wds
	Naphthalene	ND	10	ug/L	04/13/99	wds
	Phenanthrene	ND	10	ug/L	04/13/99	wds
	Pyrene	ND	10	ug/L	04/13/99	wds
EPA 8021B	BTEX					
	Benzene	ND	5.0	ug/L	04/01/99	weh
	Ethylbenzene	ND	5.0	ug/L	04/01/99	weh
	Toluene	ND	5.0	ug/L	04/01/99	weh
	m&p-Xylenes	ND	10.0	ug/L	04/01/99	weh
	o-Xylene	ND	5.0	ug/L	04/01/99	weh
EPA 8015B	Nonhalogenated Organics using GC/FID					
	Gasoline Range Organics	<1.0	1.0	mg/L	04/16/99	rjm

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CORE LABORATORIES

QUALITY CONTROL RESULTS

Job Number.: 903023 Report Date.: 04/19/99

CUSTOMER: Marathon Oil Company PROJECT: Marathon Oil Co., Midland, Tx ATTN: Mr. Paul Peacock

Test Method.....: EPA 300.0 Batch.....: 37784 Analyst...: rm
Method Description.: Ion Chromatography Analysis Units.....: mg/L
Parameter.....: Bromide (Br)

QC	Lab ID	Reagent	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits	Date	Time
ICV		V184028C	1.060		1.000000		106.0	%	85-115	03/31/1999	1325
ICB			0.000							03/31/1999	1341
MD	903023-2		0.178			0.178	0.000	A	0.500	03/31/1999	1413
MS	903023-22	V184028C	1.270		1.000000	0.160	111.0	%	75-125	03/31/1999	1444
CCV		V184028C	1.048		1.000000		104.8	%	85-115	03/31/1999	1635
CCB			0.000							03/31/1999	1651

Test Method.....: EPA 300.0 Batch.....: 37784 Analyst...: rm
Method Description.: Ion Chromatography Analysis Units.....: mg/L
Parameter.....: Chloride

QC	Lab ID	Reagent	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits	Date	Time
ICV		V184028C	10.760		10.000000		107.6	%	85-115	03/31/1999	1325
ICB			0.198							03/31/1999	1341
MD	903023-2		53.010			53.289	0.5	R	20	03/31/1999	1413
	903023-22	V184028C	58.182		10.000000	47.960	102.2	%	75-125	03/31/1999	1444
CV		V184028C	10.482		10.000000		104.8	%	85-115	03/31/1999	1635
CCB			0.312							03/31/1999	1651

Test Method.....: EPA 300.0 Batch.....: 37784 Analyst...: rm
Method Description.: Ion Chromatography Analysis Units.....: mg/L
Parameter.....: Fluoride (F)

QC	Lab ID	Reagent	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits	Date	Time
ICV		V184028C	1.001		1.000000		100.1	%	85-115	03/31/1999	1325
ICB			0.000							03/31/1999	1341
MD	903023-2		0.689			0.690	0.001	A	0.500	03/31/1999	1413
MS	903023-22	V184028C	1.611		1.000000	0.621	99.0	%	75-125	03/31/1999	1444
CCV		V184028C	0.985		1.000000		98.5	%	85-115	03/31/1999	1635
CCB			0.000							03/31/1999	1651

Test Method.....: EPA 300.0 Batch.....: 37784 Analyst...: rm
Method Description.: Ion Chromatography Analysis Units.....: mg/L
Parameter.....: Sulfate (SO4)

QC	Lab ID	Reagent	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits	Date	Time
ICV		V184028C	21.472		20.000000		107.4	%	85-115	03/31/1999	1325
ICB			0.517							03/31/1999	1341
MD	903023-2		211.945			212.421	0.2	R	20	03/31/1999	1413
MS	903023-22	V184028C	210.524		20.000000	191.179	96.7	%	75-125	03/31/1999	1444
CCV		V184028C	20.948		20.000000		104.7	%	85-115	03/31/1999	1635
CCB			0.538							03/31/1999	1651

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

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QUALITY CONTROL RESULTS

Job Number.: 903023 Report Date.: 04/19/99

CUSTOMER: Marathon Oil Company PROJECT: Marathon Oil Co., Midland, Tx ATTN: Mr. Paul Peacock

Test Method.....: EPA 6010B Batch.....: 37313 Analyst...: chh
Method Description.: Metals Analysis (ICAP) Units.....: mg/L
Parameter.....: Calcium (Ca)

QC	Lab ID	Reagent	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits	Date	Time
CAL		ICPCALBLK	0.00480		0.00					03/26/1999	0859
CAL		ICPCALSTD	28.87009		50.00					03/26/1999	0904
ICV		V170613F	2.07446		2.00		103.7	%	95-105	03/26/1999	0924
ICB			0.01784							03/26/1999	0929
ISB		V170613G	493.09277		500.0		98.6	%	80-120	03/26/1999	0933
PB			0.07327							03/26/1999	0943
LCS		ICPSPK99	52.57108		50.000		105.1	%	80-120	03/26/1999	0947
MD	902835-1		37.61436			38.77198	3.0	R	20	03/26/1999	0956
MS	902835-1	ICPSPK99	89.01223		50.000	38.77198	100.5	%	75-125	03/26/1999	1001
CCV		V170613F	2.09767		2.00		104.9	%	95-105	03/26/1999	1027
CCB			0.02026							03/26/1999	1031
ISB		V170613G	502.23870		500.0		100.4	%	80-120	03/26/1999	1102
CCV		V170613F	2.10356		2.00		105.2	%	95-105	03/26/1999	1108
CCB			0.02390							03/26/1999	1112

Test Method.....: EPA 6010B Batch.....: 37313 Analyst...: chh
Method Description.: Metals Analysis (ICAP) Units.....: mg/L
Parameter.....: Magnesium (Mg)

QC	Lab ID	Reagent	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits	Date	Time
CAL		ICPCALBLK	0.00630		0.00					03/26/1999	0859
CAL		ICPCALSTD	2.49970		20.00					03/26/1999	0908
ICV		V170613F	1.92554		2.00		96.3	%	95-105	03/26/1999	0924
ICB			-0.02277							03/26/1999	0929
ISB		V170613G	521.95837		500.0		104.4	%	80-120	03/26/1999	0933
PB			0.00014							03/26/1999	0943
LCS		ICPSPK99	52.14439		50.000		104.3	%	80-120	03/26/1999	0947
MD	902835-1		8.04836			8.31599	3.3	R	20	03/26/1999	0956
MS	902835-1	ICPSPK99	59.06228		50.000	8.31599	101.5	%	75-125	03/26/1999	1001
CCV		V170613F	1.96006		2.00		98.0	%	95-105	03/26/1999	1027
CCB			-0.03801							03/26/1999	1031
ISB		V170613G	535.37011		500.0		107.1	%	80-120	03/26/1999	1102
CCV		V170613F	1.97163		2.00		98.6	%	95-105	03/26/1999	1108
CCB			-0.00195							03/26/1999	1112
PB			0.02997							03/26/1999	1128
LCS		ICPSPK99	53.83737		50.000		107.7	%	80-120	03/26/1999	1133
MD	902948-1		12.56046			12.57463	0.1	R	20	03/26/1999	1142
MS	902948-1	ICPSPK99	63.90978		50.000	12.57463	102.7	%	75-125	03/26/1999	1147
ISB		V170613G	532.12878		500.0		106.4	%	80-120	03/26/1999	1209
CCV		V170613F	1.99281		2.00		99.6	%	95-105	03/26/1999	1216
CCB			0.01106							03/26/1999	1220

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QUALITY CONTROL RESULTS

Job Number.: 903023 Report Date.: 04/19/99

CUSTOMER: Marathon Oil Company PROJECT: Marathon Oil Co., Midland, Tx ATTN: Mr. Paul Peacock

Test Method.....: EPA 6010B Batch.....: 37313 Analyst...: chh
Method Description.: Metals Analysis (ICAP) Units.....: mg/L
Parameter.....: Potassium (K)

QC	Lab ID	Reagent	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits	Date	Time
CAL		ICPCALBLK	0.00609		0.00					03/26/1999	0859
CAL		ICPCALSTD	0.65960		20.0					03/26/1999	0904
ICV		V170613F	20.07957		20.00		100.4	%	95-105	03/26/1999	0924
ICB			-0.05814							03/26/1999	0929
PB			0.05202							03/26/1999	0943
LCS		ICPSPK99	52.14077		50.000		104.3	%	80-120	03/26/1999	0947
MD	902835-1		3.87146			3.90818	0.9	R	20	03/26/1999	0956
MS	902835-1	ICPSPK99	54.75746		50.000	3.90818	101.7	%	75-125	03/26/1999	1001
CCV		V170613F	19.88676		20.00		99.4	%	95-105	03/26/1999	1027
CCB			-0.10405							03/26/1999	1031
CCV		V170613F	20.08569		20.00		100.4	%	95-105	03/26/1999	1108
CCB			0.02142							03/26/1999	1112
PB			0.11629							03/26/1999	1128
LCS		ICPSPK99	52.20810		50.000		104.4	%	80-120	03/26/1999	1133
MD	902948-1		2.08110			2.09334	0.01224	A	0.50000	03/26/1999	1142
MS	902948-1	ICPSPK99	52.12241		50.000	2.09334	100.1	%	75-125	03/26/1999	1147
CCV		V170613F	20.09487		20.00		100.5	%	95-105	03/26/1999	1216
CCB			0.07345							03/26/1999	1220

Test Method.....: EPA 6010B Batch.....: 37609 Analyst...: chh
Method Description.: Metals Analysis (ICAP) Units.....: mg/L
Parameter.....: Sodium (Na)

QC	Lab ID	Reagent	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits	Date	Time
ICV		V170613F	1.97456		2.00		98.7	%	95-105	03/30/1999	0954
ICB			0.02393							03/30/1999	0957
PB			1.04861							03/30/1999	1008
LCS		ICPSPK99	49.19461		50.000		98.4	%	80-120	03/30/1999	1011
MD	902835-1		20.39012			22.92415	11.7	R	20	03/30/1999	1017
MS	902835-1	ICPSPK99	57.49858		50.000	22.92415	69.1	%	75-125	03/30/1999	1020
CCV		V170613F	2.08406		2.00		104.2	%	95-105	03/30/1999	1038
CCB			0.00867							03/30/1999	1041
CCV		V170613F	1.89269		2.00		94.6	%	95-105	03/31/1999	1049
CCB			0.06865							03/31/1999	1052
PDS	902835-1	V16002105	73.74447		50.000000	22.92415	101.6	%	75-125	03/31/1999	1059
CCV		V170613F	2.01260		2.00		100.6	%	95-105	03/31/1999	1102
CCB			0.07570							03/31/1999	1104

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QUALITY CONTROL RESULTS

Job Number.: 903023 Report Date.: 04/19/99

CUSTOMER: Marathon Oil Company PROJECT: Marathon Oil Co., Midland, Tx ATTN: Mr. Paul Peacock

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time

Test Method.....: EPA 8015B Batch.....: 37752 Analyst...: rjm
Method Description.: 8015B Nonhalogenated Organics (GC/FID) Units.....: mg/L

MB	Method Blank				04/05/1999	1602

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Hexane	ND						

LCS	Laboratory Control Sample	HEXANESTD			04/06/1999	0844

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Hexane	406.28		400		101.6	%	80-120

Test Method.....: 8015B Modified Batch.....: 37583 Analyst...: rjm
Method Description.: Diesel Range Organics (C10 - C28) Units.....: mg/L

	Method Blank				03/31/1999	1449

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
C10 (Decane)	ND						
C12 (Dodecane)	ND						
C14 (Tetradecane)	ND						
C16 (Hexadecane)	ND						
C18 (Octadecane)	ND						
C20 (Eicosane)	ND						
C22 (Docosane)	ND						
C24 (Tetracosane)	ND						
C26 (Hexacosane)	ND						
C28 (Octacosane)	ND						

LCS	Laboratory Control Sample	C10C28SPK			03/31/1999	1524

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
C10 (Decane)	6.41		40		16.0	%	50-150
C12 (Dodecane)	14.93		40		37.3	%	50-150
C14 (Tetradecane)	32.00		40		80.0	%	50-150
C16 (Hexadecane)	44.64		40		111.6	%	50-150
C18 (Octadecane)	47.28		40		118.2	%	50-150
C20 (Eicosane)	46.01		40		115.0	%	50-150
C22 (Docosane)	44.19		40		110.5	%	50-150
C24 (Tetracosane)	44.68		40		111.7	%	50-150
C26 (Hexacosane)	47.00		40		117.5	%	50-150
C28 (Octacosane)	50.62		40		126.5	%	50-150

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QUALITY CONTROL RESULTS

Job Number.: 903023 Report Date.: 04/19/99

CUSTOMER: Marathon Oil Company PROJECT: Marathon Oil Co., Midland, Tx ATTN: Mr. Paul Peacock

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
MS	Matrix Spike	C10C28SPK	903023-3		03/31/1999	1746

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
C10 (Decane)	99.13		40	16.59	206.3	%	50-150
C12 (Dodecane)	112.51		40	ND	281.3	%	50-150
C14 (Tetradecane)	86.52		40	ND	216.3	%	50-150
C16 (Hexadecane)	57.71		40	ND	144.3	%	50-150
C18 (Octadecane)	52.12		40	ND	130.3	%	50-150
C20 (Eicosane)	50.82		40	ND	127.0	%	50-150
C22 (Docosane)	43.29		40	ND	108.2	%	50-150
C24 (Tetracosane)	38.18		40	ND	95.5	%	50-150
C26 (Hexacosane)	36.58		40	ND	91.5	%	50-150
C28 (Octacosane)	38.59		40	ND	96.5	%	50-150

MSD	Matrix Spike Duplicate	C10C28SPK	903023-3		03/31/1999	1821

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
C10 (Decane)	19.35	99.13	40	16.59	6.9	%	50-150
					134.7	R	50
C12 (Dodecane)	20.28	112.51	40	ND	50.7	%	50-150
					138.9	R	50
C14 (Tetradecane)	52.26	86.52	40	ND	130.7	%	50-150
					49.4	R	50
C16 (Hexadecane)	49.36	57.71	40	ND	123.4	%	50-150
					15.6	R	50
C18 (Octadecane)	47.22	52.12	40	ND	118.0	%	50-150
					9.9	R	50
C20 (Eicosane)	45.09	50.82	40	ND	112.7	%	50-150
					11.9	R	50
C22 (Docosane)	38.52	43.29	40	ND	96.3	%	50-150
					11.7	R	50
C24 (Tetracosane)	34.39	38.18	40	ND	86.0	%	50-150
					10.4	R	50
C26 (Hexacosane)	33.89	36.58	40	ND	84.7	%	50-150
					7.6	R	50
C28 (Octacosane)	36.85	38.59	40	ND	92.1	%	50-150
					4.6	R	50

Test Method.....: EPA 8270 Batch.....: 38249 Analyst...: wds
Method Description.: Polynuclear Aromatic Hydrocarbons/8270 Units.....: ug/L

MB	Method Blank				04/12/1999	2308

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Acenaphthene	ND						
Acenaphthylene	ND						
Anthracene	ND						
Benzo(a)anthracene	ND						
Benzo(a)pyrene	ND						
Benzo(b)fluoranthene	ND						
Benzo(ghi)perylene	ND						
Benzo(k)fluoranthene	ND						

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QUALITY CONTROL RESULTS

Job Number.: 903023 Report Date.: 04/19/99

CUSTOMER: Marathon Oil Company PROJECT: Marathon Oil Co., Midland, Tx ATTN: Mr. Paul Peacock

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
MB	Method Blank				04/12/1999	2308

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Chrysene	ND						
Dibenzo(a,h)anthracene	ND						
Fluoranthene	ND						
Fluorene	ND						
Indeno(1,2,3-cd)pyrene	ND						
Naphthalene	ND						
Phenanthrene	ND						
Pyrene	ND						

LCS	Laboratory Control Sample	V16004205			04/12/1999	2350

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Acenaphthene	36.57		50.000000		73.1	%	47-145
Pyrene	44.45		50.000000		88.9	%	52-115

	Method Blank				04/13/1999 1115

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Acenaphthene	ND						
Acenaphthylene	ND						
Anthracene	ND						
Benzo(a)anthracene	ND						
Benzo(a)pyrene	ND						
Benzo(b)fluoranthene	ND						
Benzo(ghi)perylene	ND						
Benzo(k)fluoranthene	ND						
Chrysene	ND						
Dibenzo(a,h)anthracene	ND						
Fluoranthene	ND						
Fluorene	ND						
Indeno(1,2,3-cd)pyrene	ND						
Naphthalene	ND						
Phenanthrene	ND						
Pyrene	ND						

MS	Matrix Spike	V16004205	903523-1		04/13/1999	1439

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Acenaphthene	42.68		50.000000	ND	85.4	%	47-145
Pyrene	50.03		50.000000	4.19	91.7	%	52-115

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CORE LABORATORIES

QUALITY CONTROL RESULTS

Job Number.: 903023 Report Date.: 04/19/99

CUSTOMER: Marathon Oil Company PROJECT: Marathon Oil Co., Midland, Tx ATTN: Mr. Paul Peacock

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
MSD	Matrix Spike Duplicate	V16004205	903523-1		04/13/1999	1519

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Acenaphthene	41.34	42.68	50.000000	ND	82.7	%	47-145
					3.2	R	25
Pyrene	46.92	50.03	50.000000	4.19	85.5	%	52-115
					6.4	R	25

Test Method.....: EPA 8021B Batch.....: 37604 Analyst...: weh
Method Description.: BTEX Units.....: ug/L

LCS	Laboratory Control Sample	8020MS1			03/31/1999	1427

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	46.035		50		92.1	%	70-130
Ethylbenzene	48.790		50		97.6	%	70-130
Toluene	47.360		50		94.7	%	70-130
m&p-Xylenes	97.539		100		97.5	%	70-130
o-Xylene	48.350		50		96.7	%	70-130

MB	Method Blank				03/31/1999	1508

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	ND						
Ethylbenzene	ND						
Toluene	ND						
m&p-Xylenes	ND						
o-Xylene	ND						

MS	Matrix Spike	8020MS1	903074-1		03/31/1999	2312

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	47.779		50	ND	95.6	%	70-130
Ethylbenzene	48.971		50	ND	97.9	%	70-130
Toluene	47.715		50	ND	95.4	%	70-130
m&p-Xylenes	97.503		100	0.617	96.9	%	70-130
o-Xylene	48.627		50	ND	97.3	%	70-130

MSD	Matrix Spike Duplicate	8020MS1	903074-1		03/31/1999	2344

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	46.517	47.779	50	ND	93.0	%	70-130
					2.7	R	25
Ethylbenzene	47.873	48.971	50	ND	95.7	%	70-130
					2.3	R	25
Toluene	46.521	47.715	50	ND	93.0	%	70-130
					2.5	R	25
m&p-Xylenes	95.830	97.503	100	0.617	95.2	%	70-130
					1.7	R	25

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QUALITY CONTROL RESULTS

Job Number.: 903023 Report Date.: 04/19/99

CUSTOMER: Marathon Oil Company PROJECT: Marathon Oil Co., Midland, Tx ATTN: Mr. Paul Peacock

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
MSD	Matrix Spike Duplicate	8020MS1	903074-1		03/31/1999	2344

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
o-Xylene	47.705	48.627	50	ND	95.4	%	70-130
					1.9	R	25

LCS	Laboratory Control Sample	8020MS1			04/01/1999	0016

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	44.469		50		88.9	%	70-130
Ethylbenzene	49.002		50		98.0	%	70-130
Toluene	47.319		50		94.6	%	70-130
m&p-Xylenes	97.986		100		98.0	%	70-130
o-Xylene	48.684		50		97.4	%	70-130

MB	Method Blank				04/01/1999	0049

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
..zene	ND						
Ethylbenzene	ND						
Toluene	ND						
m&p-Xylenes	0.873						
o-Xylene	ND						

MS	Matrix Spike	8020MS1	903127-1		04/01/1999	0611

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	108.177		50	67.975	80.4	%	70-130
Ethylbenzene	49.551		50	2.725	93.7	%	70-130
Toluene	46.949		50	1.236	91.4	%	70-130
m&p-Xylenes	94.856		100	2.355	92.5	%	70-130
o-Xylene	46.784		50	ND	93.6	%	70-130

MSD	Matrix Spike Duplicate	8020MS1	903127-1		04/01/1999	0643

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	109.425	108.177	50	67.975	82.9	%	70-130
					1.1	R	25
Ethylbenzene	48.949	49.551	50	2.725	92.4	%	70-130
					1.2	R	25
Toluene	46.223	46.949	50	1.236	90.0	%	70-130
					1.6	R	25
m&p-Xylenes	94.982	94.856	100	2.355	92.6	%	70-130
					0.1	R	25
o-Xylene	46.795	46.784	50	ND	93.6	%	70-130
					0.0	R	25

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

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CORE LABORATORIES

QUALITY CONTROL RESULTS

Job Number.: 903023 Report Date.: 04/19/99

CUSTOMER: Marathon Oil Company PROJECT: Marathon Oil Co., Midland, Tx ATTN: Mr. Paul Peacock

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
LCS	Laboratory Control Sample	8020MS1			04/01/1999	0826

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	44.099		50		88.2	%	70-130
Ethylbenzene	47.779		50		95.6	%	70-130
Toluene	45.824		50		91.6	%	70-130
m&p-Xylenes	95.573		100		95.6	%	70-130
o-Xylene	47.508		50		95.0	%	70-130

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
MB	Method Blank				04/01/1999	0920

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	ND						
Ethylbenzene	ND						
Toluene	ND						
m&p-Xylenes	ND						
o-Xylene	ND						

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
D	Matrix Spike Duplicate	8020MS1	903025-1		04/01/1999	1240

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	47.609	47.137	50	ND	95.2	%	70-130
					1.0	R	25
Ethylbenzene	47.720	47.127	50	ND	95.4	%	70-130
					1.3	R	25
Toluene	51.914	46.075	50	ND	103.8	%	70-130
					11.9	R	25
m&p-Xylenes	93.952	93.876	100	0.703	93.2	%	70-130
					0.1	R	25
o-Xylene	47.655	46.744	50	ND	95.3	%	70-130
					1.9	R	25

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
MS	Matrix Spike	8020MS1	903025-1		04/01/1999	1703

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	47.137		50	ND	94.3	%	70-130
Ethylbenzene	47.127		50	ND	94.3	%	70-130
Toluene	46.075		50	ND	92.2	%	70-130
m&p-Xylenes	93.876		100	0.703	93.2	%	70-130
o-Xylene	46.744		50	ND	93.5	%	70-130

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
LCS	Laboratory Control Sample	8020MS1			04/01/1999	1735

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	47.956		50		95.9	%	70-130
Ethylbenzene	48.708		50		97.4	%	70-130
Toluene	47.590		50		95.2	%	70-130
Xylenes	97.262		100		97.3	%	70-130
..ylene	48.317		50		96.6	%	70-130

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

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QUALITY CONTROL RESULTS

Job Number.: 903023 Report Date.: 04/19/99

CUSTOMER: Marathon Oil Company PROJECT: Marathon Oil Co., Midland, Tx ATTN: Mr. Paul Peacock

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time

Test Method.....: EPA 8015B Batch.....: 38519 Analyst...: rjm
Method Description.: Nonhalogenated Organics using GC/FID Units.....: mg/L

MB	Method Blank				04/16/1999	2144

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Gasoline Range Organics	ND						

LCS	Laboratory Control Sample	GROSTD			04/16/1999	2159

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Gasoline Range Organics	2.98		5.0		59.6	%	70-130

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

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CORE LABORATORIES

SURROGATE RECOVERIES REPORT

Job Number.: 903023 Report Date.: 04/19/99

CUSTOMER: Marathon Oil Company PROJECT: Marathon Oil Co., Midland, Tx ATTN: Mr. Paul Peacock

Method.....: BTEX
Method Code.....: 8021BX

Batch.....: 37604
Analyst.....: weh

Surrogate	Units
1,4-Difluorobenzene	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		LCS		43.006	50.00	86.0	70-130		03/31/1999	1427
		MB		43.940	50.00	87.9	70-130		03/31/1999	1508
903074-15				42.937	50.00	85.9	70-130		03/31/1999	1540
903074-1				43.775	50.00	87.5	70-130		03/31/1999	1612
903074-2				52.875	50.00	105.8	70-130		03/31/1999	1644
903074-3				45.362	50.00	90.7	70-130		03/31/1999	1716
903074-4				44.916	50.00	89.8	70-130		03/31/1999	1748
903074-5				43.388	50.00	86.8	70-130		03/31/1999	1821
903074-6				41.105	50.00	82.2	70-130		03/31/1999	1853
903074-7				42.641	50.00	85.3	70-130		03/31/1999	1926
903074-9				43.996	50.00	88.0	70-130		03/31/1999	1958
903074-12				37.318	50.00	74.6	70-130		03/31/1999	2031
074-13				43.006	50.00	86.0	70-130		03/31/1999	2103
074-14				56.240	50.00	112.5	70-130		03/31/1999	2135
903074-10				56.362	50.00	112.7	70-130		03/31/1999	2208
903074-11				55.590	50.00	111.2	70-130		03/31/1999	2240
903074-1		MS		42.909	50.00	85.8	70-130		03/31/1999	2312
903074-1		MSD		42.928	50.00	85.9	70-130		03/31/1999	2344
		LCS		43.196	50.00	86.4	70-130		04/01/1999	0016
		MB		42.888	50.00	85.8	70-130		04/01/1999	0049
903072-2				42.119	50.00	84.2	70-130		04/01/1999	0121
903072-6			10	56.527	50.00	113.1	70-130		04/01/1999	0153
903072-8			100	43.459	50.00	86.9	70-130		04/01/1999	0225
903072-11			200	42.286	50.00	84.6	70-130		04/01/1999	0257
903072-12			100	43.232	50.00	86.5	70-130		04/01/1999	0330
903072-13			100	42.927	50.00	85.9	70-130		04/01/1999	0402
903127-3				42.068	50.00	84.1	70-130		04/01/1999	0434
903127-2				43.133	50.00	86.3	70-130		04/01/1999	0506
903127-1				43.139	50.00	86.3	70-130		04/01/1999	0539
903127-1		MS		42.368	50.00	84.7	70-130		04/01/1999	0611
903127-1		MSD		41.726	50.00	83.5	70-130		04/01/1999	0643
		LCS		40.737	50.00	81.5	70-130		04/01/1999	0826
		MB		44.380	50.00	88.8	70-130		04/01/1999	0920
903075-8				42.080	50.00	84.2	70-130		04/01/1999	0959
903075-7				47.809	50.00	95.6	70-130		04/01/1999	1031
903074-8				44.861	50.00	89.7	70-130		04/01/1999	1103
903025-1				42.364	50.00	84.7	70-130		04/01/1999	1135
903025-1		MSD		40.902	50.00	81.8	70-130		04/01/1999	1240
903023-2				42.583	50.00	85.2	70-130		04/01/1999	1420
903023-4				43.031	50.00	86.1	70-130		04/01/1999	1525
903023-1				43.496	50.00	87.0	70-130		04/01/1999	1557
903023-3				46.932	50.00	93.9	70-130		04/01/1999	1630
903025-1		MS		41.222	50.00	82.4	70-130		04/01/1999	1703
		LCS		42.407	50.00	84.8	70-130		04/01/1999	1735

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CORE LABORATORIES

SURROGATE RECOVERIES REPORT

Job Number.: 903023 Report Date.: 04/19/99

CUSTOMER: Marathon Oil Company PROJECT: Marathon Oil Co., Midland, Tx ATTN: Mr. Paul Peacock

Surrogate	Units
BFB (Surrogate)	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		LCS		46.285	50.00	92.6	70-130		03/31/1999	1427
		MB		47.099	50.00	94.2	70-130		03/31/1999	1508
903074-15				45.880	50.00	91.8	70-130		03/31/1999	1540
903074-1				47.057	50.00	94.1	70-130		03/31/1999	1612
903074-2				47.231	50.00	94.5	70-130		03/31/1999	1644
903074-3				48.263	50.00	96.5	70-130		03/31/1999	1716
903074-4				47.432	50.00	94.9	70-130		03/31/1999	1748
903074-5				46.470	50.00	92.9	70-130		03/31/1999	1821
903074-6				44.617	50.00	89.2	70-130		03/31/1999	1853
903074-7				46.586	50.00	93.2	70-130		03/31/1999	1926
903074-9				47.652	50.00	95.3	70-130		03/31/1999	1958
903074-12				41.173	50.00	82.3	70-130		03/31/1999	2031
903074-13				46.923	50.00	93.8	70-130		03/31/1999	2103
903074-14				47.914	50.00	95.8	70-130		03/31/1999	2135
903074-10				46.525	50.00	93.0	70-130		03/31/1999	2208
903074-11				47.551	50.00	95.1	70-130		03/31/1999	2240
'074-1		MS		45.611	50.00	91.2	70-130		03/31/1999	2312
3074-1		MSD		45.237	50.00	90.5	70-130		03/31/1999	2344
		LCS		47.403	50.00	94.8	70-130		04/01/1999	0016
		MB		45.207	50.00	90.4	70-130		04/01/1999	0049
903072-2				44.721	50.00	89.4	70-130		04/01/1999	0121
903072-6			10	46.536	50.00	93.1	70-130		04/01/1999	0153
903072-8			100	47.924	50.00	95.8	70-130		04/01/1999	0225
903072-11			200	46.651	50.00	93.3	70-130		04/01/1999	0257
903072-12			100	45.965	50.00	91.9	70-130		04/01/1999	0330
903072-13			100	45.875	50.00	91.8	70-130		04/01/1999	0402
903127-3				45.870	50.00	91.7	70-130		04/01/1999	0434
903127-2				47.415	50.00	94.8	70-130		04/01/1999	0506
903127-1				46.645	50.00	93.3	70-130		04/01/1999	0539
903127-1		MS		45.628	50.00	91.3	70-130		04/01/1999	0611
903127-1		MSD		44.629	50.00	89.3	70-130		04/01/1999	0643
		LCS		44.806	50.00	89.6	70-130		04/01/1999	0826
		MB		49.024	50.00	98.0	70-130		04/01/1999	0920
903075-8				47.404	50.00	94.8	70-130		04/01/1999	0959
903075-7				56.211	50.00	112.4	70-130		04/01/1999	1031
903074-8				45.664	50.00	91.3	70-130		04/01/1999	1103
903025-1				46.471	50.00	92.9	70-130		04/01/1999	1135
903025-1		MSD		44.176	50.00	88.4	70-130		04/01/1999	1240
903023-2				46.871	50.00	93.7	70-130		04/01/1999	1420
903023-4				48.046	50.00	96.1	70-130		04/01/1999	1525
903023-1				50.358	50.00	100.7	70-130		04/01/1999	1557
903023-3				57.307	50.00	114.6	70-130		04/01/1999	1630
903025-1		MS		45.117	50.00	90.2	70-130		04/01/1999	1703
		LCS		47.109	50.00	94.2	70-130		04/01/1999	1735

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CORE LABORATORIES

SURROGATE RECOVERIES REPORT

Job Number.: 903023 Report Date.: 04/19/99

CUSTOMER: Marathon Oil Company PROJECT: Marathon Oil Co., Midland, Tx ATTN: Mr. Paul Peacock

Method.....: 8015B Nonhalogenated Organics (GC/FID) Batch.....: 37752
Method Code.....: 8015M Analyst.....: rjm

Surrogate	Units
1,4-Difluorobenzene	mg/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		51.155	50.00		-		04/05/1999	1602
903023-1				52.004	50.00		-		04/05/1999	1634
903023-2				54.023	50.00		-		04/05/1999	1705
903023-3				49.948	50.00		-		04/05/1999	1737
903023-4				53.582	50.00		-		04/05/1999	1809
		LCS		48.226	50.00		-		04/06/1999	0844

Surrogate	Units
BFB (Surrogate)	mg/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		51.750	50.00		-		04/05/1999	1602
903023-1				57.171	50.00		-		04/05/1999	1634
903023-2				57.583	50.00		-		04/05/1999	1705
903023-3				55.523	50.00		-		04/05/1999	1737
903023-4				56.252	50.00		-		04/05/1999	1809
		LCS		49.303	50.00		-		04/06/1999	0844

Method.....: Polynuclear Aromatic Hydrocarbons/8270 Batch.....: 38249
Method Code.....: 8270PN Analyst.....: wds

Surrogate	Units
2,4,6-Tribromophenol	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		62.54	100	62.5	10-123		04/12/1999	2308
		LCS		78.79	100	78.8	10-123		04/12/1999	2350
903023-2				77.88	100	77.9	10-123		04/13/1999	0031
903023-4				78.60	100	78.6	10-123		04/13/1999	0112
		MB		61.11	100	61.1	10-123		04/13/1999	1115
903328-1				82.05	100	82.0	10-123		04/13/1999	1156
903523-1				77.33	100	77.3	10-123		04/13/1999	1358
903523-1		MS		80.63	100	80.6	10-123		04/13/1999	1439
903523-1		MSD		85.35	100	85.3	10-123		04/13/1999	1519
903421-1				85.58	100	85.6	10-123		04/13/1999	1600
903634-1				66.40	100	66.4	10-123		04/13/1999	1641
903716-1				86.47	100	86.5	10-123		04/13/1999	1721
3371-1			10	ND	100	0.0	10-123	D	04/13/1999	1802
3523-1			5	ND	100	0.0	10-123	D	04/13/1999	1843

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CORE LABORATORIES

SURROGATE RECOVERIES REPORT

Job Number.: 903023 Report Date.: 04/19/99

CUSTOMER: Marathon Oil Company PROJECT: Marathon Oil Co., Midland, Tx ATTN: Mr. Paul Peacock

Surrogate	Units
2-Fluorobiphenyl	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		28.49	50.0	57.0	43-116		04/12/1999	2308
		LCS		37.56	50.0	75.1	43-116		04/12/1999	2350
903023-2				41.43	50.0	82.9	43-116		04/13/1999	0031
903023-4				42.78	50.0	85.6	43-116		04/13/1999	0112
		MB		37.44	50.0	74.9	43-116		04/13/1999	1115
903328-1				34.63	50.0	69.3	43-116		04/13/1999	1156
903523-1				36.89	50.0	73.8	43-116		04/13/1999	1358
903523-1		MS		40.33	50.0	80.7	43-116		04/13/1999	1439
903523-1		MSD		39.82	50.0	79.6	43-116		04/13/1999	1519
903421-1				37.42	50.0	74.8	43-116		04/13/1999	1600
903634-1				31.45	50.0	62.9	43-116		04/13/1999	1641
903716-1				40.05	50.0	80.1	43-116		04/13/1999	1721
903371-1			10	ND	50.0	0.0	43-116	D	04/13/1999	1802
903523-1			5	ND	50.0	0.0	43-116	D	04/13/1999	1843

rrogate	Units
2-Fluorophenol	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		41.75	100	41.8	21-100		04/12/1999	2308
		LCS		62.64	100	62.6	21-100		04/12/1999	2350
903023-2				59.31	100	59.3	21-100		04/13/1999	0031
903023-4				70.74	100	70.7	21-100		04/13/1999	0112
		MB		46.98	100	47.0	21-100		04/13/1999	1115
903328-1				54.32	100	54.3	21-100		04/13/1999	1156
903523-1				53.12	100	53.1	21-100		04/13/1999	1358
903523-1		MS		50.47	100	50.5	21-100		04/13/1999	1439
903523-1		MSD		50.52	100	50.5	21-100		04/13/1999	1519
903421-1				48.15	100	48.1	21-100		04/13/1999	1600
903634-1				49.14	100	49.1	21-100		04/13/1999	1641
903716-1				62.81	100	62.8	21-100		04/13/1999	1721
903371-1			10	ND	100	0.0	21-100	D	04/13/1999	1802
903523-1			5	ND	100	0.0	21-100	D	04/13/1999	1843

Surrogate	Units
Nitrobenzene-d5	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		30.79	50.0	61.6	35-114		04/12/1999	2308
		LCS		40.44	50.0	80.9	35-114		04/12/1999	2350
903023-2				40.00	50.0	80.0	35-114		04/13/1999	0031
903023-4				43.44	50.0	86.9	35-114		04/13/1999	0112
		MB		40.98	50.0	82.0	35-114		04/13/1999	1115
3328-1				37.20	50.0	74.4	35-114		04/13/1999	1156

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CORE LABORATORIES

SURROGATE RECOVERIES REPORT

Job Number.: 903023 Report Date.: 04/19/99

CUSTOMER: Marathon Oil Company PROJECT: Marathon Oil Co., Midland, Tx ATTN: Mr. Paul Peacock

Surrogate	Units
Nitrobenzene-d5	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
903523-1				36.61	50.0	73.2	35-114		04/13/1999	1358
903523-1		MS		42.14	50.0	84.3	35-114		04/13/1999	1439
903523-1		MSD		37.29	50.0	74.6	35-114		04/13/1999	1519
903421-1				40.16	50.0	80.3	35-114		04/13/1999	1600
903634-1				31.59	50.0	63.2	35-114		04/13/1999	1641
903716-1				40.95	50.0	81.9	35-114		04/13/1999	1721
903371-1			10	ND	50.0	0.0	35-114	D	04/13/1999	1802
903523-1			5	ND	50.0	0.0	35-114	D	04/13/1999	1843

Surrogate	Units
Phenol-d5	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		23.62	100	23.6	10-94		04/12/1999	2308
		LCS		38.05	100	38.0	10-94		04/12/1999	2350
903023-2				46.67	100	46.7	10-94		04/13/1999	0031
903023-4				51.96	100	52.0	10-94		04/13/1999	0112
		MB		30.58	100	30.6	10-94		04/13/1999	1115
903328-1				33.36	100	33.4	10-94		04/13/1999	1156
903523-1				32.30	100	32.3	10-94		04/13/1999	1358
903523-1		MS		32.32	100	32.3	10-94		04/13/1999	1439
903523-1		MSD		32.64	100	32.6	10-94		04/13/1999	1519
903421-1				32.24	100	32.2	10-94		04/13/1999	1600
903634-1				32.14	100	32.1	10-94		04/13/1999	1641
903716-1				43.11	100	43.1	10-94		04/13/1999	1721
903371-1			10	ND	100	0.0	10-94	D	04/13/1999	1802
903523-1			5	ND	100	0.0	10-94	D	04/13/1999	1843

Surrogate	Units
Terphenyl-d14	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		41.19	50.0	82	33-141		04/12/1999	2308
		LCS		45.23	50.0	90	33-141		04/12/1999	2350
903023-2				46.30	50.0	93	33-141		04/13/1999	0031
903023-4				46.28	50.0	93	33-141		04/13/1999	0112
		MB		50.11	50.0	100	33-141		04/13/1999	1115
903328-1				44.18	50.0	88	33-141		04/13/1999	1156
903523-1				39.55	50.0	79	33-141		04/13/1999	1358
903523-1		MS		42.85	50.0	86	33-141		04/13/1999	1439
903523-1		MSD		41.35	50.0	83	33-141		04/13/1999	1519
903421-1				43.93	50.0	88	33-141		04/13/1999	1600
903634-1				28.83	50.0	58	33-141		04/13/1999	1641
903716-1				42.09	50.0	84	33-141		04/13/1999	1721

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SURROGATE RECOVERIES REPORT

Job Number.: 903023 Report Date.: 04/19/99

CUSTOMER: Marathon Oil Company PROJECT: Marathon Oil Co., Midland, Tx ATTN: Mr. Paul Peacock

Surrogate	Units
Terphenyl-d14	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
903371-1			10	ND	50.0	0	33-141	D	04/13/1999	1802
903523-1			5	ND	50.0	0	33-141	D	04/13/1999	1843

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jsckl | Job Sample Receipt Checklist Report 03/25/99 | V2

Job Number.....: 903023 Location.: 57211 Customer Job ID.....: Job Check List Date.: 03/25/99
Project Number.: 96000651 Project Description.: Marathon Oil Co., Midland, Tx Project Manager.....: lpa
Customer.....: Marathon Oil Company Contact.: Mr. Paul Peacock

Questions ?	(Y/N)	Comments
Chain-of-Custody Present?	Y	
Custody seal on shipping container?		
...If "yes", custody seal intact?		
Custody seals on sample containers?		
...If "yes", custody seal intact?		
Samples chilled?	Y	
Temperature of cooler acceptable? (4 deg C +/- 2).		RECEIVED ON ICE
Samples received intact (good condition)?	Y	ONE GLASS LITER BOTTLE FOR WEST STRIPPER INFLUENT BROKEN IN TRANSIT
Volatile samples acceptable? (no headspace)	Y	
Correct containers used?	Y	
Adequate sample volume provided?	Y	
Samples preserved correctly?	Y	
Samples received within holding-time?	Y	
Agreement between COC and sample labels?	Y	
Additional		
Comments		
Sample Custodian Signature		

COC Record No: _____

CORELAB

CHAIN OF CUSTODY RECORD

CORE LABORATORIES

Customer Information		Project Information		Analysis/Method			
PO:		Project Name:		A	DRO 8015 (c10-c18)	K	
WO:		Lab Number:		B	GRO 8015 (c3-c10)	L	
Company:	Marathon Oil Company	Bill To:	Same	C	8015 Hexane	M	
Report to:	Mr. Paul Peacock	Invoice ATTN:		D	8021/8260 BTEX	N	
Address:	125 West Missouri Street	Address:	Same	E		O	
	P.O. Box 552			F		P	
	Midland, TX 79702-0552			G		Q	
				H		R	
Phone:	915.682.1626	Phone:		I		Other:	
Fax:	915.687.8305	Fax:		J			

SAMPLE INFORMATION									A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
No.	Description		Preservation	Date	Time	Type	Matrix	# Container																		
1	West Air Stripper Influent		HCL	3-24-99	9:45 AM	grab	gw	*	x	x	x	x														
2	West Air Stripper Effluent		HCL	"	9:51 AM	grab	gw	*	x	x	x	x														
3	East Air Stripper Influent		HCL	"	9:57 AM	grab	gw	*	x	x	x	x														
4	East Air Stripper Effluent		HCL	"	10:03 AM	grab	gw	*	x	x	x	x														
5																										
6																										
7																										
8																										
9																										
10																										

Sampler: B. Toto

Shipment Method: FED EX

Required Turnaround: 10 days

1. Relinquished by:	Date:	2. Received by:	Date:	3. Relinquished by:	Date:	4. Received by:	Date:
Diego Aguilera	3-24-99	Jan Bob	3/25/99				
Company: MOC	Time: 10:35	Company: JB Coz	Time: 1035	Company:	Time:	Company:	Time:

Comments: * containers - 2 one liter amber glass (DRO) - 6 40ml vials per sample.

