GW - 21

REPORTS

YEAR(S):

1998

APPENDIX C

Soil Analytical Data from June 1998 Drilling Activities

Comprehensive Site Characterization Report Indian Basin Remediation Project New Mexico

RECEIVED
JAN 0 5 1999
ENVIRONMENTAL BUREAU
OIL CONSERVATION DIVISION

Volume 2 of 3

1991 - 1998

Project No. 105469

December 1998

Prepared for:
Marathon Oil Company
P.O. Box 552
Midland, Texas 79702

Prepared by:
IT Corporation
5301 Central Ave. NE Suite 700
Albuquerque, NM 87108

IT CORPORATION
A Member of The IT Group

American Environmental Network, Inc.

RECEIVED

JUN 2 1998

AEN I.D. 806361

June 26, 1998

FLUOR DANIELS-GTI
2501 YALE BLVD. SE # 204
ALBUQUERQUE, NM 87106

Project Name MARATHON-IBGP
Project Number 105469.01

Attention: CYMANTHA LIAKOS

On 6/18/98 American Environmental Network (NM), Inc. (ADHS License No. AZ0015), received a request to analyze **non-aq** 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

2709-D Pan American Freeway, NE • Albuquerque, NM 87107 • (505) 344-3777 • Fax (505) 344-4413

American Environmental Network, Inc.

CLIENT	: FLUOR DANIELS-GTI	AEN I.D.	: 806361
PROJECT #	: 105469.01	DATE RECEIVED	: 6/18/98
PROJECT NAME	: MARATHON-IBGP	REPORT DATE	: 6/26/98

AEN ID. #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	MW-109	NON-AQ	6/17/98

American Environmental Network, Inc.

GC/MS RESULTS

TEST	: EPA 8260 (BTEX)		
CLIENT	: FLUOR DANIEL GTI	AEN I.D. :	806361
PROJECT #	: 105469.01	DATE RECEIVED :	6/18/98
PROJECT NAME	: MARATHON - IBGP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806361-01	MW-109	NON-AQ	6/17/98	6/22/98	06/22/98	10

PARAMETER	DET. LIMIT		UNITS
Benzene	0.05	< 0.50	MG/KG
Toluene	0.05	< 0.50	MG/KG
Ethylbenzene	0.05	< 0.50	MG/KG
m&p Xylenes	0.05	**0.69**	**MG/KG**
o-Xylene	0.05	< 0.50	MG/KG

SURROGATE % RECOVERY		
1,2-Dichloroethane-d4	115	(80 - 120)
Toluene-d8	111	(81 - 117)
Bromofluorobenzene	107	(74 - 121)

GC/MS RESULTS

TEST	: EPA 8260 (BTEX)		
CLIENT	: FLUOR DANIEL GTI	AEN I.D. :	806361
PROJECT #	: 105469.01		
PROJECT NAME	: MARATHON IBGP		

SAMPLE ID #	BATCH	MATRIX	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
REAGENT BLANK	062298	AQUEOUS	6/22/98	06/22/98	1

PARAMETER	DET. LIMIT		UNITS
Benzene	0.05	< 0.05	MG/KG
Toluene	0.05	< 0.05	MG/KG
Ethylbenzene	0.05	< 0.05	MG/KG
m&p Xylenes	0.05	< 0.05	MG/KG
o-Xylene	0.05	< 0.05	MG/KG
1,1-Dichloroethene	0.05	< 0.05	MG/KG
Trichloroethene	0.05	< 0.05	MG/KG
Chlorobenzene	0.05	< 0.05	MG/KG

SURROGATE % RECOVERY		
1,2-Dichloroethane-d4	120	(80 - 120)
Toluene-d8	114	(81 - 117)
Bromofluorobenzene	100	(74 - 121)

American Environmental Network, Inc.

Spike Recovery and RPD Summary Report - SOIL

Method : C:\HPCHEM\1\METHODS\82600310.M (RTE Integrator)
Title : AEN New Mexico GC/MS
Last Update : Tue May 12 14:39:09 1998
Response via : Initial Calibration

Non-Spiked Sample: 06229808.D

	Spike Sample	Spike Duplicate Sample
File ID :	062298S1.D	062298S2.D
Sample :	806367-04 MS	806367-04 MSD
Acq Time:	22 Jun 98 6:49 pm	22 Jun 98 7:46 pm

Compound	Sample Conc	Spike Added	Spike Res	Dup Res	Spike %Rec	Dup %Rec	RPD	QC Limits RPD	QC Limits % Rec
1,1-Dichloroethene	0.00	2.50	2.31	2.28	92	91	1	22	59-172
Benzene	0.00	2.50	2.67	2.68	105	105	0	21	66-142
Trichloroethene	0.00	2.50	2.45	2.38	98	95	3	24	62-137
Toluene	0.00	2.50	2.52	2.45	100	97	3	21	59-139
Chlorobenzene	0.00	2.50	2.52	2.43	100	97	4	21	60-133

- Fails Limit Check

GENERAL CHEMISTRY RESULTS

418.1

CLIENT	: FLUOR DANIELS-GTI	AEN I.D.	: 806361
PROJECT #	: 105469.01	DATE RECEIVED	: 6/18/98
PROJECT NAME	: MARATHON-IBGP		

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
01	MW-109	NON-AQ	6/17/98	6/26/98	6/26/98	1

PARAMETER	DET. LIMIT	UNITS	01
PETROLEUM HYDROCARBONS, IR	20	**MG/KG**	**250**

CHEMIST NOTES:
N/A

GENERAL CHEMISTRY - REAGENT BLANK

418.1

CLIENT	: FLUOR DANIELS-GTI	AEN I.D.	: 806361
PROJECT #	: 105469.01	SAMPLE MATRIX	: NON-AQ
PROJECT NAME	: MARATHON-IBGP	UNITS	: MG/KG

PARAMETER	AEN I.D.	SAMPLE RESULT
PETROLEUM HYDROCARBONS	062698	<20

CHEMIST NOTES:
N/A

GENERAL CHEMISTRY - QUALITY CONTROL

418.1

CLIENT	: FLUOR DANIELS-GTI	AEN I.D.	: 806361
PROJECT #	: 105469.01	SAMPLE MATRIX	: NON-AQ
PROJECT NAME	: MARATHON-IBGP	UNITS	: MG/KG

PARAMETER	AEN I.D.	SAMPLE RESULT	DUP. RESULT	% RPD	SPIKED SAMPLE	SPIKE CONC.	% REC
PETROLEUM HYDROCARBONS	062698	<20	<20	N/A	143	150	95%

CHEMIST NOTES:
N/A

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

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

American Environmental Network (NM), Inc.

CHAIN OF CUSTODY

DATE: 17 June 98 PAGE: 1 OF 1

AEN (NM) Account: 980347

PROJECT MANAGER: Cymantha Liakos

COMPANY: FLUOR DANIEL GTF
ADDRESS: 2501 YALE, SE #204

PHONE: 505 242 3113
FAX: 505 242 1103

BILL TO:
COMPANY:
ADDRESS:

SAMPLE I.D.	DATE	TIME	MATRIX	LAB I.D.
MW-109	17 Jun 98	11:57	Soil	01
				02
				03
				04
				05
				06
				07
				08
				09
				10

ANALYSIS REQUEST

Petroleum Hydrocarbons (418.1) TRPH	(MOD.8015) Diesel/Direct Inject	(M8015) Gas/Purge & Trap	8021 (BTEX)/8015 (Gasoline)	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)	Herbicides (615/8151)	Base/Neutral/Acid Compounds GC/MS (625/8270)	Polynuclear Aromatics (610/8310)	General Chemistry:	8260 BTEX only		Priority Pollutant Metals (13)	Target Analyte List Metals (23)	RCRA Metals (8)	RCRA Metals by TCLP (Method 1311)	Metals:		NOTES
↓																				↓							

PLEASE FILL THIS FORM IN COMPLETELY.

PROJECT INFORMATION

PROJ. NO.: 105469.01
PROJ. NAME: Manathon-IBGP
P.O. NO.:
SHIPPED VIA:

SAMPLE RECEIPT

TOTAL # OF CONTAINERS	
CUSTODY SEALS	ON/OFF
RECEIVED INTACT	Y/N
PROPER CONDITION	G/E

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

(RUSH) ☐ 24hr ☐ 48hr ☐ 72hr ☐ 1 WEEK (NORMAL) ☑

CERTIFICATION REQUIRED: ☐ NM ☐ SDWA ☐ OTHER

METHANOL PRESERVATION ☐

COMMENTS: FIXED FEE ☐

RELINQUISHED BY: 1

Signature: Time: 21:40 98
Printed Name: Scott Stevenson Date: 17 Jun 98
Company: FDGTI

RECEIVED BY: 1

Signature: Time: 2140
Printed Name: Date: 6-17-98
Company: AEN

RELINQUISHED BY: 2

Signature: Time:
Printed Name: Date:
Company:

RECEIVED BY: 2

DISTRIBUTION: White - AEN, Canary - Originator

APPENDIX D

Groundwater Analytical Data: June - July 1998

RECEIVED

AEN I.D. 806416

July 24, 1998

MARATHON OIL COMPANY
P.O. BOX 552
MIDLAND, TX 79702-0552

Project Name IBRP
Project Number 104332.03

Attention: PAUL PEACOCK

On 7/1/98 American Environmental Network (NM), Inc. (ADHS License No. AZ0015), 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 methods 504.1, 8021 and 8260 were performed by American Environmental Network (NM) Inc., Albuquerque, NM.

Uranium was performed by North Creek Analytical, Portland, OR.

Radiochemistry was performed by STL, Morrisville, NC.

All other parameters were performed by STL, Pensacola, FL.

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	: MARATHON OIL COMPANY	AEN I.D.	: 806416
PROJECT #	: 104332.03	DATE RECEIVED	: 7/1/98
PROJECT NAME	: IBRP	REPORT DATE	: 7/24/98

AEN ID. #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	MW-49	AQUEOUS	7/1/98
02	MW-46	AQUEOUS	7/1/98
03	MW-39	AQUEOUS	7/1/98
04	MW-13	AQUEOUS	7/1/98
05	TRIP BLANK	AQUEOUS	6/30/98

GAS CHROMOTOGRAPHY RESULTS

TEST : ETHYLENE DIBROMIDE (EPA 504.1)
CLIENT : MARATHON OIL COMPANY AEN I.D.: 806416
PROJECT # : 104332.03
PROJECT NAME : IBRP

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
01	MW-49	AQUEOUS	7/1/98	7/10/98	7/10/98	1
02	MW-46	AQUEOUS	7/1/98	7/10/98	7/10/98	1
03	MW-39	AQUEOUS	7/1/98	7/10/98	7/10/98	1

PARAMETER	DET. LIMIT	UNITS	01	02	03
ETHYLENE DIBROMIDE	0.01	UG/L	< 0.01	< 0.01	< 0.01
SURROGATE:					
1,4-DICHLOROBENZENE			94	90	97
SURROGATE LIMITS	(75 - 141)				

CHEMIST NOTES:
N/A

GAS CHROMOTOGRAPHY RESULTS

TEST : ETHYLENE DIBROMIDE (EPA 504.1)
CLIENT : MARATHON OIL COMPANY AEN I.D.: 806416
PROJECT # : 104332.03
PROJECT NAME : IBRP

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
04	MW-13	AQUEOUS	7/1/98	7/10/98	7/10/98	1

PARAMETER	DET. LIMIT	UNITS	04
ETHYLENE DIBROMIDE	0.01	UG/L	< 0.01

SURROGATE:
1,4-DICHLOROBENZENE 84
SURROGATE LIMITS (75 - 141)

CHEMIST NOTES:
N/A

GAS CHROMOTOGRAPHY RESULTS
REAGENT BLANK

TEST	: ETHYLENE DIBROMIDE (EPA 504.1)		
BLANK I.D.	: 071098	AEN I.D.	: 806416
CLIENT	: MARATHON OIL COMPANY	MATRIX	: AQUEOUS
PROJECT #	: 104332.03	DATE EXTRACTED	: 7/10/98
PROJECT NAME	: IBRP	DATE ANALYZED	: 7/10/98

PARAMETER	DET. LIMIT	UNITS	
ETHYLENE DIBROMIDE	0.01	UG/L	<0.01
SURROGATE:			
1,4-DICHLOROBENZENE			102
SURROGATE LIMITS	(78 - 140)		

CHEMIST NOTES:
N/A

GAS CHROMOTOGRAPHY RESULTS
QUALITY CONTROL
MSMSD

TEST	: ETHYLENE DIBROMIDE (EPA 504.1)		
MSMSD #	: 071098	AEN I.D.	: 806416
CLIENT	: MARATHON OIL COMPANY	DATE EXTRACTED	: 7/10/98
PROJECT #	: 104332.03	DATE ANALYZED	: 7/10/98
PROJECT NAME	: IBRP	MATRIX	: AQUEOUS
		UNITS	: UG/L

PARAMETER	SAMPLE RESULT	CONC. SPIKE	SPIKED SAMPLE	% REC	DUP SPIKE	DUP % REC	% RPD
ETHYLENE DIBROMIDE	<0.01	0.25	0.24	96%	0.22	88%	9%

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 CHROMOTOGRAPHY RESULTS

TEST : PURGEABLE HALOCARBONS / AROMATICS (EPA 8021)
CLIENT : MARATHON OIL COMPANY AEN I.D.: 806416
PROJECT # : 104332.03
PROJECT NAME : IBRP

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
01	MW-49	AQUEOUS	7/1/98	NA	7/6/98	1
02	MW-46	AQUEOUS	7/1/98	NA	7/6/98	1
03	MW-39	AQUEOUS	7/1/98	NA	7/6/98	1

PARAMETER	DET. LIMIT	UNITS	01	02	03
TETRACHLOROETHENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
VINYL CHLORIDE	0.5	UG/L	< 0.5	< 0.5	< 0.5
SURROGATE:					
BROMOCHLOROMETHANE (%)			102	100	102
SURROGATE LIMITS	(73 - 117)				

CHEMIST NOTES:
N/A

GAS CHROMOTOGRAPHY RESULTS

TEST : PURGEABLE HALOCARBONS / AROMATICS (EPA 8021)
CLIENT : MARATHON OIL COMPANY AEN I.D.: 806416
PROJECT # : 104332.03
PROJECT NAME : IBRP

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
04	MW-13	AQUEOUS	7/1/98	NA	7/6/98	1

PARAMETER	DET. LIMIT	UNITS	04
TETRACHLOROETHENE	0.5	UG/L	< 0.5
VINYL CHLORIDE	0.5	UG/L	< 0.5
SURROGATE:			
BROMOCHLOROMETHANE (%)			101
SURROGATE LIMITS	(73 - 117)		

CHEMIST NOTES:
N/A

GAS CHROMOTOGRAPHY RESULTS

REAGENT BLANK

TEST	: PURGEABLE HALOCARBONS / AROMATICS (EPA 8021)		
BLANK I.D.	: 070698	AEN I.D.	: 806416
CLIENT	: MARATHON OIL COMPANY	DATE EXTRACTED	: N/A
PROJECT #	: 104332.03	DATE ANALYZED	: 7/6/98
PROJECT NAME	: IBRP	SAMPLE MATRIX	: AQUEOUS

PARAMETER	UNITS	
CHLOROBENZENE	UG/L	<0.5
1,1-DICHLOROETHENE	UG/L	<0.2
TETRACHLOROETHENE	UG/L	<0.5
TRICHLOROETHENE	UG/L	<0.3
VINYL CHLORIDE	UG/L	<0.5
SURROGATE:		
BROMOCHLOROMETHANE (%)		108
SURROGATE LIMITS	(73 - 117)	

CHEMIST NOTES:
N/A

GAS CHROMOTOGRAPHY QUALITY CONTROL

MSMSD

TEST	: PURGEABLE HALOCARBONS / AROMATICS (EPA 8021)		
MSMSD #	: 807300-05	AEN I.D.	: 806416
CLIENT	: MARATHON OIL COMPANY	DATE EXTRACTED	: N/A
PROJECT #	: 104332.03	DATE ANALYZED	: 7/6/98
PROJECT NAME	: IBRP	SAMPLE MATRIX	: AQUEOUS
		UNITS	: UG/L

PARAMETER	SAMPLE RESULT	CONC SPIKE	SPIKED SAMPLE	% REC	DUP SPIKE	DUP % REC	RPD	REC LIMITS	RPD LIMITS
1,1-DICHLOROETHENE	<0.2	10.0	8.5	85	8.5	85	0	(44 - 99)	20
TRICHLOROETHENE	<0.3	10.0	9.8	98	9.9	99	1	(89 - 127)	20
CHLOROBENZENE	<0.5	10.0	9.5	95	9.6	96	1	(87 - 124)	20

CHEMIST NOTES:
N/A

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

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

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806416
PROJECT #	: 104332.03	DATE RECEIVED :	7/1/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806416-01	MW-49	AQUEOUS	7/1/98	N/A	07/10/98	1

PARAMETER	DET. LIMIT		UNITS
Dichlorodifluoromethane	1.0	< 1.0	ug/L
Chloromethane	1.0	< 1.0	ug/L
Vinyl Chloride	1.0	< 1.0	ug/L
Bromomethane	1.0	< 1.0	ug/L
Chloroethane	1.0	< 1.0	ug/L
Trichlorofluoromethane	1.0	< 1.0	ug/L
Acetone	10	< 10	ug/L
Acrolein	5.0	< 5.0	ug/L
1,1-Dichloroethene	1.0	< 1.0	ug/L
Iodomethane	1.0	< 1.0	ug/L
Methylene Chloride	1.0	< 1.0	ug/L
Acrylonitrile	5.0	< 5.0	ug/L
cis-1,2-Dichloroethene	1.0	< 1.0	ug/L
Methyl-t-butyl Ether	1.0	< 1.0	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 1.0	ug/L
1,1-Dichloroethane	1.0	< 1.0	ug/L
trans-1,2-Dichloroethene	1.0	< 1.0	ug/L
2-Butanone	10	< 10	ug/L
Carbon Disulfide	1.0	< 1.0	ug/L
Bromochloromethane	1.0	< 1.0	ug/L
Chloroform	1.0	< 1.0	ug/L
2,2-Dichloropropane	1.0	< 1.0	ug/L
1,2-Dichloroethane	1.0	< 1.0	ug/L
Vinyl Acetate	1.0	< 1.0	ug/L
1,1,1-Trichloroethane	1.0	< 1.0	ug/L
1,1-Dichloropropene	1.0	< 1.0	ug/L
Carbon Tetrachloride	1.0	< 1.0	ug/L
Benzene	1.0	**78**	**ug/L**
1,2-Dichloropropane	1.0	< 1.0	ug/L
Trichloroethene	1.0	< 1.0	ug/L
Bromodichloromethane	1.0	< 1.0	ug/L
2-Chloroethyl Vinyl Ether	10	< 10	ug/L
cis-1,3-Dichloropropene	1.0	< 1.0	ug/L
trans-1,3-Dichloropropene	1.0	< 1.0	ug/L
1,1,2-Trichloroethane	1.0	< 1.0	ug/L
1,3-Dichloropropane	1.0	< 1.0	ug/L
Dibromomethane	1.0	< 1.0	ug/L
Toluene	1.0	< 1.0	ug/L
1,2-Dibromoethane	1.0	< 1.0	ug/L
4-Methyl-2-Pentanone	10	< 10	ug/L
2-Hexanone	10	< 10	ug/L
Dibromochloromethane	1.0	< 1.0	ug/L
Tetrachloroethene	1.0	< 1.0	ug/L
Chlorobenzene	1.0	< 1.0	ug/L
Ethylbenzene	1.0	**15**	**ug/L**
1,1,1,2-Tetrachloroethane	1.0	< 1.0	ug/L
m&p Xylenes	1.0	< 1.0	ug/L

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806416
PROJECT #	: 104332.03	DATE RECEIVED :	7/1/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806416-01	MW-49	AQUEOUS	7/1/98	N/A	07/10/98	1

PARAMETER	DET. LIMIT		UNITS
o-Xylene	1.0	< 1.0	ug/L
Styrene	1.0	< 1.0	ug/L
Bromoform	1.0	< 1.0	ug/L
1,1,2,2-Tetrachloroethane	1.0	< 1.0	ug/L
1,2,3-Trichloropropane	1.0	< 1.0	ug/L
Isopropyl Benzene	1.0	**8.2**	**ug/L**
Bromobenzene	1.0	< 1.0	ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 1.0	ug/L
n-Propylbenzene	1.0	**8.0**	**ug/L**
2-Chlorotoluene	1.0	< 1.0	ug/L
4-Chlorotoluene	1.0	< 1.0	ug/L
1,3,5-Trimethylbenzene	1.0	< 1.0	ug/L
tert-Butylbenzene	1.0	< 1.0	ug/L
1,2,4-Trimethylbenzene	1.0	< 1.0	ug/L
sec-Butylbenzene	1.0	< 1.0	ug/L
1,3-Dichlorobenzene	1.0	< 1.0	ug/L
1,4-Dichlorobenzene	1.0	< 1.0	ug/L
p-Isopropyltoluene	1.0	< 1.0	ug/L
1,2-Dichlorobenzene	1.0	< 1.0	ug/L
n-Butylbenzene	1.0	< 1.0	ug/L
1,2-Dibromomo-3-chloropropane	1.0	< 1.0	ug/L
1,2,4-Trichlorobenzene	1.0	< 1.0	ug/L
Naphthalene	1.0	< 1.0	ug/L
Hexachlorobutadiene	1.0	< 1.0	ug/L
1,2,3-Trichlorobenzene	1.0	< 1.0	ug/L

SURROGATE % RECOVERY		
1,2-Dichloroethane-d4	97	(80 - 120)
Toluene-d8	97	(88 - 110)
Bromofluorobenzene	98	(86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806416
PROJECT #	: 104332.03	DATE RECEIVED :	7/1/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806416-02	MW-46	AQUEOUS	7/1/98	N/A	07/10/98	5

PARAMETER	DET. LIMIT		UNITS
Dichlorodifluoromethane	1.0	< 5.0	ug/L
Chloromethane	1.0	< 5.0	ug/L
Vinyl Chloride	1.0	< 5.0	ug/L
Bromomethane	1.0	< 5.0	ug/L
Chloroethane	1.0	< 5.0	ug/L
Trichlorofluoromethane	1.0	< 5.0	ug/L
Acetone	10	< 50	ug/L
Acrolein	5.0	< 25	ug/L
1,1-Dichloroethene	1.0	< 5.0	ug/L
Iodomethane	1.0	< 5.0	ug/L
Methylene Chloride	1.0	< 5.0	ug/L
Acrylonitrile	5.0	< 25	ug/L
cis-1,2-Dichloroethene	1.0	< 5.0	ug/L
Methyl-t-butyl Ether	1.0	< 5.0	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 5.0	ug/L
1,1-Dichloroethane	1.0	< 5.0	ug/L
trans-1,2-Dichloroethene	1.0	< 5.0	ug/L
2-Butanone	10	< 50	ug/L
Carbon Disulfide	1.0	< 5.0	ug/L
Bromochloromethane	1.0	< 5.0	ug/L
Chloroform	1.0	< 5.0	ug/L
2,2-Dichloropropane	1.0	< 5.0	ug/L
1,2-Dichloroethane	1.0	< 5.0	ug/L
Vinyl Acetate	1.0	< 5.0	ug/L
1,1,1-Trichloroethane	1.0	< 5.0	ug/L
1,1-Dichloropropene	1.0	< 5.0	ug/L
Carbon Tetrachloride	1.0	< 5.0	ug/L
Benzene	1.0	**1700 (D50)**	**ug/L**
1,2-Dichloropropane	1.0	< 5.0	ug/L
Trichloroethene	1.0	< 5.0	ug/L
Bromodichloromethane	1.0	< 5.0	ug/L
2-Chloroethyl Vinyl Ether	10	< 50	ug/L
cis-1,3-Dichloropropene	1.0	< 5.0	ug/L
trans-1,3-Dichloropropene	1.0	< 5.0	ug/L
1,1,2-Trichloroethane	1.0	< 5.0	ug/L
1,3-Dichloropropane	1.0	< 5.0	ug/L
Dibromomethane	1.0	< 5.0	ug/L
Toluene	1.0	< 5.0	ug/L
1,2-Dibromoethane	1.0	< 5.0	ug/L
4-Methyl-2-Pentanone	10	< 50	ug/L
2-Hexanone	10	< 50	ug/L
Dibromochloromethane	1.0	< 5.0	ug/L
Tetrachloroethene	1.0	< 5.0	ug/L
Chlorobenzene	1.0	< 5.0	ug/L
Ethylbenzene	1.0	**97**	**ug/L**
1,1,1,2-Tetrachloroethane	1.0	< 5.0	ug/L
m&p Xylenes	1.0	**120**	**ug/L**

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806416
PROJECT #	: 104332.03	DATE RECEIVED :	7/1/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806416-02	MW-46	AQUEOUS	7/1/98	N/A	07/10/98	5

PARAMETER	DET. LIMIT		UNITS
o-Xylene	1.0	< 5.0	ug/L
Styrene	1.0	< 5.0	ug/L
Bromoform	1.0	< 5.0	ug/L
1,1,2,2-Tetrachloroethane	1.0	< 5.0	ug/L
1,2,3-Trichloropropane	1.0	< 5.0	ug/L
Isopropyl Benzene	1.0	**72**	**ug/L**
Bromobenzene	1.0	< 5.0	ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 5.0	ug/L
n-Propylbenzene	1.0	**70**	**ug/L**
2-Chlorotoluene	1.0	< 5.0	ug/L
4-Chlorotoluene	1.0	< 5.0	ug/L
1,3,5-Trimethylbenzene	1.0	< 5.0	ug/L
tert-Butylbenzene	1.0	< 5.0	ug/L
1,2,4-Trimethylbenzene	1.0	< 5.0	ug/L
sec-Butylbenzene	1.0	**7.8**	**ug/L**
1,3-Dichlorobenzene	1.0	< 5.0	ug/L
1,4-Dichlorobenzene	1.0	< 5.0	ug/L
p-Isopropyltoluene	1.0	< 5.0	ug/L
1,2-Dichlorobenzene	1.0	< 5.0	ug/L
n-Butylbenzene	1.0	< 5.0	ug/L
1,2-Dibromomo-3-chloropropane	1.0	< 5.0	ug/L
1,2,4-Trichlorobenzene	1.0	< 5.0	ug/L
Naphthalene	1.0	< 5.0	ug/L
Hexachlorobutadiene	1.0	< 5.0	ug/L
1,2,3-Trichlorobenzene	1.0	< 5.0	ug/L

(D50) = 50 X DILUTION, ANALYZED ON 7/13/98

SURROGATE % RECOVERY	
1,2-Dichloroethane-d4	98
	(80 - 120)
Toluene-d8	99
	(88 - 110)
Bromofluorobenzene	98
	(86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806416
PROJECT #	: 104332.03	DATE RECEIVED :	7/1/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806416-03	MW-39	AQUEOUS	7/1/98	N/A	07/10/98	1

PARAMETER	DET. LIMIT		UNITS
Dichlorodifluoromethane	1.0	< 1.0	ug/L
Chloromethane	1.0	< 1.0	ug/L
Vinyl Chloride	1.0	< 1.0	ug/L
Bromomethane	1.0	< 1.0	ug/L
Chloroethane	1.0	< 1.0	ug/L
Trichlorofluoromethane	1.0	< 1.0	ug/L
Acetone	10	< 10	ug/L
Acrolein	5.0	< 5.0	ug/L
1,1-Dichloroethene	1.0	< 1.0	ug/L
Iodomethane	1.0	< 1.0	ug/L
Methylene Chloride	1.0	< 1.0	ug/L
Acrylonitrile	5.0	< 5.0	ug/L
cis-1,2-Dichloroethene	1.0	< 1.0	ug/L
Methyl-t-butyl Ether	1.0	< 1.0	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 1.0	ug/L
1,1-Dichloroethane	1.0	< 1.0	ug/L
trans-1,2-Dichloroethene	1.0	< 1.0	ug/L
2-Butanone	10	< 10	ug/L
Carbon Disulfide	1.0	< 1.0	ug/L
Bromochloromethane	1.0	< 1.0	ug/L
Chloroform	1.0	< 1.0	ug/L
2,2-Dichloropropane	1.0	< 1.0	ug/L
1,2-Dichloroethane	1.0	< 1.0	ug/L
Vinyl Acetate	1.0	< 1.0	ug/L
1,1,1-Trichloroethane	1.0	< 1.0	ug/L
1,1-Dichloropropene	1.0	< 1.0	ug/L
Carbon Tetrachloride	1.0	< 1.0	ug/L
Benzene	1.0	< 1.0	ug/L
1,2-Dichloropropane	1.0	< 1.0	ug/L
Trichloroethene	1.0	< 1.0	ug/L
Bromodichloromethane	1.0	< 1.0	ug/L
2-Chloroethyl Vinyl Ether	10	< 10	ug/L
cis-1,3-Dichloropropene	1.0	< 1.0	ug/L
trans-1,3-Dichloropropene	1.0	< 1.0	ug/L
1,1,2-Trichloroethane	1.0	< 1.0	ug/L
1,3-Dichloropropane	1.0	< 1.0	ug/L
Dibromomethane	1.0	< 1.0	ug/L
Toluene	1.0	< 1.0	ug/L
1,2-Dibromoethane	1.0	< 1.0	ug/L
4-Methyl-2-Pentanone	10	< 10	ug/L
2-Hexanone	10	< 10	ug/L
Dibromochloromethane	1.0	< 1.0	ug/L
Tetrachloroethene	1.0	< 1.0	ug/L
Chlorobenzene	1.0	< 1.0	ug/L
Ethylbenzene	1.0	< 1.0	ug/L
1,1,1,2-Tetrachloroethane	1.0	< 1.0	ug/L
m&p Xylenes	1.0	< 1.0	ug/L

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806416
PROJECT #	: 104332.03	DATE RECEIVED :	7/1/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806416-03	MW-39	AQUEOUS	7/1/98	N/A	07/10/98	1

PARAMETER	DET. LIMIT		UNITS
o-Xylene	1.0	< 1.0	ug/L
Styrene	1.0	< 1.0	ug/L
Bromoform	1.0	< 1.0	ug/L
1,1,2,2-Tetrachloroethane	1.0	< 1.0	ug/L
1,2,3-Trichloropropane	1.0	< 1.0	ug/L
Isopropyl Benzene	1.0	< 1.0	ug/L
Bromobenzene	1.0	< 1.0	ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 1.0	ug/L
n-Propylbenzene	1.0	< 1.0	ug/L
2-Chlorotoluene	1.0	< 1.0	ug/L
4-Chlorotoluene	1.0	< 1.0	ug/L
1,3,5-Trimethylbenzene	1.0	< 1.0	ug/L
tert-Butylbenzene	1.0	< 1.0	ug/L
1,2,4-Trimethylbenzene	1.0	< 1.0	ug/L
sec-Butylbenzene	1.0	< 1.0	ug/L
1,3-Dichlorobenzene	1.0	< 1.0	ug/L
1,4-Dichlorobenzene	1.0	< 1.0	ug/L
p-Isopropyltoluene	1.0	< 1.0	ug/L
1,2-Dichlorobenzene	1.0	< 1.0	ug/L
n-Butylbenzene	1.0	< 1.0	ug/L
1,2-Dibromomo-3-chloropropane	1.0	< 1.0	ug/L
1,2,4-Trichlorobenzene	1.0	< 1.0	ug/L
Naphthalene	1.0	< 1.0	ug/L
Hexachlorobutadiene	1.0	< 1.0	ug/L
1,2,3-Trichlorobenzene	1.0	< 1.0	ug/L

SURROGATE % RECOVERY		
1,2-Dichloroethane-d4	99	(80 - 120)
Toluene-d8	97	(88 - 110)
Bromofluorobenzene	96	(86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806416
PROJECT #	: 104332.03	DATE RECEIVED :	7/1/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806416-04	MW-13	AQUEOUS	7/1/98	N/A	07/10/98	10

PARAMETER	DET. LIMIT		UNITS
Dichlorodifluoromethane	1.0	< 10	ug/L
Chloromethane	1.0	< 10	ug/L
Vinyl Chloride	1.0	< 10	ug/L
Bromomethane	1.0	< 10	ug/L
Chloroethane	1.0	< 10	ug/L
Trichlorofluoromethane	1.0	< 10	ug/L
Acetone	10	< 100	ug/L
Acrolein	5.0	< 50	ug/L
1,1-Dichloroethene	1.0	< 10	ug/L
Iodomethane	1.0	< 10	ug/L
Methylene Chloride	1.0	< 10	ug/L
Acrylonitrile	5.0	< 50	ug/L
cis-1,2-Dichloroethene	1.0	< 10	ug/L
Methyl-t-butyl Ether	1.0	< 10	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 10	ug/L
1,1-Dichloroethane	1.0	< 10	ug/L
trans-1,2-Dichloroethene	1.0	< 10	ug/L
2-Butanone	10	< 100	ug/L
Carbon Disulfide	1.0	< 10	ug/L
Bromochloromethane	1.0	< 10	ug/L
Chloroform	1.0	< 10	ug/L
2,2-Dichloropropane	1.0	< 10	ug/L
1,2-Dichloroethane	1.0	< 10	ug/L
Vinyl Acetate	1.0	< 10	ug/L
1,1,1-Trichloroethane	1.0	< 10	ug/L
1,1-Dichloropropene	1.0	< 10	ug/L
Carbon Tetrachloride	1.0	< 10	ug/L
Benzene	1.0	**800**	**ug/L**
1,2-Dichloropropane	1.0	< 10	ug/L
Trichloroethene	1.0	< 10	ug/L
Bromodichloromethane	1.0	< 10	ug/L
2-Chloroethyl Vinyl Ether	10	< 100	ug/L
cis-1,3-Dichloropropene	1.0	< 10	ug/L
trans-1,3-Dichloropropene	1.0	< 10	ug/L
1,1,2-Trichloroethane	1.0	< 10	ug/L
1,3-Dichloropropane	1.0	< 10	ug/L
Dibromomethane	1.0	< 10	ug/L
Toluene	1.0	< 10	ug/L
1,2-Dibromoethane	1.0	< 10	ug/L
4-Methyl-2-Pentanone	10	< 100	ug/L
2-Hexanone	10	< 100	ug/L
Dibromochloromethane	1.0	< 10	ug/L
Tetrachloroethene	1.0	< 10	ug/L
Chlorobenzene	1.0	< 10	ug/L
Ethylbenzene	1.0	**640**	**ug/L**
1,1,1,2-Tetrachloroethane	1.0	< 10	ug/L
m&p Xylenes	1.0	**170**	**ug/L**

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806416
PROJECT #	: 104332.03	DATE RECEIVED :	7/1/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806416-04	MW-13	AQUEOUS	7/1/98	N/A	07/10/98	10

PARAMETER	DET. LIMIT		UNITS
o-Xylene	1.0	< 10	ug/L
Styrene	1.0	< 10	ug/L
Bromoform	1.0	< 10	ug/L
1,1,2,2-Tetrachloroethane	1.0	< 10	ug/L
1,2,3-Trichloropropane	1.0	< 10	ug/L
Isopropyl Benzene	1.0	**71**	**ug/L**
Bromobenzene	1.0	< 10	ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 10	ug/L
n-Propylbenzene	1.0	**78**	**ug/L**
2-Chlorotoluene	1.0	< 10	ug/L
4-Chlorotoluene	1.0	< 10	ug/L
1,3,5-Trimethylbenzene	1.0	**110**	**ug/L**
tert-Butylbenzene	1.0	< 10	ug/L
1,2,4-Trimethylbenzene	1.0	**380**	**ug/L**
sec-Butylbenzene	1.0	**11**	**ug/L**
1,3-Dichlorobenzene	1.0	< 10	ug/L
1,4-Dichlorobenzene	1.0	< 10	ug/L
p-Isopropyltoluene	1.0	< 10	ug/L
1,2-Dichlorobenzene	1.0	< 10	ug/L
n-Butylbenzene	1.0	**12**	**ug/L**
1,2-Dibromomo-3-chloropropane	1.0	< 10	ug/L
1,2,4-Trichlorobenzene	1.0	< 10	ug/L
Naphthalene	1.0	**12**	**ug/L**
Hexachlorobutadiene	1.0	< 10	ug/L
1,2,3-Trichlorobenzene	1.0	< 10	ug/L

SURROGATE % RECOVERY	
1,2-Dichloroethane-d4	101 (80 - 120)
Toluene-d8	98 (88 - 110)
Bromofluorobenzene	97 (86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806416
PROJECT #	: 104332.03	DATE RECEIVED :	7/1/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806416-05	Trip Blank	AQUEOUS	6/30/98	N/A	07/10/98	1

PARAMETER	DET. LIMIT		UNITS
Dichlorodifluoromethane	1.0	< 1.0	ug/L
Chloromethane	1.0	< 1.0	ug/L
Vinyl Chloride	1.0	< 1.0	ug/L
Bromomethane	1.0	< 1.0	ug/L
Chloroethane	1.0	< 1.0	ug/L
Trichlorofluoromethane	1.0	< 1.0	ug/L
Acetone	10	< 10	ug/L
Acrolein	5.0	< 5.0	ug/L
1,1-Dichloroethene	1.0	< 1.0	ug/L
Iodomethane	1.0	< 1.0	ug/L
Methylene Chloride	1.0	< 1.0	ug/L
Acrylonitrile	5.0	< 5.0	ug/L
cis-1,2-Dichloroethene	1.0	< 1.0	ug/L
Methyl-t-butyl Ether	1.0	< 1.0	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 1.0	ug/L
1,1-Dichloroethane	1.0	< 1.0	ug/L
trans-1,2-Dichloroethene	1.0	< 1.0	ug/L
2-Butanone	10	< 10	ug/L
Carbon Disulfide	1.0	< 1.0	ug/L
Bromochloromethane	1.0	< 1.0	ug/L
Chloroform	1.0	< 1.0	ug/L
2,2-Dichloropropane	1.0	< 1.0	ug/L
1,2-Dichloroethane	1.0	< 1.0	ug/L
Vinyl Acetate	1.0	< 1.0	ug/L
1,1,1-Trichloroethane	1.0	< 1.0	ug/L
1,1-Dichloropropene	1.0	< 1.0	ug/L
Carbon Tetrachloride	1.0	< 1.0	ug/L
Benzene	1.0	< 1.0	ug/L
1,2-Dichloropropane	1.0	< 1.0	ug/L
Trichloroethene	1.0	< 1.0	ug/L
Bromodichloromethane	1.0	< 1.0	ug/L
2-Chloroethyl Vinyl Ether	10	< 10	ug/L
cis-1,3-Dichloropropene	1.0	< 1.0	ug/L
trans-1,3-Dichloropropene	1.0	< 1.0	ug/L
1,1,2-Trichloroethane	1.0	< 1.0	ug/L
1,3-Dichloropropane	1.0	< 1.0	ug/L
Dibromomethane	1.0	< 1.0	ug/L
Toluene	1.0	< 1.0	ug/L
1,2-Dibromoethane	1.0	< 1.0	ug/L
4-Methyl-2-Pentanone	10	< 10	ug/L
2-Hexanone	10	< 10	ug/L
Dibromochloromethane	1.0	< 1.0	ug/L
Tetrachloroethene	1.0	< 1.0	ug/L
Chlorobenzene	1.0	< 1.0	ug/L
Ethylbenzene	1.0	< 1.0	ug/L
1,1,1,2-Tetrachloroethane	1.0	< 1.0	ug/L
m&p Xylenes	1.0	< 1.0	ug/L

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806416
PROJECT #	: 104332.03	DATE RECEIVED :	7/1/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806416-05	Trip Blank	AQUEOUS	6/30/98	N/A	07/10/98	1

PARAMETER	DET. LIMIT		UNITS
o-Xylene	1.0	< 1.0	ug/L
Styrene	1.0	< 1.0	ug/L
Bromoform	1.0	< 1.0	ug/L
1,1,2,2-Tetrachloroethane	1.0	< 1.0	ug/L
1,2,3-Trichloropropane	1.0	< 1.0	ug/L
Isopropyl Benzene	1.0	< 1.0	ug/L
Bromobenzene	1.0	< 1.0	ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 1.0	ug/L
n-Propylbenzene	1.0	< 1.0	ug/L
2-Chlorotoluene	1.0	< 1.0	ug/L
4-Chlorotoluene	1.0	< 1.0	ug/L
1,3,5-Trimethylbenzene	1.0	< 1.0	ug/L
tert-Butylbenzene	1.0	< 1.0	ug/L
1,2,4-Trimethylbenzene	1.0	< 1.0	ug/L
sec-Butylbenzene	1.0	< 1.0	ug/L
1,3-Dichlorobenzene	1.0	< 1.0	ug/L
1,4-Dichlorobenzene	1.0	< 1.0	ug/L
p-Isopropyltoluene	1.0	< 1.0	ug/L
1,2-Dichlorobenzene	1.0	< 1.0	ug/L
n-Butylbenzene	1.0	< 1.0	ug/L
1,2-Dibromomo-3-chloropropane	1.0	< 1.0	ug/L
1,2,4-Trichlorobenzene	1.0	< 1.0	ug/L
Naphthalene	1.0	< 1.0	ug/L
Hexachlorobutadiene	1.0	< 1.0	ug/L
1,2,3-Trichlorobenzene	1.0	< 1.0	ug/L

SURROGATE % RECOVERY	
1,2-Dichloroethane-d4	98 (80 - 120)
Toluene-d8	94 (88 - 110)
Bromofluorobenzene	95 (86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806416
PROJECT #	: 104332.03		
PROJECT NAME	: IBRP		

SAMPLE ID #	BATCH	MATRIX	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
REAGENT BLANK	070998 B	AQUEOUS	N/A	07/09/98	1

PARAMETER	DET. LIMIT		UNITS
Dichlorodifluoromethane	1.0	< 1.0	ug/L
Chloromethane	1.0	< 1.0	ug/L
Vinyl Chloride	1.0	< 1.0	ug/L
Bromomethane	1.0	< 1.0	ug/L
Chloroethane	1.0	< 1.0	ug/L
Trichlorofluoromethane	1.0	< 1.0	ug/L
Acetone	10	< 10	ug/L
Acrolein	5.0	< 5.0	ug/L
1,1-Dichloroethene	1.0	< 1.0	ug/L
Iodomethane	1.0	< 1.0	ug/L
Methylene Chloride	1.0	< 1.0	ug/L
Acrylonitrile	5.0	< 5.0	ug/L
cis-1,2-Dichloroethene	1.0	< 1.0	ug/L
Methyl-t-butyl Ether	1.0	< 1.0	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 1.0	ug/L
1,1-Dichloroethane	1.0	< 1.0	ug/L
trans-1,2-Dichloroethene	1.0	< 1.0	ug/L
2-Butanone	10	< 10	ug/L
Carbon Disulfide	1.0	< 1.0	ug/L
Bromochloromethane	1.0	< 1.0	ug/L
Chloroform	1.0	< 1.0	ug/L
2,2-Dichloropropane	1.0	< 1.0	ug/L
1,2-Dichloroethane	1.0	< 1.0	ug/L
Vinyl Acetate	1.0	< 1.0	ug/L
1,1,1-Trichloroethane	1.0	< 1.0	ug/L
1,1-Dichloropropene	1.0	< 1.0	ug/L
Carbon Tetrachloride	1.0	< 1.0	ug/L
Benzene	1.0	< 1.0	ug/L
1,2-Dichloropropane	1.0	< 1.0	ug/L
Trichloroethene	1.0	< 1.0	ug/L
Bromodichloromethane	1.0	< 1.0	ug/L
2-Chloroethyl Vinyl Ether	10	< 10	ug/L
cis-1,3-Dichloropropene	1.0	< 1.0	ug/L
trans-1,3-Dichloropropene	1.0	< 1.0	ug/L
1,1,2-Trichloroethane	1.0	< 1.0	ug/L
1,3-Dichloropropane	1.0	< 1.0	ug/L
Dibromomethane	1.0	< 1.0	ug/L
Toluene	1.0	< 1.0	ug/L
1,2-Dibromoethane	1.0	< 1.0	ug/L
4-Methyl-2-Pentanone	10	< 10	ug/L
2-Hexanone	10	< 10	ug/L
Dibromochloromethane	1.0	< 1.0	ug/L
Tetrachloroethene	1.0	< 1.0	ug/L
Chlorobenzene	1.0	< 1.0	ug/L
Ethylbenzene	1.0	< 1.0	ug/L
1,1,1,2-Tetrachloroethane	1.0	< 1.0	ug/L

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806416
PROJECT #	: 104332.03		
PROJECT NAME	: IBRP		

SAMPLE ID #	BATCH	MATRIX	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
REAGENT BLANK	070998 B	AQUEOUS	N/A	07/09/98	1

PARAMETER	DET. LIMIT		UNITS
m&p Xylenes	1.0	< 1.0	ug/L
o-Xylene	1.0	< 1.0	ug/L
Styrene	1.0	< 1.0	ug/L
Bromoform	1.0	< 1.0	ug/L
1,1,2,2-Tetrachloroethane	1.0	< 1.0	ug/L
1,2,3-Trichloropropane	1.0	< 1.0	ug/L
Isopropyl Benzene	1.0	< 1.0	ug/L
Bromobenzene	1.0	< 1.0	ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 1.0	ug/L
n-Propylbenzene	1.0	< 1.0	ug/L
2-Chlorotoluene	1.0	< 1.0	ug/L
4-Chlorotoluene	1.0	< 1.0	ug/L
1,3,5-Trimethylbenzene	1.0	< 1.0	ug/L
tert-Butylbenzene	1.0	< 1.0	ug/L
1,2,4-Trimethylbenzene	1.0	< 1.0	ug/L
sec-Butylbenzene	1.0	< 1.0	ug/L
1,3-Dichlorobenzene	1.0	< 1.0	ug/L
1,4-Dichlorobenzene	1.0	< 1.0	ug/L
p-Isopropyltoluene	1.0	< 1.0	ug/L
1,2-Dichlorobenzene	1.0	< 1.0	ug/L
n-Butylbenzene	1.0	< 1.0	ug/L
1,2-Dibromomo-3-chloropropane	1.0	< 1.0	ug/L
1,2,4-Trichlorobenzene	1.0	< 1.0	ug/L
Naphthalene	1.0	< 1.0	ug/L
Hexachlorobutadiene	1.0	< 1.0	ug/L
1,2,3-Trichlorobenzene	1.0	< 1.0	ug/L

SURROGATE % RECOVERY	
1,2-Dichloroethane-d4	100
	(80 - 120)
Toluene-d8	98
	(88 - 110)
Bromofluorobenzene	95
	(86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806416
PROJECT #	: 104332.03		
PROJECT NAME	: IBRP		

SAMPLE ID #	BATCH	MATRIX	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
REAGENT BLANK	071098	AQUEOUS	N/A	07/10/98	1

PARAMETER	DET. LIMIT		UNITS
Dichlorodifluoromethane	1.0	< 1.0	ug/L
Chloromethane	1.0	< 1.0	ug/L
Vinyl Chloride	1.0	< 1.0	ug/L
Bromomethane	1.0	< 1.0	ug/L
Chloroethane	1.0	< 1.0	ug/L
Trichlorofluoromethane	1.0	< 1.0	ug/L
Acetone	10	< 10	ug/L
Acrolein	5.0	< 5.0	ug/L
1,1-Dichloroethene	1.0	< 1.0	ug/L
Iodomethane	1.0	< 1.0	ug/L
Methylene Chloride	1.0	< 1.0	ug/L
Acrylonitrile	5.0	< 5.0	ug/L
cis-1,2-Dichloroethene	1.0	< 1.0	ug/L
Methyl-t-butyl Ether	1.0	< 1.0	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 1.0	ug/L
1,1-Dichloroethane	1.0	< 1.0	ug/L
trans-1,2-Dichloroethene	1.0	< 1.0	ug/L
2-Butanone	10	< 10	ug/L
Carbon Disulfide	1.0	< 1.0	ug/L
Bromochloromethane	1.0	< 1.0	ug/L
Chloroform	1.0	< 1.0	ug/L
2,2-Dichloropropane	1.0	< 1.0	ug/L
1,2-Dichloroethane	1.0	< 1.0	ug/L
Vinyl Acetate	1.0	< 1.0	ug/L
1,1,1-Trichloroethane	1.0	< 1.0	ug/L
1,1-Dichloropropene	1.0	< 1.0	ug/L
Carbon Tetrachloride	1.0	< 1.0	ug/L
Benzene	1.0	< 1.0	ug/L
1,2-Dichloropropane	1.0	< 1.0	ug/L
Trichloroethene	1.0	< 1.0	ug/L
Bromodichloromethane	1.0	< 1.0	ug/L
2-Chloroethyl Vinyl Ether	10	< 10	ug/L
cis-1,3-Dichloropropene	1.0	< 1.0	ug/L
trans-1,3-Dichloropropene	1.0	< 1.0	ug/L
1,1,2-Trichloroethane	1.0	< 1.0	ug/L
1,3-Dichloropropane	1.0	< 1.0	ug/L
Dibromomethane	1.0	< 1.0	ug/L
Toluene	1.0	< 1.0	ug/L
1,2-Dibromoethane	1.0	< 1.0	ug/L
4-Methyl-2-Pentanone	10	< 10	ug/L
2-Hexanone	10	< 10	ug/L
Dibromochloromethane	1.0	< 1.0	ug/L
Tetrachloroethene	1.0	< 1.0	ug/L
Chlorobenzene	1.0	< 1.0	ug/L
Ethylbenzene	1.0	< 1.0	ug/L
1,1,1,2-Tetrachloroethane	1.0	< 1.0	ug/L

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806416
PROJECT #	: 104332.03		
PROJECT NAME	: IBRP		

SAMPLE ID #	BATCH	MATRIX	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
REAGENT BLANK	071098	AQUEOUS	N/A	07/10/98	1

PARAMETER	DET. LIMIT		UNITS
m&p Xylenes	1.0	< 1.0	ug/L
o-Xylene	1.0	< 1.0	ug/L
Styrene	1.0	< 1.0	ug/L
Bromoform	1.0	< 1.0	ug/L
1,1,2,2-Tetrachloroethane	1.0	< 1.0	ug/L
1,2,3-Trichloropropane	1.0	< 1.0	ug/L
Isopropyl Benzene	1.0	< 1.0	ug/L
Bromobenzene	1.0	< 1.0	ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 1.0	ug/L
n-Propylbenzene	1.0	< 1.0	ug/L
2-Chlorotoluene	1.0	< 1.0	ug/L
4-Chlorotoluene	1.0	< 1.0	ug/L
1,3,5-Trimethylbenzene	1.0	< 1.0	ug/L
tert-Butylbenzene	1.0	< 1.0	ug/L
1,2,4-Trimethylbenzene	1.0	< 1.0	ug/L
sec-Butylbenzene	1.0	< 1.0	ug/L
1,3-Dichlorobenzene	1.0	< 1.0	ug/L
1,4-Dichlorobenzene	1.0	< 1.0	ug/L
p-Isopropyltoluene	1.0	< 1.0	ug/L
1,2-Dichlorobenzene	1.0	< 1.0	ug/L
n-Butylbenzene	1.0	< 1.0	ug/L
1,2-Dibromomo-3-chloropropane	1.0	< 1.0	ug/L
1,2,4-Trichlorobenzene	1.0	< 1.0	ug/L
Naphthalene	1.0	< 1.0	ug/L
Hexachlorobutadiene	1.0	< 1.0	ug/L
1,2,3-Trichlorobenzene	1.0	< 1.0	ug/L

SURROGATE % RECOVERY	
1,2-Dichloroethane-d4	101
	(80 - 120)
Toluene-d8	103
	(88 - 110)
Bromofluorobenzene	101
	(86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	. MARATHON OIL COMPANY	AEN I.D. :	806416
PROJECT #	: 104332.03		
PROJECT NAME	: IBRP		

SAMPLE ID #	BATCH	MATRIX	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
REAGENT BLANK	071398	AQUEOUS	N/A	07/13/98	1

PARAMETER	DET. LIMIT		UNITS
Dichlorodifluoromethane	1.0	< 1.0	ug/L
Chloromethane	1.0	< 1.0	ug/L
Vinyl Chloride	1.0	< 1.0	ug/L
Bromomethane	1.0	< 1.0	ug/L
Chloroethane	1.0	< 1.0	ug/L
Trichlorofluoromethane	1.0	< 1.0	ug/L
Acetone	10	< 10	ug/L
Acrolein	5.0	< 5.0	ug/L
1,1-Dichloroethene	1.0	< 1.0	ug/L
Iodomethane	1.0	< 1.0	ug/L
Methylene Chloride	1.0	< 1.0	ug/L
Acrylonitrile	5.0	< 5.0	ug/L
cis-1,2-Dichloroethene	1.0	< 1.0	ug/L
Methyl-t-butyl Ether	1.0	< 1.0	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 1.0	ug/L
1,1-Dichloroethane	1.0	< 1.0	ug/L
trans-1,2-Dichloroethene	1.0	< 1.0	ug/L
2-Butanone	10	< 10	ug/L
Carbon Disulfide	1.0	< 1.0	ug/L
Bromochloromethane	1.0	< 1.0	ug/L
Chloroform	1.0	< 1.0	ug/L
2,2-Dichloropropane	1.0	< 1.0	ug/L
1,2-Dichloroethane	1.0	< 1.0	ug/L
Vinyl Acetate	1.0	< 1.0	ug/L
1,1,1-Trichloroethane	1.0	< 1.0	ug/L
1,1-Dichloropropene	1.0	< 1.0	ug/L
Carbon Tetrachloride	1.0	< 1.0	ug/L
Benzene	1.0	< 1.0	ug/L
1,2-Dichloropropane	1.0	< 1.0	ug/L
Trichloroethene	1.0	< 1.0	ug/L
Bromodichloromethane	1.0	< 1.0	ug/L
2-Chloroethyl Vinyl Ether	10	< 10	ug/L
cis-1,3-Dichloropropene	1.0	< 1.0	ug/L
trans-1,3-Dichloropropene	1.0	< 1.0	ug/L
1,1,2-Trichloroethane	1.0	< 1.0	ug/L
1,3-Dichloropropane	1.0	< 1.0	ug/L
Dibromomethane	1.0	< 1.0	ug/L
Toluene	1.0	< 1.0	ug/L
1,2-Dibromoethane	1.0	< 1.0	ug/L
4-Methyl-2-Pentanone	10	< 10	ug/L
2-Hexanone	10	< 10	ug/L
Dibromochloromethane	1.0	< 1.0	ug/L
Tetrachloroethene	1.0	< 1.0	ug/L
Chlorobenzene	1.0	< 1.0	ug/L
Ethylbenzene	1.0	< 1.0	ug/L
1,1,1,2-Tetrachloroethane	1.0	< 1.0	ug/L

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806416
PROJECT #	: 104332.03		
PROJECT NAME	: IBRP		

SAMPLE ID #	BATCH	MATRIX	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
REAGENT BLANK	071398	AQUEOUS	N/A	07/13/98	1

PARAMETER	DET. LIMIT		UNITS
m&p Xylenes	1.0	< 1.0	ug/L
o-Xylene	1.0	< 1.0	ug/L
Styrene	1.0	< 1.0	ug/L
Bromoform	1.0	< 1.0	ug/L
1,1,2,2-Tetrachloroethane	1.0	< 1.0	ug/L
1,2,3-Trichloropropane	1.0	< 1.0	ug/L
Isopropyl Benzene	1.0	< 1.0	ug/L
Bromobenzene	1.0	< 1.0	ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 1.0	ug/L
n-Propylbenzene	1.0	< 1.0	ug/L
2-Chlorotoluene	1.0	< 1.0	ug/L
4-Chlorotoluene	1.0	< 1.0	ug/L
1,3,5-Trimethylbenzene	1.0	< 1.0	ug/L
tert-Butylbenzene	1.0	< 1.0	ug/L
1,2,4-Trimethylbenzene	1.0	< 1.0	ug/L
sec-Butylbenzene	1.0	< 1.0	ug/L
1,3-Dichlorobenzene	1.0	< 1.0	ug/L
1,4-Dichlorobenzene	1.0	< 1.0	ug/L
p-Isopropyltoluene	1.0	< 1.0	ug/L
1,2-Dichlorobenzene	1.0	< 1.0	ug/L
n-Butylbenzene	1.0	< 1.0	ug/L
1,2-Dibromomo-3-chloropropane	1.0	< 1.0	ug/L
1,2,4-Trichlorobenzene	1.0	< 1.0	ug/L
Naphthalene	1.0	< 1.0	ug/L
Hexachlorobutadiene	1.0	< 1.0	ug/L
1,2,3-Trichlorobenzene	1.0	< 1.0	ug/L

SURROGATE % RECOVERY		
1,2-Dichloroethane-d4	102	(80 - 120)
Toluene-d8	98	(88 - 110)
Bromofluorobenzene	99	(86 - 115)

Spike Recovery and RPD Summary Report - WATER

Method : C:\HPCHEM\1\METHODS\82600708.M (RTE Integrator)
Title : AEN New Mexico GC/MS
Last Update : Wed Jul 08 14:15:08 1998
Response via : Initial Calibration

Non-Spiked Sample: 07099817.D

	Spike Sample	Spike Duplicate Sample
File ID :	070998S3.D	070998S4.D
Sample :	806426-01 MS	806426-01 MSD
Acq Time:	9 Jul 98 9:29 pm	9 Jul 98 10:04 pm

Compound	Sample Conc	Spike Added	Spike Res	Dup Res	Spike %Rec	Dup %Rec	RPD	QC Limits RPD	QC Limits % Rec
1,1-Dichloroethene	0.0	50	43	42	86	84	2	14	61-145
Benzene	0.0	50	48	48	97	96	1	11	76-127
Trichloroethene	0.0	50	49	48	98	97	1	14	71-120
Toluene	0.0	50	48	47	96	94	2	13	76-125
Chlorobenzene	0.0	50	49	48	97	96	1	13	75-130

- Fails Limit Check

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ▪ (425) 420-9200 ▪ FAX 420-9210
SPOKANE ▪ (509) 924-9200 ▪ FAX 924-9290
PORTLAND ▪ (503) 906-9200 ▪ FAX 906-9210

American Environmental Network	Project:	Marathon Oil	Sampled:	6/21/98
2709-D Pan American Freeway,NE	Project Number:	104332.03	Received:	6/23/98
Albuquerque, NM 87107	Project Manager:	Kimberly McNeill	Reported:	7/21/98 12:34

ANALYTICAL REPORT FOR SAMPLES:

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
MW-49	P806460-01	Water	6/21/98
MW-46	P806460-02	Water	6/21/98
MW-13	P806460-03	Water	6/21/98

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

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American Environmental Network	Project:	Marathon Oil	Sampled: 6/21/98
2709-D Pan American Freeway,NE	Project Number:	104332.03	Received: 6/23/98
Albuquerque, NM 87107	Project Manager:	Kimberly McNeill	Reported: 7/21/98 12:34

Total Metals per EPA 6000/7000 Series Methods
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
MW-49			**P806460-01**				**Water**	
Uranium	0780163	7/6/98	7/19/98	EPA 6020	0.00100	**0.0336**	mg/l	
MW-46			**P806460-02**				**Water**	
Uranium	0780163	7/6/98	7/19/98	EPA 6020	0.00100	**0.00130**	mg/l	
MW-13			**P806460-03**				**Water**	
Uranium	0780163	7/6/98	7/19/98	EPA 6020	0.00100	**0.00180**	mg/l	

North Creek Analytical, Inc.

**Refer to end of report for text of notes and definitions.*

Lisa Domenighini, Project Manager

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ▪ (425) 420-9200 ▪ FAX 420-9210
SPOKANE ▪ (509) 924-9200 ▪ FAX 924-9290
PORTLAND ▪ (503) 906-9200 ▪ FAX 906-9210

American Environmental Network	Project:	Marathon Oil	Sampled: 6/21/98
2709-D Pan American Freeway,NE	Project Number:	104332.03	Received: 6/23/98
Albuquerque, NM 87107	Project Manager:	Kimberly McNeill	Reported: 7/21/98 12:34

Total Metals per EPA 6000/7000 Series Methods/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0780163	**Date Prepared: 7/6/98**					**Extraction Method: EPA 200/3005**				
Blank	**0780163-BLK1**									
Uranium	7/16/98			**ND**	mg/l	**0.00100**				
LCS	**0780163-BS1**									
Uranium	7/16/98	0.0500		0.0537	mg/l	75.0-125	107			
Duplicate	**0780163-DUP1**		**P806407-01**							
Uranium	7/16/98		0.00160	0.00120	mg/l			20.0	**28.6**	1
Matrix Spike	**0780163-MS1**		**P806407-01**							
Uranium	7/16/98	0.0500	0.00160	0.0601	mg/l	70.0-130	**117**			
Matrix Spike	**0780163-MS2**		**P806457-03**							
Uranium	7/19/98	0.0500	ND	0.0670	mg/l	70.0-130	**134**			2

North Creek Analytical, Inc.

**Refer to end of report for text of notes and definitions*

Lisa Domenighini, Project Manager

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ▪ (425) 420-9200 ▪ FAX 420-9210
SPOKANE ▪ (509) 924-9200 ▪ FAX 924-9290
PORTLAND ▪ (503) 906-9200 ▪ FAX 906-9210

American Environmental Network	Project:	Marathon Oil	Sampled: 6/21/98
2709-D Pan American Freeway,NE	Project Number:	104332.03	Received: 6/23/98
Albuquerque, NM 87107	Project Manager:	Kimberly McNeill	Reported: 7/21/98 12:34

Notes and Definitions

#	Note
1	Analyses are not controlled on RPD values from sample concentrations less than 5 times the reporting limit.
2	The spike recovery for this QC sample is outside of established control limits. Review of associated batch QC indicates the recovery for this analyte does not represent an out-of-control condition for the batch.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
Recov.	Recovery
RPD	Relative Percent Difference

North Creek Analytical, Inc.

Lisa Domenighini, Project Manager

American Environmental Network (NM), Inc.

CHAIN OF CUSTODY

DATE: _____ PAGE: ___ OF ___

AEN (NM) Accession #: 10064960 23.6

SHADED AREAS ARE FOR LAB USE ONLY

PLEASE FILL THIS FORM IN COMPLETELY.

PROJECT MANAGER: Paul Peacock

COMPANY: Marathon Oil Company
ADDRESS: P.O. Box 552
Midland, TX 79702-0552
PHONE: (915) 687-8312
FAX: (915) 687-8305

BILL TO: same as above
COMPANY:
ADDRESS:

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB I.D.	# OF CONTAINERS
MW-49	6-21-98	1000	H2O		7
MW-46	↓	1130	↓		7
MW-13	↓	1400	↓		7

Petroleum Hydrocarbons (418.1) TRPH
(MOD.8015) Diesel/Direct Inject
(M8015) Gas/Purge & Trap
8021 (BTEX)/8015 (Gasoline)
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)
Herbicides (615/8151)
Base/Neutral/Acid Compounds GC/MS (625/8270)
Polynuclear Aromatics (610/8310)
General Chemistry:
U-ICPMS
Priority Pollutant Metals (13)
Target Analyte List Metals (23)
RCRA Metals (8)
RCRA Metals by TCLP (Method 1311)
Metals:

PROJECT INFORMATION

PROJ. NO.: 104332.03
PROJ. NAME: IBRP
P.O. NO.:
SHIPPED VIA:

SAMPLE RECEIPT

NO. CONTAINERS:
CUSTODY SEALS: Y / N / NA
RECEIVED INTACT: Y / N / NA
BLUE ICE/ICE: Y / N / NA

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

(RUSH) ☐ 24hr ☐ 48hr ☐ 72hr ☐ 1 WEEK (NORMAL) X

CERTIFICATION REQUIRED: ☐ NM ☐ SDWA ☐ OTHER

METHANOL PRESERVATION ☐

COMMENTS: FIXED FEE ☐

RELINQUISHED BY:	RELINQUISHED BY:
Signature:	Signature:
Time: 1745	Time: 1800
Printed Name: Charles Maxwell	Printed Name: CHRIS FAITH
Date: 6-21-98	Date: 6/21
Company: FDGTI	Company: AEN
RECEIVED BY:	**RECEIVED BY: (LAB)** NCA
Signature:	Signature:
Time: 1745	Time: 115
Printed Name: CHRIS FAITH	Printed Name: S. Vandenhoff
Date: 6/21	Date: 6/23/98
Company: AEN	American Environmental Network (NM), Inc.



Committed To *Your* Success

Severn Trent Laboratories
120 Southcenter Court, Suite 300
Morrisville NC 27560

Tel: (919) 460-8505
Fax: (919) 469-2646

July 17, 1998

American Environmental Network
Attn: Dr. Mitch Rubenstein
2709D PanAmerican Freeway NE
Albuquerque, NM 87107

Dear Dr. Rubenstein:

Please find enclosed the radiological results of two (2) water samples. This report contains sections addressing the following information at a minimum:

- case narrative
- sample summary
- analytical results (forms I thru VII), key, and COC's if applicable

STL Project #:	2599.048
STL Work Order #:	98-06-406
Client Project ID:	1013E.08

Copies of this radiological report and supporting data are maintained in our files for a minimum of three years unless special arrangements have been made. Except where specifically indicated, all radiological testing was performed at this laboratory location and no portion of the testing was subcontracted.

We appreciate your selection of our services and welcome any questions or suggestions you may have relative to this report. Please contact your customer service representative at (919) 460-8505 for any additional information. Thank you for utilizing our services. We hope you will consider us for your future analytical needs.

I have reviewed and approved the enclosed data for final release.

Sincerely,

Ross W. Williams

Ross W. Williams, Ph.D.
Manager, Radiological Laboratory
STL-North Carolina

RWW/mevl

STL
Committed To *Your* Success

CASE NARRATIVE
Client: American Environmental Network - NM
Client Project ID: 104332.03
STL-NC Order Number: 98-06-406
STL-NC Project Number: 2399-013

Two (2) water samples were received on June 23, 1998, in good condition with the chain-of-custody intact.

The samples were analyzed for Ra-226 and Ra-228.

A method blank was analyzed with each batch, and the activities of the blanks were equal to or less than the acceptance criteria of less than three times the MDL.

A blank spike sample was analyzed with each batch, and the recoveries were within the 80-120% acceptance criteria.

A matrix spike analysis was made with each batch also. The matrix spike recoveries were within the acceptance criteria of 80-120% for water samples.

A duplicate sample was analyzed for each batch. The duplicate analyses were within our acceptance criteria of a Duplicate Error Ratio (DER) of less than 1.5. The DER is defined as follows:

$$DER = \frac{|S-D|}{(2\sigma_s + 2\sigma_d)}$$

Where: S = Original Sample Value
D = Duplicate Value
$2\sigma_s$ = Original Sample Uncertainty
$2\sigma_d$ = Duplicate Sample Uncertainty

Ross W. Williams, Ph.D.
Manager, Radiological Laboratory
7/20/98

N:\WP\AEN-NM 2399-013.WPD

Environmental Survey

Cover Page

Radiological Data Analysis Package

07/17/98

120 Southcenter Ct., Suite 300
Morrisville, NC 27560

Phone (919) 460-8505
Fax (919) 469-2646

Project Number: 2399-013

NC - 806416

Client Sample ID	Lab ID
MW-49	9806406-01
MW-13	9806406-02

Comments: _____

Release of the data contained in this package has been authorized by the laboratory manager or the manager's designee, as verified by the following signature.

Ross W. Williams
Manager, Radiological Laboratory

7/20/98
Date

STL

Project Number: 2399-013

Severn Trent Laboratories

Radiological Analysis Results

NC - 806416

07/17/98

Form I

Client Sample ID	Lab ID	Sample Type	Batch Number	Matrix	Radionuclide	Result	Uncertainty	Q	Units	Analysis Date	Sample Size	MDA
MW-49	9806406-01	Reg	98070006	Water	Ra-226	3.53	0.27		pCi/L	07/13/98	0.5000	0.08
MW-49	9806406-01	Reg	98060063	Water	Ra-228	8.23	1.61		pCi/L	07/08/98	1.0000	2.56
MW-13	9806406-02	Reg	98070006	Water	Ra-226	0.87	0.15		pCi/L	07/13/98	0.5000	0.08
MW-13	9806406-02	Reg	98060063	Water	Ra-228	1.65	1.06		pCi/L	07/08/98	1.0000	2.26

Key shall be attached

Comments:

Project Number: 2399-013

QA/QC Results Summary

NC - 806416

07/17/98

Form II

Client Sample ID	Lab ID	Sample Type	Batch Number	Matrix	Radionuclide	Result	Uncertainty	Units	Analysis Date	Sample Size	MDA	Inst ID
Blank Spike	N/A	BS	98070006	Water	Ra-226	154.91	2.81	pCi/L	07/15/98	0.5000	0.22	5
Blank Spike	N/A	BS	98060063	Water	Ra-228	90.67	3.94	pCi/L	07/08/98	1.0000	2.22	1
MW-49	9806406-01	Dup	98070006	Water	Ra-226	4.31	0.31	pCi/L	07/13/98	0.5000	0.08	5
MW-13	9806406-02	Dup	98060063	Water	Ra-228	-0.27	1.13	pCi/L	07/08/98	1.0000	2.80	1
Method Blank	N/A	MB	98070006	Water	Ra-226	0.16	0.15	pCi/L	07/15/98	0.5000	0.18	5
Method Blank	N/A	MB	98060063	Water	Ra-228	-2.59	1.11	pCi/L	07/08/98	1.0000	3.11	1
MW-13	9806406-02	MS	98070006	Water	Ra-226	138.97	2.14	pCi/L	07/13/98	0.5000	0.15	5
MW-14	9806408-03	MS	98060063	Water	Ra-228	104.49	4.32	pCi/L	07/08/98	1.0000	2.78	1

Key shall be attached

Comments: _____

MDA mode

Severn Trent Laboratories

Project Number: 2399-013

Method Blank Summary

NC - 806416

07/17/98

Form III

Client Sample ID	Batch Number	Matrix	Radionuclide	Result	Uncertainty	Q	Units	Analysis Date	Sample Size	Method Number	Inst ID
Method Blank	98070006	Water	Ra-226	0.16	0.15		pCi/L	07/15/98	0.5000	RAS01900	5
Method Blank	98060063	Water	Ra-228	-2.59	1.11		pCi/L	07/08/98	1.0000	RAS08500	1

Key shall be attached

Comments: _____

Project Number: 2399-013

Chemical Recovery

NC - 806416

07/17/98

Form IV

Client Sample ID	Lab ID	Sample Type	Batch Number	Radionuclide	Chemical Tracer	Tracer Result	Tracer Added	Percent Recovery	Q	Tracer Units	Analysis Date	Inst ID
MW-49	9806406-01	Reg	98070006	Ra-226	Ba-133	1239.00	1260.00	98.33 %		pCi	07/13/98	5
MW-49	9806406-01	Reg	98060063	Ra-228	Ba-133	907.70	1309.00	69.34 %		pCi	07/08/98	1
MW-13	9806406-02	Reg	98070006	Ra-226	Ba-133	1168.00	1309.00	89.23 %		pCi	07/13/98	5
MW-13	9806406-02	Reg	98060063	Ra-228	Ba-133	1004.00	1260.00	79.68 %		pCi	07/08/98	1
Blank Spike	N/A	BS	98070006	Ra-226	Ba-133	1099.00	1309.00	83.96 %		pCi	07/15/98	5
Blank Spike	N/A	BS	98060063	Ra-228	Ba-133	1011.00	1309.00	77.23 %		pCi	07/08/98	1
MW-49	9806406-01	Dup	98070006	Ra-226	Ba-133	1258.00	1260.00	99.84 %		pCi	07/13/98	5
MW-13	9806406-02	Dup	98060063	Ra-228	Ba-133	872.50	1309.00	66.65 %		pCi	07/08/98	1
Method Blank	N/A	MB	98070006	Ra-226	Ba-133	956.60	1260.00	75.92 %		pCi	07/15/98	5
Method Blank	N/A	MB	98060063	Ra-228	Ba-133	988.90	1309.00	75.55 %		pCi	07/08/98	1
MW-13	9806406-02	MS	98070006	Ra-226	Ba-133	1221.00	1309.00	93.28 %		pCi	07/13/98	5
MW-14	9806408-03	MS	98060063	Ra-228	Ba-133	954.10	1260.00	75.72 %		pCi	07/08/98	1

Key shall be attached
Comments:

MDA mode

STL

Severn Trent Laboratories

Project Number: 2399-013

Blank Spike Results Summary

NC - 806416

07/17/98

Form V

Client Sample ID	Batch Number	Matrix	Radionuclide	Spike	Result	Spike Value	Percent Recovery	Q	Units	Analysis Date	Method Number
Blank Spike	98070006	Water	Ra-226	Ra-226	154.91	145.40	106.54%		pCi/L	07/15/98	RAS01900
Blank Spike	98060063	Water	Ra-228	Ra-228	90.67	87.75	103.33%		pCi/L	07/08/98	RAS08500

Key shall be attached

Comments: _____

Project Number: 2399-013

Matrix Spike Results Summary

NC - 806416

07/17/98

Form VI

Client Sample ID	Lab ID	Batch Number	Spike	SSR	Sample Result	Spike Added	Percent Recovery	Q	Units	Analysis Date	Inst ID
MW-13	9806406-02	98070006	Ra-226	138.97	0.87	145.40	94.98 %		pCi/L	07/13/98	5
MW-14	9806408-03	98060063	Ra-228	104.49	13.25	87.75	103.98 %		pCi/L	07/08/98	1

Key shall be attached

Comments: _____

_____

_____

MDA mode

STL

Project Number: 2399-013

Severn Trent Laboratories

Duplicate Results

NC - 806416

07/17/98

Form VII

Client Sample ID	Lab ID	Batch Number	Radionuclide	Sample Result	Uncertainty	Dup. Result	Dup. Uncertainty	DER	Q	Units
MW-13	9806406-02	98060063	Ra-228	1.65	1.06	-0.27	1.13	0.88		pCi/L
MW-49	9806406-01	98070006	Ra-226	3.53	0.27	4.31	0.31	1.34		pCi/L

Key shall be attached

Comments: _____



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REPORT FORM KEY

Severn Trent Laboratories
120 Southcenter Court, Suite 300
Morrisville NC 27560

Tel: (919) 460-8505
Fax: (919) 469-2646

Instrument ID:

#1 - Gas Proportional Counter
#2 - High Purity Germanium Detectors (HPGe)
#3 - Alpha Spectrometry Counter
#4 - Liquid Scintillation Counter
#5 - Lucas Cell Counter
#6 - Sodium Iodide Detector

Sample Type:

REG - Regular Sample
DUP - Duplicate Sample
MS - Matrix Spike
BS - Blank Spike
MB - Method Blank

Units:

pCi/L - Picocuries per Liter
pCi/g - Picocuries per Gram
pCi/ml - Picocuries per Milliliter
pCi/mg - Picocuries per Milligram
pCi/F - Picocuries per Air Filter

Radionuclides:

H-3	Tritium	C-14	Carbon-14
Cl-36	Chlorine-36	K-40	Potassium-40
Co-60	Cobalt-60	Sr-89	Strontium-89
Sr-90	Strontium-90	Tc-99	Technetium-99
Cs-137	Cesium-137	Tl-208	Thallium-208
Pb-210	Lead-210	Pb-212	Lead-212
Pb-214	Lead-214	Bi-214	Bismuth-214
Ra-226	Radium-226	Ac-228	Actinium-228
Ra-228	Radium-228	Th-234	Thorium-234
Th-227	Thorium-227	Th-232/230/228	Isotopic Thorium
U-234/235/238	Isotopic Uranium	Pu-238	Plutonium-238
Pu-239/240	Plutonium-239&240	Am-241	Americium-241
Np-237	Neptunium-237		

WORK ORDER

Lab

Work Order #	98-06-406	# of Samples	2	Recieved Date	06/23/98	American Environ. Network
Client #	2399	# of Tests	4	Load Date	06/24/98	2709D PanAmerican Freeway NE
Project	2399-013	Report Level	2	Due Date	07/10/98	Albuquerque, NM 87107
Amount	123.25	Quote #		Export Date	/ /	Mitch Rubenstein
Comment						

Lab ID	Sample #	Status	Matrix	Test	Cust ID	Collected
9806406-01	01A1	Open	Water	Ra-226	MW-49	06/21/98
9806406-01	01A2	Open	Water	Ra-228	MW-49	06/21/98
9806406-02	02A1	Open	Water	Ra-226	MW-13	06/21/98
9806406-02	02A2	Open	Water	Ra-228	MW-13	06/21/98

pH Checked
All Samples pH <2
Initials: GB Date: 6/24/98
Arrived unpreserved

98-06-406

American Environmental Network (NM), Inc.

CHAIN OF CUSTODY

DATE: _____ PAGE: ___ OF ___

AEN (NM) Accession #: NC 8016

SHADED AREAS ARE FOR LAB USE ONLY

PLEASE FILL THIS FORM IN COMPLETELY.

PROJECT MANAGER:	Paul Peacock
COMPANY:	Marathon Oil Company
ADDRESS:	P.O. Box 552
	Midland, TX 79702-0552
PHONE:	(915) 687-8312
FAX:	(915) 687-8305
BILL TO:	same as above
COMPANY:	
ADDRESS:	

SAMPLE ID	DATE	TIME	MATRIX	LAB I.D.
MW-49	6-21-98	1000	H2O	
*MW-46	↓	1130	↓	
MW-13	↓	1400	↓	

ANALYSIS REQUEST

Petroleum Hydrocarbons (418.1) TRPH	(MOD.8015) Diesel/Direct Inject	(M8015) Gas/Purge & Trap	8021 (BTEX)/8015 (Gasoline)	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)	Herbicides (615/8151)	Base/Neutral/Acid Compounds GC/MS (625/8270)	Polynuclear Aromatics (610/8310)	General Chemistry:	Priority Pollutant Metals (13)	Target Analyte List Metals (23)	RCRA Metals (8)	RCRA Metals by TCLP (Method 1311)	Metals:	NUMBER OF CONTAINERS
																		XX Ra 226/228						1
																								1
																								1

PROJECT INFORMATION	
PROJ. NO.:	104332.03
PROJ. NAME:	IBRP
P.O. NO.:	
SHIPPED VIA:	

SAMPLE RECEIPT	
NO. CONTAINERS:	
CUSTODY SEAL:	Y / N / NA
RECEIVED INTACT:	
BLUE ICE/ICE:	

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

(RUSH) [ ] 24hr [ ] 48hr [ ] 72hr [ ] 1 WEEK (NORMAL) [X]

CERTIFICATION REQUIRED: [ ] NM [ ] SDWA [ ] OTHER

METHANOL PRESERVATION [ ]

COMMENTS: FIXED FEE [ ]

*MW-46 WILL ARRIVE IN NEXT SHIPMENT

RELINQUISHED BY: 1	RELINQUISHED BY: 2
Signature:	Signature:
Time: 1745	Time: 1800
Printed Name: Charles Madewell	Printed Name: Chris Faith
Date: 6-21-98	Date: 6/21
Company: FDGTI	Company: AEN
RECEIVED BY: 1	**RECEIVED BY: (LAB) 2**
Signature:	Signature:
Time: 1745	Time: 11:00
Printed Name: Chris Faith	Printed Name: [illegible]
Date: 6/21	Date: 6/22/98
Company: AEN	American Environmental Network (NM), Inc.

AEN Inc.: American Environmental Network (NM), Inc. • 2709-D Pan American Freeway, NE • Albuquerque, New Mexico 87107 • (505) 344-3777 • Fax (505) 344-4413

DISTRIBUTION: White - AEN Canary - Originator

Committed To *Your* Success

Severn Trent Laboratories
120 Southcenter Court, Suite 300
Morrisville NC 27560

Tel: (919) 460-8505
Fax: (919) 469-2646

July 20, 1998

American Environmental Network
Attn: Dr. Mitch Rubenstein
2709D PanAmerican Freeway NE
Albuquerque, NM 87107

Dear Dr. Rubenstein:

Please find enclosed the radiological results for one (1) water sample. This report contains sections addressing the following information at a minimum:

- case narrative
- sample summary
- analytical results (forms I thru VII), key, and COC's if applicable

SWU Project #:	2899-016
STL Work Order #:	98-06-409
Client Project ID:	104282.03

Copies of this radiological report and supporting data are maintained in our files for a minimum of three years unless special arrangements have been made. Except where specifically indicated, all radiological testing was performed at this laboratory location and no portion of the testing was subcontracted.

We appreciate your selection of our services and welcome any questions or suggestions you may have relative to this report. Please contact your customer service representative at (919) 460-8505 for any additional information. Thank you for utilizing our services. We hope you will consider us for your future analytical needs.

I have reviewed and approved the enclosed data for final release.

Sincerely,

Ross W. Williams, Ph.D.
Manager, Radiological Laboratory
STL-North Carolina

RWW/mevl

Committed To *Your* Success

CASE NARRATIVE

Client: American Environmental Network - NM
Client Project ID: 104332.03
STL-NC Order Number: 98-06-409
STL-NC Project Number: 2399-016

One (1) water sample was received on June 25, 1998, in good condition with the chain-of-custody intact. The sample was analyzed for Ra-226 and Ra-228.

A method blank was analyzed with each batch, and the activities of the blanks were equal to or less than the acceptance criteria of less than three times the MDL.

A blank spike sample was analyzed with each batch, and the recoveries were within the 80-120% acceptance criteria.

A matrix spike analysis was made with each batch also. The matrix spike recoveries were within the acceptance criteria of 80-120% for water samples.

A duplicate sample was analyzed for each batch. The duplicate analyses were within our acceptance criteria of a Duplicate Error Ratio (DER) of less than 1.5. The DER is defined as follows:

$$DER = \frac{|S-D|}{(2\sigma_s + 2\sigma_d)}$$

Where: S = Original Sample Value
D = Duplicate Value
$2\sigma_s$ = Original Sample Uncertainty
$2\sigma_d$ = Duplicate Sample Uncertainty

Ross W. Williams, Ph.D.
Manager, Radiological Laboratory
7/21/98

N:\WP\AEN-NM 2399-016.WPD

Environmental Survey

Cover Page

Radiological Data Analysis Package

07/20/98

120 Southcenter Ct., Suite 300
Morrisville, NC 27560

Phone (919) 460-8505
Fax (919) 469-2646

NC - 806416

Project Number:	2399-016

Client Sample ID	Lab ID
MW-46	9806409-01

Comments: _____

Release of the data contained in this package has been authorized by the laboratory manager or the manager's designee, as verified by the following signature.

Ross W. Williams
Manager, Radiological Laboratory

7/21/98
Date

Form I

Client Sample ID	Lab ID	Sample Type	Batch Number	Matrix	Radionuclide	Result	Uncertainty	Q	Units	Analysis Date	Sample Size	MDA
MW-46	9806409-01	Reg	98070006	Water	Ra-226	0.79	0.22		pCi/L	07/15/98	0.5000	0.16
MW-46	9806409-01	Reg	98060064	Water	Ra-228	12.81	1.69		pCi/L	07/06/98	1.0000	2.42

Key shall be attached

Comments: _____

MD[illegible]

Form II

Client Sample ID	Lab ID	Sample Type	Batch Number	Matrix	Radionuclide	Result	Uncertainty	Units	Analysis Date	Sample Size	MDA	Inst ID
Blank Spike	N/A	BS	98070006	Water	Ra-226	154.91	2.81	pCi/L	07/15/98	0.5000	0.22	5
Blank Spike	N/A	BS	98060064	Water	Ra-228	101.65	3.72	pCi/L	07/06/98	1.0000	1.79	1
MW-49	9806406-01	Dup	98070006	Water	Ra-226	4.31	0.31	pCi/L	07/13/98	0.5000	0.08	5
MW-96	9806407-03	Dup	98060064	Water	Ra-228	7.97	1.26	pCi/L	07/06/98	1.0000	1.87	1
Method Blank	N/A	MB	98070006	Water	Ra-226	0.16	0.15	pCi/L	07/15/98	0.5000	0.18	5
Method Blank	N/A	MB	98060064	Water	Ra-228	-1.37	0.96	pCi/L	07/06/98	1.0000	2.54	1
MW-13	9806406-02	MS	98070006	Water	Ra-226	138.97	2.14	pCi/L	07/13/98	0.5000	0.15	5
MW-46	9806409-01	MS	98060064	Water	Ra-228	107.61	3.98	pCi/L	07/06/98	1.0000	2.32	1

Key shall be attached

Comments: _____

STL

Project Number: 2399-016

Severn Trent Laboratories

Method Blank Summary

NC - 806416

07/20/98

Form III

Client Sample ID	Batch Number	Matrix	Radionuclide	Result	Uncertainty	Q	Units	Analysis Date	Sample Size	Method Number	Inst ID
Method Blank	98070006	Water	Ra-226	0.16	0.15		pCi/L	07/15/98	0.5000	RAS01900	5
Method Blank	98060064	Water	Ra-228	-1.37	0.96		pCi/L	07/06/98	1.0000	RAS08500	1

Key shall be attached

Comments:

Project Number: 2399-016

Chemical Recovery

NC - 806416

07/20/98

Form IV

Client Sample ID	Lab ID	Sample Type	Batch Number	Radionuclide	Chemical Tracer	Tracer Result	Tracer Added	Percent Recovery	Q	Tracer Units	Analysis Date	Inst ID
MW-46	9806409-01	Reg	98070006	Ra-226	Ba-133	1234.00	1309.00	94.27 %		pCi	07/15/98	5
MW-46	9806409-01	Reg	98060064	Ra-228	Ba-133	1019.00	1309.00	77.85 %		pCi	07/06/98	1
Blank Spike	N/A	BS	98070006	Ra-226	Ba-133	1099.00	1309.00	83.96 %		pCi	07/15/98	5
Blank Spike	N/A	BS	98060064	Ra-228	Ba-133	1126.00	1309.00	86.02 %		pCi	07/06/98	1
MW-49	9806406-01	Dup	98070006	Ra-226	Ba-133	1258.00	1260.00	99.84 %		pCi	07/13/98	5
MW-96	9806407-03	Dup	98060064	Ra-228	Ba-133	1177.00	1309.00	89.92 %		pCi	07/06/98	1
Method Blank	N/A	MB	98070006	Ra-226	Ba-133	956.60	1260.00	75.92 %		pCi	07/15/98	5
Method Blank	N/A	MB	98060064	Ra-228	Ba-133	1086.00	1309.00	82.96 %		pCi	07/06/98	1
MW-13	9806406-02	MS	98070006	Ra-226	Ba-133	1221.00	1309.00	93.28 %		pCi	07/13/98	5
MW-46	9806409-01	MS	98060064	Ra-228	Ba-133	1065.00	1309.00	81.36 %		pCi	07/06/98	1

Key shall be attached

Comments: _____

_____

_____

MDA mode

STL

Severn Trent Laboratories

Project Number: 2399-016

Blank Spike Results Summary

NC - 806416

07/20/98

Form V

Client Sample ID	Batch Number	Matrix	Radionuclide	Spike	Result	Spike Value	Percent Recovery	Q	Units	Analysis Date	Method Number
Blank Spike	98070006	Water	Ra-226	Ra-226	154.91	145.40	106.54%		pCi/L	07/15/98	RAS01900
Blank Spike	98060064	Water	Ra-228	Ra-228	101.65	87.75	115.84%		pCi/L	07/06/98	RAS08500

Key shall be attached

Comments: _____

Project Number: 2399-016

Matrix Spike Results Summary

NC - 806416

07/20/98

Form VI

Client Sample ID	Lab ID	Batch Number	Spike	SSR	Sample Result	Spike Added	Percent Recovery	Q	Units	Analysis Date	Inst ID
MW-13	9806406-02	98070006	Ra-226	138.97	0.87	145.40	94.98 %		pCi/L	07/13/98	5
MW-46	9806409-01	98060064	Ra-228	107.61	12.81	87.75	108.03 %		pCi/L	07/06/98	1

Key shall be attached

Comments: _____

MDA mode

STL

Project Number: 2399-016

Severn Trent Laboratories

Duplicate Results

NC - 806416

07/20/98

Form VII

Client Sample ID	Lab ID	Batch Number	Radionuclide	Sample Result	Uncertainty	Dup. Result	Dup. Uncertainty	DER	Q	Units
MW-49	9806406-01	98070006	Ra-226	3.53	0.27	4.31	0.31	1.34		pCi/L
MW-96	9806407-03	98060064	Ra-228	8.61	1.38	7.97	1.26	0.24		pCi/L

Key shall be attached

Comments: _____

Committed To *Your* Success

REPORT FORM KEY

Severn Trent Laboratories
120 Southcenter Court, Suite 300
Morrisville NC 27560

Tel: (919) 460-8505
Fax: (919) 469-2646

Instrument ID:

#1 - Gas Proportional Counter
#2 - High Purity Germanium Detectors (HPGe)
#3 - Alpha Spectrometry Counter
#4 - Liquid Scintillation Counter
#5 - Lucas Cell Counter
#6 - Sodium Iodide Detector

Sample Type:

REG - Regular Sample
DUP - Duplicate Sample
MS - Matrix Spike
BS - Blank Spike
MB - Method Blank

Units:

pCi/L - Picocuries per Liter
pCi/g - Picocuries per Gram
pCi/ml - Picocuries per Milliliter
pCi/mg - Picocuries per Milligram
pCi/F - Picocuries per Air Filter

Radionuclides:

H-3	Tritium	C-14	Carbon-14
Cl-36	Chlorine-36	K-40	Potassium-40
Co-60	Cobalt-60	Sr-89	Strontium-89
Sr-90	Strontium-90	Tc-99	Technetium-99
Cs-137	Cesium-137	Tl-208	Thallium-208
Pb-210	Lead-210	Pb-212	Lead-212
Pb-214	Lead-214	Bi-214	Bismuth-214
Ra-226	Radium-226	Ac-228	Actinium-228
Ra-228	Radium-228	Th-234	Thorium-234
Th-227	Thorium-227	Th-232/230/228	Isotopic Thorium
U-234/235/238	Isotopic Uranium	Pu-238	Plutonium-238
Pu-239/240	Plutonium-239&240	Am-241	Americium-241
Np-237	Neptunium-237		

WORK ORDER

Lab

Work Order #	98-06-409	# of Samples	1	Recieved Date	06/25/98	American Environ. Network
Client #	2399	# of Tests	2	Load Date	06/25/98	2709D PanAmerican Freeway NE
Project	2399-016	Report Level	2	Due Date	07/13/98	Albuquerque, NM 87107
Amount	123.25	Quote #		Export Date	/ /	Mitch Rubenstein
Comment						

Lab ID	Sample #	Status	Matrix	Test	Cust ID	Collected
9806409-01	01A1	Open	Water	Ra-226	MW-46	06/21/98
9806409-01	01A2	Open	Water	Ra-228	MW-46	06/21/98

pH Checked
All Samples pH <2
Initials: CB Date: 6/25/98
Arrived unpreserved

American Environmental Network (NM), Inc.

CHAIN OF CUSTODY

DATE: _____ PAGE: ___ OF ___

AEN(NM) Accession #: NC 8064 Ca

SHADED AREAS ARE FOR LAB USE ONLY.

PLEASE FILL THIS FORM IN COMPLETELY.

PROJECT MANAGER: Paul Peacock

COMPANY: Marathon Oil Company
ADDRESS: P.O. Box 552
Midland, TX 79702-0552
PHONE: (915) 687-8312
FAX: (915) 687-8305

BILL TO: same as above
COMPANY:
ADDRESS:

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB I.D.	NUMBER OF CONTAINERS
MW-49	6-21-98	1000	H2O		7
MW-46	↓	1130	↓		
MW-13	↓	1400	↓		

Petroleum Hydrocarbons (418.1) TRPH
(MOD.8015) Diesel/Direct Inject
(M8015) Gas/Purge & Trap
8021 (BTEX)/8015 (Gasoline)
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)
Herbicides (615/8151)
Base/Neutral/Acid Compounds GC/MS (625/8270)
Polynuclear Aromatics (610/8310)
General Chemistry: XTX Ra 226/228
Priority Pollutant Metals (13)
Target Analyte List Metals (23),
RCRA Metals (8)
RCRA Metals by TCLP (Method 1311)
Metals:

PROJECT INFORMATION

PROJ. NO.: 104332.03
PROJ. NAME: IBRP
P.O. NO.:
SHIPPED VIA:

SAMPLE RECEIPT

NO. CONTAINERS:
CUSTODY SEALS: Y/N/NA
RECEIVED INTACT:
BLUE ICE/ICE:

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

(RUSH) [ ] 24hr [ ] 48hr [ ] 72hr [ ] 1 WEEK (NORMAL) [X]

CERTIFICATION REQUIRED: [ ] NM [ ] SDWA [ ] OTHER

METHANOL PRESERVATION [ ]

COMMENTS: FIXED FEE [ ]

* MW-46 WILL ARRIVE IN NEXT SHIPMENT → Received 6/25/98 11:00 B. Tw1ck AEN Rad Lab

RELINQUISHED BY: 1.

Signature: Time: 1745
Printed Name: Charles Madewell Date: 6-21-98
Company: FDGII

RECEIVED BY: 1.

Signature: Time: 1745
Printed Name: Chris Faith Date: 6/21
Company: AEN

RELINQUISHED BY: 2.

Signature: Time: 1800
Printed Name: Chris Faith Date: 6/21
Company: AEN

RECEIVED BY: (LAB) 2.

Signature: Time: 11:00
Printed Name: B. Tw1ck Date: 6/25/98
American Environmental Network (NM), Inc. Rad Lab NC

DISTRIBUTION: White - AEN, Canary - Originator

Committed To *Your* Success

Severn Trent Laboratories
11 East Olive Road
Pensacola FL 32514

Tel: (850) 474-1001
Fax: (850) 474-4789

SIGNATURE PAGE

Reviewed by: 4M Patrick
AEN Project Manager

Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC. ALBUQUERQUE, NEW MEXICO
Project Name:	IBRP
Project Number:	806416
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Accession Number:	806294
Project Manager:	KIMBERLY D. MCNEILL
Sampled By:	N/S

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Analysis Report

Analysis: MARATHON WET CHEMISTRY INORGANICS

Accession:	806294
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806416
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	WET CHEM

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 806294
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806416
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON WET CHEMISTRY INORGANICS
QcLevel: II

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: MW-49			Lab ID: 001		
CHLORIDE (4500-CL B)	MG/L	630	10	CIW068	+
CYANIDE, TOTAL (335.2)	MG/L	0.050	0.005	CNW037	
FLUORIDE (340.2/4500-F C)	MG/L	1.3	0.2	FLW026	
NITRITE, NITROGEN (354.1)	MG/L	ND	0.1	N2W091	
NITRITE-NITRATE, NITROGEN (353.2)	MG/L	ND	0.1	N3W46B	
NITRATE, NITROGEN (353.2-354.1)	MG/L	ND	0.1	NONE	
PH (150.1)	UNITS	7.0	NA	PHW132	R4
PHENOLS, TOTAL (420.1)	MG/L	0.012	0.005	PEW025	
SULFATE (375.4)	MG/L	780	250	SEW077	+
TOTAL DISSOLVED SOLIDS (160.1)	MG/L	2800	5	TDW038	

Comments:

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: MW-46			Lab ID: 002		
CHLORIDE (4500-CL B)	MG/L	140	10	CIW068	+
CYANIDE, TOTAL (335.2)	MG/L	ND	0.005	CNW037	
FLUORIDE (340.2/4500-F C)	MG/L	1.1	0.2	FLW026	
NITRITE, NITROGEN (354.1)	MG/L	ND	0.1	N2W091	
NITRITE-NITRATE, NITROGEN (353.2)	MG/L	ND	0.1	N3W46B	
NITRATE, NITROGEN (353.2-354.1)	MG/L	ND	0.1	NONE	
PH (150.1)	UNITS	7.2	NA	PHW132	R4
PHENOLS, TOTAL (420.1)	MG/L	0.034	0.005	PEW025	
SULFATE (375.4)	MG/L	22	5	SEW077	
TOTAL DISSOLVED SOLIDS (160.1)	MG/L	940	5	TDW038	

Comments:

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 806294
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806416
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON WET CHEMISTRY INORGANICS
QcLevel: II

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: MW-13			Lab ID: 003		
CHLORIDE (4500-CL B)	MG/L	230	1	CIW068	
CYANIDE, TOTAL (335.2)	MG/L	ND	0.005	CNW037	
FLUORIDE (340.2/4500-F C)	MG/L	0.3	0.2	FLW026	
NITRITE, NITROGEN (354.1)	MG/L	ND	0.1	N2W091	
NITRITE-NITRATE, NITROGEN (353.2)	MG/L	0.1	0.1	N3W46B	
NITRATE, NITROGEN (353.2-354.1)	MG/L	0.1	0.1	NONE	
PH (150.1)	UNITS	7.0	NA	PHW132	R4
PHENOLS, TOTAL (420.1)	MG/L	0.023	0.005	PEW025	
SULFATE (375.4)	MG/L	ND	5	SEW077	
TOTAL DISSOLVED SOLIDS (160.1)	MG/L	1000	5	TDW038	

Comments:

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 806294
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806416
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON WET CHEMISTRY INORGANICS

Client ID:	Lab ID:	Matrix:	Date/Time Sampled:	Date Received:
MW-49	001	WATER	21-JUN-98 1000	23-JUN-98
MW-46	002	WATER	21-JUN-98 1130	23-JUN-98
MW-13	003	WATER	21-JUN-98 1400	23-JUN-98

"Method Report Summary"

Accession Number: 806294
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806416
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON WET CHEMISTRY INORGANICS

Client Sample Id:	Parameter:	Unit:	Result:
MW-49	CHLORIDE (4500-CL B)	MG/L	630
	CYANIDE, TOTAL (335.2)	MG/L	0.050
	FLUORIDE (340.2/4500-F C)	MG/L	1.3
	PH (150.1)	UNITS	7.0
	PHENOLS, TOTAL (420.1)	MG/L	0.012
	SULFATE (375.4)	MG/L	780
	TOTAL DISSOLVED SOLIDS (160.1)	MG/L	2800
MW-46	CHLORIDE (4500-CL B)	MG/L	140
	FLUORIDE (340.2/4500-F C)	MG/L	1.1
	PH (150.1)	UNITS	7.2
	PHENOLS, TOTAL (420.1)	MG/L	0.034
	SULFATE (375.4)	MG/L	22
	TOTAL DISSOLVED SOLIDS (160.1)	MG/L	940
MW-13	CHLORIDE (4500-CL B)	MG/L	230
	FLUORIDE (340.2/4500-F C)	MG/L	0.3
	NITRITE-NITRATE, NITROGEN (353.2)	MG/L	0.1
	NITRATE, NITROGEN (353.2-354.1)	MG/L	0.1
	PH (150.1)	UNITS	7.0
	PHENOLS, TOTAL (420.1)	MG/L	0.023
	TOTAL DISSOLVED SOLIDS (160.1)	MG/L	1000

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Analysis Report

Analysis: MARATHON METALS - OPTIMA

Accession:	806294
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806416
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	METALS

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 806294
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806416
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON METALS - OPTIMA
QcLevel: II

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: MW-49			Lab ID:001		
SILVER (6010A)	MG/L	0.022	0.0007	AYW169	
ALUMINUM (6010A)	MG/L	ND	0.026	LYW169	
ARSENIC (6010A)	MG/L	ND	0.0018	RYW169	
BARIUM (6010A)	MG/L	0.048	0.0002	BYW169	
BORON (6010A)	MG/L	0.054	0.0057	OYW169	
CADMIUM (6010A)	MG/L	ND	0.0002	CYW169	
COBALT (6010A)	MG/L	ND	0.0003	TYW169	
CHROMIUM (6010A)	MG/L	0.0038	0.0008	GYW169	
COPPER (6010A)	MG/L	ND	0.0018	FYW169	
MERCURY (7470A)	MG/L	ND	0.0001	M7W081	
NICKEL (6010A)	MG/L	ND	0.0009	EYW169	
IRON (6010A)	MG/L	0.055	0.013	N6W169	
LEAD (6010A)	MG/L	ND	0.0022	PYW169	
MANGANESE (6010A)	MG/L	0.079	0.0002	GYW169	
MOLYBDENUM (6010A)	MG/L	0.0050	0.0003	DYW169	
SELENIUM (6010A)	MG/L	ND	0.0023	SYW169	
ZINC (6010A)	MG/L	ND	0.014	5YW169	
Comments:					
Client ID: MW-46			Lab ID:002		
SILVER (6010A)	MG/L	ND	0.0007	AYW169	
ALUMINUM (6010A)	MG/L	ND	0.026	LYW169	
ARSENIC (6010A)	MG/L	0.0033	0.0018	RYW169	
BARIUM (6010A)	MG/L	0.32	0.0002	BYW169	
BORON (6010A)	MG/L	0.20	0.0057	OYW169	
CADMIUM (6010A)	MG/L	ND	0.0002	CYW169	
COBALT (6010A)	MG/L	ND	0.0003	TYW169	
CHROMIUM (6010A)	MG/L	0.0016	0.0008	HYW169	
COPPER (6010A)	MG/L	ND	0.0018	FYW169	
MERCURY (7470A)	MG/L	ND	0.0001	M7W081	
NICKEL (6010A)	MG/L	0.0036	0.0009	EYW169	
IRON (6010A)	MG/L	0.014	0.013	N6W169	
LEAD (6010A)	MG/L	ND	0.0022	PYW169	
MANGANESE (6010A)	MG/L	0.090	0.0002	GYW169	
MOLYBDENUM (6010A)	MG/L	0.0007	0.0003	DYW169	
SELENIUM (6010A)	MG/L	ND	0.0023	SYW169	
ZINC (6010A)	MG/L	ND	0.014	5YW169	
Comments:					

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"FINAL REPORT FORMAT - MULTIPLE"

Accession: 806294
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806416
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON METALS - OPTIMA
QcLevel: II

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: MW-13			Lab ID:003		
SILVER (6010A)	MG/L	ND	0.0007	AYW169	
ALUMINUM (6010A)	MG/L	ND	0.026	LYW169	
ARSENIC (6010A)	MG/L	0.015	0.0018	RYW169	
BARIUM (6010A)	MG/L	0.52	0.0002	BYW169	
BORON (6010A)	MG/L	0.22	0.0057	OYW169	
CADMIUM (6010A)	MG/L	0.0004	0.0002	CYW169	
COBALT (6010A)	MG/L	0.0005	0.0003	TYW169	
CHROMIUM (6010A)	MG/L	ND	0.0008	HYW169	
COPPER (6010A)	MG/L	ND	0.0018	FYW169	
MERCURY (7470A)	MG/L	NDZ	0.0001	M7W081	
NICKEL (6010A)	MG/L	0.014	0.0009	EYW169	
IRON (6010A)	MG/L	3.4	0.013	N6W169	
LEAD (6010A)	MG/L	ND	0.0022	PYW169	
MANGANESE (6010A)	MG/L	0.22	0.0002	GYW169	
MOLYBDENUM (6010A)	MG/L	0.0031	0.0003	DYW169	
SELENIUM (6010A)	MG/L	ND	0.0023	SYW169	
ZINC (6010A)	MG/L	0.037	0.014	5YW169	

Comments:

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 806294
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806416
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON METALS - OPTIMA

Client Id:	Lab Id:	Matrix:	Date/Time Sampled:	Date Received:
MW-49	001	WATER	21-JUN-98 1000	23-JUN-98
MW-46	002	WATER	21-JUN-98 1130	23-JUN-98
MW-13	003	WATER	21-JUN-98 1400	23-JUN-98

"Method Report Summary"

Accession Number: 806294
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806416
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON METALS - OPTIMA

Client Sample Id:	Parameter:	Unit:	Result:
MW-49	SILVER (6010A)	MG/L	0.022
	BARIUM (6010A)	MG/L	0.048
	BORON (6010A)	MG/L	0.054
	CHROMIUM (6010A)	MG/L	0.0038
	IRON (6010A)	MG/L	0.055
	MANGANESE (6010A)	MG/L	0.079
	MOLYBDENUM (6010A)	MG/L	0.0050
MW-46	ARSENIC (6010A)	MG/L	0.0033
	BARIUM (6010A)	MG/L	0.32
	BORON (6010A)	MG/L	0.20
	CHROMIUM (6010A)	MG/L	0.0016
	NICKEL (6010A)	MG/L	0.0036
	IRON (6010A)	MG/L	0.014
	MANGANESE (6010A)	MG/L	0.090
	MOLYBDENUM (6010A)	MG/L	0.0007
MW-13	ARSENIC (6010A)	MG/L	0.015
	BARIUM (6010A)	MG/L	0.52
	BORON (6010A)	MG/L	0.22
	CADMIUM (6010A)	MG/L	0.0004
	COBALT (6010A)	MG/L	0.0005
	MERCURY (7470A)	MG/L	NDZ
	NICKEL (6010A)	MG/L	0.014
	IRON (6010A)	MG/L	3.4
	MANGANESE (6010A)	MG/L	0.22
	MOLYBDENUM (6010A)	MG/L	0.0031
	ZINC (6010A)	MG/L	0.037

SEVERN TRENT LABORATORIES 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Analysis Report

Analysis: PESTICIDES (8080)

Accession:	806294
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806416
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	PESTICIDES

SEVERN TRENT LABORATORIES 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"FINAL REPORT FORMAT - SINGLE"

Accession: 806294
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806416
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: PESTICIDES (8080)
Analysis Method: 8080 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Extraction Method: 3510 / 3660 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Matrix: WATER
QC Level: II

Lab Id: 001 Sample Date/Time: 21-JUN-98 1000
Client Sample Id: MW-49 Received Date: 23-JUN-98

Batch: PSW044 Extraction Date: 25-JUN-98
Blank: A Dry Weight %: N/A Analysis Date: 30-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
ALDRIN	UG/L	ND	0.1	
ALPHA-BHC	UG/L	0.06	0.1	
BETA-BHC	UG/L	ND	0.1	
DELTA-BHC	UG/L	ND	0.1	
GAMMA-BHC (LINDANE)	UG/L	ND	0.1	
4,4'-DDD	UG/L	ND	0.1	
4,4'-DDE	UG/L	ND	0.1	
4,4'-DDT	UG/L	ND	0.1	
DIELDRIN	UG/L	ND	0.1	
ENDOSULFAN I	UG/L	ND	0.1	
ENDOSULFAN II	UG/L	ND	0.1	
ENDOSULFAN SULFATE	UG/L	ND	0.1	
ENDRIN	UG/L	ND	0.1	
ENDRIN ALDEHYDE	UG/L	ND	0.1	
HEPTACHLOR	UG/L	ND	0.1	
HEPTACHLOR EPOXIDE	UG/L	ND	0.1	
METHOXYCHLOR	UG/L	ND	0.1	
CHLORDANE	UG/L	ND	0.05	
TOXAPHENE	UG/L	ND	0.6	
PCB-1016	UG/L	ND	0.2	
PCB-1221	UG/L	ND	0.2	
PCB-1232	UG/L	ND	0.2	
PCB-1242	UG/L	ND	0.2	
PCB-1248	UG/L	ND	0.2	
PCB-1254	UG/L	ND	0.2	
PCB-1260	UG/L	ND	0.2	
TCMX	%REC/SURR	96	43-101	
DCB	%REC/SURR	61	17-135	
ANALYST	INITIALS	RP		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 806294
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806416
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: PESTICIDES (8080)
Analysis Method: 8080 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Extraction Method: 3510 / 3660 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Matrix: WATER
QC Level: II

Lab Id: 002 Sample Date/Time: 21-JUN-98 1130
Client Sample Id: MW-46 Received Date: 23-JUN-98

Batch: PSW044 Extraction Date: 25-JUN-98
Blank: A Dry Weight %: N/A Analysis Date: 30-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
ALDRIN	UG/L	ND	0.02	
ALPHA-BHC	UG/L	ND	0.02	
BETA-BHC	UG/L	ND	0.02	
DELTA-BHC	UG/L	ND	0.02	
GAMMA-BHC (LINDANE)	UG/L	0.06	0.02	
4,4'-DDD	UG/L	ND	0.02	
4,4'-DDE	UG/L	ND	0.02	
4,4'-DDT	UG/L	ND	0.02	
DIELDRIN	UG/L	ND	0.02	
ENDOSULFAN I	UG/L	ND	0.02	
ENDOSULFAN II	UG/L	ND	0.02	
ENDOSULFAN SULFATE	UG/L	ND	0.02	
ENDRIN	UG/L	ND	0.02	
ENDRIN ALDEHYDE	UG/L	ND	0.02	
HEPTACHLOR	UG/L	ND	0.02	
HEPTACHLOR EPOXIDE	UG/L	ND	0.02	
METHOXYCHLOR	UG/L	ND	0.02	
CHLORDANE	UG/L	ND	0.01	
TOXAPHENE	UG/L	ND	0.12	
PCB-1016	UG/L	ND	0.04	
PCB-1221	UG/L	ND	0.04	
PCB-1232	UG/L	ND	0.04	
PCB-1242	UG/L	ND	0.04	
PCB-1248	UG/L	ND	0.04	
PCB-1254	UG/L	ND	0.04	
PCB-1260	UG/L	ND	0.04	
TCMX	%REC/SURR	53	43-101	
DCB	%REC/SURR	63	17-135	
ANALYST	INITIALS	RP		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 806294
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806416
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: PESTICIDES (8080)
Analysis Method: 8080 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Extraction Method: 3510 / 3660 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Matrix: WATER
QC Level: II

Lab Id: 003 Sample Date/Time: 21-JUN-98 1400
Client Sample Id: MW-13 Received Date: 23-JUN-98

Batch: PSW044 Extraction Date: 25-JUN-98
Blank: A Dry Weight %: N/A Analysis Date: 30-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
ALDRIN	UG/L	0.14	0.02	I
ALPHA-BHC	UG/L	0.43	0.02	I
BETA-BHC	UG/L	0.47	0.02	
DELTA-BHC	UG/L	0.22	0.02	I
GAMMA-BHC (LINDANE)	UG/L	ND	0.02	
4,4'-DDD	UG/L	0.22	0.02	I
4,4'-DDE	UG/L	ND	0.02	
4,4'-DDT	UG/L	ND	0.02	
DIELDRIN	UG/L	ND	0.02	
ENDOSULFAN I	UG/L	0.02	0.02	
ENDOSULFAN II	UG/L	ND	0.02	
ENDOSULFAN SULFATE	UG/L	ND	0.02	
ENDRIN	UG/L	ND	0.02	
ENDRIN ALDEHYDE	UG/L	ND	0.02	
HEPTACHLOR	UG/L	ND	0.02	
HEPTACHLOR EPOXIDE	UG/L	ND	0.02	
METHOXYCHLOR	UG/L	ND	0.02	
CHLORDANE	UG/L	ND	0.01	
TOXAPHENE	UG/L	ND	0.12	
PCB-1016	UG/L	ND	0.04	
PCB-1221	UG/L	ND	0.04	
PCB-1232	UG/L	ND	0.04	
PCB-1242	UG/L	ND	0.04	
PCB-1248	UG/L	ND	0.04	
PCB-1254	UG/L	ND	0.04	
PCB-1260	UG/L	ND	0.04	
TCMX	%REC/SURR	106*	43-101	
DCB	%REC/SURR	54	17-135	
ANALYST	INITIALS	RP		

Comments:
I = DUAL-COLUMN RPD > 40%
* SURROGATE RECOVERY OUTSIDE ACCEPTANCE LIMITS DUE TO MATRIX INTERFERENCE.

SEVERN TRENT LABORATORIES 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"Method Report Summary"

Accession Number: 806294
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806416
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: PESTICIDES (8080)

Client Sample Id:	Parameter:	Unit:	Result:
MW-49	ALPHA-BHC	UG/L	0.06
MW-46	GAMMA-BHC (LINDANE)	UG/L	0.06
MW-13	ALDRIN	UG/L	0.14
	ALPHA-BHC	UG/L	0.43
	BETA-BHC	UG/L	0.47
	DELTA-BHC	UG/L	0.22
	4,4'-DDD	UG/L	0.22
	ENDOSULFAN I	UG/L	0.02

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Analysis Report

Analysis: POLYNUCLEAR AROMATICS BY 8310

Accession:	806294
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806416
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	SEMI-VOLATILE FUELS

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"FINAL REPORT FORMAT - SINGLE"

Accession:	806294
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806416
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Test:	POLYNUCLEAR AROMATICS BY 8310
Analysis Method:	8310/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method:	3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix:	WATER
QC Level:	II

Lab Id:	001		Sample Date/Time:	21-JUN-98 1000
Client Sample Id:	MW-49		Received Date:	23-JUN-98
Batch: PAW142			Extraction Date:	24-JUN-98
Blank: A	Dry Weight %:	N/A	Analysis Date:	26-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZO(a)PYRENE	UG/L	ND	0.1	
1-METHYLNAPHTHALENE	UG/L	9	0.3	
2-CHLOROANTHRACENE	%REC/SURR	75	28-138	
ANALYST	INITIALS	HAH		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession:	806294
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806416
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Test:	POLYNUCLEAR AROMATICS BY 8310
Analysis Method:	8310/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method:	3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix:	WATER
QC Level:	II

Lab Id:	002		Sample Date/Time:	21-JUN-98 1130
Client Sample Id:	MW-46		Received Date:	23-JUN-98
Batch: PAW142			Extraction Date:	24-JUN-98
Blank: A	Dry Weight %:	N/A	Analysis Date:	26-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZO(a)PYRENE	UG/L	0.4	0.1	
1-METHYLNAPHTHALENE	UG/L	24	0.3	
2-CHLOROANTHRACENE	%REC/SURR	81	28-138	
ANALYST	INITIALS	HAH		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 806294
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806416
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: POLYNUCLEAR AROMATICS BY 8310
Analysis Method: 8310/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: II

Lab Id: 003 Sample Date/Time: 21-JUN-98 1400
Client Sample Id: MW-13 Received Date: 23-JUN-98

Batch: PAW142 Extraction Date: 24-JUN-98
Blank: A Dry Weight %: N/A Analysis Date: 26-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZO(a)PYRENE	UG/L	1.5	0.1	
1-METHYLNAPHTHALENE	UG/L	260	0.3	E
2-CHLOROANTHRACENE	%REC/SURR	84	28-138	
ANALYST	INITIALS	HAH		

Comments:

"Method Report Summary"

Accession Number: 806294
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806416
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: POLYNUCLEAR AROMATICS BY 8310

Client Sample Id:	Parameter:	Unit:	Result:
MW-49	1-METHYLNAPHTHALENE	UG/L	9
MW-46	BENZO(a)PYRENE	UG/L	0.4
	1-METHYLNAPHTHALENE	UG/L	24
MW-13	BENZO(a)PYRENE	UG/L	1.5
	1-METHYLNAPHTHALENE	UG/L	260

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Analysis Report

Analysis: ACID & BASE EXTRACTABLES (8270)

Accession:	806294
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806416
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	ORGANIC/MS

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"FINAL REPORT FORMAT - SINGLE"

Accession: 806294
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806416
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: II

Lab Id: 001 Sample Date/Time: 21-JUN-98 1000
Client Sample Id: MW-49 Received Date: 23-JUN-98

Batch: ALW077 Extraction Date: 26-JUN-98
Blank: A Dry Weight %: N/A Analysis Date: 01-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZOIC ACID	UG/L	ND	1.7	
4-CHLORO-3-METHYLPHENOL	UG/L	ND	0.4	
2-CHLOROPHENOL	UG/L	ND	0.5	
2,4-DICHLOROPHENOL	UG/L	ND	3.9	
2,6-DICHLOROPHENOL	UG/L	ND	0.1	
2,4-DIMETHYLPHENOL	UG/L	ND	0.5	
4,6-DINITRO-2-METHYLPHENOL	UG/L	ND	1.6	
2,4-DINITROPHENOL	UG/L	ND	3.3	
2-METHYLPHENOL	UG/L	ND	0.3	
4-METHYLPHENOL	UG/L	ND	0.5	
2-NITROPHENOL	UG/L	ND	0.4	
4-NITROPHENOL	UG/L	ND	0.7	
PENTACHLOROPHENOL	UG/L	ND	0.7	
PHENOL	UG/L	ND	0.5	
2,3,4,6-TETRACHLOROPHENOL	UG/L	ND	0.6	
2,4,5-TRICHLOROPHENOL	UG/L	ND	3.0	
2,4,6-TRICHLOROPHENOL	UG/L	ND	0.3	
ACENAPHTHENE	UG/L	ND	0.4	
ACENAPHTHYLENE	UG/L	ND	0.4	
ACETOPHENONE	UG/L	ND	0.4	
4-AMINOBIPHENYL	UG/L	ND	0.7	
ANILINE	UG/L	ND	0.5	
ANTHRACENE	UG/L	ND	0.4	
BENZIDINE	UG/L	ND	2.7	
BENZO (A) ANTHRACENE	UG/L	ND	0.5	
BENZO (A) PYRENE	UG/L	ND	0.2	
BENZO (B) FLUORANTHENE	UG/L	ND	0.5	
BENZO (G,H,I) PERYLENE	UG/L	ND	0.3	
BENZO (K) FLUORANTHENE	UG/L	ND	0.7	
BENZYL ALCOHOL	UG/L	ND	0.5	
BIS(2-CHLOROETHOXY)METHANE	UG/L	ND	0.4	
BIS(2-CHLOROETHYL)ETHER	UG/L	ND	0.5	
BIS(2-CHLOROISOPROPYL)ETHER	UG/L	ND	1.9	
BIS(2-ETHYLHEXYL)PHTHALATE	UG/L	ND	0.6	
4-BROMOPHENYL PHENYL ETHER	UG/L	ND	0.4	
BUTYLBENZYL PHTHALATE	UG/L	ND	0.5	
4-CHLOROANILINE	UG/L	ND	0.4	
1-CHLORONAPHTHALENE	UG/L	ND	0.6	
2-CHLORONAPHTHALENE	UG/L	ND	0.4	
4-CHLOROPHENYL PHENYL ETHER	UG/L	ND	0.5	

"FINAL REPORT FORMAT - SINGLE"

Accession: 806294
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806416
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: II

Lab Id: 001
Client Sample Id: MW-49
Sample Date/Time: 21-JUN-98 1000
Received Date: 23-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
CHRYSENE	UG/L	ND	0.7	
DIBENZ(A,J)ACRIDINE	UG/L	ND	0.5	
DIBENZO (A,H) ANTHRACENE	UG/L	ND	0.3	
DIBENZOFURAN	UG/L	ND	0.4	
1,2-DICHLOROBENZENE	UG/L	ND	0.3	
1,3-DICHLOROBENZENE	UG/L	ND	0.3	
1,4-DICHLOROBENZENE	UG/L	ND	0.5	
3,3'-DICHLOROBENZIDINE	UG/L	ND	0.4	
DIETHYLPHTHALATE	UG/L	ND	0.4	
P-DIMETHYLAMINOAZOBENZENE	UG/L	ND	0.4	
7,12-DIMETHYLBENZ(A)ANTHRACENE	UG/L	ND	1.8	
A-,A-DIMETHYLPHENETHYLAMINE	UG/L	ND	0.1	
DIMETHYLPHTHALATE	UG/L	ND	0.4	
DI-N-BUTYLPHTHALATE	UG/L	ND	0.4	
2,4-DINITROTOLUENE	UG/L	ND	0.5	
2,6-DINITROTOLUENE	UG/L	ND	0.5	
DI-N-OCTYLPHTHALATE	UG/L	ND	0.7	
DIPHENYLAMINE	UG/L	ND	0.5	
1,2-DIPHENYLHYDRAZINE	UG/L	ND	0.3	
FLUORANTHENE	UG/L	ND	0.5	
FLUORENE	UG/L	ND	0.6	
HEXACHLOROBENZENE	UG/L	ND	0.5	
HEXACHLOROBUTADIENE	UG/L	ND	0.5	
HEXACHLOROCYCLOPENTADIENE	UG/L	ND	0.6	
HEXACHLOROETHANE	UG/L	ND	0.6	
INDENO (1,2,3-CD) PYRENE	UG/L	ND	0.5	
ISOPHORONE	UG/L	ND	0.4	
3-METHYLCHOLANTHRENE	UG/L	ND	0.4	
2-METHYLNAPHTHALENE	UG/L	ND	0.5	
NAPHTHALENE	UG/L	ND	0.4	
1-NAPHTHYLAMINE	UG/L	ND	1.5	
2-NAPHTHYLAMINE	UG/L	ND	1.0	
2-NITROANILINE	UG/L	ND	0.4	
3-NITROANILINE	UG/L	ND	0.9	
4-NITROANILINE	UG/L	ND	0.8	
NITROBENZENE	UG/L	ND	0.5	
N-NITROSODIMETHYLAMINE	UG/L	ND	1.2	
N-NITROSODI-N-BUTYLAMINE	UG/L	ND	1.1	
N-NITROSODIETHYLAMINE	UG/L*	ND	10	
N-NITROSODIPHENYLAMINE	UG/L	ND	0.4	
N-NITROSO-DI-N-PROPYLAMINE	UG/L	ND	0.4	
N-NITROSOPIPERIDINE	UG/L	ND	0.8	
N-NITROSOPYRROLIDINE	UG/L*	ND	10	
PENTACHLOROBENZENE	UG/L	ND	0.4	
PENTACHLORONITROBENZENE (PCNB)	UG/L	ND	5.0	

"FINAL REPORT FORMAT - SINGLE"

Accession: 806294
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806416
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: II

Lab Id: 001 Sample Date/Time: 21-JUN-98 1000
Client Sample Id: MW-49 Received Date: 23-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
PHENACETIN	UG/L	ND	0.4	
PHENANTHRENE	UG/L	ND	0.4	
2-PICOLINE	UG/L	ND	7.7	
PRONAMIDE	UG/L	ND	0.4	
PYRENE	UG/L	ND	0.5	
1,2,4,5-TETRACHLOROBENZENE	UG/L	ND	0.4	
1,2,4 TRICHLOROBENZENE	UG/L	ND	0.6	
2-FLUOROPHENOL	%REC/SURR	98	21-100	
PHENOL-D6	%REC/SURR	88	10-100	
2,4,6-TRIBROMOPHENOL	%REC/SURR	108	10-123	
2-FLUOROBIPHENYL	%REC/SURR	83	43-116	
NITROBENZENE-D5	%REC/SURR	92	35-114	
TERPHENYL-D14	%REC/SURR	100	33-124	
ANALYST	INITIALS	RW		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 806294
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806416
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: II

Lab Id: 002 Sample Date/Time: 21-JUN-98 1130
Client Sample Id: MW-46 Received Date: 23-JUN-98

Batch: ALW077 Extraction Date: 26-JUN-98
Blank: A Dry Weight %: N/A Analysis Date: 01-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZOIC ACID	UG/L	ND	1.7	
4-CHLORO-3-METHYLPHENOL	UG/L	ND	0.4	
2-CHLOROPHENOL	UG/L	ND	0.5	
2,4-DICHLOROPHENOL	UG/L	ND	3.9	
2,6-DICHLOROPHENOL	UG/L	ND	0.1	
2,4-DIMETHYLPHENOL	UG/L	ND	0.5	
4,6-DINITRO-2-METHYLPHENOL	UG/L	ND	1.6	
2,4-DINITROPHENOL	UG/L	ND	3.3	
2-METHYLPHENOL	UG/L	ND	0.3	
4-METHYLPHENOL	UG/L	ND	0.5	
2-NITROPHENOL	UG/L	ND	0.4	
4-NITROPHENOL	UG/L	ND	0.7	
PENTACHLOROPHENOL	UG/L	ND	0.7	
PHENOL	UG/L	8.2	0.5	
2,3,4,6-TETRACHLOROPHENOL	UG/L	ND	0.6	
2,4,5-TRICHLOROPHENOL	UG/L	ND	3.0	
2,4,6-TRICHLOROPHENOL	UG/L	ND	0.3	
ACENAPHTHENE	UG/L	ND	0.4	
ACENAPHTHYLENE	UG/L	ND	0.4	
ACETOPHENONE	UG/L	ND	0.4	
4-AMINOBIPHENYL	UG/L	ND	0.7	
ANILINE	UG/L	ND	0.5	
ANTHRACENE	UG/L	ND	0.4	
BENZIDINE	UG/L	ND	2.7	
BENZO (A) ANTHRACENE	UG/L	ND	0.5	
BENZO (A) PYRENE	UG/L	ND	0.2	
BENZO (B) FLUORANTHENE	UG/L	ND	0.5	
BENZO (G,H,I) PERYLENE	UG/L	ND	0.3	
BENZO (K) FLUORANTHENE	UG/L	ND	0.7	
BENZYL ALCOHOL	UG/L	ND	0.5	
BIS(2-CHLOROETHOXY)METHANE	UG/L	ND	0.4	
BIS(2-CHLOROETHYL)ETHER	UG/L	ND	0.5	
BIS(2-CHLOROISOPROPYL)ETHER	UG/L	ND	1.9	
BIS(2-ETHYLHEXYL)PHTHALATE	UG/L	ND	0.6	
4-BROMOPHENYL PHENYL ETHER	UG/L	ND	0.4	
BUTYLBENZYL PHTHALATE	UG/L	ND	0.5	
4-CHLOROANILINE	UG/L	ND	0.4	
1-CHLORONAPHTHALENE	UG/L	ND	0.6	
2-CHLORONAPHTHALENE	UG/L	ND	0.4	
4-CHLOROPHENYL PHENYL ETHER	UG/L	ND	0.5	

"FINAL REPORT FORMAT - SINGLE"

Accession: 806294
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806416
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: II

Lab Id: 002 Sample Date/Time: 21-JUN-98 1130
Client Sample Id: MW-46 Received Date: 23-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
CHRYSENE	UG/L	ND	0.7	
DIBENZ(A,J)ACRIDINE	UG/L	ND	0.5	
DIBENZO (A,H) ANTHRACENE	UG/L	ND	0.3	
DIBENZOFURAN	UG/L	ND	0.4	
1,2-DICHLOROBENZENE	UG/L	ND	0.3	
1,3-DICHLOROBENZENE	UG/L	ND	0.3	
1,4-DICHLOROBENZENE	UG/L	ND	0.5	
3,3'-DICHLOROBENZIDINE	UG/L	ND	0.4	
DIETHYLPHTHALATE	UG/L	ND	0.4	
P-DIMETHYLAMINOAZOBENZENE	UG/L	ND	0.4	
7,12-DIMETHYLBENZ(A)ANTHRACENE	UG/L	ND	1.8	
A-,A-DIMETHYLPHENETHYLAMINE	UG/L	ND	0.1	
DIMETHYLPHTHALATE	UG/L	ND	0.4	
DI-N-BUTYLPHTHALATE	UG/L	ND	0.4	
2,4-DINITROTOLUENE	UG/L	ND	0.5	
2,6-DINITROTOLUENE	UG/L	ND	0.5	
DI-N-OCTYLPHTHALATE	UG/L	ND	0.7	
DIPHENYLAMINE	UG/L	ND	0.5	
1,2-DIPHENYLHYDRAZINE	UG/L	ND	0.3	
FLUORANTHENE	UG/L	ND	0.5	
FLUORENE	UG/L	ND	0.6	
HEXACHLOROBENZENE	UG/L	ND	0.5	
HEXACHLOROBUTADIENE	UG/L	ND	0.5	
HEXACHLOROCYCLOPENTADIENE	UG/L	ND	0.6	
HEXACHLOROETHANE	UG/L	ND	0.6	
INDENO (1,2,3-CD) PYRENE	UG/L	ND	0.5	
ISOPHORONE	UG/L	ND	0.4	
3-METHYLCHOLANTHRENE	UG/L	ND	0.4	
2-METHYLNAPHTHALENE	UG/L	ND	0.5	
NAPHTHALENE	UG/L	ND	0.4	
1-NAPHTHYLAMINE	UG/L	ND	1.5	
2-NAPHTHYLAMINE	UG/L	ND	1.0	
2-NITROANILINE	UG/L	ND	0.4	
3-NITROANILINE	UG/L	ND	0.9	
4-NITROANILINE	UG/L	ND	0.8	
NITROBENZENE	UG/L	ND	0.5	
N-NITROSODIMETHYLAMINE	UG/L	ND	1.2	
N-NITROSODI-N-BUTYLAMINE	UG/L	ND	1.1	
N-NITROSODIETHYLAMINE	UG/L*	ND	10	
N-NITROSODIPHENYLAMINE	UG/L	ND	0.4	
N-NITROSO-DI-N-PROPYLAMINE	UG/L	ND	0.4	
N-NITROSOPIPERIDINE	UG/L	ND	0.8	
N-NITROSOPYRROLIDINE	UG/L*	ND	10	
PENTACHLOROBENZENE	UG/L	ND	0.4	
PENTACHLORONITROBENZENE (PCNB)	UG/L	ND	5.0	

"FINAL REPORT FORMAT - SINGLE"

Accession:	806294
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806416
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Test:	ACID & BASE EXTRACTABLES (8270)
Analysis Method:	8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method:	3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix:	WATER
QC Level:	II

Lab Id: 002 Sample Date/Time: 21-JUN-98 1130
Client Sample Id: MW-46 Received Date: 23-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
PHENACETIN	UG/L	ND	0.4	
PHENANTHRENE	UG/L	ND	0.4	
2-PICOLINE	UG/L	ND	7.7	
PRONAMIDE	UG/L	ND	0.4	
PYRENE	UG/L	ND	0.5	
1,2,4,5-TETRACHLOROBENZENE	UG/L	ND	0.4	
1,2,4 TRICHLOROBENZENE	UG/L	ND	0.6	
2-FLUOROPHENOL	%REC/SURR	94	21-100	
PHENOL-D6	%REC/SURR	85	10-100	
2,4,6-TRIBROMOPHENOL	%REC/SURR	102	10-123	
2-FLUOROBIPHENYL	%REC/SURR	69	43-116	
NITROBENZENE-D5	%REC/SURR	71	35-114	
TERPHENYL-D14	%REC/SURR	86	33-124	
ANALYST	INITIALS	RW		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 806294
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806416
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: II

Lab Id: 003 Sample Date/Time: 21-JUN-98 1400
Client Sample Id: MW-13 Received Date: 23-JUN-98

Batch: ALW077 Extraction Date: 26-JUN-98
Blank: A Dry Weight %: N/A Analysis Date: 01-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZOIC ACID	UG/L	ND	1.7	
4-CHLORO-3-METHYLPHENOL	UG/L	ND	0.4	
2-CHLOROPHENOL	UG/L	ND	0.5	
2,4-DICHLOROPHENOL	UG/L	ND	3.9	
2,6-DICHLOROPHENOL	UG/L	ND	0.1	
2,4-DIMETHYLPHENOL	UG/L	ND	0.5	
4,6-DINITRO-2-METHYLPHENOL	UG/L	ND	1.6	
2,4-DINITROPHENOL	UG/L	ND	3.3	
2-METHYLPHENOL	UG/L	ND	0.3	
4-METHYLPHENOL	UG/L	ND	0.5	
2-NITROPHENOL	UG/L	ND	0.4	
4-NITROPHENOL	UG/L	ND	0.7	
PENTACHLOROPHENOL	UG/L	ND	0.7	
PHENOL	UG/L	ND	0.5	
2,3,4,6-TETRACHLOROPHENOL	UG/L	ND	0.6	
2,4,5-TRICHLOROPHENOL	UG/L	ND	3.0	
2,4,6-TRICHLOROPHENOL	UG/L	ND	0.3	
ACENAPHTHENE	UG/L	ND	0.4	
ACENAPHTHYLENE	UG/L	ND	0.4	
ACETOPHENONE	UG/L	ND	0.4	
4-AMINOBIPHENYL	UG/L	ND	0.7	
ANILINE	UG/L	ND	0.5	
ANTHRACENE	UG/L	ND	0.4	
BENZIDINE	UG/L	ND	2.7	
BENZO (A) ANTHRACENE	UG/L	ND	0.5	
BENZO (A) PYRENE	UG/L	ND	0.2	
BENZO (B) FLUORANTHENE	UG/L	ND	0.5	
BENZO (G,H,I) PERYLENE	UG/L	ND	0.3	
BENZO (K) FLUORANTHENE	UG/L	ND	0.7	
BENZYL ALCOHOL	UG/L	ND	0.5	
BIS(2-CHLOROETHOXY)METHANE	UG/L	ND	0.4	
BIS(2-CHLOROETHYL)ETHER	UG/L	ND	0.5	
BIS(2-CHLOROISOPROPYL)ETHER	UG/L	ND	1.9	
BIS(2-ETHYLHEXYL)PHTHALATE	UG/L	64	0.6	
4-BROMOPHENYL PHENYL ETHER	UG/L	ND	0.4	
BUTYLBENZYL PHTHALATE	UG/L	ND	0.5	
4-CHLOROANILINE	UG/L	ND	0.4	
1-CHLORONAPHTHALENE	UG/L	ND	0.6	
2-CHLORONAPHTHALENE	UG/L	ND	0.4	
4-CHLOROPHENYL PHENYL ETHER	UG/L	ND	0.5	

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"FINAL REPORT FORMAT - SINGLE"

Accession: 806294
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806416
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: II

Lab Id: 003
Client Sample Id: MW-13
Sample Date/Time: 21-JUN-98 1400
Received Date: 23-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
CHRYSENE	UG/L	ND	0.7	
DIBENZ(A,J)ACRIDINE	UG/L	ND	0.5	
DIBENZO (A,H) ANTHRACENE	UG/L	ND	0.3	
DIBENZOFURAN	UG/L	ND	0.4	
1,2-DICHLOROBENZENE	UG/L	ND	0.3	
1,3-DICHLOROBENZENE	UG/L	ND	0.3	
1,4-DICHLOROBENZENE	UG/L	ND	0.5	
3,3'-DICHLOROBENZIDINE	UG/L	ND	0.4	
DIETHYLPHTHALATE	UG/L	ND	0.4	
P-DIMETHYLAMINOAZOBENZENE	UG/L	ND	0.4	
7,12-DIMETHYLBENZ(A)ANTHRACENE	UG/L	ND	1.8	
A-,A-DIMETHYLPHENETHYLAMINE	UG/L	ND	0.1	
DIMETHYLPHTHALATE	UG/L	ND	0.4	
DI-N-BUTYLPHTHALATE	UG/L	ND	0.4	
2,4-DINITROTOLUENE	UG/L	ND	0.5	
2,6-DINITROTOLUENE	UG/L	ND	0.5	
DI-N-OCTYLPHTHALATE	UG/L	ND	0.7	
DIPHENYLAMINE	UG/L	ND	0.5	
1,2-DIPHENYLHYDRAZINE	UG/L	ND	0.3	
FLUORANTHENE	UG/L	ND	0.5	
FLUORENE	UG/L	8.1	0.6	
HEXACHLOROBENZENE	UG/L	ND	0.5	
HEXACHLOROBUTADIENE	UG/L	ND	0.5	
HEXACHLOROCYCLOPENTADIENE	UG/L	ND	0.6	
HEXACHLOROETHANE	UG/L	ND	0.6	
INDENO (1,2,3-CD) PYRENE	UG/L	ND	0.5	
ISOPHORONE	UG/L	ND	0.4	
3-METHYLCHOLANTHRENE	UG/L	ND	0.4	
2-METHYLNAPHTHALENE	UG/L	85	0.5	
NAPHTHALENE	UG/L	29	0.4	
1-NAPHTHYLAMINE	UG/L	ND	1.5	
2-NAPHTHYLAMINE	UG/L	ND	1.0	
2-NITROANILINE	UG/L	ND	0.4	
3-NITROANILINE	UG/L	ND	0.9	
4-NITROANILINE	UG/L	ND	0.8	
NITROBENZENE	UG/L	ND	0.5	
N-NITROSODIMETHYLAMINE	UG/L	ND	1.2	
N-NITROSODI-N-BUTYLAMINE	UG/L	ND	1.1	
N-NITROSODIETHYLAMINE	UG/L*	ND	10	
N-NITROSODIPHENYLAMINE	UG/L	ND	0.4	
N-NITROSO-DI-N-PROPYLAMINE	UG/L	ND	0.4	
N-NITROSOPIPERIDINE	UG/L	ND	0.8	
N-NITROSOPYRROLIDINE	UG/L*	ND	10	
PENTACHLOROBENZENE	UG/L	ND	0.4	
PENTACHLORONITROBENZENE (PCNB)	UG/L	ND	5.0	

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"FINAL REPORT FORMAT - SINGLE"

Accession: 806294
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806416
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: II

Lab Id: 003 Sample Date/Time: 21-JUN-98 1400
Client Sample Id: MW-13 Received Date: 23-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
PHENACETIN	UG/L	ND	0.4	
PHENANTHRENE	UG/L	4.0	0.4	
2-PICOLINE	UG/L	ND	7.7	
PRONAMIDE	UG/L	ND	0.4	
PYRENE	UG/L	ND	0.5	
1,2,4,5-TETRACHLOROBENZENE	UG/L	ND	0.4	
1,2,4 TRICHLOROBENZENE	UG/L	ND	0.6	
2-FLUOROPHENOL	%REC/SURR	75	21-100	
PHENOL-D6	%REC/SURR	64	10-100	
2,4,6-TRIBROMOPHENOL	%REC/SURR	77	10-123	
2-FLUOROBIPHENYL	%REC/SURR	93	43-116	
NITROBENZENE-D5	%REC/SURR	98	35-114	
TERPHENYL-D14	%REC/SURR	93	33-124	
ANALYST	INITIALS	RW		

Comments:

"Method Report Summary"

Accession Number: 806294
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806416
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)

Client Sample Id:	Parameter:	Unit:	Result:
MW-46	PHENOL	UG/L	8.2
MW-13	BIS(2-ETHYLHEXYL)PHTHALATE	UG/L	64
	FLUORENE	UG/L	8.1
	2-METHYLNAPHTHALENE	UG/L	85
	NAPHTHALENE	UG/L	29
	PHENANTHRENE	UG/L	4.0

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Rd Pensacola, FL 32514 (850) 474-1001

Data Qualifiers for Final Report

AEN-Pensacola Inorganic/Organic

@	Adjusted reporting limit due to sample matrix (dilution prior to digestion and/or analysis)
+	Elevated reporting limit due to dilution into calibration range
*	Elevated reporting limit due to matrix interference (dilution prior to digestion and/or analysis)
#	Elevated reporting limit due to insufficient sample size
D	Diluted out
J5	The reported value is quantitated as a TIC; therefore, it is estimated

ND = Not Detected N/S = Not Submitted N/A = Not Applicable

Florida Projects Inorganic/Organic

Y1	Improper preservation, no preservative present in sample upon receipt
Y2	Improper preservation, incorrect preservative present in sample upon receipt
Y3	Improper preservation, sample temperature exceeded EPA temperature limits of 2-6°C upon receipt
Y (FL description)	The laboratory analysis was from an unpreserved or improperly preserved sample. The data may not be accurate.
Q	Sample held beyond the accepted holding time
I	The reported value is < Laboratory RL and > laboratory MDL
U1	The reported value is ≤ Laboratory MDL (value for sample result is reported as the MDL)
U (FL description)	Indicates the compound was analyzed for but not detected.
T	The reported value is < Laboratory MDL (value shall not be used for statistical analysis)
V	The analyte was detected in both the sample and the associated method blank.
J1	Surrogate recovery limits have been exceeded
J2	The sample matrix interfered with the ability to make any accurate determinations
J3	The reported value failed to meet the established quality control criteria for either precision or accuracy
J (FL description)	Estimated value; not accurate.

AFCEE Projects (under QAPP) and All Other (AEN-PN) Projects/Sites for Inorganic/Organic Parameters

J4	(For positive results) Temperature limits exceeded (≤2°C or ≥ 6°C)
J (AFCEE description)	The analyte was positively identified, the quantitation is an estimation
R1	(For nondetects) Temperature limits exceeded (≤2°C or ≥ 6°C)
R2	Improper preservation, no preservative present in sample upon receipt
R3	Improper preservation, incorrect preservative present in sample upon receipt
R4	Holding time exceeded
R5	Collection requirements not met, improper container used for sample
R (AFCEE description)	The data are unusable due to deficiencies in the ability to analyze the sample and meet QC criteria
F	< RL and > laboratory MDL
F (AFCEE description)	The analyte was positively identified but the associated numerical value is below the AFCEE or lab RL
U2	≤ Laboratory MDL (value for result will be the MDL, never below the MDL)
U (AFCEE description)	The analyte was analyzed for but not detected. The associated numerical value is at or below the MDL
B (AFCEE description)	The analyte was found in the associated blank, as well as in the sample

ICR Projects Inorganic/Organic

A	Acceptable
R6	Rejected

Examples: ICR Flags

R6 = Laboratory extracted the sample but the refrigerator malfunctioned so the extract became warm and client was notified

R6 = Sample arrived in laboratory in good condition; however, the laboratory did not analyze it within EPA's established holding time limit.

CLP and CLP-like Projects

Refer to referenced CLP Statement of Work (SOW) for explanation of data qualifiers

IDL = Laboratory Instrument Detection Limit
MDL = Laboratory Method Detection Limit
RL = Reporting Limit (AFCEE RLs are listed in the AFCEE QAPP)
CLP CRDL = CLP Contract Required Detection Limit (these limits are listed in the EPA CLP Statement of Work or SOW)
CLP CRQL = CLP Contract Required Quantitation Limit (these limits are listed in the EPA CLP Statement of Work or SOW)

Any time a sample arrives at the laboratory improperly preserved (at improper pH or temperature) or after holding time has expired or prepared or analyzed after holding time, client must be notified in writing (i.e. case narrative).

AEN-Pensacola uses the most current promulgated methods contained in the reference manuals.

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Quality Control Report

Analysis: MARATHON WET CHEMISTRY INORGANICS

Accession:	806294
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806416
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	WET CHEM

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"WetChem Quality Control Report"

Parameter:	CHLORIDE	CYANIDE	FLUORIDE	NO2	NO2NO3	PH
Batch Id:	CIW068	CNW037	FLW026	N2W091	N3W46B	PHW132
Blank Result:	<1	<0.005	<0.2	<0.1	<0.1	N/A
Anal. Method:	4500-CL B	335.2	340.2	354.1	353.2	150.1
Prep. Method:	N/A	N/A	N/A	N/A	N/A	N/A
Analysis Date:	22-JUN-98	24-JUN-98	24-JUN-98	23-JUN-98	23-JUN-98	23-JUN-98
Prep. Date:	22-JUN-98	23-JUN-98	24-JUN-98	23-JUN-98	22-JUN-98	23-JUN-98
Sample Duplication						
Sample Dup:	806270-1	806213-1	806213-1	806294-3	806240-1	806294-1
Rept Limit:	<1	<0.005	<0.2	<0.1	<0.1	N/A
Sample Result:	34.4	<0.005	0.60	<0.1	<0.1	6.95
Dup Result:	34.4	<0.005	0.65	<0.1	<0.1	6.96
Sample RPD:	0	N/C	0.05 G	N/C	N/C	0.01
Max RPD:	5	0.005	0.2	0.1	0.1	0.12
Dry Weight%	N/A	N/A	N/A	N/A	N/A	N/A
Matrix Spike						
Sample Spiked:	806270-1	806213-1	806213-1	806294-3	806240-1	N/A
Rept Limit:	<1	<0.005	<0.2	<0.1	<0.1	N/A
Sample Result:	34.4	<0.005	0.60	<0.1	<0.1	
Spiked Result:	90.0	0.218	1.27	0.21	0.84	
Spike Added:	55.0	0.200	0.80	0.20	1.00	
% Recovery:	101	109	84	105	84	
% Rec Limits:	90-111	67-127	79-132	70-131	71-125	
Dry Weight%	N/A	N/A	N/A	N/A	N/A	
ICV						
ICV Result:	99.5	0.340	1.14	0.20	1.98	10.13
True Result:	100	0.314	1.20	0.20	2.00	10.00
% Recovery:	100	108	95	100	99	101
% Rec Limits:	90-110	90-110	90-110	90-110	90-110	90-110
LCS						
LCS Result:						7.03
True Result:						6.87
% Recovery:						102
% Rec Limits:						96-104

"WetChem Quality Control Report"

Parameter:	PHENOL	SULFATE	TDS
Batch Id:	PEW025	SEW077	TDW038
Blank Result:	<0.005	<10	<5
Anal. Method:	420.1	375.4	160.1
Prep. Method:	N/A	N/A	N/A
Analysis Date:	01-JUL-98	26-JUN-98	26-JUN-98
Prep. Date:	30-JUN-98	26-JUN-98	25-JUN-98
Sample Duplication			
Sample Dup:	806298-1	806240-1	806294-1
Rept Limit:	<0.005	<130+	<5
Sample Result:	<0.005	303	2824
Dup Result:	<0.005	304	2988
Sample RPD:	N/C	1 G	6
Max RPD:	0.005	130	16
Dry Weight%	N/A	N/A	N/A
Matrix Spike			
Sample Spiked:	806298-2	806240-1	N/A
Rept Limit:	<0.005	<250+	N/A
Sample Result:	<0.005	303	
Spiked Result:	0.022	678	
Spike Added:	0.020	500	
% Recovery:	110	75	
% Rec Limits:	48-149	56-154	
Dry Weight%	N/A	N/A	
ICV			
ICV Result:	0.027	20.9	
True Result:	0.025	20	
% Recovery:	108	105	
% Rec Limits:	90-110	90-110	
LCS			
LCS Result:			304
True Result:			293
% Recovery:			104
% Rec Limits:			77-129

"Quality Control Comments"

Batch Id:	Comments:
CIW068	806294-1,2,3 & 906298-1,2,3 & 806300-1,2,3 were added
CIW068	to the batch on 23-Jun-98.
N3W46B	806294-1,2,3, & 806298-1,2,3 were added to the batch on 23-Jun-98.
PEW025	806306-4 & 806323-1,2,3,4 were added to the batch on 1-Jul-98.

----- Common Footnotes WetChem -----

N/A = NOT APPLICABLE.
N/S = NOT SUBMITTED.
N/C = SAMPLE AND DUPLICATE RESULTS ARE AT OR BELOW AEN REPORTING LIMIT; THEREFORE, THE RPD IS "NOT CALCULABLE" AND NO CONTROL LIMITS APPLY.
N/D = NOT DETECTED.
R = REACTIVE
T = TOTAL
G = SAMPLE AND/OR DUPLICATE RESULT IS BELOW 5 X AEN REPORTING LIMIT AND THE ABSOLUTE DIFFERENCE BETWEEN THE SAMPLE AND DUPLICATE RESULT IS AT OR BELOW AEN REPORTING LIMIT; THEREFORE, THE RESULTS ARE "IN CONTROL".
Q = THE ANALYTICAL (POST-DISTILLATION) SPIKE IS REPORTED DUE TO PERCENT RECOVERY BEING OUTSIDE ACCEPTANCE LIMITS ON THE MATRIX (PRE-DISTILLATION) SPIKE.
= ELEVATED REPORTING LIMIT DUE TO INSUFFICIENT SAMPLE.
+ = ELEVATED REPORTING LIMIT DUE TO DILUTION INTO CALIBRATION RANGE.
* = ELEVATED REPORTING LIMIT DUE TO MATRIX INTERFERENCE (DILUTION PRIOR DIGESTION AND/OR ANALYSIS).
@ = ADJUSTED REPORTING LIMIT DUE TO SAMPLE MATRIX (DILUTION PRIOR TO DIGESTION AND/OR ANALYSIS).
P = ANALYTICAL (POST DIGESTION) SPIKE.
I = DUPLICATE INJECTION.
& = AUTOMATED
F = SAMPLE SPIKED > 4 X SPIKE CONCENTRATION.
N/C+ = NOT CALCULABLE
H = SAMPLE AND/OR DUPLICATE RESULT IS BELOW 5 X AEN REPORTING LIMIT AND THE ABSOLUTE DIFFERENCE BETWEEN THE RESULTS EXCEEDS THE AEN REPORTING LIMIT; THEREFORE, THE RESULTS ARE "OUT OF CONTROL".
A = SAMPLE AND DUPLICATE RESULTS ARE "OUT OF CONTROL".
Z = THE SAMPLE RESULT FOR THE SPIKE IS BELOW THE REPORTING LIMIT. HOWEVER, THIS RESULT IS REPORTED FOR ACCURATE QC CALCULATIONS.
NH= SAMPLE AND / OR DUPLICATE RESULT IS BELOW 5 X AEN REPORTING LIMIT AND THE ABSOLUTE DIFFERENCE BETWEEN THE RESULTS EXCEEDS THE AEN REPORTING LIMIT; THEREFORE, THE RESULTS ARE "OUT OF CONTROL". SAMPLE IS NON-HOMOGENEOUS.
(*) = REPORTING LIMITS RAISED DUE TO CLP METHOD NOT REQUIRING A CONCENTRATION STEP FOR CN.
(CA) = SEE CORRECTIVE ACTIONS FORM.
**= MATRIX INTERFERENCE
SW-846, 3rd Edition, latest EPA-approved edition.
EPA 600/4-79-020, Revised March 1983.
STANDARD METHODS, For the Examination of Water and Wastewater, latest EPA-approved edition.
NIOSH Manual of Analytical Methods, 4th Edition.
ANNUAL BOOK OF ASTM STANDARDS, VOLUMES 11.01 and 11.02, latest EPA-approved edition.
METHODS FOR THE DETERMINATION OF INORGANIC SUBSTANCES IN ENVIRONMENTAL SAMPLES, EPA600/R-93/100, AUGUST 1993
METHODS FOR SOIL ANALYSIS, PART 2, CHEMICAL AND MICROBILOGICAL PROPERTIES, 2ND EDITION.
AEN-PN USES THE MOST CURRENT PROMULGATED METHODS FROM THE REFERENCES LISTED ABOVE.

1. COLIFORM. COLIFORM PRECISION IS MEASURED BY THE ABSOLUTE DIFFERENCE BETWEEN THE LOGARITHM OF COLONIES PER 100 MLS OF SAMPLE ON DUPLICATE PLATES.
2. PH. PH PRECISION IS MEASURED BY THE ABSOLUTE DIFFERENCE BETWEEN THE SAMPLE AND DUPLICATE ANALYSIS.
3. FLASHPOINT. FLASHPOINT PRECISION IS MEASURED BY THE ABSOLUTE DIFFERENCE BETWEEN THE SAMPLE AND DUPLICATE ANALYSIS.

RPD = RELATIVE PERCENT DIFFERENCE (OR DEVIATION).
RPT LMTS = REPORTING LIMITS BASED ON METHOD DETECTION LIMIT STUDIES.

DPH = DOLLY P. HWANG RB = REBECCA BROWN WH = WENDY HAGGARD
ED = ESTHER DANTIN CR = CYNTHIA ROBERTS AB = AMY BRADLEY
BE = BETTY EVERTON PLD = PAULA L. DOUGHTY JTZ = JONATHAN T. ZIENTARSKI
RH = RICKY HAGENDORFER

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Quality Control Report

Analysis: MARATHON METALS - OPTIMA

Accession:	806294
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806416
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	METALS

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Date 08-Jul-98

"Metals Quality Control Report"

Parameter:	SILVER	ALUMINUM	ARSENIC	BARIUM	BORON	CADMIUM
Batch Id:	AYW169	LYW169	RYW169	BYW169	OYW169	CYW169
Blank Result:	<0.005	<0.1	<0.005	<0.001	<0.05	<0.001
Anal. Method:	6010A	6010A	6010A	6010A	6010A	6010A
Prep. Method:	3010A	3010A	3010A	3010A	3010A	3010A
Analysis Date:	28-JUN-98	28-JUN-98	28-JUN-98	28-JUN-98	28-JUN-98	28-JUN-98
Prep. Date:	25-JUN-98	25-JUN-98	25-JUN-98	25-JUN-98	25-JUN-98	25-JUN-98
Sample Duplication						
Sample Dup:	806267-1	806267-1	806267-1	806267-1	806267-1	806267-1
Rept Limit:	<0.005	<0.1	<0.005	<0.001	<0.05	<0.001
Sample Result:	0.21	2.1	2.14	2.01	2.64	1.86
Dup Result:	0.22	2.1	2.17	2.05	2.71	1.89
Sample RPD:	5	0	1	2	3	2
Max RPD:	20	20	20	20	20	20
Dry Weight%	N/A	N/A	N/A	N/A	N/A	N/A
Matrix Spike						
Sample Spiked:	806267-1	806267-1	806267-1	806267-1	806267-1	806267-1
Rept Limit:	<0.005	<0.1	<0.005	<0.001	<0.05	<0.001
Sample Result:	0.007	<0.1	0.005	0.028	0.48	<0.001
Spiked Result:	0.21	2.1	2.14	2.01	2.64	1.86
Spike Added:	0.20	2.0	2.0	2.0	2.0	2.0
% Recovery:	102	105	107	99	108	93
% Rec Limits:	75-125	75-125	75-125	75-125	75-125	75-125
Dry Weight%	N/A	N/A	N/A	N/A	N/A	N/A
ICV						
ICV Result:	0.50	4.8	0.99	0.98	1.04	1.02
True Result:	0.5	5	1.0	1.0	1.0	1.0
% Recovery:	100	96	99	98	104	102
% Rec Limits:	95-105	95-105	95-105	95-105	95-105	95-105
LCS						
LCS Result:	0.19	2.0	1.97	1.98	2.03	1.97
True Result:	0.2	2.0	2.0	2.0	2.0	2.0
% Recovery:	95	100	99	99	102	99
% Rec Limits:	80-120	80-120	80-120	80-120	80-120	80-120

"Metals Quality Control Report"

Parameter:	COBALT	MANGANESE	COPPER	MERCURY	NICKEL	IRON
Batch Id:	TYW169	GYW169	FYW169	M7W081	EYW169	N6W169
Blank Result:	<0.005	<0.005	<0.005	<0.0002	<0.005	<0.02
Anal. Method:	6010A	6010A	6010A	7470A	6010A	6010A
Prep. Method:	3010A	3010A	3010A	7470A	3010A	3010A
Analysis Date:	28-JUN-98	28-JUN-98	28-JUN-98	02-JUL-98	28-JUN-98	29-JUN-98
Prep. Date:	25-JUN-98	25-JUN-98	25-JUN-98	02-JUL-98	25-JUN-98	25-JUN-98
Sample Duplication						
Sample Dup:	806267-1	806267-1	806267-1	806294-1	806267-1	806267-1
Rept Limit:	<0.005	<0.005	<0.005	<0.0002	<0.005	<0.02
Sample Result:	1.93	2.06	2.14	0.0048	1.95	1.8
Dup Result:	1.96	2.07	2.20	0.0047	1.98	1.9
Sample RPD:	2	0	3	2	2	5
Max RPD:	20	20	20	20	20	20
Dry Weight%	N/A	N/A	N/A	N/A	N/A	N/A
Matrix Spike						
Sample Spiked:	806267-1	806267-1	806267-1	806294-1	806267-1	806267-1
Rept Limit:	<0.005	<0.005	<0.005	<0.0002	<0.005	<0.02
Sample Result:	<0.005	0.035	<0.005	<0.0002	0.005	<0.02
Spiked Result:	1.93	2.06	2.14	0.0048	1.95	1.8
Spike Added:	2.0	2.0	2.0	0.0050	2.0	2.0
% Recovery:	97	101	107	96	97	90
% Rec Limits:	75-125	75-125	75-125	75-125	75-125	75-125
Dry Weight%	N/A	N/A	N/A	N/A	N/A	N/A
ICV						
ICV Result:	0.99	1.00	1.02	0.0039	0.99	25
True Result:	1.0	1.0	1.0	0.0040	1.0	25
% Recovery:	99	100	102	98	99	100
% Rec Limits:	95-105	95-105	95-105	90-110	95-105	95-105
LCS						
LCS Result:	1.96	1.96	2.02	0.0051	1.98	1.9
True Result:	2.0	2.0	2.0	0.0050	2.0	2.0
% Recovery:	98	98	101	102	99	95
% Rec Limits:	80-120	80-120	80-120	80-120	80-120	80-120

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"Metals Quality Control Report"

Parameter:	LEAD	MOLYBDENUM	SELENIUM	ZINC	CHROMIUM
Batch Id:	PYW169	DYW169	SYW169	5YW169	HYW169
Blank Result:	<0.003	<0.005	<0.005	<0.02	<0.005
Anal. Method:	6010A	6010A	6010A	6010A	6010A
Prep. Method:	3010A	3010A	3010A	3010A	3010A
Analysis Date:	28-JUN-98	28-JUN-98	28-JUN-98	28-JUN-98	28-JUN-98
Prep. Date:	25-JUN-98	25-JUN-98	25-JUN-98	25-JUN-98	25-JUN-98
Sample Duplication					
Sample Dup:	806267-1	806267-1	806267-1	806267-1	806267-1
Rept Limit:	<0.003	<0.005	<0.005	<0.02	<0.005
Sample Result:	1.88	2.15	2.09	1.86	1.99
Dup Result:	1.89	2.17	2.13	1.89	2.02
Sample RPD:	1	1	2	2	1
Max RPD:	20	20	20	20	20
Dry Weight%	N/A	N/A	N/A	N/A	N/A
Matrix Spike					
Sample Spiked:	806267-1	806267-1	806267-1	806267-1	806267-1
Rept Limit:	<0.003	<0.005	<0.005	<0.02	<0.005
Sample Result:	<0.003	0.005	<0.005	0.04	<0.005
Spiked Result:	1.88	2.15	2.09	1.86	1.99
Spike Added:	2.0	2.0	2.0	2.0	2.0
% Recovery:	94	107	105	91	100
% Rec Limits:	75-125	75-125	75-125	75-125	75-125
Dry Weight%	N/A	N/A	N/A	N/A	N/A
ICV					
ICV Result:	1.00	1.02	1.00	1.01	0.99
True Result:	1.0	1.0	1.0	1.0	1.0
% Recovery:	100	102	100	101	99
% Rec Limits:	95-105	95-105	95-105	95-105	95-105
LCS					
LCS Result:	1.93	2.08	1.91	1.95	2.01
True Result:	2.0	2.0	2.0	2.0	2.0
% Recovery:	97	104	96	98	101
% Rec Limits:	80-120	80-120	80-120	80-120	80-120

----- Common Footnotes Metals -----

N/A = NOT APPLICABLE.
N/S = NOT SUBMITTED.
N/C = SAMPLE AND DUPLICATE RESULTS ARE AT OR BELOW THE REPORTING LIMIT; THEREFORE, THE RPD IS "NOT CALCULABLE" AND NO CONTROL LIMITS APPLY.
N/D = NOT DETECTED.
DISS. OR D = DISSOLVED
T & D = TOTAL AND DISSOLVED
R = REACTIVE
T = TOTAL
G = SAMPLE AND/OR DUPLICATE RESULT IS BELOW 5 X THE REPORTING LIMIT AND THE ABSOLUTE DIFFERENCE BETWEEN THE SAMPLE AND DUPLICATE RESULT IS AT OR BELOW AEN REPORTING LIMIT; THEREFORE, THE RESULTS ARE "IN CONTROL".
Q = THE ANALYTICAL (POST-DIGESTION) SPIKE IS REPORTED DUE TO PERCENT RECOVERY BEING OUTSIDE ACCEPTANCE LIMITS ON THE MATRIX (PRE-DIGESTION) SPIKE.
= ELEVATED REPORTING LIMIT DUE TO INSUFFICIENT SAMPLE.
+ = ELEVATED REPORTING LIMIT DUE TO DILUTION INTO CALIBRATION RANGE.
* = ELEVATED REPORTING LIMIT DUE TO MATRIX INTERFERENCE. (DILUTION PRIOR TO ANALYSIS)
@ = ADJUSTED REPORTING LIMIT DUE TO SAMPLE MATRIX. (DILUTION PRIOR TO DIGESTION)
P = ANALYTICAL (POST DIGESTION) SPIKE.
I = DUPLICATE INJECTION.
& = AUTOMATED
F = SAMPLE SPIKED > 4 X SPIKE CONCENTRATION.
N/C+ = NOT CALCULABLE
N/C* = NOT CALCULABLE; SAMPLE SPIKED > 4 X SPIKE CONCENTRATION.
H = SAMPLE AND/OR DUPLICATE RESULT IS BELOW 5 X AEN REPORTING LIMIT AND THE ABSOLUTE DIFFERENCE BETWEEN THE RESULTS EXCEEDS THE AEN REPORTING LIMIT; THEREFORE, THE RESULTS ARE "OUT OF CONTROL".
A = SAMPLE AND DUPLICATE RESULTS ARE "OUT OF CONTROL".
Z = THE SAMPLE RESULT FOR THE SPIKE IS BELOW THE AEN REPORTING LIMIT. HOWEVER, THIS RESULT IS REPORTED FOR ACCURATE QC CALCULATIONS.
NH= THE RELATIVE PERCENT DIFFERENCE (RPD) EXCEEDS THE AEN CONTROL LIMIT AND IS "OUT OF CONTROL; DUE TO A NON-HOMOGENEOUS SAMPLE MATRIX.
J = (FLORIDA DEP 'J' FLAG) - MATRIX SPIKE AND POST SPIKE RECOVERY IS OUT OF THE ACCEPTABLE RANGE. SEE OUT OF CONTROL EVENTS FORM.
U = (FLORIDA DEP 'U' FLAG) - THE COMPOUND WAS ANALYZED FOR, BUT NOT DETECTED.
S = METHOD OF STANDARD ADDITIONS (MSA) WAS PERFORMED ON THIS SAMPLE.

FROM QUALITY CONTROL REPORT:
RPD= RELATIVE PERCENT DEVIATION.
REPT LIMIT= REPORTING LIMIT BASED ON METHOD DETECTION LIMIT STUDIES.

NOTE: ALL RESULTS REPORTED UNDER 'SAMPLE DUPLICATION' ARE THE MS/MSD.

NOTE: THE UNITS REPORTED ON THE QUALITY CONTROL REPORT ARE REPORTED ON AN AS RUN BASIS. (NOT ADJUSTED FOR DRY WEIGHT).

SW-846, 3rd Edition.
EPA 600/4-79-020, Revised March 1983.
NIOSH Manual of Analytical Methods, 4th Edition.
Standard Methods For the Examination of Water and Wastewater, 18th Edition, 1992.
Methods For the Determination of Metals in Environmental Samples - Supplement I, EPA 600/R-94-111, May 1994.

GJ = GARY JACOBS
JLH = JAMES L. HERED
GSP = GARY ST PERE
JL = JANET LECLEAR

SEVERN TRENT LABORATORIES 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Quality Control Report

Analysis: PESTICIDES (8080)

Accession:	806294
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806416
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	PESTICIDES

SEVERN TRENT LABORATORIES 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"QC Report"

Title: Water Blank
Batch: PSW044
Analysis Method: 8080 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Extraction Method: 3510 / 3660 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.

Blank Id: A Date Analyzed: 30-JUN-98 Date Extracted: 25-JUN-98

Parameters:	Units:	Results:	Reporting Limits:
ALDRIN	UG/L	ND	0.02
ALPHA-BHC	UG/L	ND	0.02
BETA-BHC	UG/L	ND	0.02
DELTA-BHC	UG/L	ND	0.02
GAMMA-BHC (LINDANE)	UG/L	ND	0.02
4,4'-DDD	UG/L	ND	0.02
4,4'-DDE	UG/L	ND	0.02
4,4'-DDT	UG/L	ND	0.02
DIELDRIN	UG/L	ND	0.02
ENDOSULFAN I	UG/L	ND	0.02
ENDOSULFAN II	UG/L	ND	0.02
ENDOSULFAN SULFATE	UG/L	ND	0.02
ENDRIN	UG/L	ND	0.02
ENDRIN ALDEHYDE	UG/L	ND	0.02
HEPTACHLOR	UG/L	ND	0.02
HEPTACHLOR EPOXIDE	UG/L	ND	0.02
METHOXYCHLOR	UG/L	ND	0.02
CHLORDANE	UG/L	ND	0.01
TOXAPHENE	UG/L	ND	0.12
PCB-1016	UG/L	ND	0.04
PCB-1221	UG/L	ND	0.04
PCB-1232	UG/L	ND	0.04
PCB-1242	UG/L	ND	0.04
PCB-1248	UG/L	ND	0.04
PCB-1254	UG/L	ND	0.04
PCB-1260	UG/L	ND	0.04
TCMX	%REC/SURR	83	43-101
DCB	%REC/SURR	97	17-135
ANALYST	INITIALS	RP	

Comments:

"QC Report"

Title: Water LCS
Batch: PSW044
Analysis Method: 8080 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Extraction Method: 3510 / 3660 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.

RS Date Analyzed: 30-JUN-98 RS Date Extracted: 25-JUN-98

Parameters:	Spike Added	Sample Conc	RS Conc	RS %Rec	Rec Lmts
LINDANE	1.00	<0.02	0.80	80	51-118
HEPTACHLOR	1.00	<0.02	0.96	96	70-123
ALDRIN	1.00	<0.02	0.94	94	54-122
DIELDRIN	1.00	<0.02	0.95	95	75-119
ENDRIN	1.00	<0.02	0.97	97	67-122
DDT	1.00	<0.02	1.16	116	59-127
Surrogates:					
DCB				93	17-135
TCMX				85	43-101

Comments:

Notes:
N/S = NOT SUBMITTED N/A = NOT APPLICABLE D = DILUTED OUT
UG/L = PARTS PER BILLION. < = LESS THAN REPORTING LIMIT.
* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS.
SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

"QC Report"

Title: Water Matrix
Batch: PSW044
Analysis Method: 8080 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Extraction Method: 3510 / 3660 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.

Dry Weight %: N/A
Sample Spiked: 806306-2

MS Date Analyzed: 30-JUN-98
MSD Date Analyzed: 30-JUN-98

MS Date Extracted: 25-JUN-98
MSD Date Extracted: 25-JUN-98

Parameters:	Spike Added	Sample Conc	MS Conc	MS %Rec	MSD Conc	MSD %Rec	RPD	RPD Lmts	Rec Lmts
LINDANE	2.00	<0.02	1.31	66	1.48	74	11	27	40-119
HEPTACHLOR	2.00	<0.02	1.57	79	1.80	90	13	30	53-123
ALDRIN	2.00	<0.02	1.53	77	1.74	87	12	31	42-130
DIELDRIN	2.00	<0.02	1.58	79	1.77	89	12	18	61-124
ENDRIN	2.00	<0.02	1.76	88	1.95	98	11	30	50-125
DDT	2.00	<0.02	2.04	102	2.24	112	9	32	25-138
Surrogates:									
DCB				86		96			17-135
TCMX				60		73			43-101

Comments:

Notes:
N/S = NOT SUBMITTED N/A = NOT APPLICABLE D = DILUTED OUT
UG/L = PARTS PER BILLION. < = LESS THAN REPORTING LIMIT.
* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS.
SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

Common notation for Organic reporting

N/S = NOT SUBMITTED
N/A = NOT APPLICABLE
D = DILUTED OUT
UG/L = PARTS PER BILLION.
UG/KG = PARTS PER BILLION.
MG/KG = PARTS PER MILLION.
MG/L = PARTS PER MILLION.
< = LESS THAN.
* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS.
ND = NOT DETECTED ABOVE REPORTING LIMIT.
Rpt Lmts = REPORTING LIMITS BASED ON METHOD DETECTION LIMIT STUDIES.
RPD = RELATIVE PERCENT DIFFERENCE (OR DEVIATION)

SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

ORGANIC SOILS ARE REPORTED ON A DRY WEIGHT BASIS.

AEN-PN USES THE MOST CURRENT PROMULGATED METHODS CONTAINED IN THE REFERENCE MANUALS.

RP = ROBERT PEREZ
LP = LEVERNE PETERSON
RW = ROBERT WOLFE

SEVERN TRENT LABORATORIES 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Quality Control Report

Analysis: POLYNUCLEAR AROMATICS BY 8310

Accession:	806294
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806416
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	SEMI-VOLATILE FUELS

SEVERN TRENT LABORATORIES 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"QC Report"

Title: Water Blank
Batch: PAW142
Analysis Method: 8310/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.

Blank Id: A Date Analyzed: 25-JUN-98 Date Extracted: 24-JUN-98

Parameters:	Units:	Results:	Reporting Limits:
ACENAPHTHENE	UG/L	ND	1
ACENAPHTHYLENE	UG/L	ND	1
ANTHRACENE	UG/L	ND	1
BENZO(a)ANTHRACENE	UG/L	ND	1
BENZO(a)PYRENE	UG/L	ND	0.1
BENZO(b)FLUORANTHENE	UG/L	ND	1
BENZO(g,h,i)PERYLENE	UG/L	ND	1
BENZO(k)FLUORANTHENE	UG/L	ND	1
CHRYSENE	UG/L	ND	1
DIBENZO(a,h)ANTHRACENE	UG/L	ND	1
FLUORANTHENE	UG/L	ND	1
FLUORENE	UG/L	ND	1
INDENO(1,2,3-cd)PYRENE	UG/L	ND	1
NAPHTHALENE	UG/L	ND	1
PHENANTHRENE	UG/L	ND	1
PYRENE	UG/L	ND	1
1-METHYLNAPHTHALENE	UG/L	ND	0.3
2-METHYLNAPHTHALENE	UG/L	ND	1
2-CHLOROANTHRACENE	%REC/SURR	103	28-138
ANALYST	INITIALS	HAH	

Comments:

"QC Report"

Title: Water LCS
Batch: PAW142
Analysis Method: 8310/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.

RS Date Analyzed: 26-JUN-98 RS Date Extracted: 24-JUN-98

Parameters:	Spike Added	Sample Conc	RS Conc	RS %Rec	Rec Lmts
ACENAPHTHYLENE	7.1	<1	6.3	89	45-127
BENZO(k)FLUORANTHENE	9.2	<1	8.3	90	68-131
CHRYSENE	9.1	<1	8.2	90	69-131
PHENANTHRENE	9.1	<1	8.3	91	63-124
PYRENE	8.8	<1	8.4	95	61-126
Surrogates:					
2-CHLOROANTHRACENE				83	28-138

Comments:

Notes:
N/S = NOT SUBMITTED N/A = NOT APPLICABLE D = DILUTED OUT
UG/L = PARTS PER BILLION. < = LESS THAN REPORTING LIMIT.
* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS.
SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

"QC Report"

Title: Water Matrix Spike/Matrix Spike Duplicate
Batch: PAW142
Analysis Method: 8310/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.

Dry Weight %: N/A
Sample Spiked: 806306-1

MS Date Analyzed: 26-JUN-98
MSD Date Analyzed: 26-JUN-98

MS Date Extracted: 24-JUN-98
MSD Date Extracted: 24-JUN-98

Parameters:	Spike Added	Sample Conc	MS Conc	MS %Rec	MSD Conc	MSD %Rec	RPD	RPD Lmts	Rec Lmts
ACENAPHTHYLENE	7.1	<1	2.9	41	7.8	110	91*	51	18-146
BENZO(k)FLUORANTHENE	9.2	<1	5.7	62	10.4	113	58*	40	26-137
CHRYSENE	9.1	<1	5.7	63	10.5	115	58	69	16-156
PHENANTHRENE	9.1	<1	5.7	63	10.6	116	59*	36	30-145
PYRENE	8.8	<1	5.8	66	10.7	122	60*	41	39-137
Surrogates:									
2-CHLOROANTHRACENE				55		111			28-138

Comments:
MATRIX SPIKE/MATRIX SPIKE DUPLICATE HAD RECOVERY(S) AND/OR RPD(S) OUTSIDE ACCEPTANCE LIMITS DUE TO MATRIX INTERFERENCE. REFER TO LCS DATA.

Notes:
N/S = NOT SUBMITTED N/A = NOT APPLICABLE D = DILUTED OUT
UG/L = PARTS PER BILLION. < = LESS THAN REPORTING LIMIT.
* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS.
SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

Common Notation for Organic Reporting

N/S = NOT SUBMITTED
N/A = NOT APPLICABLE
UG = MICROGRAMS
UG/L = PARTS PER BILLION
UG/KG = PARTS PER BILLION
MG/M3 = MILLIGRAM PER CUBIC METER
PPMV = PART PER MILLION BY VOLUME
MG/KG = PARTS PER MILLION
MG/L = PARTS PER MILLION
< = LESS THAN
ND = NOT DETECTED

SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

ORGANIC SOILS ARE REPORTED ON A DRYWEIGHT BASIS.

RPT LMTS = REPORTING LIMITS BASED ON METHOD DETECTION LIMIT STUDIES.

RPD = RELATIVE PERCENT DIFFERENCE (OR DEVIATION)

AEN/GC/FID
AEN GAS CHROMATOGRAPHIC METHOD EMPLOYING DIRECT INJECTION ON COLUMN WITH FLAME IONIZATION DETECTOR (FID).

AEN/GC/FIX
AEN GAS CHROMATOGRAPHIC METHOD FOR ANALYSIS OF FIXED GASES EMPLOYING DIRECT INJECTION ON COLUMN WITH THERMAL CONDUCTIVITY DETECTOR (TCD) AND FLAME IONIZATION DETECTOR (FID).

AEN/GC/FPD
AEN GAS CHROMATOGRAPHIC METHOD EMPLOYING DIRECT INJECTION ON COLUMN WITH FLAME PHOTOMETRIC DETECTOR (FPD) IN SULFUR-SPECIFIC MODE.

AEN/GC/PID
AEN GAS CHROMATOGRAPHIC METHOD EMPLOYING DIRECT INJECTION ON COLUMN WITH PHOTOIONIZATION DETECTOR (PID).

AEN/GC/TCD
AEN GAS CHROMATOGRAPHIC METHOD EMPLOYING DIRECT INJECTION ON COLUMN WITH THERMAL CONDUCTIVITY DETECTOR (TCD).

SW-846 METHOD 9020
PARTICULATE MATTER IS REMOVED BY ALLOWING PARTICULATES TO SETTLE IN THE SAMPLE CONTAINER AND DECANTING THE SUPERNATANT LIQUID. EXCESSIVE PARTICULATES ARE REMOVED BY FILTRATION OF THE SUPERNATANT LIQUID.

RSK 175
SAMPLE PREPARATION AND CALCULATIONS FOR DISSOLVED GAS ANALYSIS IN WATER SAMPLES USING A GC HEADSPACE EQUILIBRATION TECHNIQUE, RSK SOP-175, ROBERT S. KERR ENVIRONMENTAL RESEARCH LABORATORY, USEPA, AUGUST 11, 1994.

AEN-PN USES THE MOST CURRENT PROMULGATED METHODS CONTAINED IN THE REFERENCE MANUALS.

SW = STEVE WILHITE
RW = ROBERT WOLFE
KS = KENDALL SMITH
LB = LISA BIZZELL
LP = LEVERNE PETERSON
PLD = PAULA DOUGHTY
DK = DARLENE KINCHEN
BT = BECKY TREMMEL
HAH = HOLLIE HOFFMAN

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Quality Control Report

Analysis: ACID & BASE EXTRACTABLES (8270)

Accession:	806294
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806416
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	ORGANIC/MS

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"QC Report"

Title: Water Blank
Batch: ALW077
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.

Blank Id: A Date Analyzed: 30-JUN-98 Date Extracted: 26-JUN-98

Parameters:	Units:	Results:	Reporting Limits:
P-CHLORO-M-CRESOL	UG/L	ND	10
2-CHLOROPHENOL	UG/L	ND	10
O-CRESOL	UG/L	ND	10
M,P CRESOL	UG/L	ND	10
2,4-DICHLOROPHENOL	UG/L	ND	10
2,6-DICHLOROPHENOL	UG/L	ND	10
2,4-DIMETHYLPHENOL	UG/L	ND	10
4,6-DINITRO-O-CRESOL	UG/L	ND	50
2,4-DINITROPHENOL	UG/L	ND	10
2-NITROPHENOL	UG/L	ND	10
4-NITROPHENOL	UG/L	ND	50
PENTACHLOROPHENOL	UG/L	ND	50
PHENOL	UG/L	ND	10
2,3,4,6-TETRACHLOROPHENOL	UG/L	ND	10
2,4,5-TRICHLOROPHENOL	UG/L	ND	50
2,4,6-TRICHLOROPHENOL	UG/L	ND	10
ACENAPHTHENE	UG/L	ND	10
ACENAPHTHYLENE	UG/L	ND	10
ACETOPHENONE	UG/L	ND	10
2-ACETYLAMINOFLUORENE	UG/L	ND	10
4-AMINOBIPHENYL	UG/L	ND	10
ANILINE	UG/L	ND	10
ANTHRACENE	UG/L	ND	10
ARAMITE	UG/L	ND	10
BENZO (A) ANTHRACENE	UG/L	ND	10
BENZO (A) PYRENE	UG/L	ND	10
BENZO (B) FLUORANTHENE	UG/L	ND	10
BENZO (G,H,I) PERYLENE	UG/L	ND	10
BENZO (K) FLUORANTHENE	UG/L	ND	10
BENZYL ALCOHOL	UG/L	ND	10
BIS(2-CHLORO-1-METHYLETHYL)ETHER	UG/L	ND	10
BIS(2-CHLOROETHOXY)METHANE	UG/L	ND	10
BIS(2-CHLOROETHYL)ETHER	UG/L	ND	10
BIS(2-ETHYLHEXYL)PHTHALATE	UG/L	ND	10
4-BROMOPHENYL PHENYL ETHER	UG/L	ND	10
BUTYLBENZYL PHTHALATE	UG/L	ND	10
P-CHLOROANILINE	UG/L	ND	10
CHLOROBENZILATE	UG/L	ND	10
2-CHLORONAPHTHALENE	UG/L	ND	10
4-CHLOROPHENYL PHENYL ETHER	UG/L	ND	10
CHRYSENE	UG/L	ND	10
DIALLATE	UG/L	ND	10
DIBENZO (A,H) ANTHRACENE	UG/L	ND	10
DIBENZOFURAN	UG/L	ND	10
1,2-DICHLOROBENZENE	UG/L	ND	10
1,3-DICHLOROBENZENE	UG/L	ND	10

"QC Report"

Title: Water Blank
Batch: ALW077
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.

Parameters:	Units:	Results:	Reporting Limits:
1,4-DICHLOROBENZENE	UG/L	ND	10
3,3'-DICHLOROBENZIDINE	UG/L	ND	50
DIETHYLPHTHALATE	UG/L	ND	10
DIMETHOATE	UG/L	ND	10
P-DIMETHYLAMINOAZOBENZENE	UG/L	ND	10
7,12-DIMETHYLBENZ(A)ANTHRACENE	UG/L	ND	10
3,3'-DIMETHYLBENZIDINE	UG/L	ND	10
A,A-DIMETHYLPHENETHYLAMINE	UG/L	ND	10
DIMETHYLPHTHALATE	UG/L	ND	10
DI-N-BUTYLPHTHALATE	UG/L	ND	10
M-DINITROBENZENE	UG/L	ND	10
2,4-DINITROTOLUENE	UG/L	ND	10
2,6-DINITROTOLUENE	UG/L	ND	10
DI-N-OCTYLPHTHALATE	UG/L	ND	10
DIPHENYLAMINE	UG/L	ND	10
ETHYL METHANESULFONATE	UG/L	ND	10
FAMPHUR	UG/L	ND	10
FLUORANTHENE	UG/L	ND	10
FLUORENE	UG/L	ND	10
HEXACHLOROBENZENE	UG/L	ND	10
HEXACHLOROBUTADIENE	UG/L	ND	10
HEXACHLOROCYCLOPENTADIENE	UG/L	ND	10
HEXACHLOROETHANE	UG/L	ND	10
HEXACHLOROPHENE	UG/L	ND	10
HEXACHLOROPROPENE	UG/L	ND	10
INDENO (1,2,3-CD) PYRENE	UG/L	ND	10
ISODRIN	UG/L	ND	10
ISOPHORONE	UG/L	ND	10
ISOSAFROLE	UG/L	ND	10
KEPONE	UG/L	ND	10
METHAPYRILENE	UG/L	ND	10
3-METHYLCHOLANTHRENE	UG/L	ND	10
METHYL METHANESULFONATE	UG/L	ND	10
1-METHYLNAPHTHALENE	UG/L	ND	10
2-METHYLNAPHTHALENE	UG/L	ND	10
NAPHTHALENE	UG/L	ND	10
1,4-NAPHTHOQUINONE	UG/L	ND	10
1-NAPHTHYLAMINE	UG/L	ND	10
2-NAPHTHYLAMINE	UG/L	ND	10
2-NITROANILINE	UG/L	ND	50
3-NITROANILINE	UG/L	ND	50
4-NITROANILINE	UG/L	ND	50
NITROBENZENE	UG/L	ND	10
5-NITRO-O-TOLUIDINE	UG/L	ND	10
4-NITROQUINOLINE-1-OXIDE	UG/L	ND	10
N-NITROSODIETHYLAMINE	UG/L	ND	10
N-NITROSODIMETHYLAMINE	UG/L	ND	10

"QC Report"

Title: Water Blank
Batch: ALW077
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.

Parameters:	Units:	Results:	Reporting Limits:
N-NITROSODI-N-BUTYLAMINE	UG/L	ND	10
N-NITROSODIPHENYLAMINE	UG/L	ND	10
N-NITROSOMETHYLETHYLAMINE	UG/L	ND	10
N-NITROSOMORPHOLINE	UG/L	ND	10
N-NITROSOPIPERIDINE	UG/L	ND	10
N-NITROSOPYRROLIDINE	UG/L	ND	10
PARATHION	UG/L	ND	10
PENTACHLOROBENZENE	UG/L	ND	10
PENTACHLOROETHANE	UG/L	ND	10
PENTACHLORONITROBENZENE	UG/L	ND	10
PHENACETIN	UG/L	ND	10
PHENANTHRENE	UG/L	ND	10
2-PICOLINE	UG/L	ND	10
P-PHENYLENEDIAMINE	UG/L	ND	10
PRONAMIDE	UG/L	ND	10
PYRENE	UG/L	ND	10
PYRIDINE	UG/L	ND	10
SAFROLE	UG/L	ND	10
SULFOTEPP	UG/L	ND	10
1,2,4,5-TETRACHLOROBENZENE	UG/L	ND	10
THIONAZIN	UG/L	ND	10
O-TOLUIDINE	UG/L	ND	10
1,2,4 TRICHLOROBENZENE	UG/L	ND	10
SYM-TRINITROBENZENE	UG/L	ND	10
O,O,O-TRIETHYL PHOSPHOROTHIATE	UG/L	ND	10
BENZIDINE	UG/L	ND	10
BIS(2-CHLOROISOPROPYL)ETHER	UG/L	ND	10
2-(SEC BUTYL)4,6-DINITRO-PHENOL(DINOSEB)	UG/L	ND	10
0~NITROSO-DI-N-PROPYLAMINE	UG/L	ND	10
6-METHYL CHRYSENE	UG/L	ND	20
INDENE	UG/L	ND	20
QUINOLINE	UG/L	ND	50
BENZENETHIOL	UG/L	ND	20
PARATOLIUDINE	UG/L	ND	50
TOLUENE DIISOCYANATE	UG/L	ND	50
TOLUENE DIAMINE	UG/L	ND	50
MONONITROTOLUENE	UG/L	ND	50
DIETHYLENE GLYCOL MONOBUTYL ETHER	UG/L	ND	10
2-FLUOROPHENOL	%REC/SURR	62	21-100
PHENOL-D6	%REC/SURR	71	10-100
2,4,6-TRIBROMOPHENOL	%REC/SURR	60	10-123
2-FLUOROBIPHENYL	%REC/SURR	67	43-116
NITROBENZENE-D5	%REC/SURR	67	35-114
TERPHENYL-D14	%REC/SURR	86	33-124
ANALYST	INITIALS	RW	

Comments:

"QC Report"

Title: Water LCS
Batch: ALW077
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.

RS Date Analyzed: 30-JUN-98 RS Date Extracted: 26-JUN-98

Parameters:	Spike Added	Sample Conc	RS Conc	RS %Rec	Rec Lmts
PHENOL	150	<10	132	88	5-112
2-CHLOROPHENOL	150	<10	134	89	40-120
1,4-DICHLOROBENZENE	100	<10	84	84	32-119
N-NITRO-DI-N-PROPYLAMINE	100	<10	90	90	26-128
1,2,4 TRICHLOROBENZENE	100	<10	80	80	44-142
4-CHLORO-3-METHYLPHENOL	150	<10	136	91	30-128
ACENAPHTHENE	100	<10	86	86	47-145
4-NITROPHENOL	150	<50	118	79	1-132
2,4-DINITROTOLUENE	100	<10	84	84	39-138
PENTACHLOROPHENOL	150	<50	144	96	15-157
PYRENE	100	<10	104	104	52-115
Surrogates:					
NITROBENZENE-D5				80	35-114
2-FLUOROBIPHENYL				81	43-116
TERPHENYL-D14				98	33-124
PHENOL-D6				86	10-100
2-FLUOROPHENOL				88	21-100
2,4,6-TRIBROMOPHENOL				103	10-123

Comments:

Notes:
N/S = NOT SUBMITTED N/A = NOT APPLICABLE D = DILUTED OUT
UG/L = PARTS PER BILLION. < = LESS THAN REPORTING LIMIT.
* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS.
SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"QC Report"

Title: Water Matrix Spike/Matrix Spike Duplicate
Batch: ALW077
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.

Dry Weight %: N/A
Sample Spiked: 806306-3

MS Date Analyzed: 30-JUN-98
MSD Date Analyzed: 30-JUN-98

MS Date Extracted: 26-JUN-98
MSD Date Extracted: 26-JUN-98

Parameters:	Spike Added	Sample Conc	MS Conc	MS %Rec	MSD Conc	MSD %Rec	RPD	RPD Lmts	Rec Lmts
PHENOL	300	<10	304	101	296	99	2	38	5-112
2-CHLOROPHENOL	300	<10	308	103	312	104	1	25	38-120
1,4-DICHLOROBENZENE	200	<10	140	70	176	88	23	27	39-112
N-NITRO-DI-N-PROPYLAMINE	200	<10	188	94	204	102	8	30	32-125
1,2,4 TRICHLOROBENZENE	200	<10	144	72	172	86	18	30	44-118
4-CHLORO-3-METHYLPHENOL	300	<10	320	107	264	88	19	23	42-131
ACENAPHTHENE	200	<10	188	94	208	104	10	21	47-131
4-NITROPHENOL	300	<50	288	96	316	105	9	36	1-116
2,4-DINITROTOLUENE	200	<10	196	98	212	106	8	22	39-138
PENTACHLOROPHENOL	300	<50	340	113	380	127	12	36	14-164
PYRENE	200	<10	228	114	228	114	0	21	52-115
Surrogates:									
NITROBENZENE-D5				73		88			35-114
2-FLUOROBIPHENYL				75		84			43-116
TERPHENYL-D14				102		96			33-124
PHENOL-D6				91		84			10-100
2-FLUOROPHENOL				94		87			21-100
2,4,6-TRIBROMOPHENOL				111		108			10-123

Comments:

Notes:
N/S = NOT SUBMITTED N/A = NOT APPLICABLE D = DILUTED OUT
UG/L = PARTS PER BILLION. < = LESS THAN REPORTING LIMIT.
* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS.
SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

Common notation for Organic reporting

N/S = NOT SUBMITTED
N/A = NOT APPLICABLE
UG/L = PARTS PER BILLION.
UG/KG = PARTS PER BILLION.
MG/KG = PARTS PER MILLION.
MG/L = PARTS PER MILLION.
MG/M3 = MILLIGRAMS PER CUBIC METER.
NG = NANOGRAMS.
UG = MICROGRAMS.
PPBV = PARTS PER BILLION/VOLUME.
< = LESS THAN.
ND = NOT DETECTED ABOVE REPORT LIMIT.
RPT LMTS = REPORTING LIMITS BASED ON METHOD DETECTION LIMIT STUDIES.
RPD = RELATIVE PERCENT DIFFERENCE (OR DEVIATION)

SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

ORGANIC SOILS ARE REPORTED ON A DRY WEIGHT BASIS.

DUE TO THE NATURE OF THE SAMPLE MATRIX, MATRIX SPIKE/MATRIX SPIKE DUPLICATE ANALYSIS CANNOT BE PERFORMED FOR AIR ANALYSIS.

CLP SOW 1991, USEPA CONTRACT LABORATORY PROGRAM, STATEMENT OF WORK FOR ORGANICS ANALYSIS, DOCUMENT NUMBER OLM01.8, AUGUST 1991.

AEN-PN USES THE MOST CURRENT PROMULGATED METHODS CONTAINED IN THE REFERENCE MANUALS.

LP = LEVERNE PETERSON	RW = RITA WINGO
LD = LARRY DILMORE	BDH = BRUCE D. HUNT
DWB = DAVID BOWERS	HB = HEATHER E. BLAIR

American Environmental Network of Florida
PROJECT SAMPLE INSPECTION FORM

Lab Accession #: 8016294 Date Received: 23-Jun-98

1.	Was there a Chain of Custody?	(Yes)	No*		8.	Were samples checked for preservative? *(Check pH of all H_2O requiring preservative (AEN-PN SOP 917) except VOA vials that require zero headspace)+*	(Yes)	No*	N/A
2.	Was Chain of Custody properly filled out and relinquished?	(Yes)	No*		9.	Is there sufficient volume for analysis requested?	(Yes)	No*	
3.	Were samples received cold? (Criteria: 2° - 6°C: AEN-SOP 1055)	(Yes)	No*	N/A	10.	Were samples received within Holding Time? (REFER TO AEN-SOP 1040)	(Yes)	No*	
4.	Were all samples properly labeled and identified?	(Yes)	No*		11.	Is Headspace visible > ¼" in diameter in VOA vials?* If any headspace is evident, comment in out-of-control	Yes*	No	(N/A)
5.	Did samples require splitting? Req By: PM Client Other*	Yes*	(No)		12.	If sent, were matrix spike bottles returned?	Yes	No*	(N/A)
6.	Were samples received in proper containers for analysis requested?	(Yes)	No*		13.	Was Project Manager notified of problems? (initials:_____)	Yes	No*	(N/A)
7.	Were all sample containers received intact?	(Yes)	No*						

Airbill Number(s): 806603416451 **Shipped By:** Fedx

Cooler Number(s): AEN 2561, 6301, 3311, ~~Blue + White~~ ex 4/23 **Shipping Charges:** N/A

Cooler Weight(s): _____ **Cooler Temp(s) (°C):** 4.0°c, 3.0°c, 4.0°c CCK7
(LIST THERMOMETER NUMBER(S) FOR VERIFICATION)

Out of Control Events and Inspection Comments:

temp blank not submitted, temp. taken of Ambient Air. LC 6/23/98

(USE BACK OF PSIF FOR ADDITIONAL NOTES AND COMMENTS)

Inspected By: L. Kitt **Date** 23-Jun-98 **Logged By:** L. Kitt **Date:** 23-Jun-98

♣ *Note all Out-of-Control and/or questionable events on Comment Section of this form.*

♦ *Note who requested the splitting of samples on the Comment Section of this form.*

\+ *All preservatives for the State of North Carolina, the State of New York, and other requested samples are to be recorded on the sheet provided to record pH results (AEN-SOP 938, section 2.2.9).*

* *According to EPA, ¼" of headspace is allowed in 40 ml vials requiring volatile analysis, however, AEN makes it policy to record any headspace as out-of-control (AEN-SOP 938, section 2.2.12).*

American Environmental Network (NM), Inc.

CHAIN OF CUSTODY

DATE: _____ PAGE: 1 OF 1

AEN (NM) ACCESSION #: 180694

SHADED AREAS ARE FOR LAB USE ONLY.

PLEASE FILL THIS FORM IN COMPLETELY.

PROJECT MANAGER:	Paul Peacock
COMPANY:	Marathon Oil Company
ADDRESS:	P.O. Box 552
	Midland, TX 79702-0552
PHONE:	(915) 687-8312
FAX:	(915) 687-8305
BILL TO:	same as above
COMPANY:	
ADDRESS:	

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	Petroleum Hydrocarbons (418.1) TRPH	(MOD.8015) Diesel/Direct Inject	(M8015) Gas/Purge & Trap	8021 (BTEX)/8015 (Gasoline)	8021 (BTEX) ☐ MTBE ☐ TMB ☐ PCE	8021 (TCL)	8021 (EDX)	8021 (HALO)	8021 (CUST)	504.1 EDB ☐ / DBCP ☐	CYANIDE, AMMONIA, TKN	8260 (TCL) Volatile Organics	8260 (Full) Volatile Organics	8260 (CUST) Volatile Organics	8260 (Landfill) Volatile Organics	Pesticides /PCB (608/8081)	Herbicides (615/8151)	Base/Neutral/Acid Compounds GC/MS (625/8270)	Polynuclear Aromatics (610/8310)	General Chemistry:	TOTAL METALS *	SEE LIST *	Priority Pollutant Metals (13)	Target Analyte List Metals (23)	RCRA Metals (8)	RCRA Metals by TCLP (Method 1311)	Metals SEE LIST *	NUMBER OF CONTAINERS
MW-49	6-21-98	1000	H2O												X					X	X	X	X	X	X	X				X	X	9
MW-46	↓	1130	↓												X					X	X	X	X	X	X	X				X	X	9
MW-13	↓	1400	↓												X					X	X	X	X	X	X	X				X	X	9

PROJECT INFORMATION	
PROJ. NO.:	104332.03
PROJ. NAME:	IBRP
P.O. NO.:	
SHIPPED VIA:	

SAMPLE RECEIPT	
NO. CONTAINERS:	
CUSTODY SEALS:	Y / N / NA
RECEIVED INTACT:	Y / N
BLUE ICE/ICE:	Y / N

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

(RUSH) ☐ 24hr ☐ 48hr ☐ 72hr ☐ 1 WEEK (NORMAL) ☒

CERTIFICATION REQUIRED: ☐ NM ☐ SDWA ☐ OTHER

METHANOL PRESERVATION ☐

COMMENTS: FIXED FEE ☐

* SEE LIST

RELINQUISHED BY: 1	RELINQUISHED BY: 2
Signature:	Signature:
Time: 1745	Time: 1800
Printed Name: Charles Madewell	Printed Name: Chris Faith
Date: 6-21-98	Date: 6/21
Company: FDGTI	Company: AEN

RECEIVED BY: 1	RECEIVED BY (LAB): 2
Signature:	Signature:
Time: 1745	Time: 0857
Printed Name: Chris Faith	Printed Name: Brenda Adkins
Date: 6/21	Date: 6/23/98
Company: AEN	American Environmental Network (NM), Inc.

P8064152 21.6

American Environmental Network (NM), Inc.

CHAIN OF CUSTODY

DATE: _____ PAGE: 1 OF 1

AEN (NM) ACCESSION #: NM 8064152

PLEASE FILL THIS FORM IN COMPLETELY.

*SHADED AREAS ARE FOR LAB USE ONLY.

PROJECT MANAGER: Paul Peacock

COMPANY: Marathon Oil Company
ADDRESS: P.O. Box 552
Midland, TX 79702-0552
PHONE: (915) 687-8312
FAX: (915) 687-8305

BILL TO: same as above
COMPANY:
ADDRESS:

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	Petroleum Hydrocarbons (418.1) TRPH	(MOD.8015) Diesel/Direct Inject	(M8015) Gas/Purge & Trap	8021 (BTEX)/8015 (Gasoline)	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)	Herbicides (615/8151)	Base/Neutral/Acid Compounds GC/MS (625/8270)	Polynuclear Aromatics (610/8310)	General Chemistry:			Priority Pollutant Metals (13)	Target Analyte List Metals (23)	RCRA Metals (8)	RCRA Metals by TCLP (Method 1311)	Metals:		# OF CONTAINERS
MW-49	6-21-98	1000	H2O	01									X	X		X															6
MW-46	"	1130	"	02									X	X		X															6
MW-39	"	1230	"	03									X	X		X															6
MW-13	↓	1400	↓	04									X	X		X															6

PROJECT INFORMATION

PROJ. NO.: 104332.03
PROJ. NAME: IBRP
P.O. NO.:
SHIPPED VIA:

SAMPLE RECEIPT

NO. CONTAINERS	24
CUSTODY SEALS	(Y) N / NA
RECEIVED INTACT	Yes
BLUE ICE/ICE	2°C & 4°C

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

(RUSH) [ ] 24hr [ ] 48hr [ ] 72hr ☐ 1 WEEK (NORMAL) X

CERTIFICATION REQUIRED: ☐ NM ☐ SDWA ☐ OTHER

METHANOL PRESERVATION ☐

COMMENTS: FIXED FEE ☐

RELINQUISHED BY:
Signature: _____ Time: 1745
Printed Name: Charles Madewell Date: 6-21-98
Company: FOGI

RECEIVED BY:
Signature: _____ Time: 1745
Printed Name: CHRIS FAHM Date: 6/21
Company: AEN

RELINQUISHED BY:
Signature: _____ Time: 1800
Printed Name: CHRIS FAHM Date: 6/21
Company: AEN

RECEIVED BY: (LAB) Note 2:
Signature: _____ Time: 10
Printed Name: _____ Date: 6/22/98
American Environmental Network (NM), Inc.

AEN Inc.: American Environmental Network (NM), Inc. • 2709-D Pan American Freeway, NE • Albuquerque, New Mexico 87107 • (505) 344-3777 • Fax (505) 344-4413

DISTRIBUTION: White - AEN, Canary - Originator

Francine Trujillo 6/22/98

American Environmental Network (NM), Inc.

CHAIN OF CUSTODY

DATE: 7/1/98 PAGE: 1 OF 1

AEN (NM) Accession #: 30641

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 79702
PHONE:	915-687-8312
FAX:	915-687-8305
BILL TO:	
COMPANY:	SAME
ADDRESS:	

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	Petroleum Hydrocarbons (418.1) TRPH	(MOD.8015) Diesel/Direct Inject	(M8015) Gas/Purge & Trap	8021 (BTEX)/8015 (Gasoline)	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)	Herbicides (615/8151)	Base/Neutral/Acid Compounds GC/MS (625/8270)	Polynuclear Aromatics (610/8310)	General Chemistry:			Priority Pollutant Metals (13)	Target Analyte List Metals (23)	RCRA Metals (8)	RCRA Metals by TCLP (Method 1311)	Metals:		NUMBER OF CONTAINERS
MW-46	6-1-98	0715	H2O	01									X	X		X																6
MW-49		0740		02									X	X		X																6
MW-39		0810		03									X	X		X																6
MW-13		0830		04									X	X		X																6
Trip Blank	6/30	1530	AQ	05												X																1

PROJECT INFORMATION	
PROJ. NO.:	10433.03
PROJ. NAME:	BGP
P.O. NO.:	
SHIPPED VIA:	

SAMPLE RECEIPT	
NO. CONTAINERS	25
CUSTODY SEALS	(Y) N / NA
RECEIVED INTACT	YES
BLUE ICE/ICE	10°C

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

(RUSH) ☐ 24hr ☐ 48hr ☐ 72hr ☐ 1 WEEK (NORMAL) X

CERTIFICATION REQUIRED: ☐ NM ☐ SDWA ☐ OTHER

METHANOL PRESERVATION ☐

COMMENTS: FIXED FEE ☐

On Ice

RELINQUISHED BY: 1.	RELINQUISHED BY: 2.
Signature:	Signature: Kevin Cook
Time: 1030	Time: 1615
Printed Name: Charles Maxwell	Printed Name: Kevin Cook
Date: 7-1-98	Date: 7/1/98
Company: PDGI	Company: PDGI

RECEIVED BY: 1.	RECEIVED BY: (LAB) 2.
Signature: Kevin Cook	Signature: Time: 1625
Time: 1630	Printed Name: Date: 7/1/98
Printed Name: Kevin Cook	Company: American Environmental Network (NM) Inc.
Date: 7/1/98	
Company: PDGI	

RECEIVED

AEN I.D. 806419

July 24, 1998

MARATHON OIL COMPANY
P.O. BOX 552
MIDLAND, TX 79702-0552

Project Name IBRP
Project Number 104332.03

Attention: PAUL PEACOCK

On 6/24/98 American Environmental Network (NM), Inc. (ADHS License No. AZ0015), 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 methods 504.1, 8021 and 8260 were performed by American Environmental Network (NM) Inc., Albuquerque, NM.

Uranium was performed by North Creek Analytical, Portland, OR.

Radiochemistry was performed by STL, Morrisville, NC.

All other parameters were performed by STL, Pensacola, FL.

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	: MARATHON OIL COMPANY	AEN I.D.	: 806419
PROJECT #	: 104332.03	DATE RECEIVED	: 6/24/98
PROJECT NAME	: IBRP	REPORT DATE	: 7/24/98

AEN ID. #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	MW-44	AQUEOUS	6/22/98
02	MW-43	AQUEOUS	6/22/98
03	MW-14	AQUEOUS	6/22/98
04	TRIP BLANK	AQUEOUS	6/11/98

GAS CHROMOTOGRAPHY RESULTS

TEST : ETHYLENE DIBROMIDE (EPA 504.1)
CLIENT : MARATHON OIL COMPANY AEN I.D.: 806419
PROJECT # : 104332.03
PROJECT NAME : IBRP

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
01	MW-44	AQUEOUS	6/22/98	6/24/98	6/24/98	1
02	MW-43	AQUEOUS	6/22/98	6/24/98	6/24/98	1
03	MW-14	AQUEOUS	6/22/98	6/24/98	6/24/98	1

PARAMETER	DET. LIMIT	UNITS	01	02	03
ETHYLENE DIBROMIDE	0.01	UG/L	< 0.01	< 0.01	< 0.01
SURROGATE:					
1,4-DICHLOROBENZENE			78	79	69 *
SURROGATE LIMITS	(75 - 141)				

CHEMIST NOTES:
* - LOW SURROGATE RECOVERY DUE TO MATRIX EFFECT.

GAS CHROMOTOGRAPHY RESULTS
REAGENT BLANK

TEST	: ETHYLENE DIBROMIDE (EPA 504.1)		
BLANK I.D.	: 062498	AEN I.D.	: 806419
CLIENT	: MARATHON OIL COMPANY	MATRIX	: AQUEOUS
PROJECT #	: 104332.03	DATE EXTRACTED	: 6/24/98
PROJECT NAME	: IBRP	DATE ANALYZED	: 6/24/98

PARAMETER	DET. LIMIT	UNITS	
ETHYLENE DIBROMIDE	0.01	UG/L	<0.01
SURROGATE:			
1,4-DICHLOROBENZENE			87
SURROGATE LIMITS	(78 - 140)		

CHEMIST NOTES:
N/A

GAS CHROMOTOGRAPHY RESULTS
REAGENT BLANK

TEST	: ETHYLENE DIBROMIDE (EPA 504.1)		
BLANK I.D.	: 070198	AEN I.D.	: 806419
CLIENT	: MARATHON OIL COMPANY	MATRIX	: AQUEOUS
PROJECT #	: 104332.03	DATE EXTRACTED	: 7/1/98
PROJECT NAME	: IBRP	DATE ANALYZED	: 7/1/98

PARAMETER	DET. LIMIT	UNITS	
ETHYLENE DIBROMIDE	0.01	UG/L	<0.01
SURROGATE:			
1,4-DICHLOROBENZENE			82
SURROGATE LIMITS	(78 - 140)		

CHEMIST NOTES:
N/A

GAS CHROMOTOGRAPHY RESULTS
QUALITY CONTROL
MSMSD

TEST	: ETHYLENE DIBROMIDE (EPA 504.1)		
MSMSD #	: 070198	AEN I.D.	: 806419
CLIENT	: MARATHON OIL COMPANY	DATE EXTRACTED	: 7/1/98
PROJECT #	: 104332.03	DATE ANALYZED	: 7/1/98
PROJECT NAME	: IBRP	MATRIX	: AQUEOUS
		UNITS	: UG/L

PARAMETER	SAMPLE RESULT	CONC. SPIKE	SPIKED SAMPLE	% REC	DUP SPIKE	DUP % REC	% RPD
ETHYLENE DIBROMIDE	<0.01	0.25	0.29	116%	0.24	96%	19%

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 CHROMOTOGRAPHY RESULTS

TEST : PURGEABLE HALOCARBONS / AROMATICS (EPA 8021)
CLIENT : MARATHON OIL COMPANY AEN I.D.: 806419
PROJECT # : 104332.03
PROJECT NAME : IBRP

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
01	MW-44	AQUEOUS	6/22/98	NA	6/25/98	5
02	MW-43	AQUEOUS	6/22/98	NA	6/25/98	1
03	MW-14	AQUEOUS	6/22/98	NA	6/25/98	10

PARAMETER	DET. LIMIT	UNITS	01	02	03
TETRACHLOROETHENE	0.5	UG/L	< 2.5	< 0.5	< 5.0
VINYL CHLORIDE	0.5	UG/L	< 2.5	< 0.5	< 5.0
SURROGATE:					
BROMOCHLOROMETHANE (%)			101	102	108
SURROGATE LIMITS	(73 - 117)				

CHEMIST NOTES:
N/A

GAS CHROMOTOGRAPHY RESULTS
REAGENT BLANK

TEST	: PURGEABLE HALOCARBONS / AROMATICS (EPA 8021)		
BLANK I.D.	: 062598	AEN I.D.	: 806419
CLIENT	: MARATHON OIL COMPANY	DATE EXTRACTED	: N/A
PROJECT #	: 104332.03	DATE ANALYZED	: 6/25/98
PROJECT NAME	: IBRP	SAMPLE MATRIX	: AQUEOUS

PARAMETER	UNITS	
CHLOROBENZENE	UG/L	<0.5
1,1-DICHLOROETHENE	UG/L	<0.2
TETRACHLOROETHENE	UG/L	<0.5
TRICHLOROETHENE	UG/L	<0.3
VINYL CHLORIDE	UG/L	<0.5

SURROGATE:
BROMOCHLOROMETHANE (%) 107
SURROGATE LIMITS (73 - 117)

CHEMIST NOTES:
N/A

GAS CHROMOTOGRAPHY QUALITY CONTROL
MSMSD

TEST	: PURGEABLE HALOCARBONS / AROMATICS (EPA 8021)		
MSMSD #	: 806375-08	AEN I.D.	: 806419
CLIENT	: MARATHON OIL COMPANY	DATE EXTRACTED	: N/A
PROJECT #	: 104332.03	DATE ANALYZED	: 6/25/98
PROJECT NAME	: IBRP	SAMPLE MATRIX	: AQUEOUS
		UNITS	: UG/L

PARAMETER	SAMPLE RESULT	CONC SPIKE	SPIKED SAMPLE	% REC	DUP SPIKE	DUP % REC	RPD	REC LIMITS	RPD LIMITS
1,1-DICHLOROETHENE	<0.2	10.0	8.8	88	9.4	94	7	(44 - 99)	20
TRICHLOROETHENE	<0.3	10.0	10.0	100	10.8	108	8	(89 - 127)	20
CHLOROBENZENE	<0.5	10.0	9.6	96	10.6	106	10	(87 - 124)	20

CHEMIST NOTES:
N/A

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

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

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806419
PROJECT #	: 104332.03	DATE RECEIVED :	6/24/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806419-01	MW-44	AQUEOUS	6/22/98	N/A	06/25/98	5

PARAMETER	DET. LIMIT		UNITS
Dichlorodifluoromethane	1.0	< 5.0	ug/L
Chloromethane	1.0	< 5.0	ug/L
Vinyl Chloride	1.0	< 5.0	ug/L
Bromomethane	1.0	< 5.0	ug/L
Chloroethane	1.0	< 5.0	ug/L
Trichlorofluoromethane	1.0	< 5.0	ug/L
Acetone	10	< 50	ug/L
Acrolein	5.0	< 25	ug/L
1,1-Dichloroethene	1.0	< 5.0	ug/L
Iodomethane	1.0	< 5.0	ug/L
Methylene Chloride	1.0	< 5.0	ug/L
Acrylonitrile	5.0	< 25	ug/L
cis-1,2-Dichloroethene	1.0	< 5.0	ug/L
Methyl-t-butyl Ether	1.0	< 5.0	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 5.0	ug/L
1,1-Dichloroethane	1.0	< 5.0	ug/L
trans-1,2-Dichloroethene	1.0	< 5.0	ug/L
2-Butanone	10	< 50	ug/L
Carbon Disulfide	1.0	< 5.0	ug/L
Bromochloromethane	1.0	< 5.0	ug/L
Chloroform	1.0	< 5.0	ug/L
2,2-Dichloropropane	1.0	< 5.0	ug/L
1,2-Dichloroethane	1.0	< 5.0	ug/L
Vinyl Acetate	1.0	< 5.0	ug/L
1,1,1-Trichloroethane	1.0	< 5.0	ug/L
1,1-Dichloropropene	1.0	< 5.0	ug/L
Carbon Tetrachloride	1.0	< 5.0	ug/L
Benzene	1.0	**440**	ug/L
1,2-Dichloropropane	1.0	< 5.0	ug/L
Trichloroethene	1.0	< 5.0	ug/L
Bromodichloromethane	1.0	< 5.0	ug/L
2-Chloroethyl Vinyl Ether	10	< 50	ug/L
cis-1,3-Dichloropropene	1.0	< 5.0	ug/L
trans-1,3-Dichloropropene	1.0	< 5.0	ug/L
1,1,2-Trichloroethane	1.0	< 5.0	ug/L
1,3-Dichloropropane	1.0	< 5.0	ug/L
Dibromomethane	1.0	< 5.0	ug/L
Toluene	1.0	< 5.0	ug/L
1,2-Dibromoethane	1.0	< 5.0	ug/L
4-Methyl-2-Pentanone	10	< 50	ug/L
2-Hexanone	10	< 50	ug/L
Dibromochloromethane	1.0	< 5.0	ug/L
Tetrachloroethene	1.0	< 5.0	ug/L
Chlorobenzene	1.0	< 5.0	ug/L
Ethylbenzene	1.0	**9.2**	ug/L
1,1,1,2-Tetrachloroethane	1.0	< 5.0	ug/L
m&p Xylenes	1.0	< 5.0	ug/L

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806419
PROJECT #	: 104332.03	DATE RECEIVED :	6/24/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806419-01	MW-44	AQUEOUS	6/22/98	N/A	06/25/98	5

PARAMETER	DET. LIMIT		UNITS
o-Xylene	1.0	< 5.0	ug/L
Styrene	1.0	< 5.0	ug/L
Bromoform	1.0	< 5.0	ug/L
1,1,2,2-Tetrachloroethane	1.0	< 5.0	ug/L
1,2,3-Trichloropropane	1.0	< 5.0	ug/L
Isopropyl Benzene	1.0	**49**	**ug/L**
Bromobenzene	1.0	< 5.0	ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 5.0	ug/L
n-Propylbenzene	1.0	**21**	**ug/L**
2-Chlorotoluene	1.0	< 5.0	ug/L
4-Chlorotoluene	1.0	< 5.0	ug/L
1,3,5-Trimethylbenzene	1.0	< 5.0	ug/L
tert-Butylbenzene	1.0	< 5.0	ug/L
1,2,4-Trimethylbenzene	1.0	< 5.0	ug/L
sec-Butylbenzene	1.0	**7.4**	**ug/L**
1,3-Dichlorobenzene	1.0	< 5.0	ug/L
1,4-Dichlorobenzene	1.0	< 5.0	ug/L
p-Isopropyltoluene	1.0	< 5.0	ug/L
1,2-Dichlorobenzene	1.0	< 5.0	ug/L
n-Butylbenzene	1.0	< 5.0	ug/L
1,2-Dibromomo-3-chloropropane	1.0	< 5.0	ug/L
1,2,4-Trichlorobenzene	1.0	< 5.0	ug/L
Naphthalene	1.0	< 5.0	ug/L
Hexachlorobutadiene	1.0	< 5.0	ug/L
1,2,3-Trichlorobenzene	1.0	< 5.0	ug/L

SURROGATE % RECOVERY	
1,2-Dichloroethane-d4	105 (80 - 120)
Toluene-d8	101 (88 - 110)
Bromofluorobenzene	103 (86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806419
PROJECT #	: 104332.03	DATE RECEIVED :	6/24/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806419-02	MW-43	AQUEOUS	6/22/98	N/A	06/24/98	1

PARAMETER	DET. LIMIT		UNITS
Dichlorodifluoromethane	1.0	< 1.0	ug/L
Chloromethane	1.0	< 1.0	ug/L
Vinyl Chloride	1.0	< 1.0	ug/L
Bromomethane	1.0	< 1.0	ug/L
Chloroethane	1.0	< 1.0	ug/L
Trichlorofluoromethane	1.0	< 1.0	ug/L
Acetone	10	**15**	**ug/L**
Acrolein	5.0	< 5.0	ug/L
1,1-Dichloroethene	1.0	< 1.0	ug/L
Iodomethane	1.0	< 1.0	ug/L
Methylene Chloride	1.0	< 1.0	ug/L
Acrylonitrile	5.0	< 5.0	ug/L
cis-1,2-Dichloroethene	1.0	< 1.0	ug/L
Methyl-t-butyl Ether	1.0	< 1.0	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 1.0	ug/L
1,1-Dichloroethane	1.0	< 1.0	ug/L
trans-1,2-Dichloroethene	1.0	< 1.0	ug/L
2-Butanone	10	< 10	ug/L
Carbon Disulfide	1.0	< 1.0	ug/L
Bromochloromethane	1.0	< 1.0	ug/L
Chloroform	1.0	< 1.0	ug/L
2,2-Dichloropropane	1.0	< 1.0	ug/L
1,2-Dichloroethane	1.0	< 1.0	ug/L
Vinyl Acetate	1.0	< 1.0	ug/L
1,1,1-Trichloroethane	1.0	< 1.0	ug/L
1,1-Dichloropropene	1.0	< 1.0	ug/L
Carbon Tetrachloride	1.0	< 1.0	ug/L
Benzene	1.0	**7.3**	**ug/L**
1,2-Dichloropropane	1.0	< 1.0	ug/L
Trichloroethene	1.0	< 1.0	ug/L
Bromodichloromethane	1.0	< 1.0	ug/L
2-Chloroethyl Vinyl Ether	10	< 10	ug/L
cis-1,3-Dichloropropene	1.0	< 1.0	ug/L
trans-1,3-Dichloropropene	1.0	< 1.0	ug/L
1,1,2-Trichloroethane	1.0	< 1.0	ug/L
1,3-Dichloropropane	1.0	< 1.0	ug/L
Dibromomethane	1.0	< 1.0	ug/L
Toluene	1.0	< 1.0	ug/L
1,2-Dibromoethane	1.0	< 1.0	ug/L
4-Methyl-2-Pentanone	10	< 10	ug/L
2-Hexanone	10	< 10	ug/L
Dibromochloromethane	1.0	< 1.0	ug/L
Tetrachloroethene	1.0	< 1.0	ug/L
Chlorobenzene	1.0	< 1.0	ug/L
Ethylbenzene	1.0	< 1.0	ug/L
1,1,1,2-Tetrachloroethane	1.0	< 1.0	ug/L
m&p Xylenes	1.0	< 1.0	ug/L

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806419
PROJECT #	: 104332.03	DATE RECEIVED :	6/24/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806419-02	MW-43	AQUEOUS	6/22/98	N/A	06/24/98	1

PARAMETER	DET. LIMIT		UNITS
o-Xylene	1.0	< 1.0	ug/L
Styrene	1.0	< 1.0	ug/L
Bromoform	1.0	< 1.0	ug/L
1,1,2,2-Tetrachloroethane	1.0	< 1.0	ug/L
1,2,3-Trichloropropane	1.0	< 1.0	ug/L
Isopropyl Benzene	1.0	**11**	**ug/L**
Bromobenzene	1.0	< 1.0	ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 1.0	ug/L
n-Propylbenzene	1.0	**6.6**	**ug/L**
2-Chlorotoluene	1.0	< 1.0	ug/L
4-Chlorotoluene	1.0	< 1.0	ug/L
1,3,5-Trimethylbenzene	1.0	< 1.0	ug/L
tert-Butylbenzene	1.0	**1.2**	**ug/L**
1,2,4-Trimethylbenzene	1.0	< 1.0	ug/L
sec-Butylbenzene	1.0	**2.6**	**ug/L**
1,3-Dichlorobenzene	1.0	< 1.0	ug/L
1,4-Dichlorobenzene	1.0	< 1.0	ug/L
p-Isopropyltoluene	1.0	< 1.0	ug/L
1,2-Dichlorobenzene	1.0	< 1.0	ug/L
n-Butylbenzene	1.0	< 1.0	ug/L
1,2-Dibromomo-3-chloropropane	1.0	< 1.0	ug/L
1,2,4-Trichlorobenzene	1.0	< 1.0	ug/L
Naphthalene	1.0	< 1.0	ug/L
Hexachlorobutadiene	1.0	< 1.0	ug/L
1,2,3-Trichlorobenzene	1.0	< 1.0	ug/L

SURROGATE % RECOVERY	
1,2-Dichloroethane-d4	104 (80 - 120)
Toluene-d8	100 (88 - 110)
Bromofluorobenzene	97 (86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806419
PROJECT #	: 104332.03	DATE RECEIVED :	6/24/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806419-03	MW-14	AQUEOUS	6/22/98	N/A	06/25/98	10

PARAMETER	DET. LIMIT		UNITS
Dichlorodifluoromethane	1.0	< 10	ug/L
Chloromethane	1.0	< 10	ug/L
Vinyl Chloride	1.0	< 10	ug/L
Bromomethane	1.0	< 10	ug/L
Chloroethane	1.0	< 10	ug/L
Trichlorofluoromethane	1.0	< 10	ug/L
Acetone	10	< 100	ug/L
Acrolein	5.0	< 50	ug/L
1,1-Dichloroethene	1.0	< 10	ug/L
Iodomethane	1.0	< 10	ug/L
Methylene Chloride	1.0	< 10	ug/L
Acrylonitrile	5.0	< 50	ug/L
cis-1,2-Dichloroethene	1.0	< 10	ug/L
Methyl-t-butyl Ether	1.0	< 10	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 10	ug/L
1,1-Dichloroethane	1.0	< 10	ug/L
trans-1,2-Dichloroethene	1.0	< 10	ug/L
2-Butanone	10	< 100	ug/L
Carbon Disulfide	1.0	< 10	ug/L
Bromochloromethane	1.0	< 10	ug/L
Chloroform	1.0	< 10	ug/L
2,2-Dichloropropane	1.0	< 10	ug/L
1,2-Dichloroethane	1.0	< 10	ug/L
Vinyl Acetate	1.0	< 10	ug/L
1,1,1-Trichloroethane	1.0	< 10	ug/L
1,1-Dichloropropene	1.0	< 10	ug/L
Carbon Tetrachloride	1.0	< 10	ug/L
Benzene	1.0	**820**	**ug/L**
1,2-Dichloropropane	1.0	< 10	ug/L
Trichloroethene	1.0	< 10	ug/L
Bromodichloromethane	1.0	< 10	ug/L
2-Chloroethyl Vinyl Ether	10	< 100	ug/L
cis-1,3-Dichloropropene	1.0	< 10	ug/L
trans-1,3-Dichloropropene	1.0	< 10	ug/L
1,1,2-Trichloroethane	1.0	< 10	ug/L
1,3-Dichloropropane	1.0	< 10	ug/L
Dibromomethane	1.0	< 10	ug/L
Toluene	1.0	< 10	ug/L
1,2-Dibromoethane	1.0	< 10	ug/L
4-Methyl-2-Pentanone	10	< 100	ug/L
2-Hexanone	10	< 100	ug/L
Dibromochloromethane	1.0	< 10	ug/L
Tetrachloroethene	1.0	< 10	ug/L
Chlorobenzene	1.0	< 10	ug/L
Ethylbenzene	1.0	**840**	**ug/L**
1,1,1,2-Tetrachloroethane	1.0	< 10	ug/L
m&p Xylenes	1.0	< 10	ug/L

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806419
PROJECT #	: 104332.03	DATE RECEIVED :	6/24/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806419-03	MW-14	AQUEOUS	6/22/98	N/A	06/25/98	10

PARAMETER	DET. LIMIT		UNITS
o-Xylene	1.0	< 10	ug/L
Styrene	1.0	< 10	ug/L
Bromoform	1.0	< 10	ug/L
1,1,2,2-Tetrachloroethane	1.0	< 10	ug/L
1,2,3-Trichloropropane	1.0	< 10	ug/L
Isopropyl Benzene	1.0	**100**	**ug/L**
Bromobenzene	1.0	< 10	ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 10	ug/L
n-Propylbenzene	1.0	**110**	**ug/L**
2-Chlorotoluene	1.0	< 10	ug/L
4-Chlorotoluene	1.0	< 10	ug/L
1,3,5-Trimethylbenzene	1.0	< 10	ug/L
tert-Butylbenzene	1.0	< 10	ug/L
1,2,4-Trimethylbenzene	1.0	< 10	ug/L
sec-Butylbenzene	1.0	**15**	**ug/L**
1,3-Dichlorobenzene	1.0	< 10	ug/L
1,4-Dichlorobenzene	1.0	< 10	ug/L
p-Isopropyltoluene	1.0	< 10	ug/L
1,2-Dichlorobenzene	1.0	< 10	ug/L
n-Butylbenzene	1.0	**10**	**ug/L**
1,2-Dibromomo-3-chloropropane	1.0	< 10	ug/L
1,2,4-Trichlorobenzene	1.0	< 10	ug/L
Naphthalene	1.0	**22**	**ug/L**
Hexachlorobutadiene	1.0	< 10	ug/L
1,2,3-Trichlorobenzene	1.0	< 10	ug/L

SURROGATE % RECOVERY	
1,2-Dichloroethane-d4	106 (80 - 120)
Toluene-d8	105 (88 - 110)
Bromofluorobenzene	108 (86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806419
PROJECT #	: 104332.03	DATE RECEIVED :	6/24/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806419-04	Trip Blank	AQUEOUS	6/11/98	N/A	06/24/98	1

PARAMETER	DET. LIMIT		UNITS
Dichlorodifluoromethane	1.0	< 1.0	ug/L
Chloromethane	1.0	< 1.0	ug/L
Vinyl Chloride	1.0	< 1.0	ug/L
Bromomethane	1.0	< 1.0	ug/L
Chloroethane	1.0	< 1.0	ug/L
Trichlorofluoromethane	1.0	< 1.0	ug/L
Acetone	10	< 10	ug/L
Acrolein	5.0	< 5.0	ug/L
1,1-Dichloroethene	1.0	< 1.0	ug/L
Iodomethane	1.0	< 1.0	ug/L
Methylene Chloride	1.0	< 1.0	ug/L
Acrylonitrile	5.0	< 5.0	ug/L
cis-1,2-Dichloroethene	1.0	< 1.0	ug/L
Methyl-t-butyl Ether	1.0	< 1.0	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 1.0	ug/L
1,1-Dichloroethane	1.0	< 1.0	ug/L
trans-1,2-Dichloroethene	1.0	< 1.0	ug/L
2-Butanone	10	< 10	ug/L
Carbon Disulfide	1.0	< 1.0	ug/L
Bromochloromethane	1.0	< 1.0	ug/L
Chloroform	1.0	< 1.0	ug/L
2,2-Dichloropropane	1.0	< 1.0	ug/L
1,2-Dichloroethane	1.0	< 1.0	ug/L
Vinyl Acetate	1.0	< 1.0	ug/L
1,1,1-Trichloroethane	1.0	< 1.0	ug/L
1,1-Dichloropropene	1.0	< 1.0	ug/L
Carbon Tetrachloride	1.0	< 1.0	ug/L
Benzene	1.0	< 1.0	ug/L
1,2-Dichloropropane	1.0	< 1.0	ug/L
Trichloroethene	1.0	< 1.0	ug/L
Bromodichloromethane	1.0	< 1.0	ug/L
2-Chloroethyl Vinyl Ether	10	< 10	ug/L
cis-1,3-Dichloropropene	1.0	< 1.0	ug/L
trans-1,3-Dichloropropene	1.0	< 1.0	ug/L
1,1,2-Trichloroethane	1.0	< 1.0	ug/L
1,3-Dichloropropane	1.0	< 1.0	ug/L
Dibromomethane	1.0	< 1.0	ug/L
Toluene	1.0	< 1.0	ug/L
1,2-Dibromoethane	1.0	< 1.0	ug/L
4-Methyl-2-Pentanone	10	< 10	ug/L
2-Hexanone	10	< 10	ug/L
Dibromochloromethane	1.0	< 1.0	ug/L
Tetrachloroethene	1.0	< 1.0	ug/L
Chlorobenzene	1.0	< 1.0	ug/L
Ethylbenzene	1.0	< 1.0	ug/L
1,1,1,2-Tetrachloroethane	1.0	< 1.0	ug/L
m&p Xylenes	1.0	< 1.0	ug/L

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806419
PROJECT #	: 104332.03	DATE RECEIVED :	6/24/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806419-04	Trip Blank	AQUEOUS	6/11/98	N/A	06/24/98	1

PARAMETER	DET. LIMIT		UNITS
o-Xylene	1.0	< 1.0	ug/L
Styrene	1.0	< 1.0	ug/L
Bromoform	1.0	< 1.0	ug/L
1,1,2,2-Tetrachloroethane	1.0	< 1.0	ug/L
1,2,3-Trichloropropane	1.0	< 1.0	ug/L
Isopropyl Benzene	1.0	< 1.0	ug/L
Bromobenzene	1.0	< 1.0	ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 1.0	ug/L
n-Propylbenzene	1.0	< 1.0	ug/L
2-Chlorotoluene	1.0	< 1.0	ug/L
4-Chlorotoluene	1.0	< 1.0	ug/L
1,3,5-Trimethylbenzene	1.0	< 1.0	ug/L
tert-Butylbenzene	1.0	< 1.0	ug/L
1,2,4-Trimethylbenzene	1.0	< 1.0	ug/L
sec-Butylbenzene	1.0	< 1.0	ug/L
1,3-Dichlorobenzene	1.0	< 1.0	ug/L
1,4-Dichlorobenzene	1.0	< 1.0	ug/L
p-Isopropyltoluene	1.0	< 1.0	ug/L
1,2-Dichlorobenzene	1.0	< 1.0	ug/L
n-Butylbenzene	1.0	< 1.0	ug/L
1,2-Dibromomo-3-chloropropane	1.0	< 1.0	ug/L
1,2,4-Trichlorobenzene	1.0	< 1.0	ug/L
Naphthalene	1.0	< 1.0	ug/L
Hexachlorobutadiene	1.0	< 1.0	ug/L
1,2,3-Trichlorobenzene	1.0	< 1.0	ug/L

SURROGATE % RECOVERY	
1,2-Dichloroethane-d4	105
	(80 - 120)
Toluene-d8	98
	(88 - 110)
Bromofluorobenzene	97
	(86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806419
PROJECT #	: 104332.03		
PROJECT NAME	: IBRP		

SAMPLE ID #	BATCH	MATRIX	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
REAGENT BLANK	061898	AQUEOUS	N/A	06/18/98	1

PARAMETER	DET. LIMIT		UNITS
Dichlorodifluoromethane	1.0	< 1.0	ug/L
Chloromethane	1.0	< 1.0	ug/L
Vinyl Chloride	1.0	< 1.0	ug/L
Bromomethane	1.0	< 1.0	ug/L
Chloroethane	1.0	< 1.0	ug/L
Trichlorofluoromethane	1.0	< 1.0	ug/L
Acetone	10	< 10	ug/L
Acrolein	5.0	< 5.0	ug/L
1,1-Dichloroethene	1.0	< 1.0	ug/L
Iodomethane	1.0	< 1.0	ug/L
Methylene Chloride	1.0	< 1.0	ug/L
Acrylonitrile	5.0	< 5.0	ug/L
cis-1,2-Dichloroethene	1.0	< 1.0	ug/L
Methyl-t-butyl Ether	1.0	< 1.0	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 1.0	ug/L
1,1-Dichloroethane	1.0	< 1.0	ug/L
trans-1,2-Dichloroethene	1.0	< 1.0	ug/L
2-Butanone	10	< 10	ug/L
Carbon Disulfide	1.0	< 1.0	ug/L
Bromochloromethane	1.0	< 1.0	ug/L
Chloroform	1.0	< 1.0	ug/L
2,2-Dichloropropane	1.0	< 1.0	ug/L
1,2-Dichloroethane	1.0	< 1.0	ug/L
Vinyl Acetate	1.0	< 1.0	ug/L
1,1,1-Trichloroethane	1.0	< 1.0	ug/L
1,1-Dichloropropene	1.0	< 1.0	ug/L
Carbon Tetrachloride	1.0	< 1.0	ug/L
Benzene	1.0	< 1.0	ug/L
1,2-Dichloropropane	1.0	< 1.0	ug/L
Trichloroethene	1.0	< 1.0	ug/L
Bromodichloromethane	1.0	< 1.0	ug/L
2-Chloroethyl Vinyl Ether	10	< 10	ug/L
cis-1,3-Dichloropropene	1.0	< 1.0	ug/L
trans-1,3-Dichloropropene	1.0	< 1.0	ug/L
1,1,2-Trichloroethane	1.0	< 1.0	ug/L
1,3-Dichloropropane	1.0	< 1.0	ug/L
Dibromomethane	1.0	< 1.0	ug/L
Toluene	1.0	< 1.0	ug/L
1,2-Dibromoethane	1.0	< 1.0	ug/L
4-Methyl-2-Pentanone	10	< 10	ug/L
2-Hexanone	10	< 10	ug/L
Dibromochloromethane	1.0	< 1.0	ug/L
Tetrachloroethene	1.0	< 1.0	ug/L
Chlorobenzene	1.0	< 1.0	ug/L
Ethylbenzene	1.0	< 1.0	ug/L
1,1,1,2-Tetrachloroethane	1.0	< 1.0	ug/L

GC/MS RESULTS

TEST : VOLATILE ORGANICS EPA METHOD 8260
CLIENT : MARATHON OIL COMPANY AEN I.D. : 806419
PROJECT # : 104332.03
PROJECT NAME : IBRP

SAMPLE ID #	BATCH	MATRIX	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
REAGENT BLANK	061898	AQUEOUS	N/A	06/18/98	1

PARAMETER	DET. LIMIT		UNITS
m&p Xylenes	1.0	< 1.0	ug/L
o-Xylene	1.0	< 1.0	ug/L
Styrene	1.0	< 1.0	ug/L
Bromoform	1.0	< 1.0	ug/L
1,1,2,2-Tetrachloroethane	1.0	< 1.0	ug/L
1,2,3-Trichloropropane	1.0	< 1.0	ug/L
Isopropyl Benzene	1.0	< 1.0	ug/L
Bromobenzene	1.0	< 1.0	ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 1.0	ug/L
n-Propylbenzene	1.0	< 1.0	ug/L
2-Chlorotoluene	1.0	< 1.0	ug/L
4-Chlorotoluene	1.0	< 1.0	ug/L
1,3,5-Trimethylbenzene	1.0	< 1.0	ug/L
tert-Butylbenzene	1.0	< 1.0	ug/L
1,2,4-Trimethylbenzene	1.0	< 1.0	ug/L
sec-Butylbenzene	1.0	< 1.0	ug/L
1,3-Dichlorobenzene	1.0	< 1.0	ug/L
1,4-Dichlorobenzene	1.0	< 1.0	ug/L
p-Isopropyltoluene	1.0	< 1.0	ug/L
1,2-Dichlorobenzene	1.0	< 1.0	ug/L
n-Butylbenzene	1.0	< 1.0	ug/L
1,2-Dibromomo-3-chloropropane	1.0	< 1.0	ug/L
1,2,4-Trichlorobenzene	1.0	< 1.0	ug/L
Naphthalene	1.0	< 1.0	ug/L
Hexachlorobutadiene	1.0	< 1.0	ug/L
1,2,3-Trichlorobenzene	1.0	< 1.0	ug/L

SURROGATE % RECOVERY	
1,2-Dichloroethane-d4	101 (80 - 120)
Toluene-d8	99 (88 - 110)
Bromofluorobenzene	101 (86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806419
PROJECT #	: 104332.03		
PROJECT NAME	: IBRP		

SAMPLE ID #	BATCH	MATRIX	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
REAGENT BLANK	062498	AQUEOUS	N/A	06/24/98	1

PARAMETER	DET. LIMIT		UNITS
Dichlorodifluoromethane	1.0	< 1.0	ug/L
Chloromethane	1.0	< 1.0	ug/L
Vinyl Chloride	1.0	< 1.0	ug/L
Bromomethane	1.0	< 1.0	ug/L
Chloroethane	1.0	< 1.0	ug/L
Trichlorofluoromethane	1.0	< 1.0	ug/L
Acetone	10	< 10	ug/L
Acrolein	5.0	< 5.0	ug/L
1,1-Dichloroethene	1.0	< 1.0	ug/L
Iodomethane	1.0	< 1.0	ug/L
Methylene Chloride	1.0	< 1.0	ug/L
Acrylonitrile	5.0	< 5.0	ug/L
cis-1,2-Dichloroethene	1.0	< 1.0	ug/L
Methyl-t-butyl Ether	1.0	< 1.0	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 1.0	ug/L
1,1-Dichloroethane	1.0	< 1.0	ug/L
trans-1,2-Dichloroethene	1.0	< 1.0	ug/L
2-Butanone	10	< 10	ug/L
Carbon Disulfide	1.0	< 1.0	ug/L
Bromochloromethane	1.0	< 1.0	ug/L
Chloroform	1.0	< 1.0	ug/L
2,2-Dichloropropane	1.0	< 1.0	ug/L
1,2-Dichloroethane	1.0	< 1.0	ug/L
Vinyl Acetate	1.0	< 1.0	ug/L
1,1,1-Trichloroethane	1.0	< 1.0	ug/L
1,1-Dichloropropene	1.0	< 1.0	ug/L
Carbon Tetrachloride	1.0	< 1.0	ug/L
Benzene	1.0	< 1.0	ug/L
1,2-Dichloropropane	1.0	< 1.0	ug/L
Trichloroethene	1.0	< 1.0	ug/L
Bromodichloromethane	1.0	< 1.0	ug/L
2-Chloroethyl Vinyl Ether	10	< 10	ug/L
cis-1,3-Dichloropropene	1.0	< 1.0	ug/L
trans-1,3-Dichloropropene	1.0	< 1.0	ug/L
1,1,2-Trichloroethane	1.0	< 1.0	ug/L
1,3-Dichloropropane	1.0	< 1.0	ug/L
Dibromomethane	1.0	< 1.0	ug/L
Toluene	1.0	< 1.0	ug/L
1,2-Dibromoethane	1.0	< 1.0	ug/L
4-Methyl-2-Pentanone	10	< 10	ug/L
2-Hexanone	10	< 10	ug/L
Dibromochloromethane	1.0	< 1.0	ug/L
Tetrachloroethene	1.0	< 1.0	ug/L
Chlorobenzene	1.0	< 1.0	ug/L
Ethylbenzene	1.0	< 1.0	ug/L
1,1,1,2-Tetrachloroethane	1.0	< 1.0	ug/L

GC/MS RESULTS

TEST : VOLATILE ORGANICS EPA METHOD 8260
CLIENT : MARATHON OIL COMPANY AEN I.D. : 806419
PROJECT # : 104332.03
PROJECT NAME : IBRP

SAMPLE ID #	BATCH	MATRIX	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
REAGENT BLANK	062498	AQUEOUS	N/A	06/24/98	1

PARAMETER	DET. LIMIT		UNITS
m&p Xylenes	1.0	< 1.0	ug/L
o-Xylene	1.0	< 1.0	ug/L
Styrene	1.0	< 1.0	ug/L
Bromoform	1.0	< 1.0	ug/L
1,1,2,2-Tetrachloroethane	1.0	< 1.0	ug/L
1,2,3-Trichloropropane	1.0	< 1.0	ug/L
Isopropyl Benzene	1.0	< 1.0	ug/L
Bromobenzene	1.0	< 1.0	ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 1.0	ug/L
n-Propylbenzene	1.0	< 1.0	ug/L
2-Chlorotoluene	1.0	< 1.0	ug/L
4-Chlorotoluene	1.0	< 1.0	ug/L
1,3,5-Trimethylbenzene	1.0	< 1.0	ug/L
tert-Butylbenzene	1.0	< 1.0	ug/L
1,2,4-Trimethylbenzene	1.0	< 1.0	ug/L
sec-Butylbenzene	1.0	< 1.0	ug/L
1,3-Dichlorobenzene	1.0	< 1.0	ug/L
1,4-Dichlorobenzene	1.0	< 1.0	ug/L
p-Isopropyltoluene	1.0	< 1.0	ug/L
1,2-Dichlorobenzene	1.0	< 1.0	ug/L
n-Butylbenzene	1.0	< 1.0	ug/L
1,2-Dibromomo-3-chloropropane	1.0	< 1.0	ug/L
1,2,4-Trichlorobenzene	1.0	< 1.0	ug/L
Naphthalene	1.0	< 1.0	ug/L
Hexachlorobutadiene	1.0	< 1.0	ug/L
1,2,3-Trichlorobenzene	1.0	< 1.0	ug/L

SURROGATE % RECOVERY	
1,2-Dichloroethane-d4	105
	(80 - 120)
Toluene-d8	102
	(88 - 110)
Bromofluorobenzene	103
	(86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806419
PROJECT #	: 104332.03		
PROJECT NAME	: IBRP		

SAMPLE ID #	BATCH	MATRIX	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
REAGENT BLANK	062598	AQUEOUS	N/A	06/25/98	1

PARAMETER	DET. LIMIT		UNITS
Dichlorodifluoromethane	1.0	< 1.0	ug/L
Chloromethane	1.0	< 1.0	ug/L
Vinyl Chloride	1.0	< 1.0	ug/L
Bromomethane	1.0	< 1.0	ug/L
Chloroethane	1.0	< 1.0	ug/L
Trichlorofluoromethane	1.0	< 1.0	ug/L
Acetone	10	< 10	ug/L
Acrolein	5.0	< 5.0	ug/L
1,1-Dichloroethene	1.0	< 1.0	ug/L
Iodomethane	1.0	< 1.0	ug/L
Methylene Chloride	1.0	< 1.0	ug/L
Acrylonitrile	5.0	< 5.0	ug/L
cis-1,2-Dichloroethene	1.0	< 1.0	ug/L
Methyl-t-butyl Ether	1.0	< 1.0	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 1.0	ug/L
1,1-Dichloroethane	1.0	< 1.0	ug/L
trans-1,2-Dichloroethene	1.0	< 1.0	ug/L
2-Butanone	10	< 10	ug/L
Carbon Disulfide	1.0	< 1.0	ug/L
Bromochloromethane	1.0	< 1.0	ug/L
Chloroform	1.0	< 1.0	ug/L
2,2-Dichloropropane	1.0	< 1.0	ug/L
1,2-Dichloroethane	1.0	< 1.0	ug/L
Vinyl Acetate	1.0	< 1.0	ug/L
1,1,1-Trichloroethane	1.0	< 1.0	ug/L
1,1-Dichloropropene	1.0	< 1.0	ug/L
Carbon Tetrachloride	1.0	< 1.0	ug/L
Benzene	1.0	< 1.0	ug/L
1,2-Dichloropropane	1.0	< 1.0	ug/L
Trichloroethene	1.0	< 1.0	ug/L
Bromodichloromethane	1.0	< 1.0	ug/L
2-Chloroethyl Vinyl Ether	10	< 10	ug/L
cis-1,3-Dichloropropene	1.0	< 1.0	ug/L
trans-1,3-Dichloropropene	1.0	< 1.0	ug/L
1,1,2-Trichloroethane	1.0	< 1.0	ug/L
1,3-Dichloropropane	1.0	< 1.0	ug/L
Dibromomethane	1.0	< 1.0	ug/L
Toluene	1.0	< 1.0	ug/L
1,2-Dibromoethane	1.0	< 1.0	ug/L
4-Methyl-2-Pentanone	10	< 10	ug/L
2-Hexanone	10	< 10	ug/L
Dibromochloromethane	1.0	< 1.0	ug/L
Tetrachloroethene	1.0	< 1.0	ug/L
Chlorobenzene	1.0	< 1.0	ug/L
Ethylbenzene	1.0	< 1.0	ug/L
1,1,1,2-Tetrachloroethane	1.0	< 1.0	ug/L

GC/MS RESULTS

TEST : VOLATILE ORGANICS EPA METHOD 8260
CLIENT : MARATHON OIL COMPANY AEN I.D. : 806419
PROJECT # : 104332.03
PROJECT NAME : IBRP

SAMPLE ID #	BATCH	MATRIX	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
REAGENT BLANK	062598	AQUEOUS	N/A	06/25/98	1

PARAMETER	DET. LIMIT		UNITS
m&p Xylenes	1.0	< 1.0	ug/L
o-Xylene	1.0	< 1.0	ug/L
Styrene	1.0	< 1.0	ug/L
Bromoform	1.0	< 1.0	ug/L
1,1,2,2-Tetrachloroethane	1.0	< 1.0	ug/L
1,2,3-Trichloropropane	1.0	< 1.0	ug/L
Isopropyl Benzene	1.0	< 1.0	ug/L
Bromobenzene	1.0	< 1.0	ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 1.0	ug/L
n-Propylbenzene	1.0	< 1.0	ug/L
2-Chlorotoluene	1.0	< 1.0	ug/L
4-Chlorotoluene	1.0	< 1.0	ug/L
1,3,5-Trimethylbenzene	1.0	< 1.0	ug/L
tert-Butylbenzene	1.0	< 1.0	ug/L
1,2,4-Trimethylbenzene	1.0	< 1.0	ug/L
sec-Butylbenzene	1.0	< 1.0	ug/L
1,3-Dichlorobenzene	1.0	< 1.0	ug/L
1,4-Dichlorobenzene	1.0	< 1.0	ug/L
p-Isopropyltoluene	1.0	< 1.0	ug/L
1,2-Dichlorobenzene	1.0	< 1.0	ug/L
n-Butylbenzene	1.0	< 1.0	ug/L
1,2-Dibromomo-3-chloropropane	1.0	< 1.0	ug/L
1,2,4-Trichlorobenzene	1.0	< 1.0	ug/L
Naphthalene	1.0	< 1.0	ug/L
Hexachlorobutadiene	1.0	< 1.0	ug/L
1,2,3-Trichlorobenzene	1.0	< 1.0	ug/L

SURROGATE % RECOVERY		
1,2-Dichloroethane-d4	105	(80 - 120)
Toluene-d8	98	(88 - 110)
Bromofluorobenzene	98	(86 - 115)

Spike Recovery and RPD Summary Report - WATER

Method : C:\HPCHEM\1\METHODS\82600310.M (RTE Integrator)
Title : AEN New Mexico GC/MS
Last Update : Tue May 12 14:39:09 1998
Response via : Initial Calibration

Non-Spiked Sample: 06189804.D

	Spike Sample	Spike Duplicate Sample
File ID :	061898S1.D	061898S2.D
Sample :	806410-03 MS	806410-03 MSD
Acq Time:	18 Jun 98 3:26 pm	18 Jun 98 4:06 pm

Compound	Sample Conc	Spike Added	Spike Res	Dup Res	Spike %Rec	Dup %Rec	RPD	QC Limits RPD	QC Limits % Rec
1,1-Dichloroethene	0.0	50	46	49	92	99	7	14	61-145
Benzene	0.0	50	50	53	100	107	7	11	76-127
Trichloroethene	0.0	50	47	50	95	100	5	14	71-120
Toluene	0.0	50	49	53	97	105	8	13	76-125
Chlorobenzene	0.0	50	48	51	95	102	7	13	75-130

- Fails Limit Check

82600310.M Mon Jun 22 08:58:28 1998

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ▪ (425) 420-9200 ▪ FAX 420-9210
SPOKANE ▪ (509) 924-9200 ▪ FAX 924-9290
PORTLAND ▪ (503) 906-9200 ▪ FAX 906-9210

American Environmental Network	Project:	Marathon Oil	Sampled: 6/22/98
2709-D Pan American Freeway,NE	Project Number:	104332.03	Received: 6/26/98
Albuquerque, NM 87107	Project Manager:	Kimberly McNeill	Reported: 7/21/98 17:17

ANALYTICAL REPORT FOR SAMPLES:

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
MW-44	P806530-01	Water	6/22/98
MW-43	P806530-02	Water	6/22/98
MW-14	P806530-03	Water	6/22/98

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ▪ (425) 420-9200 ▪ FAX 420-9210
SPOKANE ▪ (509) 924-9200 ▪ FAX 924-9290
PORTLAND ▪ (503) 906-9200 ▪ FAX 906-9210

American Environmental Network	Project:	Marathon Oil	Sampled: 6/22/98
2709-D Pan American Freeway,NE	Project Number:	104332.03	Received: 6/26/98
Albuquerque, NM 87107	Project Manager:	Kimberly McNeill	Reported: 7/21/98 17:17

Total Metals per EPA 6000/7000 Series Methods
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
MW-44			**P806530-01**				**Water**	
Uranium	0780333	7/14/98	7/20/98	EPA 6020	0.00100	ND	mg/l	
MW-43			**P806530-02**				**Water**	
Uranium	0780333	7/14/98	7/20/98	EPA 6020	0.00100	**0.0108**	mg/l	
MW-14			**P806530-03**				**Water**	
Uranium	0780333	7/14/98	7/20/98	EPA 6020	0.00100	ND	mg/l	

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ▪ (425) 420-9200 ▪ FAX 420-9210
SPOKANE ▪ (509) 924-9200 ▪ FAX 924-9290
PORTLAND ▪ (503) 906-9200 ▪ FAX 906-9210

American Environmental Network	Project:	Marathon Oil	Sampled: 6/22/98
2709-D Pan American Freeway,NE	Project Number:	104332.03	Received: 6/26/98
Albuquerque, NM 87107	Project Manager:	Kimberly McNeill	Reported: 7/21/98 17:17

Total Metals per EPA 6000/7000 Series Methods/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0780333	**Date Prepared: 7/14/98**					**Extraction Method: EPA 200/3005**				
Blank	**0780333-BLK1**									
Uranium	7/20/98			**ND**	mg/l	**0.00100**				
LCS	**0780333-BS1**									
Uranium	7/20/98	0.100		0.0703	mg/l	75.0-125	70.3			1
Duplicate	**0780333-DUP1**		**P806111-01**							
Uranium	7/20/98		0.0259	0.0246	mg/l			20.0	**5.15**	
Matrix Spike	**0780333-MS1**		**P806111-01**							
Uranium	7/20/98	0.100	0.0259	0.0982	mg/l	70.0-130	**72.3**			
Matrix Spike	**0780333-MS2**		**P806528-04**							
Uranium	7/20/98	0.100	0.00100	0.0641	mg/l	70.0-130	**63.1**			1

North Creek Analytical, Inc.

**Refer to end of report for text of notes and definitions.*

Lisa Domenighini, Project Manager

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ▪ (425) 420-9200 ▪ FAX 420-9210
SPOKANE ▪ (509) 924-9200 ▪ FAX 924-9290
PORTLAND ▪ (503) 906-9200 ▪ FAX 906-9210

American Environmental Network	Project:	Marathon Oil	Sampled: 6/22/98
2709-D Pan American Freeway,NE	Project Number:	104332.03	Received: 6/26/98
Albuquerque, NM 87107	Project Manager:	Kimberly McNeill	Reported: 7/21/98 17:17

Notes and Definitions

#	Note
1	The spike recovery for this QC sample is outside of established control limits. Review of associated batch QC indicates the recovery for this analyte does not represent an out-of-control condition for the batch.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
Recov.	Recovery
RPD	Relative Percent Difference

P806530

American Environmental Network (NM), Inc. CHAIN OF CUSTODY

DATE: _____ PAGE: ___ OF ___

AEN (NM) Accession #: OC - 806419

SHADED AREAS ARE FOR LAB USE ONLY.

PLEASE FILL THIS FORM IN COMPLETELY.

PROJECT MANAGER: Paul Peacock

COMPANY: Marathon Oil Company
ADDRESS: P.O. Box 552
Midland, TX 79702-0552
PHONE: (915) 687-8312
FAX: (915) 687-8305

BILL TO: same as above
COMPANY:
ADDRESS:

SAMPLE ID	DATE	TIME	MATRIX	LAB ID
MW-44	6-22-98	1040	H2O	
MW-43	↓	1140	↓	
MW-14	↓	1300	↓	

ANALYSIS REQUEST

Petroleum Hydrocarbons (418.1) TRPH	(MOD.8015) Diesel/Direct Inject	(M8015) Gas/Purge & Trap	8021 (BTEX)/8015 (Gasoline)	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)	Herbicides (615/8151)	Base/Neutral/Acid Compounds GC/MS (625/8270)	Polynuclear Aromatics (610/8310)	General Chemistry:	4 - ICPMS	Priority Pollutant Metals (13)	Target Analyte List Metals (23)	RCRA Metals (8)	RCRA Metals by TCLP (Method 1311)	Metals:	# OF CONTAINERS
																		X	X						1
																		X	X						1
																		X	X						1

PROJECT INFORMATION

PROJ. NO.: 104332.03
PROJ. NAME: IBRP
P.O. NO.:
SHIPPED VIA:

SAMPLE RECEIPT

NO. CONTAINERS	
CUSTODY SEALS	Y/N/NA
RECEIVED INTACT	
BLUE ICE/ICE	

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

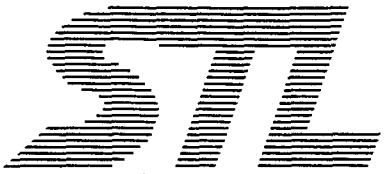
(RUSH) [ ] 24hr [ ] 48hr [ ] 72hr [ ] 1 WEEK (NORMAL) X

CERTIFICATION REQUIRED: ☐ NM ☐ SDWA ☐ OTHER

METHANOL PRESERVATION ☐

COMMENTS: FIXED FEE ☐
Note: MW-14 Product Well

RELINQUISHED BY: 1.	RELINQUISHED BY: 2.
Signature: Time:	Signature: Time:
Printed Name: Charles Maxwell Date: 6-22-98	Printed Name: Date:
Company: FDGTL	Company:
RECEIVED BY: 1.	**RECEIVED BY: (LAB) 2.**
Signature: Time:	Signature: Time: Sara McClung 1030
Printed Name: Date:	Printed Name: Date: Sara McClung 6-26-98
Company:	American Environmental Network (NM), Inc.



Committed To *Your* Success

Severn Trent Laboratories
120 Southcenter Court, Suite 300
Morrisville NC 27560

Tel: (919) 460-8505
Fax: (919) 469-2646

July 17, 1998

American Environmental Network
Attn: Dr. Mitch Rubenstein
2709D PanAmerican Freeway NE
Albuquerque, NM 87107

Dear Dr. Rubenstein:

Please find enclosed the radiological results of three (3) water samples. This report contains sections addressing the following information at a minimum:

- case narrative
- sample summary
- analytical results (forms I thru VII), key, and COC's if applicable

STL Project #:	2399015
STL Work Order #:	98-06-403
Client Project ID:	104382.02

Copies of this radiological report and supporting data are maintained in our files for a minimum of three years unless special arrangements have been made. Except where specifically indicated, all radiological testing was performed at this laboratory location and no portion of the testing was subcontracted.

We appreciate your selection of our services and welcome any questions or suggestions you may have relative to this report. Please contact your customer service representative at (919) 460-8505 for any additional information. Thank you for utilizing our services. We hope you will consider us for your future analytical needs.

I have reviewed and approved the enclosed data for final release.

Sincerely,

Ross W. Williams

Ross W. Williams, Ph.D.
Manager, Radiological Laboratory
STL-North Carolina

RWW/mevl

STL
Committed To Your Success

CASE NARRATIVE

Client: American Environmental Network - NM
Client Project ID: 104332.03
STL-NC Order Number: 98-06-408
STL-NC Project Number: 2399-015

Three (3) water samples were received on June 25, 1998, in good condition with the chain-of-custody intact.

The samples were analyzed for Ra-226 and Ra-228.

A method blank was analyzed with each batch, and the activities of the blanks were equal to or less than the acceptance criteria of less than three times the MDL.

A blank spike sample was analyzed with each batch, and the recoveries were within the 80-120% acceptance criteria.

A matrix spike analysis was made with each batch also. The matrix spike recoveries were within the acceptance criteria of 80-120% for water samples.

A duplicate sample was analyzed for each batch. The duplicate analyses were within our acceptance criteria of a Duplicate Error Ratio (DER) of less than 1.5. The DER is defined as follows:

$$DER = \frac{|S-D|}{(2\sigma_s + 2\sigma_d)}$$

Where: S = Original Sample Value
D = Duplicate Value
$2\sigma_s$ = Original Sample Uncertainty
$2\sigma_d$ = Duplicate Sample Uncertainty

Ross W. Williams

Ross W. Williams, Ph.D.
Manager, Radiological Laboratory
7/21/98

Environmental Survey

Cover Page

Radiological Data Analysis Package

07/17/98

120 Southcenter Ct., Suite 300
Morrisville, NC 27560

Phone (919) 460-8505
Fax (919) 469-2646

NC - 806419

Project Number: 2399-015

Client Sample ID	Lab ID
MW-44	9806408-01
MW-43	9806408-02
MW-14	9806408-03

Comments: _____

Release of the data contained in this package has been authorized by the laboratory manager or the manager's designee, as verified by the following signature.

Ross W. Williams
Manager, Radiological Laboratory

7/21/98
Date

Radiological Analysis Results

NC - 806419

07/17/98

Form I

Client Sample ID	Lab ID	Sample Type	Batch Number	Matrix	Radionuclide	Result	Uncertainty	Q	Units	Analysis Date	Sample Size	MDA
MW-44	9806408-01	Reg	98070006	Water	Ra-226	0.63	0.14		pCi/L	07/15/98	0.5000	0.08
MW-44	9806408-01	Reg	98060063	Water	Ra-228	1.20	1.08		pCi/L	07/08/98	1.0000	2.40
MW-43	9806408-02	Reg	98070006	Water	Ra-226	2.36	0.41		pCi/L	07/15/98	0.5000	0.23
MW-43	9806408-02	Reg	98060063	Water	Ra-228	3.54	1.50		pCi/L	07/08/98	1.0000	3.02
MW-14	9806408-03	Reg	98070006	Water	Ra-226	0.47	0.15		pCi/L	07/15/98	0.5000	0.11
MW-14	9806408-03	Reg	98060063	Water	Ra-228	13.25	2.02		pCi/L	07/08/98	1.0000	3.09

Key shall be attached

Comments: _____

_____

_____

MDA mode

Project Number: 2399-015

QA/QC Results Summary

NC - 806419

07/17/98

Form II

Client Sample ID	Lab ID	Sample Type	Batch Number	Matrix	Radionuclide	Result	Uncertainty	Units	Analysis Date	Sample Size	MDA	Inst ID
Blank Spike	N/A	BS	98070006	Water	Ra-226	154.91	2.81	pCi/L	07/15/98	0.5000	0.22	5
Blank Spike	N/A	BS	98060063	Water	Ra-228	90.67	3.94	pCi/L	07/08/98	1.0000	2.22	1
MW-49	9806406-01	Dup	98070006	Water	Ra-226	4.31	0.31	pCi/L	07/13/98	0.5000	0.08	5
MW-13	9806406-02	Dup	98060063	Water	Ra-228	-0.27	1.13	pCi/L	07/08/98	1.0000	2.80	1
Method Blank	N/A	MB	98070006	Water	Ra-226	0.16	0.15	pCi/L	07/15/98	0.5000	0.18	5
Method Blank	N/A	MB	98060063	Water	Ra-228	-2.59	1.11	pCi/L	07/08/98	1.0000	3.11	1
MW-13	9806406-02	MS	98070006	Water	Ra-226	138.97	2.14	pCi/L	07/13/98	0.5000	0.15	5
MW-14	9806408-03	MS	98060063	Water	Ra-228	104.49	4.32	pCi/L	07/08/98	1.0000	2.78	1

Key shall be attached

Comments: _____

_____

_____

MDA mode

Method Blank Summary

NC - 806419

07/17/98

Form III

Client Sample ID	Batch Number	Matrix	Radionuclide	Result	Uncertainty	Q	Units	Analysis Date	Sample Size	Method Number	Inst ID
Method Blank	98070006	Water	Ra-226	0.16	0.15		pCi/L	07/15/98	0.5000	RAS01900	5
Method Blank	98060063	Water	Ra-228	-2.59	1.11		pCi/L	07/08/98	1.0000	RAS08500	1

Key shall be attached

Comments: _____

Project Number: 2399-015

Chemical Recovery

NC - 806419

07/17/98

Form IV

Client Sample ID	Lab ID	Sample Type	Batch Number	Radionuclide	Chemical Tracer	Tracer Result	Tracer Added	Percent Recovery	Q	Tracer Units	Analysis Date	Inst ID
MW-44	9806408-01	Reg	98070006	Ra-226	Ba-133	1209.00	1260.00	95.95 %		pCi	07/15/98	5
MW-44	9806408-01	Reg	98060063	Ra-228	Ba-133	949.30	1309.00	72.52 %		pCi	07/08/98	1
MW-43	9806408-02	Reg	98070006	Ra-226	Ba-133	1213.00	1309.00	92.67 %		pCi	07/15/98	5
MW-43	9806408-02	Reg	98060063	Ra-228	Ba-133	781.30	1260.00	62.01 %		pCi	07/08/98	1
MW-14	9806408-03	Reg	98070006	Ra-226	Ba-133	1082.00	1260.00	85.87 %		pCi	07/15/98	5
MW-14	9806408-03	Reg	98060063	Ra-228	Ba-133	885.00	1309.00	67.61 %		pCi	07/08/98	1
Blank Spike	N/A	BS	98070006	Ra-226	Ba-133	1099.00	1309.00	83.96 %		pCi	07/15/98	5
Blank Spike	N/A	BS	98060063	Ra-228	Ba-133	1011.00	1309.00	77.23 %		pCi	07/08/98	1
MW-49	9806406-01	Dup	98070006	Ra-226	Ba-133	1258.00	1260.00	99.84 %		pCi	07/13/98	5
MW-13	9806406-02	Dup	98060063	Ra-228	Ba-133	872.50	1309.00	66.65 %		pCi	07/08/98	1
Method Blank	N/A	MB	98070006	Ra-226	Ba-133	956.60	1260.00	75.92 %		pCi	07/15/98	5
Method Blank	N/A	MB	98060063	Ra-228	Ba-133	988.90	1309.00	75.55 %		pCi	07/08/98	1
MW-13	9806406-02	MS	98070006	Ra-226	Ba-133	1221.00	1309.00	93.28 %		pCi	07/13/98	5
MW-14	9806408-03	MS	98060063	Ra-228	Ba-133	954.10	1260.00	75.72 %		pCi	07/08/98	1

Key shall be attached

Comments: _____

_____

_____

MDA mode

STL

Severn Trent Laboratories

Project Number: 2399-015

Blank Spike Results Summary

NC - 806419

07/17/98

Form V

Client Sample ID	Batch Number	Matrix	Radionuclide	Spike	Result	Spike Value	Percent Recovery	Q	Units	Analysis Date	Method Number
Blank Spike	98070006	Water	Ra-226	Ra-226	154.91	145.40	106.54%		pCi/L	07/15/98	RAS01900
Blank Spike	98060063	Water	Ra-228	Ra-228	90.67	87.75	103.33%		pCi/L	07/08/98	RAS08500

Key shall be attached

Comments: _____

Matrix Spike Results Summary

NC - 806419

07/17/98

Form VI

Client Sample ID	Lab ID	Batch Number	Spike	SSR	Sample Result	Spike Added	Percent Recovery	Q	Units	Analysis Date	Inst ID
MW-13	9806406-02	98070006	Ra-226	138.97	0.87	145.40	94.98 %		pCi/L	07/13/98	5
MW-14	9806408-03	98060063	Ra-228	104.49	13.25	87.75	103.98 %		pCi/L	07/08/98	1

Key shall be attached

Comments: _____

MDA mode

Duplicate Results

NC - 806419

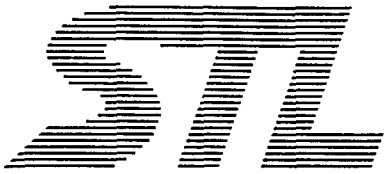
07/17/98

Form VII

Client Sample ID	Lab ID	Batch Number	Radionuclide	Sample Result	Uncertainty	Dup. Result	Dup. Uncertainty	DER	Q	Units
MW-13	9806406-02	98060063	Ra-228	1.65	1.06	-0.27	1.13	0.88		pCi/L
MW-49	9806406-01	98070006	Ra-226	3.53	0.27	4.31	0.31	1.34		pCi/L

Key shall be attached

Comments: _____



Committed To *Your* Success

REPORT FORM KEY

Severn Trent Laboratories
120 Southcenter Court, Suite 300
Morrisville NC 27560

Tel: (919) 460-8505
Fax: (919) 469-2646

Instrument ID:

#1 - Gas Proportional Counter
#2 - High Purity Germanium Detectors (HPGe)
#3 - Alpha Spectrometry Counter
#4 - Liquid Scintillation Counter
#5 - Lucas Cell Counter
#6 - Sodium Iodide Detector

Sample Type:

REG - Regular Sample
DUP - Duplicate Sample
MS - Matrix Spike
BS - Blank Spike
MB - Method Blank

Units:

pCi/L - Picocuries per Liter
pCi/g - Picocuries per Gram
pCi/ml - Picocuries per Milliliter
pCi/mg - Picocuries per Milligram
pCi/F - Picocuries per Air Filter

Radionuclides:

H-3	Tritium	C-14	Carbon-14
Cl-36	Chlorine-36	K-40	Potassium-40
Co-60	Cobalt-60	Sr-89	Strontium-89
Sr-90	Strontium-90	Tc-99	Technetium-99
Cs-137	Cesium-137	Tl-208	Thallium-208
Pb-210	Lead-210	Pb-212	Lead-212
Pb-214	Lead-214	Bi-214	Bismuth-214
Ra-226	Radium-226	Ac-228	Actinium-228
Ra-228	Radium-228	Th-234	Thorium-234
Th-227	Thorium-227	Th-232/230/228	Isotopic Thorium
U-234/235/238	Isotopic Uranium	Pu-238	Plutonium-238
Pu-239/240	Plutonium-239&240	Am-241	Americium-241
Np-237	Neptunium-237		

WORK ORDER

Lab

Work Order #	98-06-408	# of Samples	3	Recieved Date	06/25/98	American Environ. Network
Client #	2399	# of Tests	6	Load Date	06/25/98	2709D PanAmerican Freeway NE
Project	2399-015	Report Level	2	Due Date	07/13/98	Albuquerque, NM 87107
Amount	123.25	Quote #		Export Date	/ /	Mitch Rubenstein
Comment						

Lab ID	Sample #	Status	Matrix	Test	Cust ID	Collected
9806408-01	01A1	Open	Water	Ra-226	MW-44	06/22/98
9806408-01	01A2	Open	Water	Ra-228	MW-44	06/22/98
9806408-02	02A1	Open	Water	Ra-226	MW-43	06/22/98
9806408-02	02A2	Open	Water	Ra-228	MW-43	06/22/98
9806408-03	03A1	Open	Water	Ra-226	MW-14	06/22/98
9806408-03	03A2	Open	Water	Ra-228	MW-14	06/22/98

pH Checked
All Samples pH <2
Initials: EB Date: 6/25/98
Arrived unpreserved

American Environmental Network (NM), Inc.

CHAIN OF CUSTODY

DATE: _____ PAGE: ___ OF ___

AEN (NM) Accession #: *NC 98064192*

SHADED AREAS ARE FOR LAB USE ONLY.

PLEASE FILL THIS FORM IN COMPLETELY.

PROJECT MANAGER: Paul Peacock

COMPANY: Marathon Oil Company
ADDRESS: P.O. Box 552
Midland, TX 79702-0552
PHONE: (915) 687-8312
FAX: (915) 687-8305

BILL TO: same as above
COMPANY:
ADDRESS:

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	Petroleum Hydrocarbons (418.1) TRPH	(MOD.8015) Diesel/Direct Inject	(M8015) Gas/Purge & Trap	8021 (BTEX)/8015 (Gasoline)	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)	Herbicides (615/8151)	Base/Neutral/Acid Compounds GC/MS (625/8270)	Polynuclear Aromatics (610/8310)	General Chemistry: RA 22622-8	Priority Pollutant Metals (13)	Target Analyte List Metals (23)	RCRA Metals (8)	RCRA Metals by TCLP (Method 1311)	Metals:	NUMBER OF CONTAINERS
MW-44	6-22-98	1040	H2O																				X						1
MW-43	↓	1140	↓																				X						1
MW-14	↓	1300	↓																				X						1

PROJECT INFORMATION

PROJ. NO.: 104332.03
PROJ. NAME: IBRP
P.O. NO.:
SHIPPED VIA:

SAMPLE RECEIPT

NO. CONTAINERS	
CUSTODY SEALS	Y/N/NA
RECEIVED INTACT	
BLUE ICE/ICE	

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

(RUSH) ☐24hr ☐48hr ☐72hr ☐1 WEEK (NORMAL) X

CERTIFICATION REQUIRED: ☐NM ☐SDWA ☐OTHER

METHANOL PRESERVATION ☐

COMMENTS: FIXED FEE ☐
Note: MW-14 Product Well

RELINQUISHED BY: 1

Signature: Time:
Printed Name: Charles Mcdowell Date: 6-22-98
Company: FDGTI

RECEIVED BY: 1

Signature: Time:
Printed Name: Date:
Company:

RELINQUISHED BY: 2

Signature: Time:
Printed Name: Date:
Company:

RECEIVED BY: (LAB) 2

Signature: Time: 11:00
Printed Name: Date: 6/23/98
American Environmental Network, Inc.



Severn Trent Laboratories
11 East Olive Road
Pensacola FL 32514

Tel: (850) 474-1001
Fax: (850) 474-4789

SIGNATURE PAGE

Reviewed by: _____
AEN Project Manager

Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC. ALBUQUERQUE, NEW MEXICO
Project Name:	IBRP
Project Number:	806419
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Accession Number:	806300
Project Manager:	KIMBERLY D. MCNEILL
Sampled By:	N/S

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Analysis Report

Analysis: MARATHON WET CHEMISTRY INORGANICS

Accession:	806300
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806419
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	WET CHEM

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 806300
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806419
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON WET CHEMISTRY INORGANICS
QcLevel: II

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: MW-44			Lab ID: 001		
CHLORIDE (4500-CL B)	MG/L	260	10	CIW068	+
CYANIDE, TOTAL (335.2)	MG/L	ND	0.005	CNW038	
FLUORIDE (340.2/4500-F C)	MG/L	0.8	0.2	FLW027	
NITRITE, NITROGEN (354.1)	MG/L	ND	0.1	N2W091	
NITRITE-NITRATE, NITROGEN (353.2)	MG/L	ND	0.1	N3W47B	
NITRATE, NITROGEN (353.2-354.1)	MG/L	ND	0.1	NONE	
PH (150.1)	UNITS	7.2	NA	PHW132	R4
PHENOLS, TOTAL (420.1)	MG/L	0.040	0.005	PEW025	
SULFATE (375.4)	MG/L	66	20	SEW078	+
TOTAL DISSOLVED SOLIDS (160.1)	MG/L	1000	5	TDW038	
Comments:					
Client ID: MW-43			Lab ID: 002		
CHLORIDE (4500-CL B)	MG/L	210	1	CIW068	
CYANIDE, TOTAL (335.2)	MG/L	ND	0.005	CNW038	
FLUORIDE (340.2/4500-F C)	MG/L	0.8	0.2	FLW027	
NITRITE, NITROGEN (354.1)	MG/L	ND	0.1	N2W091	
NITRITE-NITRATE, NITROGEN (353.2)	MG/L	ND	0.1	N3W47B	
NITRATE, NITROGEN (353.2-354.1)	MG/L	ND	0.1	NONE	
PH (150.1)	UNITS	7.3	NA	PHW132	R4
PHENOLS, TOTAL (420.1)	MG/L	0.007	0.005	PEW025	
SULFATE (375.4)	MG/L	53	20	SEW078	+
TOTAL DISSOLVED SOLIDS (160.1)	MG/L	1500	5	TDW038	
Comments:					

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 806300
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806419
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON WET CHEMISTRY INORGANICS
QcLevel: II

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: MW-14			Lab ID: 003		
CHLORIDE (4500-CL B)	MG/L	330	1	CIW068	
CYANIDE, TOTAL (335.2)	MG/L	ND	0.005	CNW038	
FLUORIDE (340.2/4500-F C)	MG/L	0.4	0.2	FLW027	
NITRITE, NITROGEN (354.1)	MG/L	ND	0.1	N2W091	
NITRITE-NITRATE, NITROGEN (353.2)	MG/L	0.1	0.1	N3W47B	
NITRATE, NITROGEN (353.2-354.1)	MG/L	0.1	0.1	NONE	
PH (150.1)	UNITS	7.0	NA	PHW132	R4
PHENOLS, TOTAL (420.1)	MG/L	0.008	0.005	PEW025	
SULFATE (375.4)	MG/L	ND	5	SEW078	
TOTAL DISSOLVED SOLIDS (160.1)	MG/L	1400	5	TDW038	

Comments:

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 806300
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806419
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON WET CHEMISTRY INORGANICS

Client ID:	Lab Matrix: ID:	Date/Time Sampled:	Date Received:
MW-44	001 WATER	22-JUN-98 1040	23-JUN-98
MW-43	002 WATER	22-JUN-98 1040	23-JUN-98
MW-14	003 WATER	22-JUN-98 1300	23-JUN-98

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"Method Report Summary"

Accession Number: 806300
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806419
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON WET CHEMISTRY INORGANICS

Client Sample Id:	Parameter:	Unit:	Result:
MW-44	CHLORIDE (4500-CL B)	MG/L	260
	FLUORIDE (340.2/4500-F C)	MG/L	0.8
	PH (150.1)	UNITS	7.2
	PHENOLS, TOTAL (420.1)	MG/L	0.040
	SULFATE (375.4)	MG/L	66
	TOTAL DISSOLVED SOLIDS (160.1)	MG/L	1000
MW-43	CHLORIDE (4500-CL B)	MG/L	210
	FLUORIDE (340.2/4500-F C)	MG/L	0.8
	PH (150.1)	UNITS	7.3
	PHENOLS, TOTAL (420.1)	MG/L	0.007
	SULFATE (375.4)	MG/L	53
	TOTAL DISSOLVED SOLIDS (160.1)	MG/L	1500
MW-14	CHLORIDE (4500-CL B)	MG/L	330
	FLUORIDE (340.2/4500-F C)	MG/L	0.4
	NITRITE-NITRATE, NITROGEN (353.2)	MG/L	0.1
	NITRATE, NITROGEN (353.2-354.1)	MG/L	0.1
	PH (150.1)	UNITS	7.0
	PHENOLS, TOTAL (420.1)	MG/L	0.008
	TOTAL DISSOLVED SOLIDS (160.1)	MG/L	1400

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Analysis Report

Analysis: MARATHON METALS - OPTIMA

Accession:	806300
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806419
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	METALS

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"FINAL REPORT FORMAT - MULTIPLE"

Accession: 806300
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806419
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON METALS - OPTIMA
QcLevel: II

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: MW-44			Lab ID:001		
SILVER (6010A)	MG/L	ND	0.0007	AYW169	
ALUMINUM (6010A)	MG/L	ND	0.026	LYW169	
ARSENIC (6010A)	MG/L	ND	0.0018	RYW169	
BARIUM (6010A)	MG/L	0.23	0.0002	BYW169	
BORON (6010A)	MG/L	0.33	0.0057	OYW169	
CADMIUM (6010A)	MG/L	ND	0.0002	CYW169	
COBALT (6010A)	MG/L	ND	0.0003	TYW169	
CHROMIUM (6010A)	MG/L	ND	0.0008	HYW169	
COPPER (6010A)	MG/L	ND	0.0018	FYW169	
MERCURY (7470A)	MG/L	ND	0.0001	M7W082	
NICKEL (6010A)	MG/L	ND	0.0009	EYW169	
IRON (6010A)	MG/L	ND	0.013	N6W169	
LEAD (6010A)	MG/L	ND	0.0022	PYW169	
MANGANESE (6010A)	MG/L	0.043	0.0002	GYW169	
MOLYBDENUM (6010A)	MG/L	0.0007	0.0003	DYW169	
SELENIUM (6010A)	MG/L	ND	0.0023	SYW169	
ZINC (6010A)	MG/L	ND	0.014	5YW169	
Comments:					
Client ID: MW-43			Lab ID:002		
SILVER (6010A)	MG/L	ND	0.0007	AYW169	
ALUMINUM (6010A)	MG/L	ND	0.026	LYW169	
ARSENIC (6010A)	MG/L	0.0052	0.0018	RYW169	
BARIUM (6010A)	MG/L	0.28	0.0002	BYW169	
BORON (6010A)	MG/L	0.30	0.0057	OYW169	
CADMIUM (6010A)	MG/L	0.0003	0.0002	CYW169	
COBALT (6010A)	MG/L	0.0082	0.0003	TYW169	
CHROMIUM (6010A)	MG/L	ND	0.0008	HYW169	
COPPER (6010A)	MG/L	ND	0.0018	FYW169	
MERCURY (7470A)	MG/L	ND	0.0001	M7W082	
NICKEL (6010A)	MG/L	0.039	0.0009	EYW169	
IRON (6010A)	MG/L	2.6	0.013	N6W169	
LEAD (6010A)	MG/L	ND	0.0022	PYW169	
MANGANESE (6010A)	MG/L	0.20	0.0002	GYW169	
MOLYBDENUM (6010A)	MG/L	0.054	0.0003	DYW169	
SELENIUM (6010A)	MG/L	ND	0.0023	SYW169	
ZINC (6010A)	MG/L	ND	0.014	5YW169	
Comments:					

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"FINAL REPORT FORMAT - MULTIPLE"

Accession: 806300
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806419
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON METALS - OPTIMA
QcLevel: II

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: MW-14			Lab ID:003		
SILVER (6010A)	MG/L	ND	0.0007	AYW169	
ALUMINUM (6010A)	MG/L	ND	0.026	LYW169	
ARSENIC (6010A)	MG/L	0.0062	0.0018	RYW169	
BARIUM (6010A)	MG/L	0.56	0.0002	BYW169	
BORON (6010A)	MG/L	0.31	0.0057	OYW169	
CADMIUM (6010A)	MG/L	0.0005	0.0002	CYW169	
COBALT (6010A)	MG/L	ND	0.0003	TYW169	
CHROMIUM (6010A)	MG/L	0.0009	0.0008	HYW169	
COPPER (6010A)	MG/L	ND	0.0018	FYW169	
MERCURY (7470A)	MG/L	ND	0.0001	M7W082	
NICKEL (6010A)	MG/L	0.0025	0.0009	EYW169	
IRON (6010A)	MG/L	4.7	0.013	N6W169	
LEAD (6010A)	MG/L	ND	0.0022	PYW169	
MANGANESE (6010A)	MG/L	0.24	0.0002	GYW169	
MOLYBDENUM (6010A)	MG/L	0.0039	0.0003	DYW169	
SELENIUM (6010A)	MG/L	ND	0.0023	SYW169	
ZINC (6010A)	MG/L	ND	0.014	5YW169	

Comments:

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 806300
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806419
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON METALS - OPTIMA

Client Id:	Lab Id:	Matrix:	Date/Time Sampled:	Date Received:
MW-44	001	WATER	22-JUN-98 1040	23-JUN-98
MW-43	002	WATER	22-JUN-98 1040	23-JUN-98
MW-14	003	WATER	22-JUN-98 1300	23-JUN-98

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"Method Report Summary"

Accession Number: 806300
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806419
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON METALS - OPTIMA

Client Sample Id:	Parameter:	Unit:	Result:
MW-44	BARIUM (6010A)	MG/L	0.23
	BORON (6010A)	MG/L	0.33
	MANGANESE (6010A)	MG/L	0.043
	MOLYBDENUM (6010A)	MG/L	0.0007
MW-43	ARSENIC (6010A)	MG/L	0.0052
	BARIUM (6010A)	MG/L	0.28
	BORON (6010A)	MG/L	0.30
	CADMIUM (6010A)	MG/L	0.0003
	COBALT (6010A)	MG/L	0.0082
	NICKEL (6010A)	MG/L	0.039
	IRON (6010A)	MG/L	2.6
	MANGANESE (6010A)	MG/L	0.20
	MOLYBDENUM (6010A)	MG/L	0.054
MW-14	ARSENIC (6010A)	MG/L	0.0062
	BARIUM (6010A)	MG/L	0.56
	BORON (6010A)	MG/L	0.31
	CADMIUM (6010A)	MG/L	0.0005
	CHROMIUM (6010A)	MG/L	0.0009
	NICKEL (6010A)	MG/L	0.0025
	IRON (6010A)	MG/L	4.7
	MANGANESE (6010A)	MG/L	0.24
	MOLYBDENUM (6010A)	MG/L	0.0039

SEVERN TRENT LABORATORIES 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Analysis Report

Analysis: POLYNUCLEAR AROMATICS BY 8310

Accession:	806300
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806419
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	SEMI-VOLATILE FUELS

SEVERN TRENT LABORATORIES 11 East Olive Road Pensacola, Florida 32514 (850) 474-100

"FINAL REPORT FORMAT - SINGLE"

Accession:	806300
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806419
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Test:	POLYNUCLEAR AROMATICS BY 8310
Analysis Method:	8310/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method:	3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix:	WATER
QC Level:	II

Lab Id: 001
Client Sample Id: MW-44

Sample Date/Time: 22-JUN-98 1040
Received Date: 23-JUN-98

Batch: PAW142
Blank: A

Dry Weight %: N/A

Extraction Date: 24-JUN-98
Analysis Date: 26-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZO(a)PYRENE	UG/L	ND	0.1	
1-METHYLNAPHTHALENE	UG/L	2	0.3	
2-CHLOROANTHRACENE	%REC/SURR	44	28-138	
ANALYST	INITIALS	HAH		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession:	806300
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806419
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Test:	POLYNUCLEAR AROMATICS BY 8310
Analysis Method:	8310/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method:	3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix:	WATER
QC Level:	II

Lab Id:	002	Sample Date/Time:	22-JUN-98 1040
Client Sample Id:	MW-43	Received Date:	23-JUN-98
Batch: PAW142		Extraction Date:	24-JUN-98
Blank: A	Dry Weight %: N/A	Analysis Date:	26-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZO(a)PYRENE	UG/L	ND	0.1	
1-METHYLNAPHTHALENE	UG/L	ND	0.3	
2-CHLOROANTHRACENE	%REC/SURR	51	28-138	
ANALYST	INITIALS	HAH		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession:	806300
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806419
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Test:	POLYNUCLEAR AROMATICS BY 8310
Analysis Method:	8310/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method:	3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix:	WATER
QC Level:	II

Lab Id:	003		Sample Date/Time:	22-JUN-98 1300
Client Sample Id:	MW-14		Received Date:	23-JUN-98
Batch: PAW142			Extraction Date:	24-JUN-98
Blank: A	Dry Weight %:	N/A	Analysis Date:	26-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZO(a)PYRENE	UG/L	ND	0.1	
1-METHYLNAPHTHALENE	UG/L	250	0.3	E
2-CHLOROANTHRACENE	%REC/SURR	139	28-138	J1
ANALYST	INITIALS	HAH		

Comments:

"Method Report Summary"

Accession Number: 806300
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806419
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: POLYNUCLEAR AROMATICS BY 8310

Client Sample Id:	Parameter:	Unit:	Result:
MW-44	1-METHYLNAPHTHALENE	UG/L	2
MW-14	1-METHYLNAPHTHALENE	UG/L	250

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Analysis Report

Analysis: PESTICIDES (8080)

Accession:	806300
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806419
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	PESTICIDES

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"FINAL REPORT FORMAT - SINGLE"

Accession: 806300
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806419
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: PESTICIDES (8080)
Analysis Method: 8080 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Extraction Method: 3510 / 3660 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Matrix: WATER
QC Level: II

Lab Id: 001 Sample Date/Time: 22-JUN-98 1040
Client Sample Id: MW-44 Received Date: 23-JUN-98

Batch: PSW044 Extraction Date: 25-JUN-98
Blank: A Dry Weight %: N/A Analysis Date: 30-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
ALDRIN	UG/L	ND	0.02	
ALPHA-BHC	UG/L	ND	0.02	
BETA-BHC	UG/L	ND	0.02	
DELTA-BHC	UG/L	ND	0.02	
GAMMA-BHC (LINDANE)	UG/L	ND	0.02	
4,4'-DDD	UG/L	ND	0.02	
4,4'-DDE	UG/L	ND	0.02	
4,4'-DDT	UG/L	ND	0.02	
DIELDRIN	UG/L	ND	0.02	
ENDOSULFAN I	UG/L	ND	0.02	
ENDOSULFAN II	UG/L	ND	0.02	
ENDOSULFAN SULFATE	UG/L	ND	0.02	
ENDRIN	UG/L	ND	0.02	
ENDRIN ALDEHYDE	UG/L	ND	0.02	
HEPTACHLOR	UG/L	ND	0.02	
HEPTACHLOR EPOXIDE	UG/L	ND	0.02	
METHOXYCHLOR	UG/L	ND	0.02	
CHLORDANE	UG/L	ND	0.01	
TOXAPHENE	UG/L	ND	0.12	
PCB-1016	UG/L	ND	0.04	
PCB-1221	UG/L	ND	0.04	
PCB-1232	UG/L	ND	0.04	
PCB-1242	UG/L	ND	0.04	
PCB-1248	UG/L	ND	0.04	
PCB-1254	UG/L	ND	0.04	
PCB-1260	UG/L	ND	0.04	
TCMX	%REC/SURR	75	43-101	
DCB	%REC/SURR	69	17-135	
ANALYST	INITIALS	RP		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 806300
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806419
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: PESTICIDES (8080)
Analysis Method: 8080 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Extraction Method: 3510 / 3660 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Matrix: WATER
QC Level: II

Lab Id: 002 Sample Date/Time: 22-JUN-98 1040
Client Sample Id: MW-43 Received Date: 23-JUN-98

Batch: PSW044 Extraction Date: 25-JUN-98
Blank: A Dry Weight %: N/A Analysis Date: 30-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
ALDRIN	UG/L	ND	0.02	
ALPHA-BHC	UG/L	ND	0.02	
BETA-BHC	UG/L	ND	0.02	
DELTA-BHC	UG/L	ND	0.02	
GAMMA-BHC (LINDANE)	UG/L	ND	0.02	
4,4'-DDD	UG/L	ND	0.02	
4,4'-DDE	UG/L	ND	0.02	
4,4'-DDT	UG/L	ND	0.02	
DIELDRIN	UG/L	ND	0.02	
ENDOSULFAN I	UG/L	ND	0.02	
ENDOSULFAN II	UG/L	ND	0.02	
ENDOSULFAN SULFATE	UG/L	ND	0.02	
ENDRIN	UG/L	ND	0.02	
ENDRIN ALDEHYDE	UG/L	ND	0.02	
HEPTACHLOR	UG/L	ND	0.02	
HEPTACHLOR EPOXIDE	UG/L	ND	0.02	
METHOXYCHLOR	UG/L	ND	0.02	
CHLORDANE	UG/L	ND	0.01	
TOXAPHENE	UG/L	ND	0.12	
PCB-1016	UG/L	ND	0.04	
PCB-1221	UG/L	ND	0.04	
PCB-1232	UG/L	ND	0.04	
PCB-1242	UG/L	ND	0.04	
PCB-1248	UG/L	ND	0.04	
PCB-1254	UG/L	ND	0.04	
PCB-1260	UG/L	ND	0.04	
TCMX	%REC/SURR	65	43-101	
DCB	%REC/SURR	58	17-135	
ANALYST	INITIALS	RP		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 806300
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806419
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: PESTICIDES (8080)
Analysis Method: 8080 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Extraction Method: 3510 / 3660 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Matrix: WATER
QC Level: II

Lab Id: 003 Sample Date/Time: 22-JUN-98 1300
Client Sample Id: MW-14 Received Date: 23-JUN-98

Batch: PSW044 Extraction Date: 25-JUN-98
Blank: A Dry Weight %: N/A Analysis Date: 30-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
ALDRIN	UG/L	ND	0.1	
ALPHA-BHC	UG/L	ND	0.1	
BETA-BHC	UG/L	ND	0.1	
DELTA-BHC	UG/L	0.17	0.1	
GAMMA-BHC (LINDANE)	UG/L	ND	0.1	
4,4'-DDD	UG/L	ND	0.1	
4,4'-DDE	UG/L	ND	0.1	
4,4'-DDT	UG/L	ND	0.1	
DIELDRIN	UG/L	ND	0.1	
ENDOSULFAN I	UG/L	ND	0.1	
ENDOSULFAN II	UG/L	ND	0.1	
ENDOSULFAN SULFATE	UG/L	ND	0.1	
ENDRIN	UG/L	ND	0.1	
ENDRIN ALDEHYDE	UG/L	ND	0.1	
HEPTACHLOR	UG/L	ND	0.1	
HEPTACHLOR EPOXIDE	UG/L	ND	0.1	
METHOXYCHLOR	UG/L	ND	0.1	
CHLORDANE	UG/L	ND	0.05	
TOXAPHENE	UG/L	ND	0.6	
PCB-1016	UG/L	ND	0.2	
PCB-1221	UG/L	ND	0.2	
PCB-1232	UG/L	ND	0.2	
PCB-1242	UG/L	ND	0.2	
PCB-1248	UG/L	ND	0.2	
PCB-1254	UG/L	ND	0.2	
PCB-1260	UG/L	ND	0.2	
TCMX	%REC/SURR	62	43-101	
DCB	%REC/SURR	56	17-135	
ANALYST	INITIALS	RP		

Comments:

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"Method Report Summary"

Accession Number: 806300
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806419
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: PESTICIDES (8080)

Client Sample Id:	Parameter:	Unit:	Result:
MW-14	DELTA-BHC	UG/L	0.17

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Analysis Report

Analysis: ACID & BASE EXTRACTABLES (8270)

Accession:	806300
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806419
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	ORGANIC/MS

"FINAL REPORT FORMAT - SINGLE"

Accession: 806300
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806419
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: II

Lab Id: 001 Sample Date/Time: 22-JUN-98 1040
Client Sample Id: MW-44 Received Date: 23-JUN-98

Batch: ALW077 Extraction Date: 26-JUN-98
Blank: A Dry Weight %: N/A Analysis Date: 01-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZOIC ACID	UG/L	ND	1.7	
4-CHLORO-3-METHYLPHENOL	UG/L	ND	0.4	
2-CHLOROPHENOL	UG/L	ND	0.5	
2,4-DICHLOROPHENOL	UG/L	ND	3.9	
2,6-DICHLOROPHENOL	UG/L	ND	0.1	
2,4-DIMETHYLPHENOL	UG/L	ND	0.5	
4,6-DINITRO-2-METHYLPHENOL	UG/L	ND	1.6	
2,4-DINITROPHENOL	UG/L	ND	3.3	
2-METHYLPHENOL	UG/L	ND	0.3	
4-METHYLPHENOL	UG/L	ND	0.5	
2-NITROPHENOL	UG/L	ND	0.4	
4-NITROPHENOL	UG/L	ND	0.7	
PENTACHLOROPHENOL	UG/L	ND	0.7	
PHENOL	UG/L	ND	0.5	
2,3,4,6-TETRACHLOROPHENOL	UG/L	ND	0.6	
2,4,5-TRICHLOROPHENOL	UG/L	ND	3.0	
2,4,6-TRICHLOROPHENOL	UG/L	ND	0.3	
ACENAPHTHENE	UG/L	ND	0.4	
ACENAPHTHYLENE	UG/L	ND	0.4	
ACETOPHENONE	UG/L	ND	0.4	
4-AMINOBIPHENYL	UG/L	ND	0.7	
ANILINE	UG/L	ND	0.5	
ANTHRACENE	UG/L	ND	0.4	
BENZIDINE	UG/L	ND	2.7	
BENZO (A) ANTHRACENE	UG/L	ND	0.5	
BENZO (A) PYRENE	UG/L	ND	0.2	
BENZO (B) FLUORANTHENE	UG/L	ND	0.5	
BENZO (G,H,I) PERYLENE	UG/L	ND	0.3	
BENZO (K) FLUORANTHENE	UG/L	ND	0.7	
BENZYL ALCOHOL	UG/L	ND	0.5	
BIS(2-CHLOROETHOXY)METHANE	UG/L	ND	0.4	
BIS(2-CHLOROETHYL)ETHER	UG/L	ND	0.5	
BIS(2-CHLOROISOPROPYL)ETHER	UG/L	ND	1.9	
BIS(2-ETHYLHEXYL)PHTHALATE	UG/L	ND	0.6	
4-BROMOPHENYL PHENYL ETHER	UG/L	ND	0.4	
BUTYLBENZYL PHTHALATE	UG/L	ND	0.5	
4-CHLOROANILINE	UG/L	ND	0.4	
1-CHLORONAPHTHALENE	UG/L	ND	0.6	
2-CHLORONAPHTHALENE	UG/L	ND	0.4	
4-CHLOROPHENYL PHENYL ETHER	UG/L	ND	0.5	

"FINAL REPORT FORMAT - SINGLE"

Accession: 806300
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806419
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: II

Lab Id: 001 Sample Date/Time: 22-JUN-98 1040
Client Sample Id: MW-44 Received Date: 23-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
CHRYSENE	UG/L	ND	0.7	
DIBENZ(A,J)ACRIDINE	UG/L	ND	0.5	
DIBENZO (A,H) ANTHRACENE	UG/L	ND	0.3	
DIBENZOFURAN	UG/L	ND	0.4	
1,2-DICHLOROBENZENE	UG/L	ND	0.3	
1,3-DICHLOROBENZENE	UG/L	ND	0.3	
1,4-DICHLOROBENZENE	UG/L	ND	0.5	
3,3'-DICHLOROBENZIDINE	UG/L	ND	0.4	
DIETHYLPHTHALATE	UG/L	ND	0.4	
P-DIMETHYLAMINOAZOBENZENE	UG/L	ND	0.4	
7,12-DIMETHYLBENZ(A)ANTHRACENE	UG/L	ND	1.8	
A-,A-DIMETHYLPHENETHYLAMINE	UG/L	ND	0.1	
DIMETHYLPHTHALATE	UG/L	ND	0.4	
DI-N-BUTYLPHTHALATE	UG/L	ND	0.4	
2,4-DINITROTOLUENE	UG/L	ND	0.5	
2,6-DINITROTOLUENE	UG/L	ND	0.5	
DI-N-OCTYLPHTHALATE	UG/L	ND	0.7	
DIPHENYLAMINE	UG/L	ND	0.5	
1,2-DIPHENYLHYDRAZINE	UG/L	ND	0.3	
FLUORANTHENE	UG/L	ND	0.5	
FLUORENE	UG/L	ND	0.6	
HEXACHLOROBENZENE	UG/L	ND	0.5	
HEXACHLOROBUTADIENE	UG/L	ND	0.5	
HEXACHLOROCYCLOPENTADIENE	UG/L	ND	0.6	
HEXACHLOROETHANE	UG/L	ND	0.6	
INDENO (1,2,3-CD) PYRENE	UG/L	ND	0.5	
ISOPHORONE	UG/L	ND	0.4	
3-METHYLCHOLANTHRENE	UG/L	ND	0.4	
2-METHYLNAPHTHALENE	UG/L	ND	0.5	
NAPHTHALENE	UG/L	ND	0.4	
1-NAPHTHYLAMINE	UG/L	ND	1.5	
2-NAPHTHYLAMINE	UG/L	ND	1.0	
2-NITROANILINE	UG/L	ND	0.4	
3-NITROANILINE	UG/L	ND	0.9	
4-NITROANILINE	UG/L	ND	0.8	
NITROBENZENE	UG/L	ND	0.5	
N-NITROSODIMETHYLAMINE	UG/L	ND	1.2	
N-NITROSODI-N-BUTYLAMINE	UG/L	ND	1.1	
N-NITROSODIETHYLAMINE	UG/L*	ND	10	
N-NITROSODIPHENYLAMINE	UG/L	ND	0.4	
N-NITROSO-DI-N-PROPYLAMINE	UG/L	ND	0.4	
N-NITROSOPIPERIDINE	UG/L	ND	0.8	
N-NITROSOPYRROLIDINE	UG/L*	ND	10	
PENTACHLOROBENZENE	UG/L	ND	0.4	
PENTACHLORONITROBENZENE (PCNB)	UG/L	ND	5.0	

"FINAL REPORT FORMAT - SINGLE"

Accession:	806300
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806419
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Test:	ACID & BASE EXTRACTABLES (8270)
Analysis Method:	8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method:	3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix:	WATER
QC Level:	II

Lab Id: 001 Sample Date/Time: 22-JUN-98 1040
Client Sample Id: MW-44 Received Date: 23-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
PHENACETIN	UG/L	ND	0.4	
PHENANTHRENE	UG/L	ND	0.4	
2-PICOLINE	UG/L	ND	7.7	
PRONAMIDE	UG/L	ND	0.4	
PYRENE	UG/L	ND	0.5	
1,2,4,5-TETRACHLOROBENZENE	UG/L	ND	0.4	
1,2,4 TRICHLOROBENZENE	UG/L	ND	0.6	
2-FLUOROPHENOL	%REC/SURR	99	21-100	
PHENOL-D6	%REC/SURR	89	10-100	
2,4,6-TRIBROMOPHENOL	%REC/SURR	105	10-123	
2-FLUOROBIPHENYL	%REC/SURR	80	43-116	
NITROBENZENE-D5	%REC/SURR	91	35-114	
TERPHENYL-D14	%REC/SURR	93	33-124	
ANALYST	INITIALS	RW		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 806300
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806419
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: II

Lab Id: 002 Sample Date/Time: 22-JUN-98 1040
Client Sample Id: MW-43 Received Date: 23-JUN-98

Batch: ALW077 Extraction Date: 26-JUN-98
Blank: A Dry Weight %: N/A Analysis Date: 01-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZOIC ACID	UG/L	ND	1.7	
4-CHLORO-3-METHYLPHENOL	UG/L	ND	0.4	
2-CHLOROPHENOL	UG/L	ND	0.5	
2,4-DICHLOROPHENOL	UG/L	ND	3.9	
2,6-DICHLOROPHENOL	UG/L	ND	0.1	
2,4-DIMETHYLPHENOL	UG/L	ND	0.5	
4,6-DINITRO-2-METHYLPHENOL	UG/L	ND	1.6	
2,4-DINITROPHENOL	UG/L	ND	3.3	
2-METHYLPHENOL	UG/L	ND	0.3	
4-METHYLPHENOL	UG/L	ND	0.5	
2-NITROPHENOL	UG/L	ND	0.4	
4-NITROPHENOL	UG/L	ND	0.7	
PENTACHLOROPHENOL	UG/L	ND	0.7	
PHENOL	UG/L	ND	0.5	
2,3,4,6-TETRACHLOROPHENOL	UG/L	ND	0.6	
2,4,5-TRICHLOROPHENOL	UG/L	ND	3.0	
2,4,6-TRICHLOROPHENOL	UG/L	ND	0.3	
ACENAPHTHENE	UG/L	ND	0.4	
ACENAPHTHYLENE	UG/L	ND	0.4	
ACETOPHENONE	UG/L	ND	0.4	
4-AMINOBIPHENYL	UG/L	ND	0.7	
ANILINE	UG/L	ND	0.5	
ANTHRACENE	UG/L	ND	0.4	
BENZIDINE	UG/L	ND	2.7	
BENZO (A) ANTHRACENE	UG/L	ND	0.5	
BENZO (A) PYRENE	UG/L	ND	0.2	
BENZO (B) FLUORANTHENE	UG/L	ND	0.5	
BENZO (G,H,I) PERYLENE	UG/L	ND	0.3	
BENZO (K) FLUORANTHENE	UG/L	ND	0.7	
BENZYL ALCOHOL	UG/L	ND	0.5	
BIS(2-CHLOROETHOXY)METHANE	UG/L	ND	0.4	
BIS(2-CHLOROETHYL)ETHER	UG/L	ND	0.5	
BIS(2-CHLOROISOPROPYL)ETHER	UG/L	ND	1.9	
BIS(2-ETHYLHEXYL)PHTHALATE	UG/L	ND	0.6	
4-BROMOPHENYL PHENYL ETHER	UG/L	ND	0.4	
BUTYLBENZYL PHTHALATE	UG/L	ND	0.5	
4-CHLOROANILINE	UG/L	ND	0.4	
1-CHLORONAPHTHALENE	UG/L	ND	0.6	
2-CHLORONAPHTHALENE	UG/L	ND	0.4	
4-CHLOROPHENYL PHENYL ETHER	UG/L	ND	0.5	

"FINAL REPORT FORMAT - SINGLE"

Accession: 806300
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806419
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: II

Lab Id: 002
Client Sample Id: MW-43
Sample Date/Time: 22-JUN-98 1040
Received Date: 23-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
CHRYSENE	UG/L	ND	0.7	
DIBENZ(A,J)ACRIDINE	UG/L	ND	0.5	
DIBENZO (A,H) ANTHRACENE	UG/L	ND	0.3	
DIBENZOFURAN	UG/L	ND	0.4	
1,2-DICHLOROBENZENE	UG/L	ND	0.3	
1,3-DICHLOROBENZENE	UG/L	ND	0.3	
1,4-DICHLOROBENZENE	UG/L	ND	0.5	
3,3'-DICHLOROBENZIDINE	UG/L	ND	0.4	
DIETHYLPHTHALATE	UG/L	ND	0.4	
P-DIMETHYLAMINOAZOBENZENE	UG/L	ND	0.4	
7,12-DIMETHYLBENZ(A)ANTHRACENE	UG/L	ND	1.8	
A-,A-DIMETHYLPHENETHYLAMINE	UG/L	ND	0.1	
DIMETHYLPHTHALATE	UG/L	ND	0.4	
DI-N-BUTYLPHTHALATE	UG/L	ND	0.4	
2,4-DINITROTOLUENE	UG/L	ND	0.5	
2,6-DINITROTOLUENE	UG/L	ND	0.5	
DI-N-OCTYLPHTHALATE	UG/L	ND	0.7	
DIPHENYLAMINE	UG/L	ND	0.5	
1,2-DIPHENYLHYDRAZINE	UG/L	ND	0.3	
FLUORANTHENE	UG/L	ND	0.5	
FLUORENE	UG/L	ND	0.6	
HEXACHLOROBENZENE	UG/L	ND	0.5	
HEXACHLOROBUTADIENE	UG/L	ND	0.5	
HEXACHLOROCYCLOPENTADIENE	UG/L	ND	0.6	
HEXACHLOROETHANE	UG/L	ND	0.6	
INDENO (1,2,3-CD) PYRENE	UG/L	ND	0.5	
ISOPHORONE	UG/L	ND	0.4	
3-METHYLCHOLANTHRENE	UG/L	ND	0.4	
2-METHYLNAPHTHALENE	UG/L	ND	0.5	
NAPHTHALENE	UG/L	ND	0.4	
1-NAPHTHYLAMINE	UG/L	ND	1.5	
2-NAPHTHYLAMINE	UG/L	ND	1.0	
2-NITROANILINE	UG/L	ND	0.4	
3-NITROANILINE	UG/L	ND	0.9	
4-NITROANILINE	UG/L	ND	0.8	
NITROBENZENE	UG/L	ND	0.5	
N-NITROSODIMETHYLAMINE	UG/L	ND	1.2	
N-NITROSODI-N-BUTYLAMINE	UG/L	ND	1.1	
N-NITROSODIETHYLAMINE	UG/L*	ND	10	
N-NITROSODIPHENYLAMINE	UG/L	ND	0.4	
N-NITROSO-DI-N-PROPYLAMINE	UG/L	ND	0.4	
N-NITROSOPIPERIDINE	UG/L	ND	0.8	
N-NITROSOPYRROLIDINE	UG/L*	ND	10	
PENTACHLOROBENZENE	UG/L	ND	0.4	
PENTACHLORONITROBENZENE (PCNB)	UG/L	ND	5.0	

"FINAL REPORT FORMAT - SINGLE"

Accession:	806300
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806419
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Test:	ACID & BASE EXTRACTABLES (8270)
Analysis Method:	8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method:	3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix:	WATER
QC Level:	II

Lab Id: 002 Sample Date/Time: 22-JUN-98 1040
Client Sample Id: MW-43 Received Date: 23-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
PHENACETIN	UG/L	ND	0.4	
PHENANTHRENE	UG/L	ND	0.4	
2-PICOLINE	UG/L	ND	7.7	
PRONAMIDE	UG/L	ND	0.4	
PYRENE	UG/L	ND	0.5	
1,2,4,5-TETRACHLOROBENZENE	UG/L	ND	0.4	
1,2,4 TRICHLOROBENZENE	UG/L	ND	0.6	
2-FLUOROPHENOL	%REC/SURR	92	21-100	
PHENOL-D6	%REC/SURR	78	10-100	
2,4,6-TRIBROMOPHENOL	%REC/SURR	104	10-123	
2-FLUOROBIPHENYL	%REC/SURR	74	43-116	
NITROBENZENE-D5	%REC/SURR	83	35-114	
TERPHENYL-D14	%REC/SURR	93	33-124	
ANALYST	INITIALS	RW		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 806300
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806419
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: II

Lab Id: 003 Sample Date/Time: 22-JUN-98 1300
Client Sample Id: MW-14 Received Date: 23-JUN-98

Batch: ALW077 Extraction Date: 26-JUN-98
Blank: A Dry Weight %: N/A Analysis Date: 01-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZOIC ACID	UG/L	ND	1.7	
4-CHLORO-3-METHYLPHENOL	UG/L	ND	0.4	
2-CHLOROPHENOL	UG/L	ND	0.5	
2,4-DICHLOROPHENOL	UG/L	ND	3.9	
2,6-DICHLOROPHENOL	UG/L	ND	0.1	
2,4-DIMETHYLPHENOL	UG/L	ND	0.5	
4,6-DINITRO-2-METHYLPHENOL	UG/L	ND	1.6	
2,4-DINITROPHENOL	UG/L	ND	3.3	
2-METHYLPHENOL	UG/L	ND	0.3	
4-METHYLPHENOL	UG/L	ND	0.5	
2-NITROPHENOL	UG/L	ND	0.4	
4-NITROPHENOL	UG/L	ND	0.7	
PENTACHLOROPHENOL	UG/L	ND	0.7	
PHENOL	UG/L	ND	0.5	
2,3,4,6-TETRACHLOROPHENOL	UG/L	ND	0.6	
2,4,5-TRICHLOROPHENOL	UG/L	ND	3.0	
2,4,6-TRICHLOROPHENOL	UG/L	ND	0.3	
ACENAPHTHENE	UG/L	ND	0.4	
ACENAPHTHYLENE	UG/L	ND	0.4	
ACETOPHENONE	UG/L	ND	0.4	
4-AMINOBIPHENYL	UG/L	ND	0.7	
ANILINE	UG/L	ND	0.5	
ANTHRACENE	UG/L	ND	0.4	
BENZIDINE	UG/L	ND	2.7	
BENZO (A) ANTHRACENE	UG/L	ND	0.5	
BENZO (A) PYRENE	UG/L	ND	0.2	
BENZO (B) FLUORANTHENE	UG/L	ND	0.5	
BENZO (G,H,I) PERYLENE	UG/L	ND	0.3	
BENZO (K) FLUORANTHENE	UG/L	ND	0.7	
BENZYL ALCOHOL	UG/L	ND	0.5	
BIS(2-CHLOROETHOXY)METHANE	UG/L	ND	0.4	
BIS(2-CHLOROETHYL)ETHER	UG/L	ND	0.5	
BIS(2-CHLOROISOPROPYL)ETHER	UG/L	ND	1.9	
BIS(2-ETHYLHEXYL)PHTHALATE	UG/L	110	0.6	
4-BROMOPHENYL PHENYL ETHER	UG/L	ND	0.4	
BUTYLBENZYL PHTHALATE	UG/L	ND	0.5	
4-CHLOROANILINE	UG/L	ND	0.4	
1-CHLORONAPHTHALENE	UG/L	ND	0.6	
2-CHLORONAPHTHALENE	UG/L	ND	0.4	
4-CHLOROPHENYL PHENYL ETHER	UG/L	ND	0.5	

"FINAL REPORT FORMAT - SINGLE"

Accession: 806300
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806419
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: II

Lab Id: 003
Client Sample Id: MW-14
Sample Date/Time: 22-JUN-98 1300
Received Date: 23-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
CHRYSENE	UG/L	ND	0.7	
DIBENZ(A,J)ACRIDINE	UG/L	ND	0.5	
DIBENZO (A,H) ANTHRACENE	UG/L	ND	0.3	
DIBENZOFURAN	UG/L	ND	0.4	
1,2-DICHLOROBENZENE	UG/L	ND	0.3	
1,3-DICHLOROBENZENE	UG/L	ND	0.3	
1,4-DICHLOROBENZENE	UG/L	ND	0.5	
3,3'-DICHLOROBENZIDINE	UG/L	ND	0.4	
DIETHYLPHTHALATE	UG/L	ND	0.4	
P-DIMETHYLAMINOAZOBENZENE	UG/L	ND	0.4	
7,12-DIMETHYLBENZ(A)ANTHRACENE	UG/L	ND	1.8	
A-,A-DIMETHYLPHENETHYLAMINE	UG/L	ND	0.1	
DIMETHYLPHTHALATE	UG/L	ND	0.4	
DI-N-BUTYLPHTHALATE	UG/L	ND	0.4	
2,4-DINITROTOLUENE	UG/L	ND	0.5	
2,6-DINITROTOLUENE	UG/L	ND	0.5	
DI-N-OCTYLPHTHALATE	UG/L	ND	0.7	
DIPHENYLAMINE	UG/L	ND	0.5	
1,2-DIPHENYLHYDRAZINE	UG/L	ND	0.3	
FLUORANTHENE	UG/L	ND	0.5	
FLUORENE	UG/L	6.8	0.6	
HEXACHLOROBENZENE	UG/L	ND	0.5	
HEXACHLOROBUTADIENE	UG/L	ND	0.5	
HEXACHLOROCYCLOPENTADIENE	UG/L	ND	0.6	
HEXACHLOROETHANE	UG/L	ND	0.6	
INDENO (1,2,3-CD) PYRENE	UG/L	ND	0.5	
ISOPHORONE	UG/L	ND	0.4	
3-METHYLCHOLANTHRENE	UG/L	ND	0.4	
2-METHYLNAPHTHALENE	UG/L	56	0.5	
NAPHTHALENE	UG/L	32	0.4	
1-NAPHTHYLAMINE	UG/L	ND	1.5	
2-NAPHTHYLAMINE	UG/L	ND	1.0	
2-NITROANILINE	UG/L	ND	0.4	
3-NITROANILINE	UG/L	ND	0.9	
4-NITROANILINE	UG/L	ND	0.8	
NITROBENZENE	UG/L	ND	0.5	
N-NITROSODIMETHYLAMINE	UG/L	ND	1.2	
N-NITROSODI-N-BUTYLAMINE	UG/L	ND	1.1	
N-NITROSODIETHYLAMINE	UG/L*	ND	10	
N-NITROSODIPHENYLAMINE	UG/L	ND	0.4	
N-NITROSO-DI-N-PROPYLAMINE	UG/L	ND	0.4	
N-NITROSOPIPERIDINE	UG/L	ND	0.8	
N-NITROSOPYRROLIDINE	UG/L*	ND	10	
PENTACHLOROBENZENE	UG/L	ND	0.4	
PENTACHLORONITROBENZENE (PCNB)	UG/L	ND	5.0	

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"FINAL REPORT FORMAT - SINGLE"

Accession:	806300
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806419
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Test:	ACID & BASE EXTRACTABLES (8270)
Analysis Method:	8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method:	3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix:	WATER
QC Level:	II

Lab Id: 003 Sample Date/Time: 22-JUN-98 1300
Client Sample Id: MW-14 Received Date: 23-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
PHENACETIN	UG/L	ND	0.4	
PHENANTHRENE	UG/L	3.8	0.4	
2-PICOLINE	UG/L	ND	7.7	
PRONAMIDE	UG/L	ND	0.4	
PYRENE	UG/L	ND	0.5	
1,2,4,5-TETRACHLOROBENZENE	UG/L	ND	0.4	
1,2,4 TRICHLOROBENZENE	UG/L	ND	0.6	
2-FLUOROPHENOL	%REC/SURR	89	21-100	
PHENOL-D6	%REC/SURR	86	10-100	
2,4,6-TRIBROMOPHENOL	%REC/SURR	95	10-123	
2-FLUOROBIPHENYL	%REC/SURR	99	43-116	
NITROBENZENE-D5	%REC/SURR	93	35-114	
TERPHENYL-D14	%REC/SURR	102	33-124	
ANALYST	INITIALS	RW		

Comments:

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"Method Report Summary"

Accession Number: 806300
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806419
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)

Client Sample Id:	Parameter:	Unit:	Result:
MW-14	BIS(2-ETHYLHEXYL)PHTHALATE	UG/L	110
	FLUORENE	UG/L	6.8
	2-METHYLNAPHTHALENE	UG/L	56
	NAPHTHALENE	UG/L	32
	PHENANTHRENE	UG/L	3.8

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Rd Pensacola, FL 32514 (850) 474-1001

Data Qualifiers for Final Report

AEN-Pensacola Inorganic/Organic

@	Adjusted reporting limit due to sample matrix (dilution prior to digestion and/or analysis)
+	Elevated reporting limit due to dilution into calibration range
*	Elevated reporting limit due to matrix interference (dilution prior to digestion and/or analysis)
#	Elevated reporting limit due to insufficient sample size
D	Diluted out
J5	The reported value is quantitated as a TIC; therefore, it is estimated
ND = Not Detected	N/S = Not Submitted N/A = Not Applicable

Florida Projects Inorganic/Organic

Y1	Improper preservation, no preservative present in sample upon receipt
Y2	Improper preservation, incorrect preservative present in sample upon receipt
Y3	Improper preservation, sample temperature exceeded EPA temperature limits of 2-6°C upon receipt
Y (FL description)	The laboratory analysis was from an unpreserved or improperly preserved sample. The data may not be accurate.
Q	Sample held beyond the accepted holding time
I	The reported value is < Laboratory RL and > laboratory MDL
U1	The reported value is ≤ Laboratory MDL (value for sample result is reported as the MDL)
U (FL description)	Indicates the compound was analyzed for but not detected.
T	The reported value is < Laboratory MDL (value shall not be used for statistical analysis)
V	The analyte was detected in both the sample and the associated method blank.
J1	Surrogate recovery limits have been exceeded
J2	The sample matrix interfered with the ability to make any accurate determinations
J3	The reported value failed to meet the established quality control criteria for either precision or accuracy
J (FL description)	Estimated value; not accurate.

AFCEE Projects (under QAPP) and All Other (AEN-PN) Projects/Sites for Inorganic/Organic Parameters

J4	(For positive results) Temperature limits exceeded (≤2°C or ≥ 6°C)
J (AFCEE description)	The analyte was positively identified, the quantitation is an estimation
R1	(For nondetects) Temperature limits exceeded (≤2°C or ≥ 6°C)
R2	Improper preservation, no preservative present in sample upon receipt
R3	Improper preservation, incorrect preservative present in sample upon receipt
R4	Holding time exceeded
R5	Collection requirements not met, improper container used for sample
R (AFCEE description)	The data are unusable due to deficiencies in the ability to analyze the sample and meet QC criteria
F	< RL and > laboratory MDL
F (AFCEE description)	The analyte was positively identified but the associated numerical value is below the AFCEE or lab RL
U2	≤ Laboratory MDL (value for result will be the MDL, never below the MDL)
U (AFCEE description)	The analyte was analyzed for but not detected. The associated numerical value is at or below the MDL
B (AFCEE description)	The analyte was found in the associated blank, as well as in the sample

ICR Projects Inorganic/Organic

A	Acceptable
R6	Rejected

Examples: ICR Flags

R6 = Laboratory extracted the sample but the refrigerator malfunctioned so the extract became warm and client was notified

R6 = Sample arrived in laboratory in good condition; however, the laboratory did not analyze it within EPA's established holding time limit.

CLP and CLP-like Projects

Refer to referenced CLP Statement of Work (SOW) for explanation of data qualifiers

IDL = Laboratory Instrument Detection Limit
MDL = Laboratory Method Detection Limit
RL = Reporting Limit (AFCEE RLs are listed in the AFCEE QAPP)
CLP CRDL = CLP Contract Required Detection Limit (these limits are listed in the EPA CLP Statement of Work or SOW)
CLP CRQL = CLP Contract Required Quantitation Limit (these limits are listed in the EPA CLP Statement of Work or SOW)

Any time a sample arrives at the laboratory improperly preserved (at improper pH or temperature) or after holding time has expired or prepared or analyzed after holding time, client must be notified in writing (i.e. case narrative).

AEN-Pensacola uses the most current promulgated methods contained in the reference manuals.

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Quality Control Report

Analysis: MARATHON WET CHEMISTRY INORGANICS

Accession:	806300
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806419
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	WET CHEM

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"WetChem Quality Control Report"

Parameter:	CHLORIDE	CYANIDE	FLUORIDE	NO2	NO2NO3	PH
Batch Id:	CIW068	CNW038	FLW027	N2W091	N3W47B	PHW132
Blank Result:	<1	<0.005	<0.2	<0.1	<0.1	N/A
Anal. Method:	4500-CL B	335.2	340.2	354.1	353.2	150.1
Prep. Method:	N/A	N/A	N/A	N/A	N/A	N/A
Analysis Date:	22-JUN-98	26-JUN-98	24-JUN-98	23-JUN-98	29-JUN-98	23-JUN-98
Prep. Date:	22-JUN-98	25-JUN-98	24-JUN-98	23-JUN-98	28-JUN-98	23-JUN-98
Sample Duplication						
Sample Dup:	806270-1	806298-1	806298-1	806294-3	806300-1	806294-1
Rept Limit:	<1	<0.005	<0.2	<0.1	<0.1	N/A
Sample Result:	34.4	<0.005	0.35	<0.1	<0.1	6.95
Dup Result:	34.4	<0.005	0.40	<0.1	<0.1	6.96
Sample RPD:	0	N/C	0.05 G	N/C	N/C	0.01
Max RPD:	5	0.005	0.2	0.1	0.1	0.12
Dry Weight%	N/A	N/A	N/A	N/A	N/A	N/A
Matrix Spike						
Sample Spiked:	806270-1	806298-1	806298-1	806294-3	806300-1	N/A
Rept Limit:	<1	<0.005	<0.2	<0.1	<0.1	N/A
Sample Result:	34.4	<0.005	0.35	<0.1	<0.1	
Spiked Result:	90.0	0.212	0.98	0.21	0.90	
Spike Added:	55.0	0.200	0.80	0.20	1.00	
% Recovery:	101	106	79	105	90	
% Rec Limits:	90-111	67-127	79-132	70-131	71-125	
Dry Weight%	N/A	N/A	N/A	N/A	N/A	
ICV						
ICV Result:	99.5	0.284	1.28	0.20	1.95	10.13
True Result:	100	0.314	1.20	0.20	2.00	10.00
% Recovery:	100	90	107	100	98	101
% Rec Limits:	90-110	90-110	90-110	90-110	90-110	90-110
LCS						
LCS Result:		0.910				7.03
True Result:		0.9				6.87
% Recovery:		101				102
% Rec Limits:		80-120				96-104

"WetChem Quality Control Report"

Parameter:	PHENOL	SULFATE	TDS
Batch Id:	PEW025	SEW078	TDW038
Blank Result:	<0.005	<10	<5
Anal. Method:	420.1	375.4	160.1
Prep. Method:	N/A	N/A	N/A
Analysis Date:	01-JUL-98	29-JUN-98	26-JUN-98
Prep. Date:	30-JUN-98	29-JUN-98	25-JUN-98
Sample Duplication			
Sample Dup:	806298-1	806298-1	806294-1
Rept Limit:	<0.005	<10	<5
Sample Result:	<0.005	21	2824
Dup Result:	<0.005	21	2988
Sample RPD:	N/C	0 G	6
Max RPD:	0.005	10	16
Dry Weight%	N/A	N/A	N/A
Matrix Spike			
Sample Spiked:	806298-2	806298-1	N/A
Rept Limit:	<0.005	<10	N/A
Sample Result:	<0.005	21	
Spiked Result:	0.022	50	
Spike Added:	0.020	20	
% Recovery:	110	145	
% Rec Limits:	48-149	56-154	
Dry Weight%	N/A	N/A	
ICV			
ICV Result:	0.027	20	
True Result:	0.025	20	
% Recovery:	108	100	
% Rec Limits:	90-110	90-110	
LCS			
LCS Result:			304
True Result:			293
% Recovery:			104
% Rec Limits:			77-129

"Quality Control Comments"

Batch Id:	Comments:
CIW068	806294-1,2,3 & 906298-1,2,3 & 806300-1,2,3 were added
CIW068	to the batch on 23-Jun-98.
PEW025	806306-4 & 806323-1,2,3,4 were added to the batch on 1-Jul-98.

----- Common Footnotes WetChem -----

N/A = NOT APPLICABLE.
N/S = NOT SUBMITTED.
N/C = SAMPLE AND DUPLICATE RESULTS ARE AT OR BELOW AEN REPORTING LIMIT; THEREFORE, THE RPD IS "NOT CALCULABLE" AND NO CONTROL LIMITS APPLY.
N/D = NOT DETECTED.
R = REACTIVE
T = TOTAL
G = SAMPLE AND/OR DUPLICATE RESULT IS BELOW 5 X AEN REPORTING LIMIT AND THE ABSOLUTE DIFFERENCE BETWEEN THE SAMPLE AND DUPLICATE RESULT IS AT OR BELOW AEN REPORTING LIMIT; THEREFORE, THE RESULTS ARE "IN CONTROL".
Q = THE ANALYTICAL (POST-DISTILLATION) SPIKE IS REPORTED DUE TO PERCENT RECOVERY BEING OUTSIDE ACCEPTANCE LIMITS ON THE MATRIX (PRE-DISTILLATION) SPIKE.
= ELEVATED REPORTING LIMIT DUE TO INSUFFICIENT SAMPLE.
+ = ELEVATED REPORTING LIMIT DUE TO DILUTION INTO CALIBRATION RANGE.
* = ELEVATED REPORTING LIMIT DUE TO MATRIX INTERFERENCE (DILUTION PRIOR DIGESTION AND/OR ANALYSIS).
@ = ADJUSTED REPORTING LIMIT DUE TO SAMPLE MATRIX (DILUTION PRIOR TO DIGESTION AND/OR ANALYSIS).
P = ANALYTICAL (POST DIGESTION) SPIKE.
I = DUPLICATE INJECTION.
& = AUTOMATED
F = SAMPLE SPIKED > 4 X SPIKE CONCENTRATION.
N/C+ = NOT CALCULABLE
H = SAMPLE AND/OR DUPLICATE RESULT IS BELOW 5 X AEN REPORTING LIMIT AND THE ABSOLUTE DIFFERENCE BETWEEN THE RESULTS EXCEEDS THE AEN REPORTING LIMIT; THEREFORE, THE RESULTS ARE "OUT OF CONTROL".
A = SAMPLE AND DUPLICATE RESULTS ARE "OUT OF CONTROL".
Z = THE SAMPLE RESULT FOR THE SPIKE IS BELOW THE REPORTING LIMIT. HOWEVER, THIS RESULT IS REPORTED FOR ACCURATE QC CALCULATIONS.
NH= SAMPLE AND / OR DUPLICATE RESULT IS BELOW 5 X AEN REPORTING LIMIT AND THE ABSOLUTE DIFFERENCE BETWEEN THE RESULTS EXCEEDS THE AEN REPORTING LIMIT; THEREFORE, THE RESULTS ARE "OUT OF CONTROL". SAMPLE IS NON-HOMOGENEOUS.
(*) = REPORTING LIMITS RAISED DUE TO CLP METHOD NOT REQUIRING A CONCENTRATION STEP FOR CN.
(CA) = SEE CORRECTIVE ACTIONS FORM.
**= MATRIX INTERFERENCE
SW-846, 3rd Edition, latest EPA-approved edition.
EPA 600/4-79-020, Revised March 1983.
STANDARD METHODS, For the Examination of Water and Wastewater, latest EPA-approved edition.
NIOSH Manual of Analytical Methods, 4th Edition.
ANNUAL BOOK OF ASTM STANDARDS, VOLUMES 11.01 and 11.02, latest EPA-approved edition.
METHODS FOR THE DETERMINATION OF INORGANIC SUBSTANCES IN ENVIRONMENTAL SAMPLES, EPA600/R-93/100, AUGUST 1993
METHODS FOR SOIL ANALYSIS, PART 2, CHEMICAL AND MICROBILOGICAL PROPERTIES, 2ND EDITION.
AEN-PN USES THE MOST CURRENT PROMULGATED METHODS FROM THE REFERENCES LISTED ABOVE.

1. COLIFORM. COLIFORM PRECISION IS MEASURED BY THE ABSOLUTE DIFFERENCE BETWEEN THE LOGARITHM OF COLONIES PER 100 MLS OF SAMPLE ON DUPLICATE PLATES.
2. PH. PH PRECISION IS MEASURED BY THE ABSOLUTE DIFFERENCE BETWEEN THE SAMPLE AND DUPLICATE ANALYSIS.
3. FLASHPOINT. FLASHPOINT PRECISION IS MEASURED BY THE ABSOLUTE DIFFERENCE BETWEEN THE SAMPLE AND DUPLICATE ANALYSIS.

RPD = RELATIVE PERCENT DIFFERENCE (OR DEVIATION).
RPT LMTS = REPORTING LIMITS BASED ON METHOD DETECTION LIMIT STUDIES.

DPH = DOLLY P. HWANG RB = REBECCA BROWN WH = WENDY HAGGARD
ED = ESTHER DANTIN CR = CYNTHIA ROBERTS AB = AMY BRADLEY
BE = BETTY EVERTON PLD = PAULA L. DOUGHTY JTZ = JONATHAN T. ZIENTARSKI
RH = RICKY HAGENDORFER

SEVERN TRENT LABORATORIES 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Quality Control Report

Analysis: POLYNUCLEAR AROMATICS BY 8310

Accession:	806300
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806419
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	SEMI-VOLATILE FUELS

"QC Report"

Title: Water Blank
Batch: PAW142
Analysis Method: 8310/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.

Blank Id: A Date Analyzed: 25-JUN-98 Date Extracted: 24-JUN-98

Parameters:	Units:	Results:	Reporting Limits:
ACENAPHTHENE	UG/L	ND	1
ACENAPHTHYLENE	UG/L	ND	1
ANTHRACENE	UG/L	ND	1
BENZO(a)ANTHRACENE	UG/L	ND	1
BENZO(a)PYRENE	UG/L	ND	0.1
BENZO(b)FLUORANTHENE	UG/L	ND	1
BENZO(g,h,i)PERYLENE	UG/L	ND	1
BENZO(k)FLUORANTHENE	UG/L	ND	1
CHRYSENE	UG/L	ND	1
DIBENZO(a,h)ANTHRACENE	UG/L	ND	1
FLUORANTHENE	UG/L	ND	1
FLUORENE	UG/L	ND	1
INDENO(1,2,3-cd)PYRENE	UG/L	ND	1
NAPHTHALENE	UG/L	ND	1
PHENANTHRENE	UG/L	ND	1
PYRENE	UG/L	ND	1
1-METHYLNAPHTHALENE	UG/L	ND	0.3
2-METHYLNAPHTHALENE	UG/L	ND	1
2-CHLOROANTHRACENE	%REC/SURR	103	28-138
ANALYST	INITIALS	HAH	

Comments:

"QC Report"

Title: Water LCS
Batch: PAW142
Analysis Method: 8310/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.

RS Date Analyzed: 26-JUN-98 RS Date Extracted: 24-JUN-98

Parameters:	Spike Added	Sample Conc	RS Conc	RS %Rec	Rec Lmts
ACENAPHTHYLENE	7.1	<1	6.3	89	45-127
BENZO(k)FLUORANTHENE	9.2	<1	8.3	90	68-131
CHRYSENE	9.1	<1	8.2	90	69-131
PHENANTHRENE	9.1	<1	8.3	91	63-124
PYRENE	8.8	<1	8.4	95	61-126
Surrogates:					
2-CHLOROANTHRACENE				83	28-138

Comments:

Notes:
N/S = NOT SUBMITTED N/A = NOT APPLICABLE D = DILUTED OUT
UG/L = PARTS PER BILLION. < = LESS THAN REPORTING LIMIT.
* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS.
SOURCES FOR CONTROL

"QC Report"

Title: Water Matrix Spike/Matrix Spike Duplicate
Batch: PAW142
Analysis Method: 8310/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.

Dry Weight %: N/A
Sample Spiked: 806306-1

MS Date Analyzed: 26-JUN-98
MSD Date Analyzed: 26-JUN-98

MS Date Extracted: 24-JUN-98
MSD Date Extracted: 24-JUN-98

Parameters:	Spike Added	Sample Conc	MS Conc	MS %Rec	MSD Conc	MSD %Rec	RPD	RPD Lmts	Rec Lmts
ACENAPHTHYLENE	7.1	<1	2.9	41	7.8	110	91*	51	18-146
BENZO(k)FLUORANTHENE	9.2	<1	5.7	62	10.4	113	58*	40	26-137
CHRYSENE	9.1	<1	5.7	63	10.5	115	58	69	16-156
PHENANTHRENE	9.1	<1	5.7	63	10.6	116	59*	36	30-145
PYRENE	8.8	<1	5.8	66	10.7	122	60*	41	39-137
Surrogates:									
2-CHLOROANTHRACENE				55		111			28-138

Comments:
MATRIX SPIKE/MATRIX SPIKE DUPLICATE HAD RECOVERY(S) AND/OR RPD(S) OUTSIDE ACCEPTANCE LIMITS DUE TO MATRIX INTERFERENCE. REFER TO LCS DATA.

Notes:
N/S = NOT SUBMITTED N/A = NOT APPLICABLE D = DILUTED OUT
UG/L = PARTS PER BILLION. < = LESS THAN REPORTING LIMIT.
* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS.
SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

Common Notation for Organic Reporting

N/S = NOT SUBMITTED
N/A = NOT APPLICABLE
UG = MICROGRAMS
UG/L = PARTS PER BILLION
UG/KG = PARTS PER BILLION
MG/M3 = MILLIGRAM PER CUBIC METER
PPMV = PART PER MILLION BY VOLUME
MG/KG = PARTS PER MILLION
MG/L = PARTS PER MILLION
< = LESS THAN
ND = NOT DETECTED

SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

ORGANIC SOILS ARE REPORTED ON A DRYWEIGHT BASIS.

RPT LMTS = REPORTING LIMITS BASED ON METHOD DETECTION LIMIT STUDIES.

RPD = RELATIVE PERCENT DIFFERENCE (OR DEVIATION)

AEN/GC/FID
AEN GAS CHROMATOGRAPHIC METHOD EMPLOYING DIRECT INJECTION ON COLUMN WITH FLAME IONIZATION DETECTOR (FID).

AEN/GC/FIX
AEN GAS CHROMATOGRAPHIC METHOD FOR ANALYSIS OF FIXED GASES EMPLOYING DIRECT INJECTION ON COLUMN WITH THERMAL CONDUCTIVITY DETECTOR (TCD) AND FLAME IONIZATION DETECTOR (FID).

AEN/GC/FPD
AEN GAS CHROMATOGRAPHIC METHOD EMPLOYING DIRECT INJECTION ON COLUMN WITH FLAME PHOTOMETRIC DETECTOR (FPD) IN SULFUR-SPECIFIC MODE.

AEN/GC/PID
AEN GAS CHROMATOGRAPHIC METHOD EMPLOYING DIRECT INJECTION ON COLUMN WITH PHOTOIONIZATION DETECTOR (PID).

AEN/GC/TCD
AEN GAS CHROMATOGRAPHIC METHOD EMPLOYING DIRECT INJECTION ON COLUMN WITH THERMAL CONDUCTIVITY DETECTOR (TCD).

SW-846 METHOD 9020
PARTICULATE MATTER IS REMOVED BY ALLOWING PARTICULATES TO SETTLE IN THE SAMPLE CONTAINER AND DECANTING THE SUPERNATANT LIQUID. EXCESSIVE PARTICULATES ARE REMOVED BY FILTRATION OF THE SUPERNATANT LIQUID.

RSK 175
SAMPLE PREPARATION AND CALCULATIONS FOR DISSOLVED GAS ANALYSIS IN WATER SAMPLES USING A GC HEADSPACE EQUILIBRATION TECHNIQUE, RSK SOP-175, ROBERT S. KERR ENVIRONMENTAL RESEARCH LABORATORY, USEPA, AUGUST 11, 1994.

AEN-PN USES THE MOST CURRENT PROMULGATED METHODS CONTAINED IN THE REFERENCE MANUALS.

SW = STEVE WILHITE
RW = ROBERT WOLFE
KS = KENDALL SMITH
LB = LISA BIZZELL
LP = LEVERNE PETERSON
PLD = PAULA DOUGHTY
DK = DARLENE KINCHEN
BT = BECKY TREMMEL
HAH = HOLLIE HOFFMAN

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Quality Control Report

Analysis: PESTICIDES (8080)

Accession:	806300
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806419
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	PESTICIDES

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"QC Report"

Title: Water Blank
Batch: PSW044
Analysis Method: 8080 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Extraction Method: 3510 / 3660 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.

Blank Id: A Date Analyzed: 30-JUN-98 Date Extracted: 25-JUN-98

Parameters:	Units:	Results:	Reporting Limits:
ALDRIN	UG/L	ND	0.02
ALPHA-BHC	UG/L	ND	0.02
BETA-BHC	UG/L	ND	0.02
DELTA-BHC	UG/L	ND	0.02
GAMMA-BHC (LINDANE)	UG/L	ND	0.02
4,4'-DDD	UG/L	ND	0.02
4,4'-DDE	UG/L	ND	0.02
4,4'-DDT	UG/L	ND	0.02
DIELDRIN	UG/L	ND	0.02
ENDOSULFAN I	UG/L	ND	0.02
ENDOSULFAN II	UG/L	ND	0.02
ENDOSULFAN SULFATE	UG/L	ND	0.02
ENDRIN	UG/L	ND	0.02
ENDRIN ALDEHYDE	UG/L	ND	0.02
HEPTACHLOR	UG/L	ND	0.02
HEPTACHLOR EPOXIDE	UG/L	ND	0.02
METHOXYCHLOR	UG/L	ND	0.02
CHLORDANE	UG/L	ND	0.01
TOXAPHENE	UG/L	ND	0.12
PCB-1016	UG/L	ND	0.04
PCB-1221	UG/L	ND	0.04
PCB-1232	UG/L	ND	0.04
PCB-1242	UG/L	ND	0.04
PCB-1248	UG/L	ND	0.04
PCB-1254	UG/L	ND	0.04
PCB-1260	UG/L	ND	0.04
TCMX	%REC/SURR	83	43-101
DCB	%REC/SURR	97	17-135
ANALYST	INITIALS	RP	

Comments:

"QC Report"

Title: Water LCS
Batch: PSW044
Analysis Method: 8080 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Extraction Method: 3510 / 3660 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.

RS Date Analyzed: 30-JUN-98 RS Date Extracted: 25-JUN-98

Parameters:	Spike Added	Sample Conc	RS Conc	RS %Rec	Rec Lmts
LINDANE	1.00	<0.02	0.80	80	51-118
HEPTACHLOR	1.00	<0.02	0.96	96	70-123
ALDRIN	1.00	<0.02	0.94	94	54-122
DIELDRIN	1.00	<0.02	0.95	95	75-119
ENDRIN	1.00	<0.02	0.97	97	67-122
DDT	1.00	<0.02	1.16	116	59-127
Surrogates:					
DCB				93	17-135
TCMX				85	43-101

Comments:

Notes:
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"QC Report"

Title: Water Matrix
Batch: PSW044
Analysis Method: 8080 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Extraction Method: 3510 / 3660 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.

Dry Weight %: N/A
Sample Spiked: 806306-2

MS Date Analyzed: 30-JUN-98
MSD Date Analyzed: 30-JUN-98

MS Date Extracted: 25-JUN-98
MSD Date Extracted: 25-JUN-98

Parameters:	Spike Added	Sample Conc	MS Conc	MS %Rec	MSD Conc	MSD %Rec	RPD	RPD Lmts	Rec Lmts
LINDANE	2.00	<0.02	1.31	66	1.48	74	11	27	40-119
HEPTACHLOR	2.00	<0.02	1.57	79	1.80	90	13	30	53-123
ALDRIN	2.00	<0.02	1.53	77	1.74	87	12	31	42-130
DIELDRIN	2.00	<0.02	1.58	79	1.77	89	12	18	61-124
ENDRIN	2.00	<0.02	1.76	88	1.95	98	11	30	50-125
DDT	2.00	<0.02	2.04	102	2.24	112	9	32	25-138
Surrogates:									
DCB				86		96			17-135
TCMX				60		73			43-101

Comments:

Notes:
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* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS.
SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

Common notation for Organic reporting

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D = DILUTED OUT
UG/L = PARTS PER BILLION.
UG/KG = PARTS PER BILLION.
MG/KG = PARTS PER MILLION.
MG/L = PARTS PER MILLION.
< = LESS THAN.
* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS.
ND = NOT DETECTED ABOVE REPORTING LIMIT.
Rpt Lmts = REPORTING LIMITS BASED ON METHOD DETECTION LIMIT STUDIES.
RPD = RELATIVE PERCENT DIFFERENCE (OR DEVIATION)

SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

ORGANIC SOILS ARE REPORTED ON A DRY WEIGHT BASIS.

AEN-PN USES THE MOST CURRENT PROMULGATED METHODS CONTAINED IN THE REFERENCE MANUALS.

RP = ROBERT PEREZ
LP = LEVERNE PETERSON
RW = ROBERT WOLFE

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Quality Control Report

Analysis: ACID & BASE EXTRACTABLES (8270)

Accession:	806300
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806419
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	ORGANIC/MS

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"QC Report"

Title: Water Blank
Batch: ALW077
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.

Blank Id: A Date Analyzed: 30-JUN-98 Date Extracted: 26-JUN-98

Parameters:	Units:	Results:	Reporting Limits:
P-CHLORO-M-CRESOL	UG/L	ND	10
2-CHLOROPHENOL	UG/L	ND	10
O-CRESOL	UG/L	ND	10
M,P CRESOL	UG/L	ND	10
2,4-DICHLOROPHENOL	UG/L	ND	10
2,6-DICHLOROPHENOL	UG/L	ND	10
2,4-DIMETHYLPHENOL	UG/L	ND	10
4,6-DINITRO-O-CRESOL	UG/L	ND	50
2,4-DINITROPHENOL	UG/L	ND	10
2-NITROPHENOL	UG/L	ND	10
4-NITROPHENOL	UG/L	ND	50
PENTACHLOROPHENOL	UG/L	ND	50
PHENOL	UG/L	ND	10
2,3,4,6-TETRACHLOROPHENOL	UG/L	ND	10
2,4,5-TRICHLOROPHENOL	UG/L	ND	50
2,4,6-TRICHLOROPHENOL	UG/L	ND	10
ACENAPHTHENE	UG/L	ND	10
ACENAPHTHYLENE	UG/L	ND	10
ACETOPHENONE	UG/L	ND	10
2-ACETYLAMINOFLUORENE	UG/L	ND	10
4-AMINOBIPHENYL	UG/L	ND	10
ANILINE	UG/L	ND	10
ANTHRACENE	UG/L	ND	10
ARAMITE	UG/L	ND	10
BENZO (A) ANTHRACENE	UG/L	ND	10
BENZO (A) PYRENE	UG/L	ND	10
BENZO (B) FLUORANTHENE	UG/L	ND	10
BENZO (G,H,I) PERYLENE	UG/L	ND	10
BENZO (K) FLUORANTHENE	UG/L	ND	10
BENZYL ALCOHOL	UG/L	ND	10
BIS(2-CHLORO-1-METHYLETHYL)ETHER	UG/L	ND	10
BIS(2-CHLOROETHOXY)METHANE	UG/L	ND	10
BIS(2-CHLOROETHYL)ETHER	UG/L	ND	10
BIS(2-ETHYLHEXYL)PHTHALATE	UG/L	ND	10
4-BROMOPHENYL PHENYL ETHER	UG/L	ND	10
BUTYLBENZYL PHTHALATE	UG/L	ND	10
P-CHLOROANILINE	UG/L	ND	10
CHLOROBENZILATE	UG/L	ND	10
2-CHLORONAPHTHALENE	UG/L	ND	10
4-CHLOROPHENYL PHENYL ETHER	UG/L	ND	10
CHRYSENE	UG/L	ND	10
DIALLATE	UG/L	ND	10
DIBENZO (A,H) ANTHRACENE	UG/L	ND	10
DIBENZOFURAN	UG/L	ND	10
1,2-DICHLOROBENZENE	UG/L	ND	10
1,3-DICHLOROBENZENE	UG/L	ND	10

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"QC Report"

Title: Water Blank
Batch: ALW077
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.

Parameters:	Units:	Results:	Reporting Limits:
1,4-DICHLOROBENZENE	UG/L	ND	10
3,3'-DICHLOROBENZIDINE	UG/L	ND	50
DIETHYLPHTHALATE	UG/L	ND	10
DIMETHOATE	UG/L	ND	10
P-DIMETHYLAMINOAZOBENZENE	UG/L	ND	10
7,12-DIMETHYLBENZ(A)ANTHRACENE	UG/L	ND	10
3,3'-DIMETHYLBENZIDINE	UG/L	ND	10
A,A-DIMETHYLPHENETHYLAMINE	UG/L	ND	10
DIMETHYLPHTHALATE	UG/L	ND	10
DI-N-BUTYLPHTHALATE	UG/L	ND	10
M-DINITROBENZENE	UG/L	ND	10
2,4-DINITROTOLUENE	UG/L	ND	10
2,6-DINITROTOLUENE	UG/L	ND	10
DI-N-OCTYLPHTHALATE	UG/L	ND	10
DIPHENYLAMINE	UG/L	ND	10
ETHYL METHANESULFONATE	UG/L	ND	10
FAMPHUR	UG/L	ND	10
FLUORANTHENE	UG/L	ND	10
FLUORENE	UG/L	ND	10
HEXACHLOROBENZENE	UG/L	ND	10
HEXACHLOROBUTADIENE	UG/L	ND	10
HEXACHLOROCYCLOPENTADIENE	UG/L	ND	10
HEXACHLOROETHANE	UG/L	ND	10
HEXACHLOROPHENE	UG/L	ND	10
HEXACHLOROPROPENE	UG/L	ND	10
INDENO (1,2,3-CD) PYRENE	UG/L	ND	10
ISODRIN	UG/L	ND	10
ISOPHORONE	UG/L	ND	10
ISOSAFROLE	UG/L	ND	10
KEPONE	UG/L	ND	10
METHAPYRILENE	UG/L	ND	10
3-METHYLCHOLANTHRENE	UG/L	ND	10
METHYL METHANESULFONATE	UG/L	ND	10
1-METHYLNAPHTHALENE	UG/L	ND	10
2-METHYLNAPHTHALENE	UG/L	ND	10
NAPHTHALENE	UG/L	ND	10
1,4-NAPHTHOQUINONE	UG/L	ND	10
1-NAPHTHYLAMINE	UG/L	ND	10
2-NAPHTHYLAMINE	UG/L	ND	10
2-NITROANILINE	UG/L	ND	50
3-NITROANILINE	UG/L	ND	50
4-NITROANILINE	UG/L	ND	50
NITROBENZENE	UG/L	ND	10
5-NITRO-O-TOLUIDINE	UG/L	ND	10
4-NITROQUINOLINE-1-OXIDE	UG/L	ND	10
N-NITROSODIETHYLAMINE	UG/L	ND	10
N-NITROSODIMETHYLAMINE	UG/L	ND	10

"QC Report"

Title: Water Blank
Batch: ALW077
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.

Parameters:	Units:	Results:	Reporting Limits:
N-NITROSODI-N-BUTYLAMINE	UG/L	ND	10
N-NITROSODIPHENYLAMINE	UG/L	ND	10
N-NITROSOMETHYLETHYLAMINE	UG/L	ND	10
N-NITROSOMORPHOLINE	UG/L	ND	10
N-NITROSOPIPERIDINE	UG/L	ND	10
N-NITROSOPYRROLIDINE	UG/L	ND	10
PARATHION	UG/L	ND	10
PENTACHLOROBENZENE	UG/L	ND	10
PENTACHLOROETHANE	UG/L	ND	10
PENTACHLORONITROBENZENE	UG/L	ND	10
PHENACETIN	UG/L	ND	10
PHENANTHRENE	UG/L	ND	10
2-PICOLINE	UG/L	ND	10
P-PHENYLENEDIAMINE	UG/L	ND	10
PRONAMIDE	UG/L	ND	10
PYRENE	UG/L	ND	10
PYRIDINE	UG/L	ND	10
SAFROLE	UG/L	ND	10
SULFOTEPP	UG/L	ND	10
1,2,4,5-TETRACHLOROBENZENE	UG/L	ND	10
THIONAZIN	UG/L	ND	10
O-TOLUIDINE	UG/L	ND	10
1,2,4 TRICHLOROBENZENE	UG/L	ND	10
SYM-TRINITROBENZENE	UG/L	ND	10
O,O,O-TRIETHYL PHOSPHOROTHIATE	UG/L	ND	10
BENZIDINE	UG/L	ND	10
BIS(2-CHLOROISOPROPYL)ETHER	UG/L	ND	10
2-(SEC BUTYL)4,6-DINITRO-PHENOL(DINOSEB)	UG/L	ND	10
0~NITROSO-DI-N-PROPYLAMINE	UG/L	ND	10
6-METHYL CHRYSENE	UG/L	ND	20
INDENE	UG/L	ND	20
QUINOLINE	UG/L	ND	50
BENZENETHIOL	UG/L	ND	20
PARATOLIUDINE	UG/L	ND	50
TOLUENE DIISOCYANATE	UG/L	ND	50
TOLUENE DIAMINE	UG/L	ND	50
MONONITROTOLUENE	UG/L	ND	50
DIETHYLENE GLYCOL MONOBUTYL ETHER	UG/L	ND	10
2-FLUOROPHENOL	%REC/SURR	62	21-100
PHENOL-D6	%REC/SURR	71	10-100
2,4,6-TRIBROMOPHENOL	%REC/SURR	60	10-123
2-FLUOROBIPHENYL	%REC/SURR	67	43-116
NITROBENZENE-D5	%REC/SURR	67	35-114
TERPHENYL-D14	%REC/SURR	86	33-124
ANALYST	INITIALS	RW	

Comments:

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"QC Report"

Title: Water LCS
Batch: ALW077
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.

RS Date Analyzed: 30-JUN-98 RS Date Extracted: 26-JUN-98

Parameters:	Spike Added	Sample Conc	RS Conc	RS %Rec	Rec Lmts
PHENOL	150	<10	132	88	5-112
2-CHLOROPHENOL	150	<10	134	89	40-120
1,4-DICHLOROBENZENE	100	<10	84	84	32-119
N-NITRO-DI-N-PROPYLAMINE	100	<10	90	90	26-128
1,2,4 TRICHLOROBENZENE	100	<10	80	80	44-142
4-CHLORO-3-METHYLPHENOL	150	<10	136	91	30-128
ACENAPHTHENE	100	<10	86	86	47-145
4-NITROPHENOL	150	<50	118	79	1-132
2,4-DINITROTOLUENE	100	<10	84	84	39-138
PENTACHLOROPHENOL	150	<50	144	96	15-157
PYRENE	100	<10	104	104	52-115
Surrogates:					
NITROBENZENE-D5				80	35-114
2-FLUOROBIPHENYL				81	43-116
TERPHENYL-D14				98	33-124
PHENOL-D6				86	10-100
2-FLUOROPHENOL				88	21-100
2,4,6-TRIBROMOPHENOL				103	10-123

Comments:

Notes:
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"QC Report"

Title: Water Matrix Spike/Matrix Spike Duplicate
Batch: ALW077
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.

Dry Weight %: N/A
Sample Spiked: 806306-3

MS Date Analyzed: 30-JUN-98
MSD Date Analyzed: 30-JUN-98

MS Date Extracted: 26-JUN-98
MSD Date Extracted: 26-JUN-98

Parameters:	Spike Added	Sample Conc	MS Conc	MS %Rec	MSD Conc	MSD %Rec	RPD	RPD Lmts	Rec Lmts
PHENOL	300	<10	304	101	296	99	2	38	5-112
2-CHLOROPHENOL	300	<10	308	103	312	104	1	25	38-120
1,4-DICHLOROBENZENE	200	<10	140	70	176	88	23	27	39-112
N-NITRO-DI-N-PROPYLAMINE	200	<10	188	94	204	102	8	30	32-125
1,2,4 TRICHLOROBENZENE	200	<10	144	72	172	86	18	30	44-118
4-CHLORO-3-METHYLPHENOL	300	<10	320	107	264	88	19	23	42-131
ACENAPHTHENE	200	<10	188	94	208	104	10	21	47-131
4-NITROPHENOL	300	<50	288	96	316	105	9	36	1-116
2,4-DINITROTOLUENE	200	<10	196	98	212	106	8	22	39-138
PENTACHLOROPHENOL	300	<50	340	113	380	127	12	36	14-164
PYRENE	200	<10	228	114	228	114	0	21	52-115
Surrogates:									
NITROBENZENE-D5				73		88			35-114
2-FLUOROBIPHENYL				75		84			43-116
TERPHENYL-D14				102		96			33-124
PHENOL-D6				91		84			10-100
2-FLUOROPHENOL				94		87			21-100
2,4,6-TRIBROMOPHENOL				111		108			10-123

Comments:

Notes:
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UG/KG = PARTS PER BILLION.
MG/KG = PARTS PER MILLION.
MG/L = PARTS PER MILLION.
MG/M3 = MILLIGRAMS PER CUBIC METER.
NG = NANOGRAMS.
UG = MICROGRAMS.
PPBV = PARTS PER BILLION/VOLUME.
< = LESS THAN.
ND = NOT DETECTED ABOVE REPORT LIMIT.
RPT LMTS = REPORTING LIMITS BASED ON METHOD DETECTION LIMIT STUDIES.
RPD = RELATIVE PERCENT DIFFERENCE (OR DEVIATION)

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ORGANIC SOILS ARE REPORTED ON A DRY WEIGHT BASIS.

DUE TO THE NATURE OF THE SAMPLE MATRIX, MATRIX SPIKE/MATRIX SPIKE DUPLICATE ANALYSIS CANNOT BE PERFORMED FOR AIR ANALYSIS.

CLP SOW 1991, USEPA CONTRACT LABORATORY PROGRAM, STATEMENT OF WORK FOR ORGANICS ANALYSIS, DOCUMENT NUMBER OLM01.8, AUGUST 1991.

AEN-PN USES THE MOST CURRENT PROMULGATED METHODS CONTAINED IN THE REFERENCE MANUALS.

LP = LEVERNE PETERSON	RW = RITA WINGO
LD = LARRY DILMORE	BDH = BRUCE D. HUNT
DWB = DAVID BOWERS	HB = HEATHER E. BLAIR

American Environmental Network of Florida
PROJECT SAMPLE INSPECTION FORM

Lab Accession #: 806300 Date Received: 23-Jun-98

1.	Was there a Chain of Custody?	(Yes)	No*	
2.	Was Chain of Custody properly filled out and relinquished?	(Yes)	No*	
3.	Were samples received cold? (Criteria: 2° - 6°C: AEN-SOP 1055)	(Yes)	No*	N/A
4.	Were all samples properly labeled and identified?	(Yes)	No*	
5.	Did samples require splitting? Req By: PM Client Other♦	Yes*	(No)	
6.	Were samples received in proper containers for analysis requested?	(Yes)	No*	
7.	Were all sample containers received intact?	(Yes)	No*	
8.	Were samples checked for preservative? *(Check pH of all H_2O requiring preservative (AEN-PN SOP 917) except VOA vials that require zero headspace)+*	(Yes)	No*	N/A
9.	Is there sufficient volume for analysis requested?	(Yes)	No*	
10.	Were samples received within Holding Time? (REFER TO AEN-SOP 1040)	(Yes)	No*	
11.	Is Headspace visible > ¼" in diameter in VOA vials?* If any headspace is evident, comment in out-of-control	Yes*	No	(N/A)
12.	If sent, were matrix spike bottles returned?	Yes	No*	(N/A)
13.	Was Project Manager notified of problems? (initials:_____)	Yes	No*	(N/A)

Airbill Number(s): 806603416381, 806603416370, 806603416407

Shipped By: Fedex

Cooler Number(s): 8312, 0181, Thies

Shipping Charges: N/A

Cooler Weight(s): N/A

Cooler Temp(s) (°C): 2.0°C, 2.0°C 2.0°C CCL7

(LIST THERMOMETER NUMBER(S) FOR VERIFICATION)

Out of Control Events and Inspection Comments:

COC was Saturated in water. Piece that's missing was stuck to inside of cooler, to saturated with water to be removed. LC 6/23/98

(USE BACK OF PSI FOR ADDITIONAL NOTES AND COMMENTS) ☞

Inspected By: L. Kitt **Date:** 23-Jun-98 **Logged By:** L. Kitt **Date:** 23-Jun-98

♣ *Note all Out-of-Control and/or questionable events on Comment Section of this form.*

♦ *Note who requested the splitting of samples on the Comment Section of this form.*

\+ *All preservatives for the State of North Carolina, the State of New York, and other requested samples are to be recorded on the sheet provided to record pH results (AEN-SOP 938, section 2.2.9).*

* *According to EPA, ¼" of headspace is allowed in 40 ml vials requiring volatile analysis, however, AEN makes it policy to record any headspace as out-of-control (AEN-SOP 938, section 2.2.12).*

American Environmental Network (NM), Inc.

CHAIN OF CUSTODY

DATE: _____ PAGE: ___ OF ___

AEN (NM) Accession #: FE 806419 / 806330

SHADED AREAS ARE FOR LAB USE ONLY.

PLEASE FILL THIS FORM IN COMPLETELY.