CORE LABORATORIES

ANALYTICAL REPORT

JOB NUMBER: 904489

Prepared For:

Marathon Oil Company
125 West Missouri Street
P.O. Box 552
Midland, TX 79702-0552

Attention: Mr. Paul Peacock

Date: 05/10/99

Signature

5/10/99
Date

Name: Les Arnold

Title: Laboratory Manager

2400 Cumberland Drive
Valparaiso, IN 46383

PHONE: 219-464-2389
FAX..: 219-462-2953

MCR

MAY 13 1999

Environmental & Safety

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CORE LABORATORIES

SAMPLE INFORMATION
Date: 05/10/99

Job Number.: 904489
Customer...: Marathon Oil Company
Attn.....: Mr. Paul Peacock

Project Number.....: 96000703
Customer Project ID....: INDIAN BASIN REM
Project Description....: MOC - Midland Groundwater

Laboratory Sample ID	Customer Sample ID	Sample Matrix	Date Sampled	Time Sampled	Date Received	Time Received
904489-1	WEST STRIPPER INFLUENT	Water	04/29/1999	09:05	04/30/1999	10:26
904489-2	WEST STRIPPER EFFLUENT	Water	04/29/1999	09:11	04/30/1999	10:26
904489-3	EAST STRIPPER INFLUENT	Water	04/29/1999	09:17	04/30/1999	10:26
904489-4	EAST STRIPPER EFFLUENT	Water	04/29/1999	09:23	04/30/1999	10:26

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CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 904489 Date: 05/10/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN REM ATTN: Mr. Paul Peacock

Customer Sample ID: WEST STRIPPER INFLUENT
Date Sampled.....: 04/29/1999
Time Sampled.....: 09:05
Sample Matrix.....: Water

Laboratory Sample ID: 904489-1
Date Received.....: 04/30/1999
Time Received.....: 10:26

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
8015B Modified	Diesel Range Organics (C10 - C28)					
	C10 (Decane)	0.094	0.005	mg/L	05/07/99	rjm
	C12 (Dodecane)	0.11	0.005	mg/L	05/07/99	rjm
	C14 (Tetradecane)	0.073	0.005	mg/L	05/07/99	rjm
	C16 (Hexadecane)	0.014	0.005	mg/L	05/07/99	rjm
	C18 (Octadecane)	0.006	0.005	mg/L	05/07/99	rjm
	C20 (Eicosane)	<0.005	0.005	mg/L	05/07/99	rjm
	C22 (Docosane)	<0.005	0.005	mg/L	05/07/99	rjm
	C24 (Tetracosane)	ND	0.005	mg/L	05/07/99	rjm
	C26 (Hexacosane)	ND	0.005	mg/L	05/07/99	rjm
	C28 (Octacosane)	ND	0.005	mg/L	05/07/99	rjm
EPA 8015B	Nonhalogenated Organics using GC/FID					
	Gasoline Range Organics	6.0	0.005	mg/L	05/06/99	rjm
EPA 8260B	Volatile Organic Compounds					
	Benzene	ND	5	ug/L	05/04/99	weh
	Ethylbenzene	ND	5	ug/L	05/04/99	weh
	Toluene	ND	5	ug/L	05/04/99	weh
	Xylenes (total)	ND	10	ug/L	05/04/99	weh

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CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 904489 Date: 05/10/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN REM ATTN: Mr. Paul Peacock

Customer Sample ID: WEST STRIPPER EFFLUENT
Date Sampled.....: 04/29/1999
Time Sampled.....: 09:11
Sample Matrix.....: Water

Laboratory Sample ID: 904489-2
Date Received.....: 04/30/1999
Time Received.....: 10:26

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
8015B Modified	Diesel Range Organics (C10 - C28)					
	C10 (Decane)	0.089	0.005	mg/L	05/07/99	rjm
	C12 (Dodecane)	0.097	0.005	mg/L	05/07/99	rjm
	C14 (Tetradecane)	0.060	0.005	mg/L	05/07/99	rjm
	C16 (Hexadecane)	0.013	0.005	mg/L	05/07/99	rjm
	C18 (Octadecane)	0.006	0.005	mg/L	05/07/99	rjm
	C20 (Eicosane)	<0.005	0.005	mg/L	05/07/99	rjm
	C22 (Docosane)	<0.005	0.005	mg/L	05/07/99	rjm
	C24 (Tetracosane)	<0.005	0.005	mg/L	05/07/99	rjm
	C26 (Hexacosane)	ND	0.005	mg/L	05/07/99	rjm
	C28 (Octacosane)	ND	0.005	mg/L	05/07/99	rjm
EPA 8015B	Nonhalogenated Organics using GC/FID					
	Gasoline Range Organics	1.9	0.005	mg/L	05/06/99	rjm
EPA 8260B	Volatile Organic Compounds					
	Benzene	ND	5	ug/L	05/03/99	weh
	Ethylbenzene	ND	5	ug/L	05/03/99	weh
	Toluene	ND	5	ug/L	05/03/99	weh
	Xylenes (total)	ND	10	ug/L	05/03/99	weh

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CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 904489 Date: 05/10/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN REM ATTN: Mr. Paul Peacock

Customer Sample ID: EAST STRIPPER INFLUENT
Date Sampled.....: 04/29/1999
Time Sampled.....: 09:17
Sample Matrix.....: Water

Laboratory Sample ID: 904489-3
Date Received.....: 04/30/1999
Time Received.....: 10:26

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
8015B Modified	Diesel Range Organics (C10 - C28)					
	C10 (Decane)	0.11	0.005	mg/L	05/07/99	rjm
	C12 (Dodecane)	0.10	0.005	mg/L	05/07/99	rjm
	C14 (Tetradecane)	0.066	0.005	mg/L	05/07/99	rjm
	C16 (Hexadecane)	0.013	0.005	mg/L	05/07/99	rjm
	C18 (Octadecane)	0.006	0.005	mg/L	05/07/99	rjm
	C20 (Eicosane)	<0.005	0.005	mg/L	05/07/99	rjm
	C22 (Docosane)	<0.005	0.005	mg/L	05/07/99	rjm
	C24 (Tetracosane)	ND	0.005	mg/L	05/07/99	rjm
	C26 (Hexacosane)	ND	0.005	mg/L	05/07/99	rjm
	C28 (Octacosane)	ND	0.005	mg/L	05/07/99	rjm
EPA 8015B	Nonhalogenated Organics using GC/FID					
	Gasoline Range Organics	2.2	0.005	mg/L	05/06/99	rjm
EPA 8260B	Volatile Organic Compounds					
	Benzene	ND	5	ug/L	05/05/99	weh
	Ethylbenzene	ND	5	ug/L	05/05/99	weh
	Toluene	ND	5	ug/L	05/05/99	weh
	Xylenes (total)	ND	10	ug/L	05/05/99	weh

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CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 904489 Date: 05/10/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN REM ATTN: Mr. Paul Peacock

Customer Sample ID: EAST STRIPPER EFFLUENT
Date Sampled.....: 04/29/1999
Time Sampled.....: 09:23
Sample Matrix.....: Water

Laboratory Sample ID: 904489-4
Date Received.....: 04/30/1999
Time Received.....: 10:26

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
8015B Modified	Diesel Range Organics (C10 - C28)					
	C10 (Decane)	0.10	0.005	mg/L	05/07/99	rjm
	C12 (Dodecane)	0.096	0.005	mg/L	05/07/99	rjm
	C14 (Tetradecane)	0.059	0.005	mg/L	05/07/99	rjm
	C16 (Hexadecane)	0.012	0.005	mg/L	05/07/99	rjm
	C18 (Octadecane)	0.005	0.005	mg/L	05/07/99	rjm
	C20 (Eicosane)	<0.005	0.005	mg/L	05/07/99	rjm
	C22 (Docosane)	<0.005	0.005	mg/L	05/07/99	rjm
	C24 (Tetracosane)	ND	0.005	mg/L	05/07/99	rjm
	C26 (Hexacosane)	ND	0.005	mg/L	05/07/99	rjm
	C28 (Octacosane)	ND	0.005	mg/L	05/07/99	rjm
EPA 8015B	Nonhalogenated Organics using GC/FID					
	Gasoline Range Organics	2.0	0.005	mg/L	05/06/99	rjm
EPA 8260B	Volatile Organic Compounds					
	Benzene	ND	5	ug/L	05/03/99	weh
	Ethylbenzene	ND	5	ug/L	05/03/99	weh
	Toluene	ND	5	ug/L	05/03/99	weh
	Xylenes (total)	ND	10	ug/L	05/03/99	weh

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CORE LABORATORIES

QUALITY CONTROL RESULTS

Job Number.: 904489 Report Date.: 05/10/99

CUSTOMER: Marathon Oil Company PROJECT: MOC - Midland Groundwater ATTN: Mr. Paul Peacock

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time

Test Method.....: 8015B Modified Batch.....: 39706 Analyst...: rjm
Method Description.: Diesel Range Organics (C10 - C28) Units.....: mg/L

MB	Method Blank				05/07/1999	1833

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
C10 (Decane)	ND						
C12 (Dodecane)	ND						
C14 (Tetradecane)	ND						
C16 (Hexadecane)	ND						
C18 (Octadecane)	ND						
C20 (Eicosane)	ND						
C22 (Docosane)	ND						
C24 (Tetracosane)	ND						
C26 (Hexacosane)	ND						
C28 (Octacosane)	ND						

LCS	Laboratory Control Sample	V16004608			05/07/1999	1929

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
C10 (Decane)	27.56		50.000000		55.1	%	50-150
C12 (Dodecane)	30.48		50.000000		61.0	%	50-150
C14 (Tetradecane)	39.69		50.000000		79.4	%	50-150
C16 (Hexadecane)	43.59		50.000000		87.2	%	50-150
C18 (Octadecane)	46.03		50.000000		92.1	%	50-150
C20 (Eicosane)	46.09		50.000000		92.2	%	50-150
C22 (Docosane)	47.10		50.000000		94.2	%	50-150
C24 (Tetracosane)	48.84		50.000000		97.7	%	50-150
C26 (Hexacosane)	50.73		50.000000		101.5	%	50-150
C28 (Octacosane)	54.35		50.000000		108.7	%	50-150

MS	Matrix Spike	V16004608	904489-4		05/07/1999	2147

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
C10 (Decane)	180.84		50.000000	108.15	145.4	%	50-150
C12 (Dodecane)	136.66		50.000000	104.29	64.7	%	50-150
C14 (Tetradecane)	127.68		50.000000	65.78	123.8	%	50-150
C16 (Hexadecane)	94.92		50.000000	12.99	163.9	%	50-150
C18 (Octadecane)	47.75		50.000000	5.88	83.7	%	50-150
C20 (Eicosane)	47.59		50.000000	2.39	90.4	%	50-150
C22 (Docosane)	49.08		50.000000	0.85	96.5	%	50-150
C24 (Tetracosane)	50.11		50.000000	ND	100.2	%	50-150
C26 (Hexacosane)	52.61		50.000000	ND	105.2	%	50-150
C28 (Octacosane)	57.32		50.000000	ND	114.6	%	50-150

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

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CORE LABORATORIES

QUALITY CONTROL RESULTS

Job Number.: 904489 Report Date.: 05/10/99

CUSTOMER: Marathon Oil Company PROJECT: MOC - Midland Groundwater ATTN: Mr. Paul Peacock

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
MSD	Matrix Spike Duplicate	V16004608	904489-4		05/07/1999	2215

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
C10 (Decane)	135.52	180.84	50.000000	108.15	54.7	%	50-150
					28.7	R	50
C12 (Dodecane)	121.98	136.66	50.000000	104.29	35.4	%	50-150
					11.4	R	50
C14 (Tetradecane)	118.34	127.68	50.000000	65.78	105.1	%	50-150
					7.6	R	50
C16 (Hexadecane)	97.72	94.92	50.000000	12.99	169.5	%	50-150
					2.9	R	50
C18 (Octadecane)	49.49	47.75	50.000000	5.88	87.2	%	50-150
					3.6	R	50
C20 (Eicosane)	49.77	47.59	50.000000	2.39	94.8	%	50-150
					4.5	R	50
C22 (Docosane)	52.14	49.08	50.000000	0.85	102.6	%	50-150
					6.0	R	50
C24 (Tetracosane)	52.99	50.11	50.000000	ND	106.0	%	50-150
					5.6	R	50
C26 (Hexacosane)	56.47	52.61	50.000000	ND	112.9	%	50-150
					7.1	R	50
8 (Octacosane)	60.86	57.32	50.000000	ND	121.7	%	50-150
					6.0	R	50

Test Method.....: EPA 8015B Batch.....: 39616 Analyst...: rjm
Method Description.: Nonhalogenated Organics using GC/FID Units.....: mg/L

MB	Method Blank				05/06/1999	1501

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Gasoline Range Organics	0.29						

MS	Matrix Spike	GROSTD	904489-4	2	05/06/1999	1801

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Gasoline Range Organics	5.21		5.0	1.97	84.5	%	70-130

MSD	Matrix Spike Duplicate	GROSTD	90449-4	2	05/06/1999	1837

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Gasoline Range Organics	4.90	5.21	5.0	1.97	78.3	%	70-130
					6.1	R	20

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

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QUALITY CONTROL RESULTS

Job Number.: 904489 Report Date.: 05/10/99

CUSTOMER: Marathon Oil Company PROJECT: MOC - Midland Groundwater ATTN: Mr. Paul Peacock

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
LCS	Laboratory Control Sample	GROSTD			05/06/1999	1913

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Gasoline Range Organics	5.02		5.0		100.4	%	70-130

Test Method.....: EPA 8260B Batch.....: 39369 Analyst...: weh
Method Description.: Volatile Organic Compounds Units.....: ug/L

MB	Method Blank				05/03/1999	1009

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
1,4-Dichlorobenzene	ND						
Dibromomethane	ND						
m&p-Xylenes	ND						
Dichlorodifluoromethane	ND						
Acrolein	ND						
Acrylonitrile	ND						
o-Xylene	ND						
opropylbenzene	ND						
ert-Butyl methyl ether (MTBE)	ND						
1,1,1,2-Tetrachloroethane	ND						
1,2,3-Trichloropropane	ND						
Bromobenzene	ND						
1,2,4-Trimethylbenzene	ND						
Trichlorofluoromethane	ND						
2-Chloroethylvinyl ether	ND						
1,2-Dichlorobenzene	ND						
1,3-Dichlorobenzene	ND						
Acetone	ND						
Benzene	ND						
Bromodichloromethane	ND						
Bromoform	ND						
Bromomethane	ND						
2-Butanone	ND						
Carbon disulfide	ND						
Carbon tetrachloride	ND						
Dibromochloromethane	ND						
Chlorobenzene	ND						
Chloroethane	ND						
Chloroform	ND						
Chloromethane	ND						
1,1-Dichloroethane	ND						
1,2-Dichloroethane	ND						
1,1-Dichloroethene	ND						
trans-1,2-Dichloroethene	ND						
cis-1,2-Dichloroethene	ND						
1,2-Dichloropropane	ND						
cis-1,3-Dichloropropene	ND						
trans-1,3-Dichloropropene	ND						
Ethylbenzene	ND						
2-Hexanone	ND						
Methylene chloride	ND						
-Methyl-2-pentanone (MIBK)	ND						
tyrene	ND						

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

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QUALITY CONTROL RESULTS

Job Number.: 904489 Report Date.: 05/10/99

CUSTOMER: Marathon Oil Company PROJECT: MOC - Midland Groundwater ATTN: Mr. Paul Peacock

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
MB	Method Blank				05/03/1999	1009

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
1,1,2,2-Tetrachloroethane	ND						
Tetrachloroethene	ND						
Toluene	ND						
1,1,1-Trichloroethane	ND						
1,1,2-Trichloroethane	ND						
Trichloroethene	ND						
Vinyl acetate	ND						
Vinyl chloride	ND						
Xylenes (total)	ND						

LCS	Laboratory Control Sample	CLPVOAMS2			05/03/1999 1040

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	44.30		50		88.6	%	67-130
Chlorobenzene	46.52		50		93.0	%	74-116
1,1-Dichloroethene	36.53		50		73.1	%	51-141
luene	47.38		50		94.8	%	75-114
richloroethene	49.48		50		99.0	%	72-114

MS	Matrix Spike	CLPVOAMS2	904488-1		05/03/1999 1142

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	44.26		50	ND	88.5	%	67-130
Chlorobenzene	47.11		50	ND	94.2	%	74-116
1,1-Dichloroethene	35.50		50	ND	71.0	%	51-141
Toluene	47.09		50	ND	94.2	%	75-114
Trichloroethene	49.67		50	ND	99.3	%	72-114

MSD	Matrix Spike Duplicate	CLPVOAMS2	904488-1		05/03/1999 1214

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	44.08	44.26	50	ND	88.2	%	67-130
					0.4	R	30
Chlorobenzene	46.52	47.11	50	ND	93.0	%	74-116
					1.3	R	30
1,1-Dichloroethene	35.03	35.50	50	ND	70.1	%	51-141
					1.3	R	30
Toluene	46.99	47.09	50	ND	94.0	%	75-114
					0.2	R	30
Trichloroethene	48.83	49.67	50	ND	97.7	%	72-114
					1.7	R	30

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

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QUALITY CONTROL RESULTS

Job Number.: 904489 Report Date.: 05/10/99

CUSTOMER: Marathon Oil Company PROJECT: MOC - Midland Groundwater ATTN: Mr. Paul Peacock

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time

Test Method.....: EPA 8260B Batch.....: 39449 Analyst...: weh
Method Description.: Volatile Organic Compounds Units.....: ug/L

MB	Method Blank				05/04/1999	0924

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
o-Xylene	ND						
1,2-Dichlorobenzene	ND						
1,2,4-Trimethylbenzene	ND						
m&p-Xylenes	ND						
Isopropylbenzene	ND						
Trichlorofluoromethane	ND						
2-Chloroethylvinyl ether	ND						
Acrolein	ND						
Dichlorodifluoromethane	ND						
Dibromomethane	ND						
Acrylonitrile	ND						
1,4-Dichlorobenzene	ND						
1,3-Dichlorobenzene	ND						
Bromobenzene	ND						
1,2,3-Trichloropropane	ND						
1,1,1,2-Tetrachloroethane	ND						
tert-Butyl methyl ether (MTBE)	ND						
Acetone	ND						
Benzene	ND						
Bromodichloromethane	ND						
Bromoform	ND						
Bromomethane	ND						
2-Butanone	ND						
Carbon disulfide	ND						
Carbon tetrachloride	ND						
Dibromochloromethane	ND						
Chlorobenzene	ND						
Chloroethane	ND						
Chloroform	ND						
Chloromethane	ND						
1,1-Dichloroethane	ND						
1,2-Dichloroethane	ND						
1,1-Dichloroethene	ND						
trans-1,2-Dichloroethene	ND						
cis-1,2-Dichloroethene	ND						
1,2-Dichloropropane	ND						
cis-1,3-Dichloropropene	ND						
trans-1,3-Dichloropropene	ND						
Ethylbenzene	ND						
2-Hexanone	ND						
Methylene chloride	ND						
4-Methyl-2-pentanone (MIBK)	ND						
Styrene	ND						
1,1,2,2-Tetrachloroethane	ND						
Tetrachloroethene	ND						
Toluene	ND						
1,1,1-Trichloroethane	ND						
1,1,2-Trichloroethane	ND						
Trichloroethene	ND						
Vinyl acetate	ND						

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

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QUALITY CONTROL RESULTS

Job Number.: 904489 Report Date.: 05/10/99

CUSTOMER: Marathon Oil Company PROJECT: MOC - Midland Groundwater ATTN: Mr. Paul Peacock

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
MB	Method Blank				05/04/1999	0924

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Vinyl chloride	ND						
Xylenes (total)	ND						

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
LCS	Laboratory Control Sample	CLPVOAMS2			05/04/1999	0955

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	44.43		50		88.9	%	67-130
Chlorobenzene	48.00		50		96.0	%	74-116
1,1-Dichloroethene	33.53		50		67.1	%	51-141
Toluene	48.24		50		96.5	%	75-114
Trichloroethene	49.39		50		98.8	%	72-114

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
MS	Matrix Spike	CLPVOAMS2	904489-3		05/04/1999	1159

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	151.86		50	106.68	90.4	%	67-130
Chlorobenzene	46.55		50	ND	93.1	%	74-116
1,1-Dichloroethene	33.65		50	ND	67.3	%	51-141
Toluene	48.42		50	1.07	94.7	%	75-114
Trichloroethene	49.46		50	ND	98.9	%	72-114

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
MSD	Matrix Spike Duplicate	CLPVOAMS2	904489-3		05/04/1999	1230

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	147.64	151.86	50	106.68	81.9	%	67-130
					2.8	R	30
Chlorobenzene	46.50	46.55	50	ND	93.0	%	74-116
					0.1	R	30
1,1-Dichloroethene	33.07	33.65	50	ND	66.1	%	51-141
					1.7	R	30
Toluene	48.67	48.42	50	1.07	95.2	%	75-114
					0.5	R	30
Trichloroethene	48.33	49.46	50	ND	96.7	%	72-114
					2.3	R	30

Test Method.....: EPA 8260B Batch.....: 39536 Analyst...: weh
Method Description.: Volatile Organic Compounds Units.....: ug/L

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
MB	Method Blank				05/05/1999	1003

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Acrolein	ND						
2-Chloroethylvinyl ether	ND						
4-Dichlorobenzene	ND						
3-Dichlorobenzene	ND						

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

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QUALITY CONTROL RESULTS

Job Number.: 904489 Report Date.: 05/10/99

CUSTOMER: Marathon Oil Company PROJECT: MOC - Midland Groundwater ATTN: Mr. Paul Peacock

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
MB	Method Blank				05/05/1999	1003

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
1,2-Dichlorobenzene	ND						
Trichlorofluoromethane	ND						
Dichlorodifluoromethane	ND						
Isopropylbenzene	ND						
1,2,4-Trimethylbenzene	ND						
o-Xylene	ND						
m&p-Xylenes	ND						
Dibromomethane	ND						
Bromobenzene	ND						
1,2,3-Trichloropropane	ND						
1,1,1,2-Tetrachloroethane	ND						
tert-Butyl methyl ether (MTBE)	ND						
Acrylonitrile	ND						
Acetone	ND						
Benzene	ND						
Bromodichloromethane	ND						
Bromoform	ND						
Bromomethane	ND						
utanone	ND						
.bon disulfide	ND						
Carbon tetrachloride	ND						
Dibromochloromethane	ND						
Chlorobenzene	ND						
Chloroethane	ND						
Chloroform	ND						
Chloromethane	ND						
1,1-Dichloroethane	ND						
1,2-Dichloroethane	ND						
1,1-Dichloroethene	ND						
trans-1,2-Dichloroethene	ND						
cis-1,2-Dichloroethene	ND						
1,2-Dichloropropane	ND						
cis-1,3-Dichloropropene	ND						
trans-1,3-Dichloropropene	ND						
Ethylbenzene	ND						
2-Hexanone	ND						
Methylene chloride	ND						
4-Methyl-2-pentanone (MIBK)	ND						
Styrene	ND						
1,1,2,2-Tetrachloroethane	ND						
Tetrachloroethene	ND						
Toluene	ND						
1,1,1-Trichloroethane	ND						
1,1,2-Trichloroethane	ND						
Trichloroethene	ND						
Vinyl acetate	ND						
Vinyl chloride	ND						
Xylenes (total)	ND						

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

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QUALITY CONTROL RESULTS

Job Number.: 904489 Report Date.: 05/10/99

CUSTOMER: Marathon Oil Company PROJECT: MOC - Midland Groundwater ATTN: Mr. Paul Peacock

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
LCS	Laboratory Control Sample	CLPVOAMS2			05/05/1999	1034

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	43.34		50		86.7	%	67-130
Chlorobenzene	47.79		50		95.6	%	74-116
1,1-Dichloroethene	30.33		50		60.7	%	51-141
Toluene	46.42		50		92.8	%	75-114
Trichloroethene	48.23		50		96.5	%	72-114

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
MS	Matrix Spike	CLPVOAMS2	904639-2		05/05/1999	1238

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	42.94		50	ND	85.9	%	67-130
Chlorobenzene	47.64		50	ND	95.3	%	74-116
1,1-Dichloroethene	30.28		50	ND	60.6	%	51-141
Toluene	46.45		50	ND	92.9	%	75-114
Trichloroethene	47.34		50	ND	94.7	%	72-114

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
MSD	Matrix Spike Duplicate	CLPVOAMS2	904639-2		05/05/1999	1309

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	43.61	43.61	50	ND	87.2	%	67-130
					0.0	R	30
Chlorobenzene	47.74	47.74	50	ND	95.5	%	74-116
					0.0	R	30
1,1-Dichloroethene	30.28	30.28	50	ND	60.6	%	51-141
					0.0	R	30
Toluene	47.29	47.29	50	ND	94.6	%	75-114
					0.0	R	30
Trichloroethene	48.01	48.01	50	ND	96.0	%	72-114
					0.0	R	30

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

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CORE LABORATORIES

SURROGATE RECOVERIES REPORT

Job Number.: 904489 Report Date.: 05/10/99

CUSTOMER: Marathon Oil Company PROJECT: MOC - Midland Groundwater ATTN: Mr. Paul Peacock

Method.....: Volatile Organic Compounds
Method Code.....: 826TCL
Batch.....: 39369
Analyst.....: weh

Surrogate	Units
1,2-Dichloroethane-d4 (surrogate)	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		50.82	50.00	101.6	76-120		05/03/1999	1009
		LCS		51.23	50.00	102.5	76-120		05/03/1999	1040
904488-1				51.45	50.00	102.9	76-120		05/03/1999	1111
904488-1		MS		51.03	50.00	102.1	76-120		05/03/1999	1142
904488-1		MSD		50.93	50.00	101.9	76-120		05/03/1999	1214
904337-21			5	52.18	50.00	104.4	76-120		05/03/1999	1245
904489-2				51.43	50.00	102.9	76-120		05/03/1999	1316
904489-4				52.22	50.00	104.4	76-120		05/03/1999	1347
904417-2			250	50.52	50.00	101.0	76-120		05/03/1999	1521
904503-1			200	50.28	50.00	100.6	76-120		05/03/1999	1553
904527-1			200	50.32	50.00	100.6	76-120		05/03/1999	1623
904536-1			200	50.19	50.00	100.4	76-120		05/03/1999	1654
04305-1	Solid		120000	49.62	50.00	99.2	78-122		05/03/1999	1726
J4570-1			200	50.36	50.00	100.7	76-120		05/03/1999	1931

Surrogate	Units
BFB (Surrogate)	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		49.36	50.00	98.7	85-115		05/03/1999	1009
		LCS		50.20	50.00	100.4	85-115		05/03/1999	1040
904488-1				49.48	50.00	99.0	85-115		05/03/1999	1111
904488-1		MS		49.58	50.00	99.2	85-115		05/03/1999	1142
904488-1		MSD		49.93	50.00	99.9	85-115		05/03/1999	1214
904337-21			5	49.60	50.00	99.2	85-115		05/03/1999	1245
904489-2				49.69	50.00	99.4	85-115		05/03/1999	1316
904489-4				50.60	50.00	101.2	85-115		05/03/1999	1347
904417-2			250	49.50	50.00	99.0	85-115		05/03/1999	1521
904503-1			200	50.15	50.00	100.3	85-115		05/03/1999	1553
904527-1			200	50.72	50.00	101.4	85-115		05/03/1999	1623
904536-1			200	49.95	50.00	99.9	85-115		05/03/1999	1654
904305-1	Solid		120000	50.19	50.00	100.4	74-121		05/03/1999	1726
904570-1			200	49.98	50.00	100.0	85-115		05/03/1999	1931

Surrogate	Units
Toluene-d8	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		51.21	50.00	102.4	85-112		05/03/1999	1009
		LCS		51.16	50.00	102.3	85-112		05/03/1999	1040

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CORE LABORATORIES

SURROGATE RECOVERIES REPORT

Job Number.: 904489 Report Date.: 05/10/99

CUSTOMER: Marathon Oil Company PROJECT: MOC - Midland Groundwater ATTN: Mr. Paul Peacock

Surrogate	Units
Toluene-d8	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
904488-1				51.06	50.00	102.1	85-112		05/03/1999	1111
904488-1		MS		50.87	50.00	101.7	85-112		05/03/1999	1142
904488-1		MSD		50.65	50.00	101.3	85-112		05/03/1999	1214
904337-21			5	50.78	50.00	101.6	85-112		05/03/1999	1245
904489-2				54.11	50.00	108.2	85-112		05/03/1999	1316
904489-4				53.22	50.00	106.4	85-112		05/03/1999	1347
904417-2			250	51.00	50.00	102.0	85-112		05/03/1999	1521
904503-1			200	50.80	50.00	101.6	85-112		05/03/1999	1553
904527-1			200	50.62	50.00	101.2	85-112		05/03/1999	1623
904536-1			200	51.03	50.00	102.1	85-112		05/03/1999	1654
904305-1	Solid		120000	50.79	50.00	101.6	87-109		05/03/1999	1726
904570-1			200	51.15	50.00	102.3	85-112		05/03/1999	1931

Method.....: Volatile Organic Compounds Batch.....: 39449
Method Code.....: 826TCL Analyst.....: weh

Surrogate	Units
1,2-Dichloroethane-d4 (surrogate)	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		49.97	50.00	99.9	76-120		05/04/1999	0924
		LCS		50.03	50.00	100.1	76-120		05/04/1999	0955
904489-1				51.05	50.00	102.1	76-120		05/04/1999	1026
904489-3		MS		52.38	50.00	104.8	76-120		05/04/1999	1159
904489-3		MSD		50.88	50.00	101.8	76-120		05/04/1999	1230
904305-2	Solid		20000	49.29	50.00	98.6	78-122		05/04/1999	1333
904305-3	Solid		3000	48.87	50.00	97.7	78-122		05/04/1999	1506
904643-1			200	49.99	50.00	100.0	76-120		05/04/1999	1639

Surrogate	Units
BFB (Surrogate)	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		50.14	50.00	100.3	85-115		05/04/1999	0924
		LCS		50.49	50.00	101.0	85-115		05/04/1999	0955
904489-1				51.07	50.00	102.1	85-115		05/04/1999	1026
904489-3		MS		49.49	50.00	99.0	85-115		05/04/1999	1159
904489-3		MSD		50.31	50.00	100.6	85-115		05/04/1999	1230
904305-2	Solid		20000	50.23	50.00	100.5	74-121		05/04/1999	1333
904305-3	Solid		3000	50.83	50.00	101.7	74-121		05/04/1999	1506
904643-1			200	50.50	50.00	101.0	85-115		05/04/1999	1639

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SURROGATE RECOVERIES REPORT

Job Number.: 904489 Report Date.: 05/10/99

CUSTOMER: Marathon Oil Company PROJECT: MOC - Midland Groundwater ATTN: Mr. Paul Peacock

Surrogate	Units
Toluene-d8	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		50.63	50.00	101.3	85-112		05/04/1999	0924
		LCS		50.49	50.00	101.0	85-112		05/04/1999	0955
904489-1				53.48	50.00	107.0	85-112		05/04/1999	1026
904489-3		MS		54.59	50.00	109.2	85-112		05/04/1999	1159
904489-3		MSD		54.02	50.00	108.0	85-112		05/04/1999	1230
904305-2	Solid		20000	51.30	50.00	102.6	87-109		05/04/1999	1333
904305-3	Solid		3000	51.04	50.00	102.1	87-109		05/04/1999	1506
904643-1			200	51.88	50.00	103.8	85-112		05/04/1999	1639

Method.....: Volatile Organic Compounds Batch.....: 39536
Method Code.....: 826TCL Analyst.....: weh

Surrogate	Units
1,2-Dichloroethane-d4 (surrogate)	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		51.12	50.00	102.2	76-120		05/05/1999	1003
		LCS		49.82	50.00	99.6	76-120		05/05/1999	1034
904489-3				49.73	50.00	99.5	76-120		05/05/1999	1105
904305-4	Solid		300	47.08	50.00	94.2	78-122		05/05/1999	1136
904639-2		MS		49.77	50.00	99.5	76-120		05/05/1999	1238
904639-2		MSD		50.23	50.00	100.5	76-120		05/05/1999	1309
904639-2				51.06	50.00	102.1	76-120		05/05/1999	1522
904703-1			200	49.77	50.00	99.5	76-120		05/05/1999	1624
904713-1				51.83	50.00	103.7	76-120		05/05/1999	1655
904707-2				50.84	50.00	101.7	76-120		05/05/1999	1726
904711-2			5	50.65	50.00	101.3	76-120		05/05/1999	1757
904712-2			5	50.79	50.00	101.6	76-120		05/05/1999	1828
904707-1			10	49.86	50.00	99.7	76-120		05/05/1999	1859

Surrogate	Units
BFB (Surrogate)	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		50.99	50.00	102.0	85-115		05/05/1999	1003
		LCS		50.47	50.00	100.9	85-115		05/05/1999	1034
904489-3				50.38	50.00	100.8	85-115		05/05/1999	1105
904305-4	Solid		300	50.76	50.00	101.5	74-121		05/05/1999	1136
904639-2		MS		49.78	50.00	99.6	85-115		05/05/1999	1238
904639-2		MSD		49.58	50.00	99.2	85-115		05/05/1999	1309
904639-2				49.37	50.00	98.7	85-115		05/05/1999	1522
904703-1			200	49.10	50.00	98.2	85-115		05/05/1999	1624
904713-1				49.94	50.00	99.9	85-115		05/05/1999	1655

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SURROGATE RECOVERIES REPORT

Job Number.: 904489 Report Date.: 05/10/99

CUSTOMER: Marathon Oil Company PROJECT: MOC - Midland Groundwater ATTN: Mr. Paul Peacock

Surrogate	Units
BFB (Surrogate)	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
904707-2				49.17	50.00	98.3	85-115		05/05/1999	1726
904711-2			5	48.67	50.00	97.3	85-115		05/05/1999	1757
904712-2			5	50.22	50.00	100.4	85-115		05/05/1999	1828
904707-1			10	49.74	50.00	99.5	85-115		05/05/1999	1859

Surrogate	Units
Toluene-d8	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		50.98	50.00	102.0	85-112		05/05/1999	1003
		LCS		50.42	50.00	100.8	85-112		05/05/1999	1034
904489-3				52.48	50.00	105.0	85-112		05/05/1999	1105
04305-4	Solid		300	50.91	50.00	101.8	87-109		05/05/1999	1136
904639-2		MS		50.63	50.00	101.3	85-112		05/05/1999	1238
904639-2		MSD		51.21	50.00	102.4	85-112		05/05/1999	1309
904639-2				50.44	50.00	100.9	85-112		05/05/1999	1522
904703-1			200	50.13	50.00	100.3	85-112		05/05/1999	1624
904713-1				50.59	50.00	101.2	85-112		05/05/1999	1655
904707-2				50.18	50.00	100.4	85-112		05/05/1999	1726
904711-2			5	50.30	50.00	100.6	85-112		05/05/1999	1757
904712-2			5	49.93	50.00	99.9	85-112		05/05/1999	1828
904707-1			10	50.29	50.00	100.6	85-112		05/05/1999	1859

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QUALITY ASSURANCE FOOTER

METHOD REFERENCES

(1) EPA SW-846, Test Methods for Evaluating Solid Waste, Third Edition, September 1986, July 1992, and September 1994 updates
(2) Standard Methods for the Examination of Water and Wastewater, 18th Edition, 1992
(3) EPA 600/4-79-020, Methods of Chemical Analysis for Waters and Wastes, March 1983
(4) Federal Register, Friday, October 26, 1984 (40 CFR Part 136)
(5) American Society for Testing and Materials, Volumes 5.01, 5.02, 5.03, 1992
(6) EPA 600/4-89-001, Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Fresh Water Organisms
(7) EPA 600/4-90-027, Methods for Measuring the Acute Toxicity of Effluent and Receiving Waters to Fresh Water and Marine Organisms, Fourth Edition

COMMENTS

All methods of chemical analysis have a statistical uncertainty associated with the results. Unless otherwise indicated, the data in this report are within the limits of uncertainty as specified in the referenced method. Quality control acceptance criteria are based either on actual laboratory performance or on limits specified in the referenced method. The date and time of analysis indicated on the QA report may not reflect the actual time of analysis for QC samples. All data reported on an "as received" basis unless otherwise indicated. Data reported in the QA report may be lower than sample data due to dilution of samples into the calibration range of the analysis. Sample concentrations for solid samples are calculated on an as received (wet) basis. Unless otherwise indicated, volatiles by gas chromatography (GC) are reported from a single column. Volatiles analyses by GC on low level soil extractions are conducted at room temperature.

FLAGS, FOOTNOTES, AND ABBREVIATIONS (as needed)

NA = Not analyzed
N/A = Not applicable
ug/L = Micrograms per liter
mg/L = Milligrams per liter
ND = Not detected at a value greater than the reporting limit
NC = Not calculable due to values lower than the detection limit
(a) = Surrogate recoveries were outside acceptable ranges due to matrix effects.
(b) = Surrogate recoveries were not calculated due to dilution of the sample below the detectable range for the surrogate.
(c) = Matrix spike recoveries were outside acceptable ranges due to matrix effects.
(d) = Relative Percent Difference (RPD) for duplicate analysis outside acceptance limits due to actual differences in the sample matrix.
(e) = The limit listed for flammability indicates the upper limit for the test. Samples are not tested at temperatures above 140 Fahrenheit since only samples which will sustain ignition at temperatures below 140 are considered flammable.
(f) = Results for this hydrocarbon range did not match a typical hydrocarbon pattern. Results were quantified using a diesel standard, however, the hydrocarbon pattern did not match a diesel pattern.
(g) = Results for this hydrocarbon range did not match a typical hydrocarbon pattern. Results were quantified using a gasoline standard, however, the hydrocarbon pattern did not match a gasoline pattern.
(h) = High dilution due to matrix effects

N.I. = Not Ignitable
S.I. = Sustains Ignition
I(NS) = Ignites, but does not Sustain Ignition
RPD = Relative Percent Difference

QC SAMPLE IDENTIFICATIONS

MB = Method Blank
RB = Reagent Blank
ICB = Initial Calibration Blank
CCB = Continuing Calibration Blank
CS = Calibration Standard
ICB = Initial Calibration Verification
CCV = Continuing Calibration Verification
SB = Storage Blank
MS = Matrix Spike
MSD = Matrix Spike Duplicate
MD = Matrix Duplicate
BS = Blank Spike
SS = Surrogate Spike
LCS = Laboratory Control Standard
RS = Reference Standard

SUBCONTRACTED LABORATORY LOCATIONS

Core Laboratories:	Aurora, Colorado	*AU
	Casper, Wyoming	*CA
	Corpus Christi, Texas	*CC
	Edison, New Jersey	*ED
	Houston, Texas (Env)	*HE
	Houston, Texas (Pet)	*HP
	Indianapolis, Indiana	*IN
	Lake Charles, Louisiana	*LC
	Long Beach, California	*LB
	Tampa, Florida	*TP
	Valparaiso, Indiana	*VP
Aquatic Testing Laboratories:		
	Ventura, California	*AT

2400 Cumberland Drive
Valparaiso, IN 46383

›jsckl	Job Sample Receipt Checklist Report 04/30/99	V2

Job Number.....: 904489 Location.: 57211 Customer Job ID.....: Job Check List Date.: 04/30/99
Project Number.: 96000703 Project Description.: MOC - Midland Groundwater Project Manager.....: lpa
Customer.....: Marathon Oil Company Contact.: Mr. Paul Peacock

Questions ?	(Y/N)	Comments
Chain-of-Custody Present?	Y	
Custody seal on shipping container?	Y	
...If "yes", custody seal intact?	Y	
Custody seals on sample containers?		
...If "yes", custody seal intact?		
Samples chilled?	Y	
Temperature of cooler acceptable? (4 deg C +/- 2).		RECEIVED ON ICE
Samples received intact (good condition)?	Y	
›olatile samples acceptable? (no headspace)	Y	
Correct containers used?	Y	
Adequate sample volume provided?	Y	
Samples preserved correctly?	Y	
Samples received within holding-time?	Y	
Agreement between COC and sample labels?	Y	
Additional		
Comments		
Sample Custodian Signature		

CORE LAB

CORE LABORATORIES, INC.

112151-

CHAIN OF CUSTODY RECORD

CUSTOMER INFORMATION	PROJECT INFORMATION
COMPANY: MARATHON Oil Co-Midland, TX	PROJECT NAME/NUMBER: Indian Basin Remediation
SEND REPORT TO: MR. PAUL PEACOCK	**BILLING INFORMATION**
ADDRESS: 125 W. Missouri ST (79702-5204)	BILL TO: SAME
P.O Box 552	ADDRESS: SAME
Midland, TX 79702-0552	
PHONE: 915-687-8312	PHONE: SAME
FAX: 915-687-8305	FAX: SAME PO NO.:

LAB JOB NO. 904489

SAMPLE NO.	SAMPLE DESCRIPTION	SAMPLE DATE	SAMPLE TIME	SAMPLE MATRIX	NUMBER OF CONTAINERS	PRESERV.	BTEX 8021 or 8260	TPH GRO C6-C10	TPH DRO C10-C28	Lt Hydrocarbons C5 to C8	N-Hexane 8015	Chloride	C4-C12 (Vials)	REMARKS / PRECAUTIONS
1	WEST STRIPPER Influent	4-29-99	9:05 AM	AQ	6-40 ml 2-1 liter	NONE	X	X	X	X	X			
2	WEST STRIPPER Effluent	"	9:11 AM	"	"	"	X	X	X	X	X			
3	EAST STRIPPER Influent	"	9:17 AM	"	"	"	X	X	X	X	X			
4	EAST STRIPPER Effluent	"	9:23 AM	"	"	"	X	X	X	X	X			
5	Lymon	"	9:45 AM	"	2-ml vial 1-plastic	H2O2						X	X	

SAMPLER: "BIGO"

SHIPMENT METHOD:

AIRBILL NO.:

REQUIRED TURNAROUND:* ☐ SAME DAY ☐ 24 HOURS ☐ 48 HOURS ☐ 72 HOURS ☐ 5 DAYS ☐ 10 DAYS ☑ ROUTINE OTHER

1. RELINQUISHED BY:	DATE	2. RELINQUISHED BY:	DATE	3. RELINQUISHED BY:	DATE
SIGNATURE: Bigo Aguilera	4-29-99	SIGNATURE:		SIGNATURE:	
PRINTED NAME/COMPANY: MARATHON Oil Company	TIME 11:05 AM	PRINTED NAME/COMPANY:	TIME	PRINTED NAME/COMPANY:	TIME
1. RECEIVED BY:	DATE	2. RECEIVED BY:	DATE	3. RECEIVED BY:	DATE
SIGNATURE: Jan Bob	4/30/99	SIGNATURE:		SIGNATURE:	
PRINTED NAME/COMPANY: JB	TIME 1000	PRINTED NAME/COMPANY:	TIME	PRINTED NAME/COMPANY:	TIME

* RUSH TURNAROUND MAY REQUIRE SURCHARGE

☐ Anaheim, CA
1250 E. Gene Autry Way
Anaheim, CA 92805
(714) 937-1094 Fax (714) 937-1170

☐ Aurora, CO
16703 E. Bethany Drive
Aurora, CO 80014
(303) 751-1780 Fax (303) 751-1784

☐ Carson, CA
21730 S. Wilmington Ave. - Suite 201
Carson, CA 90810-1640
(310) 513-2031 Fax (310) 513-2035

☐ Casper, WY
420 W. First Street
Casper, WY 82601
(307) 235-5741 Fax (307) 266-1676

☐ Corpus Christi, TX
1733 N. Padre Island Drive
Corpus Christi, TX 78408
(512) 289-2673 Fax (512) 289-2471

☐ Edison, NJ
284 Raritan Center Parkway
Edison, NJ 08837
(732) 225-6700 Fax (732) 225-6777

☐ Houston, TX (Env)
6310 Rothway Drive
Houston, TX 77040
(713) 690-4444 Fax (713) 690-5646

☐ Houston, TX (Pet)
8210 Mosley Road
Houston, TX 77075
(713) 943-9776 Fax (713) 943-3846

☐ Indianapolis, IN
7726 Moller Road
Indianapolis, IN 46268
(317) 875-5894 Fax (317) 872-6189

☐ Lake Charles, LA
3645 Begis Parkway
Sulphur, LA 70663
(318) 583-4926 Fax (318) 583-4929

☐ Valparaiso, IN
2400 Cumberland Drive
Valparaiso, IN 46383
(219) 464-2389 Fax (219) 462-2953

CORE LABORATORIES

ANALYTICAL REPORT

JOB NUMBER: 905818

Prepared For:

Marathon Oil Company
125 West Missouri Street
P.O. Box 552
Midland, TX 79702-0552

Attention: Mr. Paul Peacock

Date: 06/04/99

Les Arnold
Signature

Name: Les Arnold

Title: Laboratory Manager

6/4/99
Date

2400 Cumberland Drive
Valparaiso, IN 46383

PHONE: 219-464-2389
FAX..: 219-462-2953

MCR

JUN 09 1999

Environmental & Saf.

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SAMPLE INFORMATION
Date: 06/04/99

Job Number.: 905818
Customer...: Marathon Oil Company
Attn.....: Mr. Paul Peacock

Project Number.....: 96000651
Customer Project ID....: INDIAN BASIN
Project Description....: Marathon Oil Co., Midland, Tx

Laboratory Sample ID	Customer Sample ID	Sample Matrix	Date Sampled	Time Sampled	Date Received	Time Received
905818-1	WEST STRIPPER INFLUENT	Water	05/28/1999	08:35	06/01/1999	09:29
905818-2	WEST STRIPPER EFFLUENT	Water	05/28/1999	08:48	06/01/1999	09:29
905818-3	EAST STRIPPER INFLUENT	Water	05/28/1999	09:01	06/01/1999	09:29
905818-4	EAST STRIPPER EFFLUENT	Water	05/28/1999	09:14	06/01/1999	09:29

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LABORATORY TEST RESULTS

Job Number: 905818 Date: 06/04/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN ATTN: Mr. Paul Peacock

Customer Sample ID: WEST STRIPPER INFLUENT
Date Sampled.....: 05/28/1999
Time Sampled.....: 08:35
Sample Matrix.....: Water

Laboratory Sample ID: 905818-1
Date Received.....: 06/01/1999
Time Received.....: 09:29

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
SW-846 3510B	Sep-Funnel Extraction for DRO					
	Separatory Funnel Liq/Liq Extraction	Complete			06/02/99	bjl
EPA 8015B	Nonhalogenated Organics using GC/FID					
	Diesel Range Organics	0.66	0.25	mg/L	06/02/99	rjm
EPA 8015B	Nonhalogenated Organics using GC/FID					
	Gasoline Range Organics	5.6	0.50	mg/L	06/02/99	rjm
EPA 8260B	Volatile Organic Compounds					
	Benzene	ND	5	ug/L	06/03/99	weh
	Ethylbenzene	ND	5	ug/L	06/03/99	weh
	Toluene	ND	5	ug/L	06/03/99	weh
	Xylenes (total)	<10	10	ug/L	06/03/99	weh
	Hexane	46	5	ug/L	06/02/99	rjm

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LABORATORY TEST RESULTS

Job Number: 905818 Date: 06/04/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN ATTN: Mr. Paul Peacock

Customer Sample ID: WEST STRIPPER EFFLUENT
Date Sampled.....: 05/28/1999
Time Sampled.....: 08:48
Sample Matrix.....: Water

Laboratory Sample ID: 905818-2
Date Received.....: 06/01/1999
Time Received.....: 09:29

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
SW-846 3510B	Sep-Funnel Extraction for DRO					
	Separatory Funnel Liq/Liq Extraction	Complete			06/02/99	bjl
EPA 8015B	Nonhalogenated Organics using GC/FID					
	Diesel Range Organics	0.64	0.25	mg/L	06/02/99	rjm
EPA 8015B	Nonhalogenated Organics using GC/FID					
	Gasoline Range Organics	1.4	0.50	mg/L	06/02/99	rjm
EPA 8260B	Volatile Organic Compounds					
	Benzene	ND	5	ug/L	06/03/99	weh
	Ethylbenzene	ND	5	ug/L	06/03/99	weh
	Toluene	ND	5	ug/L	06/03/99	weh
	Xylenes (total)	ND	10	ug/L	06/03/99	weh
	Hexane	ND	5	ug/L	06/02/99	rjm

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CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 905818 Date: 06/04/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN ATTN: Mr. Paul Peacock

Customer Sample ID: EAST STRIPPER INFLUENT
Date Sampled.....: 05/28/1999
Time Sampled.....: 09:01
Sample Matrix.....: Water

Laboratory Sample ID: 905818-3
Date Received.....: 06/01/1999
Time Received.....: 09:29

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
SW-846 3510B	Sep-Funnel Extraction for DRO					
	Separatory Funnel Liq/Liq Extraction	Complete			06/02/99	bjl
EPA 8015B	Nonhalogenated Organics using GC/FID					
	Diesel Range Organics	1.0	0.25	mg/L	06/02/99	rjm
EPA 8015B	Nonhalogenated Organics using GC/FID					
	Gasoline Range Organics	8.2	0.50	mg/L	06/02/99	rjm
EPA 8260B	Volatile Organic Compounds					
	Benzene	<5	5	ug/L	06/03/99	weh
	Ethylbenzene	ND	5	ug/L	06/03/99	weh
	Toluene	ND	5	ug/L	06/03/99	weh
	Xylenes (total)	20	10	ug/L	06/03/99	weh
	Hexane	91	5	ug/L	06/02/99	rjm

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CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 905818

Date: 06/04/99

CUSTOMER: Marathon Oil Company | PROJECT: INDIAN BASIN | ATTN: Mr. Paul Peacock

Customer Sample ID: EAST STRIPPER EFFLUENT
Date Sampled.....: 05/28/1999
Time Sampled.....: 09:14
Sample Matrix.....: Water

Laboratory Sample ID: 905818-4
Date Received.....: 06/01/1999
Time Received.....: 09:29

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
SW-846 3510B	Sep-Funnel Extraction for DRO					
	Separatory Funnel Liq/Liq Extraction	Complete			06/02/99	bjl
EPA 8015B	Nonhalogenated Organics using GC/FID					
	Diesel Range Organics	0.26	0.25	mg/L	06/02/99	rjm
EPA 8015B	Nonhalogenated Organics using GC/FID					
	Gasoline Range Organics	1.6	0.50	mg/L	06/02/99	rjm
EPA 8260B	Volatile Organic Compounds					
	Benzene	ND	5	ug/L	06/03/99	weh
	Ethylbenzene	ND	5	ug/L	06/03/99	weh
	Toluene	ND	5	ug/L	06/03/99	weh
	Xylenes (total)	ND	10	ug/L	06/03/99	weh
	Hexane	6	5	ug/L	06/02/99	rjm

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CORE LABORATORIES

QUALITY CONTROL RESULTS

Job Number.: 905818 Report Date.: 06/04/99

CUSTOMER: Marathon Oil Company PROJECT: Marathon Oil Co., Midland, Tx ATTN: Mr. Paul Peacock

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time

Test Method.....: EPA 8015B Batch.....: 41035 Analyst...: rjm
Method Description.: Nonhalogenated Organics using GC/FID Units.....: mg/L

LCS	Laboratory Control Sample	DROSTD			06/02/1999	0000

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Diesel Range Organics	312.52		500		62.5	%	50-150

MB	Method Blank				06/02/1999	0000

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Diesel Range Organics	ND						

MS	Matrix Spike	DROSTD	905818-1		06/02/1999	0000

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
;el Range Organics	407.75		500	131.48	55.3	%	50-150

MSD	Matrix Spike Duplicate	DROSTD	905818-1		06/02/1999	0000

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Diesel Range Organics	529.41	407.75	500	131.48	79.6	%	50-150
					26.0	R	20

Test Method.....: EPA 8015B Batch.....: 41038 Analyst...: rjm
Method Description.: Nonhalogenated Organics using GC/FID Units.....: mg/L

LCS	Laboratory Control Sample	GROSTD			06/02/1999	0000

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Gasoline Range Organics	5.02		5.0		100.4	%	70-130

MB	Method Blank				06/02/1999	0000

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Gasoline Range Organics	ND						

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

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QUALITY CONTROL RESULTS

Job Number.: 905818 Report Date.: 06/04/99

CUSTOMER: Marathon Oil Company PROJECT: Marathon Oil Co., Midland, Tx ATTN: Mr. Paul Peacock

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
MS	Matrix Spike	GROSTD	905818-4		06/02/1999	0000

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Gasoline Range Organics	5.06		5.0	1.60	69.2	%	70-130

MSD	Matrix Spike Duplicate	GROSTD	905818-4		06/02/1999	0000

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Gasoline Range Organics	4.88	5.06	5.0	1.60	65.6	%	70-130
					3.6	R	20

Test Method.....: EPA 8260B Batch.....: 41113 Analyst...: weh
Method Description.: Volatile Organic Compounds Units.....: ug/L

MB	Method Blank				06/03/1999	1019

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	ND						
Ethylbenzene	ND						
Toluene	ND						
Xylenes (total)	ND						

LCS	Laboratory Control Sample	CLPVOAMS2			06/03/1999	1050

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	45.15		50		90.3	%	67-130
Toluene	49.12		50		98.2	%	75-114

MS	Matrix Spike	CLPVOAMS2	905721-1	10	06/03/1999	1153

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	46.62		50	ND	93.2	%	67-130
Toluene	49.94		50	ND	99.9	%	75-114

MSD	Matrix Spike Duplicate	CLPVOAMS2	905721-1	10	06/03/1999	1224

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	45.79	46.62	50	ND	91.6	%	67-130
					1.8	R	30
Toluene	49.40	49.94	50	ND	98.8	%	75-114
					1.1	R	30

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

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QUALITY CONTROL RESULTS

Job Number.: 905818 Report Date.: 06/04/99

CUSTOMER: Marathon Oil Company PROJECT: Marathon Oil Co., Midland, Tx ATTN: Mr. Paul Peacock

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time

Test Method.....: EPA 8260B Batch.....: 41120 Analyst...: rjm
Method Description.: Volatile Organic Compounds Units.....: ug/L

MB	Method Blank				06/02/1999	1307

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Hexane	ND						

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

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CORE LABORATORIES

SURROGATE RECOVERIES REPORT

Job Number.: 905818

Report Date.: 06/04/99

CUSTOMER: Marathon Oil Company

PROJECT: Marathon Oil Co., Midland, Tx ATTN: Mr. Paul Peacock

Method.....: Volatile Organic Compounds
Method Code.....: 8260V1

Batch.....: 41113
Analyst.....: weh

Surrogate	Units
1,2-Dichloroethane-d4 (surrogate)	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		50.92	50.00	101.8	76-120		06/03/1999	1019
		LCS		49.71	50.00	99.4	76-120		06/03/1999	1050
905721-1			10	50.87	50.00	101.7	76-120		06/03/1999	1121
905721-1		MS	10	51.70	50.00	103.4	76-120		06/03/1999	1153
905721-1		MSD	10	50.98	50.00	102.0	76-120		06/03/1999	1224
905897-5			20	48.81	50.00	97.6	76-120		06/03/1999	1258
905897-6			20	49.68	50.00	99.4	76-120		06/03/1999	1330
905857-1				49.31	50.00	98.6	76-120		06/03/1999	1401
905818-2				44.57	50.00	89.1	76-120		06/03/1999	1432
905818-4				43.75	50.00	87.5	76-120		06/03/1999	1502
905818-1				43.88	50.00	87.8	76-120		06/03/1999	1533
905818-3				44.52	50.00	89.0	76-120		06/03/1999	1604
905919-2			5	43.60	50.00	87.2	76-120		06/03/1999	1635
905920-2			5	42.95	50.00	85.9	76-120		06/03/1999	1707
905922-1			5	43.25	50.00	86.5	76-120		06/03/1999	1738
905897-4	Oil		20000	44.05	50.00	88.1	80-120		06/03/1999	1840
905897-8			20000	44.35	50.00	88.7	76-120		06/03/1999	1911
905714-1			400	42.69	50.00	85.4	76-120		06/03/1999	1943
905990-1				42.50	50.00	85.0	76-120		06/03/1999	2014

Surrogate	Units
BFB (Surrogate)	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		47.50	50.00	95.0	85-115		06/03/1999	1019
		LCS		47.41	50.00	94.8	85-115		06/03/1999	1050
905721-1			10	47.11	50.00	94.2	85-115		06/03/1999	1121
905721-1		MS	10	47.73	50.00	95.5	85-115		06/03/1999	1153
905721-1		MSD	10	48.79	50.00	97.6	85-115		06/03/1999	1224
905897-5			20	46.62	50.00	93.2	85-115		06/03/1999	1258
905897-6			20	46.39	50.00	92.8	85-115		06/03/1999	1330
905857-1				46.75	50.00	93.5	85-115		06/03/1999	1401
905818-2				48.45	50.00	96.9	85-115		06/03/1999	1432
905818-4				50.26	50.00	100.5	85-115		06/03/1999	1502
905818-1				48.69	50.00	97.4	85-115		06/03/1999	1533
905818-3				48.86	50.00	97.7	85-115		06/03/1999	1604
905919-2			5	48.77	50.00	97.5	85-115		06/03/1999	1635
905920-2			5	48.49	50.00	97.0	85-115		06/03/1999	1707
905922-1			5	48.95	50.00	97.9	85-115		06/03/1999	1738
905897-4	Oil		20000	51.53	50.00	103.1	85-110		06/03/1999	1840
905897-8			20000	49.54	50.00	99.1	85-115		06/03/1999	1911
905714-1			400	49.29	50.00	98.6	85-115		06/03/1999	1943
905990-1				49.55	50.00	99.1	85-115		06/03/1999	2014

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CORE LABORATORIES

SURROGATE RECOVERIES REPORT

Job Number.: 905818

Report Date.: 06/04/99

CUSTOMER: Marathon Oil Company

PROJECT: Marathon Oil Co., Midland, Tx ATTN: Mr. Paul Peacock

Surrogate	Units
Toluene-d8	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		51.48	50.00	103.0	85-112		06/03/1999	1019
		LCS		50.95	50.00	101.9	85-112		06/03/1999	1050
905721-1			10	52.18	50.00	104.4	85-112		06/03/1999	1121
905721-1		MS	10	51.10	50.00	102.2	85-112		06/03/1999	1153
905721-1		MSD	10	51.80	50.00	103.6	85-112		06/03/1999	1224
905897-5			20	49.56	50.00	99.1	85-112		06/03/1999	1258
905897-6			20	49.77	50.00	99.5	85-112		06/03/1999	1330
905857-1				50.24	50.00	100.5	85-112		06/03/1999	1401
905818-2				49.96	50.00	99.9	85-112		06/03/1999	1432
905818-4				48.92	50.00	97.8	85-112		06/03/1999	1502
905818-1				52.30	50.00	104.6	85-112		06/03/1999	1533
905818-3				51.84	50.00	103.7	85-112		06/03/1999	1604
905919-2			5	49.57	50.00	99.1	85-112		06/03/1999	1635
905920-2			5	48.62	50.00	97.2	85-112		06/03/1999	1707
905922-1			5	48.80	50.00	97.6	85-112		06/03/1999	1738
[illegible]5897-4	Oil		20000	50.15	50.00	100.3	85-112		06/03/1999	1840
[illegible]897-8			20000	49.75	50.00	99.5	85-112		06/03/1999	1911
[illegible]05714-1			400	48.40	50.00	96.8	85-112		06/03/1999	1943
905990-1				49.56	50.00	99.1	85-112		06/03/1999	2014

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QUALITY ASSURANCE FOOTER

METHOD REFERENCES

(1) EPA SW-846, Test Methods for Evaluating Solid Waste, Third Edition, September 1986, July 1992, and September 1994 updates
(2) Standard Methods for the Examination of Water and Wastewater, 18th Edition, 1992
(3) EPA 600/4-79-020, Methods of Chemical Analysis for Waters and Wastes, March 1983
(4) Federal Register, Friday, October 26, 1984 (40 CFR Part 136)
(5) American Society for Testing and Materials, Volumes 5.01, 5.02, 5.03, 1992
(6) EPA 600/4-89-001, Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Fresh Water Organisms
(7) EPA 600/4-90-027, Methods for Measuring the Acute Toxicity of Effluent and Receiving Waters to Fresh Water and Marine Organisms, Fourth Edition

COMMENTS

All methods of chemical analysis have a statistical uncertainty associated with the results. Unless otherwise indicated, the data in this report are within the limits of uncertainty as specified in the referenced method. Quality control acceptance criteria are based either on actual laboratory performance or on limits specified in the referenced method. The date and time of analysis indicated on the QA report may not reflect the actual time of analysis for QC samples. All data reported on an "as received" basis unless otherwise indicated. Data reported in the QA report may be lower than sample data due to dilution of samples into the calibration range of the analysis. Sample concentrations for solid samples are calculated on an as received (wet) basis. Unless otherwise indicated, volatiles by gas chromatography (GC) are reported from a single column. Volatiles analyses by GC on low level soil extractions are conducted at room temperature.

FLAGS, FOOTNOTES, AND ABBREVIATIONS (as needed)

NA = Not analyzed
N/A = Not applicable
ug/L = Micrograms per liter
mg/L = Milligrams per liter
ND = Not detected at a value greater than the reporting limit
NC = Not calculable due to values lower than the detection limit
N.I. = Not Ignitable
S.I. = Sustains Ignition
I(NS) = Ignites, but does not Sustain Ignition
RPD = Relative Percent Difference
(a) = Surrogate recoveries were outside acceptable ranges due to matrix effects.
(b) = Surrogate recoveries were not calculated due to dilution of the sample below the detectable range for the surrogate.
(c) = Matrix spike recoveries were outside acceptable ranges due to matrix effects.
(d) = Relative Percent Difference (RPD) for duplicate analysis outside acceptance limits due to actual differences in the sample matrix.
(e) = The limit listed for flammability indicates the upper limit for the test. Samples are not tested at temperatures above 140 Fahrenheit since only samples which will sustain ignition at temperatures below 140 are considered flammable.
(f) = Results for this hydrocarbon range did not match a typical hydrocarbon pattern. Results were quantified using a diesel standard, however, the hydrocarbon pattern did not match a diesel pattern.
(g) = Results for this hydrocarbon range did not match a typical hydrocarbon pattern. Results were quantified using a gasoline standard, however, the hydrocarbon pattern did not match a gasoline pattern.
(h) = High dilution due to matrix effects

QC SAMPLE IDENTIFICATIONS

MB = Method Blank
RB = Reagent Blank
ICB = Initial Calibration Blank
CCB = Continuing Calibration Blank
CS = Calibration Standard
ICB = Initial Calibration Verification
CCV = Continuing Calibration Verification
SB = Storage Blank
MS = Matrix Spike
MSD = Matrix Spike Duplicate
MD = Matrix Duplicate
BS = Blank Spike
SS = Surrogate Spike
LCS = Laboratory Control Standard
RS = Reference Standard

SUBCONTRACTED LABORATORY LOCATIONS

Core Laboratories:	Aurora, Colorado	*AU
	Casper, Wyoming	*CA
	Corpus Christi, Texas	*CC
	Edison, New Jersey	*ED
	Houston, Texas (Env)	*HE
	Houston, Texas (Pet)	*HP
	Indianapolis, Indiana	*IN
	Lake Charles, Louisiana	*LC
	Long Beach, California	*LB
	Tampa, Florida	*TP
	Valparaiso, Indiana	*VP
Aquatic Testing Laboratories:		
	Ventura, California	*AT

2400 Cumberland Drive
Valparaiso, IN 46383

isckl | Job Sample Receipt Checklist Report 06/01/99 | V2

Job Number.....: 905818 Location.: 57211 Customer Job ID.....: Job Check List Date.: 06/01/99
Project Number.: 96000651 Project Description.: Marathon Oil Co., Midland, Tx Project Manager.....: lpa
Customer.....: Marathon Oil Company Contact.: Mr. Paul Peacock

Questions ?	(Y/N)	Comments
Chain-of-Custody Present?	Y	
Custody seal on shipping container?	Y	
...If "yes", custody seal intact?	Y	
Custody seals on sample containers?		
...If "yes", custody seal intact?		
Samples chilled?	Y	
Temperature of cooler acceptable? (4 deg C +/- 2).		RECEIVED ON ICE
Samples received intact (good condition)?	Y	
olatile samples acceptable? (no headspace)	Y	
Correct containers used?	Y	
Adequate sample volume provided?	Y	
Samples preserved correctly?	Y	
Samples received within holding-time?	Y	
Agreement between COC and sample labels?	Y	
Additional		
Comments		
Sample Custodian Signature		Allen D. McCarron

CORE LAB

CORE LABORATORIES, INC.

No. 152351

CHAIN OF CUSTODY RECORD

CUSTOMER INFORMATION	PROJECT INFORMATION
COMPANY: Marathon Oil Co	PROJECT NAME/NUMBER: Fuhrman Basin Remediation
SEND REPORT TO: Paul Peacock	**BILLING INFORMATION**
ADDRESS: 125 W. Missouri ST	BILL TO: Same
P.O. Box 552 (79702-5204)	ADDRESS: Same
Midland TX 79702-0552	
PHONE: 915-687-8312	PHONE: Same
FAX: 915-687-8305	FAX: Same PO NO.:

LAB JOB NO. 905818

SAMPLE NO.	SAMPLE DESCRIPTION	SAMPLE DATE	SAMPLE TIME	SAMPLE MATRIX	CONTAINER	PRESERV.	NUMBER OF CONTAINERS	BTEX (8021 OR 8260)	TPH GRO (C6-C9)	TPH DRO (C10-C28)	N-HEXANE (8015)	REMARKS / PRECAUTIONS
-1	W. Stripper Influent	5-28-99	8:35 Am	Water		None		X	X	X	X	
-2	W. Stripper Effluent	5-28-99	8:48 Am	"		"		X	X	X	X	
-3	E. Stripper Influent	5-28-99	9:01 Am	"		"		X	X	X	X	
-4	E. Stripper Effluent	5-28-99	9:14 Am	"		"		X	X	X	X	

SAMPLER: SHIPMENT METHOD: AIRBILL NO.: 800716506807

REQUIRED TURNAROUND:* ☐ SAME DAY ☐ 24 HOURS ☐ 48 HOURS ☐ 72 HOURS ☐ 5 DAYS ☐ 10 DAYS ☑ ROUTINE OTHER

1. RELINQUISHED BY:	DATE	2. RELINQUISHED BY:	DATE	3. RELINQUISHED BY:	DATE
SIGNATURE: Bigo Aguilera	5-28-99	SIGNATURE:		SIGNATURE:	
PRINTED NAME/COMPANY: Bigo Aguilera MOC	TIME 10:30 Am	PRINTED NAME/COMPANY:	TIME	PRINTED NAME/COMPANY:	TIME
1. RECEIVED BY:	DATE	2. RECEIVED BY:	DATE	3. RECEIVED BY:	DATE
SIGNATURE: Allen D. McCarson	6-1-99	SIGNATURE:		SIGNATURE:	
PRINTED NAME/COMPANY: Allen D. McCarson/Core	TIME 8:00	PRINTED NAME/COMPANY:	TIME	PRINTED NAME/COMPANY:	TIME

* RUSH TURNAROUND MAY REQUIRE SURCHARGE

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CORE LABORATORIES

ANALYTICAL REPORT

JOB NUMBER: 907127

Prepared For:

Marathon Oil Company
125 West Missouri Street
P.O. Box 552
Midland, TX 79702-0552

Attention: Mr. Paul Peacock

Date: 07/09/99

Les Arnold
Signature

7/9/99
Date

Name: Les Arnold

Title: Laboratory Manager

2400 Cumberland Drive
Valparaiso, IN 46383

PHONE: 219-464-2389
FAX..: 219-462-2953

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CORE LABORATORIES

SAMPLE INFORMATION
Date: 07/09/99

Job Number.: 907127
Customer...: Marathon Oil Company
Attn.....: Mr. Paul Peacock

Project Number.....: 96000746
Customer Project ID....: INDIAN BASIN QTR
Project Description....: INDIAN BASIN REMEDIATION STRIPPER

Laboratory Sample ID	Customer Sample ID	Sample Matrix	Date Sampled	Time Sampled	Date Received	Time Received
907127-1	WEST STRIPPER INFLUENT	Aqueous	06/28/1999	09:52	06/29/1999	15:48
907127-2	WEST STRIPPER EFFLUENT	Aqueous	06/28/1999	09:58	06/29/1999	15:54
907127-3	EAST STRIPPER INFLUENT	Aqueous	06/28/1999	10:08	06/29/1999	15:48
907127-4	EAST STRIPPE EFFLUENT	Aqueous	06/28/1999	10:12	06/29/1999	15:55

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CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 907127 Date: 07/09/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN QTR ATTN: Mr. Paul Peacock

Customer Sample ID: WEST STRIPPER INFLUENT
Date Sampled.....: 06/28/1999
Time Sampled.....: 09:52
Sample Matrix.....: Aqueous

Laboratory Sample ID: 907127-1
Date Received.....: 06/29/1999
Time Received.....: 15:48

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
8015B Modified	Diesel Range Organics (C10 - C28)					
	Diesel Range Organics C10 - C28	19	2	mg/L	07/01/99	rjm
8015B Modified	Gasoline Range Organics (C5-C9)					
	Gasoline Range Organics C5-C9	2.7	1.0	mg/L	07/01/99	rjm
EPA 8260B	Volatile Organic Compounds					
	Benzene	ND	5	ug/L	07/02/99	weh
	Ethylbenzene	ND	5	ug/L	07/02/99	weh
	Toluene	ND	5	ug/L	07/02/99	weh
	Xylenes (total)	ND	10	ug/L	07/02/99	weh
	Hexane	ND		ug/L	07/02/99	weh

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CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 907127 Date: 07/09/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN QTR ATTN: Mr. Paul Peacock

Customer Sample ID: WEST STRIPPER EFFLUENT
Date Sampled.....: 06/28/1999
Time Sampled.....: 09:58
Sample Matrix.....: Aqueous

Laboratory Sample ID: 907127-2
Date Received.....: 06/29/1999
Time Received.....: 15:54

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 300.0	Bromide (Br)	<0.50	0.50	mg/L	07/02/99	kso
EPA 300.0	Chloride	35.4	1.0	mg/L	07/02/99	kso
EPA 300.0	Fluoride (F)	0.55	0.50	mg/L	07/02/99	kso
EPA 300.0	Sulfate (SO4)	229	10	mg/L	07/07/99	kso
EPA 3010	Acid Digestion, Metals (ICP)	Complete			06/30/99	clg
EPA 3510	Separatory Funnel Liq/Liq Extraction	Complete			06/30/99	bjl
EPA 6010B	Metals Analysis (ICAP)					
	Calcium (Ca)	116	0.5	mg/L	07/01/99	chh
	Magnesium (Mg)	51.7	0.1	mg/L	06/30/99	pal
	Potassium (K)	1.5	0.5	mg/L	06/30/99	pal
	Sodium (Na)	27.6	0.5	mg/L	07/06/99	pal
8015B Modified	Diesel Range Organics (C10 - C28)					
	Diesel Range Organics C10 - C28	4.0	0.5	mg/L	06/30/99	rjm
EPA 8310	Polynuclear Aromatic Hydrocarbons-HPLC					
	Acenaphthene	ND	5.0	ug/L	07/02/99	rm
	Acenaphthylene	ND	5.0	ug/L	07/02/99	rm
	Anthracene	ND	1.0	ug/L	07/02/99	rm
	Benzo(b)fluoranthene	ND	0.10	ug/L	07/02/99	rm
	Benzo(k)fluoranthene	ND	0.10	ug/L	07/02/99	rm
	Benzo(a)anthracene	ND	0.10	ug/L	07/02/99	rm
	Benzo(a)pyrene	ND	0.10	ug/L	07/02/99	rm
	Benzo(ghi)perylene	ND	0.10	ug/L	07/02/99	rm
	Chrysene	ND	1.0	ug/L	07/02/99	rm
	Dibenzo(a,h)anthracene	ND	0.10	ug/L	07/02/99	rm
	Fluoranthene	ND	1.0	ug/L	07/02/99	rm
	Fluorene	ND	1.0	ug/L	07/02/99	rm
	Indeno(1,2,3-cd)pyrene	ND	0.10	ug/L	07/02/99	rm
	Naphthalene	ND	5.0	ug/L	07/02/99	rm
	Phenanthrene	ND	1.0	ug/L	07/02/99	rm
	Pyrene	ND	1.0	ug/L	07/02/99	rm
8015B Modified	Gasoline Range Organics (C5-C9)					
	Gasoline Range Organics C5-C9	<1.0	1.0	mg/L	07/01/99	rjm
EPA 8260B	Volatile Organic Compounds					
	Benzene	ND	5	ug/L	06/30/99	weh
	Ethylbenzene	ND	5	ug/L	06/30/99	weh
	Toluene	ND	5	ug/L	06/30/99	weh
	Xylenes (total)	ND	10	ug/L	06/30/99	weh
	Hexane	ND		ug/L	06/30/99	weh

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CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 907127 Date: 07/09/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN QTR ATTN: Mr. Paul Peacock

Customer Sample ID: EAST STRIPPER INFLUENT
Date Sampled.....: 06/28/1999
Time Sampled.....: 10:08
Sample Matrix.....: Aqueous

Laboratory Sample ID: 907127-3
Date Received.....: 06/29/1999
Time Received.....: 15:48

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
8015B Modified	Diesel Range Organics (C10 - C28)					
	Diesel Range Organics C10 - C28	1.4	0.5	mg/L	06/30/99	rjm
8015B Modified	Gasoline Range Organics (C5-C9)					
	Gasoline Range Organics C5-C9	1.8	1.0	mg/L	07/01/99	rjm
EPA 8260B	Volatile Organic Compounds					
	Benzene	ND	5	ug/L	07/02/99	weh
	Ethylbenzene	ND	5	ug/L	07/02/99	weh
	Toluene	ND	5	ug/L	07/02/99	weh
	Xylenes (total)	ND	10	ug/L	07/02/99	weh
	Hexane	ND		ug/L	07/02/99	weh

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LABORATORY TEST RESULTS

Job Number: 907127 Date: 07/09/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN QTR ATTN: Mr. Paul Peacock

Customer Sample ID: EAST STRIPPE EFFLUENT
Date Sampled.....: 06/28/1999
Time Sampled.....: 10:12
Sample Matrix.....: Aqueous

Laboratory Sample ID: 907127-4
Date Received.....: 06/29/1999
Time Received.....: 15:55

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 300.0	Bromide (Br)	<0.50	0.50	mg/L	07/02/99	kso
EPA 300.0	Chloride	38.2	1.0	mg/L	07/02/99	kso
EPA 300.0	Fluoride (F)	0.60	0.50	mg/L	07/02/99	kso
EPA 300.0	Sulfate (SO4)	215	10	mg/L	07/07/99	kso
EPA 3010	Acid Digestion, Metals (ICP)	Complete			06/30/99	clg
EPA 3510	Separatory Funnel Liq/Liq Extraction	Complete			06/30/99	bjl
EPA 6010B	Metals Analysis (ICAP)					
	Calcium (Ca)	115	0.5	mg/L	07/01/99	chh
	Magnesium (Mg)	51.4	0.1	mg/L	06/30/99	pal
	Potassium (K)	1.6	0.5	mg/L	06/30/99	pal
	Sodium (Na)	27.3	0.5	mg/L	07/06/99	pal
8015B Modified	Diesel Range Organics (C10 - C28)					
	Diesel Range Organics C10 - C28	1.9	0.5	mg/L	06/30/99	rjm
EPA 8310	Polynuclear Aromatic Hydrocarbons-HPLC					
	Acenaphthene	ND	5.0	ug/L	07/02/99	rm
	Acenaphthylene	ND	5.0	ug/L	07/02/99	rm
	Anthracene	ND	1.0	ug/L	07/02/99	rm
	Benzo(b)fluoranthene	ND	0.10	ug/L	07/02/99	rm
	Benzo(k)fluoranthene	ND	0.10	ug/L	07/02/99	rm
	Benzo(a)anthracene	ND	0.10	ug/L	07/02/99	rm
	Benzo(a)pyrene	ND	0.10	ug/L	07/02/99	rm
	Benzo(ghi)perylene	ND	0.10	ug/L	07/02/99	rm
	Chrysene	ND	1.0	ug/L	07/02/99	rm
	Dibenzo(a,h)anthracene	ND	0.10	ug/L	07/02/99	rm
	Fluoranthene	ND	1.0	ug/L	07/02/99	rm
	Fluorene	ND	1.0	ug/L	07/02/99	rm
	Indeno(1,2,3-cd)pyrene	ND	0.10	ug/L	07/02/99	rm
	Naphthalene	ND	5.0	ug/L	07/02/99	rm
	Phenanthrene	ND	1.0	ug/L	07/02/99	rm
	Pyrene	ND	1.0	ug/L	07/02/99	rm
8015B Modified	Gasoline Range Organics (C5-C9)					
	Gasoline Range Organics C5-C9	<1.0	1.0	mg/L	07/01/99	rjm
EPA 8260B	Volatile Organic Compounds					
	Benzene	ND	5	ug/L	06/30/99	weh
	Ethylbenzene	ND	5	ug/L	06/30/99	weh
	Toluene	ND	5	ug/L	06/30/99	weh
	Xylenes (total)	ND	10	ug/L	06/30/99	weh
	Hexane	ND		ug/L	06/30/99	weh

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CORE LABORATORIES

QUALITY CONTROL RESULTS

Job Number.: 907127 Report Date.: 07/09/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN REMEDIATION STRIP ATTN: Mr. Paul Peacock

Test Method.....: EPA 300.0 Batch.....: 42759 Analyst...: kso
Method Description.: Ion Chromatography Analysis Units.....: mg/L
Parameter.....: Bromide (Br)

QC	Lab ID	Reagent	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits	Date	Time
ICV		V191258D	0.938		1		93.8	%	85-115	07/02/1999	1213
ICB			0.000							07/02/1999	1226
MD	907259-1		0.0123			0.0109	0.0014	A	0.5000	07/02/1999	1252
MS	907259-1	V191258C	.9652		1.000000	0.0109	95.4	%	75-125	07/02/1999	1304
CCV		V191258D	0.961		1		96.1	%	85-115	07/02/1999	1513
CCB			0.000							07/02/1999	1526
CCV		V191258D	0.935		1		93.5	%	85-115	07/02/1999	1734
CCB			0.006							07/02/1999	1747

Test Method.....: EPA 300.0 Batch.....: 42759 Analyst...: kso
Method Description.: Ion Chromatography Analysis Units.....: mg/L
Parameter.....: Chloride

QC	Lab ID	Reagent	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits	Date	Time
ICV		V191258D	9.106		10		91.1	%	85-115	07/02/1999	1213
ICB			0.241							07/02/1999	1226
MD	907259-1		2.0920			2.1318	0.0398	A	1.0000	07/02/1999	1252
MS	907259-1	V191258C	11.6986		10.000000	2.1318	95.7	%	75-125	07/02/1999	1304
CCV		V191258D	9.373		10		93.7	%	85-115	07/02/1999	1513
CCB			0.215							07/02/1999	1526
CCV		V191258D	9.131		10		91.3	%	85-115	07/02/1999	1734
CCB			0.223							07/02/1999	1747

Test Method.....: EPA 300.0 Batch.....: 42759 Analyst...: kso
Method Description.: Ion Chromatography Analysis Units.....: mg/L
Parameter.....: Fluoride (F)

QC	Lab ID	Reagent	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits	Date	Time
ICV		V191258D	0.994		1		99.4	%	85-115	07/02/1999	1213
ICB			0.000							07/02/1999	1226
MD	907259-1		0.000			0.000	0.000	A	0.500	07/02/1999	1252
MS	907259-1	V191258C	0.9339		1.000000	0.000	93.4	%	75-125	07/02/1999	1304
CCV		V191258D	1.037		1		103.7	%	85-115	07/02/1999	1513
CCB			0.000							07/02/1999	1526
CCV		V191258D	0.959		1		95.9	%	85-115	07/02/1999	1734
CCB			0.000							07/02/1999	1747

Test Method.....: EPA 300.0 Batch.....: 42938 Analyst...: kso
Method Description.: Ion Chromatography Analysis Units.....: mg/L
Parameter.....: Sulfate (SO4)

QC	Lab ID	Reagent	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits	Date	Time
ICV		V191258D	21.215		20		106.1	%	85-115	07/07/1999	1438
ICB			0.513							07/07/1999	1451
MD	907072-5		1.92594			2.20737	0.28143	A	1.00000	07/07/1999	1518
MS	907072-5	V191258C	23.59815		20.000000	2.20737	107.0	%	75-125	07/07/1999	1531
CCV		V191258D	21.676		20		108.4	%	85-115	07/07/1999	1745

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

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CORE LABORATORIES

QUALITY CONTROL RESULTS

Job Number.: 907127 Report Date.: 07/09/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN REMEDIATION STRIP ATTN: Mr. Paul Peacock

Test Method.....: EPA 300.0 Batch.....: 42938 Analyst...: kso
Method Description.: Ion Chromatography Analysis Units.....: mg/L
Parameter.....: Sulfate (SO4)

QC	Lab ID	Reagent	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits	Date	Time
CCB			0.509							07/07/1999	1758
CCV		V191258D	21.790		20		109.0	%	85-115	07/07/1999	1959
CCB			0.513							07/07/1999	2012

Test Method.....: EPA 6010B Batch.....: 42681 Analyst...: chh
Method Description.: Metals Analysis (ICAP) Units.....: mg/L
Parameter.....: Calcium (Ca)

QC	Lab ID	Reagent	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits	Date	Time
CAL		ICPCALBLK	0.01420		0.00					07/01/1999	1607
CAL		ICPCALSTD	33.90920		50.00					07/01/1999	1612
ICV		V170628C	2.00545		2.00		100.3	%	95-105	07/01/1999	1629
ICB			-0.01622							07/01/1999	1634
ISB		V170628B	487.76879		500.0		97.6	%	80-120	07/01/1999	1639
PB	630-1		0.13025							07/01/1999	1647
LCS	630-1	ICPSPK99	51.13512		50.000		102.3	%	80-120	07/01/1999	1652
MD	907125-1		125.81057			123.30239	2.0	R	20	07/01/1999	1702
MS	907125-1	ICPSPK99	168.81307		50.000	123.30239	91.0	%	75-125	07/01/1999	1707
ISB		V170628B	465.01663		500.0		93.0	%	80-120	07/01/1999	1739
CCV		V170628C	1.93243		2.00		96.6	%	95-105	07/01/1999	1747
CCB			-0.00457							07/01/1999	1752

Test Method.....: EPA 6010B Batch.....: 42583 Analyst...: pal
Method Description.: Metals Analysis (ICAP) Units.....: mg/L
Parameter.....: Magnesium (Mg)

QC	Lab ID	Reagent	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits	Date	Time
CAL		ICPCALSTD	3.33400		20.00					06/30/1999	1256
CAL		ICPCALBLK	0.00469		0.00					06/30/1999	1331
ICV		V170630D	1.91343		2.00		95.7	%	90-110	06/30/1999	1335
ICB			-0.01431							06/30/1999	1340
ISB		V170630C	476.34863		500.0		95.3	%	80-120	06/30/1999	1345
PB	630-1		0.25943							06/30/1999	1353
LCS	630-1	ICPSPK99	50.92283		50.000		101.8	%	80-120	06/30/1999	1358
EB			0.02000							06/30/1999	1403
CCV		V170630D	1.91938		2.00		96.0	%	90-110	06/30/1999	1442
CCB			0.00818							06/30/1999	1447
MD	907125-1		36.10310			35.52781	1.6	R	20	06/30/1999	1506
MS	907125-1	ICPSPK99	81.90731		50.000	35.52781	92.8	%	75-125	06/30/1999	1511
CCV		V170630D	1.97016		2.00		98.5	%	90-110	06/30/1999	1540
CCB			0.00483							06/30/1999	1545
ISB		V170630C	456.16101		500.0		91.2	%	80-120	06/30/1999	1632
CCV		V170630D	1.89053		2.00		94.5	%	90-110	06/30/1999	1641
CCV		V170630D	1.87468		2.00		93.7	%	90-110	06/30/1999	1646
CCB			0.00523							06/30/1999	1651