PROJECT MANAGER: Paul Peacock

COMPANY: Marathon Oil Company
ADDRESS: P.O. Box 552
Midland, Tx 79702-0552
PHONE: (915) 687-8312
FAX: (915) 687-8305

BILL TO: same as above
COMPANY:
ADDRESS:

SAMPLE ID	DATE	TIME	MATRIX	LAB ID
MW-44	6-22-98	1040	H2O	
MW-43	↓	1140	↓	
MW-14	↓	1300	↓	

ANALYSIS REQUEST

Petroleum Hydrocarbons (418.1) TRPH	(MOD.8015) Diesel/Direct Inject	(M8015) Gas/Purge & Trap	8021 (BTEX)/8015 (Gasoline)	8021 (BTEX) ☐ MTBE ☐ TMB ☐ PCE	8021 (TCL)	8021 (EDX)	8021 (HALO)	8021 (CUST)	504.1 EDB ☐ / DBCP ☐	CYANIDE, AMMONIA, TKN	8260 (TCL) Volatile Organics	8260 (Full) Volatile Organics	8260 (CUST) Volatile Organics	8260 (Landfill) Volatile Organics	Pesticides /PCB (608/8081)	Herbicides (615/8151)	Base/Neutral/Acid Compounds GC/MS (625/8270)	Polynuclear Aromatics (610/8310)	General Chemistry:	TOTAL PHENOLS	SEE LIST *	Priority Pollutant Metals (13)	Target Analyte List Metals (23)	RCRA Metals (8)	RCRA Metals by TCLP (Method 1311)	Metals: SEE LIST *	NUMBER OF CONTAINERS
										X					X		X	X		X	X					X	
										X					X		X	X		X	X					X	
										X					X		X	X		X	X					X	

PROJECT INFORMATION

PROJ. NO.: 104332.03
PROJ. NAME: IBRP
P.O. NO.:
SHIPPED VIA:

SAMPLE RECEIPT

NO. CONTAINERS:
CUSTODY SEALS: Y/N/NA
RECEIVED INTACT: Y/N/NA
BLUE ICE/ICE:

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

(RUSH) ☐ 24hr ☐ 48hr ☐ 72hr ☐ 1 WEEK (NORMAL) ☒

CERTIFICATION REQUIRED: ☐ NM ☐ SDWA ☐ OTHER

METHANOL PRESERVATION ☐

COMMENTS: FIXED FEE ☐

* SEE LIST

NOTE: MW-14 Product Well

RELINQUISHED BY

Signature: Time:
Printed Name: Charles Mallard Date: 6-22-98
Company: FDGE

RECEIVED BY

Signature: Time:
Printed Name: Linda Kittel 1345
Company: AEN

RELINQUISHED BY

Signature:
Printed:

American Environmental Network (NM), Inc.

CHAIN OF CUSTODY

DATE: _____ PAGE: ___ OF ___

AEN NM Accession #: NM-801-419

SHADED AREAS ARE FOR LAB USE ONLY

PLEASE FILL THIS FORM IN COMPLETELY.

PROJECT MANAGER: Paul Peacock

COMPANY: Marathon Oil Company
ADDRESS: P.O. Box 552
Midland, TX 79702-0552
PHONE: (915) 687-8312
FAX: (915) 687-8305

BILL TO: same as above
COMPANY:
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)	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)	Herbicides (615/8151)	Base/Neutral/Acid Compounds GC/MS (625/8270)	Polynuclear Aromatics (610/8310)	General Chemistry:				Priority Pollutant Metals (13)	Target Analyte List Metals (23)	RCRA Metals (8)	RCRA Metals by TCLP (Method 1311)	Metals:		# CONTAINERS
MW-44	6-22-98	1040	H2O	01								X	X			X																6
MW-43	↓	1140	↓	02								X	X			X																6
MW-14	↓	1300	↓	03								X	X			X																6
Trip Blank	6/11	1410	AQ	04												X																1

PROJECT INFORMATION

PROJ. NO.: 104332.03
PROJ. NAME: IBRP
P.O. NO.:
SHIPPED VIA:

SAMPLE RECEIPT

NO. CONTAINERS: 19
CUSTODY SEALS: (Y) N / NA
RECEIVED INTACT: Yes
BLUE ICE/ICE: 3°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 ☐

NOTE: MW-14 Product well.

RELINQUISHED BY: 1

Signature: Time:
Printed Name: Charles Maxwell Date: 6-22-98
Company: FDGTI

RECEIVED BY: 1

Signature: Time:
Printed Name: Date:
Company:

RELINQUISHED BY: 2

Signature: Time:
Printed Name: Date:
Company:

RECEIVED BY: (LAB) 2

Signature: Time: 11:10
Printed Name: Date: 6/24/98
American Environmental Network (NM), Inc.

RECEIVED

AEN I.D. **806414**

July 24, 1998

Marathon Oil Company
P.O. Box 552
Midland, TX 79702-0552

Project Name/Number: IBRP 104332.03

Attention: Paul Peacock

On **06/22/98**, American Environmental Network (NM) Inc., (ADHS License No. AZ0015), 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.

The volatiles (EPA Method 504.1, 8021 and 8260) arrived at 16° C. They were resamples and analyzed under AEN accession number 806429.

Uranium analyses were performed by North Creek Analytical Laboratories, Beaverton, OR.

Radiochemistry analyses were performed by Severn Trent Laboratories, Morrisville, NC.

All other analyses were performed by Severn Trent Laboratories, Pensacola, FL.

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:jt

Enclosure

CLIENT	: Marathon Oil Company	DATE RECEIVED	: 06/22/98
PROJECT #	: 104332.03		
PROJECT NAME	: IBRP	REPORT DATE	: 07/24/98

AEN ID: 806414

	AEN ID #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	806414-01	MW-50	Aqueous	06/19/98
02	806414-02	MW-41	Aqueous	06/19/98
03	806414-03	MW-78	Aqueous	06/19/98

---TOTALS---

MATRIX	#SAMPLES
Aqueous	4

AEN STANDARD DISPOSAL PRACTICE

The samples from this project will be disposed of in thirty (30) days from the date of this report. If an extended storage period is required, please contact our sample control department before the scheduled disposal date.

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ▪ (425) 420-9200 ▪ FAX 420-9210
SPOKANE ▪ (509) 924-9200 ▪ FAX 924-9290
PORTLAND ▪ (503) 906-9200 ▪ FAX 906-9210

American Environmental Network	Project:	Marathon Oil	Sampled: 6/19/98
2709-D Pan American Freeway,NE	Project Number:	104332.03	Received: 6/23/98
Albuquerque, NM 87107	Project Manager:	Kimberly McNeill	Reported: 7/21/98 12:31

ANALYTICAL REPORT FOR SAMPLES:

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
MW-50	P806458-01	Water	6/19/98
MW-41	P806458-02	Water	6/19/98
MW-78	P806458-03	Water	6/19/98

North Creek Analytical, Inc.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Lisa Domenighini, Project Manager

18939 120th Avenue N.E., Suite 101, Bothell, WA 98011-9508
East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ▪ (425) 420-9200 ▪ FAX 420-9210
SPOKANE ▪ (509) 924-9200 ▪ FAX 924-9290
PORTLAND ▪ (503) 906-9200 ▪ FAX 906-9210

American Environmental Network	Project:	Marathon Oil	Sampled: 6/19/98
2709-D Pan American Freeway,NE	Project Number:	104332.03	Received: 6/23/98
Albuquerque, NM 87107	Project Manager:	Kimberly McNeill	Reported: 7/21/98 12:31

Total Metals per EPA 6000/7000 Series Methods
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
MW-50			**P806458-01**				**Water**	
Uranium	0780163	7/6/98	7/19/98	EPA 6020	0.00100	**0.0962**	mg/l	
MW-41			**P806458-02**				**Water**	
Uranium	0780163	7/6/98	7/19/98	EPA 6020	0.00100	**0.00430**	mg/l	
MW-78			**P806458-03**				**Water**	
Uranium	0780163	7/6/98	7/19/98	EPA 6020	0.00100	**0.00170**	mg/l	

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ▪ (425) 420-9200 ▪ FAX 420-9210
SPOKANE ▪ (509) 924-9200 ▪ FAX 924-9290
PORTLAND ▪ (503) 906-9200 ▪ FAX 906-9210

American Environmental Network	Project:	Marathon Oil	Sampled: 6/19/98
2709-D Pan American Freeway,NE	Project Number:	104332.03	Received: 6/23/98
Albuquerque, NM 87107	Project Manager:	Kimberly McNeill	Reported: 7/21/98 12:31

Total Metals per EPA 6000/7000 Series Methods/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0780163	**Date Prepared: 7/6/98**					**Extraction Method: EPA 200/3005**				
Blank	**0780163-BLK1**									
Uranium	7/16/98			**ND**	mg/l	**0.00100**				
LCS	**0780163-BS1**									
Uranium	7/16/98	0.0500		0.0537	mg/l	75.0-125	107			
Duplicate	**0780163-DUP1**		**P806407-01**							
Uranium	7/16/98		0.00160	0.00120	mg/l			20.0	**28.6**	1
Matrix Spike	**0780163-MS1**		**P806407-01**							
Uranium	7/16/98	0.0500	0.00160	0.0601	mg/l	70.0-130	**117**			
Matrix Spike	**0780163-MS2**		**P806457-03**							
Uranium	7/19/98	0.0500	ND	0.0670	mg/l	70.0-130	**134**			2

North Creek Analytical, Inc.

**Refer to end of report for text of notes and definitions.*

Lisa Domenighini, Project Manager

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ▪ (425) 420-9200 ▪ FAX 420-9210
SPOKANE ▪ (509) 924-9200 ▪ FAX 924-9290
PORTLAND ▪ (503) 906-9200 ▪ FAX 906-9210

American Environmental Network	Project:	Marathon Oil	Sampled: 6/19/98
2709-D Pan American Freeway,NE	Project Number:	104332.03	Received: 6/23/98
Albuquerque, NM 87107	Project Manager:	Kimberly McNeill	Reported: 7/21/98 12:31

Notes and Definitions

#	Note
1	Analyses are not controlled on RPD values from sample concentrations less than 5 times the reporting limit.
2	The spike recovery for this QC sample is outside of established control limits. Review of associated batch QC indicates the recovery for this analyte does not represent an out-of-control condition for the batch.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
Recov.	Recovery
RPD	Relative Percent Difference

North Creek Analytical, Inc.

Lisa Domenighini, Project Manager

18939 120th Avenue N.E., Suite 101, Bothell, WA 98011-9508
East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132

American Environmental Network (NM), Inc.

CHAIN OF CUSTODY

DATE: 6-19-98 PAGE: 1 OF 1

AEN (NM) Accession #: 806458

SHADED AREAS ARE FOR LAB USE ONLY

PLEASE FILL THIS FORM IN COMPLETELY.

PROJECT MANAGER:	Paul Peacock
COMPANY:	Marathon Oil Company
ADDRESS:	P.O. Box 552
	Midland, TX 79702-0552
PHONE:	(915) 687-8312
FAX:	(915) 687-8305
BILL TO:	same as above
COMPANY:	
ADDRESS:	

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	Petroleum Hydrocarbons (418.1) TRPH	(MOD.8015) Diesel/Direct Inject	(M8015) Gas/Purge & Trap	8021 (BTEX)/8015 (Gasoline)	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)	Herbicides (615/8151)	Base/Neutral/Acid Compounds GC/MS (625/8270)	Polynuclear Aromatics (610/8310)	General Chemistry:	URANIUM 1 CHEM S	Priority Pollutant Metals (13)	Target Analyte List Metals (23)	RCRA Metals (8)	RCRA Metals by TCLP (Method 1311)	Metals:	# OF CONTAINERS
MW-50	6-19-98	0845	H_2O																				X							1
MW-41	↓	1005	↓																				X							1
MW-78	↓	1110	↓																				X							1

PROJECT INFORMATION

PROJ. NO.: 104332.03

PROJ. NAME: IBRP

P.O. NO.:

SHIPPED VIA:

SAMPLE RECEIPT

NO. CONTAINERS:	
CUSTODY SEALS:	Y / N / NA
RECEIVED INTACT:	
BLUE ICE/ICE:	

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

(RUSH) ☐ 24hr ☐ 48hr ☐ 72hr ☐ 1 WEEK (NORMAL) X

CERTIFICATION REQUIRED: ☐ NM ☐ SDWA ☐ OTHER

METHANOL PRESERVATION ☐

COMMENTS: FIXED FEE ☐

RELINQUISHED BY: 1.	RELINQUISHED BY:
Signature:	Time: 1500
Printed Name: Charles Madewell	Date: 6-19-98
Company: FDGTI	
RECEIVED BY: 1.	**RECEIVED BY: (LAB) NA 2.**
Signature:	Time: 1500
Printed Name: CHRIS FAITH	Date: 6/19
Company: AEN	

RELINQUISHED BY:	
Signature:	Time: 1600
Printed Name: CHRIS FAITH	Date: 6/19
Company: AEN	
Signature:	Time: 1115
Printed Name: S. Vanderhoof	Date: 6/23/98
American Enviromental Network (NM), Inc.	

Committed To *Your* Success

Severn Trent Laboratories
120 Southcenter Court, Suite 300
Morrisville NC 27560

Tel: (919) 460-8505
Fax: (919) 469-2646

July 16, 1998

American Environmental Network
Attn: Dr. Mitch Rubenstein
2709D PanAmerican Freeway NE
Albuquerque, NM 87107

Dear Dr. Rubenstein:

Please find enclosed the radiological results of three (3) water samples. This report contains sections addressing the following information at a minimum:

- case narrative
- sample summary
- analytical results (forms I thru VII), key, and COC's if applicable

STL Project #:	23995009
STL Work Order #:	98-06401
Client Project ID:	04332.0B1

Copies of this radiological report and supporting data are maintained in our files for a minimum of three years unless special arrangements have been made. Except where specifically indicated, all radiological testing was performed at this laboratory location and no portion of the testing was subcontracted.

We appreciate your selection of our services and welcome any questions or suggestions you may have relative to this report. Please contact your customer service representative at (919) 460-8505 for any additional information. Thank you for utilizing our services. We hope you will consider us for your future analytical needs.

I have reviewed and approved the enclosed data for final release.

Sincerely,

Ross W. Williams

Ross W. Williams, Ph.D.
Manager, Radiological Laboratory
STL-North Carolina

RWW/mevl

STL
Committed To *Your* Success

CASE NARRATIVE
Client: American Environmental Network - NM
Client Project ID: 104332.03
STL-NC Order Number: 98-06-401
STL-NC Project Number: 2399-009

Three (3) water samples were received on June 22, 1998, in good condition with the chain-of-custody intact.

The samples were analyzed for Ra-226 and Ra-228.

A method blank was analyzed with each batch, and the activities of the blanks were equal to or less than the acceptance criteria of less than three times the MDL.

A blank spike sample was analyzed with each batch, and the recoveries were within the 80-120% acceptance criteria.

A matrix spike analysis was made with each batch also. The matrix spike recoveries were within the acceptance criteria of 80-120% for water samples.

A duplicate sample was analyzed for each batch. The duplicate analyses were within our acceptance criteria of a Duplicate Error Ratio (DER) of less than 1.5. The DER is defined as follows:

$$DER = \frac{|S-D|}{(2\sigma_s + 2\sigma_d)}$$

Where: S = Original Sample Value
D = Duplicate Value
$2\sigma_s$ = Original Sample Uncertainty
$2\sigma_d$ = Duplicate Sample Uncertainty

Ross W. Williams, Ph.D.
Manager, Radiological Laboratory
7/17/98

Environmental Survey

Cover Page

Radiological Data Analysis Package

07/09/98

120 Southcenter Ct., Suite 300
Morrisville, NC 27560

Phone (919) 460-8505
Fax (919) 469-2646

NC - 806414

Project Number: 2399-009

Client Sample ID	Lab ID
MW-50	9806401-01
MW-41	9806401-02
MW-78	9806401-03

Comments: _____

Release of the data contained in this package has been authorized by the laboratory manager or the manager's designee, as verified by the following signature.

Ross W. Williams
Manager, Radiological Laboratory

7/17/98
Date

Project Number: 2399-009

Radiological Analysis Results

NC - 806414

Form I

Client Sample ID	Lab ID	Sample Type	Batch Number	Matrix	Radionuclide	Result	Uncertainty	Q	Units	Analysis Date	Sample Size	MDA
MW-50	9806401-01	Reg	98060055	Water	Ra-226	4.79	0.50		pCi/L	07/08/98	0.5000	0.26
MW-50	9806401-01	Reg	98060057	Water	Ra-228	5.67	1.35		pCi/L	07/01/98	1.0000	2.31
MW-41	9806401-02	Reg	98060055	Water	Ra-226	0.99	0.18		pCi/L	07/08/98	0.5000	0.11
MW-41	9806401-02	Reg	98060057	Water	Ra-228	5.25	1.33		pCi/L	07/01/98	1.0000	2.30
MW-78	9806401-03	Reg	98060055	Water	Ra-226	11.16	0.72		pCi/L	07/08/98	0.5000	0.21
MW-78	9806401-03	Reg	98060057	Water	Ra-228	4.45	1.21		pCi/L	07/01/98	1.0000	2.19

Key shall be attached

Comments: _____

MDA mode

STL

Project Number: 2399-009

Severn Trent Laboratories

QA/QC Results Summary

NC - 806414

Form II

Client Sample ID	Lab ID	Sample Type	Batch Number	Matrix	Radionuclide	Result	Uncertainty	Units	Analysis Date	Sample Size	MDA	Inst ID
Blank Spike	N/A	BS	98060055	Water	Ra-226	147.55	1.83	pCi/L	07/07/98	0.5000	0.13	5
Blank Spike	N/A	BS	98060057	Water	Ra-228	91.87	3.99	pCi/L	07/01/98	1.0000	2.25	1
MW-61	9806402-03	Dup	98060055	Water	Ra-226	4.01	0.32	pCi/L	07/07/98	0.5000	0.11	5
MW-61	9806402-03	Dup	98060057	Water	Ra-228	4.94	1.39	pCi/L	07/01/98	1.0000	2.55	1
Method Blank	N/A	MB	98060055	Water	Ra-226	0.12	0.12	pCi/L	07/07/98	0.5000	0.13	5
Method Blank	N/A	MB	98060057	Water	Ra-228	1.89	1.21	pCi/L	07/01/98	1.0000	2.64	1
MW-61	9806402-03	MS	98060055	Water	Ra-226	131.62	1.64	pCi/L	07/07/98	0.5000	0.11	5
MW-61	9806402-03	MS	98060057	Water	Ra-228	104.15	4.57	pCi/L	07/01/98	1.0000	3.10	1

Key shall be attached
Comments: _____

MD

Project Number: 2399-009

Method Blank Summary

NC - 806414

07/09/98

Form III

Client Sample ID	Batch Number	Matrix	Radionuclide	Result	Uncertainty	Q	Units	Analysis Date	Sample Size	Method Number	Inst ID
Method Blank	*98060055*	*Water*	*Ra-226*	*0.12*	*0.12*		*pCi/L*	07/07/98	0.5000	RAS01900	5
Method Blank	98060057	Water	Ra-228	1.89	1.21		pCi/L	07/01/98	1.0000	RAS08500	1

Key shall be attached

Comments: _____

_____

_____

MDA mode

STL

Project Number: 2399-009

Severn Trent Laboratories

Chemical Recovery

NC - 806414

07/09/98

Form IV

Client Sample ID	Lab ID	Sample Type	Batch Number	Radionuclide	Chemical Tracer	Tracer Result	Tracer Added	Percent Recovery	Q	Tracer Units	Analysis Date	Inst ID
MW-50	9806401-01	Reg	98060055	Ra-226	Ba-133	1197.00	1256.00	95.30 %		pCi	07/08/98	5
MW-50	9806401-01	Reg	98060057	Ra-228	Ba-133	985.30	1256.00	78.45 %		pCi	07/01/98	1
MW-41	9806401-02	Reg	98060055	Ra-226	Ba-133	896.10	1256.00	71.35 %		pCi	07/08/98	5
MW-41	9806401-02	Reg	98060057	Ra-228	Ba-133	950.70	1249.00	76.12 %		pCi	07/01/98	1
MW-78	9806401-03	Reg	98060055	Ra-226	Ba-133	1209.00	1249.00	96.80 %		pCi	07/08/98	5
MW-78	9806401-03	Reg	98060057	Ra-228	Ba-133	1078.00	1256.00	85.83 %		pCi	07/01/98	1
Blank Spike	N/A	BS	98060055	Ra-226	Ba-133	1232.00	1249.00	98.64 %		pCi	07/07/98	5
Blank Spike	N/A	BS	98060057	Ra-228	Ba-133	964.90	1256.00	76.82 %		pCi	07/01/98	1
MW-61	9806402-03	Dup	98060055	Ra-226	Ba-133	1252.00	1256.00	99.68 %		pCi	07/07/98	5
MW-61	9806402-03	Dup	98060057	Ra-228	Ba-133	921.10	1249.00	73.75 %		pCi	07/01/98	1
Method Blank	N/A	MB	98060055	Ra-226	Ba-133	1215.00	1249.00	97.28 %		pCi	07/07/98	5
Method Blank	N/A	MB	98060057	Ra-228	Ba-133	1118.00	1249.00	89.51 %		pCi	07/01/98	1
MW-61	9806402-03	MS	98060055	Ra-226	Ba-133	1246.00	1249.00	99.76 %		pCi	07/07/98	5
MW-61	9806402-03	MS	98060057	Ra-228	Ba-133	857.20	1256.00	68.25 %		pCi	07/01/98	1

Key shall be attached

Comments: _____

MDA

Project Number: 2399-009

Blank Spike Results Summary

NC - 806414

Form V

Client Sample ID	Batch Number	Matrix	Radionuclide	Spike	Result	Spike Value	Percent Recovery	Q	Units	Analysis Date	Method Number
Blank Spike	98060055	Water	Ra-226	Ra-226	147.55	145.40	101.48%		pCi/L	07/07/98	RAS01900
Blank Spike	98060057	Water	Ra-228	Ra-228	91.87	87.75	104.70%		pCi/L	07/01/98	RAS08500

Key shall be attached

Comments: _____

_____

_____

MDA mode

Matrix Spike Results Summary NC - 806414 07/09/98

Form VI

Client Sample ID	Lab ID	Batch Number	Spike	SSR	Sample Result	Spike Added	Percent Recovery	Q	Units	Analysis Date	Inst ID
MW-61	9806402-03	98060055	Ra-226	131.62	3.79	145.40	87.92 %		pCi/L	07/07/98	5
MW-61	9806402-03	98060057	Ra-228	104.15	3.60	87.75	114.59 %		pCi/L	07/01/98	1

Key shall be attached
Comments:

Project Number: 2399-009

Duplicate Results

NC - 806414

07/09/98

Form VII

Client Sample ID	Lab ID	Batch Number	Radionuclide	Sample Result	Uncertainty	Dup. Result	Dup. Uncertainty	DER	Q	Units
MW-61	9806402-03	98060055	Ra-226	3.79	0.28	4.01	0.32	0.37		pCi/L
MW-61	9806402-03	98060057	Ra-228	3.60	1.48	4.94	1.39	0.47		pCi/L

Key shall be attached

Comments: _____

_____

_____

MDA mode



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REPORT FORM KEY

Severn Trent Laboratories
120 Southcenter Court, Suite 300
Morrisville NC 27560

Tel: (919) 460-8505
Fax: (919) 469-2646

Instrument ID:

#1 - Gas Proportional Counter
#2 - High Purity Germanium Detectors (HPGe)
#3 - Alpha Spectrometry Counter
#4 - Liquid Scintillation Counter
#5 - Lucas Cell Counter
#6 - Sodium Iodide Detector

Sample Type:

REG - Regular Sample
DUP - Duplicate Sample
MS - Matrix Spike
BS - Blank Spike
MB - Method Blank

Units:

pCi/L - Picocuries per Liter
pCi/g - Picocuries per Gram
pCi/ml - Picocuries per Milliliter
pCi/mg - Picocuries per Milligram
pCi/F - Picocuries per Air Filter

Radionuclides:

H-3	Tritium	C-14	Carbon-14
Cl-36	Chlorine-36	K-40	Potassium-40
Co-60	Cobalt-60	Sr-89	Strontium-89
Sr-90	Strontium-90	Tc-99	Technetium-99
Cs-137	Cesium-137	Tl-208	Thallium-208
Pb-210	Lead-210	Pb-212	Lead-212
Pb-214	Lead-214	Bi-214	Bismuth-214
Ra-226	Radium-226	Ac-228	Actinium-228
Ra-228	Radium-228	Th-234	Thorium-234
Th-227	Thorium-227	Th-232/230/228	Isotopic Thorium
U-234/235/238	Isotopic Uranium	Pu-238	Plutonium-238
Pu-239/240	Plutonium-239&240	Am-241	Americium-241
Np-237	Neptunium-237		

Lab

WORK ORDER

Work Order #	98-06-401	# of Samples	3	Recieved Date	06/22/98	American Environ. Network
Client #	2399	# of Tests	6	Load Date	06/22/98	2709D PanAmerican Freeway NE
Project	2399-009	Report Level	2	Due Date	07/09/98	Albuquerque, NM 87107
Amount	123.25	Quote #		Export Date	/ /	Mitch Rubenstein
Comment						

Lab ID	Sample #	Status	Matrix	Test	Cust ID	Collected
9806401-01	01A1	Open	Water	Ra-226	MW-50	06/19/98
9806401-01	01A2	Open	Water	Ra-228	MW-50	06/19/98
9806401-02	02A1	Open	Water	Ra-226	MW-41	06/19/98
9806401-02	02A2	Open	Water	Ra-228	MW-41	06/19/98
9806401-03	03A1	Open	Water	Ra-226	MW-78	06/19/98
9806401-03	03A2	Open	Water	Ra-228	MW-78	06/19/98

pH Checked
All Samples pH <2
Initials: EB Date: 6/23/98

98-06-401

American Environmental Network (NM), Inc.

CHAIN OF CUSTODY

DATE: 6-19-98 PAGE: 1 OF 1

AEN (NM) Accession #:

SHADED AREAS ARE FOR LAB USE ONLY

PLEASE FILL THIS FORM IN COMPLETELY.

PROJECT MANAGER: Paul Peacock

COMPANY: Marathon Oil Company
ADDRESS: P.O. Box 552
Midland, TX 79702-0552
PHONE: (915) 687-8312
FAX: (915) 687-8305
BILL TO: same as above
COMPANY:
ADDRESS:

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)	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)	Herbicides (615/8151)	Base/Neutral/Acid Compounds GC/MS (625/8270)	Polynuclear Aromatics (610/8310)	General Chemistry: Ra 226 / 228	Priority Pollutant Metals (13)	Target Analyte List Metals (23)	RCRA Metals (8)	RCRA Metals by TCLP (Method 1311)	Metals:	NUMBER OF CONTAINERS
MW-50	6-19-98	0845	H_2O																				X						1
MW-41	↓	1005	↓																				X						1
MW-78	↓	1110	↓																				X						1

PROJECT INFORMATION

PROJ. NO.: 104332.03
PROJ. NAME: IBRP
P.O. NO.:
SHIPPED VIA:

SAMPLE RECEIPT

NO. CONTAINERS	
CUSTODY SEALS INTACT	Y / N / NA
RECEIVED INTACT	
BLUE ICE / ICE	

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

(RUSH) ☐ 24hr ☐ 48hr ☐ 72hr ☐ 1 WEEK (NORMAL) ☒

CERTIFICATION REQUIRED: ☐ NM ☐ SDWA ☐ OTHER

METHANOL PRESERVATION ☐

COMMENTS: FIXED FEE ☐

RELINQUISHED BY: 1.

Signature: Time: 1500
Printed Name: Charles Maxwell Date: 6-19-98
Company: FDGTI

RECEIVED BY: 1.

Signature: Time: 1600
Printed Name: Chris Faron Date: 6/19
Company: AEN

RELINQUISHED BY: 2.

Signature: Time: 1600
Printed Name: Chris Faron Date: 6/19
Company: AEN

RECEIVED BY: (LAB) 2.

Signature: Time: 11:00
Printed Name: B. Thurick Date: 6/22/98
Company: American Environmental Network (NM), Inc.

Committed To *Your* Success

Severn Trent Laboratories
11 East Olive Road
Pensacola FL 32514

Tel: (850) 474-1001
Fax: (850) 474-4789

SIGNATURE PAGE

Reviewed by: 4M Patrick
AEN Project Manager

Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC. ALBUQUERQUE, NEW MEXICO
Project Name:	IBRP
Project Number:	806414
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Accession Number:	806267
Project Manager:	KIMBERLY D. MCNEILL
Sampled By:	N/S

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-100

Analysis Report

Analysis: MARATHON WET CHEMISTRY INORGANICS

Accession:	806267
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806414
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	WET CHEM

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 806267
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806414
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON WET CHEMISTRY INORGANICS
QcLevel: II

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: MW-50			Lab ID: 001		
CHLORIDE (4500-CL B)	MG/L	340	1	CIW067	
CYANIDE, TOTAL (335.2)	MG/L	ND	0.005	CNW037	
FLUORIDE (340.2/4500-F C)	MG/L	1.2	0.2	FLW026	
NITRITE, NITROGEN (354.1)	MG/L	ND	0.1	N2W090	
NITRITE-NITRATE, NITROGEN (353.2)	MG/L	0.5	0.1	N3W46B	
NITRATE, NITROGEN (353.2-354.1)	MG/L	0.5	0.1	NONE	
PH (150.1)	UNITS	8.2	NA	PHW130	R4
PHENOLS, TOTAL (420.1)	MG/L	ND	0.005	PEW023	
SULFATE (375.4)	MG/L	3800	1000	SEW077	+
TOTAL DISSOLVED SOLIDS (160.1)	MG/L	5900	5	TDW037	
Comments:					
Client ID: MW-41			Lab ID: 002		
CHLORIDE (4500-CL B)	MG/L	120	1	CIW067	
CYANIDE, TOTAL (335.2)	MG/L	ND	0.005	CNW037	
FLUORIDE (340.2/4500-F C)	MG/L	1.5	0.2	FLW026	
NITRITE, NITROGEN (354.1)	MG/L	ND	0.1	N2W090	
NITRITE-NITRATE, NITROGEN (353.2)	MG/L	ND	0.1	N3W46B	
NITRATE, NITROGEN (353.2-354.1)	MG/L	ND	0.1	NONE	
PH (150.1)	UNITS	7.5	NA	PHW130	R4
PHENOLS, TOTAL (420.1)	MG/L	0.024	0.005	PEW023	
SULFATE (375.4)	MG/L	190	50	SEW077	+
TOTAL DISSOLVED SOLIDS (160.1)	MG/L	1200	5	TDW037	
Comments:					

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 806267
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806414
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON WET CHEMISTRY INORGANICS
QcLevel: II

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: MW-78			Lab ID: 003		
CHLORIDE (4500-CL B)	MG/L	47	1	CIW067	
CYANIDE, TOTAL (335.2)	MG/L	ND	0.005	CNW037	
FLUORIDE (340.2/4500-F C)	MG/L	ND	0.2	FLW026	
NITRITE, NITROGEN (354.1)	MG/L	ND	0.1	N2W090	
NITRITE-NITRATE, NITROGEN (353.2)	MG/L	ND	0.1	N3W46B	
NITRATE, NITROGEN (353.2-354.1)	MG/L	ND	0.1	NONE	
PH (150.1)	UNITS	7.1	NA	PHW130	R4
PHENOLS, TOTAL (420.1)	MG/L	ND	0.005	PEW023	
SULFATE (375.4)	MG/L	ND	5	SEW077	
TOTAL DISSOLVED SOLIDS (160.1)	MG/L	490	5	TDW037	

Comments:

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 806267
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806414
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON WET CHEMISTRY INORGANICS

Client ID:	Lab ID:	Matrix:	Date/Time Sampled:	Date Received:
MW-50	001	WATER	19-JUN-98 0845	20-JUN-98
MW-41	002	WATER	19-JUN-98 1005	20-JUN-98
MW-78	003	WATER	19-JUN-98 1110	20-JUN-98

"Method Report Summary"

Accession Number: 806267
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806414
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON WET CHEMISTRY INORGANICS

Client Sample Id:	Parameter:	Unit:	Result:
MW-50	CHLORIDE (4500-CL B)	MG/L	340
	FLUORIDE (340.2/4500-F C)	MG/L	1.2
	NITRITE-NITRATE, NITROGEN (353.2)	MG/L	0.5
	NITRATE, NITROGEN (353.2-354.1)	MG/L	0.5
	PH (150.1)	UNITS	8.2
	SULFATE (375.4)	MG/L	3800
	TOTAL DISSOLVED SOLIDS (160.1)	MG/L	5900
MW-41	CHLORIDE (4500-CL B)	MG/L	120
	FLUORIDE (340.2/4500-F C)	MG/L	1.5
	PH (150.1)	UNITS	7.5
	PHENOLS, TOTAL (420.1)	MG/L	0.024
	SULFATE (375.4)	MG/L	190
	TOTAL DISSOLVED SOLIDS (160.1)	MG/L	1200
MW-78	CHLORIDE (4500-CL B)	MG/L	47
	PH (150.1)	UNITS	7.1
	TOTAL DISSOLVED SOLIDS (160.1)	MG/L	490

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Analysis Report

Analysis: MARATHON METALS - OPTIMA

Accession:	806267
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806414
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	METALS

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 806267
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806414
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON METALS - OPTIMA
QcLevel: II

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: MW-50			Lab ID:001		
SILVER (6010A)	MG/L	0.0075	0.0007	AYW169	
ALUMINUM (6010A)	MG/L	ND	0.026	LYW169	
ARSENIC (6010A)	MG/L	0.0052	0.0018	RYW169	
BARIUM (6010A)	MG/L	0.028	0.0002	BYW169	
BORON (6010A)	MG/L	0.48	0.0057	OYW169	
CADMIUM (6010A)	MG/L	ND	0.0002	CYW169	
COBALT (6010A)	MG/L	ND	0.0003	TYW169	
CHROMIUM (6010A)	MG/L	0.0009	0.0008	HYW169	
COPPER (6010A)	MG/L	ND	0.0018	FYW169	
MERCURY (7470A)	MG/L	ND	0.0001	M7W080	
NICKEL (6010A)	MG/L	0.0053	0.0009	EYW169	
IRON (6010A)	MG/L	ND	0.013	N6W169	
LEAD (6010A)	MG/L	ND	0.0022	PYW169	
MANGANESE (6010A)	MG/L	0.035	0.0002	GYW169	
MOLYBDENUM (6010A)	MG/L	0.0055	0.0003	DYW169	
SELENIUM (6010A)	MG/L	0.0037	0.0023	SYW169	
ZINC (6010A)	MG/L	0.039	0.014	5YW169	

Comments:

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: MW-41			Lab ID:002		
SILVER (6010A)	MG/L	ND	0.0007	AYW169	
ALUMINUM (6010A)	MG/L	0.030	0.026	LYW169	
ARSENIC (6010A)	MG/L	0.011	0.0018	RYW169	
BARIUM (6010A)	MG/L	0.36	0.0002	BYW169	
BORON (6010A)	MG/L	0.27	0.0057	OYW169	
CADMIUM (6010A)	MG/L	ND	0.0002	CYW169	
COBALT (6010A)	MG/L	0.0026	0.0003	TYW169	
CHROMIUM (6010A)	MG/L	0.0038	0.0008	HYW169	
COPPER (6010A)	MG/L	ND	0.0018	FYW169	
MERCURY (7470A)	MG/L	ND	0.0001	M7W080	
NICKEL (6010A)	MG/L	0.0054	0.0009	EYW169	
IRON (6010A)	MG/L	0.93	0.013	N6W169	
LEAD (6010A)	MG/L	ND	0.0022	PYW169	
MANGANESE (6010A)	MG/L	0.20	0.0002	GYW169	
MOLYBDENUM (6010A)	MG/L	0.0090	0.0003	DYW169	
SELENIUM (6010A)	MG/L	ND	0.0023	SYW169	
ZINC (6010A)	MG/L	0.037	0.014	5YW169	

Comments:

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 806267
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806414
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON METALS - OPTIMA
QcLevel: II

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: MW-78			Lab ID:003		
SILVER (6010A)	MG/L	ND	0.0007	AYW169	
ALUMINUM (6010A)	MG/L	ND	0.026	LYW169	
ARSENIC (6010A)	MG/L	0.0097	0.0018	RYW169	
BARIUM (6010A)	MG/L	0.93	0.0002	BYW169	
BORON (6010A)	MG/L	0.10	0.0057	OYW169	
CADMIUM (6010A)	MG/L	0.0003	0.0002	CYW169	
COBALT (6010A)	MG/L	0.0013	0.0003	TYW169	
CHROMIUM (6010A)	MG/L	0.0031	0.0008	HYW169	
COPPER (6010A)	MG/L	ND	0.0018	FYW169	
MERCURY (7470A)	MG/L	ND	0.0001	M7W080	
NICKEL (6010A)	MG/L	0.0065	0.0009	EYW169	
IRON (6010A)	MG/L	1.6	0.013	N6W169	
LEAD (6010A)	MG/L	ND	0.0022	PYW169	
MANGANESE (6010A)	MG/L	0.82	0.0002	GYW169	
MOLYBDENUM (6010A)	MG/L	0.0034	0.0003	DYW169	
SELENIUM (6010A)	MG/L	0.0035	0.0023	SYW169	
ZINC (6010A)	MG/L	0.087	0.014	5YW169	

Comments:

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 806267
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806414
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON METALS - OPTIMA

Client Id:	Lab Id:	Matrix:	Date/Time Sampled:	Date Received:
MW-50	001	WATER	19-JUN-98 0845	20-JUN-98
MW-41	002	WATER	19-JUN-98 1005	20-JUN-98
MW-78	003	WATER	19-JUN-98 1110	20-JUN-98

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"Method Report Summary"

Accession Number: 806267
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806414
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON METALS - OPTIMA

Client Sample Id:	Parameter:	Unit:	Result:
MW-50	SILVER (6010A)	MG/L	0.0075
	ARSENIC (6010A)	MG/L	0.0052
	BARIUM (6010A)	MG/L	0.028
	BORON (6010A)	MG/L	0.48
	CHROMIUM (6010A)	MG/L	0.0009
	NICKEL (6010A)	MG/L	0.0053
	MANGANESE (6010A)	MG/L	0.035
	MOLYBDENUM (6010A)	MG/L	0.0055
	SELENIUM (6010A)	MG/L	0.0037
	ZINC (6010A)	MG/L	0.039
MW-41	ALUMINUM (6010A)	MG/L	0.030
	ARSENIC (6010A)	MG/L	0.011
	BARIUM (6010A)	MG/L	0.36
	BORON (6010A)	MG/L	0.27
	COBALT (6010A)	MG/L	0.0026
	CHROMIUM (6010A)	MG/L	0.0038
	NICKEL (6010A)	MG/L	0.0054
	IRON (6010A)	MG/L	0.93
	MANGANESE (6010A)	MG/L	0.20
	MOLYBDENUM (6010A)	MG/L	0.0090
	ZINC (6010A)	MG/L	0.037
MW-78	ARSENIC (6010A)	MG/L	0.0097
	BARIUM (6010A)	MG/L	0.93
	BORON (6010A)	MG/L	0.10
	CADMIUM (6010A)	MG/L	0.0003
	COBALT (6010A)	MG/L	0.0013
	CHROMIUM (6010A)	MG/L	0.0031
	NICKEL (6010A)	MG/L	0.0065
	IRON (6010A)	MG/L	1.6
	MANGANESE (6010A)	MG/L	0.82
	MOLYBDENUM (6010A)	MG/L	0.0034
	SELENIUM (6010A)	MG/L	0.0035
	ZINC (6010A)	MG/L	0.087

SEVERN TRENT LABORATORIES 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Analysis Report

Analysis: POLYNUCLEAR AROMATICS BY 8310

Accession:	806267
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806414
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	SEMI-VOLATILE FUELS

SEVERN TRENT LABORATORIES 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"FINAL REPORT FORMAT - SINGLE"

Accession:	806267
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806414
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Test:	POLYNUCLEAR AROMATICS BY 8310
Analysis Method:	8310/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method:	3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix:	WATER
QC Level:	II

Lab Id:	001		Sample Date/Time:	19-JUN-98 0845
Client Sample Id:	MW-50		Received Date:	20-JUN-98
Batch: PAW141			Extraction Date:	23-JUN-98
Blank: A	Dry Weight %:	N/A	Analysis Date:	25-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZO(a)PYRENE	UG/L	ND	0.1	
1-METHYLNAPHTHALENE	UG/L	ND	0.3	
2-CHLOROANTHRACENE	%REC/SURR	99	28-138	
ANALYST	INITIALS	HAH		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession:	806267
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806414
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Test:	POLYNUCLEAR AROMATICS BY 8310
Analysis Method:	8310/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method:	3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix:	WATER
QC Level:	II

Lab Id:	002		Sample Date/Time:	19-JUN-98 1005
Client Sample Id:	MW-41		Received Date:	20-JUN-98
Batch: PAW141			Extraction Date:	23-JUN-98
Blank: A	Dry Weight %:	N/A	Analysis Date:	25-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZO(a)PYRENE	UG/L	ND	0.1	
1-METHYLNAPHTHALENE	UG/L	ND	0.3	
2-CHLOROANTHRACENE	%REC/SURR	31	28-138	
ANALYST	INITIALS	HAH		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession:	806267
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806414
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Test:	POLYNUCLEAR AROMATICS BY 8310
Analysis Method:	8310/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method:	3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix:	WATER
QC Level:	II

Lab Id:	003		Sample Date/Time:	19-JUN-98 1110
Client Sample Id:	MW-78		Received Date:	20-JUN-98
Batch: PAW141			Extraction Date:	23-JUN-98
Blank: A	Dry Weight %:	N/A	Analysis Date:	25-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZO(a)PYRENE	UG/L	ND	0.1	
1-METHYLNAPHTHALENE	UG/L	ND	0.3	
2-CHLOROANTHRACENE	%REC/SURR	40	28-138	
ANALYST	INITIALS	HAH		

Comments:

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Analysis Report

Analysis: PESTICIDES (8080)

Accession:	806267
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806414
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	PESTICIDES

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"FINAL REPORT FORMAT - SINGLE"

Accession:	806267
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806414
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Test:	PESTICIDES (8080)
Analysis Method:	8080 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Extraction Method:	3510 / 3660 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Matrix:	WATER
QC Level:	II

Lab Id:	001		Sample Date/Time:	19-JUN-98 0845
Client Sample Id:	MW-50		Received Date:	20-JUN-98
Batch: PSW043			Extraction Date:	22-JUN-98
Blank: A	Dry Weight %:	N/A	Analysis Date:	30-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
ALDRIN	UG/L	ND	0.02	
ALPHA-BHC	UG/L	ND	0.02	
BETA-BHC	UG/L	ND	0.02	
DELTA-BHC	UG/L	ND	0.02	
GAMMA-BHC (LINDANE)	UG/L	ND	0.02	
4,4'-DDD	UG/L	ND	0.02	
4,4'-DDE	UG/L	ND	0.02	
4,4'-DDT	UG/L	ND	0.02	
DIELDRIN	UG/L	ND	0.02	
ENDOSULFAN I	UG/L	ND	0.02	
ENDOSULFAN II	UG/L	ND	0.02	
ENDOSULFAN SULFATE	UG/L	ND	0.02	
ENDRIN	UG/L	ND	0.02	
ENDRIN ALDEHYDE	UG/L	ND	0.02	
HEPTACHLOR	UG/L	ND	0.02	
HEPTACHLOR EPOXIDE	UG/L	ND	0.02	
METHOXYCHLOR	UG/L	ND	0.02	
CHLORDANE	UG/L	ND	0.01	
TOXAPHENE	UG/L	ND	0.12	
PCB-1016	UG/L	ND	0.04	
PCB-1221	UG/L	ND	0.04	
PCB-1232	UG/L	ND	0.04	
PCB-1242	UG/L	ND	0.04	
PCB-1248	UG/L	ND	0.04	
PCB-1254	UG/L	ND	0.04	
PCB-1260	UG/L	ND	0.04	
TCMX	%REC/SURR	70	43-101	
DCB	%REC/SURR	47	17-135	
ANALYST	INITIALS	RP		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 806267
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806414
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: PESTICIDES (8080)
Analysis Method: 8080 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Extraction Method: 3510 / 3660 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Matrix: WATER
QC Level: II

Lab Id: 002 Sample Date/Time: 19-JUN-98 1005
Client Sample Id: MW-41 Received Date: 20-JUN-98

Batch: PSW043 Extraction Date: 22-JUN-98
Blank: A Dry Weight %: N/A Analysis Date: 30-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
ALDRIN	UG/L	ND	0.02	
ALPHA-BHC	UG/L	ND	0.02	
BETA-BHC	UG/L	ND	0.02	
DELTA-BHC	UG/L	ND	0.02	
GAMMA-BHC (LINDANE)	UG/L	0.02	0.02	
4,4'-DDD	UG/L	ND	0.02	
4,4'-DDE	UG/L	ND	0.02	
4,4'-DDT	UG/L	ND	0.02	
DIELDRIN	UG/L	ND	0.02	
ENDOSULFAN I	UG/L	ND	0.02	
ENDOSULFAN II	UG/L	ND	0.02	
ENDOSULFAN SULFATE	UG/L	ND	0.02	
ENDRIN	UG/L	ND	0.02	
ENDRIN ALDEHYDE	UG/L	ND	0.02	
HEPTACHLOR	UG/L	ND	0.02	
HEPTACHLOR EPOXIDE	UG/L	ND	0.02	
METHOXYCHLOR	UG/L	ND	0.02	
CHLORDANE	UG/L	ND	0.01	
TOXAPHENE	UG/L	ND	0.12	
PCB-1016	UG/L	ND	0.04	
PCB-1221	UG/L	ND	0.04	
PCB-1232	UG/L	ND	0.04	
PCB-1242	UG/L	ND	0.04	
PCB-1248	UG/L	ND	0.04	
PCB-1254	UG/L	ND	0.04	
PCB-1260	UG/L	ND	0.04	
TCMX	%REC/SURR	62	43-101	
DCB	%REC/SURR	41	17-135	
ANALYST	INITIALS	RP		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 806267
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806414
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: PESTICIDES (8080)
Analysis Method: 8080 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Extraction Method: 3510 / 3660 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Matrix: WATER
QC Level: II

Lab Id: 003 Sample Date/Time: 19-JUN-98 1110
Client Sample Id: MW-78 Received Date: 20-JUN-98

Batch: PSW043 Extraction Date: 22-JUN-98
Blank: A Dry Weight %: N/A Analysis Date: 30-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
ALDRIN	UG/L	ND	0.02	
ALPHA-BHC	UG/L	ND	0.02	
BETA-BHC	UG/L	ND	0.02	
DELTA-BHC	UG/L	ND	0.02	
GAMMA-BHC (LINDANE)	UG/L	ND	0.02	
4,4'-DDD	UG/L	ND	0.02	
4,4'-DDE	UG/L	ND	0.02	
4,4'-DDT	UG/L	ND	0.02	
DIELDRIN	UG/L	ND	0.02	
ENDOSULFAN I	UG/L	ND	0.02	
ENDOSULFAN II	UG/L	ND	0.02	
ENDOSULFAN SULFATE	UG/L	ND	0.02	
ENDRIN	UG/L	ND	0.02	
ENDRIN ALDEHYDE	UG/L	ND	0.02	
HEPTACHLOR	UG/L	ND	0.02	
HEPTACHLOR EPOXIDE	UG/L	ND	0.02	
METHOXYCHLOR	UG/L	ND	0.02	
CHLORDANE	UG/L	ND	0.01	
TOXAPHENE	UG/L	ND	0.12	
PCB-1016	UG/L	ND	0.04	
PCB-1221	UG/L	ND	0.04	
PCB-1232	UG/L	ND	0.04	
PCB-1242	UG/L	ND	0.04	
PCB-1248	UG/L	ND	0.04	
PCB-1254	UG/L	ND	0.04	
PCB-1260	UG/L	ND	0.04	
TCMX	%REC/SURR	68	43-101	
DCB	%REC/SURR	51	17-135	
ANALYST	INITIALS	RP		

Comments:

"Method Report Summary"

Accession Number: 806267
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806414
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: PESTICIDES (8080)

Client Sample Id:	Parameter:	Unit:	Result:
MW-41	GAMMA-BHC (LINDANE)	UG/L	0.02

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Analysis Report

Analysis: ACID & BASE EXTRACTABLES (8270)

Accession:	806267
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806414
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	ORGANIC/MS

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-100

"FINAL REPORT FORMAT - SINGLE"

Accession:	806267
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806414
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Test:	ACID & BASE EXTRACTABLES (8270)
Analysis Method:	8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method:	3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix:	WATER
QC Level:	II

Lab Id:	001	Sample Date/Time:	19-JUN-98 0845
Client Sample Id:	MW-50	Received Date:	20-JUN-98
Batch: ALW075		Extraction Date:	22-JUN-98
Blank: A	Dry Weight %: N/A	Analysis Date:	27-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZOIC ACID	UG/L	ND	1.7	
4-CHLORO-3-METHYLPHENOL	UG/L	ND	0.4	
2-CHLOROPHENOL	UG/L	ND	0.5	
2,4-DICHLOROPHENOL	UG/L	ND	3.9	
2,6-DICHLOROPHENOL	UG/L	ND	0.1	
2,4-DIMETHYLPHENOL	UG/L	ND	0.5	
4,6-DINITRO-2-METHYLPHENOL	UG/L	ND	1.6	
2,4-DINITROPHENOL	UG/L	ND	3.3	
2-METHYLPHENOL	UG/L	ND	0.3	
4-METHYLPHENOL	UG/L	ND	0.5	
2-NITROPHENOL	UG/L	ND	0.4	
4-NITROPHENOL	UG/L	ND	0.7	
PENTACHLOROPHENOL	UG/L	ND	0.7	
PHENOL	UG/L	ND	0.5	
2,3,4,6-TETRACHLOROPHENOL	UG/L	ND	0.6	
2,4,5-TRICHLOROPHENOL	UG/L	ND	3.0	
2,4,6-TRICHLOROPHENOL	UG/L	ND	0.3	
ACENAPHTHENE	UG/L	ND	0.4	
ACENAPHTHYLENE	UG/L	ND	0.4	
ACETOPHENONE	UG/L	ND	0.4	
4-AMINOBIPHENYL	UG/L	ND	0.7	
ANILINE	UG/L	ND	0.5	
ANTHRACENE	UG/L	ND	0.4	
BENZIDINE	UG/L	ND	2.7	
BENZO (A) ANTHRACENE	UG/L	ND	0.5	
BENZO (A) PYRENE	UG/L	ND	0.2	
BENZO (B) FLUORANTHENE	UG/L	ND	0.5	
BENZO (G,H,I) PERYLENE	UG/L	ND	0.3	
BENZO (K) FLUORANTHENE	UG/L	ND	0.7	
BENZYL ALCOHOL	UG/L	ND	0.5	
BIS(2-CHLOROETHOXY)METHANE	UG/L	ND	0.4	
BIS(2-CHLOROETHYL)ETHER	UG/L	ND	0.5	
BIS(2-CHLOROISOPROPYL)ETHER	UG/L	ND	1.9	
BIS(2-ETHYLHEXYL)PHTHALATE	UG/L	ND	0.6	
4-BROMOPHENYL PHENYL ETHER	UG/L	ND	0.4	
BUTYLBENZYL PHTHALATE	UG/L	ND	0.5	
4-CHLOROANILINE	UG/L	ND	0.4	
1-CHLORONAPHTHALENE	UG/L	ND	0.6	
2-CHLORONAPHTHALENE	UG/L	ND	0.4	
4-CHLOROPHENYL PHENYL ETHER	UG/L	ND	0.5	

"FINAL REPORT FORMAT - SINGLE"

Accession: 806267
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806414
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: II

Lab Id: 001 Sample Date/Time: 19-JUN-98 0845
Client Sample Id: MW-50 Received Date: 20-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
CHRYSENE	UG/L	ND	0.7	
DIBENZ(A,J)ACRIDINE	UG/L	ND	0.5	
DIBENZO (A,H) ANTHRACENE	UG/L	ND	0.3	
DIBENZOFURAN	UG/L	ND	0.4	
1,2-DICHLOROBENZENE	UG/L	ND	0.3	
1,3-DICHLOROBENZENE	UG/L	ND	0.3	
1,4-DICHLOROBENZENE	UG/L	ND	0.5	
3,3'-DICHLOROBENZIDINE	UG/L	ND	0.4	
DIETHYLPHTHALATE	UG/L	ND	0.4	
P-DIMETHYLAMINOAZOBENZENE	UG/L	ND	0.4	
7,12-DIMETHYLBENZ(A)ANTHRACENE	UG/L	ND	1.8	
A-,A-DIMETHYLPHENETHYLAMINE	UG/L	ND	0.1	
DIMETHYLPHTHALATE	UG/L	ND	0.4	
DI-N-BUTYLPHTHALATE	UG/L	ND	0.4	
2,4-DINITROTOLUENE	UG/L	ND	0.5	
2,6-DINITROTOLUENE	UG/L	ND	0.5	
DI-N-OCTYLPHTHALATE	UG/L	ND	0.7	
DIPHENYLAMINE	UG/L	ND	0.5	
1,2-DIPHENYLHYDRAZINE	UG/L	ND	0.3	
FLUORANTHENE	UG/L	ND	0.5	
FLUORENE	UG/L	ND	0.6	
HEXACHLOROBENZENE	UG/L	ND	0.5	
HEXACHLOROBUTADIENE	UG/L	ND	0.5	
HEXACHLOROCYCLOPENTADIENE	UG/L	ND	0.6	
HEXACHLOROETHANE	UG/L	ND	0.6	
INDENO (1,2,3-CD) PYRENE	UG/L	ND	0.5	
ISOPHORONE	UG/L	ND	0.4	
3-METHYLCHOLANTHRENE	UG/L	ND	0.4	
2-METHYLNAPHTHALENE	UG/L	ND	0.5	
NAPHTHALENE	UG/L	ND	0.4	
1-NAPHTHYLAMINE	UG/L	ND	1.5	
2-NAPHTHYLAMINE	UG/L	ND	1.0	
2-NITROANILINE	UG/L	ND	0.4	
3-NITROANILINE	UG/L	ND	0.9	
4-NITROANILINE	UG/L	ND	0.8	
NITROBENZENE	UG/L	ND	0.5	
N-NITROSODIMETHYLAMINE	UG/L	ND	1.2	
N-NITROSODI-N-BUTYLAMINE	UG/L	ND	1.1	
N-NITROSODIETHYLAMINE	UG/L*	ND	10	
N-NITROSODIPHENYLAMINE	UG/L	ND	0.4	
N-NITROSO-DI-N-PROPYLAMINE	UG/L	ND	0.4	
N-NITROSOPIPERIDINE	UG/L	ND	0.8	
N-NITROSOPYRROLIDINE	UG/L*	ND	10	
PENTACHLOROBENZENE	UG/L	ND	0.4	
PENTACHLORONITROBENZENE (PCNB)	UG/L	ND	5.0	

"FINAL REPORT FORMAT - SINGLE"

Accession:	806267
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806414
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Test:	ACID & BASE EXTRACTABLES (8270)
Analysis Method:	8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method:	3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix:	WATER
QC Level:	II

Lab Id: 001 Sample Date/Time: 19-JUN-98 0845
Client Sample Id: MW-50 Received Date: 20-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
PHENACETIN	UG/L	ND	0.4	
PHENANTHRENE	UG/L	ND	0.4	
2-PICOLINE	UG/L	ND	7.7	
PRONAMIDE	UG/L	ND	0.4	
PYRENE	UG/L	ND	0.5	
1,2,4,5-TETRACHLOROBENZENE	UG/L	ND	0.4	
1,2,4 TRICHLOROBENZENE	UG/L	ND	0.6	
2-FLUOROPHENOL	%REC/SURR	96	21-100	
PHENOL-D6	%REC/SURR	94	10-100	
2,4,6-TRIBROMOPHENOL	%REC/SURR	76	10-123	
2-FLUOROBIPHENYL	%REC/SURR	77	43-116	
NITROBENZENE-D5	%REC/SURR	88	35-114	
TERPHENYL-D14	%REC/SURR	91	33-124	
ANALYST	INITIALS	RW		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 806267
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806414
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: II

Lab Id: 002 Sample Date/Time: 19-JUN-98 1005
Client Sample Id: MW-41 Received Date: 20-JUN-98

Batch: ALW075 Extraction Date: 22-JUN-98
Blank: A Dry Weight %: N/A Analysis Date: 27-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZOIC ACID	UG/L	ND	1.7	
4-CHLORO-3-METHYLPHENOL	UG/L	ND	0.4	
2-CHLOROPHENOL	UG/L	ND	0.5	
2,4-DICHLOROPHENOL	UG/L	ND	3.9	
2,6-DICHLOROPHENOL	UG/L	ND	0.1	
2,4-DIMETHYLPHENOL	UG/L	ND	0.5	
4,6-DINITRO-2-METHYLPHENOL	UG/L	ND	1.6	
2,4-DINITROPHENOL	UG/L	ND	3.3	
2-METHYLPHENOL	UG/L	ND	0.3	
4-METHYLPHENOL	UG/L	ND	0.5	
2-NITROPHENOL	UG/L	ND	0.4	
4-NITROPHENOL	UG/L	ND	0.7	
PENTACHLOROPHENOL	UG/L	ND	0.7	
PHENOL	UG/L	16	0.5	
2,3,4,6-TETRACHLOROPHENOL	UG/L	ND	0.6	
2,4,5-TRICHLOROPHENOL	UG/L	ND	3.0	
2,4,6-TRICHLOROPHENOL	UG/L	ND	0.3	
ACENAPHTHENE	UG/L	ND	0.4	
ACENAPHTHYLENE	UG/L	ND	0.4	
ACETOPHENONE	UG/L	ND	0.4	
4-AMINOBIPHENYL	UG/L	ND	0.7	
ANILINE	UG/L	ND	0.5	
ANTHRACENE	UG/L	ND	0.4	
BENZIDINE	UG/L	ND	2.7	
BENZO (A) ANTHRACENE	UG/L	ND	0.5	
BENZO (A) PYRENE	UG/L	ND	0.2	
BENZO (B) FLUORANTHENE	UG/L	ND	0.5	
BENZO (G,H,I) PERYLENE	UG/L	ND	0.3	
BENZO (K) FLUORANTHENE	UG/L	ND	0.7	
BENZYL ALCOHOL	UG/L	ND	0.5	
BIS(2-CHLOROETHOXY)METHANE	UG/L	ND	0.4	
BIS(2-CHLOROETHYL)ETHER	UG/L	ND	0.5	
BIS(2-CHLOROISOPROPYL)ETHER	UG/L	ND	1.9	
BIS(2-ETHYLHEXYL)PHTHALATE	UG/L	2.7	0.6	
4-BROMOPHENYL PHENYL ETHER	UG/L	ND	0.4	
BUTYLBENZYL PHTHALATE	UG/L	ND	0.5	
4-CHLOROANILINE	UG/L	ND	0.4	
1-CHLORONAPHTHALENE	UG/L	ND	0.6	
2-CHLORONAPHTHALENE	UG/L	ND	0.4	
4-CHLOROPHENYL PHENYL ETHER	UG/L	ND	0.5	

"FINAL REPORT FORMAT - SINGLE"

Accession: 806267
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806414
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: II

Lab Id: 002
Client Sample Id: MW-41
Sample Date/Time: 19-JUN-98 1005
Received Date: 20-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
CHRYSENE	UG/L	ND	0.7	
DIBENZ(A,J)ACRIDINE	UG/L	ND	0.5	
DIBENZO (A,H) ANTHRACENE	UG/L	ND	0.3	
DIBENZOFURAN	UG/L	ND	0.4	
1,2-DICHLOROBENZENE	UG/L	ND	0.3	
1,3-DICHLOROBENZENE	UG/L	ND	0.3	
1,4-DICHLOROBENZENE	UG/L	ND	0.5	
3,3'-DICHLOROBENZIDINE	UG/L	ND	0.4	
DIETHYLPHTHALATE	UG/L	ND	0.4	
P-DIMETHYLAMINOAZOBENZENE	UG/L	ND	0.4	
7,12-DIMETHYLBENZ(A)ANTHRACENE	UG/L	ND	1.8	
A-,A-DIMETHYLPHENETHYLAMINE	UG/L	ND	0.1	
DIMETHYLPHTHALATE	UG/L	ND	0.4	
DI-N-BUTYLPHTHALATE	UG/L	ND	0.4	
2,4-DINITROTOLUENE	UG/L	ND	0.5	
2,6-DINITROTOLUENE	UG/L	ND	0.5	
DI-N-OCTYLPHTHALATE	UG/L	ND	0.7	
DIPHENYLAMINE	UG/L	ND	0.5	
1,2-DIPHENYLHYDRAZINE	UG/L	ND	0.3	
FLUORANTHENE	UG/L	ND	0.5	
FLUORENE	UG/L	ND	0.6	
HEXACHLOROBENZENE	UG/L	ND	0.5	
HEXACHLOROBUTADIENE	UG/L	ND	0.5	
HEXACHLOROCYCLOPENTADIENE	UG/L	ND	0.6	
HEXACHLOROETHANE	UG/L	ND	0.6	
INDENO (1,2,3-CD) PYRENE	UG/L	ND	0.5	
ISOPHORONE	UG/L	ND	0.4	
3-METHYLCHOLANTHRENE	UG/L	ND	0.4	
2-METHYLNAPHTHALENE	UG/L	ND	0.5	
NAPHTHALENE	UG/L	ND	0.4	
1-NAPHTHYLAMINE	UG/L	ND	1.5	
2-NAPHTHYLAMINE	UG/L	ND	1.0	
2-NITROANILINE	UG/L	ND	0.4	
3-NITROANILINE	UG/L	ND	0.9	
4-NITROANILINE	UG/L	ND	0.8	
NITROBENZENE	UG/L	ND	0.5	
N-NITROSODIMETHYLAMINE	UG/L	ND	1.2	
N-NITROSODI-N-BUTYLAMINE	UG/L	ND	1.1	
N-NITROSODIETHYLAMINE	UG/L*	ND	10	
N-NITROSODIPHENYLAMINE	UG/L	ND	0.4	
N-NITROSO-DI-N-PROPYLAMINE	UG/L	ND	0.4	
N-NITROSOPIPERIDINE	UG/L	ND	0.8	
N-NITROSOPYRROLIDINE	UG/L*	ND	10	
PENTACHLOROBENZENE	UG/L	ND	0.4	
PENTACHLORONITROBENZENE (PCNB)	UG/L	ND	5.0	

"FINAL REPORT FORMAT - SINGLE"

Accession: 806267
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806414
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: II

Lab Id: 002 Sample Date/Time: 19-JUN-98 1005
Client Sample Id: MW-41 Received Date: 20-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
PHENACETIN	UG/L	ND	0.4	
PHENANTHRENE	UG/L	ND	0.4	
2-PICOLINE	UG/L	ND	7.7	
PRONAMIDE	UG/L	ND	0.4	
PYRENE	UG/L	ND	0.5	
1,2,4,5-TETRACHLOROBENZENE	UG/L	ND	0.4	
1,2,4 TRICHLOROBENZENE	UG/L	ND	0.6	
2-FLUOROPHENOL	%REC/SURR	95	21-100	
PHENOL-D6	%REC/SURR	49	10-100	
2,4,6-TRIBROMOPHENOL	%REC/SURR	93	10-123	
2-FLUOROBIPHENYL	%REC/SURR	92	43-116	
NITROBENZENE-D5	%REC/SURR	103	35-114	
TERPHENYL-D14	%REC/SURR	100	33-124	
ANALYST	INITIALS	RW		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession:	806267
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806414
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Test:	ACID & BASE EXTRACTABLES (8270)
Analysis Method:	8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method:	3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix:	WATER
QC Level:	II

Lab Id:	003	Sample Date/Time:	19-JUN-98 1110
Client Sample Id:	MW-78	Received Date:	20-JUN-98
Batch: ALW075		Extraction Date:	22-JUN-98
Blank: A	Dry Weight %: N/A	Analysis Date:	28-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZOIC ACID	UG/L	ND	1.7	
4-CHLORO-3-METHYLPHENOL	UG/L	ND	0.4	
2-CHLOROPHENOL	UG/L	ND	0.5	
2,4-DICHLOROPHENOL	UG/L	ND	3.9	
2,6-DICHLOROPHENOL	UG/L	ND	0.1	
2,4-DIMETHYLPHENOL	UG/L	ND	0.5	
4,6-DINITRO-2-METHYLPHENOL	UG/L	ND	1.6	
2,4-DINITROPHENOL	UG/L	ND	3.3	
2-METHYLPHENOL	UG/L	ND	0.3	
4-METHYLPHENOL	UG/L	ND	0.5	
2-NITROPHENOL	UG/L	ND	0.4	
4-NITROPHENOL	UG/L	ND	0.7	
PENTACHLOROPHENOL	UG/L	ND	0.7	
PHENOL	UG/L	ND	0.5	
2,3,4,6-TETRACHLOROPHENOL	UG/L	ND	0.6	
2,4,5-TRICHLOROPHENOL	UG/L	ND	3.0	
2,4,6-TRICHLOROPHENOL	UG/L	ND	0.3	
ACENAPHTHENE	UG/L	ND	0.4	
ACENAPHTHYLENE	UG/L	ND	0.4	
ACETOPHENONE	UG/L	ND	0.4	
4-AMINOBIPHENYL	UG/L	ND	0.7	
ANILINE	UG/L	ND	0.5	
ANTHRACENE	UG/L	ND	0.4	
BENZIDINE	UG/L	ND	2.7	
BENZO (A) ANTHRACENE	UG/L	ND	0.5	
BENZO (A) PYRENE	UG/L	ND	0.2	
BENZO (B) FLUORANTHENE	UG/L	ND	0.5	
BENZO (G,H,I) PERYLENE	UG/L	ND	0.3	
BENZO (K) FLUORANTHENE	UG/L	ND	0.7	
BENZYL ALCOHOL	UG/L	ND	0.5	
BIS(2-CHLOROETHOXY)METHANE	UG/L	ND	0.4	
BIS(2-CHLOROETHYL)ETHER	UG/L	ND	0.5	
BIS(2-CHLOROISOPROPYL)ETHER	UG/L	ND	1.9	
BIS(2-ETHYLHEXYL)PHTHALATE	UG/L	ND	0.6	
4-BROMOPHENYL PHENYL ETHER	UG/L	ND	0.4	
BUTYLBENZYL PHTHALATE	UG/L	ND	0.5	
4-CHLOROANILINE	UG/L	ND	0.4	
1-CHLORONAPHTHALENE	UG/L	ND	0.6	
2-CHLORONAPHTHALENE	UG/L	ND	0.4	
4-CHLOROPHENYL PHENYL ETHER	UG/L	ND	0.5	

"FINAL REPORT FORMAT - SINGLE"

Accession: 806267
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806414
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: II

Lab Id: 003 Sample Date/Time: 19-JUN-98 1110
Client Sample Id: MW-78 Received Date: 20-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
CHRYSENE	UG/L	ND	0.7	
DIBENZ(A,J)ACRIDINE	UG/L	ND	0.5	
DIBENZO (A,H) ANTHRACENE	UG/L	ND	0.3	
DIBENZOFURAN	UG/L	ND	0.4	
1,2-DICHLOROBENZENE	UG/L	ND	0.3	
1,3-DICHLOROBENZENE	UG/L	ND	0.3	
1,4-DICHLOROBENZENE	UG/L	ND	0.5	
3,3'-DICHLOROBENZIDINE	UG/L	ND	0.4	
DIETHYLPHTHALATE	UG/L	ND	0.4	
P-DIMETHYLAMINOAZOBENZENE	UG/L	ND	0.4	
7,12-DIMETHYLBENZ(A)ANTHRACENE	UG/L	ND	1.8	
A-,A-DIMETHYLPHENETHYLAMINE	UG/L	ND	0.1	
DIMETHYLPHTHALATE	UG/L	ND	0.4	
DI-N-BUTYLPHTHALATE	UG/L	ND	0.4	
2,4-DINITROTOLUENE	UG/L	ND	0.5	
2,6-DINITROTOLUENE	UG/L	ND	0.5	
DI-N-OCTYLPHTHALATE	UG/L	ND	0.7	
DIPHENYLAMINE	UG/L	ND	0.5	
1,2-DIPHENYLHYDRAZINE	UG/L	ND	0.3	
FLUORANTHENE	UG/L	ND	0.5	
FLUORENE	UG/L	ND	0.6	
HEXACHLOROBENZENE	UG/L	ND	0.5	
HEXACHLOROBUTADIENE	UG/L	ND	0.5	
HEXACHLOROCYCLOPENTADIENE	UG/L	ND	0.6	
HEXACHLOROETHANE	UG/L	ND	0.6	
INDENO (1,2,3-CD) PYRENE	UG/L	ND	0.5	
ISOPHORONE	UG/L	ND	0.4	
3-METHYLCHOLANTHRENE	UG/L	ND	0.4	
2-METHYLNAPHTHALENE	UG/L	ND	0.5	
NAPHTHALENE	UG/L	ND	0.4	
1-NAPHTHYLAMINE	UG/L	ND	1.5	
2-NAPHTHYLAMINE	UG/L	ND	1.0	
2-NITROANILINE	UG/L	ND	0.4	
3-NITROANILINE	UG/L	ND	0.9	
4-NITROANILINE	UG/L	ND	0.8	
NITROBENZENE	UG/L	ND	0.5	
N-NITROSODIMETHYLAMINE	UG/L	ND	1.2	
N-NITROSODI-N-BUTYLAMINE	UG/L	ND	1.1	
N-NITROSODIETHYLAMINE	UG/L*	ND	10	
N-NITROSODIPHENYLAMINE	UG/L	ND	0.4	
N-NITROSO-DI-N-PROPYLAMINE	UG/L	ND	0.4	
N-NITROSOPIPERIDINE	UG/L	ND	0.8	
N-NITROSOPYRROLIDINE	UG/L*	ND	10	
PENTACHLOROBENZENE	UG/L	ND	0.4	
PENTACHLORONITROBENZENE (PCNB)	UG/L	ND	5.0	

"FINAL REPORT FORMAT - SINGLE"

Accession:	806267
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806414
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Test:	ACID & BASE EXTRACTABLES (8270)
Analysis Method:	8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method:	3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix:	WATER
QC Level:	II

Lab Id: 003 Sample Date/Time: 19-JUN-98 1110
Client Sample Id: MW-78 Received Date: 20-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
PHENACETIN	UG/L	ND	0.4	
PHENANTHRENE	UG/L	ND	0.4	
2-PICOLINE	UG/L	ND	7.7	
PRONAMIDE	UG/L	ND	0.4	
PYRENE	UG/L	ND	0.5	
1,2,4,5-TETRACHLOROBENZENE	UG/L	ND	0.4	
1,2,4 TRICHLOROBENZENE	UG/L	ND	0.6	
2-FLUOROPHENOL	%REC/SURR	93	21-100	
PHENOL-D6	%REC/SURR	83	10-100	
2,4,6-TRIBROMOPHENOL	%REC/SURR	78	10-123	
2-FLUOROBIPHENYL	%REC/SURR	83	43-116	
NITROBENZENE-D5	%REC/SURR	88	35-114	
TERPHENYL-D14	%REC/SURR	84	33-124	
ANALYST	INITIALS	RW		

Comments:

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"Method Report Summary"

Accession Number: 806267
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806414
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)

Client Sample Id:	Parameter:	Unit:	Result:
MW-41	PHENOL	UG/L	16
	BIS(2-ETHYLHEXYL)PHTHALATE	UG/L	2.7

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Rd Pensacola, FL 32514 (850) 474-1001

Data Qualifiers for Final Report

AEN-Pensacola Inorganic/Organic

@	Adjusted reporting limit due to sample matrix (dilution prior to digestion and/or analysis)
+	Elevated reporting limit due to dilution into calibration range
*	Elevated reporting limit due to matrix interference (dilution prior to digestion and/or analysis)
#	Elevated reporting limit due to insufficient sample size
D	Diluted out
J5	The reported value is quantitated as a TIC; therefore, it is estimated

ND = Not Detected N/S = Not Submitted N/A = Not Applicable

Florida Projects Inorganic/Organic

Y1	Improper preservation, no preservative present in sample upon receipt
Y2	Improper preservation, incorrect preservative present in sample upon receipt
Y3	Improper preservation, sample temperature exceeded EPA temperature limits of 2-6°C upon receipt
Y (FL description)	The laboratory analysis was from an unpreserved or improperly preserved sample. The data may not be accurate.
Q	Sample held beyond the accepted holding time
I	The reported value is < Laboratory RL and > laboratory MDL
U1	The reported value is ≤ Laboratory MDL (value for sample result is reported as the MDL)
U (FL description)	Indicates the compound was analyzed for but not detected.
T	The reported value is < Laboratory MDL (value shall not be used for statistical analysis)
V	The analyte was detected in both the sample and the associated method blank.
J1	Surrogate recovery limits have been exceeded
J2	The sample matrix interfered with the ability to make any accurate determinations
J3	The reported value failed to meet the established quality control criteria for either precision or accuracy
J (FL description)	Estimated value; not accurate.

AFCEE Projects (under QAPP) and All Other (AEN-PN) Projects/Sites for Inorganic/Organic Parameters

J4	(For positive results) Temperature limits exceeded (≤2°C or ≥ 6°C)
J (AFCEE description)	The analyte was positively identified, the quantitation is an estimation
R1	(For nondetects) Temperature limits exceeded (≤2°C or ≥ 6°C)
R2	Improper preservation, no preservative present in sample upon receipt
R3	Improper preservation, incorrect preservative present in sample upon receipt
R4	Holding time exceeded
R5	Collection requirements not met, improper container used for sample
R (AFCEE description)	The data are unusable due to deficiencies in the ability to analyze the sample and meet QC criteria
F	< RL and > laboratory MDL
F (AFCEE description)	The analyte was positively identified but the associated numerical value is below the AFCEE or lab RL
U2	≤ Laboratory MDL (value for result will be the MDL, never below the MDL)
U (AFCEE description)	The analyte was analyzed for but not detected. The associated numerical value is at or below the MDL
B (AFCEE description)	The analyte was found in the associated blank, as well as in the sample

ICR Projects Inorganic/Organic

A	Acceptable
R6	Rejected

Examples: ICR Flags

R6 = Laboratory extracted the sample but the refrigerator malfunctioned so the extract became warm and client was notified

R6 = Sample arrived in laboratory in good condition; however, the laboratory did not analyze it within EPA's established holding time limit.

CLP and CLP-like Projects

Refer to referenced CLP Statement of Work (SOW) for explanation of data qualifiers

IDL = Laboratory Instrument Detection Limit

MDL = Laboratory Method Detection Limit

RL = Reporting Limit (AFCEE RLs are listed in the AFCEE QAPP)

CLP CRDL = CLP Contract Required Detection Limit (these limits are listed in the EPA CLP Statement of Work or SOW)

CLP CRQL = CLP Contract Required Quantitation Limit (these limits are listed in the EPA CLP Statement of Work or SOW)

Any time a sample arrives at the laboratory improperly preserved (at improper pH or temperature) or after holding time has expired or prepared or analyzed after holding time, client must be notified in writing (i.e. case narrative).

AEN-Pensacola uses the most current promulgated methods contained in the reference manuals.

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Quality Control Report

Analysis: MARATHON WET CHEMISTRY INORGANICS

Accession:	806267
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806414
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	WET CHEM

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Date 06-Jul-98

"WetChem Quality Control Report"

Parameter:	CHLORIDE	CYANIDE	FLUORIDE	NO2	NO2NO3	PH
Batch Id:	CIW067	CNW037	FLW026	N2W090	N3W46B	PHW130
Blank Result:	<1	<0.005	<0.2	<0.1	<0.1	N/A
Anal. Method:	4500-CL B	335.2	340.2	354.1	353.2	150.1
Prep. Method:	N/A	N/A	N/A	N/A	N/A	N/A
Analysis Date:	22-JUN-98	24-JUN-98	24-JUN-98	20-JUN-98	23-JUN-98	20-JUN-98
Prep. Date:	22-JUN-98	23-JUN-98	24-JUN-98	20-JUN-98	22-JUN-98	20-JUN-98
Sample Duplication						
Sample Dup:	806272-1	806213-1	806213-1	806267-1	806240-1	806268-1
Rept Limit:	<1	<0.005	<0.2	<0.1	<0.1	N/A
Sample Result:	68.6	<0.005	0.60	<0.1	<0.1	4.67
Dup Result:	68.7	<0.005	0.65	<0.1	<0.1	4.67
Sample RPD:	0	N/C	0.05 G	N/C	N/C	0
Max RPD:	5	0.005	0.2	0.1	0.1	0.12
Dry Weight%	N/A	N/A	N/A	N/A	N/A	N/A
Matrix Spike						
Sample Spiked:	806272-1	806213-1	806213-1	806267-1	806240-1	N/A
Rept Limit:	<1	<0.005	<0.2	<0.1	<0.1	N/A
Sample Result:	68.6	<0.005	0.60	<0.1	<0.1	
Spiked Result:	121.6	0.218	1.27	0.17	0.84	
Spike Added:	55.0	0.200	0.80	0.20	1.0	
% Recovery:	96	109	84	85	84	
% Rec Limits:	90-111	67-127	79-132	70-131	71-125	
Dry Weight%	N/A	N/A	N/A	N/A	N/A	
ICV						
ICV Result:	100.6	0.340	1.14	0.20	1.98	10.00
True Result:	100	0.314	1.20	0.20	2.00	10.00
% Recovery:	101	108	95	100	99	100
% Rec Limits:	90-110	90-110	90-110	90-110	90-110	90-110
LCS						
LCS Result:						6.99
True Result:						6.87
% Recovery:						102
% Rec Limits:						96-104

"WetChem Quality Control Report"

Parameter:	PHENOL	SULFATE	TDS
Batch Id:	PEW023	SEW077	TDW037
Blank Result:	<0.005	<10	<5
Anal. Method:	420.1	375.4	160.1
Prep. Method:	N/A	N/A	N/A
Analysis Date:	26-JUN-98	26-JUN-98	24-JUN-98
Prep. Date:	25-JUN-98	26-JUN-98	23-JUN-98
Sample Duplication			
Sample Dup:	806272-1	806240-1	806172-1
Rept Limit:	<0.005	<130+	<5
Sample Result:	0.010	303	400
Dup Result:	0.009	304	446
Sample RPD:	0.001 G	1 G	11
Max RPD:	0.005	130	16
Dry Weight%	N/A	N/A	N/A
Matrix Spike			
Sample Spiked:	806272-1	806240-1	N/A
Rept Limit:	<0.005	<250+	N/A
Sample Result:	<0.005	303	
Spiked Result:	0.022	678	
Spike Added:	0.020	500	
% Recovery:	110	75	
% Rec Limits:	48-149	56-154	
Dry Weight%	N/A	N/A	
ICV			
ICV Result:	0.027	20.9	
True Result:	0.025	20	
% Recovery:	108	105	
% Rec Limits:	90-110	90-110	
LCS			
LCS Result:			278
True Result:			293
% Recovery:			95
% Rec Limits:			77-129

----- Common Footnotes WetChem -----

N/A = NOT APPLICABLE.
N/S = NOT SUBMITTED.
N/C = SAMPLE AND DUPLICATE RESULTS ARE AT OR BELOW AEN REPORTING LIMIT; THEREFORE, THE RPD IS "NOT CALCULABLE" AND NO CONTROL LIMITS APPLY.
N/D = NOT DETECTED.
R = REACTIVE
T = TOTAL
G = SAMPLE AND/OR DUPLICATE RESULT IS BELOW 5 X AEN REPORTING LIMIT AND THE ABSOLUTE DIFFERENCE BETWEEN THE SAMPLE AND DUPLICATE RESULT IS AT OR BELOW AEN REPORTING LIMIT; THEREFORE, THE RESULTS ARE "IN CONTROL".
Q = THE ANALYTICAL (POST-DISTILLATION) SPIKE IS REPORTED DUE TO PERCENT RECOVERY BEING OUTSIDE ACCEPTANCE LIMITS ON THE MATRIX (PRE-DISTILLATION) SPIKE.
= ELEVATED REPORTING LIMIT DUE TO INSUFFICIENT SAMPLE.
+ = ELEVATED REPORTING LIMIT DUE TO DILUTION INTO CALIBRATION RANGE.
* = ELEVATED REPORTING LIMIT DUE TO MATRIX INTERFERENCE (DILUTION PRIOR DIGESTION AND/OR ANALYSIS).
@ = ADJUSTED REPORTING LIMIT DUE TO SAMPLE MATRIX (DILUTION PRIOR TO DIGESTION AND/OR ANALYSIS).
P = ANALYTICAL (POST DIGESTION) SPIKE.
I = DUPLICATE INJECTION.
& = AUTOMATED
F = SAMPLE SPIKED > 4 X SPIKE CONCENTRATION.
N/C+ = NOT CALCULABLE
H = SAMPLE AND/OR DUPLICATE RESULT IS BELOW 5 X AEN REPORTING LIMIT AND THE ABSOLUTE DIFFERENCE BETWEEN THE RESULTS EXCEEDS THE AEN REPORTING LIMIT; THEREFORE, THE RESULTS ARE "OUT OF CONTROL".
A = SAMPLE AND DUPLICATE RESULTS ARE "OUT OF CONTROL".
Z = THE SAMPLE RESULT FOR THE SPIKE IS BELOW THE REPORTING LIMIT. HOWEVER, THIS RESULT IS REPORTED FOR ACCURATE QC CALCULATIONS.
NH= SAMPLE AND / OR DUPLICATE RESULT IS BELOW 5 X AEN REPORTING LIMIT AND THE ABSOLUTE DIFFERENCE BETWEEN THE RESULTS EXCEEDS THE AEN REPORTING LIMIT; THEREFORE, THE RESULTS ARE "OUT OF CONTROL". SAMPLE IS NON-HOMOGENEOUS.
(*) = REPORTING LIMITS RAISED DUE TO CLP METHOD NOT REQUIRING A CONCENTRATION STEP FOR CN.
(CA) = SEE CORRECTIVE ACTIONS FORM.
**= MATRIX INTERFERENCE
SW-846, 3rd Edition, latest EPA-approved edition.
EPA 600/4-79-020, Revised March 1983.
STANDARD METHODS, For the Examination of Water and Wastewater, latest EPA-approved edition.
NIOSH Manual of Analytical Methods, 4th Edition.
ANNUAL BOOK OF ASTM STANDARDS, VOLUMES 11.01 and 11.02, latest EPA-approved edition.
METHODS FOR THE DETERMINATION OF INORGANIC SUBSTANCES IN ENVIRONMENTAL SAMPLES, EPA600/R-93/100, AUGUST 1993
METHODS FOR SOIL ANALYSIS, PART 2, CHEMICAL AND MICROBILOGICAL PROPERTIES, 2ND EDITION.
AEN-PN USES THE MOST CURRENT PROMULGATED METHODS FROM THE REFERENCES LISTED ABOVE.

1. COLIFORM. COLIFORM PRECISION IS MEASURED BY THE ABSOLUTE DIFFERENCE BETWEEN THE LOGARITHM OF COLONIES PER 100 MLS OF SAMPLE ON DUPLICATE PLATES.
2. PH. PH PRECISION IS MEASURED BY THE ABSOLUTE DIFFERENCE BETWEEN THE SAMPLE AND DUPLICATE ANALYSIS.
3. FLASHPOINT. FLASHPOINT PRECISION IS MEASURED BY THE ABSOLUTE DIFFERENCE BETWEEN THE SAMPLE AND DUPLICATE ANALYSIS.

RPD = RELATIVE PERCENT DIFFERENCE (OR DEVIATION).
RPT LMTS = REPORTING LIMITS BASED ON METHOD DETECTION LIMIT STUDIES.

DPH = DOLLY P. HWANG RB = REBECCA BROWN WH = WENDY HAGGARD
ED = ESTHER DANTIN CR = CYNTHIA ROBERTS AB = AMY BRADLEY
BE = BETTY EVERTON PLD = PAULA L. DOUGHTY JTZ = JONATHAN T. ZIENTARSKI
RH = RICKY HAGENDORFER

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Quality Control Report

Analysis: MARATHON METALS - OPTIMA

Accession:	806267
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806414
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	METALS

"Metals Quality Control Report"

Parameter:	COBALT	CHROMIUM	COPPER	MERCURY	NICKEL	IRON
Batch Id:	TYW169	HYW169	FYW169	M7W080	EYW169	N6W169
Blank Result:	<0.005	<0.005	<0.005	<0.0002	<0.005	<0.02
Anal. Method:	6010A	6010A	6010A	7470A	6010A	6010A
Prep. Method:	3010A	3010A	3010A	7470A	3010A	3010A
Analysis Date:	28-JUN-98	28-JUN-98	28-JUN-98	02-JUL-98	28-JUN-98	29-JUN-98
Prep. Date:	25-JUN-98	25-JUN-98	25-JUN-98	02-JUL-98	25-JUN-98	25-JUN-98
Sample Duplication						
Sample Dup:	806267-1	806267-1	806267-1	806213-1	806267-1	806267-1
Rept Limit:	<0.005	<0.005	<0.005	<0.0002	<0.005	<0.02
Sample Result:	1.93	1.99	2.14	0.0050	1.95	1.8
Dup Result:	1.96	2.02	2.20	0.0051	1.98	1.9
Sample RPD:	2	1	3	2	2	5
Max RPD:	20	20	20	20	20	20
Dry Weight%	N/A	N/A	N/A	N/A	N/A	N/A
Matrix Spike						
Sample Spiked:	806267-1	806267-1	806267-1	806213-1	806267-1	806267-1
Rept Limit:	<0.005	<0.005	<0.005	<0.0002	<0.005	<0.02
Sample Result:	<0.005	<0.005	<0.005	0.0003	0.005	<0.02
Spiked Result:	1.93	1.99	2.14	0.0050	1.95	1.8
Spike Added:	2.0	2.0	2.0	0.0050	2.0	2.0
% Recovery:	97	100	107	94	97	90
% Rec Limits:	75-125	75-125	75-125	75-125	75-125	75-125
Dry Weight%	N/A	N/A	N/A	N/A	N/A	N/A
ICV						
ICV Result:	0.99	0.99	1.02	0.0040	0.99	25
True Result:	1.0	1.0	1.0	0.0040	1.0	25
% Recovery:	99	99	102	100	99	100
% Rec Limits:	95-105	95-105	95-105	90-110	95-105	95-105
LCS						
LCS Result:	1.96	2.01	2.02	0.0050	1.98	1.9
True Result:	2.0	2.0	2.0	0.0050	2.0	2.0
% Recovery:	98	101	101	100	99	95
% Rec Limits:	80-120	80-120	80-120	80-120	80-120	80-120

"Metals Quality Control Report"

Parameter:	LEAD	MANGANESE	MOLYBDENUM	SELENIUM	ZINC
Batch Id:	PYW169	GYW169	DYW169	SYW169	5YW169
Blank Result:	<0.003	<0.005	<0.005	<0.005	<0.02
Anal. Method:	6010A	6010A	6010A	6010A	6010A
Prep. Method:	3010A	3010A	3010A	3010A	3010A
Analysis Date:	28-JUN-98	28-JUN-98	28-JUN-98	28-JUN-98	28-JUN-98
Prep. Date:	25-JUN-98	25-JUN-98	25-JUN-98	25-JUN-98	25-JUN-98
Sample Duplication					
Sample Dup:	806267-1	806267-1	806267-1	806267-1	806267-1
Rept Limit:	<0.003	<0.005	<0.005	<0.005	<0.02
Sample Result:	1.88	2.06	2.15	2.09	1.86
Dup Result:	1.89	2.07	2.17	2.13	1.89
Sample RPD:	1	0	1	2	2
Max RPD:	20	20	20	20	20
Dry Weight%	N/A	N/A	N/A	N/A	N/A
Matrix Spike					
Sample Spiked:	806267-1	806267-1	806267-1	806267-1	806267-1
Rept Limit:	<0.003	<0.005	<0.005	<0.005	<0.02
Sample Result:	<0.003	0.035	0.005	<0.005	0.04
Spiked Result:	1.88	2.06	2.15	2.09	1.86
Spike Added:	2.0	2.0	2.0	2.0	2.0
% Recovery:	94	101	107	105	91
% Rec Limits:	75-125	75-125	75-125	75-125	75-125
Dry Weight%	N/A	N/A	N/A	N/A	N/A
ICV					
ICV Result:	1.00	1.00	1.02	1.00	1.01
True Result:	1.0	1.0	1.0	1.0	1.0
% Recovery:	100	100	102	100	101
% Rec Limits:	95-105	95-105	95-105	95-105	95-105
LCS					
LCS Result:	1.93	1.96	2.08	1.91	1.95
True Result:	2.0	2.0	2.0	2.0	2.0
% Recovery:	97	98	104	96	98
% Rec Limits:	80-120	80-120	80-120	80-120	80-120

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"Metals Quality Control Report"

Parameter:	SILVER	ALUMINUM	ARSENIC	BARIUM	BORON	CADMIUM
Batch Id:	AYW169	LYW169	RYW169	BYW169	OYW169	CYW169
Blank Result:	<0.005	<0.1	<0.005	<0.001	<0.05	<0.001
Anal. Method:	6010A	6010A	6010A	6010A	6010A	6010A
Prep. Method:	3010A	3010A	3010A	3010A	3010A	3010A
Analysis Date:	28-JUN-98	28-JUN-98	28-JUN-98	28-JUN-98	28-JUN-98	28-JUN-98
Prep. Date:	25-JUN-98	25-JUN-98	25-JUN-98	25-JUN-98	25-JUN-98	25-JUN-98
Sample Duplication						
Sample Dup:	806267-1	806267-1	806267-1	806267-1	806267-1	806267-1
Rept Limit:	<0.005	<0.1	<0.005	<0.001	<0.05	<0.001
Sample Result:	0.21	2.1	2.14	2.01	2.64	1.86
Dup Result:	0.22	2.1	2.17	2.05	2.71	1.89
Sample RPD:	5	0	1	2	3	2
Max RPD:	20	20	20	20	20	20
Dry Weight%	N/A	N/A	N/A	N/A	N/A	N/A
Matrix Spike						
Sample Spiked:	806267-1	806267-1	806267-1	806267-1	806267-1	806267-1
Rept Limit:	<0.005	<0.1	<0.005	<0.001	<0.05	<0.001
Sample Result:	0.007	<0.1	0.005	0.028	0.48	<0.001
Spiked Result:	0.21	2.1	2.14	2.01	2.64	1.86
Spike Added:	0.20	2.0	2.0	2.0	2.0	2.0
% Recovery:	102	105	107	99	108	93
% Rec Limits:	75-125	75-125	75-125	75-125	75-125	75-125
Dry Weight%	N/A	N/A	N/A	N/A	N/A	N/A
ICV						
ICV Result:	0.50	4.8	0.99	0.98	1.04	1.02
True Result:	0.5	5	1.0	1.0	1.0	1.0
% Recovery:	100	96	99	98	104	102
% Rec Limits:	95-105	95-105	95-105	95-105	95-105	95-105
LCS						
LCS Result:	0.19	2.0	1.97	1.98	2.03	1.97
True Result:	0.2	2.0	2.0	2.0	2.0	2.0
% Recovery:	95	100	99	99	102	99
% Rec Limits:	80-120	80-120	80-120	80-120	80-120	80-120

----- Common Footnotes Metals -----

N/A = NOT APPLICABLE.
N/S = NOT SUBMITTED.
N/C = SAMPLE AND DUPLICATE RESULTS ARE AT OR BELOW THE REPORTING LIMIT; THEREFORE, THE RPD IS "NOT CALCULABLE" AND NO CONTROL LIMITS APPLY.
N/D = NOT DETECTED.
DISS. OR D = DISSOLVED
T & D = TOTAL AND DISSOLVED
R = REACTIVE
T = TOTAL
G = SAMPLE AND/OR DUPLICATE RESULT IS BELOW 5 X THE REPORTING LIMIT AND THE ABSOLUTE DIFFERENCE BETWEEN THE SAMPLE AND DUPLICATE RESULT IS AT OR BELOW AEN REPORTING LIMIT; THEREFORE, THE RESULTS ARE "IN CONTROL".
Q = THE ANALYTICAL (POST-DIGESTION) SPIKE IS REPORTED DUE TO PERCENT RECOVERY BEING OUTSIDE ACCEPTANCE LIMITS ON THE MATRIX (PRE-DIGESTION) SPIKE.
= ELEVATED REPORTING LIMIT DUE TO INSUFFICIENT SAMPLE.
+ = ELEVATED REPORTING LIMIT DUE TO DILUTION INTO CALIBRATION RANGE.
* = ELEVATED REPORTING LIMIT DUE TO MATRIX INTERFERENCE. (DILUTION PRIOR TO ANALYSIS)
@ = ADJUSTED REPORTING LIMIT DUE TO SAMPLE MATRIX. (DILUTION PRIOR TO DIGESTION)
P = ANALYTICAL (POST DIGESTION) SPIKE.
I = DUPLICATE INJECTION.
& = AUTOMATED
F = SAMPLE SPIKED > 4 X SPIKE CONCENTRATION.
N/C+ = NOT CALCULABLE
N/C* = NOT CALCULABLE; SAMPLE SPIKED > 4 X SPIKE CONCENTRATION.
H = SAMPLE AND/OR DUPLICATE RESULT IS BELOW 5 X AEN REPORTING LIMIT AND THE ABSOLUTE DIFFERENCE BETWEEN THE RESULTS EXCEEDS THE AEN REPORTING LIMIT; THEREFORE, THE RESULTS ARE "OUT OF CONTROL".
A = SAMPLE AND DUPLICATE RESULTS ARE "OUT OF CONTROL".
Z = THE SAMPLE RESULT FOR THE SPIKE IS BELOW THE AEN REPORTING LIMIT. HOWEVER, THIS RESULT IS REPORTED FOR ACCURATE QC CALCULATIONS.
NH= THE RELATIVE PERCENT DIFFERENCE (RPD) EXCEEDS THE AEN CONTROL LIMIT AND IS "OUT OF CONTROL; DUE TO A NON-HOMOGENEOUS SAMPLE MATRIX.
J = (FLORIDA DEP 'J' FLAG) - MATRIX SPIKE AND POST SPIKE RECOVERY IS OUT OF THE ACCEPTABLE RANGE. SEE OUT OF CONTROL EVENTS FORM.
U = (FLORIDA DEP 'U' FLAG) - THE COMPOUND WAS ANALYZED FOR, BUT NOT DETECTED.
S = METHOD OF STANDARD ADDITIONS (MSA) WAS PERFORMED ON THIS SAMPLE.

FROM QUALITY CONTROL REPORT:
RPD= RELATIVE PERCENT DEVIATION.
REPT LIMIT= REPORTING LIMIT BASED ON METHOD DETECTION LIMIT STUDIES.

NOTE: ALL RESULTS REPORTED UNDER 'SAMPLE DUPLICATION' ARE THE MS/MSD.

NOTE: THE UNITS REPORTED ON THE QUALITY CONTROL REPORT ARE REPORTED ON AN AS RUN BASIS. (NOT ADJUSTED FOR DRY WEIGHT).

SW-846, 3rd Edition.
EPA 600/4-79-020, Revised March 1983.
NIOSH Manual of Analytical Methods, 4th Edition.
Standard Methods For the Examination of Water and Wastewater, 18th Edition, 1992.
Methods For the Determination of Metals in Environmental Samples - Supplement I, EPA 600/R-94-111, May 1994.

GJ = GARY JACOBS
JLH = JAMES L. HERED
GSP = GARY ST PERE
JL = JANET LECLEAR

SEVERN TRENT LABORATORIES 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Quality Control Report

Analysis: POLYNUCLEAR AROMATICS BY 8310

Accession:	806267
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806414
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	SEMI-VOLATILE FUELS

SEVERN TRENT LABORATORIES 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"QC Report"

Title: Water Blank
Batch: PAW141
Analysis Method: 8310/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.

Blank Id: A Date Analyzed: 25-JUN-98 Date Extracted: 23-JUN-98

Parameters:	Units:	Results:	Reporting Limits:
ACENAPHTHENE	UG/L	ND	1
ACENAPHTHYLENE	UG/L	ND	1
ANTHRACENE	UG/L	ND	1
BENZO(a)ANTHRACENE	UG/L	ND	1
BENZO(a)PYRENE	UG/L	ND	0.1
BENZO(b)FLUORANTHENE	UG/L	ND	1
BENZO(g,h,i)PERYLENE	UG/L	ND	1
BENZO(k)FLUORANTHENE	UG/L	ND	1
CHRYSENE	UG/L	ND	1
DIBENZO(a,h)ANTHRACENE	UG/L	ND	1
FLUORANTHENE	UG/L	ND	1
FLUORENE	UG/L	ND	1
INDENO(1,2,3-cd)PYRENE	UG/L	ND	1
NAPHTHALENE	UG/L	ND	1
PHENANTHRENE	UG/L	ND	1
PYRENE	UG/L	ND	1
1-METHYLNAPHTHALENE	UG/L	ND	0.3
2-METHYLNAPHTHALENE	UG/L	ND	1
2-CHLOROANTHRACENE	%REC/SURR	82	28-138
ANALYST	INITIALS	HAH	

Comments:

"QC Report"

Title: Water LCS
Batch: PAW141
Analysis Method: 8310/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.

RS Date Analyzed: 25-JUN-98 RS Date Extracted: 23-JUN-98

Parameters:	Spike Added	Sample Conc	RS Conc	RS %Rec	Rec Lmts
ACENAPHTHYLENE	7.1	<1	5.7	80	45-127
BENZO(k)FLUORANTHENE	9.2	<1	8.6	93	68-131
CHRYSENE	9.1	<1	8.8	97	69-131
PHENANTHRENE	9.1	<1	8.6	95	63-124
PYRENE	8.8	<1	8.5	97	61-126
Surrogates:					
2-CHLOROANTHRACENE				85	28-138

Comments:

Notes:
N/S = NOT SUBMITTED N/A = NOT APPLICABLE D = DILUTED OUT
UG/L = PARTS PER BILLION. < = LESS THAN REPORTING LIMIT.
* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS.
SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

"QC Report"

Title: Water Matrix Spike/Matrix Spike Duplicate
Batch: PAW141
Analysis Method: 8310/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.

Dry Weight %: N/A
Sample Spiked: 806229-1

MS Date Analyzed: 25-JUN-98
MSD Date Analyzed: 25-JUN-98

MS Date Extracted: 23-JUN-98
MSD Date Extracted: 23-JUN-98

Parameters:	Spike Added	Sample Conc	MS Conc	MS %Rec	MSD Conc	MSD %Rec	RPD	RPD Lmts	Rec Lmts
ACENAPHTHYLENE	7.1	<1	5.1	72	6.7	94	27	51	18-146
BENZO(k)FLUORANTHENE	9.2	<1	6.6	72	7.0	76	5	40	26-137
CHRYSENE	9.1	<1	7.4	81	7.9	87	7	69	16-156
PHENANTHRENE	9.1	<1	7.3	80	8.1	89	11	36	30-145
PYRENE	8.8	<1	7.3	83	8.1	92	10	41	39-137
Surrogates:									
2-CHLOROANTHRACENE				77		84			28-138

Comments:

Notes:
N/S = NOT SUBMITTED N/A = NOT APPLICABLE D = DILUTED OUT
UG/L = PARTS PER BILLION. < = LESS THAN REPORTING LIMIT.
* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS.
SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

Common Notation for Organic Reporting

N/S = NOT SUBMITTED
N/A = NOT APPLICABLE
UG = MICROGRAMS
UG/L = PARTS PER BILLION
UG/KG = PARTS PER BILLION
MG/M3 = MILLIGRAM PER CUBIC METER
PPMV = PART PER MILLION BY VOLUME
MG/KG = PARTS PER MILLION
MG/L = PARTS PER MILLION
< = LESS THAN
ND = NOT DETECTED

SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

ORGANIC SOILS ARE REPORTED ON A DRYWEIGHT BASIS.

RPT LMTS = REPORTING LIMITS BASED ON METHOD DETECTION LIMIT STUDIES.

RPD = RELATIVE PERCENT DIFFERENCE (OR DEVIATION)

AEN/GC/FID
AEN GAS CHROMATOGRAPHIC METHOD EMPLOYING DIRECT INJECTION ON COLUMN WITH FLAME IONIZATION DETECTOR (FID).

AEN/GC/FIX
AEN GAS CHROMATOGRAPHIC METHOD FOR ANALYSIS OF FIXED GASES EMPLOYING DIRECT INJECTION ON COLUMN WITH THERMAL CONDUCTIVITY DETECTOR (TCD) AND FLAME IONIZATION DETECTOR (FID).

AEN/GC/FPD
AEN GAS CHROMATOGRAPHIC METHOD EMPLOYING DIRECT INJECTION ON COLUMN WITH FLAME PHOTOMETRIC DETECTOR (FPD) IN SULFUR-SPECIFIC MODE.

AEN/GC/PID
AEN GAS CHROMATOGRAPHIC METHOD EMPLOYING DIRECT INJECTION ON COLUMN WITH PHOTOIONIZATION DETECTOR (PID).

AEN/GC/TCD
AEN GAS CHROMATOGRAPHIC METHOD EMPLOYING DIRECT INJECTION ON COLUMN WITH THERMAL CONDUCTIVITY DETECTOR (TCD).

SW-846 METHOD 9020
PARTICULATE MATTER IS REMOVED BY ALLOWING PARTICULATES TO SETTLE IN THE SAMPLE CONTAINER AND DECANTING THE SUPERNATANT LIQUID. EXCESSIVE PARTICULATES ARE REMOVED BY FILTRATION OF THE SUPERNATANT LIQUID.

RSK 175
SAMPLE PREPARATION AND CALCULATIONS FOR DISSOLVED GAS ANALYSIS IN WATER SAMPLES USING A GC HEADSPACE EQUILIBRATION TECHNIQUE, RSK SOP-175, ROBERT S. KERR ENVIRONMENTAL RESEARCH LABORATORY, USEPA, AUGUST 11, 1994.

AEN-PN USES THE MOST CURRENT PROMULGATED METHODS CONTAINED IN THE REFERENCE MANUALS.

SW = STEVE WILHITE
RW = ROBERT WOLFE
KS = KENDALL SMITH
LB = LISA BIZZELL
LP = LEVERNE PETERSON
PLD = PAULA DOUGHTY
DK = DARLENE KINCHEN
BT = BECKY TREMMEL
HAH = HOLLIE HOFFMAN

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Quality Control Report

Analysis: PESTICIDES (8080)

Accession:	806267
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806414
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	PESTICIDES

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Date 08-Jul-98

"QC Report"

Title: Water Blank
Batch: PSW043
Analysis Method: 8080 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Extraction Method: 3510 / 3660 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.

Blank Id: A Date Analyzed: 30-JUN-98 Date Extracted: 22-JUN-98

Parameters:	Units:	Results:	Reporting Limits:
ALDRIN	UG/L	ND	0.05
ALPHA-BHC	UG/L	ND	0.05
BETA-BHC	UG/L	ND	0.05
DELTA-BHC	UG/L	ND	0.05
GAMMA-BHC (LINDANE)	UG/L	ND	0.05
4,4'-DDD	UG/L	ND	0.10
4,4'-DDE	UG/L	ND	0.10
4,4'-DDT	UG/L	ND	0.10
DIELDRIN	UG/L	ND	0.10
ENDOSULFAN I	UG/L	ND	0.05
ENDOSULFAN II	UG/L	ND	0.10
ENDOSULFAN SULFATE	UG/L	ND	0.10
ENDRIN	UG/L	ND	0.10
ENDRIN ALDEHYDE	UG/L	ND	0.10
HEPTACHLOR	UG/L	ND	0.05
HEPTACHLOR EPOXIDE	UG/L	ND	0.05
METHOXYCHLOR	UG/L	ND	0.5
CHLORDANE	UG/L	ND	0.5
TOXAPHENE	UG/L	ND	3.0
PCB-1016	UG/L	ND	1.0
PCB-1221	UG/L	ND	1.0
PCB-1232	UG/L	ND	1.0
PCB-1242	UG/L	ND	1.0
PCB-1248	UG/L	ND	1.0
PCB-1254	UG/L	ND	1.0
PCB-1260	UG/L	ND	1.0
MICROBAN	UG/L	ND	0.5
TCMX	%REC/SURR	92	43-101
DCB	%REC/SURR	104	17-135
ANALYST	INITIALS	RP	

Comments:

"QC Report"

Title: Water LCS
Batch: PSW043
Analysis Method: 8080 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Extraction Method: 3510 / 3660 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.

RS Date Analyzed: 30-JUN-98 RS Date Extracted: 22-JUN-98

Parameters:	Spike Added	Sample Conc	RS Conc	RS %Rec	Rec Lmts
LINDANE	1.00	<0.05	0.91	91	51-118
HEPTACHLOR	1.00	<0.05	1.06	106	70-123
ALDRIN	1.00	<0.05	1.04	104	54-122
DIELDRIN	1.00	<0.10	1.10	110	75-119
ENDRIN	1.00	<0.10	1.13	113	67-122
DDT	1.00	<0.10	1.33	133*	59-127
Surrogates:					
DCB				104	17-135
TCMX				91	43-101

Comments:
* PER AEN-PENSACOLA POLICY, WHEN AN ANALYTE IN THE LCS EXCEEDS THE UPPER CONTROL LIMIT AND THAT ANALYTE IS NOT DETECTED IN THE ASSOCIATED SAMPLES,THE DATA FOR THAT ANALYTE DOES NOT NEED TO BE QUALIFIED AND NO CORRECTIVE ACTION IS REQUIRED.

Notes:
N/S = NOT SUBMITTED N/A = NOT APPLICABLE D = DILUTED OUT
UG/L = PARTS PER BILLION. < = LESS THAN REPORTING LIMIT.
* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS.
SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

"QC Report"

Title: Water Matrix
Batch: PSW043
Analysis Method: 8080 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Extraction Method: 3510 / 3660 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.

Dry Weight %: N/A
Sample Spiked: 806240-1

MS Date Analyzed: 30-JUN-98
MSD Date Analyzed: 30-JUN-98

MS Date Extracted: 22-JUN-98
MSD Date Extracted: 22-JUN-98

Parameters:	Spike Added	Sample Conc	MS Conc	MS %Rec	MSD Conc	MSD %Rec	RPD	RPD Lmts	Rec Lmts
LINDANE	2.00	<0.05	1.32	66	1.48	74	11	27	40-119
HEPTACHLOR	2.00	<0.05	1.46	73	1.70	85	15	30	53-123
ALDRIN	2.00	<0.05	1.46	73	1.58	79	8	31	42-130
DIELDRIN	2.00	<0.10	1.31	66	1.57	79	18	18	61-124
ENDRIN	2.00	<0.10	1.39	70	1.63	82	16	30	50-125
DDT	2.00	<0.10	1.58	79	1.96	98	21	32	25-138
Surrogates:									
DCB				69		76			17-135
TCMX				69		75			43-101

Comments:

Notes:
N/S = NOT SUBMITTED N/A = NOT APPLICABLE D = DILUTED OUT
UG/L = PARTS PER BILLION. < = LESS THAN REPORTING LIMIT.
* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS.
SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

Common notation for Organic reporting

N/S = NOT SUBMITTED
N/A = NOT APPLICABLE
D = DILUTED OUT
UG/L = PARTS PER BILLION.
UG/KG = PARTS PER BILLION.
MG/KG = PARTS PER MILLION.
MG/L = PARTS PER MILLION.
< = LESS THAN.
* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS.
ND = NOT DETECTED ABOVE REPORTING LIMIT.
Rpt Lmts = REPORTING LIMITS BASED ON METHOD DETECTION LIMIT STUDIES.
RPD = RELATIVE PERCENT DIFFERENCE (OR DEVIATION)

SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

ORGANIC SOILS ARE REPORTED ON A DRY WEIGHT BASIS.

AEN-PN USES THE MOST CURRENT PROMULGATED METHODS CONTAINED IN THE REFERENCE MANUALS.

RP = ROBERT PEREZ
LP = LEVERNE PETERSON
RW = ROBERT WOLFE

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Quality Control Report

Analysis: ACID & BASE EXTRACTABLES (8270)

Accession:	806267
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806414
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	ORGANIC/MS

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"QC Report"

Title: Water Blank
Batch: ALW075
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.

Blank Id: A Date Analyzed: 25-JUN-98 Date Extracted: 22-JUN-98

Parameters:	Units:	Results:	Reporting Limits:
P-CHLORO-M-CRESOL	UG/L	ND	10
2-CHLOROPHENOL	UG/L	ND	10
O-CRESOL	UG/L	ND	10
M,P CRESOL	UG/L	ND	10
2,4-DICHLOROPHENOL	UG/L	ND	10
2,6-DICHLOROPHENOL	UG/L	ND	10
2,4-DIMETHYLPHENOL	UG/L	ND	10
4,6-DINITRO-O-CRESOL	UG/L	ND	50
2,4-DINITROPHENOL	UG/L	ND	10
2-NITROPHENOL	UG/L	ND	10
4-NITROPHENOL	UG/L	ND	50
PENTACHLOROPHENOL	UG/L	ND	50
PHENOL	UG/L	ND	10
2,3,4,6-TETRACHLOROPHENOL	UG/L	ND	10
2,4,5-TRICHLOROPHENOL	UG/L	ND	50
2,4,6-TRICHLOROPHENOL	UG/L	ND	10
ACENAPHTHENE	UG/L	ND	10
ACENAPHTHYLENE	UG/L	ND	10
ACETOPHENONE	UG/L	ND	10
2-ACETYLAMINOFLUORENE	UG/L	ND	10
4-AMINOBIPHENYL	UG/L	ND	10
ANILINE	UG/L	ND	10
ANTHRACENE	UG/L	ND	10
ARAMITE	UG/L	ND	10
BENZO (A) ANTHRACENE	UG/L	ND	10
BENZO (A) PYRENE	UG/L	ND	10
BENZO (B) FLUORANTHENE	UG/L	ND	10
BENZO (G,H,I) PERYLENE	UG/L	ND	10
BENZO (K) FLUORANTHENE	UG/L	ND	10
BENZYL ALCOHOL	UG/L	ND	10
BIS(2-CHLORO-1-METHYLETHYL)ETHER	UG/L	ND	10
BIS(2-CHLOROETHOXY)METHANE	UG/L	ND	10
BIS(2-CHLOROETHYL)ETHER	UG/L	ND	10
BIS(2-ETHYLHEXYL)PHTHALATE	UG/L	ND	10
4-BROMOPHENYL PHENYL ETHER	UG/L	ND	10
BUTYLBENZYL PHTHALATE	UG/L	ND	10
P-CHLOROANILINE	UG/L	ND	10
CHLOROBENZILATE	UG/L	ND	10
2-CHLORONAPHTHALENE	UG/L	ND	10
4-CHLOROPHENYL PHENYL ETHER	UG/L	ND	10
CHRYSENE	UG/L	ND	10
DIALLATE	UG/L	ND	10
DIBENZO (A,H) ANTHRACENE	UG/L	ND	10
DIBENZOFURAN	UG/L	ND	10
1,2-DICHLOROBENZENE	UG/L	ND	10
1,3-DICHLOROBENZENE	UG/L	ND	10

"QC Report"

Title: Water Blank
Batch: ALW075
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.

Parameters:	Units:	Results:	Reporting Limits:
1,4-DICHLOROBENZENE	UG/L	ND	10
3,3'-DICHLOROBENZIDINE	UG/L	ND	50
DIETHYLPHTHALATE	UG/L	ND	10
DIMETHOATE	UG/L	ND	10
P-DIMETHYLAMINOAZOBENZENE	UG/L	ND	10
7,12-DIMETHYLBENZ(A)ANTHRACENE	UG/L	ND	10
3,3'-DIMETHYLBENZIDINE	UG/L	ND	10
A,A-DIMETHYLPHENETHYLAMINE	UG/L	ND	10
DIMETHYLPHTHALATE	UG/L	ND	10
DI-N-BUTYLPHTHALATE	UG/L	ND	10
M-DINITROBENZENE	UG/L	ND	10
2,4-DINITROTOLUENE	UG/L	ND	10
2,6-DINITROTOLUENE	UG/L	ND	10
DI-N-OCTYLPHTHALATE	UG/L	ND	10
DIPHENYLAMINE	UG/L	ND	10
ETHYL METHANESULFONATE	UG/L	ND	10
FAMPHUR	UG/L	ND	10
FLUORANTHENE	UG/L	ND	10
FLUORENE	UG/L	ND	10
HEXACHLOROBENZENE	UG/L	ND	10
HEXACHLOROBUTADIENE	UG/L	ND	10
HEXACHLOROCYCLOPENTADIENE	UG/L	ND	10
HEXACHLOROETHANE	UG/L	ND	10
HEXACHLOROPHENE	UG/L	ND	10
HEXACHLOROPROPENE	UG/L	ND	10
INDENO (1,2,3-CD) PYRENE	UG/L	ND	10
ISODRIN	UG/L	ND	10
ISOPHORONE	UG/L	ND	10
ISOSAFROLE	UG/L	ND	10
KEPONE	UG/L	ND	10
METHAPYRILENE	UG/L	ND	10
3-METHYLCHOLANTHRENE	UG/L	ND	10
METHYL METHANESULFONATE	UG/L	ND	10
1-METHYLNAPHTHALENE	UG/L	ND	10
2-METHYLNAPHTHALENE	UG/L	ND	10
NAPHTHALENE	UG/L	ND	10
1,4-NAPHTHOQUINONE	UG/L	ND	10
1-NAPHTHYLAMINE	UG/L	ND	10
2-NAPHTHYLAMINE	UG/L	ND	10
2-NITROANILINE	UG/L	ND	50
3-NITROANILINE	UG/L	ND	50
4-NITROANILINE	UG/L	ND	50
NITROBENZENE	UG/L	ND	10
5-NITRO-O-TOLUIDINE	UG/L	ND	10
4-NITROQUINOLINE-1-OXIDE	UG/L	ND	10
N-NITROSODIETHYLAMINE	UG/L	ND	10
N-NITROSODIMETHYLAMINE	UG/L	ND	10

"QC Report"

Title: Water Blank
Batch: ALW075
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.

Parameters:	Units:	Results:	Reporting Limits:
N-NITROSODI-N-BUTYLAMINE	UG/L	ND	10
N-NITROSODIPHENYLAMINE	UG/L	ND	10
N-NITROSOMETHYLETHYLAMINE	UG/L	ND	10
N-NITROSOMORPHOLINE	UG/L	ND	10
N-NITROSOPIPERIDINE	UG/L	ND	10
N-NITROSOPYRROLIDINE	UG/L	ND	10
PARATHION	UG/L	ND	10
PENTACHLOROBENZENE	UG/L	ND	10
PENTACHLOROETHANE	UG/L	ND	10
PENTACHLORONITROBENZENE	UG/L	ND	10
PHENACETIN	UG/L	ND	10
PHENANTHRENE	UG/L	ND	10
2-PICOLINE	UG/L	ND	10
P-PHENYLENEDIAMINE	UG/L	ND	10
PRONAMIDE	UG/L	ND	10
PYRENE	UG/L	ND	10
PYRIDINE	UG/L	ND	10
SAFROLE	UG/L	ND	10
SULFOTEPP	UG/L	ND	10
1,2,4,5-TETRACHLOROBENZENE	UG/L	ND	10
THIONAZIN	UG/L	ND	10
O-TOLUIDINE	UG/L	ND	10
1,2,4 TRICHLOROBENZENE	UG/L	ND	10
SYM-TRINITROBENZENE	UG/L	ND	10
O,O,O-TRIETHYL PHOSPHOROTHIATE	UG/L	ND	10
BENZIDINE	UG/L	ND	10
BIS(2-CHLOROISOPROPYL)ETHER	UG/L	ND	10
2-(SEC BUTYL)4,6-DINITRO-PHENOL(DINOSEB)	UG/L	ND	10
0~NITROSO-DI-N-PROPYLAMINE	UG/L	ND	10
6-METHYL CHRYSENE	UG/L	ND	20
INDENE	UG/L	ND	20
QUINOLINE	UG/L	ND	50
BENZENETHIOL	UG/L	ND	20
PARATOLIUDINE	UG/L	ND	50
TOLUENE DIISOCYANATE	UG/L	ND	50
TOLUENE DIAMINE	UG/L	ND	50
MONONITROTOLUENE	UG/L	ND	50
DIETHYLENE GLYCOL MONOBUTYL ETHER	UG/L	ND	10
2-FLUOROPHENOL	%REC/SURR	89	21-100
PHENOL-D6	%REC/SURR	72	10-100
2,4,6-TRIBROMOPHENOL	%REC/SURR	66	10-123
2-FLUOROBIPHENYL	%REC/SURR	74	43-116
NITROBENZENE-D5	%REC/SURR	73	35-114
TERPHENYL-D14	%REC/SURR	93	33-124
ANALYST	INITIALS	RW	

Comments:

"QC Report"

Title: Water LCS
Batch: ALW075
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.

RS Date Analyzed: 26-JUN-98 RS Date Extracted: 22-JUN-98

Parameters:	Spike Added	Sample Conc	RS Conc	RS %Rec	Rec Lmts
PHENOL	150	<10	108	72	5-112
2-CHLOROPHENOL	150	<10	112	75	40-120
1,4-DICHLOROBENZENE	100	<10	70	70	32-119
N-NITRO-DI-N-PROPYLAMINE	100	<10	72	72	26-128
1,2,4 TRICHLOROBENZENE	100	<10	68	68	44-142
4-CHLORO-3-METHYLPHENOL	150	<10	112	75	30-128
ACENAPHTHENE	100	<10	70	70	47-145
4-NITROPHENOL	150	<50	92	61	1-132
2,4-DINITROTOLUENE	100	<10	66	66	39-138
PENTACHLOROPHENOL	150	<50	88	59	15-157
PYRENE	100	<10	84	84	52-115
Surrogates:					
NITROBENZENE-D5				84	35-114
2-FLUOROBIPHENYL				77	43-116
TERPHENYL-D14				92	33-124
PHENOL-D6				81	10-100
2-FLUOROPHENOL				91	21-100
2,4,6-TRIBROMOPHENOL				83	10-123

Comments:

Notes:
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UG/L = PARTS PER BILLION. < = LESS THAN REPORTING LIMIT.
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SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"QC Report"

Title: Water Matrix Spike/Matrix Spike Duplicate
Batch: ALW075
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.

Dry Weight %: N/A
Sample Spiked: 806240-3

MS Date Analyzed: 26-JUN-98
MSD Date Analyzed: 26-JUN-98

MS Date Extracted: 22-JUN-98
MSD Date Extracted: 22-JUN-98

Parameters:	Spike Added	Sample Conc	MS Conc	MS %Rec	MSD Conc	MSD %Rec	RPD	RPD Lmts	Rec Lmts
PHENOL	300	<10	260	87	252	84	4	38	5-112
2-CHLOROPHENOL	300	<10	260	87	260	87	0	25	38-120
1,4-DICHLOROBENZENE	200	<10	112	56	116	58	4	27	39-112
N-NITRO-DI-N-PROPYLAMINE	200	<10	144	72	140	70	3	30	32-125
1,2,4 TRICHLOROBENZENE	200	<10	112	56	112	56	0	30	44-118
4-CHLORO-3-METHYLPHENOL	300	<10	280	93	276	92	1	23	42-131
ACENAPHTHENE	200	<10	148	74	144	72	3	21	47-131
4-NITROPHENOL	300	<50	240	80	236	79	1	36	1-116
2,4-DINITROTOLUENE	200	<10	156	78	152	76	3	22	39-138
PENTACHLOROPHENOL	300	<50	268	89	260	87	2	36	14-164
PYRENE	200	<10	180	90	184	92	2	21	52-115
Surrogates:									
NITROBENZENE-D5				79		77			35-114
2-FLUOROBIPHENYL				73		73			43-116
TERPHENYL-D14				87		92			33-124
PHENOL-D6				92		92			10-100
2-FLUOROPHENOL				97		97			21-100
2,4,6-TRIBROMOPHENOL				92		89			10-123

Comments:

Notes:
N/S = NOT SUBMITTED N/A = NOT APPLICABLE D = DILUTED OUT
UG/L = PARTS PER BILLION. < = LESS THAN REPORTING LIMIT.
* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS.
SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

Common notation for Organic reporting

N/S = NOT SUBMITTED
N/A = NOT APPLICABLE
UG/L = PARTS PER BILLION.
UG/KG = PARTS PER BILLION.
MG/KG = PARTS PER MILLION.
MG/L = PARTS PER MILLION.
MG/M3 = MILLIGRAMS PER CUBIC METER.
NG = NANOGRAMS.
UG = MICROGRAMS.
PPBV = PARTS PER BILLION/VOLUME.
< = LESS THAN.
ND = NOT DETECTED ABOVE REPORT LIMIT.
RPT LMTS = REPORTING LIMITS BASED ON METHOD DETECTION LIMIT STUDIES.
RPD = RELATIVE PERCENT DIFFERENCE (OR DEVIATION)

SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

ORGANIC SOILS ARE REPORTED ON A DRY WEIGHT BASIS.

DUE TO THE NATURE OF THE SAMPLE MATRIX, MATRIX SPIKE/MATRIX SPIKE DUPLICATE ANALYSIS CANNOT BE PERFORMED FOR AIR ANALYSIS.

CLP SOW 1991, USEPA CONTRACT LABORATORY PROGRAM, STATEMENT OF WORK FOR ORGANICS ANALYSIS, DOCUMENT NUMBER OLM01.8, AUGUST 1991.

AEN-PN USES THE MOST CURRENT PROMULGATED METHODS CONTAINED IN THE REFERENCE MANUALS.

LP = LEVERNE PETERSON
LD = LARRY DILMORE
DWB = DAVID BOWERS
RW = RITA WINGO
BDH = BRUCE D. HUNT
HB = HEATHER E. BLAIR

American Environmental Network of Florida
PROJECT SAMPLE INSPECTION FORM

Lab Accession #: 806267 Date Received: 20-Jun-98

1.	Was there a Chain of Custody?	(Yes)	No*		8.	Were samples checked for preservative? *(Check pH of all H_2O requiring preservative (AEN-PN SOP 917) except VOA vials that require zero headspace)*+	(Yes)	No*	N/A
2.	Was Chain of Custody properly filled out and relinquished?	(Yes)	No*		9.	Is there sufficient volume for analysis requested?	(Yes)	No* PKE 6/20/98	
3.	Were samples received cold? (Criteria: 2° - 6°C: AEN-SOP 1055)	(Yes)	No*	N/A	10.	Were samples received within Holding Time? (REFER TO AEN-SOP 1040)	(Yes)	(No*)	
4.	Were all samples properly labeled and identified?	(Yes)	No*		11.	Is Headspace visible > ¼" in diameter in VOA vials?* If any headspace is evident, comment in out-of-control	Yes*	No	(N/A)
5.	Did samples require splitting? Req By: PM Client Other*	Yes*	(No)						
6.	Were samples received in proper containers for analysis requested?	(Yes)	No*		12.	If sent, were matrix spike bottles returned?	Yes	No*	(N/A)
7.	Were all sample containers received intact?	(Yes)	No*		13.	Was Project Manager notified of problems? (initials:_____)	Yes	No*	(N/A)

Airbill Number(s): See attached **Shipped By:** FEDEX

Cooler Number(s): 335L, 241L, 255L **Shipping Charges:** N/A

Cooler Weight(s): N/A **Cooler Temp(s) (°C):** 335L = 2.8° ~~2.0°~~ - CCK 7, 241L = 2.0°c - CCK 5, 255L = 2.0°c - CCK 3
(LIST THERMOMETER NUMBER(S) FOR VERIFICATION)

Out of Control Events and Inspection Comments:

10. pH received out of hold time. PKE 6/20/98

(USE BACK OF PSIF FOR ADDITIONAL NOTES AND COMMENTS) ☞

Inspected By: PKE **Date:** 6/20/98 **Logged By:** PKE **Date:** 6/20/98

♣ *Note all Out-of-Control and/or questionable events on Comment Section of this form.*

♦ *Note who requested the splitting of samples on the Comment Section of this form.*

\+ *All preservatives for the State of North Caroline, the State of New York, and other requested samples are to be recorded on the sheet provided to record pH results (AEN-SOP 938, section 2.2.9).*

* *According to EPA, ¼" of headspace is allowed in 40 ml vials requiring volatile analysis, however, AEN makes it policy to record any headspace as out-of-control (AEN-SOP 938, section 2.2.12).*

American Environmental Network (NM), Inc.

CHAIN OF CUSTODY

DATE: 6-19-98 PAGE: 1 OF 1

AEN NM Accession #: 80626

PLEASE FILL THIS FORM IN COMPLETELY. SHADED AREAS ARE FOR LAB USE ONLY.

PROJECT MANAGER:	Paul Peacock
COMPANY:	Marathon Oil Company
ADDRESS:	P.O. Box 552
	Midland, TX 79702-0552
PHONE:	(915) 687-8312
FAX:	(915) 687-8305
BILL TO:	same as above
COMPANY:	
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)	8021 (BTEX) ☐ MTBE ☐ TMB ☐ PCE	8021 (TCL)	8021 (EDX)	8021 (HALO)	8021 (CUST)	504.1 EDB ☐ / DBCP ☐	CYANIDE/AMMONIA/TKN	8260 (TCL) Volatile Organics	8260 (Full) Volatile Organics	8260 (CUST) Volatile Organics	8260 (Landfill) Volatile Organics	Pesticides /PCB (608/8081)	Herbicides (615/8151)	Base/Neutral/Acid Compounds GC/MS (625/8270)	Polynuclear Aromatics (610/8310)	General Chemistry:	* SEE LIST	TOTAL METALS	Priority Pollutant Metals (13)	Target Analyte List Metals (23)	RCRA Metals (8)	RCRA Metals by TCLP (Method 1311)	Metals: * SEE LIST	NUMBER OF CONTAINERS
MW-50	6-19-98	0845	H2O	1											X					X		X	X		X	X					X	
MW-41	↓	1005	↓	2											X					X		X	X		X	X					X	
MW-78	↓	1110	↓	3											X					X		X	X		X	X					X	

PROJECT INFORMATION	
PROJ. NO.:	104332.03
PROJ. NAME:	IBRP
P.O. NO.:	
SHIPPED VIA:	

SAMPLE RECEIPT	
NO. CONTAINERS	
CUSTODY SEALS	Y / N / NA
RECEIVED INTACT	
BLUE ICE/ICE	

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

(RUSH) ☐ 24hr ☐ 48hr ☐ 72hr ☐ 1 WEEK (NORMAL) ☒

CERTIFICATION REQUIRED: ☐ NM ☐ SDWA ☐ OTHER

METHANOL PRESERVATION ☐

COMMENTS: FIXED FEE ☐

RELINQUISHED BY: 1	RELINQUISHED BY: 2
Signature:	Signature:
Time: 1500	Time: 1600
Printed Name: Charles Madewell	Printed Name: CHRIS FAHEY
Date: 6-19-98	Date: 6/19
Company: FDGTI	Company: AEN
RECEIVED BY: 1	**RECEIVED BY (LAB): 2**
Signature:	Signature:
Time: 1800	Time: 1030
Printed Name: CHRIS FAHEY	Printed Name: R. ESTEPHAN
Date: 6/19	Date: 6/20/98
Company: AEN	American Environmental Network (NM), Inc.

American Environmental Network (NM), Inc.

CHAIN OF CUSTODY

DATE: 6-19-98 PAGE: 1 OF 1

AEN (NM) Accession #: A98-80641

SHADED AREAS ARE FOR LAB USE ONLY.

PLEASE FILL THIS FORM IN COMPLETELY.

PROJECT MANAGER: Paul Peacock

COMPANY: Marathon Oil Company
ADDRESS: P.O. Box 552
Midland, TX 79702-0552
PHONE: (915) 687-8312
FAX: (915) 687-8305
BILL TO: same as above
COMPANY:
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)	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)	Herbicides (615/8151)	Base/Neutral/Acid Compounds GC/MS (625/8270)	Polynuclear Aromatics (610/8310)	General Chemistry:				Priority Pollutant Metals (13)	Target Analyte List Metals (23)	RCRA Metals (8)	RCRA Metals by TCLP (Method 1311)	Metals:		NUMBER OF CONTAINERS
MW-50	6-19-98	0845	H2O										X	X		X																6
MW-41	↓	1005	↓										X	X		X																6
MW-78	↓	1110	↓										X	X		X																6

PROJECT INFORMATION

PROJ. NO.: 104332.03
PROJ. NAME: IBRP
P.O. NO.:
SHIPPED VIA:

SAMPLE RECEIPT

NO. CONTAINERS:	
CUSTODY SEALS:	Y / N / NA
RECEIVED INTACT:	
BLUE ICE / ICE:	16°

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

(RUSH) ☐ 24hr ☐ 48hr ☐ 72hr ☐ 1 WEEK (NORMAL) ☒

CERTIFICATION REQUIRED: ☐ NM ☐ SDWA ☐ OTHER

METHANOL PRESERVATION ☐

COMMENTS: FIXED FEE ☐

to be resampled

RELINQUISHED BY:

Signature: Time: 1500
Printed Name: Charles Madewell Date: 6/19/98
Company: FOGTI

RECEIVED BY:

Signature: Time: 1500
Printed Name: CHRIS FAITH Date: 6/19
Company: AEN

RELINQUISHED BY: 2.

Signature: Time: 1600
Printed Name: CHRIS FAITH Date: 6/19
Company: AEN

RECEIVED BY: (LAB) 2.

Signature: Time: 8:30
Printed Name: Francine Tonvo Date: 6/22/98
American Environmental Network (NM), Inc.

RECEIVED

AEN I.D. 806423

July 28, 1998

MARATHON OIL COMPANY
P.O. BOX 552
MIDLAND, TX 79702-0552

Project Name IBRP
Project Number 104332.03

Attention: PAUL PEACOCK

On 6/27/98 American Environmental Network (NM), Inc. (ADHS License No. AZ0015), 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.

Radiochemistry results (Ra 226/228) will follow in a separate report.

EPA methods 504.1, 8021 and 8260 were performed by American Environmental Network (NM) Inc., Albuquerque, NM.

Uranium was performed by North Creek Analytical, Portland, OR.

All other parameters were performed by STL, Pensacola, FL.

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	: MARATHON OIL COMPANY	AEN I.D.	: 806423
PROJECT #	: 104332.03	DATE RECEIVED	: 6/27/98
PROJECT NAME	: IBRP	REPORT DATE	: 7/28/98

AEN ID. #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	MW-108RB	AQUEOUS	6/24/98
02	MW-55RB	AQUEOUS	6/24/98
03	MW-54	AQUEOUS	6/25/98
04	MW-54DP	AQUEOUS	6/25/98
05	MW-55	AQUEOUS	6/25/98
06	MW-55LC	AQUEOUS	6/25/98
07	MW-54RB	AQUEOUS	6/25/98
08	MW-63	AQUEOUS	6/25/98
09	MW-63RB	AQUEOUS	6/25/98
10	TRIP BLANK	AQUEOUS	6/11/98

GAS CHROMOTOGRAPHY RESULTS

TEST : ETHYLENE DIBROMIDE (EPA 504.1)
CLIENT : MARATHON OIL COMPANY AEN I.D.: 806423
PROJECT # : 104332.03
PROJECT NAME : IBRP

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
03	MW-54	AQUEOUS	6/25/98	7/2/98	7/3/98	1
04	MW-54DP	AQUEOUS	6/25/98	7/2/98	7/3/98	1
05	MW-55	AQUEOUS	6/25/98	7/2/98	7/3/98	1

PARAMETER	DET. LIMIT	UNITS	03	04	05
ETHYLENE DIBROMIDE	0.01	UG/L	< 0.01	< 0.01	< 0.01
SURROGATE:					
1,4-DICHLOROBENZENE			91	81	76
SURROGATE LIMITS	(75 - 141)				

CHEMIST NOTES:
N/A

GAS CHROMOTOGRAPHY RESULTS

TEST : ETHYLENE DIBROMIDE (EPA 504.1)
CLIENT : MARATHON OIL COMPANY AEN I.D.: 806423
PROJECT # : 104332.03
PROJECT NAME : IBRP

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
06	MW-55LC	AQUEOUS	6/25/98	7/2/98	7/3/98	1
08	MW-63	AQUEOUS	6/25/98	7/2/98	7/3/98	1

PARAMETER	DET. LIMIT	1	06	08
ETHYLENE DIBROMIDE	0.01	UG/L	< 0.01	< 0.01

SURROGATE:			
1,4-DICHLOROBENZENE		75	83
SURROGATE LIMITS	(75 - 141)		

CHEMIST NOTES:
N/A

GAS CHROMOTOGRAPHY RESULTS
REAGENT BLANK

TEST	: ETHYLENE DIBROMIDE (EPA 504.1)		
BLANK I.D.	: 070298A	AEN I.D.	: 806423
CLIENT	: MARATHON OIL COMPANY	MATRIX	: AQUEOUS
PROJECT #	: 104332.03	DATE EXTRACTED	: 7/2/98
PROJECT NAME	: IBRP	DATE ANALYZED	: 7/2/98

PARAMETER	DET. LIMIT	UNITS	
ETHYLENE DIBROMIDE	0.01	UG/L	<0.01
SURROGATE:			
1,4-DICHLOROBENZENE			81
SURROGATE LIMITS	(78 - 140)		

CHEMIST NOTES:
N/A

GAS CHROMOTOGRAPHY RESULTS
QUALITY CONTROL
MSMSD

TEST	: ETHYLENE DIBROMIDE (EPA 504.1)		
MSMSD #	: 070298A	AEN I.D.	: 806423
CLIENT	: MARATHON OIL COMPANY	DATE EXTRACTED	: 7/2/98
PROJECT #	: 104332.03	DATE ANALYZED	: 7/2/98
PROJECT NAME	: IBRP	MATRIX	: AQUEOUS
		UNITS	: UG/L

PARAMETER	SAMPLE RESULT	CONC. SPIKE	SPIKED SAMPLE	% REC	DUP SPIKE	DUP % REC	% RPD
ETHYLENE DIBROMIDE	<0.01	0.25	0.22	88%	0.25	100%	13%

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 CHROMOTOGRAPHY RESULTS

TEST : PURGEABLE HALOCARBONS / AROMATICS (EPA 8021)
CLIENT : MARATHON OIL COMPANY AEN I.D.: 806423
PROJECT # : 104332.03
PROJECT NAME : IBRP

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
03	MW-54	AQUEOUS	6/25/98	NA	7/1/98	1
04	MW-54DP	AQUEOUS	6/25/98	NA	7/1/98	1
05	MW-55	AQUEOUS	6/25/98	NA	7/1/98	1

PARAMETER	DET. LIMIT	UNITS	03	04	05
TETRACHLOROETHENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
VINYL CHLORIDE	0.5	UG/L	< 0.5	< 0.5	< 0.5
SURROGATE:					
BROMOCHLOROMETHANE (%)			108	107	100
SURROGATE LIMITS	(73 - 117)				

CHEMIST NOTES:
N/A

GAS CHROMOTOGRAPHY RESULTS

TEST : PURGEABLE HALOCARBONS / AROMATICS (EPA 8021)
CLIENT : MARATHON OIL COMPANY AEN I.D.: 806423
PROJECT # : 104332.03
PROJECT NAME : IBRP

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
06	MW-55LC	AQUEOUS	6/25/98	NA	7/1/98	1
08	MW-63	AQUEOUS	6/25/98	NA	7/1/98	1

PARAMETER	DET. LIMIT	UNITS	06	08
TETRACHLOROETHENE	0.5	UG/L	< 0.5	< 0.5
VINYL CHLORIDE	0.5	UG/L	< 0.5	< 0.5
SURROGATE:				
BROMOCHLOROMETHANE (%)			106	111
SURROGATE LIMITS	(73 - 117)			

CHEMIST NOTES:
N/A

GAS CHROMOTOGRAPHY RESULTS
REAGENT BLANK

TEST	: PURGEABLE HALOCARBONS / AROMATICS (EPA 8021)		
BLANK I.D.	: 070198	AEN I.D.	: 806423
CLIENT	: MARATHON OIL COMPANY	DATE EXTRACTED	: N/A
PROJECT #	: 104332.03	DATE ANALYZED	: 7/1/98
PROJECT NAME	: IBRP	SAMPLE MATRIX	: AQUEOUS

PARAMETER	UNITS	
CHLOROBENZENE	UG/L	<0.5
1,1-DICHLOROETHENE	UG/L	<0.2
TETRACHLOROETHENE	UG/L	<0.5
TRICHLOROETHENE	UG/L	<0.3
VINYL CHLORIDE	UG/L	<0.5
SURROGATE:		
BROMOCHLOROMETHANE (%)		105
SURROGATE LIMITS	(73 - 117)	

CHEMIST NOTES:
N/A

GAS CHROMOTOGRAPHY QUALITY CONTROL
MSMSD

TEST	: PURGEABLE HALOCARBONS / AROMATICS (EPA 8021)		
MSMSD #	: 806397-01	AEN I.D.	: 806423
CLIENT	: MARATHON OIL COMPANY	DATE EXTRACTED	: N/A
PROJECT #	: 104332.03	DATE ANALYZED	: 7/1/98
PROJECT NAME	: IBRP	SAMPLE MATRIX	: AQUEOUS
		UNITS	: UG/L

PARAMETER	SAMPLE RESULT	CONC SPIKE	SPIKED SAMPLE	% REC	DUP SPIKE	DUP % REC	RPD	REC LIMITS	RPD LIMITS
1,1-DICHLOROETHENE	<0.2	10.0	6.7	67	5.8	58	14	(44 - 99)	20
TRICHLOROETHENE	<0.3	10.0	10.4	104	9.1	91	13	(89 - 127)	20
CHLOROBENZENE	<0.5	10.0	10.4	104	9.0	90	14	(87 - 124)	20

CHEMIST NOTES:
N/A

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

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

GC/MS RESULTS

TEST : VOLATILE ORGANICS EPA METHOD 8260
CLIENT : MARATHON OIL COMPANY AEN I.D. : 806423
PROJECT # : 104332.03 DATE RECEIVED : 6/27/98
PROJECT NAME : IBRP

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806423-01	MW-108 RB	AQUEOUS	6/24/98	N/A	07/01/98	1

PARAMETER	DET. LIMIT		UNITS
Dichlorodifluoromethane	1.0	< 1.0	ug/L
Chloromethane	1.0	< 1.0	ug/L
Vinyl Chloride	1.0	< 1.0	ug/L
Bromomethane	1.0	< 1.0	ug/L
Chloroethane	1.0	< 1.0	ug/L
Trichlorofluoromethane	1.0	< 1.0	ug/L
Acetone	10	< 10	ug/L
Acrolein	5.0	< 5.0	ug/L
1,1-Dichloroethene	1.0	< 1.0	ug/L
Iodomethane	1.0	< 1.0	ug/L
Methylene Chloride	1.0	< 1.0	ug/L
Acrylonitrile	5.0	< 5.0	ug/L
cis-1,2-Dichloroethene	1.0	< 1.0	ug/L
Methyl-t-butyl Ether	1.0	< 1.0	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 1.0	ug/L
1,1-Dichloroethane	1.0	< 1.0	ug/L
trans-1,2-Dichloroethene	1.0	< 1.0	ug/L
2-Butanone	10	< 10	ug/L
Carbon Disulfide	1.0	< 1.0	ug/L
Bromochloromethane	1.0	< 1.0	ug/L
Chloroform	1.0	< 1.0	ug/L
2,2-Dichloropropane	1.0	< 1.0	ug/L
1,2-Dichloroethane	1.0	< 1.0	ug/L
Vinyl Acetate	1.0	< 1.0	ug/L
1,1,1-Trichloroethane	1.0	< 1.0	ug/L
1,1-Dichloropropene	1.0	< 1.0	ug/L
Carbon Tetrachloride	1.0	< 1.0	ug/L
Benzene	1.0	< 1.0	ug/L
1,2-Dichloropropane	1.0	< 1.0	ug/L
Trichloroethene	1.0	< 1.0	ug/L
Bromodichloromethane	1.0	< 1.0	ug/L
2-Chloroethyl Vinyl Ether	10	< 10	ug/L
cis-1,3-Dichloropropene	1.0	< 1.0	ug/L
trans-1,3-Dichloropropene	1.0	< 1.0	ug/L
1,1,2-Trichloroethane	1.0	< 1.0	ug/L
1,3-Dichloropropane	1.0	< 1.0	ug/L
Dibromomethane	1.0	< 1.0	ug/L
Toluene	1.0	< 1.0	ug/L
1,2-Dibromoethane	1.0	< 1.0	ug/L
4-Methyl-2-Pentanone	10	< 10	ug/L
2-Hexanone	10	< 10	ug/L
Dibromochloromethane	1.0	< 1.0	ug/L
Tetrachloroethene	1.0	< 1.0	ug/L
Chlorobenzene	1.0	< 1.0	ug/L
Ethylbenzene	1.0	< 1.0	ug/L
1,1,1,2-Tetrachloroethane	1.0	< 1.0	ug/L
m&p Xylenes	1.0	< 1.0	ug/L

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806423
PROJECT #	: 104332.03	DATE RECEIVED :	6/27/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806423-01	MW-108 RB	AQUEOUS	6/24/98	N/A	07/01/98	1

PARAMETER	DET. LIMIT		UNITS
o-Xylene	1.0	< 1.0	ug/L
Styrene	1.0	< 1.0	ug/L
Bromoform	1.0	< 1.0	ug/L
1,1,2,2-Tetrachloroethane	1.0	< 1.0	ug/L
1,2,3-Trichloropropane	1.0	< 1.0	ug/L
Isopropyl Benzene	1.0	< 1.0	ug/L
Bromobenzene	1.0	< 1.0	ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 1.0	ug/L
n-Propylbenzene	1.0	< 1.0	ug/L
2-Chlorotoluene	1.0	< 1.0	ug/L
4-Chlorotoluene	1.0	< 1.0	ug/L
1,3,5-Trimethylbenzene	1.0	< 1.0	ug/L
tert-Butylbenzene	1.0	< 1.0	ug/L
1,2,4-Trimethylbenzene	1.0	< 1.0	ug/L
sec-Butylbenzene	1.0	< 1.0	ug/L
1,3-Dichlorobenzene	1.0	< 1.0	ug/L
1,4-Dichlorobenzene	1.0	< 1.0	ug/L
p-Isopropyltoluene	1.0	< 1.0	ug/L
1,2-Dichlorobenzene	1.0	< 1.0	ug/L
n-Butylbenzene	1.0	< 1.0	ug/L
1,2-Dibromomo-3-chloropropane	1.0	< 1.0	ug/L
1,2,4-Trichlorobenzene	1.0	< 1.0	ug/L
Naphthalene	1.0	< 1.0	ug/L
Hexachlorobutadiene	1.0	< 1.0	ug/L
1,2,3-Trichlorobenzene	1.0	< 1.0	ug/L

SURROGATE % RECOVERY		
1,2-Dichloroethane-d4	99	(80 - 120)
Toluene-d8	97	(88 - 110)
Bromofluorobenzene	100	(86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806423
PROJECT #	: 104332.03	DATE RECEIVED :	6/27/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806423-02	MW-55 RB	AQUEOUS	6/24/98	N/A	07/01/98	1

PARAMETER	DET. LIMIT		UNITS
Dichlorodifluoromethane	1.0	< 1.0	ug/L
Chloromethane	1.0	< 1.0	ug/L
Vinyl Chloride	1.0	< 1.0	ug/L
Bromomethane	1.0	< 1.0	ug/L
Chloroethane	1.0	< 1.0	ug/L
Trichlorofluoromethane	1.0	< 1.0	ug/L
Acetone	10	< 10	ug/L
Acrolein	5.0	< 5.0	ug/L
1,1-Dichloroethene	1.0	< 1.0	ug/L
Iodomethane	1.0	< 1.0	ug/L
Methylene Chloride	1.0	< 1.0	ug/L
Acrylonitrile	5.0	< 5.0	ug/L
cis-1,2-Dichloroethene	1.0	< 1.0	ug/L
Methyl-t-butyl Ether	1.0	< 1.0	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 1.0	ug/L
1,1-Dichloroethane	1.0	< 1.0	ug/L
trans-1,2-Dichloroethene	1.0	< 1.0	ug/L
2-Butanone	10	< 10	ug/L
Carbon Disulfide	1.0	< 1.0	ug/L
Bromochloromethane	1.0	< 1.0	ug/L
Chloroform	1.0	< 1.0	ug/L
2,2-Dichloropropane	1.0	< 1.0	ug/L
1,2-Dichloroethane	1.0	< 1.0	ug/L
Vinyl Acetate	1.0	< 1.0	ug/L
1,1,1-Trichloroethane	1.0	< 1.0	ug/L
1,1-Dichloropropene	1.0	< 1.0	ug/L
Carbon Tetrachloride	1.0	< 1.0	ug/L
Benzene	1.0	< 1.0	ug/L
1,2-Dichloropropane	1.0	< 1.0	ug/L
Trichloroethene	1.0	< 1.0	ug/L
Bromodichloromethane	1.0	< 1.0	ug/L
2-Chloroethyl Vinyl Ether	10	< 10	ug/L
cis-1,3-Dichloropropene	1.0	< 1.0	ug/L
trans-1,3-Dichloropropene	1.0	< 1.0	ug/L
1,1,2-Trichloroethane	1.0	< 1.0	ug/L
1,3-Dichloropropane	1.0	< 1.0	ug/L
Dibromomethane	1.0	< 1.0	ug/L
Toluene	1.0	< 1.0	ug/L
1,2-Dibromoethane	1.0	< 1.0	ug/L
4-Methyl-2-Pentanone	10	< 10	ug/L
2-Hexanone	10	< 10	ug/L
Dibromochloromethane	1.0	< 1.0	ug/L
Tetrachloroethene	1.0	< 1.0	ug/L
Chlorobenzene	1.0	< 1.0	ug/L
Ethylbenzene	1.0	< 1.0	ug/L
1,1,1,2-Tetrachloroethane	1.0	< 1.0	ug/L
m&p Xylenes	1.0	< 1.0	ug/L

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806423
PROJECT #	: 104332.03	DATE RECEIVED :	6/27/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806423-02	MW-55 RB	AQUEOUS	6/24/98	N/A	07/01/98	1

PARAMETER	DET. LIMIT		UNITS
o-Xylene	1.0	< 1.0	ug/L
Styrene	1.0	< 1.0	ug/L
Bromoform	1.0	< 1.0	ug/L
1,1,2,2-Tetrachloroethane	1.0	< 1.0	ug/L
1,2,3-Trichloropropane	1.0	< 1.0	ug/L
Isopropyl Benzene	1.0	< 1.0	ug/L
Bromobenzene	1.0	< 1.0	ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 1.0	ug/L
n-Propylbenzene	1.0	< 1.0	ug/L
2-Chlorotoluene	1.0	< 1.0	ug/L
4-Chlorotoluene	1.0	< 1.0	ug/L
1,3,5-Trimethylbenzene	1.0	< 1.0	ug/L
tert-Butylbenzene	1.0	< 1.0	ug/L
1,2,4-Trimethylbenzene	1.0	< 1.0	ug/L
sec-Butylbenzene	1.0	< 1.0	ug/L
1,3-Dichlorobenzene	1.0	< 1.0	ug/L
1,4-Dichlorobenzene	1.0	< 1.0	ug/L
p-Isopropyltoluene	1.0	< 1.0	ug/L
1,2-Dichlorobenzene	1.0	< 1.0	ug/L
n-Butylbenzene	1.0	< 1.0	ug/L
1,2-Dibromomo-3-chloropropane	1.0	< 1.0	ug/L
1,2,4-Trichlorobenzene	1.0	< 1.0	ug/L
Naphthalene	1.0	< 1.0	ug/L
Hexachlorobutadiene	1.0	< 1.0	ug/L
1,2,3-Trichlorobenzene	1.0	< 1.0	ug/L

SURROGATE % RECOVERY	
1,2-Dichloroethane-d4	101
	(80 - 120)
Toluene-d8	95
	(88 - 110)
Bromofluorobenzene	95
	(86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806423
PROJECT #	: 104332.03	DATE RECEIVED :	6/27/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806423-03	MW-54	AQUEOUS	6/25/98	N/A	07/01/98	1

PARAMETER	DET. LIMIT		UNITS
Dichlorodifluoromethane	1.0	< 1.0	ug/L
Chloromethane	1.0	< 1.0	ug/L
Vinyl Chloride	1.0	< 1.0	ug/L
Bromomethane	1.0	< 1.0	ug/L
Chloroethane	1.0	< 1.0	ug/L
Trichlorofluoromethane	1.0	< 1.0	ug/L
Acetone	10	< 10	ug/L
Acrolein	5.0	< 5.0	ug/L
1,1-Dichloroethene	1.0	< 1.0	ug/L
Iodomethane	1.0	< 1.0	ug/L
Methylene Chloride	1.0	< 1.0	ug/L
Acrylonitrile	5.0	< 5.0	ug/L
cis-1,2-Dichloroethene	1.0	< 1.0	ug/L
Methyl-t-butyl Ether	1.0	< 1.0	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 1.0	ug/L
1,1-Dichloroethane	1.0	< 1.0	ug/L
trans-1,2-Dichloroethene	1.0	< 1.0	ug/L
2-Butanone	10	< 10	ug/L
Carbon Disulfide	1.0	< 1.0	ug/L
Bromochloromethane	1.0	< 1.0	ug/L
Chloroform	1.0	< 1.0	ug/L
2,2-Dichloropropane	1.0	< 1.0	ug/L
1,2-Dichloroethane	1.0	< 1.0	ug/L
Vinyl Acetate	1.0	< 1.0	ug/L
1,1,1-Trichloroethane	1.0	< 1.0	ug/L
1,1-Dichloropropene	1.0	< 1.0	ug/L
Carbon Tetrachloride	1.0	< 1.0	ug/L
Benzene	1.0	< 1.0	ug/L
1,2-Dichloropropane	1.0	< 1.0	ug/L
Trichloroethene	1.0	< 1.0	ug/L
Bromodichloromethane	1.0	< 1.0	ug/L
2-Chloroethyl Vinyl Ether	10	< 10	ug/L
cis-1,3-Dichloropropene	1.0	< 1.0	ug/L
trans-1,3-Dichloropropene	1.0	< 1.0	ug/L
1,1,2-Trichloroethane	1.0	< 1.0	ug/L
1,3-Dichloropropane	1.0	< 1.0	ug/L
Dibromomethane	1.0	< 1.0	ug/L
Toluene	1.0	< 1.0	ug/L
1,2-Dibromoethane	1.0	< 1.0	ug/L
4-Methyl-2-Pentanone	10	< 10	ug/L
2-Hexanone	10	< 10	ug/L
Dibromochloromethane	1.0	< 1.0	ug/L
Tetrachloroethene	1.0	< 1.0	ug/L
Chlorobenzene	1.0	< 1.0	ug/L
Ethylbenzene	1.0	< 1.0	ug/L
1,1,1,2-Tetrachloroethane	1.0	< 1.0	ug/L
m&p Xylenes	1.0	< 1.0	ug/L

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806423
PROJECT #	: 104332.03	DATE RECEIVED :	6/27/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806423-03	MW-54	AQUEOUS	6/25/98	N/A	07/01/98	1

PARAMETER	DET. LIMIT		UNITS
o-Xylene	1.0	< 1.0	ug/L
Styrene	1.0	< 1.0	ug/L
Bromoform	1.0	< 1.0	ug/L
1,1,2,2-Tetrachloroethane	1.0	< 1.0	ug/L
1,2,3-Trichloropropane	1.0	< 1.0	ug/L
Isopropyl Benzene	1.0	< 1.0	ug/L
Bromobenzene	1.0	< 1.0	ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 1.0	ug/L
n-Propylbenzene	1.0	< 1.0	ug/L
2-Chlorotoluene	1.0	< 1.0	ug/L
4-Chlorotoluene	1.0	< 1.0	ug/L
1,3,5-Trimethylbenzene	1.0	< 1.0	ug/L
tert-Butylbenzene	1.0	< 1.0	ug/L
1,2,4-Trimethylbenzene	1.0	< 1.0	ug/L
sec-Butylbenzene	1.0	< 1.0	ug/L
1,3-Dichlorobenzene	1.0	< 1.0	ug/L
1,4-Dichlorobenzene	1.0	< 1.0	ug/L
p-Isopropyltoluene	1.0	< 1.0	ug/L
1,2-Dichlorobenzene	1.0	< 1.0	ug/L
n-Butylbenzene	1.0	< 1.0	ug/L
1,2-Dibromomo-3-chloropropane	1.0	< 1.0	ug/L
1,2,4-Trichlorobenzene	1.0	< 1.0	ug/L
Naphthalene	1.0	< 1.0	ug/L
Hexachlorobutadiene	1.0	< 1.0	ug/L
1,2,3-Trichlorobenzene	1.0	< 1.0	ug/L

SURROGATE % RECOVERY		
1,2-Dichloroethane-d4	103	(80 - 120)
Toluene-d8	98	(88 - 110)
Bromofluorobenzene	99	(86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806423
PROJECT #	: 104332.03	DATE RECEIVED :	6/27/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806423-04	MW-54 DP	AQUEOUS	6/25/98	N/A	07/01/98	1

PARAMETER	DET. LIMIT		UNITS
Dichlorodifluoromethane	1.0	< 1.0	ug/L
Chloromethane	1.0	< 1.0	ug/L
Vinyl Chloride	1.0	< 1.0	ug/L
Bromomethane	1.0	< 1.0	ug/L
Chloroethane	1.0	< 1.0	ug/L
Trichlorofluoromethane	1.0	< 1.0	ug/L
Acetone	10	< 10	ug/L
Acrolein	5.0	< 5.0	ug/L
1,1-Dichloroethene	1.0	< 1.0	ug/L
Iodomethane	1.0	< 1.0	ug/L
Methylene Chloride	1.0	< 1.0	ug/L
Acrylonitrile	5.0	< 5.0	ug/L
cis-1,2-Dichloroethene	1.0	< 1.0	ug/L
Methyl-t-butyl Ether	1.0	< 1.0	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 1.0	ug/L
1,1-Dichloroethane	1.0	< 1.0	ug/L
trans-1,2-Dichloroethene	1.0	< 1.0	ug/L
2-Butanone	10	< 10	ug/L
Carbon Disulfide	1.0	< 1.0	ug/L
Bromochloromethane	1.0	< 1.0	ug/L
Chloroform	1.0	< 1.0	ug/L
2,2-Dichloropropane	1.0	< 1.0	ug/L
1,2-Dichloroethane	1.0	< 1.0	ug/L
Vinyl Acetate	1.0	< 1.0	ug/L
1,1,1-Trichloroethane	1.0	< 1.0	ug/L
1,1-Dichloropropene	1.0	< 1.0	ug/L
Carbon Tetrachloride	1.0	< 1.0	ug/L
Benzene	1.0	< 1.0	ug/L
1,2-Dichloropropane	1.0	< 1.0	ug/L
Trichloroethene	1.0	< 1.0	ug/L
Bromodichloromethane	1.0	< 1.0	ug/L
2-Chloroethyl Vinyl Ether	10	< 10	ug/L
cis-1,3-Dichloropropene	1.0	< 1.0	ug/L
trans-1,3-Dichloropropene	1.0	< 1.0	ug/L
1,1,2-Trichloroethane	1.0	< 1.0	ug/L
1,3-Dichloropropane	1.0	< 1.0	ug/L
Dibromomethane	1.0	< 1.0	ug/L
Toluene	1.0	< 1.0	ug/L
1,2-Dibromoethane	1.0	< 1.0	ug/L
4-Methyl-2-Pentanone	10	< 10	ug/L
2-Hexanone	10	< 10	ug/L
Dibromochloromethane	1.0	< 1.0	ug/L
Tetrachloroethene	1.0	< 1.0	ug/L
Chlorobenzene	1.0	< 1.0	ug/L
Ethylbenzene	1.0	< 1.0	ug/L
1,1,1,2-Tetrachloroethane	1.0	< 1.0	ug/L
m&p Xylenes	1.0	< 1.0	ug/L

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806423
PROJECT #	: 104332.03	DATE RECEIVED :	6/27/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806423-04	MW-54 DP	AQUEOUS	6/25/98	N/A	07/01/98	1

PARAMETER	DET. LIMIT		UNITS
o-Xylene	1.0	< 1.0	ug/L
Styrene	1.0	< 1.0	ug/L
Bromoform	1.0	< 1.0	ug/L
1,1,2,2-Tetrachloroethane	1.0	< 1.0	ug/L
1,2,3-Trichloropropane	1.0	< 1.0	ug/L
Isopropyl Benzene	1.0	< 1.0	ug/L
Bromobenzene	1.0	< 1.0	ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 1.0	ug/L
n-Propylbenzene	1.0	< 1.0	ug/L
2-Chlorotoluene	1.0	< 1.0	ug/L
4-Chlorotoluene	1.0	< 1.0	ug/L
1,3,5-Trimethylbenzene	1.0	< 1.0	ug/L
tert-Butylbenzene	1.0	< 1.0	ug/L
1,2,4-Trimethylbenzene	1.0	< 1.0	ug/L
sec-Butylbenzene	1.0	< 1.0	ug/L
1,3-Dichlorobenzene	1.0	< 1.0	ug/L
1,4-Dichlorobenzene	1.0	< 1.0	ug/L
p-Isopropyltoluene	1.0	< 1.0	ug/L
1,2-Dichlorobenzene	1.0	< 1.0	ug/L
n-Butylbenzene	1.0	< 1.0	ug/L
1,2-Dibromomo-3-chloropropane	1.0	< 1.0	ug/L
1,2,4-Trichlorobenzene	1.0	< 1.0	ug/L
Naphthalene	1.0	< 1.0	ug/L
Hexachlorobutadiene	1.0	< 1.0	ug/L
1,2,3-Trichlorobenzene	1.0	< 1.0	ug/L

SURROGATE % RECOVERY	
1,2-Dichloroethane-d4	101
	(80 - 120)
Toluene-d8	96
	(88 - 110)
Bromofluorobenzene	99
	(86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806423
PROJECT #	: 104332.03	DATE RECEIVED :	6/27/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806423-05	MW-55	AQUEOUS	6/25/98	N/A	07/01/98	1

PARAMETER	DET. LIMIT		UNITS
Dichlorodifluoromethane	1.0	< 1.0	ug/L
Chloromethane	1.0	< 1.0	ug/L
Vinyl Chloride	1.0	< 1.0	ug/L
Bromomethane	1.0	< 1.0	ug/L
Chloroethane	1.0	< 1.0	ug/L
Trichlorofluoromethane	1.0	< 1.0	ug/L
Acetone	10	< 10	ug/L
Acrolein	5.0	< 5.0	ug/L
1,1-Dichloroethene	1.0	< 1.0	ug/L
Iodomethane	1.0	< 1.0	ug/L
Methylene Chloride	1.0	< 1.0	ug/L
Acrylonitrile	5.0	< 5.0	ug/L
cis-1,2-Dichloroethene	1.0	< 1.0	ug/L
Methyl-t-butyl Ether	1.0	< 1.0	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 1.0	ug/L
1,1-Dichloroethane	1.0	< 1.0	ug/L
trans-1,2-Dichloroethene	1.0	< 1.0	ug/L
2-Butanone	10	< 10	ug/L
Carbon Disulfide	1.0	< 1.0	ug/L
Bromochloromethane	1.0	< 1.0	ug/L
Chloroform	1.0	< 1.0	ug/L
2,2-Dichloropropane	1.0	< 1.0	ug/L
1,2-Dichloroethane	1.0	< 1.0	ug/L
Vinyl Acetate	1.0	< 1.0	ug/L
1,1,1-Trichloroethane	1.0	< 1.0	ug/L
1,1-Dichloropropene	1.0	< 1.0	ug/L
Carbon Tetrachloride	1.0	< 1.0	ug/L
Benzene	1.0	**180**	ug/L
1,2-Dichloropropane	1.0	< 1.0	ug/L
Trichloroethene	1.0	< 1.0	ug/L
Bromodichloromethane	1.0	< 1.0	ug/L
2-Chloroethyl Vinyl Ether	10	< 10	ug/L
cis-1,3-Dichloropropene	1.0	< 1.0	ug/L
trans-1,3-Dichloropropene	1.0	< 1.0	ug/L
1,1,2-Trichloroethane	1.0	< 1.0	ug/L
1,3-Dichloropropane	1.0	< 1.0	ug/L
Dibromomethane	1.0	< 1.0	ug/L
Toluene	1.0	< 1.0	ug/L
1,2-Dibromoethane	1.0	< 1.0	ug/L
4-Methyl-2-Pentanone	10	< 10	ug/L
2-Hexanone	10	< 10	ug/L
Dibromochloromethane	1.0	< 1.0	ug/L
Tetrachloroethene	1.0	< 1.0	ug/L
Chlorobenzene	1.0	< 1.0	ug/L
Ethylbenzene	1.0	**31**	ug/L
1,1,1,2-Tetrachloroethane	1.0	< 1.0	ug/L
m&p Xylenes	1.0	< 1.0	ug/L

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806423
PROJECT #	: 104332.03	DATE RECEIVED :	6/27/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806423-05	MW-55	AQUEOUS	6/25/98	N/A	07/01/98	1

PARAMETER	DET. LIMIT		UNITS
o-Xylene	1.0	< 1.0	ug/L
Styrene	1.0	< 1.0	ug/L
Bromoform	1.0	< 1.0	ug/L
1,1,2,2-Tetrachloroethane	1.0	< 1.0	ug/L
1,2,3-Trichloropropane	1.0	< 1.0	ug/L
Isopropyl Benzene	1.0	**71**	**ug/L**
Bromobenzene	1.0	< 1.0	ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 1.0	ug/L
n-Propylbenzene	1.0	**66**	**ug/L**
2-Chlorotoluene	1.0	< 1.0	ug/L
4-Chlorotoluene	1.0	< 1.0	ug/L
1,3,5-Trimethylbenzene	1.0	< 1.0	ug/L
tert-Butylbenzene	1.0	**1.6**	**ug/L**
1,2,4-Trimethylbenzene	1.0	< 1.0	ug/L
sec-Butylbenzene	1.0	**7.5**	**ug/L**
1,3-Dichlorobenzene	1.0	< 1.0	ug/L
1,4-Dichlorobenzene	1.0	< 1.0	ug/L
p-Isopropyltoluene	1.0	< 1.0	ug/L
1,2-Dichlorobenzene	1.0	< 1.0	ug/L
n-Butylbenzene	1.0	**3.9**	**ug/L**
1,2-Dibromomo-3-chloropropane	1.0	< 1.0	ug/L
1,2,4-Trichlorobenzene	1.0	< 1.0	ug/L
Naphthalene	1.0	**5.6**	**ug/L**
Hexachlorobutadiene	1.0	< 1.0	ug/L
1,2,3-Trichlorobenzene	1.0	< 1.0	ug/L

SURROGATE % RECOVERY		
1,2-Dichloroethane-d4	99	(80 - 120)
Toluene-d8	99	(88 - 110)
Bromofluorobenzene	97	(86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806423
PROJECT #	: 104332.03	DATE RECEIVED :	6/27/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806423-06	MW-55 LC	AQUEOUS	6/25/98	N/A	07/01/98	1

PARAMETER	DET. LIMIT		UNITS
Dichlorodifluoromethane	1.0	< 1.0	ug/L
Chloromethane	1.0	< 1.0	ug/L
Vinyl Chloride	1.0	< 1.0	ug/L
Bromomethane	1.0	< 1.0	ug/L
Chloroethane	1.0	< 1.0	ug/L
Trichlorofluoromethane	1.0	< 1.0	ug/L
Acetone	10	< 10	ug/L
Acrolein	5.0	< 5.0	ug/L
1,1-Dichloroethene	1.0	< 1.0	ug/L
Iodomethane	1.0	< 1.0	ug/L
Methylene Chloride	1.0	< 1.0	ug/L
Acrylonitrile	5.0	< 5.0	ug/L
cis-1,2-Dichloroethene	1.0	< 1.0	ug/L
Methyl-t-butyl Ether	1.0	< 1.0	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 1.0	ug/L
1,1-Dichloroethane	1.0	< 1.0	ug/L
trans-1,2-Dichloroethene	1.0	< 1.0	ug/L
2-Butanone	10	< 10	ug/L
Carbon Disulfide	1.0	< 1.0	ug/L
Bromochloromethane	1.0	< 1.0	ug/L
Chloroform	1.0	< 1.0	ug/L
2,2-Dichloropropane	1.0	< 1.0	ug/L
1,2-Dichloroethane	1.0	< 1.0	ug/L
Vinyl Acetate	1.0	< 1.0	ug/L
1,1,1-Trichloroethane	1.0	< 1.0	ug/L
1,1-Dichloropropene	1.0	< 1.0	ug/L
Carbon Tetrachloride	1.0	< 1.0	ug/L
Benzene	1.0	**190**	**ug/L**
1,2-Dichloropropane	1.0	< 1.0	ug/L
Trichloroethene	1.0	< 1.0	ug/L
Bromodichloromethane	1.0	< 1.0	ug/L
2-Chloroethyl Vinyl Ether	10	< 10	ug/L
cis-1,3-Dichloropropene	1.0	< 1.0	ug/L
trans-1,3-Dichloropropene	1.0	< 1.0	ug/L
1,1,2-Trichloroethane	1.0	< 1.0	ug/L
1,3-Dichloropropane	1.0	< 1.0	ug/L
Dibromomethane	1.0	< 1.0	ug/L
Toluene	1.0	< 1.0	ug/L
1,2-Dibromoethane	1.0	< 1.0	ug/L
4-Methyl-2-Pentanone	10	< 10	ug/L
2-Hexanone	10	< 10	ug/L
Dibromochloromethane	1.0	< 1.0	ug/L
Tetrachloroethene	1.0	< 1.0	ug/L
Chlorobenzene	1.0	< 1.0	ug/L
Ethylbenzene	1.0	**32**	**ug/L**
1,1,1,2-Tetrachloroethane	1.0	< 1.0	ug/L
m&p Xylenes	1.0	< 1.0	ug/L

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806423
PROJECT #	: 104332.03	DATE RECEIVED :	6/27/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806423-06	MW-55 LC	AQUEOUS	6/25/98	N/A	07/01/98	1

PARAMETER	DET. LIMIT		UNITS
o-Xylene	1.0	< 1.0	ug/L
Styrene	1.0	< 1.0	ug/L
Bromoform	1.0	< 1.0	ug/L
1,1,2,2-Tetrachloroethane	1.0	< 1.0	ug/L
1,2,3-Trichloropropane	1.0	< 1.0	ug/L
Isopropyl Benzene	1.0	**76**	**ug/L**
Bromobenzene	1.0	< 1.0	ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 1.0	ug/L
n-Propylbenzene	1.0	**70**	**ug/L**
2-Chlorotoluene	1.0	< 1.0	ug/L
4-Chlorotoluene	1.0	< 1.0	ug/L
1,3,5-Trimethylbenzene	1.0	< 1.0	ug/L
tert-Butylbenzene	1.0	**1.7**	**ug/L**
1,2,4-Trimethylbenzene	1.0	< 1.0	ug/L
sec-Butylbenzene	1.0	**8.0**	**ug/L**
1,3-Dichlorobenzene	1.0	< 1.0	ug/L
1,4-Dichlorobenzene	1.0	< 1.0	ug/L
p-Isopropyltoluene	1.0	< 1.0	ug/L
1,2-Dichlorobenzene	1.0	< 1.0	ug/L
n-Butylbenzene	1.0	**4.1**	**ug/L**
1,2-Dibromomo-3-chloropropane	1.0	< 1.0	ug/L
1,2,4-Trichlorobenzene	1.0	< 1.0	ug/L
Naphthalene	1.0	**8.1**	**ug/L**
Hexachlorobutadiene	1.0	< 1.0	ug/L
1,2,3-Trichlorobenzene	1.0	< 1.0	ug/L

SURROGATE % RECOVERY	
1,2-Dichloroethane-d4	101 (80 - 120)
Toluene-d8	101 (88 - 110)
Bromofluorobenzene	100 (86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806423
PROJECT #	: 104332.03	DATE RECEIVED :	6/27/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806423-07	MW-54 RB	AQUEOUS	6/25/98	N/A	07/01/98	1

PARAMETER	DET. LIMIT		UNITS
Dichlorodifluoromethane	1.0	< 1.0	ug/L
Chloromethane	1.0	< 1.0	ug/L
Vinyl Chloride	1.0	< 1.0	ug/L
Bromomethane	1.0	< 1.0	ug/L
Chloroethane	1.0	< 1.0	ug/L
Trichlorofluoromethane	1.0	< 1.0	ug/L
Acetone	10	< 10	ug/L
Acrolein	5.0	< 5.0	ug/L
1,1-Dichloroethene	1.0	< 1.0	ug/L
Iodomethane	1.0	< 1.0	ug/L
Methylene Chloride	1.0	< 1.0	ug/L
Acrylonitrile	5.0	< 5.0	ug/L
cis-1,2-Dichloroethene	1.0	< 1.0	ug/L
Methyl-t-butyl Ether	1.0	< 1.0	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 1.0	ug/L
1,1-Dichloroethane	1.0	< 1.0	ug/L
trans-1,2-Dichloroethene	1.0	< 1.0	ug/L
2-Butanone	10	< 10	ug/L
Carbon Disulfide	1.0	< 1.0	ug/L
Bromochloromethane	1.0	< 1.0	ug/L
Chloroform	1.0	< 1.0	ug/L
2,2-Dichloropropane	1.0	< 1.0	ug/L
1,2-Dichloroethane	1.0	< 1.0	ug/L
Vinyl Acetate	1.0	< 1.0	ug/L
1,1,1-Trichloroethane	1.0	< 1.0	ug/L
1,1-Dichloropropene	1.0	< 1.0	ug/L
Carbon Tetrachloride	1.0	< 1.0	ug/L
Benzene	1.0	< 1.0	ug/L
1,2-Dichloropropane	1.0	< 1.0	ug/L
Trichloroethene	1.0	< 1.0	ug/L
Bromodichloromethane	1.0	< 1.0	ug/L
2-Chloroethyl Vinyl Ether	10	< 10	ug/L
cis-1,3-Dichloropropene	1.0	< 1.0	ug/L
trans-1,3-Dichloropropene	1.0	< 1.0	ug/L
1,1,2-Trichloroethane	1.0	< 1.0	ug/L
1,3-Dichloropropane	1.0	< 1.0	ug/L
Dibromomethane	1.0	< 1.0	ug/L
Toluene	1.0	< 1.0	ug/L
1,2-Dibromoethane	1.0	< 1.0	ug/L
4-Methyl-2-Pentanone	10	< 10	ug/L
2-Hexanone	10	< 10	ug/L
Dibromochloromethane	1.0	< 1.0	ug/L
Tetrachloroethene	1.0	< 1.0	ug/L
Chlorobenzene	1.0	< 1.0	ug/L
Ethylbenzene	1.0	< 1.0	ug/L
1,1,1,2-Tetrachloroethane	1.0	< 1.0	ug/L
m&p Xylenes	1.0	1.0	ug/L

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806423
PROJECT #	: 104332.03	DATE RECEIVED :	6/27/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806423-07	MW-54 RB	AQUEOUS	6/25/98	N/A	07/01/98	1

PARAMETER	DET. LIMIT		UNITS
o-Xylene	1.0	< 1.0	ug/L
Styrene	1.0	< 1.0	ug/L
Bromoform	1.0	< 1.0	ug/L
1,1,2,2-Tetrachloroethane	1.0	< 1.0	ug/L
1,2,3-Trichloropropane	1.0	< 1.0	ug/L
Isopropyl Benzene	1.0	< 1.0	ug/L
Bromobenzene	1.0	< 1.0	ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 1.0	ug/L
n-Propylbenzene	1.0	< 1.0	ug/L
2-Chlorotoluene	1.0	< 1.0	ug/L
4-Chlorotoluene	1.0	< 1.0	ug/L
1,3,5-Trimethylbenzene	1.0	< 1.0	ug/L
tert-Butylbenzene	1.0	< 1.0	ug/L
1,2,4-Trimethylbenzene	1.0	< 1.0	ug/L
sec-Butylbenzene	1.0	< 1.0	ug/L
1,3-Dichlorobenzene	1.0	< 1.0	ug/L
1,4-Dichlorobenzene	1.0	< 1.0	ug/L
p-Isopropyltoluene	1.0	< 1.0	ug/L
1,2-Dichlorobenzene	1.0	< 1.0	ug/L
n-Butylbenzene	1.0	< 1.0	ug/L
1,2-Dibromomo-3-chloropropane	1.0	< 1.0	ug/L
1,2,4-Trichlorobenzene	1.0	< 1.0	ug/L
Naphthalene	1.0	< 1.0	ug/L
Hexachlorobutadiene	1.0	< 1.0	ug/L
1,2,3-Trichlorobenzene	1.0	< 1.0	ug/L

SURROGATE % RECOVERY	
1,2-Dichloroethane-d4	103
	(80 - 120)
Toluene-d8	98
	(88 - 110)
Bromofluorobenzene	98
	(86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806423
PROJECT #	: 104332.03	DATE RECEIVED :	6/27/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806423-08	MW-63	AQUEOUS	6/25/98	N/A	07/01/98	1

PARAMETER	DET. LIMIT		UNITS
Dichlorodifluoromethane	1.0	< 1.0	ug/L
Chloromethane	1.0	< 1.0	ug/L
Vinyl Chloride	1.0	< 1.0	ug/L
Bromomethane	1.0	< 1.0	ug/L
Chloroethane	1.0	< 1.0	ug/L
Trichlorofluoromethane	1.0	< 1.0	ug/L
Acetone	10	< 10	ug/L
Acrolein	5.0	< 5.0	ug/L
1,1-Dichloroethene	1.0	< 1.0	ug/L
Iodomethane	1.0	< 1.0	ug/L
Methylene Chloride	1.0	< 1.0	ug/L
Acrylonitrile	5.0	< 5.0	ug/L
cis-1,2-Dichloroethene	1.0	< 1.0	ug/L
Methyl-t-butyl Ether	1.0	< 1.0	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 1.0	ug/L
1,1-Dichloroethane	1.0	< 1.0	ug/L
trans-1,2-Dichloroethene	1.0	< 1.0	ug/L
2-Butanone	10	< 10	ug/L
Carbon Disulfide	1.0	< 1.0	ug/L
Bromochloromethane	1.0	< 1.0	ug/L
Chloroform	1.0	< 1.0	ug/L
2,2-Dichloropropane	1.0	< 1.0	ug/L
1,2-Dichloroethane	1.0	< 1.0	ug/L
Vinyl Acetate	1.0	< 1.0	ug/L
1,1,1-Trichloroethane	1.0	< 1.0	ug/L
1,1-Dichloropropene	1.0	< 1.0	ug/L
Carbon Tetrachloride	1.0	< 1.0	ug/L
Benzene	1.0	< 1.0	ug/L
1,2-Dichloropropane	1.0	< 1.0	ug/L
Trichloroethene	1.0	< 1.0	ug/L
Bromodichloromethane	1.0	< 1.0	ug/L
2-Chloroethyl Vinyl Ether	10	< 10	ug/L
cis-1,3-Dichloropropene	1.0	< 1.0	ug/L
trans-1,3-Dichloropropene	1.0	< 1.0	ug/L
1,1,2-Trichloroethane	1.0	< 1.0	ug/L
1,3-Dichloropropane	1.0	< 1.0	ug/L
Dibromomethane	1.0	< 1.0	ug/L
Toluene	1.0	< 1.0	ug/L
1,2-Dibromoethane	1.0	< 1.0	ug/L
4-Methyl-2-Pentanone	10	< 10	ug/L
2-Hexanone	10	< 10	ug/L
Dibromochloromethane	1.0	< 1.0	ug/L
Tetrachloroethene	1.0	< 1.0	ug/L
Chlorobenzene	1.0	< 1.0	ug/L
Ethylbenzene	1.0	< 1.0	ug/L
1,1,1,2-Tetrachloroethane	1.0	< 1.0	ug/L
m&p Xylenes	1.0	< 1.0	ug/L

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806423
PROJECT #	: 104332.03	DATE RECEIVED :	6/27/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806423-08	MW-63	AQUEOUS	6/25/98	N/A	07/01/98	1

PARAMETER	DET. LIMIT		UNITS
o-Xylene	1.0	< 1.0	ug/L
Styrene	1.0	< 1.0	ug/L
Bromoform	1.0	< 1.0	ug/L
1,1,2,2-Tetrachloroethane	1.0	< 1.0	ug/L
1,2,3-Trichloropropane	1.0	< 1.0	ug/L
Isopropyl Benzene	1.0	< 1.0	ug/L
Bromobenzene	1.0	< 1.0	ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 1.0	ug/L
n-Propylbenzene	1.0	< 1.0	ug/L
2-Chlorotoluene	1.0	< 1.0	ug/L
4-Chlorotoluene	1.0	< 1.0	ug/L
1,3,5-Trimethylbenzene	1.0	< 1.0	ug/L
tert-Butylbenzene	1.0	< 1.0	ug/L
1,2,4-Trimethylbenzene	1.0	< 1.0	ug/L
sec-Butylbenzene	1.0	< 1.0	ug/L
1,3-Dichlorobenzene	1.0	< 1.0	ug/L
1,4-Dichlorobenzene	1.0	< 1.0	ug/L
p-Isopropyltoluene	1.0	< 1.0	ug/L
1,2-Dichlorobenzene	1.0	< 1.0	ug/L
n-Butylbenzene	1.0	< 1.0	ug/L
1,2-Dibromomo-3-chloropropane	1.0	< 1.0	ug/L
1,2,4-Trichlorobenzene	1.0	< 1.0	ug/L
Naphthalene	1.0	< 1.0	ug/L
Hexachlorobutadiene	1.0	< 1.0	ug/L
1,2,3-Trichlorobenzene	1.0	< 1.0	ug/L

SURROGATE % RECOVERY	
1,2-Dichloroethane-d4	102 (80 - 120)
Toluene-d8	96 (88 - 110)
Bromofluorobenzene	97 (86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806423
PROJECT #	: 104332.03	DATE RECEIVED :	6/27/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806423-09	MW-63 RB	AQUEOUS	6/25/98	N/A	07/01/98	1

PARAMETER	DET. LIMIT		UNITS
Dichlorodifluoromethane	1.0	< 1.0	ug/L
Chloromethane	1.0	< 1.0	ug/L
Vinyl Chloride	1.0	< 1.0	ug/L
Bromomethane	1.0	< 1.0	ug/L
Chloroethane	1.0	< 1.0	ug/L
Trichlorofluoromethane	1.0	< 1.0	ug/L
Acetone	10	< 10	ug/L
Acrolein	5.0	< 5.0	ug/L
1,1-Dichloroethene	1.0	< 1.0	ug/L
Iodomethane	1.0	< 1.0	ug/L
Methylene Chloride	1.0	< 1.0	ug/L
Acrylonitrile	5.0	< 5.0	ug/L
cis-1,2-Dichloroethene	1.0	< 1.0	ug/L
Methyl-t-butyl Ether	1.0	< 1.0	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 1.0	ug/L
1,1-Dichloroethane	1.0	< 1.0	ug/L
trans-1,2-Dichloroethene	1.0	< 1.0	ug/L
2-Butanone	10	< 10	ug/L
Carbon Disulfide	1.0	< 1.0	ug/L
Bromochloromethane	1.0	< 1.0	ug/L
Chloroform	1.0	< 1.0	ug/L
2,2-Dichloropropane	1.0	< 1.0	ug/L
1,2-Dichloroethane	1.0	< 1.0	ug/L
Vinyl Acetate	1.0	< 1.0	ug/L
1,1,1-Trichloroethane	1.0	< 1.0	ug/L
1,1-Dichloropropene	1.0	< 1.0	ug/L
Carbon Tetrachloride	1.0	< 1.0	ug/L
Benzene	1.0	< 1.0	ug/L
1,2-Dichloropropane	1.0	< 1.0	ug/L
Trichloroethene	1.0	< 1.0	ug/L
Bromodichloromethane	1.0	< 1.0	ug/L
2-Chloroethyl Vinyl Ether	10	< 10	ug/L
cis-1,3-Dichloropropene	1.0	< 1.0	ug/L
trans-1,3-Dichloropropene	1.0	< 1.0	ug/L
1,1,2-Trichloroethane	1.0	< 1.0	ug/L
1,3-Dichloropropane	1.0	< 1.0	ug/L
Dibromomethane	1.0	< 1.0	ug/L
Toluene	1.0	< 1.0	ug/L
1,2-Dibromoethane	1.0	< 1.0	ug/L
4-Methyl-2-Pentanone	10	< 10	ug/L
2-Hexanone	10	< 10	ug/L
Dibromochloromethane	1.0	< 1.0	ug/L
Tetrachloroethene	1.0	< 1.0	ug/L
Chlorobenzene	1.0	< 1.0	ug/L
Ethylbenzene	1.0	< 1.0	ug/L
1,1,1,2-Tetrachloroethane	1.0	< 1.0	ug/L
m&p Xylenes	1.0	< 1.0	ug/L

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806423
PROJECT #	: 104332.03	DATE RECEIVED :	6/27/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806423-09	MW-63 RB	AQUEOUS	6/25/98	N/A	07/01/98	1

PARAMETER	DET. LIMIT		UNITS
o-Xylene	1.0	< 1.0	ug/L
Styrene	1.0	< 1.0	ug/L
Bromoform	1.0	< 1.0	ug/L
1,1,2,2-Tetrachloroethane	1.0	< 1.0	ug/L
1,2,3-Trichloropropane	1.0	< 1.0	ug/L
Isopropyl Benzene	1.0	< 1.0	ug/L
Bromobenzene	1.0	< 1.0	ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 1.0	ug/L
n-Propylbenzene	1.0	< 1.0	ug/L
2-Chlorotoluene	1.0	< 1.0	ug/L
4-Chlorotoluene	1.0	< 1.0	ug/L
1,3,5-Trimethylbenzene	1.0	< 1.0	ug/L
tert-Butylbenzene	1.0	< 1.0	ug/L
1,2,4-Trimethylbenzene	1.0	< 1.0	ug/L
sec-Butylbenzene	1.0	< 1.0	ug/L
1,3-Dichlorobenzene	1.0	< 1.0	ug/L
1,4-Dichlorobenzene	1.0	< 1.0	ug/L
p-Isopropyltoluene	1.0	< 1.0	ug/L
1,2-Dichlorobenzene	1.0	< 1.0	ug/L
n-Butylbenzene	1.0	< 1.0	ug/L
1,2-Dibromomo-3-chloropropane	1.0	< 1.0	ug/L
1,2,4-Trichlorobenzene	1.0	< 1.0	ug/L
Naphthalene	1.0	< 1.0	ug/L
Hexachlorobutadiene	1.0	< 1.0	ug/L
1,2,3-Trichlorobenzene	1.0	< 1.0	ug/L

SURROGATE % RECOVERY		
1,2-Dichloroethane-d4	103	(80 - 120)
Toluene-d8	96	(88 - 110)
Bromofluorobenzene	96	(86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806423
PROJECT #	: 104332.03	DATE RECEIVED :	6/27/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806423-10	Trip Blank	AQUEOUS	6/11/98	N/A	07/01/98	1

PARAMETER	DET. LIMIT		UNITS
Dichlorodifluoromethane	1.0	< 1.0	ug/L
Chloromethane	1.0	< 1.0	ug/L
Vinyl Chloride	1.0	< 1.0	ug/L
Bromomethane	1.0	< 1.0	ug/L
Chloroethane	1.0	< 1.0	ug/L
Trichlorofluoromethane	1.0	< 1.0	ug/L
Acetone	10	< 10	ug/L
Acrolein	5.0	< 5.0	ug/L
1,1-Dichloroethene	1.0	< 1.0	ug/L
Iodomethane	1.0	< 1.0	ug/L
Methylene Chloride	1.0	< 1.0	ug/L
Acrylonitrile	5.0	< 5.0	ug/L
cis-1,2-Dichloroethene	1.0	< 1.0	ug/L
Methyl-t-butyl Ether	1.0	< 1.0	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 1.0	ug/L
1,1-Dichloroethane	1.0	< 1.0	ug/L
trans-1,2-Dichloroethene	1.0	< 1.0	ug/L
2-Butanone	10	< 10	ug/L
Carbon Disulfide	1.0	< 1.0	ug/L
Bromochloromethane	1.0	< 1.0	ug/L
Chloroform	1.0	< 1.0	ug/L
2,2-Dichloropropane	1.0	< 1.0	ug/L
1,2-Dichloroethane	1.0	< 1.0	ug/L
Vinyl Acetate	1.0	< 1.0	ug/L
1,1,1-Trichloroethane	1.0	< 1.0	ug/L
1,1-Dichloropropene	1.0	< 1.0	ug/L
Carbon Tetrachloride	1.0	< 1.0	ug/L
Benzene	1.0	< 1.0	ug/L
1,2-Dichloropropane	1.0	< 1.0	ug/L
Trichloroethene	1.0	< 1.0	ug/L
Bromodichloromethane	1.0	< 1.0	ug/L
2-Chloroethyl Vinyl Ether	10	< 10	ug/L
cis-1,3-Dichloropropene	1.0	< 1.0	ug/L
trans-1,3-Dichloropropene	1.0	< 1.0	ug/L
1,1,2-Trichloroethane	1.0	< 1.0	ug/L
1,3-Dichloropropane	1.0	< 1.0	ug/L
Dibromomethane	1.0	< 1.0	ug/L
Toluene	1.0	< 1.0	ug/L
1,2-Dibromoethane	1.0	< 1.0	ug/L
4-Methyl-2-Pentanone	10	< 10	ug/L
2-Hexanone	10	< 10	ug/L
Dibromochloromethane	1.0	< 1.0	ug/L
Tetrachloroethene	1.0	< 1.0	ug/L
Chlorobenzene	1.0	< 1.0	ug/L
Ethylbenzene	1.0	< 1.0	ug/L
1,1,1,2-Tetrachloroethane	1.0	< 1.0	ug/L
m&p Xylenes	1.0	< 1.0	ug/L

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806423
PROJECT #	: 104332.03	DATE RECEIVED :	6/27/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806423-10	Trip Blank	AQUEOUS	6/11/98	N/A	07/01/98	1

PARAMETER	DET. LIMIT		UNITS
o-Xylene	1.0	< 1.0	ug/L
Styrene	1.0	< 1.0	ug/L
Bromoform	1.0	< 1.0	ug/L
1,1,2,2-Tetrachloroethane	1.0	< 1.0	ug/L
1,2,3-Trichloropropane	1.0	< 1.0	ug/L
Isopropyl Benzene	1.0	< 1.0	ug/L
Bromobenzene	1.0	< 1.0	ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 1.0	ug/L
n-Propylbenzene	1.0	< 1.0	ug/L
2-Chlorotoluene	1.0	< 1.0	ug/L
4-Chlorotoluene	1.0	< 1.0	ug/L
1,3,5-Trimethylbenzene	1.0	< 1.0	ug/L
tert-Butylbenzene	1.0	< 1.0	ug/L
1,2,4-Trimethylbenzene	1.0	< 1.0	ug/L
sec-Butylbenzene	1.0	< 1.0	ug/L
1,3-Dichlorobenzene	1.0	< 1.0	ug/L
1,4-Dichlorobenzene	1.0	< 1.0	ug/L
p-Isopropyltoluene	1.0	< 1.0	ug/L
1,2-Dichlorobenzene	1.0	< 1.0	ug/L
n-Butylbenzene	1.0	< 1.0	ug/L
1,2-Dibromomo-3-chloropropane	1.0	< 1.0	ug/L
1,2,4-Trichlorobenzene	1.0	< 1.0	ug/L
Naphthalene	1.0	< 1.0	ug/L
Hexachlorobutadiene	1.0	< 1.0	ug/L
1,2,3-Trichlorobenzene	1.0	< 1.0	ug/L

SURROGATE % RECOVERY	
1,2-Dichloroethane-d4	104
	(80 - 120)
Toluene-d8	98
	(88 - 110)
Bromofluorobenzene	98
	(86 - 115)

GC/MS RESULTS

TEST : VOLATILE ORGANICS EPA METHOD 8260
CLIENT : MARATHON OIL COMPANY AEN I.D. : 806423
PROJECT # : 104332.03
PROJECT NAME : IBRP

SAMPLE ID #	BATCH	MATRIX	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
REAGENT BLANK	070198	AQUEOUS	N/A	07/01/98	1

PARAMETER	DET. LIMIT		UNITS
m&p Xylenes	1.0	< 1.0	ug/L
o-Xylene	1.0	< 1.0	ug/L
Styrene	1.0	< 1.0	ug/L
Bromoform	1.0	< 1.0	ug/L
1,1,2,2-Tetrachloroethane	1.0	< 1.0	ug/L
1,2,3-Trichloropropane	1.0	< 1.0	ug/L
Isopropyl Benzene	1.0	< 1.0	ug/L
Bromobenzene	1.0	< 1.0	ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 1.0	ug/L
n-Propylbenzene	1.0	< 1.0	ug/L
2-Chlorotoluene	1.0	< 1.0	ug/L
4-Chlorotoluene	1.0	< 1.0	ug/L
1,3,5-Trimethylbenzene	1.0	< 1.0	ug/L
tert-Butylbenzene	1.0	< 1.0	ug/L
1,2,4-Trimethylbenzene	1.0	< 1.0	ug/L
sec-Butylbenzene	1.0	< 1.0	ug/L
1,3-Dichlorobenzene	1.0	< 1.0	ug/L
1,4-Dichlorobenzene	1.0	< 1.0	ug/L
p-Isopropyltoluene	1.0	< 1.0	ug/L
1,2-Dichlorobenzene	1.0	< 1.0	ug/L
n-Butylbenzene	1.0	< 1.0	ug/L
1,2-Dibromomo-3-chloropropane	1.0	< 1.0	ug/L
1,2,4-Trichlorobenzene	1.0	< 1.0	ug/L
Naphthalene	1.0	< 1.0	ug/L
Hexachlorobutadiene	1.0	< 1.0	ug/L
1,2,3-Trichlorobenzene	1.0	< 1.0	ug/L

SURROGATE % RECOVERY	
1,2-Dichloroethane-d4	101
	(80 - 120)
Toluene-d8	99
	(88 - 110)
Bromofluorobenzene	98
	(86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806423
PROJECT #	: 104332.03		
PROJECT NAME	: IBRP		

SAMPLE ID #	BATCH	MATRIX	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
REAGENT BLANK	070198	AQUEOUS	N/A	07/01/98	1

PARAMETER	DET. LIMIT		UNITS
Dichlorodifluoromethane	1.0	< 1.0	ug/L
Chloromethane	1.0	< 1.0	ug/L
Vinyl Chloride	1.0	< 1.0	ug/L
Bromomethane	1.0	< 1.0	ug/L
Chloroethane	1.0	< 1.0	ug/L
Trichlorofluoromethane	1.0	< 1.0	ug/L
Acetone	10	< 10	ug/L
Acrolein	5.0	< 5.0	ug/L
1,1-Dichloroethene	1.0	< 1.0	ug/L
Iodomethane	1.0	< 1.0	ug/L
Methylene Chloride	1.0	< 1.0	ug/L
Acrylonitrile	5.0	< 5.0	ug/L
cis-1,2-Dichloroethene	1.0	< 1.0	ug/L
Methyl-t-butyl Ether	1.0	< 1.0	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 1.0	ug/L
1,1-Dichloroethane	1.0	< 1.0	ug/L
trans-1,2-Dichloroethene	1.0	< 1.0	ug/L
2-Butanone	10	< 10	ug/L
Carbon Disulfide	1.0	< 1.0	ug/L
Bromochloromethane	1.0	< 1.0	ug/L
Chloroform	1.0	< 1.0	ug/L
2,2-Dichloropropane	1.0	< 1.0	ug/L
1,2-Dichloroethane	1.0	< 1.0	ug/L
Vinyl Acetate	1.0	< 1.0	ug/L
1,1,1-Trichloroethane	1.0	< 1.0	ug/L
1,1-Dichloropropene	1.0	< 1.0	ug/L
Carbon Tetrachloride	1.0	< 1.0	ug/L
Benzene	1.0	< 1.0	ug/L
1,2-Dichloropropane	1.0	< 1.0	ug/L
Trichloroethene	1.0	< 1.0	ug/L
Bromodichloromethane	1.0	< 1.0	ug/L
2-Chloroethyl Vinyl Ether	10	< 10	ug/L
cis-1,3-Dichloropropene	1.0	< 1.0	ug/L
trans-1,3-Dichloropropene	1.0	< 1.0	ug/L
1,1,2-Trichloroethane	1.0	< 1.0	ug/L
1,3-Dichloropropane	1.0	< 1.0	ug/L
Dibromomethane	1.0	< 1.0	ug/L
Toluene	1.0	< 1.0	ug/L
1,2-Dibromoethane	1.0	< 1.0	ug/L
4-Methyl-2-Pentanone	10	< 10	ug/L
2-Hexanone	10	< 10	ug/L
Dibromochloromethane	1.0	< 1.0	ug/L
Tetrachloroethene	1.0	< 1.0	ug/L
Chlorobenzene	1.0	< 1.0	ug/L
Ethylbenzene	1.0	< 1.0	ug/L
1,1,1,2-Tetrachloroethane	1.0	< 1.0	ug/L

Spike Recovery and RPD Summary Report - WATER

Method : C:\HPCHEM\1\METHODS\82600310.M (RTE Integrator)
Title : AEN New Mexico GC/MS
Last Update : Tue Jun 23 12:31:08 1998
Response via : Initial Calibration

Non-Spiked Sample: 07019804.D

	Spike Sample	Spike Duplicate Sample
File ID :	070198S1.D	070198S2.D
Sample :	806423-03 MS	806423-03 MSD
Acq Time:	1 Jul 98 11:23 am	1 Jul 98 11:56 am

Compound	Sample Conc	Spike Added	Spike Res	Dup Res	Spike %Rec	Dup %Rec	RPD	QC Limits RPD	QC Limits % Rec
1,1-Dichloroethene	0.0	50	45	41	90	82	9	14	61-145
Benzene	0.0	50	53	49	107	98	9	11	76-127
Trichloroethene	0.0	50	51	47	101	95	7	14	71-120
Toluene	0.0	50	50	46	101	93	8	13	76-125
Chlorobenzene	0.0	50	50	46	100	92	8	13	75-130

- Fails Limit Check

82600310.M Wed Jul 01 12:47:28 1998

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ▪ (425) 420-9200 ▪ FAX 420-9210
SPOKANE ▪ (509) 924-9200 ▪ FAX 924-9290
PORTLAND ▪ (503) 906-9200 ▪ FAX 906-9210

American Environmental Network	Project:	Marathon Oil	Sampled:	6/25/98
2709-D Pan American Freeway,NE	Project Number:	104332.03	Received:	6/29/98
Albuquerque, NM 87107	Project Manager:	Kimberly McNeill	Reported:	7/21/98 17:27

ANALYTICAL REPORT FOR SAMPLES:

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
MW-54	P806562-01	Water	6/25/98
MW-54 DP	P806562-02	Water	6/25/98
MW-55	P806562-03	Water	6/25/98
MW-55 LC	P806562-04	Water	6/25/98
MW-63	P806562-05	Water	6/25/98

North Creek Analytical, Inc.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Lisa Domenighini, Project Manager

18939 120th Avenue N.E., Suite 101, Bothell, WA 98011-9508
East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

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SPOKANE ▪ (509) 924-9200 ▪ FAX 924-9290
PORTLAND ▪ (503) 906-9200 ▪ FAX 906-9210

American Environmental Network	Project:	Marathon Oil	Sampled: 6/25/98
2709-D Pan American Freeway,NE	Project Number:	104332.03	Received: 6/29/98
Albuquerque, NM 87107	Project Manager:	Kimberly McNeill	Reported: 7/21/98 17:27

Total Metals per EPA 6000/7000 Series Methods
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
MW-54			**P806562-01**				**Water**	
Uranium	0780334	7/14/98	7/20/98	EPA 6020	0.00100	**0.0452**	mg/l	
MW-54 DP			**P806562-02**				**Water**	
Uranium	0780334	7/14/98	7/20/98	EPA 6020	0.00100	**0.0459**	mg/l	
MW-55			**P806562-03**				**Water**	
Uranium	0780334	7/14/98	7/20/98	EPA 6020	0.00100	**0.00260**	mg/l	
MW-55 LC			**P806562-04**				**Water**	
Uranium	0780334	7/14/98	7/20/98	EPA 6020	0.00100	**0.00190**	mg/l	
MW-63			**P806562-05**				**Water**	
Uranium	0780334	7/14/98	7/20/98	EPA 6020	0.00100	**0.00110**	mg/l	

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

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PORTLAND ▪ (503) 906-9200 ▪ FAX 906-9210

American Environmental Network	Project:	Marathon Oil	Sampled: 6/25/98
2709-D Pan American Freeway,NE	Project Number:	104332.03	Received: 6/29/98
Albuquerque, NM 87107	Project Manager:	Kimberly McNeill	Reported: 7/21/98 17:27

Total Metals per EPA 6000/7000 Series Methods/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0780334	**Date Prepared: 7/14/98**					**Extraction Method: EPA 200/3005**				
Blank	**0780334-BLK1**									
Uranium	7/20/98			ND	mg/l	0.00100				
LCS	**0780334-BS1**									
Uranium	7/20/98	0.0500		0.0607	mg/l	75.0-125	121			
Duplicate	**0780334-DUP1**		**P806561-01**							
Uranium	7/20/98		0.00160	ND	mg/l			20.0		
Matrix Spike	**0780334-MS1**		**P806561-01**							
Uranium	7/20/98	0.0500	0.00160	0.0609	mg/l	70.0-130	**119**			
Matrix Spike	**0780334-MS2**		**P806586-02**							
Uranium	7/20/98	0.0500	ND	0.0633	mg/l	70.0-130	**127**			

North Creek Analytical, Inc.

**Refer to end of report for text of notes and definitions.*

Lisa Domenighini, Project Manager

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

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SPOKANE ▪ (509) 924-9200 ▪ FAX 924-9290
PORTLAND ▪ (503) 906-9200 ▪ FAX 906-9210

American Environmental Network	Project:	Marathon Oil	Sampled:	6/25/98
2709-D Pan American Freeway,NE	Project Number:	104332.03	Received:	6/29/98
Albuquerque, NM 87107	Project Manager:	Kimberly McNeill	Reported:	7/21/98 17:27

Notes and Definitions

#	Note
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
Recov.	Recovery
RPD	Relative Percent Difference

North Creek Analytical, Inc.

Lisa Domenighini, Project Manager

18939 120th Avenue N.E., Suite 101, Bothell, WA 98011-9508
East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132

American Environmental Network (NM), Inc.

CHAIN OF CUSTODY

DATE: 6/25/98 PAGE 1 OF 1

AEN(NM) Accession #: DL-806423

YR06062

SHADED AREAS ARE FOR LAB USE ONLY

PLEASE FILL THIS FORM IN COMPLETELY.

PROJECT MANAGER:	Paul Peacock
COMPANY:	Marathon Oil Company
ADDRESS:	P.O. Box 552
	Midland, TX 79702-0552
PHONE:	(915) 687-8312
FAX:	(915) 687-8305
BILL TO:	same as above
COMPANY:	
ADDRESS:	

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	# CONTAINERS
MW-54	6/25/98	1000	WATER		7
MW-54 DP		1000			7
MW-55		1230			7
MW-55LC		1230			7
MW-63		1745			7

ANALYSIS REQUEST

Petroleum Hydrocarbons (418.1) TRPH	
(MOD.8015) Diesel/Direct Inject	
(M8015) Gas/Purge & Trap	
8021 (BTEX)/8015 (Gasoline)	
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)	
Herbicides (615/8151)	
Base/Neutral/Acid Compounds GC/MS (625/8270)	
Polynuclear Aromatics (610/8310)	
General Chemistry:	U-ICPMS
	X
	X
	X
Priority Pollutant Metals (13)	
Target Analyte List Metals (23)	
RCRA Metals (8)	
RCRA Metals by TCLP (Method 1311)	
Metals:	

PROJECT INFORMATION

PROJ. NO.:	104332.08
PROJ. NAME:	IBRP
P.O. NO.:	
SHIPPED VIA:	

SAMPLE RECEIPT

NO. CONTAINERS:	
CUSTODY SEALS:	Y / N / NA
RECEIVED INTACT:	Y / N
BLUE ICE/ICE:	

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

(RUSH) ☐ 24hr ☐ 48hr ☐ 72hr ☐ 1 WEEK (NORMAL) ☒

CERTIFICATION REQUIRED: ☐ NM ☐ SDWA ☐ OTHER

METHANOL PRESERVATION ☐

COMMENTS: FIXED FEE ☐

MW-55 is LAB QC Control Sample

RELINQUISHED BY: 1	RELINQUISHED BY: 2
Signature: Kevin Cost	Signature:
Time: 1500	Time: 1530
Printed Name: Kevin Cost	Printed Name: CHRIS FAITH
Date: 6/25	Date: 6/25
Company: FOGTI	Company: AEN

RECEIVED BY: 1	RECEIVED BY (LAB): 2
Signature:	Signature:
Time: 1500	Time: 0705
Printed Name: CHRIS FAITH	Printed Name: Sandra Gallegos
Date: 6/25	Date: 6-29-98
Company: AEN	American Environmental Network (NM), Inc. NCA

Committed To *Your* Success

Severn Trent Laboratories
11 East Olive Road
Pensacola FL 32514

Tel: (850) 474-1001
Fax: (850) 474-4789

SIGNATURE PAGE

Reviewed by: 4M Patrick
STL Project Manager

Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC. ALBUQUERQUE, NEW MEXICO
Project Name:	IBRP
Project Number:	806423
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Accession Number:	806388
Project Manager:	KIMBERLY D. MCNEILL
Sampled By:	N/S

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Analysis Report

Analysis: MARATHON WET CHEMISTRY INORGANICS

Accession:	806388
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806423
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	WET CHEM

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 806388
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806423
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON WET CHEMISTRY INORGANICS
QcLevel: II

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: MW-54			Lab ID: 001		
CHLORIDE (4500-CL B)	MG/L	110	1	CIW072	
CYANIDE, TOTAL (335.2)	MG/L	ND	0.005	CNW039	
FLUORIDE (340.2/4500-F C)	MG/L	1.8	0.2	FLW028	
NITRITE, NITROGEN (354.1)	MG/L	ND	0.1	N2W095	
NITRITE-NITRATE, NITROGEN (353.2)	MG/L	ND	0.1	N3W49A	
NITRATE, NITROGEN (353.2-354.1)	MG/L	ND	0.1	NONE	
PH (150.1)	UNITS	7.1	NA	PHW136	R4
PHENOLS, TOTAL (420.1)	MG/L	ND	0.005	PEW027	
SULFATE (375.4)	MG/L	1300	500	SEW081	+
TOTAL DISSOLVED SOLIDS (160.1)	MG/L	2200	5	TDW039	
Comments:					
Client ID: MW-54DP			Lab ID: 002		
CHLORIDE (4500-CL B)	MG/L	110	1	CIW073	
CYANIDE, TOTAL (335.2)	MG/L	ND	0.005	CNW039	
FLUORIDE (340.2/4500-F C)	MG/L	1.8	0.2	FLW028	
NITRITE, NITROGEN (354.1)	MG/L	ND	0.1	N2W095	
NITRITE-NITRATE, NITROGEN (353.2)	MG/L	ND	0.1	N3W49A	
NITRATE, NITROGEN (353.2-354.1)	MG/L	ND	0.1	NONE	
PH (150.1)	UNITS	7.1	NA	PHW136	R4
PHENOLS, TOTAL (420.1)	MG/L	ND	0.005	PEW027	
SULFATE (375.4)	MG/L	1300	500	SEW081	+
TOTAL DISSOLVED SOLIDS (160.1)	MG/L	2300	5	TDW039	
Comments:					

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 806388
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806423
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON WET CHEMISTRY INORGANICS
QcLevel: II

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: MW-55LC			Lab ID: 003		
CHLORIDE (4500-CL B)	MG/L	310	1	CIW073	
CYANIDE, TOTAL (335.2)	MG/L	ND	0.005	CNW039	
FLUORIDE (340.2/4500-F C)	MG/L	1.5	0.2	FLW028	
NITRITE, NITROGEN (354.1)	MG/L	ND	0.1	N2W095	
NITRITE-NITRATE, NITROGEN (353.2)	MG/L	0.1	0.1	N3W49A	
NITRATE, NITROGEN (353.2-354.1)	MG/L	0.1	0.1	NONE	
PH (150.1)	UNITS	7.0	NA	PHW136	R4
PHENOLS, TOTAL (420.1)	MG/L	0.016	0.005	PEW027	
SULFATE (375.4)	MG/L	77	50	SEW081	+
TOTAL DISSOLVED SOLIDS (160.1)	MG/L	1500	5	TDW039	

Comments:

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: MW-55			Lab ID: 004		
CHLORIDE (4500-CL B)	MG/L	300	1	CIW073	
CYANIDE, TOTAL (335.2)	MG/L	ND	0.005	CNW039	
FLUORIDE (340.2/4500-F C)	MG/L	1.5	0.2	FLW028	
NITRITE, NITROGEN (354.1)	MG/L	ND	0.1	N2W095	
NITRITE-NITRATE, NITROGEN (353.2)	MG/L	0.1	0.1	N3W49A	
NITRATE, NITROGEN (353.2-354.1)	MG/L	0.1	0.1	NONE	
PH (150.1)	UNITS	7.0	NA	PHW136	R4
PHENOLS, TOTAL (420.1)	MG/L	0.016	0.005	PEW027	
SULFATE (375.4)	MG/L	55	20	SEW082	+
TOTAL DISSOLVED SOLIDS (160.1)	MG/L	1500	5	TDW039	

Comments:

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 806388
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806423
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON WET CHEMISTRY INORGANICS
QcLevel: II

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: MW-63			Lab ID: 005		
CHLORIDE (4500-CL B)	MG/L	10	1	CIW073	
CYANIDE, TOTAL (335.2)	MG/L	ND	0.005	CNW039	
FLUORIDE (340.2/4500-F C)	MG/L	0.4	0.2	FLW028	
NITRITE, NITROGEN (354.1)	MG/L	ND	0.1	N2W095	
NITRITE-NITRATE, NITROGEN (353.2)	MG/L	7.1	0.2	N3W49A	+
NITRATE, NITROGEN (353.2-354.1)	MG/L	7.1	0.1	NONE	
PH (150.1)	UNITS	7.4	NA	PHW136	R4
PHENOLS, TOTAL (420.1)	MG/L	0.005	0.005	PEW027	
SULFATE (375.4)	MG/L	39	5	SEW082	
TOTAL DISSOLVED SOLIDS (160.1)	MG/L	370	5	TDW039	

Comments:

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 806388
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806423
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON WET CHEMISTRY INORGANICS

Client ID:	Lab ID:	Matrix:	Date/Time Sampled:	Date Received:
MW-54	001	WATER	25-JUN-98 1000	26-JUN-98
MW-54DP	002	WATER	25-JUN-98 1000	26-JUN-98
MW-55LC	003	WATER	25-JUN-98 1230	26-JUN-98
MW-55	004	WATER	25-JUN-98 1230	26-JUN-98
MW-63	005	WATER	25-JUN-98 1445	26-JUN-98

"Method Report Summary"

Accession Number: 806388
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806423
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON WET CHEMISTRY INORGANICS

Client Sample Id:	Parameter:	Unit:	Result:
MW-54	CHLORIDE (4500-CL B)	MG/L	110
	FLUORIDE (340.2/4500-F C)	MG/L	1.8
	PH (150.1)	UNITS	7.1
	SULFATE (375.4)	MG/L	1300
	TOTAL DISSOLVED SOLIDS (160.1)	MG/L	2200
MW-54DP	CHLORIDE (4500-CL B)	MG/L	110
	FLUORIDE (340.2/4500-F C)	MG/L	1.8
	PH (150.1)	UNITS	7.1
	SULFATE (375.4)	MG/L	1300
	TOTAL DISSOLVED SOLIDS (160.1)	MG/L	2300
MW-55LC	CHLORIDE (4500-CL B)	MG/L	310
	FLUORIDE (340.2/4500-F C)	MG/L	1.5
	NITRITE-NITRATE, NITROGEN (353.2)	MG/L	0.1
	NITRATE, NITROGEN (353.2-354.1)	MG/L	0.1
	PH (150.1)	UNITS	7.0
	PHENOLS, TOTAL (420.1)	MG/L	0.016
	SULFATE (375.4)	MG/L	77
	TOTAL DISSOLVED SOLIDS (160.1)	MG/L	1500
MW-55	CHLORIDE (4500-CL B)	MG/L	300
	FLUORIDE (340.2/4500-F C)	MG/L	1.5
	NITRITE-NITRATE, NITROGEN (353.2)	MG/L	0.1
	NITRATE, NITROGEN (353.2-354.1)	MG/L	0.1
	PH (150.1)	UNITS	7.0
	PHENOLS, TOTAL (420.1)	MG/L	0.016
	SULFATE (375.4)	MG/L	55
	TOTAL DISSOLVED SOLIDS (160.1)	MG/L	1500
MW-63	CHLORIDE (4500-CL B)	MG/L	10
	FLUORIDE (340.2/4500-F C)	MG/L	0.4
	NITRITE-NITRATE, NITROGEN (353.2)	MG/L	7.1
	NITRATE, NITROGEN (353.2-354.1)	MG/L	7.1
	PH (150.1)	UNITS	7.4
	PHENOLS, TOTAL (420.1)	MG/L	0.005
	SULFATE (375.4)	MG/L	39
	TOTAL DISSOLVED SOLIDS (160.1)	MG/L	370

SEVERN TRENT LABORATORIES 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Analysis Report

Analysis: Group of Single Metals

Accession:	806388
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806423
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	METALS

SEVERN TRENT LABORATORIES 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 806388
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806423
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: Group of Single Metals
QcLevel: II

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: MW-54			Lab ID:001		
SELENIUM (7740)	MG/L	ND	0.005	S7W093	
Comments:					
Client ID: MW-54DP			Lab ID:002		
SELENIUM (7740)	MG/L	ND	0.005	S7W093	
Comments:					
Client ID: MW-55LC			Lab ID:003		
SELENIUM (7740)	MG/L	ND	0.005	S7W093	
Comments:					
Client ID: MW-55			Lab ID:004		
SELENIUM (7740)	MG/L	ND	0.005	S7W093	
Comments:					
Client ID: MW-63			Lab ID:005		
SELENIUM (7740)	MG/L	ND	0.005	S7W093	
Comments:					

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 806388
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806423
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: Group of Single Metals

Client Id:	Lab Id:	Matrix:	Date/Time Sampled:	Date Received:
MW-54	001	WATER	25-JUN-98 1000	26-JUN-98
MW-54DP	002	WATER	25-JUN-98 1000	26-JUN-98
MW-55LC	003	WATER	25-JUN-98 1230	26-JUN-98
MW-55	004	WATER	25-JUN-98 1230	26-JUN-98
MW-63	005	WATER	25-JUN-98 1445	26-JUN-98

SEVERN TRENT LABORATORIES 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Analysis Report

Analysis: MARATHON METALS - OPTIMA

Accession:	806388
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806423
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	METALS

SEVERN TRENT LABORATORIES 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 806388
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806423
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON METALS - OPTIMA
QcLevel: II

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: MW-54			Lab ID:001		
SILVER (6010A)	MG/L	ND	0.0007	AYW176	
ALUMINUM (6010A)	MG/L	ND	0.026	LYW176	
ARSENIC (6010A)	MG/L	ND	0.0018	RYW176	
BARIUM (6010A)	MG/L	0.015	0.0002	BYW176	
BORON (6010A)	MG/L	0.29	0.0057	OYW176	
CADMIUM (6010A)	MG/L	ND	0.0002	CYW176	
COBALT (6010A)	MG/L	0.0003	0.0003	TYW176	
CHROMIUM (6010A)	MG/L	0.0008	0.0008	HYW176	
COPPER (6010A)	MG/L	ND	0.0018	FYW176	
MERCURY (7470A)	MG/L	ND	0.0001	M7W083	
NICKEL (6010A)	MG/L	ND	0.0009	EYW176	
IRON (6010A)	MG/L	ND	0.013	NYW176	
LEAD (6010A)	MG/L	ND	0.0022	PYW176	
MANGANESE (6010A)	MG/L	0.0050	0.0002	GYW176	
MOLYBDENUM (6010A)	MG/L	0.0026	0.0003	DYW176	
ZINC (6010A)	MG/L	0.015	0.014	5YW176	
Comments:					
Client ID: MW-54DP			Lab ID:002		
SILVER (6010A)	MG/L	ND	0.0007	AYW176	
ALUMINUM (6010A)	MG/L	0.028	0.026	LYW176	
ARSENIC (6010A)	MG/L	ND	0.0018	RYW176	
BARIUM (6010A)	MG/L	0.016	0.0002	BYW176	
BORON (6010A)	MG/L	0.29	0.0057	OYW176	
CADMIUM (6010A)	MG/L	ND	0.0002	CYW176	
COBALT (6010A)	MG/L	0.0005	0.0003	TYW176	
CHROMIUM (6010A)	MG/L	0.0009	0.0008	HYW176	
COPPER (6010A)	MG/L	ND	0.0018	FYW176	
MERCURY (7470A)	MG/L	ND	0.0001	M7W083	
NICKEL (6010A)	MG/L	ND	0.0009	EYW176	
IRON (6010A)	MG/L	ND	0.013	NYW176	
LEAD (6010A)	MG/L	ND	0.0022	PYW176	
MANGANESE (6010A)	MG/L	0.0059	0.0002	GYW176	
MOLYBDENUM (6010A)	MG/L	0.0026	0.0003	DYW176	
ZINC (6010A)	MG/L	0.029	0.014	5YW176	
Comments:					

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 806388
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806423
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON METALS - OPTIMA
QcLevel: II

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: MW-55LC			Lab ID:003		
SILVER (6010A)	MG/L	ND	0.0007	AYW176	
ALUMINUM (6010A)	MG/L	ND	0.026	LYW176	
ARSENIC (6010A)	MG/L	0.0083	0.0018	RYW176	
BARIUM (6010A)	MG/L	0.42	0.0002	BYW176	
BORON (6010A)	MG/L	0.34	0.0057	OYW176	
CADMIUM (6010A)	MG/L	0.0003	0.0002	CYW176	
COBALT (6010A)	MG/L	0.0010	0.0003	TYW176	
CHROMIUM (6010A)	MG/L	0.0016	0.0008	HYW176	
COPPER (6010A)	MG/L	ND	0.0018	FYW176	
MERCURY (7470A)	MG/L	ND	0.0001	M7W083	
NICKEL (6010A)	MG/L	0.0019	0.0009	EYW176	
IRON (6010A)	MG/L	1.8	0.013	NYW176	
LEAD (6010A)	MG/L	ND	0.0022	PYW176	
MANGANESE (6010A)	MG/L	0.12	0.0002	GYW176	
MOLYBDENUM (6010A)	MG/L	0.0024	0.0003	DYW176	
ZINC (6010A)	MG/L	ND	0.014	5YW176	
Comments:					
Client ID: MW-55			Lab ID:004		
SILVER (6010A)	MG/L	ND	0.0007	AYW176	
ALUMINUM (6010A)	MG/L	ND	0.026	LYW176	
ARSENIC (6010A)	MG/L	0.0094	0.0018	RYW176	
BARIUM (6010A)	MG/L	0.40	0.0002	BYW176	
BORON (6010A)	MG/L	0.34	0.0057	OYW176	
CADMIUM (6010A)	MG/L	0.0004	0.0002	CYW176	
COBALT (6010A)	MG/L	0.0012	0.0003	TYW176	
CHROMIUM (6010A)	MG/L	0.0013	0.0008	GYW176	
COPPER (6010A)	MG/L	ND	0.0018	FYW176	
MERCURY (7470A)	MG/L	ND	0.0001	M7W083	
NICKEL (6010A)	MG/L	ND	0.0009	EYW176	
IRON (6010A)	MG/L	2.2	0.013	NYW176	
LEAD (6010A)	MG/L	ND	0.0022	PYW176	
MANGANESE (6010A)	MG/L	0.12	0.0002	GYW176	
MOLYBDENUM (6010A)	MG/L	0.0031	0.0003	DYW176	
ZINC (6010A)	MG/L	ND	0.014	5YW176	
Comments:					

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 806388
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806423
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON METALS - OPTIMA
QcLevel: II

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: MW-63			Lab ID:005		
SILVER (6010A)	MG/L	ND	0.0007	AYW176	
ALUMINUM (6010A)	MG/L	ND	0.026	LYW176	
ARSENIC (6010A)	MG/L	0.0028	0.0018	RYW176	
BARIUM (6010A)	MG/L	0.32	0.0002	BYW176	
BORON (6010A)	MG/L	0.064	0.0057	OYW176	
CADMIUM (6010A)	MG/L	ND	0.0002	CYW176	
COBALT (6010A)	MG/L	0.0005	0.0003	TYW176	
CHROMIUM (6010A)	MG/L	0.0012	0.0008	HYW176	
COPPER (6010A)	MG/L	ND	0.0018	FYW176	
MERCURY (7470A)	MG/L	ND	0.0001	M7W083	
NICKEL (6010A)	MG/L	ND	0.0009	EYW176	
IRON (6010A)	MG/L	ND	0.013	NYW176	
LEAD (6010A)	MG/L	ND	0.0022	PYW176	
MANGANESE (6010A)	MG/L	0.0015	0.0002	GYW176	
MOLYBDENUM (6010A)	MG/L	0.0008	0.0003	DYW176	
ZINC (6010A)	MG/L	0.042	0.014	5YW176	

Comments:

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 806388
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806423
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON METALS - OPTIMA

Client Id:	Lab Id:	Matrix:	Date/Time Sampled:	Date Received:
MW-54	001	WATER	25-JUN-98 1000	26-JUN-98
MW-54DP	002	WATER	25-JUN-98 1000	26-JUN-98
MW-55LC	003	WATER	25-JUN-98 1230	26-JUN-98
MW-55	004	WATER	25-JUN-98 1230	26-JUN-98
MW-63	005	WATER	25-JUN-98 1445	26-JUN-98

"Method Report Summary"

Accession Number: 806388
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806423
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON METALS - OPTIMA

Client Sample Id:	Parameter:	Unit:	Result:
MW-54	BARIUM (6010A)	MG/L	0.015
	BORON (6010A)	MG/L	0.29
	COBALT (6010A)	MG/L	0.0003
	CHROMIUM (6010A)	MG/L	0.0008
	MANGANESE (6010A)	MG/L	0.0050
	MOLYBDENUM (6010A)	MG/L	0.0026
	ZINC (6010A)	MG/L	0.015
MW-54DP	ALUMINUM (6010A)	MG/L	0.028
	BARIUM (6010A)	MG/L	0.016
	BORON (6010A)	MG/L	0.29
	COBALT (6010A)	MG/L	0.0005
	CHROMIUM (6010A)	MG/L	0.0009
	MANGANESE (6010A)	MG/L	0.0059
	MOLYBDENUM (6010A)	MG/L	0.0026
	ZINC (6010A)	MG/L	0.029
MW-55LC	ARSENIC (6010A)	MG/L	0.0083
	BARIUM (6010A)	MG/L	0.42
	BORON (6010A)	MG/L	0.34
	CADMIUM (6010A)	MG/L	0.0003
	COBALT (6010A)	MG/L	0.0010
	CHROMIUM (6010A)	MG/L	0.0016
	NICKEL (6010A)	MG/L	0.0019
	IRON (6010A)	MG/L	1.8
	MANGANESE (6010A)	MG/L	0.12
	MOLYBDENUM (6010A)	MG/L	0.0024
MW-55	ARSENIC (6010A)	MG/L	0.0094
	BARIUM (6010A)	MG/L	0.40
	BORON (6010A)	MG/L	0.34
	CADMIUM (6010A)	MG/L	0.0004
	COBALT (6010A)	MG/L	0.0012
	CHROMIUM (6010A)	MG/L	0.0013
	IRON (6010A)	MG/L	2.2
	MANGANESE (6010A)	MG/L	0.12
	MOLYBDENUM (6010A)	MG/L	0.0031
MW-63	ARSENIC (6010A)	MG/L	0.0028
	BARIUM (6010A)	MG/L	0.32
	BORON (6010A)	MG/L	0.064
	COBALT (6010A)	MG/L	0.0005
	CHROMIUM (6010A)	MG/L	0.0012
	MANGANESE (6010A)	MG/L	0.0015
	MOLYBDENUM (6010A)	MG/L	0.0008
	ZINC (6010A)	MG/L	0.042

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Analysis Report

Analysis: PESTICIDES (8080)

Accession:	806388
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806423
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	PESTICIDES

SEVERN TRENT LABORATORIES 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"FINAL REPORT FORMAT - SINGLE"

Accession: 806388
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806423
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: PESTICIDES (8080)
Analysis Method: 8080 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Extraction Method: 3510 / 3660 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Matrix: WATER
QC Level: II

Lab Id: 001 Sample Date/Time: 25-JUN-98 1000
Client Sample Id: MW-54 Received Date: 26-JUN-98

Batch: PSW045 Extraction Date: 01-JUL-98
Blank: B Dry Weight %: N/A Analysis Date: 10-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
ALDRIN	UG/L	ND	0.02	
ALPHA-BHC	UG/L	ND	0.02	
BETA-BHC	UG/L	ND	0.02	
DELTA-BHC	UG/L	ND	0.02	
GAMMA-BHC (LINDANE)	UG/L	ND	0.02	
4,4'-DDD	UG/L	ND	0.02	
4,4'-DDE	UG/L	ND	0.02	
4,4'-DDT	UG/L	ND	0.02	
DIELDRIN	UG/L	ND	0.02	
ENDOSULFAN I	UG/L	ND	0.02	
ENDOSULFAN II	UG/L	ND	0.02	
ENDOSULFAN SULFATE	UG/L	ND	0.02	
ENDRIN	UG/L	ND	0.02	
ENDRIN ALDEHYDE	UG/L	ND	0.02	
HEPTACHLOR	UG/L	ND	0.02	
HEPTACHLOR EPOXIDE	UG/L	ND	0.02	
METHOXYCHLOR	UG/L	ND	0.02	
CHLORDANE	UG/L	ND	0.01	
TOXAPHENE	UG/L	ND	0.12	
PCB-1016	UG/L	ND	0.04	
PCB-1221	UG/L	ND	0.04	
PCB-1232	UG/L	ND	0.04	
PCB-1242	UG/L	ND	0.04	
PCB-1248	UG/L	ND	0.04	
PCB-1254	UG/L	ND	0.04	
PCB-1260	UG/L	ND	0.04	
TCMX	%REC/SURR	83	43-101	
DCB	%REC/SURR	84	17-135	
ANALYST	INITIALS	RP		

Comments:

SEVERN TRENT LABORATORIES 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"FINAL REPORT FORMAT - SINGLE"

Accession: 806388
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806423
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: PESTICIDES (8080)
Analysis Method: 8080 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Extraction Method: 3510 / 3660 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Matrix: WATER
QC Level: II

Lab Id: 002 Sample Date/Time: 25-JUN-98 1000
Client Sample Id: MW-54DP Received Date: 26-JUN-98

Batch: PSW045 Extraction Date: 01-JUL-98
Blank: B Dry Weight %: N/A Analysis Date: 10-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
ALDRIN	UG/L	ND	0.02	
ALPHA-BHC	UG/L	ND	0.02	
BETA-BHC	UG/L	ND	0.02	
DELTA-BHC	UG/L	ND	0.02	
GAMMA-BHC (LINDANE)	UG/L	ND	0.02	
4,4'-DDD	UG/L	ND	0.02	
4,4'-DDE	UG/L	ND	0.02	
4,4'-DDT	UG/L	ND	0.02	
DIELDRIN	UG/L	ND	0.02	
ENDOSULFAN I	UG/L	ND	0.02	
ENDOSULFAN II	UG/L	ND	0.02	
ENDOSULFAN SULFATE	UG/L	ND	0.02	
ENDRIN	UG/L	ND	0.02	
ENDRIN ALDEHYDE	UG/L	ND	0.02	
HEPTACHLOR	UG/L	ND	0.02	
HEPTACHLOR EPOXIDE	UG/L	ND	0.02	
METHOXYCHLOR	UG/L	ND	0.02	
CHLORDANE	UG/L	ND	0.01	
TOXAPHENE	UG/L	ND	0.12	
PCB-1016	UG/L	ND	0.04	
PCB-1221	UG/L	ND	0.04	
PCB-1232	UG/L	ND	0.04	
PCB-1242	UG/L	ND	0.04	
PCB-1248	UG/L	ND	0.04	
PCB-1254	UG/L	ND	0.04	
PCB-1260	UG/L	ND	0.04	
TCMX	%REC/SURR	77	43-101	
DCB	%REC/SURR	87	17-135	
ANALYST	INITIALS	RP		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 806388
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806423
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: PESTICIDES (8080)
Analysis Method: 8080 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Extraction Method: 3510 / 3660 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Matrix: WATER
QC Level: II

Lab Id: 003 Sample Date/Time: 25-JUN-98 1230
Client Sample Id: MW-55LC Received Date: 26-JUN-98

Batch: PSW045 Extraction Date: 01-JUL-98
Blank: B Dry Weight %: N/A Analysis Date: 10-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
ALDRIN	UG/L	ND	0.02	
ALPHA-BHC	UG/L	ND	0.02	
BETA-BHC	UG/L	ND	0.02	
DELTA-BHC	UG/L	ND	0.02	
GAMMA-BHC (LINDANE)	UG/L	ND	0.02	
4,4'-DDD	UG/L	ND	0.02	
4,4'-DDE	UG/L	ND	0.02	
4,4'-DDT	UG/L	ND	0.02	
DIELDRIN	UG/L	ND	0.02	
ENDOSULFAN I	UG/L	ND	0.02	
ENDOSULFAN II	UG/L	ND	0.02	
ENDOSULFAN SULFATE	UG/L	ND	0.02	
ENDRIN	UG/L	ND	0.02	
ENDRIN ALDEHYDE	UG/L	ND	0.02	
HEPTACHLOR	UG/L	ND	0.02	
HEPTACHLOR EPOXIDE	UG/L	ND	0.02	
METHOXYCHLOR	UG/L	ND	0.02	
CHLORDANE	UG/L	ND	0.01	
TOXAPHENE	UG/L	ND	0.12	
PCB-1016	UG/L	ND	0.04	
PCB-1221	UG/L	ND	0.04	
PCB-1232	UG/L	ND	0.04	
PCB-1242	UG/L	ND	0.04	
PCB-1248	UG/L	ND	0.04	
PCB-1254	UG/L	ND	0.04	
PCB-1260	UG/L	ND	0.04	
TCMX	%REC/SURR	64	43-101	
DCB	%REC/SURR	77	17-135	
ANALYST	INITIALS	RP		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 806388
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806423
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: PESTICIDES (8080)
Analysis Method: 8080 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Extraction Method: 3510 / 3660 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Matrix: WATER
QC Level: II

Lab Id: 005 Sample Date/Time: 25-JUN-98 1445
Client Sample Id: MW-63 Received Date: 26-JUN-98

Batch: PSW045 Extraction Date: 01-JUL-98
Blank: B Dry Weight %: N/A Analysis Date: 10-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
ALDRIN	UG/L	ND	0.02	
ALPHA-BHC	UG/L	ND	0.02	
BETA-BHC	UG/L	ND	0.02	
DELTA-BHC	UG/L	ND	0.02	
GAMMA-BHC (LINDANE)	UG/L	ND	0.02	
4,4'-DDD	UG/L	ND	0.02	
4,4'-DDE	UG/L	ND	0.02	
4,4'-DDT	UG/L	ND	0.02	
DIELDRIN	UG/L	ND	0.02	
ENDOSULFAN I	UG/L	ND	0.02	
ENDOSULFAN II	UG/L	ND	0.02	
ENDOSULFAN SULFATE	UG/L	ND	0.02	
ENDRIN	UG/L	ND	0.02	
ENDRIN ALDEHYDE	UG/L	ND	0.02	
HEPTACHLOR	UG/L	ND	0.02	
HEPTACHLOR EPOXIDE	UG/L	ND	0.02	
METHOXYCHLOR	UG/L	ND	0.02	
CHLORDANE	UG/L	ND	0.01	
TOXAPHENE	UG/L	ND	0.12	
PCB-1016	UG/L	ND	0.04	
PCB-1221	UG/L	ND	0.04	
PCB-1232	UG/L	ND	0.04	
PCB-1242	UG/L	ND	0.04	
PCB-1248	UG/L	ND	0.04	
PCB-1254	UG/L	ND	0.04	
PCB-1260	UG/L	ND	0.04	
TCMX	%REC/SURR	45	43-101	
DCB	%REC/SURR	62	17-135	
ANALYST	INITIALS	RP		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 806388
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806423
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: PESTICIDES (8080)
Analysis Method: 8080 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Extraction Method: 3510 / 3660 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Matrix: WATER
QC Level: II

Lab Id: 004 Sample Date/Time: 25-JUN-98 1230
Client Sample Id: MW-55 Received Date: 26-JUN-98

Batch: PSW045 Extraction Date: 01-JUL-98
Blank: B Dry Weight %: N/A Analysis Date: 10-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
ALDRIN	UG/L	ND	0.02	
ALPHA-BHC	UG/L	ND	0.02	
BETA-BHC	UG/L	ND	0.02	
DELTA-BHC	UG/L	ND	0.02	
GAMMA-BHC (LINDANE)	UG/L	ND	0.02	
4,4'-DDD	UG/L	ND	0.02	
4,4'-DDE	UG/L	ND	0.02	
4,4'-DDT	UG/L	ND	0.02	
DIELDRIN	UG/L	ND	0.02	
ENDOSULFAN I	UG/L	ND	0.02	
ENDOSULFAN II	UG/L	ND	0.02	
ENDOSULFAN SULFATE	UG/L	ND	0.02	
ENDRIN	UG/L	ND	0.02	
ENDRIN ALDEHYDE	UG/L	ND	0.02	
HEPTACHLOR	UG/L	ND	0.02	
HEPTACHLOR EPOXIDE	UG/L	ND	0.02	
METHOXYCHLOR	UG/L	ND	0.02	
CHLORDANE	UG/L	ND	0.01	
TOXAPHENE	UG/L	ND	0.12	
PCB-1016	UG/L	ND	0.04	
PCB-1221	UG/L	ND	0.04	
PCB-1232	UG/L	ND	0.04	
PCB-1242	UG/L	ND	0.04	
PCB-1248	UG/L	ND	0.04	
PCB-1254	UG/L	ND	0.04	
PCB-1260	UG/L	ND	0.04	
TCMX	%REC/SURR	78	43-101	
DCB	%REC/SURR	79	17-135	
ANALYST	INITIALS	RP		

Comments:

SEVERN TRENT LABORATORIES 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Analysis Report

Analysis: POLYNUCLEAR AROMATICS BY 8310

Accession:	806388
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806423
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	SEMI-VOLATILE FUELS

SEVERN TRENT LABORATORIES 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"FINAL REPORT FORMAT - SINGLE"

Accession:	806388
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806423
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Test:	POLYNUCLEAR AROMATICS BY 8310
Analysis Method:	8310/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method:	3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix:	WATER
QC Level:	II

Lab Id:	001		Sample Date/Time:	25-JUN-98 1000
Client Sample Id:	MW-54		Received Date:	26-JUN-98
Batch: PAW150			Extraction Date:	30-JUN-98
Blank: A	Dry Weight %:	N/A	Analysis Date:	02-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZO(a)PYRENE	UG/L	ND	0.1	
1-METHYLNAPHTHALENE	UG/L	ND	0.3	
2-CHLOROANTHRACENE	%REC/SURR	167	28-138	J1
ANALYST	INITIALS	HAH		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession:	806388
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806423
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Test:	POLYNUCLEAR AROMATICS BY 8310
Analysis Method:	8310/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method:	3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix:	WATER
QC Level:	II

Lab Id:	002		Sample Date/Time:	25-JUN-98 1000
Client Sample Id:	MW-54DP		Received Date:	26-JUN-98
Batch: PAW150			Extraction Date:	30-JUN-98
Blank: A	Dry Weight %:	N/A	Analysis Date:	02-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZO(a)PYRENE	UG/L	ND	0.1	
1-METHYLNAPHTHALENE	UG/L	ND	0.3	
2-CHLOROANTHRACENE	%REC/SURR	71	28-138	
ANALYST	INITIALS	HAH		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession:	806388
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806423
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Test:	POLYNUCLEAR AROMATICS BY 8310
Analysis Method:	8310/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method:	3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix:	WATER
QC Level:	II

Lab Id:	003	Sample Date/Time:	25-JUN-98 1230
Client Sample Id:	MW-55LC	Received Date:	26-JUN-98
Batch: PAW150		Extraction Date:	30-JUN-98
Blank: A	Dry Weight %: N/A	Analysis Date:	02-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZO(a)PYRENE	UG/L	ND	0.1	
1-METHYLNAPHTHALENE	UG/L	13	0.3	
2-CHLOROANTHRACENE	%REC/SURR	50	28-138	
ANALYST	INITIALS	HAH		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession:	806388
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806423
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Test:	POLYNUCLEAR AROMATICS BY 8310
Analysis Method:	8310/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method:	3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix:	WATER
QC Level:	II

Lab Id:	004	Sample Date/Time:	25-JUN-98 1230
Client Sample Id:	MW-55	Received Date:	26-JUN-98
Batch: PAW150		Extraction Date:	30-JUN-98
Blank: A	Dry Weight %: N/A	Analysis Date:	07-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZO(a)PYRENE	UG/L	ND	0.1	
1-METHYLNAPHTHALENE	UG/L	14	0.3	
2-CHLOROANTHRACENE	%REC/SURR	58	28-138	
ANALYST	INITIALS	HAH		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession:	806388
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806423
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Test:	POLYNUCLEAR AROMATICS BY 8310
Analysis Method:	8310/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method:	3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix:	WATER
QC Level:	II

Lab Id:	005		Sample Date/Time:	25-JUN-98 1445
Client Sample Id:	MW-63		Received Date:	26-JUN-98
Batch: PAW150			Extraction Date:	30-JUN-98
Blank: A	Dry Weight %:	N/A	Analysis Date:	07-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZO(a)PYRENE	UG/L	ND	0.1	
1-METHYLNAPHTHALENE	UG/L	ND	0.3	
2-CHLOROANTHRACENE	%REC/SURR	64	28-138	
ANALYST	INITIALS	HAH		

Comments:

"Method Report Summary"

Accession Number: 806388
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806423
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: POLYNUCLEAR AROMATICS BY 8310

Client Sample Id:	Parameter:	Unit:	Result:
MW-55LC	1-METHYLNAPHTHALENE	UG/L	13
MW-55	1-METHYLNAPHTHALENE	UG/L	14

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Analysis Report

Analysis: ACID & BASE EXTRACTABLES (8270)

Accession:	806388
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806423
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	ORGANIC/MS

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"FINAL REPORT FORMAT - SINGLE"

Accession: 806388
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806423
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: II

Lab Id: 001 Sample Date/Time: 25-JUN-98 1000
Client Sample Id: MW-54 Received Date: 26-JUN-98

Batch: ALW080 Extraction Date: 28-JUN-98
Blank: A Dry Weight %: N/A Analysis Date: 05-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZOIC ACID	UG/L	ND	1.7	
4-CHLORO-3-METHYLPHENOL	UG/L	ND	0.4	
2-CHLOROPHENOL	UG/L	ND	0.5	
2,4-DICHLOROPHENOL	UG/L	ND	3.9	
2,6-DICHLOROPHENOL	UG/L	ND	0.1	
2,4-DIMETHYLPHENOL	UG/L	ND	0.5	
4,6-DINITRO-2-METHYLPHENOL	UG/L	ND	1.6	
2,4-DINITROPHENOL	UG/L	ND	3.3	
2-METHYLPHENOL	UG/L	ND	0.3	
4-METHYLPHENOL	UG/L	ND	0.5	
2-NITROPHENOL	UG/L	ND	0.4	
4-NITROPHENOL	UG/L	ND	0.7	
PENTACHLOROPHENOL	UG/L	ND	0.7	
PHENOL	UG/L	ND	0.5	
2,3,4,6-TETRACHLOROPHENOL	UG/L	ND	0.6	
2,4,5-TRICHLOROPHENOL	UG/L	ND	3.0	
2,4,6-TRICHLOROPHENOL	UG/L	ND	0.3	
ACENAPHTHENE	UG/L	ND	0.4	
ACENAPHTHYLENE	UG/L	ND	0.4	
ACETOPHENONE	UG/L	ND	0.4	
4-AMINOBIPHENYL	UG/L	ND	0.7	
ANILINE	UG/L	ND	0.5	
ANTHRACENE	UG/L	ND	0.4	
BENZIDINE	UG/L	ND	2.7	
BENZO (A) ANTHRACENE	UG/L	ND	0.5	
BENZO (A) PYRENE	UG/L	ND	0.2	
BENZO (B) FLUORANTHENE	UG/L	ND	0.5	
BENZO (G,H,I) PERYLENE	UG/L	ND	0.3	
BENZO (K) FLUORANTHENE	UG/L	ND	0.7	
BENZYL ALCOHOL	UG/L	ND	0.5	
BIS(2-CHLOROETHOXY)METHANE	UG/L	ND	0.4	
BIS(2-CHLOROETHYL)ETHER	UG/L	ND	0.5	
BIS(2-CHLOROISOPROPYL)ETHER	UG/L	ND	1.9	
BIS(2-ETHYLHEXYL)PHTHALATE	UG/L	ND	0.6	
4-BROMOPHENYL PHENYL ETHER	UG/L	ND	0.4	
BUTYLBENZYL PHTHALATE	UG/L	ND	0.5	
4-CHLOROANILINE	UG/L	ND	0.4	
1-CHLORONAPHTHALENE	UG/L	ND	0.6	
2-CHLORONAPHTHALENE	UG/L	ND	0.4	
4-CHLOROPHENYL PHENYL ETHER	UG/L	ND	0.5	

"FINAL REPORT FORMAT - SINGLE"

Accession: 806388
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806423
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: II

Lab Id: 001
Client Sample Id: MW-54
Sample Date/Time: 25-JUN-98 1000
Received Date: 26-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
CHRYSENE	UG/L	ND	0.7	
DIBENZ(A,J)ACRIDINE	UG/L	ND	0.5	
DIBENZO (A,H) ANTHRACENE	UG/L	ND	0.3	
DIBENZOFURAN	UG/L	ND	0.4	
1,2-DICHLOROBENZENE	UG/L	ND	0.3	
1,3-DICHLOROBENZENE	UG/L	ND	0.3	
1,4-DICHLOROBENZENE	UG/L	ND	0.5	
3,3'-DICHLOROBENZIDINE	UG/L	ND	0.4	
DIETHYLPHTHALATE	UG/L	ND	0.4	
P-DIMETHYLAMINOAZOBENZENE	UG/L	ND	0.4	
7,12-DIMETHYLBENZ(A)ANTHRACENE	UG/L	ND	1.8	
A-,A-DIMETHYLPHENETHYLAMINE	UG/L	ND	0.1	
DIMETHYLPHTHALATE	UG/L	ND	0.4	
DI-N-BUTYLPHTHALATE	UG/L	ND	0.4	
2,4-DINITROTOLUENE	UG/L	ND	0.5	
2,6-DINITROTOLUENE	UG/L	ND	0.5	
DI-N-OCTYLPHTHALATE	UG/L	ND	0.7	
DIPHENYLAMINE	UG/L	ND	0.5	
1,2-DIPHENYLHYDRAZINE	UG/L	ND	0.3	
FLUORANTHENE	UG/L	ND	0.5	
FLUORENE	UG/L	ND	0.6	
HEXACHLOROBENZENE	UG/L	ND	0.5	
HEXACHLOROBUTADIENE	UG/L	ND	0.5	
HEXACHLOROCYCLOPENTADIENE	UG/L	ND	0.6	
HEXACHLOROETHANE	UG/L	ND	0.6	
INDENO (1,2,3-CD) PYRENE	UG/L	ND	0.5	
ISOPHORONE	UG/L	ND	0.4	
3-METHYLCHOLANTHRENE	UG/L	ND	0.4	
2-METHYLNAPHTHALENE	UG/L	ND	0.5	
NAPHTHALENE	UG/L	ND	0.4	
1-NAPHTHYLAMINE	UG/L	ND	1.5	
2-NAPHTHYLAMINE	UG/L	ND	1.0	
2-NITROANILINE	UG/L	ND	0.4	
3-NITROANILINE	UG/L	ND	0.9	
4-NITROANILINE	UG/L	ND	0.8	
NITROBENZENE	UG/L	ND	0.5	
N-NITROSODIMETHYLAMINE	UG/L	ND	1.2	
N-NITROSODI-N-BUTYLAMINE	UG/L	ND	1.1	
N-NITROSODIETHYLAMINE	UG/L*	ND	10	
N-NITROSODIPHENYLAMINE	UG/L	ND	0.4	
N-NITROSO-DI-N-PROPYLAMINE	UG/L	ND	0.4	
N-NITROSOPIPERIDINE	UG/L	ND	0.8	
N-NITROSOPYRROLIDINE	UG/L*	ND	10	
PENTACHLOROBENZENE	UG/L	ND	0.4	
PENTACHLORONITROBENZENE (PCNB)	UG/L	ND	5.0	

"FINAL REPORT FORMAT - SINGLE"

Accession:	806388
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806423
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Test:	ACID & BASE EXTRACTABLES (8270)
Analysis Method:	8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method:	3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix:	WATER
QC Level:	II

Lab Id: 001 Sample Date/Time: 25-JUN-98 1000
Client Sample Id: MW-54 Received Date: 26-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
PHENACETIN	UG/L	ND	0.4	
PHENANTHRENE	UG/L	ND	0.4	
2-PICOLINE	UG/L	ND	7.7	
PRONAMIDE	UG/L	ND	0.4	
PYRENE	UG/L	ND	0.5	
1,2,4,5-TETRACHLOROBENZENE	UG/L	ND	0.4	
1,2,4 TRICHLOROBENZENE	UG/L	ND	0.6	
2-FLUOROPHENOL	%REC/SURR	100	21-100	
PHENOL-D6	%REC/SURR	95	10-100	
2,4,6-TRIBROMOPHENOL	%REC/SURR	112	10-123	
2-FLUOROBIPHENYL	%REC/SURR	99	43-116	
NITROBENZENE-D5	%REC/SURR	101	35-114	
TERPHENYL-D14	%REC/SURR	114	33-124	
ANALYST	INITIALS	RW		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 806388
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806423
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: II

Lab Id: 002 Sample Date/Time: 25-JUN-98 1000
Client Sample Id: MW-54DP Received Date: 26-JUN-98

Batch: ALW080 Extraction Date: 28-JUN-98
Blank: A Dry Weight %: N/A Analysis Date: 05-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZOIC ACID	UG/L	ND	1.7	
4-CHLORO-3-METHYLPHENOL	UG/L	ND	0.4	
2-CHLOROPHENOL	UG/L	ND	0.5	
2,4-DICHLOROPHENOL	UG/L	ND	3.9	
2,6-DICHLOROPHENOL	UG/L	ND	0.1	
2,4-DIMETHYLPHENOL	UG/L	ND	0.5	
4,6-DINITRO-2-METHYLPHENOL	UG/L	ND	1.6	
2,4-DINITROPHENOL	UG/L	ND	3.3	
2-METHYLPHENOL	UG/L	ND	0.3	
4-METHYLPHENOL	UG/L	ND	0.5	
2-NITROPHENOL	UG/L	ND	0.4	
4-NITROPHENOL	UG/L	ND	0.7	
PENTACHLOROPHENOL	UG/L	ND	0.7	
PHENOL	UG/L	ND	0.5	
2,3,4,6-TETRACHLOROPHENOL	UG/L	ND	0.6	
2,4,5-TRICHLOROPHENOL	UG/L	ND	3.0	
2,4,6-TRICHLOROPHENOL	UG/L	ND	0.3	
ACENAPHTHENE	UG/L	ND	0.4	
ACENAPHTHYLENE	UG/L	ND	0.4	
ACETOPHENONE	UG/L	ND	0.4	
4-AMINOBIPHENYL	UG/L	ND	0.7	
ANILINE	UG/L	ND	0.5	
ANTHRACENE	UG/L	ND	0.4	
BENZIDINE	UG/L	ND	2.7	
BENZO (A) ANTHRACENE	UG/L	ND	0.5	
BENZO (A) PYRENE	UG/L	ND	0.2	
BENZO (B) FLUORANTHENE	UG/L	ND	0.5	
BENZO (G,H,I) PERYLENE	UG/L	ND	0.3	
BENZO (K) FLUORANTHENE	UG/L	ND	0.7	
BENZYL ALCOHOL	UG/L	ND	0.5	
BIS(2-CHLOROETHOXY)METHANE	UG/L	ND	0.4	
BIS(2-CHLOROETHYL)ETHER	UG/L	ND	0.5	
BIS(2-CHLOROISOPROPYL)ETHER	UG/L	ND	1.9	
BIS(2-ETHYLHEXYL)PHTHALATE	UG/L	ND	0.6	
4-BROMOPHENYL PHENYL ETHER	UG/L	ND	0.4	
BUTYLBENZYL PHTHALATE	UG/L	ND	0.5	
4-CHLOROANILINE	UG/L	ND	0.4	
1-CHLORONAPHTHALENE	UG/L	ND	0.6	
2-CHLORONAPHTHALENE	UG/L	ND	0.4	
4-CHLOROPHENYL PHENYL ETHER	UG/L	ND	0.5	

"FINAL REPORT FORMAT - SINGLE"

Accession: 806388
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806423
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: II

Lab Id: 002 Sample Date/Time: 25-JUN-98 1000
Client Sample Id: MW-54DP Received Date: 26-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
CHRYSENE	UG/L	ND	0.7	
DIBENZ(A,J)ACRIDINE	UG/L	ND	0.5	
DIBENZO (A,H) ANTHRACENE	UG/L	ND	0.3	
DIBENZOFURAN	UG/L	ND	0.4	
1,2-DICHLOROBENZENE	UG/L	ND	0.3	
1,3-DICHLOROBENZENE	UG/L	ND	0.3	
1,4-DICHLOROBENZENE	UG/L	ND	0.5	
3,3'-DICHLOROBENZIDINE	UG/L	ND	0.4	
DIETHYLPHTHALATE	UG/L	ND	0.4	
P-DIMETHYLAMINOAZOBENZENE	UG/L	ND	0.4	
7,12-DIMETHYLBENZ(A)ANTHRACENE	UG/L	ND	1.8	
A-,A-DIMETHYLPHENETHYLAMINE	UG/L	ND	0.1	
DIMETHYLPHTHALATE	UG/L	ND	0.4	
DI-N-BUTYLPHTHALATE	UG/L	ND	0.4	
2,4-DINITROTOLUENE	UG/L	ND	0.5	
2,6-DINITROTOLUENE	UG/L	ND	0.5	
DI-N-OCTYLPHTHALATE	UG/L	ND	0.7	
DIPHENYLAMINE	UG/L	ND	0.5	
1,2-DIPHENYLHYDRAZINE	UG/L	ND	0.3	
FLUORANTHENE	UG/L	ND	0.5	
FLUORENE	UG/L	ND	0.6	
HEXACHLOROBENZENE	UG/L	ND	0.5	
HEXACHLOROBUTADIENE	UG/L	ND	0.5	
HEXACHLOROCYCLOPENTADIENE	UG/L	ND	0.6	
HEXACHLOROETHANE	UG/L	ND	0.6	
INDENO (1,2,3-CD) PYRENE	UG/L	ND	0.5	
ISOPHORONE	UG/L	ND	0.4	
3-METHYLCHOLANTHRENE	UG/L	ND	0.4	
2-METHYLNAPHTHALENE	UG/L	ND	0.5	
NAPHTHALENE	UG/L	ND	0.4	
1-NAPHTHYLAMINE	UG/L	ND	1.5	
2-NAPHTHYLAMINE	UG/L	ND	1.0	
2-NITROANILINE	UG/L	ND	0.4	
3-NITROANILINE	UG/L	ND	0.9	
4-NITROANILINE	UG/L	ND	0.8	
NITROBENZENE	UG/L	ND	0.5	
N-NITROSODIMETHYLAMINE	UG/L	ND	1.2	
N-NITROSODI-N-BUTYLAMINE	UG/L	ND	1.1	
N-NITROSODIETHYLAMINE	UG/L*	ND	10	
N-NITROSODIPHENYLAMINE	UG/L	ND	0.4	
N-NITROSO-DI-N-PROPYLAMINE	UG/L	ND	0.4	
N-NITROSOPIPERIDINE	UG/L	ND	0.8	
N-NITROSOPYRROLIDINE	UG/L*	ND	10	
PENTACHLOROBENZENE	UG/L	ND	0.4	
PENTACHLORONITROBENZENE (PCNB)	UG/L	ND	5.0	

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"FINAL REPORT FORMAT - SINGLE"

Accession:	806388
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806423
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Test:	ACID & BASE EXTRACTABLES (8270)
Analysis Method:	8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method:	3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix:	WATER
QC Level:	II

Lab Id: 002 Sample Date/Time: 25-JUN-98 1000
Client Sample Id: MW-54DP Received Date: 26-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
PHENACETIN	UG/L	ND	0.4	
PHENANTHRENE	UG/L	ND	0.4	
2-PICOLINE	UG/L	ND	7.7	
PRONAMIDE	UG/L	ND	0.4	
PYRENE	UG/L	ND	0.5	
1,2,4,5-TETRACHLOROBENZENE	UG/L	ND	0.4	
1,2,4 TRICHLOROBENZENE	UG/L	ND	0.6	
2-FLUOROPHENOL	%REC/SURR	98	21-100	
PHENOL-D6	%REC/SURR	85	10-100	
2,4,6-TRIBROMOPHENOL	%REC/SURR	83	10-123	
2-FLUOROBIPHENYL	%REC/SURR	89	43-116	
NITROBENZENE-D5	%REC/SURR	92	35-114	
TERPHENYL-D14	%REC/SURR	103	33-124	
ANALYST	INITIALS	RW		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession:	806388
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806423
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Test:	ACID & BASE EXTRACTABLES (8270)
Analysis Method:	8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method:	3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix:	WATER
QC Level:	II

Lab Id:	003		Sample Date/Time:	25-JUN-98 1230
Client Sample Id:	MW-55LC		Received Date:	26-JUN-98
Batch: ALW080			Extraction Date:	28-JUN-98
Blank: A	Dry Weight %:	N/A	Analysis Date:	05-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZOIC ACID	UG/L	ND	1.7	
4-CHLORO-3-METHYLPHENOL	UG/L	ND	0.4	
2-CHLOROPHENOL	UG/L	ND	0.5	
2,4-DICHLOROPHENOL	UG/L	ND	3.9	
2,6-DICHLOROPHENOL	UG/L	ND	0.1	
2,4-DIMETHYLPHENOL	UG/L	ND	0.5	
4,6-DINITRO-2-METHYLPHENOL	UG/L	ND	1.6	
2,4-DINITROPHENOL	UG/L	ND	3.3	
2-METHYLPHENOL	UG/L	ND	0.3	
4-METHYLPHENOL	UG/L	ND	0.5	
2-NITROPHENOL	UG/L	ND	0.4	
4-NITROPHENOL	UG/L	ND	0.7	
PENTACHLOROPHENOL	UG/L	ND	0.7	
PHENOL	UG/L	ND	0.5	
2,3,4,6-TETRACHLOROPHENOL	UG/L	ND	0.6	
2,4,5-TRICHLOROPHENOL	UG/L	ND	3.0	
2,4,6-TRICHLOROPHENOL	UG/L	ND	0.3	
ACENAPHTHENE	UG/L	ND	0.4	
ACENAPHTHYLENE	UG/L	ND	0.4	
ACETOPHENONE	UG/L	ND	0.4	
4-AMINOBIPHENYL	UG/L	ND	0.7	
ANILINE	UG/L	ND	0.5	
ANTHRACENE	UG/L	ND	0.4	
BENZIDINE	UG/L	ND	2.7	
BENZO (A) ANTHRACENE	UG/L	ND	0.5	
BENZO (A) PYRENE	UG/L	ND	0.2	
BENZO (B) FLUORANTHENE	UG/L	ND	0.5	
BENZO (G,H,I) PERYLENE	UG/L	ND	0.3	
BENZO (K) FLUORANTHENE	UG/L	ND	0.7	
BENZYL ALCOHOL	UG/L	ND	0.5	
BIS(2-CHLOROETHOXY)METHANE	UG/L	ND	0.4	
BIS(2-CHLOROETHYL)ETHER	UG/L	ND	0.5	
BIS(2-CHLOROISOPROPYL)ETHER	UG/L	ND	1.9	
BIS(2-ETHYLHEXYL)PHTHALATE	UG/L	ND	0.6	
4-BROMOPHENYL PHENYL ETHER	UG/L	ND	0.4	
BUTYLBENZYL PHTHALATE	UG/L	ND	0.5	
4-CHLOROANILINE	UG/L	ND	0.4	
1-CHLORONAPHTHALENE	UG/L	ND	0.6	
2-CHLORONAPHTHALENE	UG/L	ND	0.4	
4-CHLOROPHENYL PHENYL ETHER	UG/L	ND	0.5	

"FINAL REPORT FORMAT - SINGLE"

Accession: 806388
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806423
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: II

Lab Id: 003 Sample Date/Time: 25-JUN-98 1230
Client Sample Id: MW-55LC Received Date: 26-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
CHRYSENE	UG/L	ND	0.7	
DIBENZ(A,J)ACRIDINE	UG/L	ND	0.5	
DIBENZO (A,H) ANTHRACENE	UG/L	ND	0.3	
DIBENZOFURAN	UG/L	ND	0.4	
1,2-DICHLOROBENZENE	UG/L	ND	0.3	
1,3-DICHLOROBENZENE	UG/L	ND	0.3	
1,4-DICHLOROBENZENE	UG/L	ND	0.5	
3,3'-DICHLOROBENZIDINE	UG/L	ND	0.4	
DIETHYLPHTHALATE	UG/L	ND	0.4	
P-DIMETHYLAMINOAZOBENZENE	UG/L	ND	0.4	
7,12-DIMETHYLBENZ(A)ANTHRACENE	UG/L	ND	1.8	
A-,A-DIMETHYLPHENETHYLAMINE	UG/L	ND	0.1	
DIMETHYLPHTHALATE	UG/L	ND	0.4	
DI-N-BUTYLPHTHALATE	UG/L	ND	0.4	
2,4-DINITROTOLUENE	UG/L	ND	0.5	
2,6-DINITROTOLUENE	UG/L	ND	0.5	
DI-N-OCTYLPHTHALATE	UG/L	ND	0.7	
DIPHENYLAMINE	UG/L	ND	0.5	
1,2-DIPHENYLHYDRAZINE	UG/L	ND	0.3	
FLUORANTHENE	UG/L	ND	0.5	
FLUORENE	UG/L	ND	0.6	
HEXACHLOROBENZENE	UG/L	ND	0.5	
HEXACHLOROBUTADIENE	UG/L	ND	0.5	
HEXACHLOROCYCLOPENTADIENE	UG/L	ND	0.6	
HEXACHLOROETHANE	UG/L	ND	0.6	
INDENO (1,2,3-CD) PYRENE	UG/L	ND	0.5	
ISOPHORONE	UG/L	ND	0.4	
3-METHYLCHOLANTHRENE	UG/L	ND	0.4	
2-METHYLNAPHTHALENE	UG/L	3.3	0.5	
NAPHTHALENE	UG/L	4.0	0.4	
1-NAPHTHYLAMINE	UG/L	ND	1.5	
2-NAPHTHYLAMINE	UG/L	ND	1.0	
2-NITROANILINE	UG/L	ND	0.4	
3-NITROANILINE	UG/L	ND	0.9	
4-NITROANILINE	UG/L	ND	0.8	
NITROBENZENE	UG/L	ND	0.5	
N-NITROSODIMETHYLAMINE	UG/L	ND	1.2	
N-NITROSODI-N-BUTYLAMINE	UG/L	ND	1.1	
N-NITROSODIETHYLAMINE	UG/L*	ND	10	
N-NITROSODIPHENYLAMINE	UG/L	ND	0.4	
N-NITROSO-DI-N-PROPYLAMINE	UG/L	ND	0.4	
N-NITROSOPIPERIDINE	UG/L	ND	0.8	
N-NITROSOPYRROLIDINE	UG/L*	ND	10	
PENTACHLOROBENZENE	UG/L	ND	0.4	
PENTACHLORONITROBENZENE (PCNB)	UG/L	ND	5.0	

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"FINAL REPORT FORMAT - SINGLE"

Accession: 806388
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806423
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: II

Lab Id: 003 Sample Date/Time: 25-JUN-98 1230
Client Sample Id: MW-55LC Received Date: 26-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
PHENACETIN	UG/L	ND	0.4	
PHENANTHRENE	UG/L	ND	0.4	
2-PICOLINE	UG/L	ND	7.7	
PRONAMIDE	UG/L	ND	0.4	
PYRENE	UG/L	ND	0.5	
1,2,4,5-TETRACHLOROBENZENE	UG/L	ND	0.4	
1,2,4 TRICHLOROBENZENE	UG/L	ND	0.6	
2-FLUOROPHENOL	%REC/SURR	94	21-100	
PHENOL-D6	%REC/SURR	88	10-100	
2,4,6-TRIBROMOPHENOL	%REC/SURR	120	10-123	
2-FLUOROBIPHENYL	%REC/SURR	65	43-116	
NITROBENZENE-D5	%REC/SURR	64	35-114	
TERPHENYL-D14	%REC/SURR	97	33-124	
ANALYST	INITIALS	RW		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 806388
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806423
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: II

Lab Id: 004 Sample Date/Time: 25-JUN-98 1230
Client Sample Id: MW-55 Received Date: 26-JUN-98

Batch: ALW080 Extraction Date: 28-JUN-98
Blank: A Dry Weight %: N/A Analysis Date: 05-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZOIC ACID	UG/L	ND	1.7	
4-CHLORO-3-METHYLPHENOL	UG/L	ND	0.4	
2-CHLOROPHENOL	UG/L	ND	0.5	
2,4-DICHLOROPHENOL	UG/L	ND	3.9	
2,6-DICHLOROPHENOL	UG/L	ND	0.1	
2,4-DIMETHYLPHENOL	UG/L	ND	0.5	
4,6-DINITRO-2-METHYLPHENOL	UG/L	ND	1.6	
2,4-DINITROPHENOL	UG/L	ND	3.3	
2-METHYLPHENOL	UG/L	ND	0.3	
4-METHYLPHENOL	UG/L	ND	0.5	
2-NITROPHENOL	UG/L	ND	0.4	
4-NITROPHENOL	UG/L	ND	0.7	
PENTACHLOROPHENOL	UG/L	ND	0.7	
PHENOL	UG/L	ND	0.5	
2,3,4,6-TETRACHLOROPHENOL	UG/L	ND	0.6	
2,4,5-TRICHLOROPHENOL	UG/L	ND	3.0	
2,4,6-TRICHLOROPHENOL	UG/L	ND	0.3	
ACENAPHTHENE	UG/L	ND	0.4	
ACENAPHTHYLENE	UG/L	ND	0.4	
ACETOPHENONE	UG/L	ND	0.4	
4-AMINOBIPHENYL	UG/L	ND	0.7	
ANILINE	UG/L	ND	0.5	
ANTHRACENE	UG/L	ND	0.4	
BENZIDINE	UG/L	ND	2.7	
BENZO (A) ANTHRACENE	UG/L	ND	0.5	
BENZO (A) PYRENE	UG/L	ND	0.2	
BENZO (B) FLUORANTHENE	UG/L	ND	0.5	
BENZO (G,H,I) PERYLENE	UG/L	ND	0.3	
BENZO (K) FLUORANTHENE	UG/L	ND	0.7	
BENZYL ALCOHOL	UG/L	ND	0.5	
BIS(2-CHLOROETHOXY)METHANE	UG/L	ND	0.4	
BIS(2-CHLOROETHYL)ETHER	UG/L	ND	0.5	
BIS(2-CHLOROISOPROPYL)ETHER	UG/L	ND	1.9	
BIS(2-ETHYLHEXYL)PHTHALATE	UG/L	ND	0.6	
4-BROMOPHENYL PHENYL ETHER	UG/L	ND	0.4	
BUTYLBENZYL PHTHALATE	UG/L	ND	0.5	
4-CHLOROANILINE	UG/L	ND	0.4	
1-CHLORONAPHTHALENE	UG/L	ND	0.6	
2-CHLORONAPHTHALENE	UG/L	ND	0.4	
4-CHLOROPHENYL PHENYL ETHER	UG/L	ND	0.5	

"FINAL REPORT FORMAT - SINGLE"

Accession: 806388
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806423
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: II

Lab Id: 004 Sample Date/Time: 25-JUN-98 1230
Client Sample Id: MW-55 Received Date: 26-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
CHRYSENE	UG/L	ND	0.7	
DIBENZ(A,J)ACRIDINE	UG/L	ND	0.5	
DIBENZO (A,H) ANTHRACENE	UG/L	ND	0.3	
DIBENZOFURAN	UG/L	ND	0.4	
1,2-DICHLOROBENZENE	UG/L	ND	0.3	
1,3-DICHLOROBENZENE	UG/L	ND	0.3	
1,4-DICHLOROBENZENE	UG/L	ND	0.5	
3,3'-DICHLOROBENZIDINE	UG/L	ND	0.4	
DIETHYLPHTHALATE	UG/L	ND	0.4	
P-DIMETHYLAMINOAZOBENZENE	UG/L	ND	0.4	
7,12-DIMETHYLBENZ(A)ANTHRACENE	UG/L	ND	1.8	
A-,A-DIMETHYLPHENETHYLAMINE	UG/L	ND	0.1	
DIMETHYLPHTHALATE	UG/L	ND	0.4	
DI-N-BUTYLPHTHALATE	UG/L	ND	0.4	
2,4-DINITROTOLUENE	UG/L	ND	0.5	
2,6-DINITROTOLUENE	UG/L	ND	0.5	
DI-N-OCTYLPHTHALATE	UG/L	ND	0.7	
DIPHENYLAMINE	UG/L	ND	0.5	
1,2-DIPHENYLHYDRAZINE	UG/L	ND	0.3	
FLUORANTHENE	UG/L	ND	0.5	
FLUORENE	UG/L	ND	0.6	
HEXACHLOROBENZENE	UG/L	ND	0.5	
HEXACHLOROBUTADIENE	UG/L	ND	0.5	
HEXACHLOROCYCLOPENTADIENE	UG/L	ND	0.6	
HEXACHLOROETHANE	UG/L	ND	0.6	
INDENO (1,2,3-CD) PYRENE	UG/L	ND	0.5	
ISOPHORONE	UG/L	ND	0.4	
3-METHYLCHOLANTHRENE	UG/L	ND	0.4	
2-METHYLNAPHTHALENE	UG/L	4.7	0.5	
NAPHTHALENE	UG/L	5.9	0.4	
1-NAPHTHYLAMINE	UG/L	ND	1.5	
2-NAPHTHYLAMINE	UG/L	ND	1.0	
2-NITROANILINE	UG/L	ND	0.4	
3-NITROANILINE	UG/L	ND	0.9	
4-NITROANILINE	UG/L	ND	0.8	
NITROBENZENE	UG/L	ND	0.5	
N-NITROSODIMETHYLAMINE	UG/L	ND	1.2	
N-NITROSODI-N-BUTYLAMINE	UG/L	ND	1.1	
N-NITROSODIETHYLAMINE	UG/L*	ND	10	
N-NITROSODIPHENYLAMINE	UG/L	ND	0.4	
N-NITROSO-DI-N-PROPYLAMINE	UG/L	ND	0.4	
N-NITROSOPIPERIDINE	UG/L	ND	0.8	
N-NITROSOPYRROLIDINE	UG/L*	ND	10	
PENTACHLOROBENZENE	UG/L	ND	0.4	
PENTACHLORONITROBENZENE (PCNB)	UG/L	ND	5.0	

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"FINAL REPORT FORMAT - SINGLE"

Accession: 806388
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806423
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: II

Lab Id: 004 Sample Date/Time: 25-JUN-98 1230
Client Sample Id: MW-55 Received Date: 26-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
PHENACETIN	UG/L	ND	0.4	
PHENANTHRENE	UG/L	ND	0.4	
2-PICOLINE	UG/L	ND	7.7	
PRONAMIDE	UG/L	ND	0.4	
PYRENE	UG/L	ND	0.5	
1,2,4,5-TETRACHLOROBENZENE	UG/L	ND	0.4	
1,2,4 TRICHLOROBENZENE	UG/L	ND	0.6	
2-FLUOROPHENOL	%REC/SURR	100	21-100	
PHENOL-D6	%REC/SURR	93	10-100	
2,4,6-TRIBROMOPHENOL	%REC/SURR	116	10-123	
2-FLUOROBIPHENYL	%REC/SURR	87	43-116	
NITROBENZENE-D5	%REC/SURR	88	35-114	
TERPHENYL-D14	%REC/SURR	98	33-124	
ANALYST	INITIALS	RW		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession:	806388
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806423
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Test:	ACID & BASE EXTRACTABLES (8270)
Analysis Method:	8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method:	3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix:	WATER
QC Level:	II

Lab Id:	005	Sample Date/Time:	25-JUN-98 1445
Client Sample Id:	MW-63	Received Date:	26-JUN-98
Batch: ALW080		Extraction Date:	28-JUN-98
Blank: A	Dry Weight %: N/A	Analysis Date:	05-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZOIC ACID	UG/L	ND	1.7	
4-CHLORO-3-METHYLPHENOL	UG/L	ND	0.4	
2-CHLOROPHENOL	UG/L	ND	0.5	
2,4-DICHLOROPHENOL	UG/L	ND	3.9	
2,6-DICHLOROPHENOL	UG/L	ND	0.1	
2,4-DIMETHYLPHENOL	UG/L	ND	0.5	
4,6-DINITRO-2-METHYLPHENOL	UG/L	ND	1.6	
2,4-DINITROPHENOL	UG/L	ND	3.3	
2-METHYLPHENOL	UG/L	ND	0.3	
4-METHYLPHENOL	UG/L	ND	0.5	
2-NITROPHENOL	UG/L	ND	0.4	
4-NITROPHENOL	UG/L	ND	0.7	
PENTACHLOROPHENOL	UG/L	ND	0.7	
PHENOL	UG/L	ND	0.5	
2,3,4,6-TETRACHLOROPHENOL	UG/L	ND	0.6	
2,4,5-TRICHLOROPHENOL	UG/L	ND	3.0	
2,4,6-TRICHLOROPHENOL	UG/L	ND	0.3	
ACENAPHTHENE	UG/L	ND	0.4	
ACENAPHTHYLENE	UG/L	ND	0.4	
ACETOPHENONE	UG/L	ND	0.4	
4-AMINOBIPHENYL	UG/L	ND	0.7	
ANILINE	UG/L	ND	0.5	
ANTHRACENE	UG/L	ND	0.4	
BENZIDINE	UG/L	ND	2.7	
BENZO (A) ANTHRACENE	UG/L	ND	0.5	
BENZO (A) PYRENE	UG/L	ND	0.2	
BENZO (B) FLUORANTHENE	UG/L	ND	0.5	
BENZO (G,H,I) PERYLENE	UG/L	ND	0.3	
BENZO (K) FLUORANTHENE	UG/L	ND	0.7	
BENZYL ALCOHOL	UG/L	ND	0.5	
BIS(2-CHLOROETHOXY)METHANE	UG/L	ND	0.4	
BIS(2-CHLOROETHYL)ETHER	UG/L	ND	0.5	
BIS(2-CHLOROISOPROPYL)ETHER	UG/L	ND	1.9	
BIS(2-ETHYLHEXYL)PHTHALATE	UG/L	ND	0.6	
4-BROMOPHENYL PHENYL ETHER	UG/L	ND	0.4	
BUTYLBENZYL PHTHALATE	UG/L	ND	0.5	
4-CHLOROANILINE	UG/L	ND	0.4	
1-CHLORONAPHTHALENE	UG/L	ND	0.6	
2-CHLORONAPHTHALENE	UG/L	ND	0.4	
4-CHLOROPHENYL PHENYL ETHER	UG/L	ND	0.5	

"FINAL REPORT FORMAT - SINGLE"

Accession: 806388
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806423
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: II

Lab Id: 005 Sample Date/Time: 25-JUN-98 1445
Client Sample Id: MW-63 Received Date: 26-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
CHRYSENE	UG/L	ND	0.7	
DIBENZ(A,J)ACRIDINE	UG/L	ND	0.5	
DIBENZO (A,H) ANTHRACENE	UG/L	ND	0.3	
DIBENZOFURAN	UG/L	ND	0.4	
1,2-DICHLOROBENZENE	UG/L	ND	0.3	
1,3-DICHLOROBENZENE	UG/L	ND	0.3	
1,4-DICHLOROBENZENE	UG/L	ND	0.5	
3,3'-DICHLOROBENZIDINE	UG/L	ND	0.4	
DIETHYLPHTHALATE	UG/L	ND	0.4	
P-DIMETHYLAMINOAZOBENZENE	UG/L	ND	0.4	
7,12-DIMETHYLBENZ(A)ANTHRACENE	UG/L	ND	1.8	
A-,A-DIMETHYLPHENETHYLAMINE	UG/L	ND	0.1	
DIMETHYLPHTHALATE	UG/L	ND	0.4	
DI-N-BUTYLPHTHALATE	UG/L	ND	0.4	
2,4-DINITROTOLUENE	UG/L	ND	0.5	
2,6-DINITROTOLUENE	UG/L	ND	0.5	
DI-N-OCTYLPHTHALATE	UG/L	ND	0.7	
DIPHENYLAMINE	UG/L	ND	0.5	
1,2-DIPHENYLHYDRAZINE	UG/L	ND	0.3	
FLUORANTHENE	UG/L	ND	0.5	
FLUORENE	UG/L	ND	0.6	
HEXACHLOROBENZENE	UG/L	ND	0.5	
HEXACHLOROBUTADIENE	UG/L	ND	0.5	
HEXACHLOROCYCLOPENTADIENE	UG/L	ND	0.6	
HEXACHLOROETHANE	UG/L	ND	0.6	
INDENO (1,2,3-CD) PYRENE	UG/L	ND	0.5	
ISOPHORONE	UG/L	ND	0.4	
3-METHYLCHOLANTHRENE	UG/L	ND	0.4	
2-METHYLNAPHTHALENE	UG/L	ND	0.5	
NAPHTHALENE	UG/L	ND	0.4	
1-NAPHTHYLAMINE	UG/L	ND	1.5	
2-NAPHTHYLAMINE	UG/L	ND	1.0	
2-NITROANILINE	UG/L	ND	0.4	
3-NITROANILINE	UG/L	ND	0.9	
4-NITROANILINE	UG/L	ND	0.8	
NITROBENZENE	UG/L	ND	0.5	
N-NITROSODIMETHYLAMINE	UG/L	ND	1.2	
N-NITROSODI-N-BUTYLAMINE	UG/L	ND	1.1	
N-NITROSODIETHYLAMINE	UG/L*	ND	10	
N-NITROSODIPHENYLAMINE	UG/L	ND	0.4	
N-NITROSO-DI-N-PROPYLAMINE	UG/L	ND	0.4	
N-NITROSOPIPERIDINE	UG/L	ND	0.8	
N-NITROSOPYRROLIDINE	UG/L*	ND	10	
PENTACHLOROBENZENE	UG/L	ND	0.4	
PENTACHLORONITROBENZENE (PCNB)	UG/L	ND	5.0	

"FINAL REPORT FORMAT - SINGLE"

Accession: 806388
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806423
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: II

Lab Id: 005 Sample Date/Time: 25-JUN-98 1445
Client Sample Id: MW-63 Received Date: 26-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
PHENACETIN	UG/L	ND	0.4	
PHENANTHRENE	UG/L	ND	0.4	
2-PICOLINE	UG/L	ND	7.7	
PRONAMIDE	UG/L	ND	0.4	
PYRENE	UG/L	ND	0.5	
1,2,4,5-TETRACHLOROBENZENE	UG/L	ND	0.4	
1,2,4 TRICHLOROBENZENE	UG/L	ND	0.6	
2-FLUOROPHENOL	%REC/SURR	94	21-100	
PHENOL-D6	%REC/SURR	86	10-100	
2,4,6-TRIBROMOPHENOL	%REC/SURR	106	10-123	
2-FLUOROBIPHENYL	%REC/SURR	73	43-116	
NITROBENZENE-D5	%REC/SURR	74	35-114	
TERPHENYL-D14	%REC/SURR	93	33-124	
ANALYST	INITIALS	RW		

Comments:

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"Method Report Summary"

Accession Number: 806388
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806423
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)

Client Sample Id:	Parameter:	Unit:	Result:
MW-55LC	2-METHYLNAPHTHALENE	UG/L	3.3
	NAPHTHALENE	UG/L	4.0
MW-55	2-METHYLNAPHTHALENE	UG/L	4.7
	NAPHTHALENE	UG/L	5.9

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Data Qualifiers for Final Report

AEN-Pensacola Inorganic/Organic

@	Adjusted reporting limit due to sample matrix (dilution prior to digestion and/or analysis)
+	Elevated reporting limit due to dilution into calibration range
*	Elevated reporting limit due to matrix interference (dilution prior to digestion and/or analysis)
#	Elevated reporting limit due to insufficient sample size
D	Diluted out
J5	The reported value is quantitated as a TIC; therefore, it is estimated
ND = Not Detected	N/S = Not Submitted N/A = Not Applicable

Florida Projects Inorganic/Organic

Y1	Improper preservation, no preservative present in sample upon receipt
Y2	Improper preservation, incorrect preservative present in sample upon receipt
Y3	Improper preservation, sample temperature exceeded EPA temperature limits of 2-6°C upon receipt
Y (FL description)	The laboratory analysis was from an unpreserved or improperly preserved sample. The data may not be accurate.
Q	Sample held beyond the accepted holding time
I	The reported value is < Laboratory RL and > laboratory MDL
U1	The reported value is ≤ Laboratory MDL (value for sample result is reported as the MDL)
U (FL description)	Indicates the compound was analyzed for but not detected.
T	The reported value is < Laboratory MDL (value shall not be used for statistical analysis)
V	The analyte was detected in both the sample and the associated method blank.
J1	Surrogate recovery limits have been exceeded
J2	The sample matrix interfered with the ability to make any accurate determinations
J3	The reported value failed to meet the established quality control criteria for either precision or accuracy
J (FL description)	Estimated value; not accurate.

AFCEE Projects (under QAPP) and All Other (AEN-PN) Projects/Sites for Inorganic/Organic Parameters

J4	(For positive results) Temperature limits exceeded (≤2°C or ≥ 6°C)
J (AFCEE description)	The analyte was positively identified, the quantitation is an estimation
R1	(For nondetects) Temperature limits exceeded (≤2°C or ≥ 6°C)
R2	Improper preservation, no preservative present in sample upon receipt
R3	Improper preservation, incorrect preservative present in sample upon receipt
R4	Holding time exceeded
R5	Collection requirements not met, improper container used for sample
R (AFCEE description)	The data are unusable due to deficiencies in the ability to analyze the sample and meet QC criteria
F	< RL and > laboratory MDL
F (AFCEE description)	The analyte was positively identified but the associated numerical value is below the AFCEE or lab RL
U2	≤ Laboratory MDL (value for result will be the MDL, never below the MDL)
U (AFCEE description)	The analyte was analyzed for but not detected. The associated numerical value is at or below the MDL
B (AFCEE description)	The analyte was found in the associated blank, as well as in the sample

ICR Projects Inorganic/Organic

A	Acceptable
R6	Rejected

Examples: ICR Flags

R6 = Laboratory extracted the sample but the refrigerator malfunctioned so the extract became warm and client was notified

R6 = Sample arrived in laboratory in good condition; however, the laboratory did not analyze it within EPA's established holding time limit.

CLP and CLP-like Projects

Refer to referenced CLP Statement of Work (SOW) for explanation of data qualifiers

IDL = Laboratory Instrument Detection Limit
MDL = Laboratory Method Detection Limit
RL = Reporting Limit (AFCEE RLs are listed in the AFCEE QAPP)
CLP CRDL = CLP Contract Required Detection Limit (these limits are listed in the EPA CLP Statement of Work or SOW)
CLP CRQL = CLP Contract Required Quantitation Limit (these limits are listed in the EPA CLP Statement of Work or SOW)

Any time a sample arrives at the laboratory improperly preserved (at improper pH or temperature) or after holding time has expired or prepared or analyzed after holding time, client must be notified in writing (i.e. case narrative).

AEN-Pensacola uses the most current promulgated methods contained in the reference manuals.

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Quality Control Report

Analysis: MARATHON WET CHEMISTRY INORGANICS

Accession:	806388
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806423
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	WET CHEM

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"WetChem Quality Control Report"

Parameter:	CHLORIDE	CYANIDE	FLUORIDE	NO2	NO2NO3	PH
Batch Id:	CIW072	CNW039	FLW028	N2W095	N3W49A	PHW136
Blank Result:	<1	<0.005	<0.2	<0.1	<0.1	N/A
Anal. Method:	4500-CL B	335.2	340.2	354.1	353.2	150.1
Prep. Method:	N/A	N/A	N/A	N/A	N/A	N/A
Analysis Date:	29-JUN-98	30-JUN-98	01-JUL-98	26-JUN-98	30-JUN-98	26-JUN-98
Prep. Date:	29-JUN-98	29-JUN-98	01-JUL-98	26-JUN-98	29-JUN-98	26-JUN-98
Sample Duplication						
Sample Dup:	806423-1	806355-4	806323-1	806380-45	806382-8	806380-40
Rept Limit:	<1	<0.005	<0.2	<0.1	<0.1	N/A
Sample Result:	228.0	<0.005	0.92	<0.1	0.37	6.37
Dup Result:	228.0	<0.005	0.87	<0.1	0.36	6.38
Sample RPD:	0	N/C	0.05 G	N/C	0.01 G	0.01
Max RPD:	5	0.005	0.2	0.1	0.1	0.12
Dry Weight%	N/A	N/A	N/A	N/A	N/A	N/A
Matrix Spike						
Sample Spiked:	806423-1	806355-4	806323-1	806380-45	806382-8	N/A
Rept Limit:	<1	<0.005	<0.2	<0.1	<0.1	N/A
Sample Result:	228.0	<0.005	0.92	<0.1	0.37	
Spiked Result:	281.0	0.187	1.75	0.20	1.34	
Spike Added:	55.0	0.200	0.80	0.20	1.00	
% Recovery:	96	94	104	100	97	
% Rec Limits:	90-111	67-127	79-132	70-131	71-125	
Dry Weight%	N/A	N/A	N/A	N/A	N/A	
ICV						
ICV Result:	100.5	0.287	1.08	0.20	2.03	10.03
True Result:	100.0	0.314	1.20	0.20	2.00	10.00
% Recovery:	101	91	90	100	102	100
% Rec Limits:	90-110	90-110	90-110	90-110	90-110	90-110
LCS						
LCS Result:						6.97
True Result:						6.87
% Recovery:						101
% Rec Limits:						96-104

"WetChem Quality Control Report"

Parameter:	PHENOL	SULFATE	TDS	CHLORIDE	SULFATE
Batch Id:	PEW027	SEW081	TDW039	CIW073	SEW082
Blank Result:	<0.005	<10	<5	<1	<10
Anal. Method:	420.1	375.4	160.1	4500-CL B	375.4
Prep. Method:	N/A	N/A	N/A	N/A	N/A
Analysis Date:	08-JUL-98	02-JUL-98	01-JUL-98	29-JUN-98	03-JUL-98
Prep. Date:	07-JUL-98	02-JUL-98	30-JUN-98	29-JUN-98	03-JUL-98
Sample Duplication					
Sample Dup:	806387-2	806382-2	806355-2	806424-1	806388-4
Rept Limit:	<0.005	<10	<5	<10@	<20+
Sample Result:	<0.005	15	1468	81.5	55
Dup Result:	<0.005	15	1424	81.5	55
Sample RPD:	N/C	0 G	3	0	0 G
Max RPD:	0.005	10	16	5	20
Dry Weight%	N/A	N/A	N/A	N/A	N/A
Matrix Spike					
Sample Spiked:	806387-2	806382-2	N/A	806424-1	806388-4
Rept Limit:	<0.005	<10	N/A	<10@	<20+
Sample Result:	0.006	15		81.5	55
Spiked Result:	0.030	30		661.9	132
Spike Added:	0.020	20		550.0	100
% Recovery:	120	75		106	77
% Rec Limits:	48-149	56-154		90-111	56-154
Dry Weight%	N/A	N/A		N/A	N/A
ICV					
ICV Result:	0.026	22.0		98.6	22.0
True Result:	0.025	20		100	20
% Recovery:	104	110		99	110
% Rec Limits:	90-110	90-110		90-110	90-110
LCS					
LCS Result:			300		
True Result:			293		
% Recovery:			102		
% Rec Limits:			77-129		

"Quality Control Comments"

Batch Id:	Comments:
N2W095	806388-1,2,3,4,5 & 806387-2,3,4 were added to the batch
N2W095	on 26-Jun-98.
PEW027	806388-1,2,3,4,5 & 807005-1,2,3,4,5 were added to batch 8-Jul-98.

----- Common Footnotes WetChem -----

N/A = NOT APPLICABLE.
N/S = NOT SUBMITTED.
N/C = SAMPLE AND DUPLICATE RESULTS ARE AT OR BELOW AEN REPORTING LIMIT; THEREFORE, THE RPD IS "NOT CALCULABLE" AND NO CONTROL LIMITS APPLY.
N/D = NOT DETECTED.
R = REACTIVE
T = TOTAL
G = SAMPLE AND/OR DUPLICATE RESULT IS BELOW 5 X AEN REPORTING LIMIT AND THE ABSOLUTE DIFFERENCE BETWEEN THE SAMPLE AND DUPLICATE RESULT IS AT OR BELOW AEN REPORTING LIMIT; THEREFORE, THE RESULTS ARE "IN CONTROL".
Q = THE ANALYTICAL (POST-DISTILLATION) SPIKE IS REPORTED DUE TO PERCENT RECOVERY BEING OUTSIDE ACCEPTANCE LIMITS ON THE MATRIX (PRE-DISTILLATION) SPIKE.
= ELEVATED REPORTING LIMIT DUE TO INSUFFICIENT SAMPLE.
+ = ELEVATED REPORTING LIMIT DUE TO DILUTION INTO CALIBRATION RANGE.
* = ELEVATED REPORTING LIMIT DUE TO MATRIX INTERFERENCE (DILUTION PRIOR DIGESTION AND/OR ANALYSIS).
@ = ADJUSTED REPORTING LIMIT DUE TO SAMPLE MATRIX (DILUTION PRIOR TO DIGESTION AND/OR ANALYSIS).
P = ANALYTICAL (POST DIGESTION) SPIKE.
I = DUPLICATE INJECTION.
& = AUTOMATED
F = SAMPLE SPIKED > 4 X SPIKE CONCENTRATION.
N/C+ = NOT CALCULABLE
H = SAMPLE AND/OR DUPLICATE RESULT IS BELOW 5 X AEN REPORTING LIMIT AND THE ABSOLUTE DIFFERENCE BETWEEN THE RESULTS EXCEEDS THE AEN REPORTING LIMIT; THEREFORE, THE RESULTS ARE "OUT OF CONTROL".
A = SAMPLE AND DUPLICATE RESULTS ARE "OUT OF CONTROL".
Z = THE SAMPLE RESULT FOR THE SPIKE IS BELOW THE REPORTING LIMIT. HOWEVER, THIS RESULT IS REPORTED FOR ACCURATE QC CALCULATIONS.
NH= SAMPLE AND / OR DUPLICATE RESULT IS BELOW 5 X AEN REPORTING LIMIT AND THE ABSOLUTE DIFFERENCE BETWEEN THE RESULTS EXCEEDS THE AEN REPORTING LIMIT; THEREFORE, THE RESULTS ARE "OUT OF CONTROL". SAMPLE IS NON-HOMOGENEOUS.
(*) = REPORTING LIMITS RAISED DUE TO CLP METHOD NOT REQUIRING A CONCENTRATION STEP FOR CN.
(CA) = SEE CORRECTIVE ACTIONS FORM.
**= MATRIX INTERFERENCE
SW-846, 3rd Edition, latest EPA-approved edition.
EPA 600/4-79-020, Revised March 1983.
STANDARD METHODS, For the Examination of Water and Wastewater, latest EPA-approved edition.
NIOSH Manual of Analytical Methods, 4th Edition.
ANNUAL BOOK OF ASTM STANDARDS, VOLUMES 11.01 and 11.02, latest EPA-approved edition.
METHODS FOR THE DETERMINATION OF INORGANIC SUBSTANCES IN ENVIRONMENTAL SAMPLES, EPA600/R-93/100, AUGUST 1993
METHODS FOR SOIL ANALYSIS, PART 2, CHEMICAL AND MICROBILOGICAL PROPERTIES, 2ND EDITION.
AEN-PN USES THE MOST CURRENT PROMULGATED METHODS FROM THE REFERENCES LISTED ABOVE.

1. COLIFORM. COLIFORM PRECISION IS MEASURED BY THE ABSOLUTE DIFFERENCE BETWEEN THE LOGARITHM OF COLONIES PER 100 MLS OF SAMPLE ON DUPLICATE PLATES.
2. PH. PH PRECISION IS MEASURED BY THE ABSOLUTE DIFFERENCE BETWEEN THE SAMPLE AND DUPLICATE ANALYSIS.
3. FLASHPOINT. FLASHPOINT PRECISION IS MEASURED BY THE ABSOLUTE DIFFERENCE BETWEEN THE SAMPLE AND DUPLICATE ANALYSIS.
RPD = RELATIVE PERCENT DIFFERENCE (OR DEVIATION).
RPT LMTS = REPORTING LIMITS BASED ON METHOD DETECTION LIMIT STUDIES.

DPH = DOLLY P. HWANG RB = REBECCA BROWN WH = WENDY HAGGARD
ED = ESTHER DANTIN CR = CYNTHIA ROBERTS AB = AMY BRADLEY
BE = BETTY EVERTON PLD = PAULA L. DOUGHTY JTZ = JONATHAN T. ZIENTARSKI
RH = RICKY HAGENDORFER

SEVERN TRENT LABORATORIES 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Quality Control Report

Analysis: Group of Single Metals

Accession:	806388
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806423
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	METALS

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"Metals Quality Control Report"

Parameter:	SELENIUM
Batch Id:	S7W093
Blank Result:	<0.005
Anal. Method:	7740
Prep. Method:	3020A
Analysis Date:	08-JUL-98
Prep. Date:	07-JUL-98

Sample Duplication

Sample Dup:	806388-1
Rept Limit:	<0.005
Sample Result:	0.027
Dup Result:	0.027
Sample RPD:	0
Max RPD:	20
Dry Weight%	N/A

Matrix Spike

Sample Spiked:	806388-1
Rept Limit:	<0.005
Sample Result:	<0.005
Spiked Result:	0.042
Spike Added:	0.040
% Recovery:	105
% Rec Limits:	75-125
Dry Weight%	N/A

ICV

ICV Result:	0.020
True Result:	0.020
% Recovery:	100
% Rec Limits:	90-110

LCS

LCS Result:	0.042
True Result:	0.040
% Recovery:	105
% Rec Limits:	80-120

----- Common Footnotes Metals -----

N/A = NOT APPLICABLE.
N/S = NOT SUBMITTED.
N/C = SAMPLE AND DUPLICATE RESULTS ARE AT OR BELOW THE REPORTING LIMIT; THEREFORE, THE RPD IS "NOT CALCULABLE" AND NO CONTROL LIMITS APPLY.
N/D = NOT DETECTED.
DISS. OR D = DISSOLVED
T & D = TOTAL AND DISSOLVED
R = REACTIVE
T = TOTAL
G = SAMPLE AND/OR DUPLICATE RESULT IS BELOW 5 X THE REPORTING LIMIT AND THE ABSOLUTE DIFFERENCE BETWEEN THE SAMPLE AND DUPLICATE RESULT IS AT OR BELOW AEN REPORTING LIMIT; THEREFORE, THE RESULTS ARE "IN CONTROL".
Q = THE ANALYTICAL (POST-DIGESTION) SPIKE IS REPORTED DUE TO PERCENT RECOVERY BEING OUTSIDE ACCEPTANCE LIMITS ON THE MATRIX (PRE-DIGESTION) SPIKE.
= ELEVATED REPORTING LIMIT DUE TO INSUFFICIENT SAMPLE.
+ = ELEVATED REPORTING LIMIT DUE TO DILUTION INTO CALIBRATION RANGE.
* = ELEVATED REPORTING LIMIT DUE TO MATRIX INTERFERENCE. (DILUTION PRIOR TO ANALYSIS)
@ = ADJUSTED REPORTING LIMIT DUE TO SAMPLE MATRIX. (DILUTION PRIOR TO DIGESTION)
P = ANALYTICAL (POST DIGESTION) SPIKE.
I = DUPLICATE INJECTION.
& = AUTOMATED
F = SAMPLE SPIKED > 4 X SPIKE CONCENTRATION.
N/C+ = NOT CALCULABLE
N/C* = NOT CALCULABLE; SAMPLE SPIKED > 4 X SPIKE CONCENTRATION.
H = SAMPLE AND/OR DUPLICATE RESULT IS BELOW 5 X AEN REPORTING LIMIT AND THE ABSOLUTE DIFFERENCE BETWEEN THE RESULTS EXCEEDS THE AEN REPORTING LIMIT; THEREFORE, THE RESULTS ARE "OUT OF CONTROL".
A = SAMPLE AND DUPLICATE RESULTS ARE "OUT OF CONTROL".
Z = THE SAMPLE RESULT FOR THE SPIKE IS BELOW THE AEN REPORTING LIMIT. HOWEVER, THIS RESULT IS REPORTED FOR ACCURATE QC CALCULATIONS.
NH= THE RELATIVE PERCENT DIFFERENCE (RPD) EXCEEDS THE AEN CONTROL LIMIT AND IS "OUT OF CONTROL; DUE TO A NON-HOMOGENEOUS SAMPLE MATRIX.
J = (FLORIDA DEP 'J' FLAG) - MATRIX SPIKE AND POST SPIKE RECOVERY IS OUT OF THE ACCEPTABLE RANGE. SEE OUT OF CONTROL EVENTS FORM.
U = (FLORIDA DEP 'U' FLAG) - THE COMPOUND WAS ANALYZED FOR, BUT NOT DETECTED.
S = METHOD OF STANDARD ADDITIONS (MSA) WAS PERFORMED ON THIS SAMPLE.

FROM QUALITY CONTROL REPORT:
RPD= RELATIVE PERCENT DEVIATION.
REPT LIMIT= REPORTING LIMIT BASED ON METHOD DETECTION LIMIT STUDIES.

NOTE: ALL RESULTS REPORTED UNDER 'SAMPLE DUPLICATION' ARE THE MS/MSD.

NOTE: THE UNITS REPORTED ON THE QUALITY CONTROL REPORT ARE REPORTED ON AN AS RUN BASIS. (NOT ADJUSTED FOR DRY WEIGHT).

SW-846, 3rd Edition.
EPA 600/4-79-020, Revised March 1983.
NIOSH Manual of Analytical Methods, 4th Edition.
Standard Methods For the Examination of Water and Wastewater, 18th Edition, 1992.
Methods For the Determination of Metals in Environmental Samples - Supplement I, EPA 600/R-94-111, May 1994.

GJ = GARY JACOBS
GSP = GARY ST PERE
JLH = JAMES L. HERED
JL = JANET LECLEAR

SEVERN TRENT LABORATORIES 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Quality Control Report

Analysis: MARATHON METALS - OPTIMA

Accession:	806388
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806423
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	METALS

"Metals Quality Control Report"

Parameter:	SILVER	ALUMINUM	ARSENIC	BARIUM	BORON	CADMIUM
Batch Id:	AYW176	LYW176	RYW176	BYW176	OYW176	CYW176
Blank Result:	<0.005	<0.1	<0.005	<0.001	<0.05	<0.001
Anal. Method:	6010A	6010A	6010A	6010A	6010A	6010A
Prep. Method:	3010A	3010A	3010A	3010A	3010A	3010A
Analysis Date:	01-JUL-98	01-JUL-98	01-JUL-98	01-JUL-98	01-JUL-98	01-JUL-98
Prep. Date:	29-JUN-98	29-JUN-98	29-JUN-98	29-JUN-98	29-JUN-98	29-JUN-98
Sample Duplication						
Sample Dup:	806424-1	806424-1	806424-1	806424-1	806424-1	806424-1
Rept Limit:	<0.005	<0.1	<0.005	<0.001	<0.05	<0.001
Sample Result:	0.20	2.2	2.12	1.95	4.08	1.79
Dup Result:	0.20	2.2	2.07	1.92	4.05	1.76
Sample RPD:	0	0	2	2	1	2
Max RPD:	20	20	20	20	20	20
Dry Weight%	N/A	N/A	N/A	N/A	N/A	N/A
Matrix Spike						
Sample Spiked:	806424-1	806424-1	806424-1	806424-1	806424-1	806424-1
Rept Limit:	<0.005	<0.1	<0.005	<0.001	<0.05	<0.001
Sample Result:	<0.005	<0.1	<0.005	0.008	1.90	<0.001
Spiked Result:	0.20	2.2	2.12	1.95	4.08	1.79
Spike Added:	0.20	2.0	2.0	2.0	2.0	2.0
% Recovery:	100	110	106	97	109	90
% Rec Limits:	75-125	75-125	75-125	75-125	75-125	75-125
Dry Weight%	N/A	N/A	N/A	N/A	N/A	N/A
ICV						
ICV Result:	0.50	4.9	1.01	0.98	1.04	1.02
True Result:	0.5	5	1.0	1.0	1.0	1.0
% Recovery:	100	98	101	98	104	102
% Rec Limits:	95-105	95-105	95-105	95-105	95-105	95-105
LCS						
LCS Result:	0.19	2.1	2.00	1.95	2.05	1.90
True Result:	0.2	2.0	2.0	2.0	2.0	2.0
% Recovery:	95	105	100	98	103	95
% Rec Limits:	80-120	80-120	80-120	80-120	80-120	80-120

"Metals Quality Control Report"

Parameter:	COBALT	CHROMIUM	COPPER	MERCURY	NICKEL	IRON
Batch Id:	TYW176	HYW176	FYW176	M7W083	EYW176	NYW176
Blank Result:	<0.005	<0.005	<0.005	<0.0002	<0.005	<0.05
Anal. Method:	6010A	6010A	6010A	7470A	6010A	6010A
Prep. Method:	3010A	3010A	3010A	7470A	3010A	3010A
Analysis Date:	01-JUL-98	01-JUL-98	01-JUL-98	06-JUL-98	06-JUL-98	06-JUL-98
Prep. Date:	29-JUN-98	29-JUN-98	29-JUN-98	05-JUL-98	29-JUN-98	29-JUN-98
Sample Duplication						
Sample Dup:	806424-1	806424-1	806424-1	806355-3	806424-1	806424-1
Rept Limit:	<0.005	<0.005	<0.005	<0.0002	<0.005	<0.05
Sample Result:	1.90	1.92	2.16	0.0049	1.98	2.08
Dup Result:	1.87	1.89	2.14	0.0051	1.97	2.07
Sample RPD:	2	2	1	4	1	0
Max RPD:	20	20	20	20	20	20
Dry Weight%	N/A	N/A	N/A	N/A	N/A	N/A
Matrix Spike						
Sample Spiked:	806424-1	806424-1	806424-1	806355-3	806424-1	806424-1
Rept Limit:	<0.005	<0.005	<0.005	<0.0002	<0.005	<0.05
Sample Result:	<0.005	<0.005	<0.005	<0.0002	<0.005	0.07
Spiked Result:	1.90	1.92	2.16	0.0049	1.98	2.08
Spike Added:	2.0	2.0	2.0	0.0050	2.0	2.0
% Recovery:	95	96	108	98	99	101
% Rec Limits:	75-125	75-125	75-125	75-125	75-125	75-125
Dry Weight%	N/A	N/A	N/A	N/A	N/A	N/A
ICV						
ICV Result:	0.99	1.00	1.01	0.0040	0.98	4.91
True Result:	1.0	1.0	1.0	0.0040	1.0	5.0
% Recovery:	99	100	101	100	98	98
% Rec Limits:	95-105	95-105	95-105	90-110	95-105	95-105
LCS						
LCS Result:	1.94	1.96	2.10	0.0049	1.97	2.01
True Result:	2.0	2.0	2.0	0.0050	2.0	2.0
% Recovery:	97	98	105	98	99	101
% Rec Limits:	80-120	80-120	80-120	85-115	80-120	80-120

"Metals Quality Control Report"

Parameter:	LEAD	MANGANESE	MOLYBDENUM	ZINC
Batch Id:	PYW176	GYW176	DYW176	5YW176
Blank Result:	<0.003	<0.005	<0.005	<0.02
Anal. Method:	6010A	6010A	6010A	6010A
Prep. Method:	3010A	3010A	3010A	3010A
Analysis Date:	06-JUL-98	06-JUL-98	01-JUL-98	01-JUL-98
Prep. Date:	29-JUN-98	29-JUN-98	29-JUN-98	29-JUN-98
Sample Duplication				
Sample Dup:	806424-1	806424-1	806424-1	806424-1
Rept Limit:	<0.003	<0.005	<0.005	<0.02
Sample Result:	1.92	2.05	2.03	1.69
Dup Result:	1.95	2.04	1.99	1.66
Sample RPD:	2	0	2	2
Max RPD:	20	20	20	20
Dry Weight%	N/A	N/A	N/A	N/A
Matrix Spike				
Sample Spiked:	806424-1	806424-1	806424-1	806424-1
Rept Limit:	<0.003	<0.005	<0.005	<0.02
Sample Result:	<0.003	0.015	<0.005	<0.02
Spiked Result:	1.92	2.05	2.03	1.69
Spike Added:	2.0	2.0	2.0	2.0
% Recovery:	96	102	102	85
% Rec Limits:	75-125	75-125	75-125	75-125
Dry Weight%	N/A	N/A	N/A	N/A
ICV				
ICV Result:	1.01	0.99	1.02	1.02
True Result:	1.0	1.0	1.0	1.0
% Recovery:	101	99	102	102
% Rec Limits:	95-105	95-105	95-105	95-105
LCS				
LCS Result:	1.94	1.98	2.04	1.82
True Result:	2.0	2.0	2.0	2.0
% Recovery:	97	99	102	91
% Rec Limits:	80-120	80-120	80-120	80-120

----- Common Footnotes Metals -----

N/A = NOT APPLICABLE.
N/S = NOT SUBMITTED.
N/C = SAMPLE AND DUPLICATE RESULTS ARE AT OR BELOW THE REPORTING LIMIT; THEREFORE, THE RPD IS "NOT CALCULABLE" AND NO CONTROL LIMITS APPLY.
N/D = NOT DETECTED.
DISS. OR D = DISSOLVED
T & D = TOTAL AND DISSOLVED
R = REACTIVE
T = TOTAL
G = SAMPLE AND/OR DUPLICATE RESULT IS BELOW 5 X THE REPORTING LIMIT AND THE ABSOLUTE DIFFERENCE BETWEEN THE SAMPLE AND DUPLICATE RESULT IS AT OR BELOW AEN REPORTING LIMIT; THEREFORE, THE RESULTS ARE "IN CONTROL".
Q = THE ANALYTICAL (POST-DIGESTION) SPIKE IS REPORTED DUE TO PERCENT RECOVERY BEING OUTSIDE ACCEPTANCE LIMITS ON THE MATRIX (PRE-DIGESTION) SPIKE.
= ELEVATED REPORTING LIMIT DUE TO INSUFFICIENT SAMPLE.
+ = ELEVATED REPORTING LIMIT DUE TO DILUTION INTO CALIBRATION RANGE.
* = ELEVATED REPORTING LIMIT DUE TO MATRIX INTERFERENCE. (DILUTION PRIOR TO ANALYSIS)
@ = ADJUSTED REPORTING LIMIT DUE TO SAMPLE MATRIX. (DILUTION PRIOR TO DIGESTION)
P = ANALYTICAL (POST DIGESTION) SPIKE.
I = DUPLICATE INJECTION.
& = AUTOMATED
F = SAMPLE SPIKED > 4 X SPIKE CONCENTRATION.
N/C+ = NOT CALCULABLE
N/C* = NOT CALCULABLE; SAMPLE SPIKED > 4 X SPIKE CONCENTRATION.
H = SAMPLE AND/OR DUPLICATE RESULT IS BELOW 5 X AEN REPORTING LIMIT AND THE ABSOLUTE DIFFERENCE BETWEEN THE RESULTS EXCEEDS THE AEN REPORTING LIMIT; THEREFORE, THE RESULTS ARE "OUT OF CONTROL".
A = SAMPLE AND DUPLICATE RESULTS ARE "OUT OF CONTROL".
Z = THE SAMPLE RESULT FOR THE SPIKE IS BELOW THE AEN REPORTING LIMIT. HOWEVER, THIS RESULT IS REPORTED FOR ACCURATE QC CALCULATIONS.
NH= THE RELATIVE PERCENT DIFFERENCE (RPD) EXCEEDS THE AEN CONTROL LIMIT AND IS "OUT OF CONTROL; DUE TO A NON-HOMOGENEOUS SAMPLE MATRIX.
J = (FLORIDA DEP 'J' FLAG) - MATRIX SPIKE AND POST SPIKE RECOVERY IS OUT OF THE ACCEPTABLE RANGE. SEE OUT OF CONTROL EVENTS FORM.
U = (FLORIDA DEP 'U' FLAG) - THE COMPOUND WAS ANALYZED FOR, BUT NOT DETECTED.
S = METHOD OF STANDARD ADDITIONS (MSA) WAS PERFORMED ON THIS SAMPLE.

FROM QUALITY CONTROL REPORT:
RPD= RELATIVE PERCENT DEVIATION.
REPT LIMIT= REPORTING LIMIT BASED ON METHOD DETECTION LIMIT STUDIES.

NOTE: ALL RESULTS REPORTED UNDER 'SAMPLE DUPLICATION' ARE THE MS/MSD.

NOTE: THE UNITS REPORTED ON THE QUALITY CONTROL REPORT ARE REPORTED ON AN AS RUN BASIS. (NOT ADJUSTED FOR DRY WEIGHT).

SW-846, 3rd Edition.
EPA 600/4-79-020, Revised March 1983.
NIOSH Manual of Analytical Methods, 4th Edition.
Standard Methods For the Examination of Water and Wastewater, 18th Edition, 1992.
Methods For the Determination of Metals in Environmental Samples - Supplement I, EPA 600/R-94-111, May 1994.

GJ = GARY JACOBS
GSP = GARY ST PERE
JLH = JAMES L. HERED
JL = JANET LECLEAR

SEVERN TRENT LABORATORIES 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Quality Control Report

Analysis: PESTICIDES (8080)

Accession:	806388
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806423
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	PESTICIDES

SEVERN TRENT LABORATORIES 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"QC Report"

Title: Water Blank
Batch: PSW045
Analysis Method: 8080 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Extraction Method: 3510 / 3660 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.

Blank Id: B Date Analyzed: 10-JUL-98 Date Extracted: 01-JUL-98

Parameters:	Units:	Results:	Reporting Limits:
ALDRIN	UG/L	ND	0.02
ALPHA-BHC	UG/L	ND	0.02
BETA-BHC	UG/L	ND	0.02
DELTA-BHC	UG/L	ND	0.02
GAMMA-BHC (LINDANE)	UG/L	ND	0.02
4,4'-DDD	UG/L	ND	0.02
4,4'-DDE	UG/L	ND	0.02
4,4'-DDT	UG/L	ND	0.02
DIELDRIN	UG/L	ND	0.02
ENDOSULFAN I	UG/L	ND	0.02
ENDOSULFAN II	UG/L	ND	0.02
ENDOSULFAN SULFATE	UG/L	ND	0.02
ENDRIN	UG/L	ND	0.02
ENDRIN ALDEHYDE	UG/L	ND	0.02
HEPTACHLOR	UG/L	ND	0.02
HEPTACHLOR EPOXIDE	UG/L	ND	0.02
METHOXYCHLOR	UG/L	ND	0.02
CHLORDANE	UG/L	ND	0.01
TOXAPHENE	UG/L	ND	0.12
PCB-1016	UG/L	ND	0.04
PCB-1221	UG/L	ND	0.04
PCB-1232	UG/L	ND	0.04
PCB-1242	UG/L	ND	0.04
PCB-1248	UG/L	ND	0.04
PCB-1254	UG/L	ND	0.04
PCB-1260	UG/L	ND	0.04
TCMX	%REC/SURR	114	43-101
DCB	%REC/SURR	95	17-135
ANALYST	INITIALS	RP	

Comments:

"QC Report"

Title: Water LCS
Batch: PSW045
Analysis Method: 8080 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Extraction Method: 3510 / 3660 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.

RS Date Analyzed: 07-JUL-98 RS Date Extracted: 30-JUN-98

Parameters:	Spike Added	Sample Conc	RS Conc	RS %Rec	Rec Lmts
LINDANE	1.00	<0.02	0.75	75	51-118
HEPTACHLOR	1.00	<0.02	0.85	85	70-123
ALDRIN	1.00	<0.02	0.85	85	54-122
DIELDRIN	1.00	<0.02	0.96	96	75-119
ENDRIN	1.00	<0.02	0.95	95	67-122
DDT	1.00	<0.02	1.12	112	59-127
Surrogates:					
DCB				103	17-135
TCMX				77	43-101

Comments:

Notes:
N/S = NOT SUBMITTED N/A = NOT APPLICABLE D = DILUTED OUT
UG/L = PARTS PER BILLION. < = LESS THAN REPORTING LIMIT.
* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS.
SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

"QC Report"

Title: Water Matrix
Batch: PSW045
Analysis Method: 8080 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Extraction Method: 3510 / 3660 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.

Dry Weight %: N/A
Sample Spiked: 806409-02

MS Date Analyzed: 10-JUL-98
MSD Date Analyzed: 10-JUL-98

MS Date Extracted: 01-JUL-98
MSD Date Extracted: 01-JUL-98

Parameters:	Spike Added	Sample Conc	MS Conc	MS %Rec	MSD Conc	MSD %Rec	RPD	RPD Lmts	Rec Lmts
LINDANE	2.00	<0.02	1.63	82	1.70	85	4	27	40-119
HEPTACHLOR	2.00	<0.02	1.88	94	2.00	100	6	30	53-123
ALDRIN	2.00	<0.02	1.93	97	2.06	103	6	31	42-130
DIELDRIN	2.00	<0.02	1.98	99	2.06	103	4	18	61-124
ENDRIN	2.00	<0.02	1.98	99	2.10	105	6	30	50-125
DDT	2.00	<0.02	2.36	118	2.58	129	9	32	25-138
Surrogates:									
DCB				104		113			17-135
TCMX				85		92			43-101

Comments:

Notes:
N/S = NOT SUBMITTED N/A = NOT APPLICABLE D = DILUTED OUT
UG/L = PARTS PER BILLION. < = LESS THAN REPORTING LIMIT.
* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS.
SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

Common notation for Organic reporting

N/S = NOT SUBMITTED
N/A = NOT APPLICABLE
D = DILUTED OUT
UG/L = PARTS PER BILLION.
UG/KG = PARTS PER BILLION.
MG/KG = PARTS PER MILLION.
MG/L = PARTS PER MILLION.
< = LESS THAN.
* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS.
ND = NOT DETECTED ABOVE REPORTING LIMIT.
Rpt Lmts = REPORTING LIMITS BASED ON METHOD DETECTION LIMIT STUDIES.
RPD = RELATIVE PERCENT DIFFERENCE (OR DEVIATION)

SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

ORGANIC SOILS ARE REPORTED ON A DRY WEIGHT BASIS.

AEN-PN USES THE MOST CURRENT PROMULGATED METHODS CONTAINED IN THE REFERENCE MANUALS.

RP = ROBERT PEREZ
LP = LEVERNE PETERSON
RW = ROBERT WOLFE

SEVERN TRENT LABORATORIES 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Quality Control Report

Analysis: POLYNUCLEAR AROMATICS BY 8310

Accession:	806388
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806423
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	SEMI-VOLATILE FUELS

SEVERN TRENT LABORATORIES 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"QC Report"

Title: Water Blank
Batch: PAW150
Analysis Method: 8310/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.

Blank Id: A Date Analyzed: 02-JUL-98 Date Extracted: 30-JUN-98

Parameters:	Units:	Results:	Reporting Limits:
ACENAPHTHENE	UG/L	ND	1
ACENAPHTHYLENE	UG/L	ND	1
ANTHRACENE	UG/L	ND	1
BENZO(a)ANTHRACENE	UG/L	ND	1
BENZO(a)PYRENE	UG/L	ND	0.1
BENZO(b)FLUORANTHENE	UG/L	ND	1
BENZO(g,h,i)PERYLENE	UG/L	ND	1
BENZO(k)FLUORANTHENE	UG/L	ND	1
CHRYSENE	UG/L	ND	1
DIBENZO(a,h)ANTHRACENE	UG/L	ND	1
FLUORANTHENE	UG/L	ND	1
FLUORENE	UG/L	ND	1
INDENO(1,2,3-cd)PYRENE	UG/L	ND	1
NAPHTHALENE	UG/L	ND	1
PHENANTHRENE	UG/L	ND	1
PYRENE	UG/L	ND	1
1-METHYLNAPHTHALENE	UG/L	ND	0.3
2-METHYLNAPHTHALENE	UG/L	ND	1
2-CHLOROANTHRACENE	%REC/SURR	77	28-138
ANALYST	INITIALS	HAH	

Comments:

"QC Report"

Title: Water LCS
Batch: PAW150
Analysis Method: 8310/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.

RS Date Analyzed: 06-JUL-98 RS Date Extracted: 30-JUN-98

Parameters:	Spike Added	Sample Conc	RS Conc	RS %Rec	Rec Lmts
ACENAPHTHYLENE	7.1	<1	5.7	80	45-127
BENZO(k)FLUORANTHENE	9.2	<1	8.1	88	68-131
CHRYSENE	9.1	<1	8.2	90	69-131
PHENANTHRENE	9.1	<1	8.3	91	63-124
PYRENE	8.8	<1	7.8	89	61-126
Surrogates:					
2-CHLOROANTHRACENE				83	28-138

Comments:

Notes:
N/S = NOT SUBMITTED N/A = NOT APPLICABLE D = DILUTED OUT
UG/L = PARTS PER BILLION. < = LESS THAN REPORTING LIMIT.
* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS.
SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

"QC Report"

Title: Water Matrix Spike/Matrix Spike Duplicate
Batch: PAW150
Analysis Method: 8310/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.

Dry Weight %: N/A
Sample Spiked: 806401-1

MS Date Analyzed: 03-JUL-98
MSD Date Analyzed: 03-JUL-98

MS Date Extracted: 30-JUN-98
MSD Date Extracted: 30-JUN-98

Parameters:	Spike Added	Sample Conc	MS Conc	MS %Rec	MSD Conc	MSD %Rec	RPD	RPD Lmts	Rec Lmts
ACENAPHTHYLENE	7.1	<1	4.7	66	4.9	69	4	51	18-146
BENZO(k)FLUORANTHENE	9.2	<1	7.4	80	8.0	87	8	40	26-137
CHRYSENE	9.1	<1	7.3	80	7.9	87	8	69	16-156
PHENANTHRENE	9.1	<1	7.3	80	7.7	85	6	36	30-145
PYRENE	8.8	<1	7.4	84	7.6	86	2	41	39-137
Surrogates:									
2-CHLOROANTHRACENE				74		78			28-138

Comments:

Notes:
N/S = NOT SUBMITTED N/A = NOT APPLICABLE D = DILUTED OUT
UG/L = PARTS PER BILLION. < = LESS THAN REPORTING LIMIT.
* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS.
SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

Common Notation for Organic Reporting

N/S = NOT SUBMITTED
N/A = NOT APPLICABLE
UG = MICROGRAMS
UG/L = PARTS PER BILLION
UG/KG = PARTS PER BILLION
MG/M3 = MILLIGRAM PER CUBIC METER
PPMV = PART PER MILLION BY VOLUME
MG/KG = PARTS PER MILLION
MG/L = PARTS PER MILLION
< = LESS THAN
ND = NOT DETECTED

SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

ORGANIC SOILS ARE REPORTED ON A DRYWEIGHT BASIS.

RPT LMTS = REPORTING LIMITS BASED ON METHOD DETECTION LIMIT STUDIES.

RPD = RELATIVE PERCENT DIFFERENCE (OR DEVIATION)

AEN/GC/FID
AEN GAS CHROMATOGRAPHIC METHOD EMPLOYING DIRECT INJECTION ON COLUMN WITH FLAME IONIZATION DETECTOR (FID).

AEN/GC/FIX
AEN GAS CHROMATOGRAPHIC METHOD FOR ANALYSIS OF FIXED GASES EMPLOYING DIRECT INJECTION ON COLUMN WITH THERMAL CONDUCTIVITY DETECTOR (TCD) AND FLAME IONIZATION DETECTOR (FID).

AEN/GC/FPD
AEN GAS CHROMATOGRAPHIC METHOD EMPLOYING DIRECT INJECTION ON COLUMN WITH FLAME PHOTOMETRIC DETECTOR (FPD) IN SULFUR-SPECIFIC MODE.

AEN/GC/PID
AEN GAS CHROMATOGRAPHIC METHOD EMPLOYING DIRECT INJECTION ON COLUMN WITH PHOTOIONIZATION DETECTOR (PID).

AEN/GC/TCD
AEN GAS CHROMATOGRAPHIC METHOD EMPLOYING DIRECT INJECTION ON COLUMN WITH THERMAL CONDUCTIVITY DETECTOR (TCD).

SW-846 METHOD 9020
PARTICULATE MATTER IS REMOVED BY ALLOWING PARTICULATES TO SETTLE IN THE SAMPLE CONTAINER AND DECANTING THE SUPERNATANT LIQUID. EXCESSIVE PARTICULATES ARE REMOVED BY FILTRATION OF THE SUPERNATANT LIQUID.

RSK 175
SAMPLE PREPARATION AND CALCULATIONS FOR DISSOLVED GAS ANALYSIS IN WATER SAMPLES USING A GC HEADSPACE EQUILIBRATION TECHNIQUE, RSK SOP-175, ROBERT S. KERR ENVIRONMENTAL RESEARCH LABORATORY, USEPA, AUGUST 11, 1994.

AEN-PN USES THE MOST CURRENT PROMULGATED METHODS CONTAINED IN THE REFERENCE MANUALS.

SW = STEVE WILHITE
RW = ROBERT WOLFE
KS = KENDALL SMITH
LB = LISA BIZZELL
LP = LEVERNE PETERSON
PLD = PAULA DOUGHTY
DK = DARLENE KINCHEN
BT = BECKY TREMMEL
HAH = HOLLIE HOFFMAN

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Quality Control Report

Analysis: ACID & BASE EXTRACTABLES (8270)

Accession:	806388
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806423
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	ORGANIC/MS

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"QC Report"

Title: Water Blank
Batch: ALW080
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.

Blank Id: A Date Analyzed: 04-JUL-98 Date Extracted: 28-JUN-98

Parameters:	Units:	Results:	Reporting Limits:
BENZOIC ACID	UG/L	ND	1.7
4-CHLORO-3-METHYLPHENOL	UG/L	ND	0.4
2-CHLOROPHENOL	UG/L	ND	0.5
2,4-DICHLOROPHENOL	UG/L	ND	3.9
2,6-DICHLOROPHENOL	UG/L	ND	0.1
2,4-DIMETHYLPHENOL	UG/L	ND	0.5
4,6-DINITRO-2-METHYLPHENOL	UG/L	ND	1.6
2,4-DINITROPHENOL	UG/L	ND	3.3
2-METHYLPHENOL	UG/L	ND	0.3
4-METHYLPHENOL	UG/L	ND	0.5
2-NITROPHENOL	UG/L	ND	0.4
4-NITROPHENOL	UG/L	ND	0.7
PENTACHLOROPHENOL	UG/L	ND	0.7
PHENOL	UG/L	ND	0.5
2,3,4,6-TETRACHLOROPHENOL	UG/L	ND	0.6
2,4,5-TRICHLOROPHENOL	UG/L	ND	3.0
2,4,6-TRICHLOROPHENOL	UG/L	ND	0.3
ACENAPHTHENE	UG/L	ND	0.4
ACENAPHTHYLENE	UG/L	ND	0.4
ACETOPHENONE	UG/L	ND	0.4
4-AMINOBIPHENYL	UG/L	ND	0.7
ANILINE	UG/L	ND	0.5
ANTHRACENE	UG/L	ND	0.4
BENZIDINE	UG/L	ND	2.7
BENZO (A) ANTHRACENE	UG/L	ND	0.5
BENZO (A) PYRENE	UG/L	ND	0.2
BENZO (B) FLUORANTHENE	UG/L	ND	0.5
BENZO (G,H,I) PERYLENE	UG/L	ND	0.3
BENZO (K) FLUORANTHENE	UG/L	ND	0.7
BENZYL ALCOHOL	UG/L	ND	0.5
BIS(2-CHLOROETHOXY)METHANE	UG/L	ND	0.4
BIS(2-CHLOROETHYL)ETHER	UG/L	ND	0.5
BIS(2-CHLOROISOPROPYL)ETHER	UG/L	ND	1.9
BIS(2-ETHYLHEXYL)PHTHALATE	UG/L	ND	0.6
4-BROMOPHENYL PHENYL ETHER	UG/L	ND	0.4
BUTYLBENZYL PHTHALATE	UG/L	ND	0.5
4-CHLOROANILINE	UG/L	ND	0.4
1-CHLORONAPHTHALENE	UG/L	ND	0.6
2-CHLORONAPHTHALENE	UG/L	ND	0.4
4-CHLOROPHENYL PHENYL ETHER	UG/L	ND	0.5
CHRYSENE	UG/L	ND	0.7
DIBENZ(A,J)ACRIDINE	UG/L	ND	0.5
DIBENZO (A,H) ANTHRACENE	UG/L	ND	0.3
DIBENZOFURAN	UG/L	ND	0.4
1,2-DICHLOROBENZENE	UG/L	ND	0.3
1,3-DICHLOROBENZENE	UG/L	ND	0.3

"QC Report"

Title: Water Blank
Batch: ALW080
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.

Parameters:	Units:	Results:	Reporting Limits:
1,4-DICHLOROBENZENE	UG/L	ND	0.5
3,3'-DICHLOROBENZIDINE	UG/L	ND	0.4
DIETHYLPHTHALATE	UG/L	ND	0.4
P-DIMETHYLAMINOAZOBENZENE	UG/L	ND	0.4
7,12-DIMETHYLBENZ(A)ANTHRACENE	UG/L	ND	1.8
A-,A-DIMETHYLPHENETHYLAMINE	UG/L	ND	0.1
DIMETHYLPHTHALATE	UG/L	ND	0.4
DI-N-BUTYLPHTHALATE	UG/L	ND	0.4
2,4-DINITROTOLUENE	UG/L	ND	0.5
2,6-DINITROTOLUENE	UG/L	ND	0.5
DI-N-OCTYLPHTHALATE	UG/L	ND	0.7
DIPHENYLAMINE	UG/L	ND	0.5
1,2-DIPHENYLHYDRAZINE	UG/L	ND	0.3
FLUORANTHENE	UG/L	ND	0.5
FLUORENE	UG/L	ND	0.6
HEXACHLOROBENZENE	UG/L	ND	0.5
HEXACHLOROBUTADIENE	UG/L	ND	0.5
HEXACHLOROCYCLOPENTADIENE	UG/L	ND	0.6
HEXACHLOROETHANE	UG/L	ND	0.6
INDENO (1,2,3-CD) PYRENE	UG/L	ND	0.5
ISOPHORONE	UG/L	ND	0.4
3-METHYLCHOLANTHRENE	UG/L	ND	0.4
2-METHYLNAPHTHALENE	UG/L	ND	0.5
NAPHTHALENE	UG/L	ND	0.4
1-NAPHTHYLAMINE	UG/L	ND	1.5
2-NAPHTHYLAMINE	UG/L	ND	1.0
2-NITROANILINE	UG/L	ND	0.4
3-NITROANILINE	UG/L	ND	0.9
4-NITROANILINE	UG/L	ND	0.8
NITROBENZENE	UG/L	ND	0.5
N-NITROSODIMETHYLAMINE	UG/L	ND	1.2
N-NITROSODI-N-BUTYLAMINE	UG/L	ND	1.1
N-NITROSODIETHYLAMINE	UG/L*	ND	10
N-NITROSODIPHENYLAMINE	UG/L	ND	0.4
N-NITROSO-DI-N-PROPYLAMINE	UG/L	ND	0.4
N-NITROSOPIPERIDINE	UG/L	ND	0.8
N-NITROSOPYRROLIDINE	UG/L*	ND	10
PENTACHLOROBENZENE	UG/L	ND	0.4
PENTACHLORONITROBENZENE (PCNB)	UG/L	ND	5.0
PHENACETIN	UG/L	ND	0.4
PHENANTHRENE	UG/L	ND	0.4
2-PICOLINE	UG/L	ND	7.7
PRONAMIDE	UG/L	ND	0.4
PYRENE	UG/L	ND	0.5
1,2,4,5-TETRACHLOROBENZENE	UG/L	ND	0.4
1,2,4 TRICHLOROBENZENE	UG/L	ND	0.6
2-FLUOROPHENOL	%REC/SURR	99	21-100

"QC Report"

Title: Water Blank
Batch: ALW080
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.

Parameters:	Units:	Results:	Reporting Limits:
PHENOL-D6	%REC/SURR	90	10-100
2,4,6-TRIBROMOPHENOL	%REC/SURR	94	10-123
2-FLUOROBIPHENYL	%REC/SURR	84	43-116
NITROBENZENE-D5	%REC/SURR	89	35-114
TERPHENYL-D14	%REC/SURR	104	33-124
ANALYST	INITIALS	RW	

Comments:

"QC Report"

Title: Water LCS
Batch: ALW080
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.

RS Date Analyzed: 05-JUL-98 RS Date Extracted: 28-JUN-98

Parameters:	Spike Added	Sample Conc	RS Conc	RS %Rec	Rec Lmts
PHENOL	150	<0.5	146	97	5-112
2-CHLOROPHENOL	150	<0.5	146	97	40-120
1,4-DICHLOROBENZENE	100	<0.5	92	92	32-119
N-NITRO-DI-N-PROPYLAMINE	100	<0.4	100	100	26-128
1,2,4 TRICHLOROBENZENE	100	<0.6	80	80	44-142
4-CHLORO-3-METHYLPHENOL	150	<0.5	156	104	30-128
ACENAPHTHENE	100	<0.4	98	98	47-145
4-NITROPHENOL	150	<0.7	134	89	1-132
2,4-DINITROTOLUENE	100	<0.5	100	100	39-138
PENTACHLOROPHENOL	150	<0.7	144	96	15-157
PYRENE	100	<0.5	112	112	52-115
Surrogates:					
NITROBENZENE-D5				77	35-114
2-FLUOROBIPHENYL				75	43-116
TERPHENYL-D14				90	33-124
PHENOL-D6				81	10-100
2-FLUOROPHENOL				84	21-100
2,4,6-TRIBROMOPHENOL				106	10-123

Comments:

Notes:
N/S = NOT SUBMITTED N/A = NOT APPLICABLE D = DILUTED OUT
UG/L = PARTS PER BILLION. < = LESS THAN REPORTING LIMIT.
* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS.
SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

"QC Report"

Title: Water Matrix Spike/Matrix Spike Duplicate
Batch: ALW080
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.

Dry Weight %: N/A
Sample Spiked: 806388-3

MS Date Analyzed: 05-JUL-98
MSD Date Analyzed: 05-JUL-98

MS Date Extracted: 28-JUN-98
MSD Date Extracted: 28-JUN-98

Parameters:	Spike Added	Sample Conc	MS Conc	MS %Rec	MSD Conc	MSD %Rec	RPD	RPD Lmts	Rec Lmts
PHENOL	300	<0.5	372	124*	336	112	10	38	5-112
2-CHLOROPHENOL	300	<0.5	368	123*	336	112	9	25	38-120
1,4-DICHLOROBENZENE	200	<0.5	196	98	204	102	4	27	39-112
N-NITRO-DI-N-PROPYLAMINE	200	<0.4	212	106	252	126*	17	30	32-125
1,2,4 TRICHLOROBENZENE	200	<0.6	196	98	212	106	8	30	44-118
4-CHLORO-3-METHYLPHENOL	300	<0.5	420	140*	408	136*	3	23	42-131
ACENAPHTHENE	200	<0.4	208	104	256	128	21	21	47-131
4-NITROPHENOL	300	<0.7	412	137*	380	127*	8	36	1-116
2,4-DINITROTOLUENE	200	<0.5	228	114	276	138	19	22	39-138
PENTACHLOROPHENOL	300	<0.7	456	152	444	148	3	36	14-164
PYRENE	200	<0.5	240	120*	288	144*	18	21	52-115
Surrogates:									
NITROBENZENE-D5				86		99			35-114
2-FLUOROBIPHENYL				83		92			43-116
TERPHENYL-D14				95		106			33-124
PHENOL-D6				97		87			10-100
2-FLUOROPHENOL				98		85			21-100
2,4,6-TRIBROMOPHENOL				122		123			10-123

Comments:
* MATRIX SPIKE/MATRIX SPIKE DUPLICATE HAD RECOVERY(S), RPD'S AND/OR SURROGATE(S) OUTSIDE ACCEPTANCE LIMITS DUE TO MATRIX INTERFERENCE. SEE LCS DATA.

Notes:
N/S = NOT SUBMITTED N/A = NOT APPLICABLE D = DILUTED OUT
UG/L = PARTS PER BILLION. < = LESS THAN REPORTING LIMIT.
* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS.
SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

Common notation for Organic reporting

N/S = NOT SUBMITTED
N/A = NOT APPLICABLE
UG/L = PARTS PER BILLION.
UG/KG = PARTS PER BILLION.
MG/KG = PARTS PER MILLION.
MG/L = PARTS PER MILLION.
MG/M3 = MILLIGRAMS PER CUBIC METER.
NG = NANOGRAMS.
UG = MICROGRAMS.
PPBV = PARTS PER BILLION/VOLUME.
< = LESS THAN.
ND = NOT DETECTED ABOVE REPORT LIMIT.
RPT LMTS = REPORTING LIMITS BASED ON METHOD DETECTION LIMIT STUDIES.
RPD = RELATIVE PERCENT DIFFERENCE (OR DEVIATION)

SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

ORGANIC SOILS ARE REPORTED ON A DRY WEIGHT BASIS.

DUE TO THE NATURE OF THE SAMPLE MATRIX, MATRIX SPIKE/MATRIX SPIKE DUPLICATE ANALYSIS CANNOT BE PERFORMED FOR AIR ANALYSIS.

CLP SOW 1991, USEPA CONTRACT LABORATORY PROGRAM, STATEMENT OF WORK FOR ORGANICS ANALYSIS, DOCUMENT NUMBER OLM01.8, AUGUST 1991.

AEN-PN USES THE MOST CURRENT PROMULGATED METHODS CONTAINED IN THE REFERENCE MANUALS.

LP = LEVERNE PETERSON	RW = RITA WINGO
LD = LARRY DILMORE	BDH = BRUCE D. HUNT
DWB = DAVID BOWERS	HB = HEATHER E. BLAIR

American Environmental Network of Florida
PROJECT SAMPLE INSPECTION FORM

Lab Accession #: 806388 Date Received: 26-Jun-98

1.	Was there a Chain of Custody?	(Yes)	No♣	
2.	Was Chain of Custody properly filled out and relinquished?	(Yes)	No♣	
3.	Were samples received cold? (Criteria: 2° - 6°C: AEN-SOP 1055)	(Yes)	No♣	N/A
4.	Were all samples properly labeled and identified?	(Yes)	No♣	
5.	Did samples require splitting? Req By: PM Client Other♦	Yes♣	(No)	
6.	Were samples received in proper containers for analysis requested?	(Yes)	No♣	
7.	Were all sample containers received intact?	(Yes)	No♣	
8.	Were samples checked for preservative? *(Check pH of all H_2O requiring preservative (AEN-PN SOP 917) except VOA vials that require zero headspace)*+	(Yes)	No♣	N/A
9.	Is there sufficient volume for analysis requested?	(Yes)	No♣	
10.	Were samples received within Holding Time? (REFER TO AEN-SOP 1040)	(Yes)	No♣	
11.	Is Headspace visible > ¼" in diameter in VOA vials?* If any headspace is evident, comment in out-of-control	Yes♣	No	(N/A)
12.	If sent, were matrix spike bottles returned?	Yes	No♣	(N/A)
13.	Was Project Manager notified of problems? (initials:_____)	Yes	No♣	(N/A)

Airbill Number(s): See attached **Shipped By:** FEDEX

Cooler Number(s): 215L, 8254, 233m, 172L **Shipping Charges:** N/A

Cooler Weight(s): N/A **Cooler Temp(s) (°C):** 215L=4.0°C-CCK8, 8254=4.0°C-CCK8, 233m=4.0°C-CCK5, 172L=3.0°C-CCK4
(LIST THERMOMETER NUMBER(S) FOR VERIFICATION)

Out of Control Events and Inspection Comments:

(USE BACK OF PSIFFOR ADDITIONAL NOTES AND COMMENTS) ☞

Inspected By: PJE **Date:** 6/26/98 **Logged By:** PJE **Date:** 6/26/98

♣ *Note all Out-of-Control and/or questionable events on Comment Section of this form.*

♦ *Note who requested the splitting of samples on the Comment Section of this form.*

\+ *All preservatives for the State of North Carolina, the State of New York, and other requested samples are to be recorded on the sheet provided to record pH results (AEN-SOP 938, section 2.2.9).*

* *According to EPA, ¼" of headspace is allowed in 40 ml vials requiring volatile analysis, however, AEN makes it policy to record any headspace as out-of-control (AEN-SOP 938, section 2.2.12).*

American Environmental Network (NM), Inc.

CHAIN OF CUSTODY

DATE: 6/25/98 PAGE: ___ OF ___

AEN(NM) Accession #: 806388

SHADED AREAS ARE FOR LAB USE ONLY.

PLEASE FILL THIS FORM IN COMPLETELY.

PROJECT MANAGER:	Paul Peacock
COMPANY:	Marathon Oil Company
ADDRESS:	P.O. Box 552
	Midland, TX 79702-0552
PHONE:	(915) 687-8312
FAX:	(915) 687-8305
BILL TO:	same as above
COMPANY:	
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)	8021 (BTEX) ☐ MTBE ☐ TMB ☐ PCE	8021 (TCL)	8021 (EDX)	8021 (HALO)	8021 (CUST)	504.1 EDB ☐ / DBCP ☐	XCYANIDE AMMONIA TCN	8260 (TCL) Volatile Organics	8260 (Full) Volatile Organics	8260 (CUST) Volatile Organics	8260 (Landfill) Volatile Organics	Pesticides /PCB (608/8081)	Herbicides (615/8151)	Base/Neutral/Acid Compounds GC/MS (625/8270)	Polynuclear Aromatics (610/8310)	General Chemistry:	TOTAL PHENOL	SEE LIST *	Priority Pollutant Metals (13)	Target Analyte List Metals (23)	RCRA Metals (8)	RCRA Metals by TCLP (Method 1311)	Metals: SEE LIST	NUMBER OF CONTAINERS
MW-54	6/25/98	1000	Water	1										X	X					X		X	X		X	X				X	8
MW-54D		1000		2										X	X					X		X	X		X	X				X	8
MW-55LC		1230		3										X	X					X		X	X		X	X				X	8
MW-55		1230		4										X	X					X		X	X		X	X				X	8
MW-63		1445		5										X	X					X		X	X		X	X				X	8

PROJECT INFORMATION

PROJ. NO.: 104332.03

PROJ. NAME: IBRP

P.O. NO.:

SHIPPED VIA:

SAMPLE RECEIPT

NO. CONTAINERS	
CUSTODY SEALS	Y/N/NA
RECEIVED INTACT	
BLUE ICE/ICE	

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

(RUSH) ☐ 24hr ☐ 48hr ☐ 72hr ☐ 1 WEEK (NORMAL) ☒

CERTIFICATION REQUIRED: ☐ NM ☐ SDWA ☐ OTHER

METHANOL PRESERVATION ☐

COMMENTS: FIXED FEE ☐

* SEE LIST QC

MW-55LC is Lab Control Sample

RELINQUISHED BY: 1.

Signature: Time: 1500

Printed Name: Kevin Cook Date: 6/25

Company: FOGLER

RECEIVED BY: 1.

Signature: Time: 1500

Printed Name: CHRIS FAITH Date: 6/25

Company: AEN

RELINQUISHED BY: 2.

Signature: Time: 1530

Printed Name: CHRIS FAITH Date: 6/25

Company: AEN

RECEIVED BY: (LAB) 2

Signature: Time: 0812

Printed Name: R. BLEIER-MAN Date: 6/26/98

American Environmental Network (NM), Inc.

American Environmental Network (NM), Inc.

CHAIN OF CUSTODY

DATE 6/24-25/98 PAGE: ___ OF ___

AEN(NM) Accession #: NM - 8064-3

SHADED AREAS ARE FOR LAB USE ONLY.

PLEASE FILL THIS FORM IN COMPLETELY.

PROJECT MANAGER: Paul Peacock

COMPANY: Marathon Oil Company
ADDRESS: P.O. Box 552
Midland, TX 79702-0552
PHONE: (915) 687-8312
FAX: (915) 687-8305

BILL TO: same as above
COMPANY:
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)	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)	Herbicides (615/8151)	Base/Neutral/Acid Compounds GC/MS (625/8270)	Polynuclear Aromatics (610/8310)	General Chemistry:				Priority Pollutant Metals (13)	Target Analyte List Metals (23)	RCRA Metals (8)	RCRA Metals by TCLP (Method 1311)	Metals:		NUMBER OF CONTAINERS
MW-108RB	6/24/98	1510	Water	01								KC	X	X	KC		X															2
MW-55RB	↓	1600		02																												2
MW-54	6/25/98	1000		03									X	X			X															6
MW-54 DUP		1000		04									X	X			X															6
MW-55		1230		05									X	X			X															6
MW-55LC		1230		06									X	X			X															6
MW-54RB		1300		07								VC	X				X															2
MW-63		1445	↓	08									X	X			X															6
MW-63RB	↓	1545	✓	09													X															2
Trip Blank	6/15	AM10	AQ	10													X															1

PROJECT INFORMATION

PROJ. NO.: 104332.03
PROJ. NAME: IBRP
P.O. NO.:
SHIPPED VIA:

SAMPLE RECEIPT

NO. CONTAINERS:	39
CUSTODY SEALS:	Y / N / NA
RECEIVED INTACT	yes
BLUE ICE/ICE	5.3°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 ☐

MW-55LC is Lab QC copied sample

RELINQUISHED BY: 1.

Signature: Kevin Cook Time: 1500
Printed Name: Kevin Cook Date: 6/25
Company: FOCTI

RECEIVED BY: 1.

Signature: Time: 1500
Printed Name: CHRIS FAITH Date: 6/25
Company: AEN

RELINQUISHED BY: 2.

Signature: Time: 1530
Printed Name: CHRIS FAITH Date: 6/25
Company: AEN

RECEIVED BY: (LAB) 2.

Signature: Francine Torvio Time: 11:45
Printed Name: Francine Torvio Date: 6/27/98
American Environmental Network (NM), Inc.

AEN I.D. 806423

July 30, 1998

MARATHON OIL COMPANY
P.O. BOX 552
MIDLAND, TX 79702-0552

Project Name IBRP
Project Number 104332.03

Attention: PAUL PEACOCK

On 6/27/98 American Environmental Network (NM), Inc. (ADHS License No. AZ0015), 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.

This report is being reissued in part to include the radiochemistry results. This report was originally dated 7/28/98. Radiochemistry was performed by STL, Morrisville, NC.

EPA methods 504.1, 8021 and 8260 were performed by American Environmental Network (NM) Inc., Albuquerque, NM.

Uranium was performed by North Creek Analytical, Portland, OR.

All other parameters were performed by STL, Pensacola, FL.

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	: MARATHON OIL COMPANY	AEN I.D.	: 806423
PROJECT #	: 104332.03	DATE RECEIVED	: 6/27/98
PROJECT NAME	: IBRP	REPORT DATE	: 7/28/98

AEN ID. #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	MW-108RB	AQUEOUS	6/24/98
02	MW-55RB	AQUEOUS	6/24/98
03	MW-54	AQUEOUS	6/25/98
04	MW-54DP	AQUEOUS	6/25/98
05	MW-55	AQUEOUS	6/25/98
06	MW-55LC	AQUEOUS	6/25/98
07	MW-54RB	AQUEOUS	6/25/98
08	MW-63	AQUEOUS	6/25/98
09	MW-63RB	AQUEOUS	6/25/98
10	TRIP BLANK	AQUEOUS	6/11/98

Committed To *Your* Success

July 29, 1998

Severn Trent Laboratories
120 Southcenter Court, Suite 300
Morrisville NC 27560

Tel: (919) 460-8505
Fax: (919) 469-2646

American Environmental Network
Attn: Dr. Mitch Rubenstein
2709D PanAmerican Freeway NE
Albuquerque, NM 87107

Dear Dr. Rubenstein:

Please find enclosed the radiological results of three (3) water samples. This report contains sections addressing the following information at a minimum:

- case narrative
- sample summary
- analytical results (forms I thru VII), key, and COC's if applicable

STL Project #:	2399 020
STL Work Order #:	98-06-501
Client Project ID:	104335.03

Copies of this radiological report and supporting data are maintained in our files for a minimum of three years unless special arrangements have been made. Except where specifically indicated, all radiological testing was performed at this laboratory location and no portion of the testing was subcontracted.

We appreciate your selection of our services and welcome any questions or suggestions you may have relative to this report. Please contact your customer service representative at (919) 460-8505 for any additional information. Thank you for utilizing our services. We hope you will consider us for your future analytical needs.

I have reviewed and approved the enclosed data for final release.

Sincerely,

Ross W. Williams

Ross W. Williams, Ph.D.
Manager, Radiological Laboratory
STL-North Carolina

RWW/mevl

STL
Committed To Your Success

CASE NARRATIVE
Client: American Environmental Network - NM
Client Project ID: 104332.03
STL-NC Order Number: 98-06-501
STL-NC Project Number: 2399-020

Three (3) water samples were received on June 29, 1998, in good condition with the chain-of-custody intact.

The samples were analyzed for Ra-226 and Ra-228.

A method blank was analyzed with each batch, and the activities of the blanks were equal to or less than the acceptance criteria of less than three times the MDL.

A blank spike sample was analyzed with each batch, and the recoveries were within the 80-120% acceptance criteria.

A matrix spike analysis was made with each batch also. The matrix spike recoveries were within the acceptance criteria of 80-120% for water samples.

A duplicate sample was analyzed for each batch. The duplicate analyses were within our acceptance criteria of a Duplicate Error Ratio (DER) of less than 1.5. The DER is defined as follows:

$$DER = \frac{|S-D|}{(2\sigma_s + 2\sigma_d)}$$

Where: S = Original Sample Value
D = Duplicate Value
$2\sigma_s$ = Original Sample Uncertainty
$2\sigma_d$ = Duplicate Sample Uncertainty

Ross W. Williams

Ross W. Williams, Ph.D.
Manager, Radiological Laboratory
7/29/98



Environmental Survey

Cover Page

Radiological Data Analysis Package

07/28/98

120 Southcenter Ct., Suite 300
Morrisville, NC 27560

Phone (919) 460-8505
Fax (919) 469-2646

NC - 806423

Project Number:	2399-020

Client Sample ID	Lab ID
MW-54	9806501-01
MW-55	9806501-02
MW-63	9806501-03

Comments: _____

Release of the data contained in this package has been authorized by the laboratory manager or the manager's designee, as verified by the following signature.

Ross W. Williams
Manager, Radiological Laboratory

7/29/98
Date

Form I

Client Sample ID	Lab ID	Sample Type	Batch Number	Matrix	Radionuclide	Result	Uncertainty	Q	Units	Analysis Date	Sample Size	MDA
MW-54	9806501-01	Reg	98070007	Water	Ra-226	10.45	0.49		pCi/L	07/27/98	0.5000	0.08
MW-54	9806501-01	Reg	98070009	Water	Ra-228	6.60	1.12		pCi/L	07/15/98	1.0000	1.69
MW-55	9806501-02	Reg	98070007	Water	Ra-226	6.74	0.62		pCi/L	07/27/98	0.5000	0.23
MW-55	9806501-02	Reg	98070009	Water	Ra-228	3.21	0.92		pCi/L	07/15/98	1.0000	1.67
MW-63	9806501-03	Reg	98070007	Water	Ra-226	0.40	0.13		pCi/L	07/27/98	0.5000	0.11
MW-63	9806501-03	Reg	98070009	Water	Ra-228	1.28	0.80		pCi/L	07/15/98	1.0000	1.70

Key shall be attached

Comments:

MDA mode

Project Number: 2399-020

QA/QC Results Summary

NC - 806423

07/28/98

Form II

Client Sample ID	Lab ID	Sample Type	Batch Number	Matrix	Radionuclide	Result	Uncertainty	Units	Analysis Date	Sample Size	MDA	Inst ID
Blank Spike	N/A	BS	98070007	Water	Ra-226	136.19	1.49	pCi/L	07/20/98	0.5000	0.08	5
Blank Spike	N/A	BS	98070009	Water	Ra-228	93.02	3.84	pCi/L	07/10/98	1.0000	2.07	1
MW-54	9806501-01	Dup	98070007	Water	Ra-226	8.89	0.56	pCi/L	07/24/98	0.5000	0.13	5
MW-54	9806501-01	Dup	98070009	Water	Ra-228	7.29	1.19	pCi/L	07/15/98	1.0000	1.88	1
Method Blank	N/A	MB	98070007	Water	Ra-226	0.06	0.07	pCi/L	07/20/98	0.5000	0.09	5
Method Blank	N/A	MB	98070009	Water	Ra-228	-0.90	1.09	pCi/L	07/10/98	1.0000	2.76	1
MW-55	9806501-02	MS	98070007	Water	Ra-226	124.17	2.15	pCi/L	07/24/98	0.5000	0.17	5
MW-55	9806501-02	MS	98070009	Water	Ra-228	106.93	3.72	pCi/L	07/15/98	1.0000	1.76	1

Key shall be attached
Comments: _____

MDA mode

Method Blank Summary

NC - 806423

07/28/98

Form III

Client Sample ID	Batch Number	Matrix	Radionuclide	Result	Uncertainty	Q	Units	Analysis Date	Sample Size	Method Number	Inst ID
Method Blank	98070007	Water	Ra-226	0.06	0.07		pCi/L	07/20/98	0.5000	RAS01900	5
Method Blank	98070009	Water	Ra-228	-0.90	1.09		pCi/L	07/10/98	1.0000	RAS08500	1

Key shall be attached

Comments:

Project Number: 2399-020

Chemical Recovery

NC - 806423

07/28/98

Form IV

Client Sample ID	Lab ID	Sample Type	Batch Number	Radionuclide	Chemical Tracer	Tracer Result	Tracer Added	Percent Recovery	Q	Tracer Units	Analysis Date	Inst ID
MW-54	9806501-01	Reg	98070007	Ra-226	Ba-133	1128.00	1240.00	90.97 %		pCi	07/27/98	5
MW-54	9806501-01	Reg	98070009	Ra-228	Ba-133	1136.00	1309.00	86.78 %		pCi	07/15/98	1
MW-55	9806501-02	Reg	98070007	Ra-226	Ba-133	1079.00	1258.00	85.77 %		pCi	07/27/98	5
MW-55	9806501-02	Reg	98070009	Ra-228	Ba-133	1067.00	1260.00	84.68 %		pCi	07/15/98	1
MW-63	9806501-03	Reg	98070007	Ra-226	Ba-133	1141.00	1258.00	90.70 %		pCi	07/27/98	5
MW-63	9806501-03	Reg	98070009	Ra-228	Ba-133	1171.00	1309.00	89.46 %		pCi	07/15/98	1
Blank Spike	N/A	BS	98070007	Ra-226	Ba-133	1234.00	1260.00	97.94 %		pCi	07/20/98	5
Blank Spike	N/A	BS	98070009	Ra-228	Ba-133	1020.00	1260.00	80.95 %		pCi	07/10/98	1
MW-54	9806501-01	Dup	98070007	Ra-226	Ba-133	994.00	1258.00	79.01 %		pCi	07/24/98	5
MW-54	9806501-01	Dup	98070009	Ra-228	Ba-133	1188.00	1309.00	90.76 %		pCi	07/15/98	1
Method Blank	N/A	MB	98070007	Ra-226	Ba-133	1244.00	1260.00	98.73 %		pCi	07/20/98	5
Method Blank	N/A	MB	98070009	Ra-228	Ba-133	1083.00	1309.00	82.73 %		pCi	07/10/98	1
MW-55	9806501-02	MS	98070007	Ra-226	Ba-133	1172.00	1258.00	93.16 %		pCi	07/24/98	5
MW-55	9806501-02	MS	98070009	Ra-228	Ba-133	1030.00	1260.00	81.75 %		pCi	07/15/98	1

Key shall be attached
Comments: _____

MDA mode

STL

Project Number: 2399-020

Blank Spike Results Summary

NC - 806423

07/28/98

Form V

Client Sample ID	Batch Number	Matrix	Radionuclide	Spike	Result	Spike Value	Percent Recovery	Q	Units	Analysis Date	Method Number
Blank Spike	98070007	Water	Ra-226	Ra-226	136.19	145.40	93.67%		pCi/L	07/20/98	RAS01900
Blank Spike	98070009	Water	Ra-228	Ra-228	93.02	87.75	106.01%		pCi/L	07/10/98	RAS08500

Key shall be attached

Comments: _____

_____

_____

Project Number: 2399-020

Matrix Spike Results Summary

NC - 806423

07/28/98

Form VI

Client Sample ID	Lab ID	Batch Number	Spike	SSR	Sample Result	Spike Added	Percent Recovery	Q	Units	Analysis Date	Inst ID
MW-55	9806501-02	98070007	Ra-226	124.17	6.74	145.40	80.76 %		pCi/L	07/24/98	5
MW-55	9806501-02	98070009	Ra-228	106.93	3.21	87.75	118.20 %		pCi/L	07/15/98	1

Key shall be attached

Comments: _____

_____

_____

MDA mode

STL

Project Number: 2399-020

Severn Trent Laboratories

Duplicate Results

NC - 806423

07/28/98

Form VII

Client Sample ID	Lab ID	Batch Number	Radionuclide	Sample Result	Uncertainty	Dup. Result	Dup. Uncertainty	DER	Q	Units
MW-54	9806501-01	98070007	Ra-226	10.45	0.49	8.89	0.56	1.49		pCi/L
MW-54	9806501-01	98070009	Ra-228	6.60	1.12	7.29	1.19	0.30		pCi/L

Key shall be attached

Comments: _____

MDA mod



Committed To *Your* Success

REPORT FORM KEY

Severn Trent Laboratories
120 Southcenter Court, Suite 300
Morrisville NC 27560

Tel: (919) 460-8505
Fax: (919) 469-2646

Instrument ID:

#1 - Gas Proportional Counter
#2 - High Purity Germanium Detectors (HPGe)
#3 - Alpha Spectrometry Counter
#4 - Liquid Scintillation Counter
#5 - Lucas Cell Counter
#6 - Sodium Iodide Detector

Sample Type:

REG - Regular Sample
DUP - Duplicate Sample
MS - Matrix Spike
BS - Blank Spike
MB - Method Blank

Units:

pCi/L - Picocuries per Liter
pCi/g - Picocuries per Gram
pCi/ml - Picocuries per Milliliter
pCi/mg - Picocuries per Milligram
pCi/F - Picocuries per Air Filter

Radionuclides:

H-3	Tritium	C-14	Carbon-14
Cl-36	Chlorine-36	K-40	Potassium-40
Co-60	Cobalt-60	Sr-89	Strontium-89
Sr-90	Strontium-90	Tc-99	Technetium-99
Cs-137	Cesium-137	Tl-208	Thallium-208
Pb-210	Lead-210	Pb-212	Lead-212
Pb-214	Lead-214	Bi-214	Bismuth-214
Ra-226	Radium-226	Ac-228	Actinium-228
Ra-228	Radium-228	Th-234	Thorium-234
Th-227	Thorium-227	Th-232/230/228	Isotopic Thorium
U-234/235/238	Isotopic Uranium	Pu-238	Plutonium-238
Pu-239/240	Plutonium-239&240	Am-241	Americium-241
Np-237	Neptunium-237		

WORK ORDER

Lab

Work Order #	98-06-501	# of Samples	5	Recieved Date	06/29/98	American Environ. Network
Client #	2399	# of Tests	10	Load Date	06/29/98	2709D PanAmerican Freeway NE
Project	2399-020	Report Level	2	Due Date	07/16/98	Albuquerque, NM 87107
Amount	123.25	Quote #		Export Date	/ /	Mitch Rubenstein
Comment	QC on MW-55 LC					

Lab ID	Sample #	Status	Matrix	Test	Cust ID	Collected
9806501-01	01A1	Open	Water	Ra-226	MW-54	06/25/98
9806501-01	01A2	Open	Water	Ra-228	MW-54	06/25/98
9806501-02	02A1	Open	Water	Ra-226	MW-54 DP	06/25/98
9806501-02	02A2	Open	Water	Ra-228	MW-54 DP	06/25/98
9806501-03	03A1	Open	Water	Ra-226	MW-55	06/25/98
9806501-03	03A2	Open	Water	Ra-228	MW-55	06/25/98
9806501-04	04A1	Open	Water	Ra-226	MW-55 MS	06/25/98
9806501-04	04A2	Open	Water	Ra-228	MW-55 MS	06/25/98
9806501-05	05A1	Open	Water	Ra-226	MW-63	06/25/98
9806501-05	05A2	Open	Water	Ra-228	MW-63	06/25/98

pH Checked
All Samples pH <2
Initials: sls Date: 6-29-98

American Environmental Network (NM), Inc.