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

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CORE LABORATORIES

QUALITY CONTROL RESULTS

Job Number.: 907127 Report Date.: 07/09/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN REMEDIATION STRIP ATTN: Mr. Paul Peacock

Test Method.....: EPA 6010B Batch.....: 42583 Analyst...: pal
Method Description.: Metals Analysis (ICAP) Units.....: mg/L
Parameter.....: Potassium (K)

QC	Lab ID	Reagent	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits	Date	Time
CAL		ICPCALSTD	0.58789		20.0					06/30/1999	1252
CAL		ICPCALBLK	-0.00060		0.00					06/30/1999	1331
ICV		V170630D	19.61597		20.00		98.1	%	90-110	06/30/1999	1335
ICB			-0.20050							06/30/1999	1340
PB	630-1		0.03398							06/30/1999	1353
LCS	630-1	ICPSPK99	51.00764		50.000		102.0	%	80-120	06/30/1999	1358
EB			0.02718							06/30/1999	1403
CCV		V170630D	19.18096		20.00		95.9	%	90-110	06/30/1999	1442
CCB			-0.00679							06/30/1999	1447
MD	907125-1		47.78929			46.97706	1.7	R	20	06/30/1999	1506
MS	907125-1	ICPSPK99	92.90059		50.000	46.97706	91.8	%	75-125	06/30/1999	1511
CCV		V170630D	18.91248		20.00		94.6	%	90-110	06/30/1999	1540
CCB			0.00339							06/30/1999	1545
CCV		V170630D	18.84791		20.00		94.2	%	90-110	06/30/1999	1641
CCV		V170630D	19.63636		20.00		98.2	%	90-110	06/30/1999	1646
CCB			0.06117							06/30/1999	1651

Test Method.....: EPA 6010B Batch.....: 42832 Analyst...: pal
Method Description.: Metals Analysis (ICAP) Units.....: mg/L
Parameter.....: Sodium (Na)

QC	Lab ID	Reagent	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits	Date	Time
CAL		ICPCALBLK	0.00240		0.00					07/01/1999	0956
CAL		ICPCALBLK	0.00199		0.00					07/01/1999	1004
CAL		ICPCALSTD	1.34669		10.0					07/01/1999	1006
ICV		V170628C	2.01457		2.00		100.7	%	90-110	07/01/1999	1027
ICB			0.00223							07/01/1999	1030
LCS	630-1	ICPSPK99	46.18056		50.000		92.4	%	80-120	07/01/1999	1041
MD	907125-1		163.17541			164.42700	0.8	R	20	07/01/1999	1047
CCV		V170628C	1.93574		2.00		96.8	%	90-110	07/01/1999	1058
CCB			0.02230							07/01/1999	1101
CCV		V170628C	2.01903		2.00		101.0	%	90-110	07/01/1999	1138
CCB			0.00371							07/01/1999	1141
CAL		ICPCALBLK	0.00210		0.00					07/06/1999	0932
CAL		ICPCALSTD	1.38220		10.0					07/06/1999	0939
ICV		V170630D	1.86798		2.00		93.4	%	90-110	07/06/1999	0943
ICB			0.00072							07/06/1999	0946
PB	630-1		0.29128							07/06/1999	0955
PDS	907125-1	V16002105	46.50097		50.000000	1.98971	89.0	%	75-125	07/06/1999	1005
CCV		V170630D	1.86870		2.00		93.4	%	90-110	07/06/1999	1033
CCB			0.01159							07/06/1999	1036
PB	702-1		0.21012							07/06/1999	1047
LCS	702-1	ICPSPK99	44.47576		50.000		89.0	%	80-120	07/06/1999	1050
MD	907229-1		74.31851			76.71472	3.2	R	20	07/06/1999	1056
MS	907229-1	ICPSPK99	117.91319		50.000	76.71472	82.4	%	75-125	07/06/1999	1059
CCV		V170630D	1.95493		2.00		97.7	%	90-110	07/06/1999	1117
CCB			0.02318							07/06/1999	1121
PB	706-1		0.23186							07/06/1999	1124
LCS	706-1	ICPSPK99	47.39439		50.000		94.8	%	80-120	07/06/1999	1127
MD	907286-1		321.01660			280.34924	13.5	R	20	07/06/1999	1133
MS	907286-1	ICPSPK99	311.52450		50.000	280.34924	62.4	%	75-125	07/06/1999	1136

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CORE LABORATORIES

QUALITY CONTROL RESULTS

Job Number.: 907127 Report Date.: 07/09/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN REMEDIATION STRIP ATTN: Mr. Paul Peacock

Test Method.....: EPA 6010B Batch.....: 42832 Analyst...: pal
Method Description.: Metals Analysis (ICAP) Units.....: mg/L
Parameter.....: Sodium (Na)

QC	Lab ID	Reagent	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits	Date	Time
CCV		V170630D	1.95493		2.00		97.7	%	90-110	07/06/1999	1148
CCB			-0.02391							07/06/1999	1151

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CORE LABORATORIES

QUALITY CONTROL RESULTS

Job Number.: 907127 Report Date.: 07/09/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN REMEDIATION STRIP ATTN: Mr. Paul Peacock

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time

Test Method.....: 8015B Modified Batch.....: 42607 Analyst...: rjm
Method Description.: Diesel Range Organics (C10 - C28) Units.....: mg/L

MB	Method Blank				06/30/1999	1450

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Diesel Range Organics C10 - C28	ND						

LCS	Laboratory Control Sample	DROSTD1			06/30/1999	1527

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Diesel Range Organics C10 - C28	362.89		500		72.6	%	42-122

Test Method.....: EPA 8310 Batch.....: 42789 Analyst...: rm
Method Description.: Polynuclear Aromatic Hydrocarbons-HPLC Units.....: ug/L

MB	Method Blank				07/01/1999	1757

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Acenaphthene	ND						
Acenaphthylene	ND						
Anthracene	ND						
Benzo(b)fluoranthene	ND						
Benzo(k)fluoranthene	ND						
Benzo(a)anthracene	ND						
Benzo(a)pyrene	ND						
Benzo(ghi)perylene	ND						
Chrysene	ND						
Dibenzo(a,h)anthracene	ND						
Fluoranthene	ND						
Fluorene	ND						
Indeno(1,2,3-cd)pyrene	ND						
Naphthalene	ND						
Phenanthrene	ND						
Pyrene	ND						

LCS	Laboratory Control Sample	V173716B			07/01/1999	1839

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Acenaphthene	395.0		1000.000000		39.5	%	10-90
Acenaphthylene	667.40		1000.000000		66.7	%	10-100
Anthracene	774.8		1002.000000		77.3	%	29-90
Benzo(b)fluoranthene	425.2		500.000000		85.0	%	50-104
Benzo(k)fluoranthene	446.9		500.000000		89.4	%	49-106
Benzo(a)anthracene	449.2		500.000000		89.8	%	56-102
Benzo(a)pyrene	516.3		500.000000		103.3	%	41-120
Benzo(ghi)perylene	490.0		500.000000		98.0	%	45-115
Chrysene	439.7		500.000000		87.9	%	56-101
Dibenzo(a,h)anthracene	471.5		500.000000		94.3	%	56-109

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

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CORE LABORATORIES

QUALITY CONTROL RESULTS

Job Number.: 907127 Report Date.: 07/09/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN REMEDIATION STRIP ATTN: Mr. Paul Peacock

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
LCS	Laboratory Control Sample	V173716B			07/01/1999	1839

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Fluoranthene	435.5		500.000000		87.1	%	22-119
Fluorene	548.0		1000.000000		54.8	%	17-80
Indeno(1,2,3-cd)pyrene	443.5		500.000000		88.7	%	52-102
Naphthalene	340.9		1000.000000		34.1	%	10-68
Phenanthrene	346.9		502.500000		69.0	%	30-98
Pyrene	415.1		500.000000		83.0	%	56-106

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
MS	Matrix Spike	V1737168	907014-2		07/01/1999	2046

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Acenaphthene	420.8		1000.000000	ND	42.1	%	10-90
Acenaphthylene	761.70		1000.000000	ND	76.2	%	10-100
Anthracene	762.1		1002.000000	ND	76.1	%	29-90
Benzo(b)fluoranthene	407.4		500.000000	ND	81.5	%	50-104
Benzo(k)fluoranthene	431.2		500.000000	ND	86.2	%	49-106
Benzo(a)anthracene	434.7		500.000000	ND	86.9	%	56-102
Benzo(a)pyrene	486.0		500.000000	ND	97.2	%	41-120
Benzo(ghi)perylene	420.5		500.000000	ND	84.1	%	45-115
Chrysene	417.2		500.000000	ND	83.4	%	56-101
Dibenzo(a,h)anthracene	435.0		500.000000	ND	87.0	%	56-109
Fluoranthene	422.0		500.000000	ND	84.4	%	22-119
Fluorene	550.6		1000.000000	ND	55.1	%	17-80
Indeno(1,2,3-cd)pyrene	408.5		500.000000	ND	81.7	%	52-102
Naphthalene	392.6		1000.000000	ND	39.3	%	10-68
Phenanthrene	324.7		502.500000	ND	64.6	%	30-98
Pyrene	360.6		500.000000	17.8	68.6	%	56-106

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
MSD	Matrix Spike Duplicate	V1737168	907014-2		07/01/1999	2129

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Acenaphthene	452.0	420.8	1000.000000	ND	45.2	%	10-90
					7.1	R	30
Acenaphthylene	769.95	761.70	1000.000000	ND	77.0	%	10-100
					1.1	R	30
Anthracene	758.2	762.1	1002.000000	ND	75.7	%	29-90
					0.5	R	30
Benzo(b)fluoranthene	411.2	407.4	500.000000	ND	82.2	%	50-104
					0.9	R	30
Benzo(k)fluoranthene	438.6	431.2	500.000000	ND	87.7	%	49-106
					1.7	R	30
Benzo(a)anthracene	437.4	434.7	500.000000	ND	87.5	%	56-102
					0.6	R	30
Benzo(a)pyrene	471.2	486.0	500.000000	ND	94.2	%	41-120
					3.1	R	30
Benzo(ghi)perylene	383.5	420.5	500.000000	ND	76.7	%	45-115
					9.2	R	30
Chrysene	417.7	417.2	500.000000	ND	83.5	%	56-101
					0.1	R	30
Dibenzo(a,h)anthracene	429.0	435.0	500.000000	ND	85.8	%	56-109
					1.4	R	30

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CORE LABORATORIES

QUALITY CONTROL RESULTS

Job Number.: 907127 Report Date.: 07/09/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN REMEDIATION STRIP ATTN: Mr. Paul Peacock

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
MSD	Matrix Spike Duplicate	V173716B	907014-2		07/01/1999	2129

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Fluoranthene	387.3	422.0	500.000000	ND	77.5	%	22-119
					8.6	R	30
Fluorene	537.3	550.6	1000.000000	ND	53.7	%	17-80
					2.4	R	30
Indeno(1,2,3-cd)pyrene	419.0	408.5	500.000000	ND	83.8	%	52-102
					2.5	R	30
Naphthalene	407.2	392.6	1000.000000	ND	40.7	%	10-68
					3.7	R	30
Phenanthrene	310.3	324.7	502.500000	ND	61.8	%	30-98
					4.5	R	30
Pyrene	326.2	360.6	500.000000	17.8	61.7	%	56-106
					10.0	R	30

Test Method.....: 8015B Modified Batch.....: 42676 Analyst...: rjm
Method Description.: Gasoline Range Organics (C5-C9) Units.....: ug/L

MB	Method Blank				07/01/1999	1837

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Gasoline Range Organics C5-C9	0.21						

MS	Matrix Spike	GROSTD1	907127-1	2	07/01/1999	2012

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Gasoline Range Organics C5-C9	2.80		2.500000	1.33	58.8	%	72-125

MSD	Matrix Spike Duplicate	GROSTD1	907127-1	2	07/01/1999	2044

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Gasoline Range Organics C5-C9	3.15	2.80	2.500000	1.33	72.8	%	72-125
					11.8	R	25

LCS	Laboratory Control Sample	GROSTD1			07/01/1999	2251

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Gasoline Range Organics C5-C9	4.03		5.0		80.6		

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CORE LABORATORIES

QUALITY CONTROL RESULTS

Job Number.: 907127 Report Date.: 07/09/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN REMEDIATION STRIP ATTN: Mr. Paul Peacock

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time

Test Method.....: EPA 8260B Batch.....: 42602 Analyst...: weh
Method Description.: Volatile Organic Compounds Units.....: ug/L

MB	Method Blank				06/30/1999	1026

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	ND						
Ethylbenzene	ND						
Toluene	ND						
Xylenes (total)	ND						
Hexane	ND						

LCS	Laboratory Control Sample	CLPVOAMS2			06/30/1999	1057

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	50.51		50		101.0	%	67-130
Toluene	50.50		50		101.0	%	75-114
Hexane	ND						

MS	Matrix Spike	CLPVOAMS2	907099-1		06/30/1999	1159

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	51.37		50	ND	102.7	%	67-130
Toluene	51.12		50	ND	102.2	%	75-114
Hexane	ND			ND			

MSD	Matrix Spike Duplicate	CLPVOAMS2	907099-1		06/30/1999	1230

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	51.13	51.37	50	ND	102.3	%	67-130
					0.5	R	30
Toluene	51.37	51.12	50	ND	102.7	%	75-114
					0.5	R	30
Hexane	ND	ND		ND			

Test Method.....: EPA 8260B Batch.....: 42758 Analyst...: weh
Method Description.: Volatile Organic Compounds Units.....: ug/L

MB	Method Blank				07/02/1999	1239

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	ND						
Ethylbenzene	ND						
Toluene	ND						
Xylenes (total)	ND						
Hexane	ND						

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

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CORE LABORATORIES

QUALITY CONTROL RESULTS

Job Number.: 907127 Report Date.: 07/09/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN REMEDIATION STRIP ATTN: Mr. Paul Peacock

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
LCS	Laboratory Control Sample	CLPVOAMS2			07/02/1999	1310

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	52.79		50		105.6	%	67-130
Toluene	52.96		50		105.9	%	75-114

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
MS	Matrix Spike	CLPVOAMS2	907258-2		07/02/1999	1546

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	52.27		50	ND	104.5	%	67-130
Toluene	50.99		50	ND	102.0	%	75-114

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
MSD	Matrix Spike Duplicate	CLPVOAMS2	907258-2		07/02/1999	1617

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	51.01	52.27	50	ND	102.0	%	67-130
					2.4	R	25
Toluene	50.18	50.99	50	ND	100.4	%	75-114
					1.6	R	25

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CORE LABORATORIES

SURROGATE RECOVERIES REPORT

Job Number.: 907127 Report Date.: 07/09/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN REMEDIATION STRIP ATTN: Mr. Paul Peacock

Method.....: Volatile Organic Compounds Batch.....: 42602
Method Code.....: 826TCL Analyst.....: weh

Surrogate	Units
1,2-Dichloroethane-d4 (surrogate)	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		54.70	50.00	109.4	76-120		06/30/1999	1026
		LCS		54.74	50.00	109.5	76-120		06/30/1999	1057
907099-1				55.40	50.00	110.8	76-120		06/30/1999	1128
907099-1		MS		54.36	50.00	108.7	76-120		06/30/1999	1159
907099-1		MSD		54.14	50.00	108.3	76-120		06/30/1999	1230
907113-2				54.90	50.00	109.8	76-120		06/30/1999	1301
907113-1				55.65	50.00	111.3	76-120		06/30/1999	1332
907127-2				54.77	50.00	109.5	76-120		06/30/1999	1404
907127-4				54.84	50.00	109.7	76-120		06/30/1999	1435
906908-3	Solid		200	54.75	50.00	109.5	78-122		06/30/1999	1608

Surrogate	Units
BFB (Surrogate)	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		53.43	50.00	106.9	85-115		06/30/1999	1026
		LCS		52.56	50.00	105.1	85-115		06/30/1999	1057
907099-1				52.13	50.00	104.3	85-115		06/30/1999	1128
907099-1		MS		52.31	50.00	104.6	85-115		06/30/1999	1159
907099-1		MSD		52.80	50.00	105.6	85-115		06/30/1999	1230
907113-2				52.92	50.00	105.8	85-115		06/30/1999	1301
907113-1				52.40	50.00	104.8	85-115		06/30/1999	1332
907127-2				52.67	50.00	105.3	85-115		06/30/1999	1404
907127-4				53.98	50.00	108.0	85-115		06/30/1999	1435
906908-3	Solid		200	51.70	50.00	103.4	74-121		06/30/1999	1608

Surrogate	Units
Toluene-d8	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		52.03	50.00	104.1	85-112		06/30/1999	1026
		LCS		52.10	50.00	104.2	85-112		06/30/1999	1057
907099-1				51.91	50.00	103.8	85-112		06/30/1999	1128
907099-1		MS		52.01	50.00	104.0	85-112		06/30/1999	1159
907099-1		MSD		52.08	50.00	104.2	85-112		06/30/1999	1230
907113-2				52.33	50.00	104.7	85-112		06/30/1999	1301
907113-1				51.42	50.00	102.8	85-112		06/30/1999	1332
907127-2				52.19	50.00	104.4	85-112		06/30/1999	1404
907127-4				51.87	50.00	103.7	85-112		06/30/1999	1435
906908-3	Solid		200	52.56	50.00	105.1	87-109		06/30/1999	1608

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CORE LABORATORIES

SURROGATE RECOVERIES REPORT

Job Number.: 907127 Report Date.: 07/09/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN REMEDIATION STRIP ATTN: Mr. Paul Peacock

Method.....: Volatile Organic Compounds Batch.....: 42758
Method Code.....: 826TCL Analyst.....: weh

Surrogate	Units
1,2-Dichloroethane-d4 (surrogate)	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		55.91	50.00	111.8	76-120		07/02/1999	1239
		LCS		56.81	50.00	113.6	76-120		07/02/1999	1310
906371-1				56.35	50.00	112.7	76-120		07/02/1999	1341
907258-3				56.34	50.00	112.7	76-120		07/02/1999	1412
907258-1				57.41	50.00	114.8	76-120		07/02/1999	1443
907258-2				56.09	50.00	112.2	78-122		07/02/1999	1514
907258-2		MS		56.32	50.00	112.6	78-122		07/02/1999	1546
907258-2		MSD		55.48	50.00	111.0	78-122		07/02/1999	1617
907127-1				56.37	50.00	112.7	76-120		07/02/1999	1648
907127-3				56.20	50.00	112.4	76-120		07/02/1999	1719
906726-4	Solid		3000	54.83	50.00	109.7	78-122		07/02/1999	1824
906726-5	Solid		600	52.39	50.00	104.8	78-122		07/02/1999	1855
906727-3	Solid		3000	53.65	50.00	107.3	78-122		07/02/1999	1926
906727-4	Solid		600	53.25	50.00	106.5	78-122		07/02/1999	1957
906996-11	Oil		80000	56.90	50.00	113.8	80-120		07/02/1999	2130
906372-2	Solid			51.11	50.00	102.2	78-122		07/02/1999	2237

Surrogate	Units
BFB (Surrogate)	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		52.08	50.00	104.2	85-115		07/02/1999	1239
		LCS		51.73	50.00	103.5	85-115		07/02/1999	1310
906371-1				51.06	50.00	102.1	85-115		07/02/1999	1341
907258-3				51.79	50.00	103.6	85-115		07/02/1999	1412
907258-1				51.12	50.00	102.2	85-115		07/02/1999	1443
907258-2				51.67	50.00	103.3	85-121		07/02/1999	1514
907258-2		MS		51.73	50.00	103.5	85-121		07/02/1999	1546
907258-2		MSD		51.24	50.00	102.5	85-121		07/02/1999	1617
907127-1				51.91	50.00	103.8	85-115		07/02/1999	1648
907127-3				49.76	50.00	99.5	85-115		07/02/1999	1719
906726-4	Solid		3000	50.62	50.00	101.2	74-121		07/02/1999	1824
906726-5	Solid		600	50.75	50.00	101.5	74-121		07/02/1999	1855
906727-3	Solid		3000	50.35	50.00	100.7	74-121		07/02/1999	1926
906727-4	Solid		600	50.39	50.00	100.8	74-121		07/02/1999	1957
906996-11	Oil		80000	50.75	50.00	101.5	85-121		07/02/1999	2130
906372-2	Solid			52.07	50.00	104.1	74-121		07/02/1999	2237

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CORE LABORATORIES

SURROGATE RECOVERIES REPORT

Job Number.: 907127 Report Date.: 07/09/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN REMEDIATION STRIP ATTN: Mr. Paul Peacock

Surrogate	Units
Toluene-d8	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		50.82	50.00	101.6	85-112		07/02/1999	1239
		LCS		51.71	50.00	103.4	85-112		07/02/1999	1310
906371-1				51.50	50.00	103.0	85-112		07/02/1999	1341
907258-3				50.72	50.00	101.4	85-112		07/02/1999	1412
907258-1				51.24	50.00	102.5	85-112		07/02/1999	1443
907258-2				51.04	50.00	102.1	85-109		07/02/1999	1514
907258-2		MS		50.86	50.00	101.7	85-109		07/02/1999	1546
907258-2		MSD		51.17	50.00	102.3	85-109		07/02/1999	1617
907127-1				54.01	50.00	108.0	85-112		07/02/1999	1648
907127-3				52.60	50.00	105.2	85-112		07/02/1999	1719
906726-4	Solid		3000	51.09	50.00	102.2	87-109		07/02/1999	1824
906726-5	Solid		600	51.18	50.00	102.4	87-109		07/02/1999	1855
906727-3	Solid		3000	51.11	50.00	102.2	87-109		07/02/1999	1926
906727-4	Solid		600	51.84	50.00	103.7	87-109		07/02/1999	1957
906996-11	Oil		80000	52.09	50.00	104.2	85-109		07/02/1999	2130
906372-2	Solid			51.89	50.00	103.8	87-109		07/02/1999	2237

Method.....: Polynuclear Aromatic Hydrocarbons-HPLC Batch.....: 42789
Method Code.....: 8310 Analyst.....: rm

Surrogate	Units
1-Fluoronaphthalene	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		54.8	200	27	16-59		07/01/1999	1757
		LCS		55.9	200	28	16-59		07/01/1999	1839
907014-1				40.5	200	20	16-59		07/01/1999	1922
907014-2				59.6	200	30	16-59		07/01/1999	2004
907014-2		MS		66.4	200	33	16-59		07/01/1999	2046
907014-2		MSD		44.1	200	22	16-59		07/01/1999	2129
907015-1				90.8	200	45	16-59		07/01/1999	2211
907029-3			1000	ND	200	0	16-59	D	07/01/1999	2252
907029-4			1000	ND	200	0	16-59	D	07/01/1999	2332
907081-1				59.5	200	30	16-59		07/02/1999	0015
907081-2				80.2	200	40	16-59		07/02/1999	0057
907127-2				35.8	200	18	16-59		07/02/1999	0139
907127-4				51.7	200	26	16-59		07/02/1999	0222

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CORE LABORATORIES

SURROGATE RECOVERIES REPORT

Job Number.: 907127 Report Date.: 07/09/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN REMEDIATION STRIP ATTN: Mr. Paul Peacock

Surrogate	Units
Terphenyl-d14	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		177.0	200	88.5	58-109		07/01/1999	1757
		LCS		194.5	200	97.2	58-109		07/01/1999	1839
907014-1				128.5	200	64.2	58-109		07/01/1999	1922
907014-2				184.0	200	92.0	58-109		07/01/1999	2004
907014-2		MS		187.2	200	93.6	58-109		07/01/1999	2046
907014-2		MSD		182.7	200	91.3	58-109		07/01/1999	2129
907015-1				159.3	200	79.7	58-109		07/01/1999	2211
907029-3			1000	ND	200	0.0	58-109	D	07/01/1999	2252
907029-4			1000	ND	200	0.0	58-109	D	07/01/1999	2332
907081-1				195.0	200	97.5	58-109		07/02/1999	0015
907081-2				189.4	200	94.7	58-109		07/02/1999	0057
907127-2				54.5	200	27.2	58-109	X	07/02/1999	0139
907127-4				139.8	200	69.9	58-109		07/02/1999	0222

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rpjsckl | Job Sample Receipt Checklist Report 06/29/99 | V2

Job Number.....: 907127 Location.: 57211 Customer Job ID.....: Job Check List Date.: 06/29/99
Project Number.: 96000746 Project Description.: INDIAN BASIN REMEDIATION STRIPPER Project Manager.....: lpa
Customer.....: Marathon Oil Company Contact.: Mr. Paul Peacock

Questions ?	(Y/N)	Comments
Chain-of-Custody Present?	Y	
Custody seal on shipping container?	Y	
...If "yes", custody seal intact?	Y	
Custody seals on sample containers?		
...If "yes", custody seal intact?		
Samples chilled?	Y	
Temperature of cooler acceptable? (4 deg C +/- 2).		RECEIVED ON ICE
Samples received intact (good condition)?	Y	
Volatile samples acceptable? (no headspace)	Y	
Correct containers used?	Y	
Adequate sample volume provided?	Y	
Samples preserved correctly?	Y	
Samples received within holding-time?	Y	
Agreement between COC and sample labels?	Y	
Additional		
Comments		
Sample Custodian Signature		

CORE LAB

CORE LABORATORIES, INC.

NO. 172758

CHAIN OF CUSTODY RECORD

CUSTOMER INFORMATION

COMPANY: MARATHON Oil Co - Midland TX
SEND REPORT TO: MR. Paul Peacock
ADDRESS: 125 W. Missouri ST.
P.O. Box 552 (79702-5204)
Midland, TX 79702-0552
PHONE: 915-687-8312
FAX: 915-687-8305

PROJECT INFORMATION

PROJECT NAME/NUMBER: Indian Basin Remediation

BILLING INFORMATION

BILL TO: Same
ADDRESS: Same
PHONE: SAME
FAX: Same PO NO.:

NUMBER OF CONTAINERS

ANALYSIS / METHOD REQUEST: BTEX (8021 or 8260) | TPH GRO (C5-C9) | TPH DRO (C10-C28) | N-Hexane | PNAs (8310) | Cl, Fl, Br, SO4 (300.0) | Ca, K, Mg, Na (6010)

LAB JOB NO. 907127

SAMPLE NO.	SAMPLE DESCRIPTION	SAMPLE DATE	SAMPLE TIME	SAMPLE MATRIX	CONTAINER	PRESERV.	BTEX	TPH GRO	TPH DRO	N-Hexane	PNAs	Cl, Fl, Br, SO4	Ca, K, Mg, Na	REMARKS / PRECAUTIONS
1	West Stripper influent	6-28-99	9:52 AM	AQ	4-40 mL 2-1 Liter	None	X	X	X	X				
2	West Stripper Effluent	"	9:58 AM	"	"	"	X	X	X	X	X			
3	West Stripper Effluent	"	10:06 AM	"	2-500 Plastic	HNO3						X	X	
4	East Stripper influent	"	10:03 AM	"	4-40 mL 2-1 Liter		X	X	X	X				
5	East Stripper Effluent	"	10:12 AM	"	"	"	X	X	X	X	X			
6	East Stripper Effluent	"	10:20 AM	"	2-500 Plastic	HNO3						X	X	

SAMPLER: SHIPMENT METHOD: AIRBILL NO.:

REQUIRED TURNAROUND:* ☐ SAME DAY ☐ 24 HOURS ☐ 48 HOURS ☐ 72 HOURS ☐ 5 DAYS ☒ 10 DAYS ☐ ROUTINE OTHER

1. RELINQUISHED BY:	DATE	2. RELINQUISHED BY:	DATE	3. RELINQUISHED BY:	DATE
SIGNATURE: Biggs Aguilar	6-28-99	SIGNATURE:		SIGNATURE:	
PRINTED NAME/COMPANY: Marathon Oil Company	TIME 1645 PM	PRINTED NAME/COMPANY:	TIME	PRINTED NAME/COMPANY:	TIME
1. RECEIVED BY:	DATE	2. RECEIVED BY:	DATE	3. RECEIVED BY:	DATE
SIGNATURE: JM	6/29/99	SIGNATURE:		SIGNATURE:	
PRINTED NAME/COMPANY: JB Cor	TIME 1100	PRINTED NAME/COMPANY:	TIME	PRINTED NAME/COMPANY:	TIME

* RUSH TURNAROUND MAY REQUIRE SURCHARGE

☐ Anaheim, CA
1250 E. Gene Autry Way
Anaheim, CA 92805
(714) 937-1094 Fax (714) 937-1170

☐ Aurora, CO
10703 E. Bethany Drive
Aurora, CO 80014
(303) 751-1780 Fax (303) 751-1784

☐ Carson, CA
21730 S. Wilmington Ave. - Suite 201
Carson, CA 90810-1640
(310) 513-2031 Fax (310) 513-2035

☐ Casper, WY
420 W. First Street
Casper, WY 82601
(307) 235-5741 Fax (307) 266-1676

☐ Corpus Christi, TX
1733 N. Padre Island Drive
Corpus Christi, TX 78408
(512) 289-2673 Fax (512) 289-2471

☐ Edison, NJ
284 Raritan Center Parkway
Edison, NJ 08837
(732) 225-6700 Fax (732) 225-6777

☐ Houston, TX (Env)
6310 Rothway Drive

☐ Houston, TX (Pet)
8210 Mosley Road
Houston, TX 77075

☐ Indianapolis, IN
7726 Moller Road
Indianapolis, IN 46268

☐ Lake Charles, LA
3645 Begis Parkway
Sulphur, LA 70663

☐ Valparaiso, IN
2400 Cumberland Drive
Valparaiso, IN 46383
(219) 464-2389 Fax (219) 462-2953

CORE LABORATORIES

QUALITY ASSURANCE FOOTER

METHOD REFERENCES

1. EPA SW-846, Test Methods for Evaluating Solid Waste Update I, IIA, IIB, III
2. Standard Methods for the Examination of Water and Wastewater, 18th Edition
3. EPA 600/4-79-020, Methods of Chemical Analysis for Waters and Wastes, March 1983
4. Federal Register, Friday, October 26, 1984 (40 CFR Part 136)
5. American Society for Testing and Materials, Volumes 5.01, 5.02, 5.03, 11.01,11.02,11.03,11.04
6. EPA Methods for Environmental Samples

COMMENTS

All methods of chemical analysis have a statistical uncertainty associated with the results. Unless otherwise indicated, the data in this report are within the limits of uncertainty as specified in the referenced method. Quality Control acceptance criteria are based either on actual laboratory performance or on limits specified in the referenced method. The date and time of analysis indicated on the QA report may not reflect the actual time of analysis for QC samples. All data are reported on an "as received" basis unless otherwise indicated. Data reported in the QA report may be lower than sample data due to dilution of samples into the calibration range of the analysis. Sample concentration for solid samples are calculated on an as received (wet) basis. Unless otherwise indicated, volatiles by gas chromatography (GC) are reported from a single column. Volatile analysis by GC on low level soil extractions are conducted at room temperature.

FLAGS, FOOTNOTES AND ABBREVIATIONS (as needed)

NA	=	Not Analyzed	ND	=	Not detected at a value greater than the reporting limit
N/A	=	Not applicable	NC	=	Not calculable due to values lower than the reporting limit
ug/L	=	Micrograms per liter	mg/L	=	Milligrams per liter
ug/Kg	=	Micrograms per kilogram	mg/kg	=	Milligrams per kilogram
U	=	Undetected			
J	=	Indicates value is > MDL, but < Reporting Limit			
B	=	Analyte was detected in the method blank analyzed with this sample.			
D	=	Surrogate recoveries are not calculated due to sample dilution.			
X	=	Surrogate recovery is outside quality control limits.			
Y	=	Spike or spike duplicate recovery is outside quality control limits.			
Z	=	Relative percent difference for a spike and spike duplicate is outside quality control limits. The precision of the method was impacted by matrix.			
^	=	Indicates value is above QC acceptance criteria.			

QC SAMPLE IDENTIFICATIONS

MB	=	Method Blank	SB	=	Storage Blank
RB	=	Reagent Blank	EB	=	Extraction Blank
PB	=	Preparation Blank	CALB	=	Calibration Blank
MD	=	Method Duplicate	RS	=	Reference Standard
LCS	=	Laboratory Control Sample	LCSD	=	Laboratory Control Sample Duplicate
MS	=	Matrix Spike	MSD	=	Matrix Spike Duplicate
ICB	=	Initial Calibration Blank	CCB	=	Continuing Calibration Blank
ICV	=	Initial Calibration Verification	ICB	=	Initial Calibration Blank
PDS	=	Post Digestion Spike	SS	=	Surrogate Spike
ISA	=	Interference Check standard "A"	ISB	=	Interference Check Standard "B"
ISCAB	=	Interference Check Sample AB	MSA	=	Method of Standard Additions
CAL	=	Calibration standard	SD	=	Serial Dilution
MST	=	TCLP Matrix Spike	MSQ	=	TCLP Matrix Spike Duplicate
PST	=	TCLP Post Digestion Spike	LCT	=	TCLP Laboratory Control Sample

SUBCONTRACTED LABORATORY LOCATIONS

CORE Laboratories:	Anaheim, California	*AN	Aurora, Colorado	*AU
	Casper, Wyoming	*CA	Corpus Christi, Texas	*CC
	Houston, Texas (Env)	*HE	Houston, Texas (Pet)	*HP
	Other (Detailed in Case Narrative)	*XX		

MCR

1999

CORE LABORATORIES

ANALYTICAL REPORT

JOB NUMBER: 908443

Prepared For:

Marathon Oil Company
125 West Missouri Street
P.O. Box 552
Midland, TX 79702-0552

Attention: Mr. Paul Peacock

Date: 08/11/99

Les Arnold
Signature

8/11/99
Date

Name: Les Arnold

Title: Laboratory Manager

2400 Cumberland Drive
Valparaiso, IN 46383

PHONE: 219-464-2389
FAX..: 219-462-2953

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CORELAB

CORE LABORATORIES

SAMPLE INFORMATION
Date: 08/11/99

Job Number.: 908443
Customer...: Marathon Oil Company
Attn.....: Mr. Paul Peacock

Project Number.....: 96000651
Customer Project ID....: INDIAN BASIN
Project Description....: Marathon Oil Co., Midland, Tx

Laboratory Sample ID	Customer Sample ID	Sample Matrix	Date Sampled	Time Sampled	Date Received	Time Received
908443-1	WEST STRIPPER INFLUENT	Water	07/28/1999	10:03	07/29/1999	12:00
908443-2	WEST STRIPPER EFFLUENT	Water	07/28/1999	10:15	07/29/1999	12:00
908443-3	EAST STRIPPER INFLUENT	Water	07/28/1999	10:27	07/29/1999	12:00
908443-4	EAST STRIPPER EFFLUENT	Water	07/28/1999	10:39	07/29/1999	12:00

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CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 908443 Date: 08/11/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN ATTN: Mr. Paul Peacock

Customer Sample ID: WEST STRIPPER INFLUENT
Date Sampled.....: 07/28/1999
Time Sampled.....: 10:03
Sample Matrix.....: Water

Laboratory Sample ID: 908443-1
Date Received.....: 07/29/1999
Time Received.....: 12:00

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
SW-846 3510B	Sep-Funnel Extraction for DRO					
	Separatory Funnel Liq/Liq Extraction	Complete			08/02/99	bjl
8015B Modified	Diesel Range Organics (C10 - C28)					
	Diesel Range Organics C10 - C28	ND	0.5	mg/L	08/02/99	jdb
8015B Modified	Gasoline Range Organics (C5-C9)					
	Gasoline Range Organics C5-C9	<0.5	0.5	mg/L	08/06/99	rjm
EPA 8260B	Volatile Organic Compounds					
	Benzene	ND	5	ug/L	08/10/99	rjm
	Ethylbenzene	ND	5	ug/L	08/10/99	rjm
	Toluene	ND	5	ug/L	08/10/99	rjm
	Xylenes (total)	ND	10	ug/L	08/10/99	rjm
	Hexane	ND	5	ug/L	08/10/99	rjm

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CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 908443 Date: 08/11/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN ATTN: Mr. Paul Peacock

Customer Sample ID: WEST STRIPPER EFFLUENT
Date Sampled.....: 07/28/1999
Time Sampled.....: 10:15
Sample Matrix.....: Water

Laboratory Sample ID: 908443-2
Date Received.....: 07/29/1999
Time Received.....: 12:00

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
SW-846 3510B	Sep-Funnel Extraction for DRO					
	Separatory Funnel Liq/Liq Extraction	Complete			08/02/99	bjl
8015B Modified	Diesel Range Organics (C10 - C28)					
	Diesel Range Organics C10 - C28	ND	0.5	mg/L	08/02/99	jdb
8015B Modified	Gasoline Range Organics (C5-C9)					
	Gasoline Range Organics C5-C9	<0.5	0.5	mg/L	08/06/99	rjm
EPA 8260B	Volatile Organic Compounds					
	Benzene	ND	5	ug/L	08/04/99	weh
	Ethylbenzene	ND	5	ug/L	08/04/99	weh
	Toluene	ND	5	ug/L	08/04/99	weh
	Xylenes (total)	ND	10	ug/L	08/04/99	weh
	Hexane	ND	5	ug/L	08/04/99	weh

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CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 908443 Date: 08/11/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN ATTN: Mr. Paul Peacock

Customer Sample ID: EAST STRIPPER INFLUENT
Date Sampled.....: 07/28/1999
Time Sampled.....: 10:27
Sample Matrix.....: Water

Laboratory Sample ID: 908443-3
Date Received.....: 07/29/1999
Time Received.....: 12:00

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
SW-846 3510B	Sep-Funnel Extraction for DRO					
	Separatory Funnel Liq/Liq Extraction	Complete			08/02/99	bjl
8015B Modified	Diesel Range Organics (C10 - C28)					
	Diesel Range Organics C10 - C28	<0.5	0.5	mg/L	08/02/99	jdb
8015B Modified	Gasoline Range Organics (C5-C9)					
	Gasoline Range Organics C5-C9	0.8	0.5	mg/L	08/06/99	rjm
EPA 8260B	Volatile Organic Compounds					
	Benzene	ND	5	ug/L	08/10/99	rjm
	Ethylbenzene	ND	5	ug/L	08/10/99	rjm
	Toluene	ND	5	ug/L	08/10/99	rjm
	Xylenes (total)	ND	10	ug/L	08/10/99	rjm
	Hexane	ND	5	ug/L	08/10/99	rjm

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CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 908443 Date: 08/11/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN ATTN: Mr. Paul Peacock

Customer Sample ID: EAST STRIPPER EFFLUENT
Date Sampled.....: 07/28/1999
Time Sampled.....: 10:39
Sample Matrix.....: Water

Laboratory Sample ID: 908443-4
Date Received.....: 07/29/1999
Time Received.....: 12:00

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
SW-846 3510B	Sep-Funnel Extraction for DRO					
	Separatory Funnel Liq/Liq Extraction	Complete			08/02/99	bjl
8015B Modified	Diesel Range Organics (C10 - C28)					
	Diesel Range Organics C10 - C28	ND	0.5	mg/L	08/02/99	jdb
8015B Modified	Gasoline Range Organics (C5-C9)					
	Gasoline Range Organics C5-C9	<0.5	0.5	mg/L	08/06/99	rjm
EPA 8260B	Volatile Organic Compounds					
	Benzene	ND	5	ug/L	08/04/99	weh
	Ethylbenzene	ND	5	ug/L	08/04/99	weh
	Toluene	ND	5	ug/L	08/04/99	weh
	Xylenes (total)	ND	10	ug/L	08/04/99	weh
	Hexane	ND	5	ug/L	08/04/99	weh

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CORE LABORATORIES

QUALITY CONTROL RESULTS

Job Number.: 908443 Report Date.: 08/11/99

CUSTOMER: Marathon Oil Company PROJECT: Marathon Oil Co., Midland, Tx ATTN: Mr. Paul Peacock

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time

Test Method.....: 8015B Modified
Method Description.: Diesel Range Organics (C10 - C28)
Batch.....: 44399
Units.....: mg/L
Analyst...: jdb

MB	Method Blank				08/02/1999	1935

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Diesel Range Organics C10 - C28	ND						

MS	Matrix Spike	DROSTD	908443-1		08/02/1999	2126

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Diesel Range Organics C10 - C28	419			ND	83.8	%	42-122

MSD	Matrix Spike Duplicate	DROSTD	908443-1		08/02/1999	2203

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Diesel Range Organics C10 - C28	417	419		ND	83.4	%	42-122
					0.5	R	20

Test Method.....: 8015B Modified
Method Description.: Gasoline Range Organics (C5-C9)
Batch.....: 44436
Units.....: mg/L
Analyst...: rjm

LCS	Laboratory Control Sample	C5C9			08/06/1999	1009

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Gasoline Range Organics C5-C9	4.876		5.0		97.5	%	72-125

MB	Method Blank				08/06/1999	1054

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Gasoline Range Organics C5-C9	0.017						

MS	Matrix Spike	C5C9	908443-1		08/06/1999	1203

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Gasoline Range Organics C5-C9	3.994		5.0	0.187	76.1	%	72-125

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

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CORE LABORATORIES

QUALITY CONTROL RESULTS

Job Number.: 908443 Report Date.: 08/11/99

CUSTOMER: Marathon Oil Company PROJECT: Marathon Oil Co., Midland, Tx ATTN: Mr. Paul Peacock

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date Time
MSD	Matrix Spike Duplicate	C5C9	908443-1		08/06/1999 1238

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Gasoline Range Organics C5-C9	4.414	3.994	5.0	0.187	84.5	%	72-125
					10.0	R	25

Test Method.....: EPA 8260B Batch.....: 44338 Analyst...: weh
Method Description.: Volatile Organic Compounds Units.....: ug/L

MB	Method Blank				08/04/1999 0846

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	ND						
Ethylbenzene	ND						
Toluene	ND						
Xylenes (total)	ND						
Hexane	ND						

LCS	Laboratory Control Sample	CLPVOAMS2			08/04/1999 0917

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	50.30		50		100.6	%	67-130
Toluene	49.16		50		98.3	%	75-114
Hexane	ND						

MS	Matrix Spike	CLPVOAMS2	908620-2		08/04/1999 1121

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	53.77		50	7.39	92.8	%	67-130
Toluene	48.45		50	1.90	93.1	%	75-114
Hexane	ND			ND			

MSD	Matrix Spike Duplicate	CLPVOAMS2	908620-2		08/04/1999 1153

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	52.34	53.77	50	7.39	89.9	%	67-130
					2.7	R	30
Toluene	47.83	48.45	50	1.90	91.9	%	75-114
					1.3	R	30
Hexane	ND	ND		ND			

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

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QUALITY CONTROL RESULTS

Job Number.: 908443

Report Date.: 08/11/99

CUSTOMER: Marathon Oil Company PROJECT: Marathon Oil Co., Midland, Tx ATTN: Mr. Paul Peacock

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date Time

Test Method.....: EPA 8260B
Method Description.: Volatile Organic Compounds

Batch.....: 44566
Units.....: ug/L

Analyst...: rjm

MS	Matrix Spike	CLPVOAMS2	908676-2	5	08/10/1999 0417

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	41.53		50	ND	83.1	%	67-130
Toluene	34.10		50	ND	68.2	%	75-114

MSD	Matrix Spike Duplicate	CLPVOAMS2	908676-2	5	08/10/1999 0448

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	41.44	41.53	50	ND	82.9	%	67-130
					0.2	R	30
Toluene	34.01	34.10	50	ND	68.0	%	75-114
					0.3	R	30

MB	Method Blank				08/10/1999 0946

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	ND						
Ethylbenzene	ND						
Toluene	ND						
Xylenes (total)	ND						
Hexane	ND						

LCS	Laboratory Control Sample	CLPVOAMS2			08/10/1999 1033

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	58.38		50		116.8	%	67-130
Toluene	49.73		50		99.5	%	75-114

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

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SURROGATE RECOVERIES REPORT

Job Number.: 908443 Report Date.: 08/11/99

CUSTOMER: Marathon Oil Company PROJECT: Marathon Oil Co., Midland, Tx ATTN: Mr. Paul Peacock

Method.....: Volatile Organic Compounds Batch.....: 44338
Method Code.....: 8260V1 Analyst.....: weh

Surrogate	Units
1,2-Dichloroethane-d4 (surrogate)	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		52.08	50.00	104.2	76-120		08/04/1999	0846
		LCS		53.31	50.00	106.6	76-120		08/04/1999	0917
908443-2				53.57	50.00	107.1	76-120		08/04/1999	0949
908443-4				53.40	50.00	106.8	76-120		08/04/1999	1020
908620-2				54.56	50.00	109.1	76-120		08/04/1999	1051
908620-2		MS		52.62	50.00	105.2	76-120		08/04/1999	1121
908620-2		MSD		53.75	50.00	107.5	76-120		08/04/1999	1153
908620-1				53.73	50.00	107.5	76-120		08/04/1999	1223
908626-4				52.55	50.00	105.1	76-120		08/04/1999	1254

Surrogate	Units
BFB (Surrogate)	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		49.20	50.00	98.4	85-115		08/04/1999	0846
		LCS		48.03	50.00	96.1	85-115		08/04/1999	0917
908443-2				48.58	50.00	97.2	85-115		08/04/1999	0949
908443-4				47.83	50.00	95.7	85-115		08/04/1999	1020
908620-2				47.65	50.00	95.3	85-115		08/04/1999	1051
908620-2		MS		48.34	50.00	96.7	85-115		08/04/1999	1121
908620-2		MSD		48.30	50.00	96.6	85-115		08/04/1999	1153
908620-1				47.55	50.00	95.1	85-115		08/04/1999	1223
908626-4				47.99	50.00	96.0	85-115		08/04/1999	1254

Surrogate	Units
Toluene-d8	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		46.92	50.00	93.8	85-112		08/04/1999	0846
		LCS		47.17	50.00	94.3	85-112		08/04/1999	0917
908443-2				47.19	50.00	94.4	85-112		08/04/1999	0949
908443-4				46.94	50.00	93.9	85-112		08/04/1999	1020
908620-2				47.53	50.00	95.1	85-112		08/04/1999	1051
908620-2		MS		46.68	50.00	93.4	85-112		08/04/1999	1121
908620-2		MSD		47.53	50.00	95.1	85-112		08/04/1999	1153
908620-1				47.43	50.00	94.9	85-112		08/04/1999	1223
908626-4				47.32	50.00	94.6	85-112		08/04/1999	1254

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CORE LABORATORIES

SURROGATE RECOVERIES REPORT

Job Number.: 908443 Report Date.: 08/11/99

CUSTOMER: Marathon Oil Company PROJECT: Marathon Oil Co., Midland, Tx ATTN: Mr. Paul Peacock

Method.....: Volatile Organic Compounds Batch.....: 44566
Method Code.....: 8260V1 Analyst.....: rjm

Surrogate	Units
1,2-Dichloroethane-d4 (surrogate)	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
908334-4			200000	46.44	50.00	92.9	76-120		08/10/1999	0104
908443-3				46.60	50.00	93.2	76-120		08/10/1999	0206
908626-2			2	48.91	50.00	97.8	76-120		08/10/1999	0238
908676-2			5	47.48	50.00	95.0	76-120		08/10/1999	0345
908676-2		MS	5	49.53	50.00	99.1	76-120		08/10/1999	0417
908676-2		MSD	5	47.90	50.00	95.8	76-120		08/10/1999	0448
908334-2			1000	46.91	50.00	93.8	76-120		08/10/1999	0519
908782-1				48.39	50.00	96.8	76-120		08/10/1999	0550
908782-2				47.51	50.00	95.0	76-120		08/10/1999	0621
908782-3				48.47	50.00	96.9	76-120		08/10/1999	0652
908443-1				48.32	50.00	96.6	76-120		08/10/1999	0755
		MB		47.11	50.00	94.2	76-120		08/10/1999	0946
		LCS		46.75	50.00	93.5	76-120		08/10/1999	1033
908334-1			40000	46.77	50.00	93.5	76-120		08/10/1999	1130
908334-3			50000	45.53	50.00	91.1	76-120		08/10/1999	1233

Surrogate	Units
BFB (Surrogate)	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
908334-4			200000	42.23	50.00	84.5	85-115	X	08/10/1999	0104
908443-3				44.50	50.00	89.0	85-115		08/10/1999	0206
908626-2			2	43.27	50.00	86.5	85-115		08/10/1999	0238
908676-2			5	44.07	50.00	88.1	85-115		08/10/1999	0345
908676-2		MS	5	42.78	50.00	85.6	85-115		08/10/1999	0417
908676-2		MSD	5	44.56	50.00	89.1	85-115		08/10/1999	0448
908334-2			1000	42.18	50.00	84.4	85-115	X	08/10/1999	0519
908782-1				43.96	50.00	87.9	85-115		08/10/1999	0550
908782-2				44.39	50.00	88.8	85-115		08/10/1999	0621
908782-3				43.72	50.00	87.4	85-115		08/10/1999	0652
908443-1				31.79	50.00	63.6	85-115	X	08/10/1999	0755
		MB		43.36	50.00	86.7	85-115		08/10/1999	0946
		LCS		44.13	50.00	88.3	85-115		08/10/1999	1033
908334-1			40000	43.88	50.00	87.8	85-115		08/10/1999	1130
908334-3			50000	42.80	50.00	85.6	85-115		08/10/1999	1233

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CORE LABORATORIES

SURROGATE RECOVERIES REPORT

Job Number.: 908443 Report Date.: 08/11/99

CUSTOMER: Marathon Oil Company PROJECT: Marathon Oil Co., Midland, Tx ATTN: Mr. Paul Peacock

Surrogate	Units
Toluene-d8	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
908334-4			200000	46.50	50.00	93.0	85-112		08/10/1999	0104
908443-3				46.12	50.00	92.2	85-112		08/10/1999	0206
908626-2			2	46.68	50.00	93.4	85-112		08/10/1999	0238
908676-2			5	45.82	50.00	91.6	85-112		08/10/1999	0345
908676-2		MS	5	45.00	50.00	90.0	85-112		08/10/1999	0417
908676-2		MSD	5	44.85	50.00	89.7	85-112		08/10/1999	0448
908334-2			1000	46.26	50.00	92.5	85-112		08/10/1999	0519
908782-1				46.44	50.00	92.9	85-112		08/10/1999	0550
908782-2				45.94	50.00	91.9	85-112		08/10/1999	0621
908782-3				46.77	50.00	93.5	85-112		08/10/1999	0652
908443-1				46.40	50.00	92.8	85-112		08/10/1999	0755
		MB		46.51	50.00	93.0	85-112		08/10/1999	0946
		LCS		46.52	50.00	93.0	85-112		08/10/1999	1033
908334-1			40000	45.76	50.00	91.5	85-112		08/10/1999	1130
908334-3			50000	46.48	50.00	93.0	85-112		08/10/1999	1233

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CORE LABORATORIES

QUALITY ASSURANCE FOOTER

METHOD REFERENCES

1. EPA SW-846, Test Methods for Evaluating Solid Waste Update I, IIA, IIB, III
2. Standard Methods for the Examination of Water and Wastewater, 18th Edition
3. EPA 600/4-79-020, Methods of Chemical Analysis for Waters and Wastes, March 1983
4. Federal Register, Friday, October 26, 1984 (40 CFR Part 136)
5. American Society for Testing and Materials, Volumes 5.01, 5.02, 5.03, 11.01,11.02,11.03,11.04
6. EPA Methods for Environmental Samples

COMMENTS

All methods of chemical analysis have a statistical uncertainty associated with the results. Unless otherwise indicated, the data in this report are within the limits of uncertainty as specified in the referenced method. Quality Control acceptance criteria are based either on actual laboratory performance or on limits specified in the referenced method. The date and time of analysis indicated on the QA report may not reflect the actual time of analysis for QC samples. All data are reported on an "as received" basis unless otherwise indicated. Data reported in the QA report may be lower than sample data due to dilution of samples into the calibration range of the analysis. Sample concentration for solid samples are calculated on an as received (wet) basis. Unless otherwise indicated, volatiles by gas chromatography (GC) are reported from a single column. Volatile analysis by GC on low level soil extractions are conducted at room temperature.

FLAGS, FOOTNOTES AND ABBREVIATIONS (as needed)

NA	=	Not Analyzed	ND	=	Not detected at a value greater than the reporting limit
N/A	=	Not applicable	NC	=	Not calculable due to values lower than the reporting limit
ug/L	=	Micrograms per liter	mg/L	=	Milligrams per liter
ug/Kg	=	Micrograms per kilogram	mg/kg	=	Milligrams per kilogram
U	=	Undetected			
J	=	Indicates value is > MDL, but < Reporting Limit			
B	=	Analyte was detected in the method blank analyzed with this sample.			
D	=	Surrogate recoveries are not calculated due to sample dilution.			
X	=	Surrogate recovery is outside quality control limits.			
Y	=	Spike or spike duplicate recovery is outside quality control limits.			
Z	=	Relative percent difference for a spike and spike duplicate is outside quality control limits. The precision of the method was impacted by matrix.			
^	=	Indicates value is above QC acceptance criteria.			

QC SAMPLE IDENTIFICATIONS

MB	=	Method Blank	SB	=	Storage Blank
RB	=	Reagent Blank	EB	=	Extraction Blank
PB	=	Preparation Blank	CALB	=	Calibration Blank
MD	=	Method Duplicate	RS	=	Reference Standard
LCS	=	Laboratory Control Sample	LCSD	=	Laboratory Control Sample Duplicate
MS	=	Matrix Spike	MSD	=	Matrix Spike Duplicate
ICB	=	Initial Calibration Blank	CCB	=	Continuing Calibration Blank
ICV	=	Initial Calibration Verification	ICB	=	Initial Calibration Blank
PDS	=	Post Digestion Spike	SS	=	Surrogate Spike
ISA	=	Interference Check standard "A"	ISB	=	Interference Check Standard "B"
ISCAB	=	Interference Check Sample AB	MSA	=	Method of Standard Additions
CAL	=	Calibration standard	SD	=	Serial Dilution
MST	=	TCLP Matrix Spike	MSQ	=	TCLP Matrix Spike Duplicate
PST	=	TCLP Post Digestion Spike	LCT	=	TCLP Laboratory Control Sample

SUBCONTRACTED LABORATORY LOCATIONS

CORE Laboratories:	Anaheim, California	*AN	Aurora, Colorado	*AU
	Casper, Wyoming	*CA	Corpus Christi, Texas	*CC
	Houston, Texas (Env)	*HE	Houston, Texas (Pet)	*HP
	Other (Detailed in Case Narrative)	*XX		

rpjsckl | Job Sample Receipt Checklist Report 07/29/99 | V2

Job Number.....: 908443 Location.: 57211 Customer Job ID.....: Job Check List Date.: 07/29/99
Project Number.: 96000651 Project Description.: Marathon Oil Co., Midland, Tx Project Manager.....: lpa
Customer.....: Marathon Oil Company Contact.: Mr. Paul Peacock

Questions ?	(Y/N) Comments
Chain-of-Custody Present?	Y
Custody seal on shipping container?	
...If "yes", custody seal intact?	
Custody seals on sample containers?	
...If "yes", custody seal intact?	
Samples chilled?	Y
Temperature of cooler acceptable? (4 deg C +/- 2).	
Samples received intact (good condition)?	Y
Volatile samples acceptable? (no headspace)	Y
Correct containers used?	Y
Adequate sample volume provided?	Y
Samples preserved correctly?	Y
Samples received within holding-time?	Y
Agreement between COC and sample labels?	Y
Additional	
Comments	
Sample Custodian Signature	

CORE LABORATORIES, INC.

CHAIN OF CUSTODY RECORD

CUSTOMER INFORMATION		PROJECT INFORMATION	
COMPANY:	MARATHON Oil Co - MIDLAND TX	PROJECT NAME/NUMBER:	Jaldun Basin Remediation
SEND REPORT TO:	PAUL PEACOCK	BILLING INFORMATION	
ADDRESS:	125 W. Missouri ST. 79702 3204	BILL TO:	SAME
	P.O. Box 552	ADDRESS:	SAME
	MIDLAND, TX 79702-0552		
PHONE:	915-687-8312	PHONE:	SAME
FAX:	915-687-8305	FAX:	SAME PO NO.:

LAB JOB NO. 908443

SAMPLE NO.	SAMPLE DESCRIPTION	SAMPLE DATE	SAMPLE TIME	SAMPLE MATRIX	CONTAINER	PRESERV.	NUMBER OF CONTAINERS	ANALYSIS / METHOD REQUEST: BTEX (8021 OR 8260)	TPH GRO (C5-C9)	TPH DRO (C10-C28)	N-HEXANE (8015)	SPECIFIC FLOW RATE (300.0)	CA, K, Mg, NaR (6010)	REMARKS / PRECAUTIONS
1	WEST STRIPPER Influent	7-28-99	10:03AM	AQ	4-VIALS 2-LITER	NONE	6	X	X	X	X			
2	WEST STRIPPER Effluent	"	10:15AM	"	"	"	6	X	X	X	X	X	X	6
3	EAST STRIPPER Influent	"	10:27AM	"	"	"	6	X	X	X	X			
4	EAST STRIPPER Effluent	"	10:39AM	"	"	"	6	X	X	X	X	X	X	

SAMPLER: | SHIPMENT METHOD: | AIRBILL NO.:

REQUIRED TURNAROUND:* ☐ SAME DAY ☐ 24 HOURS ☐ 48 HOURS ☐ 72 HOURS ☐ 5 DAYS ☑ 10 DAYS ☐ ROUTINE OTHER

1. RELINQUISHED BY:	DATE	2. RELINQUISHED BY:	DATE	3. RELINQUISHED BY:	DATE
SIGNATURE: Rigo Aguilera		SIGNATURE:		SIGNATURE:	
PRINTED NAME/COMPANY: RIGO AGUILERA MOC	TIME	PRINTED NAME/COMPANY:	TIME	PRINTED NAME/COMPANY:	TIME
1. RECEIVED BY:	DATE 7/29/99	2. RECEIVED BY:	DATE	3. RECEIVED BY:	DATE
SIGNATURE: Bob		SIGNATURE:		SIGNATURE:	
PRINTED NAME/COMPANY: JB CSL	TIME 1200	PRINTED NAME/COMPANY:	TIME	PRINTED NAME/COMPANY:	TIME

* RUSH TURNAROUND MAY REQUIRE SURCHARGE

☐ Anaheim, CA
1250 E. Gene Autry Way
Anaheim, CA 92805
(714) 937-1094 Fax (714) 937-1170

☐ Aurora, CO
10703 E. Bethany Drive
Aurora, CO 80014
(303) 751-1780 Fax (303) 751-1784

☐ Carson, CA
21730 S. Wilmington Ave. - Suite 201
Carson, CA 90810-1640
(310) 513-2031 Fax (310) 513-2035

☐ Casper, WY
420 W. First Street
Casper, WY 82601
(307) 235-5741 Fax (307) 266-1676

☐ Corpus Christi, TX
1733 N. Padre Island Drive
Corpus Christi, TX 78408
(512) 289-2673 Fax (512) 289-2471

☐ Edison, NJ
284 Raritan Center Parkway
Edison, NJ 08837
(732) 225-6700 Fax (732) 225-6777

☐ Houston, TX (Env)
6310 Rothway Drive
Houston, TX 77040
(713) 690-4444 Fax (713) 690-5646

☐ Houston, TX (Pet)
8210 Mosley Road
Houston, TX 77075
(713) 943-9776 Fax (713) 943-3846

☐ Indianapolis, IN
7726 Moller Road
Indianapolis, IN 46268
(317) 875-5894 Fax (317) 872-6189

☐ Lake Charles, LA
3645 Begis Parkway
Sulphur, LA 70663
(318) 583-4926 Fax (318) 583-4929

☐ Valparaiso, IN
2400 Cumberland Drive
Valparaiso, IN 46383
(219) 464-2389 Fax (219) 462-2953

CORE LABORATORIES

ANALYTICAL REPORT

JOB NUMBER: 909683

Prepared For:

Marathon Oil Company
125 West Missouri Street
P.O. Box 552
Midland, TX 79702-0552

Attention: Mr. Paul Peacock

Date: 08/31/99

Signature

Name: Les Arnold

Title: Laboratory Manager

8/31/99
Date

2400 Cumberland Drive
Valparaiso, IN 46383

PHONE: 219-464-2389
FAX..: 219-462-2953

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CORELAB

CORE LABORATORIES

SAMPLE INFORMATION
Date: 08/31/99

Job Number.: 909683
Customer...: Marathon Oil Company
Attn.....: Mr. Paul Peacock

Project Number.....: 96000651
Customer Project ID....: INDIAN BASIN
Project Description....: Marathon Oil Co., Midland, Tx

Laboratory Sample ID	Customer Sample ID	Sample Matrix	Date Sampled	Time Sampled	Date Received	Time Received
909683-1	WEST STRIPPER INFLUENT	Water	08/26/1999	09:02	08/27/1999	12:00
909683-2	WEST STRIPPER EFFLUENT	Water	08/26/1999	09:13	08/27/1999	12:00
909683-3	EAST STRIPPER INFLUENT	Water	08/26/1999	09:22	08/27/1999	12:00
909683-4	EAST STRIPPER EFFLUENT	Water	08/26/1999	09:33	08/27/1999	12:00

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CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 909683 Date: 08/31/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN ATTN: Mr. Paul Peacock

Customer Sample ID: WEST STRIPPER INFLUENT
Date Sampled.....: 08/26/1999
Time Sampled.....: 09:02
Sample Matrix.....: Water

Laboratory Sample ID: 909683-1
Date Received.....: 08/27/1999
Time Received.....: 12:00

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
SW-846 3510B	Sep-Funnel Extraction for DRO					
	Separatory Funnel Liq/Liq Extraction	Complete			08/30/99	bjl
8015B Modified	Diesel Range Organics (C10 - C28)					
	Diesel Range Organics C10 - C28	<0.5	0.5	mg/L	08/30/99	rjm
8015B Modified	Gasoline Range Organics (C5-C9)					
	Gasoline Range Organics C5-C9	1.3	0.5	mg/L	08/30/99	weh
EPA 8260B	Volatile Organic Compounds					
	Benzene	<5	5	ug/L	08/30/99	weh
	Ethylbenzene	ND	5	ug/L	08/30/99	weh
	Toluene	<5	5	ug/L	08/30/99	weh
	Xylenes (total)	ND	10	ug/L	08/30/99	weh
	Hexane	11	5	ug/L	08/30/99	weh

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CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 909683 Date: 08/31/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN ATTN: Mr. Paul Peacock

Customer Sample ID: WEST STRIPPER EFFLUENT
Date Sampled.....: 08/26/1999
Time Sampled.....: 09:13
Sample Matrix.....: Water

Laboratory Sample ID: 909683-2
Date Received.....: 08/27/1999
Time Received.....: 12:00

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
SW-846 3510B	Sep-Funnel Extraction for DRO					
	Separatory Funnel Liq/Liq Extraction	Complete			08/30/99	bjl
8015B Modified	Diesel Range Organics (C10 - C28)					
	Diesel Range Organics C10 - C28	<0.5	0.5	mg/L	08/30/99	rjm
8015B Modified	Gasoline Range Organics (C5-C9)					
	Gasoline Range Organics C5-C9	<0.5	0.5	mg/L	08/30/99	weh
EPA 8260B	Volatile Organic Compounds					
	Benzene	ND	5	ug/L	08/29/99	weh
	Ethylbenzene	ND	5	ug/L	08/29/99	weh
	Toluene	ND	5	ug/L	08/29/99	weh
	Xylenes (total)	ND	10	ug/L	08/29/99	weh
	Hexane	ND	5	ug/L	08/29/99	weh

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CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 909683 Date: 08/31/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN ATTN: Mr. Paul Peacock

Customer Sample ID: EAST STRIPPER INFLUENT
Date Sampled.....: 08/26/1999
Time Sampled.....: 09:22
Sample Matrix.....: Water

Laboratory Sample ID: 909683-3
Date Received.....: 08/27/1999
Time Received.....: 12:00

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
SW-846 3510B	Sep-Funnel Extraction for DRO					
	Separatory Funnel Liq/Liq Extraction	Complete			08/30/99	bjl
8015B Modified	Diesel Range Organics (C10 - C28)					
	Diesel Range Organics C10 - C28	0.9	0.5	mg/L	08/30/99	rjm
8015B Modified	Gasoline Range Organics (C5-C9)					
	Gasoline Range Organics C5-C9	7.8	0.5	mg/L	08/30/99	weh
EPA 8260B	Volatile Organic Compounds					
	Benzene	ND	5	ug/L	08/30/99	weh
	Ethylbenzene	ND	5	ug/L	08/30/99	weh
	Toluene	ND	5	ug/L	08/30/99	weh
	Xylenes (total)	<10	10	ug/L	08/30/99	weh
	Hexane	33	5	ug/L	08/30/99	weh

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CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 909683 Date: 08/31/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN ATTN: Mr. Paul Peacock

Customer Sample ID: EAST STRIPPER EFFLUENT
Date Sampled.....: 08/26/1999
Time Sampled.....: 09:33
Sample Matrix.....: Water

Laboratory Sample ID: 909683-4
Date Received.....: 08/27/1999
Time Received.....: 12:00

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
SW-846 3510B	Sep-Funnel Extraction for DRO					
	Separatory Funnel Liq/Liq Extraction	Complete			08/30/99	bjl
8015B Modified	Diesel Range Organics (C10 - C28)					
	Diesel Range Organics C10 - C28	<0.5	0.5	mg/L	08/30/99	rjm
8015B Modified	Gasoline Range Organics (C5-C9)					
	Gasoline Range Organics C5-C9	<0.5	0.5	mg/L	08/30/99	weh
EPA 8260B	Volatile Organic Compounds					
	Benzene	ND	5	ug/L	08/29/99	weh
	Ethylbenzene	ND	5	ug/L	08/29/99	weh
	Toluene	ND	5	ug/L	08/29/99	weh
	Xylenes (total)	ND	10	ug/L	08/29/99	weh
	Hexane	ND	5	ug/L	08/29/99	weh

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CORE LAB

CORE LABORATORIES

QUALITY CONTROL RESULTS

Job Number.: 909683 Report Date.: 08/31/99

CUSTOMER: Marathon Oil Company PROJECT: Marathon Oil Co., Midland, Tx ATTN: Mr. Paul Peacock

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time

Test Method.....: 8015B Modified Batch.....: 45620 Analyst...: rjm
Method Description.: Diesel Range Organics (C10 - C28) Units.....: mg/L

MB	Method Blank				08/30/1999	1858

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Diesel Range Organics C10 - C28	ND						

LCS	Laboratory Control Sample	DROSTD1			08/30/1999	1935

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Diesel Range Organics C10 - C28	441.35		500		88.3	%	42-122

MS	Matrix Spike	DROSTD1	909683-1		08/30/1999	2048

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Diesel Range Organics C10 - C28	374.64		500	40.37	66.9	%	42-122

MSD	Matrix Spike Duplicate	DROSTD1	909683-1		08/30/1999	2125

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Diesel Range Organics C10 - C28	414.36	374.64	500	40.37	74.8	%	42-122
					10.1	R	30

Test Method.....: 8015B Modified Batch.....: 45617 Analyst...: weh
Method Description.: Gasoline Range Organics (C5-C9) Units.....: mg/L

LCS	Laboratory Control Sample	GROSTD			08/30/1999	1018

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Gasoline Range Organics C5-C9	5.454					%	72-125

MB	Method Blank				08/30/1999	1139

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Gasoline Range Organics C5-C9	0.017						

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

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CORE LABORATORIES

QUALITY CONTROL RESULTS

Job Number.: 909683 Report Date.: 08/31/99

CUSTOMER: Marathon Oil Company PROJECT: Marathon Oil Co., Midland, Tx ATTN: Mr. Paul Peacock

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
MS	Matrix Spike	GROSTD	909683-4		08/30/1999	1456

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Gasoline Range Organics C5-C9	5.599			0.057		%	72-125

MSD	Matrix Spike Duplicate	GROSTD	909683-4		08/30/1999	1531

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Gasoline Range Organics C5-C9	5.198	0.057		0.057		%	72-125

LCS	Laboratory Control Sample	GROSTD			08/30/1999	1605

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Gasoline Range Organics C5-C9	4.784					%	72-125

Test Method.....: EPA 8260B Batch.....: 45559 Analyst...: weh
Method Description.: Volatile Organic Compounds Units.....: ug/L

MB	Method Blank				08/29/1999	1003

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	ND						
Ethylbenzene	ND						
Toluene	ND						
Xylenes (total)	ND						
Hexane	ND						

LCS	Laboratory Control Sample	CLPVOAMS2			08/29/1999	1034

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	51.01		50		102.0	%	67-130
Toluene	49.37		50		98.7	%	75-114
Hexane	ND						

MS	Matrix Spike	CLPVOAMS2	909683-2		08/29/1999	1208

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	51.40		50	ND	102.8	%	67-130
Toluene	49.20		50	ND	98.4	%	75-114
Hexane	ND			ND			

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

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CORE LABORATORIES

QUALITY CONTROL RESULTS

Job Number.: 909683 Report Date.: 08/31/99

CUSTOMER: Marathon Oil Company PROJECT: Marathon Oil Co., Midland, Tx ATTN: Mr. Paul Peacock

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date Time
MSD	Matrix Spike Duplicate	CLPVOAMS2	909683-2		08/29/1999 1239

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	50.49	51.40	50	ND	101.0	%	67-130
					1.8	R	30
Toluene	47.11	49.20	50	ND	94.2	%	75-114
					4.3	R	30
Hexane	ND	ND		ND			

Test Method.....: EPA 8260B Batch.....: 45616 Analyst...: weh
Method Description.: Volatile Organic Compounds Units.....: ug/L

MS	Matrix Spike	CLPVOAMS2	909578-13		08/30/1999 0143

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	49.83		50	ND	99.7	%	67-130
Toluene	47.01		50	ND	94.0	%	75-114

MSD	Matrix Spike Duplicate	CLPVOAMS2	909578-13		08/30/1999 0215

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	49.95	49.83	50	ND	99.9	%	67-130
					0.2	R	30
Toluene	47.63	47.01	50	ND	95.3	%	75-114
					1.3	R	30

MB	Method Blank				08/30/1999 0905

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	ND						
Ethylbenzene	ND						
Toluene	ND						
Xylenes (total)	ND						
Hexane	ND						

LCS	Laboratory Control Sample	CLPVOAMS2			08/30/1999 0937

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	51.41		50		102.8	%	67-130
Toluene	48.88		50		97.8	%	75-114

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

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CORE LABORATORIES

SURROGATE RECOVERIES REPORT

Job Number.: 909683 Report Date.: 08/31/99

CUSTOMER: Marathon Oil Company PROJECT: Marathon Oil Co., Midland, Tx ATTN: Mr. Paul Peacock

Method.....: Volatile Organic Compounds Batch.....: 45559
Method Code.....: 8260V1 Analyst.....: weh

Surrogate	Units
1,2-Dichloroethane-d4 (surrogate)	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		49.32	50.00	98.6	76-120		08/29/1999	1003
		LCS		48.40	50.00	96.8	76-120		08/29/1999	1034
909683-2				49.46	50.00	98.9	76-120		08/29/1999	1105
909683-4				48.97	50.00	97.9	76-120		08/29/1999	1136
909683-2		MS		47.82	50.00	95.6	76-120		08/29/1999	1208
909683-2		MSD		49.16	50.00	98.3	76-120		08/29/1999	1239
909578-12			10	47.76	50.00	95.5	76-120		08/29/1999	1636
909578-15			10	43.64	50.00	87.3	76-120		08/29/1999	1743
909578-14			20	42.70	50.00	85.4	76-120		08/29/1999	1852

Surrogate	Units
BFB (Surrogate)	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		51.72	50.00	103.4	85-115		08/29/1999	1003
		LCS		51.68	50.00	103.4	85-115		08/29/1999	1034
909683-2				51.53	50.00	103.1	85-115		08/29/1999	1105
909683-4				51.29	50.00	102.6	85-115		08/29/1999	1136
909683-2		MS		51.88	50.00	103.8	85-115		08/29/1999	1208
909683-2		MSD		49.81	50.00	99.6	85-115		08/29/1999	1239
909578-12			10	49.66	50.00	99.3	85-115		08/29/1999	1636
909578-15			10	47.71	50.00	95.4	85-115		08/29/1999	1743
909578-14			20	49.23	50.00	98.5	85-115		08/29/1999	1852

Surrogate	Units
Toluene-d8	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		49.99	50.00	100.0	85-112		08/29/1999	1003
		LCS		49.86	50.00	99.7	85-112		08/29/1999	1034
909683-2				50.74	50.00	101.5	85-112		08/29/1999	1105
909683-4				50.95	50.00	101.9	85-112		08/29/1999	1136
909683-2		MS		50.62	50.00	101.2	85-112		08/29/1999	1208
909683-2		MSD		49.11	50.00	98.2	85-112		08/29/1999	1239
909578-12			10	50.82	50.00	101.6	85-112		08/29/1999	1636
909578-15			10	49.89	50.00	99.8	85-112		08/29/1999	1743
909578-14			20	50.45	50.00	100.9	85-112		08/29/1999	1852

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CORE LABORATORIES

SURROGATE RECOVERIES REPORT

Job Number.: 909683 Report Date.: 08/31/99

CUSTOMER: Marathon Oil Company PROJECT: Marathon Oil Co., Midland, Tx ATTN: Mr. Paul Peacock

Method.....: Volatile Organic Compounds Batch.....: 45616
Method Code.....: 8260V1 Analyst.....: weh

Surrogate	Units
1,2-Dichloroethane-d4 (surrogate)	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
909578-13		MS		45.20	50.00	90.4	76-120		08/30/1999	0143
909578-13		MSD		45.37	50.00	90.7	76-120		08/30/1999	0215
909689-7			5000	45.82	50.00	91.6	76-120		08/30/1999	0348
909689-8			5000	46.29	50.00	92.6	76-120		08/30/1999	0419
909683-1				45.78	50.00	91.6	76-120		08/30/1999	0553
909683-3				46.24	50.00	92.5	76-120		08/30/1999	0624
		MB		43.17	50.00	86.3	76-120		08/30/1999	0905
		LCS		41.54	50.00	83.1	76-120		08/30/1999	0937
909578-13				43.03	50.00	86.1	76-120		08/30/1999	1008
909578-17				43.78	50.00	87.6	76-120		08/30/1999	1039

Surrogate	Units
BFB (Surrogate)	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
909578-13		MS		52.01	50.00	104.0	85-115		08/30/1999	0143
909578-13		MSD		51.85	50.00	103.7	85-115		08/30/1999	0215
909689-7			5000	52.55	50.00	105.1	85-115		08/30/1999	0348
909689-8			5000	50.14	50.00	100.3	85-115		08/30/1999	0419
909683-1				52.51	50.00	105.0	85-115		08/30/1999	0553
909683-3				51.76	50.00	103.5	85-115		08/30/1999	0624
		MB		48.92	50.00	97.8	85-115		08/30/1999	0905
		LCS		47.62	50.00	95.2	85-115		08/30/1999	0937
909578-13				49.55	50.00	99.1	85-115		08/30/1999	1008
909578-17				49.06	50.00	98.1	85-115		08/30/1999	1039

Surrogate	Units
Toluene-d8	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
909578-13		MS		50.82	50.00	101.6	85-112		08/30/1999	0143
909578-13		MSD		51.34	50.00	102.7	85-112		08/30/1999	0215
909689-7			5000	50.96	50.00	101.9	85-112		08/30/1999	0348
909689-8			5000	50.32	50.00	100.6	85-112		08/30/1999	0419
909683-1				51.81	50.00	103.6	85-112		08/30/1999	0553
909683-3				52.46	50.00	104.9	85-112		08/30/1999	0624
		MB		50.37	50.00	100.7	85-112		08/30/1999	0905
		LCS		50.45	50.00	100.9	85-112		08/30/1999	0937
909578-13				50.72	50.00	101.4	85-112		08/30/1999	1008
909578-17				50.21	50.00	100.4	85-112		08/30/1999	1039

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QUALITY ASSURANCE FOOTER

METHOD REFERENCES

1. EPA SW-846, Test Methods for Evaluating Solid Waste Update I, IIA, IIB, III
2. Standard Methods for the Examination of Water and Wastewater, 18th Edition
3. EPA 600/4-79-020, Methods of Chemical Analysis for Waters and Wastes, March 1983
4. Federal Register, Friday, October 26, 1984 (40 CFR Part 136)
5. American Society for Testing and Materials, Volumes 5.01, 5.02, 5.03, 11.01,11.02,11.03,11.04
6. EPA Methods for Environmental Samples

COMMENTS

All methods of chemical analysis have a statistical uncertainty associated with the results. Unless otherwise indicated, the data in this report are within the limits of uncertainty as specified in the referenced method. Quality Control acceptance criteria are based either on actual laboratory performance or on limits specified in the referenced method. The date and time of analysis indicated on the QA report may not reflect the actual time of analysis for QC samples. All data are reported on an "as received" basis unless otherwise indicated. Data reported in the QA report may be lower than sample data due to dilution of samples into the calibration range of the analysis. Sample concentration for solid samples are calculated on an as received (wet) basis. Unless otherwise indicated, volatiles by gas chromatography (GC) are reported from a single column. Volatile analysis by GC on low level soil extractions are conducted at room temperature.

FLAGS, FOOTNOTES AND ABBREVIATIONS (as needed)

NA	=	Not Analyzed	ND	=	Not detected at a value greater than the reporting limit
N/A	=	Not applicable	NC	=	Not calculable due to values lower than the reporting limit
ug/L	=	Micrograms per liter	mg/L	=	Milligrams per liter
ug/Kg	=	Micrograms per kilogram	mg/kg	=	Milligrams per kilogram
U	=	Undetected			
J	=	Indicates value is > MDL, but < Reporting Limit			
B	=	Analyte was detected in the method blank analyzed with this sample.			
D	=	Surrogate recoveries are not calculated due to sample dilution.			
X	=	Surrogate recovery is outside quality control limits.			
Y	=	Spike or spike duplicate recovery is outside quality control limits.			
Z	=	Relative percent difference for a spike and spike duplicate is outside quality control limits. The precision of the method was impacted by matrix.			
^	=	Indicates value is above QC acceptance criteria.			

QC SAMPLE IDENTIFICATIONS

MB	=	Method Blank	SB	=	Storage Blank
RB	=	Reagent Blank	EB	=	Extraction Blank
PB	=	Preparation Blank	CALB	=	Calibration Blank
MD	=	Method Duplicate	RS	=	Reference Standard
LCS	=	Laboratory Control Sample	LCSD	=	Laboratory Control Sample Duplicate
MS	=	Matrix Spike	MSD	=	Matrix Spike Duplicate
ICB	=	Initial Calibration Blank	CCB	=	Continuing Calibration Blank
ICV	=	Initial Calibration Verification	ICB	=	Initial Calibration Blank
PDS	=	Post Digestion Spike	SS	=	Surrogate Spike
ISA	=	Interference Check standard "A"	ISB	=	Interference Check Standard "B"
ISCAB	=	Interference Check Sample AB	MSA	=	Method of Standard Additions
CAL	=	Calibration standard	SD	=	Serial Dilution
MST	=	TCLP Matrix Spike	MSQ	=	TCLP Matrix Spike Duplicate
PST	=	TCLP Post Digestion Spike	LCT	=	TCLP Laboratory Control Sample

SUBCONTRACTED LABORATORY LOCATIONS

CORE Laboratories:	Anaheim, California	*AN	Aurora, Colorado	*AU
	Casper, Wyoming	*CA	Corpus Christi, Texas	*CC
	Houston, Texas (Env)	*HE	Houston, Texas (Pet)	*HP
	Other (Detailed in Case Narrative)	*XX		

NO 01150

CORE LABORATORIES, INC.