CHAIN OF CUSTODY

DATE: 6/25/98 PAGE: ___ OF ___

AEN (NM) Accession #: NM-8016-3

SHADED AREAS ARE FOR LAB USE ONLY

PLEASE FILL THIS FORM IN COMPLETELY.

PROJECT MANAGER:	Paul Peacock
COMPANY:	Marathon Oil Company
ADDRESS:	P.O. Box 552
	Midland, TX 79702-0552
PHONE:	(915) 687-8312
FAX:	(915) 687-8305
BILL TO:	Same as above
COMPANY:	
ADDRESS:	

SAMPLE ID	DATE	TIME	MATRIX	LAB I.D.
MW-5f	6/25/98	1000	Water	
MW-54DP		1000		
MW-55		1230		
MW-55LC		1230		
MW-63		1445		

ANALYSIS REQUEST

Petroleum Hydrocarbons (418.1) TRPH	(MOD.8015) Diesel/Direct Inject	(M8015) Gas/Purge & Trap	8021 (BTEX)/8015 (Gasoline)	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)	Herbicides (615/8151)	Base/Neutral/Acid Compounds GC/MS (625/8270)	Polynuclear Aromatics (610/8310)	General Chemistry:	Ra 226/228		Priority Pollutant Metals (13)	Target Analyte List Metals (23)	RCRA Metals (8)	RCRA Metals by TCLP (Method 1311)	Metals:		NUMBERED CONTAINERS
																				X	X						1
																				X	X						2
																				X	X						3
																				X	X						4
																				X							5

PROJECT INFORMATION	
PROJ. NO.:	104332.03
PROJ. NAME:	IBRP
P.O. NO.:	
SHIPPED VIA:	

SAMPLE RECEIPT	
NO. CONTAINERS	
CUSTODY SEALS	N/A
RECEIVED INTACT	
BLUE ICE/ICE	

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

(RUSH) ☐ 24hr ☐ 48hr ☐ 72hr ☐ 1 WEEK (NORMAL) X

CERTIFICATION REQUIRED: ☐ NM ☐ SDWA ☐ OTHER

METHANOL PRESERVATION ☐

COMMENTS: FIXED FEE ☐

MW-55LC is Lab QC Control sample

RELINQUISHED BY: 1	RELINQUISHED BY: 2
Signature:	Signature:
Time: 1500	Time: 1530
Printed Name: Kevin Cook	Printed Name: CHRIS FAITH
Date: 6/25	Date: 6/25
Company: Flint	Company: AEN

RECEIVED BY: 1	RECEIVED BY: (LAB) 2
Signature:	Signature:
Time: 1500	Time: 1600
Printed Name: CHRIS FAITH	Printed Name:
Date: 6/25	Date: 6/26/98
Company: AEN	American Environmental Network (NM), Inc.

RECEIVED

AEN I.D. 806420

July 27, 1998

MARATHON OIL COMPANY
P.O. BOX 552
MIDLAND, TX 79702-0552

Project Name IBRP
Project Number 104332.03

Attention: PAUL PEACOCK

On 6/24/98 American Environmental Network (NM), Inc. (ADHS License No. AZ0015), 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 methods 504.1, 8021 and 8260 were performed by American Environmental Network (NM) Inc., Albuquerque, NM.

Uranium was performed by North Creek Analytical, Portland, OR.

Radiochemistry was performed by STL, Morrisville, NC.

All other parameters were performed by STL, Pensacola, FL.

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	: MARATHON OIL COMPANY	AEN I.D.	: 806420
PROJECT #	: 104332.03	DATE RECEIVED	: 6/24/98
PROJECT NAME	: IBRP	REPORT DATE	: 7/27/98

AEN ID. #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	MW-58	AQUEOUS	6/22/98
02	MW-85	AQUEOUS	6/23/98
03	MW-84	AQUEOUS	6/23/98
04	MW-64	AQUEOUS	6/23/98
05	TRIP BLANK	AQUEOUS	6/11/98

GAS CHROMOTOGRAPHY RESULTS

TEST : ETHYLENE DIBROMIDE (EPA 504.1)
CLIENT : MARATHON OIL COMPANY AEN I.D.: 806420
PROJECT # : 104332.03
PROJECT NAME : IBRP

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
01	MW-58	AQUEOUS	6/22/98	6/24/98	6/24/98	1
02	MW-85	AQUEOUS	6/23/98	6/24/98	6/24/98	1
03	MW-84	AQUEOUS	6/23/98	6/24/98	6/24/98	1

PARAMETER	DET. LIMIT	UNITS	01	02	03
ETHYLENE DIBROMIDE	0.01	UG/L	< 0.01	< 0.01	< 0.01
SURROGATE:					
1,4-DICHLOROBENZENE			86	83	86
SURROGATE LIMITS	(75 - 141)				

CHEMIST NOTES:
N/A

GAS CHROMOTOGRAPHY RESULTS

TEST : ETHYLENE DIBROMIDE (EPA 504.1)
CLIENT : MARATHON OIL COMPANY AEN I.D.: 806420
PROJECT # : 104332.03
PROJECT NAME : IBRP

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
04	MW-64	AQUEOUS	6/23/98	6/24/98	6/25/98	1

PARAMETER	DET. LIMIT	UNITS	04
ETHYLENE DIBROMIDE	0.01	UG/L	< 0.01

SURROGATE:
1,4-DICHLOROBENZENE 86
SURROGATE LIMITS (75 - 141)

CHEMIST NOTES:
N/A

GAS CHROMOTOGRAPHY RESULTS
REAGENT BLANK

TEST	: ETHYLENE DIBROMIDE (EPA 504.1)		
BLANK I.D.	: 062498	AEN I.D.	: 806420
CLIENT	: MARATHON OIL COMPANY	MATRIX	: AQUEOUS
PROJECT #	: 104332.03	DATE EXTRACTED	: 6/24/98
PROJECT NAME	: IBRP	DATE ANALYZED	: 6/24/98

PARAMETER	DET. LIMIT	UNITS	
ETHYLENE DIBROMIDE	0.01	UG/L	<0.01
SURROGATE:			
1,4-DICHLOROBENZENE			87
SURROGATE LIMITS	(78 - 140)		

CHEMIST NOTES:
N/A

GAS CHROMOTOGRAPHY RESULTS
REAGENT BLANK

TEST	: ETHYLENE DIBROMIDE (EPA 504.1)		
BLANK I.D.	: 070198	AEN I.D.	: 806420
CLIENT	: MARATHON OIL COMPANY	MATRIX	: AQUEOUS
PROJECT #	: 104332.03	DATE EXTRACTED	: 7/1/98
PROJECT NAME	: IBRP	DATE ANALYZED	: 7/1/98

PARAMETER	DET. LIMIT	UNITS	
ETHYLENE DIBROMIDE	0.01	UG/L	<0.01

SURROGATE:		
1,4-DICHLOROBENZENE		82
SURROGATE LIMITS	(78 - 140)	

CHEMIST NOTES:
N/A

GAS CHROMOTOGRAPHY RESULTS
QUALITY CONTROL
MSMSD

TEST	: ETHYLENE DIBROMIDE (EPA 504.1)		
MSMSD #	: 070198	AEN I.D.	: 806420
CLIENT	: MARATHON OIL COMPANY	DATE EXTRACTED	: 7/1/98
PROJECT #	: 104332.03	DATE ANALYZED	: 7/1/98
PROJECT NAME	: IBRP	MATRIX	: AQUEOUS
		UNITS	: UG/L

PARAMETER	SAMPLE RESULT	CONC. SPIKE	SPIKED SAMPLE	% REC	DUP SPIKE	DUP % REC	% RPD
ETHYLENE DIBROMIDE	<0.01	0.25	0.29	116%	0.24	96%	19%

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 CHROMOTOGRAPHY RESULTS

TEST : PURGEABLE HALOCARBONS / AROMATICS (EPA 8021)
CLIENT : MARATHON OIL COMPANY AEN I.D.: 806420
PROJECT # : 104332.03
PROJECT NAME : IBRP

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
01	MW-58	AQUEOUS	6/22/98	NA	6/25/98	1
02	MW-85	AQUEOUS	6/23/98	NA	6/25/98	5
03	MW-84	AQUEOUS	6/23/98	NA	6/25/98	5

PARAMETER	DET. LIMIT	UNITS	01	02	03
TETRACHLOROETHENE	0.5	UG/L	< 0.5	< 2.5	< 2.5
VINYL CHLORIDE	0.5	UG/L	< 0.5	< 2.5	< 2.5
SURROGATE:					
BROMOCHLOROMETHANE (%)			110	102	106
SURROGATE LIMITS	(73 - 117)				

CHEMIST NOTES:
N/A

GAS CHROMOTOGRAPHY RESULTS

TEST : PURGEABLE HALOCARBONS / AROMATICS (EPA 8021)
CLIENT : MARATHON OIL COMPANY AEN I.D.: 806420
PROJECT # : 104332.03
PROJECT NAME : IBRP

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
04	MW-64	AQUEOUS	6/23/98	NA	6/25/98	1

PARAMETER	DET. LIMIT	UNITS	04
TETRACHLOROETHENE	0.5	UG/L	< 0.5
VINYL CHLORIDE	0.5	UG/L	< 0.5
SURROGATE:			
BROMOCHLOROMETHANE (%)			108
SURROGATE LIMITS	(73 - 117)		

CHEMIST NOTES:
N/A

GAS CHROMOTOGRAPHY RESULTS
REAGENT BLANK

TEST	: PURGEABLE HALOCARBONS / AROMATICS (EPA 8021)		
BLANK I.D.	: 062598	AEN I.D.	: 806420
CLIENT	: MARATHON OIL COMPANY	DATE EXTRACTED	: N/A
PROJECT #	: 104332.03	DATE ANALYZED	: 6/25/98
PROJECT NAME	: IBRP	SAMPLE MATRIX	: AQUEOUS

PARAMETER		UNITS	
CHLOROBENZENE		UG/L	<0.5
1,1-DICHLOROETHENE		UG/L	<0.2
TETRACHLOROETHENE		UG/L	<0.5
TRICHLOROETHENE		UG/L	<0.3
VINYL CHLORIDE		UG/L	<0.5
SURROGATE:			
BROMOCHLOROMETHANE (%)			107
SURROGATE LIMITS	(73 - 117)		

CHEMIST NOTES:
N/A

GAS CHROMOTOGRAPHY RESULTS

REAGENT BLANK

TEST	: PURGEABLE HALOCARBONS / AROMATICS (EPA 8021)		
BLANK I.D.	: 062598B	AEN I.D.	: 806420
CLIENT	: MARATHON OIL COMPANY	DATE EXTRACTED	: N/A
PROJECT #	: 104332.03	DATE ANALYZED	: 6/25/98
PROJECT NAME	: IBRP	SAMPLE MATRIX	: AQUEOUS

PARAMETER	UNITS	
CHLOROBENZENE	UG/L	<0.5
1,1-DICHLOROETHENE	UG/L	<0.2
TETRACHLOROETHENE	UG/L	<0.5
TRICHLOROETHENE	UG/L	<0.3
VINYL CHLORIDE	UG/L	<0.5
SURROGATE:		
BROMOCHLOROMETHANE (%)		108
SURROGATE LIMITS	(73 - 117)	

CHEMIST NOTES:

N/A

GAS CHROMOTOGRAPHY QUALITY CONTROL
MSMSD

TEST	: PURGEABLE HALOCARBONS / AROMATICS (EPA 8021)		
MSMSD #	: 806375-08	AEN I.D.	: 806420
CLIENT	: MARATHON OIL COMPANY	DATE EXTRACTED	: N/A
PROJECT #	: 104332.03	DATE ANALYZED	: 6/25/98
PROJECT NAME	: IBRP	SAMPLE MATRIX	: AQUEOUS
		UNITS	: UG/L

PARAMETER	SAMPLE RESULT	CONC SPIKE	SPIKED SAMPLE	% REC	DUP SPIKE	DUP % REC	RPD	REC LIMITS	RPD LIMITS
1,1-DICHLOROETHENE	<0.2	10.0	8.8	88	9.4	94	7	(44 - 99)	20
TRICHLOROETHENE	<0.3	10.0	10.0	100	10.8	108	8	(89 - 127)	20
CHLOROBENZENE	<0.5	10.0	9.6	96	10.6	106	10	(87 - 124)	20

CHEMIST NOTES:
N/A

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

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

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806420
PROJECT #	: 104332.03	DATE RECEIVED :	6/24/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806420-01	MW-58	AQUEOUS	6/22/98	N/A	06/25/98	1

PARAMETER	DET. LIMIT		UNITS
Dichlorodifluoromethane	1.0	< 1.0	ug/L
Chloromethane	1.0	< 1.0	ug/L
Vinyl Chloride	1.0	< 1.0	ug/L
Bromomethane	1.0	< 1.0	ug/L
Chloroethane	1.0	< 1.0	ug/L
Trichlorofluoromethane	1.0	< 1.0	ug/L
Acetone	10	**11**	ug/L
Acrolein	5.0	< 5.0	ug/L
1,1-Dichloroethene	1.0	< 1.0	ug/L
Iodomethane	1.0	< 1.0	ug/L
Methylene Chloride	1.0	< 1.0	ug/L
Acrylonitrile	5.0	< 5.0	ug/L
cis-1,2-Dichloroethene	1.0	< 1.0	ug/L
Methyl-t-butyl Ether	1.0	< 1.0	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 1.0	ug/L
1,1-Dichloroethane	1.0	< 1.0	ug/L
trans-1,2-Dichloroethene	1.0	< 1.0	ug/L
2-Butanone	10	< 10	ug/L
Carbon Disulfide	1.0	< 1.0	ug/L
Bromochloromethane	1.0	< 1.0	ug/L
Chloroform	1.0	< 1.0	ug/L
2,2-Dichloropropane	1.0	< 1.0	ug/L
1,2-Dichloroethane	1.0	< 1.0	ug/L
Vinyl Acetate	1.0	< 1.0	ug/L
1,1,1-Trichloroethane	1.0	< 1.0	ug/L
1,1-Dichloropropene	1.0	< 1.0	ug/L
Carbon Tetrachloride	1.0	< 1.0	ug/L
Benzene	1.0	**22**	ug/L
1,2-Dichloropropane	1.0	< 1.0	ug/L
Trichloroethene	1.0	< 1.0	ug/L
Bromodichloromethane	1.0	< 1.0	ug/L
2-Chloroethyl Vinyl Ether	10	< 10	ug/L
cis-1,3-Dichloropropene	1.0	< 1.0	ug/L
trans-1,3-Dichloropropene	1.0	< 1.0	ug/L
1,1,2-Trichloroethane	1.0	< 1.0	ug/L
1,3-Dichloropropane	1.0	< 1.0	ug/L
Dibromomethane	1.0	< 1.0	ug/L
Toluene	1.0	< 1.0	ug/L
1,2-Dibromoethane	1.0	< 1.0	ug/L
4-Methyl-2-Pentanone	10	< 10	ug/L
2-Hexanone	10	< 10	ug/L
Dibromochloromethane	1.0	< 1.0	ug/L
Tetrachloroethene	1.0	< 1.0	ug/L
Chlorobenzene	1.0	< 1.0	ug/L
Ethylbenzene	1.0	**28**	ug/L
1,1,1,2-Tetrachloroethane	1.0	< 1.0	ug/L
m&p Xylenes	1.0	**35**	ug/L

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806420
PROJECT #	: 104332.03	DATE RECEIVED :	6/24/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806420-01	MW-58	AQUEOUS	6/22/98	N/A	06/25/98	1

PARAMETER	DET. LIMIT		UNITS
o-Xylene	1.0	< 1.0	ug/L
Styrene	1.0	< 1.0	ug/L
Bromoform	1.0	< 1.0	ug/L
1,1,2,2-Tetrachloroethane	1.0	< 1.0	ug/L
1,2,3-Trichloropropane	1.0	< 1.0	ug/L
Isopropyl Benzene	1.0	**11**	**ug/L**
Bromobenzene	1.0	< 1.0	ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 1.0	ug/L
n-Propylbenzene	1.0	**7.2**	**ug/L**
2-Chlorotoluene	1.0	< 1.0	ug/L
4-Chlorotoluene	1.0	< 1.0	ug/L
1,3,5-Trimethylbenzene	1.0	**51**	**ug/L**
tert-Butylbenzene	1.0	< 1.0	ug/L
1,2,4-Trimethylbenzene	1.0	**130**	**ug/L**
sec-Butylbenzene	1.0	**5.0**	**ug/L**
1,3-Dichlorobenzene	1.0	< 1.0	ug/L
1,4-Dichlorobenzene	1.0	< 1.0	ug/L
p-Isopropyltoluene	1.0	**4.7**	**ug/L**
1,2-Dichlorobenzene	1.0	< 1.0	ug/L
n-Butylbenzene	1.0	**5.1**	**ug/L**
1,2-Dibromomo-3-chloropropane	1.0	< 1.0	ug/L
1,2,4-Trichlorobenzene	1.0	< 1.0	ug/L
Naphthalene	1.0	**1.5**	**ug/L**
Hexachlorobutadiene	1.0	< 1.0	ug/L
1,2,3-Trichlorobenzene	1.0	< 1.0	ug/L

SURROGATE % RECOVERY	
1,2-Dichloroethane-d4	110 (80 - 120)
Toluene-d8	109 (88 - 110)
Bromofluorobenzene	102 (86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806420
PROJECT #	: 104332.03	DATE RECEIVED :	6/24/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806420-02	MW-85	AQUEOUS	6/23/98	N/A	06/25/98	5

PARAMETER	DET. LIMIT		UNITS
Dichlorodifluoromethane	1.0	< 5.0	ug/L
Chloromethane	1.0	< 5.0	ug/L
Vinyl Chloride	1.0	< 5.0	ug/L
Bromomethane	1.0	< 5.0	ug/L
Chloroethane	1.0	< 5.0	ug/L
Trichlorofluoromethane	1.0	< 5.0	ug/L
Acetone	10	< 50	ug/L
Acrolein	5.0	< 25	ug/L
1,1-Dichloroethene	1.0	< 5.0	ug/L
Iodomethane	1.0	< 5.0	ug/L
Methylene Chloride	1.0	< 5.0	ug/L
Acrylonitrile	5.0	< 25	ug/L
cis-1,2-Dichloroethene	1.0	< 5.0	ug/L
Methyl-t-butyl Ether	1.0	< 5.0	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	**6.1**	**ug/L**
1,1-Dichloroethane	1.0	< 5.0	ug/L
trans-1,2-Dichloroethene	1.0	< 5.0	ug/L
2-Butanone	10	< 50	ug/L
Carbon Disulfide	1.0	< 5.0	ug/L
Bromochloromethane	1.0	< 5.0	ug/L
Chloroform	1.0	< 5.0	ug/L
2,2-Dichloropropane	1.0	< 5.0	ug/L
1,2-Dichloroethane	1.0	< 5.0	ug/L
Vinyl Acetate	1.0	< 5.0	ug/L
1,1,1-Trichloroethane	1.0	< 5.0	ug/L
1,1-Dichloropropene	1.0	< 5.0	ug/L
Carbon Tetrachloride	1.0	< 5.0	ug/L
Benzene	1.0	**280**	**ug/L**
1,2-Dichloropropane	1.0	< 5.0	ug/L
Trichloroethene	1.0	< 5.0	ug/L
Bromodichloromethane	1.0	< 5.0	ug/L
2-Chloroethyl Vinyl Ether	10	< 50	ug/L
cis-1,3-Dichloropropene	1.0	< 5.0	ug/L
trans-1,3-Dichloropropene	1.0	< 5.0	ug/L
1,1,2-Trichloroethane	1.0	< 5.0	ug/L
1,3-Dichloropropane	1.0	< 5.0	ug/L
Dibromomethane	1.0	< 5.0	ug/L
Toluene	1.0	< 5.0	ug/L
1,2-Dibromoethane	1.0	< 5.0	ug/L
4-Methyl-2-Pentanone	10	< 50	ug/L
2-Hexanone	10	< 50	ug/L
Dibromochloromethane	1.0	< 5.0	ug/L
Tetrachloroethene	1.0	< 5.0	ug/L
Chlorobenzene	1.0	< 5.0	ug/L
Ethylbenzene	1.0	**120**	**ug/L**
1,1,1,2-Tetrachloroethane	1.0	< 5.0	ug/L
m&p Xylenes	1.0	**6.3**	**ug/L**

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806420
PROJECT #	: 104332.03	DATE RECEIVED :	6/24/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806420-02	MW-85	AQUEOUS	6/23/98	N/A	06/25/98	5

PARAMETER	DET. LIMIT		UNITS
o-Xylene	1.0	< 5.0	ug/L
Styrene	1.0	< 5.0	ug/L
Bromoform	1.0	< 5.0	ug/L
1,1,2,2-Tetrachloroethane	1.0	< 5.0	ug/L
1,2,3-Trichloropropane	1.0	< 5.0	ug/L
Isopropyl Benzene	1.0	**21**	**ug/L**
Bromobenzene	1.0	< 5.0	ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 5.0	ug/L
n-Propylbenzene	1.0	**13**	**ug/L**
2-Chlorotoluene	1.0	< 5.0	ug/L
4-Chlorotoluene	1.0	< 5.0	ug/L
1,3,5-Trimethylbenzene	1.0	**25**	**ug/L**
tert-Butylbenzene	1.0	< 5.0	ug/L
1,2,4-Trimethylbenzene	1.0	**130**	**ug/L**
sec-Butylbenzene	1.0	**5.6**	**ug/L**
1,3-Dichlorobenzene	1.0	< 5.0	ug/L
1,4-Dichlorobenzene	1.0	< 5.0	ug/L
p-Isopropyltoluene	1.0	< 5.0	ug/L
1,2-Dichlorobenzene	1.0	< 5.0	ug/L
n-Butylbenzene	1.0	< 5.0	ug/L
1,2-Dibromomo-3-chloropropane	1.0	< 5.0	ug/L
1,2,4-Trichlorobenzene	1.0	< 5.0	ug/L
Naphthalene	1.0	**5.2**	**ug/L**
Hexachlorobutadiene	1.0	< 5.0	ug/L
1,2,3-Trichlorobenzene	1.0	< 5.0	ug/L

SURROGATE % RECOVERY	
1,2-Dichloroethane-d4	108 (80 - 120)
Toluene-d8	104 (88 - 110)
Bromofluorobenzene	101 (86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806420
PROJECT #	: 104332.03	DATE RECEIVED :	6/24/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806420-03	MW-84	AQUEOUS	6/23/98	N/A	06/25/98	10

PARAMETER	DET. LIMIT		UNITS
Dichlorodifluoromethane	1.0	< 10	ug/L
Chloromethane	1.0	< 10	ug/L
Vinyl Chloride	1.0	< 10	ug/L
Bromomethane	1.0	< 10	ug/L
Chloroethane	1.0	< 10	ug/L
Trichlorofluoromethane	1.0	< 10	ug/L
Acetone	10	< 100	ug/L
Acrolein	5.0	< 50	ug/L
1,1-Dichloroethene	1.0	< 10	ug/L
Iodomethane	1.0	< 10	ug/L
Methylene Chloride	1.0	< 10	ug/L
Acrylonitrile	5.0	< 50	ug/L
cis-1,2-Dichloroethene	1.0	< 10	ug/L
Methyl-t-butyl Ether	1.0	< 10	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 10	ug/L
1,1-Dichloroethane	1.0	< 10	ug/L
trans-1,2-Dichloroethene	1.0	< 10	ug/L
2-Butanone	10	< 100	ug/L
Carbon Disulfide	1.0	< 10	ug/L
Bromochloromethane	1.0	< 10	ug/L
Chloroform	1.0	< 10	ug/L
2,2-Dichloropropane	1.0	< 10	ug/L
1,2-Dichloroethane	1.0	< 10	ug/L
Vinyl Acetate	1.0	< 10	ug/L
1,1,1-Trichloroethane	1.0	< 10	ug/L
1,1-Dichloropropene	1.0	< 10	ug/L
Carbon Tetrachloride	1.0	< 10	ug/L
Benzene	1.0	**93**	**ug/L**
1,2-Dichloropropane	1.0	< 10	ug/L
Trichloroethene	1.0	< 10	ug/L
Bromodichloromethane	1.0	< 10	ug/L
2-Chloroethyl Vinyl Ether	10	< 100	ug/L
cis-1,3-Dichloropropene	1.0	< 10	ug/L
trans-1,3-Dichloropropene	1.0	< 10	ug/L
1,1,2-Trichloroethane	1.0	< 10	ug/L
1,3-Dichloropropane	1.0	< 10	ug/L
Dibromomethane	1.0	< 10	ug/L
Toluene	1.0	**13**	**ug/L**
1,2-Dibromoethane	1.0	< 10	ug/L
4-Methyl-2-Pentanone	10	< 100	ug/L
2-Hexanone	10	< 100	ug/L
Dibromochloromethane	1.0	< 10	ug/L
Tetrachloroethene	1.0	< 10	ug/L
Chlorobenzene	1.0	< 10	ug/L
Ethylbenzene	1.0	**55**	**ug/L**
1,1,1,2-Tetrachloroethane	1.0	< 10	ug/L
m&p Xylenes	1.0	**420**	**ug/L**

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806420
PROJECT #	: 104332.03	DATE RECEIVED :	6/24/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806420-03	MW-84	AQUEOUS	6/23/98	N/A	06/25/98	10

PARAMETER	DET. LIMIT		UNITS
o-Xylene	1.0	**38**	**ug/L**
Styrene	1.0	< 10	ug/L
Bromoform	1.0	< 10	ug/L
1,1,2,2-Tetrachloroethane	1.0	< 10	ug/L
1,2,3-Trichloropropane	1.0	< 10	ug/L
Isopropyl Benzene	1.0	< 10	ug/L
Bromobenzene	1.0	< 10	ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 10	ug/L
n-Propylbenzene	1.0	**10**	**ug/L**
2-Chlorotoluene	1.0	< 10	ug/L
4-Chlorotoluene	1.0	< 10	ug/L
1,3,5-Trimethylbenzene	1.0	**48**	**ug/L**
tert-Butylbenzene	1.0	< 10	ug/L
1,2,4-Trimethylbenzene	1.0	**80**	**ug/L**
sec-Butylbenzene	1.0	< 10	ug/L
1,3-Dichlorobenzene	1.0	< 10	ug/L
1,4-Dichlorobenzene	1.0	< 10	ug/L
p-Isopropyltoluene	1.0	< 10	ug/L
1,2-Dichlorobenzene	1.0	< 10	ug/L
n-Butylbenzene	1.0	< 10	ug/L
1,2-Dibromomo-3-chloropropane	1.0	< 10	ug/L
1,2,4-Trichlorobenzene	1.0	< 10	ug/L
Naphthalene	1.0	< 10	ug/L
Hexachlorobutadiene	1.0	< 10	ug/L
1,2,3-Trichlorobenzene	1.0	< 10	ug/L

SURROGATE %-RECOVERY	
1,2-Dichloroethane-d4	105
	(80 - 120)
Toluene-d8	102
	(88 - 110)
Bromofluorobenzene	102
	(86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806420
PROJECT #	: 104332.03	DATE RECEIVED :	6/24/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806420-04	MW-64	AQUEOUS	6/23/98	N/A	06/25/98	1

PARAMETER	DET. LIMIT		UNITS
Dichlorodifluoromethane	1.0	< 1.0	ug/L
Chloromethane	1.0	< 1.0	ug/L
Vinyl Chloride	1.0	< 1.0	ug/L
Bromomethane	1.0	< 1.0	ug/L
Chloroethane	1.0	< 1.0	ug/L
Trichlorofluoromethane	1.0	< 1.0	ug/L
Acetone	10	**59**	**ug/L**
Acrolein	5.0	< 5.0	ug/L
1,1-Dichloroethene	1.0	< 1.0	ug/L
Iodomethane	1.0	< 1.0	ug/L
Methylene Chloride	1.0	< 1.0	ug/L
Acrylonitrile	5.0	< 5.0	ug/L
cis-1,2-Dichloroethene	1.0	< 1.0	ug/L
Methyl-t-butyl Ether	1.0	< 1.0	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 1.0	ug/L
1,1-Dichloroethane	1.0	< 1.0	ug/L
trans-1,2-Dichloroethene	1.0	< 1.0	ug/L
2-Butanone	10	< 10	ug/L
Carbon Disulfide	1.0	< 1.0	ug/L
Bromochloromethane	1.0	< 1.0	ug/L
Chloroform	1.0	< 1.0	ug/L
2,2-Dichloropropane	1.0	< 1.0	ug/L
1,2-Dichloroethane	1.0	< 1.0	ug/L
Vinyl Acetate	1.0	< 1.0	ug/L
1,1,1-Trichloroethane	1.0	< 1.0	ug/L
1,1-Dichloropropene	1.0	< 1.0	ug/L
Carbon Tetrachloride	1.0	< 1.0	ug/L
Benzene	1.0	< 1.0	ug/L
1,2-Dichloropropane	1.0	< 1.0	ug/L
Trichloroethene	1.0	< 1.0	ug/L
Bromodichloromethane	1.0	< 1.0	ug/L
2-Chloroethyl Vinyl Ether	10	< 10	ug/L
cis-1,3-Dichloropropene	1.0	< 1.0	ug/L
trans-1,3-Dichloropropene	1.0	< 1.0	ug/L
1,1,2-Trichloroethane	1.0	< 1.0	ug/L
1,3-Dichloropropane	1.0	< 1.0	ug/L
Dibromomethane	1.0	< 1.0	ug/L
Toluene	1.0	< 1.0	ug/L
1,2-Dibromoethane	1.0	< 1.0	ug/L
4-Methyl-2-Pentanone	10	< 10	ug/L
2-Hexanone	10	< 10	ug/L
Dibromochloromethane	1.0	< 1.0	ug/L
Tetrachloroethene	1.0	< 1.0	ug/L
Chlorobenzene	1.0	< 1.0	ug/L
Ethylbenzene	1.0	< 1.0	ug/L
1,1,1,2-Tetrachloroethane	1.0	< 1.0	ug/L
m&p Xylenes	1.0	< 1.0	ug/L

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806420
PROJECT #	: 104332.03	DATE RECEIVED :	6/24/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806420-04	MW-64	AQUEOUS	6/23/98	N/A	06/25/98	1

PARAMETER	DET. LIMIT		UNITS
o-Xylene	1.0	< 1.0	ug/L
Styrene	1.0	< 1.0	ug/L
Bromoform	1.0	< 1.0	ug/L
1,1,2,2-Tetrachloroethane	1.0	< 1.0	ug/L
1,2,3-Trichloropropane	1.0	< 1.0	ug/L
Isopropyl Benzene	1.0	< 1.0	ug/L
Bromobenzene	1.0	< 1.0	ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 1.0	ug/L
n-Propylbenzene	1.0	< 1.0	ug/L
2-Chlorotoluene	1.0	< 1.0	ug/L
4-Chlorotoluene	1.0	< 1.0	ug/L
1,3,5-Trimethylbenzene	1.0	< 1.0	ug/L
tert-Butylbenzene	1.0	< 1.0	ug/L
1,2,4-Trimethylbenzene	1.0	< 1.0	ug/L
sec-Butylbenzene	1.0	< 1.0	ug/L
1,3-Dichlorobenzene	1.0	< 1.0	ug/L
1,4-Dichlorobenzene	1.0	< 1.0	ug/L
p-Isopropyltoluene	1.0	< 1.0	ug/L
1,2-Dichlorobenzene	1.0	< 1.0	ug/L
n-Butylbenzene	1.0	< 1.0	ug/L
1,2-Dibromomo-3-chloropropane	1.0	< 1.0	ug/L
1,2,4-Trichlorobenzene	1.0	< 1.0	ug/L
Naphthalene	1.0	< 1.0	ug/L
Hexachlorobutadiene	1.0	< 1.0	ug/L
1,2,3-Trichlorobenzene	1.0	< 1.0	ug/L

SURROGATE % RECOVERY	
1,2-Dichloroethane-d4	103
	(80 - 120)
Toluene-d8	99
	(88 - 110)
Bromofluorobenzene	100
	(86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806420
PROJECT #	: 104332.03	DATE RECEIVED :	6/24/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806420-05	Trip Blank	AQUEOUS	6/11/98	N/A	06/24/98	1

PARAMETER	DET. LIMIT		UNITS
Dichlorodifluoromethane	1.0	< 1.0	ug/L
Chloromethane	1.0	< 1.0	ug/L
Vinyl Chloride	1.0	< 1.0	ug/L
Bromomethane	1.0	< 1.0	ug/L
Chloroethane	1.0	< 1.0	ug/L
Trichlorofluoromethane	1.0	< 1.0	ug/L
Acetone	10	< 10	ug/L
Acrolein	5.0	< 5.0	ug/L
1,1-Dichloroethene	1.0	< 1.0	ug/L
Iodomethane	1.0	< 1.0	ug/L
Methylene Chloride	1.0	< 1.0	ug/L
Acrylonitrile	5.0	< 5.0	ug/L
cis-1,2-Dichloroethene	1.0	< 1.0	ug/L
Methyl-t-butyl Ether	1.0	< 1.0	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 1.0	ug/L
1,1-Dichloroethane	1.0	< 1.0	ug/L
trans-1,2-Dichloroethene	1.0	< 1.0	ug/L
2-Butanone	10	< 10	ug/L
Carbon Disulfide	1.0	< 1.0	ug/L
Bromochloromethane	1.0	< 1.0	ug/L
Chloroform	1.0	< 1.0	ug/L
2,2-Dichloropropane	1.0	< 1.0	ug/L
1,2-Dichloroethane	1.0	< 1.0	ug/L
Vinyl Acetate	1.0	< 1.0	ug/L
1,1,1-Trichloroethane	1.0	< 1.0	ug/L
1,1-Dichloropropene	1.0	< 1.0	ug/L
Carbon Tetrachloride	1.0	< 1.0	ug/L
Benzene	1.0	< 1.0	ug/L
1,2-Dichloropropane	1.0	< 1.0	ug/L
Trichloroethene	1.0	< 1.0	ug/L
Bromodichloromethane	1.0	< 1.0	ug/L
2-Chloroethyl Vinyl Ether	10	< 10	ug/L
cis-1,3-Dichloropropene	1.0	< 1.0	ug/L
trans-1,3-Dichloropropene	1.0	< 1.0	ug/L
1,1,2-Trichloroethane	1.0	< 1.0	ug/L
1,3-Dichloropropane	1.0	< 1.0	ug/L
Dibromomethane	1.0	< 1.0	ug/L
Toluene	1.0	< 1.0	ug/L
1,2-Dibromoethane	1.0	< 1.0	ug/L
4-Methyl-2-Pentanone	10	< 10	ug/L
2-Hexanone	10	< 10	ug/L
Dibromochloromethane	1.0	< 1.0	ug/L
Tetrachloroethene	1.0	< 1.0	ug/L
Chlorobenzene	1.0	< 1.0	ug/L
Ethylbenzene	1.0	< 1.0	ug/L
1,1,1,2-Tetrachloroethane	1.0	< 1.0	ug/L
m&p Xylenes	1.0	< 1.0	ug/L

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806420
PROJECT #	: 104332.03	DATE RECEIVED :	6/24/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806420-05	Trip Blank	AQUEOUS	6/11/98	N/A	06/24/98	1

PARAMETER	DET. LIMIT		UNITS
o-Xylene	1.0	< 1.0	ug/L
Styrene	1.0	< 1.0	ug/L
Bromoform	1.0	< 1.0	ug/L
1,1,2,2-Tetrachloroethane	1.0	< 1.0	ug/L
1,2,3-Trichloropropane	1.0	< 1.0	ug/L
Isopropyl Benzene	1.0	< 1.0	ug/L
Bromobenzene	1.0	< 1.0	ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 1.0	ug/L
n-Propylbenzene	1.0	< 1.0	ug/L
2-Chlorotoluene	1.0	< 1.0	ug/L
4-Chlorotoluene	1.0	< 1.0	ug/L
1,3,5-Trimethylbenzene	1.0	< 1.0	ug/L
tert-Butylbenzene	1.0	< 1.0	ug/L
1,2,4-Trimethylbenzene	1.0	< 1.0	ug/L
sec-Butylbenzene	1.0	< 1.0	ug/L
1,3-Dichlorobenzene	1.0	< 1.0	ug/L
1,4-Dichlorobenzene	1.0	< 1.0	ug/L
p-Isopropyltoluene	1.0	< 1.0	ug/L
1,2-Dichlorobenzene	1.0	< 1.0	ug/L
n-Butylbenzene	1.0	< 1.0	ug/L
1,2-Dibromomo-3-chloropropane	1.0	< 1.0	ug/L
1,2,4-Trichlorobenzene	1.0	< 1.0	ug/L
Naphthalene	1.0	< 1.0	ug/L
Hexachlorobutadiene	1.0	< 1.0	ug/L
1,2,3-Trichlorobenzene	1.0	< 1.0	ug/L

SURROGATE % RECOVERY	
1,2-Dichloroethane-d4	105
	(80 - 120)
Toluene-d8	98
	(88 - 110)
Bromofluorobenzene	97
	(86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806420
PROJECT #	: 104332.03		
PROJECT NAME	: IBRP		

SAMPLE ID #	BATCH	MATRIX	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
REAGENT BLANK	062398	AQUEOUS	N/A	06/23/98	1

PARAMETER	DET. LIMIT		UNITS
Dichlorodifluoromethane	1.0	< 1.0	ug/L
Chloromethane	1.0	< 1.0	ug/L
Vinyl Chloride	1.0	< 1.0	ug/L
Bromomethane	1.0	< 1.0	ug/L
Chloroethane	1.0	< 1.0	ug/L
Trichlorofluoromethane	1.0	< 1.0	ug/L
Acetone	10	< 10	ug/L
Acrolein	5.0	< 5.0	ug/L
1,1-Dichloroethene	1.0	< 1.0	ug/L
Iodomethane	1.0	< 1.0	ug/L
Methylene Chloride	1.0	< 1.0	ug/L
Acrylonitrile	5.0	< 5.0	ug/L
cis-1,2-Dichloroethene	1.0	< 1.0	ug/L
Methyl-t-butyl Ether	1.0	< 1.0	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 1.0	ug/L
1,1-Dichloroethane	1.0	< 1.0	ug/L
trans-1,2-Dichloroethene	1.0	< 1.0	ug/L
2-Butanone	10	< 10	ug/L
Carbon Disulfide	1.0	< 1.0	ug/L
Bromochloromethane	1.0	< 1.0	ug/L
Chloroform	1.0	< 1.0	ug/L
2,2-Dichloropropane	1.0	< 1.0	ug/L
1,2-Dichloroethane	1.0	< 1.0	ug/L
Vinyl Acetate	1.0	< 1.0	ug/L
1,1,1-Trichloroethane	1.0	< 1.0	ug/L
1,1-Dichloropropene	1.0	< 1.0	ug/L
Carbon Tetrachloride	1.0	< 1.0	ug/L
Benzene	1.0	< 1.0	ug/L
1,2-Dichloropropane	1.0	< 1.0	ug/L
Trichloroethene	1.0	< 1.0	ug/L
Bromodichloromethane	1.0	< 1.0	ug/L
2-Chloroethyl Vinyl Ether	10	< 10	ug/L
cis-1,3-Dichloropropene	1.0	< 1.0	ug/L
trans-1,3-Dichloropropene	1.0	< 1.0	ug/L
1,1,2-Trichloroethane	1.0	< 1.0	ug/L
1,3-Dichloropropane	1.0	< 1.0	ug/L
Dibromomethane	1.0	< 1.0	ug/L
Toluene	1.0	< 1.0	ug/L
1,2-Dibromoethane	1.0	< 1.0	ug/L
4-Methyl-2-Pentanone	10	< 10	ug/L
2-Hexanone	10	< 10	ug/L
Dibromochloromethane	1.0	< 1.0	ug/L
Tetrachloroethene	1.0	< 1.0	ug/L
Chlorobenzene	1.0	< 1.0	ug/L
Ethylbenzene	1.0	< 1.0	ug/L
1,1,1,2-Tetrachloroethane	1.0	< 1.0	ug/L

GC/MS RESULTS

TEST : VOLATILE ORGANICS EPA METHOD 8260
CLIENT : MARATHON OIL COMPANY AEN I.D. : 806420
PROJECT # : 104332.03
PROJECT NAME : IBRP

SAMPLE ID #	BATCH	MATRIX	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
REAGENT BLANK	062398	AQUEOUS	N/A	06/23/98	1

PARAMETER	DET. LIMIT		UNITS
m&p Xylenes	1.0	< 1.0	ug/L
o-Xylene	1.0	< 1.0	ug/L
Styrene	1.0	< 1.0	ug/L
Bromoform	1.0	< 1.0	ug/L
1,1,2,2-Tetrachloroethane	1.0	< 1.0	ug/L
1,2,3-Trichloropropane	1.0	< 1.0	ug/L
Isopropyl Benzene	1.0	< 1.0	ug/L
Bromobenzene	1.0	< 1.0	ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 1.0	ug/L
n-Propylbenzene	1.0	< 1.0	ug/L
2-Chlorotoluene	1.0	< 1.0	ug/L
4-Chlorotoluene	1.0	< 1.0	ug/L
1,3,5-Trimethylbenzene	1.0	< 1.0	ug/L
tert-Butylbenzene	1.0	< 1.0	ug/L
1,2,4-Trimethylbenzene	1.0	< 1.0	ug/L
sec-Butylbenzene	1.0	< 1.0	ug/L
1,3-Dichlorobenzene	1.0	< 1.0	ug/L
1,4-Dichlorobenzene	1.0	< 1.0	ug/L
p-Isopropyltoluene	1.0	< 1.0	ug/L
1,2-Dichlorobenzene	1.0	< 1.0	ug/L
n-Butylbenzene	1.0	< 1.0	ug/L
1,2-Dibromomo-3-chloropropane	1.0	< 1.0	ug/L
1,2,4-Trichlorobenzene	1.0	< 1.0	ug/L
Naphthalene	1.0	< 1.0	ug/L
Hexachlorobutadiene	1.0	< 1.0	ug/L
1,2,3-Trichlorobenzene	1.0	< 1.0	ug/L

SURROGATE % RECOVERY	
1,2-Dichloroethane-d4	100 (80 - 120)
Toluene-d8	96 (88 - 110)
Bromofluorobenzene	96 (86 - 115)

GC/MS RESULTS

TEST : VOLATILE ORGANICS EPA METHOD 8260
CLIENT : MARATHON OIL COMPANY AEN I.D. : 806420
PROJECT # : 104332.03
PROJECT NAME : IBRP

SAMPLE ID #	BATCH	MATRIX	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
REAGENT BLANK	062598	AQUEOUS	N/A	06/25/98	1

PARAMETER	DET. LIMIT		UNITS
Dichlorodifluoromethane	1.0	< 1.0	ug/L
Chloromethane	1.0	< 1.0	ug/L
Vinyl Chloride	1.0	< 1.0	ug/L
Bromomethane	1.0	< 1.0	ug/L
Chloroethane	1.0	< 1.0	ug/L
Trichlorofluoromethane	1.0	< 1.0	ug/L
Acetone	10	< 10	ug/L
Acrolein	5.0	< 5.0	ug/L
1,1-Dichloroethene	1.0	< 1.0	ug/L
Iodomethane	1.0	< 1.0	ug/L
Methylene Chloride	1.0	< 1.0	ug/L
Acrylonitrile	5.0	< 5.0	ug/L
cis-1,2-Dichloroethene	1.0	< 1.0	ug/L
Methyl-t-butyl Ether	1.0	< 1.0	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 1.0	ug/L
1,1-Dichloroethane	1.0	< 1.0	ug/L
trans-1,2-Dichloroethene	1.0	< 1.0	ug/L
2-Butanone	10	< 10	ug/L
Carbon Disulfide	1.0	< 1.0	ug/L
Bromochloromethane	1.0	< 1.0	ug/L
Chloroform	1.0	< 1.0	ug/L
2,2-Dichloropropane	1.0	< 1.0	ug/L
1,2-Dichloroethane	1.0	< 1.0	ug/L
Vinyl Acetate	1.0	< 1.0	ug/L
1,1,1-Trichloroethane	1.0	< 1.0	ug/L
1,1-Dichloropropene	1.0	< 1.0	ug/L
Carbon Tetrachloride	1.0	< 1.0	ug/L
Benzene	1.0	< 1.0	ug/L
1,2-Dichloropropane	1.0	< 1.0	ug/L
Trichloroethene	1.0	< 1.0	ug/L
Bromodichloromethane	1.0	< 1.0	ug/L
2-Chloroethyl Vinyl Ether	10	< 10	ug/L
cis-1,3-Dichloropropene	1.0	< 1.0	ug/L
trans-1,3-Dichloropropene	1.0	< 1.0	ug/L
1,1,2-Trichloroethane	1.0	< 1.0	ug/L
1,3-Dichloropropane	1.0	< 1.0	ug/L
Dibromomethane	1.0	< 1.0	ug/L
Toluene	1.0	< 1.0	ug/L
1,2-Dibromoethane	1.0	< 1.0	ug/L
4-Methyl-2-Pentanone	10	< 10	ug/L
2-Hexanone	10	< 10	ug/L
Dibromochloromethane	1.0	< 1.0	ug/L
Tetrachloroethene	1.0	< 1.0	ug/L
Chlorobenzene	1.0	< 1.0	ug/L
Ethylbenzene	1.0	< 1.0	ug/L
1,1,1,2-Tetrachloroethane	1.0	< 1.0	ug/L

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806420
PROJECT #	: 104332.03		
PROJECT NAME	: IBRP		

SAMPLE ID #	BATCH	MATRIX	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
REAGENT BLANK	062598	AQUEOUS	N/A	06/25/98	1

PARAMETER	DET. LIMIT		UNITS
m&p Xylenes	1.0	< 1.0	ug/L
o-Xylene	1.0	< 1.0	ug/L
Styrene	1.0	< 1.0	ug/L
Bromoform	1.0	< 1.0	ug/L
1,1,2,2-Tetrachloroethane	1.0	< 1.0	ug/L
1,2,3-Trichloropropane	1.0	< 1.0	ug/L
Isopropyl Benzene	1.0	< 1.0	ug/L
Bromobenzene	1.0	< 1.0	ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 1.0	ug/L
n-Propylbenzene	1.0	< 1.0	ug/L
2-Chlorotoluene	1.0	< 1.0	ug/L
4-Chlorotoluene	1.0	< 1.0	ug/L
1,3,5-Trimethylbenzene	1.0	< 1.0	ug/L
tert-Butylbenzene	1.0	< 1.0	ug/L
1,2,4-Trimethylbenzene	1.0	< 1.0	ug/L
sec-Butylbenzene	1.0	< 1.0	ug/L
1,3-Dichlorobenzene	1.0	< 1.0	ug/L
1,4-Dichlorobenzene	1.0	< 1.0	ug/L
p-Isopropyltoluene	1.0	< 1.0	ug/L
1,2-Dichlorobenzene	1.0	< 1.0	ug/L
n-Butylbenzene	1.0	< 1.0	ug/L
1,2-Dibromomo-3-chloropropane	1.0	< 1.0	ug/L
1,2,4-Trichlorobenzene	1.0	< 1.0	ug/L
Naphthalene	1.0	< 1.0	ug/L
Hexachlorobutadiene	1.0	< 1.0	ug/L
1,2,3-Trichlorobenzene	1.0	< 1.0	ug/L

SURROGATE % RECOVERY	
1,2-Dichloroethane-d4	105
	(80 - 120)
Toluene-d8	98
	(88 - 110)
Bromofluorobenzene	98
	(86 - 115)

Spike Recovery and RPD Summary Report - WATER

Method : C:\HPCHEM\1\METHODS\82600310.M (RTE Integrator)
Title : AEN New Mexico GC/MS
Last Update : Tue Jun 23 12:31:08 1998
Response via : Initial Calibration

Non-Spiked Sample: 06239804.D

	Spike Sample	Spike Duplicate Sample
File ID :	062398S1.D	062398S2.D
Sample :	806368-02 MS	806368-02 MSD
Acq Time:	23 Jun 98 5:08 pm	23 Jun 98 5:41 pm

Compound	Sample Conc	Spike Added	Spike Res	Dup Res	Spike %Rec	Dup %Rec	RPD	QC Limits RPD	QC Limits % Rec
1,1-Dichloroethene	0.0	50	49	49	98	98	1	14	61-145
Benzene	0.0	50	54	53	108	105	3	11	76-127
Trichloroethene	0.0	50	53	50	105	101	4	14	71-120
Toluene	0.0	50	52	50	104	100	4	13	76-125
Chlorobenzene	0.0	50	52	50	103	100	3	13	75-130

- Fails Limit Check

82600310.M Thu Jun 25 10:45:45 1998

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ▪ (425) 420-9200 ▪ FAX 420-9210
SPOKANE ▪ (509) 924-9200 ▪ FAX 924-9290
PORTLAND ▪ (503) 906-9200 ▪ FAX 906-9210

American Environmental Network	Project:	Marathon Oil	Sampled: 6/22/98 to 6/23/98
2709-D Pan American Freeway,NE	Project Number:	104332.03	Received: 6/26/98
Albuquerque, NM 87107	Project Manager:	Kimberly McNeill	Reported: 7/21/98 17:14

ANALYTICAL REPORT FOR SAMPLES:

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
MW-58	P806528-01	Water	6/22/98
MW-85	P806528-02	Water	6/23/98
MW-84	P806528-03	Water	6/23/98
MW-64	P806528-04	Water	6/23/98

North Creek Analytical, Inc.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Lisa Domenighini, Project Manager

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NORTH CREEK ANALYTICAL
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American Environmental Network	Project:	Marathon Oil	Sampled: 6/22/98 to 6/23/98
2709-D Pan American Freeway,NE	Project Number:	104332.03	Received: 6/26/98
Albuquerque, NM 87107	Project Manager:	Kimberly McNeill	Reported: 7/21/98 17:14

Total Metals per EPA 6000/7000 Series Methods
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
MW-58			**P806528-01**				**Water**	
Uranium	0780333	7/14/98	7/20/98	EPA 6020	0.00100	ND	mg/l	
MW-85			**P806528-02**				**Water**	
Uranium	0780333	7/14/98	7/20/98	EPA 6020	0.00100	ND	mg/l	
MW-84			**P806528-03**				**Water**	
Uranium	0780333	7/14/98	7/20/98	EPA 6020	0.00100	**0.00180**	mg/l	
MW-64			**P806528-04**				**Water**	
Uranium	0780333	7/14/98	7/20/98	EPA 6020	0.00100	**0.00100**	mg/l	

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

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American Environmental Network	Project:	Marathon Oil	Sampled: 6/22/98 to 6/23/98
2709-D Pan American Freeway,NE	Project Number:	104332.03	Received: 6/26/98
Albuquerque, NM 87107	Project Manager:	Kimberly McNeill	Reported: 7/21/98 17:14

Total Metals per EPA 6000/7000 Series Methods/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0780333	**Date Prepared: 7/14/98**					**Extraction Method: EPA 200/3005**				
Blank	**0780333-BLK1**									
Uranium	7/20/98			**ND**	mg/l	**0.00100**				
LCS	**0780333-BS1**									
Uranium	7/20/98	0.100		0.0703	mg/l	75.0-125	70.3			1
Duplicate	**0780333-DUP1**		**P806111-01**							
Uranium	7/20/98		0.0259	0.0246	mg/l			20.0	**5.15**	
Matrix Spike	**0780333-MS1**		**P806111-01**							
Uranium	7/20/98	0.100	0.0259	0.0982	mg/l	70.0-130	**72.3**			
Matrix Spike	**0780333-MS2**		**P806528-04**							
Uranium	7/20/98	0.100	0.00100	0.0641	mg/l	70.0-130	**63.1**			

North Creek Analytical, Inc.

**Refer to end of report for text of notes and definitions.*

Lisa Bomenighini, Project Manager

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American Environmental Network	Project:	Marathon Oil	Sampled:	6/22/98 to 6/23/98
2709-D Pan American Freeway.NE	Project Number:	104332.03	Received:	6/26/98
Albuquerque, NM 87107	Project Manager:	Kimberly McNeill	Reported:	7/21/98 17:14

Notes and Definitions

#	Note
1	The spike recovery for this QC sample is outside of established control limits. Review of associated batch QC indicates the recovery for this analyte does not represent an out-of-control condition for the batch.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
Recov.	Recovery
RPD	Relative Percent Difference

North Creek Analytical, Inc.

Lisa Domenighini, Project Manager

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P806528

American Environmental Network (NM), Inc. COPY **CHAIN OF CUSTODY**

DATE: 6-23-98 PAGE: 1 OF 1

AEN(NM) Accession #: 01-806420

PROJECT MANAGER: Paul Peacock

COMPANY: Marathon Oil Company
ADDRESS: P.O. Box 552
Midland, TX 79702-0552
PHONE: (915) 687-8312
FAX: (915) 687-8305

BILL TO: same as above
COMPANY:
ADDRESS:

SHADED AREAS ARE FOR LAB USE ONLY.

PLEASE FILL THIS FORM IN COMPLETELY.

SAMPLE ID	DATE	TIME	MATRIX	LAB ID
MW-58	6-22-98	1600	H_2O	
MW-85	6-23-98	0900		
MW-84		1300		
MW-64		1430		

ANALYSIS REQUEST

Petroleum Hydrocarbons (418.1) TRPH	(MOD.8015) Diesel/Direct Inject	(M8015) Gas/Purge & Trap	8021 (BTEX)/8015 (Gasoline)	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)	Herbicides (615/8151)	Base/Neutral/Acid Compounds GC/MS (625/8270)	Polynuclear Aromatics (610/8310)	General Chemistry:	U - ICPMS	Priority Pollutant Metals (13)	Target Analyte List Metals (23)	RCRA Metals (8)	RCRA Metals by TCLP (Method 1311)	Metals:		NUMBER OF CONTAINERS
																			X							1
																			X							1
																			X							1
																			X							1

PROJECT INFORMATION

PROJ. NO.: 104332.03
PROJ. NAME: IBRP
P.O. NO.:
SHIPPED VIA:

SAMPLE RECEIPT

NO. CONTAINERS	
CUSTODY SEALS	Y / N / NA
RECEIVED INTACT	
BLUE ICE/ICE	

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

(RUSH) ☐ 24hr ☐ 48hr ☐ 72hr ☐ 1 WEEK (NORMAL) X

CERTIFICATION REQUIRED: ☐ NM ☐ SDWA ☐ OTHER

METHANOL PRESERVATION ☐

COMMENTS: FIXED FEE ☐

NOTE: MW-58, 85, 84, & 64 are product wells

RELINQUISHED BY: 1.	RELINQUISHED BY:
Signature:	Time: 1500
Printed Name: Charles Mcdowell	Date: 6-23-98
Company: FDGI	
Signature:	Time: 1530
Printed Name: CHRIS FAITH	Date: 6/23
Company: AEN	

RECEIVED BY: 1.	RECEIVED BY: (LAB) 2.
Signature:	Time: 1500
Printed Name: CHRIS FAITH	Date: 6/23
Company: AEN	
Signature: Sara McClurg	Time: 1000
Printed Name: Sara McClurg	Date: 6-26-98
American Enviromental Network (NM), Inc.	

AEN Inc.: American Environmental Network (NM), Inc. • 2709-D Pan American Freeway, NE • Albuquerque, New Mexico 87107 • (505) 344-3777 • Fax (505) 344-4413

DISTRIBUTION: White - AEN Inc. Library - Originator

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Severn Trent Laboratories
120 Southcenter Court, Suite 300
Morrisville NC 27560

Tel: (919) 460-8505
Fax: (919) 469-2646

July 20, 1998

American Environmental Network
Attn: Dr. Mitch Rubenstein
2709D PanAmerican Freeway NE
Albuquerque, NM 87107

Dear Dr. Rubenstein:

Please find enclosed the radiological results of four (4) water samples. This report contains sections addressing the following information at a minimum:

- case narrative
- sample summary
- analytical results (forms I thru VII), key, and COC's if applicable

STL Project #s	2999401
STL Work Order #s	98-06-410
Client Project ID	104382.03

Copies of this radiological report and supporting data are maintained in our files for a minimum of three years unless special arrangements have been made. Except where specifically indicated, all radiological testing was performed at this laboratory location and no portion of the testing was subcontracted.

We appreciate your selection of our services and welcome any questions or suggestions you may have relative to this report. Please contact your customer service representative at (919) 460-8505 for any additional information. Thank you for utilizing our services. We hope you will consider us for your future analytical needs.

I have reviewed and approved the enclosed data for final release.

Sincerely,

Ross W. Williams

Ross W. Williams, Ph.D.
Manager, Radiological Laboratory
STL-North Carolina

RWW/mevl

Committed To *Your* Success

CASE NARRATIVE
Client: American Environmental Network - NM
Client Project ID: 104332.03
STL-NC Order Number: 98-06-410
STL-NC Project Number: 2399-017

Four (4) water samples were received on June 25, 1998, in good condition with the chain-of-custody intact.

The samples were analyzed for Ra-226 and Ra-228.

A method blank was analyzed with each batch, and the activities of the blanks were equal to or less than the acceptance criteria of less than three times the MDL.

A blank spike sample was analyzed with each batch, and the recoveries were within the 80-120% acceptance criteria.

A matrix spike analysis was made with each batch also. The matrix spike recoveries were within the acceptance criteria of 80-120% for water samples.

A duplicate sample was analyzed for each batch. The duplicate analyses were within our acceptance criteria of a Duplicate Error Ratio (DER) of less than 1.5. The DER is defined as follows:

$$DER = \frac{|S-D|}{(2\sigma_s + 2\sigma_d)}$$

Where: S = Original Sample Value
D = Duplicate Value
$2\sigma_s$ = Original Sample Uncertainty
$2\sigma_d$ = Duplicate Sample Uncertainty

Ross W. Williams, Ph.D.
Manager, Radiological Laboratory
7/21/98

N:\WP\AEN-NM 2399-017.WPD

Environmental Survey

Cover Page

Radiological Data Analysis Package

07/20/98

120 Southcenter Ct., Suite 300
Morrisville, NC 27560

Phone (919) 460-8505
Fax (919) 469-2646

NC - 806420

Project Number: 2399-017

Client Sample ID	Lab ID
MW-58	9806410-01
MW-85	9806410-02
MW-84	9806410-03
MW-64	9806410-04

Comments: _____

Release of the data contained in this package has been authorized by the laboratory manager or the manager's designee, as verified by the following signature.

Ronna W. Williams
Manager, Radiological Laboratory

7/21/98
Date

STL

Project Number: 2399-017

Severn Trent Laboratories

Radiological Analysis Results

NC - 806420

07/20/98

Form I

Client Sample ID	Lab ID	Sample Type	Batch Number	Matrix	Radionuclide	Result	Uncertainty	Q	Units	Analysis Date	Sample Size	MDA
MW-58	9806410-01	Reg	98070006	Water	Ra-226	0.49	0.17		pCi/L	07/16/98	0.5000	0.14
MW-58	9806410-01	Reg	98070009	Water	Ra-228	3.65	1.16		pCi/L	07/10/98	1.0000	2.17
MW-85	9806410-02	Reg	98070006	Water	Ra-226	6.40	0.44		pCi/L	07/16/98	0.5000	0.14
MW-85	9806410-02	Reg	98070009	Water	Ra-228	5.81	1.29		pCi/L	07/10/98	1.0000	2.17
MW-84	9806410-03	Reg	98070006	Water	Ra-226	1.10	0.16		pCi/L	07/16/98	0.5000	0.07
MW-84	9806410-03	Reg	98070009	Water	Ra-228	2.28	1.07		pCi/L	07/10/98	1.0000	2.16
MW-64	9806410-04	Reg	98070006	Water	Ra-226	0.51	0.17		pCi/L	07/16/98	0.5000	0.14
MW-64	9806410-04	Reg	98070009	Water	Ra-228	3.96	1.26		pCi/L	07/10/98	1.0000	2.36

Key shall be attached

Comments: _____

Form II

Client Sample ID	Lab ID	Sample Type	Batch Number	Matrix	Radionuclide	Result	Uncertainty	Units	Analysis Date	Sample Size	MDA	Inst ID
Blank Spike	N/A	BS	98070006	Water	Ra-226	154.91	2.81	pCi/L	07/15/98	0.5000	0.22	5
Blank Spike	N/A	BS	98070009	Water	Ra-228	93.02	3.84	pCi/L	07/10/98	1.0000	2.07	1
MW-49	9806406-01	Dup	98070006	Water	Ra-226	4.31	0.31	pCi/L	07/13/98	0.5000	0.08	5
MW-54	9806501-01	Dup	98070009	Water	Ra-228	7.29	1.19	pCi/L	07/15/98	1.0000	1.88	1
Method Blank	N/A	MB	98070006	Water	Ra-226	0.16	0.15	pCi/L	07/15/98	0.5000	0.18	5
Method Blank	N/A	MB	98070009	Water	Ra-228	-0.90	1.09	pCi/L	07/10/98	1.0000	2.76	1
MW-13	9806406-02	MS	98070006	Water	Ra-226	138.97	2.14	pCi/L	07/13/98	0.5000	0.15	5
MW-55	9806501-02	MS	98070009	Water	Ra-228	106.93	3.72	pCi/L	07/15/98	1.0000	1.76	1

Key shall be attached

Comments: _____

_____

_____

MDA mode

STL

Project Number: 2399-017

Severn Trent Laboratories

Method Blank Summary

NC - 806420

07/20/98

Form III

Client Sample ID	Batch Number	Matrix	Radionuclide	Result	Uncertainty	Q	Units	Analysis Date	Sample Size	Method Number	Inst ID
Method Blank	98070006	Water	Ra-226	0.16	0.15		pCi/L	07/15/98	0.5000	RAS01900	5
Method Blank	98070009	Water	Ra-228	-0.90	1.09		pCi/L	07/10/98	1.0000	RAS08500	1

Key shall be attached
Comments: _____

Project Number: 2399-017

Severn Trent Laboratories

Chemical Recovery

NC - 806420

07/20/98

Form IV

Client Sample ID	Lab ID	Sample Type	Batch Number	Radionuclide	Chemical Tracer	Tracer Result	Tracer Added	Percent Recovery	Q	Tracer Units	Analysis Date	Inst ID
MW-58	9806410-01	Reg	98070006	Ra-226	Ba-133	1227.00	1260.00	97.38 %		pCi	07/16/98	5
MW-58	9806410-01	Reg	98070009	Ra-228	Ba-133	1001.00	1260.00	79.44 %		pCi	07/10/98	1
MW-85	9806410-02	Reg	98070006	Ra-226	Ba-133	1146.00	1309.00	87.55 %		pCi	07/16/98	5
MW-85	9806410-02	Reg	98070009	Ra-228	Ba-133	1059.00	1309.00	80.90 %		pCi	07/10/98	1
MW-84	9806410-03	Reg	98070006	Ra-226	Ba-133	1156.00	1260.00	91.75 %		pCi	07/16/98	5
MW-84	9806410-03	Reg	98070009	Ra-228	Ba-133	989.80	1260.00	78.56 %		pCi	07/10/98	1
MW-64	9806410-04	Reg	98070006	Ra-226	Ba-133	1144.00	1260.00	90.79 %		pCi	07/16/98	5
MW-64	9806410-04	Reg	98070009	Ra-228	Ba-133	959.20	1309.00	73.28 %		pCi	07/10/98	1
Blank Spike	N/A	BS	98070006	Ra-226	Ba-133	1099.00	1309.00	83.96 %		pCi	07/15/98	5
Blank Spike	N/A	BS	98070009	Ra-228	Ba-133	1020.00	1260.00	80.95 %		pCi	07/10/98	1
MW-49	9806406-01	Dup	98070006	Ra-226	Ba-133	1258.00	1260.00	99.84 %		pCi	07/13/98	5
MW-54	9806501-01	Dup	98070009	Ra-228	Ba-133	1188.00	1309.00	90.76 %		pCi	07/15/98	1
Method Blank	N/A	MB	98070006	Ra-226	Ba-133	956.60	1260.00	75.92 %		pCi	07/15/98	5
Method Blank	N/A	MB	98070009	Ra-228	Ba-133	1083.00	1309.00	82.73 %		pCi	07/10/98	1
MW-13	9806406-02	MS	98070006	Ra-226	Ba-133	1221.00	1309.00	93.28 %		pCi	07/13/98	5
MW-55	9806501-02	MS	98070009	Ra-228	Ba-133	1030.00	1260.00	81.75 %		pCi	07/15/98	1

Key shall be attached

Comments:

MDA mode

STL

Project Number: 2399-017

Blank Spike Results Summary

NC - 806420

07/20/98

Form V

Client Sample ID	Batch Number	Matrix	Radionuclide	Spike	Result	Spike Value	Percent Recovery	Q	Units	Analysis Date	Method Number
Blank Spike	98070006	Water	Ra-226	Ra-226	154.91	145.40	106.54%		pCi/L	07/15/98	RAS01900
Blank Spike	98070009	Water	Ra-228	Ra-228	93.02	87.75	106.01%		pCi/L	07/10/98	RAS08500

Key shall be attached

Comments: _____

Project Number: 2399-017

Matrix Spike Results Summary

NC - 806420

07/20/98

Form VI

Client Sample ID	Lab ID	Batch Number	Spike	SSR	Sample Result	Spike Added	Percent Recovery	Q	Units	Analysis Date	Inst ID
MW-13	9806406-02	98070006	Ra-226	138.97	0.87	145.40	94.98 %		pCi/L	07/13/98	5
MW-55	9806501-02	98070009	Ra-228	106.93	3.21	87.75	118.20 %		pCi/L	07/15/98	1

Key shall be attached

Comments: _____

_____

_____

MDA mode

STL

Project Number: 2399-017

Severn Trent Laboratories

Duplicate Results

NC - 806420

07/20/98

Form VII

Client Sample ID	Lab ID	Batch Number	Radionuclide	Sample Result	Uncertainty	Dup. Result	Dup. Uncertainty	DER	Q	Units
MW-49	9806406-01	98070006	Ra-226	3.53	0.27	4.31	0.31	1.34		pCi/L
MW-54	9806501-01	98070009	Ra-228	6.60	1.12	7.29	1.19	0.30		pCi/L

Key shall be attached

Comments: _____



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REPORT FORM KEY

Severn Trent Laboratories
120 Southcenter Court, Suite 300
Morrisville NC 27560

Tel: (919) 460-8505
Fax: (919) 469-2646

Instrument ID:

#1 - Gas Proportional Counter
#2 - High Purity Germanium Detectors (HPGe)
#3 - Alpha Spectrometry Counter
#4 - Liquid Scintillation Counter
#5 - Lucas Cell Counter
#6 - Sodium Iodide Detector

Sample Type:

REG - Regular Sample
DUP - Duplicate Sample
MS - Matrix Spike
BS - Blank Spike
MB - Method Blank

Units:

pCi/L - Picocuries per Liter
pCi/g - Picocuries per Gram
pCi/ml - Picocuries per Milliliter
pCi/mg - Picocuries per Milligram
pCi/F - Picocuries per Air Filter

Radionuclides:

H-3	Tritium	C-14	Carbon-14
Cl-36	Chlorine-36	K-40	Potassium-40
Co-60	Cobalt-60	Sr-89	Strontium-89
Sr-90	Strontium-90	Tc-99	Technetium-99
Cs-137	Cesium-137	Tl-208	Thallium-208
Pb-210	Lead-210	Pb-212	Lead-212
Pb-214	Lead-214	Bi-214	Bismuth-214
Ra-226	Radium-226	Ac-228	Actinium-228
Ra-228	Radium-228	Th-234	Thorium-234
Th-227	Thorium-227	Th-232/230/228	Isotopic Thorium
U-234/235/238	Isotopic Uranium	Pu-238	Plutonium-238
Pu-239/240	Plutonium-239&240	Am-241	Americium-241
Np-237	Neptunium-237		

WORK ORDER

Lab

Work Order #	98-06-410	# of Samples	4	Recieved Date	06/25/98	American Environ. Network
Client #	2399	# of Tests	8	Load Date	06/25/98	2709D PanAmerican Freeway NE
Project	2399-017	Report Level	2	Due Date	07/13/98	Albuquerque, NM 87107
Amount	123.25	Quote #		Export Date	/ /	Mitch Rubenstein
Comment						

Lab ID	Sample #	Status	Matrix	Test	Cust ID	Collected
9806410-01	01A1	Open	Water	Ra-226	MW-58	06/22/98
9806410-01	01A2	Open	Water	Ra-228	MW-58	06/22/98
9806410-02	02A1	Open	Water	Ra-226	MW-85	06/23/98
9806410-02	02A2	Open	Water	Ra-228	MW-85	06/23/98
9806410-03	03A1	Open	Water	Ra-226	MW-84	06/23/98
9806410-03	03A2	Open	Water	Ra-228	MW-84	06/23/98
9806410-04	04A1	Open	Water	Ra-226	MW-64	06/23/98
9806410-04	04A2	Open	Water	Ra-228	MW-64	06/23/98

pH Checked
All Samples pH <2
Initials: EB Date: 6/25/98
Arrived unpreserved

American Environmental Network (NM), Inc.

CHAIN OF CUSTODY

DATE: 6-23-98 PAGE: 1 OF 1

AEN(NM) Accession #: NC-806420

SHADED AREAS ARE FOR LAB USE ONLY.

PLEASE FILL THIS FORM IN COMPLETELY.

PROJECT MANAGER: Paul Peacock

COMPANY: Marathon Oil Company
ADDRESS: P.O. BOX 552
Midland, TX 79702-0552
PHONE: (915) 687-8312
FAX: (915) 687-8305
BILL TO: same as above
COMPANY:
ADDRESS:

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB I.D.	NUMBER OF CONTAINERS
MW-58	6-22-98	1600	H_2O		4
MW-85	6-23-98	0900			2
MW-84		1300			1
MW-64		1430			1

Petroleum Hydrocarbons (418.1) TRPH
(MOD.8015) Diesel/Direct Inject
(M8015) Gas/Purge & Trap
8021 (BTEX)/8015 (Gasoline)
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)
Herbicides (615/8151)
Base/Neutral/Acid Compounds GC/MS (625/8270)
Polynuclear Aromatics (610/8310)
General Chemistry: RA 226/228
Priority Pollutant Metals (13)
Target Analyte List Metals (23)
RCRA Metals (8)
RCRA Metals by TCLP (Method 1311)
Metals:

X X X X

PROJECT INFORMATION

PROJ. NO.: 104332.03
PROJ. NAME: IBRP
P.O. NO.:
SHIPPED VIA:

SAMPLE RECEIPT

NO. CONTAINERS:	
CUSTODY SEALS:	Y/N/NA
RECEIVED INTACT:	
BLUE ICE/ICE:	

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

(RUSH) [ ]24hr [ ]48hr [ ]72hr [ ]1 WEEK (NORMAL) X

CERTIFICATION REQUIRED: [ ]NM [ ]SDWA [ ]OTHER

METHANOL PRESERVATION [ ]

COMMENTS: FIXED FEE [ ]

Note: MW-58, 85, 84, & 64 are product wells

RELINQUISHED BY: 1.	RELINQUISHED BY: 2.
Signature:	Signature:
Time: 1500	Time: 1530
Printed Name: Charles Madewell	Printed Name: CHRIS FAOM
Date: 6-23-98	Date: 6/23
Company: FOGII	Company: AEN
RECEIVED BY: 1.	**RECEIVED BY: (LAB) 2.**
Signature:	Signature:
Time: 1500	Time: 11:00
Printed Name: CHRIS FAOM	Printed Name: Rick
Date: 6/23	Date: 6/25/98
Company: AEN	American Environmental Network (NM), Inc. Red Lab

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Severn Trent Laboratories
11 East Olive Road
Pensacola FL 32514

Tel: (850) 474-1001
Fax: (850) 474-4789

SIGNATURE PAGE

Reviewed by: M Patrick

AEN Project Manager

Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC. ALBUQUERQUE, NEW MEXICO
Project Name:	IBRP
Project Number:	806420
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Accession Number:	806323
Project Manager:	KIMBERLY D. MCNEILL
Sampled By:	N/S

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Analysis Report

Analysis: MARATHON WET CHEMISTRY INORGANICS

Accession:	806323
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806420
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	WET CHEM

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 806323
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806420
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON WET CHEMISTRY INORGANICS
QcLevel: II

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: MW-58			Lab ID: 001		
CHLORIDE (4500-CL B)	MG/L	42	1	CIW069	
CYANIDE, TOTAL (335.2)	MG/L	ND	0.005	CNW038	
FLUORIDE (340.2/4500-F C)	MG/L	0.9	0.2	FLW028	
NITRITE, NITROGEN (354.1)	MG/L	ND	0.1	N2W092	
NITRITE-NITRATE, NITROGEN (353.2)	MG/L	ND	0.1	N3W47B	
NITRATE, NITROGEN (353.2-354.1)	MG/L	ND	0.1	NONE	
PH (150.1)	UNITS	7.4	NA	PHW133	R4
PHENOLS, TOTAL (420.1)	MG/L	ND	0.005	PEW025	
SULFATE (375.4)	MG/L	ND	5	SEW078	
TOTAL DISSOLVED SOLIDS (160.1)	MG/L	760	5	TDW038	
Comments:					
Client ID: MW-85			Lab ID: 002		
CHLORIDE (4500-CL B)	MG/L	120	1	CIW069	
CYANIDE, TOTAL (335.2)	MG/L	ND	0.005	CNW038	
FLUORIDE (340.2/4500-F C)	MG/L	1.3	0.2	FLW028	
NITRITE, NITROGEN (354.1)	MG/L	ND	0.1	N2W092	
NITRITE-NITRATE, NITROGEN (353.2)	MG/L	0.1	0.1	N3W47B	
NITRATE, NITROGEN (353.2-354.1)	MG/L	0.1	0.1	NONE	
PH (150.1)	UNITS	7.5	NA	PHW133	R4
PHENOLS, TOTAL (420.1)	MG/L	0.034	0.005	PEW025	
SULFATE (375.4)	MG/L	ND	5	SEW078	
TOTAL DISSOLVED SOLIDS (160.1)	MG/L	1100	5	TDW038	
Comments:					

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 806323
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806420
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON WET CHEMISTRY INORGANICS
QcLevel: II

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: MW-84			Lab ID: 003		
CHLORIDE (4500-CL B)	MG/L	7	1	CIW069	
CYANIDE, TOTAL (335.2)	MG/L	ND	0.005	CNW038	
FLUORIDE (340.2/4500-F C)	MG/L	0.5	0.2	FLW028	
NITRITE, NITROGEN (354.1)	MG/L	ND	0.1	N2W092	
NITRITE-NITRATE, NITROGEN (353.2)	MG/L	ND	0.1	N3W47B	
NITRATE, NITROGEN (353.2-354.1)	MG/L	ND	0.1	NONE	
PH (150.1)	UNITS	7.5	NA	PHW133	R4
PHENOLS, TOTAL (420.1)	MG/L	0.008	0.005	PEW025	
SULFATE (375.4)	MG/L	ND	5	SEW078	
TOTAL DISSOLVED SOLIDS (160.1)	MG/L	370	5	TDW038	

Comments:

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: MW-64			Lab ID: 004		
CHLORIDE (4500-CL B)	MG/L	15	1	CIW069	
CYANIDE, TOTAL (335.2)	MG/L	ND	0.005	CNW038	
FLUORIDE (340.2/4500-F C)	MG/L	0.7	0.2	FLW028	
NITRITE, NITROGEN (354.1)	MG/L	ND	0.1	N2W092	
NITRITE-NITRATE, NITROGEN (353.2)	MG/L	0.7	0.1	N3W47B	
NITRATE, NITROGEN (353.2-354.1)	MG/L	0.7	0.1	NONE	
PH (150.1)	UNITS	7.3	NA	PHW133	R4
PHENOLS, TOTAL (420.1)	MG/L	ND	0.005	PEW025	
SULFATE (375.4)	MG/L	ND	5	SEW078	
TOTAL DISSOLVED SOLIDS (160.1)	MG/L	600	5	TDW038	

Comments:

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 806323
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806420
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON WET CHEMISTRY INORGANICS

Client ID:	Lab ID:	Matrix:	Date/Time Sampled:	Date Received:
MW-58	001	WATER	22-JUN-98 1600	24-JUN-98
MW-85	002	WATER	23-JUN-98 0900	24-JUN-98
MW-84	003	WATER	23-JUN-98 1300	24-JUN-98
MW-64	004	WATER	23-JUN-98 1430	24-JUN-98

"Method Report Summary"

Accession Number: 806323
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806420
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON WET CHEMISTRY INORGANICS

Client Sample Id:	Parameter:	Unit:	Result:
MW-58	CHLORIDE (4500-CL B)	MG/L	42
	FLUORIDE (340.2/4500-F C)	MG/L	0.9
	PH (150.1)	UNITS	7.4
	TOTAL DISSOLVED SOLIDS (160.1)	MG/L	760
MW-85	CHLORIDE (4500-CL B)	MG/L	120
	FLUORIDE (340.2/4500-F C)	MG/L	1.3
	NITRITE-NITRATE, NITROGEN (353.2)	MG/L	0.1
	NITRATE, NITROGEN (353.2-354.1)	MG/L	0.1
	PH (150.1)	UNITS	7.5
	PHENOLS, TOTAL (420.1)	MG/L	0.034
	TOTAL DISSOLVED SOLIDS (160.1)	MG/L	1100
MW-84	CHLORIDE (4500-CL B)	MG/L	7
	FLUORIDE (340.2/4500-F C)	MG/L	0.5
	PH (150.1)	UNITS	7.5
	PHENOLS, TOTAL (420.1)	MG/L	0.008
	TOTAL DISSOLVED SOLIDS (160.1)	MG/L	370
MW-64	CHLORIDE (4500-CL B)	MG/L	15
	FLUORIDE (340.2/4500-F C)	MG/L	0.7
	NITRITE-NITRATE, NITROGEN (353.2)	MG/L	0.7
	NITRATE, NITROGEN (353.2-354.1)	MG/L	0.7
	PH (150.1)	UNITS	7.3
	TOTAL DISSOLVED SOLIDS (160.1)	MG/L	600

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Analysis Report

Analysis: MARATHON METALS - OPTIMA

Accession:	806323
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806420
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	METALS

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 806323
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806420
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON METALS - OPTIMA
QcLevel: II

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: MW-58			Lab ID:001		
SILVER (6010A)	MG/L	0.0007	0.0007	AYW169	
ALUMINUM (6010A)	MG/L	0.088	0.026	LYW169	
ARSENIC (6010A)	MG/L	0.019	0.0018	RYW169	
BARIUM (6010A)	MG/L	0.062	0.0002	BYW169	
BORON (6010A)	MG/L	0.12	0.0057	OYW169	
CADMIUM (6010A)	MG/L	ND	0.0002	CYW169	
COBALT (6010A)	MG/L	ND	0.0003	TYW169	
CHROMIUM (6010A)	MG/L	ND	0.0008	HYW169	
COPPER (6010A)	MG/L	ND	0.0018	FYW169	
MERCURY (7470A)	MG/L	ND	0.0001	M7W082	
NICKEL (6010A)	MG/L	0.0015	0.0009	EYW169	
IRON (6010A)	MG/L	0.29	0.013	N6W169	
LEAD (6010A)	MG/L	ND	0.0022	PYW169	
MANGANESE (6010A)	MG/L	0.28	0.0002	GYW169	
MOLYBDENUM (6010A)	MG/L	0.0057	0.0003	DYW169	
SELENIUM (6010A)	MG/L	ND	0.0023	SYW169	
ZINC (6010A)	MG/L	0.091	0.014	5YW169	
Comments:					
Client ID: MW-85			Lab ID:002		
SILVER (6010A)	MG/L	ND	0.0007	AYW169	
ALUMINUM (6010A)	MG/L	ND	0.026	LYW169	
ARSENIC (6010A)	MG/L	0.012	0.0018	RYW169	
BARIUM (6010A)	MG/L	0.26	0.0002	BYW169	
BORON (6010A)	MG/L	0.22	0.0057	OYW169	
CADMIUM (6010A)	MG/L	ND	0.0002	CYW169	
COBALT (6010A)	MG/L	ND	0.0003	TYW169	
CHROMIUM (6010A)	MG/L	ND	0.0008	HYW169	
COPPER (6010A)	MG/L	0.0018	0.0018	FYW169	
MERCURY (7470A)	MG/L	ND	0.0001	M7W082	
NICKEL (6010A)	MG/L	0.0020	0.0009	EYW169	
IRON (6010A)	MG/L	1.0	0.013	N6W169	
LEAD (6010A)	MG/L	ND	0.0022	PYW169	
MANGANESE (6010A)	MG/L	0.19	0.0002	GYW169	
MOLYBDENUM (6010A)	MG/L	0.0020	0.0003	DYW169	
SELENIUM (6010A)	MG/L	ND	0.0023	SYW169	
ZINC (6010A)	MG/L	0.067	0.014	5YW169	
Comments:					

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 806323
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806420
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON METALS - OPTIMA
QcLevel: II

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: MW-84			Lab ID:003		
SILVER (6010A)	MG/L	ND	0.0007	AYW169	
ALUMINUM (6010A)	MG/L	ND	0.026	LYW169	
ARSENIC (6010A)	MG/L	0.019	0.0018	RYW169	
BARIUM (6010A)	MG/L	0.25	0.0002	BYW169	
BORON (6010A)	MG/L	0.062	0.0057	OYW169	
CADMIUM (6010A)	MG/L	ND	0.0002	CYW169	
COBALT (6010A)	MG/L	0.0003	0.0003	TYW169	
CHROMIUM (6010A)	MG/L	ND	0.0008	HYW169	
COPPER (6010A)	MG/L	ND	0.0018	FYW169	
MERCURY (7470A)	MG/L	ND	0.0001	M7W082	
NICKEL (6010A)	MG/L	0.0020	0.0009	EYW169	
IRON (6010A)	MG/L	0.86	0.013	N6W169	
LEAD (6010A)	MG/L	ND	0.0022	PYW169	
MANGANESE (6010A)	MG/L	0.25	0.0002	GYW169	
MOLYBDENUM (6010A)	MG/L	0.0043	0.0003	DYW169	
SELENIUM (6010A)	MG/L	ND	0.0023	SYW169	
ZINC (6010A)	MG/L	0.014	0.014	5YW169	
Comments:					
Client ID: MW-64			Lab ID:004		
SILVER (6010A)	MG/L	0.0013	0.0007	AYW169	
ALUMINUM (6010A)	MG/L	0.066	0.026	LYW169	
ARSENIC (6010A)	MG/L	0.0015	0.0018	RYW169	
BARIUM (6010A)	MG/L	0.035	0.0002	BYW169	
BORON (6010A)	MG/L	0.071	0.0057	OYW169	
CADMIUM (6010A)	MG/L	ND	0.0002	CYW169	
COBALT (6010A)	MG/L	ND	0.0003	TYW169	
CHROMIUM (6010A)	MG/L	0.0008	0.0008	HYW169	
COPPER (6010A)	MG/L	ND	0.0018	FYW169	
MERCURY (7470A)	MG/L	ND	0.0001	M7W082	
NICKEL (6010A)	MG/L	0.0028	0.0009	EYW169	
IRON (6010A)	MG/L	0.021	0.013	N6W169	
LEAD (6010A)	MG/L	ND	0.0022	PYW169	
MANGANESE (6010A)	MG/L	0.026	0.0002	GYW169	
MOLYBDENUM (6010A)	MG/L	0.036	0.0003	DYW169	
SELENIUM (6010A)	MG/L	ND	0.0023	SYW169	
ZINC (6010A)	MG/L	0.086	0.014	5YW169	
Comments:					

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 806323
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806420
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON METALS - OPTIMA

Client Id:	Lab Id:	Matrix:	Date/Time Sampled:	Date Received:
MW-58	001	WATER	22-JUN-98 1600	24-JUN-98
MW-85	002	WATER	23-JUN-98 0900	24-JUN-98
MW-84	003	WATER	23-JUN-98 1300	24-JUN-98
MW-64	004	WATER	23-JUN-98 1430	24-JUN-98

"Method Report Summary"

Accession Number: 806323
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806420
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON METALS - OPTIMA

Client Sample Id:	Parameter:	Unit:	Result:
MW-58	SILVER (6010A)	MG/L	0.0007
	ALUMINUM (6010A)	MG/L	0.088
	ARSENIC (6010A)	MG/L	0.019
	BARIUM (6010A)	MG/L	0.062
	BORON (6010A)	MG/L	0.12
	NICKEL (6010A)	MG/L	0.0015
	IRON (6010A)	MG/L	0.29
	MANGANESE (6010A)	MG/L	0.28
	MOLYBDENUM (6010A)	MG/L	0.0057
	ZINC (6010A)	MG/L	0.091
MW-85	ARSENIC (6010A)	MG/L	0.012
	BARIUM (6010A)	MG/L	0.26
	BORON (6010A)	MG/L	0.22
	COPPER (6010A)	MG/L	0.0018
	NICKEL (6010A)	MG/L	0.0020
	IRON (6010A)	MG/L	1.0
	MANGANESE (6010A)	MG/L	0.19
	MOLYBDENUM (6010A)	MG/L	0.0020
	ZINC (6010A)	MG/L	0.067
MW-84	ARSENIC (6010A)	MG/L	0.019
	BARIUM (6010A)	MG/L	0.25
	BORON (6010A)	MG/L	0.062
	COBALT (6010A)	MG/L	0.0003
	NICKEL (6010A)	MG/L	0.0020
	IRON (6010A)	MG/L	0.86
	MANGANESE (6010A)	MG/L	0.25
	MOLYBDENUM (6010A)	MG/L	0.0043
	ZINC (6010A)	MG/L	0.014
MW-64	SILVER (6010A)	MG/L	0.0013
	ALUMINUM (6010A)	MG/L	0.066
	ARSENIC (6010A)	MG/L	0.0015
	BARIUM (6010A)	MG/L	0.035
	BORON (6010A)	MG/L	0.071
	CHROMIUM (6010A)	MG/L	0.0008
	NICKEL (6010A)	MG/L	0.0028
	IRON (6010A)	MG/L	0.021
	MANGANESE (6010A)	MG/L	0.026
	MOLYBDENUM (6010A)	MG/L	0.036
	ZINC (6010A)	MG/L	0.086

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Analysis Report

Analysis: PESTICIDES (8080)

Accession:	806323
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806420
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	PESTICIDES

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"FINAL REPORT FORMAT - SINGLE"

Accession:	806323
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806420
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Test:	PESTICIDES (8080)
Analysis Method:	8080 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Extraction Method:	3510 / 3660 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Matrix:	WATER
QC Level:	II

Lab Id:	001	Sample Date/Time:	22-JUN-98 1600
Client Sample Id:	MW-58	Received Date:	24-JUN-98
Batch: PSW044		Extraction Date:	27-JUN-98
Blank: B	Dry Weight %: N/A	Analysis Date:	07-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
ALDRIN	UG/L	ND	0.4	
ALPHA-BHC	UG/L	ND	0.4	
BETA-BHC	UG/L	ND	0.4	
DELTA-BHC	UG/L	ND	0.4	
GAMMA-BHC (LINDANE)	UG/L	ND	0.4	
4,4'-DDD	UG/L	ND	0.4	
4,4'-DDE	UG/L	ND	0.4	
4,4'-DDT	UG/L	ND	0.4	
DIELDRIN	UG/L	ND	0.4	
ENDOSULFAN I	UG/L	ND	0.4	
ENDOSULFAN II	UG/L	ND	0.4	
ENDOSULFAN SULFATE	UG/L	ND	0.4	
ENDRIN	UG/L	ND	0.4	
ENDRIN ALDEHYDE	UG/L	ND	0.4	
HEPTACHLOR	UG/L	ND	0.4	
HEPTACHLOR EPOXIDE	UG/L	ND	0.4	
METHOXYCHLOR	UG/L	ND	0.4	
CHLORDANE	UG/L	ND	0.2	
TOXAPHENE	UG/L	ND	2.4	
PCB-1016	UG/L	ND	0.8	
PCB-1221	UG/L	ND	0.8	
PCB-1232	UG/L	ND	0.8	
PCB-1242	UG/L	ND	0.8	
PCB-1248	UG/L	ND	0.8	
PCB-1254	UG/L	ND	0.8	
PCB-1260	UG/L	ND	0.8	
TCMX	%REC/SURR	58	43-101	
DCB	%REC/SURR	39	17-135	
ANALYST	INITIALS	RP		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 806323
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806420
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: PESTICIDES (8080)
Analysis Method: 8080 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Extraction Method: 3510 / 3660 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Matrix: WATER
QC Level: II

Lab Id: 002 Sample Date/Time: 23-JUN-98 0900
Client Sample Id: MW-85 Received Date: 24-JUN-98

Batch: PSW044 Extraction Date: 27-JUN-98
Blank: B Dry Weight %: N/A Analysis Date: 07-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
ALDRIN	UG/L	ND	0.4	
ALPHA-BHC	UG/L	ND	0.4	
BETA-BHC	UG/L	ND	0.4	
DELTA-BHC	UG/L	ND	0.4	
GAMMA-BHC (LINDANE)	UG/L	ND	0.4	
4,4'-DDD	UG/L	ND	0.4	
4,4'-DDE	UG/L	ND	0.4	
4,4'-DDT	UG/L	ND	0.4	
DIELDRIN	UG/L	ND	0.4	
ENDOSULFAN I	UG/L	ND	0.4	
ENDOSULFAN II	UG/L	ND	0.4	
ENDOSULFAN SULFATE	UG/L	ND	0.4	
ENDRIN	UG/L	ND	0.4	
ENDRIN ALDEHYDE	UG/L	ND	0.4	
HEPTACHLOR	UG/L	ND	0.4	
HEPTACHLOR EPOXIDE	UG/L	ND	0.4	
METHOXYCHLOR	UG/L	ND	0.4	
CHLORDANE	UG/L	ND	0.2	
TOXAPHENE	UG/L	ND	2.4	
PCB-1016	UG/L	ND	0.8	
PCB-1221	UG/L	ND	0.8	
PCB-1232	UG/L	ND	0.8	
PCB-1242	UG/L	ND	0.8	
PCB-1248	UG/L	ND	0.8	
PCB-1254	UG/L	ND	0.8	
PCB-1260	UG/L	ND	0.8	
TCMX	%REC/SURR	38*	43-101	
DCB	%REC/SURR	23	17-135	
ANALYST	INITIALS	RP		

Comments:
* THE ANALYTICAL METHOD REFERENCED DOES NOT REQUIRE CORRECTIVE ACTION UNLESS BOTH SURROGATE RECOVERIES EXCEED CONTROL LIMITS.

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"FINAL REPORT FORMAT - SINGLE"

Accession: 806323
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806420
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: PESTICIDES (8080)
Analysis Method: 8080 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Extraction Method: 3510 / 3660 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Matrix: WATER
QC Level: II

Lab Id: 003 Sample Date/Time: 23-JUN-98 1300
Client Sample Id: MW-84 Received Date: 24-JUN-98

Batch: PSW044 Extraction Date: 27-JUN-98
Blank: B Dry Weight %: N/A Analysis Date: 07-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
ALDRIN	UG/L	ND	0.02	
ALPHA-BHC	UG/L	ND	0.02	
BETA-BHC	UG/L	ND	0.02	
DELTA-BHC	UG/L	ND	0.02	
GAMMA-BHC (LINDANE)	UG/L	ND	0.02	
4,4'-DDD	UG/L	ND	0.02	
4,4'-DDE	UG/L	ND	0.02	
4,4'-DDT	UG/L	ND	0.02	
DIELDRIN	UG/L	ND	0.02	
ENDOSULFAN I	UG/L	ND	0.02	
ENDOSULFAN II	UG/L	ND	0.02	
ENDOSULFAN SULFATE	UG/L	ND	0.02	
ENDRIN	UG/L	ND	0.02	
ENDRIN ALDEHYDE	UG/L	ND	0.02	
HEPTACHLOR	UG/L	ND	0.02	
HEPTACHLOR EPOXIDE	UG/L	ND	0.02	
METHOXYCHLOR	UG/L	ND	0.02	
CHLORDANE	UG/L	ND	0.01	
TOXAPHENE	UG/L	ND	0.12	
PCB-1016	UG/L	ND	0.04	
PCB-1221	UG/L	ND	0.04	
PCB-1232	UG/L	ND	0.04	
PCB-1242	UG/L	ND	0.04	
PCB-1248	UG/L	ND	0.04	
PCB-1254	UG/L	ND	0.04	
PCB-1260	UG/L	ND	0.04	
TCMX	%REC/SURR	48	43-101	
DCB	%REC/SURR	34	17-135	
ANALYST	INITIALS	RP		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 806323
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806420
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: PESTICIDES (8080)
Analysis Method: 8080 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Extraction Method: 3510 / 3660 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Matrix: WATER
QC Level: II

Lab Id: 004 Sample Date/Time: 23-JUN-98 1430
Client Sample Id: MW-64 Received Date: 24-JUN-98

Batch: PSW044 Extraction Date: 27-JUN-98
Blank: B Dry Weight %: N/A Analysis Date: 07-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
ALDRIN	UG/L	ND	0.02	
ALPHA-BHC	UG/L	ND	0.02	
BETA-BHC	UG/L	ND	0.02	
DELTA-BHC	UG/L	ND	0.02	
GAMMA-BHC (LINDANE)	UG/L	ND	0.02	
4,4'-DDD	UG/L	ND	0.02	
4,4'-DDE	UG/L	ND	0.02	
4,4'-DDT	UG/L	ND	0.02	
DIELDRIN	UG/L	ND	0.02	
ENDOSULFAN I	UG/L	ND	0.02	
ENDOSULFAN II	UG/L	ND	0.02	
ENDOSULFAN SULFATE	UG/L	ND	0.02	
ENDRIN	UG/L	ND	0.02	
ENDRIN ALDEHYDE	UG/L	ND	0.02	
HEPTACHLOR	UG/L	ND	0.02	
HEPTACHLOR EPOXIDE	UG/L	ND	0.02	
METHOXYCHLOR	UG/L	ND	0.02	
CHLORDANE	UG/L	ND	0.01	
TOXAPHENE	UG/L	ND	0.12	
PCB-1016	UG/L	ND	0.04	
PCB-1221	UG/L	ND	0.04	
PCB-1232	UG/L	ND	0.04	
PCB-1242	UG/L	ND	0.04	
PCB-1248	UG/L	ND	0.04	
PCB-1254	UG/L	ND	0.04	
PCB-1260	UG/L	ND	0.04	
TCMX	%REC/SURR	52	43-101	
DCB	%REC/SURR	42	17-135	
ANALYST	INITIALS	RP		

Comments:

SEVERN TRENT LABORATORIES 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Analysis Report

Analysis: POLYNUCLEAR AROMATICS BY 8310

Accession:	806323
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806420
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	SEMI-VOLATILE FUELS

SEVERN TRENT LABORATORIES 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"FINAL REPORT FORMAT - SINGLE"

Accession:	806323
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806420
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Test:	POLYNUCLEAR AROMATICS BY 8310
Analysis Method:	8310/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method:	3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix:	WATER
QC Level:	II

Lab Id:	001		Sample Date/Time:	22-JUN-98 1600
Client Sample Id:	MW-58		Received Date:	24-JUN-98
Batch: PAW142			Extraction Date:	25-JUN-98
Blank: B	Dry Weight %:	N/A	Analysis Date:	27-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZO(a)PYRENE	UG/L	ND	0.1	
1-METHYLNAPHTHALENE	UG/L	47	0.3	
2-CHLOROANTHRACENE	%REC/SURR	58	28-138	
ANALYST	INITIALS	HAH		

Comments:

SEVERN TRENT LABORATORIES 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"FINAL REPORT FORMAT - SINGLE"

Accession:	806323
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806420
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Test:	POLYNUCLEAR AROMATICS BY 8310
Analysis Method:	8310/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method:	3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix:	WATER
QC Level:	II

Lab Id:	002	Sample Date/Time:	23-JUN-98 0900
Client Sample Id:	MW-85	Received Date:	24-JUN-98
Batch: PAW142		Extraction Date:	25-JUN-98
Blank: B	Dry Weight %: N/A	Analysis Date:	27-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZO(a)PYRENE	UG/L	1.4	0.1	
1-METHYLNAPHTHALENE	UG/L	530	0.3	E
2-CHLOROANTHRACENE	%REC/SURR	103	28-138	
ANALYST	INITIALS	HAH		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession:	806323
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806420
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Test:	POLYNUCLEAR AROMATICS BY 8310
Analysis Method:	8310/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method:	3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix:	WATER
QC Level:	II

Lab Id:	003		Sample Date/Time:	23-JUN-98 1300
Client Sample Id:	MW-84		Received Date:	24-JUN-98
Batch: PAW142			Extraction Date:	25-JUN-98
Blank: B	Dry Weight %:	N/A	Analysis Date:	27-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZO(a)PYRENE	UG/L	0.6	0.1	
1-METHYLNAPHTHALENE	UG/L	74	0.3	
2-CHLOROANTHRACENE	%REC/SURR	92	28-138	
ANALYST	INITIALS	HAH		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession:	806323
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806420
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Test:	POLYNUCLEAR AROMATICS BY 8310
Analysis Method:	8310/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method:	3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix:	WATER
QC Level:	II

Lab Id:	004	Sample Date/Time:	23-JUN-98 1430
Client Sample Id:	MW-64	Received Date:	24-JUN-98
Batch: PAW142		Extraction Date:	25-JUN-98
Blank: B	Dry Weight %: N/A	Analysis Date:	27-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZO(a)PYRENE	UG/L	ND	0.1	
1-METHYLNAPHTHALENE	UG/L	ND	0.3	
2-CHLOROANTHRACENE	%REC/SURR	79	28-138	
ANALYST	INITIALS	HAH		

Comments:

SEVERN TRENT LABORATORIES 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"Method Report Summary"

Accession Number: 806323
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806420
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: POLYNUCLEAR AROMATICS BY 8310

Client Sample Id:	Parameter:	Unit:	Result:
MW-58	1-METHYLNAPHTHALENE	UG/L	47
MW-85	BENZO(a)PYRENE	UG/L	1.4
	1-METHYLNAPHTHALENE	UG/L	530
MW-84	BENZO(a)PYRENE	UG/L	0.6
	1-METHYLNAPHTHALENE	UG/L	74

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Analysis Report

Analysis: ACID & BASE EXTRACTABLES (8270)

Accession:	806323
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806420
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	ORGANIC/MS

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"FINAL REPORT FORMAT - SINGLE"

Accession: 806323
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806420
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: II

Lab Id: 001 Sample Date/Time: 22-JUN-98 1600
Client Sample Id: MW-58 Received Date: 24-JUN-98

Batch: ALW077 Extraction Date: 26-JUN-98
Blank: A Dry Weight %: N/A Analysis Date: 01-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZOIC ACID	UG/L	ND	1.7	
4-CHLORO-3-METHYLPHENOL	UG/L	ND	0.4	
2-CHLOROPHENOL	UG/L	ND	0.5	
2,4-DICHLOROPHENOL	UG/L	ND	3.9	
2,6-DICHLOROPHENOL	UG/L	ND	0.1	
2,4-DIMETHYLPHENOL	UG/L	ND	0.5	
4,6-DINITRO-2-METHYLPHENOL	UG/L	ND	1.6	
2,4-DINITROPHENOL	UG/L	ND	3.3	
2-METHYLPHENOL	UG/L	ND	0.3	
4-METHYLPHENOL	UG/L	ND	0.5	
2-NITROPHENOL	UG/L	ND	0.4	
4-NITROPHENOL	UG/L	ND	0.7	
PENTACHLOROPHENOL	UG/L	ND	0.7	
PHENOL	UG/L	ND	0.5	
2,3,4,6-TETRACHLOROPHENOL	UG/L	ND	0.6	
2,4,5-TRICHLOROPHENOL	UG/L	ND	3.0	
2,4,6-TRICHLOROPHENOL	UG/L	ND	0.3	
ACENAPHTHENE	UG/L	ND	0.4	
ACENAPHTHYLENE	UG/L	ND	0.4	
ACETOPHENONE	UG/L	ND	0.4	
4-AMINOBIPHENYL	UG/L	ND	0.7	
ANILINE	UG/L	ND	0.5	
ANTHRACENE	UG/L	ND	0.4	
BENZIDINE	UG/L	ND	2.7	
BENZO (A) ANTHRACENE	UG/L	ND	0.5	
BENZO (A) PYRENE	UG/L	ND	0.2	
BENZO (B) FLUORANTHENE	UG/L	ND	0.5	
BENZO (G,H,I) PERYLENE	UG/L	ND	0.3	
BENZO (K) FLUORANTHENE	UG/L	ND	0.7	
BENZYL ALCOHOL	UG/L	ND	0.5	
BIS(2-CHLOROETHOXY)METHANE	UG/L	ND	0.4	
BIS(2-CHLOROETHYL)ETHER	UG/L	ND	0.5	
BIS(2-CHLOROISOPROPYL)ETHER	UG/L	ND	1.9	
BIS(2-ETHYLHEXYL)PHTHALATE	UG/L	ND	0.6	
4-BROMOPHENYL PHENYL ETHER	UG/L	ND	0.4	
BUTYLBENZYL PHTHALATE	UG/L	ND	0.5	
4-CHLOROANILINE	UG/L	ND	0.4	
1-CHLORONAPHTHALENE	UG/L	ND	0.6	
2-CHLORONAPHTHALENE	UG/L	ND	0.4	
4-CHLOROPHENYL PHENYL ETHER	UG/L	ND	0.5	

"FINAL REPORT FORMAT - SINGLE"

Accession: 806323
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806420
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: II

Lab Id: 001 Sample Date/Time: 22-JUN-98 1600
Client Sample Id: MW-58 Received Date: 24-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
CHRYSENE	UG/L	ND	0.7	
DIBENZ(A,J)ACRIDINE	UG/L	ND	0.5	
DIBENZO (A,H) ANTHRACENE	UG/L	ND	0.3	
DIBENZOFURAN	UG/L	ND	0.4	
1,2-DICHLOROBENZENE	UG/L	ND	0.3	
1,3-DICHLOROBENZENE	UG/L	ND	0.3	
1,4-DICHLOROBENZENE	UG/L	ND	0.5	
3,3'-DICHLOROBENZIDINE	UG/L	ND	0.4	
DIETHYLPHTHALATE	UG/L	ND	0.4	
P-DIMETHYLAMINOAZOBENZENE	UG/L	ND	0.4	
7,12-DIMETHYLBENZ(A)ANTHRACENE	UG/L	ND	1.8	
A-,A-DIMETHYLPHENETHYLAMINE	UG/L	ND	0.1	
DIMETHYLPHTHALATE	UG/L	ND	0.4	
DI-N-BUTYLPHTHALATE	UG/L	ND	0.4	
2,4-DINITROTOLUENE	UG/L	ND	0.5	
2,6-DINITROTOLUENE	UG/L	ND	0.5	
DI-N-OCTYLPHTHALATE	UG/L	ND	0.7	
DIPHENYLAMINE	UG/L	ND	0.5	
1,2-DIPHENYLHYDRAZINE	UG/L	ND	0.3	
FLUORANTHENE	UG/L	ND	0.5	
FLUORENE	UG/L	ND	0.6	
HEXACHLOROBENZENE	UG/L	ND	0.5	
HEXACHLOROBUTADIENE	UG/L	ND	0.5	
HEXACHLOROCYCLOPENTADIENE	UG/L	ND	0.6	
HEXACHLOROETHANE	UG/L	ND	0.6	
INDENO (1,2,3-CD) PYRENE	UG/L	ND	0.5	
ISOPHORONE	UG/L	ND	0.4	
3-METHYLCHOLANTHRENE	UG/L	ND	0.4	
2-METHYLNAPHTHALENE	UG/L	4.7	0.5	
NAPHTHALENE	UG/L	ND	0.4	
1-NAPHTHYLAMINE	UG/L	ND	1.5	
2-NAPHTHYLAMINE	UG/L	ND	1.0	
2-NITROANILINE	UG/L	ND	0.4	
3-NITROANILINE	UG/L	ND	0.9	
4-NITROANILINE	UG/L	ND	0.8	
NITROBENZENE	UG/L	ND	0.5	
N-NITROSODIMETHYLAMINE	UG/L	ND	1.2	
N-NITROSODI-N-BUTYLAMINE	UG/L	ND	1.1	
N-NITROSODIETHYLAMINE	UG/L*	ND	10	
N-NITROSODIPHENYLAMINE	UG/L	ND	0.4	
N-NITROSO-DI-N-PROPYLAMINE	UG/L	ND	0.4	
N-NITROSOPIPERIDINE	UG/L	ND	0.8	
N-NITROSOPYRROLIDINE	UG/L*	ND	10	
PENTACHLOROBENZENE	UG/L	ND	0.4	
PENTACHLORONITROBENZENE (PCNB)	UG/L	ND	5.0	

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"FINAL REPORT FORMAT - SINGLE"

Accession:	806323
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806420
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Test:	ACID & BASE EXTRACTABLES (8270)
Analysis Method:	8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method:	3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix:	WATER
QC Level:	II

Lab Id:	001	Sample Date/Time:	22-JUN-98 1600
Client Sample Id:	MW-58	Received Date:	24-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
PHENACETIN	UG/L	ND	0.4	
PHENANTHRENE	UG/L	ND	0.4	
2-PICOLINE	UG/L	ND	7.7	
PRONAMIDE	UG/L	ND	0.4	
PYRENE	UG/L	ND	0.5	
1,2,4,5-TETRACHLOROBENZENE	UG/L	ND	0.4	
1,2,4 TRICHLOROBENZENE	UG/L	ND	0.6	
2-FLUOROPHENOL	%REC/SURR	98	21-100	
PHENOL-D6	%REC/SURR	95	10-100	
2,4,6-TRIBROMOPHENOL	%REC/SURR	105	10-123	
2-FLUOROBIPHENYL	%REC/SURR	89	43-116	
NITROBENZENE-D5	%REC/SURR	94	35-114	
TERPHENYL-D14	%REC/SURR	103	33-124	
ANALYST	INITIALS	RW		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession:	806323
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806420
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Test:	ACID & BASE EXTRACTABLES (8270)
Analysis Method:	8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method:	3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix:	WATER
QC Level:	II

Lab Id:	002	Sample Date/Time:	23-JUN-98 0900
Client Sample Id:	MW-85	Received Date:	24-JUN-98
Batch: ALW077		Extraction Date:	26-JUN-98
Blank: A	Dry Weight %: N/A	Analysis Date:	01-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZOIC ACID	UG/L	ND	1.7	
4-CHLORO-3-METHYLPHENOL	UG/L	ND	0.4	
2-CHLOROPHENOL	UG/L	ND	0.5	
2,4-DICHLOROPHENOL	UG/L	ND	3.9	
2,6-DICHLOROPHENOL	UG/L	ND	0.1	
2,4-DIMETHYLPHENOL	UG/L	ND	0.5	
4,6-DINITRO-2-METHYLPHENOL	UG/L	ND	1.6	
2,4-DINITROPHENOL	UG/L	ND	3.3	
2-METHYLPHENOL	UG/L	ND	0.3	
4-METHYLPHENOL	UG/L	ND	0.5	
2-NITROPHENOL	UG/L	ND	0.4	
4-NITROPHENOL	UG/L	ND	0.7	
PENTACHLOROPHENOL	UG/L	ND	0.7	
PHENOL	UG/L	ND	0.5	
2,3,4,6-TETRACHLOROPHENOL	UG/L	ND	0.6	
2,4,5-TRICHLOROPHENOL	UG/L	ND	3.0	
2,4,6-TRICHLOROPHENOL	UG/L	ND	0.3	
ACENAPHTHENE	UG/L	ND	0.4	
ACENAPHTHYLENE	UG/L	ND	0.4	
ACETOPHENONE	UG/L	ND	0.4	
4-AMINOBIPHENYL	UG/L	ND	0.7	
ANILINE	UG/L	ND	0.5	
ANTHRACENE	UG/L	ND	0.4	
BENZIDINE	UG/L	ND	2.7	
BENZO (A) ANTHRACENE	UG/L	ND	0.5	
BENZO (A) PYRENE	UG/L	ND	0.2	
BENZO (B) FLUORANTHENE	UG/L	ND	0.5	
BENZO (G,H,I) PERYLENE	UG/L	ND	0.3	
BENZO (K) FLUORANTHENE	UG/L	ND	0.7	
BENZYL ALCOHOL	UG/L	ND	0.5	
BIS(2-CHLOROETHOXY)METHANE	UG/L	ND	0.4	
BIS(2-CHLOROETHYL)ETHER	UG/L	ND	0.5	
BIS(2-CHLOROISOPROPYL)ETHER	UG/L	ND	1.9	
BIS(2-ETHYLHEXYL)PHTHALATE	UG/L	11	0.6	
4-BROMOPHENYL PHENYL ETHER	UG/L	ND	0.4	
BUTYLBENZYL PHTHALATE	UG/L	ND	0.5	
4-CHLOROANILINE	UG/L	ND	0.4	
1-CHLORONAPHTHALENE	UG/L	ND	0.6	
2-CHLORONAPHTHALENE	UG/L	ND	0.4	
4-CHLOROPHENYL PHENYL ETHER	UG/L	ND	0.5	

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"FINAL REPORT FORMAT - SINGLE"

Accession: 806323
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806420
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: II

Lab Id: 002 Sample Date/Time: 23-JUN-98 0900
Client Sample Id: MW-85 Received Date: 24-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
CHRYSENE	UG/L	ND	0.7	
DIBENZ(A,J)ACRIDINE	UG/L	ND	0.5	
DIBENZO (A,H) ANTHRACENE	UG/L	ND	0.3	
DIBENZOFURAN	UG/L	ND	0.4	
1,2-DICHLOROBENZENE	UG/L	ND	0.3	
1,3-DICHLOROBENZENE	UG/L	ND	0.3	
1,4-DICHLOROBENZENE	UG/L	ND	0.5	
3,3'-DICHLOROBENZIDINE	UG/L	ND	0.4	
DIETHYLPHTHALATE	UG/L	ND	0.4	
P-DIMETHYLAMINOAZOBENZENE	UG/L	ND	0.4	
7,12-DIMETHYLBENZ(A)ANTHRACENE	UG/L	ND	1.8	
A-,A-DIMETHYLPHENETHYLAMINE	UG/L	ND	0.1	
DIMETHYLPHTHALATE	UG/L	ND	0.4	
DI-N-BUTYLPHTHALATE	UG/L	ND	0.4	
2,4-DINITROTOLUENE	UG/L	ND	0.5	
2,6-DINITROTOLUENE	UG/L	ND	0.5	
DI-N-OCTYLPHTHALATE	UG/L	ND	0.7	
DIPHENYLAMINE	UG/L	ND	0.5	
1,2-DIPHENYLHYDRAZINE	UG/L	ND	0.3	
FLUORANTHENE	UG/L	ND	0.5	
FLUORENE	UG/L	ND	0.6	
HEXACHLOROBENZENE	UG/L	ND	0.5	
HEXACHLOROBUTADIENE	UG/L	ND	0.5	
HEXACHLOROCYCLOPENTADIENE	UG/L	ND	0.6	
HEXACHLOROETHANE	UG/L	ND	0.6	
INDENO (1,2,3-CD) PYRENE	UG/L	ND	0.5	
ISOPHORONE	UG/L	ND	0.4	
3-METHYLCHOLANTHRENE	UG/L	ND	0.4	
2-METHYLNAPHTHALENE	UG/L	27	0.5	
NAPHTHALENE	UG/L	11	0.4	
1-NAPHTHYLAMINE	UG/L	ND	1.5	
2-NAPHTHYLAMINE	UG/L	ND	1.0	
2-NITROANILINE	UG/L	ND	0.4	
3-NITROANILINE	UG/L	ND	0.9	
4-NITROANILINE	UG/L	ND	0.8	
NITROBENZENE	UG/L	ND	0.5	
N-NITROSODIMETHYLAMINE	UG/L	ND	1.2	
N-NITROSODI-N-BUTYLAMINE	UG/L	ND	1.1	
N-NITROSODIETHYLAMINE	UG/L*	ND	10	
N-NITROSODIPHENYLAMINE	UG/L	ND	0.4	
N-NITROSO-DI-N-PROPYLAMINE	UG/L	ND	0.4	
N-NITROSOPIPERIDINE	UG/L	ND	0.8	
N-NITROSOPYRROLIDINE	UG/L*	ND	10	
PENTACHLOROBENZENE	UG/L	ND	0.4	
PENTACHLORONITROBENZENE (PCNB)	UG/L	ND	5.0	

"FINAL REPORT FORMAT - SINGLE"

Accession: 806323
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806420
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: II

Lab Id: 002
Client Sample Id: MW-85
Sample Date/Time: 23-JUN-98 0900
Received Date: 24-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
PHENACETIN	UG/L	ND	0.4	
PHENANTHRENE	UG/L	ND	0.4	
2-PICOLINE	UG/L	ND	7.7	
PRONAMIDE	UG/L	ND	0.4	
PYRENE	UG/L	ND	0.5	
1,2,4,5-TETRACHLOROBENZENE	UG/L	ND	0.4	
1,2,4 TRICHLOROBENZENE	UG/L	ND	0.6	
2-FLUOROPHENOL	%REC/SURR	85	21-100	
PHENOL-D6	%REC/SURR	95	10-100	
2,4,6-TRIBROMOPHENOL	%REC/SURR	117	10-123	
2-FLUOROBIPHENYL	%REC/SURR	103	43-116	
NITROBENZENE-D5	%REC/SURR	110	35-114	
TERPHENYL-D14	%REC/SURR	105	33-124	
ANALYST	INITIALS	RW		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 806323
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806420
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: II

Lab Id: 003 Sample Date/Time: 23-JUN-98 1300
Client Sample Id: MW-84 Received Date: 24-JUN-98

Batch: ALW077 Extraction Date: 26-JUN-98
Blank: A Dry Weight %: N/A Analysis Date: 01-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZOIC ACID	UG/L	ND	1.7	
4-CHLORO-3-METHYLPHENOL	UG/L	ND	0.4	
2-CHLOROPHENOL	UG/L	ND	0.5	
2,4-DICHLOROPHENOL	UG/L	ND	3.9	
2,6-DICHLOROPHENOL	UG/L	ND	0.1	
2,4-DIMETHYLPHENOL	UG/L	ND	0.5	
4,6-DINITRO-2-METHYLPHENOL	UG/L	ND	1.6	
2,4-DINITROPHENOL	UG/L	ND	3.3	
2-METHYLPHENOL	UG/L	ND	0.3	
4-METHYLPHENOL	UG/L	ND	0.5	
2-NITROPHENOL	UG/L	ND	0.4	
4-NITROPHENOL	UG/L	ND	0.7	
PENTACHLOROPHENOL	UG/L	ND	0.7	
PHENOL	UG/L	ND	0.5	
2,3,4,6-TETRACHLOROPHENOL	UG/L	ND	0.6	
2,4,5-TRICHLOROPHENOL	UG/L	ND	3.0	
2,4,6-TRICHLOROPHENOL	UG/L	ND	0.3	
ACENAPHTHENE	UG/L	ND	0.4	
ACENAPHTHYLENE	UG/L	ND	0.4	
ACETOPHENONE	UG/L	ND	0.4	
4-AMINOBIPHENYL	UG/L	ND	0.7	
ANILINE	UG/L	ND	0.5	
ANTHRACENE	UG/L	ND	0.4	
BENZIDINE	UG/L	ND	2.7	
BENZO (A) ANTHRACENE	UG/L	ND	0.5	
BENZO (A) PYRENE	UG/L	ND	0.2	
BENZO (B) FLUORANTHENE	UG/L	ND	0.5	
BENZO (G,H,I) PERYLENE	UG/L	ND	0.3	
BENZO (K) FLUORANTHENE	UG/L	ND	0.7	
BENZYL ALCOHOL	UG/L	ND	0.5	
BIS(2-CHLOROETHOXY)METHANE	UG/L	ND	0.4	
BIS(2-CHLOROETHYL)ETHER	UG/L	ND	0.5	
BIS(2-CHLOROISOPROPYL)ETHER	UG/L	ND	1.9	
BIS(2-ETHYLHEXYL)PHTHALATE	UG/L	6.6	0.6	
4-BROMOPHENYL PHENYL ETHER	UG/L	ND	0.4	
BUTYLBENZYL PHTHALATE	UG/L	ND	0.5	
4-CHLOROANILINE	UG/L	ND	0.4	
1-CHLORONAPHTHALENE	UG/L	ND	0.6	
2-CHLORONAPHTHALENE	UG/L	ND	0.4	
4-CHLOROPHENYL PHENYL ETHER	UG/L	ND	0.5	

"FINAL REPORT FORMAT - SINGLE"

Accession: 806323
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806420
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: II

Lab Id: 003
Client Sample Id: MW-84
Sample Date/Time: 23-JUN-98 1300
Received Date: 24-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
CHRYSENE	UG/L	ND	0.7	
DIBENZ(A,J)ACRIDINE	UG/L	ND	0.5	
DIBENZO (A,H) ANTHRACENE	UG/L	ND	0.3	
DIBENZOFURAN	UG/L	ND	0.4	
1,2-DICHLOROBENZENE	UG/L	ND	0.3	
1,3-DICHLOROBENZENE	UG/L	ND	0.3	
1,4-DICHLOROBENZENE	UG/L	ND	0.5	
3,3'-DICHLOROBENZIDINE	UG/L	ND	0.4	
DIETHYLPHTHALATE	UG/L	ND	0.4	
P-DIMETHYLAMINOAZOBENZENE	UG/L	ND	0.4	
7,12-DIMETHYLBENZ(A)ANTHRACENE	UG/L	ND	1.8	
A-,A-DIMETHYLPHENETHYLAMINE	UG/L	ND	0.1	
DIMETHYLPHTHALATE	UG/L	ND	0.4	
DI-N-BUTYLPHTHALATE	UG/L	ND	0.4	
2,4-DINITROTOLUENE	UG/L	ND	0.5	
2,6-DINITROTOLUENE	UG/L	ND	0.5	
DI-N-OCTYLPHTHALATE	UG/L	ND	0.7	
DIPHENYLAMINE	UG/L	ND	0.5	
1,2-DIPHENYLHYDRAZINE	UG/L	ND	0.3	
FLUORANTHENE	UG/L	ND	0.5	
FLUORENE	UG/L	ND	0.6	
HEXACHLOROBENZENE	UG/L	ND	0.5	
HEXACHLOROBUTADIENE	UG/L	ND	0.5	
HEXACHLOROCYCLOPENTADIENE	UG/L	ND	0.6	
HEXACHLOROETHANE	UG/L	ND	0.6	
INDENO (1,2,3-CD) PYRENE	UG/L	ND	0.5	
ISOPHORONE	UG/L	ND	0.4	
3-METHYLCHOLANTHRENE	UG/L	ND	0.4	
2-METHYLNAPHTHALENE	UG/L	ND	0.5	
NAPHTHALENE	UG/L	ND	0.4	
1-NAPHTHYLAMINE	UG/L	ND	1.5	
2-NAPHTHYLAMINE	UG/L	ND	1.0	
2-NITROANILINE	UG/L	ND	0.4	
3-NITROANILINE	UG/L	ND	0.9	
4-NITROANILINE	UG/L	ND	0.8	
NITROBENZENE	UG/L	ND	0.5	
N-NITROSODIMETHYLAMINE	UG/L	ND	1.2	
N-NITROSODI-N-BUTYLAMINE	UG/L	ND	1.1	
N-NITROSODIETHYLAMINE	UG/L*	ND	10	
N-NITROSODIPHENYLAMINE	UG/L	ND	0.4	
N-NITROSO-DI-N-PROPYLAMINE	UG/L	ND	0.4	
N-NITROSOPIPERIDINE	UG/L	ND	0.8	
N-NITROSOPYRROLIDINE	UG/L*	ND	10	
PENTACHLOROBENZENE	UG/L	ND	0.4	
PENTACHLORONITROBENZENE (PCNB)	UG/L	ND	5.0	

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"FINAL REPORT FORMAT - SINGLE"

Accession: 806323
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806420
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: II

Lab Id: 003 Sample Date/Time: 23-JUN-98 1300
Client Sample Id: MW-84 Received Date: 24-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
PHENACETIN	UG/L	ND	0.4	
PHENANTHRENE	UG/L	ND	0.4	
2-PICOLINE	UG/L	ND	7.7	
PRONAMIDE	UG/L	ND	0.4	
PYRENE	UG/L	ND	0.5	
1,2,4,5-TETRACHLOROBENZENE	UG/L	ND	0.4	
1,2,4 TRICHLOROBENZENE	UG/L	ND	0.6	
2-FLUOROPHENOL	%REC/SURR	97	21-100	
PHENOL-D6	%REC/SURR	90	10-100	
2,4,6-TRIBROMOPHENOL	%REC/SURR	103	10-123	
2-FLUOROBIPHENYL	%REC/SURR	89	43-116	
NITROBENZENE-D5	%REC/SURR	99	35-114	
TERPHENYL-D14	%REC/SURR	101	33-124	
ANALYST	INITIALS	RW		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 806323
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806420
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: II

Lab Id: 004 Sample Date/Time: 23-JUN-98 1430
Client Sample Id: MW-64 Received Date: 24-JUN-98

Batch: ALW077 Extraction Date: 26-JUN-98
Blank: A Dry Weight %: N/A Analysis Date: 01-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZOIC ACID	UG/L	ND	1.7	
4-CHLORO-3-METHYLPHENOL	UG/L	ND	0.4	
2-CHLOROPHENOL	UG/L	ND	0.5	
2,4-DICHLOROPHENOL	UG/L	ND	3.9	
2,6-DICHLOROPHENOL	UG/L	ND	0.1	
2,4-DIMETHYLPHENOL	UG/L	ND	0.5	
4,6-DINITRO-2-METHYLPHENOL	UG/L	ND	1.6	
2,4-DINITROPHENOL	UG/L	ND	3.3	
2-METHYLPHENOL	UG/L	ND	0.3	
4-METHYLPHENOL	UG/L	ND	0.5	
2-NITROPHENOL	UG/L	ND	0.4	
4-NITROPHENOL	UG/L	ND	0.7	
PENTACHLOROPHENOL	UG/L	ND	0.7	
PHENOL	UG/L	ND	0.5	
2,3,4,6-TETRACHLOROPHENOL	UG/L	ND	0.6	
2,4,5-TRICHLOROPHENOL	UG/L	ND	3.0	
2,4,6-TRICHLOROPHENOL	UG/L	ND	0.3	
ACENAPHTHENE	UG/L	ND	0.4	
ACENAPHTHYLENE	UG/L	ND	0.4	
ACETOPHENONE	UG/L	ND	0.4	
4-AMINOBIPHENYL	UG/L	ND	0.7	
ANILINE	UG/L	ND	0.5	
ANTHRACENE	UG/L	ND	0.4	
BENZIDINE	UG/L	ND	2.7	
BENZO (A) ANTHRACENE	UG/L	ND	0.5	
BENZO (A) PYRENE	UG/L	ND	0.2	
BENZO (B) FLUORANTHENE	UG/L	ND	0.5	
BENZO (G,H,I) PERYLENE	UG/L	ND	0.3	
BENZO (K) FLUORANTHENE	UG/L	ND	0.7	
BENZYL ALCOHOL	UG/L	ND	0.5	
BIS(2-CHLOROETHOXY)METHANE	UG/L	ND	0.4	
BIS(2-CHLOROETHYL)ETHER	UG/L	ND	0.5	
BIS(2-CHLOROISOPROPYL)ETHER	UG/L	ND	1.9	
BIS(2-ETHYLHEXYL)PHTHALATE	UG/L	4.4	0.6	
4-BROMOPHENYL PHENYL ETHER	UG/L	ND	0.4	
BUTYLBENZYL PHTHALATE	UG/L	ND	0.5	
4-CHLOROANILINE	UG/L	ND	0.4	
1-CHLORONAPHTHALENE	UG/L	ND	0.6	
2-CHLORONAPHTHALENE	UG/L	ND	0.4	
4-CHLOROPHENYL PHENYL ETHER	UG/L	ND	0.5	

"FINAL REPORT FORMAT - SINGLE"

Accession: 806323
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806420
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: II

Lab Id: 004 Sample Date/Time: 23-JUN-98 1430
Client Sample Id: MW-64 Received Date: 24-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
CHRYSENE	UG/L	ND	0.7	
DIBENZ(A,J)ACRIDINE	UG/L	ND	0.5	
DIBENZO (A,H) ANTHRACENE	UG/L	ND	0.3	
DIBENZOFURAN	UG/L	ND	0.4	
1,2-DICHLOROBENZENE	UG/L	ND	0.3	
1,3-DICHLOROBENZENE	UG/L	ND	0.3	
1,4-DICHLOROBENZENE	UG/L	ND	0.5	
3,3'-DICHLOROBENZIDINE	UG/L	ND	0.4	
DIETHYLPHTHALATE	UG/L	ND	0.4	
P-DIMETHYLAMINOAZOBENZENE	UG/L	ND	0.4	
7,12-DIMETHYLBENZ(A)ANTHRACENE	UG/L	ND	1.8	
A-,A-DIMETHYLPHENETHYLAMINE	UG/L	ND	0.1	
DIMETHYLPHTHALATE	UG/L	ND	0.4	
DI-N-BUTYLPHTHALATE	UG/L	ND	0.4	
2,4-DINITROTOLUENE	UG/L	ND	0.5	
2,6-DINITROTOLUENE	UG/L	ND	0.5	
DI-N-OCTYLPHTHALATE	UG/L	ND	0.7	
DIPHENYLAMINE	UG/L	ND	0.5	
1,2-DIPHENYLHYDRAZINE	UG/L	ND	0.3	
FLUORANTHENE	UG/L	ND	0.5	
FLUORENE	UG/L	ND	0.6	
HEXACHLOROBENZENE	UG/L	ND	0.5	
HEXACHLOROBUTADIENE	UG/L	ND	0.5	
HEXACHLOROCYCLOPENTADIENE	UG/L	ND	0.6	
HEXACHLOROETHANE	UG/L	ND	0.6	
INDENO (1,2,3-CD) PYRENE	UG/L	ND	0.5	
ISOPHORONE	UG/L	ND	0.4	
3-METHYLCHOLANTHRENE	UG/L	ND	0.4	
2-METHYLNAPHTHALENE	UG/L	ND	0.5	
NAPHTHALENE	UG/L	ND	0.4	
1-NAPHTHYLAMINE	UG/L	ND	1.5	
2-NAPHTHYLAMINE	UG/L	ND	1.0	
2-NITROANILINE	UG/L	ND	0.4	
3-NITROANILINE	UG/L	ND	0.9	
4-NITROANILINE	UG/L	ND	0.8	
NITROBENZENE	UG/L	ND	0.5	
N-NITROSODIMETHYLAMINE	UG/L	ND	1.2	
N-NITROSODI-N-BUTYLAMINE	UG/L	ND	1.1	
N-NITROSODIETHYLAMINE	UG/L*	ND	10	
N-NITROSODIPHENYLAMINE	UG/L	ND	0.4	
N-NITROSO-DI-N-PROPYLAMINE	UG/L	ND	0.4	
N-NITROSOPIPERIDINE	UG/L	ND	0.8	
N-NITROSOPYRROLIDINE	UG/L*	ND	10	
PENTACHLOROBENZENE	UG/L	ND	0.4	
PENTACHLORONITROBENZENE (PCNB)	UG/L	ND	5.0	

"FINAL REPORT FORMAT - SINGLE"

Accession:	806323
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806420
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Test:	ACID & BASE EXTRACTABLES (8270)
Analysis Method:	8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method:	3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix:	WATER
QC Level:	II

Lab Id: 004 Sample Date/Time: 23-JUN-98 1430
Client Sample Id: MW-64 Received Date: 24-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
PHENACETIN	UG/L	ND	0.4	
PHENANTHRENE	UG/L	ND	0.4	
2-PICOLINE	UG/L	ND	7.7	
PRONAMIDE	UG/L	ND	0.4	
PYRENE	UG/L	ND	0.5	
1,2,4,5-TETRACHLOROBENZENE	UG/L	ND	0.4	
1,2,4 TRICHLOROBENZENE	UG/L	ND	0.6	
2-FLUOROPHENOL	%REC/SURR	99	21-100	
PHENOL-D6	%REC/SURR	89	10-100	
2,4,6-TRIBROMOPHENOL	%REC/SURR	105	10-123	
2-FLUOROBIPHENYL	%REC/SURR	80	43-116	
NITROBENZENE-D5	%REC/SURR	87	35-114	
TERPHENYL-D14	%REC/SURR	97	33-124	
ANALYST	INITIALS	RW		

Comments:

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"Method Report Summary"

Accession Number: 806323
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806420
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)

Client Sample Id:	Parameter:	Unit:	Result:
MW-58	2-METHYLNAPHTHALENE	UG/L	4.7
MW-85	BIS(2-ETHYLHEXYL)PHTHALATE	UG/L	11
	2-METHYLNAPHTHALENE	UG/L	27
	NAPHTHALENE	UG/L	11
MW-84	BIS(2-ETHYLHEXYL)PHTHALATE	UG/L	6.6
MW-64	BIS(2-ETHYLHEXYL)PHTHALATE	UG/L	4.4

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Rd Pensacola, FL 32514 (850) 474-1001

Data Qualifiers for Final Report

AEN-Pensacola Inorganic/Organic

@	Adjusted reporting limit due to sample matrix (dilution prior to digestion and/or analysis)
+	Elevated reporting limit due to dilution into calibration range
*	Elevated reporting limit due to matrix interference (dilution prior to digestion and/or analysis)
#	Elevated reporting limit due to insufficient sample size
D	Diluted out
J5	The reported value is quantitated as a TIC; therefore, it is estimated

ND = Not Detected N/S = Not Submitted N/A = Not Applicable

Florida Projects Inorganic/Organic

Y1	Improper preservation, no preservative present in sample upon receipt
Y2	Improper preservation, incorrect preservative present in sample upon receipt
Y3	Improper preservation, sample temperature exceeded EPA temperature limits of 2-6°C upon receipt
Y (FL description)	The laboratory analysis was from an unpreserved or improperly preserved sample. The data may not be accurate.
Q	Sample held beyond the accepted holding time
I	The reported value is < Laboratory RL and > laboratory MDL
U1	The reported value is ≤ Laboratory MDL (value for sample result is reported as the MDL)
U (FL description)	Indicates the compound was analyzed for but not detected.
T	The reported value is < Laboratory MDL (value shall not be used for statistical analysis)
V	The analyte was detected in both the sample and the associated method blank.
J1	Surrogate recovery limits have been exceeded
J2	The sample matrix interfered with the ability to make any accurate determinations
J3	The reported value failed to meet the established quality control criteria for either precision or accuracy
J (FL description)	Estimated value; not accurate.

AFCEE Projects (under QAPP) and All Other (AEN-PN) Projects/Sites for Inorganic/Organic Parameters

J4	(For positive results) Temperature limits exceeded (≤2°C or ≥ 6°C)
J (AFCEE description)	The analyte was positively identified, the quantitation is an estimation
R1	(For nondetects) Temperature limits exceeded (≤2°C or ≥ 6°C)
R2	Improper preservation, no preservative present in sample upon receipt
R3	Improper preservation, incorrect preservative present in sample upon receipt
R4	Holding time exceeded
R5	Collection requirements not met, improper container used for sample
R (AFCEE description)	The data are unusable due to deficiencies in the ability to analyze the sample and meet QC criteria
F	< RL and > laboratory MDL
F (AFCEE description)	The analyte was positively identified but the associated numerical value is below the AFCEE or lab RL
U2	≤ Laboratory MDL (value for result will be the MDL, never below the MDL)
U (AFCEE description)	The analyte was analyzed for but not detected. The associated numerical value is at or below the MDL
B (AFCEE description)	The analyte was found in the associated blank, as well as in the sample

ICR Projects Inorganic/Organic

A	Acceptable
R6	Rejected

Examples: ICR Flags

R6 = Laboratory extracted the sample but the refrigerator malfunctioned so the extract became warm and client was notified

R6 = Sample arrived in laboratory in good condition; however, the laboratory did not analyze it within EPA's established holding time limit.

CLP and CLP-like Projects

Refer to referenced CLP Statement of Work (SOW) for explanation of data qualifiers

IDL = Laboratory Instrument Detection Limit
MDL = Laboratory Method Detection Limit
RL = Reporting Limit (AFCEE RLs are listed in the AFCEE QAPP)
CLP CRDL = CLP Contract Required Detection Limit (these limits are listed in the EPA CLP Statement of Work or SOW)
CLP CRQL = CLP Contract Required Quantitation Limit (these limits are listed in the EPA CLP Statement of Work or SOW)

Any time a sample arrives at the laboratory improperly preserved (at improper pH or temperature) or after holding time has expired or prepared or analyzed after holding time, client must be notified in writing (i.e. case narrative).

AEN-Pensacola uses the most current promulgated methods contained in the reference manuals.

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Quality Control Report

Analysis: ACID & BASE EXTRACTABLES (8270)

Accession:	806323
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806420
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	ORGANIC/MS

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Date 06-Jul-98

"QC Report"

Title: Water Blank
Batch: ALW077
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.

Blank Id: A Date Analyzed: 30-JUN-98 Date Extracted: 26-JUN-98

Parameters:	Units:	Results:	Reporting Limits:
P-CHLORO-M-CRESOL	UG/L	ND	10
2-CHLOROPHENOL	UG/L	ND	10
O-CRESOL	UG/L	ND	10
M,P CRESOL	UG/L	ND	10
2,4-DICHLOROPHENOL	UG/L	ND	10
2,6-DICHLOROPHENOL	UG/L	ND	10
2,4-DIMETHYLPHENOL	UG/L	ND	10
4,6-DINITRO-O-CRESOL	UG/L	ND	50
2,4-DINITROPHENOL	UG/L	ND	10
2-NITROPHENOL	UG/L	ND	10
4-NITROPHENOL	UG/L	ND	50
PENTACHLOROPHENOL	UG/L	ND	50
PHENOL	UG/L	ND	10
2,3,4,6-TETRACHLOROPHENOL	UG/L	ND	10
2,4,5-TRICHLOROPHENOL	UG/L	ND	50
2,4,6-TRICHLOROPHENOL	UG/L	ND	10
ACENAPHTHENE	UG/L	ND	10
ACENAPHTHYLENE	UG/L	ND	10
ACETOPHENONE	UG/L	ND	10
2-ACETYLAMINOFLUORENE	UG/L	ND	10
4-AMINOBIPHENYL	UG/L	ND	10
ANILINE	UG/L	ND	10
ANTHRACENE	UG/L	ND	10
ARAMITE	UG/L	ND	10
BENZO (A) ANTHRACENE	UG/L	ND	10
BENZO (A) PYRENE	UG/L	ND	10
BENZO (B) FLUORANTHENE	UG/L	ND	10
BENZO (G,H,I) PERYLENE	UG/L	ND	10
BENZO (K) FLUORANTHENE	UG/L	ND	10
BENZYL ALCOHOL	UG/L	ND	10
BIS(2-CHLORO-1-METHYLETHYL)ETHER	UG/L	ND	10
BIS(2-CHLOROETHOXY)METHANE	UG/L	ND	10
BIS(2-CHLOROETHYL)ETHER	UG/L	ND	10
BIS(2-ETHYLHEXYL)PHTHALATE	UG/L	ND	10
4-BROMOPHENYL PHENYL ETHER	UG/L	ND	10
BUTYLBENZYL PHTHALATE	UG/L	ND	10
P-CHLOROANILINE	UG/L	ND	10
CHLOROBENZILATE	UG/L	ND	10
2-CHLORONAPHTHALENE	UG/L	ND	10
4-CHLOROPHENYL PHENYL ETHER	UG/L	ND	10
CHRYSENE	UG/L	ND	10
DIALLATE	UG/L	ND	10
DIBENZO (A,H) ANTHRACENE	UG/L	ND	10
DIBENZOFURAN	UG/L	ND	10
1,2-DICHLOROBENZENE	UG/L	ND	10
1,3-DICHLOROBENZENE	UG/L	ND	10

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"QC Report"

Title: Water Blank
Batch: ALW077
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.

Parameters:	Units:	Results:	Reporting Limits:
1,4-DICHLOROBENZENE	UG/L	ND	10
3,3'-DICHLOROBENZIDINE	UG/L	ND	50
DIETHYLPHTHALATE	UG/L	ND	10
DIMETHOATE	UG/L	ND	10
P-DIMETHYLAMINOAZOBENZENE	UG/L	ND	10
7,12-DIMETHYLBENZ(A)ANTHRACENE	UG/L	ND	10
3,3'-DIMETHYLBENZIDINE	UG/L	ND	10
A,A-DIMETHYLPHENETHYLAMINE	UG/L	ND	10
DIMETHYLPHTHALATE	UG/L	ND	10
DI-N-BUTYLPHTHALATE	UG/L	ND	10
M-DINITROBENZENE	UG/L	ND	10
2,4-DINITROTOLUENE	UG/L	ND	10
2,6-DINITROTOLUENE	UG/L	ND	10
DI-N-OCTYLPHTHALATE	UG/L	ND	10
DIPHENYLAMINE	UG/L	ND	10
ETHYL METHANESULFONATE	UG/L	ND	10
FAMPHUR	UG/L	ND	10
FLUORANTHENE	UG/L	ND	10
FLUORENE	UG/L	ND	10
HEXACHLOROBENZENE	UG/L	ND	10
HEXACHLOROBUTADIENE	UG/L	ND	10
HEXACHLOROCYCLOPENTADIENE	UG/L	ND	10
HEXACHLOROETHANE	UG/L	ND	10
HEXACHLOROPHENE	UG/L	ND	10
HEXACHLOROPROPENE	UG/L	ND	10
INDENO (1,2,3-CD) PYRENE	UG/L	ND	10
ISODRIN	UG/L	ND	10
ISOPHORONE	UG/L	ND	10
ISOSAFROLE	UG/L	ND	10
KEPONE	UG/L	ND	10
METHAPYRILENE	UG/L	ND	10
3-METHYLCHOLANTHRENE	UG/L	ND	10
METHYL METHANESULFONATE	UG/L	ND	10
1-METHYLNAPHTHALENE	UG/L	ND	10
2-METHYLNAPHTHALENE	UG/L	ND	10
NAPHTHALENE	UG/L	ND	10
1,4-NAPHTHOQUINONE	UG/L	ND	10
1-NAPHTHYLAMINE	UG/L	ND	10
2-NAPHTHYLAMINE	UG/L	ND	10
2-NITROANILINE	UG/L	ND	50
3-NITROANILINE	UG/L	ND	50
4-NITROANILINE	UG/L	ND	50
NITROBENZENE	UG/L	ND	10
5-NITRO-O-TOLUIDINE	UG/L	ND	10
4-NITROQUINOLINE-1-OXIDE	UG/L	ND	10
N-NITROSODIETHYLAMINE	UG/L	ND	10
N-NITROSODIMETHYLAMINE	UG/L	ND	10

"QC Report"

Title: Water Blank
Batch: ALW077
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.

Parameters:	Units:	Results:	Reporting Limits:
N-NITROSODI-N-BUTYLAMINE	UG/L	ND	10
N-NITROSODIPHENYLAMINE	UG/L	ND	10
N-NITROSOMETHYLETHYLAMINE	UG/L	ND	10
N-NITROSOMORPHOLINE	UG/L	ND	10
N-NITROSOPIPERIDINE	UG/L	ND	10
N-NITROSOPYRROLIDINE	UG/L	ND	10
PARATHION	UG/L	ND	10
PENTACHLOROBENZENE	UG/L	ND	10
PENTACHLOROETHANE	UG/L	ND	10
PENTACHLORONITROBENZENE	UG/L	ND	10
PHENACETIN	UG/L	ND	10
PHENANTHRENE	UG/L	ND	10
2-PICOLINE	UG/L	ND	10
P-PHENYLENEDIAMINE	UG/L	ND	10
PRONAMIDE	UG/L	ND	10
PYRENE	UG/L	ND	10
PYRIDINE	UG/L	ND	10
SAFROLE	UG/L	ND	10
SULFOTEPP	UG/L	ND	10
1,2,4,5-TETRACHLOROBENZENE	UG/L	ND	10
THIONAZIN	UG/L	ND	10
O-TOLUIDINE	UG/L	ND	10
1,2,4 TRICHLOROBENZENE	UG/L	ND	10
SYM-TRINITROBENZENE	UG/L	ND	10
O,O,O-TRIETHYL PHOSPHOROTHIATE	UG/L	ND	10
BENZIDINE	UG/L	ND	10
BIS(2-CHLOROISOPROPYL)ETHER	UG/L	ND	10
2-(SEC BUTYL)4,6-DINITRO-PHENOL(DINOSEB)	UG/L	ND	10
0~NITROSO-DI-N-PROPYLAMINE	UG/L	ND	10
6-METHYL CHRYSENE	UG/L	ND	20
INDENE	UG/L	ND	20
QUINOLINE	UG/L	ND	50
BENZENETHIOL	UG/L	ND	20
PARATOLIUDINE	UG/L	ND	50
TOLUENE DIISOCYANATE	UG/L	ND	50
TOLUENE DIAMINE	UG/L	ND	50
MONONITROTOLUENE	UG/L	ND	50
DIETHYLENE GLYCOL MONOBUTYL ETHER	UG/L	ND	10
2-FLUOROPHENOL	%REC/SURR	62	21-100
PHENOL-D6	%REC/SURR	71	10-100
2,4,6-TRIBROMOPHENOL	%REC/SURR	60	10-123
2-FLUOROBIPHENYL	%REC/SURR	67	43-116
NITROBENZENE-D5	%REC/SURR	67	35-114
TERPHENYL-D14	%REC/SURR	86	33-124
ANALYST	INITIALS	RW	

Comments:

"QC Report"

Title: Water LCS
Batch: ALW077
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.

RS Date Analyzed: 30-JUN-98 RS Date Extracted: 26-JUN-98

Parameters:	Spike Added	Sample Conc	RS Conc	RS %Rec	Rec Lmts
PHENOL	150	<10	132	88	5-112
2-CHLOROPHENOL	150	<10	134	89	40-120
1,4-DICHLOROBENZENE	100	<10	84	84	32-119
N-NITRO-DI-N-PROPYLAMINE	100	<10	90	90	26-128
1,2,4 TRICHLOROBENZENE	100	<10	80	80	44-142
4-CHLORO-3-METHYLPHENOL	150	<10	136	91	30-128
ACENAPHTHENE	100	<10	86	86	47-145
4-NITROPHENOL	150	<50	118	79	1-132
2,4-DINITROTOLUENE	100	<10	84	84	39-138
PENTACHLOROPHENOL	150	<50	144	96	15-157
PYRENE	100	<10	104	104	52-115
Surrogates:					
NITROBENZENE-D5				80	35-114
2-FLUOROBIPHENYL				81	43-116
TERPHENYL-D14				98	33-124
PHENOL-D6				86	10-100
2-FLUOROPHENOL				88	21-100
2,4,6-TRIBROMOPHENOL				103	10-123

Comments:

Notes:
N/S = NOT SUBMITTED N/A = NOT APPLICABLE D = DILUTED OUT
UG/L = PARTS PER BILLION. < = LESS THAN REPORTING LIMIT.
* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS.
SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"QC Report"

Title: Water Matrix Spike/Matrix Spike Duplicate
Batch: ALW077
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.

Dry Weight %: N/A
Sample Spiked: 806306-3

MS Date Analyzed: 30-JUN-98
MSD Date Analyzed: 30-JUN-98

MS Date Extracted: 26-JUN-98
MSD Date Extracted: 26-JUN-98

Parameters:	Spike Added	Sample Conc	MS Conc	MS %Rec	MSD Conc	MSD %Rec	RPD	RPD Lmts	Rec Lmts
PHENOL	300	<10	304	101	296	99	2	38	5-112
2-CHLOROPHENOL	300	<10	308	103	312	104	1	25	38-120
1,4-DICHLOROBENZENE	200	<10	140	70	176	88	23	27	39-112
N-NITRO-DI-N-PROPYLAMINE	200	<10	188	94	204	102	8	30	32-125
1,2,4 TRICHLOROBENZENE	200	<10	144	72	172	86	18	30	44-118
4-CHLORO-3-METHYLPHENOL	300	<10	320	107	264	88	19	23	42-131
ACENAPHTHENE	200	<10	188	94	208	104	10	21	47-131
4-NITROPHENOL	300	<50	288	96	316	105	9	36	1-116
2,4-DINITROTOLUENE	200	<10	196	98	212	106	8	22	39-138
PENTACHLOROPHENOL	300	<50	340	113	380	127	12	36	14-164
PYRENE	200	<10	228	114	228	114	0	21	52-115
Surrogates:									
NITROBENZENE-D5				73		88			35-114
2-FLUOROBIPHENYL				75		84			43-116
TERPHENYL-D14				102		96			33-124
PHENOL-D6				91		84			10-100
2-FLUOROPHENOL				94		87			21-100
2,4,6-TRIBROMOPHENOL				111		108			10-123

Comments:

Notes:
N/S = NOT SUBMITTED N/A = NOT APPLICABLE D = DILUTED OUT
UG/L = PARTS PER BILLION. < = LESS THAN REPORTING LIMIT.
* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS.
SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

Common notation for Organic reporting

N/S = NOT SUBMITTED
N/A = NOT APPLICABLE
UG/L = PARTS PER BILLION.
UG/KG = PARTS PER BILLION.
MG/KG = PARTS PER MILLION.
MG/L = PARTS PER MILLION.
MG/M3 = MILLIGRAMS PER CUBIC METER.
NG = NANOGRAMS.
UG = MICROGRAMS.
PPBV = PARTS PER BILLION/VOLUME.
< = LESS THAN.
ND = NOT DETECTED ABOVE REPORT LIMIT.
RPT LMTS = REPORTING LIMITS BASED ON METHOD DETECTION LIMIT STUDIES.
RPD = RELATIVE PERCENT DIFFERENCE (OR DEVIATION)

SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

ORGANIC SOILS ARE REPORTED ON A DRY WEIGHT BASIS.

DUE TO THE NATURE OF THE SAMPLE MATRIX, MATRIX SPIKE/MATRIX SPIKE DUPLICATE ANALYSIS CANNOT BE PERFORMED FOR AIR ANALYSIS.

CLP SOW 1991, USEPA CONTRACT LABORATORY PROGRAM, STATEMENT OF WORK FOR ORGANICS ANALYSIS, DOCUMENT NUMBER OLM01.8, AUGUST 1991.

AEN-PN USES THE MOST CURRENT PROMULGATED METHODS CONTAINED IN THE REFERENCE MANUALS.

LP = LEVERNE PETERSON	RW = RITA WINGO
LD = LARRY DILMORE	BDH = BRUCE D. HUNT
DWB = DAVID BOWERS	HB = HEATHER E. BLAIR

SEVERN TRENT LABORATORIES 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Quality Control Report

Analysis: POLYNUCLEAR AROMATICS BY 8310

Accession:	806323
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806420
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	SEMI-VOLATILE FUELS

SEVERN TRENT LABORATORIES 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"QC Report"

Title: Water Blank
Batch: PAW142
Analysis Method: 8310/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.

Blank Id: B Date Analyzed: 26-JUN-98 Date Extracted: 25-JUN-98

Parameters:	Units:	Results:	Reporting Limits:
ACENAPHTHENE	UG/L	ND	1
ACENAPHTHYLENE	UG/L	ND	1
ANTHRACENE	UG/L	ND	1
BENZO(a)ANTHRACENE	UG/L	ND	1
BENZO(a)PYRENE	UG/L	ND	0.1
BENZO(b)FLUORANTHENE	UG/L	ND	1
BENZO(g,h,i)PERYLENE	UG/L	ND	1
BENZO(k)FLUORANTHENE	UG/L	ND	1
CHRYSENE	UG/L	ND	1
DIBENZO(a,h)ANTHRACENE	UG/L	ND	1
FLUORANTHENE	UG/L	ND	1
FLUORENE	UG/L	ND	1
INDENO(1,2,3-cd)PYRENE	UG/L	ND	1
NAPHTHALENE	UG/L	ND	1
PHENANTHRENE	UG/L	ND	1
PYRENE	UG/L	ND	1
1-METHYLNAPHTHALENE	UG/L	ND	0.3
2-METHYLNAPHTHALENE	UG/L	ND	1
2-CHLOROANTHRACENE	%REC/SURR	90	28-138
ANALYST	INITIALS	HAH	

Comments:

"QC Report"

Title: Water LCS
Batch: PAW142
Analysis Method: 8310/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.

RS Date Analyzed: 26-JUN-98 RS Date Extracted: 24-JUN-98

Parameters:	Spike Added	Sample Conc	RS Conc	RS %Rec	Rec Lmts
ACENAPHTHYLENE	7.1	<1	6.3	89	45-127
BENZO(k)FLUORANTHENE	9.2	<1	8.3	90	68-131
CHRYSENE	9.1	<1	8.2	90	69-131
PHENANTHRENE	9.1	<1	8.3	91	63-124
PYRENE	8.8	<1	8.4	95	61-126
Surrogates:					
2-CHLOROANTHRACENE				83	28-138

Comments:

Notes:
N/S = NOT SUBMITTED N/A = NOT APPLICABLE D = DILUTED OUT
UG/L = PARTS PER BILLION. < = LESS THAN REPORTING LIMIT.
* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS.
SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

"QC Report"

Title: Water Matrix Spike/Matrix Spike Duplicate
Batch: PAW142
Analysis Method: 8310/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.

Dry Weight %: N/A
Sample Spiked: 806306-1

MS Date Analyzed: 26-JUN-98
MSD Date Analyzed: 26-JUN-98

MS Date Extracted: 24-JUN-98
MSD Date Extracted: 24-JUN-98

Parameters:	Spike Added	Sample Conc	MS Conc	MS %Rec	MSD Conc	MSD %Rec	RPD	RPD Lmts	Rec Lmts
ACENAPHTHYLENE	7.1	<1	2.9	41	7.8	110	91*	51	18-146
BENZO(k)FLUORANTHENE	9.2	<1	5.7	62	10.4	113	58*	40	26-137
CHRYSENE	9.1	<1	5.7	63	10.5	115	58	69	16-156
PHENANTHRENE	9.1	<1	5.7	63	10.6	116	59*	36	30-145
PYRENE	8.8	<1	5.8	66	10.7	122	60*	41	39-137
Surrogates:									
2-CHLOROANTHRACENE				55		111			28-138

Comments:
MATRIX SPIKE/MATRIX SPIKE DUPLICATE HAD RECOVERY(S) AND/OR RPD(S) OUTSIDE ACCEPTANCE LIMITS DUE TO MATRIX INTERFERENCE. REFER TO LCS DATA.

Notes:
N/S = NOT SUBMITTED N/A = NOT APPLICABLE D = DILUTED OUT
UG/L = PARTS PER BILLION. < = LESS THAN REPORTING LIMIT.
* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS.
SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

Common Notation for Organic Reporting

N/S = NOT SUBMITTED
N/A = NOT APPLICABLE
UG = MICROGRAMS
UG/L = PARTS PER BILLION
UG/KG = PARTS PER BILLION
MG/M3 = MILLIGRAM PER CUBIC METER
PPMV = PART PER MILLION BY VOLUME
MG/KG = PARTS PER MILLION
MG/L = PARTS PER MILLION
< = LESS THAN
ND = NOT DETECTED

SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

ORGANIC SOILS ARE REPORTED ON A DRYWEIGHT BASIS.

RPT LMTS = REPORTING LIMITS BASED ON METHOD DETECTION LIMIT STUDIES.

RPD = RELATIVE PERCENT DIFFERENCE (OR DEVIATION)

AEN/GC/FID
AEN GAS CHROMATOGRAPHIC METHOD EMPLOYING DIRECT INJECTION ON COLUMN WITH FLAME IONIZATION DETECTOR (FID).

AEN/GC/FIX
AEN GAS CHROMATOGRAPHIC METHOD FOR ANALYSIS OF FIXED GASES EMPLOYING DIRECT INJECTION ON COLUMN WITH THERMAL CONDUCTIVITY DETECTOR (TCD) AND FLAME IONIZATION DETECTOR (FID).

AEN/GC/FPD
AEN GAS CHROMATOGRAPHIC METHOD EMPLOYING DIRECT INJECTION ON COLUMN WITH FLAME PHOTOMETRIC DETECTOR (FPD) IN SULFUR-SPECIFIC MODE.

AEN/GC/PID
AEN GAS CHROMATOGRAPHIC METHOD EMPLOYING DIRECT INJECTION ON COLUMN WITH PHOTOIONIZATION DETECTOR (PID).

AEN/GC/TCD
AEN GAS CHROMATOGRAPHIC METHOD EMPLOYING DIRECT INJECTION ON COLUMN WITH THERMAL CONDUCTIVITY DETECTOR (TCD).

SW-846 METHOD 9020
PARTICULATE MATTER IS REMOVED BY ALLOWING PARTICULATES TO SETTLE IN THE SAMPLE CONTAINER AND DECANTING THE SUPERNATANT LIQUID. EXCESSIVE PARTICULATES ARE REMOVED BY FILTRATION OF THE SUPERNATANT LIQUID.

RSK 175
SAMPLE PREPARATION AND CALCULATIONS FOR DISSOLVED GAS ANALYSIS IN WATER SAMPLES USING A GC HEADSPACE EQUILIBRATION TECHNIQUE, RSK SOP-175, ROBERT S. KERR ENVIRONMENTAL RESEARCH LABORATORY, USEPA, AUGUST 11, 1994.

AEN-PN USES THE MOST CURRENT PROMULGATED METHODS CONTAINED IN THE REFERENCE MANUALS.

SW = STEVE WILHITE
RW = ROBERT WOLFE
KS = KENDALL SMITH
LB = LISA BIZZELL
LP = LEVERNE PETERSON
PLD = PAULA DOUGHTY
DK = DARLENE KINCHEN
BT = BECKY TREMMEL
HAH = HOLLIE HOFFMAN

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Quality Control Report

Analysis: MARATHON WET CHEMISTRY INORGANICS

Accession:	806323
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806420
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	WET CHEM

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"WetChem Quality Control Report"

Parameter:	CHLORIDE	CYANIDE	FLUORIDE	NO2	NO2NO3	PH
Batch Id:	CIW069	CNW038	FLW028	N2W092	N3W47B	PHW133
Blank Result:	<1	<0.005	<0.2	<0.1	<0.1	N/A
Anal. Method:	4500-CL B	335.2	340.2	354.1	353.2	150.1
Prep. Method:	N/A	N/A	N/A	N/A	N/A	N/A
Analysis Date:	24-JUN-98	26-JUN-98	01-JUL-98	23-JUN-98	29-JUN-98	24-JUN-98
Prep. Date:	24-JUN-98	25-JUN-98	01-JUL-98	23-JUN-98	28-JUN-98	24-JUN-98
Sample Duplication						
Sample Dup:	806306-1	806298-1	806323-1	806309-1	806300-1	806320-3
Rept Limit:	<1	<0.005	<0.2	<0.1	<0.1	N/A
Sample Result:	12.0	<0.005	0.92	<0.1	<0.1	5.05
Dup Result:	12.1	<0.005	0.87	<0.1	<0.1	4.93
Sample RPD:	1	N/C	0.05 G	N/C	N/C	0.12
Max RPD:	5	0.005	0.2	0.1	0.1	0.12
Dry Weight%	N/A	N/A	N/A	N/A	N/A	N/A
Matrix Spike						
Sample Spiked:	806306-1	806298-1	806323-1	806309-1	806300-1	N/A
Rept Limit:	<1	<0.005	<0.2	<0.1	<0.1	N/A
Sample Result:	12.0	<0.005	0.92	<0.1	<0.1	
Spiked Result:	67.3	0.212	1.75	0.20	0.90	
Spike Added:	55.0	0.200	0.80	0.20	1.00	
% Recovery:	101	106	104	100	90	
% Rec Limits:	90-111	67-127	79-132	70-131	71-125	
Dry Weight%	N/A	N/A	N/A	N/A	N/A	
ICV						
ICV Result:	101.7	0.284	1.08	0.20	1.95	10.10
True Result:	100	0.314	1.20	0.20	2.00	10.00
% Recovery:	102	90	90	100	98	101
% Rec Limits:	90-110	90-110	90-110	90-110	90-110	90-110
LCS						
LCS Result:		0.910				7.01
True Result:		0.9				6.87
% Recovery:		101				102
% Rec Limits:		80-120				96-104

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"WetChem Quality Control Report"

Parameter:	PHENOL	SULFATE	TDS
Batch Id:	PEW025	SEW078	TDW038
Blank Result:	<0.005	<10	<5
Anal. Method:	420.1	375.4	160.1
Prep. Method:	N/A	N/A	N/A
Analysis Date:	01-JUL-98	29-JUN-98	26-JUN-98
Prep. Date:	30-JUN-98	29-JUN-98	25-JUN-98
Sample Duplication			
Sample Dup:	806298-1	806298-1	806294-1
Rept Limit:	<0.005	<10	<5
Sample Result:	<0.005	21	2824
Dup Result:	<0.005	21	2988
Sample RPD:	N/C	0 G	6
Max RPD:	0.005	10	16
Dry Weight%	N/A	N/A	N/A
Matrix Spike			
Sample Spiked:	806298-2	806298-1	N/A
Rept Limit:	<0.005	<10	N/A
Sample Result:	<0.005	21	
Spiked Result:	0.022	50	
Spike Added:	0.020	20	
% Recovery:	110	145	
% Rec Limits:	48-149	56-154	
Dry Weight%	N/A	N/A	
ICV			
ICV Result:	0.027	20	
True Result:	0.025	20	
% Recovery:	108	100	
% Rec Limits:	90-110	90-110	
LCS			
LCS Result:			304
True Result:			293
% Recovery:			104
% Rec Limits:			77-129

"Quality Control Comments"

Batch Id:	Comments:
N2W092	806317-2 & 806320-3,4,7,8 & 806323-1,2,3,4 & 806322-1 were
N2W092	added to the batch on 24-Jun-98.
PEW025	806306-4 & 806323-1,2,3,4 were added to the batch on 1-Jul-98.

----- Common Footnotes WetChem -----

N/A = NOT APPLICABLE.
N/S = NOT SUBMITTED.
N/C = SAMPLE AND DUPLICATE RESULTS ARE AT OR BELOW AEN REPORTING LIMIT; THEREFORE, THE RPD IS "NOT CALCULABLE" AND NO CONTROL LIMITS APPLY.
N/D = NOT DETECTED.
R = REACTIVE
T = TOTAL
G = SAMPLE AND/OR DUPLICATE RESULT IS BELOW 5 X AEN REPORTING LIMIT AND THE ABSOLUTE DIFFERENCE BETWEEN THE SAMPLE AND DUPLICATE RESULT IS AT OR BELOW AEN REPORTING LIMIT; THEREFORE, THE RESULTS ARE "IN CONTROL".
Q = THE ANALYTICAL (POST-DISTILLATION) SPIKE IS REPORTED DUE TO PERCENT RECOVERY BEING OUTSIDE ACCEPTANCE LIMITS ON THE MATRIX (PRE-DISTILLATION) SPIKE.
= ELEVATED REPORTING LIMIT DUE TO INSUFFICIENT SAMPLE.
+ = ELEVATED REPORTING LIMIT DUE TO DILUTION INTO CALIBRATION RANGE.
* = ELEVATED REPORTING LIMIT DUE TO MATRIX INTERFERENCE (DILUTION PRIOR DIGESTION AND/OR ANALYSIS).
@ = ADJUSTED REPORTING LIMIT DUE TO SAMPLE MATRIX (DILUTION PRIOR TO DIGESTION AND/OR ANALYSIS).
P = ANALYTICAL (POST DIGESTION) SPIKE.
I = DUPLICATE INJECTION.
& = AUTOMATED
F = SAMPLE SPIKED > 4 X SPIKE CONCENTRATION.
N/C+ = NOT CALCULABLE
H = SAMPLE AND/OR DUPLICATE RESULT IS BELOW 5 X AEN REPORTING LIMIT AND THE ABSOLUTE DIFFERENCE BETWEEN THE RESULTS EXCEEDS THE AEN REPORTING LIMIT; THEREFORE, THE RESULTS ARE "OUT OF CONTROL".
A = SAMPLE AND DUPLICATE RESULTS ARE "OUT OF CONTROL".
Z = THE SAMPLE RESULT FOR THE SPIKE IS BELOW THE REPORTING LIMIT. HOWEVER, THIS RESULT IS REPORTED FOR ACCURATE QC CALCULATIONS.
NH= SAMPLE AND / OR DUPLICATE RESULT IS BELOW 5 X AEN REPORTING LIMIT AND THE ABSOLUTE DIFFERENCE BETWEEN THE RESULTS EXCEEDS THE AEN REPORTING LIMIT; THEREFORE, THE RESULTS ARE "OUT OF CONTROL". SAMPLE IS NON-HOMOGENEOUS.
(*) = REPORTING LIMITS RAISED DUE TO CLP METHOD NOT REQUIRING A CONCENTRATION STEP FOR CN.
(CA) = SEE CORRECTIVE ACTIONS FORM.
**= MATRIX INTERFERENCE
SW-846, 3rd Edition, latest EPA-approved edition.
EPA 600/4-79-020, Revised March 1983.
STANDARD METHODS, For the Examination of Water and Wastewater, latest EPA-approved edition.
NIOSH Manual of Analytical Methods, 4th Edition.
ANNUAL BOOK OF ASTM STANDARDS, VOLUMES 11.01 and 11.02, latest EPA-approved edition.
METHODS FOR THE DETERMINATION OF INORGANIC SUBSTANCES IN ENVIRONMENTAL SAMPLES, EPA600/R-93/100, AUGUST 1993
METHODS FOR SOIL ANALYSIS, PART 2, CHEMICAL AND MICROBILOGICAL PROPERTIES, 2ND EDITION.
AEN-PN USES THE MOST CURRENT PROMULGATED METHODS FROM THE REFERENCES LISTED ABOVE.

1. COLIFORM. COLIFORM PRECISION IS MEASURED BY THE ABSOLUTE DIFFERENCE BETWEEN THE LOGARITHM OF COLONIES PER 100 MLS OF SAMPLE ON DUPLICATE PLATES.
2. PH. PH PRECISION IS MEASURED BY THE ABSOLUTE DIFFERENCE BETWEEN THE SAMPLE AND DUPLICATE ANALYSIS.
3. FLASHPOINT. FLASHPOINT PRECISION IS MEASURED BY THE ABSOLUTE DIFFERENCE BETWEEN THE SAMPLE AND DUPLICATE ANALYSIS.

RPD = RELATIVE PERCENT DIFFERENCE (OR DEVIATION).
RPT LMTS = REPORTING LIMITS BASED ON METHOD DETECTION LIMIT STUDIES.

DPH = DOLLY P. HWANG RB = REBECCA BROWN WH = WENDY HAGGARD
ED = ESTHER DANTIN CR = CYNTHIA ROBERTS AB = AMY BRADLEY
BE = BETTY EVERTON PLD = PAULA L. DOUGHTY JTZ = JONATHAN T. ZIENTARSKI
RH = RICKY HAGENDORFER

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Quality Control Report

Analysis: MARATHON METALS - OPTIMA

Accession:	806323
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806420
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	METALS

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"Metals Quality Control Report"

Parameter:	SILVER	ALUMINUM	ARSENIC	BARIUM	BORON	CADMIUM
Batch Id:	AYW169	LYW169	RYW169	BYW169	OYW169	CYW169
Blank Result:	<0.005	<0.1	<0.005	<0.001	<0.05	<0.001
Anal. Method:	6010A	6010A	6010A	6010A	6010A	6010A
Prep. Method:	3010A	3010A	3010A	3010A	3010A	3010A
Analysis Date:	28-JUN-98	28-JUN-98	28-JUN-98	28-JUN-98	28-JUN-98	28-JUN-98
Prep. Date:	25-JUN-98	25-JUN-98	25-JUN-98	25-JUN-98	25-JUN-98	25-JUN-98
Sample Duplication						
Sample Dup:	806267-1	806267-1	806267-1	806267-1	806267-1	806267-1
Rept Limit:	<0.005	<0.1	<0.005	<0.001	<0.05	<0.001
Sample Result:	0.21	2.1	2.14	2.01	2.64	1.86
Dup Result:	0.22	2.1	2.17	2.05	2.71	1.89
Sample RPD:	5	0	1	2	3	2
Max RPD:	20	20	20	20	20	20
Dry Weight%	N/A	N/A	N/A	N/A	N/A	N/A
Matrix Spike						
Sample Spiked:	806267-1	806267-1	806267-1	806267-1	806267-1	806267-1
Rept Limit:	<0.005	<0.1	<0.005	<0.001	<0.05	<0.001
Sample Result:	0.007	<0.1	0.005	0.028	0.48	<0.001
Spiked Result:	0.21	2.1	2.14	2.01	2.64	1.86
Spike Added:	0.20	2.0	2.0	2.0	2.0	2.0
% Recovery:	102	105	107	99	108	93
% Rec Limits:	75-125	75-125	75-125	75-125	75-125	75-125
Dry Weight%	N/A	N/A	N/A	N/A	N/A	N/A
ICV						
ICV Result:	0.50	4.8	0.99	0.98	1.04	1.02
True Result:	0.5	5	1.0	1.0	1.0	1.0
% Recovery:	100	96	99	98	104	102
% Rec Limits:	95-105	95-105	95-105	95-105	95-105	95-105
LCS						
LCS Result:	0.19	2.0	1.97	1.98	2.03	1.97
True Result:	0.2	2.0	2.0	2.0	2.0	2.0
% Recovery:	95	100	99	99	102	99
% Rec Limits:	80-120	80-120	80-120	80-120	80-120	80-120

"Metals Quality Control Report"

Parameter:	COBALT	CHROMIUM	COPPER	MERCURY	NICKEL	IRON
Batch Id:	TYW169	HYW169	FYW169	M7W082	EYW169	N6W169
Blank Result:	<0.005	<0.005	<0.005	<0.0002	<0.005	<0.02
Anal. Method:	6010A	6010A	6010A	7470A	6010A	6010A
Prep. Method:	3010A	3010A	3010A	7470A	3010A	3010A
Analysis Date:	28-JUN-98	28-JUN-98	28-JUN-98	06-JUL-98	28-JUN-98	29-JUN-98
Prep. Date:	25-JUN-98	25-JUN-98	25-JUN-98	05-JUL-98	25-JUN-98	25-JUN-98
Sample Duplication						
Sample Dup:	806267-1	806267-1	806267-1	806424-1	806267-1	806267-1
Rept Limit:	<0.005	<0.005	<0.005	<0.0002	<0.005	<0.02
Sample Result:	1.93	1.99	2.14	0.0052	1.95	1.8
Dup Result:	1.96	2.02	2.20	0.0052	1.98	1.9
Sample RPD:	2	1	3	0	2	5
Max RPD:	20	20	20	20	20	20
Dry Weight%	N/A	N/A	N/A	N/A	N/A	N/A
Matrix Spike						
Sample Spiked:	806267-1	806267-1	806267-1	806424-1	806267-1	806267-1
Rept Limit:	<0.005	<0.005	<0.005	<0.0002	<0.005	<0.02
Sample Result:	<0.005	<0.005	<0.005	<0.0002	0.005	<0.02
Spiked Result:	1.93	1.99	2.14	0.0052	1.95	1.8
Spike Added:	2.0	2.0	2.0	0.0050	2.0	2.0
% Recovery:	97	100	107	104	97	90
% Rec Limits:	75-125	75-125	75-125	75-125	75-125	75-125
Dry Weight%	N/A	N/A	N/A	N/A	N/A	N/A
ICV						
ICV Result:	0.99	0.99	1.02	0.0037	0.99	25
True Result:	1.0	1.0	1.0	0.0040	1.0	25
% Recovery:	99	99	102	93	99	100
% Rec Limits:	95-105	95-105	95-105	90-110	95-105	95-105
LCS						
LCS Result:	1.96	2.01	2.02	0.0052	1.98	1.9
True Result:	2.0	2.0	2.0	0.0050	2.0	2.0
% Recovery:	98	101	101	104	99	95
% Rec Limits:	80-120	80-120	80-120	85-115	80-120	80-120

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"Metals Quality Control Report"

Parameter:	LEAD	MANGANESE	MOLYBDENUM	SELENIUM	ZINC
Batch Id:	PYW169	GYW169	DYW169	SYW169	5YW169
Blank Result:	<0.003	<0.005	<0.005	<0.005	<0.02
Anal. Method:	6010A	6010A	6010A	6010A	6010A
Prep. Method:	3010A	3010A	3010A	3010A	3010A
Analysis Date:	28-JUN-98	28-JUN-98	28-JUN-98	28-JUN-98	28-JUN-98
Prep. Date:	25-JUN-98	25-JUN-98	25-JUN-98	25-JUN-98	25-JUN-98
Sample Duplication					
Sample Dup:	806267-1	806267-1	806267-1	806267-1	806267-1
Rept Limit:	<0.003	<0.005	<0.005	<0.005	<0.02
Sample Result:	1.88	2.06	2.15	2.09	1.86
Dup Result:	1.89	2.07	2.17	2.13	1.89
Sample RPD:	1	0	1	2	2
Max RPD:	20	20	20	20	20
Dry Weight%	N/A	N/A	N/A	N/A	N/A
Matrix Spike					
Sample Spiked:	806267-1	806267-1	806267-1	806267-1	806267-1
Rept Limit:	<0.003	<0.005	<0.005	<0.005	<0.02
Sample Result:	<0.003	0.035	0.005	<0.005	0.04
Spiked Result:	1.88	2.06	2.15	2.09	1.86
Spike Added:	2.0	2.0	2.0	2.0	2.0
% Recovery:	94	101	107	105	91
% Rec Limits:	75-125	75-125	75-125	75-125	75-125
Dry Weight%	N/A	N/A	N/A	N/A	N/A
ICV					
ICV Result:	1.00	1.00	1.02	1.00	1.01
True Result:	1.0	1.0	1.0	1.0	1.0
% Recovery:	100	100	102	100	101
% Rec Limits:	95-105	95-105	95-105	95-105	95-105
LCS					
LCS Result:	1.93	1.96	2.08	1.91	1.95
True Result:	2.0	2.0	2.0	2.0	2.0
% Recovery:	97	98	104	96	98
% Rec Limits:	80-120	80-120	80-120	80-120	80-120

----- Common Footnotes Metals -----

N/A = NOT APPLICABLE.
N/S = NOT SUBMITTED.
N/C = SAMPLE AND DUPLICATE RESULTS ARE AT OR BELOW THE REPORTING LIMIT; THEREFORE, THE RPD IS "NOT CALCULABLE" AND NO CONTROL LIMITS APPLY.
N/D = NOT DETECTED.
DISS. OR D = DISSOLVED
T & D = TOTAL AND DISSOLVED
R = REACTIVE
T = TOTAL
G = SAMPLE AND/OR DUPLICATE RESULT IS BELOW 5 X THE REPORTING LIMIT AND THE ABSOLUTE DIFFERENCE BETWEEN THE SAMPLE AND DUPLICATE RESULT IS AT OR BELOW AEN REPORTING LIMIT; THEREFORE, THE RESULTS ARE "IN CONTROL".
Q = THE ANALYTICAL (POST-DIGESTION) SPIKE IS REPORTED DUE TO PERCENT RECOVERY BEING OUTSIDE ACCEPTANCE LIMITS ON THE MATRIX (PRE-DIGESTION) SPIKE.
= ELEVATED REPORTING LIMIT DUE TO INSUFFICIENT SAMPLE.
+ = ELEVATED REPORTING LIMIT DUE TO DILUTION INTO CALIBRATION RANGE.
* = ELEVATED REPORTING LIMIT DUE TO MATRIX INTERFERENCE. (DILUTION PRIOR TO ANALYSIS)
@ = ADJUSTED REPORTING LIMIT DUE TO SAMPLE MATRIX. (DILUTION PRIOR TO DIGESTION)
P = ANALYTICAL (POST DIGESTION) SPIKE.
I = DUPLICATE INJECTION.
& = AUTOMATED
F = SAMPLE SPIKED > 4 X SPIKE CONCENTRATION.
N/C+ = NOT CALCULABLE
N/C* = NOT CALCULABLE; SAMPLE SPIKED > 4 X SPIKE CONCENTRATION.
H = SAMPLE AND/OR DUPLICATE RESULT IS BELOW 5 X AEN REPORTING LIMIT AND THE ABSOLUTE DIFFERENCE BETWEEN THE RESULTS EXCEEDS THE AEN REPORTING LIMIT; THEREFORE, THE RESULTS ARE "OUT OF CONTROL".
A = SAMPLE AND DUPLICATE RESULTS ARE "OUT OF CONTROL".
Z = THE SAMPLE RESULT FOR THE SPIKE IS BELOW THE AEN REPORTING LIMIT. HOWEVER, THIS RESULT IS REPORTED FOR ACCURATE QC CALCULATIONS.
NH= THE RELATIVE PERCENT DIFFERENCE (RPD) EXCEEDS THE AEN CONTROL LIMIT AND IS "OUT OF CONTROL; DUE TO A NON-HOMOGENEOUS SAMPLE MATRIX.
J = (FLORIDA DEP 'J' FLAG) - MATRIX SPIKE AND POST SPIKE RECOVERY IS OUT OF THE ACCEPTABLE RANGE. SEE OUT OF CONTROL EVENTS FORM.
U = (FLORIDA DEP 'U' FLAG) - THE COMPOUND WAS ANALYZED FOR, BUT NOT DETECTED.
S = METHOD OF STANDARD ADDITIONS (MSA) WAS PERFORMED ON THIS SAMPLE.

FROM QUALITY CONTROL REPORT:
RPD= RELATIVE PERCENT DEVIATION.
REPT LIMIT= REPORTING LIMIT BASED ON METHOD DETECTION LIMIT STUDIES.

NOTE: ALL RESULTS REPORTED UNDER 'SAMPLE DUPLICATION' ARE THE MS/MSD.

NOTE: THE UNITS REPORTED ON THE QUALITY CONTROL REPORT ARE REPORTED ON AN AS RUN BASIS. (NOT ADJUSTED FOR DRY WEIGHT).

SW-846, 3rd Edition.
EPA 600/4-79-020, Revised March 1983.
NIOSH Manual of Analytical Methods, 4th Edition.
Standard Methods For the Examination of Water and Wastewater, 18th Edition, 1992.
Methods For the Determination of Metals in Environmental Samples - Supplement I, EPA 600/R-94-111, May 1994.

GJ = GARY JACOBS
JLH = JAMES L. HERED
GSP = GARY ST PERE
JL = JANET LECLEAR

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Quality Control Report

Analysis: PESTICIDES (8080)

Accession:	806323
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806420
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	PESTICIDES

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"QC Report"

Title: Water Blank
Batch: PSW044
Analysis Method: 8080 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Extraction Method: 3510 / 3660 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.