CHAIN OF CUSTODY RECORD

CUSTOMER INFORMATION	PROJECT INFORMATION
COMPANY: Marathon Oil Company	PROJECT NAME/NUMBER: Indian Basin Remediation
SEND REPORT TO: Paul Peacock	**BILLING INFORMATION**
ADDRESS: 125 W. Missouri Street (79702-5204) P.O Box 552 Midland, TX 79702-0552	BILL TO: Same ADDRESS: Same
PHONE: 915-687-8312	PHONE: Same
FAX: 915-687-8305	FAX: Same PO NO.:

LAB JOB NO. 909683 9096

SAMPLE NO.	SAMPLE DESCRIPTION	SAMPLE DATE	SAMPLE TIME	SAMPLE MATRIX	CONTAINER	PRESERV.	NUMBER OF CONTAINERS	ANALYSIS / METHOD REQUEST: TPH-GRO (GC-FID)	BTEX (8021 OR 8260)	TPH-DRO (C10-C28)	REMARKS / PRECAUTIONS
1	West Stripper Influent	8-26-99	9:02	AQ	4-40 ml vials	None	4	X	X		
	" " "	"	9:08	"	2-1 Liter	None	2			X	X
2	West Stripper Effluent	"	9:13	"	40 ml vial	None	4	X	X		
	" " "	"	9:19	"	1 Liter	None	2			X	X
3	East Stripper Influent	"	9:22	"	40 ml vial	None	4	X	X		
	" " "	"	9:28	"	1 Liter	None	2			X	X
4	East Stripper Effluent	"	9:33	"	40 ml vial	None	4	X	X		
	" " "	"	9:39	"	1 Liter	None	2			X	X

SAMPLER: SHIPMENT METHOD: AIRBILL NO.:

REQUIRED TURNAROUND:* ☐ SAME DAY ☐ 24 HOURS ☐ 48 HOURS ☐ 72 HOURS ☐ 5 DAYS ☐ 10 DAYS ☐ ROUTINE OTHER

1. RELINQUISHED BY:	DATE	2. RELINQUISHED BY:	DATE	3. RELINQUISHED BY:	DATE
SIGNATURE:		SIGNATURE:		SIGNATURE:	
PRINTED NAME/COMPANY:	TIME	PRINTED NAME/COMPANY:	TIME	PRINTED NAME/COMPANY:	TIME
1. RECEIVED BY:	DATE 8/27/99	2. RECEIVED BY:	DATE	3. RECEIVED BY:	DATE
SIGNATURE: Jan Bob		SIGNATURE:		SIGNATURE:	
PRINTED NAME/COMPANY: JB Cos	TIME 1200	PRINTED NAME/COMPANY:	TIME	PRINTED NAME/COMPANY:	TIME

* RUSH TURNAROUND MAY REQUIRE SURCHARGE

☐ Anaheim, CA
1250 E. Gene Autry Way
Anaheim, CA 92805
(714) 937-1094 Fax (714) 937-1170

☐ Houston, TX (Env)
6310 Rothway Drive
Houston, TX 77040

☐ Aurora, CO
10703 E. Bethany Drive
Aurora, CO 80014
(303) 751-1780 Fax (303) 751-1784

☐ Houston, TX (Pet)
8210 Mosley Road
Houston, TX 77075

☐ Casper, WY
420 W. First Street
Casper, WY 82601
(307) 235-5741 Fax (307) 266-1676

☐ Lake Charles, LA
3645 Beglis Parkway
Sulphur, LA 70663

☐ Corpus Christi, TX
1733 N. Padre Island Drive
Corpus Christi, TX 78408
(361) 289-2673 Fax (361) 289-2471

☐ Valparaiso, IN
2400 Cumberland Drive
Valparaiso, IN 46383

CORE LABORATORIES

ANALYTICAL REPORT

JOB NUMBER: 911177

Prepared For:

Marathon Oil Company
125 West Missouri Street
P.O. Box 552
Midland, TX 79702-0552

Attention: Mr. Paul Peacock

Date: 10/08/99

Les Arnold
Signature

10/8/99
Date

Name: Les Arnold

Title: Laboratory Manager

2400 Cumberland Drive
Valparaiso, IN 46383

PHONE: 219-464-2389
FAX..: 219-462-2953

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CORE LABORATORIES

SAMPLE INFORMATION
Date: 10/08/99

Job Number.: 911177
Customer...: Marathon Oil Company
Attn.....: Mr. Paul Peacock

Project Number.....: 96000651
Customer Project ID....: INDIAN BASIN
Project Description....: Marathon Oil Co., Midland, Tx

Laboratory Sample ID	Customer Sample ID	Sample Matrix	Date Sampled	Time Sampled	Date Received	Time Received
911177-1	WEST STRIPPER INFLUENT	Water	09/30/1999	09:35	10/01/1999	11:00
911177-2	WEST STRIPPER EFFLUENT	Water	09/30/1999	09:43	10/01/1999	11:00
911177-3	EAST STRIPPER INFLUENT	Water	09/30/1999	09:51	10/01/1999	11:00
911177-4	EAST STRIPPER EFFLUENT	Water	09/30/1999	09:59	10/01/1999	11:00

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CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 911177 Date: 10/08/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN ATTN: Mr. Paul Peacock

Customer Sample ID: WEST STRIPPER INFLUENT
Date Sampled.....: 09/30/1999
Time Sampled.....: 09:35
Sample Matrix.....: Water

Laboratory Sample ID: 911177-1
Date Received.....: 10/01/1999
Time Received.....: 11:00

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
SW-846 3510B	Sep-Funnel Extraction for DRO					
	Separatory Funnel Liq/Liq Extraction	Complete			10/04/99	bjl
8015B Modified	Diesel Range Organics (C10 - C28)					
	Diesel Range Organics C10 - C28	3.1	0.5	mg/L	10/04/99	rjm
8015B Modified	Gasoline Range Organics (C5-C9)					
	Gasoline Range Organics C5-C9	<0.5	0.5	mg/L	10/07/99	weh
EPA 8260B	Volatile Organic Compounds					
	Benzene	<5	5	ug/L	10/04/99	weh
	Ethylbenzene	ND	5	ug/L	10/04/99	weh
	Toluene	ND	5	ug/L	10/04/99	weh
	Xylenes (total)	ND	10	ug/L	10/04/99	weh
	Hexane	ND	5	ug/L	10/07/99	weh

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CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 911177 Date: 10/08/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN ATTN: Mr. Paul Peacock

Customer Sample ID: WEST STRIPPER EFFLUENT
Date Sampled.....: 09/30/1999
Time Sampled.....: 09:43
Sample Matrix.....: Water

Laboratory Sample ID: 911177-2
Date Received.....: 10/01/1999
Time Received.....: 11:00

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
SW-846 3510B	Sep-Funnel Extraction for DRO					
	Separatory Funnel Liq/Liq Extraction	Complete			10/04/99	bjl
8015B Modified	Diesel Range Organics (C10 - C28)					
	Diesel Range Organics C10 - C28	2.0	0.5	mg/L	10/04/99	rjm
8015B Modified	Gasoline Range Organics (C5-C9)					
	Gasoline Range Organics C5-C9	0.9	0.5	mg/L	10/07/99	weh
EPA 8260B	Volatile Organic Compounds					
	Benzene	ND	5	ug/L	10/03/99	weh
	Ethylbenzene	ND	5	ug/L	10/03/99	weh
	Toluene	ND	5	ug/L	10/03/99	weh
	Xylenes (total)	ND	10	ug/L	10/03/99	weh
	Hexane	<5	5	ug/L	10/07/99	weh

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CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 911177 Date: 10/08/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN ATTN: Mr. Paul Peacock

Customer Sample ID: EAST STRIPPER INFLUENT
Date Sampled.....: 09/30/1999
Time Sampled.....: 09:51
Sample Matrix.....: Water

Laboratory Sample ID: 911177-3
Date Received.....: 10/01/1999
Time Received.....: 11:00

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
SW-846 3510B	Sep-Funnel Extraction for DRO					
	Separatory Funnel Liq/Liq Extraction	Complete			10/04/99	bjl
8015B Modified	Diesel Range Organics (C10 - C28)					
	Diesel Range Organics C10 - C28	4.5	0.5	mg/L	10/04/99	rjm
8015B Modified	Gasoline Range Organics (C5-C9)					
	Gasoline Range Organics C5-C9	1.6	0.5	mg/L	10/07/99	weh
EPA 8260B	Volatile Organic Compounds					
	Benzene	6	5	ug/L	10/05/99	weh
	Ethylbenzene	ND	5	ug/L	10/05/99	weh
	Toluene	ND	5	ug/L	10/05/99	weh
	Xylenes (total)	<10	10	ug/L	10/05/99	weh
	Hexane	10	5	ug/L	10/07/99	weh

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CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 911177 Date: 10/08/99

CUSTOMER: Tarahon Oil Company PROJECT: INDIAN BASIN ATTN: Mr. Paul Peacock

Customer Sample ID: EAST STRIPPER EFFLUENT
Date Sampled.....: 09/30/1999
Time Sampled.....: 09:59
Sample Matrix.....: Water

Laboratory Sample ID: 911177-4
Date Received.....: 10/01/1999
Time Received.....: 11:00

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
SW-846 3510B	Sep-Funnel Extraction for DRO					
	Separatory Funnel Liq/Liq Extraction	Complete			10/04/99	bjl
8015B Modified	Diesel Range Organics (C10 - C28)					
	Diesel Range Organics C10 - C28	0.6	0.5	mg/L	10/04/99	rjm
8015B Modified	Gasoline Range Organics (C5-C9)					
	Gasoline Range Organics C5-C9	<0.5	0.5	mg/L	10/07/99	weh
EPA 8260B	Volatile Organic Compounds					
	Benzene	ND	5	ug/L	10/03/99	weh
	Ethylbenzene	ND	5	ug/L	10/03/99	weh
	Toluene	ND	5	ug/L	10/03/99	weh
	Xylenes (total)	ND	10	ug/L	10/03/99	weh
	Hexane	ND	5	ug/L	10/07/99	weh

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CORE LABORATORIES

QUALITY CONTROL RESULTS

Job Number.: 911177 Report Date.: 10/08/99

CUSTOMER: Marathon Oil Company PROJECT: Marathon Oil Co., Midland, Tx ATTN: Mr. Paul Peacock

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time

Test Method.....: 8015B Modified Batch.....: 47350 Analyst...: rjm
Method Description.: Diesel Range Organics (C10 - C28) Units.....: mg/L

LCS	Laboratory Control Sample	DROSTD1			10/04/1999	0000

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Diesel Range Organics C10 - C28	566.73		500		113.3	%	42-122

MB	Method Blank				10/04/1999	0000

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Diesel Range Organics C10 - C28	ND'						

MS	Matrix Spike	DROSTD1	911000-5		10/04/1999	0000

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
esel Range Organics C10 - C28	1093.99		500	1420.84	-65.4	%	42-122

MSD	Matrix Spike Duplicate	DROSTD1	911000-5		10/04/1999	0000

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Diesel Range Organics C10 - C28	991.79	1093.99	500	1420.84	-85.8	%	42-122
					9.8	R	30

Test Method.....: 8015B Modified Batch.....: 47612 Analyst...: weh
Method Description.: Gasoline Range Organics (C5-C9) Units.....: mg/L

LCS	Laboratory Control Sample	GROSTD			10/07/1999	1434

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Gasoline Range Organics C5-C9	5.37					%	72-125

MB	Method Blank				10/07/1999	1629

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Gasoline Range Organics C5-C9	0.03						

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

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CORE LABORATORIES

QUALITY CONTROL RESULTS

Job Number.: 911177 Report Date.: 10/08/99

CUSTOMER: Marathon Oil Company PROJECT: Marathon Oil Co., Midland, Tx ATTN: Mr. Paul Peacock

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
LCS	Laboratory Control Sample	GROSTD			10/07/1999	1939

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Gasoline Range Organics C5-C9	4.79					%	72-125

Test Method.....: EPA 8260B Batch.....: 47268 Analyst...: weh
Method Description.: Volatile Organic Compounds Units.....: ug/L

MB	Method Blank				10/02/1999	2335

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	ND						
Ethylbenzene	ND						
Toluene	ND						
Xylenes (total)	ND						

LCS	Laboratory Control Sample	CLPVOAMS2			10/03/1999	0007

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	46.23		50		92.5	%	67-130
Toluene	47.93		50		95.9	%	75-114

MS	Matrix Spike	CLPVOAMS2	911175-2		10/03/1999	0243

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	44.98		50	ND	90.0	%	67-130
Toluene	46.72		50	ND	93.4	%	75-114

MSD	Matrix Spike Duplicate	CLPVOAMS2	911175-2		10/03/1999	0314

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	45.26	44.98	50	ND	90.5	%	67-130
					0.6	R	30
Toluene	46.49	46.72	50	ND	93.0	%	75-114
					0.5	R	30

Test Method.....: EPA 8260B Batch.....: 47330 Analyst...: weh
Method Description.: Volatile Organic Compounds Units.....: ug/L

MB	Method Blank				10/04/1999	0911

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	ND						
Ethylbenzene	ND						
Toluene	ND						

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

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QUALITY CONTROL RESULTS

Job Number.: 911177 Report Date.: 10/08/99

CUSTOMER: Marathon Oil Company PROJECT: Marathon Oil Co., Midland, Tx ATTN: Mr. Paul Peacock

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
MB	Method Blank				10/04/1999	0911

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Xylenes (total)	ND						

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
LCS	Laboratory Control Sample	CLPVOAMS2			10/04/1999	0943

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	45.66		50		91.3	%	67-130
Toluene	46.93		50		93.9	%	75-114

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
MS	Matrix Spike	CLPVOAMS2	911222-2		10/04/1999	1535

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	44.86		50	ND	89.7	%	67-130
Toluene	45.85		50	ND	91.7	%	75-114

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
MSD	Matrix Spike Duplicate	CLPVOAMS2	911222-2		10/04/1999	1606

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	47.35	44.86	50	ND	94.7	%	67-130
					5.4	R	30
Toluene	49.51	45.85	50	ND	99.0	%	75-114
					7.7	R	30

Test Method.....: EPA 8260B Batch.....: 47377 Analyst...: weh
Method Description.: Volatile Organic Compounds Units.....: ug/L

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
MB	Method Blank				10/05/1999	0939

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	ND						
Ethylbenzene	ND						
Toluene	ND						
Xylenes (total)	ND						

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
LCS	Laboratory Control Sample	CLPVOAMS2			10/05/1999	1010

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	45.75		50		91.5	%	67-130
Toluene	47.25		50		94.5	%	75-114

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

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CORE LABORATORIES

QUALITY CONTROL RESULTS

Job Number.: 911177 Report Date.: 10/08/99

CUSTOMER: Marathon Oil Company PROJECT: Marathon Oil Co., Midland, Tx ATTN: Mr. Paul Peacock

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
MS	Matrix Spike	CLPVOAMS2	911126-1	10	10/05/1999	1421

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	47.89		50	ND	95.8	%	67-130
Toluene	47.77		50	ND	95.5	%	75-114

MSD	Matrix Spike Duplicate	CLPVOAMS2	911126-1	10	10/05/1999	1452

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	47.59	47.89	50	ND	95.2	%	67-130
					0.6	R	30
Toluene	47.27	47.77	50	ND	94.5	%	75-114
					1.1	R	30

Test Method.....: EPA 8260B Batch.....: 47614 Analyst...: weh
Method Description.: Volatile Organic Compounds Units.....: ug/L

MB	Method Blank				10/07/1999	1701

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Hexane	0.23						

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

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SURROGATE RECOVERIES REPORT

Job Number.: 911177

Report Date.: 10/08/99

CUSTOMER: Marathon Oil Company

PROJECT: Marathon Oil Co., Midland, Tx ATTN: Mr. Paul Peacock

Method.....: Volatile Organic Compounds
Method Code.....: 826TCL

Batch.....: 47268
Analyst.....: weh

Surrogate	Units
1,2-Dichloroethane-d4 (surrogate)	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		47.09	50.00	94.2	76-120		10/02/1999	2335
		LCS		45.44	50.00	90.9	76-120		10/03/1999	0007
910540-1				49.61	50.00	99.2	76-120		10/03/1999	0038
911175-2				48.77	50.00	97.5	76-120		10/03/1999	0211
911175-2		MS		46.56	50.00	93.1	76-120		10/03/1999	0243
911175-2		MSD		47.94	50.00	95.9	76-120		10/03/1999	0314
911175-1				46.95	50.00	93.9	76-120		10/03/1999	0345
911177-2				47.75	50.00	95.5	76-120		10/03/1999	0448
911177-4				45.84	50.00	91.7	76-120		10/03/1999	0519

Surrogate	Units
BFB (Surrogate)	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		49.66	50.00	99.3	85-115		10/02/1999	2335
		LCS		49.31	50.00	98.6	85-115		10/03/1999	0007
910540-1				49.99	50.00	100.0	85-115		10/03/1999	0038
911175-2				49.82	50.00	99.6	85-115		10/03/1999	0211
911175-2		MS		51.33	50.00	102.7	85-115		10/03/1999	0243
911175-2		MSD		50.58	50.00	101.2	85-115		10/03/1999	0314
911175-1				50.36	50.00	100.7	85-115		10/03/1999	0345
911177-2				51.66	50.00	103.3	85-115		10/03/1999	0448
911177-4				51.45	50.00	102.9	85-115		10/03/1999	0519

Surrogate	Units
Toluene-d8	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		50.07	50.00	100.1	85-112		10/02/1999	2335
		LCS		48.82	50.00	97.6	85-112		10/03/1999	0007
910540-1				49.83	50.00	99.7	85-112		10/03/1999	0038
911175-2				49.64	50.00	99.3	85-112		10/03/1999	0211
911175-2		MS		49.55	50.00	99.1	85-112		10/03/1999	0243
911175-2		MSD		49.59	50.00	99.2	85-112		10/03/1999	0314
911175-1				49.80	50.00	99.6	85-112		10/03/1999	0345
911177-2				50.05	50.00	100.1	85-112		10/03/1999	0448
911177-4				49.65	50.00	99.3	85-112		10/03/1999	0519

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SURROGATE RECOVERIES REPORT

Job Number.: 911177 Report Date.: 10/08/99

CUSTOMER: Marathon Oil Company PROJECT: Marathon Oil Co., Midland, Tx ATTN: Mr. Paul Peacock

Method.....: Volatile Organic Compounds Batch.....: 47330
Method Code.....: 826TCL Analyst.....: weh

Surrogate	Units
1,2-Dichloroethane-d4 (surrogate)	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		52.60	50.00	105.2	76-120		10/04/1999	0911
		LCS		51.61	50.00	103.2	76-120		10/04/1999	0943
911196-3				52.07	50.00	104.1	76-120		10/04/1999	1014
911221-1				52.06	50.00	104.1	76-120		10/04/1999	1045
911222-2				53.03	50.00	106.1	76-120		10/04/1999	1117
911222-1				51.85	50.00	103.7	76-120		10/04/1999	1148
911221-3				53.14	50.00	106.3	76-120		10/04/1999	1219
911177-1				51.48	50.00	103.0	76-120		10/04/1999	1430
911221-2				52.00	50.00	104.0	76-120		10/04/1999	1501
911222-2		MS		51.71	50.00	103.4	76-120		10/04/1999	1535
911222-2		MSD		51.98	50.00	104.0	76-120		10/04/1999	1606
911000-2			10	51.49	50.00	103.0	76-120		10/04/1999	1637
910937-13			20	51.89	50.00	103.8	76-120		10/04/1999	1708
910937-10			20	51.87	50.00	103.7	76-120		10/04/1999	1739
910937-15			20	52.13	50.00	104.3	76-120		10/04/1999	1810
910937-17			20	52.89	50.00	105.8	76-120		10/04/1999	1841
910937-19			20	51.97	50.00	103.9	76-120		10/04/1999	1912

Surrogate	Units
BFB (Surrogate)	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		47.72	50.00	95.4	85-115		10/04/1999	0911
		LCS		47.52	50.00	95.0	85-115		10/04/1999	0943
911196-3				47.54	50.00	95.1	85-115		10/04/1999	1014
911221-1				46.59	50.00	93.2	85-115		10/04/1999	1045
911222-2				48.64	50.00	97.3	85-115		10/04/1999	1117
911222-1				48.42	50.00	96.8	85-115		10/04/1999	1148
911221-3				48.16	50.00	96.3	85-115		10/04/1999	1219
911177-1				47.93	50.00	95.9	85-115		10/04/1999	1430
911221-2				47.10	50.00	94.2	85-115		10/04/1999	1501
911222-2		MS		46.75	50.00	93.5	85-115		10/04/1999	1535
911222-2		MSD		47.31	50.00	94.6	85-115		10/04/1999	1606
911000-2			10	46.93	50.00	93.9	85-115		10/04/1999	1637
910937-13			20	48.65	50.00	97.3	85-115		10/04/1999	1708
910937-10			20	47.71	50.00	95.4	85-115		10/04/1999	1739
910937-15			20	48.25	50.00	96.5	85-115		10/04/1999	1810
910937-17			20	47.99	50.00	96.0	85-115		10/04/1999	1841
910937-19			20	48.22	50.00	96.4	85-115		10/04/1999	1912

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SURROGATE RECOVERIES REPORT

Job Number.: 911177 Report Date.: 10/08/99

CUSTOMER: Marathon Oil Company PROJECT: Marathon Oil Co., Midland, Tx ATTN: Mr. Paul Peacock

Surrogate	Units
Toluene-d8	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		49.80	50.00	99.6	85-112		10/04/1999	0911
		LCS		50.06	50.00	100.1	85-112		10/04/1999	0943
911196-3				50.09	50.00	100.2	85-112		10/04/1999	1014
911221-1				50.86	50.00	101.7	85-112		10/04/1999	1045
911222-2				50.86	50.00	101.7	85-112		10/04/1999	1117
911222-1				49.75	50.00	99.5	85-112		10/04/1999	1148
911221-3				50.73	50.00	101.5	85-112		10/04/1999	1219
911177-1				51.24	50.00	102.5	85-112		10/04/1999	1430
911221-2				50.11	50.00	100.2	85-112		10/04/1999	1501
911222-2		MS		49.65	50.00	99.3	85-112		10/04/1999	1535
911222-2		MSD		50.46	50.00	100.9	85-112		10/04/1999	1606
911000-2			10	50.69	50.00	101.4	85-112		10/04/1999	1637
910937-13			20	49.76	50.00	99.5	85-112		10/04/1999	1708
910937-10			20	50.68	50.00	101.4	85-112		10/04/1999	1739
910937-15			20	49.89	50.00	99.8	85-112		10/04/1999	1810
910937-17			20	51.24	50.00	102.5	85-112		10/04/1999	1841
910937-19			20	50.36	50.00	100.7	85-112		10/04/1999	1912

Method.....: Volatile Organic Compounds Batch.....: 47377
Method Code.....: 8260V1 Analyst.....: weh

Surrogate	Units
1,2-Dichloroethane-d4 (surrogate)	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		50.84	50.00	101.7	76-120		10/05/1999	0939
		LCS		52.25	50.00	104.5	76-120		10/05/1999	1010
910937-18				51.85	50.00	103.7	76-120		10/05/1999	1113
911177-3				52.21	50.00	104.4	76-120		10/05/1999	1215
911126-1			10	52.47	50.00	104.9	76-120		10/05/1999	1318
911126-1		MS	10	52.01	50.00	104.0	76-120		10/05/1999	1421
911126-1		MSD	10	53.00	50.00	106.0	76-120		10/05/1999	1452
910937-16			10	50.51	50.00	101.0	78-122		10/05/1999	1627
910937-21			10	51.46	50.00	102.9	76-120		10/05/1999	1701
910937-22			10	52.55	50.00	105.1	76-120		10/05/1999	1735
910937-20			20	54.09	50.00	108.2	76-120		10/05/1999	1806

Surrogate	Units
BFB (Surrogate)	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		48.55	50.00	97.1	85-115		10/05/1999	0939
		LCS		48.10	50.00	96.2	85-115		10/05/1999	1010

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CORE LABORATORIES

SURROGATE RECOVERIES REPORT

Job Number.: 911177

Report Date.: 10/08/99

CUSTOMER: Marathon Oil Company PROJECT: Marathon Oil Co., Midland, Tx ATTN: Mr. Paul Peacock

Surrogate	Units
BFB (Surrogate)	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
910937-18				47.43	50.00	94.9	85-115		10/05/1999	1113
911177-3				48.57	50.00	97.1	85-115		10/05/1999	1215
911126-1			10	48.09	50.00	96.2	85-115		10/05/1999	1318
911126-1		MS	10	48.51	50.00	97.0	85-115		10/05/1999	1421
911126-1		MSD	10	48.43	50.00	96.9	85-115		10/05/1999	1452
910937-16			10	50.16	50.00	100.3	71-121		10/05/1999	1627
910937-21			10	49.23	50.00	98.5	85-115		10/05/1999	1701
910937-22			10	47.11	50.00	94.2	85-115		10/05/1999	1735
910937-20			20	47.91	50.00	95.8	85-115		10/05/1999	1806

Surrogate	Units
Toluene-d8	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		50.10	50.00	100.2	85-112		10/05/1999	0939
		LCS		49.94	50.00	99.9	85-112		10/05/1999	1010
910937-18				50.87	50.00	101.7	85-112		10/05/1999	1113
911177-3				51.78	50.00	103.6	85-112		10/05/1999	1215
911126-1			10	50.78	50.00	101.6	85-112		10/05/1999	1318
911126-1		MS	10	50.31	50.00	100.6	85-112		10/05/1999	1421
911126-1		MSD	10	50.91	50.00	101.8	85-112		10/05/1999	1452
910937-16			10	50.92	50.00	101.8	87-109		10/05/1999	1627
910937-21			10	51.25	50.00	102.5	85-112		10/05/1999	1701
910937-22			10	50.55	50.00	101.1	85-112		10/05/1999	1735
910937-20			20	50.71	50.00	101.4	85-112		10/05/1999	1806

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CORE LABORATORIES

QUALITY ASSURANCE FOOTER

METHOD REFERENCES

1. EPA SW-846, Test Methods for Evaluating Solid Waste Update I, IIA, IIB, III
2. Standard Methods for the Examination of Water and Wastewater, 18th Edition
3. EPA 600/4-79-020, Methods of Chemical Analysis for Waters and Wastes, March 1983
4. Federal Register, Friday, October 26, 1984 (40 CFR Part 136)
5. American Society for Testing and Materials, Volumes 5.01, 5.02, 5.03, 11.01,11.02,11.03,11.04
6. EPA Methods for Environmental Samples

COMMENTS

All methods of chemical analysis have a statistical uncertainty associated with the results. Unless otherwise indicated, the data in this report are within the limits of uncertainty as specified in the referenced method. Quality Control acceptance criteria are based either on actual laboratory performance or on limits specified in the referenced method. The date and time of analysis indicated on the QA report may not reflect the actual time of analysis for QC samples. All data are reported on an "as received" basis unless otherwise indicated. Data reported in the QA report may be lower than sample data due to dilution of samples into the calibration range of the analysis. Sample concentration for solid samples are calculated on an as received (wet) basis. Unless otherwise indicated, volatiles by gas chromatography (GC) are reported from a single column. Volatile analysis by GC on low level soil extractions are conducted at room temperature.

FLAGS, FOOTNOTES AND ABBREVIATIONS (as needed)

NA	=	Not Analyzed	ND	=	Not detected at a value greater than the reporting limit
N/A	=	Not applicable	NC	=	Not calculable due to values lower than the reporting limit
ug/L	=	Micrograms per liter	mg/L	=	Milligrams per liter
ug/Kg	=	Micrograms per kilogram	mg/kg	=	Milligrams per kilogram
U	=	Undetected			
J	=	Indicates value is > MDL, but < Reporting Limit			
B	=	Analyte was detected in the method blank analyzed with this sample.			
D	=	Surrogate recoveries are not calculated due to sample dilution.			
X	=	Surrogate recovery is outside quality control limits.			
Y	=	Spike or spike duplicate recovery is outside quality control limits.			
Z	=	Relative percent difference for a spike and spike duplicate is outside quality control limits. The precision of the method was impacted by matrix.			
^	=	Indicates value is above QC acceptance criteria.			

QC SAMPLE IDENTIFICATIONS

MB	=	Method Blank	SB	=	Storage Blank
RB	=	Reagent Blank	EB	=	Extraction Blank
PB	=	Preparation Blank	CALB	=	Calibration Blank
MD	=	Method Duplicate	RS	=	Reference Standard
LCS	=	Laboratory Control Sample	LCSD	=	Laboratory Control Sample Duplicate
MS	=	Matrix Spike	MSD	=	Matrix Spike Duplicate
ICB	=	Initial Calibration Blank	CCB	=	Continuing Calibration Blank
ICV	=	Initial Calibration Verification	ICB	=	Initial Calibration Blank
PDS	=	Post Digestion Spike	SS	=	Surrogate Spike
ISA	=	Interference Check standard "A"	ISB	=	Interference Check Standard "B"
ISCAB	=	Interference Check Sample AB	MSA	=	Method of Standard Additions
CAL	=	Calibration standard	SD	=	Serial Dilution
MST	=	TCLP Matrix Spike	MSQ	=	TCLP Matrix Spike Duplicate
PST	=	TCLP Post Digestion Spike	LCT	=	TCLP Laboratory Control Sample

SUBCONTRACTED LABORATORY LOCATIONS

CORE Laboratories:	Anaheim, California	*AN	Aurora, Colorado	*AU
	Casper, Wyoming	*CA	Corpus Christi, Texas	*CC
	Houston, Texas (Env)	*HE	Houston, Texas (Pet)	*HP
	Other (Detailed in Case Narrative)	*XX		

rpjsckl | Job Sample Receipt Checklist Report 10/01/99 | V2

Job Number.....: 911177 Location.: 57211 Customer Job ID.....: Job Check List Date.: 10/01/99
Project Number.: 96000651 Project Description.: Marathon Oil Co., Midland, Tx Project Manager.....: lpa
Customer.....: Marathon Oil Company Contact.: Mr. Paul Peacock

Questions ?	(Y/N)	Comments
Chain-of-Custody Present?	Y	
Custody seal on shipping container?		
...If "yes", custody seal intact?		
Custody seals on sample containers?		
...If "yes", custody seal intact?		
Samples chilled?	N	
Temperature of cooler acceptable? (4 deg C +/- 2).		
Samples received intact (good condition)?	Y	
Volatile samples acceptable? (no headspace)	Y	
Correct containers used?	Y	
Adequate sample volume provided?	Y	
Samples preserved correctly?	Y	
Samples received within holding-time?	Y	
Agreement between COC and sample labels?	Y	
Additional		
Comments		
Sample Custodian Signature		

CORE LAB

CORE LABORATORIES, INC.

0.156042

CHAIN OF CUSTODY RECORD

CUSTOMER INFORMATION	PROJECT INFORMATION
COMPANY: MARATHON Oil Company	PROJECT NAME/NUMBER: Indian Basin Remediation
SEND REPORT TO: Paul Peacock	**BILLING INFORMATION**
ADDRESS: 125 W. Missouri Street (79702-5204)	BILL TO: Same
P.O. Box 552	ADDRESS: Same
Midland TX 79702-0552	
PHONE: 915-687-8312	PHONE: Same
FAX: 915-687-8305	FAX: Same PO NO.:

LAB JOB NO. 911177

SAMPLE NO.	SAMPLE DESCRIPTION	SAMPLE DATE	SAMPLE TIME	SAMPLE MATRIX	CONTAINER	PRESERV.	NUMBER OF CONTAINERS	ANALYSIS / METHOD REQUEST: TPH-GRO (C5-C9)	BTEX (8021 or 8260)	DRO (C10-C28)	REMARKS / PRECAUTIONS
1	West Stripper Influent	9-30-99	9:35 AM	AQ	4-40mL VIALS	None		X	X		
	" " "	"	9:40 AM	"	2-1 Liter	None				X	
2	West Stripper Effluent	"	9:43 AM	"	4-40mL VIALS	None		X	X		
	" " "	"	9:48 AM	"	2-1 Liter	None				X	
3	East Stripper Influent	"	9:51 AM	"	4-40mL VIALS	None		X	X		
	" " "	"	9:56 AM	"	2-1 Liter	None				X	
4	East Stripper Effluent	"	9:59 AM	"	4-40mL VIALS	None		X	X		
	" " "	"	10:05 AM	"	2-1 Liter	None					

SAMPLER: SHIPMENT METHOD: AIRBILL NO.:

REQUIRED TURNAROUND:* ☐ SAME DAY ☐ 24 HOURS ☐ 48 HOURS ☐ 72 HOURS ☐ 5 DAYS ☐ 10 DAYS ☑ ~~ROUTINE~~ OTHER

1. RELINQUISHED BY:	DATE	2. RELINQUISHED BY:	DATE	3. RELINQUISHED BY:	DATE
SIGNATURE: Bigo Aguilera		SIGNATURE:		SIGNATURE:	
PRINTED NAME/COMPANY: Bigo Aguilera MOC	TIME	PRINTED NAME/COMPANY:	TIME	PRINTED NAME/COMPANY:	TIME
1. RECEIVED BY:	DATE	2. RECEIVED BY:	DATE	3. RECEIVED BY:	DATE
SIGNATURE: for Bob	10/1/99	SIGNATURE:		SIGNATURE:	
PRINTED NAME/COMPANY: JB CCL	TIME 1100	PRINTED NAME/COMPANY:	TIME	PRINTED NAME/COMPANY:	TIME

* RUSH TURNAROUND MAY REQUIRE SURCHARGE

☐ Anaheim, CA
1250 E. Gene Autry Way
Anaheim, CA 92805
(714) 937-1094 Fax (714) 937-1170

☐ Aurora, CO
10703 E. Bethany Drive
Aurora, CO 80014
(303) 751-1780 Fax (303) 751-1784

☐ Carson, CA
21730 S. Wilmington Ave. - Suite 201
Carson, CA 90810-1640
(310) 513-2031 Fax (310) 513-2035

☐ Casper, WY
420 W. First Street
Casper, WY 82601
(307) 235-5741 Fax (307) 266-1676

☐ Corpus Christi, TX
1733 N. Padre Island Drive
Corpus Christi, TX 78408
(512) 289-2673 Fax (512) 289-2471

☐ Edison, NJ
284 Raritan Center Parkway
Edison, NJ 08837
(732) 225-6700 Fax (732) 225-67

☐ Houston, TX (Env)
6310 Rothway Drive

☐ Houston, TX (Pet)
8210 Mosley Road

☐ Indianapolis, IN
7726 Moller Road

☐ Lake Charles, LA
3645 Begis Parkway

☐ Valparaiso, IN
2400 Cumberland Drive

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MCR
NOV 18 1999

ANALYTICAL REPORT

JOB NUMBER: 912392

Prepared For:

Marathon Oil Company
125 West Missouri Street
P.O. Box 552
Midland, TX 79702-0552

Attention: Mr. Paul Peacock

Date: 11/15/99

Les Arnold
Signature

11/15/99
Date

Name: Les Arnold

Title: Laboratory Manager

Severn Trent Laboratories
2400 Cumberland Drive
Valparaiso, IN 46383

PHONE: 219-464-2389
FAX..: 219-462-2953

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SAMPLE INFORMATION
Date: 11/15/99

Job Number.: 912392
Customer...: Marathon Oil Company
Attn.....: Mr. Paul Peacock

Project Number.....: 96000651
Customer Project ID....: INDIAN BASIN
Project Description....: Marathon Oil Co., Midland, Tx

Laboratory Sample ID	Customer Sample ID	Sample Matrix	Date Sampled	Time Sampled	Date Received	Time Received
912392-1	WEST STRIPPER EFFLUENT	Water	10/28/1999	09:10	10/29/1999	11:00
912392-2	WEST STRIPPER INFLUENT	Water	10/28/1999	09:18	10/29/1999	11:00
912392-3	EAST STRIPPER EFFLUENT	Water	10/28/1999	09:26	10/29/1999	11:00
912392-4	EAST STRIPPER INFLUENT	Water	10/28/1999	09:34	10/29/1999	11:00

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LABORATORY TEST RESULTS

Job Number: 912392

Date: 11/15/99

CUSTOMER: Marathon Oil Company | PROJECT: INDIAN BASIN | ATTN: Mr. Paul Peacock

Customer Sample ID: WEST STRIPPER EFFLUENT
Date Sampled.....: 10/28/1999
Time Sampled.....: 09:10
Sample Matrix.....: Water

Laboratory Sample ID: 912392-1
Date Received.....: 10/29/1999
Time Received.....: 11:00

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
8015B Modified	Diesel Range Organics (C10 - C28)					
	Diesel Range Organics C10 - C28	<0.5	0.5	mg/L	11/09/99	wds
8015B Modified	Gasoline Range Organics (C5-C9)					
	Gasoline Range Organics C5-C9	<0.5	0.5	mg/L	11/10/99	weh
EPA 8260B	Volatile Organic Compounds					
	Benzene	ND	5	ug/L	11/10/99	weh
	Ethylbenzene	ND	5	ug/L	11/10/99	weh
	Toluene	ND	5	ug/L	11/10/99	weh
	Xylenes (total)	ND	10	ug/L	11/10/99	weh
	Hexane	ND	5	ug/L	11/10/99	weh

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LABORATORY TEST RESULTS

Job Number: 912392

Date: 11/15/99

CUSTOMER: Marathon Oil Company | PROJECT: INDIAN BASIN | ATTN: Mr. Paul Peacock

Customer Sample ID: WEST STRIPPER INFLUENT
Date Sampled.....: 10/28/1999
Time Sampled.....: 09:18
Sample Matrix.....: Water

Laboratory Sample ID: 912392-2
Date Received.....: 10/29/1999
Time Received.....: 11:00

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
8015B Modified	Diesel Range Organics (C10 - C28)					
	Diesel Range Organics C10 - C28	0.5	0.5	mg/L	11/09/99	wds
8015B Modified	Gasoline Range Organics (C5-C9)					
	Gasoline Range Organics C5-C9	2.0	0.5	mg/L	11/10/99	weh
EPA 8260B	Volatile Organic Compounds					
	Benzene	<5	5	ug/L	11/12/99	weh
	Ethylbenzene	ND	5	ug/L	11/12/99	weh
	Toluene	<5	5	ug/L	11/12/99	weh
	Xylenes (total)	<10	10	ug/L	11/12/99	weh
	Hexane	ND	5	ug/L	11/12/99	weh

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LABORATORY TEST RESULTS

Job Number: 912392 Date: 11/15/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN ATTN: Mr. Paul Peacock

Customer Sample ID: EAST STRIPPER EFFLUENT
Date Sampled.....: 10/28/1999
Time Sampled.....: 09:26
Sample Matrix.....: Water

Laboratory Sample ID: 912392-3
Date Received.....: 10/29/1999
Time Received.....: 11:00

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
8015B Modified	Diesel Range Organics (C10 - C28)					
	Diesel Range Organics C10 - C28	<0.5	0.5	mg/L	11/09/99	wds
8015B Modified	Gasoline Range Organics (C5-C9)					
	Gasoline Range Organics C5-C9	<0.5	0.5	mg/L	11/10/99	weh
EPA 8260B	Volatile Organic Compounds					
	Benzene	ND	5	ug/L	11/10/99	weh
	Ethylbenzene	ND	5	ug/L	11/10/99	weh
	Toluene	ND	5	ug/L	11/10/99	weh
	Xylenes (total)	ND	10	ug/L	11/10/99	weh
	Hexane	ND	5	ug/L	11/10/99	weh

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LABORATORY TEST RESULTS

Job Number: 912392 Date: 11/15/99

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN ATTN: Mr. Paul Peacock

Customer Sample ID: EAST STRIPPER INFLUENT
Date Sampled.....: 10/28/1999
Time Sampled.....: 09:34
Sample Matrix.....: Water

Laboratory Sample ID: 912392-4
Date Received.....: 10/29/1999
Time Received.....: 11:00

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
8015B Modified	Diesel Range Organics (C10 - C28)					
	Diesel Range Organics C10 - C28	<0.5	0.5	mg/L	11/09/99	wds
8015B Modified	Gasoline Range Organics (C5-C9)					
	Gasoline Range Organics C5-C9	1.7	0.5	mg/L	11/10/99	weh
EPA 8260B	Volatile Organic Compounds					
	Benzene	<5	5	ug/L	11/12/99	weh
	Ethylbenzene	ND	5	ug/L	11/12/99	weh
	Toluene	<5	5	ug/L	11/12/99	weh
	Xylenes (total)	ND	10	ug/L	11/12/99	weh
	Hexane	ND	5	ug/L	11/12/99	weh

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QUALITY CONTROL RESULTS

Job Number.: 912392 Report Date.: 11/15/99

CUSTOMER: Marathon Oil Company PROJECT: Marathon Oil Co., Midland, Tx ATTN: Mr. Paul Peacock

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time

Test Method.....: 8015B Modified Batch.....: 49316 Analyst...: wds
Method Description.: Diesel Range Organics (C10 - C28) Units.....: mg/L

MB	Method Blank				11/09/1999	1817

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Diesel Range Organics C10 - C28	ND						

LCS	Laboratory Control Sample	DROSTD1			11/09/1999	1846

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Diesel Range Organics C10 - C28	488.15		500		97.6	%	42-122

MS	Matrix Spike	DROSTD1	912603-1		11/09/1999	2204

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Diesel Range Organics C10 - C28	633.92		500	99.82	106.8	%	42-122

MSD	Matrix Spike Duplicate	DROSTD1	912603-1		11/09/1999	2232

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Diesel Range Organics C10 - C28	700.6	633.92	500	99.82	120.2	%	42-122
					10.0	R	30

Test Method.....: 8015B Modified Batch.....: 49179 Analyst...: weh
Method Description.: Gasoline Range Organics (C5-C9) Units.....: mg/L

MB	Method Blank				11/10/1999	0005

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Gasoline Range Organics C5-C9	0.11						

LCS	Laboratory Control Sample	GROSTD			11/10/1999	0238

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Gasoline Range Organics C5-C9	2.38					%	72-125

 * %=% REC, R=RPD, A=ABS Diff., D=% Diff.

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QUALITY CONTROL RESULTS

Job Number.: 912392

Report Date.: 11/15/99

CUSTOMER: Marathon Oil Company PROJECT: Marathon Oil Co., Midland, Tx ATTN: Mr. Paul Peacock

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date Time

Test Method.....: EPA 8260B
Method Description.: Volatile Organic Compounds
Batch.....: 49228
Units.....: ug/L
Analyst...: weh

MB	Method Blank				11/10/1999 1720

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	ND						
Ethylbenzene	ND						
Toluene	ND						
Xylenes (total)	ND						
Hexane	ND						

LCS	Laboratory Control Sample	CLPVOAMS2			11/10/1999 1751

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	43.86		50		87.7	%	67-130
Toluene	40.61		50		81.2	%	75-114

MS	Matrix Spike	CLPVOAMS2	912839-1		11/10/1999 1853

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	46.04		50	1.92	88.2	%	67-130
Toluene	41.93		50	ND	83.9	%	75-114

MSD	Matrix Spike Duplicate	CLPVOAMS2	912839-1		11/10/1999 1923

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	45.56	46.04	50	1.92	87.3	%	67-130
					1.0	R	30
Toluene	41.38	41.93	50	ND	82.8	%	75-114
					1.3	R	30

Test Method.....: EPA 8260B
Method Description.: Volatile Organic Compounds
Batch.....: 49393
Units.....: ug/L
Analyst...: weh

MB	Method Blank				11/12/1999 1138

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	ND						
Ethylbenzene	ND						
Toluene	ND						
Xylenes (total)	ND						
Hexane	ND						

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

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QUALITY CONTROL RESULTS

Job Number.: 912392

Report Date.: 11/15/99

CUSTOMER: Marathon Oil Company PROJECT: Marathon Oil Co., Midland, Tx ATTN: Mr. Paul Peacock

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
LCS	Laboratory Control Sample	CLPVOAMS2			11/12/1999	1208

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	44.45		50		88.9	%	67-130
Toluene	41.36		50		82.7	%	75-114

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
MS	Matrix Spike	CLPVOAMS2	912458-1	1000	11/12/1999	1513

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	44.18		50	ND	88.4	%	67-130
Toluene	41.02		50	ND	82.0	%	75-114

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
MSD	Matrix Spike Duplicate	CLPVOAMS2	912458-1	1000	11/12/1999	1544

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	43.97	44.18	50	ND	87.9	%	67-130
					0.5	R	30
Toluene	40.65	41.02	50	ND	81.3	%	75-114
					0.9	R	30

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

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SURROGATE RECOVERIES REPORT

Job Number.: 912392 Report Date.: 11/15/99

CUSTOMER: Marathon Oil Company PROJECT: Marathon Oil Co., Midland, Tx ATTN: Mr. Paul Peacock

Method.....: Volatile Organic Compounds Batch.....: 49228
Method Code.....: 826TCL Analyst.....: weh

Surrogate	Units
1,2-Dichloroethane-d4 (surrogate)	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		44.77	50.00	89.5	76-120		11/10/1999	1720
		LCS		45.63	50.00	91.3	76-120		11/10/1999	1751
912839-1				45.68	50.00	91.4	76-120		11/10/1999	1822
912839-1		MS		44.39	50.00	88.8	76-120		11/10/1999	1853
912839-1		MSD		45.65	50.00	91.3	76-120		11/10/1999	1923
912839-3				45.14	50.00	90.3	76-120		11/10/1999	1954
912839-2				46.16	50.00	92.3	76-120		11/10/1999	2025
912859-1				45.09	50.00	90.2	76-120		11/10/1999	2056
912859-3				45.99	50.00	92.0	76-120		11/10/1999	2126
912859-2				45.38	50.00	90.8	76-120		11/10/1999	2157
912392-1				45.92	50.00	91.8	76-120		11/10/1999	2228
912392-3				45.11	50.00	90.2	76-120		11/10/1999	2259

Surrogate	Units
BFB (Surrogate)	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		51.63	50.00	103.3	85-115		11/10/1999	1720
		LCS		51.05	50.00	102.1	85-115		11/10/1999	1751
912839-1				51.39	50.00	102.8	85-115		11/10/1999	1822
912839-1		MS		51.06	50.00	102.1	85-115		11/10/1999	1853
912839-1		MSD		50.98	50.00	102.0	85-115		11/10/1999	1923
912839-3				51.41	50.00	102.8	85-115		11/10/1999	1954
912839-2				50.63	50.00	101.3	85-115		11/10/1999	2025
912859-1				51.28	50.00	102.6	85-115		11/10/1999	2056
912859-3				51.46	50.00	102.9	85-115		11/10/1999	2126
912859-2				51.55	50.00	103.1	85-115		11/10/1999	2157
912392-1				51.11	50.00	102.2	85-115		11/10/1999	2228
912392-3				51.51	50.00	103.0	85-115		11/10/1999	2259

Surrogate	Units
Toluene-d8	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		45.89	50.00	91.8	85-112		11/10/1999	1720
		LCS		45.90	50.00	91.8	85-112		11/10/1999	1751
912839-1				45.58	50.00	91.2	85-112		11/10/1999	1822
912839-1		MS		45.86	50.00	91.7	85-112		11/10/1999	1853
912839-1		MSD		45.55	50.00	91.1	85-112		11/10/1999	1923
912839-3				45.94	50.00	91.9	85-112		11/10/1999	1954

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SURROGATE RECOVERIES REPORT

Job Number.: 912392

Report Date.: 11/15/99

CUSTOMER: Marathon Oil Company

PROJECT: Marathon Oil Co., Midland, Tx ATTN: Mr. Paul Peacock

Surrogate	Units
Toluene-d8	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
912839-2				45.54	50.00	91.1	85-112		11/10/1999	2025
912859-1				45.79	50.00	91.6	85-112		11/10/1999	2056
912859-3				45.55	50.00	91.1	85-112		11/10/1999	2126
912859-2				45.58	50.00	91.2	85-112		11/10/1999	2157
912392-1				45.81	50.00	91.6	85-112		11/10/1999	2228
912392-3				45.97	50.00	91.9	85-112		11/10/1999	2259

Method.....: Volatile Organic Compounds
Method Code.....: 826TCL

Batch.....: 49393
Analyst.....: weh

Surrogate	Units
1,2-Dichloroethane-d4 (surrogate)	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
912458-1	Solid		60000	45.16	50.00	90.3	78-122		11/12/1999	0415
		MB		44.51	50.00	89.0	76-120		11/12/1999	1138
		LCS		44.10	50.00	88.2	76-120		11/12/1999	1208
912392-2				45.45	50.00	90.9	76-120		11/12/1999	1239
912392-4				45.35	50.00	90.7	76-120		11/12/1999	1310
912458-1			1000	45.66	50.00	91.3	76-120		11/12/1999	1442
912458-1		MS	1000	45.27	50.00	90.5	76-120		11/12/1999	1513
912458-1		MSD	1000	44.48	50.00	89.0	76-120		11/12/1999	1544
912872-2			5	46.05	50.00	92.1	76-120		11/12/1999	1818
912873-1			5	47.31	50.00	94.6	76-120		11/12/1999	1849
912587-1	rganic Waste		80000	46.34	50.00	92.7	81-116		11/12/1999	1919
912686-2	rganic Waste		80000	44.61	50.00	89.2	81-116		11/12/1999	2021

Surrogate	Units
BFB (Surrogate)	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
912458-1	Solid		60000	52.01	50.00	104.0	71-121		11/12/1999	0415
		MB		51.95	50.00	103.9	85-115		11/12/1999	1138
		LCS		51.13	50.00	102.3	85-115		11/12/1999	1208
912392-2				51.37	50.00	102.7	85-115		11/12/1999	1239
912392-4				51.30	50.00	102.6	85-115		11/12/1999	1310
912458-1			1000	50.81	50.00	101.6	85-115		11/12/1999	1442
912458-1		MS	1000	51.69	50.00	103.4	85-115		11/12/1999	1513
912458-1		MSD	1000	51.41	50.00	102.8	85-115		11/12/1999	1544
912872-2			5	50.96	50.00	101.9	85-115		11/12/1999	1818
912873-1			5	51.45	50.00	102.9	85-115		11/12/1999	1849
912587-1	rganic Waste		80000	51.50	50.00	103.0	85-110		11/12/1999	1919
912686-2	rganic Waste		80000	51.48	50.00	103.0	85-110		11/12/1999	2021

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SURROGATE RECOVERIES REPORT

Job Number.: 912392 Report Date.: 11/15/99

CUSTOMER: Marathon Oil Company PROJECT: Marathon Oil Co., Midland, Tx ATTN: Mr. Paul Peacock

Surrogate	Units
Toluene-d8	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
912458-1	Solid		60000	46.01	50.00	92.0	87-109		11/12/1999	0415
		MB		46.37	50.00	92.7	85-112		11/12/1999	1138
		LCS		45.94	50.00	91.9	85-112		11/12/1999	1208
912392-2				47.40	50.00	94.8	85-112		11/12/1999	1239
912392-4				47.59	50.00	95.2	85-112		11/12/1999	1310
912458-1			1000	46.32	50.00	92.6	85-112		11/12/1999	1442
912458-1		MS	1000	46.33	50.00	92.7	85-112		11/12/1999	1513
912458-1		MSD	1000	46.21	50.00	92.4	85-112		11/12/1999	1544
912872-2			5	46.49	50.00	93.0	85-112		11/12/1999	1818
912873-1			5	46.54	50.00	93.1	85-112		11/12/1999	1849
912587-1	rganic Waste		80000	45.98	50.00	92.0	85-112		11/12/1999	1919
912686-2	rganic Waste		80000	46.35	50.00	92.7	85-112		11/12/1999	2021

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QUALITY ASSURANCE FOOTER

METHOD REFERENCES

1. EPA SW-846, Test Methods for Evaluating Solid Waste Update I, IIA, IIB, III
2. Standard Methods for the Examination of Water and Wastewater, 18th Edition
3. EPA 600/4-79-020, Methods of Chemical Analysis for Waters and Wastes, March 1983
4. Federal Register, Friday, October 26, 1984 (40 CFR Part 136)
5. American Society for Testing and Materials, Volumes 5.01, 5.02, 5.03, 11.01,11.02,11.03,11.04
6. EPA Methods for Environmental Samples

COMMENTS

All methods of chemical analysis have a statistical uncertainty associated with the results. Unless otherwise indicated, the data in this report are within the limits of uncertainty as specified in the referenced method. Quality Control acceptance criteria are based either on actual laboratory performance or on limits specified in the referenced method. The date and time of analysis indicated on the QA report may not reflect the actual time of analysis for QC samples. All data are reported on an "as received" basis unless otherwise indicated. Data reported in the QA report may be lower than sample data due to dilution of samples into the calibration range of the analysis. Sample concentration for solid samples are calculated on an as received (wet) basis. Unless otherwise indicated, volatiles by gas chromatography (GC) are reported from a single column. Volatile analysis by GC on low level soil extractions are conducted at room temperature.

FLAGS, FOOTNOTES AND ABBREVIATIONS (as needed)

NA	=	Not Analyzed	ND	=	Not detected at a value greater than the reporting limit
N/A	=	Not applicable	NC	=	Not calculable due to values lower than the reporting limit
ug/L	=	Micrograms per liter	mg/L	=	Milligrams per liter
ug/Kg	=	Micrograms per kilogram	mg/kg	=	Milligrams per kilogram
U	=	Undetected			
J	=	Indicates value is > MDL, but < Reporting Limit			
B	=	Analyte was detected in the method blank analyzed with this sample.			
D	=	Surrogate recoveries are not calculated due to sample dilution.			
X	=	Surrogate recovery is outside quality control limits.			
Y	=	Spike or spike duplicate recovery is outside quality control limits.			
Z	=	Relative percent difference for a spike and spike duplicate is outside quality control limits. The precision of the method was impacted by matrix.			
^	=	Indicates value is above QC acceptance criteria.			

QC SAMPLE IDENTIFICATIONS

MB	=	Method Blank	SB	=	Storage Blank
RB	=	Reagent Blank	EB	=	Extraction Blank
PB	=	Preparation Blank	CALB	=	Calibration Blank
MD	=	Method Duplicate	RS	=	Reference Standard
LCS	=	Laboratory Control Sample	LCSD	=	Laboratory Control Sample Duplicate
MS	=	Matrix Spike	MSD	=	Matrix Spike Duplicate
ICB	=	Initial Calibration Blank	CCB	=	Continuing Calibration Blank
ICV	=	Initial Calibration Verification	ICB	=	Initial Calibration Blank
PDS	=	Post Digestion Spike	SS	=	Surrogate Spike
ISA	=	Interference Check standard "A"	ISB	=	Interference Check Standard "B"
ISCAB	=	Interference Check Sample AB	MSA	=	Method of Standard Additions
CAL	=	Calibration standard	SD	=	Serial Dilution
MST	=	TCLP Matrix Spike	MSQ	=	TCLP Matrix Spike Duplicate
PST	=	TCLP Post Digestion Spike	LCT	=	TCLP Laboratory Control Sample

rpjsckl | Job Sample Receipt Checklist Report 10/29/99 | V2

Job Number.....: 912392 Location.: 57211 Customer Job ID.....: Job Check List Date.: 10/29/99
Project Number.: 96000651 Project Description.: Marathon Oil Co., Midland, Tx Project Manager.....: lpa
Customer.....: Marathon Oil Company Contact.: Mr. Paul Peacock

Questions ?	(Y/N)	Comments
Chain-of-Custody Present?	Y	
Custody seal on shipping container?		
...If "yes", custody seal intact?		
Custody seals on sample containers?		
...If "yes", custody seal intact?		
Samples chilled?	N	
Temperature of cooler acceptable? (4 deg C +/- 2).		
Samples received intact (good condition)?	Y	
Volatile samples acceptable? (no headspace)	N/A	
Correct containers used?	Y	
Adequate sample volume provided?	Y	
Samples preserved correctly?	Y	
Samples received within holding-time?	Y	
Agreement between COC and sample labels?	Y	
Additional		
Comments		
Sample Custodian Signature		

192221

CORE LABORATORIES, INC.

CHAIN OF CUSTODY RECORD

CUSTOMER INFORMATION

COMPANY: MARATHON Oil Company
SEND REPORT TO: PAUL PEACOCK
ADDRESS: 125 W. MISSOURI STREET (79702-5204)
P.O. BOX 552
MIDLAND TX 79702-0552
PHONE: 915-687-8312
FAX: 915-687-8305

PROJECT INFORMATION

PROJECT NAME/NUMBER: INDIAN BASIN REMEDIATION

BILLING INFORMATION

BILL TO: SAME
ADDRESS: SAME
PHONE: SAME
FAX: SAME PO NO.:

LAB JOB NO. 912392

SAMPLE NO.	SAMPLE DESCRIPTION	SAMPLE DATE	SAMPLE TIME	SAMPLE MATRIX	CONTAINER	PRESERV.	NUMBER OF CONTAINERS	GRO (C5-C9)	BTEX 8021 or 8260	DRO (C10-C28)	REMARKS / PRECAUTIONS
1	WEST STRIPPER Influent	10-28-99	9:10 AM	AQ	4-40m VIALS	NONE		X	X		
	" " "		9:15 AM		2-1 LITER					X	
2	WEST STRIPPER Effluent		9:18 AM		4-40m VIAL			X	X		
	" " "		9:23 AM		2-1 LITER					X	
3	EAST STRIPPER Influent		9:26 AM		4-40m VIAL			X	X		
	" " "		9:31 AM		2-1 LITER					X	
4	EAST STRIPPER Effluent		9:34 AM		4-40m VIALS			X	X		
	" " "		9:39 AM		2-1 LITER					X	

SAMPLER:
SHIPMENT METHOD:
AIRBILL NO.:

REQUIRED TURNAROUND:* ☐ SAME DAY ☐ 24 HOURS ☐ 48 HOURS ☐ 72 HOURS ☐ 5 DAYS ☐ 10 DAYS ☑ ROUTINE OTHER

1. RELINQUISHED BY: SIGNATURE: Diego Aguilera	DATE	2. RELINQUISHED BY: SIGNATURE:	DATE	3. RELINQUISHED BY: SIGNATURE:	DATE
PRINTED NAME/COMPANY: DIEGO AGUILERA MOC	TIME	PRINTED NAME/COMPANY:	TIME	PRINTED NAME/COMPANY:	TIME
1. RECEIVED BY: SIGNATURE: JB	DATE 10/29/99	2. RECEIVED BY: SIGNATURE:	DATE	3. RECEIVED BY: SIGNATURE:	DATE
PRINTED NAME/COMPANY: JB STL	TIME 1100	PRINTED NAME/COMPANY:	TIME	PRINTED NAME/COMPANY:	TIME

* RUSH TURNAROUND MAY REQUIRE SURCHARGE

☐ Anaheim, CA
1250 E. Gene Autry Way
Anaheim, CA 92805
(714) 937-1094 Fax (714) 937-1170

☐ Houston, TX (Env)
8310 Rothway Drive

☐ Aurora, CO
10703 E. Bethany Drive
Aurora, CO 80014
(303) 751-1780 Fax (303) 751-1784

☐ Houston, TX (Pet)
8210 Mosley Road
Houston, TX 77075

☐ Casper, WY
420 W. First Street
Casper, WY 82601
(307) 235-5741 Fax (307) 266-1676

☐ Lake Charles, LA
3645 Beglis Parkway
Sulphur, LA 70663

☐ Corpus Christi, TX
1733 N. Padre Island Drive
Corpus Christi, TX 78408
(361) 289-2673 Fax (361) 289-2471

☐ Valparaiso, IN
2400 Cumberland Drive
Valparaiso, IN 46383

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ANALYTICAL REPORT

JOB NUMBER: 913081

Prepared For:

Marathon Oil Company
125 West Missouri Street
P.O. Box 552
Midland, TX 79702-0552

Attention: Mr. Paul Peacock

Date: 01/24/2000

REVISED
1-24-00

Les Arnold
Signature

1/24/2000
Date

Name: Les Arnold

Title: Laboratory Manager

Severn Trent Laboratories
2400 Cumberland Drive
Valparaiso, IN 46383

PHONE: 219-464-2389
FAX..: 219-462-2953

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SAMPLE INFORMATION
Date: 01/24/2000

Job Number.: 913081
Customer...: Marathon Oil Company
Attn.....: Mr. Paul Peacock

Project Number.....: 96000746
Customer Project ID....: INDIAN BASIN QTR
Project Description....: INDIAN BASIN REMEDIATION STRIPPER

Laboratory Sample ID	Customer Sample ID	Sample Matrix	Date Sampled	Time Sampled	Date Received	Time Received
913081-1	WEST STRIPPER INFLUENT	Aqueous	11/15/1999	08:35	11/15/1999	09:00
913081-2	WEST STRIPPER EFFLUENT	Aqueous	11/15/1999	08:46	11/15/1999	09:00
913081-3	EAST STRIPPER INFLUENT	Aqueous	11/15/1999	09:00	11/15/1999	09:00
913081-4	EAST STRIPPER EFFLUENT	Aqueous	11/15/1999	09:15	11/15/1999	09:00

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LABORATORY TEST RESULTS

Job Number: 913081 Date: 01/24/2000

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN QTR ATTN: Mr. Paul Peacock

Customer Sample ID: WEST STRIPPER INFLUENT
Date Sampled.....: 11/15/1999
Time Sampled.....: 08:35
Sample Matrix.....: Aqueous

Laboratory Sample ID: 913081-1
Date Received.....: 11/15/1999
Time Received.....: 09:00

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
8015B Modified	Diesel Range Organics (C10 - C28)					
	Diesel Range Organics C10 - C28	<0.5	0.5	mg/L	11/24/99	wds
8015B Modified	Gasoline Range Organics (C5-C9)					
	Gasoline Range Organics C5-C9	<0.50	0.50	mg/L	11/23/99	weh
EPA 8260B	Volatile Organic Compounds					
	Benzene	ND	20	ug/L	11/18/99	weh
	Ethylbenzene	ND	20	ug/L	11/18/99	weh
	Toluene	ND	20	ug/L	11/18/99	weh
	Xylenes (total)	ND	50	ug/L	11/18/99	weh
	Hexane	ND	100	ug/L	11/18/99	weh

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LABORATORY TEST RESULTS

Job Number: 913081 Date: 01/24/2000

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN QTR ATTN: Mr. Paul Peacock

Customer Sample ID: WEST STRIPPER EFFLUENT
Date Sampled.....: 11/15/1999
Time Sampled.....: 08:46
Sample Matrix.....: Aqueous

Laboratory Sample ID: 913081-2
Date Received.....: 11/15/1999
Time Received.....: 09:00

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 300.0	Bromide (Br)	<0.50	0.50	mg/L	11/22/99	kso
EPA 300.0	Chloride	49.5	1.0	mg/L	11/22/99	kso
EPA 300.0	Fluoride (F)	0.70	0.50	mg/L	11/22/99	kso
EPA 300.0	Sulfate (SO4)	199	50	mg/L	11/22/99	kso
EPA 3010	Acid Digestion, Metals (ICP)	Complete			11/17/99	amw
EPA 3510	Separatory Funnel Liq/Liq Extraction	Complete			11/16/99	bjl
EPA 6010B	Metals Analysis (ICAP)					
	Calcium (Ca)	114	0.5	mg/L	11/17/99	chh
	Magnesium (Mg)	54.5	0.1	mg/L	11/17/99	amw
	Potassium (K)	1.7	0.5	mg/L	11/17/99	amw
	Sodium (Na)	32.9	0.5	mg/L	11/22/99	amw
8015B Modified	Diesel Range Organics (C10 - C28)					
	Diesel Range Organics C10 - C28	<0.5	0.5	mg/L	11/24/99	wds
EPA 8310	Polynuclear Aromatic Hydrocarbons-HPLC					
	Acenaphthene	ND	5.0	ug/L	11/17/99	rm
	Acenaphthylene	ND	5.0	ug/L	11/17/99	rm
	Anthracene	ND	1.0	ug/L	11/17/99	rm
	Benzo(b)fluoranthene	ND	0.10	ug/L	11/17/99	rm
	Benzo(k)fluoranthene	ND	0.10	ug/L	11/17/99	rm
	Benzo(a)anthracene	ND	0.10	ug/L	11/17/99	rm
	Benzo(a)pyrene	ND	0.10	ug/L	11/17/99	rm
	Benzo(ghi)perylene	ND	0.10	ug/L	11/17/99	rm
	Chrysene	ND	1.0	ug/L	11/17/99	rm
	Dibenzo(a,h)anthracene	ND	0.10	ug/L	11/17/99	rm
	Fluoranthene	ND	1.0	ug/L	11/17/99	rm
	Fluorene	ND	1.0	ug/L	11/17/99	rm
	Indeno(1,2,3-cd)pyrene	ND	0.10	ug/L	11/17/99	rm
	Naphthalene	ND	5.0	ug/L	11/17/99	rm
	Phenanthrene	ND	1.0	ug/L	11/17/99	rm
	Pyrene	ND	1.0	ug/L	11/17/99	rm
8015B Modified	Gasoline Range Organics (C5-C9)					
	Gasoline Range Organics C5-C9	<0.50	0.50	mg/L	11/23/99	weh
EPA 8260B	Volatile Organic Compounds					
	Benzene	ND	5	ug/L	11/17/99	weh
	Ethylbenzene	ND	5	ug/L	11/17/99	weh
	Toluene	ND	5	ug/L	11/17/99	weh
	Xylenes (total)	ND	10	ug/L	11/17/99	weh
	Hexane	ND	20	ug/L	11/17/99	weh

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LABORATORY TEST RESULTS

Job Number: 913081 Date: 01/24/2000

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN QTR ATTN: Mr. Paul Peacock

Customer Sample ID: EAST STRIPPER INFLUENT
Date Sampled.....: 11/15/1999
Time Sampled.....: 09:00
Sample Matrix.....: Aqueous

Laboratory Sample ID: 913081-3
Date Received.....: 11/15/1999
Time Received.....: 09:00

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
8015B Modified	Diesel Range Organics (C10 - C28)					
	Diesel Range Organics C10 - C28	1.2	0.5	mg/L	11/24/99	wds
8015B Modified	Gasoline Range Organics (C5-C9)					
	Gasoline Range Organics C5-C9	0.55	0.50	mg/L	11/23/99	weh
EPA 8260B	Volatile Organic Compounds					
	Benzene	ND	20	ug/L	11/18/99	weh
	Ethylbenzene	ND	20	ug/L	11/18/99	weh
	Toluene	ND	20	ug/L	11/18/99	weh
	Xylenes (total)	ND	50	ug/L	11/18/99	weh
	Hexane	ND	100	ug/L	11/18/99	weh

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LABORATORY TEST RESULTS

Job Number: 913081 Date: 01/24/2000

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN QTR ATTN: Mr. Paul Peacock

Customer Sample ID: EAST STRIPPER EFFLUENT
Date Sampled.....: 11/15/1999
Time Sampled.....: 09:15
Sample Matrix.....: Aqueous

Laboratory Sample ID: 913081-4
Date Received.....: 11/15/1999
Time Received.....: 09:00

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 300.0	Bromide (Br)	<0.50	0.50	mg/L	11/22/99	kso
EPA 300.0	Chloride	49.6	1.0	mg/L	11/22/99	kso
EPA 300.0	Fluoride (F)	0.71	0.50	mg/L	11/22/99	kso
EPA 300.0	Sulfate (SO4)	197	50	mg/L	11/22/99	kso
EPA 3010	Acid Digestion, Metals (ICP)	Complete			11/17/99	amw
EPA 3510	Separatory Funnel Liq/Liq Extraction	Complete			11/16/99	bjl
EPA 6010B	Metals Analysis (ICAP)					
	Calcium (Ca)	114	0.5	mg/L	11/17/99	chh
	Magnesium (Mg)	53.5	0.1	mg/L	11/17/99	amw
	Potassium (K)	1.7	0.5	mg/L	11/17/99	amw
	Sodium (Na)	33.8	0.5	mg/L	11/22/99	amw
8015B Modified	Diesel Range Organics (C10 - C28)					
	Diesel Range Organics C10 - C28	<0.5	0.5	mg/L	11/24/99	wds
EPA 8310	Polynuclear Aromatic Hydrocarbons-HPLC					
	Acenaphthene	ND	5.0	ug/L	11/17/99	rm
	Acenaphthylene	ND	5.0	ug/L	11/17/99	rm
	Anthracene	ND	1.0	ug/L	11/17/99	rm
	Benzo(b)fluoranthene	ND	0.10	ug/L	11/17/99	rm
	Benzo(k)fluoranthene	ND	0.10	ug/L	11/17/99	rm
	Benzo(a)anthracene	ND	0.10	ug/L	11/17/99	rm
	Benzo(a)pyrene	ND	0.10	ug/L	11/17/99	rm
	Benzo(ghi)perylene	ND	0.10	ug/L	11/17/99	rm
	Chrysene	ND	1.0	ug/L	11/17/99	rm
	Dibenzo(a,h)anthracene	ND	0.10	ug/L	11/17/99	rm
	Fluoranthene	ND	1.0	ug/L	11/17/99	rm
	Fluorene	ND	1.0	ug/L	11/17/99	rm
	Indeno(1,2,3-cd)pyrene	ND	0.10	ug/L	11/17/99	rm
	Naphthalene	ND	5.0	ug/L	11/17/99	rm
	Phenanthrene	ND	1.0	ug/L	11/17/99	rm
	Pyrene	ND	1.0	ug/L	11/17/99	rm
8015B Modified	Gasoline Range Organics (C5-C9)					
	Gasoline Range Organics C5-C9	<0.50	0.50	mg/L	11/23/99	weh
EPA 8260B	Volatile Organic Compounds					
	Benzene	ND	5	ug/L	11/17/99	weh
	Ethylbenzene	ND	5	ug/L	11/17/99	weh
	Toluene	ND	5	ug/L	11/17/99	weh
	Xylenes (total)	ND	10	ug/L	11/17/99	weh
	Hexane	ND	20	ug/L	11/17/99	weh

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QUALITY CONTROL RESULTS

Job Number.: 913081 Report Date.: 01/24/2000

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN REMEDIATION STRIP ATTN: Mr. Paul Peacock

Test Method.....: EPA 300.0 Batch.....: 49855 Analyst...: kso
Method Description.: Ion Chromatography Analysis Units.....: mg/L Test Code.: BRO
Parameter.....: Bromide (Br)

QC	Lab ID	Reagent	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits	Date	Time
ICV		V199269C	0.980		1		98.0	%	85-115	11/22/1999	1138
ICB			0.000							11/22/1999	1150
MD	913081-2		0.000			0.000	0.000	A	0.500	11/22/1999	1215
MS	913081-2	V199269B	0.9904		1.000000	0.000	99.0	%	75-125	11/22/1999	1239
CCV		V199269C	1.002		1		100.2	%	85-115	11/22/1999	1328
CCB			0.016							11/22/1999	1340

Test Method.....: EPA 300.0 Batch.....: 49855 Analyst...: kso
Method Description.: Ion Chromatography Analysis Units.....: mg/L Test Code.: CHL
Parameter.....: Chloride

QC	Lab ID	Reagent	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits	Date	Time
ICV		V199269C	10.832		10		108.3	%	85-115	11/22/1999	1138
ICB			0.198							11/22/1999	1150
MD	913081-2		0.507			0.5239	0.0169	A	1.0000	11/22/1999	1215
MS	913081-2	V199269B	10.99258		10.000000	0.47151	105.2	%	75-125	11/22/1999	1239
CCV		V199269C	10.201		10		102.0	%	85-115	11/22/1999	1328
CCB			0.209							11/22/1999	1340

Test Method.....: EPA 300.0 Batch.....: 49855 Analyst...: kso
Method Description.: Ion Chromatography Analysis Units.....: mg/L Test Code.: FL
Parameter.....: Fluoride (F)

QC	Lab ID	Reagent	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits	Date	Time
ICV		V199269C	0.959		1		95.9	%	85-115	11/22/1999	1138
ICB			0.000							11/22/1999	1150
MD	913081-2		0.083			0.07098	0.01202	A	0.50000	11/22/1999	1215
MS	913081-2	V199269B	1.16722		1.000000	0.063882	110.3	%	75-125	11/22/1999	1239
CCV		V199269C	0.986		1		98.6	%	85-115	11/22/1999	1328
CCB			0.000							11/22/1999	1340

Test Method.....: EPA 300.0 Batch.....: 49855 Analyst...: kso
Method Description.: Ion Chromatography Analysis Units.....: mg/L Test Code.: SO4
Parameter.....: Sulfate (SO4)

QC	Lab ID	Reagent	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits	Date	Time
ICV		V199269C	21.309		20		106.5	%	85-115	11/22/1999	1138
ICB			0.545							11/22/1999	1150
MD	913081-2		4.010			3.97722	0.03278	A	1.00000	11/22/1999	1215
MS	913081-2	V199269B	25.25552		20.000000	3.579498	108.4	%	75-125	11/22/1999	1239
CCV		V199269C	21.748		20		108.7	%	85-115	11/22/1999	1328
CCB			0.489							11/22/1999	1340

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

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Job Number.: 913081 Report Date.: 01/24/2000

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN REMEDIATION STRIP ATTN: Mr. Paul Peacock

Test Method.....: EPA 6010B Batch.....: 49617 Analyst...: chh
Method Description.: Metals Analysis (ICAP) Units.....: mg/L Test Code.: CA
Parameter.....: Calcium (Ca)

QC	Lab ID	Reagent	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits	Date	Time
CAL		ICPCALSTD	29.66839		50.00					11/17/1999	1438
CAL		ICPCALBLK	0.01999		0.00					11/17/1999	1537
ICV		V211206D	1.95609		2.00		97.8	%	90-110	11/17/1999	1553
ICB			0.00978							11/17/1999	1558
ISB		V211206A	453.19125		500.0		90.6	%	80-120	11/17/1999	1602
CCV		V211206D	1.93197		2.00		96.6	%	90-110	11/17/1999	1711
CCB			0.00843							11/17/1999	1716
ISB		V211206A	426.12503		500.0		85.2	%	80-120	11/17/1999	1734
CCV		V211206D	1.82842		2.00		91.4	%	90-110	11/17/1999	1742
CCB			0.00843							11/17/1999	1747
CCV		V211206D	1.94884		2.00		97.4	%	90-110	11/17/1999	1805
CCB			0.00489							11/17/1999	1809
ISB		V211206A	446.84857		500.0		89.4	%	80-120	11/17/1999	1825
PB	1117-2		0.03811							11/17/1999	1838
LCS	1117-2	ICPSPK99B	46.55698		50.000		93.1	%	80-120	11/17/1999	1843
MS	913129-1	ICPSPK99B	101.60969		50.000	56.32462	90.6	%	75-125	11/17/1999	1852
MSD	913129-1	ICPSPK99B	101.38084	101.60969	50.000	56.32462	90.1	%	75-125	11/17/1999	1856
							0.2	R	20		
CCV		V211206D	1.83483		2.00		91.7	%	90-110	11/17/1999	1909
CCB			0.00522							11/17/1999	1914
EB	1117-1		0.10135							11/17/1999	1932
CCV		V211206D	1.89942		2.00		95.0	%	90-110	11/17/1999	2005
CCB			0.00826							11/17/1999	2010

Test Method.....: EPA 6010B Batch.....: 49632 Analyst...: amw
Method Description.: Metals Analysis (ICAP) Units.....: mg/L Test Code.: MG
Parameter.....: Magnesium (Mg)

QC	Lab ID	Reagent	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits	Date	Time
ICV		V211206D	2.03586		2.00		101.8	%	90-110	11/17/1999	2126
ICB			0.01309							11/17/1999	2132
ISB		V211206A	475.37951		500.0		95.1	%	80-120	11/17/1999	2135
PB	1117-2		0.14320							11/17/1999	2151
LCS	1117-2	ICPSPK99B	47.55823		50.000		95.1	%	80-120	11/17/1999	2156
EB	1117-1		0.06852							11/17/1999	2200
CCV		V211206D	2.07979		2.00		104.0	%	90-110	11/17/1999	2222
CCB			0.05158							11/17/1999	2227
MS	913129-1	ICPSPK99B	47.82925		50.000	0.20095	95.3	%	75-125	11/17/1999	2236
MSD	913129-1	ICPSPK99B	48.27893	47.82925	50.000	0.20095	96.2	%	75-125	11/17/1999	2240
							0.9	R	20		
ISB		V211206A	485.10040		500.0		97.0	%	80-120	11/17/1999	2254
CCV		V211206D	1.97976		2.00		99.0	%	90-110	11/17/1999	2303
CCB			0.01539							11/17/1999	2307
PB	1117-1		0.10548							11/17/1999	2314
LCS	1117-1	V16008711	12.93985		14.112204		91.7	%	80-120	11/17/1999	2318
CCV		V211206D	1.83089		2.00		91.5	%	90-110	11/17/1999	2359
CCB			0.01847							11/18/1999	0004
PB	1112-1		0.09855							11/18/1999	0018
CCV		V211206D	1.88106		2.00		94.1	%	90-110	11/18/1999	0022
CCB			0.01539							11/18/1999	0027
LCS	1112-1	V16008711	10.68067		12.314525		86.7	%	80-120	11/18/1999	0031

 * %=% REC, R=RPD, A=ABS Diff., D=% Diff.

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Job Number.: 913081 Report Date.: 01/24/2000

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN REMEDIATION STRIP ATTN: Mr. Paul Peacock

Test Method.....: EPA 6010B Batch.....: 49632 Analyst...: amw
Method Description.: Metals Analysis (ICAP) Units.....: mg/L Test Code.: MG
Parameter.....: Magnesium (Mg)

QC	Lab ID	Reagent	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits	Date	Time
MS	912928-1	V16008208	4.97312		2.000000	3.29268	84.0	%	75-125	11/18/1999	0041
MSD	912928-1	V16008208	5.11410	4.97312	2.000000	3.29268	91.1	%	75-125	11/18/1999	0045
							2.8	R	20		
ISB		V211206A	470.62646		500.0		94.1	%	80-120	11/18/1999	0108
CCV		V211206D	1.88646		2.00		94.3	%	90-110	11/18/1999	0117
CCB			0.02232							11/18/1999	0121

Test Method.....: EPA 6010B Batch.....: 49632 Analyst...: amw
Method Description.: Metals Analysis (ICAP) Units.....: mg/L Test Code.: K
Parameter.....: Potassium (K)

QC	Lab ID	Reagent	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits	Date	Time
ICV		V211206D	20.04996		20.00		100.2	%	90-110	11/17/1999	2126
ICB			-0.01873							11/17/1999	2132
PB	1117-2		0.00624							11/17/1999	2151
LCS	1117-2	ICPSPK99B	51.23184		50.000		102.5	%	80-120	11/17/1999	2156
EB	1117-1		0.11553							11/17/1999	2200
CCV		V211206D	20.23106		20.00		101.2	%	90-110	11/17/1999	2222
CCB			-0.00624							11/17/1999	2227
MS	913129-1	ICPSPK99B	714.91027		50.000	660.28100	109.3	%	75-125	11/17/1999	2236
MSD	913129-1	ICPSPK99B	716.38098	714.91027	50.000	660.28100	112.2	%	75-125	11/17/1999	2240
							0.2	R	20		
CCV		V211206D	20.47150		20.00		102.4	%	90-110	11/17/1999	2303
CCB			0.02185							11/17/1999	2307
PB	1117-1		0.14051							11/17/1999	2314
LCS	1117-1	V16008711	24.69008		24.291498		101.6	%	80-120	11/17/1999	2318
CCV		V211206D	19.30054		20.00		96.5	%	90-110	11/17/1999	2359
CCB			-0.00624							11/18/1999	0004
PB	1112-1		0.04996							11/18/1999	0018
CCV		V211206D	20.00000		20.00		100.0	%	90-110	11/18/1999	0022
CCB			0.05932							11/18/1999	0027
LCS	1112-1	V16008711	20.65573		21.197133		97.4	%	80-120	11/18/1999	0031
MS	912928-1	V16008208	2.52615		2.000000	0.66198	93.2	%	75-125	11/18/1999	0041
MSD	912928-1	V16008208	2.66666	2.52615	2.000000	0.66198	100.2	%	75-125	11/18/1999	0045
							5.4	R	20		
CCV		V211206D	20.10304		20.00		100.5	%	90-110	11/18/1999	0117
CCB			0.05932							11/18/1999	0121

Test Method.....: EPA 6010B Batch.....: 49849 Analyst...: amw
Method Description.: Metals Analysis (ICAP) Units.....: mg/L Test Code.: NA
Parameter.....: Sodium (Na)

QC	Lab ID	Reagent	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits	Date	Time
CAL		ICPCALBLK	0.34350		0.00					11/22/1999	2103
CAL		ICPCALSTD	0.71930		10.0					11/22/1999	2108
ICV		V21124F	50.07716		50.000		100.2	%	90-110	11/22/1999	2111
ICB			-0.07716							11/22/1999	2116
PB	1118-2		0.13571							11/22/1999	2141
LCS	1118-2	ICPSPK99B	52.44544		50.000		104.9	%	80-120	11/22/1999	2145

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Job Number.: 913081 Report Date.: 01/24/2000

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN REMEDIATION STRIP ATTN: Mr. Paul Peacock

Test Method.....: EPA 6010B Batch.....: 49849 Analyst...: amw
Method Description.: Metals Analysis (ICAP) Units.....: mg/L Test Code.: NA
Parameter.....: Sodium (Na)

QC	Lab ID	Reagent	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits	Date	Time
MSD	913164-2	ICPSPK99B	67.36561	68.05215	50.000	16.02182	102.7	%	75-125	11/22/1999	2150
							1.0	R	20		
MS	913164-2	ICPSPK99B	68.05215		50.000	16.02182	104.1	%	75-125	11/22/1999	2154
PB	1117-2		0.07716							11/22/1999	2203
LCS	1117-2	ICPSPK99B	51.83075		50.000		103.7	%	80-120	11/22/1999	2208
CCV		V21124F	49.58222		50.000		99.2	%	90-110	11/22/1999	2226
CCB			0.32730							11/22/1999	2230
PB	1119-1		0.71846							11/22/1999	2244
LCS	1119-1	V16008711	6.16817		5.290235		116.6	%	80-120	11/22/1999	2249
MS	913231-1	V16008208	5.39116		2.000000	3.62160	88.5	%	75-125	11/22/1999	2258
MSD	913231-1	V16008208	5.89143	5.39116	2.000000	3.62160	113.5	%	75-125	11/22/1999	2302
							8.9	R	20		
CCV		V21124F	47.53592		50.000		95.1	%	90-110	11/22/1999	2320
CCB			0.85151							11/22/1999	2325

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Job Number.: 913081 — Report Date.: 01/24/2000

CUSTOMER: Marathon Oil Company — PROJECT: INDIAN BASIN REMEDIATION STRIP — ATTN: Mr. Paul Peacock

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time

Test Method.....: 8015B Modified — Batch.....: 50033 — Analyst...: wds
Method Description.: Diesel Range Organics (C10 - C28) — Units.....: mg/L

MB	Method Blank				11/24/1999	1135

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Diesel Range Organics C10 - C28	ND						

LCS	Laboratory Control Sample	DROSTD			11/24/1999	1157

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Diesel Range Organics C10 - C28	428.92		500		85.8	%	42-122

MS	Matrix Spike	DROSTD	913081-2		11/24/1999	1302

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Diesel Range Organics C10 - C28	466.73		500	111.45	71.1	%	42-122

MSD	Matrix Spike Duplicate	DROSTD	913081-2		11/24/1999	1324

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Diesel Range Organics C10 - C28	453.13	466.73	500	111.45	68.3	%	42-122
					3.0	R	30

Test Method.....: EPA 8310 — Batch.....: 49648 — Analyst...: rm
Method Description.: Polynuclear Aromatic Hydrocarbons-HPLC — Units.....: ug/L

MB	Method Blank				11/16/1999	2004

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Acenaphthene	ND						
Acenaphthylene	ND						
Anthracene	ND						
Benzo(b)fluoranthene	ND						
Benzo(k)fluoranthene	ND						
Benzo(a)anthracene	ND						
Benzo(a)pyrene	ND						
Benzo(ghi)perylene	ND						
Chrysene	ND						
Dibenzo(a,h)anthracene	ND						
Fluoranthene	ND						
Fluorene	ND						
Indeno(1,2,3-cd)pyrene	ND						
Naphthalene	ND						
Phenanthrene	ND						
Pyrene	ND						

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

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Job Number.: 913081 Report Date.: 01/24/2000

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN REMEDIATION STRIP ATTN: Mr. Paul Peacock

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
LCS	Laboratory Control Sample	V173725B			11/16/1999	2047

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Acenaphthene	260.2		1000.000000		26.0	%	10-92
Acenaphthylene	609.69		1000.000000		61.0	%	11-127
Anthracene	522.4		1002.000000		52.1	%	33-110
Benzo(b)fluoranthene	327.4		500.000000		65.5	%	57-102
Benzo(k)fluoranthene	337.6		500.000000		67.5	%	59-107
Benzo(a)anthracene	339.8		500.000000		68.0	%	61-109
Benzo(a)pyrene	316.2		500.000000		63.2	%	42-131
Benzo(ghi)perylene	333.6		500.000000		66.7	%	55-119
Chrysene	334.1		500.000000		66.8	%	59-103
Dibenzo(a,h)anthracene	344.5		500.000000		68.9	%	63-108
Fluoranthene	409.5		500.000000		81.9	%	40-122
Fluorene	366.7		1000.000000		36.7	%	20-95
Indeno(1,2,3-cd)pyrene	341.5		500.000000		68.3	%	57-104
Naphthalene	211.8		1000.000000		21.2	%	10-82
Phenanthrene	275.4		502.500000		54.8	%	37-102
Pyrene	397.8		500.000000		79.6	%	59-111

MS	Matrix Spike	V173725B	912892-2		11/16/1999	2213

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Acenaphthene	552.3		1000.000000	ND	55.2	%	10-92
Acenaphthylene	532.50		1000.000000	ND	53.2	%	11-127
Anthracene	742.4		1002.000000	ND	74.1	%	33-110
Benzo(b)fluoranthene	366.8		500.000000	ND	73.4	%	57-102
Benzo(k)fluoranthene	384.5		500.000000	ND	76.9	%	59-107
Benzo(a)anthracene	389.3		500.000000	ND	77.9	%	61-109
Benzo(a)pyrene	368.1		500.000000	ND	73.6	%	42-131
Benzo(ghi)perylene	396.2		500.000000	ND	79.2	%	55-119
Chrysene	379.1		500.000000	ND	75.8	%	59-103
Dibenzo(a,h)anthracene	414.6		500.000000	ND	82.9	%	63-108
Fluoranthene	466.3		500.000000	ND	93.3	%	40-122
Fluorene	665.4		1000.000000	ND	66.5	%	20-95
Indeno(1,2,3-cd)pyrene	374.1		500.000000	ND	74.8	%	57-104
Naphthalene	345.8		1000.000000	ND	34.6	%	10-82
Phenanthrene	411.7		502.500000	ND	81.9	%	37-102
Pyrene	453.5		500.000000	ND	90.7	%	59-111

MSD	Matrix Spike Duplicate	V173725B	912892-2		11/16/1999	2257

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Acenaphthene	327.5	552.3	1000.000000	ND	32.8	%	10-92
					51.1	R	30
Acenaphthylene	553.18	532.50	1000.000000	ND	55.3	%	11-127
					3.8	R	30
Anthracene	636.5	742.4	1002.000000	ND	63.5	%	33-110
					15.4	R	30
Benzo(b)fluoranthene	335.6	366.8	500.000000	ND	67.1	%	57-102
					8.9	R	30
Benzo(k)fluoranthene	349.0	384.5	500.000000	ND	69.8	%	59-107
					9.7	R	30

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

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CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN REMEDIATION STRIP ATTN: Mr. Paul Peacock

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date Time
MSD	Matrix Spike Duplicate	V173725B	912892-2		11/16/1999 2257

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzo(a)anthracene	355.7	389.3	500.000000	ND	71.1	%	61-109
					9.0	R	30
Benzo(a)pyrene	333.9	368.1	500.000000	ND	66.8	%	42-131
					9.7	R	30
Benzo(ghi)perylene	347.8	396.2	500.000000	ND	69.6	%	55-119
					13.0	R	30
Chrysene	342.7	379.1	500.000000	ND	68.5	%	59-103
					10.1	R	30
Dibenzo(a,h)anthracene	359.1	414.6	500.000000	ND	71.8	%	63-108
					14.3	R	30
Fluoranthene	371.6	466.3	500.000000	ND	74.3	%	40-122
					22.6	R	30
Fluorene	461.9	665.4	1000.000000	ND	46.2	%	20-95
					36.1	R	30
Indeno(1,2,3-cd)pyrene	327.6	374.1	500.000000	ND	65.5	%	57-104
					13.3	R	30
Naphthalene	204.9	345.8	1000.000000	ND	20.5	%	10-82
					51.2	R	30
Phenanthrene	392.3	411.7	502.500000	ND	78.1	%	37-102
					4.8	R	30
Pyrene	425.7	453.5	500.000000	ND	85.1	%	59-111
					6.3	R	30

Test Method.....: 8015B Modified Batch.....: 49874 Analyst...: weh
Method Description.: Gasoline Range Organics (C5-C9) Units.....: mg/L

MB	Method Blank				11/23/1999 0148

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Gasoline Range Organics C5-C9	0.20						

LCS	Laboratory Control Sample	GROSTD			11/23/1999 0953

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Gasoline Range Organics C5-C9	2.54		0.000000			%	72-125

Test Method.....: EPA 8260B Batch.....: 49575 Analyst...: weh
Method Description.: Volatile Organic Compounds Units.....: ug/L

MB	Method Blank				11/17/1999 1021

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	ND						
Ethylbenzene	ND						
Toluene	ND						
Xylenes (total)	ND						

 * %=% REC, R=RPD, A=ABS Diff., D=% Diff.