Blank Id: B Date Analyzed: 07-JUL-98 Date Extracted: 27-JUN-98

Parameters:	Units:	Results:	Reporting Limits:
ALDRIN	UG/L	ND	0.02
ALPHA-BHC	UG/L	ND	0.02
BETA-BHC	UG/L	ND	0.02
DELTA-BHC	UG/L	ND	0.02
GAMMA-BHC (LINDANE)	UG/L	ND	0.02
4,4'-DDD	UG/L	ND	0.02
4,4'-DDE	UG/L	ND	0.02
4,4'-DDT	UG/L	ND	0.02
DIELDRIN	UG/L	ND	0.02
ENDOSULFAN I	UG/L	ND	0.02
ENDOSULFAN II	UG/L	ND	0.02
ENDOSULFAN SULFATE	UG/L	ND	0.02
ENDRIN	UG/L	ND	0.02
ENDRIN ALDEHYDE	UG/L	ND	0.02
HEPTACHLOR	UG/L	ND	0.02
HEPTACHLOR EPOXIDE	UG/L	ND	0.02
METHOXYCHLOR	UG/L	ND	0.02
CHLORDANE	UG/L	ND	0.01
TOXAPHENE	UG/L	ND	0.12
PCB-1016	UG/L	ND	0.04
PCB-1221	UG/L	ND	0.04
PCB-1232	UG/L	ND	0.04
PCB-1242	UG/L	ND	0.04
PCB-1248	UG/L	ND	0.04
PCB-1254	UG/L	ND	0.04
PCB-1260	UG/L	ND	0.04
TCMX	%REC/SURR	91	43-101
DCB	%REC/SURR	108	17-135
ANALYST	INITIALS	RP	

Comments:

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"QC Report"

Title: Water LCS
Batch: PSW044
Analysis Method: 8080 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Extraction Method: 3510 / 3660 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.

RS Date Analyzed: 30-JUN-98 RS Date Extracted: 25-JUN-98

Parameters:	Spike Added	Sample Conc	RS Conc	RS %Rec	Rec Lmts
LINDANE	1.00	<0.02	0.80	80	51-118
HEPTACHLOR	1.00	<0.02	0.96	96	70-123
ALDRIN	1.00	<0.02	0.94	94	54-122
DIELDRIN	1.00	<0.02	0.95	95	75-119
ENDRIN	1.00	<0.02	0.97	97	67-122
DDT	1.00	<0.02	1.16	116	59-127
Surrogates:					
DCB				93	17-135
TCMX				85	43-101

Comments:

Notes:
N/S = NOT SUBMITTED N/A = NOT APPLICABLE D = DILUTED OUT
UG/L = PARTS PER BILLION. < = LESS THAN REPORTING LIMIT.
* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS.
SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"QC Report"

Title: Water Matrix
Batch: PSW044
Analysis Method: 8080 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Extraction Method: 3510 / 3660 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.

Dry Weight %: N/A
Sample Spiked: 806306-2

MS Date Analyzed: 30-JUN-98
MSD Date Analyzed: 30-JUN-98

MS Date Extracted: 25-JUN-98
MSD Date Extracted: 25-JUN-98

Parameters:	Spike Added	Sample Conc	MS Conc	MS %Rec	MSD Conc	MSD %Rec	RPD	RPD Lmts	Rec Lmts
LINDANE	2.00	<0.02	1.31	66	1.48	74	11	27	40-119
HEPTACHLOR	2.00	<0.02	1.57	79	1.80	90	13	30	53-123
ALDRIN	2.00	<0.02	1.53	77	1.74	87	12	31	42-130
DIELDRIN	2.00	<0.02	1.58	79	1.77	89	12	18	61-124
ENDRIN	2.00	<0.02	1.76	88	1.95	98	11	30	50-125
DDT	2.00	<0.02	2.04	102	2.24	112	9	32	25-138
Surrogates:									
DCB				86		96			17-135
TCMX				60		73			43-101

Comments:

Notes:
N/S = NOT SUBMITTED N/A = NOT APPLICABLE D = DILUTED OUT
UG/L = PARTS PER BILLION. < = LESS THAN REPORTING LIMIT.
* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS.
SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

Common notation for Organic reporting

N/S = NOT SUBMITTED
N/A = NOT APPLICABLE
D = DILUTED OUT
UG/L = PARTS PER BILLION.
UG/KG = PARTS PER BILLION.
MG/KG = PARTS PER MILLION.
MG/L = PARTS PER MILLION.
< = LESS THAN.
* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS.
ND = NOT DETECTED ABOVE REPORTING LIMIT.
Rpt Lmts = REPORTING LIMITS BASED ON METHOD DETECTION LIMIT STUDIES.
RPD = RELATIVE PERCENT DIFFERENCE (OR DEVIATION)

SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

ORGANIC SOILS ARE REPORTED ON A DRY WEIGHT BASIS.

AEN-PN USES THE MOST CURRENT PROMULGATED METHODS CONTAINED IN THE REFERENCE MANUALS.

RP = ROBERT PEREZ
LP = LEVERNE PETERSON
RW = ROBERT WOLFE

American Environmental Network (NM), Inc.

CHAIN OF CUSTODY

DATE: 6-23-98 PAGE: 1 OF 1

AEN (NM) Accession #: [illegible] 806323

SHADED AREAS ARE FOR LAB USE ONLY

PROJECT MANAGER: Paul Peacock

COMPANY: Marathon Oil Company
ADDRESS: P.O. Box 552
Midland, TX 79702-0552
PHONE: (915) 687-8312
FAX: (915) 687-8305
BILL TO: same as above
COMPANY:
ADDRESS:

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	NUMBER OF CONTAINERS
MW-58	6-22-98	1600	H2O		8
MW-85	6-23-98	0900	"		8
MW-84	"	1300	"		8
MW-64	"	1430	"		8

Petroleum Hydrocarbons (418.1) TRPH
(MOD.8015) Diesel/Direct Inject
(M8015) Gas/Purge & Trap
8021 (BTEX)/8015 (Gasoline)
8021 (BTEX) ☐ MTBE ☐ TMB ☐ PCE
8021 (TCL)
8021 (EDX)
8021 (HALO)
8021 (CUST)
504.1 EDB ☐ / DBCP ☐
CYANIDE AMMONIA TKN
8260 (TCL) Volatile Organics
8260 (Full) Volatile Organics
8260 (CUST) Volatile Organics
8260 (Landfill) Volatile Organics
Pesticides /PCB (608/8081)
Herbicides (615/8151)
Base/Neutral/Acid Compounds GC/MS (625/8270)
Polynuclear Aromatics (610/8310)
General Chemistry:
TOTAL PHENOLS
SEE LIST *
Priority Pollutant Metals (13)
Target Analyte List Metals (23)
RCRA Metals (8)
RCRA Metals by TCLP (Method 1311)
Metals: SEE LIST *

PLEASE FILL THIS FORM IN COMPLETELY.

PROJECT INFORMATION

PROJ. NO.: 104332.03
PROJ. NAME: IBRP
P.O. NO.:
SHIPPED VIA:

SAMPLE RECEIPT

NO. CONTAINERS	
CUSTODY SEALS	Y / N / NA
RECEIVED INTACT	
BLUE ICE/ICE	

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

(RUSH) ☐ 24hr ☐ 48hr ☐ 72hr ☐ 1 WEEK (NORMAL) ☒

CERTIFICATION REQUIRED: ☐ NM ☐ SDWA ☐ OTHER

METHANOL PRESERVATION ☐

COMMENTS: FIXED FEE ☐

* SEE LIST
Note: MW-58, 85, 84, & 64 are Products wells

RELINQUISHED BY: 1.

Signature: [signature] Time: 1500
Printed Name: Charles Mcdonald Date: 6-23-98
Company: FDGTI

RECEIVED BY: 1.

Signature: [signature] Time: 1500
Printed Name: CHRIS FAITH Date: 6/23
Company: AEN

RELINQUISHED BY: 2.

Signature: [signature] Time: 1530
Printed Name: CHRIS FAITH Date: 6/23
Company: AEN

RECEIVED BY: (LAB) 2.

Signature: [signature] Time: 0821
Printed Name: [illegible] Date: 6/24/98
American Environmental Network (NM), Inc.

DISTRIBUTION: White - AEN, Canary - Originator

American Environmental Network (NM), Inc.

CHAIN OF CUSTODY

DATE: 6-23-98 PAGE: 1 OF 1

AEN (NM) ACCESSION #: NM-80642-05

SHADED AREAS ARE FOR LAB USE ONLY

PLEASE FILL THIS FORM IN COMPLETELY.

PROJECT MANAGER: Paul Peacock

COMPANY: Marathon Oil Company
ADDRESS: P.O. Box 552
Midland, TX 79702-0552
PHONE: (915) 687-8312
FAX: (915) 687-8305

BILL TO: same as above
COMPANY:
ADDRESS:

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	Petroleum Hydrocarbons (418.1) TRPH	(MOD.8015) Diesel/Direct Inject	(M8015) Gas/Purge & Trap	8021 (BTEX)/8015 (Gasoline)	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)	Herbicides (615/8151)	Base/Neutral/Acid Compounds GC/MS (625/8270)	Polynuclear Aromatics (610/8310)	General Chemistry:			Priority Pollutant Metals (13)	Target Analyte List Metals (23)	RCRA Metals (8)	RCRA Metals by TCLP (Method 1311)	Metals:		NUMBER OF CONTAINERS
MW-58	6-22-98	1600	H_2O	01									X	X		X																6
MW-85	6-23-98	0900		02									X	X		X																6
MW-84		1300		03									X	X		X																6
MW-64		1430		04									X	X		X																6
Trip Blank	6/11	1410	AQ	05												X																1

PROJECT INFORMATION

PROJ. NO.: 104332.03
PROJ. NAME: IBRP
P.O. NO.:
SHIPPED VIA:

SAMPLE RECEIPT

NO. CONTAINERS:	25
CUSTODY SEALS:	Y / N / NA
RECEIVED INTACT:	Yes
BLUE ICE/ICE:	3°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 ☐

NOTE: MW-58, 85, 84, & 64 are product wells

1. RELINQUISHED BY:

Signature: [signature] Time: 1500
Printed Name: Charles Maderell Date: 6-23-98
Company: FDGTI

2. RELINQUISHED BY:

Signature: [signature] Time: 1530
Printed Name: CHRIS FAITH Date: 6/23
Company: AEN

1. RECEIVED BY:

Signature: [signature] Time: 1500
Printed Name: CHRIS FAITH Date: 6/23
Company: AEN

2. RECEIVED BY: (LAB)

Signature: [signature] Time: 11:16
Printed Name: [illegible] Date: 6/24/98
American Environmental Network (NM), Inc.

DISTRIBUTION: White - AEN, Canary - Originator

RECEIVED

AEN I.D. 806410

July 27, 1998

MARATHON OIL COMPANY
P.O. BOX 552
MIDLAND, TX 79702-0552

Project Name IBRP
Project Number 104332

Attention: PAUL PEACOCK

On 6/18/98 American Environmental Network (NM), Inc. (ADHS License No. AZ0015), 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 methods 504.1, 8021 and 8260 were performed by American Environmental Network (NM) Inc., Albuquerque, NM.

Uranium was performed by North Creek Analytical, Portland, OR.

Radiochemistry was performed by STL, Morrisville, NC.

All other parameters were performed by STL, Pensacola, FL.

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	: MARATHON OIL COMPANY	AEN I.D.	: 806410
PROJECT #	: 104332	DATE RECEIVED	: 6/18/98
PROJECT NAME	: IBRP	REPORT DATE	: 7/27/98

AEN ID. #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	DI H2O	AQUEOUS	6/16/98
02	INT-RB	AQUEOUS	6/16/98
03	MW-70	AQUEOUS	6/16/98
04	TRIP BLANK	AQUEOUS	6/11/98

GAS CHROMOTOGRAPHY RESULTS

TEST : ETHYLENE DIBROMIDE (EPA 504.1)
CLIENT : MARATHON OIL COMPANY AEN I.D.: 806410
PROJECT # : 104332.03
PROJECT NAME : IBRP

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
03	MW-70	AQUEOUS	6/16/98	6/18/98	6/18/98	1

PARAMETER	DET. LIMIT	UNITS	03
ETHYLENE DIBROMIDE	0.01	UG/L	< 0.01

SURROGATE:
1,4-DICHLOROBENZENE 94
SURROGATE LIMITS (75 - 141)

CHEMIST NOTES:
N/A

GAS CHROMOTOGRAPHY RESULTS
REAGENT BLANK

TEST	: ETHYLENE DIBROMIDE (EPA 504.1)		
BLANK I.D.	: 061898	AEN I.D.	: 806410
CLIENT	: MARATHON OIL COMPANY	MATRIX	: AQUEOUS
PROJECT #	: 104332.03	DATE EXTRACTED	: 6/18/98
PROJECT NAME	: IBRP	DATE ANALYZED	: 6/18/98

PARAMETER	DET. LIMIT	UNITS	
ETHYLENE DIBROMIDE	0.01	UG/L	<0.01
SURROGATE:			
1,4-DICHLOROBENZENE			90
SURROGATE LIMITS	(78 - 140)		

CHEMIST NOTES:
N/A

GAS CHROMOTOGRAPHY RESULTS
QUALITY CONTROL
MSMSD

TEST	: ETHYLENE DIBROMIDE (EPA 504.1)		
MSMSD #	: 806410-03	AEN I.D.	: 806410
CLIENT	: MARATHON OIL COMPANY	DATE EXTRACTED	: 6/18/98
PROJECT #	: 104332.03	DATE ANALYZED	: 6/18/98
PROJECT NAME	: IBRP	MATRIX	: AQUEOUS
		UNITS	: UG/L

PARAMETER	SAMPLE RESULT	CONC. SPIKE	SPIKED SAMPLE	% REC	DUP SPIKE	DUP % REC	% RPD
ETHYLENE DIBROMIDE	<0.01	0.25	0.34	136%	0.35	140%	3%

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 CHROMOTOGRAPHY RESULTS

TEST : PURGEABLE HALOCARBONS (EPA 8021)
CLIENT : MARATHON OIL COMPANY AEN I.D.: 806410
PROJECT # : 104332.03
PROJECT NAME : IBRP

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
03	MW-70	AQUEOUS	6/16/98	NA	6/18/98	1

PARAMETER	DET. LIMIT	UNITS	03
TETRACHLOROETHENE	0.3	UG/L	< 0.5
VINYL CHLORIDE	0.5	UG/L	< 0.5
SURROGATE:			
BROMOCHLOROMETHANE (%)			112
SURROGATE LIMITS	(73 - 117)		

CHEMIST NOTES:
N/A

GAS CHROMOTOGRAPHY RESULTS
REAGENT BLANK

TEST	: PURGEABLE HALOCARBONS (EPA 8021)		
BLANK I.D.	: 061898	AEN I.D.	: 806410
CLIENT	: MARATHON OIL COMPANY	DATE EXTRACTED	: N/A
PROJECT #	: 104332.03	DATE ANALYZED	: 6/18/98
PROJECT NAME	: IBRP	SAMPLE MATRIX	: AQUEOUS

PARAMETER	UNITS	
1,1-DICHLOROETHENE	UG/L	<0.2
TRICHLOROETHENE	UG/L	<0.3
CHLOROBENZENE	UG/L	<0.5
TETRACHLOROETHENE	UG/L	<0.5
VINYL CHLORIDE	UG/L	<0.5

SURROGATE:
BROMOCHLOROMETHANE (%) 111
SURROGATE LIMITS (73 - 117)

CHEMIST NOTES:
N/A

GAS CHROMOTOGRAPHY QUALITY CONTROL

MSMSD

TEST	: PURGEABLE HALOCARBONS (EPA 8021)		
MSMSD #	: 806411-06	AEN I.D.	: 806410
CLIENT	: MARATHON OIL COMPANY	DATE EXTRACTED	: N/A
PROJECT #	: 104332	DATE ANALYZED	: 6/18/98
PROJECT NAME	: IBRP	SAMPLE MATRIX	: AQUEOUS
		UNITS	: UG/L

PARAMETER	SAMPLE RESULT	CONC SPIKE	SPIKED SAMPLE	% REC	DUP SPIKE	DUP % REC	RPD	REC LIMITS	RPD LIMITS
1,1-DICHLOROETHENE	<0.2	10.0	9.2	92	9.7	97	5	(44 - 99)	20
TRICHLOROETHENE	<0.3	10.0	10.7	107	11.1	111	4	(89 - 127)	20
CHLOROBENZENE	<0.5	10.0	10.6	106	11.1	111	5	(87 - 124)	20

CHEMIST NOTES:
N/A

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

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

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806410
PROJECT #	: 104332.03	DATE RECEIVED :	6/18/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806410-01	DI H2O	AQUEOUS	6/16/98	N/A	06/18/98	1

PARAMETER	DET. LIMIT		UNITS
Dichlorodifluoromethane	1.0	< 1.0	ug/L
Chloromethane	1.0	< 1.0	ug/L
Vinyl Chloride	1.0	< 1.0	ug/L
Bromomethane	1.0	< 1.0	ug/L
Chloroethane	1.0	< 1.0	ug/L
Trichlorofluoromethane	1.0	< 1.0	ug/L
Acetone	10	< 10	ug/L
Acrolein	5.0	< 5.0	ug/L
1,1-Dichloroethene	1.0	< 1.0	ug/L
Iodomethane	1.0	< 1.0	ug/L
Methylene Chloride	1.0	< 1.0	ug/L
Acrylonitrile	5.0	< 5.0	ug/L
cis-1,2-Dichloroethene	1.0	< 1.0	ug/L
Methyl-t-butyl Ether	1.0	< 1.0	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 1.0	ug/L
1,1-Dichloroethane	1.0	< 1.0	ug/L
trans-1,2-Dichloroethene	1.0	< 1.0	ug/L
2-Butanone	10	**23**	**ug/L**
Carbon Disulfide	1.0	< 1.0	ug/L
Bromochloromethane	1.0	< 1.0	ug/L
Chloroform	1.0	< 1.0	ug/L
2,2-Dichloropropane	1.0	< 1.0	ug/L
1,2-Dichloroethane	1.0	< 1.0	ug/L
Vinyl Acetate	1.0	< 1.0	ug/L
1,1,1-Trichloroethane	1.0	< 1.0	ug/L
1,1-Dichloropropene	1.0	< 1.0	ug/L
Carbon Tetrachloride	1.0	< 1.0	ug/L
Benzene	1.0	< 1.0	ug/L
1,2-Dichloropropane	1.0	< 1.0	ug/L
Trichloroethene	1.0	< 1.0	ug/L
Bromodichloromethane	1.0	< 1.0	ug/L
2-Chloroethyl Vinyl Ether	10	< 10	ug/L
cis-1,3-Dichloropropene	1.0	< 1.0	ug/L
trans-1,3-Dichloropropene	1.0	< 1.0	ug/L
1,1,2-Trichloroethane	1.0	< 1.0	ug/L
1,3-Dichloropropane	1.0	< 1.0	ug/L
Dibromomethane	1.0	< 1.0	ug/L
Toluene	1.0	< 1.0	ug/L
1,2-Dibromoethane	1.0	< 1.0	ug/L
4-Methyl-2-Pentanone	10	< 10	ug/L
2-Hexanone	10	< 10	ug/L
Dibromochloromethane	1.0	< 1.0	ug/L
Tetrachloroethene	1.0	< 1.0	ug/L
Chlorobenzene	1.0	< 1.0	ug/L
Ethylbenzene	1.0	< 1.0	ug/L
1,1,1,2-Tetrachloroethane	1.0	< 1.0	ug/L

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806410
PROJECT #	: 104332.03	DATE RECEIVED :	6/18/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806410-01	DI H2O	AQUEOUS	6/16/98	N/A	06/18/98	1

PARAMETER	DET. LIMIT		UNITS
m&p Xylenes	1.0	< 1.0	ug/L
o-Xylene	1.0	< 1.0	ug/L
Styrene	1.0	**35**	**ug/L**
Bromoform	1.0	< 1.0	ug/L
1,1,2,2-Tetrachloroethane	1.0	< 1.0	ug/L
1,2,3-Trichloropropane	1.0	< 1.0	ug/L
Isopropyl Benzene	1.0	< 1.0	ug/L
Bromobenzene	1.0	< 1.0	ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 1.0	ug/L
n-Propylbenzene	1.0	< 1.0	ug/L
2-Chlorotoluene	1.0	< 1.0	ug/L
4-Chlorotoluene	1.0	< 1.0	ug/L
1,3,5-Trimethylbenzene	1.0	< 1.0	ug/L
tert-Butylbenzene	1.0	< 1.0	ug/L
1,2,4-Trimethylbenzene	1.0	< 1.0	ug/L
sec-Butylbenzene	1.0	< 1.0	ug/L
1,3-Dichlorobenzene	1.0	< 1.0	ug/L
1,4-Dichlorobenzene	1.0	< 1.0	ug/L
p-Isopropyltoluene	1.0	< 1.0	ug/L
1,2-Dichlorobenzene	1.0	< 1.0	ug/L
n-Butylbenzene	1.0	< 1.0	ug/L
1,2-Dibromomo-3-chloropropane	1.0	< 1.0	ug/L
1,2,4-Trichlorobenzene	1.0	< 1.0	ug/L
Naphthalene	1.0	< 1.0	ug/L
Hexachlorobutadiene	1.0	< 1.0	ug/L
1,2,3-Trichlorobenzene	1.0	< 1.0	ug/L

SURROGATE % RECOVERY	
1,2-Dichloroethane-d4	104 (80 - 120)
Toluene-d8	102 (88 - 110)
Bromofluorobenzene	101 (86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806410
PROJECT #	: 104332.03	DATE RECEIVED :	6/18/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806410-02	INT-RB	AQUEOUS	6/16/98	N/A	06/18/98	1

PARAMETER	DET. LIMIT		UNITS
Dichlorodifluoromethane	1.0	< 1.0	ug/L
Chloromethane	1.0	< 1.0	ug/L
Vinyl Chloride	1.0	< 1.0	ug/L
Bromomethane	1.0	< 1.0	ug/L
Chloroethane	1.0	< 1.0	ug/L
Trichlorofluoromethane	1.0	< 1.0	ug/L
Acetone	10	< 10	ug/L
Acrolein	5.0	< 5.0	ug/L
1,1-Dichloroethene	1.0	< 1.0	ug/L
Iodomethane	1.0	< 1.0	ug/L
Methylene Chloride	1.0	< 1.0	ug/L
Acrylonitrile	5.0	< 5.0	ug/L
cis-1,2-Dichloroethene	1.0	< 1.0	ug/L
Methyl-t-butyl Ether	1.0	< 1.0	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 1.0	ug/L
1,1-Dichloroethane	1.0	< 1.0	ug/L
trans-1,2-Dichloroethene	1.0	< 1.0	ug/L
2-Butanone	10	< 10	ug/L
Carbon Disulfide	1.0	< 1.0	ug/L
Bromochloromethane	1.0	< 1.0	ug/L
Chloroform	1.0	< 1.0	ug/L
2,2-Dichloropropane	1.0	< 1.0	ug/L
1,2-Dichloroethane	1.0	< 1.0	ug/L
Vinyl Acetate	1.0	< 1.0	ug/L
1,1,1-Trichloroethane	1.0	< 1.0	ug/L
1,1-Dichloropropene	1.0	< 1.0	ug/L
Carbon Tetrachloride	1.0	< 1.0	ug/L
Benzene	1.0	< 1.0	ug/L
1,2-Dichloropropane	1.0	< 1.0	ug/L
Trichloroethene	1.0	< 1.0	ug/L
Bromodichloromethane	1.0	< 1.0	ug/L
2-Chloroethyl Vinyl Ether	10	< 10	ug/L
cis-1,3-Dichloropropene	1.0	< 1.0	ug/L
trans-1,3-Dichloropropene	1.0	< 1.0	ug/L
1,1,2-Trichloroethane	1.0	< 1.0	ug/L
1,3-Dichloropropane	1.0	< 1.0	ug/L
Dibromomethane	1.0	< 1.0	ug/L
Toluene	1.0	< 1.0	ug/L
1,2-Dibromoethane	1.0	< 1.0	ug/L
4-Methyl-2-Pentanone	10	< 10	ug/L
2-Hexanone	10	< 10	ug/L
Dibromochloromethane	1.0	< 1.0	ug/L
Tetrachloroethene	1.0	< 1.0	ug/L
Chlorobenzene	1.0	< 1.0	ug/L
Ethylbenzene	1.0	< 1.0	ug/L
1,1,1,2-Tetrachloroethane	1.0	< 1.0	ug/L

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806410
PROJECT #	: 104332.03	DATE RECEIVED :	6/18/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806410-02	INT-RB	AQUEOUS	6/16/98	N/A	06/18/98	1

PARAMETER	DET. LIMIT		UNITS
m&p Xylenes	1.0	< 1.0	ug/L
o-Xylene	1.0	< 1.0	ug/L
Styrene	1.0	< 1.0	ug/L
Bromoform	1.0	< 1.0	ug/L
1,1,2,2-Tetrachloroethane	1.0	< 1.0	ug/L
1,2,3-Trichloropropane	1.0	< 1.0	ug/L
Isopropyl Benzene	1.0	< 1.0	ug/L
Bromobenzene	1.0	< 1.0	ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 1.0	ug/L
n-Propylbenzene	1.0	< 1.0	ug/L
2-Chlorotoluene	1.0	< 1.0	ug/L
4-Chlorotoluene	1.0	< 1.0	ug/L
1,3,5-Trimethylbenzene	1.0	< 1.0	ug/L
tert-Butylbenzene	1.0	< 1.0	ug/L
1,2,4-Trimethylbenzene	1.0	< 1.0	ug/L
sec-Butylbenzene	1.0	< 1.0	ug/L
1,3-Dichlorobenzene	1.0	< 1.0	ug/L
1,4-Dichlorobenzene	1.0	< 1.0	ug/L
p-Isopropyltoluene	1.0	< 1.0	ug/L
1,2-Dichlorobenzene	1.0	< 1.0	ug/L
n-Butylbenzene	1.0	< 1.0	ug/L
1,2-Dibromomo-3-chloropropane	1.0	< 1.0	ug/L
1,2,4-Trichlorobenzene	1.0	< 1.0	ug/L
Naphthalene	1.0	< 1.0	ug/L
Hexachlorobutadiene	1.0	< 1.0	ug/L
1,2,3-Trichlorobenzene	1.0	< 1.0	ug/L

SURROGATE % RECOVERY	
1,2-Dichloroethane-d4	99 (80 - 120)
Toluene-d8	100 (88 - 110)
Bromofluorobenzene	100 (86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806410
PROJECT #	: 104332.03	DATE RECEIVED :	6/18/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806410-03	MW-70	AQUEOUS	6/16/98	N/A	06/18/98	1

PARAMETER	DET. LIMIT		UNITS
Dichlorodifluoromethane	1.0	< 1.0	ug/L
Chloromethane	1.0	< 1.0	ug/L
Vinyl Chloride	1.0	< 1.0	ug/L
Bromomethane	1.0	< 1.0	ug/L
Chloroethane	1.0	< 1.0	ug/L
Trichlorofluoromethane	1.0	< 1.0	ug/L
Acetone	10	< 10	ug/L
Acrolein	5.0	< 5.0	ug/L
1,1-Dichloroethene	1.0	< 1.0	ug/L
Iodomethane	1.0	< 1.0	ug/L
Methylene Chloride	1.0	< 1.0	ug/L
Acrylonitrile	5.0	< 5.0	ug/L
cis-1,2-Dichloroethene	1.0	< 1.0	ug/L
Methyl-t-butyl Ether	1.0	< 1.0	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 1.0	ug/L
1,1-Dichloroethane	1.0	< 1.0	ug/L
trans-1,2-Dichloroethene	1.0	< 1.0	ug/L
2-Butanone	10	< 10	ug/L
Carbon Disulfide	1.0	< 1.0	ug/L
Bromochloromethane	1.0	< 1.0	ug/L
Chloroform	1.0	< 1.0	ug/L
2,2-Dichloropropane	1.0	< 1.0	ug/L
1,2-Dichloroethane	1.0	< 1.0	ug/L
Vinyl Acetate	1.0	< 1.0	ug/L
1,1,1-Trichloroethane	1.0	< 1.0	ug/L
1,1-Dichloropropene	1.0	< 1.0	ug/L
Carbon Tetrachloride	1.0	< 1.0	ug/L
Benzene	1.0	< 1.0	ug/L
1,2-Dichloropropane	1.0	< 1.0	ug/L
Trichloroethene	1.0	< 1.0	ug/L
Bromodichloromethane	1.0	< 1.0	ug/L
2-Chloroethyl Vinyl Ether	10	< 10	ug/L
cis-1,3-Dichloropropene	1.0	< 1.0	ug/L
trans-1,3-Dichloropropene	1.0	< 1.0	ug/L
1,1,2-Trichloroethane	1.0	< 1.0	ug/L
1,3-Dichloropropane	1.0	< 1.0	ug/L
Dibromomethane	1.0	< 1.0	ug/L
Toluene	1.0	< 1.0	ug/L
1,2-Dibromoethane	1.0	< 1.0	ug/L
4-Methyl-2-Pentanone	10	< 10	ug/L
2-Hexanone	10	< 10	ug/L
Dibromochloromethane	1.0	< 1.0	ug/L
Tetrachloroethene	1.0	< 1.0	ug/L
Chlorobenzene	1.0	< 1.0	ug/L
Ethylbenzene	1.0	< 1.0	ug/L
1,1,1,2-Tetrachloroethane	1.0	< 1.0	ug/L

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806410
PROJECT #	: 104332.03	DATE RECEIVED :	6/18/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806410-03	MW-70	AQUEOUS	6/16/98	N/A	06/18/98	1

PARAMETER	DET. LIMIT		UNITS
m&p Xylenes	1.0	< 1.0	ug/L
o-Xylene	1.0	< 1.0	ug/L
Styrene	1.0	< 1.0	ug/L
Bromoform	1.0	< 1.0	ug/L
1,1,2,2-Tetrachloroethane	1.0	< 1.0	ug/L
1,2,3-Trichloropropane	1.0	< 1.0	ug/L
Isopropyl Benzene	1.0	< 1.0	ug/L
Bromobenzene	1.0	< 1.0	ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 1.0	ug/L
n-Propylbenzene	1.0	< 1.0	ug/L
2-Chlorotoluene	1.0	< 1.0	ug/L
4-Chlorotoluene	1.0	< 1.0	ug/L
1,3,5-Trimethylbenzene	1.0	< 1.0	ug/L
tert-Butylbenzene	1.0	< 1.0	ug/L
1,2,4-Trimethylbenzene	1.0	< 1.0	ug/L
sec-Butylbenzene	1.0	< 1.0	ug/L
1,3-Dichlorobenzene	1.0	< 1.0	ug/L
1,4-Dichlorobenzene	1.0	< 1.0	ug/L
p-Isopropyltoluene	1.0	< 1.0	ug/L
1,2-Dichlorobenzene	1.0	< 1.0	ug/L
n-Butylbenzene	1.0	< 1.0	ug/L
1,2-Dibromomo-3-chloropropane	1.0	< 1.0	ug/L
1,2,4-Trichlorobenzene	1.0	< 1.0	ug/L
Naphthalene	1.0	< 1.0	ug/L
Hexachlorobutadiene	1.0	< 1.0	ug/L
1,2,3-Trichlorobenzene	1.0	< 1.0	ug/L

SURROGATE % RECOVERY	
1,2-Dichloroethane-d4	104
	(80 - 120)
Toluene-d8	103
	(88 - 110)
Bromofluorobenzene	99
	(86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806410
PROJECT #	: 104332.03	DATE RECEIVED :	6/18/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806410-04	Trip Blank	AQUEOUS	6/11/98	N/A	06/18/98	1

PARAMETER	DET. LIMIT		UNITS
Dichlorodifluoromethane	1.0	< 1.0	ug/L
Chloromethane	1.0	< 1.0	ug/L
Vinyl Chloride	1.0	< 1.0	ug/L
Bromomethane	1.0	< 1.0	ug/L
Chloroethane	1.0	< 1.0	ug/L
Trichlorofluoromethane	1.0	< 1.0	ug/L
Acetone	10	< 10	ug/L
Acrolein	5.0	< 5.0	ug/L
1,1-Dichloroethene	1.0	< 1.0	ug/L
Iodomethane	1.0	< 1.0	ug/L
Methylene Chloride	1.0	< 1.0	ug/L
Acrylonitrile	5.0	< 5.0	ug/L
cis-1,2-Dichloroethene	1.0	< 1.0	ug/L
Methyl-t-butyl Ether	1.0	< 1.0	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 1.0	ug/L
1,1-Dichloroethane	1.0	< 1.0	ug/L
trans-1,2-Dichloroethene	1.0	< 1.0	ug/L
2-Butanone	10	< 10	ug/L
Carbon Disulfide	1.0	< 1.0	ug/L
Bromochloromethane	1.0	< 1.0	ug/L
Chloroform	1.0	< 1.0	ug/L
2,2-Dichloropropane	1.0	< 1.0	ug/L
1,2-Dichloroethane	1.0	< 1.0	ug/L
Vinyl Acetate	1.0	< 1.0	ug/L
1,1,1-Trichloroethane	1.0	< 1.0	ug/L
1,1-Dichloropropene	1.0	< 1.0	ug/L
Carbon Tetrachloride	1.0	< 1.0	ug/L
Benzene	1.0	< 1.0	ug/L
1,2-Dichloropropane	1.0	< 1.0	ug/L
Trichloroethene	1.0	< 1.0	ug/L
Bromodichloromethane	1.0	< 1.0	ug/L
2-Chloroethyl Vinyl Ether	10	< 10	ug/L
cis-1,3-Dichloropropene	1.0	< 1.0	ug/L
trans-1,3-Dichloropropene	1.0	< 1.0	ug/L
1,1,2-Trichloroethane	1.0	< 1.0	ug/L
1,3-Dichloropropane	1.0	< 1.0	ug/L
Dibromomethane	1.0	< 1.0	ug/L
Toluene	1.0	< 1.0	ug/L
1,2-Dibromoethane	1.0	< 1.0	ug/L
4-Methyl-2-Pentanone	10	< 10	ug/L
2-Hexanone	10	< 10	ug/L
Dibromochloromethane	1.0	< 1.0	ug/L
Tetrachloroethene	1.0	< 1.0	ug/L
Chlorobenzene	1.0	< 1.0	ug/L
Ethylbenzene	1.0	< 1.0	ug/L
1,1,1,2-Tetrachloroethane	1.0	< 1.0	ug/L

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806410
PROJECT #	: 104332.03	DATE RECEIVED :	6/18/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806410-04	Trip Blank	AQUEOUS	6/11/98	N/A	06/18/98	1

PARAMETER	DET. LIMIT		UNITS
m&p Xylenes	1.0	< 1.0	ug/L
o-Xylene	1.0	< 1.0	ug/L
Styrene	1.0	< 1.0	ug/L
Bromoform	1.0	< 1.0	ug/L
1,1,2,2-Tetrachloroethane	1.0	< 1.0	ug/L
1,2,3-Trichloropropane	1.0	< 1.0	ug/L
Isopropyl Benzene	1.0	< 1.0	ug/L
Bromobenzene	1.0	< 1.0	ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 1.0	ug/L
n-Propylbenzene	1.0	< 1.0	ug/L
2-Chlorotoluene	1.0	< 1.0	ug/L
4-Chlorotoluene	1.0	< 1.0	ug/L
1,3,5-Trimethylbenzene	1.0	< 1.0	ug/L
tert-Butylbenzene	1.0	< 1.0	ug/L
1,2,4-Trimethylbenzene	1.0	< 1.0	ug/L
sec-Butylbenzene	1.0	< 1.0	ug/L
1,3-Dichlorobenzene	1.0	< 1.0	ug/L
1,4-Dichlorobenzene	1.0	< 1.0	ug/L
p-Isopropyltoluene	1.0	< 1.0	ug/L
1,2-Dichlorobenzene	1.0	< 1.0	ug/L
n-Butylbenzene	1.0	< 1.0	ug/L
1,2-Dibromomo-3-chloropropane	1.0	< 1.0	ug/L
1,2,4-Trichlorobenzene	1.0	< 1.0	ug/L
Naphthalene	1.0	< 1.0	ug/L
Hexachlorobutadiene	1.0	< 1.0	ug/L
1,2,3-Trichlorobenzene	1.0	< 1.0	ug/L

SURROGATE % RECOVERY		
1,2-Dichloroethane-d4	105	(80 - 120)
Toluene-d8	102	(88 - 110)
Bromofluorobenzene	101	(86 - 115)

GC/MS RESULTS

TEST : VOLATILE ORGANICS EPA METHOD 8260
CLIENT : MARATHON OIL COMPANY AEN I.D. : 806410
PROJECT # : 104332.03
PROJECT NAME : IBRP

SAMPLE ID #	BATCH	MATRIX	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
REAGENT BLANK	061898	AQUEOUS	N/A	06/18/98	1

PARAMETER	DET. LIMIT		UNITS
Dichlorodifluoromethane	1.0	< 1.0	ug/L
Chloromethane	1.0	< 1.0	ug/L
Vinyl Chloride	1.0	< 1.0	ug/L
Bromomethane	1.0	< 1.0	ug/L
Chloroethane	1.0	< 1.0	ug/L
Trichlorofluoromethane	1.0	< 1.0	ug/L
Acetone	10	< 10	ug/L
Acrolein	5.0	< 5.0	ug/L
1,1-Dichloroethene	1.0	< 1.0	ug/L
Iodomethane	1.0	< 1.0	ug/L
Methylene Chloride	1.0	< 1.0	ug/L
Acrylonitrile	5.0	< 5.0	ug/L
cis-1,2-Dichloroethene	1.0	< 1.0	ug/L
Methyl-t-butyl Ether	1.0	< 1.0	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 1.0	ug/L
1,1-Dichloroethane	1.0	< 1.0	ug/L
trans-1,2-Dichloroethene	1.0	< 1.0	ug/L
2-Butanone	10	< 10	ug/L
Carbon Disulfide	1.0	< 1.0	ug/L
Bromochloromethane	1.0	< 1.0	ug/L
Chloroform	1.0	< 1.0	ug/L
2,2-Dichloropropane	1.0	< 1.0	ug/L
1,2-Dichloroethane	1.0	< 1.0	ug/L
Vinyl Acetate	1.0	< 1.0	ug/L
1,1,1-Trichloroethane	1.0	< 1.0	ug/L
1,1-Dichloropropene	1.0	< 1.0	ug/L
Carbon Tetrachloride	1.0	< 1.0	ug/L
Benzene	1.0	< 1.0	ug/L
1,2-Dichloropropane	1.0	< 1.0	ug/L
Trichloroethene	1.0	< 1.0	ug/L
Bromodichloromethane	1.0	< 1.0	ug/L
2-Chloroethyl Vinyl Ether	10	< 10	ug/L
cis-1,3-Dichloropropene	1.0	< 1.0	ug/L
trans-1,3-Dichloropropene	1.0	< 1.0	ug/L
1,1,2-Trichloroethane	1.0	< 1.0	ug/L
1,3-Dichloropropane	1.0	< 1.0	ug/L
Dibromomethane	1.0	< 1.0	ug/L
Toluene	1.0	< 1.0	ug/L
1,2-Dibromoethane	1.0	< 1.0	ug/L
4-Methyl-2-Pentanone	10	< 10	ug/L
2-Hexanone	10	< 10	ug/L
Dibromochloromethane	1.0	< 1.0	ug/L
Tetrachloroethene	1.0	< 1.0	ug/L
Chlorobenzene	1.0	< 1.0	ug/L
Ethylbenzene	1.0	< 1.0	ug/L
1,1,1,2-Tetrachloroethane	1.0	< 1.0	ug/L

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806410
PROJECT #	: 104332.03		
PROJECT NAME	: IBRP		

SAMPLE ID #	BATCH	MATRIX	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
REAGENT BLANK	061898	AQUEOUS	N/A	06/18/98	1

PARAMETER	DET. LIMIT		UNITS
m&p Xylenes	1.0	< 1.0	ug/L
o-Xylene	1.0	< 1.0	ug/L
Styrene	1.0	< 1.0	ug/L
Bromoform	1.0	< 1.0	ug/L
1,1,2,2-Tetrachloroethane	1.0	< 1.0	ug/L
1,2,3-Trichloropropane	1.0	< 1.0	ug/L
Isopropyl Benzene	1.0	< 1.0	ug/L
Bromobenzene	1.0	< 1.0	ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 1.0	ug/L
n-Propylbenzene	1.0	< 1.0	ug/L
2-Chlorotoluene	1.0	< 1.0	ug/L
4-Chlorotoluene	1.0	< 1.0	ug/L
1,3,5-Trimethylbenzene	1.0	< 1.0	ug/L
tert-Butylbenzene	1.0	< 1.0	ug/L
1,2,4-Trimethylbenzene	1.0	< 1.0	ug/L
sec-Butylbenzene	1.0	< 1.0	ug/L
1,3-Dichlorobenzene	1.0	< 1.0	ug/L
1,4-Dichlorobenzene	1.0	< 1.0	ug/L
p-Isopropyltoluene	1.0	< 1.0	ug/L
1,2-Dichlorobenzene	1.0	< 1.0	ug/L
n-Butylbenzene	1.0	< 1.0	ug/L
1,2-Dibromomo-3-chloropropane	1.0	< 1.0	ug/L
1,2,4-Trichlorobenzene	1.0	< 1.0	ug/L
Naphthalene	1.0	< 1.0	ug/L
Hexachlorobutadiene	1.0	< 1.0	ug/L
1,2,3-Trichlorobenzene	1.0	< 1.0	ug/L

SURROGATE % RECOVERY	
1,2-Dichloroethane-d4	101 (80 - 120)
Toluene-d8	99 (88 - 110)
Bromofluorobenzene	101 (86 - 115)

Spike Recovery and RPD Summary Report - WATER

Method : C:\HPCHEM\1\METHODS\82600310.M (RTE Integrator)
Title : AEN New Mexico GC/MS
Last Update : Tue May 12 14:39:09 1998
Response via : Initial Calibration

Non-Spiked Sample: 06189804.D

	Spike Sample	Spike Duplicate Sample
File ID :	061898S1.D	061898S2.D
Sample :	806410-03 MS	806410-03 MSD
Acq Time:	18 Jun 98 3:26 pm	18 Jun 98 4:06 pm

Compound	Sample Conc	Spike Added	Spike Res	Dup Res	Spike %Rec	Dup %Rec	RPD	QC Limits RPD	QC Limits % Rec
1,1-Dichloroethene	0.0	50	46	49	92	99	7	14	61-145
Benzene	0.0	50	50	53	100	107	7	11	76-127
Trichloroethene	0.0	50	47	50	95	100	5	14	71-120
Toluene	0.0	50	49	53	97	105	8	13	76-125
Chlorobenzene	0.0	50	48	51	95	102	7	13	75-130

- Fails Limit Check

82600310.M Mon Jun 22 08:58:28 1998

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ▪ (425) 420-9200 ▪ FAX 420-9210
SPOKANE ▪ (509) 924-9200 ▪ FAX 924-9290
PORTLAND ▪ (503) 906-9200 ▪ FAX 906-9210

American Environmental Network	Project:	Marathon Oil	Sampled: 6/16/98
2709-D Pan American Freeway,NE	Project Number:	104332.03	Received: 6/19/98
Albuquerque, NM 87107	Project Manager:	Kimberly McNeill	Reported: 7/17/98 09:39

ANALYTICAL REPORT FOR SAMPLES:

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
MW-70	P806407-01	Water	6/16/98

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

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SPOKANE ▪ (509) 924-9200 ▪ FAX 924-9290
PORTLAND ▪ (503) 906-9200 ▪ FAX 906-9210

American Environmental Network	Project:	Marathon Oil	Sampled: 6/16/98
2709-D Pan American Freeway,NE	Project Number:	104332.03	Received: 6/19/98
Albuquerque, NM 87107	Project Manager:	Kimberly McNeill	Reported: 7/17/98 09:39

Total Metals per EPA 6000/7000 Series Methods
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
MW-70			**P806407-01**				**Water**	
Uranium	0780163	7/6/98	7/16/98	EPA 6020	0.00100	**0.00160**	mg/l	

North Creek Analytical, Inc.

**Refer to end of report for text of notes and definitions.*

Lisa Domenighini, Project Manager

18939 120th Avenue N.E., Suite 101, Bothell, WA 98011-9508
East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ▪ (425) 420-9200 ▪ FAX 420-9210
SPOKANE ▪ (509) 924-9200 ▪ FAX 924-9290
PORTLAND ▪ (503) 906-9200 ▪ FAX 906-9210

American Environmental Network	Project:	Marathon Oil	Sampled: 6/16/98
2709-D Pan American Freeway,NE	Project Number:	104332.03	Received: 6/19/98
Albuquerque, NM 87107	Project Manager:	Kimberly McNeill	Reported: 7/17/98 09:39

Total Metals per EPA 6000/7000 Series Methods/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0780163	**Date Prepared: 7/6/98**					**Extraction Method: EPA 200/3005**				
Blank	**0780163-BLK1**									
Uranium	7/16/98			**ND**	mg/l	**0.00100**				
LCS	**0780163-BS1**									
Uranium	7/16/98	0.0500		0.0537	mg/l	80.0-120	107			
Duplicate	**0780163-DUP1**		**P806407-01**							
Uranium	7/16/98		0.00160	0.00120	mg/l			20.0	**28.6**	1
Matrix Spike	**0780163-MS1**		**P806407-01**							
Uranium	7/16/98	0.0500	0.00160	0.0601	mg/l	75.0-125	**117**			
Matrix Spike	**0780163-MS2**		**P806457-03**							
Uranium	7/16/98	0.0500	ND	ND	mg/l	75.0-125	**NR**			

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ▪ (425) 420-9200 ▪ FAX 420-9210
SPOKANE ▪ (509) 924-9200 ▪ FAX 924-9290
PORTLAND ▪ (503) 906-9200 ▪ FAX 906-9210

American Environmental Network	Project:	Marathon Oil	Sampled: 6/16/98
2709-D Pan American Freeway,NE	Project Number:	104332.03	Received: 6/19/98
Albuquerque, NM 87107	Project Manager:	Kimberly McNeill	Reported: 7/17/98 09:39

Notes and Definitions

#	Note
1	Analyses are not controlled on RPD values from sample concentrations less than 5 times the reporting limit.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
Recov.	Recovery
RPD	Relative Percent Difference

North Creek Analytical, Inc.

Lisa Domenighini, Project Manager

American Environmental Network (NM), Inc.

CHAIN OF CUSTODY

DATE: 6/16/98 PAGE: 1 OF 4

AEN(NM) Accession #: OR-801641-0

SHADED AREAS ARE FOR LAB USE ONLY

PLEASE FILL THIS FORM IN COMPLETELY.

PROJECT MANAGER: Paul Peacock

COMPANY: Marathon Oil Company

ADDRESS: P.O. Box 552
Midland, TX 79702-0552

PHONE: (915) 687-8312

FAX: (915) 687-8305

BILL TO: same as above

COMPANY:

ADDRESS:

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	Petroleum Hydrocarbons (418.1) TRPH	(MOD.8015) Diesel/Direct Inject	(M8015) Gas/Purge & Trap	8021 (BTEX)/8015 (Gasoline)	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)	Herbicides (615/8151)	Base/Neutral/Acid Compounds GC/MS (625/8270)	Polynuclear Aromatics (610/8310)	General Chemistry:	Uranium - ICPMS	Priority Pollutant Metals (13)	Target Analyte List Metals (23)	RCRA Metals (8)	RCRA Metals by TCLP (Method 1311)	Metals:	NUMBER OF CONTAINERS
MW-70	6/16/98	1345	Water																				X							2

PROJECT INFORMATION

PROJ. NO.: 104332.03

PROJ. NAME: IBRP

P.O. NO.:

SHIPPED VIA:

SAMPLE RECEIPT

NO. CONTAINERS:	2
CUSTODY SEALS:	Y / N / NA
RECEIVED INTACT:	Y
BLUE ICE/ICE:	22°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 ☐

QA/QC on this well

RELINQUISHED BY:

Signature: Kevin Cook Time: 1700

Printed Name: Kevin Cook Date: 6/16/98

Company: FOGTI

RECEIVED BY:

Signature: Time: 1710

Printed Name: CHRIS FAITH Date: 6/16

Company: AEN

RELINQUISHED BY:

Signature: Time: 1745

Printed Name: CHRIS FAITH Date: 6/16

Company: AEN

RECEIVED BY: (LAB)

Signature: Time: 12:2[illegible]

Printed Name: Date:

American Environmental Network (NM), Inc.

Committed To *Your* Success

Severn Trent Laboratories
120 Southcenter Court, Suite 300
Morrisville NC 27560

Tel: (919) 460-8505
Fax: (919) 469-2646

July 16, 1998

American Environmental Network
Attn: Dr. Mitch Rubenstein
2709D PanAmerican Freeway NE
Albuquerque, NM 87107

Dear Dr. Rubenstein:

Please find enclosed the radiological results of one (1) water sample. This report contains sections addressing the following information at a minimum:

- case narrative
- sample summary
- analytical results (forms I thru VII), key, and COC's if applicable

STL Project #:	2599-007
STL Work Order #:	98-05-302
Client Project ID:	104382.03

Copies of this radiological report and supporting data are maintained in our files for a minimum of three years unless special arrangements have been made. Except where specifically indicated, all radiological testing was performed at this laboratory location and no portion of the testing was subcontracted.

We appreciate your selection of our services and welcome any questions or suggestions you may have relative to this report. Please contact your customer service representative at (919) 460-8505 for any additional information. Thank you for utilizing our services. We hope you will consider us for your future analytical needs.

I have reviewed and approved the enclosed data for final release.

Sincerely,

Ross W. Williams

Ross W. Williams, Ph.D.
Manager, Radiological Laboratory
STL-North Carolina

RWW/mevl

STL
Committed To *Your* Success

CASE NARRATIVE
Client: American Environmental Network - NM
Client Project ID: 104332.03
STL-NC Order Number: 98-06-302
STL-NC Project Number: 2399-007

One (1) water sample was received on June 19, 1998, in good condition with the chain-of-custody intact.

The sample was analyzed for Ra-226 and Ra-228.

A method blank was analyzed with each batch, and the activities of the blanks were equal to or less than the acceptance criteria of less than three times the MDL.

A blank spike sample was analyzed with each batch, and the recoveries were within the 80-120% acceptance criteria.

A matrix spike analysis was made with each batch also. The Ra-226 matrix spike recovery was within the acceptance criteria of 80-120% for water samples, but the Ra-228 matrix spike recovery was 126%. The high matrix spike recovery indicates that, due to a matrix effect, the sample had a higher recovery factor than the efficiency blank spike sample which is used to determine this factor for the batch.

A duplicate sample was analyzed for each batch. The duplicate analyses were within our acceptance criteria of a Duplicate Error Ratio (DER) of less than 1.5. The DER is defined as follows:

$$DER = \frac{|S-D|}{(2\sigma_s + 2\sigma_d)}$$

Where: S = Original Sample Value
D = Duplicate Value
$2\sigma_s$ = Original Sample Uncertainty
$2\sigma_d$ = Duplicate Sample Uncertainty

Ross W. Williams, Ph.D.
Manager, Radiological Laboratory
7/17/98



Environmental Survey

Cover Page

Radiological Data Analysis Package

07/08/98

120 Southcenter Ct., Suite 300
Morrisville, NC 27560

Phone (919) 460-8505
Fax (919) 469-2646

NC - 806410

Project Number:	2399-007

Client Sample ID	Lab ID
MW-70	9806302-01

Comments: _____

Release of the data contained in this package has been authorized by the laboratory manager or the manager's designee, as verified by the following signature.

Rosa W. Williams
Manager, Radiological Laboratory

7/17/98
Date

STL

Project Number: 2399-007

Severn Trent Laboratories

Radiological Analysis Results

NC - 806410

07/08/98

Form I

Client Sample ID	Lab ID	Sample Type	Batch Number	Matrix	Radionuclide	Result	Uncertainty	Q	Units	Analysis Date	Sample Size	MDA
MW-70	9806302-01	Reg	98060054	Water	Ra-226	0.20	0.17		pCi/L	07/06/98	0.5000	0.16
MW-70	9806302-01	Reg	98060056	Water	Ra-228	2.55	1.10		pCi/L	06/30/98	1.0000	2.20

Key shall be attached
Comments:

Project Number: 2399-007

QA/QC Results Summary

NC - 806410

07/08/98

Form II

Client Sample ID	Lab ID	Sample Type	Batch Number	Matrix	Radionuclide	Result	Uncertainty	Units	Analysis Date	Sample Size	MDA	Inst ID
Blank Spike	N/A	BS	98060054	Water	Ra-226	131.93	2.19	pCi/L	07/06/98	0.5000	0.15	5
Blank Spike	N/A	BS	98060056	Water	Ra-228	92.17	3.78	pCi/L	06/30/98	1.0000	2.02	1
MW-70	9806302-01	Dup	98060054	Water	Ra-226	0.23	0.11	pCi/L	07/06/98	0.5000	0.09	5
MW-70	9806302-01	Dup	98060056	Water	Ra-228	2.33	1.17	pCi/L	06/30/98	1.0000	2.42	1
Method Blank	N/A	MB	98060054	Water	Ra-226	0.05	0.09	pCi/L	07/06/98	0.5000	0.08	5
Method Blank	N/A	MB	98060056	Water	Ra-228	0.51	1.20	pCi/L	06/30/98	1.0000	2.80	1
MW-70	9806302-01	MS	98060054	Water	Ra-226	160.49	2.02	pCi/L	07/06/98	0.5000	0.11	5
MW-70	9806302-01	MS	98060056	Water	Ra-228	113.15	4.47	pCi/L	06/30/98	1.0000	2.77	1

Key shall be attached

Comments: _____

MDA mode

STL

Project Number: 2399-007

Severn Trent Laboratories

Method Blank Summary

NC - 806410

07/08/98

Form III

Client Sample ID	*Batch* Number	Matrix	Radionuclide	Result	Uncertainty	Q	Units	Analysis Date	Sample Size	Method Number	Inst ID
Method Blank	98060054	Water	Ra-226	0.05	0.09		pCi/L	07/06/98	0.5000	RAS01900	5
Method Blank	98060056	Water	Ra-228	0.51	1.20		pCi/L	06/30/98	1.0000	RAS08500	1

Key shall be attached

Comments: _____

Project Number: 2399-007

Chemical Recovery

NC - 806410

07/08/98

Form IV

Client Sample ID	Lab ID	Sample Type	Batch Number	Radionuclide	Chemical Tracer	Tracer Result	Tracer Added	Percent Recovery	Q	Tracer Units	Analysis Date	Inst ID
MW-70	9806302-01	Reg	98060054	Ra-226	Ba-133	1181.00	1256.00	94.03 %		pCi	07/06/98	5
MW-70	9806302-01	Reg	98060056	Ra-228	Ba-133	1018.00	1249.00	81.51 %		pCi	06/30/98	1
Blank Spike	N/A	BS	98060054	Ra-226	Ba-133	1199.00	1249.00	96.00 %		pCi	07/06/98	5
Blank Spike	N/A	BS	98060056	Ra-228	Ba-133	1099.00	1256.00	87.50 %		pCi	06/30/98	1
MW-70	9806302-01	Dup	98060054	Ra-226	Ba-133	1245.00	1256.00	99.12 %		pCi	07/06/98	5
MW-70	9806302-01	Dup	98060056	Ra-228	Ba-133	992.10	1249.00	79.43 %		pCi	06/30/98	1
Method Blank	N/A	MB	98060054	Ra-226	Ba-133	1242.00	1249.00	99.44 %		pCi	07/06/98	5
Method Blank	N/A	MB	98060056	Ra-228	Ba-133	1079.00	1256.00	85.91 %		pCi	06/30/98	1
MW-70	9806302-01	MS	98060054	Ra-226	Ba-133	1094.00	1249.00	87.59 %		pCi	07/06/98	5
MW-70	9806302-01	MS	98060056	Ra-228	Ba-133	978.50	1256.00	77.91 %		pCi	06/30/98	1

Key shall be attached

Comments: _____

STL

Severn Trent Laboratories

Project Number: 2399-007

Blank Spike Results Summary

NC - 806410

07/08/98

Form V

Client Sample ID	Batch Number	Matrix	Radionuclide	Spike	Result	Spike Value	Percent Recovery	Q	Units	Analysis Date	Method Number
Blank Spike	98060054	Water	Ra-226	Ra-226	131.93	145.40	90.74%		pCi/L	07/06/98	RAS01900
Blank Spike	98060056	Water	Ra-228	Ra-228	92.17	87.75	105.04%		pCi/L	06/30/98	RAS08500

Key shall be attached

Comments: _____

Project Number: 2399-007

Matrix Spike Results Summary

NC - 806410

07/08/98

Form VI

Client Sample ID	Lab ID	Batch Number	Spike	SSR	Sample Result	Spike Added	Percent Recovery	Q	Units	Analysis Date	Inst ID
MW-70	9806302-01	98060054	Ra-226	160.49	0.20	145.40	110.24 %		pCi/L	07/06/98	5
MW-70	9806302-01	98060056	Ra-228	113.15	2.55	87.75	126.04 %		pCi/L	06/30/98	1

Key shall be attached

Comments: _____

_____

_____

MDA mode

STL

Project Number: 2399-007

Severn Trent Laboratories

Duplicate Results

NC - 806410

07/08/98

Form VII

Client Sample ID	Lab ID	Batch Number	Radionuclide	Sample Result	Uncertainty	Dup. Result	Dup. Uncertainty	DER	Q	Units
MW-70	9806302-01	98060054	Ra-226	0.20	0.17	0.23	0.11	0.11		pCi/L
MW-70	9806302-01	98060056	Ra-228	2.55	1.10	2.33	1.17	0.10		pCi/L

Key shall be attached

Comments: _____



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REPORT FORM KEY

Severn Trent Laboratories
120 Southcenter Court, Suite 300
Morrisville NC 27560

Tel: (919) 460-8505
Fax: (919) 469-2646

Instrument ID:

#1 - Gas Proportional Counter
#2 - High Purity Germanium Detectors (HPGe)
#3 - Alpha Spectrometry Counter
#4 - Liquid Scintillation Counter
#5 - Lucas Cell Counter
#6 - Sodium Iodide Detector

Sample Type:

REG - Regular Sample
DUP - Duplicate Sample
MS - Matrix Spike
BS - Blank Spike
MB - Method Blank

Units:

pCi/L - Picocuries per Liter
pCi/g - Picocuries per Gram
pCi/ml - Picocuries per Milliliter
pCi/mg - Picocuries per Milligram
pCi/F - Picocuries per Air Filter

Radionuclides:

H-3	Tritium	C-14	Carbon-14
Cl-36	Chlorine-36	K-40	Potassium-40
Co-60	Cobalt-60	Sr-89	Strontium-89
Sr-90	Strontium-90	Tc-99	Technetium-99
Cs-137	Cesium-137	Tl-208	Thallium-208
Pb-210	Lead-210	Pb-212	Lead-212
Pb-214	Lead-214	Bi-214	Bismuth-214
Ra-226	Radium-226	Ac-228	Actinium-228
Ra-228	Radium-228	Th-234	Thorium-234
Th-227	Thorium-227	Th-232/230/228	Isotopic Thorium
U-234/235/238	Isotopic Uranium	Pu-238	Plutonium-238
Pu-239/240	Plutonium-239&240	Am-241	Americium-241
Np-237	Neptunium-237		

WORK ORDER

Lab

Work Order #	98-06-302	# of Samples	1	Recieved Date	06/19/98	American Environ. Network
Client #	2399	# of Tests	2	Load Date	06/19/98	2709D PanAmerican Freeway NE
Project	2399-007	Report Level	2	Due Date	07/07/98	Albuquerque, NM 87107
Amount	123.25	Quote #		Export Date	/ /	Mitch Rubenstein
Comment	QC on MW-70					

Lab ID	Sample #	Status	Matrix	Test	Cust ID	Collected
9806302-01	01A1	Open	Water	Ra-226	MW-70	06/16/98
9806302-01	01A2	Open	Water	Ra-228	MW-70	06/16/98

pH Checked
All Samples pH <2
Initials: SB Date: 6/19/98
Arrived unpreserved

American Environmental Network (NM), Inc.

CHAIN OF CUSTODY

DATE: _____ PAGE: ___ OF ___

AEN(NM) Accession #: NC- 50674-10

SHADED AREAS ARE FOR LAB USE ONLY.

PLEASE FILL THIS FORM IN COMPLETELY.

PROJECT MANAGER: Paul Peacock

COMPANY: Marathon Oil Company
ADDRESS: P.O. Box 552
Midland, TX 79702-0552
PHONE: (915) 687-8312
FAX: (915) 687-8305

BILL TO: same as above
COMPANY:
ADDRESS:

SAMPLE ID	DATE	TIME	MATRIX	LAB I.D.
MW-70	6/16/98	1345	Water	-030

ANALYSIS REQUEST

Petroleum Hydrocarbons (418.1) TRPH	(MOD.8015) Diesel/Direct Inject	(M8015) Gas/Purge & Trap	8021 (BTEX)/8015 (Gasoline)	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)	Herbicides (615/8151)	Base/Neutral/Acid Compounds GC/MS (625/8270)	Polynuclear Aromatics (610/8310)	General Chemistry:	Priority Pollutant Metals (13)	Target Analyte List Metals (23)	RCRA Metals (8)	RCRA Metals by TCLP (Method 1311)	Metals:	NUMBER OF CONTAINERS
																		X RA226 + 228						2

PROJECT INFORMATION

PROJ. NO.: 104332.03
PROJ. NAME: IBRP
P.O. NO.:
SHIPPED VIA:

SAMPLE RECEIPT

NO. CONTAINERS: 2
CUSTODY SEALS: (Y) N/A
RECEIVED INTACT: Yes
BLUE ICE/ICE: 21°C

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

(RUSH) ☐ 24hr ☐ 48hr ☐ 72hr ☐ 1 WEEK (NORMAL) X

CERTIFICATION REQUIRED: ☐ NM ☐ SDWA ☐ OTHER

METHANOL PRESERVATION ☐

COMMENTS: FIXED FEE ☐

QA/QC SAMPLE ON THIS WELL

Received by: 6/19/98 11:00
B. Trulick AEN Rad lab.

RELINQUISHED BY: 1.	RELINQUISHED BY: 2.
Signature: Kevin Cole	Signature:
Time: 1700	Time: 1745
Printed Name: Kevin Cole	Printed Name: CHRIS FAITH
Date: 6/16/98	Date: 6/16
Company: AGI	Company: AEN
RECEIVED BY: 1.	**RECEIVED BY: (LAB) 2.**
Signature:	Signature: Francine Trujillo
Time: 1710	Time: 12:21
Printed Name: CHRIS FAITH	Printed Name: Francine Trujillo
Date: 6/16	Date: 6/18/98
Company: AEN	American Enviromental Network (NM), Inc.

Committed To *Your* Success

Severn Trent Laboratories
11 East Olive Road
Pensacola FL 32514

Tel: (850) 474-1001
Fax: (850) 474-4789

SIGNATURE PAGE

Reviewed by: M Patrick
STL Project Manager

Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC. ALBUQUERQUE, NEW MEXICO
Project Name:	IBRP
Project Number:	806410
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Accession Number:	806213
Project Manager:	KIMBERLY D. MCNEILL
Sampled By:	N/S

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Analysis Report

Analysis: MARATHON WET CHEMISTRY INORGANICS

Accession:	806213
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806410
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	WET CHEM

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"FINAL REPORT FORMAT - SINGLE"

Accession: 806213
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806410
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON WET CHEMISTRY INORGANICS
Matrix: WATER
QC Level: II

Lab ID: 001
Client Sample Id: MW-70
Sample Date/Time: 16-JUN-98 1345
Received Date: 18-JUN-98

Parameters:	Units:	Results:	Rpt Lmts:	Q:	Batch:	Analyst:
CHLORIDE (4500-CL B)	MG/L	12	1		CIW065	RB
CYANIDE, TOTAL (335.2)	MG/L	ND	0.005		CNW037	CR
FLUORIDE (340.2/4500-F C)	MG/L	0.6	0.2		FLW026	ED
NITRITE, NITROGEN (354.1)	MG/L	ND	0.1		N2W087	BE
NITRITE-NITRATE, NITROGEN (353.2)	MG/L	2.7	0.1		N3W45A	WH
NITRATE, NITROGEN (353.2-354.1)	MG/L	2.7	0.1		NONE	DPH
PH (150.1)	UNITS	7.5	NA	R4	PHW128	ED
PHENOLS, TOTAL (420.1)	MG/L	ND	0.005		PEW022	CR
SULFATE (375.4)	MG/L	80	20	+	SEW074	BE
TOTAL DISSOLVED SOLIDS (160.1)	MG/L	370	5		TDW037	ED

Comments:

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"Method Report Summary"

Accession Number: 806213
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806410
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON WET CHEMISTRY INORGANICS

Client Sample Id:	Parameter:	Unit:	Result:
MW-70	CHLORIDE (4500-CL B)	MG/L	12
	FLUORIDE (340.2/4500-F C)	MG/L	0.6
	NITRITE-NITRATE, NITROGEN (353.2)	MG/L	2.7
	NITRATE, NITROGEN (353.2-354.1)	MG/L	2.7
	PH (150.1)	UNITS	7.5
	SULFATE (375.4)	MG/L	80
	TOTAL DISSOLVED SOLIDS (160.1)	MG/L	370

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Analysis Report

Analysis: MARATHON METALS - OPTIMA

Accession:	806213
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806410
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	METALS

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"FINAL REPORT FORMAT - SINGLE"

Accession: 806213
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806410
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON METALS - OPTIMA
Matrix: WATER
QC Level: II

Lab Id: 001 Sample Date/Time: 16-JUN-98 1345
Client Sample Id: MW-70 Received Date: 18-JUN-98

Parameters:	Units:	Results:	Rpt Lmts:	Q:	Batch:	Analyst:
SILVER (6010A)	MG/L	ND	0.0007		AYW167	GL
ALUMINUM (6010A)	MG/L	0.036	0.026		LYW167	GL
ARSENIC (6010A)	MG/L	ND	0.0018		RYW167	GL
BARIUM (6010A)	MG/L	0.057	0.0002		BYW167	GL
BORON (6010A)	MG/L	0.073	0.0057		OYW167	GL
CADMIUM (6010A)	MG/L	ND	0.0002		CYW167	GL
COBALT (6010A)	MG/L	ND	0.0003		TYW167	GL
CHROMIUM (6010A)	MG/L	ND	0.0008		HYW167	GL
COPPER (6010A)	MG/L	ND	0.0018		FYW167	GL
MERCURY (7470A)	MG/L	0.0003	0.0001		M7W080	JL
NICKEL (6010A)	MG/L	ND	0.0009		EYW167	GL
IRON (6010A)	MG/L	ND	0.013		NYW167	GL
LEAD (6010A)	MG/L	ND	0.0022		PYW167	GL
MANGANESE (6010A)	MG/L	0.0026	0.0002		GYW167	GL
MOLYBDENUM (6010A)	MG/L	0.0023	0.0003		DYW167	GL
SELENIUM (6010A)	MG/L	ND	0.0023		SYW167	GL
ZINC (6010A)	MG/L	0.051	0.014		5YW167	GL

Comments:

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"Method Report Summary"

Accession Number: 806213
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806410
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON METALS - OPTIMA

Client Sample Id:	Parameter:	Unit:	Result:
MW-70	ALUMINUM (6010A)	MG/L	0.036
	BARIUM (6010A)	MG/L	0.057
	BORON (6010A)	MG/L	0.073
	MERCURY (7470A)	MG/L	0.0003
	MANGANESE (6010A)	MG/L	0.0026
	MOLYBDENUM (6010A)	MG/L	0.0023
	ZINC (6010A)	MG/L	0.051

SEVERN TRENT LABORATORIES 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Analysis Report

Analysis: POLYNUCLEAR AROMATICS BY 8310

Accession:	806213
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806410
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	SEMI-VOLATILE FUELS

SEVERN TRENT LABORATORIES 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"FINAL REPORT FORMAT - SINGLE"

Accession:	806213
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806410
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Test:	POLYNUCLEAR AROMATICS BY 8310
Analysis Method:	8310/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method:	3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix:	WATER
QC Level:	II

Lab Id:	001	Sample Date/Time:	16-JUN-98 1345
Client Sample Id:	MW-70	Received Date:	18-JUN-98
Batch: PAW139		Extraction Date:	20-JUN-98
Blank: A	Dry Weight %: N/A	Analysis Date:	23-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZO(a)PYRENE	UG/L	ND	0.1	
1-METHYLNAPHTHALENE	UG/L	ND	0.3	
2-CHLOROANTHRACENE	%REC/SURR	62	28-138	
ANALYST	INITIALS	HAH		

Comments:

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Analysis Report

Analysis: PESTICIDES (8080)

Accession:	806213
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806410
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	PESTICIDES

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"FINAL REPORT FORMAT - SINGLE"

Accession: 806213
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806410
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: PESTICIDES (8080)
Analysis Method: 8080 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Extraction Method: 3510 / 3660 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Matrix: WATER
QC Level: II

Lab Id: 001 Sample Date/Time: 16-JUN-98 1345
Client Sample Id: MW-70 Received Date: 18-JUN-98

Batch: PSW042 Extraction Date: 19-JUN-98
Blank: A Dry Weight %: N/A Analysis Date: 30-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
ALDRIN	UG/L	ND	0.02	
ALPHA-BHC	UG/L	ND	0.02	
BETA-BHC	UG/L	ND	0.02	
DELTA-BHC	UG/L	ND	0.02	
GAMMA-BHC (LINDANE)	UG/L	ND	0.02	
4,4'-DDD	UG/L	ND	0.02	
4,4'-DDE	UG/L	ND	0.02	
4,4'-DDT	UG/L	ND	0.02	
DIELDRIN	UG/L	ND	0.02	
ENDOSULFAN I	UG/L	ND	0.02	
ENDOSULFAN II	UG/L	ND	0.02	
ENDOSULFAN SULFATE	UG/L	ND	0.02	
ENDRIN	UG/L	ND	0.02	
ENDRIN ALDEHYDE	UG/L	ND	0.02	
HEPTACHLOR	UG/L	ND	0.02	
HEPTACHLOR EPOXIDE	UG/L	ND	0.02	
METHOXYCHLOR	UG/L	ND	0.02	
CHLORDANE	UG/L	ND	0.01	
TOXAPHENE	UG/L	ND	0.12	
PCB-1016	UG/L	ND	0.04	
PCB-1221	UG/L	ND	0.04	
PCB-1232	UG/L	ND	0.04	
PCB-1242	UG/L	ND	0.04	
PCB-1248	UG/L	ND	0.04	
PCB-1254	UG/L	ND	0.04	
PCB-1260	UG/L	ND	0.04	
TCMX	%REC/SURR	84	43-101	
DCB	%REC/SURR	55	17-135	
ANALYST	INITIALS	RP		

Comments:

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Analysis Report

Analysis: ACID & BASE EXTRACTABLES (8270)

Accession:	806213
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806410
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	ORGANIC/MS

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"FINAL REPORT FORMAT - SINGLE"

Accession: 806213
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806410
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: I

Lab Id: 001 Sample Date/Time: 16-JUN-98 1345
Client Sample Id: MW-70 Received Date: 18-JUN-98

Batch: ALW074 Extraction Date: 19-JUN-98
Blank: A Dry Weight %: N/A Analysis Date: 24-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZOIC ACID	UG/L	ND	1.7	
4-CHLORO-3-METHYLPHENOL	UG/L	ND	0.4	
2-CHLOROPHENOL	UG/L	ND	0.5	
2,4-DICHLOROPHENOL	UG/L	ND	3.9	
2,6-DICHLOROPHENOL	UG/L	ND	0.1	
2,4-DIMETHYLPHENOL	UG/L	ND	0.5	
4,6-DINITRO-2-METHYLPHENOL	UG/L	ND	1.6	
2,4-DINITROPHENOL	UG/L	ND	3.3	
2-METHYLPHENOL	UG/L	ND	0.3	
4-METHYLPHENOL	UG/L	ND	0.5	
2-NITROPHENOL	UG/L	ND	0.4	
4-NITROPHENOL	UG/L	ND	0.7	
PENTACHLOROPHENOL	UG/L	ND	0.7	
PHENOL	UG/L	ND	0.5	
2,3,4,6-TETRACHLOROPHENOL	UG/L	ND	0.6	
2,4,5-TRICHLOROPHENOL	UG/L	ND	3.0	
2,4,6-TRICHLOROPHENOL	UG/L	ND	0.3	
ACENAPHTHENE	UG/L	ND	0.4	
ACENAPHTHYLENE	UG/L	ND	0.4	
ACETOPHENONE	UG/L	ND	0.4	
4-AMINOBIPHENYL	UG/L	ND	0.7	
ANILINE	UG/L	ND	0.5	
ANTHRACENE	UG/L	ND	0.4	
BENZIDINE	UG/L	ND	2.7	
BENZO (A) ANTHRACENE	UG/L	ND	0.5	
BENZO (A) PYRENE	UG/L	ND	0.2	
BENZO (B) FLUORANTHENE	UG/L	ND	0.5	
BENZO (G,H,I) PERYLENE	UG/L	ND	0.3	
BENZO (K) FLUORANTHENE	UG/L	ND	0.7	
BENZYL ALCOHOL	UG/L	ND	0.5	
BIS(2-CHLOROETHOXY)METHANE	UG/L	ND	0.4	
BIS(2-CHLOROETHYL)ETHER	UG/L	ND	0.5	
BIS(2-CHLOROISOPROPYL)ETHER	UG/L	ND	1.9	
BIS(2-ETHYLHEXYL)PHTHALATE	UG/L	ND	0.6	
4-BROMOPHENYL PHENYL ETHER	UG/L	ND	0.4	
BUTYLBENZYL PHTHALATE	UG/L	ND	0.5	
4-CHLOROANILINE	UG/L	ND	0.4	
1-CHLORONAPHTHALENE	UG/L	ND	0.6	
2-CHLORONAPHTHALENE	UG/L	ND	0.4	
4-CHLOROPHENYL PHENYL ETHER	UG/L	ND	0.5	

"FINAL REPORT FORMAT - SINGLE"

Accession: 806213
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806410
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: I

Lab Id: 001 Sample Date/Time: 16-JUN-98 1345
Client Sample Id: MW-70 Received Date: 18-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
CHRYSENE	UG/L	ND	0.7	
DIBENZ(A,J)ACRIDINE	UG/L	ND	0.5	
DIBENZO (A,H) ANTHRACENE	UG/L	ND	0.3	
DIBENZOFURAN	UG/L	ND	0.4	
1,2-DICHLOROBENZENE	UG/L	ND	0.3	
1,3-DICHLOROBENZENE	UG/L	ND	0.3	
1,4-DICHLOROBENZENE	UG/L	ND	0.5	
3,3'-DICHLOROBENZIDINE	UG/L	ND	0.4	
DIETHYLPHTHALATE	UG/L	ND	0.4	
P-DIMETHYLAMINOAZOBENZENE	UG/L	ND	0.4	
7,12-DIMETHYLBENZ(A)ANTHRACENE	UG/L	ND	1.8	
A-,A-DIMETHYLPHENETHYLAMINE	UG/L	ND	0.1	
DIMETHYLPHTHALATE	UG/L	ND	0.4	
DI-N-BUTYLPHTHALATE	UG/L	ND	0.4	
2,4-DINITROTOLUENE	UG/L	ND	0.5	
2,6-DINITROTOLUENE	UG/L	ND	0.5	
DI-N-OCTYLPHTHALATE	UG/L	ND	0.7	
DIPHENYLAMINE	UG/L	ND	0.5	
1,2-DIPHENYLHYDRAZINE	UG/L	ND	0.3	
FLUORANTHENE	UG/L	ND	0.5	
FLUORENE	UG/L	ND	0.6	
HEXACHLOROBENZENE	UG/L	ND	0.5	
HEXACHLOROBUTADIENE	UG/L	ND	0.5	
HEXACHLOROCYCLOPENTADIENE	UG/L	ND	0.6	
HEXACHLOROETHANE	UG/L	ND	0.6	
INDENO (1,2,3-CD) PYRENE	UG/L	ND	0.5	
ISOPHORONE	UG/L	ND	0.4	
3-METHYLCHOLANTHRENE	UG/L	ND	0.4	
2-METHYLNAPHTHALENE	UG/L	ND	0.5	
NAPHTHALENE	UG/L	ND	0.4	
1-NAPHTHYLAMINE	UG/L	ND	1.5	
2-NAPHTHYLAMINE	UG/L	ND	1.0	
2-NITROANILINE	UG/L	ND	0.4	
3-NITROANILINE	UG/L	ND	0.9	
4-NITROANILINE	UG/L	ND	0.8	
NITROBENZENE	UG/L	ND	0.5	
N-NITROSODIMETHYLAMINE	UG/L	ND	1.2	
N-NITROSODI-N-BUTYLAMINE	UG/L	ND	1.1	
N-NITROSODIETHYLAMINE	UG/L*	ND	10	
N-NITROSODIPHENYLAMINE	UG/L	ND	0.4	
N-NITROSO-DI-N-PROPYLAMINE	UG/L	ND	0.4	
N-NITROSOPIPERIDINE	UG/L	ND	0.8	
N-NITROSOPYRROLIDINE	UG/L*	ND	10	
PENTACHLOROBENZENE	UG/L	ND	0.4	
PENTACHLORONITROBENZENE (PCNB)	UG/L	ND	5.0	

"FINAL REPORT FORMAT - SINGLE"

Accession: 806213
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806410
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: I

Lab Id: 001
Client Sample Id: MW-70
Sample Date/Time: 16-JUN-98 1345
Received Date: 18-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
PHENACETIN	UG/L	ND	0.4	
PHENANTHRENE	UG/L	ND	0.4	
2-PICOLINE	UG/L	ND	7.7	
PRONAMIDE	UG/L	ND	0.4	
PYRENE	UG/L	ND	0.5	
1,2,4,5-TETRACHLOROBENZENE	UG/L	ND	0.4	
1,2,4 TRICHLOROBENZENE	UG/L	ND	0.6	
2-FLUOROPHENOL	%REC/SURR	89	21-100	
PHENOL-D6	%REC/SURR	76	10-100	
2,4,6-TRIBROMOPHENOL	%REC/SURR	84	10-123	
2-FLUOROBIPHENYL	%REC/SURR	82	43-116	
NITROBENZENE-D5	%REC/SURR	77	35-114	
TERPHENYL-D14	%REC/SURR	99	33-124	
ANALYST	INITIALS	RW		

Comments:

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Rd Pensacola, FL 32514 (850) 474-1001

Data Qualifiers for Final Report

AEN-Pensacola Inorganic/Organic

@	Adjusted reporting limit due to sample matrix (dilution prior to digestion and/or analysis)
+	Elevated reporting limit due to dilution into calibration range
*	Elevated reporting limit due to matrix interference (dilution prior to digestion and/or analysis)
#	Elevated reporting limit due to insufficient sample size
D	Diluted out
J5	The reported value is quantitated as a TIC; therefore, it is estimated
ND = Not Detected	N/S = Not Submitted N/A = Not Applicable

Florida Projects Inorganic/Organic

Y1	Improper preservation, no preservative present in sample upon receipt
Y2	Improper preservation, incorrect preservative present in sample upon receipt
Y3	Improper preservation, sample temperature exceeded EPA temperature limits of 2-6°C upon receipt
Y (FL description)	The laboratory analysis was from an unpreserved or improperly preserved sample. The data may not be accurate.
Q	Sample held beyond the accepted holding time
I	The reported value is < Laboratory RL and > laboratory MDL
U1	The reported value is ≤ Laboratory MDL (value for sample result is reported as the MDL)
U (FL description)	Indicates the compound was analyzed for but not detected.
T	The reported value is < Laboratory MDL (value shall not be used for statistical analysis)
V	The analyte was detected in both the sample and the associated method blank.
J1	Surrogate recovery limits have been exceeded
J2	The sample matrix interfered with the ability to make any accurate determinations
J3	The reported value failed to meet the established quality control criteria for either precision or accuracy
J (FL description)	Estimated value; not accurate.

AFCEE Projects (under QAPP) and All Other (AEN-PN) Projects/Sites for Inorganic/Organic Parameters

J4	(For positive results) Temperature limits exceeded (≤2°C or ≥ 6°C)
J (AFCEE description)	The analyte was positively identified, the quantitation is an estimation
R1	(For nondetects) Temperature limits exceeded (≤2°C or ≥ 6°C)
R2	Improper preservation, no preservative present in sample upon receipt
R3	Improper preservation, incorrect preservative present in sample upon receipt
R4	Holding time exceeded
R5	Collection requirements not met, improper container used for sample
R (AFCEE description)	The data are unusable due to deficiencies in the ability to analyze the sample and meet QC criteria
F	< RL and > laboratory MDL
F (AFCEE description)	The analyte was positively identified but the associated numerical value is below the AFCEE or lab RL
U2	≤ Laboratory MDL (value for result will be the MDL, never below the MDL)
U (AFCEE description)	The analyte was analyzed for but not detected. The associated numerical value is at or below the MDL
B (AFCEE description)	The analyte was found in the associated blank, as well as in the sample

ICR Projects Inorganic/Organic

A	Acceptable
R6	Rejected

Examples: ICR Flags

R6 = Laboratory extracted the sample but the refrigerator malfunctioned so the extract became warm and client was notified

R6 = Sample arrived in laboratory in good condition; however, the laboratory did not analyze it within EPA's established holding time limit.

CLP and CLP-like Projects

Refer to referenced CLP Statement of Work (SOW) for explanation of data qualifiers

IDL = Laboratory Instrument Detection Limit
MDL = Laboratory Method Detection Limit
RL = Reporting Limit (AFCEE RLs are listed in the AFCEE QAPP)
CLP CRDL = CLP Contract Required Detection Limit (these limits are listed in the EPA CLP Statement of Work or SOW)
CLP CRQL = CLP Contract Required Quantitation Limit (these limits are listed in the EPA CLP Statement of Work or SOW)

Any time a sample arrives at the laboratory improperly preserved (at improper pH or temperature) or after holding time has expired or prepared or analyzed after holding time, client must be notified in writing (i.e. case narrative).

AEN-Pensacola uses the most current promulgated methods contained in the reference manuals.

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Quality Control Report

Analysis: MARATHON WET CHEMISTRY INORGANICS

Accession:	806213
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806410
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	WET CHEM

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Date 01-Jul-98

"WetChem Quality Control Report"

Parameter:	CHLORIDE	CYANIDE	FLUORIDE	NO2	NO2NO3	PH
Batch Id:	CIW065	CNW037	FLW026	N2W087	N3W45A	PHW128
Blank Result:	<1	<0.005	<0.2	<0.1	<0.1	N/A
Anal. Method:	4500-CL B	335.2	340.2	354.1	353.2	150.1
Prep. Method:	N/A	N/A	N/A	N/A	N/A	N/A
Analysis Date:	18-JUN-98	24-JUN-98	24-JUN-98	17-JUN-98	19-JUN-98	18-JUN-98
Prep. Date:	18-JUN-98	23-JUN-98	24-JUN-98	17-JUN-98	18-JUN-98	18-JUN-98
Sample Duplication						
Sample Dup:	806179-1	806213-1	806213-1	806179-1	806171-1	806205-2
Rept Limit:	<1	<0.005	<0.2	<0.1	<0.1	N/A
Sample Result:	21.7	<0.005	0.60	<0.1	1.78	5.27
Dup Result:	21.8	<0.005	0.65	<0.1	1.80	5.19
Sample RPD:	0	N/C	0.05 G	N/C	1	0.08
Max RPD:	5	0.005	0.2	0.1	4	0.12
Dry Weight%	N/A	N/A	N/A	N/A	N/A	N/A
Matrix Spike						
Sample Spiked:	806179-1	806213-1	806213-1	806179-1	806171-1	N/A
Rept Limit:	<1	<0.005	<0.2	<0.1	<0.1	N/A
Sample Result:	21.7	<0.005	0.60	<0.1	1.78	
Spiked Result:	77.0	0.218	1.27	0.21	2.84	
Spike Added:	55.0	0.200	0.8	0.20	1.0	
% Recovery:	101	109	84	105	106	
% Rec Limits:	90-111	67-127	79-132	70-131	71-125	
Dry Weight%	N/A	N/A	N/A	N/A	N/A	
ICV						
ICV Result:	102.9	0.340	1.14	0.20	1.97	10.03
True Result:	100	0.314	1.20	0.20	2.00	10.00
% Recovery:	103	108	95	100	99	100
% Rec Limits:	90-110	90-110	90-110	90-110	90-110	90-110
LCS						
LCS Result:						7.01
True Result:						6.87
% Recovery:						102
% Rec Limits:						96-104

"WetChem Quality Control Report"

Parameter:	PHENOL	SULFATE	TDS
Batch Id:	PEW022	SEW074	TDW037
Blank Result:	<0.005	<10	<5
Anal. Method:	420.1	375.4	160.1
Prep. Method:	N/A	N/A	N/A
Analysis Date:	25-JUN-98	19-JUN-98	24-JUN-98
Prep. Date:	24-JUN-98	19-JUN-98	23-JUN-98
Sample Duplication			
Sample Dup:	806222-1	806205-2	806172-1
Rept Limit:	<0.005	<10	<5
Sample Result:	<0.005	<10	400
Dup Result:	<0.005	<10	446
Sample RPD:	N/C	N/C	11
Max RPD:	0.005	10	16
Dry Weight%	N/A	N/A	N/A
Matrix Spike			
Sample Spiked:	806222-2	806205-2	N/A
Rept Limit:	<0.005	<10	N/A
Sample Result:	<0.005	<10	
Spiked Result:	0.020	17.4	
Spike Added:	0.020	20	
% Recovery:	100	87	
% Rec Limits:	48-148	56-154	
Dry Weight%	N/A	N/A	
ICV			
ICV Result:	0.027	20.7	
True Result:	0.025	20	
% Recovery:	108	104	
% Rec Limits:	90-110	90-110	
LCS			
LCS Result:			278
True Result:			293
% Recovery:			95
% Rec Limits:			77-129

"Quality Control Comments"

Batch Id:	Comments:
CIW065	806213-1 & 806219-1,2,3 were added to batch on 19-Jun-98.
N2W087	806205-2,3,6,7,8,9,12 & 806213-1 & 806208-2 were added
N2W087	to the batch on 18-Jun-98.

----- Common Footnotes WetChem -----

N/A = NOT APPLICABLE.
N/S = NOT SUBMITTED.
N/C = SAMPLE AND DUPLICATE RESULTS ARE AT OR BELOW AEN REPORTING LIMIT; THEREFORE, THE RPD IS "NOT CALCULABLE" AND NO CONTROL LIMITS APPLY.
N/D = NOT DETECTED.
R = REACTIVE
T = TOTAL
G = SAMPLE AND/OR DUPLICATE RESULT IS BELOW 5 X AEN REPORTING LIMIT AND THE ABSOLUTE DIFFERENCE BETWEEN THE SAMPLE AND DUPLICATE RESULT IS AT OR BELOW AEN REPORTING LIMIT; THEREFORE, THE RESULTS ARE "IN CONTROL".
Q = THE ANALYTICAL (POST-DISTILLATION) SPIKE IS REPORTED DUE TO PERCENT RECOVERY BEING OUTSIDE ACCEPTANCE LIMITS ON THE MATRIX (PRE-DISTILLATION) SPIKE.
= ELEVATED REPORTING LIMIT DUE TO INSUFFICIENT SAMPLE.
+ = ELEVATED REPORTING LIMIT DUE TO DILUTION INTO CALIBRATION RANGE.
* = ELEVATED REPORTING LIMIT DUE TO MATRIX INTERFERENCE (DILUTION PRIOR DIGESTION AND/OR ANALYSIS).
@ = ADJUSTED REPORTING LIMIT DUE TO SAMPLE MATRIX (DILUTION PRIOR TO DIGESTION AND/OR ANALYSIS).
P = ANALYTICAL (POST DIGESTION) SPIKE.
I = DUPLICATE INJECTION.
& = AUTOMATED
F = SAMPLE SPIKED > 4 X SPIKE CONCENTRATION.
N/C+ = NOT CALCULABLE
H = SAMPLE AND/OR DUPLICATE RESULT IS BELOW 5 X AEN REPORTING LIMIT AND THE ABSOLUTE DIFFERENCE BETWEEN THE RESULTS EXCEEDS THE AEN REPORTING LIMIT; THEREFORE, THE RESULTS ARE "OUT OF CONTROL".
A = SAMPLE AND DUPLICATE RESULTS ARE "OUT OF CONTROL".
Z = THE SAMPLE RESULT FOR THE SPIKE IS BELOW THE REPORTING LIMIT. HOWEVER, THIS RESULT IS REPORTED FOR ACCURATE QC CALCULATIONS.
NH= SAMPLE AND / OR DUPLICATE RESULT IS BELOW 5 X AEN REPORTING LIMIT AND THE ABSOLUTE DIFFERENCE BETWEEN THE RESULTS EXCEEDS THE AEN REPORTING LIMIT; THEREFORE, THE RESULTS ARE "OUT OF CONTROL". SAMPLE IS NON-HOMOGENEOUS.
(*) = REPORTING LIMITS RAISED DUE TO CLP METHOD NOT REQUIRING A CONCENTRATION STEP FOR CN.
(CA) = SEE CORRECTIVE ACTIONS FORM.
**= MATRIX INTERFERENCE
SW-846, 3rd Edition, latest EPA-approved edition.
EPA 600/4-79-020, Revised March 1983.
STANDARD METHODS, For the Examination of Water and Wastewater, latest EPA-approved edition.
NIOSH Manual of Analytical Methods, 4th Edition.
ANNUAL BOOK OF ASTM STANDARDS, VOLUMES 11.01 and 11.02, latest EPA-approved edition.
METHODS FOR THE DETERMINATION OF INORGANIC SUBSTANCES IN ENVIRONMENTAL SAMPLES, EPA600/R-93/100, AUGUST 1993
METHODS FOR SOIL ANALYSIS, PART 2, CHEMICAL AND MICROBILOGICAL PROPERTIES, 2ND EDITION.
AEN-PN USES THE MOST CURRENT PROMULGATED METHODS FROM THE REFERENCES LISTED ABOVE.

1. COLIFORM. COLIFORM PRECISION IS MEASURED BY THE ABSOLUTE DIFFERENCE BETWEEN THE LOGARITHM OF COLONIES PER 100 MLS OF SAMPLE ON DUPLICATE PLATES.
2. PH. PH PRECISION IS MEASURED BY THE ABSOLUTE DIFFERENCE BETWEEN THE SAMPLE AND DUPLICATE ANALYSIS.
3. FLASHPOINT. FLASHPOINT PRECISION IS MEASURED BY THE ABSOLUTE DIFFERENCE BETWEEN THE SAMPLE AND DUPLICATE ANALYSIS.

RPD = RELATIVE PERCENT DIFFERENCE (OR DEVIATION).
RPT LMTS = REPORTING LIMITS BASED ON METHOD DETECTION LIMIT STUDIES.

DPH = DOLLY P. HWANG RB = REBECCA BROWN WH = WENDY HAGGARD
ED = ESTHER DANTIN CR = CYNTHIA ROBERTS AB = AMY BRADLEY
BE = BETTY EVERTON PLD = PAULA L. DOUGHTY JTZ = JONATHAN T. ZIENTARSKI
RH = RICKY HAGENDORFER

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Quality Control Report

Analysis: MARATHON METALS - OPTIMA

Accession:	806213
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806410
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	METALS

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"Metals Quality Control Report"

Parameter:	SILVER	ALUMINUM	ARSENIC	BARIUM	BORON	CADMIUM
Batch Id:	AYW167	LYW167	RYW167	BYW167	OYW167	CYW167
Blank Result:	<0.005	<0.1	<0.005	<0.001	<0.05	<0.001
Anal. Method:	6010A	6010A	6010A	6010A	6010A	6010A
Prep. Method:	3010A	3010A	3010A	3010A	3010A	3010A
Analysis Date:	27-JUN-98	27-JUN-98	27-JUN-98	27-JUN-98	27-JUN-98	27-JUN-98
Prep. Date:	24-JUN-98	24-JUN-98	24-JUN-98	24-JUN-98	24-JUN-98	24-JUN-98
Sample Duplication						
Sample Dup:	806272-1	806272-1	806272-1	806272-1	806272-1	806272-1
Rept Limit:	<0.005	<0.1	<0.005	<0.001	<0.05	<0.001
Sample Result:	0.21	2.2	2.15	2.15	2.24	1.97
Dup Result:	0.20	2.2	2.13	2.12	2.24	1.94
Sample RPD:	5	0	1	1	0	2
Max RPD:	20	20	20	20	20	20
Dry Weight%	N/A	N/A	N/A	N/A	N/A	N/A
Matrix Spike						
Sample Spiked:	806272-1	806272-1	806272-1	806272-1	806272-1	806272-1
Rept Limit:	<0.005	<0.1	<0.005	<0.001	<0.05	<0.001
Sample Result:	<0.005	<0.1	0.057	0.13	0.08	<0.001
Spiked Result:	0.21	2.2	2.15	2.15	2.24	1.97
Spike Added:	0.2	2.0	2.0	2.0	2.0	2.0
% Recovery:	105	110	105	101	108	99
% Rec Limits:	75-125	75-125	75-125	75-125	75-125	75-125
Dry Weight%	N/A	N/A	N/A	N/A	N/A	N/A
ICV						
ICV Result:	0.51	5.1	1.01	1.00	1.05	1.04
True Result:	0.5	5	1.0	1.0	1.0	1.0
% Recovery:	102	102	101	100	105	104
% Rec Limits:	95-105	95-105	95-105	95-105	95-105	95-105
LCS						
LCS Result:	0.19	2.1	2.04	2.03	2.08	2.02
True Result:	0.2	2.0	2.0	2.0	2.0	2.0
% Recovery:	95	105	102	102	104	101
% Rec Limits:	80-120	80-120	80-120	80-120	80-120	80-120

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"Metals Quality Control Report"

Parameter:	COBALT	CHROMIUM	COPPER	MERCURY	NICKEL	IRON
Batch Id:	TYW167	HYW167	FYW167	M7W080	EYW167	NYW167
Blank Result:	<0.005	<0.005	<0.005	<0.0002	<0.025	<0.05
Anal. Method:	6010A	6010A	6010A	7470A	6010A	6010A
Prep. Method:	3010A	3010A	3010A	7470A	6010A	3010A
Analysis Date:	27-JUN-98	27-JUN-98	27-JUN-98	02-JUL-98	28-JUN-98	27-JUN-98
Prep. Date:	24-JUN-98	24-JUN-98	24-JUN-98	02-JUL-98	24-JUN-98	24-JUN-98
Sample Duplication						
Sample Dup:	806272-1	806272-1	806272-1	806213-1	806272-1	806272-1
Rept Limit:	<0.005	<0.005	<0.005	<0.0002	<0.025	<0.05
Sample Result:	1.99	2.07	2.11	0.0050	1.96	29
Dup Result:	1.96	2.05	2.07	0.0051	1.98	28
Sample RPD:	2	1	2	2	1	4
Max RPD:	20	20	20	20	20	20
Dry Weight%	N/A	N/A	N/A	N/A	N/A	N/A
Matrix Spike						
Sample Spiked:	806272-1	806272-1	806272-1	806213-1	806272-1	806272-1
Rept Limit:	<0.005	<0.005	<0.005	<0.0002	<0.025	<0.05
Sample Result:	<0.005	<0.005	<0.005	0.0003	<0.025	26
Spiked Result:	1.99	2.07	2.11	0.0050	1.96	29
Spike Added:	2.0	2.0	2.0	0.0050	2.0	2.0
% Recovery:	100	104	106	94	98 *	150 F
% Rec Limits:	75-125	75-125	75-125	75-125	75-125	75-125
Dry Weight%	N/A	N/A	N/A	N/A	N/A	N/A
ICV						
ICV Result:	1.01	0.99	1.03	0.0040	0.99	5.06
True Result:	1.0	1.0	1.0	0.0040	1.0	5.0
% Recovery:	101	99	103	100	99	101
% Rec Limits:	95-105	95-105	95-105	90-110	95-105	95-105
LCS						
LCS Result:	2.01	2.05	2.04	0.0050	2.03	2.09
True Result:	2.0	2.0	2.0	0.0050	2.0	2.0
% Recovery:	101	103	102	100	102	105
% Rec Limits:	80-120	80-120	80-120	80-120	80-120	80-120

"Metals Quality Control Report"

Parameter:	LEAD	MANGANESE	MOLYBDENUM	SELENIUM	ZINC
Batch Id:	PYW167	GYW167	DYW167	SYW167	5YW167
Blank Result:	<0.003	<0.025	<0.005	<0.005	<0.02
Anal. Method:	6010A	6010A	6010A	6010A	6010A
Prep. Method:	3010A	3010A	3010A	3010A	3010A
Analysis Date:	27-JUN-98	28-JUN-98	27-JUN-98	27-JUN-98	27-JUN-98
Prep. Date:	24-JUN-98	24-JUN-98	24-JUN-98	24-JUN-98	24-JUN-98
Sample Duplication					
Sample Dup:	806272-1	806272-1	806272-1	806272-1	806272-1
Rept Limit:	<0.003	<0.025	<0.005	<0.005	<0.02
Sample Result:	2.00	19	2.20	2.01	1.93
Dup Result:	1.97	19	2.17	1.99	1.91
Sample RPD:	2	0	1	1	1
Max RPD:	20	20	20	20	20
Dry Weight%	N/A	N/A	N/A	N/A	N/A
Matrix Spike					
Sample Spiked:	806272-1	806272-1	806272-1	806272-1	806272-1
Rept Limit:	<0.003	<0.025	<0.005	<0.005	<0.02
Sample Result:	<0.003	17	0.007	<0.005	0.03
Spiked Result:	2.00	19	2.20	2.01	1.93
Spike Added:	2.0	2.0	2.0	2.0	2.0
% Recovery:	100	100 +	110	101	95
% Rec Limits:	75-125	75-125	75-125	75-125	75-125
Dry Weight%	N/A	N/A	N/A	N/A	N/A
ICV					
ICV Result:	1.04	1.01	1.03	1.02	1.03
True Result:	1.0	1.0	1.0	1.0	1.0
% Recovery:	104	101	103	102	103
% Rec Limits:	95-105	95-105	95-105	95-105	95-105
LCS					
LCS Result:	2.01	2.01	2.14	1.96	2.01
True Result:	2.0	2.0	2.0	2.0	2.0
% Recovery:	101	101	107	98	101
% Rec Limits:	80-120	80-120	80-120	80-120	80-120

----- Common Footnotes Metals -----

N/A = NOT APPLICABLE.
N/S = NOT SUBMITTED.
N/C = SAMPLE AND DUPLICATE RESULTS ARE AT OR BELOW THE REPORTING LIMIT; THEREFORE, THE RPD IS "NOT CALCULABLE" AND NO CONTROL LIMITS APPLY.
N/D = NOT DETECTED.
DISS. OR D = DISSOLVED
T & D = TOTAL AND DISSOLVED
R = REACTIVE
T = TOTAL
G = SAMPLE AND/OR DUPLICATE RESULT IS BELOW 5 X THE REPORTING LIMIT AND THE ABSOLUTE DIFFERENCE BETWEEN THE SAMPLE AND DUPLICATE RESULT IS AT OR BELOW AEN REPORTING LIMIT; THEREFORE, THE RESULTS ARE "IN CONTROL".
Q = THE ANALYTICAL (POST-DIGESTION) SPIKE IS REPORTED DUE TO PERCENT RECOVERY BEING OUTSIDE ACCEPTANCE LIMITS ON THE MATRIX (PRE-DIGESTION) SPIKE.
= ELEVATED REPORTING LIMIT DUE TO INSUFFICIENT SAMPLE.
+ = ELEVATED REPORTING LIMIT DUE TO DILUTION INTO CALIBRATION RANGE.
* = ELEVATED REPORTING LIMIT DUE TO MATRIX INTERFERENCE. (DILUTION PRIOR TO ANALYSIS)
@ = ADJUSTED REPORTING LIMIT DUE TO SAMPLE MATRIX. (DILUTION PRIOR TO DIGESTION)
P = ANALYTICAL (POST DIGESTION) SPIKE.
I = DUPLICATE INJECTION.
& = AUTOMATED
F = SAMPLE SPIKED > 4 X SPIKE CONCENTRATION.
N/C+ = NOT CALCULABLE
N/C* = NOT CALCULABLE; SAMPLE SPIKED > 4 X SPIKE CONCENTRATION.
H = SAMPLE AND/OR DUPLICATE RESULT IS BELOW 5 X AEN REPORTING LIMIT AND THE ABSOLUTE DIFFERENCE BETWEEN THE RESULTS EXCEEDS THE AEN REPORTING LIMIT; THEREFORE, THE RESULTS ARE "OUT OF CONTROL".
A = SAMPLE AND DUPLICATE RESULTS ARE "OUT OF CONTROL".
Z = THE SAMPLE RESULT FOR THE SPIKE IS BELOW THE AEN REPORTING LIMIT. HOWEVER, THIS RESULT IS REPORTED FOR ACCURATE QC CALCULATIONS.
NH= THE RELATIVE PERCENT DIFFERENCE (RPD) EXCEEDS THE AEN CONTROL LIMIT AND IS "OUT OF CONTROL; DUE TO A NON-HOMOGENEOUS SAMPLE MATRIX.
J = (FLORIDA DEP 'J' FLAG) - MATRIX SPIKE AND POST SPIKE RECOVERY IS OUT OF THE ACCEPTABLE RANGE. SEE OUT OF CONTROL EVENTS FORM.
U = (FLORIDA DEP 'U' FLAG) - THE COMPOUND WAS ANALYZED FOR, BUT NOT DETECTED.
S = METHOD OF STANDARD ADDITIONS (MSA) WAS PERFORMED ON THIS SAMPLE.

FROM QUALITY CONTROL REPORT:
RPD= RELATIVE PERCENT DEVIATION.
REPT LIMIT= REPORTING LIMIT BASED ON METHOD DETECTION LIMIT STUDIES.

NOTE: ALL RESULTS REPORTED UNDER 'SAMPLE DUPLICATION' ARE THE MS/MSD.

NOTE: THE UNITS REPORTED ON THE QUALITY CONTROL REPORT ARE REPORTED ON AN AS RUN BASIS. (NOT ADJUSTED FOR DRY WEIGHT).

SW-846, 3rd Edition.
EPA 600/4-79-020, Revised March 1983.
NIOSH Manual of Analytical Methods, 4th Edition.
Standard Methods For the Examination of Water and Wastewater, 18th Edition, 1992.
Methods For the Determination of Metals in Environmental Samples - Supplement I, EPA 600/R-94-111, May 1994.

GJ = GARY JACOBS
GSP = GARY ST PERE
JLH = JAMES L. HERED
JL = JANET LECLEAR

SEVERN TRENT LABORATORIES 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Quality Control Report

Analysis: POLYNUCLEAR AROMATICS BY 8310

Accession:	806213
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806410
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	SEMI-VOLATILE FUELS

SEVERN TRENT LABORATORIES 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"QC Report"

Title: Water Blank
Batch: PAW139
Analysis Method: 8310/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.

Blank Id: A Date Analyzed: 23-JUN-98 Date Extracted: 20-JUN-98

Parameters:	Units:	Results:	Reporting Limits:
ACENAPHTHENE	UG/L	ND	1
ACENAPHTHYLENE	UG/L	ND	1
ANTHRACENE	UG/L	ND	1
BENZO(a)ANTHRACENE	UG/L	ND	1
BENZO(a)PYRENE	UG/L	ND	0.1
BENZO(b)FLUORANTHENE	UG/L	ND	1
BENZO(g,h,i)PERYLENE	UG/L	ND	1
BENZO(k)FLUORANTHENE	UG/L	ND	1
CHRYSENE	UG/L	ND	1
DIBENZO(a,h)ANTHRACENE	UG/L	ND	1
FLUORANTHENE	UG/L	ND	1
FLUORENE	UG/L	ND	1
INDENO(1,2,3-cd)PYRENE	UG/L	ND	1
NAPHTHALENE	UG/L	ND	1
PHENANTHRENE	UG/L	ND	1
PYRENE	UG/L	ND	1
1-METHYLNAPHTHALENE	UG/L	ND	0.3
2-METHYLNAPHTHALENE	UG/L	ND	1
2-CHLOROANTHRACENE	%REC/SURR	83	28-138
ANALYST	INITIALS	HAH	

Comments:

"QC Report"

Title: Water LCS
Batch: PAW139
Analysis Method: 8310/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.

RS Date Analyzed: 23-JUN-98 RS Date Extracted: 20-JUN-98

Parameters:	Spike Added	Sample Conc	RS Conc	RS %Rec	Rec Lmts
ACENAPHTHYLENE	6.17	<1	5.3	86	45-127
BENZO(k)FLUORANTHENE	9.3	<1	7.9	85	68-131
CHRYSENE	9.4	<1	8.1	86	69-131
PHENANTHRENE	9.3	<1	7.9	85	63-124
PYRENE	9.1	<1	8.0	88	61-126
Surrogates:					
2-CHLOROANTHRACENE				77	28-138

Comments:

Notes:
N/S = NOT SUBMITTED N/A = NOT APPLICABLE D = DILUTED OUT
UG/L = PARTS PER BILLION. < = LESS THAN REPORTING LIMIT.
* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS.
SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

"QC Report"

Title: Water Matrix Spike/Matrix Spike Duplicate
Batch: PAW139
Analysis Method: 8310/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.

Dry Weight %: N/A
Sample Spiked: 806219-1

MS Date Analyzed: 23-JUN-98
MSD Date Analyzed: 23-JUN-98

MS Date Extracted: 20-JUN-98
MSD Date Extracted: 20-JUN-98

Parameters:	Spike Added	Sample Conc	MS Conc	MS %Rec	MSD Conc	MSD %Rec	RPD	RPD Lmts	Rec Lmts
ACENAPHTHYLENE	6.17	<1	5.0	81	3.8	62	27	51	18-146
BENZO(k)FLUORANTHENE	9.3	<1	7.7	83	8.8	95	13	40	26-137
CHRYSENE	9.4	<1	7.9	84	9.1	97	14	69	16-156
PHENANTHRENE	9.3	<1	8.1	87	8.5	91	4	36	30-145
PYRENE	9.1	<1	7.8	86	8.6	95	10	41	39-137
Surrogates:									
2-CHLOROANTHRACENE				74		85			28-138

Comments:

Notes:
N/S = NOT SUBMITTED N/A = NOT APPLICABLE D = DILUTED OUT
UG/L = PARTS PER BILLION. < = LESS THAN REPORTING LIMIT.
* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS.
SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

Common Notation for Organic Reporting

N/S = NOT SUBMITTED
N/A = NOT APPLICABLE
UG = MICROGRAMS
UG/L = PARTS PER BILLION
UG/KG = PARTS PER BILLION
MG/M3 = MILLIGRAM PER CUBIC METER
PPMV = PART PER MILLION BY VOLUME
MG/KG = PARTS PER MILLION
MG/L = PARTS PER MILLION
< = LESS THAN
ND = NOT DETECTED

SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

ORGANIC SOILS ARE REPORTED ON A DRYWEIGHT BASIS.

RPT LMTS = REPORTING LIMITS BASED ON METHOD DETECTION LIMIT STUDIES.

RPD = RELATIVE PERCENT DIFFERENCE (OR DEVIATION)

AEN/GC/FID
AEN GAS CHROMATOGRAPHIC METHOD EMPLOYING DIRECT INJECTION ON COLUMN WITH FLAME IONIZATION DETECTOR (FID).

AEN/GC/FIX
AEN GAS CHROMATOGRAPHIC METHOD FOR ANALYSIS OF FIXED GASES EMPLOYING DIRECT INJECTION ON COLUMN WITH THERMAL CONDUCTIVITY DETECTOR (TCD) AND FLAME IONIZATION DETECTOR (FID).

AEN/GC/FPD
AEN GAS CHROMATOGRAPHIC METHOD EMPLOYING DIRECT INJECTION ON COLUMN WITH FLAME PHOTOMETRIC DETECTOR (FPD) IN SULFUR-SPECIFIC MODE.

AEN/GC/PID
AEN GAS CHROMATOGRAPHIC METHOD EMPLOYING DIRECT INJECTION ON COLUMN WITH PHOTOIONIZATION DETECTOR (PID).

AEN/GC/TCD
AEN GAS CHROMATOGRAPHIC METHOD EMPLOYING DIRECT INJECTION ON COLUMN WITH THERMAL CONDUCTIVITY DETECTOR (TCD).

SW-846 METHOD 9020
PARTICULATE MATTER IS REMOVED BY ALLOWING PARTICULATES TO SETTLE IN THE SAMPLE CONTAINER AND DECANTING THE SUPERNATANT LIQUID. EXCESSIVE PARTICULATES ARE REMOVED BY FILTRATION OF THE SUPERNATANT LIQUID.

RSK 175
SAMPLE PREPARATION AND CALCULATIONS FOR DISSOLVED GAS ANALYSIS IN WATER SAMPLES USING A GC HEADSPACE EQUILIBRATION TECHNIQUE, RSK SOP-175, ROBERT S. KERR ENVIRONMENTAL RESEARCH LABORATORY, USEPA, AUGUST 11, 1994.

AEN-PN USES THE MOST CURRENT PROMULGATED METHODS CONTAINED IN THE REFERENCE MANUALS.

SW = STEVE WILHITE
RW = ROBERT WOLFE
KS = KENDALL SMITH
LB = LISA BIZZELL
LP = LEVERNE PETERSON
PLD = PAULA DOUGHTY
DK = DARLENE KINCHEN
BT = BECKY TREMMEL
HAH = HOLLIE HOFFMAN

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Quality Control Report

Analysis: PESTICIDES (8080)

Accession:	806213
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806410
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	PESTICIDES

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"QC Report"

Title: Water Blank
Batch: PSW042
Analysis Method: 8080 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Extraction Method: 3510 / 3660 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.

Blank Id: A Date Analyzed: 29-JUN-98 Date Extracted: 19-JUN-98

Parameters:	Units:	Results:	Reporting Limits:
ALDRIN	UG/L	ND	0.02
ALPHA-BHC	UG/L	ND	0.02
BETA-BHC	UG/L	ND	0.02
DELTA-BHC	UG/L	ND	0.02
GAMMA-BHC (LINDANE)	UG/L	ND	0.02
4,4'-DDD	UG/L	ND	0.02
4,4'-DDE	UG/L	ND	0.02
4,4'-DDT	UG/L	ND	0.02
DIELDRIN	UG/L	ND	0.02
ENDOSULFAN I	UG/L	ND	0.02
ENDOSULFAN II	UG/L	ND	0.02
ENDOSULFAN SULFATE	UG/L	ND	0.02
ENDRIN	UG/L	ND	0.02
ENDRIN ALDEHYDE	UG/L	ND	0.02
HEPTACHLOR	UG/L	ND	0.02
HEPTACHLOR EPOXIDE	UG/L	ND	0.02
METHOXYCHLOR	UG/L	ND	0.02
CHLORDANE	UG/L	ND	0.01
TOXAPHENE	UG/L	ND	0.12
PCB-1016	UG/L	ND	0.04
PCB-1221	UG/L	ND	0.04
PCB-1232	UG/L	ND	0.04
PCB-1242	UG/L	ND	0.04
PCB-1248	UG/L	ND	0.04
PCB-1254	UG/L	ND	0.04
PCB-1260	UG/L	ND	0.04
TCMX	%REC/SURR	93	43-101
DCB	%REC/SURR	114	17-135
ANALYST	INITIALS	RP	

Comments:

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"QC Report"

Title: Water LCS
Batch: PSW042
Analysis Method: 8080 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Extraction Method: 3510 / 3660 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.

RS Date Analyzed: 29-JUN-98 RS Date Extracted: 19-JUN-98

Parameters:	Spike Added	Sample Conc	RS Conc	RS %Rec	Rec Lmts
LINDANE	1.00	<0.02	0.86	86	51-118
HEPTACHLOR	1.00	<0.02	1.01	101	70-123
ALDRIN	1.00	<0.02	1.02	102	54-122
DIELDRIN	1.00	<0.02	1.08	108	75-119
ENDRIN	1.00	<0.02	1.11	111	67-122
DDT	1.00	<0.02	1.21	121	59-127
Surrogates:					
DCB				108	17-135
TCMX				89	43-101

Comments:

Notes:
N/S = NOT SUBMITTED N/A = NOT APPLICABLE D = DILUTED OUT
UG/L = PARTS PER BILLION. < = LESS THAN REPORTING LIMIT.
* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS.
SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

"QC Report"

Title: Water Matrix
Batch: PSW042
Analysis Method: 8080 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Extraction Method: 3510 / 3660 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.

Dry Weight %: N/A
Sample Spiked: 806219-2

MS Date Analyzed: 29-JUN-98
MSD Date Analyzed: 29-JUN-98

MS Date Extracted: 19-JUN-98
MSD Date Extracted: 19-JUN-98

Parameters:	Spike Added	Sample Conc	MS Conc	MS %Rec	MSD Conc	MSD %Rec	RPD	RPD Lmts	Rec Lmts
LINDANE	2.00	<0.02	1.70	85	1.78	89	5	27	40-119
HEPTACHLOR	2.00	<0.02	2.00	100	2.08	104	4	30	53-123
ALDRIN	2.00	<0.02	1.98	99	2.06	103	4	31	42-130
DIELDRIN	2.00	<0.02	2.00	100	2.06	103	3	18	61-124
ENDRIN	2.00	<0.02	2.06	103	2.16	108	5	30	50-125
DDT	2.00	<0.02	2.28	114	2.42	121	6	32	25-138
Surrogates:									
DCB				96		103			17-135
TCMX				81		87			43-101

Comments:

Notes:
N/S = NOT SUBMITTED N/A = NOT APPLICABLE D = DILUTED OUT
UG/L = PARTS PER BILLION. < = LESS THAN REPORTING LIMIT.
* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS.
SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

Common notation for Organic reporting

N/S = NOT SUBMITTED
N/A = NOT APPLICABLE
D = DILUTED OUT
UG/L = PARTS PER BILLION.
UG/KG = PARTS PER BILLION.
MG/KG = PARTS PER MILLION.
MG/L = PARTS PER MILLION.
< = LESS THAN.
* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS.
ND = NOT DETECTED ABOVE REPORTING LIMIT.
Rpt Lmts = REPORTING LIMITS BASED ON METHOD DETECTION LIMIT STUDIES.
RPD = RELATIVE PERCENT DIFFERENCE (OR DEVIATION)

SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

ORGANIC SOILS ARE REPORTED ON A DRY WEIGHT BASIS.

AEN-PN USES THE MOST CURRENT PROMULGATED METHODS CONTAINED IN THE REFERENCE MANUALS.

RP = ROBERT PEREZ
LP = LEVERNE PETERSON
RW = ROBERT WOLFE

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Quality Control Report

Analysis: ACID & BASE EXTRACTABLES (8270)

Accession:	806213
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806410
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	ORGANIC/MS

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"QC Report"

Title: Water Blank
Batch: ALW074
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.

Blank Id: A Date Analyzed: 24-JUN-98 Date Extracted: 19-JUN-98

Parameters:	Units:	Results:	Reporting Limits:
P-CHLORO-M-CRESOL	UG/L	ND	10
2-CHLOROPHENOL	UG/L	ND	10
O-CRESOL	UG/L	ND	10
M,P CRESOL	UG/L	ND	10
2,4-DICHLOROPHENOL	UG/L	ND	10
2,6-DICHLOROPHENOL	UG/L	ND	10
2,4-DIMETHYLPHENOL	UG/L	ND	10
4,6-DINITRO-O-CRESOL	UG/L	ND	50
2,4-DINITROPHENOL	UG/L	ND	10
2-NITROPHENOL	UG/L	ND	10
4-NITROPHENOL	UG/L	ND	50
PENTACHLOROPHENOL	UG/L	ND	50
PHENOL	UG/L	ND	10
2,3,4,6-TETRACHLOROPHENOL	UG/L	ND	10
2,4,5-TRICHLOROPHENOL	UG/L	ND	50
2,4,6-TRICHLOROPHENOL	UG/L	ND	10
ACENAPHTHENE	UG/L	ND	10
ACENAPHTHYLENE	UG/L	ND	10
ACETOPHENONE	UG/L	ND	10
2-ACETYLAMINOFLUORENE	UG/L	ND	10
4-AMINOBIPHENYL	UG/L	ND	10
ANILINE	UG/L	ND	10
ANTHRACENE	UG/L	ND	10
ARAMITE	UG/L	ND	10
BENZO (A) ANTHRACENE	UG/L	ND	10
BENZO (A) PYRENE	UG/L	ND	10
BENZO (B) FLUORANTHENE	UG/L	ND	10
BENZO (G,H,I) PERYLENE	UG/L	ND	10
BENZO (K) FLUORANTHENE	UG/L	ND	10
BENZYL ALCOHOL	UG/L	ND	10
BIS(2-CHLORO-1-METHYLETHYL)ETHER	UG/L	ND	10
BIS(2-CHLOROETHOXY)METHANE	UG/L	ND	10
BIS(2-CHLOROETHYL)ETHER	UG/L	ND	10
BIS(2-ETHYLHEXYL)PHTHALATE	UG/L	ND	10
4-BROMOPHENYL PHENYL ETHER	UG/L	ND	10
BUTYLBENZYL PHTHALATE	UG/L	ND	10
P-CHLOROANILINE	UG/L	ND	10
CHLOROBENZILATE	UG/L	ND	10
2-CHLORONAPHTHALENE	UG/L	ND	10
4-CHLOROPHENYL PHENYL ETHER	UG/L	ND	10
CHRYSENE	UG/L	ND	10
DIALLATE	UG/L	ND	10
DIBENZO (A,H) ANTHRACENE	UG/L	ND	10
DIBENZOFURAN	UG/L	ND	10
1,2-DICHLOROBENZENE	UG/L	ND	10
1,3-DICHLOROBENZENE	UG/L	ND	10

"QC Report"

Title: Water Blank
Batch: ALW074
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.

Parameters:	Units:	Results:	Reporting Limits:
1,4-DICHLOROBENZENE	UG/L	ND	10
3,3'-DICHLOROBENZIDINE	UG/L	ND	50
DIETHYLPHTHALATE	UG/L	ND	10
DIMETHOATE	UG/L	ND	10
P-DIMETHYLAMINOAZOBENZENE	UG/L	ND	10
7,12-DIMETHYLBENZ(A)ANTHRACENE	UG/L	ND	10
3,3'-DIMETHYLBENZIDINE	UG/L	ND	10
A,A-DIMETHYLPHENETHYLAMINE	UG/L	ND	10
DIMETHYLPHTHALATE	UG/L	ND	10
DI-N-BUTYLPHTHALATE	UG/L	ND	10
M-DINITROBENZENE	UG/L	ND	10
2,4-DINITROTOLUENE	UG/L	ND	10
2,6-DINITROTOLUENE	UG/L	ND	10
DI-N-OCTYLPHTHALATE	UG/L	ND	10
DIPHENYLAMINE	UG/L	ND	10
ETHYL METHANESULFONATE	UG/L	ND	10
FAMPHUR	UG/L	ND	10
FLUORANTHENE	UG/L	ND	10
FLUORENE	UG/L	ND	10
HEXACHLOROBENZENE	UG/L	ND	10
HEXACHLOROBUTADIENE	UG/L	ND	10
HEXACHLOROCYCLOPENTADIENE	UG/L	ND	10
HEXACHLOROETHANE	UG/L	ND	10
HEXACHLOROPHENE	UG/L	ND	10
HEXACHLOROPROPENE	UG/L	ND	10
INDENO (1,2,3-CD) PYRENE	UG/L	ND	10
ISODRIN	UG/L	ND	10
ISOPHORONE	UG/L	ND	10
ISOSAFROLE	UG/L	ND	10
KEPONE	UG/L	ND	10
METHAPYRILENE	UG/L	ND	10
3-METHYLCHOLANTHRENE	UG/L	ND	10
METHYL METHANESULFONATE	UG/L	ND	10
1-METHYLNAPHTHALENE	UG/L	ND	10
2-METHYLNAPHTHALENE	UG/L	ND	10
NAPHTHALENE	UG/L	ND	10
1,4-NAPHTHOQUINONE	UG/L	ND	10
1-NAPHTHYLAMINE	UG/L	ND	10
2-NAPHTHYLAMINE	UG/L	ND	10
2-NITROANILINE	UG/L	ND	50
3-NITROANILINE	UG/L	ND	50
4-NITROANILINE	UG/L	ND	50
NITROBENZENE	UG/L	ND	10
5-NITRO-O-TOLUIDINE	UG/L	ND	10
4-NITROQUINOLINE-1-OXIDE	UG/L	ND	10
N-NITROSODIETHYLAMINE	UG/L	ND	10
N-NITROSODIMETHYLAMINE	UG/L	ND	10

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"QC Report"

Title: Water Blank
Batch: ALW074
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.

Parameters:	Units:	Results:	Reporting Limits:
N-NITROSODI-N-BUTYLAMINE	UG/L	ND	10
N-NITROSODIPHENYLAMINE	UG/L	ND	10
N-NITROSOMETHYLETHYLAMINE	UG/L	ND	10
N-NITROSOMORPHOLINE	UG/L	ND	10
N-NITROSOPIPERIDINE	UG/L	ND	10
N-NITROSOPYRROLIDINE	UG/L	ND	10
PARATHION	UG/L	ND	10
PENTACHLOROBENZENE	UG/L	ND	10
PENTACHLOROETHANE	UG/L	ND	10
PENTACHLORONITROBENZENE	UG/L	ND	10
PHENACETIN	UG/L	ND	10
PHENANTHRENE	UG/L	ND	10
2-PICOLINE	UG/L	ND	10
P-PHENYLENEDIAMINE	UG/L	ND	10
PRONAMIDE	UG/L	ND	10
PYRENE	UG/L	ND	10
PYRIDINE	UG/L	ND	10
SAFROLE	UG/L	ND	10
SULFOTEPP	UG/L	ND	10
1,2,4,5-TETRACHLOROBENZENE	UG/L	ND	10
THIONAZIN	UG/L	ND	10
O-TOLUIDINE	UG/L	ND	10
1,2,4 TRICHLOROBENZENE	UG/L	ND	10
SYM-TRINITROBENZENE	UG/L	ND	10
O,O,O-TRIETHYL PHOSPHOROTHIATE	UG/L	ND	10
BENZIDINE	UG/L	ND	10
BIS(2-CHLOROISOPROPYL)ETHER	UG/L	ND	10
2-(SEC BUTYL)4,6-DINITRO-PHENOL(DINOSEB)	UG/L	ND	10
0~NITROSO-DI-N-PROPYLAMINE	UG/L	ND	10
6-METHYL CHRYSENE	UG/L	ND	20
INDENE	UG/L	ND	20
QUINOLINE	UG/L	ND	50
BENZENETHIOL	UG/L	ND	20
PARATOLIUDINE	UG/L	ND	50
TOLUENE DIISOCYANATE	UG/L	ND	50
TOLUENE DIAMINE	UG/L	ND	50
MONONITROTOLUENE	UG/L	ND	50
DIETHYLENE GLYCOL MONOBUTYL ETHER	UG/L	ND	10
2-FLUOROPHENOL	%REC/SURR	21	21-100
PHENOL-D6	%REC/SURR	18	10-100
2,4,6-TRIBROMOPHENOL	%REC/SURR	25	10-123
2-FLUOROBIPHENYL	%REC/SURR	73	43-116
NITROBENZENE-D5	%REC/SURR	69	35-114
TERPHENYL-D14	%REC/SURR	95	33-124
ANALYST	INITIALS	RW	

Comments:

"QC Report"

Title: Water LCS
Batch: ALW074
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.

RS Date Analyzed: 24-JUN-98 RS Date Extracted: 19-JUN-98

Parameters:	Spike Added	Sample Conc	RS Conc	RS %Rec	Rec Lmts
PHENOL	150	<10	114	76	5-112
2-CHLOROPHENOL	150	<10	124	83	40-120
1,4-DICHLOROBENZENE	100	<10	80	80	32-119
N-NITRO-DI-N-PROPYLAMINE	100	<10	80	80	26-128
1,2,4 TRICHLOROBENZENE	100	<10	80	80	44-142
4-CHLORO-3-METHYLPHENOL	150	<10	124	83	30-128
ACENAPHTHENE	100	<10	78	78	47-145
4-NITROPHENOL	150	<50	102	68	1-132
2,4-DINITROTOLUENE	100	<10	80	80	39-138
PENTACHLOROPHENOL	150	<50	108	72	15-157
PYRENE	100	<10	88	88	52-115
Surrogates:					
NITROBENZENE-D5				77	35-114
2-FLUOROBIPHENYL				80	43-116
TERPHENYL-D14				96	33-124
PHENOL-D6				78	10-100
2-FLUOROPHENOL				81	21-100
2,4,6-TRIBROMOPHENOL				111	10-123

Comments:

Notes:
N/S = NOT SUBMITTED N/A = NOT APPLICABLE D = DILUTED OUT
UG/L = PARTS PER BILLION. < = LESS THAN REPORTING LIMIT.
* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS.
SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

Common notation for Organic reporting

N/S = NOT SUBMITTED
N/A = NOT APPLICABLE
UG/L = PARTS PER BILLION.
UG/KG = PARTS PER BILLION.
MG/KG = PARTS PER MILLION.
MG/L = PARTS PER MILLION.
MG/M3 = MILLIGRAMS PER CUBIC METER.
NG = NANOGRAMS.
UG = MICROGRAMS.
PPBV = PARTS PER BILLION/VOLUME.
< = LESS THAN.
ND = NOT DETECTED ABOVE REPORT LIMIT.
RPT LMTS = REPORTING LIMITS BASED ON METHOD DETECTION LIMIT STUDIES.
RPD = RELATIVE PERCENT DIFFERENCE (OR DEVIATION)

SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

ORGANIC SOILS ARE REPORTED ON A DRY WEIGHT BASIS.

DUE TO THE NATURE OF THE SAMPLE MATRIX, MATRIX SPIKE/MATRIX SPIKE DUPLICATE ANALYSIS CANNOT BE PERFORMED FOR AIR ANALYSIS.

CLP SOW 1991, USEPA CONTRACT LABORATORY PROGRAM, STATEMENT OF WORK FOR ORGANICS ANALYSIS, DOCUMENT NUMBER OLM01.8, AUGUST 1991.

AEN-PN USES THE MOST CURRENT PROMULGATED METHODS CONTAINED IN THE REFERENCE MANUALS.

LP = LEVERNE PETERSON	RW = RITA WINGO
LD = LARRY DILMORE	BDH = BRUCE D. HUNT
DWB = DAVID BOWERS	HB = HEATHER E. BLAIR

American Environmental Network of Florida
PROJECT SAMPLE INSPECTION FORM

Lab Accession #: 806213 Date Received: 18-Jun-98

1.	Was there a Chain of Custody?	(Yes)	No*		
2.	Was Chain of Custody properly filled out and relinquished?	(Yes)	No*		
3.	Were samples received cold? (Criteria: 2° - 6°C: AEN-SOP 1055)	(Yes)	No*	N/A	
4.	Were all samples properly labeled and identified?	(Yes)	No*		
5.	Did samples require splitting? Req By: PM Client Other*	Yes*	(No)		
6.	Were samples received in proper containers for analysis requested?	(Yes)	No*		
7.	Were all sample containers received intact?	(Yes)	No*		
8.	Were samples checked for preservative? *(Check pH of all H_2O requiring preservative (AEN-PN SOP 917) except VOA vials that require zero headspace)+*	(Yes)	No*	N/A	
9.	Is there sufficient volume for analysis requested?	(Yes)	No*		
10.	Were samples received within Holding Time? (REFER TO AEN-SOP 1040)	Yes	(No*)		
11.	Is Headspace visible > ¼" in diameter in VOA vials?* If any headspace is evident, comment in out-of-control	Yes*	No	(N/A)	
12.	If sent, were matrix spike bottles returned?	Yes	No*	(N/A)	
13.	Was Project Manager notified of problems? (initials:_____)	Yes	No*	(N/A)	

Airbill Number(s): 359005 5232 Shipped By: FEDEX

Cooler Number(s): 217L Shipping Charges: N/A

Cooler Weight(s): N/A Cooler Temp(s) (°C): 2.0°C - CCK4

(LIST THERMOMETER NUMBER(S) FOR VERIFICATION)

Out of Control Events and Inspection Comments:

10. PH received out of hold time. PM 6/18/98

(USE BACK OF PSIFFOR ADDITIONAL NOTES AND COMMENTS) ☞

Inspected By: PHE Date: 6/18/98 Logged By: PHE Date: 6/18/98

* *Note all Out-of-Control and/or questionable events on Comment Section of this form.*

♦ *Note who requested the splitting of samples on the Comment Section of this form.*

\+ *All preservatives for the State of North Carolina, the State of New York, and other requested samples are to be recorded on the sheet provided to record pH results (AEN-SOP 938, section 2.2.9).*

✱ *According to EPA, ¼" of headspace is allowed in 40 ml vials requiring volatile analysis, however, AEN makes it policy to record any headspace as out-of-control (AEN-SOP 938, section 2.2.12).*

American Environmental Network (NM), Inc.

CHAIN OF CUSTODY

DATE: 6/16/98 PAGE: 1 OF 1

AEN (NM) Accession #: 806213

FILE 80640

SHADED AREAS ARE FOR LAB USE ONLY

PLEASE FILL THIS FORM IN COMPLETELY.

PROJECT MANAGER: Paul Peacock

COMPANY: Marathon Oil Company
ADDRESS: P.O. Box 552
Midland, TX 79702-0552
PHONE: (915) 687-8312
FAX: (915) 687-8305

BILL TO: same as above
COMPANY:
ADDRESS:

SAMPLE ID	DATE	TIME	MATRIX	LAB I.D.
MW-70	6/16/98	1345	WATER	

ANALYSIS REQUEST

Petroleum Hydrocarbons (418.1) TRPH	(MOD.8015) Diesel/Direct Inject	(M8015) Gas/Purge & Trap	8021 (BTEX)/8015 (Gasoline)	8021 (BTEX) ☐ MTBE ☐ TMB ☐ PCE	8021 (TCL)	8021 (EDX)	8021 (HALO)	8021 (CUST)	504.1 EDB ☐ / DBCP ☐	X CYANIDE AMENABLE TKN	8260 (TCL) Volatile Organics	8260 (Full) Volatile Organics	8260 (CUST) Volatile Organics	8260 (Landfill) Volatile Organics	Pesticides /PCB (608/8081)	Herbicides (615/8151)	Base/Neutral/Acid Compounds GC/MS (625/8270)	Polynuclear Aromatics (610/8310)	General Chemistry:	X TOTAL Phenols	X SEE LIST *	Priority Pollutant Metals (13)	Target Analyte List Metals (23)	RCRA Metals (8)	RCRA Metals by TCLP (Method 1311)	Metals: See LIST *	NUMBER OF CONTAINERS
										X					X		X	X		X	X					X	18

PROJECT INFORMATION

PROJ. NO.: 104332.03
PROJ. NAME: IBRP
P.O. NO.:
SHIPPED VIA:

SAMPLE RECEIPT

NO. CONTAINERS	
CUSTODY SEALS	Y / N / NA
RECEIVED INTACT	Y / N
BLUE ICE/ICE	

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

(RUSH) ☐ 24hr ☐ 48hr ☐ 72hr ☐ 1 WEEK (NORMAL) X

CERTIFICATION REQUIRED: ☐ NM ☐ SDWA ☐ OTHER

METHANOL PRESERVATION ☐

COMMENTS: FIXED FEE ☐

*SEE LIST

QA/QC SAMPLE ON THIS WELL

RELINQUISHED BY: 1	RELINQUISHED BY: 2
Signature: Kevin Cook	Signature:
Time: 1700	Time: 1810
Printed Name: Kevin Cook	Printed Name: CHRIS FAITH
Date: 6/16/98	Date: 6/16
Company: [illegible]	Company: AEN

RECEIVED BY: 1	RECEIVED BY: (LAB) 2.
Signature:	Signature:
Time: 1800	Time: 0827
Printed Name: CHRIS FAITH	Printed Name: ROBERT PERMAN
Date: 6/16	Date: 6/17/98
Company: AEN	American Environmental Network (NM), Inc.

American Environmental Network (NM), Inc.

CHAIN OF CUSTODY

DATE: _____ PAGE: ___ OF ___

AEN (NM) Accession #: NM-8064

SHADED AREAS ARE FOR LAB USE ONLY

PLEASE FILL THIS FORM IN COMPLETELY.

PROJECT MANAGER: Paul Peacock

COMPANY: Marathon Oil Company
ADDRESS: P.O. Box 552
Midland, TX 79702-0552
PHONE: (915) 687-8312
FAX: (915) 687-8305

BILL TO: same as above
COMPANY:
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)	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)	Herbicides (615/8151)	Base/Neutral/Acid Compounds GC/MS (625/8270)	Polynuclear Aromatics (610/8310)	General Chemistry:			Priority Pollutant Metals (13)	Target Analyte List Metals (23)	RCRA Metals (8)	RCRA Metals by TCLP (Method 1311)	Metals:		NUMBER OF CONTAINERS
DI H_2O	6/16	13:12	WATER	-01												X															2
INT-RB	6/16	13:20	WATER	-02												X															2
MW-7D	6/16	1345	WATER	-03									XX			X															2
Trip Blank	6/11	1410	AQ	-04												X															2

PROJECT INFORMATION

PROJ. NO.: 104332.03
PROJ. NAME: IBRP
P.O. NO.:
SHIPPED VIA:

SAMPLE RECEIPT

NO. CONTAINERS	17
CUSTODY SEALS INT.	Y/N/NA
RECEIVED INTACT	Yes
BLUE ICE/ICE	ICE

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

(RUSH) ☐ 24hr ☐ 48hr ☐ 72hr ☐ 1 WEEK (NORMAL) ☒

CERTIFICATION REQUIRED: ☐ NM ☐ SDWA ☐ OTHER

METHANOL PRESERVATION ☐

COMMENTS: FIXED FEE ☐

QA/QC SAMPLE ON THIS WELL

RELINQUISHED BY: 1.

Signature: Kevin Cook Time: 1700
Printed Name: Kevin Cook Date: 6/16/98
Company: PDWIT

RECEIVED BY: 1.

Signature: Time: 1720
Printed Name: CHRIS FAITH Date: 6/16
Company: AEN 1710

RELINQUISHED BY: 2.

Signature: Time: 0700
Printed Name: CHRIS FAITH Date: 6/17
Company: AEN

RECEIVED BY: (LAB) 2.

Signature: Francine Arvizo Time: 12:21
Printed Name: Francine Arvizo Date: 6/18/98
American Environmental Network (NM), Inc.

RECEIVED

AEN I.D. 806421

July 28, 1998

MARATHON OIL COMPANY
P.O. BOX 552
MIDLAND, TX 79702-0552

Project Name IBRP
Project Number 104332.03

Attention: PAUL PEACOCK

On 6/27/98 American Environmental Network (NM), Inc. (ADHS License No. AZ0015), 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.

Radiochemistry results (Ra 226/228) will follow in a separate report.

EPA methods 504.1, 8021 and 8260 were performed by American Environmental Network (NM) Inc., Albuquerque, NM.

Uranium was performed by North Creek Analytical, Portland, OR.

All other parameters were performed by STL, Pensacola, FL.

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	: MARATHON OIL COMPANY	AEN I.D.	: 806421
PROJECT #	: 104332.03	DATE RECEIVED	: 6/27/98
PROJECT NAME	: IBRP	REPORT DATE	: 7/28/98

AEN ID. #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	MW-59	AQUEOUS	6/24/98
02	MW-74	AQUEOUS	6/24/98
03	MW-67	AQUEOUS	6/24/98
04	SW-02	AQUEOUS	6/24/98
05	TRIP BLANK	AQUEOUS	6/17/98

GAS CHROMOTOGRAPHY RESULTS

TEST : ETHYLENE DIBROMIDE (EPA 504.1)
CLIENT : MARATHON OIL COMPANY AEN I.D.: 806421
PROJECT # : 104332.03
PROJECT NAME : IBRP

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
01	MW-59	AQUEOUS	6/24/98	7/6/98	7/6/98	1
02	MW-74	AQUEOUS	6/24/98	7/2/98	7/2/98	1
03	MW-67	AQUEOUS	6/24/98	7/2/98	7/2/98	1

PARAMETER	DET. LIMIT	UNITS	01	02	03
ETHYLENE DIBROMIDE	0.01	UG/L	< 0.01	< 0.01	< 0.01
SURROGATE:					
1,4-DICHLOROBENZENE			76	67 *	80
SURROGATE LIMITS	(75 - 141)				

CHEMIST NOTES:
* - LOW SURROGATE RECOVERY DUE TO MATRIX EFFECTS.

GAS CHROMOTOGRAPHY RESULTS

TEST : ETHYLENE DIBROMIDE (EPA 504.1)
CLIENT : MARATHON OIL COMPANY AEN I.D.: 806421
PROJECT # : 104332.03
PROJECT NAME : IBRP

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
04	SW-02	AQUEOUS	6/24/98	7/2/98	7/2/98	1

PARAMETER	DET. LIMIT	UNITS	04
ETHYLENE DIBROMIDE	0.01	UG/L	< 0.01

SURROGATE:
1,4-DICHLOROBENZENE 82
SURROGATE LIMITS (75 - 141)

CHEMIST NOTES:
N/A

GAS CHROMOTOGRAPHY RESULTS
REAGENT BLANK

TEST	: ETHYLENE DIBROMIDE (EPA 504.1)		
BLANK I.D.	: 070298A	AEN I.D.	: 806421
CLIENT	: MARATHON OIL COMPANY	MATRIX	: AQUEOUS
PROJECT #	: 104332.03	DATE EXTRACTED	: 7/2/98
PROJECT NAME	: IBRP	DATE ANALYZED	: 7/2/98

PARAMETER	DET. LIMIT	UNITS	
ETHYLENE DIBROMIDE	0.01	UG/L	<0.01
SURROGATE:			
1,4-DICHLOROBENZENE			81
SURROGATE LIMITS	(78 - 140)		

CHEMIST NOTES:
N/A

GAS CHROMOTOGRAPHY RESULTS
REAGENT BLANK

TEST	: ETHYLENE DIBROMIDE (EPA 504.1)		
BLANK I.D.	: 070698	AEN I.D.	: 806421
CLIENT	: MARATHON OIL COMPANY	MATRIX	: AQUEOUS
PROJECT #	: 104332.03	DATE EXTRACTED	: 7/6/98
PROJECT NAME	: IBRP	DATE ANALYZED	: 7/6/98

PARAMETER	DET. LIMIT	UNITS	
ETHYLENE DIBROMIDE	0.01	UG/L	<0.01
SURROGATE:			
1,4-DICHLOROBENZENE			94
SURROGATE LIMITS	(78 - 140)		

CHEMIST NOTES:
N/A

GAS CHROMOTOGRAPHY RESULTS
QUALITY CONTROL
MSMSD

TEST	: ETHYLENE DIBROMIDE (EPA 504.1)		
MSMSD #	: 070298A	AEN I.D.	: 806421
CLIENT	: MARATHON OIL COMPANY	DATE EXTRACTED	: 7/2/98
PROJECT #	: 104332.03	DATE ANALYZED	: 7/2/98
PROJECT NAME	: IBRP	MATRIX	: AQUEOUS
		UNITS	: UG/L

PARAMETER	SAMPLE RESULT	CONC. SPIKE	SPIKED SAMPLE	% REC	DUP SPIKE	DUP % REC	% RPD
ETHYLENE DIBROMIDE	<0.01	0.25	0.22	88%	0.25	100%	13%

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 CHROMOTOGRAPHY RESULTS

TEST : PURGEABLE HALOCARBONS / AROMATICS (EPA 8021)
CLIENT : MARATHON OIL COMPANY AEN I.D.: 806421
PROJECT # : 104332.03
PROJECT NAME : IBRP

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
01	MW-59	AQUEOUS	6/24/98	NA	6/30/98	5
02	MW-74	AQUEOUS	6/24/98	NA	6/30/98	5
03	MW-67	AQUEOUS	6/24/98	NA	6/30/98	1

PARAMETER	DET. LIMIT	UNITS	01	02	03
TETRACHLOROETHENE	0.5	UG/L	< 2.5	< 2.5	< 0.5
VINYL CHLORIDE	0.5	UG/L	< 2.5	< 2.5	< 0.5
SURROGATE:					
BROMOCHLOROMETHANE (%)			99	98	108
SURROGATE LIMITS	(73 - 117)				

CHEMIST NOTES:
N/A

GAS CHROMOTOGRAPHY RESULTS

TEST : PURGEABLE HALOCARBONS / AROMATICS (EPA 8021)
CLIENT : MARATHON OIL COMPANY AEN I.D.: 806421
PROJECT # : 104332.03
PROJECT NAME : IBRP

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
04	SW-02	AQUEOUS	6/24/98	NA	7/1/98	1

PARAMETER	DET. LIMIT	UNITS	04
TETRACHLOROETHENE	0.5	UG/L	< 0.5
VINYL CHLORIDE	0.5	UG/L	< 0.5
SURROGATE:			
BROMOCHLOROMETHANE (%)			97
SURROGATE LIMITS	(73 - 117)		

CHEMIST NOTES:
N/A

GAS CHROMOTOGRAPHY RESULTS
REAGENT BLANK

TEST	: PURGEABLE HALOCARBONS / AROMATICS (EPA 8021)		
BLANK I.D.	: 063098	AEN I.D.	: 806421
CLIENT	: MARATHON OIL COMPANY	DATE EXTRACTED	: N/A
PROJECT #	: 104332.03	DATE ANALYZED	: 6/30/98
PROJECT NAME	: IBRP	SAMPLE MATRIX	: AQUEOUS

PARAMETER	UNITS	
CHLOROBENZENE	UG/L	<0.5
1,1-DICHLOROETHENE	UG/L	<0.2
TETRACHLOROETHENE	UG/L	<0.5
TRICHLOROETHENE	UG/L	<0.3
VINYL CHLORIDE	UG/L	<0.5
SURROGATE:		
BROMOCHLOROMETHANE (%)		98
SURROGATE LIMITS	(73 - 117)	

CHEMIST NOTES:
N/A

GAS CHROMOTOGRAPHY RESULTS

REAGENT BLANK

TEST	: PURGEABLE HALOCARBONS / AROMATICS (EPA 8021)		
BLANK I.D.	: 070198	AEN I.D.	: 806421
CLIENT	: MARATHON OIL COMPANY	DATE EXTRACTED	: N/A
PROJECT #	: 104332.03	DATE ANALYZED	: 7/1/98
PROJECT NAME	: IBRP	SAMPLE MATRIX	: AQUEOUS

PARAMETER	UNITS	
CHLOROBENZENE	UG/L	<0.5
1,1-DICHLOROETHENE	UG/L	<0.2
TETRACHLOROETHENE	UG/L	<0.5
TRICHLOROETHENE	UG/L	<0.3
VINYL CHLORIDE	UG/L	<0.5
SURROGATE:		
BROMOCHLOROMETHANE (%)		105
SURROGATE LIMITS	(73 - 117)	

CHEMIST NOTES:
N/A

GAS CHROMOTOGRAPHY QUALITY CONTROL
MSMSD

TEST	: PURGEABLE HALOCARBONS / AROMATICS (EPA 8021)		
MSMSD #	: 806422-01	AEN I.D.	: 806421
CLIENT	: MARATHON OIL COMPANY	DATE EXTRACTED	: N/A
PROJECT #	: 104332.03	DATE ANALYZED	: 6/30/98
PROJECT NAME	: IBRP	SAMPLE MATRIX	: AQUEOUS
		UNITS	: UG/L

PARAMETER	SAMPLE RESULT	CONC SPIKE	SPIKED SAMPLE	% REC	DUP SPIKE	DUP % REC	RPD	REC LIMITS	RPD LIMITS
1,1-DICHLOROETHENE	<0.2	10.0	6.3	63	7.5	75	17	(44 - 99)	20
TRICHLOROETHENE	<0.3	10.0	10.6	106	9.9	99	7	(89 - 127)	20
CHLOROBENZENE	<0.5	10.0	10.3	103	9.6	96	7	(87 - 124)	20

CHEMIST NOTES:
N/A

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

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

GC/MS RESULTS

TEST : VOLATILE ORGANICS EPA METHOD 8260
CLIENT : MARATHON OIL COMPANY AEN I.D. : 806421
PROJECT # : 104332.03 DATE RECEIVED : 6/27/98
PROJECT NAME : IBRP

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806421-01	MW-59	AQUEOUS	6/24/98	N/A	06/30/98	5

PARAMETER	DET. LIMIT		UNITS
Dichlorodifluoromethane	1.0	< 5.0	ug/L
Chloromethane	1.0	< 5.0	ug/L
Vinyl Chloride	1.0	< 5.0	ug/L
Bromomethane	1.0	< 5.0	ug/L
Chloroethane	1.0	< 5.0	ug/L
Trichlorofluoromethane	1.0	< 5.0	ug/L
Acetone	10	< 50	ug/L
Acrolein	5.0	< 25	ug/L
1,1-Dichloroethene	1.0	< 5.0	ug/L
Iodomethane	1.0	< 5.0	ug/L
Methylene Chloride	1.0	< 5.0	ug/L
Acrylonitrile	5.0	< 25	ug/L
cis-1,2-Dichloroethene	1.0	< 5.0	ug/L
Methyl-t-butyl Ether	1.0	< 5.0	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 5.0	ug/L
1,1-Dichloroethane	1.0	< 5.0	ug/L
trans-1,2-Dichloroethene	1.0	< 5.0	ug/L
2-Butanone	10	< 50	ug/L
Carbon Disulfide	1.0	< 5.0	ug/L
Bromochloromethane	1.0	< 5.0	ug/L
Chloroform	1.0	< 5.0	ug/L
2,2-Dichloropropane	1.0	< 5.0	ug/L
1,2-Dichloroethane	1.0	< 5.0	ug/L
Vinyl Acetate	1.0	< 5.0	ug/L
1,1,1-Trichloroethane	1.0	< 5.0	ug/L
1,1-Dichloropropene	1.0	< 5.0	ug/L
Carbon Tetrachloride	1.0	< 5.0	ug/L
Benzene	1.0	< 5.0	ug/L
1,2-Dichloropropane	1.0	< 5.0	ug/L
Trichloroethene	1.0	< 5.0	ug/L
Bromodichloromethane	1.0	< 5.0	ug/L
2-Chloroethyl Vinyl Ether	10	< 50	ug/L
cis-1,3-Dichloropropene	1.0	< 5.0	ug/L
trans-1,3-Dichloropropene	1.0	< 5.0	ug/L
1,1,2-Trichloroethane	1.0	< 5.0	ug/L
1,3-Dichloropropane	1.0	< 5.0	ug/L
Dibromomethane	1.0	< 5.0	ug/L
Toluene	1.0	< 5.0	ug/L
1,2-Dibromoethane	1.0	< 5.0	ug/L
4-Methyl-2-Pentanone	10	< 50	ug/L
2-Hexanone	10	< 50	ug/L
Dibromochloromethane	1.0	< 5.0	ug/L
Tetrachloroethene	1.0	< 5.0	ug/L
Chlorobenzene	1.0	< 5.0	ug/L
Ethylbenzene	1.0	**79**	**ug/L**
1,1,1,2-Tetrachloroethane	1.0	< 5.0	ug/L
m&p Xylenes	1.0	**42**	**ug/L**

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806421
PROJECT #	: 104332.03	DATE RECEIVED :	6/27/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806421-01	MW-59	AQUEOUS	6/24/98	N/A	06/30/98	5

PARAMETER	DET. LIMIT		UNITS
o-Xylene	1.0	< 5.0	ug/L
Styrene	1.0	< 5.0	ug/L
Bromoform	1.0	< 5.0	ug/L
1,1,2,2-Tetrachloroethane	1.0	< 5.0	ug/L
1,2,3-Trichloropropane	1.0	< 5.0	ug/L
Isopropyl Benzene	1.0	**36**	**ug/L**
Bromobenzene	1.0	< 5.0	ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 5.0	ug/L
n-Propylbenzene	1.0	**44**	**ug/L**
2-Chlorotoluene	1.0	< 5.0	ug/L
4-Chlorotoluene	1.0	< 5.0	ug/L
1,3,5-Trimethylbenzene	1.0	**58**	**ug/L**
tert-Butylbenzene	1.0	< 5.0	ug/L
1,2,4-Trimethylbenzene	1.0	**320**	**ug/L**
sec-Butylbenzene	1.0	**12**	**ug/L**
1,3-Dichlorobenzene	1.0	< 5.0	ug/L
1,4-Dichlorobenzene	1.0	< 5.0	ug/L
p-Isopropyltoluene	1.0	**10**	**ug/L**
1,2-Dichlorobenzene	1.0	< 5.0	ug/L
n-Butylbenzene	1.0	**13**	**ug/L**
1,2-Dibromomo-3-chloropropane	1.0	< 5.0	ug/L
1,2,4-Trichlorobenzene	1.0	< 5.0	ug/L
Naphthalene	1.0	< 5.0	ug/L
Hexachlorobutadiene	1.0	< 5.0	ug/L
1,2,3-Trichlorobenzene	1.0	< 5.0	ug/L

SURROGATE % RECOVERY		
1,2-Dichloroethane-d4	104	(80 - 120)
Toluene-d8	102	(88 - 110)
Bromofluorobenzene	103	(86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806421
PROJECT #	: 104332.03	DATE RECEIVED :	6/27/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806421-02	MW-74	AQUEOUS	6/24/98	N/A	06/30/98	10

PARAMETER	DET. LIMIT		UNITS
Dichlorodifluoromethane	1.0	< 10	ug/L
Chloromethane	1.0	< 10	ug/L
Vinyl Chloride	1.0	< 10	ug/L
Bromomethane	1.0	< 10	ug/L
Chloroethane	1.0	< 10	ug/L
Trichlorofluoromethane	1.0	< 10	ug/L
Acetone	10	< 100	ug/L
Acrolein	5.0	< 50	ug/L
1,1-Dichloroethene	1.0	< 10	ug/L
Iodomethane	1.0	< 10	ug/L
Methylene Chloride	1.0	< 10	ug/L
Acrylonitrile	5.0	< 50	ug/L
cis-1,2-Dichloroethene	1.0	< 10	ug/L
Methyl-t-butyl Ether	1.0	< 10	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 10	ug/L
1,1-Dichloroethane	1.0	< 10	ug/L
trans-1,2-Dichloroethene	1.0	< 10	ug/L
2-Butanone	10	< 100	ug/L
Carbon Disulfide	1.0	< 10	ug/L
Bromochloromethane	1.0	< 10	ug/L
Chloroform	1.0	< 10	ug/L
2,2-Dichloropropane	1.0	< 10	ug/L
1,2-Dichloroethane	1.0	< 10	ug/L
Vinyl Acetate	1.0	< 10	ug/L
1,1,1-Trichloroethane	1.0	< 10	ug/L
1,1-Dichloropropene	1.0	< 10	ug/L
Carbon Tetrachloride	1.0	< 10	ug/L
Benzene	1.0	**220**	**ug/L**
1,2-Dichloropropane	1.0	< 10	ug/L
Trichloroethene	1.0	< 10	ug/L
Bromodichloromethane	1.0	< 10	ug/L
2-Chloroethyl Vinyl Ether	10	< 100	ug/L
cis-1,3-Dichloropropene	1.0	< 10	ug/L
trans-1,3-Dichloropropene	1.0	< 10	ug/L
1,1,2-Trichloroethane	1.0	< 10	ug/L
1,3-Dichloropropane	1.0	< 10	ug/L
Dibromomethane	1.0	< 10	ug/L
Toluene	1.0	< 10	ug/L
1,2-Dibromoethane	1.0	< 10	ug/L
4-Methyl-2-Pentanone	10	< 100	ug/L
2-Hexanone	10	< 100	ug/L
Dibromochloromethane	1.0	< 10	ug/L
Tetrachloroethene	1.0	< 10	ug/L
Chlorobenzene	1.0	< 10	ug/L
Ethylbenzene	1.0	< 10	ug/L
1,1,1,2-Tetrachloroethane	1.0	< 10	ug/L
m&p Xylenes	1.0	< 10	ug/L

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806421
PROJECT #	: 104332.03	DATE RECEIVED :	6/27/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806421-02	MW-74	AQUEOUS	6/24/98	N/A	06/30/98	10

PARAMETER	DET. LIMIT		UNITS
o-Xylene	1.0	< 10	ug/L
Styrene	1.0	< 10	ug/L
Bromoform	1.0	< 10	ug/L
1,1,2,2-Tetrachloroethane	1.0	< 10	ug/L
1,2,3-Trichloropropane	1.0	< 10	ug/L
Isopropyl Benzene	1.0	**21**	**ug/L**
Bromobenzene	1.0	< 10	ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 10	ug/L
n-Propylbenzene	1.0	**17**	**ug/L**
2-Chlorotoluene	1.0	< 10	ug/L
4-Chlorotoluene	1.0	< 10	ug/L
1,3,5-Trimethylbenzene	1.0	< 10	ug/L
tert-Butylbenzene	1.0	< 10	ug/L
1,2,4-Trimethylbenzene	1.0	< 10	ug/L
sec-Butylbenzene	1.0	< 10	ug/L
1,3-Dichlorobenzene	1.0	< 10	ug/L
1,4-Dichlorobenzene	1.0	< 10	ug/L
p-Isopropyltoluene	1.0	< 10	ug/L
1,2-Dichlorobenzene	1.0	< 10	ug/L
n-Butylbenzene	1.0	< 10	ug/L
1,2-Dibromomo-3-chloropropane	1.0	< 10	ug/L
1,2,4-Trichlorobenzene	1.0	< 10	ug/L
Naphthalene	1.0	< 10	ug/L
Hexachlorobutadiene	1.0	< 10	ug/L
1,2,3-Trichlorobenzene	1.0	< 10	ug/L

SURROGATE % RECOVERY	
1,2-Dichloroethane-d4	107 (80 - 120)
Toluene-d8	103 (88 - 110)
Bromofluorobenzene	108 (86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806421
PROJECT #	: 104332.03	DATE RECEIVED :	6/27/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806421-03	MW-67	AQUEOUS	6/24/98	N/A	06/29/98	1

PARAMETER	DET. LIMIT		UNITS
Dichlorodifluoromethane	1.0	< 1.0	ug/L
Chloromethane	1.0	< 1.0	ug/L
Vinyl Chloride	1.0	< 1.0	ug/L
Bromomethane	1.0	< 1.0	ug/L
Chloroethane	1.0	< 1.0	ug/L
Trichlorofluoromethane	1.0	< 1.0	ug/L
Acetone	10	< 10	ug/L
Acrolein	5.0	< 5.0	ug/L
1,1-Dichloroethene	1.0	< 1.0	ug/L
Iodomethane	1.0	< 1.0	ug/L
Methylene Chloride	1.0	< 1.0	ug/L
Acrylonitrile	5.0	< 5.0	ug/L
cis-1,2-Dichloroethene	1.0	< 1.0	ug/L
Methyl-t-butyl Ether	1.0	< 1.0	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 1.0	ug/L
1,1-Dichloroethane	1.0	< 1.0	ug/L
trans-1,2-Dichloroethene	1.0	< 1.0	ug/L
2-Butanone	10	< 10	ug/L
Carbon Disulfide	1.0	< 1.0	ug/L
Bromochloromethane	1.0	< 1.0	ug/L
Chloroform	1.0	< 1.0	ug/L
2,2-Dichloropropane	1.0	< 1.0	ug/L
1,2-Dichloroethane	1.0	< 1.0	ug/L
Vinyl Acetate	1.0	< 1.0	ug/L
1,1,1-Trichloroethane	1.0	< 1.0	ug/L
1,1-Dichloropropene	1.0	< 1.0	ug/L
Carbon Tetrachloride	1.0	< 1.0	ug/L
Benzene	1.0	**1.3**	**ug/L**
1,2-Dichloropropane	1.0	< 1.0	ug/L
Trichloroethene	1.0	< 1.0	ug/L
Bromodichloromethane	1.0	< 1.0	ug/L
2-Chloroethyl Vinyl Ether	10	< 10	ug/L
cis-1,3-Dichloropropene	1.0	< 1.0	ug/L
trans-1,3-Dichloropropene	1.0	< 1.0	ug/L
1,1,2-Trichloroethane	1.0	< 1.0	ug/L
1,3-Dichloropropane	1.0	< 1.0	ug/L
Dibromomethane	1.0	< 1.0	ug/L
Toluene	1.0	**2.7**	**ug/L**
1,2-Dibromoethane	1.0	< 1.0	ug/L
4-Methyl-2-Pentanone	10	< 10	ug/L
2-Hexanone	10	< 10	ug/L
Dibromochloromethane	1.0	< 1.0	ug/L
Tetrachloroethene	1.0	< 1.0	ug/L
Chlorobenzene	1.0	< 1.0	ug/L
Ethylbenzene	1.0	**3.5**	**ug/L**
1,1,1,2-Tetrachloroethane	1.0	< 1.0	ug/L
m&p Xylenes	1.0	**37**	**ug/L**

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806421
PROJECT #	: 104332.03	DATE RECEIVED :	6/27/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806421-03	MW-67	AQUEOUS	6/24/98	N/A	06/29/98	1

PARAMETER	DET. LIMIT		UNITS
o-Xylene	1.0	**8.3**	**ug/L**
Styrene	1.0	< 1.0	ug/L
Bromoform	1.0	< 1.0	ug/L
1,1,2,2-Tetrachloroethane	1.0	< 1.0	ug/L
1,2,3-Trichloropropane	1.0	< 1.0	ug/L
Isopropyl Benzene	1.0	**1.1**	**ug/L**
Bromobenzene	1.0	< 1.0	ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 1.0	ug/L
n-Propylbenzene	1.0	**1.3**	**ug/L**
2-Chlorotoluene	1.0	< 1.0	ug/L
4-Chlorotoluene	1.0	< 1.0	ug/L
1,3,5-Trimethylbenzene	1.0	**9.2**	**ug/L**
tert-Butylbenzene	1.0	< 1.0	ug/L
1,2,4-Trimethylbenzene	1.0	**14**	**ug/L**
sec-Butylbenzene	1.0	< 1.0	ug/L
1,3-Dichlorobenzene	1.0	< 1.0	ug/L
1,4-Dichlorobenzene	1.0	< 1.0	ug/L
p-Isopropyltoluene	1.0	< 1.0	ug/L
1,2-Dichlorobenzene	1.0	< 1.0	ug/L
n-Butylbenzene	1.0	< 1.0	ug/L
1,2-Dibromomo-3-chloropropane	1.0	< 1.0	ug/L
1,2,4-Trichlorobenzene	1.0	< 1.0	ug/L
Naphthalene	1.0	< 1.0	ug/L
Hexachlorobutadiene	1.0	< 1.0	ug/L
1,2,3-Trichlorobenzene	1.0	< 1.0	ug/L

SURROGATE % RECOVERY	
1,2-Dichloroethane-d4	108 (80 - 120)
Toluene-d8	102 (88 - 110)
Bromofluorobenzene	108 (86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806421
PROJECT #	: 104332.03	DATE RECEIVED :	6/27/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806421-04	SW-02	AQUEOUS	6/24/98	N/A	06/29/98	1

PARAMETER	DET. LIMIT		UNITS
Dichlorodifluoromethane	1.0	< 1.0	ug/L
Chloromethane	1.0	< 1.0	ug/L
Vinyl Chloride	1.0	< 1.0	ug/L
Bromomethane	1.0	< 1.0	ug/L
Chloroethane	1.0	< 1.0	ug/L
Trichlorofluoromethane	1.0	< 1.0	ug/L
Acetone	10	< 10	ug/L
Acrolein	5.0	< 5.0	ug/L
1,1-Dichloroethene	1.0	< 1.0	ug/L
Iodomethane	1.0	< 1.0	ug/L
Methylene Chloride	1.0	< 1.0	ug/L
Acrylonitrile	5.0	< 5.0	ug/L
cis-1,2-Dichloroethene	1.0	< 1.0	ug/L
Methyl-t-butyl Ether	1.0	< 1.0	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 1.0	ug/L
1,1-Dichloroethane	1.0	< 1.0	ug/L
trans-1,2-Dichloroethene	1.0	< 1.0	ug/L
2-Butanone	10	< 10	ug/L
Carbon Disulfide	1.0	< 1.0	ug/L
Bromochloromethane	1.0	< 1.0	ug/L
Chloroform	1.0	< 1.0	ug/L
2,2-Dichloropropane	1.0	< 1.0	ug/L
1,2-Dichloroethane	1.0	< 1.0	ug/L
Vinyl Acetate	1.0	< 1.0	ug/L
1,1,1-Trichloroethane	1.0	< 1.0	ug/L
1,1-Dichloropropene	1.0	< 1.0	ug/L
Carbon Tetrachloride	1.0	< 1.0	ug/L
Benzene	1.0	< 1.0	ug/L
1,2-Dichloropropane	1.0	< 1.0	ug/L
Trichloroethene	1.0	< 1.0	ug/L
Bromodichloromethane	1.0	< 1.0	ug/L
2-Chloroethyl Vinyl Ether	10	< 10	ug/L
cis-1,3-Dichloropropene	1.0	< 1.0	ug/L
trans-1,3-Dichloropropene	1.0	< 1.0	ug/L
1,1,2-Trichloroethane	1.0	< 1.0	ug/L
1,3-Dichloropropane	1.0	< 1.0	ug/L
Dibromomethane	1.0	< 1.0	ug/L
Toluene	1.0	< 1.0	ug/L
1,2-Dibromoethane	1.0	< 1.0	ug/L
4-Methyl-2-Pentanone	10	< 10	ug/L
2-Hexanone	10	< 10	ug/L
Dibromochloromethane	1.0	< 1.0	ug/L
Tetrachloroethene	1.0	< 1.0	ug/L
Chlorobenzene	1.0	< 1.0	ug/L
Ethylbenzene	1.0	< 1.0	ug/L
1,1,1,2-Tetrachloroethane	1.0	< 1.0	ug/L
m&p Xylenes	1.0	< 1.0	ug/L

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806421
PROJECT #	: 104332.03	DATE RECEIVED :	6/27/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806421-04	SW-02	AQUEOUS	6/24/98	N/A	06/29/98	1

PARAMETER	DET. LIMIT		UNITS
o-Xylene	1.0	< 1.0	ug/L
Styrene	1.0	< 1.0	ug/L
Bromoform	1.0	< 1.0	ug/L
1,1,2,2-Tetrachloroethane	1.0	< 1.0	ug/L
1,2,3-Trichloropropane	1.0	< 1.0	ug/L
Isopropyl Benzene	1.0	< 1.0	ug/L
Bromobenzene	1.0	< 1.0	ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 1.0	ug/L
n-Propylbenzene	1.0	< 1.0	ug/L
2-Chlorotoluene	1.0	< 1.0	ug/L
4-Chlorotoluene	1.0	< 1.0	ug/L
1,3,5-Trimethylbenzene	1.0	< 1.0	ug/L
tert-Butylbenzene	1.0	< 1.0	ug/L
1,2,4-Trimethylbenzene	1.0	< 1.0	ug/L
sec-Butylbenzene	1.0	< 1.0	ug/L
1,3-Dichlorobenzene	1.0	< 1.0	ug/L
1,4-Dichlorobenzene	1.0	< 1.0	ug/L
p-Isopropyltoluene	1.0	< 1.0	ug/L
1,2-Dichlorobenzene	1.0	< 1.0	ug/L
n-Butylbenzene	1.0	< 1.0	ug/L
1,2-Dibromomo-3-chloropropane	1.0	< 1.0	ug/L
1,2,4-Trichlorobenzene	1.0	< 1.0	ug/L
Naphthalene	1.0	< 1.0	ug/L
Hexachlorobutadiene	1.0	< 1.0	ug/L
1,2,3-Trichlorobenzene	1.0	< 1.0	ug/L

SURROGATE % RECOVERY		
1,2-Dichloroethane-d4	108	(80 - 120)
Toluene-d8	100	(88 - 110)
Bromofluorobenzene	105	(86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806421
PROJECT #	: 104332.03	DATE RECEIVED :	6/27/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806421-05	Trip Blank	AQUEOUS	6/17/98	N/A	06/30/98	1

PARAMETER	DET. LIMIT		UNITS
Dichlorodifluoromethane	1.0	< 1.0	ug/L
Chloromethane	1.0	< 1.0	ug/L
Vinyl Chloride	1.0	< 1.0	ug/L
Bromomethane	1.0	< 1.0	ug/L
Chloroethane	1.0	< 1.0	ug/L
Trichlorofluoromethane	1.0	< 1.0	ug/L
Acetone	10	< 10	ug/L
Acrolein	5.0	< 5.0	ug/L
1,1-Dichloroethene	1.0	< 1.0	ug/L
Iodomethane	1.0	< 1.0	ug/L
Methylene Chloride	1.0	< 1.0	ug/L
Acrylonitrile	5.0	< 5.0	ug/L
cis-1,2-Dichloroethene	1.0	< 1.0	ug/L
Methyl-t-butyl Ether	1.0	< 1.0	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 1.0	ug/L
1,1-Dichloroethane	1.0	< 1.0	ug/L
trans-1,2-Dichloroethene	1.0	< 1.0	ug/L
2-Butanone	10	< 10	ug/L
Carbon Disulfide	1.0	< 1.0	ug/L
Bromochloromethane	1.0	< 1.0	ug/L
Chloroform	1.0	< 1.0	ug/L
2,2-Dichloropropane	1.0	< 1.0	ug/L
1,2-Dichloroethane	1.0	< 1.0	ug/L
Vinyl Acetate	1.0	< 1.0	ug/L
1,1,1-Trichloroethane	1.0	< 1.0	ug/L
1,1-Dichloropropene	1.0	< 1.0	ug/L
Carbon Tetrachloride	1.0	< 1.0	ug/L
Benzene	1.0	< 1.0	ug/L
1,2-Dichloropropane	1.0	< 1.0	ug/L
Trichloroethene	1.0	< 1.0	ug/L
Bromodichloromethane	1.0	< 1.0	ug/L
2-Chloroethyl Vinyl Ether	10	< 10	ug/L
cis-1,3-Dichloropropene	1.0	< 1.0	ug/L
trans-1,3-Dichloropropene	1.0	< 1.0	ug/L
1,1,2-Trichloroethane	1.0	< 1.0	ug/L
1,3-Dichloropropane	1.0	< 1.0	ug/L
Dibromomethane	1.0	< 1.0	ug/L
Toluene	1.0	< 1.0	ug/L
1,2-Dibromoethane	1.0	< 1.0	ug/L
4-Methyl-2-Pentanone	10	< 10	ug/L
2-Hexanone	10	< 10	ug/L
Dibromochloromethane	1.0	< 1.0	ug/L
Tetrachloroethene	1.0	< 1.0	ug/L
Chlorobenzene	1.0	< 1.0	ug/L
Ethylbenzene	1.0	< 1.0	ug/L
1,1,1,2-Tetrachloroethane	1.0	< 1.0	ug/L
m&p Xylenes	1.0	< 1.0	ug/L

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806421
PROJECT #	: 104332.03	DATE RECEIVED :	6/27/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806421-05	Trip Blank	AQUEOUS	6/17/98	N/A	06/30/98	1

PARAMETER	DET. LIMIT		UNITS
o-Xylene	1.0	< 1.0	ug/L
Styrene	1.0	< 1.0	ug/L
Bromoform	1.0	< 1.0	ug/L
1,1,2,2-Tetrachloroethane	1.0	< 1.0	ug/L
1,2,3-Trichloropropane	1.0	< 1.0	ug/L
Isopropyl Benzene	1.0	< 1.0	ug/L
Bromobenzene	1.0	< 1.0	ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 1.0	ug/L
n-Propylbenzene	1.0	< 1.0	ug/L
2-Chlorotoluene	1.0	< 1.0	ug/L
4-Chlorotoluene	1.0	< 1.0	ug/L
1,3,5-Trimethylbenzene	1.0	< 1.0	ug/L
tert-Butylbenzene	1.0	< 1.0	ug/L
1,2,4-Trimethylbenzene	1.0	< 1.0	ug/L
sec-Butylbenzene	1.0	< 1.0	ug/L
1,3-Dichlorobenzene	1.0	< 1.0	ug/L
1,4-Dichlorobenzene	1.0	< 1.0	ug/L
p-Isopropyltoluene	1.0	< 1.0	ug/L
1,2-Dichlorobenzene	1.0	< 1.0	ug/L
n-Butylbenzene	1.0	< 1.0	ug/L
1,2-Dibromomo-3-chloropropane	1.0	< 1.0	ug/L
1,2,4-Trichlorobenzene	1.0	< 1.0	ug/L
Naphthalene	1.0	< 1.0	ug/L
Hexachlorobutadiene	1.0	< 1.0	ug/L
1,2,3-Trichlorobenzene	1.0	< 1.0	ug/L

SURROGATE % RECOVERY	
1,2-Dichloroethane-d4	104 (80 - 120)
Toluene-d8	102 (88 - 110)
Bromofluorobenzene	100 (86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806421
PROJECT #	: 104332.03		
PROJECT NAME	: IBRP		

SAMPLE ID #	BATCH	MATRIX	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
REAGENT BLANK	062998	AQUEOUS	N/A	06/29/98	1

PARAMETER	DET. LIMIT		UNITS
Dichlorodifluoromethane	1.0	< 1.0	ug/L
Chloromethane	1.0	< 1.0	ug/L
Vinyl Chloride	1.0	< 1.0	ug/L
Bromomethane	1.0	< 1.0	ug/L
Chloroethane	1.0	< 1.0	ug/L
Trichlorofluoromethane	1.0	< 1.0	ug/L
Acetone	10	< 10	ug/L
Acrolein	5.0	< 5.0	ug/L
1,1-Dichloroethene	1.0	< 1.0	ug/L
Iodomethane	1.0	< 1.0	ug/L
Methylene Chloride	1.0	< 1.0	ug/L
Acrylonitrile	5.0	< 5.0	ug/L
cis-1,2-Dichloroethene	1.0	< 1.0	ug/L
Methyl-t-butyl Ether	1.0	< 1.0	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 1.0	ug/L
1,1-Dichloroethane	1.0	< 1.0	ug/L
trans-1,2-Dichloroethene	1.0	< 1.0	ug/L
2-Butanone	10	< 10	ug/L
Carbon Disulfide	1.0	< 1.0	ug/L
Bromochloromethane	1.0	< 1.0	ug/L
Chloroform	1.0	< 1.0	ug/L
2,2-Dichloropropane	1.0	< 1.0	ug/L
1,2-Dichloroethane	1.0	< 1.0	ug/L
Vinyl Acetate	1.0	< 1.0	ug/L
1,1,1-Trichloroethane	1.0	< 1.0	ug/L
1,1-Dichloropropene	1.0	< 1.0	ug/L
Carbon Tetrachloride	1.0	< 1.0	ug/L
Benzene	1.0	< 1.0	ug/L
1,2-Dichloropropane	1.0	< 1.0	ug/L
Trichloroethene	1.0	< 1.0	ug/L
Bromodichloromethane	1.0	< 1.0	ug/L
2-Chloroethyl Vinyl Ether	10	< 10	ug/L
cis-1,3-Dichloropropene	1.0	< 1.0	ug/L
trans-1,3-Dichloropropene	1.0	< 1.0	ug/L
1,1,2-Trichloroethane	1.0	< 1.0	ug/L
1,3-Dichloropropane	1.0	< 1.0	ug/L
Dibromomethane	1.0	< 1.0	ug/L
Toluene	1.0	< 1.0	ug/L
1,2-Dibromoethane	1.0	< 1.0	ug/L
4-Methyl-2-Pentanone	10	< 10	ug/L
2-Hexanone	10	< 10	ug/L
Dibromochloromethane	1.0	< 1.0	ug/L
Tetrachloroethene	1.0	< 1.0	ug/L
Chlorobenzene	1.0	< 1.0	ug/L
Ethylbenzene	1.0	< 1.0	ug/L
1,1,1,2-Tetrachloroethane	1.0	< 1.0	ug/L

GC/MS RESULTS

TEST : VOLATILE ORGANICS EPA METHOD 8260
CLIENT : MARATHON OIL COMPANY AEN I.D. : 806421
PROJECT # : 104332.03
PROJECT NAME : IBRP

SAMPLE ID #	BATCH	MATRIX	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
REAGENT BLANK	062998	AQUEOUS	N/A	06/29/98	1

PARAMETER	DET. LIMIT		UNITS
m&p Xylenes	1.0	< 1.0	ug/L
o-Xylene	1.0	< 1.0	ug/L
Styrene	1.0	< 1.0	ug/L
Bromoform	1.0	< 1.0	ug/L
1,1,2,2-Tetrachloroethane	1.0	< 1.0	ug/L
1,2,3-Trichloropropane	1.0	< 1.0	ug/L
Isopropyl Benzene	1.0	< 1.0	ug/L
Bromobenzene	1.0	< 1.0	ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 1.0	ug/L
n-Propylbenzene	1.0	< 1.0	ug/L
2-Chlorotoluene	1.0	< 1.0	ug/L
4-Chlorotoluene	1.0	< 1.0	ug/L
1,3,5-Trimethylbenzene	1.0	< 1.0	ug/L
tert-Butylbenzene	1.0	< 1.0	ug/L
1,2,4-Trimethylbenzene	1.0	< 1.0	ug/L
sec-Butylbenzene	1.0	< 1.0	ug/L
1,3-Dichlorobenzene	1.0	< 1.0	ug/L
1,4-Dichlorobenzene	1.0	< 1.0	ug/L
p-Isopropyltoluene	1.0	< 1.0	ug/L
1,2-Dichlorobenzene	1.0	< 1.0	ug/L
n-Butylbenzene	1.0	< 1.0	ug/L
1,2-Dibromomo-3-chloropropane	1.0	< 1.0	ug/L
1,2,4-Trichlorobenzene	1.0	< 1.0	ug/L
Naphthalene	1.0	< 1.0	ug/L
Hexachlorobutadiene	1.0	< 1.0	ug/L
1,2,3-Trichlorobenzene	1.0	< 1.0	ug/L

SURROGATE % RECOVERY	
1,2-Dichloroethane-d4	108 (80 - 120)
Toluene-d8	102 (88 - 110)
Bromofluorobenzene	103 (86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806421
PROJECT #	: 104332.03		
PROJECT NAME	: IBRP		

SAMPLE ID #	BATCH	MATRIX	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
REAGENT BLANK	063098	AQUEOUS	N/A	06/30/98	1

PARAMETER	DET. LIMIT		UNITS
Dichlorodifluoromethane	1.0	< 1.0	ug/L
Chloromethane	1.0	< 1.0	ug/L
Vinyl Chloride	1.0	< 1.0	ug/L
Bromomethane	1.0	< 1.0	ug/L
Chloroethane	1.0	< 1.0	ug/L
Trichlorofluoromethane	1.0	< 1.0	ug/L
Acetone	10	< 10	ug/L
Acrolein	5.0	< 5.0	ug/L
1,1-Dichloroethene	1.0	< 1.0	ug/L
Iodomethane	1.0	< 1.0	ug/L
Methylene Chloride	1.0	< 1.0	ug/L
Acrylonitrile	5.0	< 5.0	ug/L
cis-1,2-Dichloroethene	1.0	< 1.0	ug/L
Methyl-t-butyl Ether	1.0	< 1.0	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 1.0	ug/L
1,1-Dichloroethane	1.0	< 1.0	ug/L
trans-1,2-Dichloroethene	1.0	< 1.0	ug/L
2-Butanone	10	< 10	ug/L
Carbon Disulfide	1.0	< 1.0	ug/L
Bromochloromethane	1.0	< 1.0	ug/L
Chloroform	1.0	< 1.0	ug/L
2,2-Dichloropropane	1.0	< 1.0	ug/L
1,2-Dichloroethane	1.0	< 1.0	ug/L
Vinyl Acetate	1.0	< 1.0	ug/L
1,1,1-Trichloroethane	1.0	< 1.0	ug/L
1,1-Dichloropropene	1.0	< 1.0	ug/L
Carbon Tetrachloride	1.0	< 1.0	ug/L
Benzene	1.0	< 1.0	ug/L
1,2-Dichloropropane	1.0	< 1.0	ug/L
Trichloroethene	1.0	< 1.0	ug/L
Bromodichloromethane	1.0	< 1.0	ug/L
2-Chloroethyl Vinyl Ether	10	< 10	ug/L
cis-1,3-Dichloropropene	1.0	< 1.0	ug/L
trans-1,3-Dichloropropene	1.0	< 1.0	ug/L
1,1,2-Trichloroethane	1.0	< 1.0	ug/L
1,3-Dichloropropane	1.0	< 1.0	ug/L
Dibromomethane	1.0	< 1.0	ug/L
Toluene	1.0	< 1.0	ug/L
1,2-Dibromoethane	1.0	< 1.0	ug/L
4-Methyl-2-Pentanone	10	< 10	ug/L
2-Hexanone	10	< 10	ug/L
Dibromochloromethane	1.0	< 1.0	ug/L
Tetrachloroethene	1.0	< 1.0	ug/L
Chlorobenzene	1.0	< 1.0	ug/L
Ethylbenzene	1.0	< 1.0	ug/L
1,1,1,2-Tetrachloroethane	1.0	< 1.0	ug/L

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806421
PROJECT #	: 104332.03		
PROJECT NAME	: IBRP		

SAMPLE ID #	BATCH	MATRIX	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
REAGENT BLANK	063098	AQUEOUS	N/A	06/30/98	1

PARAMETER	DET. LIMIT		UNITS
m&p Xylenes	1.0	< 1.0	ug/L
o-Xylene	1.0	< 1.0	ug/L
Styrene	1.0	< 1.0	ug/L
Bromoform	1.0	< 1.0	ug/L
1,1,2,2-Tetrachloroethane	1.0	< 1.0	ug/L
1,2,3-Trichloropropane	1.0	< 1.0	ug/L
Isopropyl Benzene	1.0	< 1.0	ug/L
Bromobenzene	1.0	< 1.0	ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 1.0	ug/L
n-Propylbenzene	1.0	< 1.0	ug/L
2-Chlorotoluene	1.0	< 1.0	ug/L
4-Chlorotoluene	1.0	< 1.0	ug/L
1,3,5-Trimethylbenzene	1.0	< 1.0	ug/L
tert-Butylbenzene	1.0	< 1.0	ug/L
1,2,4-Trimethylbenzene	1.0	< 1.0	ug/L
sec-Butylbenzene	1.0	< 1.0	ug/L
1,3-Dichlorobenzene	1.0	< 1.0	ug/L
1,4-Dichlorobenzene	1.0	< 1.0	ug/L
p-Isopropyltoluene	1.0	< 1.0	ug/L
1,2-Dichlorobenzene	1.0	< 1.0	ug/L
n-Butylbenzene	1.0	< 1.0	ug/L
1,2-Dibromomo-3-chloropropane	1.0	< 1.0	ug/L
1,2,4-Trichlorobenzene	1.0	< 1.0	ug/L
Naphthalene	1.0	< 1.0	ug/L
Hexachlorobutadiene	1.0	< 1.0	ug/L
1,2,3-Trichlorobenzene	1.0	< 1.0	ug/L

SURROGATE % RECOVERY	
1,2-Dichloroethane-d4	99 (80 - 120)
Toluene-d8	93 (88 - 110)
Bromofluorobenzene	102 (86 - 115)

GC/MS RESULTS

TEST : VOLATILE ORGANICS EPA METHOD 8260
CLIENT : MARATHON OIL COMPANY AEN I.D. : 806421
PROJECT # : 104332.03
PROJECT NAME : IBRP

SAMPLE ID #	BATCH	MATRIX	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
REAGENT BLANK	062598	AQUEOUS	N/A	06/25/98	1

PARAMETER	DET. LIMIT		UNITS
Dichlorodifluoromethane	1.0	< 1.0	ug/L
Chloromethane	1.0	< 1.0	ug/L
Vinyl Chloride	1.0	< 1.0	ug/L
Bromomethane	1.0	< 1.0	ug/L
Chloroethane	1.0	< 1.0	ug/L
Trichlorofluoromethane	1.0	< 1.0	ug/L
Acetone	10	< 10	ug/L
Acrolein	5.0	< 5.0	ug/L
1,1-Dichloroethene	1.0	< 1.0	ug/L
Iodomethane	1.0	< 1.0	ug/L
Methylene Chloride	1.0	< 1.0	ug/L
Acrylonitrile	5.0	< 5.0	ug/L
cis-1,2-Dichloroethene	1.0	< 1.0	ug/L
Methyl-t-butyl Ether	1.0	< 1.0	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 1.0	ug/L
1,1-Dichloroethane	1.0	< 1.0	ug/L
trans-1,2-Dichloroethene	1.0	< 1.0	ug/L
2-Butanone	10	< 10	ug/L
Carbon Disulfide	1.0	< 1.0	ug/L
Bromochloromethane	1.0	< 1.0	ug/L
Chloroform	1.0	< 1.0	ug/L
2,2-Dichloropropane	1.0	< 1.0	ug/L
1,2-Dichloroethane	1.0	< 1.0	ug/L
Vinyl Acetate	1.0	< 1.0	ug/L
1,1,1-Trichloroethane	1.0	< 1.0	ug/L
1,1-Dichloropropene	1.0	< 1.0	ug/L
Carbon Tetrachloride	1.0	< 1.0	ug/L
Benzene	1.0	< 1.0	ug/L
1,2-Dichloropropane	1.0	< 1.0	ug/L
Trichloroethene	1.0	< 1.0	ug/L
Bromodichloromethane	1.0	< 1.0	ug/L
2-Chloroethyl Vinyl Ether	10	< 10	ug/L
cis-1,3-Dichloropropene	1.0	< 1.0	ug/L
trans-1,3-Dichloropropene	1.0	< 1.0	ug/L
1,1,2-Trichloroethane	1.0	< 1.0	ug/L
1,3-Dichloropropane	1.0	< 1.0	ug/L
Dibromomethane	1.0	< 1.0	ug/L
Toluene	1.0	< 1.0	ug/L
1,2-Dibromoethane	1.0	< 1.0	ug/L
4-Methyl-2-Pentanone	10	< 10	ug/L
2-Hexanone	10	< 10	ug/L
Dibromochloromethane	1.0	< 1.0	ug/L
Tetrachloroethene	1.0	< 1.0	ug/L
Chlorobenzene	1.0	< 1.0	ug/L
Ethylbenzene	1.0	< 1.0	ug/L
1,1,1,2-Tetrachloroethane	1.0	< 1.0	ug/L

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806421
PROJECT #	: 104332.03		
PROJECT NAME	: IBRP		

SAMPLE ID #	BATCH	MATRIX	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
REAGENT BLANK	062598	AQUEOUS	N/A	06/25/98	1

PARAMETER	DET. LIMIT		UNITS
m&p Xylenes	1.0	< 1.0	ug/L
o-Xylene	1.0	< 1.0	ug/L
Styrene	1.0	< 1.0	ug/L
Bromoform	1.0	< 1.0	ug/L
1,1,2,2-Tetrachloroethane	1.0	< 1.0	ug/L
1,2,3-Trichloropropane	1.0	< 1.0	ug/L
Isopropyl Benzene	1.0	< 1.0	ug/L
Bromobenzene	1.0	< 1.0	ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 1.0	ug/L
n-Propylbenzene	1.0	< 1.0	ug/L
2-Chlorotoluene	1.0	< 1.0	ug/L
4-Chlorotoluene	1.0	< 1.0	ug/L
1,3,5-Trimethylbenzene	1.0	< 1.0	ug/L
tert-Butylbenzene	1.0	< 1.0	ug/L
1,2,4-Trimethylbenzene	1.0	< 1.0	ug/L
sec-Butylbenzene	1.0	< 1.0	ug/L
1,3-Dichlorobenzene	1.0	< 1.0	ug/L
1,4-Dichlorobenzene	1.0	< 1.0	ug/L
p-Isopropyltoluene	1.0	< 1.0	ug/L
1,2-Dichlorobenzene	1.0	< 1.0	ug/L
n-Butylbenzene	1.0	< 1.0	ug/L
1,2-Dibromomo-3-chloropropane	1.0	< 1.0	ug/L
1,2,4-Trichlorobenzene	1.0	< 1.0	ug/L
Naphthalene	1.0	< 1.0	ug/L
Hexachlorobutadiene	1.0	< 1.0	ug/L
1,2,3-Trichlorobenzene	1.0	< 1.0	ug/L

SURROGATE % RECOVERY	
1,2-Dichloroethane-d4	105 (80 - 120)
Toluene-d8	98 (88 - 110)
Bromofluorobenzene	98 (86 - 115)

Spike Recovery and RPD Summary Report - WATER

Method : C:\HPCHEM\1\METHODS\82600310.M (RTE Integrator)
Title : AEN New Mexico GC/MS
Last Update : Tue Jun 23 12:31:08 1998
Response via : Initial Calibration

Non-Spiked Sample: 062598B1.D

	Spike Sample	Spike Duplicate Sample
File ID :	062598S1.D	062598S2.D
Sample :	BS	BSD
Acq Time:	25 Jun 98 4:34 pm	25 Jun 98 5:15 pm

Compound	Sample Conc	Spike Added	Spike Res	Dup Res	Spike %Rec	Dup %Rec	RPD	QC Limits RPD	QC Limits % Rec
1,1-Dichloroethene	0.0	50	50	49	100	99	2	14	61-145
Benzene	0.0	50	53	52	107	104	3	11	76-127
Trichloroethene	0.0	50	53	49	105	99	6	14	71-120
Toluene	0.0	50	51	49	101	99	2	13	76-125
Chlorobenzene	0.0	50	51	49	101	98	3	13	75-130

- Fails Limit Check

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ▪ (425) 420-9200 ▪ FAX 420-9210
SPOKANE ▪ (509) 924-9200 ▪ FAX 924-9290
PORTLAND ▪ (503) 906-9200 ▪ FAX 906-9210

American Environmental Network	Project:	Marathon Oil	Sampled: 6/24/98
2709-D Pan American Freeway,NE	Project Number:	104332.03	Received: 6/26/98
Albuquerque, NM 87107	Project Manager:	Kimberly McNeill	Reported: 7/21/98 17:13

ANALYTICAL REPORT FOR SAMPLES:

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
MW-59	P806527-01	Water	6/24/98
MW-74	P806527-02	Water	6/24/98
MW-67	P806527-03	Water	6/24/98
SW-02	P806527-04	Water	6/24/98

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ▪ (425) 420-9200 ▪ FAX 420-9210
SPOKANE ▪ (509) 924-9200 ▪ FAX 924-9290
PORTLAND ▪ (503) 906-9200 ▪ FAX 906-9210

American Environmental Network	Project:	Marathon Oil	Sampled: 6/24/98
2709-D Pan American Freeway,NE	Project Number:	104332.03	Received: 6/26/98
Albuquerque, NM 87107	Project Manager:	Kimberly McNeill	Reported: 7/21/98 17:13

Total Metals per EPA 6000/7000 Series Methods
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
MW-59			**P806527-01**				**Water**	
Uranium	0780333	7/14/98	7/20/98	EPA 6020	0.00100	**0.00110**	mg/l	
MW-74			**P806527-02**				**Water**	
Uranium	0780333	7/14/98	7/20/98	EPA 6020	0.00100	ND	mg/l	
MW-67			**P806527-03**				**Water**	
Uranium	0780333	7/14/98	7/20/98	EPA 6020	0.00100	ND	mg/l	
SW-02			**P806527-04**				**Water**	
Uranium	0780333	7/14/98	7/20/98	EPA 6020	0.00100	ND	mg/l	

North Creek Analytical, Inc.

**Refer to end of report for text of notes and definitions.*

Lisa Domenighini, Project Manager

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

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SPOKANE ▪ (509) 924-9200 ▪ FAX 924-9290
PORTLAND ▪ (503) 906-9200 ▪ FAX 906-9210

American Environmental Network	Project:	Marathon Oil	Sampled: 6/24/98
2709-D Pan American Freeway,NE	Project Number:	104332.03	Received: 6/26/98
Albuquerque, NM 87107	Project Manager:	Kimberly McNeill	Reported: 7/21/98 17:13

Total Metals per EPA 6000/7000 Series Methods/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0780333	**Date Prepared: 7/14/98**					**Extraction Method: EPA 200/3005**				
Blank	**0780333-BLK1**									
Uranium	7/20/98			**ND**	mg/l	**0.00100**				
LCS	**0780333-BS1**									
Uranium	7/20/98	0.100		0.0703	mg/l	75.0-125	70.3			1
Duplicate	**0780333-DUP1**		**P806111-01**							
Uranium	7/20/98		0.0259	0.0246	mg/l			20.0	**5.15**	
Matrix Spike	**0780333-MS1**		**P806111-01**							
Uranium	7/20/98	0.100	0.0259	0.0982	mg/l	70.0-130	**72.3**			
Matrix Spike	**0780333-MS2**		**P806528-04**							
Uranium	7/20/98	0.100	0.00100	0.0641	mg/l	70.0-130	**63.1**			1

North Creek Analytical, Inc.

**Refer to end of report for text of notes and definitions*

Lisa Domenighini, Project Manager

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Environmental Laboratory Services

BOTHELL ▪ (425) 420-9200 ▪ FAX 420-9210
SPOKANE ▪ (509) 924-9200 ▪ FAX 924-9290
PORTLAND ▪ (503) 906-9200 ▪ FAX 906-9210

American Environmental Network	Project:	Marathon Oil	Sampled: 6/24/98
2709-D Pan American Freeway,NE	Project Number:	104332.03	Received: 6/26/98
Albuquerque, NM 87107	Project Manager:	Kimberly McNeill	Reported: 7/21/98 17:13

Notes and Definitions

#	Note
1	The spike recovery for this QC sample is outside of established control limits. Review of associated batch QC indicates the recovery for this analyte does not represent an out-of-control condition for the batch.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
Recov.	Recovery
RPD	Relative Percent Difference

North Creek Analytical, Inc.

Lisa Domenighini, Project Manager

P806527 24.4

American Environmental Network (NM), Inc. COPY

CHAIN OF CUSTODY

DATE: 6-24-98 PAGE: ___ OF ___

AEN(NM) Accession #: 806021

SHADED AREAS ARE FOR LAB USE ONLY

PLEASE FILL THIS FORM IN COMPLETELY.

PROJECT MANAGER: Paul Peacock

COMPANY: Marathon Oil Company
ADDRESS: P.O. Box 552
Midland, TX 79702-0552
PHONE: (915) 687-8312
FAX: (915) 687-8305

BILL TO: same as above
COMPANY:
ADDRESS:

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	BER OF CONTAINERS
MW-59	6-24-98	0915	H_2O		7
MW-74	↓	1130	↓		1
MW-67		1415			1
SW-02	↓	1430	↓		1

ANALYSIS REQUEST

Petroleum Hydrocarbons (418.1) TRPH	
(MOD.8015) Diesel/Direct Inject	
(M8015) Gas/Purge & Trap	
8021 (BTEX)/8015 (Gasoline)	
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)	
Herbicides (615/8151)	
Base/Neutral/Acid Compounds GC/MS (625/8270)	
Polynuclear Aromatics (610/8310)	
General Chemistry:	
Uranium ICPMS	X, X, X, X
Priority Pollutant Metals (13)	
Target Analyte List Metals (23)	
RCRA Metals (8)	
RCRA Metals by TCLP (Method 1311)	
Metals:	

PROJECT INFORMATION

PROJ. NO.: 104332.03
PROJ. NAME: TBRP
P.O. NO.:
SHIPPED VIA:

SAMPLE RECEIPT

NO. CONTAINERS	
CUSTODY SEALS	Y / N / NA
RECEIVED INTACT	
BLUE ICE/ICE	

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

(RUSH) ☐ 24hr ☐ 48hr ☐ 72hr ☐ 1 WEEK (NORMAL) X

CERTIFICATION REQUIRED: ☐ NM ☐ SDWA ☐ OTHER

METHANOL PRESERVATION ☐

COMMENTS: FIXED FEE ☐
MW-59, 74, + 67 Product wells

RELINQUISHED BY: 1.	RELINQUISHED BY:
Signature:	Signature: Time: 1520
Printed Name: Charles Modewell Date: 6/24/98	Printed Name: CHRIS FAIM Date: 6/24
Company: FDGTI	Company: AEN
RECEIVED BY: 1.	**RECEIVED BY: (LAB) 2.**
Signature: Time: 1500	Signature: Sara McClung Time: 1000
Printed Name: CHRIS FAIM Date: 6/24	Printed Name: Sara McClung Date: 6-26-98
Company: AEN	American Enviromental Network (NM), Inc. AEN



Committed To *Your* Success

Severn Trent Laboratories
11 East Olive Road
Pensacola FL 32514

Tel: (850) 474-1001
Fax: (850) 474-4789

SIGNATURE PAGE

Reviewed by: _____
AEN Project Manager

Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
ALBUQUERQUE, NEW MEXICO

Project Name: IBRP
Project Number: 806421
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Accession Number: 806355

Project Manager: KIMBERLY D. MCNEILL
Sampled By: N/S

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Analysis Report

Analysis: MARATHON WET CHEMISTRY INORGANICS

Accession:	806355
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806421
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	WET CHEM

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 806355
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806421
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON WET CHEMISTRY INORGANICS
QcLevel: II

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: MW-59			**Lab ID: 001**		
CHLORIDE (4500-CL B)	MG/L	560	10	CIW070	+
CYANIDE, TOTAL (335.2)	MG/L	ND	0.005	CNW039	
FLUORIDE (340.2/4500-F C)	MG/L	0.6	0.2	FLW028	
NITRITE, NITROGEN (354.1)	MG/L	ND	0.1	N2W093	
NITRITE-NITRATE, NITROGEN (353.2)	MG/L	0.1	0.1	N3W47B	
NITRATE, NITROGEN (353.2-354.1)	MG/L	0.1	0.1	NONE	
PH (150.1)	UNITS	7.5	NA	PHW134	R4
PHENOLS, TOTAL (420.1)	MG/L	0.022	0.005	PEW026	
SULFATE (375.4)	MG/L	2300	1000	SEW081	+
TOTAL DISSOLVED SOLIDS (160.1)	MG/L	4100	5	TDW039	

Comments:

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: MW-74			**Lab ID: 002**		
CHLORIDE (4500-CL B)	MG/L	340	1	CIW070	
CYANIDE, TOTAL (335.2)	MG/L	ND	0.005	CNW039	
FLUORIDE (340.2/4500-F C)	MG/L	1.1	0.2	FLW028	
NITRITE, NITROGEN (354.1)	MG/L	ND	0.1	N2W093	
NITRITE-NITRATE, NITROGEN (353.2)	MG/L	ND	0.1	N3W47B	
NITRATE, NITROGEN (353.2-354.1)	MG/L	ND	0.1	NONE	
PH (150.1)	UNITS	7.0	NA	PHW134	R4
PHENOLS, TOTAL (420.1)	MG/L	0.025	0.005	PEW026	
SULFATE (375.4)	MG/L	13	5	SEW081	
TOTAL DISSOLVED SOLIDS (160.1)	MG/L	1500	5	TDW039	

Comments:

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 806355
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806421
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON WET CHEMISTRY INORGANICS
QcLevel: II

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: MW-67			Lab ID: 003		
CHLORIDE (4500-CL B)	MG/L	11	1	CIW070	
CYANIDE, TOTAL (335.2)	MG/L	ND	0.005	CNW039	
FLUORIDE (340.2/4500-F C)	MG/L	0.7	0.2	FLW028	
NITRITE, NITROGEN (354.1)	MG/L	ND	0.1	N2W093	
NITRITE-NITRATE, NITROGEN (353.2)	MG/L	ND	0.1	N3W47B	
NITRATE, NITROGEN (353.2-354.1)	MG/L	ND	0.1	NONE	
PH (150.1)	UNITS	7.3	NA	PHW134	R4
PHENOLS, TOTAL (420.1)	MG/L	0.005	0.005	PEW026	
SULFATE (375.4)	MG/L	140	50	SEW081	+
TOTAL DISSOLVED SOLIDS (160.1)	MG/L	480	5	TDW039	
Comments:					
Client ID: SW-02			Lab ID: 004		
CHLORIDE (4500-CL B)	MG/L	150	1	CIW070	
CYANIDE, TOTAL (335.2)	MG/L	ND	0.005	CNW039	
FLUORIDE (340.2/4500-F C)	MG/L	0.5	0.2	FLW028	
NITRITE, NITROGEN (354.1)	MG/L	ND	0.1	N2W093	
NITRITE-NITRATE, NITROGEN (353.2)	MG/L	0.9	0.1	N3W47B	
NITRATE, NITROGEN (353.2-354.1)	MG/L	0.9	0.1	NONE	
PH (150.1)	UNITS	7.2	NA	PHW134	R4
PHENOLS, TOTAL (420.1)	MG/L	ND	0.005	PEW026	
SULFATE (375.4)	MG/L	120	50	SEW081	+
TOTAL DISSOLVED SOLIDS (160.1)	MG/L	730	5	TDW039	
Comments:					

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"FINAL REPORT FORMAT - MULTIPLE"

Accession: 806355
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806421
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON WET CHEMISTRY INORGANICS

Client ID:	Lab ID:	Matrix:	Date/Time Sampled:	Date Received:
MW-59	001	WATER	24-JUN-98 0915	25-JUN-98
MW-74	002	WATER	24-JUN-98 1130	25-JUN-98
MW-67	003	WATER	24-JUN-98 1415	25-JUN-98
SW-02	004	WATER	24-JUN-98 1430	25-JUN-98

"Method Report Summary"

Accession Number: 806355
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806421
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON WET CHEMISTRY INORGANICS

Client Sample Id:	Parameter:	Unit:	Result:
MW-59	CHLORIDE (4500-CL B)	MG/L	560
	FLUORIDE (340.2/4500-F C)	MG/L	0.6
	NITRITE-NITRATE, NITROGEN (353.2)	MG/L	0.1
	NITRATE, NITROGEN (353.2-354.1)	MG/L	0.1
	PH (150.1)	UNITS	7.5
	PHENOLS, TOTAL (420.1)	MG/L	0.022
	SULFATE (375.4)	MG/L	2300
	TOTAL DISSOLVED SOLIDS (160.1)	MG/L	4100
MW-74	CHLORIDE (4500-CL B)	MG/L	340
	FLUORIDE (340.2/4500-F C)	MG/L	1.1
	PH (150.1)	UNITS	7.0
	PHENOLS, TOTAL (420.1)	MG/L	0.025
	SULFATE (375.4)	MG/L	13
	TOTAL DISSOLVED SOLIDS (160.1)	MG/L	1500
MW-67	CHLORIDE (4500-CL B)	MG/L	11
	FLUORIDE (340.2/4500-F C)	MG/L	0.7
	PH (150.1)	UNITS	7.3
	PHENOLS, TOTAL (420.1)	MG/L	0.005
	SULFATE (375.4)	MG/L	140
	TOTAL DISSOLVED SOLIDS (160.1)	MG/L	480
SW-02	CHLORIDE (4500-CL B)	MG/L	150
	FLUORIDE (340.2/4500-F C)	MG/L	0.5
	NITRITE-NITRATE, NITROGEN (353.2)	MG/L	0.9
	NITRATE, NITROGEN (353.2-354.1)	MG/L	0.9
	PH (150.1)	UNITS	7.2
	SULFATE (375.4)	MG/L	120
	TOTAL DISSOLVED SOLIDS (160.1)	MG/L	730

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Analysis Report

Analysis: MARATHON METALS - OPTIMA

Accession:	806355
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806421
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	METALS

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Date 08-Jul-98

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 806355
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806421
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON METALS - OPTIMA
QcLevel: II

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: MW-59			**Lab ID:001**		
SILVER (6010A)	MG/L	ND	0.0007	AYW174	
ALUMINUM (6010A)	MG/L	ND	0.026	LYW174	
ARSENIC (6010A)	MG/L	0.026	0.0018	RYW174	
BARIUM (6010A)	MG/L	0.24	0.0002	BYW174	
BORON (6010A)	MG/L	0.23	0.0057	OYW174	
CADMIUM (6010A)	MG/L	ND	0.0002	CYW174	
COBALT (6010A)	MG/L	0.0008	0.0003	TYW174	
CHROMIUM (6010A)	MG/L	0.038	0.0008	HYW174	
COPPER (6010A)	MG/L	ND	0.0018	FYW174	
MERCURY (7470A)	MG/L	ND	0.0001	M7W083	
NICKEL (6010A)	MG/L	0.074	0.0009	EYW174	
IRON (6010A)	MG/L	0.053	0.013	NYW174	
LEAD (6010A)	MG/L	ND	0.0022	PYW174	
MANGANESE (6010A)	MG/L	1.5	0.0002	GYW174	
MOLYBDENUM (6010A)	MG/L	0.0074	0.0003	DYW174	
SELENIUM (6010A)	MG/L	ND	0.0023	SYW174	
ZINC (6010A)	MG/L	0.028	0.014	5YW174	
Comments:					
Client ID: MW-74			**Lab ID:002**		
SILVER (6010A)	MG/L	ND	0.0007	AYW174	
ALUMINUM (6010A)	MG/L	ND	0.026	LYW174	
ARSENIC (6010A)	MG/L	0.011	0.0018	RYW174	
BARIUM (6010A)	MG/L	0.57	0.0002	BYW174	
BORON (6010A)	MG/L	0.28	0.0057	OYW174	
CADMIUM (6010A)	MG/L	ND	0.0002	CYW174	
COBALT (6010A)	MG/L	0.0024	0.0003	TYW174	
CHROMIUM (6010A)	MG/L	ND	0.0008	HYW174	
COPPER (6010A)	MG/L	ND	0.0018	FYW174	
MERCURY (7470A)	MG/L	ND	0.0001	M7W083	
NICKEL (6010A)	MG/L	0.0037	0.0009	EYW174	
IRON (6010A)	MG/L	1.3	0.013	NYW174	
LEAD (6010A)	MG/L	ND	0.0022	PYW174	
MANGANESE (6010A)	MG/L	0.33	0.0002	GYW174	
MOLYBDENUM (6010A)	MG/L	0.0033	0.0003	DYW174	
SELENIUM (6010A)	MG/L	ND	0.0023	SYW174	
ZINC (6010A)	MG/L	0.037	0.014	5YW174	
Comments:					

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 806355
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806421
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON METALS - OPTIMA
QcLevel: II

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: MW-67			Lab ID:003		
SILVER (6010A)	MG/L	ND	0.0007	AYW174	
ALUMINUM (6010A)	MG/L	ND	0.026	LYW174	
ARSENIC (6010A)	MG/L	ND	0.0018	RYW174	
BARIUM (6010A)	MG/L	0.29	0.0002	BYW174	
BORON (6010A)	MG/L	0.054	0.0057	OYW174	
CADMIUM (6010A)	MG/L	ND	0.0002	CYW174	
COBALT (6010A)	MG/L	0.0027	0.0003	TYW174	
CHROMIUM (6010A)	MG/L	ND	0.0008	HYW174	
COPPER (6010A)	MG/L	ND	0.0018	FYW174	
MERCURY (7470A)	MG/L	ND	0.0001	M7W083	
NICKEL (6010A)	MG/L	0.090	0.0009	EYW174	
IRON (6010A)	MG/L	0.017	0.013	NYW174	
LEAD (6010A)	MG/L	ND	0.0022	PYW174	
MANGANESE (6010A)	MG/L	0.82	0.0002	GYW174	
MOLYBDENUM (6010A)	MG/L	0.0093	0.0003	DYW174	
SELENIUM (6010A)	MG/L	ND	0.0023	SYW174	
ZINC (6010A)	MG/L	0.026	0.014	5YW174	
Comments:					
Client ID: SW-02			Lab ID:004		
SILVER (6010A)	MG/L	ND	0.0007	AYW174	
ALUMINUM (6010A)	MG/L	ND	0.026	LYW174	
ARSENIC (6010A)	MG/L	ND	0.0018	RYW174	
BARIUM (6010A)	MG/L	0.072	0.0002	BYW174	
BORON (6010A)	MG/L	0.084	0.0057	OYW174	
CADMIUM (6010A)	MG/L	ND	0.0002	CYW174	
COBALT (6010A)	MG/L	ND	0.0003	TYW174	
CHROMIUM (6010A)	MG/L	ND	0.0008	HYW174	
COPPER (6010A)	MG/L	ND	0.0018	FYW174	
MERCURY (7470A)	MG/L	ND	0.0001	M7W083	
NICKEL (6010A)	MG/L	ND	0.0009	EYW174	
IRON (6010A)	MG/L	ND	0.013	NYW174	
LEAD (6010A)	MG/L	0.018	0.003	PYW174	
MANGANESE (6010A)	MG/L	0.060	0.0002	GYW174	
MOLYBDENUM (6010A)	MG/L	0.0020	0.0003	DYW174	
SELENIUM (6010A)	MG/L	ND	0.0023	SYW174	
ZINC (6010A)	MG/L	0.028	0.014	5YW174	
Comments:					

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 806355
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806421
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON METALS - OPTIMA

Client Id:	Lab Id:	Matrix:	Date/Time Sampled:	Date Received:
MW-59	001	WATER	24-JUN-98 0915	25-JUN-98
MW-74	002	WATER	24-JUN-98 1130	25-JUN-98
MW-67	003	WATER	24-JUN-98 1415	25-JUN-98
SW-02	004	WATER	24-JUN-98 1430	25-JUN-98

"Method Report Summary"

Accession Number: 806355
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806421
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON METALS - OPTIMA

Client Sample Id:	Parameter:	Unit:	Result:
MW-59	ARSENIC (6010A)	MG/L	0.026
	BARIUM (6010A)	MG/L	0.24
	BORON (6010A)	MG/L	0.23
	COBALT (6010A)	MG/L	0.0008
	CHROMIUM (6010A)	MG/L	0.038
	NICKEL (6010A)	MG/L	0.074
	IRON (6010A)	MG/L	0.053
	MANGANESE (6010A)	MG/L	1.5
	MOLYBDENUM (6010A)	MG/L	0.0074
	ZINC (6010A)	MG/L	0.028
MW-74	ARSENIC (6010A)	MG/L	0.011
	BARIUM (6010A)	MG/L	0.57
	BORON (6010A)	MG/L	0.28
	COBALT (6010A)	MG/L	0.0024
	NICKEL (6010A)	MG/L	0.0037
	IRON (6010A)	MG/L	1.3
	MANGANESE (6010A)	MG/L	0.33
	MOLYBDENUM (6010A)	MG/L	0.0033
	ZINC (6010A)	MG/L	0.037
MW-67	BARIUM (6010A)	MG/L	0.29
	BORON (6010A)	MG/L	0.054
	COBALT (6010A)	MG/L	0.0027
	NICKEL (6010A)	MG/L	0.090
	IRON (6010A)	MG/L	0.017
	MANGANESE (6010A)	MG/L	0.82
	MOLYBDENUM (6010A)	MG/L	0.0093
	ZINC (6010A)	MG/L	0.026
SW-02	BARIUM (6010A)	MG/L	0.072
	BORON (6010A)	MG/L	0.084
	LEAD (6010A)	MG/L	0.018
	MANGANESE (6010A)	MG/L	0.060
	MOLYBDENUM (6010A)	MG/L	0.0020
	ZINC (6010A)	MG/L	0.028

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Analysis Report

Analysis: PESTICIDES (8080)

Accession:	806355
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806421
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	PESTICIDES

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"FINAL REPORT FORMAT - SINGLE"

Accession: 806355
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806421
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: PESTICIDES (8080)
Analysis Method: 8080 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Extraction Method: 3510 / 3660 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Matrix: WATER
QC Level: II

Lab Id: 001 Sample Date/Time: 24-JUN-98 0915
Client Sample Id: MW-59 Received Date: 25-JUN-98

Batch: PSW045 Extraction Date: 30-JUN-98
Blank: A Dry Weight %: N/A Analysis Date: 07-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
ALDRIN	UG/L	ND	1	
ALPHA-BHC	UG/L	ND	1	
BETA-BHC	UG/L	ND	1	
DELTA-BHC	UG/L	ND	1	
GAMMA-BHC (LINDANE)	UG/L	ND	1	
4,4'-DDD	UG/L	ND	1	
4,4'-DDE	UG/L	ND	1	
4,4'-DDT	UG/L	ND	1	
DIELDRIN	UG/L	ND	1	
ENDOSULFAN I	UG/L	ND	1	
ENDOSULFAN II	UG/L	ND	1	
ENDOSULFAN SULFATE	UG/L	ND	1	
ENDRIN	UG/L	ND	1	
ENDRIN ALDEHYDE	UG/L	ND	1	
HEPTACHLOR	UG/L	ND	1	
HEPTACHLOR EPOXIDE	UG/L	ND	1	
METHOXYCHLOR	UG/L	ND	1	
CHLORDANE	UG/L	ND	0.5	
TOXAPHENE	UG/L	ND	6	
PCB-1016	UG/L	ND	2	
PCB-1221	UG/L	ND	2	
PCB-1232	UG/L	ND	2	
PCB-1242	UG/L	ND	2	
PCB-1248	UG/L	ND	2	
PCB-1254	UG/L	ND	2	
PCB-1260	UG/L	ND	2	
TCMX	%REC/SURR	75	43-101	
DCB	%REC/SURR	62	17-135	
ANALYST	INITIALS	RP		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 806355
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806421
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: PESTICIDES (8080)
Analysis Method: 8080 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Extraction Method: 3510 / 3660 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Matrix: WATER
QC Level: II

Lab Id: 002 Sample Date/Time: 24-JUN-98 1130
Client Sample Id: MW-74 Received Date: 25-JUN-98

Batch: PSW045 Extraction Date: 30-JUN-98
Blank: A Dry Weight %: N/A Analysis Date: 11-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
ALDRIN	UG/L	ND	0.2	
ALPHA-BHC	UG/L	ND	0.2	
BETA-BHC	UG/L	0.32	0.2	
DELTA-BHC	UG/L	ND	0.2	
GAMMA-BHC (LINDANE)	UG/L	ND	0.2	
4,4'-DDD	UG/L	ND	0.2	
4,4'-DDE	UG/L	ND	0.2	
4,4'-DDT	UG/L	ND	0.2	
DIELDRIN	UG/L	ND	0.2	
ENDOSULFAN I	UG/L	ND	0.2	
ENDOSULFAN II	UG/L	ND	0.2	
ENDOSULFAN SULFATE	UG/L	ND	0.2	
ENDRIN	UG/L	ND	0.2	
ENDRIN ALDEHYDE	UG/L	ND	0.2	
HEPTACHLOR	UG/L	ND	0.2	
HEPTACHLOR EPOXIDE	UG/L	ND	0.2	
METHOXYCHLOR	UG/L	ND	0.2	
CHLORDANE	UG/L	ND	0.1	
TOXAPHENE	UG/L	ND	1.2	
PCB-1016	UG/L	ND	0.4	
PCB-1221	UG/L	ND	0.4	
PCB-1232	UG/L	ND	0.4	
PCB-1242	UG/L	ND	0.4	
PCB-1248	UG/L	ND	0.4	
PCB-1254	UG/L	ND	0.4	
PCB-1260	UG/L	ND	0.4	
TCMX	%REC/SURR	73	43-101	
DCB	%REC/SURR	62	17-135	
ANALYST	INITIALS	RP		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 806355
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806421
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: PESTICIDES (8080)
Analysis Method: 8080 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Extraction Method: 3510 / 3660 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Matrix: WATER
QC Level: II

Lab Id: 003 Sample Date/Time: 24-JUN-98 1415
Client Sample Id: MW-67 Received Date: 25-JUN-98

Batch: PSW045 Extraction Date: 30-JUN-98
Blank: A Dry Weight %: N/A Analysis Date: 11-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
ALDRIN	UG/L	ND	0.02	
ALPHA-BHC	UG/L	ND	0.02	
BETA-BHC	UG/L	0.03	0.02	
DELTA-BHC	UG/L	ND	0.02	
GAMMA-BHC (LINDANE)	UG/L	0.04	0.02	
4,4'-DDD	UG/L	ND	0.02	
4,4'-DDE	UG/L	ND	0.02	
4,4'-DDT	UG/L	ND	0.02	
DIELDRIN	UG/L	ND	0.02	
ENDOSULFAN I	UG/L	ND	0.02	
ENDOSULFAN II	UG/L	ND	0.02	
ENDOSULFAN SULFATE	UG/L	ND	0.02	
ENDRIN	UG/L	ND	0.02	
ENDRIN ALDEHYDE	UG/L	ND	0.02	
HEPTACHLOR	UG/L	ND	0.02	
HEPTACHLOR EPOXIDE	UG/L	ND	0.02	
METHOXYCHLOR	UG/L	ND	0.02	
CHLORDANE	UG/L	ND	0.01	
TOXAPHENE	UG/L	ND	0.12	
PCB-1016	UG/L	ND	0.04	
PCB-1221	UG/L	ND	0.04	
PCB-1232	UG/L	ND	0.04	
PCB-1242	UG/L	ND	0.04	
PCB-1248	UG/L	ND	0.04	
PCB-1254	UG/L	ND	0.04	
PCB-1260	UG/L	ND	0.04	
TCMX	%REC/SURR	77	43-101	
DCB	%REC/SURR	93	17-135	
ANALYST	INITIALS	RP		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 806355
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806421
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: PESTICIDES (8080)
Analysis Method: 8080 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Extraction Method: 3510 / 3660 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Matrix: WATER
QC Level: II

Lab Id: 004 Sample Date/Time: 24-JUN-98 1430
Client Sample Id: SW-02 Received Date: 25-JUN-98

Batch: PSW045 Extraction Date: 30-JUN-98
Blank: A Dry Weight %: N/A Analysis Date: 07-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
ALDRIN	UG/L	ND	0.02	
ALPHA-BHC	UG/L	ND	0.02	
BETA-BHC	UG/L	ND	0.02	
DELTA-BHC	UG/L	ND	0.02	
GAMMA-BHC (LINDANE)	UG/L	ND	0.02	
4,4'-DDD	UG/L	ND	0.02	
4,4'-DDE	UG/L	ND	0.02	
4,4'-DDT	UG/L	ND	0.02	
DIELDRIN	UG/L	ND	0.02	
ENDOSULFAN I	UG/L	ND	0.02	
ENDOSULFAN II	UG/L	ND	0.02	
ENDOSULFAN SULFATE	UG/L	ND	0.02	
ENDRIN	UG/L	ND	0.02	
ENDRIN ALDEHYDE	UG/L	ND	0.02	
HEPTACHLOR	UG/L	ND	0.02	
HEPTACHLOR EPOXIDE	UG/L	ND	0.02	
METHOXYCHLOR	UG/L	ND	0.02	
CHLORDANE	UG/L	ND	0.01	
TOXAPHENE	UG/L	ND	0.12	
PCB-1016	UG/L	ND	0.04	
PCB-1221	UG/L	ND	0.04	
PCB-1232	UG/L	ND	0.04	
PCB-1242	UG/L	ND	0.04	
PCB-1248	UG/L	ND	0.04	
PCB-1254	UG/L	ND	0.04	
PCB-1260	UG/L	ND	0.04	
TCMX	%REC/SURR	59	43-101	
DCB	%REC/SURR	114	17-135	
ANALYST	INITIALS	RP		

Comments:

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"Method Report Summary"

Accession Number: 806355
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806421
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: PESTICIDES (8080)

Client Sample Id:	Parameter:	Unit:	Result:
MW-74	BETA-BHC	UG/L	0.32
MW-67	BETA-BHC	UG/L	0.03
	GAMMA-BHC (LINDANE)	UG/L	0.04

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Analysis Report

Analysis: POLYNUCLEAR AROMATICS BY 8310

Accession:	806355
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806421
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	SEMI-VOLATILE FUELS

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"FINAL REPORT FORMAT - SINGLE"

Accession:	806355
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806421
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Test:	POLYNUCLEAR AROMATICS BY 8310
Analysis Method:	8310/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method:	3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix:	WATER
QC Level:	II

Lab Id:	001		Sample Date/Time:	24-JUN-98 0915
Client Sample Id:	MW-59		Received Date:	25-JUN-98
Batch: PAW145			Extraction Date:	29-JUN-98
Blank: A	Dry Weight %:	N/A	Analysis Date:	30-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZO(a)PYRENE	UG/L	3.2	0.1	
1-METHYLNAPHTHALENE	UG/L	500	0.3	E
2-CHLOROANTHRACENE	%REC/SURR	186	28-138	J1
ANALYST	INITIALS	HAH		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession:	806355
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806421
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Test:	POLYNUCLEAR AROMATICS BY 8310
Analysis Method:	8310/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method:	3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix:	WATER
QC Level:	II

Lab Id:	002	Sample Date/Time:	24-JUN-98 1130
Client Sample Id:	MW-74	Received Date:	25-JUN-98
Batch: PAW145		Extraction Date:	29-JUN-98
Blank: A	Dry Weight %: N/A	Analysis Date:	30-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZO(a)PYRENE	UG/L	0.7	0.1	
1-METHYLNAPHTHALENE	UG/L	140	0.3	E
2-CHLOROANTHRACENE	%REC/SURR	76	28-138	
ANALYST	INITIALS	HAH		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession:	806355
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806421
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Test:	POLYNUCLEAR AROMATICS BY 8310
Analysis Method:	8310/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method:	3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix:	WATER
QC Level:	II

Lab Id:	003	Sample Date/Time:	24-JUN-98 1415
Client Sample Id:	MW-67	Received Date:	25-JUN-98
Batch: PAW145		Extraction Date:	29-JUN-98
Blank: A	Dry Weight %: N/A	Analysis Date:	30-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZO(a)PYRENE	UG/L	0.6	0.1	
1-METHYLNAPHTHALENE	UG/L	ND	0.3	
2-CHLOROANTHRACENE	%REC/SURR	42	28-138	
ANALYST	INITIALS	HAH		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession:	806355
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806421
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Test:	POLYNUCLEAR AROMATICS BY 8310
Analysis Method:	8310/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method:	3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix:	WATER
QC Level:	II

Lab Id:	004		Sample Date/Time:	24-JUN-98 1430
Client Sample Id:	SW-02		Received Date:	25-JUN-98
Batch: PAW145			Extraction Date:	29-JUN-98
Blank: A	Dry Weight %:	N/A	Analysis Date:	30-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZO(a)PYRENE	UG/L	ND	0.1	
1-METHYLNAPHTHALENE	UG/L	ND	0.3	
2-CHLOROANTHRACENE	%REC/SURR	57	28-138	
ANALYST	INITIALS	HAH		

Comments:

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"Method Report Summary"

Accession Number: 806355
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806421
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: POLYNUCLEAR AROMATICS BY 8310

Client Sample Id:	Parameter:	Unit:	Result:
MW-59	BENZO(a)PYRENE	UG/L	3.2
	1-METHYLNAPHTHALENE	UG/L	500
MW-74	BENZO(a)PYRENE	UG/L	0.7
	1-METHYLNAPHTHALENE	UG/L	140
MW-67	BENZO(a)PYRENE	UG/L	0.6

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Analysis Report

Analysis: ACID & BASE EXTRACTABLES (8270)

Accession:	806355
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806421
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	ORGANIC/MS

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"FINAL REPORT FORMAT - SINGLE"

Accession: 806355
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806421
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: I

Lab Id: 001 Sample Date/Time: 24-JUN-98 0915
Client Sample Id: MW-59 Received Date: 25-JUN-98

Batch: ALW082 Extraction Date: 30-JUN-98
Blank: A Dry Weight %: N/A Analysis Date: 07-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZOIC ACID	UG/L	ND	8.5	
4-CHLORO-3-METHYLPHENOL	UG/L	ND	2	
2-CHLOROPHENOL	UG/L	ND	3	
2,4-DICHLOROPHENOL	UG/L	ND	20	
2,6-DICHLOROPHENOL	UG/L	ND	0.5	
2,4-DIMETHYLPHENOL	UG/L	ND	3	
4,6-DINITRO-2-METHYLPHENOL	UG/L	ND	8	
2,4-DINITROPHENOL	UG/L	ND	17	
2-METHYLPHENOL	UG/L	ND	2	
4-METHYLPHENOL	UG/L	ND	3	
2-NITROPHENOL	UG/L	ND	2	
4-NITROPHENOL	UG/L	ND	4	
PENTACHLOROPHENOL	UG/L	ND	4	
PHENOL	UG/L	ND	3	
2,3,4,6-TETRACHLOROPHENOL	UG/L	ND	3	
2,4,5-TRICHLOROPHENOL	UG/L	ND	15	
2,4,6-TRICHLOROPHENOL	UG/L	ND	2	
ACENAPHTHENE	UG/L	ND	2	
ACENAPHTHYLENE	UG/L	ND	2	
ACETOPHENONE	UG/L	ND	2	
4-AMINOBIPHENYL	UG/L	ND	4	
ANILINE	UG/L	ND	3	
ANTHRACENE	UG/L	ND	2	
BENZIDINE	UG/L	ND	14	
BENZO (A) ANTHRACENE	UG/L	ND	3	
BENZO (A) PYRENE	UG/L	ND	1	
BENZO (B) FLUORANTHENE	UG/L	ND	3	
BENZO (G,H,I) PERYLENE	UG/L	ND	2	
BENZO (K) FLUORANTHENE	UG/L	ND	4	
BENZYL ALCOHOL	UG/L	ND	3	
BIS(2-CHLOROETHOXY)METHANE	UG/L	ND	2	
BIS(2-CHLOROETHYL)ETHER	UG/L	ND	3	
BIS(2-CHLOROISOPROPYL)ETHER	UG/L	ND	9.5	
BIS(2-ETHYLHEXYL)PHTHALATE	UG/L	54	3	
4-BROMOPHENYL PHENYL ETHER	UG/L	ND	2	
BUTYLBENZYL PHTHALATE	UG/L	ND	3	
4-CHLOROANILINE	UG/L	ND	2	
1-CHLORONAPHTHALENE	UG/L	ND	3	
2-CHLORONAPHTHALENE	UG/L	ND	2	
4-CHLOROPHENYL PHENYL ETHER	UG/L	ND	3	

"FINAL REPORT FORMAT - SINGLE"

Accession: 806355
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806421
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: I

Lab Id: 001 Sample Date/Time: 24-JUN-98 0915
Client Sample Id: MW-59 Received Date: 25-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
CHRYSENE	UG/L	ND	4	
DIBENZ(A,J)ACRIDINE	UG/L	ND	3	
DIBENZO (A,H) ANTHRACENE	UG/L	ND	2	
DIBENZOFURAN	UG/L	ND	2	
1,2-DICHLOROBENZENE	UG/L	ND	2	
1,3-DICHLOROBENZENE	UG/L	ND	2	
1,4-DICHLOROBENZENE	UG/L	ND	3	
3,3'-DICHLOROBENZIDINE	UG/L	ND	2	
DIETHYLPHTHALATE	UG/L	ND	2	
P-DIMETHYLAMINOAZOBENZENE	UG/L	ND	2	
7,12-DIMETHYLBENZ(A)ANTHRACENE	UG/L	ND	9	
A-,A-DIMETHYLPHENETHYLAMINE	UG/L	ND	0.5	
DIMETHYLPHTHALATE	UG/L	ND	2	
DI-N-BUTYLPHTHALATE	UG/L	ND	2	
2,4-DINITROTOLUENE	UG/L	ND	3	
2,6-DINITROTOLUENE	UG/L	ND	3	
DI-N-OCTYLPHTHALATE	UG/L	ND	4	
DIPHENYLAMINE	UG/L	ND	3	
1,2-DIPHENYLHYDRAZINE	UG/L	ND	2	
FLUORANTHENE	UG/L	ND	3	
FLUORENE	UG/L	ND	3	
HEXACHLOROBENZENE	UG/L	ND	3	
HEXACHLOROBUTADIENE	UG/L	ND	3	
HEXACHLOROCYCLOPENTADIENE	UG/L	ND	3	
HEXACHLOROETHANE	UG/L	ND	3	
INDENO (1,2,3-CD) PYRENE	UG/L	ND	3	
ISOPHORONE	UG/L	ND	2	
3-METHYLCHOLANTHRENE	UG/L	ND	2	
2-METHYLNAPHTHALENE	UG/L	26	3	
NAPHTHALENE	UG/L	7.9	2	
1-NAPHTHYLAMINE	UG/L	ND	7.5	
2-NAPHTHYLAMINE	UG/L	ND	5	
2-NITROANILINE	UG/L	ND	2	
3-NITROANILINE	UG/L	ND	5	
4-NITROANILINE	UG/L	ND	4	
NITROBENZENE	UG/L	ND	3	
N-NITROSODIMETHYLAMINE	UG/L	ND	6	
N-NITROSODI-N-BUTYLAMINE	UG/L	ND	5.5	
N-NITROSODIETHYLAMINE	UG/L*	ND	50	
N-NITROSODIPHENYLAMINE	UG/L	ND	2	
N-NITROSO-DI-N-PROPYLAMINE	UG/L	ND	2	
N-NITROSOPIPERIDINE	UG/L	ND	4	
N-NITROSOPYRROLIDINE	UG/L*	ND	50	
PENTACHLOROBENZENE	UG/L	ND	2	
PENTACHLORONITROBENZENE (PCNB)	UG/L	ND	25	

"FINAL REPORT FORMAT - SINGLE"

Accession:	806355
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806421
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Test:	ACID & BASE EXTRACTABLES (8270)
Analysis Method:	8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method:	3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix:	WATER
QC Level:	I

Lab Id: 001 Sample Date/Time: 24-JUN-98 0915
Client Sample Id: MW-59 Received Date: 25-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
PHENACETIN	UG/L	ND	2	
PHENANTHRENE	UG/L	ND	2	
2-PICOLINE	UG/L	ND	39	
PRONAMIDE	UG/L	ND	2	
PYRENE	UG/L	ND	3	
1,2,4,5-TETRACHLOROBENZENE	UG/L	ND	2	
1,2,4 TRICHLOROBENZENE	UG/L	ND	3	
2-FLUOROPHENOL	%REC/SURR	87	21-100	
PHENOL-D6	%REC/SURR	84	10-100	
2,4,6-TRIBROMOPHENOL	%REC/SURR	112	10-123	
2-FLUOROBIPHENYL	%REC/SURR	70	43-116	
NITROBENZENE-D5	%REC/SURR	94	35-114	
TERPHENYL-D14	%REC/SURR	78	33-124	
ANALYST	INITIALS	RW		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession:	806355
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806421
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Test:	ACID & BASE EXTRACTABLES (8270)
Analysis Method:	8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method:	3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix:	WATER
QC Level:	I

Lab Id:	002		Sample Date/Time:	24-JUN-98 1130
Client Sample Id:	MW-74		Received Date:	25-JUN-98
Batch: ALW082			Extraction Date:	30-JUN-98
Blank: A	Dry Weight %:	N/A	Analysis Date:	07-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZOIC ACID	UG/L	ND	8.5	
4-CHLORO-3-METHYLPHENOL	UG/L	ND	2	
2-CHLOROPHENOL	UG/L	ND	3	
2,4-DICHLOROPHENOL	UG/L	ND	20	
2,6-DICHLOROPHENOL	UG/L	ND	0.5	
2,4-DIMETHYLPHENOL	UG/L	ND	3	
4,6-DINITRO-2-METHYLPHENOL	UG/L	ND	8	
2,4-DINITROPHENOL	UG/L	ND	17	
2-METHYLPHENOL	UG/L	ND	2	
4-METHYLPHENOL	UG/L	ND	3	
2-NITROPHENOL	UG/L	ND	2	
4-NITROPHENOL	UG/L	ND	4	
PENTACHLOROPHENOL	UG/L	ND	4	
PHENOL	UG/L	ND	3	
2,3,4,6-TETRACHLOROPHENOL	UG/L	ND	3	
2,4,5-TRICHLOROPHENOL	UG/L	ND	15	
2,4,6-TRICHLOROPHENOL	UG/L	ND	2	
ACENAPHTHENE	UG/L	ND	2	
ACENAPHTHYLENE	UG/L	ND	2	
ACETOPHENONE	UG/L	ND	2	
4-AMINOBIPHENYL	UG/L	ND	4	
ANILINE	UG/L	ND	3	
ANTHRACENE	UG/L	ND	2	
BENZIDINE	UG/L	ND	14	
BENZO (A) ANTHRACENE	UG/L	ND	3	
BENZO (A) PYRENE	UG/L	ND	1	
BENZO (B) FLUORANTHENE	UG/L	ND	3	
BENZO (G,H,I) PERYLENE	UG/L	ND	2	
BENZO (K) FLUORANTHENE	UG/L	ND	4	
BENZYL ALCOHOL	UG/L	ND	3	
BIS(2-CHLOROETHOXY)METHANE	UG/L	ND	2	
BIS(2-CHLOROETHYL)ETHER	UG/L	ND	3	
BIS(2-CHLOROISOPROPYL)ETHER	UG/L	ND	9.5	
BIS(2-ETHYLHEXYL)PHTHALATE	UG/L	ND	3	
4-BROMOPHENYL PHENYL ETHER	UG/L	ND	2	
BUTYLBENZYL PHTHALATE	UG/L	ND	3	
4-CHLOROANILINE	UG/L	ND	2	
1-CHLORONAPHTHALENE	UG/L	ND	3	
2-CHLORONAPHTHALENE	UG/L	ND	2	
4-CHLOROPHENYL PHENYL ETHER	UG/L	ND	3	

"FINAL REPORT FORMAT - SINGLE"

Accession: 806355
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806421
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: I

Lab Id: 002 Sample Date/Time: 24-JUN-98 1130
Client Sample Id: MW-74 Received Date: 25-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
CHRYSENE	UG/L	ND	4	
DIBENZ(A,J)ACRIDINE	UG/L	ND	3	
DIBENZO (A,H) ANTHRACENE	UG/L	ND	2	
DIBENZOFURAN	UG/L	ND	2	
1,2-DICHLOROBENZENE	UG/L	ND	2	
1,3-DICHLOROBENZENE	UG/L	ND	2	
1,4-DICHLOROBENZENE	UG/L	ND	3	
3,3'-DICHLOROBENZIDINE	UG/L	ND	2	
DIETHYLPHTHALATE	UG/L	ND	2	
P-DIMETHYLAMINOAZOBENZENE	UG/L	ND	2	
7,12-DIMETHYLBENZ(A)ANTHRACENE	UG/L	ND	9	
A-,A-DIMETHYLPHENETHYLAMINE	UG/L	ND	0.5	
DIMETHYLPHTHALATE	UG/L	ND	2	
DI-N-BUTYLPHTHALATE	UG/L	ND	2	
2,4-DINITROTOLUENE	UG/L	ND	3	
2,6-DINITROTOLUENE	UG/L	ND	3	
DI-N-OCTYLPHTHALATE	UG/L	ND	4	
DIPHENYLAMINE	UG/L	ND	3	
1,2-DIPHENYLHYDRAZINE	UG/L	ND	2	
FLUORANTHENE	UG/L	ND	3	
FLUORENE	UG/L	ND	3	
HEXACHLOROBENZENE	UG/L	ND	3	
HEXACHLOROBUTADIENE	UG/L	ND	3	
HEXACHLOROCYCLOPENTADIENE	UG/L	ND	3	
HEXACHLOROETHANE	UG/L	ND	3	
INDENO (1,2,3-CD) PYRENE	UG/L	ND	3	
ISOPHORONE	UG/L	ND	2	
3-METHYLCHOLANTHRENE	UG/L	ND	2	
2-METHYLNAPHTHALENE	UG/L	18	3	
NAPHTHALENE	UG/L	ND	2	
1-NAPHTHYLAMINE	UG/L	ND	7.5	
2-NAPHTHYLAMINE	UG/L	ND	5	
2-NITROANILINE	UG/L	ND	2	
3-NITROANILINE	UG/L	ND	5	
4-NITROANILINE	UG/L	ND	4	
NITROBENZENE	UG/L	ND	3	
N-NITROSODIMETHYLAMINE	UG/L	ND	6	
N-NITROSODI-N-BUTYLAMINE	UG/L	ND	5.5	
N-NITROSODIETHYLAMINE	UG/L*	ND	50	
N-NITROSODIPHENYLAMINE	UG/L	ND	2	
N-NITROSO-DI-N-PROPYLAMINE	UG/L	ND	2	
N-NITROSOPIPERIDINE	UG/L	ND	4	
N-NITROSOPYRROLIDINE	UG/L*	ND	50	
PENTACHLOROBENZENE	UG/L	ND	2	
PENTACHLORONITROBENZENE (PCNB)	UG/L	ND	25	

"FINAL REPORT FORMAT - SINGLE"

Accession: 806355
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806421
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: I

Lab Id: 002
Client Sample Id: MW-74
Sample Date/Time: 24-JUN-98 1130
Received Date: 25-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
PHENACETIN	UG/L	ND	2	
PHENANTHRENE	UG/L	ND	2	
2-PICOLINE	UG/L	ND	39	
PRONAMIDE	UG/L	ND	2	
PYRENE	UG/L	ND	3	
1,2,4,5-TETRACHLOROBENZENE	UG/L	ND	2	
1,2,4 TRICHLOROBENZENE	UG/L	ND	3	
2-FLUOROPHENOL	%REC/SURR	91	21-100	
PHENOL-D6	%REC/SURR	100	10-100	
2,4,6-TRIBROMOPHENOL	%REC/SURR	75	10-123	
2-FLUOROBIPHENYL	%REC/SURR	97	43-116	
NITROBENZENE-D5	%REC/SURR	100	35-114	
TERPHENYL-D14	%REC/SURR	109	33-124	
ANALYST	INITIALS	RW		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 806355
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806421
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: I

Lab Id: 003 Sample Date/Time: 24-JUN-98 1415
Client Sample Id: MW-67 Received Date: 25-JUN-98

Batch: ALW082 Extraction Date: 30-JUN-98
Blank: A Dry Weight %: N/A Analysis Date: 07-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZOIC ACID	UG/L	ND	1.7	
4-CHLORO-3-METHYLPHENOL	UG/L	ND	0.4	
2-CHLOROPHENOL	UG/L	ND	0.5	
2,4-DICHLOROPHENOL	UG/L	ND	3.9	
2,6-DICHLOROPHENOL	UG/L	ND	0.1	
2,4-DIMETHYLPHENOL	UG/L	ND	0.5	
4,6-DINITRO-2-METHYLPHENOL	UG/L	ND	1.6	
2,4-DINITROPHENOL	UG/L	ND	3.3	
2-METHYLPHENOL	UG/L	ND	0.3	
4-METHYLPHENOL	UG/L	ND	0.5	
2-NITROPHENOL	UG/L	ND	0.4	
4-NITROPHENOL	UG/L	ND	0.7	
PENTACHLOROPHENOL	UG/L	ND	0.7	
PHENOL	UG/L	ND	0.5	
2,3,4,6-TETRACHLOROPHENOL	UG/L	ND	0.6	
2,4,5-TRICHLOROPHENOL	UG/L	ND	3.0	
2,4,6-TRICHLOROPHENOL	UG/L	ND	0.3	
ACENAPHTHENE	UG/L	ND	0.4	
ACENAPHTHYLENE	UG/L	ND	0.4	
ACETOPHENONE	UG/L	ND	0.4	
4-AMINOBIPHENYL	UG/L	ND	0.7	
ANILINE	UG/L	ND	0.5	
ANTHRACENE	UG/L	ND	0.4	
BENZIDINE	UG/L	ND	2.7	
BENZO (A) ANTHRACENE	UG/L	ND	0.5	
BENZO (A) PYRENE	UG/L	ND	0.2	
BENZO (B) FLUORANTHENE	UG/L	ND	0.5	
BENZO (G,H,I) PERYLENE	UG/L	ND	0.3	
BENZO (K) FLUORANTHENE	UG/L	ND	0.7	
BENZYL ALCOHOL	UG/L	ND	0.5	
BIS(2-CHLOROETHOXY)METHANE	UG/L	ND	0.4	
BIS(2-CHLOROETHYL)ETHER	UG/L	ND	0.5	
BIS(2-CHLOROISOPROPYL)ETHER	UG/L	ND	1.9	
BIS(2-ETHYLHEXYL)PHTHALATE	UG/L	41	0.6	
4-BROMOPHENYL PHENYL ETHER	UG/L	ND	0.4	
BUTYLBENZYL PHTHALATE	UG/L	ND	0.5	
4-CHLOROANILINE	UG/L	ND	0.4	
1-CHLORONAPHTHALENE	UG/L	ND	0.6	
2-CHLORONAPHTHALENE	UG/L	ND	0.4	
4-CHLOROPHENYL PHENYL ETHER	UG/L	ND	0.5	

"FINAL REPORT FORMAT - SINGLE"

Accession: 806355
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806421
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: I

Lab Id: 003
Client Sample Id: MW-67
Sample Date/Time: 24-JUN-98 1415
Received Date: 25-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
CHRYSENE	UG/L	ND	0.7	
DIBENZ(A,J)ACRIDINE	UG/L	ND	0.5	
DIBENZO (A,H) ANTHRACENE	UG/L	ND	0.3	
DIBENZOFURAN	UG/L	ND	0.4	
1,2-DICHLOROBENZENE	UG/L	ND	0.3	
1,3-DICHLOROBENZENE	UG/L	ND	0.3	
1,4-DICHLOROBENZENE	UG/L	ND	0.5	
3,3'-DICHLOROBENZIDINE	UG/L	ND	0.4	
DIETHYLPHTHALATE	UG/L	ND	0.4	
P-DIMETHYLAMINOAZOBENZENE	UG/L	ND	0.4	
7,12-DIMETHYLBENZ(A)ANTHRACENE	UG/L	ND	1.8	
A-,A-DIMETHYLPHENETHYLAMINE	UG/L	ND	0.1	
DIMETHYLPHTHALATE	UG/L	16	0.4	
DI-N-BUTYLPHTHALATE	UG/L	ND	0.4	
2,4-DINITROTOLUENE	UG/L	ND	0.5	
2,6-DINITROTOLUENE	UG/L	ND	0.5	
DI-N-OCTYLPHTHALATE	UG/L	ND	0.7	
DIPHENYLAMINE	UG/L	ND	0.5	
1,2-DIPHENYLHYDRAZINE	UG/L	ND	0.3	
FLUORANTHENE	UG/L	ND	0.5	
FLUORENE	UG/L	ND	0.6	
HEXACHLOROBENZENE	UG/L	ND	0.5	
HEXACHLOROBUTADIENE	UG/L	ND	0.5	
HEXACHLOROCYCLOPENTADIENE	UG/L	ND	0.6	
HEXACHLOROETHANE	UG/L	ND	0.6	
INDENO (1,2,3-CD) PYRENE	UG/L	ND	0.5	
ISOPHORONE	UG/L	ND	0.4	
3-METHYLCHOLANTHRENE	UG/L	ND	0.4	
2-METHYLNAPHTHALENE	UG/L	ND	0.5	
NAPHTHALENE	UG/L	ND	0.4	
1-NAPHTHYLAMINE	UG/L	ND	1.5	
2-NAPHTHYLAMINE	UG/L	ND	1.0	
2-NITROANILINE	UG/L	ND	0.4	
3-NITROANILINE	UG/L	ND	0.9	
4-NITROANILINE	UG/L	ND	0.8	
NITROBENZENE	UG/L	ND	0.5	
N-NITROSODIMETHYLAMINE	UG/L	ND	1.2	
N-NITROSODI-N-BUTYLAMINE	UG/L	ND	1.1	
N-NITROSODIETHYLAMINE	UG/L*	ND	10	
N-NITROSODIPHENYLAMINE	UG/L	ND	0.4	
N-NITROSO-DI-N-PROPYLAMINE	UG/L	ND	0.4	
N-NITROSOPIPERIDINE	UG/L	ND	0.8	
N-NITROSOPYRROLIDINE	UG/L*	ND	10	
PENTACHLOROBENZENE	UG/L	ND	0.4	
PENTACHLORONITROBENZENE (PCNB)	UG/L	ND	5.0	

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"FINAL REPORT FORMAT - SINGLE"

Accession:	806355
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806421
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Test:	ACID & BASE EXTRACTABLES (8270)
Analysis Method:	8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method:	3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix:	WATER
QC Level:	I

Lab Id: 003 Sample Date/Time: 24-JUN-98 1415
Client Sample Id: MW-67 Received Date: 25-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
PHENACETIN	UG/L	ND	0.4	
PHENANTHRENE	UG/L	ND	0.4	
2-PICOLINE	UG/L	ND	7.7	
PRONAMIDE	UG/L	ND	0.4	
PYRENE	UG/L	ND	0.5	
1,2,4,5-TETRACHLOROBENZENE	UG/L	ND	0.4	
1,2,4 TRICHLOROBENZENE	UG/L	ND	0.6	
2-FLUOROPHENOL	%REC/SURR	78	21-100	
PHENOL-D6	%REC/SURR	78	10-100	
2,4,6-TRIBROMOPHENOL	%REC/SURR	90	10-123	
2-FLUOROBIPHENYL	%REC/SURR	72	43-116	
NITROBENZENE-D5	%REC/SURR	68	35-114	
TERPHENYL-D14	%REC/SURR	80	33-124	
ANALYST	INITIALS	RW		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 806355
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806421
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: I

Lab Id: 004 Sample Date/Time: 24-JUN-98 1430
Client Sample Id: SW-02 Received Date: 25-JUN-98

Batch: ALW082 Extraction Date: 30-JUN-98
Blank: A Dry Weight %: N/A Analysis Date: 07-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZOIC ACID	UG/L	ND	1.7	
4-CHLORO-3-METHYLPHENOL	UG/L	ND	0.4	
2-CHLOROPHENOL	UG/L	ND	0.5	
2,4-DICHLOROPHENOL	UG/L	ND	3.9	
2,6-DICHLOROPHENOL	UG/L	ND	0.1	
2,4-DIMETHYLPHENOL	UG/L	ND	0.5	
4,6-DINITRO-2-METHYLPHENOL	UG/L	ND	1.6	
2,4-DINITROPHENOL	UG/L	ND	3.3	
2-METHYLPHENOL	UG/L	ND	0.3	
4-METHYLPHENOL	UG/L	ND	0.5	
2-NITROPHENOL	UG/L	ND	0.4	
4-NITROPHENOL	UG/L	ND	0.7	
PENTACHLOROPHENOL	UG/L	ND	0.7	
PHENOL	UG/L	ND	0.5	
2,3,4,6-TETRACHLOROPHENOL	UG/L	ND	0.6	
2,4,5-TRICHLOROPHENOL	UG/L	ND	3.0	
2,4,6-TRICHLOROPHENOL	UG/L	ND	0.3	
ACENAPHTHENE	UG/L	ND	0.4	
ACENAPHTHYLENE	UG/L	ND	0.4	
ACETOPHENONE	UG/L	ND	0.4	
4-AMINOBIPHENYL	UG/L	ND	0.7	
ANILINE	UG/L	ND	0.5	
ANTHRACENE	UG/L	ND	0.4	
BENZIDINE	UG/L	ND	2.7	
BENZO (A) ANTHRACENE	UG/L	ND	0.5	
BENZO (A) PYRENE	UG/L	ND	0.2	
BENZO (B) FLUORANTHENE	UG/L	ND	0.5	
BENZO (G,H,I) PERYLENE	UG/L	ND	0.3	
BENZO (K) FLUORANTHENE	UG/L	ND	0.7	
BENZYL ALCOHOL	UG/L	ND	0.5	
BIS(2-CHLOROETHOXY)METHANE	UG/L	ND	0.4	
BIS(2-CHLOROETHYL)ETHER	UG/L	ND	0.5	
BIS(2-CHLOROISOPROPYL)ETHER	UG/L	ND	1.9	
BIS(2-ETHYLHEXYL)PHTHALATE	UG/L	ND	0.6	
4-BROMOPHENYL PHENYL ETHER	UG/L	ND	0.4	
BUTYLBENZYL PHTHALATE	UG/L	ND	0.5	
4-CHLOROANILINE	UG/L	ND	0.4	
1-CHLORONAPHTHALENE	UG/L	ND	0.6	
2-CHLORONAPHTHALENE	UG/L	ND	0.4	
4-CHLOROPHENYL PHENYL ETHER	UG/L	ND	0.5	

"FINAL REPORT FORMAT - SINGLE"

Accession: 806355
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806421
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: I

Lab Id: 004 Sample Date/Time: 24-JUN-98 1430
Client Sample Id: SW-02 Received Date: 25-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
CHRYSENE	UG/L	ND	0.7	
DIBENZ(A,J)ACRIDINE	UG/L	ND	0.5	
DIBENZO (A,H) ANTHRACENE	UG/L	ND	0.3	
DIBENZOFURAN	UG/L	ND	0.4	
1,2-DICHLOROBENZENE	UG/L	ND	0.3	
1,3-DICHLOROBENZENE	UG/L	ND	0.3	
1,4-DICHLOROBENZENE	UG/L	ND	0.5	
3,3'-DICHLOROBENZIDINE	UG/L	ND	0.4	
DIETHYLPHTHALATE	UG/L	ND	0.4	
P-DIMETHYLAMINOAZOBENZENE	UG/L	ND	0.4	
7,12-DIMETHYLBENZ(A)ANTHRACENE	UG/L	ND	1.8	
A-,A-DIMETHYLPHENETHYLAMINE	UG/L	ND	0.1	
DIMETHYLPHTHALATE	UG/L	ND	0.4	
DI-N-BUTYLPHTHALATE	UG/L	ND	0.4	
2,4-DINITROTOLUENE	UG/L	ND	0.5	
2,6-DINITROTOLUENE	UG/L	ND	0.5	
DI-N-OCTYLPHTHALATE	UG/L	ND	0.7	
DIPHENYLAMINE	UG/L	ND	0.5	
1,2-DIPHENYLHYDRAZINE	UG/L	ND	0.3	
FLUORANTHENE	UG/L	ND	0.5	
FLUORENE	UG/L	ND	0.6	
HEXACHLOROBENZENE	UG/L	ND	0.5	
HEXACHLOROBUTADIENE	UG/L	ND	0.5	
HEXACHLOROCYCLOPENTADIENE	UG/L	ND	0.6	
HEXACHLOROETHANE	UG/L	ND	0.6	
INDENO (1,2,3-CD) PYRENE	UG/L	ND	0.5	
ISOPHORONE	UG/L	ND	0.4	
3-METHYLCHOLANTHRENE	UG/L	ND	0.4	
2-METHYLNAPHTHALENE	UG/L	ND	0.5	
NAPHTHALENE	UG/L	ND	0.4	
1-NAPHTHYLAMINE	UG/L	ND	1.5	
2-NAPHTHYLAMINE	UG/L	ND	1.0	
2-NITROANILINE	UG/L	ND	0.4	
3-NITROANILINE	UG/L	ND	0.9	
4-NITROANILINE	UG/L	ND	0.8	
NITROBENZENE	UG/L	ND	0.5	
N-NITROSODIMETHYLAMINE	UG/L	ND	1.2	
N-NITROSODI-N-BUTYLAMINE	UG/L	ND	1.1	
N-NITROSODIETHYLAMINE	UG/L*	ND	10	
N-NITROSODIPHENYLAMINE	UG/L	ND	0.4	
N-NITROSO-DI-N-PROPYLAMINE	UG/L	ND	0.4	
N-NITROSOPIPERIDINE	UG/L	ND	0.8	
N-NITROSOPYRROLIDINE	UG/L*	ND	10	
PENTACHLOROBENZENE	UG/L	ND	0.4	
PENTACHLORONITROBENZENE (PCNB)	UG/L	ND	5.0	

"FINAL REPORT FORMAT - SINGLE"

Accession: 806355
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806421
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: I

Lab Id: 004
Client Sample Id: SW-02
Sample Date/Time: 24-JUN-98 1430
Received Date: 25-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
PHENACETIN	UG/L	ND	0.4	
PHENANTHRENE	UG/L	ND	0.4	
2-PICOLINE	UG/L	ND	7.7	
PRONAMIDE	UG/L	ND	0.4	
PYRENE	UG/L	ND	0.5	
1,2,4,5-TETRACHLOROBENZENE	UG/L	ND	0.4	
1,2,4 TRICHLOROBENZENE	UG/L	ND	0.6	
2-FLUOROPHENOL	%REC/SURR	97	21-100	
PHENOL-D6	%REC/SURR	97	10-100	
2,4,6-TRIBROMOPHENOL	%REC/SURR	103	10-123	
2-FLUOROBIPHENYL	%REC/SURR	92	43-116	
NITROBENZENE-D5	%REC/SURR	101	35-114	
TERPHENYL-D14	%REC/SURR	112	33-124	
ANALYST	INITIALS	RW		

Comments:

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"Method Report Summary"

Accession Number: 806355
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806421
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)

Client Sample Id:	Parameter:	Unit:	Result:
MW-59	BIS(2-ETHYLHEXYL)PHTHALATE	UG/L	54
	2-METHYLNAPHTHALENE	UG/L	26
	NAPHTHALENE	UG/L	7.9
MW-74	2-METHYLNAPHTHALENE	UG/L	18
MW-67	BIS(2-ETHYLHEXYL)PHTHALATE	UG/L	41
	DIMETHYLPHTHALATE	UG/L	16

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Data Qualifiers for Final Report

AEN-Pensacola Inorganic/Organic

@	Adjusted reporting limit due to sample matrix (dilution prior to digestion and/or analysis)
+	Elevated reporting limit due to dilution into calibration range
*	Elevated reporting limit due to matrix interference (dilution prior to digestion and/or analysis)
#	Elevated reporting limit due to insufficient sample size
D	Diluted out
J5	The reported value is quantitated as a TIC; therefore, it is estimated

ND = Not Detected N/S = Not Submitted N/A = Not Applicable

Florida Projects Inorganic/Organic

Y1	Improper preservation, no preservative present in sample upon receipt
Y2	Improper preservation, incorrect preservative present in sample upon receipt
Y3	Improper preservation, sample temperature exceeded EPA temperature limits of 2-6°C upon receipt
Y (FL description)	The laboratory analysis was from an unpreserved or improperly preserved sample. The data may not be accurate.
Q	Sample held beyond the accepted holding time
I	The reported value is < Laboratory RL and > laboratory MDL
U1	The reported value is ≤ Laboratory MDL (value for sample result is reported as the MDL)
U (FL description)	Indicates the compound was analyzed for but not detected.
T	The reported value is < Laboratory MDL (value shall not be used for statistical analysis)
V	The analyte was detected in both the sample and the associated method blank.
J1	Surrogate recovery limits have been exceeded
J2	The sample matrix interfered with the ability to make any accurate determinations
J3	The reported value failed to meet the established quality control criteria for either precision or accuracy
J (FL description)	Estimated value; not accurate.

AFCEE Projects (under QAPP) and All Other (AEN-PN) Projects/Sites for Inorganic/Organic Parameters

J4	(For positive results) Temperature limits exceeded (≤2°C or ≥ 6°C)
J (AFCEE description)	The analyte was positively identified, the quantitation is an estimation
R1	(For nondetects) Temperature limits exceeded (≤2°C or ≥ 6°C)
R2	Improper preservation, no preservative present in sample upon receipt
R3	Improper preservation, incorrect preservative present in sample upon receipt
R4	Holding time exceeded
R5	Collection requirements not met, improper container used for sample
R (AFCEE description)	The data are unusable due to deficiencies in the ability to analyze the sample and meet QC criteria
F	< RL and > laboratory MDL
F (AFCEE description)	The analyte was positively identified but the associated numerical value is below the AFCEE or lab RL
U2	≤ Laboratory MDL (value for result will be the MDL, never below the MDL)
U (AFCEE description)	The analyte was analyzed for but not detected. The associated numerical value is at or below the MDL
B (AFCEE description)	The analyte was found in the associated blank, as well as in the sample

ICR Projects Inorganic/Organic

A	Acceptable
R6	Rejected

Examples: ICR Flags

R6 = Laboratory extracted the sample but the refrigerator malfunctioned so the extract became warm and client was notified

R6 = Sample arrived in laboratory in good condition; however, the laboratory did not analyze it within EPA's established holding time limit.

CLP and CLP-like Projects

Refer to referenced CLP Statement of Work (SOW) for explanation of data qualifiers

IDL = Laboratory Instrument Detection Limit
MDL = Laboratory Method Detection Limit
RL = Reporting Limit (AFCEE RLs are listed in the AFCEE QAPP)
CLP CRDL = CLP Contract Required Detection Limit (these limits are listed in the EPA CLP Statement of Work or SOW)
CLP CRQL = CLP Contract Required Quantitation Limit (these limits are listed in the EPA CLP Statement of Work or SOW)

Any time a sample arrives at the laboratory improperly preserved (at improper pH or temperature) or after holding time has expired or prepared or analyzed after holding time, client must be notified in writing (i.e. case narrative).

AEN-Pensacola uses the most current promulgated methods contained in the reference manuals.

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Quality Control Report

Analysis: MARATHON WET CHEMISTRY INORGANICS

Accession:	806355
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806421
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	WET CHEM

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"WetChem Quality Control Report"

Parameter:	CHLORIDE	CYANIDE	FLUORIDE	NO2	NO2NO3	PH
Batch Id:	CIW070	CNW039	FLW028	N2W093	N3W47B	PHW134
Blank Result:	<1	<0.005	<0.2	<0.1	<0.1	N/A
Anal. Method:	4500-CL B	335.2	340.2	354.1	353.2	150.1
Prep. Method:	N/A	N/A	N/A	N/A	N/A	N/A
Analysis Date:	25-JUN-98	30-JUN-98	01-JUL-98	24-JUN-98	29-JUN-98	25-JUN-98
Prep. Date:	25-JUN-98	29-JUN-98	01-JUL-98	24-JUN-98	28-JUN-98	25-JUN-98
Sample Duplication						
Sample Dup:	806337-2	806355-4	806323-1	806330-1	806300-1	806341-1
Rept Limit:	<1	<0.005	<0.2	<0.1	<0.1	N/A
Sample Result:	22.5	<0.005	0.92	<0.1	<0.1	8.14
Dup Result:	22.7	<0.005	0.87	<0.1	<0.1	8.15
Sample RPD:	1	N/C	0.05 G	N/C	N/C	0.01
Max RPD:	5	0.005	0.2	0.1	0.1	0.12
Dry Weight%	N/A	N/A	N/A	N/A	N/A	N/A
Matrix Spike						
Sample Spiked:	806337-2	806355-4	806323-1	806330-1	806300-1	N/A
Rept Limit:	<1	<0.005	<0.2	<0.1	<0.1	N/A
Sample Result:	22.5	<0.005	0.92	<0.1	<0.1	
Spiked Result:	78.3	0.187	1.75	0.18	0.90	
Spike Added:	55.0	0.200	0.80	0.20	1.00	
% Recovery:	101	94	104	90	90	
% Rec Limits:	90-111	67-127	79-132	70-131	71-125	
Dry Weight%	N/A	N/A	N/A	N/A	N/A	
ICV						
ICV Result:	97.9	0.287	1.08	0.19	1.95	10.08
True Result:	100	0.314	1.20	0.20	2.00	10.00
% Recovery:	98	91	90	95	98	101
% Rec Limits:	90-110	90-110	90-110	90-110	90-110	90-110
LCS						
LCS Result:						7.02
True Result:						6.87
% Recovery:						102
% Rec Limits:						96-104

"WetChem Quality Control Report"

Parameter:	PHENOL	SULFATE	TDS
Batch Id:	PEW026	SEW081	TDW039
Blank Result:	<0.005	<10	<5
Anal. Method:	420.1	375.4	160.1
Prep. Method:	NA	N/A	N/A
Analysis Date:	07-JUL-98	02-JUL-98	01-JUL-98
Prep. Date:	06-JUL-98	02-JUL-98	30-JUN-98
Sample Duplication			
Sample Dup:	806423-1	806382-2	806355-2
Rept Limit:	<0.005	<10	<5
Sample Result:	<0.005	15	1468
Dup Result:	<0.005	15	1424
Sample RPD:	N/C	0 G	3
Max RPD:	0.005	10	16
Dry Weight%	N/A	N/A	N/A
Matrix Spike			
Sample Spiked:	806423-2	806382-2	N/A
Rept Limit:	<0.005	<10	N/A
Sample Result:	<0.005	15	
Spiked Result:	0.025	30	
Spike Added:	0.020	20	
% Recovery:	125	75	
% Rec Limits:	48-149	56-154	
Dry Weight%	N/A	N/A	
ICV			
ICV Result:	0.027	22.0	
True Result:	0.025	20	
% Recovery:	108	110	
% Rec Limits:	90-110	90-110	
LCS			
LCS Result:			300
True Result:			293
% Recovery:			102
% Rec Limits:			77-129

"Quality Control Comments"

Batch Id:	Comments:
N2W093	806341-1,2 & 806350-1 & 806353-1,2 & 806363-1,3,8 &
N2W093	806355-1,2,3,4 were added to the batch on 25-Jun-98.
PEW026	806409-5,6 were added on to batch on 7-Jul-98

----- Common Footnotes WetChem -----

N/A = NOT APPLICABLE.
N/S = NOT SUBMITTED.
N/C = SAMPLE AND DUPLICATE RESULTS ARE AT OR BELOW AEN REPORTING LIMIT; THEREFORE, THE RPD IS "NOT CALCULABLE" AND NO CONTROL LIMITS APPLY.
N/D = NOT DETECTED.
R = REACTIVE
T = TOTAL
G = SAMPLE AND/OR DUPLICATE RESULT IS BELOW 5 X AEN REPORTING LIMIT AND THE ABSOLUTE DIFFERENCE BETWEEN THE SAMPLE AND DUPLICATE RESULT IS AT OR BELOW AEN REPORTING LIMIT; THEREFORE, THE RESULTS ARE "IN CONTROL".
Q = THE ANALYTICAL (POST-DISTILLATION) SPIKE IS REPORTED DUE TO PERCENT RECOVERY BEING OUTSIDE ACCEPTANCE LIMITS ON THE MATRIX (PRE-DISTILLATION) SPIKE.
= ELEVATED REPORTING LIMIT DUE TO INSUFFICIENT SAMPLE.
+ = ELEVATED REPORTING LIMIT DUE TO DILUTION INTO CALIBRATION RANGE.
* = ELEVATED REPORTING LIMIT DUE TO MATRIX INTERFERENCE (DILUTION PRIOR DIGESTION AND/OR ANALYSIS).
@ = ADJUSTED REPORTING LIMIT DUE TO SAMPLE MATRIX (DILUTION PRIOR TO DIGESTION AND/OR ANALYSIS).
P = ANALYTICAL (POST DIGESTION) SPIKE.
I = DUPLICATE INJECTION.
& = AUTOMATED
F = SAMPLE SPIKED > 4 X SPIKE CONCENTRATION.
N/C+ = NOT CALCULABLE
H = SAMPLE AND/OR DUPLICATE RESULT IS BELOW 5 X AEN REPORTING LIMIT AND THE ABSOLUTE DIFFERENCE BETWEEN THE RESULTS EXCEEDS THE AEN REPORTING LIMIT; THEREFORE, THE RESULTS ARE "OUT OF CONTROL".
A = SAMPLE AND DUPLICATE RESULTS ARE "OUT OF CONTROL".
Z = THE SAMPLE RESULT FOR THE SPIKE IS BELOW THE REPORTING LIMIT. HOWEVER, THIS RESULT IS REPORTED FOR ACCURATE QC CALCULATIONS.
NH= SAMPLE AND / OR DUPLICATE RESULT IS BELOW 5 X AEN REPORTING LIMIT AND THE ABSOLUTE DIFFERENCE BETWEEN THE RESULTS EXCEEDS THE AEN REPORTING LIMIT; THEREFORE, THE RESULTS ARE "OUT OF CONTROL". SAMPLE IS NON-HOMOGENEOUS.
(*) = REPORTING LIMITS RAISED DUE TO CLP METHOD NOT REQUIRING A CONCENTRATION STEP FOR CN.
(CA) = SEE CORRECTIVE ACTIONS FORM.
**= MATRIX INTERFERENCE
SW-846, 3rd Edition, latest EPA-approved edition.
EPA 600/4-79-020, Revised March 1983.
STANDARD METHODS, For the Examination of Water and Wastewater, latest EPA-approved edition.
NIOSH Manual of Analytical Methods, 4th Edition.
ANNUAL BOOK OF ASTM STANDARDS, VOLUMES 11.01 and 11.02, latest EPA-approved edition.
METHODS FOR THE DETERMINATION OF INORGANIC SUBSTANCES IN ENVIRONMENTAL SAMPLES, EPA600/R-93/100, AUGUST 1993
METHODS FOR SOIL ANALYSIS, PART 2, CHEMICAL AND MICROBILOGICAL PROPERTIES, 2ND EDITION.
AEN-PN USES THE MOST CURRENT PROMULGATED METHODS FROM THE REFERENCES LISTED ABOVE.

1. COLIFORM. COLIFORM PRECISION IS MEASURED BY THE ABSOLUTE DIFFERENCE BETWEEN THE LOGARITHM OF COLONIES PER 100 MLS OF SAMPLE ON DUPLICATE PLATES.
2. PH. PH PRECISION IS MEASURED BY THE ABSOLUTE DIFFERENCE BETWEEN THE SAMPLE AND DUPLICATE ANALYSIS.
3. FLASHPOINT. FLASHPOINT PRECISION IS MEASURED BY THE ABSOLUTE DIFFERENCE BETWEEN THE SAMPLE AND DUPLICATE ANALYSIS.

RPD = RELATIVE PERCENT DIFFERENCE (OR DEVIATION).
RPT LMTS = REPORTING LIMITS BASED ON METHOD DETECTION LIMIT STUDIES.

DPH = DOLLY P. HWANG RB = REBECCA BROWN WH = WENDY HAGGARD
ED = ESTHER DANTIN CR = CYNTHIA ROBERTS AB = AMY BRADLEY
BE = BETTY EVERTON PLD = PAULA L. DOUGHTY JTZ = JONATHAN T. ZIENTARSKI
RH = RICKY HAGENDORFER

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Quality Control Report

Analysis: MARATHON METALS - OPTIMA

Accession:	806355
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806421
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	METALS

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"Metals Quality Control Report"

Parameter:	SILVER	ALUMINUM	ARSENIC	BARIUM	BORON	CADMIUM
Batch Id:	AYW174	LYW174	RYW174	BYW174	OYW174	CYW174
Blank Result:	<0.005	<0.1	<0.005	<0.001	<0.05	<0.001
Anal. Method:	6010A	6010A	6010A	6010A	6010A	6010A
Prep. Method:	3010A	3010A	3010A	3010A	3010A	3010A
Analysis Date:	29-JUN-98	29-JUN-98	29-JUN-98	29-JUN-98	29-JUN-98	29-JUN-98
Prep. Date:	27-JUN-98	27-JUN-98	27-JUN-98	27-JUN-98	27-JUN-98	27-JUN-98
Sample Duplication						
Sample Dup:	806396-1	806396-1	806396-1	806396-1	806396-1	806396-1
Rept Limit:	<0.005	<0.1	<0.005	<0.001	<0.05	<0.001
Sample Result:	0.19	2.0	2.00	2.32	2.36	1.94
Dup Result:	0.19	2.0	2.01	2.33	2.37	1.95
Sample RPD:	0	0	0	0	0	1
Max RPD:	20	20	20	20	20	20
Dry Weight%	N/A	N/A	N/A	N/A	N/A	N/A
Matrix Spike						
Sample Spiked:	806396-1	806396-1	806396-1	806396-1	806396-1	806396-1
Rept Limit:	<0.005	<0.1	<0.005	<0.001	<0.05	<0.001
Sample Result:	<0.005	<0.1	0.008	0.35	0.38	<0.001
Spiked Result:	0.19	2.0	2.00	2.32	2.36	1.94
Spike Added:	0.2	2.0	2.0	2.0	2.0	2.0
% Recovery:	95	100	100	99	99	97
% Rec Limits:	75-125	75-125	75-125	75-125	75-125	75-125
Dry Weight%	N/A	N/A	N/A	N/A	N/A	N/A
ICV						
ICV Result:	0.50	5.0	0.99	0.98	1.02	1.02
True Result:	0.5	5.0	1.0	1.0	1.0	1.0
% Recovery:	100	100	99	98	102	102
% Rec Limits:	95-105	95-105	95-105	95-105	95-105	95-105
LCS						
LCS Result:	0.19	1.9	1.94	1.99	1.94	1.99
True Result:	0.2	2.0	2.0	2.0	2.0	2.0
% Recovery:	95	95	97	100	97	100
% Rec Limits:	80-120	80-120	80-120	80-120	80-120	80-120

"Metals Quality Control Report"

Parameter:	COBALT	CHROMIUM	COPPER	MERCURY	NICKEL	IRON
Batch Id:	TYW174	HYW174	FYW174	M7W083	EYW174	NYW174
Blank Result:	<0.005	<0.005	<0.005	<0.0002	<0.005	<0.05
Anal. Method:	6010A	6010A	6010A	7470A	6010A	6010A
Prep. Method:	3010A	3010A	3010A	7470A	3010A	3010A
Analysis Date:	29-JUN-98	29-JUN-98	29-JUN-98	06-JUL-98	29-JUN-98	29-JUN-98
Prep. Date:	27-JUN-98	27-JUN-98	27-JUN-98	05-JUL-98	27-JUN-98	27-JUN-98
Sample Duplication						
Sample Dup:	806396-1	806396-1	806396-1	806355-3	806396-1	806396-1
Rept Limit:	<0.005	<0.005	<0.005	<0.0002	<0.005	<0.05
Sample Result:	1.95	2.04	2.04	0.0049	1.96	4.45
Dup Result:	1.96	2.03	2.03	0.0051	1.96	4.41
Sample RPD:	1	0	0	4	0	1
Max RPD:	20	20	20	20	20	20
Dry Weight%	N/A	N/A	N/A	N/A	N/A	N/A
Matrix Spike						
Sample Spiked:	806396-1	806396-1	806396-1	806355-3	806396-1	806396-1
Rept Limit:	<0.005	<0.005	<0.005	<0.0002	<0.005	<0.05
Sample Result:	<0.005	<0.005	<0.005	<0.0002	<0.005	2.43
Spiked Result:	1.95	2.04	2.04	0.0049	1.96	4.45
Spike Added:	2.0	2.0	2.0	0.0050	2.0	2.0
% Recovery:	98	102	102	98	98	101
% Rec Limits:	75-125	75-125	75-125	75-125	75-125	75-125
Dry Weight%	N/A	N/A	N/A	N/A	N/A	N/A
ICV						
ICV Result:	0.99	1.01	1.02	0.0040	1.00	5.1
True Result:	1.0	1.0	1.0	0.0040	1.0	5.0
% Recovery:	99	101	102	100	100	102
% Rec Limits:	95-105	95-105	95-105	90-110	95-105	95-105
LCS						
LCS Result:	1.97	2.01	2.00	0.0049	1.99	1.98
True Result:	2.0	2.0	2.0	0.0050	2.0	2.0
% Recovery:	99	101	100	98	100	99
% Rec Limits:	80-120	80-120	80-120	85-115	80-120	80-120

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"Metals Quality Control Report"

Parameter:	LEAD	MANGANESE	MOLYBDENUM	SELENIUM	ZINC
Batch Id:	PYW174	GYW174	DYW174	SYW174	5YW174
Blank Result:	<0.003	<0.005	<0.005	<0.005	<0.02
Anal. Method:	6010A	6010A	6010A	6010A	6010A
Prep. Method:	3010A	3010A	3010A	3010A	3010A
Analysis Date:	30-JUN-98	29-JUN-98	29-JUN-98	02-JUL-98	29-JUN-98
Prep. Date:	27-JUN-98	27-JUN-98	27-JUN-98	27-JUN-98	27-JUN-98
Sample Duplication					
Sample Dup:	806396-1	806396-1	806396-1	806395-1	806396-1
Rept Limit:	<0.003	<0.005	<0.005	<0.005	<0.02
Sample Result:	1.89	2.19	2.05	1.92	1.91
Dup Result:	1.89	2.20	2.04	1.89	1.93
Sample RPD:	0	0	0	2	1
Max RPD:	20	20	20	20	20
Dry Weight%	N/A	N/A	N/A	N/A	N/A
Matrix Spike					
Sample Spiked:	806396-1	806396-1	806396-1	806396-1	806396-1
Rept Limit:	<0.003	<0.005	<0.005	<0.005	<0.02
Sample Result:	<0.003	0.17	0.005	<0.005	<0.02
Spiked Result:	1.89	2.19	2.05	1.92	1.91
Spike Added:	2.0	2.0	2.0	2.0	2.0
% Recovery:	95	101	102	96	96
% Rec Limits:	75-125	75-125	75-125	75-125	75-125
Dry Weight%	N/A	N/A	N/A	N/A	N/A
ICV					
ICV Result:	1.01	1.02	1.00	0.98	1.01
True Result:	1.0	1.0	1.0	1.0	1.0
% Recovery:	101	102	100	98	101
% Rec Limits:	95-105	95-105	95-105	95-105	95-105
LCS					
LCS Result:	1.92	2.01	2.04	1.90	1.96
True Result:	2.0	2.0	2.0	2.0	2.0
% Recovery:	96	101	102	95	98
% Rec Limits:	80-120	80-120	80-120	80-120	80-120

----- Common Footnotes Metals -----

N/A = NOT APPLICABLE.
N/S = NOT SUBMITTED.
N/C = SAMPLE AND DUPLICATE RESULTS ARE AT OR BELOW THE REPORTING LIMIT; THEREFORE, THE RPD IS "NOT CALCULABLE" AND NO CONTROL LIMITS APPLY.
N/D = NOT DETECTED.
DISS. OR D = DISSOLVED
T & D = TOTAL AND DISSOLVED
R = REACTIVE
T = TOTAL
G = SAMPLE AND/OR DUPLICATE RESULT IS BELOW 5 X THE REPORTING LIMIT AND THE ABSOLUTE DIFFERENCE BETWEEN THE SAMPLE AND DUPLICATE RESULT IS AT OR BELOW AEN REPORTING LIMIT; THEREFORE, THE RESULTS ARE "IN CONTROL".
Q = THE ANALYTICAL (POST-DIGESTION) SPIKE IS REPORTED DUE TO PERCENT RECOVERY BEING OUTSIDE ACCEPTANCE LIMITS ON THE MATRIX (PRE-DIGESTION) SPIKE.
= ELEVATED REPORTING LIMIT DUE TO INSUFFICIENT SAMPLE.
+ = ELEVATED REPORTING LIMIT DUE TO DILUTION INTO CALIBRATION RANGE.
* = ELEVATED REPORTING LIMIT DUE TO MATRIX INTERFERENCE. (DILUTION PRIOR TO ANALYSIS)
@ = ADJUSTED REPORTING LIMIT DUE TO SAMPLE MATRIX. (DILUTION PRIOR TO DIGESTION)
P = ANALYTICAL (POST DIGESTION) SPIKE.
I = DUPLICATE INJECTION.
& = AUTOMATED
F = SAMPLE SPIKED > 4 X SPIKE CONCENTRATION.
N/C+ = NOT CALCULABLE
N/C* = NOT CALCULABLE; SAMPLE SPIKED > 4 X SPIKE CONCENTRATION.
H = SAMPLE AND/OR DUPLICATE RESULT IS BELOW 5 X AEN REPORTING LIMIT AND THE ABSOLUTE DIFFERENCE BETWEEN THE RESULTS EXCEEDS THE AEN REPORTING LIMIT; THEREFORE, THE RESULTS ARE "OUT OF CONTROL".
A = SAMPLE AND DUPLICATE RESULTS ARE "OUT OF CONTROL".
Z = THE SAMPLE RESULT FOR THE SPIKE IS BELOW THE AEN REPORTING LIMIT. HOWEVER, THIS RESULT IS REPORTED FOR ACCURATE QC CALCULATIONS.
NH= THE RELATIVE PERCENT DIFFERENCE (RPD) EXCEEDS THE AEN CONTROL LIMIT AND IS "OUT OF CONTROL; DUE TO A NON-HOMOGENEOUS SAMPLE MATRIX.
J = (FLORIDA DEP 'J' FLAG) - MATRIX SPIKE AND POST SPIKE RECOVERY IS OUT OF THE ACCEPTABLE RANGE. SEE OUT OF CONTROL EVENTS FORM.
U = (FLORIDA DEP 'U' FLAG) - THE COMPOUND WAS ANALYZED FOR, BUT NOT DETECTED.
S = METHOD OF STANDARD ADDITIONS (MSA) WAS PERFORMED ON THIS SAMPLE.

FROM QUALITY CONTROL REPORT:
RPD= RELATIVE PERCENT DEVIATION.
REPT LIMIT= REPORTING LIMIT BASED ON METHOD DETECTION LIMIT STUDIES.

NOTE: ALL RESULTS REPORTED UNDER 'SAMPLE DUPLICATION' ARE THE MS/MSD.

NOTE: THE UNITS REPORTED ON THE QUALITY CONTROL REPORT ARE REPORTED ON AN AS RUN BASIS. (NOT ADJUSTED FOR DRY WEIGHT).

SW-846, 3rd Edition.
EPA 600/4-79-020, Revised March 1983.
NIOSH Manual of Analytical Methods, 4th Edition.
Standard Methods For the Examination of Water and Wastewater, 18th Edition, 1992.
Methods For the Determination of Metals in Environmental Samples - Supplement I, EPA 600/R-94-111, May 1994.

GJ = GARY JACOBS
JLH = JAMES L. HERED
GSP = GARY ST PERE
JL = JANET LECLEAR

SEVERN TRENT LABORATORIES 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Quality Control Report

Analysis: PESTICIDES (8080)

Accession:	806355
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806421
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	PESTICIDES

SEVERN TRENT LABORATORIES 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"QC Report"

Title: Water Blank
Batch: PSW045
Analysis Method: 8080 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Extraction Method: 3510 / 3660 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.

Blank Id: A Date Analyzed: 07-JUL-98 Date Extracted: 30-JUN-98

Parameters:	Units:	Results:	Reporting Limits:
ALDRIN	UG/L	ND	0.02
ALPHA-BHC	UG/L	ND	0.02
BETA-BHC	UG/L	ND	0.02
DELTA-BHC	UG/L	ND	0.02
GAMMA-BHC (LINDANE)	UG/L	ND	0.02
4,4'-DDD	UG/L	ND	0.02
4,4'-DDE	UG/L	ND	0.02
4,4'-DDT	UG/L	ND	0.02
DIELDRIN	UG/L	ND	0.02
ENDOSULFAN I	UG/L	ND	0.02
ENDOSULFAN II	UG/L	ND	0.02
ENDOSULFAN SULFATE	UG/L	ND	0.02
ENDRIN	UG/L	ND	0.02
ENDRIN ALDEHYDE	UG/L	ND	0.02
HEPTACHLOR	UG/L	ND	0.02
HEPTACHLOR EPOXIDE	UG/L	ND	0.02
METHOXYCHLOR	UG/L	ND	0.02
CHLORDANE	UG/L	ND	0.01
TOXAPHENE	UG/L	ND	0.12
PCB-1016	UG/L	ND	0.04
PCB-1221	UG/L	ND	0.04
PCB-1232	UG/L	ND	0.04
PCB-1242	UG/L	ND	0.04
PCB-1248	UG/L	ND	0.04
PCB-1254	UG/L	ND	0.04
PCB-1260	UG/L	ND	0.04
TCMX	%REC/SURR	99	43-101
DCB	%REC/SURR	78	17-135
ANALYST	INITIALS	RP	

Comments:

SEVERN TRENT LABORATORIES 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"QC Report"

Title: Water LCS
Batch: PSW045
Analysis Method: 8080 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Extraction Method: 3510 / 3660 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.

RS Date Analyzed: 07-JUL-98 RS Date Extracted: 30-JUN-98

Parameters:	Spike Added	Sample Conc	RS Conc	RS %Rec	Rec Lmts
LINDANE	1.00	<0.02	0.75	75	51-118
HEPTACHLOR	1.00	<0.02	0.85	85	70-123
ALDRIN	1.00	<0.02	0.85	85	54-122
DIELDRIN	1.00	<0.02	0.96	96	75-119
ENDRIN	1.00	<0.02	0.95	95	67-122
DDT	1.00	<0.02	1.12	112	59-127
Surrogates:					
DCB				103	17-135
TCMX				77	43-101

Comments:

Notes:
N/S = NOT SUBMITTED N/A = NOT APPLICABLE D = DILUTED OUT
UG/L = PARTS PER BILLION. < = LESS THAN REPORTING LIMIT.
* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS.
SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

"QC Report"

Title: Water Matrix
Batch: PSW045
Analysis Method: 8080 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Extraction Method: 3510 / 3660 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.

Dry Weight %: N/A
Sample Spiked: 806409-02

MS Date Analyzed: 10-JUL-98
MSD Date Analyzed: 10-JUL-98

MS Date Extracted: 01-JUL-98
MSD Date Extracted: 01-JUL-98

Parameters:	Spike Added	Sample Conc	MS Conc	MS %Rec	MSD Conc	MSD %Rec	RPD	RPD Lmts	Rec Lmts
LINDANE	2.00	<0.02	1.63	82	1.70	85	4	27	40-119
HEPTACHLOR	2.00	<0.02	1.88	94	2.00	100	6	30	53-123
ALDRIN	2.00	<0.02	1.93	97	2.06	103	6	31	42-130
DIELDRIN	2.00	<0.02	1.98	99	2.06	103	4	18	61-124
ENDRIN	2.00	<0.02	1.98	99	2.10	105	6	30	50-125
DDT	2.00	<0.02	2.36	118	2.58	129	9	32	25-138
Surrogates:									
DCB				104		113			17-135
TCMX				85		92			43-101

Comments:

Notes:
N/S = NOT SUBMITTED N/A = NOT APPLICABLE D = DILUTED OUT
UG/L = PARTS PER BILLION. < = LESS THAN REPORTING LIMIT.
* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS.
SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

Common notation for Organic reporting

N/S = NOT SUBMITTED
N/A = NOT APPLICABLE
D = DILUTED OUT
UG/L = PARTS PER BILLION.
UG/KG = PARTS PER BILLION.
MG/KG = PARTS PER MILLION.
MG/L = PARTS PER MILLION.
< = LESS THAN.
* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS.
ND = NOT DETECTED ABOVE REPORTING LIMIT.
Rpt Lmts = REPORTING LIMITS BASED ON METHOD DETECTION LIMIT STUDIES.
RPD = RELATIVE PERCENT DIFFERENCE (OR DEVIATION)

SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

ORGANIC SOILS ARE REPORTED ON A DRY WEIGHT BASIS.

AEN-PN USES THE MOST CURRENT PROMULGATED METHODS CONTAINED IN THE REFERENCE MANUALS.

RP = ROBERT PEREZ
LP = LEVERNE PETERSON
RW = ROBERT WOLFE

SEVERN TRENT LABORATORIES 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Quality Control Report

Analysis: POLYNUCLEAR AROMATICS BY 8310

Accession:	806355
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806421
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	SEMI-VOLATILE FUELS

SEVERN TRENT LABORATORIES 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"QC Report"

Title: Water Blank
Batch: PAW145
Analysis Method: 8310/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.

Blank Id: A Date Analyzed: 30-JUN-98 Date Extracted: 29-JUN-98

Parameters:	Units:	Results:	Reporting Limits:
ACENAPHTHENE	UG/L	ND	1
ACENAPHTHYLENE	UG/L	ND	1
ANTHRACENE	UG/L	ND	1
BENZO(a)ANTHRACENE	UG/L	ND	1
BENZO(a)PYRENE	UG/L	ND	0.1
BENZO(b)FLUORANTHENE	UG/L	ND	1
BENZO(g,h,i)PERYLENE	UG/L	ND	1
BENZO(k)FLUORANTHENE	UG/L	ND	1
CHRYSENE	UG/L	ND	1
DIBENZO(a,h)ANTHRACENE	UG/L	ND	1
FLUORANTHENE	UG/L	ND	1
FLUORENE	UG/L	ND	1
INDENO(1,2,3-cd)PYRENE	UG/L	ND	1
NAPHTHALENE	UG/L	ND	1
PHENANTHRENE	UG/L	ND	1
PYRENE	UG/L	ND	1
1-METHYLNAPHTHALENE	UG/L	ND	0.3
2-METHYLNAPHTHALENE	UG/L	ND	1
2-CHLOROANTHRACENE	%REC/SURR	72	28-138
ANALYST	INITIALS	HAH	

Comments:

"QC Report"

Title: Water LCS
Batch: PAW145
Analysis Method: 8310/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.

RS Date Analyzed: 30-JUN-98 RS Date Extracted: 29-JUN-98

Parameters:	Spike Added	Sample Conc	RS Conc	RS %Rec	Rec Lmts
ACENAPHTHYLENE	7.1	<1	3.8	54	45-127
BENZO(k)FLUORANTHENE	9.2	<1	8.6	93	68-131
CHRYSENE	9.1	<1	8.5	93	69-131
PHENANTHRENE	9.1	<1	7.0	77	63-124
PYRENE	8.8	<1	7.0	80	61-126
Surrogates:					
2-CHLOROANTHRACENE				76	28-138

Comments:

Notes:
N/S = NOT SUBMITTED N/A = NOT APPLICABLE D = DILUTED OUT
UG/L = PARTS PER BILLION. < = LESS THAN REPORTING LIMIT.
* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS.
SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

"QC Report"

Title: Water Matrix Spike/Matrix Spike Duplicate
Batch: PAW145
Analysis Method: 8310/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.

Dry Weight %: N/A
Sample Spiked: 806354

MS Date Analyzed: 30-JUN-98
MSD Date Analyzed: 30-JUN-98

MS Date Extracted: 29-JUN-98
MSD Date Extracted: 29-JUN-98

Parameters:	Spike Added	Sample Conc	MS Conc	MS %Rec	MSD Conc	MSD %Rec	RPD	RPD Lmts	Rec Lmts
ACENAPHTHYLENE	7.1	20.6	4.4	-228*	6.1	-204*	11	51	18-146
BENZO(k)FLUORANTHENE	9.2	<1	6.7	73	6.6	72	1	40	26-137
CHRYSENE	9.1	<1	7.1	78	7.2	79	1	69	16-156
PHENANTHRENE	9.1	0.8	6.7	65	7.4	73	12	36	30-145
PYRENE	8.8	<1	7.3	83	7.6	86	4	41	39-137
Surrogates:									
2-CHLOROANTHRACENE				71		80			28-138

Comments:
MATRIX SPIKE/MATRIX SPIKE DUPLICATE HAD RECOVERY(S) AND/OR RPD(S) OUTSIDE ACCEPTANCE LIMITS DUE TO MATRIX INTERFERENCE. REFER TO LCS DATA.

Notes:
N/S = NOT SUBMITTED N/A = NOT APPLICABLE D = DILUTED OUT
UG/L = PARTS PER BILLION. < = LESS THAN REPORTING LIMIT.
* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS.
SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

Common Notation for Organic Reporting

N/S = NOT SUBMITTED
N/A = NOT APPLICABLE
UG = MICROGRAMS
UG/L = PARTS PER BILLION
UG/KG = PARTS PER BILLION
MG/M3 = MILLIGRAM PER CUBIC METER
PPMV = PART PER MILLION BY VOLUME
MG/KG = PARTS PER MILLION
MG/L = PARTS PER MILLION
< = LESS THAN
ND = NOT DETECTED

SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

ORGANIC SOILS ARE REPORTED ON A DRYWEIGHT BASIS.

RPT LMTS = REPORTING LIMITS BASED ON METHOD DETECTION LIMIT STUDIES.

RPD = RELATIVE PERCENT DIFFERENCE (OR DEVIATION)

AEN/GC/FID
AEN GAS CHROMATOGRAPHIC METHOD EMPLOYING DIRECT INJECTION ON COLUMN WITH FLAME IONIZATION DETECTOR (FID).

AEN/GC/FIX
AEN GAS CHROMATOGRAPHIC METHOD FOR ANALYSIS OF FIXED GASES EMPLOYING DIRECT INJECTION ON COLUMN WITH THERMAL CONDUCTIVITY DETECTOR (TCD) AND FLAME IONIZATION DETECTOR (FID).

AEN/GC/FPD
AEN GAS CHROMATOGRAPHIC METHOD EMPLOYING DIRECT INJECTION ON COLUMN WITH FLAME PHOTOMETRIC DETECTOR (FPD) IN SULFUR-SPECIFIC MODE.

AEN/GC/PID
AEN GAS CHROMATOGRAPHIC METHOD EMPLOYING DIRECT INJECTION ON COLUMN WITH PHOTOIONIZATION DETECTOR (PID).

AEN/GC/TCD
AEN GAS CHROMATOGRAPHIC METHOD EMPLOYING DIRECT INJECTION ON COLUMN WITH THERMAL CONDUCTIVITY DETECTOR (TCD).

SW-846 METHOD 9020
PARTICULATE MATTER IS REMOVED BY ALLOWING PARTICULATES TO SETTLE IN THE SAMPLE CONTAINER AND DECANTING THE SUPERNATANT LIQUID. EXCESSIVE PARTICULATES ARE REMOVED BY FILTRATION OF THE SUPERNATANT LIQUID.

RSK 175
SAMPLE PREPARATION AND CALCULATIONS FOR DISSOLVED GAS ANALYSIS IN WATER SAMPLES USING A GC HEADSPACE EQUILIBRATION TECHNIQUE, RSK SOP-175, ROBERT S. KERR ENVIRONMENTAL RESEARCH LABORATORY, USEPA, AUGUST 11, 1994.

AEN-PN USES THE MOST CURRENT PROMULGATED METHODS CONTAINED IN THE REFERENCE MANUALS.

SW = STEVE WILHITE
RW = ROBERT WOLFE
KS = KENDALL SMITH
LB = LISA BIZZELL
LP = LEVERNE PETERSON
PLD = PAULA DOUGHTY
DK = DARLENE KINCHEN
BT = BECKY TREMMEL
HAH = HOLLIE HOFFMAN

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Quality Control Report

Analysis: ACID & BASE EXTRACTABLES (8270)

Accession:	806355
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806421
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	ORGANIC/MS

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"QC Report"

Title: Water Blank
Batch: ALW082
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.

Blank Id: A Date Analyzed: 07-JUL-98 Date Extracted: 30-JUN-98

Parameters:	Units:	Results:	Reporting Limits:
BENZOIC ACID	UG/L	ND	1.7
4-CHLORO-3-METHYLPHENOL	UG/L	ND	0.4
2-CHLOROPHENOL	UG/L	ND	0.5
2,4-DICHLOROPHENOL	UG/L	ND	3.9
2,6-DICHLOROPHENOL	UG/L	ND	0.1
2,4-DIMETHYLPHENOL	UG/L	ND	0.5
4,6-DINITRO-2-METHYLPHENOL	UG/L	ND	1.6
2,4-DINITROPHENOL	UG/L	ND	3.3
2-METHYLPHENOL	UG/L	ND	0.3
4-METHYLPHENOL	UG/L	ND	0.5
2-NITROPHENOL	UG/L	ND	0.4
4-NITROPHENOL	UG/L	ND	0.7
PENTACHLOROPHENOL	UG/L	ND	0.7
PHENOL	UG/L	ND	0.5
2,3,4,6-TETRACHLOROPHENOL	UG/L	ND	0.6
2,4,5-TRICHLOROPHENOL	UG/L	ND	3.0
2,4,6-TRICHLOROPHENOL	UG/L	ND	0.3
ACENAPHTHENE	UG/L	ND	0.4
ACENAPHTHYLENE	UG/L	ND	0.4
ACETOPHENONE	UG/L	ND	0.4
4-AMINOBIPHENYL	UG/L	ND	0.7
ANILINE	UG/L	ND	0.5
ANTHRACENE	UG/L	ND	0.4
BENZIDINE	UG/L	ND	2.7
BENZO (A) ANTHRACENE	UG/L	ND	0.5
BENZO (A) PYRENE	UG/L	ND	0.2
BENZO (B) FLUORANTHENE	UG/L	ND	0.5
BENZO (G,H,I) PERYLENE	UG/L	ND	0.3
BENZO (K) FLUORANTHENE	UG/L	ND	0.7
BENZYL ALCOHOL	UG/L	ND	0.5
BIS(2-CHLOROETHOXY)METHANE	UG/L	ND	0.4
BIS(2-CHLOROETHYL)ETHER	UG/L	ND	0.5
BIS(2-CHLOROISOPROPYL)ETHER	UG/L	ND	1.9
BIS(2-ETHYLHEXYL)PHTHALATE	UG/L	ND	0.6
4-BROMOPHENYL PHENYL ETHER	UG/L	ND	0.4
BUTYLBENZYL PHTHALATE	UG/L	ND	0.5
4-CHLOROANILINE	UG/L	ND	0.4
1-CHLORONAPHTHALENE	UG/L	ND	0.6
2-CHLORONAPHTHALENE	UG/L	ND	0.4
4-CHLOROPHENYL PHENYL ETHER	UG/L	ND	0.5
CHRYSENE	UG/L	ND	0.7
DIBENZ(A,J)ACRIDINE	UG/L	ND	0.5
DIBENZO (A,H) ANTHRACENE	UG/L	ND	0.3
DIBENZOFURAN	UG/L	ND	0.4
1,2-DICHLOROBENZENE	UG/L	ND	0.3
1,3-DICHLOROBENZENE	UG/L	ND	0.3

"QC Report"

Title: Water Blank
Batch: ALW082
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.

Parameters:	Units:	Results:	Reporting Limits:
1,4-DICHLOROBENZENE	UG/L	ND	0.5
3,3'-DICHLOROBENZIDINE	UG/L	ND	0.4
DIETHYLPHTHALATE	UG/L	ND	0.4
P-DIMETHYLAMINOAZOBENZENE	UG/L	ND	0.4
7,12-DIMETHYLBENZ(A)ANTHRACENE	UG/L	ND	1.8
A-,A-DIMETHYLPHENETHYLAMINE	UG/L	ND	0.1
DIMETHYLPHTHALATE	UG/L	ND	0.4
DI-N-BUTYLPHTHALATE	UG/L	ND	0.4
2,4-DINITROTOLUENE	UG/L	ND	0.5
2,6-DINITROTOLUENE	UG/L	ND	0.5
DI-N-OCTYLPHTHALATE	UG/L	ND	0.7
DIPHENYLAMINE	UG/L	ND	0.5
1,2-DIPHENYLHYDRAZINE	UG/L	ND	0.3
FLUORANTHENE	UG/L	ND	0.5
FLUORENE	UG/L	ND	0.6
HEXACHLOROBENZENE	UG/L	ND	0.5
HEXACHLOROBUTADIENE	UG/L	ND	0.5
HEXACHLOROCYCLOPENTADIENE	UG/L	ND	0.6
HEXACHLOROETHANE	UG/L	ND	0.6
INDENO (1,2,3-CD) PYRENE	UG/L	ND	0.5
ISOPHORONE	UG/L	ND	0.4
3-METHYLCHOLANTHRENE	UG/L	ND	0.4
2-METHYLNAPHTHALENE	UG/L	ND	0.5
NAPHTHALENE	UG/L	ND	0.4
1-NAPHTHYLAMINE	UG/L	ND	1.5
2-NAPHTHYLAMINE	UG/L	ND	1.0
2-NITROANILINE	UG/L	ND	0.4
3-NITROANILINE	UG/L	ND	0.9
4-NITROANILINE	UG/L	ND	0.8
NITROBENZENE	UG/L	ND	0.5
N-NITROSODIMETHYLAMINE	UG/L	ND	1.2
N-NITROSODI-N-BUTYLAMINE	UG/L	ND	1.1
N-NITROSODIETHYLAMINE	UG/L*	ND	10
N-NITROSODIPHENYLAMINE	UG/L	ND	0.4
N-NITROSO-DI-N-PROPYLAMINE	UG/L	ND	0.4
N-NITROSOPIPERIDINE	UG/L	ND	0.8
N-NITROSOPYRROLIDINE	UG/L*	ND	10
PENTACHLOROBENZENE	UG/L	ND	0.4
PENTACHLORONITROBENZENE (PCNB)	UG/L	ND	5.0
PHENACETIN	UG/L	ND	0.4
PHENANTHRENE	UG/L	ND	0.4
2-PICOLINE	UG/L	ND	7.7
PRONAMIDE	UG/L	ND	0.4
PYRENE	UG/L	ND	0.5
1,2,4,5-TETRACHLOROBENZENE	UG/L	ND	0.4
1,2,4 TRICHLOROBENZENE	UG/L	ND	0.6
2-FLUOROPHENOL	%REC/SURR	95	21-100

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"QC Report"

Title: Water Blank
Batch: ALW082
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.

Parameters:	Units:	Results:	Reporting Limits:
PHENOL-D6	%REC/SURR	99	10-100
2,4,6-TRIBROMOPHENOL	%REC/SURR	64	10-123
2-FLUOROBIPHENYL	%REC/SURR	85	43-116
NITROBENZENE-D5	%REC/SURR	96	35-114
TERPHENYL-D14	%REC/SURR	103	33-124
ANALYST	INITIALS	RW	

Comments:

"QC Report"

Title: Water LCS
Batch: ALW082
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.

RS Date Analyzed: 07-JUL-98 RS Date Extracted: 30-JUN-98

Parameters:	Spike Added	Sample Conc	RS Conc	RS %Rec	Rec Lmts
PHENOL	150	<0.5	124	83	5-112
2-CHLOROPHENOL	150	<0.5	120	80	40-120
1,4-DICHLOROBENZENE	100	<0.5	72	72	32-119
N-NITRO-DI-N-PROPYLAMINE	100	<0.4	82	82	26-128
1,2,4 TRICHLOROBENZENE	100	<0.6	62	62	44-142
4-CHLORO-3-METHYLPHENOL	150	<0.5	120	80	30-128
ACENAPHTHENE	100	<0.4	76	76	47-145
4-NITROPHENOL	150	<0.7	88	59	1-132
2,4-DINITROTOLUENE	100	<0.5	74	74	39-138
PENTACHLOROPHENOL	150	<0.7	92	61	15-157
PYRENE	100	<0.5	100	100	52-115
Surrogates:					
NITROBENZENE-D5				95	35-114
2-FLUOROBIPHENYL				89	43-116
TERPHENYL-D14				114	33-124
PHENOL-D6				99	10-100
2-FLUOROPHENOL				95	21-100
2,4,6-TRIBROMOPHENOL				80	10-123

Comments:
* NOT ENOUGH SAMPLE SUBMITTED FOR EXTRACTION AND/OR ANALYSIS OF MATRIX SPIKE MATRIX SPIKE DUPLICATE.

Notes:
N/S = NOT SUBMITTED N/A = NOT APPLICABLE D = DILUTED OUT
UG/L = PARTS PER BILLION. < = LESS THAN REPORTING LIMIT.
* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS.
SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

Common notation for Organic reporting

N/S = NOT SUBMITTED
N/A = NOT APPLICABLE
UG/L = PARTS PER BILLION.
UG/KG = PARTS PER BILLION.
MG/KG = PARTS PER MILLION.
MG/L = PARTS PER MILLION.
MG/M3 = MILLIGRAMS PER CUBIC METER.
NG = NANOGRAMS.
UG = MICROGRAMS.
PPBV = PARTS PER BILLION/VOLUME.
< = LESS THAN.
ND = NOT DETECTED ABOVE REPORT LIMIT.
RPT LMTS = REPORTING LIMITS BASED ON METHOD DETECTION LIMIT STUDIES.
RPD = RELATIVE PERCENT DIFFERENCE (OR DEVIATION)

SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

ORGANIC SOILS ARE REPORTED ON A DRY WEIGHT BASIS.

DUE TO THE NATURE OF THE SAMPLE MATRIX, MATRIX SPIKE/MATRIX SPIKE DUPLICATE ANALYSIS CANNOT BE PERFORMED FOR AIR ANALYSIS.

CLP SOW 1991, USEPA CONTRACT LABORATORY PROGRAM, STATEMENT OF WORK FOR ORGANICS ANALYSIS, DOCUMENT NUMBER OLM01.8, AUGUST 1991.

AEN-PN USES THE MOST CURRENT PROMULGATED METHODS CONTAINED IN THE REFERENCE MANUALS.

LP = LEVERNE PETERSON	RW = RITA WINGO
LD = LARRY DILMORE	BDH = BRUCE D. HUNT
DWB = DAVID BOWERS	HB = HEATHER E. BLAIR

American Environmental Network of Florida
PROJECT SAMPLE INSPECTION FORM

Lab Accession #: 806355 Date Received: 25-Jun-98

1.	Was there a Chain of Custody?	(Yes)	No♣		
2.	Was Chain of Custody properly filled out and relinquished?	(Yes)	No♣		
3.	Were samples received cold? (Criteria: 2° - 6°C: AEN-SOP 1055)	(Yes)	No♣	N/A	
4.	Were all samples properly labeled and identified?	(Yes)	No♣		
5.	Did samples require splitting? Req By: PM Client Other♦	Yes♦	(No)		
6.	Were samples received in proper containers for analysis requested?	(Yes)	No♣		
7.	Were all sample containers received intact?	(Yes)	No♣		
8.	Were samples checked for preservative? *(Check pH of all H_2O requiring preservative (AEN-PN SOP 917) except VOA vials that require zero headspace)+*	(Yes)	No♣	N/A	
9.	Is there sufficient volume for analysis requested?	(Yes)	No♣		
10.	Were samples received within Holding Time? (REFER TO AEN-SOP 1040)	Yes	(No♣)		6/25/98
11.	Is Headspace visible > ¼" in diameter in VOA vials?* If any headspace is evident, comment in out-of-control	Yes♣	No	(N/A)	
12.	If sent, were matrix spike bottles returned?	Yes	No♣	(N/A)	
13.	Was Project Manager notified of problems? (initials:_____)	Yes	No♣	(N/A)	

Airbill Number(s): See attached **Shipped By:** FEDEX

Cooler Number(s): 208, 1124, P5100L, P55874 **Shipping Charges:** N/A

Cooler Weight(s): N/A **Cooler Temp(s) (°C):** 208 = 3.0°C - ack

1124 = 3.0°C - ack, P5100L = 2.0°C - ack, P55874 = 3.0°C ack

(LIST THERMOMETER NUMBER(S) FOR VERIFICATION)

Out of Control Events and Inspection Comments:

10a PH received out of hold time. pm 6/25/98

(USE BACK OF PSIFFOR ADDITIONAL NOTES AND COMMENTS) ☞

Inspected By: PM **Date:** 6/25/98 **Logged By:** PM **Date:** 6/25/98

♣ *Note all Out-of-Control and/or questionable events on Comment Section of this form.*

♦ *Note who requested the splitting of samples on the Comment Section of this form.*

\+ *All preservatives for the State of North Carolina, the State of New York, and other requested samples are to be recorded on the sheet provided to record pH results (AEN-SOP 938, section 2.2.9).*

* *According to EPA, ¼" of headspace is allowed in 40 ml vials requiring volatile analysis, however, AEN makes it policy to record any headspace as out-of-control (AEN-SOP 938, section 2.2.12).*

American Environmental Network (NM), Inc.

CHAIN OF CUSTODY

DATE: 6-24-98 PAGE: ___ OF ___

AEN (NM) Accession #: 206355

SHADED AREAS ARE FOR LAB USE ONLY

PLEASE FILL THIS FORM IN COMPLETELY.

PROJECT MANAGER: Paul Peacock

COMPANY: Marathon Oil Company
ADDRESS: P.O. Box 552
Midland, TX 79702-0552
PHONE: (915) 687-8312
FAX: (915) 687-8305

BILL TO: same as above
COMPANY:
ADDRESS:

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	Petroleum Hydrocarbons (418.1) TRPH	(MOD.8015) Diesel/Direct Inject	(M8015) Gas/Purge & Trap	8021 (BTEX)/8015 (Gasoline)	8021 (BTEX) ☐ MTBE ☐ TMB ☐ PCE	8021 (TCL)	8021 (EDX)	8021 (HALO)	8021 (CUST)	504.1 EDB ☐ / DBCP ☐	CANCELED/Arromatics/TRH	8260 (TCL) Volatile Organics	8260 (Full) Volatile Organics	8260 (CUST) Volatile Organics	8260 (Landfill) Volatile Organics	Pesticides /PCB (608/8081)	Herbicides (615/8151)	Base/Neutral/Acid Compounds GC/MS (625/8270)	Polynuclear Aromatics (610/8310)	General Chemistry:	* SEE LIST	* TOTAL PHENOLS	Priority Pollutant Metals (13)	Target Analyte List Metals (23)	RCRA Metals (8)	RCRA Metals by TCLP (Method 1311)	Metals: * SEE LIST	NUMBER OF CONTAINERS
MW-59	6-24-98	0915	H2O												X					X		X	X		X	X				X	3
MW-74	↓	1130	↓												X					X		X	X		X	X				X	3
MW-67		1415													X					X		X	X		X	X				X	3
SW-02	↓	1430	↓												X					X		X	X		X	X				X	3

PROJECT INFORMATION

PROJ. NO.: 104332.03
PROJ. NAME: IBRP
P.O. NO.:
SHIPPED VIA:

SAMPLE RECEIPT

NO. CONTAINERS:
CUSTODY SEALS: Y/N/NA
RECEIVED INTACT: Y/N/NA
BLUE ICE/ICE: Y/N/NA

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

(RUSH) ☐ 24hr ☐ 48hr ☐ 72hr ☐ 1 WEEK (NORMAL) ☒

CERTIFICATION REQUIRED: ☐ NM ☐ SDWA ☐ OTHER

METHANOL PRESERVATION ☐

COMMENTS: FIXED FEE ☐
MW-59, 74, & 67 Product Wells

RELINQUISHED BY: 1

Signature: Time: 1500
Printed Name: Charles Madewell Date: 6-24-98
Company: FDGE

RELINQUISHED BY: 2

Signature: Time: 1530
Printed Name: CHARLES FAIM Date: 6/24
Company: AEN

RECEIVED BY: 1

Signature: Time: 1500
Printed Name: CHARLES FAIM Date: 6/24
Company: AEN

RECEIVED BY (LAB): 2

Signature: Time: 08:47
Printed Name: K. KASPERMAN Date: 6/25/98
Company: American Environmental Network (NM), Inc.

American Environmental Network (NM), Inc.

CHAIN OF CUSTODY

DATE: 6-24-98 PAGE: ___ OF ___

AEN(NM) ACCESSION #: [illegible]

SHADED AREAS ARE FOR LAB USE ONLY.

PLEASE FILL THIS FORM IN COMPLETELY.

PROJECT MANAGER:	Paul Peacock
COMPANY:	Marathon Oil Company
ADDRESS:	P.O. Box 552
	Midland, TX 79702-0552
PHONE:	(915) 687-8312
FAX:	(915) 687-8305
BILL TO:	same as above
COMPANY:	
ADDRESS:	

LAB ID	SAMPLE ID	DATE	TIME	MATRIX	Petroleum Hydrocarbons (418.1) TRPH	(MOD.8015) Diesel/Direct Inject	(M8015) Gas/Purge & Trap	8021 (BTEX)/8015 (Gasoline)	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)	Herbicides (615/8151)	Base/Neutral/Acid Compounds GC/MS (625/8270)	Polynuclear Aromatics (610/8310)	General Chemistry:			Priority Pollutant Metals (13)	Target Analyte List Metals (23)	RCRA Metals (8)	RCRA Metals by TCLP (Method 1311)	Metals:			NUMBER OF CONTAINERS
01	MW-59	6-24-98	0915	H_2O									X	X		X																	6
02	MW-74	↓	1130	↓									X	X		X																	6
03	MW-67		1415										X	X		X																	6
04	SW-02		1430										X	X		X																	6
05	Trip Blank	6/17	1440	AQ												X																	1

ANALYSIS REQUEST

PROJECT INFORMATION	
PROJ. NO.:	104332.03
PROJ. NAME:	IBRP
P.O. NO.:	
SHIPPED VIA:	

SAMPLE RECEIPT	
NO. CONTAINERS	25
CUSTODY SEALS	(Y) N / NA
RECEIVED INTACT	Y (N)
BLUE ICE (ICE)	5.3°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 ☐

MW-59, 74, 67 Product wells

RELINQUISHED BY: 1.	RELINQUISHED BY: 2.
Signature: [signature] Time: 1500	Signature: [signature] Time: 1530
Printed Name: Charles Mudeud Date: 6/24-98	Printed Name: Chris Faith Date: 6/24
Company: FDGTI	Company: AEN
RECEIVED BY: 1.	**RECEIVED BY: (LAB) 2.**
Signature: [signature] Time: 1500	Signature: [signature] Time: 11:45
Printed Name: Chris Faith Date: 6/24	Printed Name: Lorraine Torivio Date: 6/27/98
Company: AEN	American Environmental Network (NM), Inc.

DISTRIBUTION: White - AEN, Canary - Originator

RECEIV

AEN I.D. 806421

July 30, 1998

MARATHON OIL COMPANY
P.O. BOX 552
MIDLAND, TX 79702-0552

Project Name IBRP
Project Number 104332.03

Attention: PAUL PEACOCK

On 6/27/98 American Environmental Network (NM), Inc. (ADHS License No. AZ0015), 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.

This report is being reissued in part to include the radiochemistry results. This report was originally dated 7/28/98. Radiochemistry was performed by STL, Morrisville, NC.

EPA methods 504.1, 8021 and 8260 were performed by American Environmental Network (NM) Inc., Albuquerque, NM.

Uranium was performed by North Creek Analytical, Portland, OR.

All other parameters were performed by STL, Pensacola, FL.

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	: MARATHON OIL COMPANY	AEN I.D.	: 806421
PROJECT #	: 104332.03	DATE RECEIVED	: 6/27/98
PROJECT NAME	: IBRP	REPORT DATE	: 7/28/98

AEN ID. #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	MW-59	AQUEOUS	6/24/98
02	MW-74	AQUEOUS	6/24/98
03	MW-67	AQUEOUS	6/24/98
04	SW-02	AQUEOUS	6/24/98
05	TRIP BLANK	AQUEOUS	6/17/98



Committed To *Your* Success

Severn Trent Laboratories
120 Southcenter Court, Suite 300
Morrisville NC 27560

Tel: (919) 460-8505
Fax: (919) 469-2646

July 29, 1998

American Environmental Network
Attn: Dr. Mitch Rubenstein
2709D PanAmerican Freeway NE
Albuquerque, NM 87107

Dear Dr. Rubenstein:

Please find enclosed the radiological results of four (4) water samples. This report contains sections addressing the following information at a minimum:

- case narrative
- sample summary
- analytical results (forms I thru VII), key, and COC's if applicable

STL Project #s:	2399-019
STL Work Order #s:	28-06-412
Client Project ID:	104332-03

Copies of this radiological report and supporting data are maintained in our files for a minimum of three years unless special arrangements have been made. Except where specifically indicated, all radiological testing was performed at this laboratory location and no portion of the testing was subcontracted.

We appreciate your selection of our services and welcome any questions or suggestions you may have relative to this report. Please contact your customer service representative at (919) 460-8505 for any additional information. Thank you for utilizing our services. We hope you will consider us for your future analytical needs.

I have reviewed and approved the enclosed data for final release.

Sincerely,

Ross W. Williams

Ross W. Williams, Ph.D.
Manager, Radiological Laboratory
STL-North Carolina

RWW/mevl

Committed To *Your* Success

CASE NARRATIVE
Client: American Environmental Network - NM
Client Project ID: 104332.03
STL-NC Order Number: 98-06-412
STL-NC Project Number: 2399-019

Four (4) water samples were received on June 26, 1998, in good condition with the chain-of-custody intact.

The samples were analyzed for Ra-226 and Ra-228.

A method blank was analyzed with each batch, and the activities of the blanks were equal to or less than the acceptance criteria of less than three times the MDL.

A blank spike sample was analyzed with each batch, and the recoveries were within the 80-120% acceptance criteria.

A matrix spike analysis was made with each batch also. The matrix spike recoveries were within the acceptance criteria of 80-120% for water samples.

A duplicate sample was analyzed for each batch. The duplicate analyses were within our acceptance criteria of a Duplicate Error Ratio (DER) of less than 1.5. The DER is defined as follows:

$$DER = \frac{|S-D|}{(2\sigma_s + 2\sigma_d)}$$

Where: S = Original Sample Value
D = Duplicate Value
$2\sigma_s$ = Original Sample Uncertainty
$2\sigma_d$ = Duplicate Sample Uncertainty

Ross W. Williams, Ph.D.
Manager, Radiological Laboratory
7/29/98

STL

Environmental Survey

Cover Page

Radiological Data Analysis Package

07/28/98

120 Southcenter Ct., Suite 300
Morrisville, NC 27560

Phone (919) 460-8505
Fax (919) 469-2646

NC - 806421

Project Number: 2399-019

Client Sample ID	Lab ID
MW-59	9806412-01
MW-74	9806412-02
MW-67	9806412-03
SW-02	9806412-04

Comments: _____

Release of the data contained in this package has been authorized by the laboratory manager or the manager's designee, as verified by the following signature.

Ross W. Williams
Manager, Radiological Laboratory

7/29/98
Date

STL

Project Number: 2399-019

Severn Trent Laboratories

Radiological Analysis Results

NC - 806421

07/28/98

Form I

Client Sample ID	Lab ID	Sample Type	Batch Number	Matrix	Radionuclide	Result	Uncertainty	Q	Units	Analysis Date	Sample Size	MDA
MW-59	9806412-01	Reg	98070007	Water	Ra-226	1.36	0.22		pCi/L	07/24/98	0.5000	0.09
MW-59	9806412-01	Reg	98070009	Water	Ra-228	1.42	1.14		pCi/L	07/15/98	1.0000	2.55
MW-74	9806412-02	Reg	98070007	Water	Ra-226	1.20	0.20		pCi/L	07/24/98	0.5000	0.06
MW-74	9806412-02	Reg	98070009	Water	Ra-228	16.96	3.62		pCi/L	07/15/98	1.0000	5.89
MW-67	9806412-03	Reg	98070007	Water	Ra-226	1.09	0.26		pCi/L	07/24/98	0.5000	0.15
MW-67	9806412-03	Reg	98070009	Water	Ra-228	1.89	0.76		pCi/L	07/15/98	1.0000	1.45
SW-02	9806412-04	Reg	98070007	Water	Ra-226	-0.87	0.16		pCi/L	07/27/98	0.5000	0.26
SW-02	9806412-04	Reg	98070009	Water	Ra-228	0.35	0.79		pCi/L	07/15/98	1.0000	1.86

Key shall be attached

Comments: _____

MDA mode

Form II

Client Sample ID	Lab ID	Sample Type	Batch Number	Matrix	Radionuclide	Result	Uncertainty	Units	Analysis Date	Sample Size	MDA	Inst ID
Blank Spike	N/A	BS	98070007	Water	Ra-226	136.19	1.49	pCi/L	07/20/98	0.5000	0.08	5
Blank Spike	N/A	BS	98070009	Water	Ra-228	93.02	3.84	pCi/L	07/10/98	1.0000	2.07	1
MW-54	9806501-01	Dup	98070007	Water	Ra-226	8.89	0.56	pCi/L	07/24/98	0.5000	0.13	5
MW-54	9806501-01	Dup	98070009	Water	Ra-228	7.29	1.19	pCi/L	07/15/98	1.0000	1.88	1
Method Blank	N/A	MB	98070007	Water	Ra-226	0.06	0.07	pCi/L	07/20/98	0.5000	0.09	5
Method Blank	N/A	MB	98070009	Water	Ra-228	-0.90	1.09	pCi/L	07/10/98	1.0000	2.76	1
MW-55	9806501-02	MS	98070007	Water	Ra-226	124.17	2.15	pCi/L	07/24/98	0.5000	0.17	5
MW-55	9806501-02	MS	98070009	Water	Ra-228	106.93	3.72	pCi/L	07/15/98	1.0000	1.76	1

Key shall be attached

Comments: _____

_____

_____

MDA mode

Form . III

Client Sample ID	Batch Number	Matrix	Radionuclide	Result	Uncertainty	Q	Units	Analysis Date	Sample Size	Method Number	Inst ID
Method Blank	98070007	Water	Ra-226	0.06	0.07		pCi/L	07/20/98	0.5000	RAS01900	5
Method Blank	98070009	Water	Ra-228	-0.90	1.09		pCi/L	07/10/98	1.0000	RAS08500	1

Key shall be attached

Comments: _____

_____

_____

MDA mode

Project Number: 2399-019

Chemical Recovery

NC - 806421

07/28/98

Form IV

Client Sample ID	Lab ID	Sample Type	Batch Number	Radionuclide	Chemical Tracer	Tracer Result	Tracer Added	Percent Recovery	Q	Tracer Units	Analysis Date	Inst ID
MW-59	9806412-01	Reg	98070007	Ra-226	Ba-133	1105.00	1240.00	89.11 %		pCi	07/24/98	5
MW-59	9806412-01	Reg	98070009	Ra-228	Ba-133	978.00	1309.00	74.71 %		pCi	07/15/98	1
MW-74	9806412-02	Reg	98070007	Ra-226	Ba-133	1050.00	1258.00	83.47 %		pCi	07/24/98	5
MW-74	9806412-02	Reg	98070009	Ra-228	Ba-133	298.40	1260.00	23.68 %		pCi	07/15/98	1
MW-67	9806412-03	Reg	98070007	Ra-226	Ba-133	1172.00	1240.00	94.52 %		pCi	07/24/98	5
MW-67	9806412-03	Reg	98070009	Ra-228	Ba-133	1091.00	1309.00	83.35 %		pCi	07/15/98	1
SW-02	9806412-04	Reg	98070007	Ra-226	Ba-133	1119.00	1240.00	90.24 %		pCi	07/27/98	5
SW-02	9806412-04	Reg	98070009	Ra-228	Ba-133	1027.00	1260.00	81.51 %		pCi	07/15/98	1
Blank Spike	N/A	BS	98070007	Ra-226	Ba-133	1234.00	1260.00	97.94 %		pCi	07/20/98	5
Blank Spike	N/A	BS	98070009	Ra-228	Ba-133	1020.00	1260.00	80.95 %		pCi	07/10/98	1
MW-54	9806501-01	Dup	98070007	Ra-226	Ba-133	994.00	1258.00	79.01 %		pCi	07/24/98	5
MW-54	9806501-01	Dup	98070009	Ra-228	Ba-133	1188.00	1309.00	90.76 %		pCi	07/15/98	1
Method Blank	N/A	MB	98070007	Ra-226	Ba-133	1244.00	1260.00	98.73 %		pCi	07/20/98	5
Method Blank	N/A	MB	98070009	Ra-228	Ba-133	1083.00	1309.00	82.73 %		pCi	07/10/98	1
MW-55	9806501-02	MS	98070007	Ra-226	Ba-133	1172.00	1258.00	93.16 %		pCi	07/24/98	5
MW-55	9806501-02	MS	98070009	Ra-228	Ba-133	1030.00	1260.00	81.75 %		pCi	07/15/98	1

Key shall be attached

Comments: _____

_____

_____

MDA mode

STL

Severn Trent Laboratories

Project Number: 2399-019

Blank Spike Results Summary

NC - 806421

07/28/98

Form V

Client Sample ID	Batch Number	Matrix	Radionuclide	Spike	Result	Spike Value	Percent Recovery	Q	Units	Analysis Date	Method Number
Blank Spike	98070007	Water	Ra-226	Ra-226	136.19	145.40	93.67%		pCi/L	07/20/98	RAS01900
Blank Spike	98070009	Water	Ra-228	Ra-228	93.02	87.75	106.01%		pCi/L	07/10/98	RAS08500

Key shall be attached

Comments: _____

_____

_____

Project Number: 2399-019

Matrix Spike Results Summary

NC - 806421

07/28/98

Form VI

Client Sample ID	Lab ID	Batch Number	Spike	SSR	Sample Result	Spike Added	Percent Recovery	Q	Units	Analysis Date	Inst ID
MW-55	9806501-02	98070007	Ra-226	124.17	6.74	145.40	80.76 %		pCi/L	07/24/98	5
MW-55	9806501-02	98070009	Ra-228	106.93	3.21	87.75	118.20 %		pCi/L	07/15/98	1

Key shall be attached

Comments: _____

MDA mode

STL

Project Number: 2399-019

Severn Trent Laboratories

Duplicate Results

NC - 806421

07/28/98

Form VII

Client Sample ID	Lab ID	Batch Number	Radionuclide	Sample Result	Uncertainty	Dup. Result	Dup. Uncertainty	DER	Q	Units
MW-54	9806501-01	98070007	Ra-226	10.45	0.49	8.89	0.56	1.49		pCi/L
MW-54	9806501-01	98070009	Ra-228	6.60	1.12	7.29	1.19	0.30		pCi/L

Key shall be attached

Comments: _____

_____

_____

MDA mod

Committed To *Your* Success

REPORT FORM KEY

Severn Trent Laboratories
120 Southcenter Court, Suite 300
Morrisville NC 27560

Tel: (919) 460-8505
Fax: (919) 469-2646

Instrument ID:

#1 - Gas Proportional Counter
#2 - High Purity Germanium Detectors (HPGe)
#3 - Alpha Spectrometry Counter
#4 - Liquid Scintillation Counter
#5 - Lucas Cell Counter
#6 - Sodium Iodide Detector

Sample Type:

REG - Regular Sample
DUP - Duplicate Sample
MS - Matrix Spike
BS - Blank Spike
MB - Method Blank

Units:

pCi/L - Picocuries per Liter
pCi/g - Picocuries per Gram
pCi/ml - Picocuries per Milliliter
pCi/mg - Picocuries per Milligram
pCi/F - Picocuries per Air Filter

Radionuclides:

H-3	Tritium	C-14	Carbon-14
Cl-36	Chlorine-36	K-40	Potassium-40
Co-60	Cobalt-60	Sr-89	Strontium-89
Sr-90	Strontium-90	Tc-99	Technetium-99
Cs-137	Cesium-137	Tl-208	Thallium-208
Pb-210	Lead-210	Pb-212	Lead-212
Pb-214	Lead-214	Bi-214	Bismuth-214
Ra-226	Radium-226	Ac-228	Actinium-228
Ra-228	Radium-228	Th-234	Thorium-234
Th-227	Thorium-227	Th-232/230/228	Isotopic Thorium
U-234/235/238	Isotopic Uranium	Pu-238	Plutonium-238
Pu-239/240	Plutonium-239&240	Am-241	Americium-241
Np-237	Neptunium-237		

WORK ORDER

Lab

Work Order #	98-06-412	# of Samples	4	Recieved Date	06/26/98	American Environ. Network
Client #	2399	# of Tests	8	Load Date	06/26/98	2709D PanAmerican Freeway NE
Project	2399-019	Report Level	2	Due Date	07/14/98	Albuquerque, NM 87107
Amount	123.25	Quote #		Export Date	/ /	Mitch Rubenstein
Comment						

Lab ID	Sample #	Status	Matrix	Test	Cust ID	Collected
9806412-01	01A1	Open	Water	Ra-226	MW-59	06/24/98
9806412-01	01A2	Open	Water	Ra-228	MW-59	06/24/98
9806412-02	02A1	Open	Water	Ra-226	MW-74	06/24/98
9806412-02	02A2	Open	Water	Ra-228	MW-74	06/24/98
9806412-03	03A1	Open	Water	Ra-226	MW-67	06/24/98
9806412-03	03A2	Open	Water	Ra-228	MW-67	06/24/98
9806412-04	04A1	Open	Water	Ra-226	SW-02	06/24/98
9806412-04	04A2	Open	Water	Ra-228	SW-02	06/24/98

pH Checked
All Samples pH <2
Initials: RB Date: 6/29/98

American Environmental Network (NM), Inc.

CHAIN OF CUSTODY

DATE: 6-24-98 PAGE: 1 OF ____

AEN(NM) Accession #: [illegible]

SHADED AREAS ARE FOR LAB USE ONLY

PROJECT MANAGER: Paul Peacock

COMPANY: Marathon Oil Company
ADDRESS: P.O. Box 552
Midland, TX 79702-0552
PHONE: (915) 687-8312
FAX: (915) 687-8305

BILL TO: same as above
COMPANY:
ADDRESS:

SAMPLE ID	DATE	TIME	MATRIX	LAB ID
MW-59	6-24-98	0915	H2O	
MW-74	↓	1130	↓	
MW-67		1415		
SW-02		1430		

ANALYSIS REQUEST

Petroleum Hydrocarbons (418.1) TRPH	(MOD.8015) Diesel/Direct Inject	(M8015) Gas/Purge & Trap	8021 (BTEX)/8015 (Gasoline)	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)	Herbicides (615/8151)	Base/Neutral/Acid Compounds GC/MS (625/8270)	Polynuclear Aromatics (610/8310)	General Chemistry:	226/228		Priority Pollutant Metals (13)	Target Analyte List Metals (23)	RCRA Metals (8)	RCRA Metals by TCLP (Method 1311)	Metals:		NUMBER OF CONTAINERS
																			X	X								1
																			X	X								1
																			X	X								1
																			X	X								1

PLEASE FILL THIS FORM IN COMPLETELY.

PROJECT INFORMATION

PROJ. NO.: 104332.03
PROJ. NAME: IBRP
P.O. NO.:
SHIPPED VIA:

SAMPLE RECEIPT

NO. CONTAINERS:
CUSTODY SEAL: Y / N / N.A.
RECEIVED INTACT:
BLUE ICE/ICE:

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

(RUSH) ☐ 24hr ☐ 48hr ☐ 72hr ☐ 1 WEEK (NORMAL) X

CERTIFICATION REQUIRED: ☐ NM ☐ SDWA ☐ OTHER

METHANOL PRESERVATION ☐

COMMENTS: FIXED FEE ☐

MW-59, 74, 67 Product Wells

RELINQUISHED BY: 1

Signature: [signature] Time: 1500
Printed Name: Charles Modewell Date: 6-24-98
Company: FDGTI

RECEIVED BY: 1

Signature: [signature] Time: 1500
Printed Name: CHAIS FAIRY Date: 6/24
Company: AEN

RELINQUISHED BY: 2

Signature: [signature] Time: 1530
Printed Name: CHAIS FAIRY Date: 6/24
Company: AEN

RECEIVED BY: (LAB) 2

Signature: [signature] Time: 1100A
Printed Name: [illegible] Date: 6-25-98
American Environmental Network (NM), Inc.

1/5/98 AEN Inc.: American Environmental Network (NM), Inc. • 2709-D Pan American Freeway, NE • Albuquerque, New Mexico 87107 • (505) 344-3777 • Fax (505) 344-4413

DISTRIBUTION: White - AEN, Canary - Originator

RECEIVED

AEN I.D. 806422

July 28, 1998

MARATHON OIL COMPANY
P.O. BOX 552
MIDLAND, TX 79702-0552

Project Name IBRP
Project Number 104332.03

Attention: PAUL PEACOCK

On 6/27/98 American Environmental Network (NM), Inc. (ADHS License No. AZ0015), 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.

Radiochemistry results (Ra 226/228) will follow in a separate report.

EPA methods 504.1, 8021 and 8260 were performed by American Environmental Network (NM) Inc., Albuquerque, NM.

Uranium was performed by North Creek Analytical, Portland, OR.

All other parameters were performed by STL, Pensacola, FL.

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	: MARATHON OIL COMPANY	AEN I.D.	: 806422
PROJECT #	: 104332.03	DATE RECEIVED	: 6/27/98
PROJECT NAME	: IBRP	REPORT DATE	: 7/28/98

AEN ID. #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	SW-03	AQUEOUS	6/24/98
02	MW-83	AQUEOUS	6/25/98
03	MW-82	AQUEOUS	6/25/98
04	MW-65A	AQUEOUS	6/25/98
05	TRIP BLANK	AQUEOUS	6/17/98

GAS CHROMOTOGRAPHY RESULTS

TEST : ETHYLENE DIBROMIDE (EPA 504.1)
CLIENT : MARATHON OIL COMPANY AEN I.D.: 806422
PROJECT # : 104332.03
PROJECT NAME : IBRP

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
01	SW-03	AQUEOUS	6/24/98	7/2/98	7/2/98	1
02	MW-83	AQUEOUS	6/25/98	7/2/98	7/2/98	1
03	MW-82	AQUEOUS	6/25/98	7/2/98	7/2/98	1

PARAMETER	DET. LIMIT	UNITS	01	02	03
ETHYLENE DIBROMIDE	0.01	UG/L	< 0.01	< 0.01	< 0.01
SURROGATE:					
1,4-DICHLOROBENZENE			81	81	76
SURROGATE LIMITS	(75 - 141)				

CHEMIST NOTES:
N/A

GAS CHROMOTOGRAPHY RESULTS

TEST : ETHYLENE DIBROMIDE (EPA 504.1)
CLIENT : MARATHON OIL COMPANY AEN I.D.: 806422
PROJECT # : 104332.03
PROJECT NAME : IBRP

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
04	MW-65A	AQUEOUS	6/25/98	7/2/98	7/2/98	1

PARAMETER	DET. LIMIT	UNITS	04
ETHYLENE DIBROMIDE	0.01	UG/L	< 0.01

SURROGATE:
1,4-DICHLOROBENZENE 79
SURROGATE LIMITS (75 - 141)

CHEMIST NOTES:
N/A

GAS CHROMOTOGRAPHY RESULTS
REAGENT BLANK

TEST	: ETHYLENE DIBROMIDE (EPA 504.1)		
BLANK I.D.	: 070298A	AEN I.D.	: 806422
CLIENT	: MARATHON OIL COMPANY	MATRIX	: AQUEOUS
PROJECT #	: 104332.03	DATE EXTRACTED	: 7/2/98
PROJECT NAME	: IBRP	DATE ANALYZED	: 7/2/98

PARAMETER	DET. LIMIT	UNITS	
ETHYLENE DIBROMIDE	0.01	UG/L	<0.01

SURROGATE:		
1,4-DICHLOROBENZENE		81
SURROGATE LIMITS	(78 - 140)	

CHEMIST NOTES:
N/A

GAS CHROMOTOGRAPHY RESULTS
QUALITY CONTROL
MSMSD

TEST	: ETHYLENE DIBROMIDE (EPA 504.1)		
MSMSD #	: 070298A	AEN I.D.	: 806422
CLIENT	: MARATHON OIL COMPANY	DATE EXTRACTED	: 7/2/98
PROJECT #	: 104332.03	DATE ANALYZED	: 7/2/98
PROJECT NAME	: IBRP	MATRIX	: AQUEOUS
		UNITS	: UG/L

PARAMETER	SAMPLE RESULT	CONC. SPIKE	SPIKED SAMPLE	% REC	DUP SPIKE	DUP % REC	% RPD
ETHYLENE DIBROMIDE	<0.01	0.25	0.22	88%	0.25	100%	13%

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 CHROMOTOGRAPHY RESULTS

TEST : PURGEABLE HALOCARBONS / AROMATICS (EPA 8021)
CLIENT : MARATHON OIL COMPANY AEN I.D.: 806422
PROJECT # : 104332.03
PROJECT NAME : IBRP

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
01	SW-03	AQUEOUS	6/24/98	NA	6/30/98	1
02	MW-83	AQUEOUS	6/25/98	NA	6/30/98	5
03	MW-82	AQUEOUS	6/25/98	NA	7/1/98	5

PARAMETER	DET. LIMIT	UNITS	01	02	03
TETRACHLOROETHENE	0.5	UG/L	< 0.5	< 2.5	< 2.5
VINYL CHLORIDE	0.5	UG/L	< 0.5	< 2.5	< 2.5
SURROGATE:					
BROMOCHLOROMETHANE (%)			102	102	99
SURROGATE LIMITS	(73 - 117)				

CHEMIST NOTES:
N/A

GAS CHROMOTOGRAPHY RESULTS

TEST : PURGEABLE HALOCARBONS / AROMATICS (EPA 8021)
CLIENT : MARATHON OIL COMPANY AEN I.D.: 806422
PROJECT # : 104332.03
PROJECT NAME : IBRP

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
04	MW-65A	AQUEOUS	6/25/98	NA	7/1/98	5

PARAMETER	DET. LIMIT	UNITS	04
TETRACHLOROETHENE	0.5	UG/L	< 2.5
VINYL CHLORIDE	0.5	UG/L	< 2.5
SURROGATE:			
BROMOCHLOROMETHANE (%)			106
SURROGATE LIMITS	(73 - 117)		

CHEMIST NOTES:
N/A

GAS CHROMOTOGRAPHY RESULTS

REAGENT BLANK

TEST	: PURGEABLE HALOCARBONS / AROMATICS (EPA 8021)		
BLANK I.D.	: 063098	AEN I.D.	: 806422
CLIENT	: MARATHON OIL COMPANY	DATE EXTRACTED	: N/A
PROJECT #	: 104332.03	DATE ANALYZED	: 6/30/98
PROJECT NAME	: IBRP	SAMPLE MATRIX	: AQUEOUS

PARAMETER	UNITS	
CHLOROBENZENE	UG/L	<0.5
1,1-DICHLOROETHENE	UG/L	<0.2
TETRACHLOROETHENE	UG/L	<0.5
TRICHLOROETHENE	UG/L	<0.3
VINYL CHLORIDE	UG/L	<0.5

SURROGATE:

BROMOCHLOROMETHANE (%)		98
SURROGATE LIMITS	(73 - 117)	

CHEMIST NOTES:

N/A

GAS CHROMOTOGRAPHY RESULTS
REAGENT BLANK

TEST	: PURGEABLE HALOCARBONS / AROMATICS (EPA 8021)		
BLANK I.D.	: 070198	AEN I.D.	: 806422
CLIENT	: MARATHON OIL COMPANY	DATE EXTRACTED	: N/A
PROJECT #	: 104332.03	DATE ANALYZED	: 7/1/98
PROJECT NAME	: IBRP	SAMPLE MATRIX	: AQUEOUS

PARAMETER	UNITS	
CHLOROBENZENE	UG/L	<0.5
1,1-DICHLOROETHENE	UG/L	<0.2
TETRACHLOROETHENE	UG/L	<0.5
TRICHLOROETHENE	UG/L	<0.3
VINYL CHLORIDE	UG/L	<0.5
SURROGATE:		
BROMOCHLOROMETHANE (%)		105
SURROGATE LIMITS	(73 - 117)	

CHEMIST NOTES:
N/A

GAS CHROMOTOGRAPHY QUALITY CONTROL
MSMSD

TEST	: PURGEABLE HALOCARBONS / AROMATICS (EPA 8021)		
MSMSD #	: 806422-01	AEN I.D.	: 806422
CLIENT	: MARATHON OIL COMPANY	DATE EXTRACTED	: N/A
PROJECT #	: 104332.03	DATE ANALYZED	: 6/30/98
PROJECT NAME	: IBRP	SAMPLE MATRIX	: AQUEOUS
		UNITS	: UG/L

PARAMETER	SAMPLE RESULT	CONC SPIKE	SPIKED SAMPLE	% REC	DUP SPIKE	DUP % REC	RPD	REC LIMITS	RPD LIMITS
1,1-DICHLOROETHENE	<0.2	10.0	6.3	63	7.5	75	17	(44 - 99)	20
TRICHLOROETHENE	<0.3	10.0	10.6	106	9.9	99	7	(89 - 127)	20
CHLOROBENZENE	<0.5	10.0	10.3	103	9.6	96	7	(87 - 124)	20

CHEMIST NOTES:
N/A

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

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

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806422
PROJECT #	: 104332.03	DATE RECEIVED :	6/27/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806422-01	SW-03	AQUEOUS	6/24/98	N/A	06/30/98	1

PARAMETER	DET. LIMIT		UNITS
Dichlorodifluoromethane	1.0	< 1.0	ug/L
Chloromethane	1.0	< 1.0	ug/L
Vinyl Chloride	1.0	< 1.0	ug/L
Bromomethane	1.0	< 1.0	ug/L
Chloroethane	1.0	< 1.0	ug/L
Trichlorofluoromethane	1.0	< 1.0	ug/L
Acetone	10	< 10	ug/L
Acrolein	5.0	< 5.0	ug/L
1,1-Dichloroethene	1.0	< 1.0	ug/L
Iodomethane	1.0	< 1.0	ug/L
Methylene Chloride	1.0	< 1.0	ug/L
Acrylonitrile	5.0	< 5.0	ug/L
cis-1,2-Dichloroethene	1.0	< 1.0	ug/L
Methyl-t-butyl Ether	1.0	< 1.0	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 1.0	ug/L
1,1-Dichloroethane	1.0	< 1.0	ug/L
trans-1,2-Dichloroethene	1.0	< 1.0	ug/L
2-Butanone	10	< 10	ug/L
Carbon Disulfide	1.0	< 1.0	ug/L
Bromochloromethane	1.0	< 1.0	ug/L
Chloroform	1.0	< 1.0	ug/L
2,2-Dichloropropane	1.0	< 1.0	ug/L
1,2-Dichloroethane	1.0	< 1.0	ug/L
Vinyl Acetate	1.0	< 1.0	ug/L
1,1,1-Trichloroethane	1.0	< 1.0	ug/L
1,1-Dichloropropene	1.0	< 1.0	ug/L
Carbon Tetrachloride	1.0	< 1.0	ug/L
Benzene	1.0	< 1.0	ug/L
1,2-Dichloropropane	1.0	< 1.0	ug/L
Trichloroethene	1.0	< 1.0	ug/L
Bromodichloromethane	1.0	< 1.0	ug/L
2-Chloroethyl Vinyl Ether	10	< 10	ug/L
cis-1,3-Dichloropropene	1.0	< 1.0	ug/L
trans-1,3-Dichloropropene	1.0	< 1.0	ug/L
1,1,2-Trichloroethane	1.0	< 1.0	ug/L
1,3-Dichloropropane	1.0	< 1.0	ug/L
Dibromomethane	1.0	< 1.0	ug/L
Toluene	1.0	< 1.0	ug/L
1,2-Dibromoethane	1.0	< 1.0	ug/L
4-Methyl-2-Pentanone	10	< 10	ug/L
2-Hexanone	10	< 10	ug/L
Dibromochloromethane	1.0	< 1.0	ug/L
Tetrachloroethene	1.0	< 1.0	ug/L
Chlorobenzene	1.0	< 1.0	ug/L
Ethylbenzene	1.0	< 1.0	ug/L
1,1,1,2-Tetrachloroethane	1.0	< 1.0	ug/L
m&p Xylenes	1.0	< 1.0	ug/L

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806422
PROJECT #	: 104332.03	DATE RECEIVED :	6/27/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806422-01	SW-03	AQUEOUS	6/24/98	N/A	06/30/98	1

PARAMETER	DET. LIMIT		UNITS
o-Xylene	1.0	< 1.0	ug/L
Styrene	1.0	< 1.0	ug/L
Bromoform	1.0	< 1.0	ug/L
1,1,2,2-Tetrachloroethane	1.0	< 1.0	ug/L
1,2,3-Trichloropropane	1.0	< 1.0	ug/L
Isopropyl Benzene	1.0	< 1.0	ug/L
Bromobenzene	1.0	< 1.0	ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 1.0	ug/L
n-Propylbenzene	1.0	< 1.0	ug/L
2-Chlorotoluene	1.0	< 1.0	ug/L
4-Chlorotoluene	1.0	< 1.0	ug/L
1,3,5-Trimethylbenzene	1.0	< 1.0	ug/L
tert-Butylbenzene	1.0	< 1.0	ug/L
1,2,4-Trimethylbenzene	1.0	< 1.0	ug/L
sec-Butylbenzene	1.0	< 1.0	ug/L
1,3-Dichlorobenzene	1.0	< 1.0	ug/L
1,4-Dichlorobenzene	1.0	< 1.0	ug/L
p-Isopropyltoluene	1.0	< 1.0	ug/L
1,2-Dichlorobenzene	1.0	< 1.0	ug/L
n-Butylbenzene	1.0	< 1.0	ug/L
1,2-Dibromomo-3-chloropropane	1.0	< 1.0	ug/L
1,2,4-Trichlorobenzene	1.0	< 1.0	ug/L
Naphthalene	1.0	< 1.0	ug/L
Hexachlorobutadiene	1.0	< 1.0	ug/L
1,2,3-Trichlorobenzene	1.0	< 1.0	ug/L

SURROGATE % RECOVERY		
1,2-Dichloroethane-d4	101	(80 - 120)
Toluene-d8	95	(88 - 110)
Bromofluorobenzene	98	(86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806422
PROJECT #	: 104332.03	DATE RECEIVED :	6/27/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806422-02	SW-83	AQUEOUS	6/25/98	N/A	06/30/98	10

PARAMETER	DET. LIMIT		UNITS
Dichlorodifluoromethane	1.0	< 10	ug/L
Chloromethane	1.0	< 10	ug/L
Vinyl Chloride	1.0	< 10	ug/L
Bromomethane	1.0	< 10	ug/L
Chloroethane	1.0	< 10	ug/L
Trichlorofluoromethane	1.0	< 10	ug/L
Acetone	10	< 100	ug/L
Acrolein	5.0	< 50	ug/L
1,1-Dichloroethene	1.0	< 10	ug/L
Iodomethane	1.0	< 10	ug/L
Methylene Chloride	1.0	< 10	ug/L
Acrylonitrile	5.0	< 50	ug/L
cis-1,2-Dichloroethene	1.0	< 10	ug/L
Methyl-t-butyl Ether	1.0	< 10	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 10	ug/L
1,1-Dichloroethane	1.0	< 10	ug/L
trans-1,2-Dichloroethene	1.0	< 10	ug/L
2-Butanone	10	< 100	ug/L
Carbon Disulfide	1.0	< 10	ug/L
Bromochloromethane	1.0	< 10	ug/L
Chloroform	1.0	< 10	ug/L
2,2-Dichloropropane	1.0	< 10	ug/L
1,2-Dichloroethane	1.0	< 10	ug/L
Vinyl Acetate	1.0	< 10	ug/L
1,1,1-Trichloroethane	1.0	< 10	ug/L
1,1-Dichloropropene	1.0	< 10	ug/L
Carbon Tetrachloride	1.0	< 10	ug/L
Benzene	1.0	< 10	ug/L
1,2-Dichloropropane	1.0	< 10	ug/L
Trichloroethene	1.0	< 10	ug/L
Bromodichloromethane	1.0	< 10	ug/L
2-Chloroethyl Vinyl Ether	10	< 100	ug/L
cis-1,3-Dichloropropene	1.0	< 10	ug/L
trans-1,3-Dichloropropene	1.0	< 10	ug/L
1,1,2-Trichloroethane	1.0	< 10	ug/L
1,3-Dichloropropane	1.0	< 10	ug/L
Dibromomethane	1.0	< 10	ug/L
Toluene	1.0	< 10	ug/L
1,2-Dibromoethane	1.0	< 10	ug/L
4-Methyl-2-Pentanone	10	< 100	ug/L
2-Hexanone	10	< 100	ug/L
Dibromochloromethane	1.0	< 10	ug/L
Tetrachloroethene	1.0	< 10	ug/L
Chlorobenzene	1.0	< 10	ug/L
Ethylbenzene	1.0	**16**	**ug/L**

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806422
PROJECT #	: 104332.03	DATE RECEIVED :	6/27/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806422-02	SW-83	AQUEOUS	6/25/98	N/A	06/30/98	10

PARAMETER	DET. LIMIT		UNITS
1,1,1,2-Tetrachloroethane	1.0	< 10	ug/L
m&p Xylenes	1.0	**31**	**ug/L**
o-Xylene	1.0	< 10	ug/L
Styrene	1.0	< 10	ug/L
Bromoform	1.0	< 10	ug/L
1,1,2,2-Tetrachloroethane	1.0	< 10	ug/L
1,2,3-Trichloropropane	1.0	< 10	ug/L
Isopropyl Benzene	1.0	**31**	**ug/L**
Bromobenzene	1.0	< 10	ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 10	ug/L
n-Propylbenzene	1.0	**17**	**ug/L**
2-Chlorotoluene	1.0	< 10	ug/L
4-Chlorotoluene	1.0	< 10	ug/L
1,3,5-Trimethylbenzene	1.0	**57**	**ug/L**
tert-Butylbenzene	1.0	< 10	ug/L
1,2,4-Trimethylbenzene	1.0	**320**	**ug/L**
sec-Butylbenzene	1.0	**13**	**ug/L**
1,3-Dichlorobenzene	1.0	< 10	ug/L
1,4-Dichlorobenzene	1.0	< 10	ug/L
p-Isopropyltoluene	1.0	**11**	**ug/L**
1,2-Dichlorobenzene	1.0	< 10	ug/L
n-Butylbenzene	1.0	**11**	**ug/L**
1,2-Dibromomo-3-chloropropane	1.0	< 10	ug/L
1,2,4-Trichlorobenzene	1.0	< 10	ug/L
Naphthalene	1.0	< 10	ug/L
Hexachlorobutadiene	1.0	< 10	ug/L
1,2,3-Trichlorobenzene	1.0	< 10	ug/L

SURROGATE % RECOVERY	
1,2-Dichloroethane-d4	113
	(80 - 120)
Toluene-d8	105
	(88 - 110)
Bromofluorobenzene	110
	(86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806422
PROJECT #	: 104332.03	DATE RECEIVED :	6/27/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806422-03	MW-82	AQUEOUS	6/25/98	N/A	06/30/98	5

PARAMETER	DET. LIMIT		UNITS
Dichlorodifluoromethane	1.0	< 5.0	ug/L
Chloromethane	1.0	< 5.0	ug/L
Vinyl Chloride	1.0	< 5.0	ug/L
Bromomethane	1.0	< 5.0	ug/L
Chloroethane	1.0	< 5.0	ug/L
Trichlorofluoromethane	1.0	< 5.0	ug/L
Acetone	10	< 50	ug/L
Acrolein	5.0	< 25	ug/L
1,1-Dichloroethene	1.0	< 5.0	ug/L
Iodomethane	1.0	< 5.0	ug/L
Methylene Chloride	1.0	< 5.0	ug/L
Acrylonitrile	5.0	< 25	ug/L
cis-1,2-Dichloroethene	1.0	< 5.0	ug/L
Methyl-t-butyl Ether	1.0	< 5.0	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 5.0	ug/L
1,1-Dichloroethane	1.0	< 5.0	ug/L
trans-1,2-Dichloroethene	1.0	< 5.0	ug/L
2-Butanone	10	< 50	ug/L
Carbon Disulfide	1.0	< 5.0	ug/L
Bromochloromethane	1.0	< 5.0	ug/L
Chloroform	1.0	< 5.0	ug/L
2,2-Dichloropropane	1.0	< 5.0	ug/L
1,2-Dichloroethane	1.0	< 5.0	ug/L
Vinyl Acetate	1.0	< 5.0	ug/L
1,1,1-Trichloroethane	1.0	< 5.0	ug/L
1,1-Dichloropropene	1.0	< 5.0	ug/L
Carbon Tetrachloride	1.0	< 5.0	ug/L
Benzene	1.0	**70**	**ug/L**
1,2-Dichloropropane	1.0	< 5.0	ug/L
Trichloroethene	1.0	< 5.0	ug/L
Bromodichloromethane	1.0	< 5.0	ug/L
2-Chloroethyl Vinyl Ether	10	< 50	ug/L
cis-1,3-Dichloropropene	1.0	< 5.0	ug/L
trans-1,3-Dichloropropene	1.0	< 5.0	ug/L
1,1,2-Trichloroethane	1.0	< 5.0	ug/L
1,3-Dichloropropane	1.0	< 5.0	ug/L
Dibromomethane	1.0	< 5.0	ug/L
Toluene	1.0	< 5.0	ug/L
1,2-Dibromoethane	1.0	< 5.0	ug/L
4-Methyl-2-Pentanone	10	< 50	ug/L
2-Hexanone	10	< 50	ug/L
Dibromochloromethane	1.0	< 5.0	ug/L
Tetrachloroethene	1.0	< 5.0	ug/L
Chlorobenzene	1.0	< 5.0	ug/L
Ethylbenzene	1.0	**75**	**ug/L**
1,1,1,2-Tetrachloroethane	1.0	< 5.0	ug/L
m&p Xylenes	1.0	**510**	**ug/L**

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806422
PROJECT #	: 104332.03	DATE RECEIVED :	6/27/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806422-03	MW-82	AQUEOUS	6/25/98	N/A	06/30/98	5

PARAMETER	DET. LIMIT		UNITS
o-Xylene	1.0	< 5.0	ug/L
Styrene	1.0	< 5.0	ug/L
Bromoform	1.0	< 5.0	ug/L
1,1,2,2-Tetrachloroethane	1.0	< 5.0	ug/L
1,2,3-Trichloropropane	1.0	< 5.0	ug/L
Isopropyl Benzene	1.0	**18**	**ug/L**
Bromobenzene	1.0	< 5.0	ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 5.0	ug/L
n-Propylbenzene	1.0	**17**	**ug/L**
2-Chlorotoluene	1.0	< 5.0	ug/L
4-Chlorotoluene	1.0	< 5.0	ug/L
1,3,5-Trimethylbenzene	1.0	**110**	**ug/L**
tert-Butylbenzene	1.0	< 5.0	ug/L
1,2,4-Trimethylbenzene	1.0	**210**	**ug/L**
sec-Butylbenzene	1.0	**5.3**	**ug/L**
1,3-Dichlorobenzene	1.0	< 5.0	ug/L
1,4-Dichlorobenzene	1.0	< 5.0	ug/L
p-Isopropyltoluene	1.0	**5.3**	**ug/L**
1,2-Dichlorobenzene	1.0	< 5.0	ug/L
n-Butylbenzene	1.0	**7.2**	**ug/L**
1,2-Dibromomo-3-chloropropane	1.0	< 5.0	ug/L
1,2,4-Trichlorobenzene	1.0	< 5.0	ug/L
Naphthalene	1.0	< 5.0	ug/L
Hexachlorobutadiene	1.0	< 5.0	ug/L
1,2,3-Trichlorobenzene	1.0	< 5.0	ug/L

SURROGATE % RECOVERY	
1,2-Dichloroethane-d4	110 (80 - 120)
Toluene-d8	103 (88 - 110)
Bromofluorobenzene	104 (86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806422
PROJECT #	: 104332.03	DATE RECEIVED :	6/27/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806422-04	MW-65A	AQUEOUS	6/25/98	N/A	06/30/98	1

PARAMETER	DET. LIMIT		UNITS
Dichlorodifluoromethane	1.0	< 1.0	ug/L
Chloromethane	1.0	< 1.0	ug/L
Vinyl Chloride	1.0	< 1.0	ug/L
Bromomethane	1.0	< 1.0	ug/L
Chloroethane	1.0	< 1.0	ug/L
Trichlorofluoromethane	1.0	< 1.0	ug/L
Acetone	10	< 10	ug/L
Acrolein	5.0	< 5.0	ug/L
1,1-Dichloroethene	1.0	< 1.0	ug/L
Iodomethane	1.0	< 1.0	ug/L
Methylene Chloride	1.0	< 1.0	ug/L
Acrylonitrile	5.0	< 5.0	ug/L
cis-1,2-Dichloroethene	1.0	< 1.0	ug/L
Methyl-t-butyl Ether	1.0	< 1.0	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 1.0	ug/L
1,1-Dichloroethane	1.0	< 1.0	ug/L
trans-1,2-Dichloroethene	1.0	< 1.0	ug/L
2-Butanone	10	< 10	ug/L
Carbon Disulfide	1.0	< 1.0	ug/L
Bromochloromethane	1.0	< 1.0	ug/L
Chloroform	1.0	< 1.0	ug/L
2,2-Dichloropropane	1.0	< 1.0	ug/L
1,2-Dichloroethane	1.0	< 1.0	ug/L
Vinyl Acetate	1.0	< 1.0	ug/L
1,1,1-Trichloroethane	1.0	< 1.0	ug/L
1,1-Dichloropropene	1.0	< 1.0	ug/L
Carbon Tetrachloride	1.0	< 1.0	ug/L
Benzene	1.0	< 1.0	ug/L
1,2-Dichloropropane	1.0	< 1.0	ug/L
Trichloroethene	1.0	< 1.0	ug/L
Bromodichloromethane	1.0	< 1.0	ug/L
2-Chloroethyl Vinyl Ether	10	< 10	ug/L
cis-1,3-Dichloropropene	1.0	< 1.0	ug/L
trans-1,3-Dichloropropene	1.0	< 1.0	ug/L
1,1,2-Trichloroethane	1.0	< 1.0	ug/L
1,3-Dichloropropane	1.0	< 1.0	ug/L
Dibromomethane	1.0	< 1.0	ug/L
Toluene	1.0	< 1.0	ug/L
1,2-Dibromoethane	1.0	< 1.0	ug/L
4-Methyl-2-Pentanone	10	< 10	ug/L
2-Hexanone	10	< 10	ug/L
Dibromochloromethane	1.0	< 1.0	ug/L
Tetrachloroethene	1.0	< 1.0	ug/L
Chlorobenzene	1.0	< 1.0	ug/L
Ethylbenzene	1.0	**16**	**ug/L**
1,1,1,2-Tetrachloroethane	1.0	< 1.0	ug/L
m&p Xylenes	1.0	**400 (D5)**	**ug/L**

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806422
PROJECT #	: 104332.03	DATE RECEIVED :	6/27/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806422-04	MW-65A	AQUEOUS	6/25/98	N/A	06/30/98	1

PARAMETER	DET. LIMIT		UNITS
o-Xylene	1.0	**15**	**ug/L**
Styrene	1.0	< 1.0	ug/L
Bromoform	1.0	< 1.0	ug/L
1,1,2,2-Tetrachloroethane	1.0	< 1.0	ug/L
1,2,3-Trichloropropane	1.0	< 1.0	ug/L
Isopropyl Benzene	1.0	**7.9**	**ug/L**
Bromobenzene	1.0	< 1.0	ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 1.0	ug/L
n-Propylbenzene	1.0	**5.8**	**ug/L**
2-Chlorotoluene	1.0	< 1.0	ug/L
4-Chlorotoluene	1.0	< 1.0	ug/L
1,3,5-Trimethylbenzene	1.0	**80**	**ug/L**
tert-Butylbenzene	1.0	< 1.0	ug/L
1,2,4-Trimethylbenzene	1.0	**130**	**ug/L**
sec-Butylbenzene	1.0	< 1.0	ug/L
1,3-Dichlorobenzene	1.0	< 1.0	ug/L
1,4-Dichlorobenzene	1.0	< 1.0	ug/L
p-Isopropyltoluene	1.0	**3.0**	**ug/L**
1,2-Dichlorobenzene	1.0	< 1.0	ug/L
n-Butylbenzene	1.0	**4.1**	**ug/L**
1,2-Dibromomo-3-chloropropane	1.0	< 1.0	ug/L
1,2,4-Trichlorobenzene	1.0	< 1.0	ug/L
Naphthalene	1.0	**1.6**	**ug/L**
Hexachlorobutadiene	1.0	< 1.0	ug/L
1,2,3-Trichlorobenzene	1.0	< 1.0	ug/L

(D5) = 5 X DILUTION, ANALYZED ON 7/1/98

SURROGATE % RECOVERY	
1,2-Dichloroethane-d4	106
	(80 - 120)
Toluene-d8	104
	(88 - 110)
Bromofluorobenzene	100
	(86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806422
PROJECT #	: 104332.03	DATE RECEIVED :	6/27/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806422-05	Trip Blank	AQUEOUS	6/17/98	N/A	06/30/98	1

PARAMETER	DET. LIMIT		UNITS
Dichlorodifluoromethane	1.0	< 1.0	ug/L
Chloromethane	1.0	< 1.0	ug/L
Vinyl Chloride	1.0	< 1.0	ug/L
Bromomethane	1.0	< 1.0	ug/L
Chloroethane	1.0	< 1.0	ug/L
Trichlorofluoromethane	1.0	< 1.0	ug/L
Acetone	10	< 10	ug/L
Acrolein	5.0	< 5.0	ug/L
1,1-Dichloroethene	1.0	< 1.0	ug/L
Iodomethane	1.0	< 1.0	ug/L
Methylene Chloride	1.0	< 1.0	ug/L
Acrylonitrile	5.0	< 5.0	ug/L
cis-1,2-Dichloroethene	1.0	< 1.0	ug/L
Methyl-t-butyl Ether	1.0	< 1.0	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 1.0	ug/L
1,1-Dichloroethane	1.0	< 1.0	ug/L
trans-1,2-Dichloroethene	1.0	< 1.0	ug/L
2-Butanone	10	< 10	ug/L
Carbon Disulfide	1.0	< 1.0	ug/L
Bromochloromethane	1.0	< 1.0	ug/L
Chloroform	1.0	< 1.0	ug/L
2,2-Dichloropropane	1.0	< 1.0	ug/L
1,2-Dichloroethane	1.0	< 1.0	ug/L
Vinyl Acetate	1.0	< 1.0	ug/L
1,1,1-Trichloroethane	1.0	< 1.0	ug/L
1,1-Dichloropropene	1.0	< 1.0	ug/L
Carbon Tetrachloride	1.0	< 1.0	ug/L
Benzene	1.0	< 1.0	ug/L
1,2-Dichloropropane	1.0	< 1.0	ug/L
Trichloroethene	1.0	< 1.0	ug/L
Bromodichloromethane	1.0	< 1.0	ug/L
2-Chloroethyl Vinyl Ether	10	< 10	ug/L
cis-1,3-Dichloropropene	1.0	< 1.0	ug/L
trans-1,3-Dichloropropene	1.0	< 1.0	ug/L
1,1,2-Trichloroethane	1.0	< 1.0	ug/L
1,3-Dichloropropane	1.0	< 1.0	ug/L
Dibromomethane	1.0	< 1.0	ug/L
Toluene	1.0	< 1.0	ug/L
1,2-Dibromoethane	1.0	< 1.0	ug/L
4-Methyl-2-Pentanone	10	< 10	ug/L
2-Hexanone	10	< 10	ug/L
Dibromochloromethane	1.0	< 1.0	ug/L
Tetrachloroethene	1.0	< 1.0	ug/L
Chlorobenzene	1.0	< 1.0	ug/L
Ethylbenzene	1.0	< 1.0	ug/L
1,1,1,2-Tetrachloroethane	1.0	< 1.0	ug/L
m&p Xylenes	1.0	< 1.0	ug/L

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806422
PROJECT #	: 104332.03	DATE RECEIVED :	6/27/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806422-05	Trip Blank	AQUEOUS	6/17/98	N/A	06/30/98	1

PARAMETER	DET. LIMIT		UNITS
o-Xylene	1.0	< 1.0	ug/L
Styrene	1.0	< 1.0	ug/L
Bromoform	1.0	< 1.0	ug/L
1,1,2,2-Tetrachloroethane	1.0	< 1.0	ug/L
1,2,3-Trichloropropane	1.0	< 1.0	ug/L
Isopropyl Benzene	1.0	< 1.0	ug/L
Bromobenzene	1.0	< 1.0	ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 1.0	ug/L
n-Propylbenzene	1.0	< 1.0	ug/L
2-Chlorotoluene	1.0	< 1.0	ug/L
4-Chlorotoluene	1.0	< 1.0	ug/L
1,3,5-Trimethylbenzene	1.0	< 1.0	ug/L
tert-Butylbenzene	1.0	< 1.0	ug/L
1,2,4-Trimethylbenzene	1.0	< 1.0	ug/L
sec-Butylbenzene	1.0	< 1.0	ug/L
1,3-Dichlorobenzene	1.0	< 1.0	ug/L
1,4-Dichlorobenzene	1.0	< 1.0	ug/L
p-Isopropyltoluene	1.0	< 1.0	ug/L
1,2-Dichlorobenzene	1.0	< 1.0	ug/L
n-Butylbenzene	1.0	< 1.0	ug/L
1,2-Dibromomo-3-chloropropane	1.0	< 1.0	ug/L
1,2,4-Trichlorobenzene	1.0	< 1.0	ug/L
Naphthalene	1.0	< 1.0	ug/L
Hexachlorobutadiene	1.0	< 1.0	ug/L
1,2,3-Trichlorobenzene	1.0	< 1.0	ug/L

SURROGATE % RECOVERY	
1,2-Dichloroethane-d4	104
	(80 - 120)
Toluene-d8	102
	(88 - 110)
Bromofluorobenzene	100
	(86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806422
PROJECT #	: 104332.03		
PROJECT NAME	: IBRP		

SAMPLE ID #	BATCH	MATRIX	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
REAGENT BLANK	062598	AQUEOUS	N/A	06/25/98	1

PARAMETER	DET. LIMIT		UNITS
Dichlorodifluoromethane	1.0	< 1.0	ug/L
Chloromethane	1.0	< 1.0	ug/L
Vinyl Chloride	1.0	< 1.0	ug/L
Bromomethane	1.0	< 1.0	ug/L
Chloroethane	1.0	< 1.0	ug/L
Trichlorofluoromethane	1.0	< 1.0	ug/L
Acetone	10	< 10	ug/L
Acrolein	5.0	< 5.0	ug/L
1,1-Dichloroethene	1.0	< 1.0	ug/L
Iodomethane	1.0	< 1.0	ug/L
Methylene Chloride	1.0	< 1.0	ug/L
Acrylonitrile	5.0	< 5.0	ug/L
cis-1,2-Dichloroethene	1.0	< 1.0	ug/L
Methyl-t-butyl Ether	1.0	< 1.0	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 1.0	ug/L
1,1-Dichloroethane	1.0	< 1.0	ug/L
trans-1,2-Dichloroethene	1.0	< 1.0	ug/L
2-Butanone	10	< 10	ug/L
Carbon Disulfide	1.0	< 1.0	ug/L
Bromochloromethane	1.0	< 1.0	ug/L
Chloroform	1.0	< 1.0	ug/L
2,2-Dichloropropane	1.0	< 1.0	ug/L
1,2-Dichloroethane	1.0	< 1.0	ug/L
Vinyl Acetate	1.0	< 1.0	ug/L
1,1,1-Trichloroethane	1.0	< 1.0	ug/L
1,1-Dichloropropene	1.0	< 1.0	ug/L
Carbon Tetrachloride	1.0	< 1.0	ug/L
Benzene	1.0	< 1.0	ug/L
1,2-Dichloropropane	1.0	< 1.0	ug/L
Trichloroethene	1.0	< 1.0	ug/L
Bromodichloromethane	1.0	< 1.0	ug/L
2-Chloroethyl Vinyl Ether	10	< 10	ug/L
cis-1,3-Dichloropropene	1.0	< 1.0	ug/L
trans-1,3-Dichloropropene	1.0	< 1.0	ug/L
1,1,2-Trichloroethane	1.0	< 1.0	ug/L
1,3-Dichloropropane	1.0	< 1.0	ug/L
Dibromomethane	1.0	< 1.0	ug/L
Toluene	1.0	< 1.0	ug/L
1,2-Dibromoethane	1.0	< 1.0	ug/L
4-Methyl-2-Pentanone	10	< 10	ug/L
2-Hexanone	10	< 10	ug/L
Dibromochloromethane	1.0	< 1.0	ug/L
Tetrachloroethene	1.0	< 1.0	ug/L
Chlorobenzene	1.0	< 1.0	ug/L
Ethylbenzene	1.0	< 1.0	ug/L
1,1,1,2-Tetrachloroethane	1.0	< 1.0	ug/L

GC/MS RESULTS

TEST : VOLATILE ORGANICS EPA METHOD 8260
CLIENT : MARATHON OIL COMPANY AEN I.D. : 806422
PROJECT # : 104332.03
PROJECT NAME : IBRP

SAMPLE ID #	BATCH	MATRIX	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
REAGENT BLANK	062598	AQUEOUS	N/A	06/25/98	1

PARAMETER	DET. LIMIT		UNITS
m&p Xylenes	1.0	< 1.0	ug/L
o-Xylene	1.0	< 1.0	ug/L
Styrene	1.0	< 1.0	ug/L
Bromoform	1.0	< 1.0	ug/L
1,1,2,2-Tetrachloroethane	1.0	< 1.0	ug/L
1,2,3-Trichloropropane	1.0	< 1.0	ug/L
Isopropyl Benzene	1.0	< 1.0	ug/L
Bromobenzene	1.0	< 1.0	ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 1.0	ug/L
n-Propylbenzene	1.0	< 1.0	ug/L
2-Chlorotoluene	1.0	< 1.0	ug/L
4-Chlorotoluene	1.0	< 1.0	ug/L
1,3,5-Trimethylbenzene	1.0	< 1.0	ug/L
tert-Butylbenzene	1.0	< 1.0	ug/L
1,2,4-Trimethylbenzene	1.0	< 1.0	ug/L
sec-Butylbenzene	1.0	< 1.0	ug/L
1,3-Dichlorobenzene	1.0	< 1.0	ug/L
1,4-Dichlorobenzene	1.0	< 1.0	ug/L
p-Isopropyltoluene	1.0	< 1.0	ug/L
1,2-Dichlorobenzene	1.0	< 1.0	ug/L
n-Butylbenzene	1.0	< 1.0	ug/L
1,2-Dibromomo-3-chloropropane	1.0	< 1.0	ug/L
1,2,4-Trichlorobenzene	1.0	< 1.0	ug/L
Naphthalene	1.0	< 1.0	ug/L
Hexachlorobutadiene	1.0	< 1.0	ug/L
1,2,3-Trichlorobenzene	1.0	< 1.0	ug/L

SURROGATE % RECOVERY		
1,2-Dichloroethane-d4	105	(80 - 120)
Toluene-d8	98	(88 - 110)
Bromofluorobenzene	98	(86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806422
PROJECT #	: 104332.03		
PROJECT NAME	: IBRP		

SAMPLE ID #	BATCH	MATRIX	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
REAGENT BLANK	063098	AQUEOUS	N/A	06/30/98	1

PARAMETER	DET. LIMIT		UNITS
Dichlorodifluoromethane	1.0	< 1.0	ug/L
Chloromethane	1.0	< 1.0	ug/L
Vinyl Chloride	1.0	< 1.0	ug/L
Bromomethane	1.0	< 1.0	ug/L
Chloroethane	1.0	< 1.0	ug/L
Trichlorofluoromethane	1.0	< 1.0	ug/L
Acetone	10	< 10	ug/L
Acrolein	5.0	< 5.0	ug/L
1,1-Dichloroethene	1.0	< 1.0	ug/L
Iodomethane	1.0	< 1.0	ug/L
Methylene Chloride	1.0	< 1.0	ug/L
Acrylonitrile	5.0	< 5.0	ug/L
cis-1,2-Dichloroethene	1.0	< 1.0	ug/L
Methyl-t-butyl Ether	1.0	< 1.0	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 1.0	ug/L
1,1-Dichloroethane	1.0	< 1.0	ug/L
trans-1,2-Dichloroethene	1.0	< 1.0	ug/L
2-Butanone	10	< 10	ug/L
Carbon Disulfide	1.0	< 1.0	ug/L
Bromochloromethane	1.0	< 1.0	ug/L
Chloroform	1.0	< 1.0	ug/L
2,2-Dichloropropane	1.0	< 1.0	ug/L
1,2-Dichloroethane	1.0	< 1.0	ug/L
Vinyl Acetate	1.0	< 1.0	ug/L
1,1,1-Trichloroethane	1.0	< 1.0	ug/L
1,1-Dichloropropene	1.0	< 1.0	ug/L
Carbon Tetrachloride	1.0	< 1.0	ug/L
Benzene	1.0	< 1.0	ug/L
1,2-Dichloropropane	1.0	< 1.0	ug/L
Trichloroethene	1.0	< 1.0	ug/L
Bromodichloromethane	1.0	< 1.0	ug/L
2-Chloroethyl Vinyl Ether	10	< 10	ug/L
cis-1,3-Dichloropropene	1.0	< 1.0	ug/L
trans-1,3-Dichloropropene	1.0	< 1.0	ug/L
1,1,2-Trichloroethane	1.0	< 1.0	ug/L
1,3-Dichloropropane	1.0	< 1.0	ug/L
Dibromomethane	1.0	< 1.0	ug/L
Toluene	1.0	< 1.0	ug/L
1,2-Dibromoethane	1.0	< 1.0	ug/L
4-Methyl-2-Pentanone	10	< 10	ug/L
2-Hexanone	10	< 10	ug/L
Dibromochloromethane	1.0	< 1.0	ug/L
Tetrachloroethene	1.0	< 1.0	ug/L
Chlorobenzene	1.0	< 1.0	ug/L
Ethylbenzene	1.0	< 1.0	ug/L
1,1,1,2-Tetrachloroethane	1.0	< 1.0	ug/L

GC/MS RESULTS

TEST : VOLATILE ORGANICS EPA METHOD 8260
CLIENT : MARATHON OIL COMPANY AEN I.D. : 806422
PROJECT # : 104332.03
PROJECT NAME : IBRP

SAMPLE ID #	BATCH	MATRIX	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
REAGENT BLANK	063098	AQUEOUS	N/A	06/30/98	1

PARAMETER	DET. LIMIT		UNITS
m&p Xylenes	1.0	< 1.0	ug/L
o-Xylene	1.0	< 1.0	ug/L
Styrene	1.0	< 1.0	ug/L
Bromoform	1.0	< 1.0	ug/L
1,1,2,2-Tetrachloroethane	1.0	< 1.0	ug/L
1,2,3-Trichloropropane	1.0	< 1.0	ug/L
Isopropyl Benzene	1.0	< 1.0	ug/L
Bromobenzene	1.0	< 1.0	ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 1.0	ug/L
n-Propylbenzene	1.0	< 1.0	ug/L
2-Chlorotoluene	1.0	< 1.0	ug/L
4-Chlorotoluene	1.0	< 1.0	ug/L
1,3,5-Trimethylbenzene	1.0	< 1.0	ug/L
tert-Butylbenzene	1.0	< 1.0	ug/L
1,2,4-Trimethylbenzene	1.0	< 1.0	ug/L
sec-Butylbenzene	1.0	< 1.0	ug/L
1,3-Dichlorobenzene	1.0	< 1.0	ug/L
1,4-Dichlorobenzene	1.0	< 1.0	ug/L
p-Isopropyltoluene	1.0	< 1.0	ug/L
1,2-Dichlorobenzene	1.0	< 1.0	ug/L
n-Butylbenzene	1.0	< 1.0	ug/L
1,2-Dibromomo-3-chloropropane	1.0	< 1.0	ug/L
1,2,4-Trichlorobenzene	1.0	< 1.0	ug/L
Naphthalene	1.0	< 1.0	ug/L
Hexachlorobutadiene	1.0	< 1.0	ug/L
1,2,3-Trichlorobenzene	1.0	< 1.0	ug/L

SURROGATE % RECOVERY	
1,2-Dichloroethane-d4	99 (80 - 120)
Toluene-d8	93 (88 - 110)
Bromofluorobenzene	102 (86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806422
PROJECT #	: 104332.03		
PROJECT NAME	: IBRP		

SAMPLE ID #	BATCH	MATRIX	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
REAGENT BLANK	070198	AQUEOUS	N/A	07/01/98	1

PARAMETER	DET. LIMIT		UNITS
Dichlorodifluoromethane	1.0	< 1.0	ug/L
Chloromethane	1.0	< 1.0	ug/L
Vinyl Chloride	1.0	< 1.0	ug/L
Bromomethane	1.0	< 1.0	ug/L
Chloroethane	1.0	< 1.0	ug/L
Trichlorofluoromethane	1.0	< 1.0	ug/L
Acetone	10	< 10	ug/L
Acrolein	5.0	< 5.0	ug/L
1,1-Dichloroethene	1.0	< 1.0	ug/L
Iodomethane	1.0	< 1.0	ug/L
Methylene Chloride	1.0	< 1.0	ug/L
Acrylonitrile	5.0	< 5.0	ug/L
cis-1,2-Dichloroethene	1.0	< 1.0	ug/L
Methyl-t-butyl Ether	1.0	< 1.0	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 1.0	ug/L
1,1-Dichloroethane	1.0	< 1.0	ug/L
trans-1,2-Dichloroethene	1.0	< 1.0	ug/L
2-Butanone	10	< 10	ug/L
Carbon Disulfide	1.0	< 1.0	ug/L
Bromochloromethane	1.0	< 1.0	ug/L
Chloroform	1.0	< 1.0	ug/L
2,2-Dichloropropane	1.0	< 1.0	ug/L
1,2-Dichloroethane	1.0	< 1.0	ug/L
Vinyl Acetate	1.0	< 1.0	ug/L
1,1,1-Trichloroethane	1.0	< 1.0	ug/L
1,1-Dichloropropene	1.0	< 1.0	ug/L
Carbon Tetrachloride	1.0	< 1.0	ug/L
Benzene	1.0	< 1.0	ug/L
1,2-Dichloropropane	1.0	< 1.0	ug/L
Trichloroethene	1.0	< 1.0	ug/L
Bromodichloromethane	1.0	< 1.0	ug/L
2-Chloroethyl Vinyl Ether	10	< 10	ug/L
cis-1,3-Dichloropropene	1.0	< 1.0	ug/L
trans-1,3-Dichloropropene	1.0	< 1.0	ug/L
1,1,2-Trichloroethane	1.0	< 1.0	ug/L
1,3-Dichloropropane	1.0	< 1.0	ug/L
Dibromomethane	1.0	< 1.0	ug/L
Toluene	1.0	< 1.0	ug/L
1,2-Dibromoethane	1.0	< 1.0	ug/L
4-Methyl-2-Pentanone	10	< 10	ug/L
2-Hexanone	10	< 10	ug/L
Dibromochloromethane	1.0	< 1.0	ug/L
Tetrachloroethene	1.0	< 1.0	ug/L
Chlorobenzene	1.0	< 1.0	ug/L
Ethylbenzene	1.0	< 1.0	ug/L
1,1,1,2-Tetrachloroethane	1.0	< 1.0	ug/L

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806422
PROJECT #	: 104332.03		
PROJECT NAME	: IBRP		

SAMPLE ID #	BATCH	MATRIX	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
REAGENT BLANK	070198	AQUEOUS	N/A	07/01/98	1

PARAMETER	DET. LIMIT		UNITS
m&p Xylenes	1.0	< 1.0	ug/L
o-Xylene	1.0	< 1.0	ug/L
Styrene	1.0	< 1.0	ug/L
Bromoform	1.0	< 1.0	ug/L
1,1,2,2-Tetrachloroethane	1.0	< 1.0	ug/L
1,2,3-Trichloropropane	1.0	< 1.0	ug/L
Isopropyl Benzene	1.0	< 1.0	ug/L
Bromobenzene	1.0	< 1.0	ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 1.0	ug/L
n-Propylbenzene	1.0	< 1.0	ug/L
2-Chlorotoluene	1.0	< 1.0	ug/L
4-Chlorotoluene	1.0	< 1.0	ug/L
1,3,5-Trimethylbenzene	1.0	< 1.0	ug/L
tert-Butylbenzene	1.0	< 1.0	ug/L
1,2,4-Trimethylbenzene	1.0	< 1.0	ug/L
sec-Butylbenzene	1.0	< 1.0	ug/L
1,3-Dichlorobenzene	1.0	< 1.0	ug/L
1,4-Dichlorobenzene	1.0	< 1.0	ug/L
p-Isopropyltoluene	1.0	< 1.0	ug/L
1,2-Dichlorobenzene	1.0	< 1.0	ug/L
n-Butylbenzene	1.0	< 1.0	ug/L
1,2-Dibromomo-3-chloropropane	1.0	< 1.0	ug/L
1,2,4-Trichlorobenzene	1.0	< 1.0	ug/L
Naphthalene	1.0	< 1.0	ug/L
Hexachlorobutadiene	1.0	< 1.0	ug/L
1,2,3-Trichlorobenzene	1.0	< 1.0	ug/L

SURROGATE % RECOVERY		
1,2-Dichloroethane-d4	101	(80 - 120)
Toluene-d8	99	(88 - 110)
Bromofluorobenzene	98	(86 - 115)

Spike Recovery and RPD Summary Report - WATER

Method : C:\HPCHEM\1\METHODS\82600310.M (RTE Integrator)
Title : AEN New Mexico GC/MS
Last Update : Tue Jun 23 12:31:08 1998
Response via : Initial Calibration

Non-Spiked Sample: 062598B1.D

	Spike Sample	Spike Duplicate Sample
File ID :	062598S1.D	062598S2.D
Sample :	BS	BSD
Acq Time:	25 Jun 98 4:34 pm	25 Jun 98 5:15 pm

Compound	Sample Conc	Spike Added	Spike Res	Dup Res	Spike %Rec	Dup %Rec	RPD	QC Limits RPD	QC Limits % Rec
1,1-Dichloroethene	0.0	50	50	49	100	99	2	14	61-145
Benzene	0.0	50	53	52	107	104	3	11	76-127
Trichloroethene	0.0	50	53	49	105	99	6	14	71-120
Toluene	0.0	50	51	49	101	99	2	13	76-125
Chlorobenzene	0.0	50	51	49	101	98	3	13	75-130

- Fails Limit Check

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ▪ (425) 420-9200 ▪ FAX 420-9210
SPOKANE ▪ (509) 924-9200 ▪ FAX 924-9290
PORTLAND ▪ (503) 906-9200 ▪ FAX 906-9210

American Environmental Network	Project:	Marathon Oil	Sampled: 6/24/98 to 6/25/98
2709-D Pan American Freeway,NE	Project Number:	104332.03	Received: 6/29/98
Albuquerque, NM 87107	Project Manager:	Kimberly McNeill	Reported: 7/21/98 17:26

ANALYTICAL REPORT FOR SAMPLES:

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
SW-03	P806561-01	Water	6/24/98
MW-83	P806561-02	Water	6/25/98
MW-82	P806561-03	Water	6/25/98
MW-65A	P806561-04	Water	6/25/98

North Creek Analytical, Inc.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Lisa Domenighini, Project Manager

18939 120th Avenue N.E., Suite 101, Bothell, WA 98011-9508
East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

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American Environmental Network	Project:	Marathon Oil	Sampled: 6/24/98 to 6/25/98
2709-D Pan American Freeway,NE	Project Number:	104332.03	Received: 6/29/98
Albuquerque, NM 87107	Project Manager:	Kimberly McNeill	Reported: 7/21/98 17:26

Total Metals per EPA 6000/7000 Series Methods
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
SW-03			**P806561-01**				**Water**	
Uranium	0780334	7/14/98	7/20/98	EPA 6020	0.00100	**0.00160**	mg/l	
MW-83			**P806561-02**				**Water**	
Uranium	0780334	7/14/98	7/20/98	EPA 6020	0.00100	**0.00160**	mg/l	
MW-82			**P806561-03**				**Water**	
Uranium	0780334	7/14/98	7/20/98	EPA 6020	0.00100	**0.00140**	mg/l	
MW-65A			**P806561-04**				**Water**	
Uranium	0780334	7/14/98	7/20/98	EPA 6020	0.00100	ND	mg/l	

North Creek Analytical, Inc.