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Job Number.: 913081 Report Date.: 01/24/2000

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN REMEDIATION STRIP ATTN: Mr. Paul Peacock

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
MB	Method Blank				11/17/1999	1021

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Hexane	ND						

LCS	Laboratory Control Sample	CLPVOAMS2			11/17/1999	1051

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	53.63		50		107.3	%	67-130
Toluene	53.11		50		106.2	%	75-114

MS	Matrix Spike	CLPVOAMS2	913114-1		11/17/1999	1638

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	52.76		50	1.02	103.5	%	67-130
Toluene	52.75		50	ND	105.5	%	75-114

MSD	Matrix Spike Duplicate	CLPVOAMS2	913114-1		11/17/1999	1709

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	52.78	52.76	50	1.02	103.5	%	67-130
					0.0	R	30
Toluene	53.05	52.75	50	ND	106.1	%	75-114
					0.6	R	30

Test Method.....: EPA 8260B Batch.....: 49687 Analyst...: weh
Method Description.: Volatile Organic Compounds Units.....: ug/L

MB	Method Blank				11/18/1999	1028

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	ND						
Ethylbenzene	ND						
Toluene	ND						
Xylenes (total)	ND						
Hexane	ND						

LCS	Laboratory Control Sample	CLPVOAMS2			11/18/1999	1059

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	49.00		50		98.0	%	67-130
Toluene	49.45		50		98.9	%	75-114

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

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QUALITY CONTROL RESULTS

Job Number.: 913081 Report Date.: 01/24/2000

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN REMEDIATION STRIP ATTN: Mr. Paul Peacock

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
MS	Matrix Spike	CLPVOAMS2	913157-1		11/18/1999	1201

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	51.03		50	1.10	99.9	%	67-130
Toluene	49.87		50	ND	99.7	%	75-114

MSD	Matrix Spike Duplicate	CLPVOAMS2	913157-1		11/18/1999	1231

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	51.14	51.03	50	1.10	100.1	%	67-130
					0.2	R	30
Toluene	51.33	49.87	50	ND	102.7	%	75-114
					2.9	R	30

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

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SURROGATE RECOVERIES REPORT

Job Number.: 913081 Report Date.: 01/24/2000

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN REMEDIATION STRIP ATTN: Mr. Paul Peacock

Method.....: Volatile Organic Compounds Batch.....: 49575
Method Code.....: 8260V1 Analyst.....: weh

Surrogate	Units
1,2-Dichloroethane-d4 (surrogate)	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		53.60	50.00	107.2	76-120		11/17/1999	1021
		LCS		52.73	50.00	105.5	76-120		11/17/1999	1051
912767-13			20	52.26	50.00	104.5	76-120		11/17/1999	1126
912767-17			10	52.99	50.00	106.0	76-120		11/17/1999	1159
912767-18			10	52.72	50.00	105.4	76-120		11/17/1999	1233
912767-19				52.89	50.00	105.8	76-120		11/17/1999	1304
913091-1				53.36	50.00	106.7	76-120		11/17/1999	1405
913081-2				52.55	50.00	105.1	76-120		11/17/1999	1436
913081-4				53.63	50.00	107.3	76-120		11/17/1999	1507
913114-1				53.87	50.00	107.7	76-120		11/17/1999	1608
913114-1		MS		52.34	50.00	104.7	76-120		11/17/1999	1638
913114-1		MSD		53.37	50.00	106.7	76-120		11/17/1999	1709
913114-2				53.12	50.00	106.2	76-120		11/17/1999	1740
913114-3				53.30	50.00	106.6	76-120		11/17/1999	1811
912762-3	Wipe		100	52.28	50.00	104.6	81-116		11/17/1999	1912
912762-5	Wipe		100	53.01	50.00	106.0	81-116		11/17/1999	1943

Surrogate	Units
BFB (Surrogate)	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		52.99	50.00	106.0	85-115		11/17/1999	1021
		LCS		51.33	50.00	102.7	85-115		11/17/1999	1051
912767-13			20	53.03	50.00	106.1	85-115		11/17/1999	1126
912767-17			10	49.90	50.00	99.8	85-115		11/17/1999	1159
912767-18			10	51.21	50.00	102.4	85-115		11/17/1999	1233
912767-19				49.16	50.00	98.3	85-115		11/17/1999	1304
913091-1				49.91	50.00	99.8	85-115		11/17/1999	1405
913081-2				51.89	50.00	103.8	85-115		11/17/1999	1436
913081-4				50.18	50.00	100.4	85-115		11/17/1999	1507
913114-1				51.37	50.00	102.7	85-115		11/17/1999	1608
913114-1		MS		51.15	50.00	102.3	85-115		11/17/1999	1638
913114-1		MSD		51.81	50.00	103.6	85-115		11/17/1999	1709
913114-2				50.50	50.00	101.0	85-115		11/17/1999	1740
913114-3				51.90	50.00	103.8	85-115		11/17/1999	1811

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SURROGATE RECOVERIES REPORT

Job Number.: 913081 Report Date.: 01/24/2000

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN REMEDIATION STRIP ATTN: Mr. Paul Peacock

Surrogate	Units
Toluene-d8	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		52.53	50.00	105.1	85-112		11/17/1999	1021
		LCS		52.57	50.00	105.1	85-112		11/17/1999	1051
912767-13			20	53.00	50.00	106.0	85-112		11/17/1999	1126
912767-17			10	52.63	50.00	105.3	85-112		11/17/1999	1159
912767-18			10	52.96	50.00	105.9	85-112		11/17/1999	1233
912767-19				52.64	50.00	105.3	85-112		11/17/1999	1304
913091-1				52.35	50.00	104.7	85-112		11/17/1999	1405
913081-2				54.23	50.00	108.5	85-112		11/17/1999	1436
913081-4				54.15	50.00	108.3	85-112		11/17/1999	1507
913114-1				54.20	50.00	108.4	85-112		11/17/1999	1608
913114-1		MS		54.10	50.00	108.2	85-112		11/17/1999	1638
913114-1		MSD		54.35	50.00	108.7	85-112		11/17/1999	1709
913114-2				54.33	50.00	108.7	85-112		11/17/1999	1740
913114-3				54.36	50.00	108.7	85-112		11/17/1999	1811
912762-3	Wipe		100	54.95	50.00	109.9	85-112		11/17/1999	1912
912762-5	Wipe		100	53.59	50.00	107.2	85-112		11/17/1999	1943

Method.....: Polynuclear Aromatic Hydrocarbons-HPLC Batch.....: 49648
Method Code.....: 8310 Analyst.....: rm

Surrogate	Units
1-Fluoronaphthalene	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
912816-1				720.4	1000	72.0	10-74		11/16/1999	0236
		MB		221.8	1000	22.2	10-74		11/16/1999	2004
		LCS		121.4	1000	12.1	10-74		11/16/1999	2047
912892-2				195.3	1000	19.5	10-74		11/16/1999	2130
912892-2		MS		215.2	1000	21.5	10-74		11/16/1999	2213
912892-2		MSD		145.5	1000	14.6	10-74		11/16/1999	2257
912969-1				498	1000	49.8	10-74		11/16/1999	2339
913069-1				109.5	1000	10.9	10-74		11/17/1999	1030
913069-2				100.3	1000	10.0	10-74		11/17/1999	1114
913079-1				285	1000	28.5	10-74		11/17/1999	1155
913080-1				106.0	1000	10.6	10-74		11/17/1999	1239
913080-2				106.9	1000	10.7	10-74		11/17/1999	1322
913081-2				186.2	1000	18.6	10-74		11/17/1999	1405
913081-4				495.4	1000	49.5	10-74		11/17/1999	1449
913086-1				571.2	1000	57.1	10-74		11/17/1999	1532
913086-2				351.0	1000	35.1	10-74		11/17/1999	1615
913086-3				522.5	1000	52.2	10-74		11/17/1999	1659
913086-4				311.8	1000	31.2	10-74		11/17/1999	1742
913086-5				269.9	1000	27.0	10-74		11/17/1999	1825
912971-1				313.4	1000	31.3	10-74		11/17/1999	1909
912971-2				231.4	1000	23.1	10-74		11/17/1999	1952

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SURROGATE RECOVERIES REPORT

Job Number.: 913081 Report Date.: 01/24/2000

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN REMEDIATION STRIP ATTN: Mr. Paul Peacock

Surrogate	Units
Terphenyl-d14	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
912816-1				776.2	1000	77.6	56-122		11/16/1999	0236
		MB		2784.1	1000	278.4	56-122	X	11/16/1999	2004
		LCS		692.2	1000	69.2	56-122		11/16/1999	2047
912892-2				747.4	1000	74.7	56-122		11/16/1999	2130
912892-2		MS		805.0	1000	80.5	56-122		11/16/1999	2213
912892-2		MSD		701.5	1000	70.2	56-122		11/16/1999	2257
912969-1				685	1000	68.5	56-122		11/16/1999	2339
913069-1				686.8	1000	68.7	56-122		11/17/1999	1030
913069-2				583.4	1000	58.3	56-122		11/17/1999	1114
913079-1				675	1000	67.5	56-122		11/17/1999	1155
913080-1				680.4	1000	68.0	56-122		11/17/1999	1239
913080-2				827.6	1000	82.8	56-122		11/17/1999	1322
913081-2				709.4	1000	70.9	56-122		11/17/1999	1405
913081-4				647.7	1000	64.8	56-122		11/17/1999	1449
913086-1				715.2	1000	71.5	56-122		11/17/1999	1532
913086-2				635.4	1000	63.5	56-122		11/17/1999	1615
913086-3				741.3	1000	74.1	56-122		11/17/1999	1659
913086-4				773.4	1000	77.3	56-122		11/17/1999	1742
913086-5				750.3	1000	75.0	56-122		11/17/1999	1825
912971-1				691.1	1000	69.1	56-122		11/17/1999	1909
912971-2				598.2	1000	59.8	56-122		11/17/1999	1952

Method.....: Volatile Organic Compounds Batch.....: 49687
Method Code.....: 8260V1 Analyst.....: weh

Surrogate	Units
1,2-Dichloroethane-d4 (surrogate)	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		51.67	50.00	103.3	76-120		11/18/1999	1028
		LCS		51.16	50.00	102.3	76-120		11/18/1999	1059
913157-1				50.96	50.00	101.9	76-120		11/18/1999	1130
913157-1		MS		50.61	50.00	101.2	76-120		11/18/1999	1201
913157-1		MSD		51.22	50.00	102.4	76-120		11/18/1999	1231
913157-2				51.44	50.00	102.9	76-120		11/18/1999	1302
913157-3				51.91	50.00	103.8	76-120		11/18/1999	1333
912768-1				51.59	50.00	103.2	76-120		11/18/1999	1403
913149-1				53.26	50.00	106.5	76-120		11/18/1999	1434
912751-1			20000	51.49	50.00	103.0	76-120		11/18/1999	1606
913081-1			5	51.76	50.00	103.5	76-120		11/18/1999	1637
913081-3			5	51.11	50.00	102.2	76-120		11/18/1999	1708

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SURROGATE RECOVERIES REPORT

Job Number.: 913081 Report Date.: 01/24/2000

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN REMEDIATION STRIP ATTN: Mr. Paul Peacock

Surrogate	Units
BFB (Surrogate)	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		48.40	50.00	96.8	85-115		11/18/1999	1028
		LCS		49.92	50.00	99.8	85-115		11/18/1999	1059
913157-1				49.18	50.00	98.4	85-115		11/18/1999	1130
913157-1		MS		51.07	50.00	102.1	85-115		11/18/1999	1201
913157-1		MSD		50.42	50.00	100.8	85-115		11/18/1999	1231
913157-2				49.65	50.00	99.3	85-115		11/18/1999	1302
913157-3				49.02	50.00	98.0	85-115		11/18/1999	1333
912768-1				48.83	50.00	97.7	85-115		11/18/1999	1403
913149-1				52.63	50.00	105.3	85-115		11/18/1999	1434
912751-1			20000	45.06	50.00	90.1	85-115		11/18/1999	1606
913081-1			5	49.19	50.00	98.4	85-115		11/18/1999	1637
913081-3			5	50.59	50.00	101.2	85-115		11/18/1999	1708

Surrogate	Units
Toluene-d8	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		49.96	50.00	99.9	85-112		11/18/1999	1028
		LCS		50.32	50.00	100.6	85-112		11/18/1999	1059
913157-1				49.11	50.00	98.2	85-112		11/18/1999	1130
913157-1		MS		48.49	50.00	97.0	85-112		11/18/1999	1201
913157-1		MSD		50.32	50.00	100.6	85-112		11/18/1999	1231
913157-2				48.98	50.00	98.0	85-112		11/18/1999	1302
913157-3				49.48	50.00	99.0	85-112		11/18/1999	1333
912768-1				48.81	50.00	97.6	85-112		11/18/1999	1403
913149-1				49.73	50.00	99.5	85-112		11/18/1999	1434
912751-1			20000	49.33	50.00	98.7	85-112		11/18/1999	1606
913081-1			5	51.12	50.00	102.2	85-112		11/18/1999	1637
913081-3			5	50.16	50.00	100.3	85-112		11/18/1999	1708

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CORE LAB

CORE LABORATORIES, INC.

N 52354

CHAIN OF CUSTODY RECORD

CUSTOMER INFORMATION

COMPANY: MARATHON O:l Co - Midland, TX
SEND REPORT TO: MR. Paul Peacock
ADDRESS: 125 W. Missouri St. 79702
P.O. Box 552
Midland TX 79702-0552
PHONE: 915-687-8312
FAX: 915-687-8305

PROJECT INFORMATION

PROJECT NAME/NUMBER: Indian Basin Remediation

BILLING INFORMATION

BILL TO: SAME
ADDRESS: SAME
PHONE: SAME
FAX: SAME PO NO.:

LAB JOB NO. 913081

	SAMPLE NO.	SAMPLE DESCRIPTION	SAMPLE DATE	SAMPLE TIME	SAMPLE MATRIX	CONTAINER	PRESERV.	NUMBER OF CONTAINERS	BTEX + Hexane	GRO	DRO	PAHs (8310)	C10-C28	C5-C9	CA K Mg NA	REMARKS / PRECAUTIONS
1	1	West STRIPPER Influent	11-15-99	8:35 AM	AQ	4-40 ml VOAs	None	4	✓	✓						
	2	" " "	"	8:42 AM	AQ	2-1 liter	None	2			✓					
2	3	West STRIPPER Effluent	"	8:46 AM	AQ	4-40 ml VOAs	None	4	✓	✓						
	4	" " "	"	8:52 AM	AQ	4-1 liter	None	4			✓	✓				
	5	" " "	"	8:59 AM	AQ	2-500 mL	None	2					✓	✓		
3	6	EAST STRIPPER Influent	"	9:03 AM	AQ	4-40 ml VOAs	None	4	✓	✓						
	7	" " "	"	9:11 AM	AQ	2-1 liter	None	2			✓					
4	8	EAST STRIPPER Effluent	"	9:15 AM	AQ	4-40 ml VOAs	None	24	✓	✓	-	-				
	9	" " "	"	9:22 AM	AQ	4-1 liter	None	4			✓	✓				
	10	" " "	"	9:30 AM	AQ	2-500 mL	None	2					✓	✓		

SAMPLER:
SHIPMENT METHOD:
AIRBILL NO.:

REQUIRED TURNAROUND:* ☐ SAME DAY ☐ 24 HOURS ☐ 48 HOURS ☐ 72 HOURS ☐ 5 DAYS ☐ 10 DAYS ☑ ROUTINE OTHER

1. RELINQUISHED BY: SIGNATURE: Brian Aguilera	DATE	2. RELINQUISHED BY: SIGNATURE:	DATE	3. RELINQUISHED BY: SIGNATURE:	DATE
PRINTED NAME/COMPANY: Brian Aguilera / MOC	TIME	PRINTED NAME/COMPANY:	TIME	PRINTED NAME/COMPANY:	TIME
1. RECEIVED BY: SIGNATURE: J. Bob	DATE 11/16/99	2. RECEIVED BY: SIGNATURE:	DATE	3. RECEIVED BY: SIGNATURE:	DATE
PRINTED NAME/COMPANY: JB STL	TIME 0900	PRINTED NAME/COMPANY:	TIME	PRINTED NAME/COMPANY:	TIME

* RUSH TURNAROUND MAY REQUIRE SURCHARGE

☐ Anaheim, CA
1250 E. Gene Autry Way
Anaheim, CA 92805
(714) 937-1094 Fax (714) 937-1170

☐ Houston, TX (Env)
6310 Rothway Drive

☐ Aurora, CO
10703 E. Bethany Drive
Aurora, CO 80014
(303) 751-1780 Fax (303) 751-1784

☐ Houston, TX (Pet)
8210 Mosley Road

☐ Carson, CA
21730 S. Wilmington Ave. - Suite 201
Carson, CA 90810-1640
(310) 513-2031 Fax (310) 513-2035

☐ Indianapolis, IN
7726 Moller Road
Indianapolis, IN 46268

☐ Casper, WY
420 W. First Street
Casper, WY 82601
(307) 235-5741 Fax (307) 266-1676

☐ Lake Charles, LA
3645 Beglis Parkway
Sulphur, LA 70663

☐ Corpus Christi, TX
1733 N. Padre Island Drive
Corpus Christi, TX 78408
(512) 289-2673 Fax (512) 289-2471

☐ Valparaiso, IN
2400 Cumberland Drive
Valparaiso, IN 46383
(219) 464-2389 Fax (219) 462-2953

☐ Edison, NJ
284 Raritan Center Parkway
Edison, NJ 08837
(732) 225-6700 Fax (732) 225-6777

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ANALYTICAL REPORT

JOB NUMBER: 914223

Prepared For:

Marathon Oil Company
125 West Missouri Street
P.O. Box 552
Midland, TX 79702-0552

Attention: Mr. Paul Peacock

Date: 12/27/1999

Les Arnold
Signature

12/27/99
Date

Name: Les Arnold

Title: Laboratory Manager

Severn Trent Laboratories
2400 Cumberland Drive
Valparaiso, IN 46383

PHONE: 219-464-2389
FAX..: 219-462-2953

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SAMPLE INFORMATION
Date: 12/27/1999

Job Number.: 914223
Customer...: Marathon Oil Company
Attn.....: Mr. Paul Peacock

Project Number.....: 96000651
Customer Project ID....: INDIAN BASIN
Project Description....: Marathon Oil Co., Midland, Tx

Laboratory Sample ID	Customer Sample ID	Sample Matrix	Date Sampled	Time Sampled	Date Received	Time Received
914223-1	WEST STRIPPER EFFLUENT	Water	12/14/1999	10:39	12/14/1999	11:00
914223-2	WEST STRIPPER INFLUENT	Water	12/14/1999	10:30	12/14/1999	11:00
914223-3	EAST STRIPPER EFFLUENT	Water	12/14/1999	11:00	12/14/1999	11:00
914223-4	EAST STRIPPER INFLUENT	Water	12/14/1999	10:50	12/14/1999	11:00

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LABORATORY TEST RESULTS

Job Number: 914223 Date: 12/27/1999

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN ATTN: Mr. Paul Peacock

Customer Sample ID: WEST STRIPPER EFFLUENT
Date Sampled.....: 12/14/1999
Time Sampled.....: 10:39
Sample Matrix.....: Water

Laboratory Sample ID: 914223-1
Date Received.....: 12/14/1999
Time Received.....: 11:00

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
8015B Modified	Diesel Range Organics (C10 - C28)					
	Diesel Range Organics C10 - C28	1.0	0.5	mg/L	12/20/99	wds
8015B Modified	Gasoline Range Organics (C5-C9)					
	Gasoline Range Organics C5-C9	<0.5	0.5	mg/L	12/22/99	weh
EPA 8260B	Volatile Organic Compounds					
	Benzene	ND	5	ug/L	12/19/99	weh
	Ethylbenzene	ND	5	ug/L	12/19/99	weh
	Toluene	ND	5	ug/L	12/19/99	weh
	Xylenes (total)	ND	10	ug/L	12/19/99	weh
	Hexane	ND	5	ug/L	12/19/99	weh

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LABORATORY TEST RESULTS

Job Number: 914223

Date: 12/27/1999

CUSTOMER: Marathon Oil Company | PROJECT: INDIAN BASIN | ATTN: Mr. Paul Peacock

Customer Sample ID: WEST STRIPPER INFLUENT
Date Sampled.....: 12/14/1999
Time Sampled.....: 10:30
Sample Matrix.....: Water

Laboratory Sample ID: 914223-2
Date Received.....: 12/14/1999
Time Received.....: 11:00

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
8015B Modified	Diesel Range Organics (C10 - C28)					
	Diesel Range Organics C10 - C28	<0.5	0.5	mg/L	12/20/99	wds
8015B Modified	Gasoline Range Organics (C5-C9)					
	Gasoline Range Organics C5-C9	0.9	0.5	mg/L	12/22/99	weh
EPA 8260B	Volatile Organic Compounds					
	Benzene	ND	5	ug/L	12/22/99	weh
	Ethylbenzene	ND	5	ug/L	12/22/99	weh
	Toluene	ND	5	ug/L	12/22/99	weh
	Xylenes (total)	ND	10	ug/L	12/22/99	weh
	Hexane	ND	5	ug/L	12/22/99	weh

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LABORATORY TEST RESULTS

Job Number: 914223 Date: 12/27/1999

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN ATTN: Mr. Paul Peacock

Customer Sample ID: EAST STRIPPER EFFLUENT
Date Sampled.....: 12/14/1999
Time Sampled.....: 11:00
Sample Matrix.....: Water

Laboratory Sample ID: 914223-3
Date Received.....: 12/14/1999
Time Received.....: 11:00

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
8015B Modified	Diesel Range Organics (C10 - C28)					
	Diesel Range Organics C10 - C28	<0.5	0.5	mg/L	12/20/99	wds
8015B Modified	Gasoline Range Organics (C5-C9)					
	Gasoline Range Organics C5-C9	<0.5	0.5	mg/L	12/22/99	weh
EPA 8260B	Volatile Organic Compounds					
	Benzene	ND	5	ug/L	12/19/99	weh
	Ethylbenzene	ND	5	ug/L	12/19/99	weh
	Toluene	ND	5	ug/L	12/19/99	weh
	Xylenes (total)	ND	10	ug/L	12/19/99	weh
	Hexane	ND	5	ug/L	12/19/99	weh

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LABORATORY TEST RESULTS

Job Number: 914223 Date: 12/27/1999

CUSTOMER: Marathon Oil Company PROJECT: INDIAN BASIN ATTN: Mr. Paul Peacock

Customer Sample ID: EAST STRIPPER INFLUENT
Date Sampled.....: 12/14/1999
Time Sampled.....: 10:50
Sample Matrix.....: Water

Laboratory Sample ID: 914223-4
Date Received.....: 12/14/1999
Time Received.....: 11:00

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
8015B Modified	Diesel Range Organics (C10 - C28)					
	Diesel Range Organics C10 - C28	<0.5	0.5	mg/L	12/20/99	wds
8015B Modified	Gasoline Range Organics (C5-C9)					
	Gasoline Range Organics C5-C9	2.8	0.5	mg/L	12/22/99	weh
EPA 8260B	Volatile Organic Compounds					
	Benzene	ND	5	ug/L	12/22/99	weh
	Ethylbenzene	ND	5	ug/L	12/22/99	weh
	Toluene	ND	5	ug/L	12/22/99	weh
	Xylenes (total)	<10	10	ug/L	12/22/99	weh
	Hexane	ND	5	ug/L	12/22/99	weh

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QUALITY CONTROL RESULTS

Job Number.: 914223 Report Date.: 12/27/1999

CUSTOMER: Marathon Oil Company PROJECT: Marathon Oil Co., Midland, Tx ATTN: Mr. Paul Peacock

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time

Test Method.....: EPA 8260B Batch.....: 51048 Analyst...: weh
Method Description.: Volatile Organic Compounds Units.....: ug/L

MB	Method Blank				12/18/1999	1939

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	ND						
Ethylbenzene	ND						
Toluene	ND						
Xylenes (total)	ND						
Hexane	ND						

LCS	Laboratory Control Sample	CLPVOAMS2			12/18/1999	2010

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	48.51		50		97.0	%	67-130
Toluene	47.54		50		95.1	%	75-114

MS	Matrix Spike	CLPVOAMS2	914199-2		12/19/1999	0017

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	52.66		50	4.48	96.4	%	67-130
Toluene	48.60		50	ND	97.2	%	75-114

MSD	Matrix Spike Duplicate	CLPVOAMS2	914199-2		12/19/1999	0048

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	52.32	52.66	50	4.48	95.7	%	67-130
					0.6	R	30
Toluene	48.35	48.60	50	ND	96.7	%	75-114
					0.5	R	30

Test Method.....: EPA 8260B Batch.....: 51259 Analyst...: weh
Method Description.: Volatile Organic Compounds Units.....: ug/L

MB	Method Blank				12/22/1999	1627

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	ND						
Ethylbenzene	ND						
Toluene	ND						
Xylenes (total)	ND						
Hexane	ND						

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

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QUALITY CONTROL RESULTS

Job Number.: 914223

Report Date.: 12/27/1999

CUSTOMER: Marathon Oil Company PROJECT: Marathon Oil Co., Midland, Tx ATTN: Mr. Paul Peacock

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
LCS	Laboratory Control Sample	CLPVOAMS2			12/22/1999	1658

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	46.32		50		92.6	%	67-130
Toluene	44.72		50		89.4	%	75-114

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
MS	Matrix Spike	CLPVOAMS2	914283-1	10	12/22/1999	1932

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	46.45		50	ND	92.9	%	67-130
Toluene	45.18		50	ND	90.4	%	75-114

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
MSD	Matrix Spike Duplicate	CLPVOAMS2	914283-1	10	12/22/1999	2003

Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	*	Limits
Benzene	45.39	46.45	50	ND	90.8	%	67-130
					2.3	R	30
Toluene	44.43	45.18	50	ND	88.9	%	75-114
					1.7	R	30

* %=% REC, R=RPD, A=ABS Diff., D=% Diff.

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SURROGATE RECOVERIES REPORT

Job Number.: 914223 Report Date.: 12/27/1999

CUSTOMER: Marathon Oil Company PROJECT: Marathon Oil Co., Midland, Tx ATTN: Mr. Paul Peacock

Method.....: Volatile Organic Compounds Batch.....: 51048
Method Code.....: 8260V1 Analyst.....: weh

Surrogate	Units
1,2-Dichloroethane-d4 (surrogate)	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		49.99	50.00	100.0	76-120		12/18/1999	1939
		LCS		51.01	50.00	102.0	76-120		12/18/1999	2010
914115-5	Dry Weight		500	50.63	50.00	101.3	71-122		12/18/1999	2041
914310-1				49.25	50.00	98.5	76-120		12/18/1999	2213
914310-3				47.47	50.00	94.9	76-120		12/18/1999	2244
914165-2				48.26	50.00	96.5	76-120		12/18/1999	2315
914199-2				48.77	50.00	97.5	76-120		12/18/1999	2346
914199-2		MS		46.52	50.00	93.0	76-120		12/19/1999	0017
914199-2		MSD		47.97	50.00	95.9	76-120		12/19/1999	0048
914310-2				48.08	50.00	96.2	76-120		12/19/1999	0118
914223-1				47.84	50.00	95.7	76-120		12/19/1999	0149
914223-3				48.42	50.00	96.8	76-120		12/19/1999	0220

Surrogate	Units
BFB (Surrogate)	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		50.62	50.00	101.2	85-115		12/18/1999	1939
		LCS		50.67	50.00	101.3	85-115		12/18/1999	2010
914115-5	Dry Weight		500	51.69	50.00	103.4	71-121		12/18/1999	2041
914310-1				50.10	50.00	100.2	85-115		12/18/1999	2213
914310-3				50.67	50.00	101.3	85-115		12/18/1999	2244
914165-2				51.30	50.00	102.6	85-115		12/18/1999	2315
914199-2				51.03	50.00	102.1	85-115		12/18/1999	2346
914199-2		MS		51.27	50.00	102.5	85-115		12/19/1999	0017
914199-2		MSD		51.06	50.00	102.1	85-115		12/19/1999	0048
914310-2				50.49	50.00	101.0	85-115		12/19/1999	0118
914223-1				50.54	50.00	101.1	85-115		12/19/1999	0149
914223-3				50.79	50.00	101.6	85-115		12/19/1999	0220

Surrogate	Units
Toluene-d8	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		50.10	50.00	100.2	85-112		12/18/1999	1939
		LCS		49.57	50.00	99.1	85-112		12/18/1999	2010
914115-5	Dry Weight		500	51.10	50.00	102.2	87-109		12/18/1999	2041
914310-1				50.60	50.00	101.2	85-112		12/18/1999	2213
914310-3				49.25	50.00	98.5	85-112		12/18/1999	2244
914165-2				49.82	50.00	99.6	85-112		12/18/1999	2315

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SURROGATE RECOVERIES REPORT

Job Number.: 914223 Report Date.: 12/27/1999

CUSTOMER: Marathon Oil Company PROJECT: Marathon Oil Co., Midland, Tx ATTN: Mr. Paul Peacock

Surrogate	Units
Toluene-d8	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
914199-2				49.58	50.00	99.2	85-112		12/18/1999	2346
914199-2		MS		50.09	50.00	100.2	85-112		12/19/1999	0017
914199-2		MSD		50.11	50.00	100.2	85-112		12/19/1999	0048
914310-2				49.93	50.00	99.9	85-112		12/19/1999	0118
914223-1				50.08	50.00	100.2	85-112		12/19/1999	0149
914223-3				49.97	50.00	99.9	85-112		12/19/1999	0220

Method.....: Volatile Organic Compounds Batch.....: 51259
Method Code.....: 8260V1 Analyst.....: weh

Surrogate	Units
1,2-Dichloroethane-d4 (surrogate)	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		48.48	50.00	97.0	76-120		12/22/1999	1627
		LCS		49.31	50.00	98.6	76-120		12/22/1999	1658
914486-1				49.76	50.00	99.5	76-120		12/22/1999	1729
914223-2				50.17	50.00	100.3	76-120		12/22/1999	1759
914223-4				50.50	50.00	101.0	76-120		12/22/1999	1830
914283-1			10	49.38	50.00	98.8	76-120		12/22/1999	1901
914283-1		MS	10	49.85	50.00	99.7	76-120		12/22/1999	1932
914283-1		MSD	10	50.65	50.00	101.3	76-120		12/22/1999	2003
914484-2			5	49.64	50.00	99.3	76-120		12/22/1999	2034
914463-1			5	51.17	50.00	102.3	76-120		12/22/1999	2106
914463-2			5	51.24	50.00	102.5	76-120		12/22/1999	2137
914266-23			10	50.06	50.00	100.1	76-120		12/22/1999	2211
914266-24			10	50.28	50.00	100.6	76-120		12/22/1999	2245

Surrogate	Units
BFB (Surrogate)	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		52.72	50.00	105.4	85-115		12/22/1999	1627
		LCS		52.59	50.00	105.2	85-115		12/22/1999	1658
914486-1				51.13	50.00	102.3	85-115		12/22/1999	1729
914223-2				51.15	50.00	102.3	85-115		12/22/1999	1759
914223-4				51.24	50.00	102.5	85-115		12/22/1999	1830
914283-1			10	51.24	50.00	102.5	85-115		12/22/1999	1901
914283-1		MS	10	50.98	50.00	102.0	85-115		12/22/1999	1932
914283-1		MSD	10	50.56	50.00	101.1	85-115		12/22/1999	2003
914484-2			5	50.72	50.00	101.4	85-115		12/22/1999	2034
914463-1			5	50.21	50.00	100.4	85-115		12/22/1999	2106
914463-2			5	50.35	50.00	100.7	85-115		12/22/1999	2137

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SURROGATE RECOVERIES REPORT

Job Number.: 914223 Report Date.: 12/27/1999

CUSTOMER: Marathon Oil Company PROJECT: Marathon Oil Co., Midland, Tx ATTN: Mr. Paul Peacock

Surrogate	Units
BFB (Surrogate)	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
914266-23			10	51.14	50.00	102.3	85-115		12/22/1999	2211
914266-24			10	50.84	50.00	101.7	85-115		12/22/1999	2245

Surrogate	Units
Toluene-d8	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		MB		50.03	50.00	100.1	85-112		12/22/1999	1627
		LCS		50.70	50.00	101.4	85-112		12/22/1999	1658
914486-1				50.39	50.00	100.8	85-112		12/22/1999	1729
914223-2				51.22	50.00	102.4	85-112		12/22/1999	1759
914223-4				51.39	50.00	102.8	85-112		12/22/1999	1830
914283-1			10	50.19	50.00	100.4	85-112		12/22/1999	1901
914283-1		MS	10	50.23	50.00	100.5	85-112		12/22/1999	1932
914283-1		MSD	10	50.29	50.00	100.6	85-112		12/22/1999	2003
914484-2			5	49.81	50.00	99.6	85-112		12/22/1999	2034
914463-1			5	49.98	50.00	100.0	85-112		12/22/1999	2106
914463-2			5	50.31	50.00	100.6	85-112		12/22/1999	2137
914266-23			10	49.73	50.00	99.5	85-112		12/22/1999	2211
914266-24			10	49.82	50.00	99.6	85-112		12/22/1999	2245

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QUALITY ASSURANCE FOOTER

METHOD REFERENCES

1. EPA SW-846, Test Methods for Evaluating Solid Waste Update I, IIA, IIB, III
2. Standard Methods for the Examination of Water and Wastewater, 18th Edition
3. EPA 600/4-79-020, Methods of Chemical Analysis for Waters and Wastes, March 1983
4. Federal Register, Friday, October 26, 1984 (40 CFR Part 136)
5. American Society for Testing and Materials, Volumes 5.01, 5.02, 5.03, 11.01,11.02,11.03,11.04
6. EPA Methods for Environmental Samples

COMMENTS

All methods of chemical analysis have a statistical uncertainty associated with the results. Unless otherwise indicated, the data in this report are within the limits of uncertainty as specified in the referenced method. Quality Control acceptance criteria are based either on actual laboratory performance or on limits specified in the referenced method. The date and time of analysis indicated on the QA report may not reflect the actual time of analysis for QC samples. All data are reported on an "as received" basis unless otherwise indicated. Data reported in the QA report may be lower than sample data due to dilution of samples into the calibration range of the analysis. Sample concentration for solid samples are calculated on an as received (wet) basis. Unless otherwise indicated, volatiles by gas chromatography (GC) are reported from a single column. Volatile analysis by GC on low level soil extractions are conducted at room temperature.

FLAGS, FOOTNOTES AND ABBREVIATIONS (as needed)

NA	=	Not Analyzed	ND	=	Not detected at a value greater than the reporting limit
N/A	=	Not applicable	NC	=	Not calculable due to values lower than the reporting limit
ug/L	=	Micrograms per liter	mg/L	=	Milligrams per liter
ug/Kg	=	Micrograms per kilogram	mg/kg	=	Milligrams per kilogram
U	=	Undetected			
J	=	Indicates value is > MDL, but < Reporting Limit			
B	=	Analyte was detected in the method blank analyzed with this sample.			
D	=	Surrogate recoveries are not calculated due to sample dilution.			
X	=	Surrogate recovery is outside quality control limits.			
Y	=	Spike or spike duplicate recovery is outside quality control limits.			
Z	=	Relative percent difference for a spike and spike duplicate is outside quality control limits. The precision of the method was impacted by matrix.			
^	=	Indicates value is above QC acceptance criteria.			

QC SAMPLE IDENTIFICATIONS

MB	=	Method Blank	SB	=	Storage Blank
RB	=	Reagent Blank	EB	=	Extraction Blank
PB	=	Preparation Blank	CALB	=	Calibration Blank
MD	=	Method Duplicate	RS	=	Reference Standard
LCS	=	Laboratory Control Sample	LCSD	=	Laboratory Control Sample Duplicate
MS	=	Matrix Spike	MSD	=	Matrix Spike Duplicate
ICB	=	Initial Calibration Blank	CCB	=	Continuing Calibration Blank
ICV	=	Initial Calibration Verification	ICB	=	Initial Calibration Blank
PDS	=	Post Digestion Spike	SS	=	Surrogate Spike
ISA	=	Interference Check standard "A"	ISB	=	Interference Check Standard "B"
ISCAB	=	Interference Check Sample AB	MSA	=	Method of Standard Additions
CAL	=	Calibration standard	SD	=	Serial Dilution
MST	=	TCLP Matrix Spike	MSQ	=	TCLP Matrix Spike Duplicate
PST	=	TCLP Post Digestion Spike	LCT	=	TCLP Laboratory Control Sample

rpjsckl | Job Sample Receipt Checklist Report 12/15/99 | V2

Job Number.....: 914223 Location.: 57211 Customer Job ID.....: Job Check List Date.: 12/15/99
Project Number.: 96000651 Project Description.: Marathon Oil Co., Midland, Tx Project Manager.....: lpa
Customer.....: Marathon Oil Company Contact.: Mr. Paul Peacock

Questions ?	(Y/N) Comments
Chain-of-Custody Present?	Y
Custody seal on shipping container?	
...If "yes", custody seal intact?	
Custody seals on sample containers?	
...If "yes", custody seal intact?	
Samples chilled?	N
Temperature of cooler acceptable? (4 deg C +/- 2).	
Samples received intact (good condition)?	Y
Volatile samples acceptable? (no headspace)	Y
Correct containers used?	Y
Adequate sample volume provided?	Y
Samples preserved correctly?	Y
Samples received within holding-time?	Y
Agreement between COC and sample labels?	Y
Additional	
Comments	
Sample Custodian Signature	

CORELAB

CORE LABORATORIES, INC.

N 66605

CHAIN OF CUSTODY RECORD

CUSTOMER INFORMATION	PROJECT INFORMATION
COMPANY: Marathon Oil Co Midland TX	PROJECT NAME/NUMBER: Indian Basin Remediation
SEND REPORT TO: Paul Peacock	BILLING INFORMATION
ADDRESS: 125 W Missouri 79702 5204 PO Box 552 Midland, TX 79702-0552	BILL TO: Same ADDRESS: Same
PHONE: 915-687-8312	PHONE: Same
FAX: 915-687-8305	FAX: Same PO NO.:

LAB JOB NO. 914223

SAMPLE NO.	SAMPLE DESCRIPTION	SAMPLE DATE	SAMPLE TIME	SAMPLE MATRIX	CONTAINER	PRESERV.	NUMBER OF CONTAINERS	ANALYSIS / METHOD REQUEST: BTEX w/ Hexane (8260)	TPH GRO (C5-C9)	TPH DRO (C10-C28)	REMARKS / PRECAUTIONS
2 1	West Stripper Influent	12-14-99	10:30 Am	AQ	4-40 mL Vials	None	4	X	X	X	
	" " "	12-14-99	10:35 Am	"	2-1 Liter Glass	None	2	X	X	X	
1 2	West Stripper Effluent	12-14-99	10:39 Am	"	4-40 mL Vials	None	4	X	X	X	
	" " "	12-14-99	10:45 Am	"	2-1 Liter Glass	None	2	X	X	X	
4 3	East Stripper Influent	12-14-99	10:50 Am	"	4-40 mL Vials	None	4	X	X	X	
	" " "	12-14-99	10:55 Am	"	2-1 Liter Vials	None	2	X	X	X	
3 4	East Stripper Effluent	12-14-99	11:00 Am	"	4-40 mL Vials	None	4	X	X	X	

SAMPLER:

SHIPMENT METHOD:

AIRBILL NO.:

REQUIRED TURNAROUND:* ☐ SAME DAY ☐ 24 HOURS ☐ 48 HOURS ☐ 72 HOURS ☐ 5 DAYS ☐ 10 DAYS ☑ ROUTINE OTHER

1. RELINQUISHED BY:	DATE	2. RELINQUISHED BY:	DATE	3. RELINQUISHED BY:	DATE
SIGNATURE: Biggy Aguilera	12-14-99	SIGNATURE:		SIGNATURE:	
PRINTED NAME/COMPANY: Marathon Oil Company	TIME 12:04	PRINTED NAME/COMPANY:	TIME	PRINTED NAME/COMPANY:	TIME
1. RECEIVED BY:	DATE 12/15/99	2. RECEIVED BY:	DATE	3. RECEIVED BY:	DATE
SIGNATURE:		SIGNATURE:		SIGNATURE:	
PRINTED NAME/COMPANY: JB STL	TIME 17:00	PRINTED NAME/COMPANY:	TIME	PRINTED NAME/COMPANY:	TIME

* RUSH TURNAROUND MAY REQUIRE SURCHARGE

Anaheim, CA
1250 E. Gene Autry Way
Anaheim, CA 92805
(714) 937-1094 Fax (714) 937-1170

Aurora, CO
10703 E. Bethany Drive
Aurora, CO 80014
(303) 751-1780 Fax (303) 751-1784

Carson, CA
21730 S. Wilmington Ave. - Suite 201
Carson, CA 90810-1640
(310) 513-2031 Fax (310) 513-2035

Casper, WY
420 W. First Street
Casper, WY 82601
(307) 235-5741 Fax (307) 266-1676

Corpus Christi, TX
1733 N. Padre Island Drive
Corpus Christi, TX 78408
(512) 289-2673 Fax (512) 289-2471

Edison, NJ
284 Raritan Center Parkway
Edison, NJ 08837
(732) 225-6700 Fax (732) 225-6777

Houston, TX (Env)
6310 Rothway Drive
Houston, TX 77040

Houston, TX (Pet)
8210 Mosley Road
Houston, TX 77075

Indianapolis, IN
7726 Moller Road
Indianapolis, IN 46268

Lake Charles, LA
3645 Begis Parkway
Sulphur, LA 70663

Valparaiso, IN
2400 Cumberland Drive
Valparaiso, IN 46383
(219) 464-2388 Fax (219) 462-2953