**Refer to end of report for text of notes and definitions.*

Lisa Domenighini, Project Manager

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

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SPOKANE ▪ (509) 924-9200 ▪ FAX 924-9290
PORTLAND ▪ (503) 906-9200 ▪ FAX 906-9210

American Environmental Network	Project:	Marathon Oil	Sampled: 6/24/98 to 6/25/98
2709-D Pan American Freeway,NE	Project Number:	104332.03	Received: 6/29/98
Albuquerque, NM 87107	Project Manager:	Kimberly McNeill	Reported: 7/21/98 17:26

Total Metals per EPA 6000/7000 Series Methods/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0780334	**Date Prepared: 7/14/98**					**Extraction Method: EPA 200/3005**				
Blank	**0780334-BLK1**									
Uranium	7/20/98			**ND**	mg/l	**0.00100**				
LCS	**0780334-BS1**									
Uranium	7/20/98	0.0500		0.0607	mg/l	75.0-125	121			
Duplicate	**0780334-DUP1**		**P806561-01**							
Uranium	7/20/98		0.00160	ND	mg/l			20.0		
Matrix Spike	**0780334-MS1**		**P806561-01**							
Uranium	7/20/98	0.0500	0.00160	0.0609	mg/l	70.0-130	**119**			
Matrix Spike	**0780334-MS2**		**P806586-02**							
Uranium	7/20/98	0.0500	ND	0.0633	mg/l	70.0-130	**127**			

North Creek Analytical, Inc.

**Refer to end of report for text of notes and definitions.*

Lisa Domenighini, Project Manager

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

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SPOKANE ▪ (509) 924-9200 ▪ FAX 924-9290
PORTLAND ▪ (503) 906-9200 ▪ FAX 906-9210

American Environmental Network	Project:	Marathon Oil	Sampled: 6/24/98 to 6/25/98
2709-D Pan American Freeway,NE	Project Number:	104332.03	Received: 6/29/98
Albuquerque, NM 87107	Project Manager:	Kimberly McNeill	Reported: 7/21/98 17:26

Notes and Definitions

#	Note
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
Recov.	Recovery
RPD	Relative Percent Difference

North Creek Analytical, Inc.

Lisa Domenighini, Project Manager

COPY

P806561 15.3

American Environmental Network (NM), Inc.

CHAIN OF CUSTODY

DATE: 6/25/98 PAGE: 1 OF 1

AEN (NM) Accession #: 806127

SHADED AREAS ARE FOR LAB USE ONLY

PLEASE FILL THIS FORM IN COMPLETELY.

PROJECT MANAGER: Paul Peacock

COMPANY: Marathon Oil Company
ADDRESS: P.O. Box 552
Midland, TX 79702-0552
PHONE: (915) 687-8312
FAX: (915) 687-8305
BILL TO: same as above
COMPANY:
ADDRESS:

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB I.D.	# OF CONTAINERS	Petroleum Hydrocarbons (418.1) TRPH	(MOD.8015) Diesel/Direct Inject	(M8015) Gas/Purge & Trap	8021 (BTEX)/8015 (Gasoline)	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)	Herbicides (615/8151)	Base/Neutral/Acid Compounds GC/MS (625/8270)	Polynuclear Aromatics (610/8310)	General Chemistry: uranium ICP75	Priority Pollutant Metals (13)	Target Analyte List Metals (23)	RCRA Metals (8)	RCRA Metals by TCLP (Method 1311)	Metals:
SW-03	6-24-98	1530	H_2O		1																			X					
MW-83	6-25-98	0945			1																			X					
MW-82	"	1150			1																			X					
MW-65A	"	1430			1																			X					

PROJECT INFORMATION

PROJ. NO.: 104332.03
PROJ. NAME: IBRP
P.O. NO.:
SHIPPED VIA:

SAMPLE RECEIPT

NO. CONTAINERS:
CUSTODY SEALS: Y / N / NA
RECEIVED INTACT:
BLUE ICE/ICE:

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

(RUSH) ☐ 24hr ☐ 48hr ☐ 72hr ☐ 1 WEEK (NORMAL) ☒

CERTIFICATION REQUIRED: ☐ NM ☐ SDWA ☐ OTHER

METHANOL PRESERVATION ☐

COMMENTS: FIXED FEE ☐
MW-83, 82, & 65A Product Wells

RELINQUISHED BY: 1	RELINQUISHED BY: 2
Signature: Time: 1500	Signature: Time: 1530
Printed Name: Charles Mabewell Date: 6-25-98	Printed Name: CHRIS FAITH Date: 6/25
Company: EDGE	Company: AEN
RECEIVED BY: 1	**RECEIVED BY: (LAB) 2**
Signature: Time: 1500	Signature: Time: 0700
Printed Name: CHRIS FAITH Date: 6/25	Printed Name: Sherri McClure Date: 6-29-98
Company: AEN	American Environmental Network (NM), Inc.

Committed To *Your* Success

Severn Trent Laboratories
11 East Olive Road
Pensacola FL 32514

Tel: (850) 474-1001
Fax: (850) 474-4789

SIGNATURE PAGE

Reviewed by: 4/12 Patrick
STL Project Manager

Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
ALBUQUERQUE, NEW MEXICO

Project Name: IBRP
Project Number: 806422
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Accession Number: 806387

Project Manager: KIMBERLY D. MCNEILL
Sampled By: N/S

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Analysis Report

Analysis: MARATHON WET CHEMISTRY INORGANICS

Accession:	806387
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806422
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	WET CHEM

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 806387
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806422
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON WET CHEMISTRY INORGANICS
QcLevel: II

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: SW-03			Lab ID: 001		
CHLORIDE (4500-CL B)	MG/L	9	1	CIW071	
CYANIDE, TOTAL (335.2)	MG/L	ND	0.005	CNW039	
FLUORIDE (340.2/4500-F C)	MG/L	0.7	0.2	FLW028	
NITRITE, NITROGEN (354.1)	MG/L	ND	0.1	N2W095	
NITRITE-NITRATE, NITROGEN (353.2)	MG/L	5.9	0.2	N3W49A	+
NITRATE, NITROGEN (353.2-354.1)	MG/L	5.9	0.1	NONE	
PH (150.1)	UNITS	7.5	NA	PHW135	R4
PHENOLS, TOTAL (420.1)	MG/L	ND	0.005	PEW027	
SULFATE (375.4)	MG/L	110	50	SEW081	+
TOTAL DISSOLVED SOLIDS (160.1)	MG/L	410	5	TDW039	

Comments:

Client ID: MW-83			Lab ID: 002		
CHLORIDE (4500-CL B)	MG/L	49	1	CIW072	
CYANIDE, TOTAL (335.2)	MG/L	ND	0.005	CNW039	
FLUORIDE (340.2/4500-F C)	MG/L	0.7	0.2	FLW028	
NITRITE, NITROGEN (354.1)	MG/L	ND	0.1	N2W095	
NITRITE-NITRATE, NITROGEN (353.2)	MG/L	ND	0.1	N3W49A	
NITRATE, NITROGEN (353.2-354.1)	MG/L	ND	0.1	NONE	
PH (150.1)	UNITS	7.2	NA	PHW136	R4
PHENOLS, TOTAL (420.1)	MG/L	ND	0.005	PEW027	
SULFATE (375.4)	MG/L	270	130	SEW081	+
TOTAL DISSOLVED SOLIDS (160.1)	MG/L	640	5	TDW039	

Comments:

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 806387
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806422
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON WET CHEMISTRY INORGANICS
QcLevel: II

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: MW-82			Lab ID: 003		
CHLORIDE (4500-CL B)	MG/L	72	1	CIW072	
CYANIDE, TOTAL (335.2)	MG/L	ND	0.005	CNW039	
FLUORIDE (340.2/4500-F C)	MG/L	0.7	0.2	FLW028	
NITRITE, NITROGEN (354.1)	MG/L	ND	0.1	N2W095	
NITRITE-NITRATE, NITROGEN (353.2)	MG/L	0.14	0.1	N3W49A	
NITRATE, NITROGEN (353.2-354.1)	MG/L	0.14	0.1	NONE	
PH (150.1)	UNITS	7.1	NA	PHW136	R4
PHENOLS, TOTAL (420.1)	MG/L	0.006	0.005	PEW027	
SULFATE (375.4)	MG/L	390	130	SEW081	+
TOTAL DISSOLVED SOLIDS (160.1)	MG/L	730	5	TDW039	

Comments:

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: MW-65A			Lab ID: 004		
CHLORIDE (4500-CL B)	MG/L	24	1	CIW072	
CYANIDE, TOTAL (335.2)	MG/L	ND	0.005	CNW039	
FLUORIDE (340.2/4500-F C)	MG/L	0.7	0.2	FLW028	
NITRITE, NITROGEN (354.1)	MG/L	ND	0.1	N2W095	
NITRITE-NITRATE, NITROGEN (353.2)	MG/L	ND	0.1	N3W49A	
NITRATE, NITROGEN (353.2-354.1)	MG/L	ND	0.1	NONE	
PH (150.1)	UNITS	7.2	NA	PHW136	R4
PHENOLS, TOTAL (420.1)	MG/L	0.005	0.005	PEW027	
SULFATE (375.4)	MG/L	250	130	SEW081	+
TOTAL DISSOLVED SOLIDS (160.1)	MG/L	550	5	TDW039	

Comments:

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 806387
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806422
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON WET CHEMISTRY INORGANICS

Client ID:	Lab ID:	Matrix:	Date/Time Sampled:	Date Received:
SW-03	001	WATER	24-JUN-98 1530	26-JUN-98
MW-83	002	WATER	25-JUN-98 0945	26-JUN-98
MW-82	003	WATER	25-JUN-98 1150	26-JUN-98
MW-65A	004	WATER	25-JUN-98 1430	26-JUN-98

"Method Report Summary"

Accession Number: 806387
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806422
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON WET CHEMISTRY INORGANICS

Client Sample Id:	Parameter:	Unit:	Result:
SW-03	CHLORIDE (4500-CL B)	MG/L	9
	FLUORIDE (340.2/4500-F C)	MG/L	0.7
	NITRITE-NITRATE, NITROGEN (353.2)	MG/L	5.9
	NITRATE, NITROGEN (353.2-354.1)	MG/L	5.9
	PH (150.1)	UNITS	7.5
	SULFATE (375.4)	MG/L	110
	TOTAL DISSOLVED SOLIDS (160.1)	MG/L	410
MW-83	CHLORIDE (4500-CL B)	MG/L	49
	FLUORIDE (340.2/4500-F C)	MG/L	0.7
	PH (150.1)	UNITS	7.2
	SULFATE (375.4)	MG/L	270
	TOTAL DISSOLVED SOLIDS (160.1)	MG/L	640
MW-82	CHLORIDE (4500-CL B)	MG/L	72
	FLUORIDE (340.2/4500-F C)	MG/L	0.7
	NITRITE-NITRATE, NITROGEN (353.2)	MG/L	0.14
	NITRATE, NITROGEN (353.2-354.1)	MG/L	0.14
	PH (150.1)	UNITS	7.1
	PHENOLS, TOTAL (420.1)	MG/L	0.006
	SULFATE (375.4)	MG/L	390
	TOTAL DISSOLVED SOLIDS (160.1)	MG/L	730
MW-65A	CHLORIDE (4500-CL B)	MG/L	24
	FLUORIDE (340.2/4500-F C)	MG/L	0.7
	PH (150.1)	UNITS	7.2
	PHENOLS, TOTAL (420.1)	MG/L	0.005
	SULFATE (375.4)	MG/L	250
	TOTAL DISSOLVED SOLIDS (160.1)	MG/L	550

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Analysis Report

Analysis: Group of Single Metals

Accession:	806387
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806422
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	METALS

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"FINAL REPORT FORMAT - MULTIPLE"

Accession: 806387
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806422
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: Group of Single Metals
QcLevel: II

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: SW-03			Lab ID:001		
SELENIUM (7740)	MG/L	ND	0.005	S7W092	
Comments:					
Client ID: MW-83			Lab ID:002		
SELENIUM (7740)	MG/L	ND	0.005	S7W092	
Comments:					
Client ID: MW-82			Lab ID:003		
SELENIUM (7740)	MG/L	ND	0.005	S7W092	
Comments:					
Client ID: MW-65A			Lab ID:004		
SELENIUM (7740)	MG/L	ND	0.005	S7W092	
Comments:					

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 806387
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806422
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: Group of Single Metals

Client Id:	Lab Id:	Matrix:	Date/Time Sampled:	Date Received:
SW-03	001	WATER	24-JUN-98 1530	26-JUN-98
MW-83	002	WATER	25-JUN-98 0945	26-JUN-98
MW-82	003	WATER	25-JUN-98 1150	26-JUN-98
MW-65A	004	WATER	25-JUN-98 1430	26-JUN-98

SEVERN TRENT LABORATORIES 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Analysis Report

Analysis: MARATHON METALS - OPTIMA

Accession:	806387
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806422
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	METALS

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"FINAL REPORT FORMAT - MULTIPLE"

Accession: 806387
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806422
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON METALS - OPTIMA
QcLevel: II

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: SW-03			Lab ID:001		
SILVER (6010A)	MG/L	ND	0.0007	AYW176	
ALUMINUM (6010A)	MG/L	ND	0.026	LYW176	
ARSENIC (6010A)	MG/L	0.0022	0.0018	RYW176	
BARIUM (6010A)	MG/L	0.044	0.0002	BYW176	
BORON (6010A)	MG/L	0.11	0.0057	OYW176	
CADMIUM (6010A)	MG/L	0.0003	0.0002	CYW176	
COBALT (6010A)	MG/L	0.0004	0.0003	TYW176	
CHROMIUM (6010A)	MG/L	0.0010	0.0008	HYW176	
COPPER (6010A)	MG/L	ND	0.0018	FYW176	
MERCURY (7470A)	MG/L	ND	0.0001	M7W083	
NICKEL (6010A)	MG/L	ND	0.0009	EYW176	
IRON (6010A)	MG/L	0.015	0.013	NYW176	
LEAD (6010A)	MG/L	ND	0.0022	PYW176	
MANGANESE (6010A)	MG/L	0.0015	0.0002	GYW176	
MOLYBDENUM (6010A)	MG/L	0.0024	0.0003	DYW176	
ZINC (6010A)	MG/L	0.048	0.014	5YW176	
Comments:					
Client ID: MW-83			Lab ID:002		
SILVER (6010A)	MG/L	ND	0.0007	AYW176	
ALUMINUM (6010A)	MG/L	ND	0.026	LYW176	
ARSENIC (6010A)	MG/L	0.024	0.0018	RYW176	
BARIUM (6010A)	MG/L	0.11	0.0002	BYW176	
BORON (6010A)	MG/L	0.083	0.0057	OYW176	
CADMIUM (6010A)	MG/L	0.0002	0.0002	CYW176	
COBALT (6010A)	MG/L	0.0013	0.0003	TYW176	
CHROMIUM (6010A)	MG/L	0.0026	0.0008	HYW176	
COPPER (6010A)	MG/L	ND	0.0018	FYW176	
MERCURY (7470A)	MG/L	ND	0.0001	M7W083	
NICKEL (6010A)	MG/L	0.0047	0.0009	EYW176	
IRON (6010A)	MG/L	0.81	0.013	NYW176	
LEAD (6010A)	MG/L	ND	0.0022	PYW176	
MANGANESE (6010A)	MG/L	0.54	0.0002	GYW176	
MOLYBDENUM (6010A)	MG/L	0.0045	0.0003	DYW176	
ZINC (6010A)	MG/L	ND	0.014	5YW176	
Comments:					

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 806387
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806422
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON METALS - OPTIMA
QcLevel: II

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: MW-82			Lab ID:003		
SILVER (6010A)	MG/L	ND	0.0007	AYW176	
ALUMINUM (6010A)	MG/L	ND	0.026	LYW176	
ARSENIC (6010A)	MG/L	0.010	0.0018	RYW176	
BARIUM (6010A)	MG/L	0.063	0.0002	BYW176	
BORON (6010A)	MG/L	0.11	0.0057	OYW176	
CADMIUM (6010A)	MG/L	0.0002	0.0002	CYW176	
COBALT (6010A)	MG/L	0.0009	0.0003	TYW176	
CHROMIUM (6010A)	MG/L	0.0009	0.0008	HYW176	
COPPER (6010A)	MG/L	ND	0.0018	FYW176	
MERCURY (7470A)	MG/L	ND	0.0001	M7W083	
NICKEL (6010A)	MG/L	0.0027	0.0009	EYW176	
IRON (6010A)	MG/L	0.44	0.013	NYW176	
LEAD (6010A)	MG/L	ND	0.0022	PYW176	
MANGANESE (6010A)	MG/L	0.18	0.0002	GYW176	
MOLYBDENUM (6010A)	MG/L	0.0040	0.0003	DYW176	
ZINC (6010A)	MG/L	ND	0.014	5YW176	
Comments:					
Client ID: MW-65A			Lab ID:004		
SILVER (6010A)	MG/L	BD	0.0007	AYW176	
ALUMINUM (6010A)	MG/L	ND	0.026	LYW176	
ARSENIC (6010A)	MG/L	0.0087	0.0018	RYW176	
BARIUM (6010A)	MG/L	0.095	0.0002	BYW176	
BORON (6010A)	MG/L	0.066	0.0057	OYW176	
CADMIUM (6010A)	MG/L	0.0002	0.0002	CYW176	
COBALT (6010A)	MG/L	0.0052	0.0003	TYW176	
CHROMIUM (6010A)	MG/L	0.0008	0.0008	HYW176	
COPPER (6010A)	MG/L	ND	0.0018	FYW176	
MERCURY (7470A)	MG/L	ND	0.0001	M7W083	
NICKEL (6010A)	MG/L	0.024	0.0009	EYW176	
IRON (6010A)	MG/L	0.59	0.013	NYW176	
LEAD (6010A)	MG/L	ND	0.0022	PYW176	
MANGANESE (6010A)	MG/L	0.44	0.0002	GYW176	
MOLYBDENUM (6010A)	MG/L	0.0049	0.0003	DYW176	
ZINC (6010A)	MG/L	0.030	0.014	5YW176	
Comments:					

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 806387
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806422
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON METALS - OPTIMA

Client Id:	Lab Id:	Matrix:	Date/Time Sampled:	Date Received:
SW-03	001	WATER	24-JUN-98 1530	26-JUN-98
MW-83	002	WATER	25-JUN-98 0945	26-JUN-98
MW-82	003	WATER	25-JUN-98 1150	26-JUN-98
MW-65A	004	WATER	25-JUN-98 1430	26-JUN-98

"Method Report Summary"

Accession Number: 806387
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806422
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON METALS - OPTIMA

Client Sample Id:	Parameter:	Unit:	Result:
SW-03	ARSENIC (6010A)	MG/L	0.0022
	BARIUM (6010A)	MG/L	0.044
	BORON (6010A)	MG/L	0.11
	CADMIUM (6010A)	MG/L	0.0003
	COBALT (6010A)	MG/L	0.0004
	CHROMIUM (6010A)	MG/L	0.0010
	IRON (6010A)	MG/L	0.015
	MANGANESE (6010A)	MG/L	0.0015
	MOLYBDENUM (6010A)	MG/L	0.0024
	ZINC (6010A)	MG/L	0.048
MW-83	ARSENIC (6010A)	MG/L	0.024
	BARIUM (6010A)	MG/L	0.11
	BORON (6010A)	MG/L	0.083
	CADMIUM (6010A)	MG/L	0.0002
	COBALT (6010A)	MG/L	0.0013
	CHROMIUM (6010A)	MG/L	0.0026
	NICKEL (6010A)	MG/L	0.0047
	IRON (6010A)	MG/L	0.81
	MANGANESE (6010A)	MG/L	0.54
	MOLYBDENUM (6010A)	MG/L	0.0045
MW-82	ARSENIC (6010A)	MG/L	0.010
	BARIUM (6010A)	MG/L	0.063
	BORON (6010A)	MG/L	0.11
	CADMIUM (6010A)	MG/L	0.0002
	COBALT (6010A)	MG/L	0.0009
	CHROMIUM (6010A)	MG/L	0.0009
	NICKEL (6010A)	MG/L	0.0027
	IRON (6010A)	MG/L	0.44
	MANGANESE (6010A)	MG/L	0.18
	MOLYBDENUM (6010A)	MG/L	0.0040
MW-65A	SILVER (6010A)	MG/L	BD
	ARSENIC (6010A)	MG/L	0.0087
	BARIUM (6010A)	MG/L	0.095
	BORON (6010A)	MG/L	0.066
	CADMIUM (6010A)	MG/L	0.0002
	COBALT (6010A)	MG/L	0.0052
	CHROMIUM (6010A)	MG/L	0.0008
	NICKEL (6010A)	MG/L	0.024
	IRON (6010A)	MG/L	0.59
	MANGANESE (6010A)	MG/L	0.44
	MOLYBDENUM (6010A)	MG/L	0.0049
	ZINC (6010A)	MG/L	0.030

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Analysis Report

Analysis: PESTICIDES (8080)

Accession:	806387
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806422
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	PESTICIDES

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"FINAL REPORT FORMAT - SINGLE"

Accession: 806387
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806422
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: PESTICIDES (8080)
Analysis Method: 8080 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Extraction Method: 3510 / 3660 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Matrix: WATER
QC Level: II

Lab Id: 001 Sample Date/Time: 24-JUN-98 1530
Client Sample Id: SW-03 Received Date: 26-JUN-98

Batch: PSW045 Extraction Date: 30-JUN-98
Blank: A Dry Weight %: N/A Analysis Date: 11-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
ALDRIN	UG/L	ND	0.02	
ALPHA-BHC	UG/L	ND	0.02	
BETA-BHC	UG/L	ND	0.02	
DELTA-BHC	UG/L	ND	0.02	
GAMMA-BHC (LINDANE)	UG/L	ND	0.02	
4,4'-DDD	UG/L	ND	0.02	
4,4'-DDE	UG/L	ND	0.02	
4,4'-DDT	UG/L	ND	0.02	
DIELDRIN	UG/L	ND	0.02	
ENDOSULFAN I	UG/L	ND	0.02	
ENDOSULFAN II	UG/L	ND	0.02	
ENDOSULFAN SULFATE	UG/L	ND	0.02	
ENDRIN	UG/L	ND	0.02	
ENDRIN ALDEHYDE	UG/L	ND	0.02	
HEPTACHLOR	UG/L	ND	0.02	
HEPTACHLOR EPOXIDE	UG/L	ND	0.02	
METHOXYCHLOR	UG/L	ND	0.02	
CHLORDANE	UG/L	ND	0.01	
TOXAPHENE	UG/L	ND	0.12	
PCB-1016	UG/L	ND	0.04	
PCB-1221	UG/L	ND	0.04	
PCB-1232	UG/L	ND	0.04	
PCB-1242	UG/L	ND	0.04	
PCB-1248	UG/L	ND	0.04	
PCB-1254	UG/L	ND	0.04	
PCB-1260	UG/L	ND	0.04	
TCMX	%REC/SURR	75	43-101	
DCB	%REC/SURR	92	17-135	
ANALYST	INITIALS	RP		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 806387
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806422
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: PESTICIDES (8080)
Analysis Method: 8080 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Extraction Method: 3510 / 3660 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Matrix: WATER
QC Level: II

Lab Id: 002 Sample Date/Time: 25-JUN-98 0945
Client Sample Id: MW-83 Received Date: 26-JUN-98

Batch: PSW045 Extraction Date: 30-JUN-98
Blank: A Dry Weight %: N/A Analysis Date: 11-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
ALDRIN	UG/L	ND	0.02	
ALPHA-BHC	UG/L	ND	0.02	
BETA-BHC	UG/L	0.18	0.02	I
DELTA-BHC	UG/L	0.04	0.02	
GAMMA-BHC (LINDANE)	UG/L	0.22	0.02	I
4,4'-DDD	UG/L	ND	0.02	
4,4'-DDE	UG/L	ND	0.02	
4,4'-DDT	UG/L	ND	0.02	
DIELDRIN	UG/L	ND	0.02	
ENDOSULFAN I	UG/L	ND	0.02	
ENDOSULFAN II	UG/L	ND	0.02	
ENDOSULFAN SULFATE	UG/L	ND	0.02	
ENDRIN	UG/L	ND	0.02	
ENDRIN ALDEHYDE	UG/L	ND	0.02	
HEPTACHLOR	UG/L	ND	0.02	
HEPTACHLOR EPOXIDE	UG/L	ND	0.02	
METHOXYCHLOR	UG/L	ND	0.02	
CHLORDANE	UG/L	ND	0.01	
TOXAPHENE	UG/L	ND	0.12	
PCB-1016	UG/L	ND	0.04	
PCB-1221	UG/L	ND	0.04	
PCB-1232	UG/L	ND	0.04	
PCB-1242	UG/L	ND	0.04	
PCB-1248	UG/L	ND	0.04	
PCB-1254	UG/L	ND	0.04	
PCB-1260	UG/L	ND	0.04	
TCMX	%REC/SURR	76	43-101	
DCB	%REC/SURR	84	17-135	
ANALYST	INITIALS	RP		

Comments:
I = DUAL-COLUMN RPD > 40%

"FINAL REPORT FORMAT - SINGLE"

Accession: 806387
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806422
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: PESTICIDES (8080)
Analysis Method: 8080 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Extraction Method: 3510 / 3660 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Matrix: WATER
QC Level: II

Lab Id: 003 Sample Date/Time: 25-JUN-98 1150
Client Sample Id: MW-82 Received Date: 26-JUN-98

Batch: PSW045 Extraction Date: 30-JUN-98
Blank: A Dry Weight %: N/A Analysis Date: 11-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
ALDRIN	UG/L	ND	0.02	
ALPHA-BHC	UG/L	ND	0.02	
BETA-BHC	UG/L	0.22	0.02	I
DELTA-BHC	UG/L	0.04	0.02	I
GAMMA-BHC (LINDANE)	UG/L	0.21	0.02	I
4,4'-DDD	UG/L	ND	0.02	
4,4'-DDE	UG/L	ND	0.02	
4,4'-DDT	UG/L	ND	0.02	
DIELDRIN	UG/L	ND	0.02	
ENDOSULFAN I	UG/L	ND	0.02	
ENDOSULFAN II	UG/L	ND	0.02	
ENDOSULFAN SULFATE	UG/L	ND	0.02	
ENDRIN	UG/L	ND	0.02	
ENDRIN ALDEHYDE	UG/L	ND	0.02	
HEPTACHLOR	UG/L	ND	0.02	
HEPTACHLOR EPOXIDE	UG/L	ND	0.02	
METHOXYCHLOR	UG/L	ND	0.02	
CHLORDANE	UG/L	ND	0.01	
TOXAPHENE	UG/L	ND	0.12	
PCB-1016	UG/L	ND	0.04	
PCB-1221	UG/L	ND	0.04	
PCB-1232	UG/L	ND	0.04	
PCB-1242	UG/L	ND	0.04	
PCB-1248	UG/L	ND	0.04	
PCB-1254	UG/L	ND	0.04	
PCB-1260	UG/L	ND	0.04	
TCMX	%REC/SURR	72	43-101	
DCB	%REC/SURR	75	17-135	
ANALYST	INITIALS	RP		

Comments:
I = DUAL-COLUMN RPD > 40%

"FINAL REPORT FORMAT - SINGLE"

Accession: 806387
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806422
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: PESTICIDES (8080)
Analysis Method: 8080 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Extraction Method: 3510 / 3660 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Matrix: WATER
QC Level: II

Lab Id: 004 Sample Date/Time: 25-JUN-98 1430
Client Sample Id: MW-65A Received Date: 26-JUN-98

Batch: PSW045 Extraction Date: 30-JUN-98
Blank: A Dry Weight %: N/A Analysis Date: 11-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
ALDRIN	UG/L	ND	0.02	
ALPHA-BHC	UG/L	ND	0.02	
BETA-BHC	UG/L	0.36	0.02	I
DELTA-BHC	UG/L	0.04	0.02	
GAMMA-BHC (LINDANE)	UG/L	0.10	0.02	I
4,4'-DDD	UG/L	ND	0.02	
4,4'-DDE	UG/L	ND	0.02	
4,4'-DDT	UG/L	ND	0.02	
DIELDRIN	UG/L	ND	0.02	
ENDOSULFAN I	UG/L	ND	0.02	
ENDOSULFAN II	UG/L	ND	0.02	
ENDOSULFAN SULFATE	UG/L	ND	0.02	
ENDRIN	UG/L	ND	0.02	
ENDRIN ALDEHYDE	UG/L	ND	0.02	
HEPTACHLOR	UG/L	ND	0.02	
HEPTACHLOR EPOXIDE	UG/L	ND	0.02	
METHOXYCHLOR	UG/L	ND	0.02	
CHLORDANE	UG/L	ND	0.01	
TOXAPHENE	UG/L	ND	0.12	
PCB-1016	UG/L	ND	0.04	
PCB-1221	UG/L	ND	0.04	
PCB-1232	UG/L	ND	0.04	
PCB-1242	UG/L	ND	0.04	
PCB-1248	UG/L	ND	0.04	
PCB-1254	UG/L	ND	0.04	
PCB-1260	UG/L	ND	0.04	
TCMX	%REC/SURR	76	43-101	
DCB	%REC/SURR	80	17-135	
ANALYST	INITIALS	RP		

Comments:
I = DUAL-COLUMN RPD > 40%

"Method Report Summary"

Accession Number: 806387
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806422
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: PESTICIDES (8080)

Client Sample Id:	Parameter:	Unit:	Result:
MW-83	BETA-BHC	UG/L	0.18
	DELTA-BHC	UG/L	0.04
	GAMMA-BHC (LINDANE)	UG/L	0.22
MW-82	BETA-BHC	UG/L	0.22
	DELTA-BHC	UG/L	0.04
	GAMMA-BHC (LINDANE)	UG/L	0.21
MW-65A	BETA-BHC	UG/L	0.36
	DELTA-BHC	UG/L	0.04
	GAMMA-BHC (LINDANE)	UG/L	0.10

SEVERN TRENT LABORATORIES 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Analysis Report

Analysis: POLYNUCLEAR AROMATICS BY 8310

Accession:	806387
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806422
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	SEMI-VOLATILE FUELS

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"FINAL REPORT FORMAT - SINGLE"

Accession:	806387
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806422
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Test:	POLYNUCLEAR AROMATICS BY 8310
Analysis Method:	8310/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method:	3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix:	WATER
QC Level:	I

Lab Id:	001	Sample Date/Time:	24-JUN-98 1530
Client Sample Id:	SW-03	Received Date:	26-JUN-98
Batch: PAW149		Extraction Date:	30-JUN-98
Blank: A	Dry Weight %: N/A	Analysis Date:	02-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZO(a)PYRENE	UG/L	ND	0.1	
1-METHYLNAPHTHALENE	UG/L	ND	0.3	
2-CHLOROANTHRACENE	%REC/SURR	68	28-138	
ANALYST	INITIALS	HAH		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession:	806387
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806422
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Test:	POLYNUCLEAR AROMATICS BY 8310
Analysis Method:	8310/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method:	3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix:	WATER
QC Level:	I

Lab Id:	002	Sample Date/Time:	25-JUN-98 0945
Client Sample Id:	MW-83	Received Date:	26-JUN-98
Batch: PAW149		Extraction Date:	30-JUN-98
Blank: A	Dry Weight %: N/A	Analysis Date:	02-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZO(a)PYRENE	UG/L	ND	0.1	
1-METHYLNAPHTHALENE	UG/L	50	0.3	
2-CHLOROANTHRACENE	%REC/SURR	59	28-138	
ANALYST	INITIALS	HAH		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession:	806387
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806422
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Test:	POLYNUCLEAR AROMATICS BY 8310
Analysis Method:	8310/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method:	3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix:	WATER
QC Level:	I

Lab Id:	003		Sample Date/Time:	25-JUN-98 1150
Client Sample Id:	MW-82		Received Date:	26-JUN-98
Batch: PAW149			Extraction Date:	30-JUN-98
Blank: A	Dry Weight %:	N/A	Analysis Date:	02-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZO(a)PYRENE	UG/L	ND	0.1	
1-METHYLNAPHTHALENE	UG/L	120	0.3	E
2-CHLOROANTHRACENE	%REC/SURR	53	28-138	
ANALYST	INITIALS	HAH		

Comments:

SEVERN TRENT LABORATORIES 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"FINAL REPORT FORMAT - SINGLE"

Accession:	806387
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806422
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Test:	POLYNUCLEAR AROMATICS BY 8310
Analysis Method:	8310/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method:	3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix:	WATER
QC Level:	I

Lab Id:	004	Sample Date/Time:	25-JUN-98 1431
Client Sample Id:	MW-65A	Received Date:	26-JUN-98
Batch: PAW149		Extraction Date:	30-JUN-98
Blank: A	Dry Weight %: N/A	Analysis Date:	02-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZO(a)PYRENE	UG/L	ND	0.1	
1-METHYLNAPHTHALENE	UG/L	47	0.3	
2-CHLOROANTHRACENE	%REC/SURR	93	28-138	
ANALYST	INITIALS	HAH		

Comments:

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"Method Report Summary"

Accession Number: 806387
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806422
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: POLYNUCLEAR AROMATICS BY 8310

Client Sample Id:	Parameter:	Unit:	Result:
MW-83	1-METHYLNAPHTHALENE	UG/L	50
MW-82	1-METHYLNAPHTHALENE	UG/L	120
MW-65A	1-METHYLNAPHTHALENE	UG/L	47

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Analysis Report

Analysis: ACID & BASE EXTRACTABLES (8270)

Accession:	806387
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806422
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	ORGANIC/MS

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"FINAL REPORT FORMAT - SINGLE"

Accession:	806387
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806422
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Test:	ACID & BASE EXTRACTABLES (8270)
Analysis Method:	8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method:	3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix:	WATER
QC Level:	I

Lab Id:	001		Sample Date/Time:	24-JUN-98 1530
Client Sample Id:	SW-03		Received Date:	26-JUN-98
Batch: ALW079			Extraction Date:	28-JUN-98
Blank: A	Dry Weight %:	N/A	Analysis Date:	05-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZOIC ACID	UG/L	ND	1.7	
4-CHLORO-3-METHYLPHENOL	UG/L	ND	0.4	
2-CHLOROPHENOL	UG/L	ND	0.5	
2,4-DICHLOROPHENOL	UG/L	ND	3.9	
2,6-DICHLOROPHENOL	UG/L	ND	0.1	
2,4-DIMETHYLPHENOL	UG/L	ND	0.5	
4,6-DINITRO-2-METHYLPHENOL	UG/L	ND	1.6	
2,4-DINITROPHENOL	UG/L	ND	3.3	
2-METHYLPHENOL	UG/L	ND	0.3	
4-METHYLPHENOL	UG/L	ND	0.5	
2-NITROPHENOL	UG/L	ND	0.4	
4-NITROPHENOL	UG/L	ND	0.7	
PENTACHLOROPHENOL	UG/L	ND	0.7	
PHENOL	UG/L	ND	0.5	
2,3,4,6-TETRACHLOROPHENOL	UG/L	ND	0.6	
2,4,5-TRICHLOROPHENOL	UG/L	ND	3.0	
2,4,6-TRICHLOROPHENOL	UG/L	ND	0.3	
ACENAPHTHENE	UG/L	ND	0.4	
ACENAPHTHYLENE	UG/L	ND	0.4	
ACETOPHENONE	UG/L	ND	0.4	
4-AMINOBIPHENYL	UG/L	ND	0.7	
ANILINE	UG/L	ND	0.5	
ANTHRACENE	UG/L	ND	0.4	
BENZIDINE	UG/L	ND	2.7	
BENZO (A) ANTHRACENE	UG/L	ND	0.5	
BENZO (A) PYRENE	UG/L	ND	0.2	
BENZO (B) FLUORANTHENE	UG/L	ND	0.5	
BENZO (G,H,I) PERYLENE	UG/L	ND	0.3	
BENZO (K) FLUORANTHENE	UG/L	ND	0.7	
BENZYL ALCOHOL	UG/L	ND	0.5	
BIS(2-CHLOROETHOXY)METHANE	UG/L	ND	0.4	
BIS(2-CHLOROETHYL)ETHER	UG/L	ND	0.5	
BIS(2-CHLOROISOPROPYL)ETHER	UG/L	ND	1.9	
BIS(2-ETHYLHEXYL)PHTHALATE	UG/L	ND	0.6	
4-BROMOPHENYL PHENYL ETHER	UG/L	ND	0.4	
BUTYLBENZYL PHTHALATE	UG/L	ND	0.5	
4-CHLOROANILINE	UG/L	ND	0.4	
1-CHLORONAPHTHALENE	UG/L	ND	0.6	
2-CHLORONAPHTHALENE	UG/L	ND	0.4	
4-CHLOROPHENYL PHENYL ETHER	UG/L	ND	0.5	

"FINAL REPORT FORMAT - SINGLE"

Accession: 806387
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806422
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: I

Lab Id: 001 Sample Date/Time: 24-JUN-98 1530
Client Sample Id: SW-03 Received Date: 26-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
CHRYSENE	UG/L	ND	0.7	
DIBENZ(A,J)ACRIDINE	UG/L	ND	0.5	
DIBENZO (A,H) ANTHRACENE	UG/L	ND	0.3	
DIBENZOFURAN	UG/L	ND	0.4	
1,2-DICHLOROBENZENE	UG/L	ND	0.3	
1,3-DICHLOROBENZENE	UG/L	ND	0.3	
1,4-DICHLOROBENZENE	UG/L	ND	0.5	
3,3'-DICHLOROBENZIDINE	UG/L	ND	0.4	
DIETHYLPHTHALATE	UG/L	ND	0.4	
P-DIMETHYLAMINOAZOBENZENE	UG/L	ND	0.4	
7,12-DIMETHYLBENZ(A)ANTHRACENE	UG/L	ND	1.8	
A-,A-DIMETHYLPHENETHYLAMINE	UG/L	ND	0.1	
DIMETHYLPHTHALATE	UG/L	ND	0.4	
DI-N-BUTYLPHTHALATE	UG/L	ND	0.4	
2,4-DINITROTOLUENE	UG/L	ND	0.5	
2,6-DINITROTOLUENE	UG/L	ND	0.5	
DI-N-OCTYLPHTHALATE	UG/L	ND	0.7	
DIPHENYLAMINE	UG/L	ND	0.5	
1,2-DIPHENYLHYDRAZINE	UG/L	ND	0.3	
FLUORANTHENE	UG/L	ND	0.5	
FLUORENE	UG/L	ND	0.6	
HEXACHLOROBENZENE	UG/L	ND	0.5	
HEXACHLOROBUTADIENE	UG/L	ND	0.5	
HEXACHLOROCYCLOPENTADIENE	UG/L	ND	0.6	
HEXACHLOROETHANE	UG/L	ND	0.6	
INDENO (1,2,3-CD) PYRENE	UG/L	ND	0.5	
ISOPHORONE	UG/L	ND	0.4	
3-METHYLCHOLANTHRENE	UG/L	ND	0.4	
2-METHYLNAPHTHALENE	UG/L	ND	0.5	
NAPHTHALENE	UG/L	ND	0.4	
1-NAPHTHYLAMINE	UG/L	ND	1.5	
2-NAPHTHYLAMINE	UG/L	ND	1.0	
2-NITROANILINE	UG/L	ND	0.4	
3-NITROANILINE	UG/L	ND	0.9	
4-NITROANILINE	UG/L	ND	0.8	
NITROBENZENE	UG/L	ND	0.5	
N-NITROSODIMETHYLAMINE	UG/L	ND	1.2	
N-NITROSODI-N-BUTYLAMINE	UG/L	ND	1.1	
N-NITROSODIETHYLAMINE	UG/L*	ND	10	
N-NITROSODIPHENYLAMINE	UG/L	ND	0.4	
N-NITROSO-DI-N-PROPYLAMINE	UG/L	ND	0.4	
N-NITROSOPIPERIDINE	UG/L	ND	0.8	
N-NITROSOPYRROLIDINE	UG/L*	ND	10	
PENTACHLOROBENZENE	UG/L	ND	0.4	
PENTACHLORONITROBENZENE (PCNB)	UG/L	ND	5.0	

"FINAL REPORT FORMAT - SINGLE"

Accession: 806387
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806422
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: I

Lab Id: 001
Client Sample Id: SW-03
Sample Date/Time: 24-JUN-98 1530
Received Date: 26-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
PHENACETIN	UG/L	ND	0.4	
PHENANTHRENE	UG/L	ND	0.4	
2-PICOLINE	UG/L	ND	7.7	
PRONAMIDE	UG/L	ND	0.4	
PYRENE	UG/L	ND	0.5	
1,2,4,5-TETRACHLOROBENZENE	UG/L	ND	0.4	
1,2,4 TRICHLOROBENZENE	UG/L	ND	0.6	
2-FLUOROPHENOL	%REC/SURR	81	21-100	
PHENOL-D6	%REC/SURR	81	10-100	
2,4,6-TRIBROMOPHENOL	%REC/SURR	81	10-123	
2-FLUOROBIPHENYL	%REC/SURR	92	43-116	
NITROBENZENE-D5	%REC/SURR	93	35-114	
TERPHENYL-D14	%REC/SURR	111	33-124	
ANALYST	INITIALS	RW		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession:	806387
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806422
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Test:	ACID & BASE EXTRACTABLES (8270)
Analysis Method:	8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method:	3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix:	WATER
QC Level:	I

Lab Id:	002		Sample Date/Time:	25-JUN-98 0945
Client Sample Id:	MW-83		Received Date:	26-JUN-98
Batch: ALW079			Extraction Date:	28-JUN-98
Blank: A	Dry Weight %:	N/A	Analysis Date:	05-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZOIC ACID	UG/L	ND	1.7	
4-CHLORO-3-METHYLPHENOL	UG/L	ND	0.4	
2-CHLOROPHENOL	UG/L	ND	0.5	
2,4-DICHLOROPHENOL	UG/L	ND	3.9	
2,6-DICHLOROPHENOL	UG/L	ND	0.1	
2,4-DIMETHYLPHENOL	UG/L	ND	0.5	
4,6-DINITRO-2-METHYLPHENOL	UG/L	ND	1.6	
2,4-DINITROPHENOL	UG/L	ND	3.3	
2-METHYLPHENOL	UG/L	ND	0.3	
4-METHYLPHENOL	UG/L	ND	0.5	
2-NITROPHENOL	UG/L	ND	0.4	
4-NITROPHENOL	UG/L	ND	0.7	
PENTACHLOROPHENOL	UG/L	ND	0.7	
PHENOL	UG/L	ND	0.5	
2,3,4,6-TETRACHLOROPHENOL	UG/L	ND	0.6	
2,4,5-TRICHLOROPHENOL	UG/L	ND	3.0	
2,4,6-TRICHLOROPHENOL	UG/L	ND	0.3	
ACENAPHTHENE	UG/L	ND	0.4	
ACENAPHTHYLENE	UG/L	ND	0.4	
ACETOPHENONE	UG/L	ND	0.4	
4-AMINOBIPHENYL	UG/L	ND	0.7	
ANILINE	UG/L	ND	0.5	
ANTHRACENE	UG/L	ND	0.4	
BENZIDINE	UG/L	ND	2.7	
BENZO (A) ANTHRACENE	UG/L	ND	0.5	
BENZO (A) PYRENE	UG/L	ND	0.2	
BENZO (B) FLUORANTHENE	UG/L	ND	0.5	
BENZO (G,H,I) PERYLENE	UG/L	ND	0.3	
BENZO (K) FLUORANTHENE	UG/L	ND	0.7	
BENZYL ALCOHOL	UG/L	ND	0.5	
BIS(2-CHLOROETHOXY)METHANE	UG/L	ND	0.4	
BIS(2-CHLOROETHYL)ETHER	UG/L	ND	0.5	
BIS(2-CHLOROISOPROPYL)ETHER	UG/L	ND	1.9	
BIS(2-ETHYLHEXYL)PHTHALATE	UG/L	ND	0.6	
4-BROMOPHENYL PHENYL ETHER	UG/L	ND	0.4	
BUTYLBENZYL PHTHALATE	UG/L	ND	0.5	
4-CHLOROANILINE	UG/L	ND	0.4	
1-CHLORONAPHTHALENE	UG/L	ND	0.6	
2-CHLORONAPHTHALENE	UG/L	ND	0.4	
4-CHLOROPHENYL PHENYL ETHER	UG/L	ND	0.5	

"FINAL REPORT FORMAT - SINGLE"

Accession: 806387
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806422
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: I

Lab Id: 002
Client Sample Id: MW-83
Sample Date/Time: 25-JUN-98 0945
Received Date: 26-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
CHRYSENE	UG/L	ND	0.7	
DIBENZ(A,J)ACRIDINE	UG/L	ND	0.5	
DIBENZO (A,H) ANTHRACENE	UG/L	ND	0.3	
DIBENZOFURAN	UG/L	ND	0.4	
1,2-DICHLOROBENZENE	UG/L	ND	0.3	
1,3-DICHLOROBENZENE	UG/L	ND	0.3	
1,4-DICHLOROBENZENE	UG/L	ND	0.5	
3,3'-DICHLOROBENZIDINE	UG/L	ND	0.4	
DIETHYLPHTHALATE	UG/L	ND	0.4	
P-DIMETHYLAMINOAZOBENZENE	UG/L	ND	0.4	
7,12-DIMETHYLBENZ(A)ANTHRACENE	UG/L	ND	1.8	
A-,A-DIMETHYLPHENETHYLAMINE	UG/L	ND	0.1	
DIMETHYLPHTHALATE	UG/L	ND	0.4	
DI-N-BUTYLPHTHALATE	UG/L	ND	0.4	
2,4-DINITROTOLUENE	UG/L	ND	0.5	
2,6-DINITROTOLUENE	UG/L	ND	0.5	
DI-N-OCTYLPHTHALATE	UG/L	ND	0.7	
DIPHENYLAMINE	UG/L	ND	0.5	
1,2-DIPHENYLHYDRAZINE	UG/L	ND	0.3	
FLUORANTHENE	UG/L	ND	0.5	
FLUORENE	UG/L	3.8	0.6	
HEXACHLOROBENZENE	UG/L	ND	0.5	
HEXACHLOROBUTADIENE	UG/L	ND	0.5	
HEXACHLOROCYCLOPENTADIENE	UG/L	ND	0.6	
HEXACHLOROETHANE	UG/L	ND	0.6	
INDENO (1,2,3-CD) PYRENE	UG/L	ND	0.5	
ISOPHORONE	UG/L	ND	0.4	
3-METHYLCHOLANTHRENE	UG/L	ND	0.4	
2-METHYLNAPHTHALENE	UG/L	34	0.5	
NAPHTHALENE	UG/L	10	0.4	
1-NAPHTHYLAMINE	UG/L	ND	1.5	
2-NAPHTHYLAMINE	UG/L	ND	1.0	
2-NITROANILINE	UG/L	ND	0.4	
3-NITROANILINE	UG/L	ND	0.9	
4-NITROANILINE	UG/L	ND	0.8	
NITROBENZENE	UG/L	ND	0.5	
N-NITROSODIMETHYLAMINE	UG/L	ND	1.2	
N-NITROSODI-N-BUTYLAMINE	UG/L	ND	1.1	
N-NITROSODIETHYLAMINE	UG/L*	ND	10	
N-NITROSODIPHENYLAMINE	UG/L	ND	0.4	
N-NITROSO-DI-N-PROPYLAMINE	UG/L	ND	0.4	
N-NITROSOPIPERIDINE	UG/L	ND	0.8	
N-NITROSOPYRROLIDINE	UG/L*	ND	10	
PENTACHLOROBENZENE	UG/L	ND	0.4	
PENTACHLORONITROBENZENE (PCNB)	UG/L	ND	5.0	

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"FINAL REPORT FORMAT - SINGLE"

Accession:	806387
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806422
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Test:	ACID & BASE EXTRACTABLES (8270)
Analysis Method:	8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method:	3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix:	WATER
QC Level:	I

Lab Id: 002 Sample Date/Time: 25-JUN-98 0945
Client Sample Id: MW-83 Received Date: 26-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
PHENACETIN	UG/L	ND	0.4	
PHENANTHRENE	UG/L	1.9	0.4	
2-PICOLINE	UG/L	ND	7.7	
PRONAMIDE	UG/L	ND	0.4	
PYRENE	UG/L	ND	0.5	
1,2,4,5-TETRACHLOROBENZENE	UG/L	ND	0.4	
1,2,4 TRICHLOROBENZENE	UG/L	ND	0.6	
2-FLUOROPHENOL	%REC/SURR	76	21-100	
PHENOL-D6	%REC/SURR	75	10-100	
2,4,6-TRIBROMOPHENOL	%REC/SURR	81	10-123	
2-FLUOROBIPHENYL	%REC/SURR	92	43-116	
NITROBENZENE-D5	%REC/SURR	112	35-114	
TERPHENYL-D14	%REC/SURR	110	33-124	
ANALYST	INITIALS	RW		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 806387
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806422
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: I

Lab Id: 003 Sample Date/Time: 25-JUN-98 1150
Client Sample Id: MW-82 Received Date: 26-JUN-98

Batch: ALW079 Extraction Date: 28-JUN-98
Blank: A Dry Weight %: N/A Analysis Date: 05-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZOIC ACID	UG/L	ND	1.7	
4-CHLORO-3-METHYLPHENOL	UG/L	ND	0.4	
2-CHLOROPHENOL	UG/L	ND	0.5	
2,4-DICHLOROPHENOL	UG/L	ND	3.9	
2,6-DICHLOROPHENOL	UG/L	ND	0.1	
2,4-DIMETHYLPHENOL	UG/L	ND	0.5	
4,6-DINITRO-2-METHYLPHENOL	UG/L	ND	1.6	
2,4-DINITROPHENOL	UG/L	ND	3.3	
2-METHYLPHENOL	UG/L	ND	0.3	
4-METHYLPHENOL	UG/L	ND	0.5	
2-NITROPHENOL	UG/L	ND	0.4	
4-NITROPHENOL	UG/L	ND	0.7	
PENTACHLOROPHENOL	UG/L	ND	0.7	
PHENOL	UG/L	ND	0.5	
2,3,4,6-TETRACHLOROPHENOL	UG/L	ND	0.6	
2,4,5-TRICHLOROPHENOL	UG/L	ND	3.0	
2,4,6-TRICHLOROPHENOL	UG/L	ND	0.3	
ACENAPHTHENE	UG/L	ND	0.4	
ACENAPHTHYLENE	UG/L	ND	0.4	
ACETOPHENONE	UG/L	ND	0.4	
4-AMINOBIPHENYL	UG/L	ND	0.7	
ANILINE	UG/L	ND	0.5	
ANTHRACENE	UG/L	ND	0.4	
BENZIDINE	UG/L	ND	2.7	
BENZO (A) ANTHRACENE	UG/L	ND	0.5	
BENZO (A) PYRENE	UG/L	ND	0.2	
BENZO (B) FLUORANTHENE	UG/L	ND	0.5	
BENZO (G,H,I) PERYLENE	UG/L	ND	0.3	
BENZO (K) FLUORANTHENE	UG/L	ND	0.7	
BENZYL ALCOHOL	UG/L	ND	0.5	
BIS(2-CHLOROETHOXY)METHANE	UG/L	ND	0.4	
BIS(2-CHLOROETHYL)ETHER	UG/L	ND	0.5	
BIS(2-CHLOROISOPROPYL)ETHER	UG/L	ND	1.9	
BIS(2-ETHYLHEXYL)PHTHALATE	UG/L	0.7	0.6	
4-BROMOPHENYL PHENYL ETHER	UG/L	ND	0.4	
BUTYLBENZYL PHTHALATE	UG/L	ND	0.5	
4-CHLOROANILINE	UG/L	ND	0.4	
1-CHLORONAPHTHALENE	UG/L	ND	0.6	
2-CHLORONAPHTHALENE	UG/L	ND	0.4	
4-CHLOROPHENYL PHENYL ETHER	UG/L	ND	0.5	

"FINAL REPORT FORMAT - SINGLE"

Accession: 806387
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806422
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: I

Lab Id: 003
Client Sample Id: MW-82
Sample Date/Time: 25-JUN-98 1150
Received Date: 26-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
CHRYSENE	UG/L	ND	0.7	
DIBENZ(A,J)ACRIDINE	UG/L	ND	0.5	
DIBENZO (A,H) ANTHRACENE	UG/L	ND	0.3	
DIBENZOFURAN	UG/L	ND	0.4	
1,2-DICHLOROBENZENE	UG/L	ND	0.3	
1,3-DICHLOROBENZENE	UG/L	ND	0.3	
1,4-DICHLOROBENZENE	UG/L	ND	0.5	
3,3'-DICHLOROBENZIDINE	UG/L	ND	0.4	
DIETHYLPHTHALATE	UG/L	ND	0.4	
P-DIMETHYLAMINOAZOBENZENE	UG/L	ND	0.4	
7,12-DIMETHYLBENZ(A)ANTHRACENE	UG/L	ND	1.8	
A-,A-DIMETHYLPHENETHYLAMINE	UG/L	ND	0.1	
DIMETHYLPHTHALATE	UG/L	ND	0.4	
DI-N-BUTYLPHTHALATE	UG/L	ND	0.4	
2,4-DINITROTOLUENE	UG/L	ND	0.5	
2,6-DINITROTOLUENE	UG/L	ND	0.5	
DI-N-OCTYLPHTHALATE	UG/L	ND	0.7	
DIPHENYLAMINE	UG/L	ND	0.5	
1,2-DIPHENYLHYDRAZINE	UG/L	ND	0.3	
FLUORANTHENE	UG/L	ND	0.5	
FLUORENE	UG/L	1.8	0.6	
HEXACHLOROBENZENE	UG/L	ND	0.5	
HEXACHLOROBUTADIENE	UG/L	ND	0.5	
HEXACHLOROCYCLOPENTADIENE	UG/L	ND	0.6	
HEXACHLOROETHANE	UG/L	ND	0.6	
INDENO (1,2,3-CD) PYRENE	UG/L	ND	0.5	
ISOPHORONE	UG/L	ND	0.4	
3-METHYLCHOLANTHRENE	UG/L	ND	0.4	
2-METHYLNAPHTHALENE	UG/L	16	0.5	
NAPHTHALENE	UG/L	5.1	0.4	
1-NAPHTHYLAMINE	UG/L	ND	1.5	
2-NAPHTHYLAMINE	UG/L	ND	1.0	
2-NITROANILINE	UG/L	ND	0.4	
3-NITROANILINE	UG/L	ND	0.9	
4-NITROANILINE	UG/L	ND	0.8	
NITROBENZENE	UG/L	ND	0.5	
N-NITROSODIMETHYLAMINE	UG/L	ND	1.2	
N-NITROSODI-N-BUTYLAMINE	UG/L	ND	1.1	
N-NITROSODIETHYLAMINE	UG/L*	ND	10	
N-NITROSODIPHENYLAMINE	UG/L	ND	0.4	
N-NITROSO-DI-N-PROPYLAMINE	UG/L	ND	0.4	
N-NITROSOPIPERIDINE	UG/L	ND	0.8	
N-NITROSOPYRROLIDINE	UG/L*	ND	10	
PENTACHLOROBENZENE	UG/L	ND	0.4	
PENTACHLORONITROBENZENE (PCNB)	UG/L	ND	5.0	

"FINAL REPORT FORMAT - SINGLE"

Accession: 806387
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806422
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: I

Lab Id: 003
Client Sample Id: MW-82
Sample Date/Time: 25-JUN-98 1150
Received Date: 26-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
PHENACETIN	UG/L	ND	0.4	
PHENANTHRENE	UG/L	1.0	0.4	
2-PICOLINE	UG/L	ND	7.7	
PRONAMIDE	UG/L	ND	0.4	
PYRENE	UG/L	ND	0.5	
1,2,4,5-TETRACHLOROBENZENE	UG/L	ND	0.4	
1,2,4 TRICHLOROBENZENE	UG/L	ND	0.6	
2-FLUOROPHENOL	%REC/SURR	88	21-100	
PHENOL-D6	%REC/SURR	81	10-100	
2,4,6-TRIBROMOPHENOL	%REC/SURR	90	10-123	
2-FLUOROBIPHENYL	%REC/SURR	82	43-116	
NITROBENZENE-D5	%REC/SURR	83	35-114	
TERPHENYL-D14	%REC/SURR	96	33-124	
ANALYST	INITIALS	RW		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 806387
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806422
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: I

Lab Id: 004 Sample Date/Time: 25-JUN-98 1430
Client Sample Id: MW-65A Received Date: 26-JUN-98

Batch: ALW079 Extraction Date: 28-JUN-98
Blank: A Dry Weight %: N/A Analysis Date: 05-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZOIC ACID	UG/L	ND	1.7	
4-CHLORO-3-METHYLPHENOL	UG/L	ND	0.4	
2-CHLOROPHENOL	UG/L	ND	0.5	
2,4-DICHLOROPHENOL	UG/L	ND	3.9	
2,6-DICHLOROPHENOL	UG/L	ND	0.1	
2,4-DIMETHYLPHENOL	UG/L	3.1	0.5	
4,6-DINITRO-2-METHYLPHENOL	UG/L	ND	1.6	
2,4-DINITROPHENOL	UG/L	ND	3.3	
2-METHYLPHENOL	UG/L	ND	0.3	
4-METHYLPHENOL	UG/L	ND	0.5	
2-NITROPHENOL	UG/L	ND	0.4	
4-NITROPHENOL	UG/L	ND	0.7	
PENTACHLOROPHENOL	UG/L	ND	0.7	
PHENOL	UG/L	ND	0.5	
2,3,4,6-TETRACHLOROPHENOL	UG/L	ND	0.6	
2,4,5-TRICHLOROPHENOL	UG/L	ND	3.0	
2,4,6-TRICHLOROPHENOL	UG/L	ND	0.3	
ACENAPHTHENE	UG/L	ND	0.4	
ACENAPHTHYLENE	UG/L	ND	0.4	
ACETOPHENONE	UG/L	ND	0.4	
4-AMINOBIPHENYL	UG/L	ND	0.7	
ANILINE	UG/L	ND	0.5	
ANTHRACENE	UG/L	ND	0.4	
BENZIDINE	UG/L	ND	2.7	
BENZO (A) ANTHRACENE	UG/L	ND	0.5	
BENZO (A) PYRENE	UG/L	ND	0.2	
BENZO (B) FLUORANTHENE	UG/L	ND	0.5	
BENZO (G,H,I) PERYLENE	UG/L	ND	0.3	
BENZO (K) FLUORANTHENE	UG/L	ND	0.7	
BENZYL ALCOHOL	UG/L	ND	0.5	
BIS(2-CHLOROETHOXY)METHANE	UG/L	ND	0.4	
BIS(2-CHLOROETHYL)ETHER	UG/L	ND	0.5	
BIS(2-CHLOROISOPROPYL)ETHER	UG/L	ND	1.9	
BIS(2-ETHYLHEXYL)PHTHALATE	UG/L	0.8	0.6	
4-BROMOPHENYL PHENYL ETHER	UG/L	ND	0.4	
BUTYLBENZYL PHTHALATE	UG/L	ND	0.5	
4-CHLOROANILINE	UG/L	ND	0.4	
1-CHLORONAPHTHALENE	UG/L	ND	0.6	
2-CHLORONAPHTHALENE	UG/L	ND	0.4	
4-CHLOROPHENYL PHENYL ETHER	UG/L	ND	0.5	

"FINAL REPORT FORMAT - SINGLE"

Accession: 806387
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806422
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: I

Lab Id: 004
Client Sample Id: MW-65A
Sample Date/Time: 25-JUN-98 1430
Received Date: 26-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
CHRYSENE	UG/L	ND	0.7	
DIBENZ(A,J)ACRIDINE	UG/L	ND	0.5	
DIBENZO (A,H) ANTHRACENE	UG/L	ND	0.3	
DIBENZOFURAN	UG/L	ND	0.4	
1,2-DICHLOROBENZENE	UG/L	ND	0.3	
1,3-DICHLOROBENZENE	UG/L	ND	0.3	
1,4-DICHLOROBENZENE	UG/L	ND	0.5	
3,3'-DICHLOROBENZIDINE	UG/L	ND	0.4	
DIETHYLPHTHALATE	UG/L	ND	0.4	
P-DIMETHYLAMINOAZOBENZENE	UG/L	ND	0.4	
7,12-DIMETHYLBENZ(A)ANTHRACENE	UG/L	ND	1.8	
A-,A-DIMETHYLPHENETHYLAMINE	UG/L	ND	0.1	
DIMETHYLPHTHALATE	UG/L	ND	0.4	
DI-N-BUTYLPHTHALATE	UG/L	ND	0.4	
2,4-DINITROTOLUENE	UG/L	ND	0.5	
2,6-DINITROTOLUENE	UG/L	ND	0.5	
DI-N-OCTYLPHTHALATE	UG/L	ND	0.7	
DIPHENYLAMINE	UG/L	ND	0.5	
1,2-DIPHENYLHYDRAZINE	UG/L	ND	0.3	
FLUORANTHENE	UG/L	ND	0.5	
FLUORENE	UG/L	ND	0.6	
HEXACHLOROBENZENE	UG/L	ND	0.5	
HEXACHLOROBUTADIENE	UG/L	ND	0.5	
HEXACHLOROCYCLOPENTADIENE	UG/L	ND	0.6	
HEXACHLOROETHANE	UG/L	ND	0.6	
INDENO (1,2,3-CD) PYRENE	UG/L	ND	0.5	
ISOPHORONE	UG/L	ND	0.4	
3-METHYLCHOLANTHRENE	UG/L	ND	0.4	
2-METHYLNAPHTHALENE	UG/L	7.2	0.5	
NAPHTHALENE	UG/L	3.2	0.4	
1-NAPHTHYLAMINE	UG/L	ND	1.5	
2-NAPHTHYLAMINE	UG/L	ND	1.0	
2-NITROANILINE	UG/L	ND	0.4	
3-NITROANILINE	UG/L	ND	0.9	
4-NITROANILINE	UG/L	ND	0.8	
NITROBENZENE	UG/L	ND	0.5	
N-NITROSODIMETHYLAMINE	UG/L	ND	1.2	
N-NITROSODI-N-BUTYLAMINE	UG/L	ND	1.1	
N-NITROSODIETHYLAMINE	UG/L*	ND	10	
N-NITROSODIPHENYLAMINE	UG/L	ND	0.4	
N-NITROSO-DI-N-PROPYLAMINE	UG/L	ND	0.4	
N-NITROSOPIPERIDINE	UG/L	ND	0.8	
N-NITROSOPYRROLIDINE	UG/L*	ND	10	
PENTACHLOROBENZENE	UG/L	ND	0.4	
PENTACHLORONITROBENZENE (PCNB)	UG/L	ND	5.0	

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"FINAL REPORT FORMAT - SINGLE"

Accession:	806387
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806422
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Test:	ACID & BASE EXTRACTABLES (8270)
Analysis Method:	8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method:	3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix:	WATER
QC Level:	I

Lab Id: 004 Sample Date/Time: 25-JUN-98 1430
Client Sample Id: MW-65A Received Date: 26-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
PHENACETIN	UG/L	ND	0.4	
PHENANTHRENE	UG/L	ND	0.4	
2-PICOLINE	UG/L	ND	7.7	
PRONAMIDE	UG/L	ND	0.4	
PYRENE	UG/L	ND	0.5	
1,2,4,5-TETRACHLOROBENZENE	UG/L	ND	0.4	
1,2,4 TRICHLOROBENZENE	UG/L	ND	0.6	
2-FLUOROPHENOL	%REC/SURR	84	21-100	
PHENOL-D6	%REC/SURR	78	10-100	
2,4,6-TRIBROMOPHENOL	%REC/SURR	87	10-123	
2-FLUOROBIPHENYL	%REC/SURR	83	43-116	
NITROBENZENE-D5	%REC/SURR	79	35-114	
TERPHENYL-D14	%REC/SURR	103	33-124	
ANALYST	INITIALS	RW		

Comments:

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"Method Report Summary"

Accession Number: 806387
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806422
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)

Client Sample Id:	Parameter:	Unit:	Result:
MW-83	FLUORENE	UG/L	3.8
	2-METHYLNAPHTHALENE	UG/L	34
	NAPHTHALENE	UG/L	10
	PHENANTHRENE	UG/L	1.9
MW-82	BIS(2-ETHYLHEXYL)PHTHALATE	UG/L	0.7
	FLUORENE	UG/L	1.8
	2-METHYLNAPHTHALENE	UG/L	16
	NAPHTHALENE	UG/L	5.1
	PHENANTHRENE	UG/L	1.0
MW-65A	2,4-DIMETHYLPHENOL	UG/L	3.1
	BIS(2-ETHYLHEXYL)PHTHALATE	UG/L	0.8
	2-METHYLNAPHTHALENE	UG/L	7.2
	NAPHTHALENE	UG/L	3.2

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Rd Pensacola, FL 32514 (850) 474-1001

Data Qualifiers for Final Report

AEN-Pensacola Inorganic/Organic

@	Adjusted reporting limit due to sample matrix (dilution prior to digestion and/or analysis)
+	Elevated reporting limit due to dilution into calibration range
*	Elevated reporting limit due to matrix interference (dilution prior to digestion and/or analysis)
#	Elevated reporting limit due to insufficient sample size
D	Diluted out
J5	The reported value is quantitated as a TIC; therefore, it is estimated

ND = Not Detected N/S = Not Submitted N/A = Not Applicable

Florida Projects Inorganic/Organic

Y1	Improper preservation, no preservative present in sample upon receipt
Y2	Improper preservation, incorrect preservative present in sample upon receipt
Y3	Improper preservation, sample temperature exceeded EPA temperature limits of 2-6°C upon receipt
Y (FL description)	The laboratory analysis was from an unpreserved or improperly preserved sample. The data may not be accurate.
Q	Sample held beyond the accepted holding time
I	The reported value is < Laboratory RL and > laboratory MDL
U1	The reported value is ≤ Laboratory MDL (value for sample result is reported as the MDL)
U (FL description)	Indicates the compound was analyzed for but not detected.
T	The reported value is < Laboratory MDL (value shall not be used for statistical analysis)
V	The analyte was detected in both the sample and the associated method blank.
J1	Surrogate recovery limits have been exceeded
J2	The sample matrix interfered with the ability to make any accurate determinations
J3	The reported value failed to meet the established quality control criteria for either precision or accuracy
J (FL description)	Estimated value; not accurate.

AFCEE Projects (under QAPP) and All Other (AEN-PN) Projects/Sites for Inorganic/Organic Parameters

J4	(For positive results) Temperature limits exceeded (≤2°C or ≥ 6°C)
J (AFCEE description)	The analyte was positively identified, the quantitation is an estimation
R1	(For nondetects) Temperature limits exceeded (≤2°C or ≥ 6°C)
R2	Improper preservation, no preservative present in sample upon receipt
R3	Improper preservation, incorrect preservative present in sample upon receipt
R4	Holding time exceeded
R5	Collection requirements not met, improper container used for sample
R (AFCEE description)	The data are unusable due to deficiencies in the ability to analyze the sample and meet QC criteria
F	< RL and > laboratory MDL
F (AFCEE description)	The analyte was positively identified but the associated numerical value is below the AFCEE or lab RL
U2	≤ Laboratory MDL (value for result will be the MDL, never below the MDL)
U (AFCEE description)	The analyte was analyzed for but not detected. The associated numerical value is at or below the MDL
B (AFCEE description)	The analyte was found in the associated blank, as well as in the sample

ICR Projects Inorganic/Organic

A	Acceptable
R6	Rejected

Examples: ICR Flags

R6 = Laboratory extracted the sample but the refrigerator malfunctioned so the extract became warm and client was notified

R6 = Sample arrived in laboratory in good condition; however, the laboratory did not analyze it within EPA's established holding time limit.

CLP and CLP-like Projects

Refer to referenced CLP Statement of Work (SOW) for explanation of data qualifiers

IDL = Laboratory Instrument Detection Limit
MDL = Laboratory Method Detection Limit
RL = Reporting Limit (AFCEE RLs are listed in the AFCEE QAPP)
CLP CRDL = CLP Contract Required Detection Limit (these limits are listed in the EPA CLP Statement of Work or SOW)
CLP CRQL = CLP Contract Required Quantitation Limit (these limits are listed in the EPA CLP Statement of Work or SOW)

Any time a sample arrives at the laboratory improperly preserved (at improper pH or temperature) or after holding time has expired or prepared or analyzed after holding time, client must be notified in writing (i.e. case narrative).

AEN-Pensacola uses the most current promulgated methods contained in the reference manuals.

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Quality Control Report

Analysis: MARATHON WET CHEMISTRY INORGANICS

Accession:	806387
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806422
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	WET CHEM

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"WetChem Quality Control Report"

Parameter:	CHLORIDE	CYANIDE	FLUORIDE	NO2	NO2NO3	PH
Batch Id:	CIW071	CNW039	FLW028	N2W095	N3W49A	PHW135
Blank Result:	<1	<0.005	<0.2	<0.1	<0.1	N/A
Anal. Method:	4500-CL B	335.2	340.2	354.1	353.2	150.1
Prep. Method:	N/A	N/A	N/A	N/A	N/A	N/A
Analysis Date:	26-JUN-98	30-JUN-98	01-JUL-98	26-JUN-98	30-JUN-98	26-JUN-98
Prep. Date:	26-JUN-98	29-JUN-98	01-JUL-98	26-JUN-98	29-JUN-98	26-JUN-98
Sample Duplication						
Sample Dup:	806363-8	806355-4	806323-1	806380-45	806382-8	806382-2
Rept Limit:	<1	<0.005	<0.2	<0.1	<0.1	N/A
Sample Result:	7.1	<0.005	0.92	<0.1	0.37	6.17
Dup Result:	7.1	<0.005	0.87	<0.1	0.36	6.17
Sample RPD:	0	N/C	0.05 G	N/C	0.01 G	0
Max RPD:	5	0.005	0.2	0.1	0.1	0.12
Dry Weight%	N/A	N/A	N/A	N/A	N/A	N/A
Matrix Spike						
Sample Spiked:	806363-8	806355-4	806323-1	806380-45	806382-8	N/A
Rept Limit:	<1	<0.005	<0.2	<0.1	<0.1	N/A
Sample Result:	7.1	<0.005	0.92	<0.1	0.37	
Spiked Result:	61.5	0.187	1.75	0.20	1.34	
Spike Added:	55.0	0.200	0.80	0.20	1.00	
% Recovery:	99	94	104	100	97	
% Rec Limits:	90-111	67-127	79-132	70-131	71-125	
Dry Weight%	N/A	N/A	N/A	N/A	N/A	
ICV						
ICV Result:	98.3	0.287	1.08	0.20	2.03	9.97
True Result:	100	0.314	1.20	0.20	2.00	10.00
% Recovery:	98	91	90	100	102	100
% Rec Limits:	90-110	90-110	90-110	90-110	90-110	90-110
LCS						
LCS Result:						6.98
True Result:						6.87
% Recovery:						102
% Rec Limits:						96-104

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"WetChem Quality Control Report"

Parameter:	PHENOL	SULFATE	TDS	CHLORIDE	PH
Batch Id:	PEW027	SEW081	TDW039	CIW072	PHW136
Blank Result:	<0.005	<10	<5	<1	N/A
Anal. Method:	420.1	375.4	160.1	4500-CL B	150.1
Prep. Method:	N/A	N/A	N/A	N/A	N/A
Analysis Date:	08-JUL-98	02-JUL-98	01-JUL-98	29-JUN-98	26-JUN-98
Prep. Date:	07-JUL-98	02-JUL-98	30-JUN-98	29-JUN-98	26-JUN-98
Sample Duplication					
Sample Dup:	806387-2	806382-2	806355-2	806423-1	806380-40
Rept Limit:	<0.005	<10	<5	<1	N/A
Sample Result:	<0.005	15	1468	228.0	6.37
Dup Result:	<0.005	15	1424	228.0	6.38
Sample RPD:	N/C	0 G	3	0	0.01
Max RPD:	0.005	10	16	5	0.12
Dry Weight%	N/A	N/A	N/A	N/A	N/A
Matrix Spike					
Sample Spiked:	806387-3	806382-2	N/A	806423-1	N/A
Rept Limit:	<0.005	<10	N/A	<1	N/A
Sample Result:	0.006	15		228.0	
Spiked Result:	0.030	30		281.0	
Spike Added:	0.020	20		55.0	
% Recovery:	120	75		96	
% Rec Limits:	48-149	56-154		90-111	
Dry Weight%	N/A	N/A		N/A	
ICV					
ICV Result:	0.026	22.0		100.5	10.03
True Result:	0.025	20.0		100.0	10.00
% Recovery:	104	110		101	100
% Rec Limits:	90-110	90-110		90-110	90-110
LCS					
LCS Result:			300		6.97
True Result:			293		6.87
% Recovery:			102		101
% Rec Limits:			77-129		96-104

"Quality Control Comments"

Batch Id:	Comments:
PEW027	806388-1,2,3,4,5 & 807005-1,2,3,4,5 were added to batch 8-Jul-98.

----- Common Footnotes WetChem -----

N/A = NOT APPLICABLE.
N/S = NOT SUBMITTED.
N/C = SAMPLE AND DUPLICATE RESULTS ARE AT OR BELOW AEN REPORTING LIMIT; THEREFORE, THE RPD IS "NOT CALCULABLE" AND NO CONTROL LIMITS APPLY.
N/D = NOT DETECTED.
R = REACTIVE
T = TOTAL
G = SAMPLE AND/OR DUPLICATE RESULT IS BELOW 5 X AEN REPORTING LIMIT AND THE ABSOLUTE DIFFERENCE BETWEEN THE SAMPLE AND DUPLICATE RESULT IS AT OR BELOW AEN REPORTING LIMIT; THEREFORE, THE RESULTS ARE "IN CONTROL".
Q = THE ANALYTICAL (POST-DISTILLATION) SPIKE IS REPORTED DUE TO PERCENT RECOVERY BEING OUTSIDE ACCEPTANCE LIMITS ON THE MATRIX (PRE-DISTILLATION) SPIKE.
= ELEVATED REPORTING LIMIT DUE TO INSUFFICIENT SAMPLE.
+ = ELEVATED REPORTING LIMIT DUE TO DILUTION INTO CALIBRATION RANGE.
* = ELEVATED REPORTING LIMIT DUE TO MATRIX INTERFERENCE (DILUTION PRIOR DIGESTION AND/OR ANALYSIS).
@ = ADJUSTED REPORTING LIMIT DUE TO SAMPLE MATRIX (DILUTION PRIOR TO DIGESTION AND/OR ANALYSIS).
P = ANALYTICAL (POST DIGESTION) SPIKE.
I = DUPLICATE INJECTION.
& = AUTOMATED
F = SAMPLE SPIKED > 4 X SPIKE CONCENTRATION.
N/C+ = NOT CALCULABLE
H = SAMPLE AND/OR DUPLICATE RESULT IS BELOW 5 X AEN REPORTING LIMIT AND THE ABSOLUTE DIFFERENCE BETWEEN THE RESULTS EXCEEDS THE AEN REPORTING LIMIT; THEREFORE, THE RESULTS ARE "OUT OF CONTROL".
A = SAMPLE AND DUPLICATE RESULTS ARE "OUT OF CONTROL".
Z = THE SAMPLE RESULT FOR THE SPIKE IS BELOW THE REPORTING LIMIT. HOWEVER, THIS RESULT IS REPORTED FOR ACCURATE QC CALCULATIONS.
NH= SAMPLE AND / OR DUPLICATE RESULT IS BELOW 5 X AEN REPORTING LIMIT AND THE ABSOLUTE DIFFERENCE BETWEEN THE RESULTS EXCEEDS THE AEN REPORTING LIMIT; THEREFORE, THE RESULTS ARE "OUT OF CONTROL". SAMPLE IS NON-HOMOGENEOUS.
(*) = REPORTING LIMITS RAISED DUE TO CLP METHOD NOT REQUIRING A CONCENTRATION STEP FOR CN.
(CA) = SEE CORRECTIVE ACTIONS FORM.
**= MATRIX INTERFERENCE
SW-846, 3rd Edition, latest EPA-approved edition.
EPA 600/4-79-020, Revised March 1983.
STANDARD METHODS, For the Examination of Water and Wastewater, latest EPA-approved edition.
NIOSH Manual of Analytical Methods, 4th Edition.
ANNUAL BOOK OF ASTM STANDARDS, VOLUMES 11.01 and 11.02, latest EPA-approved edition.
METHODS FOR THE DETERMINATION OF INORGANIC SUBSTANCES IN ENVIRONMENTAL SAMPLES, EPA600/R-93/100,. AUGUST 1993
METHODS FOR SOIL ANALYSIS, PART 2, CHEMICAL AND MICROBILOGICAL PROPERTIES, 2ND EDITION.
AEN-PN USES THE MOST CURRENT PROMULGATED METHODS FROM THE REFERENCES LISTED ABOVE.

1. COLIFORM. COLIFORM PRECISION IS MEASURED BY THE ABSOLUTE DIFFERENCE BETWEEN THE LOGARITHM OF COLONIES PER 100 MLS OF SAMPLE ON DUPLICATE PLATES.
2. PH. PH PRECISION IS MEASURED BY THE ABSOLUTE DIFFERENCE BETWEEN THE SAMPLE AND DUPLICATE ANALYSIS.
3. FLASHPOINT. FLASHPOINT PRECISION IS MEASURED BY THE ABSOLUTE DIFFERENCE BETWEEN THE SAMPLE AND DUPLICATE ANALYSIS.

RPD = RELATIVE PERCENT DIFFERENCE (OR DEVIATION).
RPT LMTS = REPORTING LIMITS BASED ON METHOD DETECTION LIMIT STUDIES.

DPH = DOLLY P. HWANG RB = REBECCA BROWN WH = WENDY HAGGARD
ED = ESTHER DANTIN CR = CYNTHIA ROBERTS AB = AMY BRADLEY
BE = BETTY EVERTON PLD = PAULA L. DOUGHTY JTZ = JONATHAN T. ZIENTARSKI
RH = RICKY HAGENDORFER

SEVERN TRENT LABORATORIES 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Quality Control Report

Analysis: PESTICIDES (8080)

Accession:	806387
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806422
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	PESTICIDES

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"QC Report"

Title: Water Blank
Batch: PSW045
Analysis Method: 8080 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Extraction Method: 3510 / 3660 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.

Blank Id: A Date Analyzed: 07-JUL-98 Date Extracted: 30-JUN-98

Parameters:	Units:	Results:	Reporting Limits:
ALDRIN	UG/L	ND	0.02
ALPHA-BHC	UG/L	ND	0.02
BETA-BHC	UG/L	ND	0.02
DELTA-BHC	UG/L	ND	0.02
GAMMA-BHC (LINDANE)	UG/L	ND	0.02
4,4'-DDD	UG/L	ND	0.02
4,4'-DDE	UG/L	ND	0.02
4,4'-DDT	UG/L	ND	0.02
DIELDRIN	UG/L	ND	0.02
ENDOSULFAN I	UG/L	ND	0.02
ENDOSULFAN II	UG/L	ND	0.02
ENDOSULFAN SULFATE	UG/L	ND	0.02
ENDRIN	UG/L	ND	0.02
ENDRIN ALDEHYDE	UG/L	ND	0.02
HEPTACHLOR	UG/L	ND	0.02
HEPTACHLOR EPOXIDE	UG/L	ND	0.02
METHOXYCHLOR	UG/L	ND	0.02
CHLORDANE	UG/L	ND	0.01
TOXAPHENE	UG/L	ND	0.12
PCB-1016	UG/L	ND	0.04
PCB-1221	UG/L	ND	0.04
PCB-1232	UG/L	ND	0.04
PCB-1242	UG/L	ND	0.04
PCB-1248	UG/L	ND	0.04
PCB-1254	UG/L	ND	0.04
PCB-1260	UG/L	ND	0.04
TCMX	%REC/SURR	99	43-101
DCB	%REC/SURR	78	17-135
ANALYST	INITIALS	RP	

Comments:

"QC Report"

Title: Water LCS
Batch: PSW045
Analysis Method: 8080 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Extraction Method: 3510 / 3660 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.

RS Date Analyzed: 07-JUL-98 RS Date Extracted: 30-JUN-98

Parameters:	Spike Added	Sample Conc	RS Conc	RS %Rec	Rec Lmts
LINDANE	1.00	<0.02	0.75	75	51-118
HEPTACHLOR	1.00	<0.02	0.85	85	70-123
ALDRIN	1.00	<0.02	0.85	85	54-122
DIELDRIN	1.00	<0.02	0.96	96	75-119
ENDRIN	1.00	<0.02	0.95	95	67-122
DDT	1.00	<0.02	1.12	112	59-127
Surrogates:					
DCB				103	17-135
TCMX				77	43-101

Comments:

Notes:
N/S = NOT SUBMITTED N/A = NOT APPLICABLE D = DILUTED OUT
UG/L = PARTS PER BILLION. < = LESS THAN REPORTING LIMIT.
* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS.
SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

"QC Report"

Title: Water Matrix
Batch: PSW045
Analysis Method: 8080 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Extraction Method: 3510 / 3660 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.

Dry Weight %: N/A
Sample Spiked: 806409-02

MS Date Analyzed: 10-JUL-98
MSD Date Analyzed: 10-JUL-98

MS Date Extracted: 01-JUL-98
MSD Date Extracted: 01-JUL-98

Parameters:	Spike Added	Sample Conc	MS Conc	MS %Rec	MSD Conc	MSD %Rec	RPD	RPD Lmts	Rec Lmts
LINDANE	2.00	<0.02	1.63	82	1.70	85	4	27	40-119
HEPTACHLOR	2.00	<0.02	1.88	94	2.00	100	6	30	53-123
ALDRIN	2.00	<0.02	1.93	97	2.06	103	6	31	42-130
DIELDRIN	2.00	<0.02	1.98	99	2.06	103	4	18	61-124
ENDRIN	2.00	<0.02	1.98	99	2.10	105	6	30	50-125
DDT	2.00	<0.02	2.36	118	2.58	129	9	32	25-138
Surrogates:									
DCB				104		113			17-135
TCMX				85		92			43-101

Comments:

Notes:
N/S = NOT SUBMITTED N/A = NOT APPLICABLE D = DILUTED OUT
UG/L = PARTS PER BILLION. < = LESS THAN REPORTING LIMIT.
* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS.
SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

Common notation for Organic reporting

N/S = NOT SUBMITTED
N/A = NOT APPLICABLE
D = DILUTED OUT
UG/L = PARTS PER BILLION.
UG/KG = PARTS PER BILLION.
MG/KG = PARTS PER MILLION.
MG/L = PARTS PER MILLION.
< = LESS THAN.
* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS.
ND = NOT DETECTED ABOVE REPORTING LIMIT.
Rpt Lmts = REPORTING LIMITS BASED ON METHOD DETECTION LIMIT STUDIES.
RPD = RELATIVE PERCENT DIFFERENCE (OR DEVIATION)

SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

ORGANIC SOILS ARE REPORTED ON A DRY WEIGHT BASIS.

AEN-PN USES THE MOST CURRENT PROMULGATED METHODS CONTAINED IN THE REFERENCE MANUALS.

RP = ROBERT PEREZ
LP = LEVERNE PETERSON
RW = ROBERT WOLFE

SEVERN TRENT LABORATORIES 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Quality Control Report

Analysis: Group of Single Metals

Accession:	806387
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806422
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	METALS

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"Metals Quality Control Report"

Parameter:	SELENIUM
Batch Id:	S7W092
Blank Result:	<0.005
Anal. Method:	7740
Prep. Method:	3020A
Analysis Date:	08-JUL-98
Prep. Date:	07-JUL-98

Sample Duplication

Sample Dup:	806357-1
Rept Limit:	<0.005
Sample Result:	0.033
Dup Result:	0.033
Sample RPD:	0
Max RPD:	20
Dry Weight%	N/A

Matrix Spike

Sample Spiked:	806357-1
Rept Limit:	<0.005
Sample Result:	<0.005
Spiked Result:	0.033
Spike Added:	0.040
% Recovery:	83
% Rec Limits:	75-125
Dry Weight%	N/A

ICV

ICV Result:	0.021
True Result:	0.020
% Recovery:	105
% Rec Limits:	90-110

LCS

LCS Result:	0.040
True Result:	0.040
% Recovery:	100
% Rec Limits:	80-120

----- Common Footnotes Metals -----

N/A = NOT APPLICABLE.
N/S = NOT SUBMITTED.
N/C = SAMPLE AND DUPLICATE RESULTS ARE AT OR BELOW THE REPORTING LIMIT; THEREFORE, THE RPD IS "NOT CALCULABLE" AND NO CONTROL LIMITS APPLY.
N/D = NOT DETECTED.
DISS. OR D = DISSOLVED
T & D = TOTAL AND DISSOLVED
R = REACTIVE
T = TOTAL
G = SAMPLE AND/OR DUPLICATE RESULT IS BELOW 5 X THE REPORTING LIMIT AND THE ABSOLUTE DIFFERENCE BETWEEN THE SAMPLE AND DUPLICATE RESULT IS AT OR BELOW AEN REPORTING LIMIT; THEREFORE, THE RESULTS ARE "IN CONTROL".
Q = THE ANALYTICAL (POST-DIGESTION) SPIKE IS REPORTED DUE TO PERCENT RECOVERY BEING OUTSIDE ACCEPTANCE LIMITS ON THE MATRIX (PRE-DIGESTION) SPIKE.
= ELEVATED REPORTING LIMIT DUE TO INSUFFICIENT SAMPLE.
+ = ELEVATED REPORTING LIMIT DUE TO DILUTION INTO CALIBRATION RANGE.
* = ELEVATED REPORTING LIMIT DUE TO MATRIX INTERFERENCE. (DILUTION PRIOR TO ANALYSIS)
@ = ADJUSTED REPORTING LIMIT DUE TO SAMPLE MATRIX. (DILUTION PRIOR TO DIGESTION)
P = ANALYTICAL (POST DIGESTION) SPIKE.
I = DUPLICATE INJECTION.
& = AUTOMATED
F = SAMPLE SPIKED > 4 X SPIKE CONCENTRATION.
N/C+ = NOT CALCULABLE
N/C* = NOT CALCULABLE; SAMPLE SPIKED > 4 X SPIKE CONCENTRATION.
H = SAMPLE AND/OR DUPLICATE RESULT IS BELOW 5 X AEN REPORTING LIMIT AND THE ABSOLUTE DIFFERENCE BETWEEN THE RESULTS EXCEEDS THE AEN REPORTING LIMIT; THEREFORE, THE RESULTS ARE "OUT OF CONTROL".
A = SAMPLE AND DUPLICATE RESULTS ARE "OUT OF CONTROL".
Z = THE SAMPLE RESULT FOR THE SPIKE IS BELOW THE AEN REPORTING LIMIT. HOWEVER, THIS RESULT IS REPORTED FOR ACCURATE QC CALCULATIONS.
NH= THE RELATIVE PERCENT DIFFERENCE (RPD) EXCEEDS THE AEN CONTROL LIMIT AND IS "OUT OF CONTROL; DUE TO A NON-HOMOGENEOUS SAMPLE MATRIX.
J = (FLORIDA DEP 'J' FLAG) - MATRIX SPIKE AND POST SPIKE RECOVERY IS OUT OF THE ACCEPTABLE RANGE. SEE OUT OF CONTROL EVENTS FORM.
U = (FLORIDA DEP 'U' FLAG) - THE COMPOUND WAS ANALYZED FOR, BUT NOT DETECTED.
S = METHOD OF STANDARD ADDITIONS (MSA) WAS PERFORMED ON THIS SAMPLE.

FROM QUALITY CONTROL REPORT:
RPD= RELATIVE PERCENT DEVIATION.
REPT LIMIT= REPORTING LIMIT BASED ON METHOD DETECTION LIMIT STUDIES.

NOTE: ALL RESULTS REPORTED UNDER 'SAMPLE DUPLICATION' ARE THE MS/MSD.

NOTE: THE UNITS REPORTED ON THE QUALITY CONTROL REPORT ARE REPORTED ON AN AS RUN BASIS. (NOT ADJUSTED FOR DRY WEIGHT).

SW-846, 3rd Edition.
EPA 600/4-79-020, Revised March 1983.
NIOSH Manual of Analytical Methods, 4th Edition.
Standard Methods For the Examination of Water and Wastewater, 18th Edition, 1992.
Methods For the Determination of Metals in Environmental Samples - Supplement I, EPA 600/R-94-111, May 1994.

GJ = GARY JACOBS
JLH = JAMES L. HERED
GSP = GARY ST PERE
JL = JANET LECLEAR

SEVERN TRENT LABORATORIES 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Quality Control Report

Analysis: MARATHON METALS - OPTIMA

Accession:	806387
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806422
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	METALS

SEVERN TRENT LABORATORIES 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"Metals Quality Control Report"

Parameter:	SILVER	ALUMINUM	ARSENIC	BARIUM	BORON	CADMIUM
Batch Id:	AYW176	LYW176	RYW176	BYW176	OYW176	CYW176
Blank Result:	<0.005	<0.1	<0.005	<0.001	<0.05	<0.001
Anal. Method:	6010A	6010A	6010A	6010A	6010A	6010A
Prep. Method:	3010A	3010A	3010A	3010A	3010A	3010A
Analysis Date:	01-JUL-98	01-JUL-98	01-JUL-98	01-JUL-98	01-JUL-98	01-JUL-98
Prep. Date:	29-JUN-98	29-JUN-98	29-JUN-98	29-JUN-98	29-JUN-98	29-JUN-98
Sample Duplication						
Sample Dup:	806424-1	806424-1	806424-1	806424-1	806424-1	806424-1
Rept Limit:	<0.005	<0.1	<0.005	<0.001	<0.05	<0.001
Sample Result:	0.20	2.2	2.12	1.95	4.08	1.79
Dup Result:	0.20	2.2	2.07	1.92	4.05	1.76
Sample RPD:	0	0	2	2	1	2
Max RPD:	20	20	20	20	20	20
Dry Weight%	N/A	N/A	N/A	N/A	N/A	N/A
Matrix Spike						
Sample Spiked:	806424-1	806424-1	806424-1	806424-1	806424-1	806424-1
Rept Limit:	<0.005	<0.1	<0.005	<0.001	<0.05	<0.001
Sample Result:	<0.005	<0.1	<0.005	0.008	1.90	<0.001
Spiked Result:	0.20	2.2	2.12	1.95	4.08	1.79
Spike Added:	0.20	2.0	2.0	2.0	2.0	2.0
% Recovery:	100	110	106	97	109	90
% Rec Limits:	75-125	75-125	75-125	75-125	75-125	75-125
Dry Weight%	N/A	N/A	N/A	N/A	N/A	N/A
ICV						
ICV Result:	0.50	4.9	1.01	0.98	1.04	1.02
True Result:	0.5	5	1.0	1.0	1.0	1.0
% Recovery:	100	98	101	98	104	102
% Rec Limits:	95-105	95-105	95-105	95-105	95-105	95-105
LCS						
LCS Result:	0.19	2.1	2.00	1.95	2.05	1.90
True Result:	0.2	2.0	2.0	2.0	2.0	2.0
% Recovery:	95	105	100	98	103	95
% Rec Limits:	80-120	80-120	80-120	80-120	80-120	80-120

"Metals Quality Control Report"

Parameter:	COBALT	CHROMIUM	COPPER	MERCURY	NICKEL	IRON
Batch Id:	TYW176	HYW176	FYW176	M7W083	EYW176	NYW176
Blank Result:	<0.005	<0.005	<0.005	<0.0002	<0.005	<0.05
Anal. Method:	6010A	6010A	6010A	7470A	6010A	6010A
Prep. Method:	3010A	3010A	3010A	7470A	3010A	3010A
Analysis Date:	01-JUL-98	01-JUL-98	01-JUL-98	06-JUL-98	06-JUL-98	06-JUL-98
Prep. Date:	29-JUN-98	29-JUN-98	29-JUN-98	05-JUL-98	29-JUN-98	29-JUN-98
Sample Duplication						
Sample Dup:	806424-1	806424-1	806424-1	806355-3	806424-1	806424-1
Rept Limit:	<0.005	<0.005	<0.005	<0.0002	<0.005	<0.05
Sample Result:	1.90	1.92	2.16	0.0049	1.98	2.08
Dup Result:	1.87	1.89	2.14	0.0051	1.97	2.07
Sample RPD:	2	2	1	4	1	0
Max RPD:	20	20	20	20	20	20
Dry Weight%	N/A	N/A	N/A	N/A	N/A	N/A
Matrix Spike						
Sample Spiked:	806424-1	806424-1	806424-1	806355-3	806424-1	806424-1
Rept Limit:	<0.005	<0.005	<0.005	<0.0002	<0.005	<0.05
Sample Result:	<0.005	<0.005	<0.005	<0.0002	<0.005	0.07
Spiked Result:	1.90	1.92	2.16	0.0049	1.98	2.08
Spike Added:	2.0	2.0	2.0	0.0050	2.0	2.0
% Recovery:	95	96	108	98	99	101
% Rec Limits:	75-125	75-125	75-125	75-125	75-125	75-125
Dry Weight%	N/A	N/A	N/A	N/A	N/A	N/A
ICV						
ICV Result:	0.99	1.00	1.01	0.0040	0.98	4.91
True Result:	1.0	1.0	1.0	0.0040	1.0	5.0
% Recovery:	99	100	101	100	98	98
% Rec Limits:	95-105	95-105	95-105	90-110	95-105	95-105
LCS						
LCS Result:	1.94	1.96	2.10	0.0049	1.97	2.01
True Result:	2.0	2.0	2.0	0.0050	2.0	2.0
% Recovery:	97	98	105	98	99	101
% Rec Limits:	80-120	80-120	80-120	85-115	80-120	80-120

"Metals Quality Control Report"

Parameter:	LEAD	MANGANESE	MOLYBDENUM	ZINC
Batch Id:	PYW176	GYW176	DYW176	5YW176
Blank Result:	<0.003	<0.005	<0.005	<0.02
Anal. Method:	6010A	6010A	6010A	6010A
Prep. Method:	3010A	3010A	3010A	3010A
Analysis Date:	06-JUL-98	06-JUL-98	01-JUL-98	01-JUL-98
Prep. Date:	29-JUN-98	29-JUN-98	29-JUN-98	29-JUN-98
Sample Duplication				
Sample Dup:	806424-1	806424-1	806424-1	806424-1
Rept Limit:	<0.003	<0.005	<0.005	<0.02
Sample Result:	1.92	2.05	2.03	1.69
Dup Result:	1.95	2.04	1.99	1.66
Sample RPD:	2	0	2	2
Max RPD:	20	20	20	20
Dry Weight%	N/A	N/A	N/A	N/A
Matrix Spike				
Sample Spiked:	806424-1	806424-1	806424-1	806424-1
Rept Limit:	<0.003	<0.005	<0.005	<0.02
Sample Result:	<0.003	0.015	<0.005	<0.02
Spiked Result:	1.92	2.05	2.03	1.69
Spike Added:	2.0	2.0	2.0	2.0
% Recovery:	96	102	102	85
% Rec Limits:	75-125	75-125	75-125	75-125
Dry Weight%	N/A	N/A	N/A	N/A
ICV				
ICV Result:	1.01	0.99	1.02	1.02
True Result:	1.0	1.0	1.0	1.0
% Recovery:	101	99	102	102
% Rec Limits:	95-105	95-105	95-105	95-105
LCS				
LCS Result:	1.94	1.98	2.04	1.82
True Result:	2.0	2.0	2.0	2.0
% Recovery:	97	99	102	91
% Rec Limits:	80-120	80-120	80-120	80-120

----- Common Footnotes Metals -----

N/A = NOT APPLICABLE.
N/S = NOT SUBMITTED.
N/C = SAMPLE AND DUPLICATE RESULTS ARE AT OR BELOW THE REPORTING LIMIT; THEREFORE, THE RPD IS "NOT CALCULABLE" AND NO CONTROL LIMITS APPLY.
N/D = NOT DETECTED.
DISS. OR D = DISSOLVED
T & D = TOTAL AND DISSOLVED
R = REACTIVE
T = TOTAL
G = SAMPLE AND/OR DUPLICATE RESULT IS BELOW 5 X THE REPORTING LIMIT AND THE ABSOLUTE DIFFERENCE BETWEEN THE SAMPLE AND DUPLICATE RESULT IS AT OR BELOW AEN REPORTING LIMIT; THEREFORE, THE RESULTS ARE "IN CONTROL".
Q = THE ANALYTICAL (POST-DIGESTION) SPIKE IS REPORTED DUE TO PERCENT RECOVERY BEING OUTSIDE ACCEPTANCE LIMITS ON THE MATRIX (PRE-DIGESTION) SPIKE.
= ELEVATED REPORTING LIMIT DUE TO INSUFFICIENT SAMPLE.
+ = ELEVATED REPORTING LIMIT DUE TO DILUTION INTO CALIBRATION RANGE.
* = ELEVATED REPORTING LIMIT DUE TO MATRIX INTERFERENCE. (DILUTION PRIOR TO ANALYSIS)
@ = ADJUSTED REPORTING LIMIT DUE TO SAMPLE MATRIX. (DILUTION PRIOR TO DIGESTION)
P = ANALYTICAL (POST DIGESTION) SPIKE.
I = DUPLICATE INJECTION.
& = AUTOMATED
F = SAMPLE SPIKED > 4 X SPIKE CONCENTRATION.
N/C+ = NOT CALCULABLE
N/C* = NOT CALCULABLE; SAMPLE SPIKED > 4 X SPIKE CONCENTRATION.
H = SAMPLE AND/OR DUPLICATE RESULT IS BELOW 5 X AEN REPORTING LIMIT AND THE ABSOLUTE DIFFERENCE BETWEEN THE RESULTS EXCEEDS THE AEN REPORTING LIMIT; THEREFORE, THE RESULTS ARE "OUT OF CONTROL".
A = SAMPLE AND DUPLICATE RESULTS ARE "OUT OF CONTROL".
Z = THE SAMPLE RESULT FOR THE SPIKE IS BELOW THE AEN REPORTING LIMIT. HOWEVER, THIS RESULT IS REPORTED FOR ACCURATE QC CALCULATIONS.
NH= THE RELATIVE PERCENT DIFFERENCE (RPD) EXCEEDS THE AEN CONTROL LIMIT AND IS "OUT OF CONTROL; DUE TO A NON-HOMOGENEOUS SAMPLE MATRIX.
J = (FLORIDA DEP 'J' FLAG) - MATRIX SPIKE AND POST SPIKE RECOVERY IS OUT OF THE ACCEPTABLE RANGE. SEE OUT OF CONTROL EVENTS FORM.
U = (FLORIDA DEP 'U' FLAG) - THE COMPOUND WAS ANALYZED FOR, BUT NOT DETECTED.
S = METHOD OF STANDARD ADDITIONS (MSA) WAS PERFORMED ON THIS SAMPLE.

FROM QUALITY CONTROL REPORT:
RPD= RELATIVE PERCENT DEVIATION.
REPT LIMIT= REPORTING LIMIT BASED ON METHOD DETECTION LIMIT STUDIES.

NOTE: ALL RESULTS REPORTED UNDER 'SAMPLE DUPLICATION' ARE THE MS/MSD.

NOTE: THE UNITS REPORTED ON THE QUALITY CONTROL REPORT ARE REPORTED ON AN AS RUN BASIS. (NOT ADJUSTED FOR DRY WEIGHT).

SW-846, 3rd Edition.
EPA 600/4-79-020, Revised March 1983.
NIOSH Manual of Analytical Methods, 4th Edition.
Standard Methods For the Examination of Water and Wastewater, 18th Edition, 1992.
Methods For the Determination of Metals in Environmental Samples - Supplement I, EPA 600/R-94-111, May 1994.

GJ = GARY JACOBS
GSP = GARY ST PERE
JLH = JAMES L. HERED
JL = JANET LECLEAR

SEVERN TRENT LABORATORIES 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Quality Control Report

Analysis: POLYNUCLEAR AROMATICS BY 8310

Accession:	806387
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806422
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	SEMI-VOLATILE FUELS

SEVERN TRENT LABORATORIES 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"QC Report"

Title: Water Blank
Batch: PAW149
Analysis Method: 8310/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.

Blank Id: A Date Analyzed: 02-JUL-98 Date Extracted: 30-JUN-98

Parameters:	Units:	Results:	Reporting Limits:
ACENAPHTHENE	UG/L	ND	1
ACENAPHTHYLENE	UG/L	ND	1
ANTHRACENE	UG/L	ND	1
BENZO(a)ANTHRACENE	UG/L	ND	1
BENZO(a)PYRENE	UG/L	ND	0.1
BENZO(b)FLUORANTHENE	UG/L	ND	1
BENZO(g,h,i)PERYLENE	UG/L	ND	1
BENZO(k)FLUORANTHENE	UG/L	ND	1
CHRYSENE	UG/L	ND	1
DIBENZO(a,h)ANTHRACENE	UG/L	ND	1
FLUORANTHENE	UG/L	ND	1
FLUORENE	UG/L	ND	1
INDENO(1,2,3-cd)PYRENE	UG/L	ND	1
NAPHTHALENE	UG/L	ND	1
PHENANTHRENE	UG/L	ND	1
PYRENE	UG/L	ND	1
1-METHYLNAPHTHALENE	UG/L	ND	0.3
2-METHYLNAPHTHALENE	UG/L	ND	1
2-CHLOROANTHRACENE	%REC/SURR	77	28-138
ANALYST	INITIALS	HAH	

Comments:

"QC Report"

Title: Water LCS
Batch: PAW149
Analysis Method: 8310/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.

RS Date Analyzed: 02-JUL-98 RS Date Extracted: 30-JUN-98

Parameters:	Spike Added	Sample Conc	RS Conc	RS %Rec	Rec Lmts
ACENAPHTHYLENE	7.1	<1	5.2	73	45-127
BENZO(k)FLUORANTHENE	9.2	<1	8.4	91	68-131
CHRYSENE	9.1	<1	8.3	91	69-131
PHENANTHRENE	9.1	<1	8.1	89	63-124
PYRENE	8.8	<1	8.2	93	61-126
Surrogates:					
2-CHLOROANTHRACENE				90	28-138

Comments:
NOT ENOUGH SAMPLE SUBMITTED TO EXTRACT MATRIX SPIKE/MATRIX SPIKE DUPLICATE.

Notes:
N/S = NOT SUBMITTED N/A = NOT APPLICABLE D = DILUTED OUT
UG/L = PARTS PER BILLION. < = LESS THAN REPORTING LIMIT.
* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS.
SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

Common Notation for Organic Reporting

N/S = NOT SUBMITTED
N/A = NOT APPLICABLE
UG = MICROGRAMS
UG/L = PARTS PER BILLION
UG/KG = PARTS PER BILLION
MG/M3 = MILLIGRAM PER CUBIC METER
PPMV = PART PER MILLION BY VOLUME
MG/KG = PARTS PER MILLION
MG/L = PARTS PER MILLION
< = LESS THAN
ND = NOT DETECTED

SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

ORGANIC SOILS ARE REPORTED ON A DRYWEIGHT BASIS.

RPT LMTS = REPORTING LIMITS BASED ON METHOD DETECTION LIMIT STUDIES.

RPD = RELATIVE PERCENT DIFFERENCE (OR DEVIATION)

AEN/GC/FID
AEN GAS CHROMATOGRAPHIC METHOD EMPLOYING DIRECT INJECTION ON COLUMN WITH FLAME IONIZATION DETECTOR (FID).

AEN/GC/FIX
AEN GAS CHROMATOGRAPHIC METHOD FOR ANALYSIS OF FIXED GASES EMPLOYING DIRECT INJECTION ON COLUMN WITH THERMAL CONDUCTIVITY DETECTOR (TCD) AND FLAME IONIZATION DETECTOR (FID).

AEN/GC/FPD
AEN GAS CHROMATOGRAPHIC METHOD EMPLOYING DIRECT INJECTION ON COLUMN WITH FLAME PHOTOMETRIC DETECTOR (FPD) IN SULFUR-SPECIFIC MODE.

AEN/GC/PID
AEN GAS CHROMATOGRAPHIC METHOD EMPLOYING DIRECT INJECTION ON COLUMN WITH PHOTOIONIZATION DETECTOR (PID).

AEN/GC/TCD
AEN GAS CHROMATOGRAPHIC METHOD EMPLOYING DIRECT INJECTION ON COLUMN WITH THERMAL CONDUCTIVITY DETECTOR (TCD).

SW-846 METHOD 9020
PARTICULATE MATTER IS REMOVED BY ALLOWING PARTICULATES TO SETTLE IN THE SAMPLE CONTAINER AND DECANTING THE SUPERNATANT LIQUID. EXCESSIVE PARTICULATES ARE REMOVED BY FILTRATION OF THE SUPERNATANT LIQUID.

RSK 175
SAMPLE PREPARATION AND CALCULATIONS FOR DISSOLVED GAS ANALYSIS IN WATER SAMPLES USING A GC HEADSPACE EQUILIBRATION TECHNIQUE, RSK SOP-175, ROBERT S. KERR ENVIRONMENTAL RESEARCH LABORATORY, USEPA, AUGUST 11, 1994.

AEN-PN USES THE MOST CURRENT PROMULGATED METHODS CONTAINED IN THE REFERENCE MANUALS.

SW = STEVE WILHITE
RW = ROBERT WOLFE
KS = KENDALL SMITH
LB = LISA BIZZELL
LP = LEVERNE PETERSON
PLD = PAULA DOUGHTY
DK = DARLENE KINCHEN
BT = BECKY TREMMEL
HAH = HOLLIE HOFFMAN

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Quality Control Report

Analysis: ACID & BASE EXTRACTABLES (8270)

Accession:	806387
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806422
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	ORGANIC/MS

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"QC Report"

Title: Water Blank
Batch: ALW079
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.

Blank Id: A Date Analyzed: 04-JUL-98 Date Extracted: 28-JUN-98

Parameters:	Units:	Results:	Reporting Limits:
BENZOIC ACID	UG/L	ND	1.7
4-CHLORO-3-METHYLPHENOL	UG/L	ND	0.4
2-CHLOROPHENOL	UG/L	ND	0.5
2,4-DICHLOROPHENOL	UG/L	ND	3.9
2,6-DICHLOROPHENOL	UG/L	ND	0.1
2,4-DIMETHYLPHENOL	UG/L	ND	0.5
4,6-DINITRO-2-METHYLPHENOL	UG/L	ND	1.6
2,4-DINITROPHENOL	UG/L	ND	3.3
2-METHYLPHENOL	UG/L	ND	0.3
4-METHYLPHENOL	UG/L	ND	0.5
2-NITROPHENOL	UG/L	ND	0.4
4-NITROPHENOL	UG/L	ND	0.7
PENTACHLOROPHENOL	UG/L	ND	0.7
PHENOL	UG/L	ND	0.5
2,3,4,6-TETRACHLOROPHENOL	UG/L	ND	0.6
2,4,5-TRICHLOROPHENOL	UG/L	ND	3.0
2,4,6-TRICHLOROPHENOL	UG/L	ND	0.3
ACENAPHTHENE	UG/L	ND	0.4
ACENAPHTHYLENE	UG/L	ND	0.4
ACETOPHENONE	UG/L	ND	0.4
4-AMINOBIPHENYL	UG/L	ND	0.7
ANILINE	UG/L	ND	0.5
ANTHRACENE	UG/L	ND	0.4
BENZIDINE	UG/L	ND	2.7
BENZO (A) ANTHRACENE	UG/L	ND	0.5
BENZO (A) PYRENE	UG/L	ND	0.2
BENZO (B) FLUORANTHENE	UG/L	ND	0.5
BENZO (G,H,I) PERYLENE	UG/L	ND	0.3
BENZO (K) FLUORANTHENE	UG/L	ND	0.7
BENZYL ALCOHOL	UG/L	ND	0.5
BIS(2-CHLOROETHOXY)METHANE	UG/L	ND	0.4
BIS(2-CHLOROETHYL)ETHER	UG/L	ND	0.5
BIS(2-CHLOROISOPROPYL)ETHER	UG/L	ND	1.9
BIS(2-ETHYLHEXYL)PHTHALATE	UG/L	ND	0.6
4-BROMOPHENYL PHENYL ETHER	UG/L	ND	0.4
BUTYLBENZYL PHTHALATE	UG/L	ND	0.5
4-CHLOROANILINE	UG/L	ND	0.4
1-CHLORONAPHTHALENE	UG/L	ND	0.6
2-CHLORONAPHTHALENE	UG/L	ND	0.4
4-CHLOROPHENYL PHENYL ETHER	UG/L	ND	0.5
CHRYSENE	UG/L	ND	0.7
DIBENZ(A,J)ACRIDINE	UG/L	ND	0.5
DIBENZO (A,H) ANTHRACENE	UG/L	ND	0.3
DIBENZOFURAN	UG/L	ND	0.4
1,2-DICHLOROBENZENE	UG/L	ND	0.3
1,3-DICHLOROBENZENE	UG/L	ND	0.3

"QC Report"

Title: Water Blank
Batch: ALW079
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.

Parameters:	Units:	Results:	Reporting Limits:
1,4-DICHLOROBENZENE	UG/L	ND	0.5
3,3'-DICHLOROBENZIDINE	UG/L	ND	0.4
DIETHYLPHTHALATE	UG/L	ND	0.4
P-DIMETHYLAMINOAZOBENZENE	UG/L	ND	0.4
7,12-DIMETHYLBENZ(A)ANTHRACENE	UG/L	ND	1.8
A-,A-DIMETHYLPHENETHYLAMINE	UG/L	ND	0.1
DIMETHYLPHTHALATE	UG/L	ND	0.4
DI-N-BUTYLPHTHALATE	UG/L	ND	0.4
2,4-DINITROTOLUENE	UG/L	ND	0.5
2,6-DINITROTOLUENE	UG/L	ND	0.5
DI-N-OCTYLPHTHALATE	UG/L	ND	0.7
DIPHENYLAMINE	UG/L	ND	0.5
1,2-DIPHENYLHYDRAZINE	UG/L	ND	0.3
FLUORANTHENE	UG/L	ND	0.5
FLUORENE	UG/L	ND	0.6
HEXACHLOROBENZENE	UG/L	ND	0.5
HEXACHLOROBUTADIENE	UG/L	ND	0.5
HEXACHLOROCYCLOPENTADIENE	UG/L	ND	0.6
HEXACHLOROETHANE	UG/L	ND	0.6
INDENO (1,2,3-CD) PYRENE	UG/L	ND	0.5
ISOPHORONE	UG/L	ND	0.4
3-METHYLCHOLANTHRENE	UG/L	ND	0.4
2-METHYLNAPHTHALENE	UG/L	ND	0.5
NAPHTHALENE	UG/L	ND	0.4
1-NAPHTHYLAMINE	UG/L	ND	1.5
2-NAPHTHYLAMINE	UG/L	ND	1.0
2-NITROANILINE	UG/L	ND	0.4
3-NITROANILINE	UG/L	ND	0.9
4-NITROANILINE	UG/L	ND	0.8
NITROBENZENE	UG/L	ND	0.5
N-NITROSODIMETHYLAMINE	UG/L	ND	1.2
N-NITROSODI-N-BUTYLAMINE	UG/L	ND	1.1
N-NITROSODIETHYLAMINE	UG/L*	ND	10
N-NITROSODIPHENYLAMINE	UG/L	ND	0.4
N-NITROSO-DI-N-PROPYLAMINE	UG/L	ND	0.4
N-NITROSOPIPERIDINE	UG/L	ND	0.8
N-NITROSOPYRROLIDINE	UG/L*	ND	10
PENTACHLOROBENZENE	UG/L	ND	0.4
PENTACHLORONITROBENZENE (PCNB)	UG/L	ND	5.0
PHENACETIN	UG/L	ND	0.4
PHENANTHRENE	UG/L	ND	0.4
2-PICOLINE	UG/L	ND	7.7
PRONAMIDE	UG/L	ND	0.4
PYRENE	UG/L	ND	0.5
1,2,4,5-TETRACHLOROBENZENE	UG/L	ND	0.4
1,2,4 TRICHLOROBENZENE	UG/L	ND	0.6
2-FLUOROPHENOL	%REC/SURR	86	21-100

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"QC Report"

Title: Water Blank
Batch: ALW079
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.

Parameters:	Units:	Results:	Reporting Limits:
PHENOL-D6	%REC/SURR	83	10-100
2,4,6-TRIBROMOPHENOL	%REC/SURR	83	10-123
2-FLUOROBIPHENYL	%REC/SURR	87	43-116
NITROBENZENE-D5	%REC/SURR	83	35-114
TERPHENYL-D14	%REC/SURR	107	33-124
ANALYST	INITIALS	RW	

Comments:

"QC Report"

Title: Water LCS
Batch: ALW079
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.

RS Date Analyzed: 07-JUL-98 RS Date Extracted: 28-JUN-98

Parameters:	Spike Added	Sample Conc	RS Conc	RS %Rec	Rec Lmts
PHENOL	150	<0.5	148	99	5-112
2-CHLOROPHENOL	150	<0.5	150	100	40-120
1,4-DICHLOROBENZENE	100	<0.5	96	96	32-119
N-NITRO-DI-N-PROPYLAMINE	100	<0.4	106	106	26-128
1,2,4 TRICHLOROBENZENE	100	<0.6	98	98	44-142
4-CHLORO-3-METHYLPHENOL	150	<0.5	154	103	30-128
ACENAPHTHENE	100	<0.4	110	110	47-145
4-NITROPHENOL	150	<0.7	154	103	1-132
2,4-DINITROTOLUENE	100	<0.5	108	108	39-138
PENTACHLOROPHENOL	150	<0.7	144	96	15-157
PYRENE	100	<0.5	114	114	52-115
Surrogates:					
NITROBENZENE-D5				81	35-114
2-FLUOROBIPHENYL				87	43-116
TERPHENYL-D14				100	33-124
PHENOL-D6				82	10-100
2-FLUOROPHENOL				80	21-100
2,4,6-TRIBROMOPHENOL				86	10-123

Comments:
* NOT ENOUGH SAMPLE SUBMITTED FOR EXTRACTION AND/OR ANALYSIS OF MATRIX SPIKE MATRIX SPIKE DUPLICATE.

Notes:
N/S = NOT SUBMITTED N/A = NOT APPLICABLE D = DILUTED OUT
UG/L = PARTS PER BILLION. < = LESS THAN REPORTING LIMIT.
* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS.
SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

Common notation for Organic reporting

N/S = NOT SUBMITTED
N/A = NOT APPLICABLE
UG/L = PARTS PER BILLION.
UG/KG = PARTS PER BILLION.
MG/KG = PARTS PER MILLION.
MG/L = PARTS PER MILLION.
MG/M3 = MILLIGRAMS PER CUBIC METER.
NG = NANOGRAMS.
UG = MICROGRAMS.
PPBV = PARTS PER BILLION/VOLUME.
< = LESS THAN.
ND = NOT DETECTED ABOVE REPORT LIMIT.
RPT LMTS = REPORTING LIMITS BASED ON METHOD DETECTION LIMIT STUDIES.
RPD = RELATIVE PERCENT DIFFERENCE (OR DEVIATION)

SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

ORGANIC SOILS ARE REPORTED ON A DRY WEIGHT BASIS.

DUE TO THE NATURE OF THE SAMPLE MATRIX, MATRIX SPIKE/MATRIX SPIKE DUPLICATE ANALYSIS CANNOT BE PERFORMED FOR AIR ANALYSIS.

CLP SOW 1991, USEPA CONTRACT LABORATORY PROGRAM, STATEMENT OF WORK FOR ORGANICS ANALYSIS, DOCUMENT NUMBER OLM01.8, AUGUST 1991.

AEN-PN USES THE MOST CURRENT PROMULGATED METHODS CONTAINED IN THE REFERENCE MANUALS.

LP = LEVERNE PETERSON	RW = RITA WINGO
LD = LARRY DILMORE	BDH = BRUCE D. HUNT
DWB = DAVID BOWERS	HB = HEATHER E. BLAIR

American Environmental Network of Florida
PROJECT SAMPLE INSPECTION FORM

Lab Accession #: 806387 Date Received: 26-Jun-98

1.	Was there a Chain of Custody?	(Yes)	No♣		
2.	Was Chain of Custody properly filled out and relinquished?	(Yes)	No♣		
3.	Were samples received cold? (Criteria: 2° - 6°C: AEN-SOP 1055)	(Yes)	No♣	N/A	
4.	Were all samples properly labeled and identified?	(Yes)	No♣		
5.	Did samples require splitting? Req By: PM Client Other♦	Yes♣	(No)		
6.	Were samples received in proper containers for analysis requested?	(Yes)	No♣		
7.	Were all sample containers received intact?	(Yes)	No♣		
8.	Were samples checked for preservative? *(Check pH of all H_2O requiring preservative (AEN-PN SOP 917) except VOA vials that require zero headspace)*+	(Yes)	No♣	N/A	
9.	Is there sufficient volume for analysis requested?	(Yes)	No♣		
10.	Were samples received within Holding Time? (REFER TO AEN-SOP 1040)	(Yes)	No♣		
11.	Is Headspace visible > ¼" in diameter in VOA vials?* If any headspace is evident, comment in out-of-control	Yes♣	No	(N/A)	
12.	If sent, were matrix spike bottles returned?	Yes	No♣	(N/A)	
13.	Was Project Manager notified of problems? (initials:_____)	Yes	No♣	(N/A)	

Airbill Number(s): See attached **Shipped By:** FEDEX

Cooler Number(s): 044L, 202L, 239L **Shipping Charges:** N/A

Cooler Weight(s): N/A **Cooler Temp(s) (°C):** 044L = 4.0°C - CCK 8, 202L = 4.0°C - CCK 4, 239L = 2.0°C - CCK 7
(LIST THERMOMETER NUMBER(S) FOR VERIFICATION)

Out of Control Events and Inspection Comments:

Project was received without an original COC. PEG 6/26/98

(USE BACK OF PSIF FOR ADDITIONAL NOTES AND COMMENTS) ☞

Inspected By: PEG **Date:** 6/26/98 **Logged By:** PEG **Date:** 6/26/98

♣ *Note all Out-of-Control and/or questionable events on Comment Section of this form.*

♦ *Note who requested the splitting of samples on the Comment Section of this form.*

\+ *All preservatives for the State of North Carolina, the State of New York, and other requested samples are to be recorded on the sheet provided to record pH results (AEN-SOP 938, section 2.2.9).*

* *According to EPA, ¼" of headspace is allowed in 40 ml vials requiring volatile analysis, however, AEN makes it policy to record any headspace as out-of-control (AEN-SOP 938, section 2.2.12).*

American Environmental Network (NM), Inc.

CHAIN OF CUSTODY

DATE: 6-25-98 PAGE: 1 OF 1

SHADED AREAS ARE FOR LAB USE ONLY

PLEASE FILL THIS FORM IN COMPLETELY.

PROJECT MANAGER:	Paul Peacock
COMPANY:	Marathon Oil Company
ADDRESS:	P.O. Box 552
	Midland, TX 79702-0552
PHONE:	(915) 687-8312
FAX:	(915) 687-8305
BILL TO:	same as above & 06387
COMPANY:	
ADDRESS:	

SAMPLE ID	DATE	TIME	MATRIX	# CONT.
SW-03	6-24-98	1530	H2O	
MW-83	6-25-98	0945		
MW-82		1150		
MW-65A		1430		

ANALYSIS REQUEST

Petroleum Hydrocarbons (418.1) TRPH	(MOD.8015) Diesel/Direct Inject	(M8015) Gas/Purge & Trap	8021 (BTEX)/8015 (Gasoline)	8021 (BTEX) ☐ MTBE ☐ TMB ☐ PCE	8021 (TCL)	8021 (EDX)	8021 (HALO)	8021 (CUST)	504.1 EDB ☐ / DBCP ☐	CHLORIDE/Anions/ TDS	8260 (TCL) Volatile Organics	8260 (Full) Volatile Organics	8260 (CUST) Volatile Organics	8260 (Landfill) Volatile Organics	Pesticides /PCB (608/8081)	Herbicides (615/8151)	Base/Neutral/Acid Compounds GC/MS (625/8270)	Polynuclear Aromatics (610/8310)	General Chemistry:	* SEE LIST	TOTAL METALS	Priority Pollutant Metals (13)	Target Analyte List Metals (23)	RCRA Metals (8)	RCRA Metals by TCLP (Method 1311)	Metals: * SEE LIST
										X					X		X	X		X	X					X
										X					X		X	X		X	X					X
										X					X		X	X		X	X					X
										X					X		X	X		X	X					X

PROJECT INFORMATION

PROJ. NO.:	104332.03
PROJ. NAME:	IBRP
P.O. NO.:	
SHIPPED VIA:	

SAMPLE RECEIPT

TOTAL CONTAINERS:	
CUSTODY SEALS:	
RECEIVED GOOD:	
TEMP:	

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH TURNAROUND

(RUSH) [ ] 24hr [ ] 48hr [ ] 72hr [ ] 1 WEEK (NORMAL) [X]

CERTIFICATION REQUIRED: [ ] NM [ ] SDWA [ ] OTHER

METHANOL PRESERVATION [ ]

COMMENTS: FIXED FEE [ ]

MW-83, 82, & 65A Product Wells

RELINQUISHED BY:	RECEIVED BY:
Signature:	Signature:
Time: 1500	Time: 1530
Printed Name: Charles Maderell	Printed Name: CHRIS FAITH
Date: 6-25-98	Date: 6/25
Company: FDGTF	Company: AEN

RELINQUISHED BY:	RECEIVED BY:
Signature:	Signature:
Time: 1500	Time:
Printed Name: CHRIS FAITH	Printed Name:
Date: 6/25	Date:
Company: AEN	Company:

DISTRIBUTION: White - AEN, Canary - Originator

American Environmental Network (NM), Inc.

CHAIN OF CUSTODY

DATE: 6-25-98 PAGE: 1 OF 1

AEN (NM) Accession #: [illegible]

SHADED AREAS ARE FOR LAB USE ONLY

PLEASE FILL THIS FORM IN COMPLETELY.

PROJECT MANAGER:	Paul Peacock
COMPANY:	Marathon Oil Company
ADDRESS:	P.O. Box 552
	Midland, Tx 79702-0552
PHONE:	(915) 687-8312
FAX:	(915) 687-8305
BILL TO:	same as above
COMPANY:	
ADDRESS:	

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)	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)	Herbicides (615/8151)	Base/Neutral/Acid Compounds GC/MS (625/8270)	Polynuclear Aromatics (610/8310)	General Chemistry:			Priority Pollutant Metals (13)	Target Analyte List Metals (23)	RCRA Metals (8)	RCRA Metals by TCLP (Method 1311)	Metals:		NUMBER OF CONTAINERS
SW-03	6-24-98	1530	H_2O	01									X	X			X															6
MW-83	6-25-98	0945		02									X	X			X															6
MW-82	"	1150	"	03									X	X			X															6
MW-65A	"	1430	"	04									X	X			X															6
Trip Blank	6/17	1440	AQ	05													X															1

PROJECT INFORMATION	
PROJ. NO.:	104332.03
PROJ. NAME:	IBRP
P.O. NO.:	
SHIPPED VIA:	

SAMPLE RECEIPT	
NO. CONTAINERS:	25
CUSTODY SEALS:	Y / N / NA
RECEIVED INTACT:	Yes
BLUE ICE/ICE:	5.3° 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 ☐

MW-83, 82, & 65A Product wells

RELINQUISHED BY: 1.	RELINQUISHED BY: 2.
Signature:	Signature:
Time: 1500	Time: 1530
Printed Name: Charles Madere	Printed Name: CHRIS FAITH
Date: 6-25-98	Date: 6/25
Company: FDGE	Company: AEN
RECEIVED BY: 1.	**RECEIVED BY: (LAB) 2.**
Signature:	Signature:
Time: 1500	Time: 11:45
Printed Name: CHRIS FAITH	Printed Name: Francine Irmo
Date: 6/25	Date: 6/27/98
Company: AEN	American Environmental Network (NM) Inc.

RECEIVED

AEN I.D. 806422

July 30, 1998

MARATHON OIL COMPANY
P.O. BOX 552
MIDLAND, TX 79702-0552

Project Name IBRP
Project Number 104332.03

Attention: PAUL PEACOCK

On 6/27/98 American Environmental Network (NM), Inc. (ADHS License No. AZ0015), 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.

This report is being reissued in part to include the radiochemistry results. This report was originally dated 7/28/98. Radiochemistry was performed by STL, Morrisville, NC.

EPA methods 504.1, 8021 and 8260 were performed by American Environmental Network (NM) Inc., Albuquerque, NM.

Uranium was performed by North Creek Analytical, Portland, OR.

All other parameters were performed by STL, Pensacola, FL.

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	: MARATHON OIL COMPANY	AEN I.D.	: 806422
PROJECT #	: 104332.03	DATE RECEIVED	: 6/27/98
PROJECT NAME	: IBRP	REPORT DATE	: 7/28/98

AEN ID. #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	SW-03	AQUEOUS	6/24/98
02	MW-83	AQUEOUS	6/25/98
03	MW-82	AQUEOUS	6/25/98
04	MW-65A	AQUEOUS	6/25/98
05	TRIP BLANK	AQUEOUS	6/17/98

Committed To *Your* Success

Severn Trent Laboratories
120 Southcenter Court, Suite 300
Morrisville NC 27560

Tel: (919) 460-8505
Fax: (919) 469-2646

July 29, 1998

American Environmental Network
Attn: Dr. Mitch Rubenstein
2709D PanAmerican Freeway NE
Albuquerque, NM 87107

Dear Dr. Rubenstein:

Please find enclosed the radiological results of four (4) water samples. This report contains sections addressing the following information at a minimum:

- case narrative
- sample summary
- analytical results (forms I thru VII), key, and COC's if applicable

STL Project #s	[illegible]
STL Work Order #s	[illegible]
Client Project ID	[illegible]

Copies of this radiological report and supporting data are maintained in our files for a minimum of three years unless special arrangements have been made. Except where specifically indicated, all radiological testing was performed at this laboratory location and no portion of the testing was subcontracted.

We appreciate your selection of our services and welcome any questions or suggestions you may have relative to this report. Please contact your customer service representative at (919) 460-8505 for any additional information. Thank you for utilizing our services. We hope you will consider us for your future analytical needs.

I have reviewed and approved the enclosed data for final release.

Sincerely,

Ross W. Williams

Ross W. Williams, Ph.D.
Manager, Radiological Laboratory
STL-North Carolina

RWW/mevl

Committed To *Your* Success

CASE NARRATIVE
Client: American Environmental Network - NM
Client Project ID: 104332.03
STL-NC Order Number: 98-06-502
STL-NC Project Number: 2399-021

Four (4) water samples were received on June 29, 1998, in good condition with the chain-of-custody intact.

The samples were analyzed for Ra-226 and Ra-228.

A method blank was analyzed with each batch, and the activities of the blanks were equal to or less than the acceptance criteria of less than three times the MDL.

A blank spike sample was analyzed with each batch, and the recoveries were within the 80-120% acceptance criteria.

A matrix spike analysis was made with each batch also. The matrix spike recoveries were within the acceptance criteria of 80-120% for water samples.

A duplicate sample was analyzed for each batch. The duplicate analyses were within our acceptance criteria of a Duplicate Error Ratio (DER) of less than 1.5. The DER is defined as follows:

$$DER = \frac{|S-D|}{(2\sigma_s + 2\sigma_d)}$$

Where: S = Original Sample Value
D = Duplicate Value
$2\sigma_s$ = Original Sample Uncertainty
$2\sigma_d$ = Duplicate Sample Uncertainty

Ross W. Williams, Ph.D.
Manager, Radiological Laboratory
7/29/98

C:\NET2\WP\AEN-NM 2399-020.WPD

Environmental Survey

Cover Page

Radiological Data Analysis Package

07/28/98

120 Southcenter Ct., Suite 300
Morrisville, NC 27560

Phone (919) 460-8505
Fax (919) 469-2646

Project Number: 2399-021

NC - 806422

Client Sample ID	Lab ID
SW-03	9806502-01
MW-83	9806502-02
MW-82	9806502-03
MW-65A	9806502-04

Comments: _____

Release of the data contained in this package has been authorized by the laboratory manager or the manager's designee, as verified by the following signature.

Ross W. Williams
Manager, Radiological Laboratory

7/29/98
Date

STL

Project Number: 2399-021

Severn Trent Laboratories

Radiological Analysis Results

NC - 806422

07/28/98

Form I

Client Sample ID	Lab ID	Sample Type	Batch Number	Matrix	Radionuclide	Result	Uncertainty	Q	Units	Analysis Date	Sample Size	MDA
SW-03	9806502-01	Reg	98070007	Water	Ra-226	0.23	0.16		pCi/L	07/27/98	0.5000	0.16
SW-03	9806502-01	Reg	98070009	Water	Ra-228	2.83	1.04		pCi/L	07/15/98	1.0000	2.08
MW-83	9806502-02	Reg	98070007	Water	Ra-226	0.25	0.14		pCi/L	07/27/98	0.5000	0.15
MW-83	9806502-02	Reg	98070009	Water	Ra-228	0.89	0.87		pCi/L	07/15/98	1.0000	1.93
MW-82	9806502-03	Reg	98070007	Water	Ra-226	0.30	0.09		pCi/L	07/27/98	0.5000	0.07
MW-82	9806502-03	Reg	98070009	Water	Ra-228	-4.38	0.72		pCi/L	07/15/98	1.0000	2.46
MW-65A	9806502-04	Reg	98070007	Water	Ra-226	0.67	0.17		pCi/L	07/27/98	0.5000	0.14
MW-65A	9806502-04	Reg	98070009	Water	Ra-228	0.71	0.98		pCi/L	07/16/98	1.0000	2.25

Key shall be attached

Comments: _____

_____

_____

MDA mod

Project Number: 2399-021

QA/QC Results Summary

NC - 806422

07/28/98

Form II

Client Sample ID	Lab ID	Sample Type	Batch Number	Matrix	Radionuclide	Result	Uncertainty	Units	Analysis Date	Sample Size	MDA	Inst ID
Blank Spike	N/A	BS	98070007	Water	Ra-226	136.19	1.49	pCi/L	07/20/98	0.5000	0.08	5
Blank Spike	N/A	BS	98070009	Water	Ra-228	93.02	3.84	pCi/L	07/10/98	1.0000	2.07	1
MW-54	9806501-01	Dup	98070007	Water	Ra-226	8.89	0.56	pCi/L	07/24/98	0.5000	0.13	5
MW-54	9806501-01	Dup	98070009	Water	Ra-228	7.29	1.19	pCi/L	07/15/98	1.0000	1.88	1
Method Blank	N/A	MB	98070007	Water	Ra-226	0.06	0.07	pCi/L	07/20/98	0.5000	0.09	5
Method Blank	N/A	MB	98070009	Water	Ra-228	-0.90	1.09	pCi/L	07/10/98	1.0000	2.76	1
MW-55	9806501-02	MS	98070007	Water	Ra-226	124.17	2.15	pCi/L	07/24/98	0.5000	0.17	5
MW-55	9806501-02	MS	98070009	Water	Ra-228	106.93	3.72	pCi/L	07/15/98	1.0000	1.76	1

Key shall be attached

Comments: _____

MDA mode

Form III

Client Sample ID	Batch Number	Matrix	Radionuclide	Result	Uncertainty	Q	Units	Analysis Date	Sample Size	Method Number	Inst ID
Method Blank	98070007	Water	Ra-226	0.06	0.07		pCi/L	07/20/98	0.5000	RAS01900	5
Method Blank	98070009	Water	Ra-228	-0.90	1.09		pCi/L	07/10/98	1.0000	RAS08500	1

Key shall be attached

Comments: _____

Chemical Recovery

NC - 806422

07/28/98

Form IV

Client Sample ID	Lab ID	Sample Type	Batch Number	Radionuclide	Chemical Tracer	Tracer Result	Tracer Added	Percent Recovery	Q	Tracer Units	Analysis Date	Inst ID
SW-03	9806502-01	Reg	98070007	Ra-226	Ba-133	1022.00	1240.00	82.42 %		pCi	07/27/98	5
SW-03	9806502-01	Reg	98070009	Ra-228	Ba-133	1028.00	1260.00	81.59 %		pCi	07/15/98	1
MW-83	9806502-02	Reg	98070007	Ra-226	Ba-133	1199.00	1240.00	96.69 %		pCi	07/27/98	5
MW-83	9806502-02	Reg	98070009	Ra-228	Ba-133	839.80	1309.00	64.16 %		pCi	07/15/98	1
MW-82	9806502-03	Reg	98070007	Ra-226	Ba-133	1123.00	1258.00	89.27 %		pCi	07/27/98	5
MW-82	9806502-03	Reg	98070009	Ra-228	Ba-133	987.10	1260.00	78.34 %		pCi	07/15/98	1
MW-65A	9806502-04	Reg	98070007	Ra-226	Ba-133	1183.00	1258.00	94.04 %		pCi	07/27/98	5
MW-65A	9806502-04	Reg	98070009	Ra-228	Ba-133	1043.00	1309.00	79.68 %		pCi	07/16/98	1
Blank Spike	N/A	BS	98070007	Ra-226	Ba-133	1234.00	1260.00	97.94 %		pCi	07/20/98	5
Blank Spike	N/A	BS	98070009	Ra-228	Ba-133	1020.00	1260.00	80.95 %		pCi	07/10/98	1
MW-54	9806501-01	Dup	98070007	Ra-226	Ba-133	994.00	1258.00	79.01 %		pCi	07/24/98	5
MW-54	9806501-01	Dup	98070009	Ra-228	Ba-133	1188.00	1309.00	90.76 %		pCi	07/15/98	1
Method Blank	N/A	MB	98070007	Ra-226	Ba-133	1244.00	1260.00	98.73 %		pCi	07/20/98	5
Method Blank	N/A	MB	98070009	Ra-228	Ba-133	1083.00	1309.00	82.73 %		pCi	07/10/98	1
MW-55	9806501-02	MS	98070007	Ra-226	Ba-133	1172.00	1258.00	93.16 %		pCi	07/24/98	5
MW-55	9806501-02	MS	98070009	Ra-228	Ba-133	1030.00	1260.00	81.75 %		pCi	07/15/98	1

Key shall be attached

Comments: _____

_____

_____

MDA mode

STL

Project Number: 2399-021

Blank Spike Results Summary

NC - 806422

07/28/98

Form V

Client Sample ID	Batch Number	Matrix	Radionuclide	Spike	Result	Spike Value	Percent Recovery	Q	Units	Analysis Date	Method Number
Blank Spike	98070007	Water	Ra-226	Ra-226	136.19	145.40	93.67%		pCi/L	07/20/98	RAS01900
Blank Spike	98070009	Water	Ra-228	Ra-228	93.02	87.75	106.01%		pCi/L	07/10/98	RAS08500

Key shall be attached

Comments: _____

_____

_____

MDA mo

Matrix Spike Results Summary

NC - 806422

07/28/98

Form VI

Client Sample ID	Lab ID	Batch Number	Spike	SSR	Sample Result	Spike Added	Percent Recovery	Q	Units	Analysis Date	Inst ID
MW-55	9806501-02	98070007	Ra-226	124.17	6.74	145.40	80.76 %		pCi/L	07/24/98	5
MW-55	9806501-02	98070009	Ra-228	106.93	3.21	87.75	118.20 %		pCi/L	07/15/98	1

Key shall be attached

Comments: _____

_____

_____

MDA mode

Form VII

Client Sample ID	Lab ID	Batch Number	Radionuclide	Sample Result	Uncertainty	Dup. Result	Dup. Uncertainty	DER	Q	Units
MW-54	9806501-01	98070007	Ra-226	10.45	0.49	8.89	0.56	1.49		pCi/L
MW-54	9806501-01	98070009	Ra-228	6.60	1.12	7.29	1.19	0.30		pCi/L

Key shall be attached

Comments: _____

_____

_____

Committed To *Your* Success

REPORT FORM KEY

Severn Trent Laboratories
120 Southcenter Court, Suite 300
Morrisville NC 27560

Tel: (919) 460-8505
Fax: (919) 469-2646

Instrument ID:

#1 - Gas Proportional Counter
#2 - High Purity Germanium Detectors (HPGe)
#3 - Alpha Spectrometry Counter
#4 - Liquid Scintillation Counter
#5 - Lucas Cell Counter
#6 - Sodium Iodide Detector

Sample Type:

REG - Regular Sample
DUP - Duplicate Sample
MS - Matrix Spike
BS - Blank Spike
MB - Method Blank

Units:

pCi/L - Picocuries per Liter
pCi/g - Picocuries per Gram
pCi/ml - Picocuries per Milliliter
pCi/mg - Picocuries per Milligram
pCi/F - Picocuries per Air Filter

Radionuclides:

H-3	Tritium	C-14	Carbon-14
Cl-36	Chlorine-36	K-40	Potassium-40
Co-60	Cobalt-60	Sr-89	Strontium-89
Sr-90	Strontium-90	Tc-99	Technetium-99
Cs-137	Cesium-137	Tl-208	Thallium-208
Pb-210	Lead-210	Pb-212	Lead-212
Pb-214	Lead-214	Bi-214	Bismuth-214
Ra-226	Radium-226	Ac-228	Actinium-228
Ra-228	Radium-228	Th-234	Thorium-234
Th-227	Thorium-227	Th-232/230/228	Isotopic Thorium
U-234/235/238	Isotopic Uranium	Pu-238	Plutonium-238
Pu-239/240	Plutonium-239&240	Am-241	Americium-241
Np-237	Neptunium-237		

WORK ORDER

Lab

Work Order #	98-06-502	# of Samples	4	Recieved Date	06/29/98	American Environ. Network
Client #	2399	# of Tests	8	Load Date	06/29/98	2709D PanAmerican Freeway NE
Project	2399-021	Report Level	2	Due Date	07/16/98	Albuquerque, NM 87107
Amount	123.25	Quote #		Export Date	/ /	Mitch Rubenstein
Comment						

Lab ID	Sample #	Status	Matrix	Test	Cust ID	Collected
9806502-01	01A1	Open	Water	Ra-226	SW-03	06/24/98
9806502-01	01A2	Open	Water	Ra-228	SW-03	06/24/98
9806502-02	02A1	Open	Water	Ra-226	MW-83	06/24/98
9806502-02	02A2	Open	Water	Ra-228	MW-83	06/24/98
9806502-03	03A1	Open	Water	Ra-226	MW-82	06/24/98
9806502-03	03A2	Open	Water	Ra-228	MW-82	06/24/98
9806502-04	04A1	Open	Water	Ra-226	MW-65A	06/24/98
9806502-04	04A2	Open	Water	Ra-228	MW-65A	06/24/98

pH Checked
All Samples pH <2
Initials: sls **Date:** 6-29-98

American Environmental Network (NM), Inc.

CHAIN OF CUSTODY

DATE: 6-25-98 PAGE: 1 OF 1

AEN(NM) Accession #: 806428

SHADED AREAS ARE FOR LAB USE ONLY

PLEASE FILL THIS FORM IN COMPLETELY.

PROJECT MANAGER: Paul Peacock

COMPANY: Marathon Oil Company
ADDRESS: P.O. BOX 552
Midland, TX 79702-0552
PHONE: (915) 687-8312
FAX: (915) 687-8305
BILL TO: same as above
COMPANY:
ADDRESS:

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	NUMBER OF CONTAINERS
SW-03	6-24-98	1530	H2O		4
MW-83	6-25-98	0945	"		4
MW-82	"	1150	"		4
MW-65A	"	1430	"		4

ANALYSIS REQUEST

Petroleum Hydrocarbons (418.1) TRPH	(MOD.8015) Diesel/Direct Inject	(M8015) Gas/Purge & Trap	8021 (BTEX)/8015 (Gasoline)	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)	Herbicides (615/8151)	Base/Neutral/Acid Compounds GC/MS (625/8270)	Polynuclear Aromatics (610/8310)	General Chemistry:	Ba 226/228		Priority Pollutant Metals (13)	Target Analyte List Metals (23)	RCRA Metals (8)	RCRA Metals by TCLP (Method 1311)	Metals:	
																				X	X					
																				X	X					
																				X	X					

PROJECT INFORMATION

PROJ. NO.: 104332.03
PROJ. NAME: IBRP
P.O. NO.:
SHIPPED VIA:

SAMPLE RECEIPT

NO. CONTAINERS	
CUSTODY SEALS	Y / N / NA
RECEIVED INTACT	
BLUE ICE/ICE	

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

(RUSH) ☐ 24hr ☐ 48hr ☐ 72hr ☐ 1 WEEK (NORMAL) X

CERTIFICATION REQUIRED: ☐ NM ☐ SDWA ☐ OTHER

METHANOL PRESERVATION ☐

COMMENTS: FIXED FEE ☐
MW-83, 82, & 65A Product wells

RELINQUISHED BY: 1

Signature: [signature] Time: 1500
Printed Name: Charles Maxwell Date: 6-25-98
Company: FDGTI

RECEIVED BY: 1

Signature: [signature] Time: 1500
Printed Name: CHRIS FAITH Date: 6/25
Company: AEN

RELINQUISHED BY: 2

Signature: [signature] Time: 1530
Printed Name: CHRIS FAITH Date: 6/25
Company: AEN

RECEIVED BY: (LAB) 2

Signature: [signature] Time: 9:00
Printed Name: Eric Barnes Date: 6/26
American Environmental Network (NM), Inc.

DISTRIBUTION: White - AEN, Canary - Originator

RECEIVED

AEN I.D. 806426

July 28, 1998

MARATHON OIL COMPANY
P.O. BOX 552
MIDLAND, TX 79702-0552

Project Name IBRP
Project Number 104332.03

Attention: PAUL PEACOCK

On 7/1/98 American Environmental Network (NM), Inc. (ADHS License No. AZ0015), 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.

Radiochemistry results (Ra 226/228) will follow in a separate report.

EPA methods 504.1, 8021 and 8260 were performed by American Environmental Network (NM) Inc., Albuquerque, NM.

Uranium was performed by North Creek Analytical, Portland, OR.

All other parameters were performed by STL, Pensacola, FL.

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	: MARATHON OIL COMPANY	AEN I.D.	: 806426
PROJECT #	: 104332.03	DATE RECEIVED	: 7/1/98
PROJECT NAME	: IBRP	REPORT DATE	: 7/28/98

AEN ID. #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	LYMAN	AQUEOUS	6/29/98
02	LYMAN LC	AQUEOUS	6/29/98
03	MW-73	AQUEOUS	6/30/98
04	MW-72	AQUEOUS	6/30/98
05	MW-75	AQUEOUS	6/30/98
06	MW-110	AQUEOUS	6/30/98
07	SW-01	AQUEOUS	6/30/98
08	SW-01DP	AQUEOUS	6/30/98
09	TRIP BLANK	AQUEOUS	6/11/98

GAS CHROMOTOGRAPHY RESULTS

TEST : ETHYLENE DIBROMIDE (EPA 504.1)
CLIENT : MARATHON OIL COMPANY AEN I.D.: 806426
PROJECT # : 104332.03
PROJECT NAME : IBRP

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
01	LYMAN	AQUEOUS	6/29/98	7/2/98	7/3/98	1
02	LYMAN LC	AQUEOUS	6/29/98	7/2/98	7/3/98	1
03	MW-73	AQUEOUS	6/30/98	7/2/98	7/3/98	1

PARAMETER	DET. LIMIT	UNITS	01	02	03
ETHYLENE DIBROMIDE	0.01	UG/L	< 0.01	< 0.01	< 0.01
SURROGATE:					
1,4-DICHLOROBENZENE			86	85	86
SURROGATE LIMITS	(75 - 141)				

CHEMIST NOTES:
N/A

GAS CHROMOTOGRAPHY RESULTS

TEST : ETHYLENE DIBROMIDE (EPA 504.1)
CLIENT : MARATHON OIL COMPANY AEN I.D.: 806426
PROJECT # : 104332.03
PROJECT NAME : IBRP

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
04	MW-72	AQUEOUS	6/30/98	7/2/98	7/3/98	1
05	MW-75	AQUEOUS	6/30/98	7/2/98	7/3/98	1
06	MW-110	AQUEOUS	6/30/98	7/2/98	7/3/98	1

PARAMETER	DET. LIMIT	UNITS	04	05	06
ETHYLENE DIBROMIDE	0.01	UG/L	< 0.01	< 0.01	< 0.01
SURROGATE:					
1,4-DICHLOROBENZENE			77	81	82
SURROGATE LIMITS	(75 - 141)				

CHEMIST NOTES:
N/A

GAS CHROMOTOGRAPHY RESULTS

TEST : ETHYLENE DIBROMIDE (EPA 504.1)
CLIENT : MARATHON OIL COMPANY AEN I.D.: 806426
PROJECT # : 104332.03
PROJECT NAME : IBRP

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
07	SW-01	AQUEOUS	6/30/98	7/2/98	7/3/98	1
08	SW-01DP	AQUEOUS	6/30/98	7/2/98	7/3/98	1

PARAMETER	DET. LIMIT	UNITS	07	08
ETHYLENE DIBROMIDE	0.01	UG/L	< 0.01	< 0.01
SURROGATE:				
1,4-DICHLOROBENZENE			91	85
SURROGATE LIMITS	(75 - 141)			

CHEMIST NOTES:

GAS CHROMOTOGRAPHY RESULTS
REAGENT BLANK

TEST	: ETHYLENE DIBROMIDE (EPA 504.1)		
BLANK I.D.	: 070298B	AEN I.D.	: 806426
CLIENT	: MARATHON OIL COMPANY	MATRIX	: AQUEOUS
PROJECT #	: 104332.03	DATE EXTRACTED	: 7/2/98
PROJECT NAME	: IBRP	DATE ANALYZED	: 7/3/98

PARAMETER	DET. LIMIT	UNITS	
ETHYLENE DIBROMIDE	0.01	UG/L	<0.01
SURROGATE:			
1,4-DICHLOROBENZENE			82
SURROGATE LIMITS	(78 - 140)		

CHEMIST NOTES:
N/A

GAS CHROMOTOGRAPHY RESULTS
QUALITY CONTROL
MSMSD

TEST	: ETHYLENE DIBROMIDE (EPA 504.1)		
MSMSD #	: 070298B	AEN I.D.	: 806426
CLIENT	: MARATHON OIL COMPANY	DATE EXTRACTED	: 7/2/98
PROJECT #	: 104332.03	DATE ANALYZED	: 7/3/98
PROJECT NAME	: IBRP	MATRIX	: AQUEOUS
		UNITS	: UG/L

PARAMETER	SAMPLE RESULT	CONC. SPIKE	SPIKED SAMPLE	% REC	DUP SPIKE	DUP % REC	% RPD
ETHYLENE DIBROMIDE	<0.01	0.25	0.26	104%	0.29	116%	11%

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 CHROMOTOGRAPHY RESULTS

TEST : PURGEABLE HALOCARBONS / AROMATICS (EPA 8021)
CLIENT : MARATHON OIL COMPANY AEN I.D.: 806426
PROJECT # : 104332.03
PROJECT NAME : IBRP

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
01	LYMAN	AQUEOUS	6/29/98	NA	7/7/98	1
02	LYMAN LC	AQUEOUS	6/29/98	NA	7/7/98	1
03	MW-73	AQUEOUS	6/30/98	NA	7/7/98	1

PARAMETER	DET. LIMIT	UNITS	01	02	03
TETRACHLOROETHENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
VINYL CHLORIDE	0.5	UG/L	< 0.5	< 0.5	< 0.5

SURROGATE:

BROMOCHLOROMETHANE (%)		100	112	101
SURROGATE LIMITS	(73 - 117)			

CHEMIST NOTES:
N/A

GAS CHROMOTOGRAPHY RESULTS

TEST : PURGEABLE HALOCARBONS / AROMATICS (EPA 8021)
CLIENT : MARATHON OIL COMPANY AEN I.D.: 806426
PROJECT # : 104332.03
PROJECT NAME : IBRP

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
04	MW-72	AQUEOUS	6/30/98	NA	7/7/98	1
05	MW-75	AQUEOUS	6/30/98	NA	7/7/98	1
06	MW-110	AQUEOUS	6/30/98	NA	7/7/98	1

PARAMETER	DET. LIMIT	UNITS	04	05	06
TETRACHLOROETHENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
VINYL CHLORIDE	0.5	UG/L	< 0.5	< 0.5	< 0.5
SURROGATE:					
BROMOCHLOROMETHANE (%)			96	99	97
SURROGATE LIMITS	(73 - 117)				

CHEMIST NOTES:
N/A

GAS CHROMOTOGRAPHY RESULTS

TEST : PURGEABLE HALOCARBONS / AROMATICS (EPA 8021)
CLIENT : MARATHON OIL COMPANY AEN I.D.: 806426
PROJECT # : 104332.03
PROJECT NAME : IBRP

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
07	SW-01	AQUEOUS	6/30/98	NA	7/7/98	1
08	SW-01DP	AQUEOUS	6/30/98	NA	7/7/98	1

PARAMETER	DET. LIMIT	UNITS	07	08
TETRACHLOROETHENE	0.5	UG/L	< 0.5	< 0.5
VINYL CHLORIDE	0.5	UG/L	< 0.5	< 0.5

SURROGATE:
BROMOCHLOROMETHANE (%) 104 101
SURROGATE LIMITS (73 - 117)

CHEMIST NOTES:
N/A

GAS CHROMOTOGRAPHY RESULTS
REAGENT BLANK

TEST	: PURGEABLE HALOCARBONS / AROMATICS (EPA 8021)		
		AEN I.D.	: 806426
BLANK I. D.	: 070798	DATE EXTRACTED	: N/A
CLIENT	: MARATHON OIL COMPANY	DATE ANALYZED	: 7/7/98
PROJECT #	: 104332.03	SAMPLE MATRIX	: AQUEOUS
PROJECT NAME	: IBRP		

PARAMETER	UNITS	
CHLOROBENZENE	UG/L	<0.5
1,1-DICHLOROETHENE	UG/L	<0.2
TETRACHLOROETHENE	UG/L	<0.5
TRICHLOROETHENE	UG/L	<0.3
VINYLCHLORIDE	UG/L	<0.5
SURROGATE:		
BROMOCHLOROMETHANE (%)		109

SURROGATE LIMITS: (73 - 117)

CHEMIST NOTES:
N/A

GAS CHROMOTOGRAPHY QUALITY CONTROL
MSMSD

TEST	: PURGEABLE HALOCARBONS / AROMATICS (EPA 8021)		
MSMSD #	: 807301-01	AEN I.D.	: 806426
CLIENT	: MARATHON OIL COMPANY	DATE EXTRACTED	: N/A
PROJECT #	: 104332.03	DATE ANALYZED	: 7/7/98
PROJECT NAME	: IBRP	SAMPLE MATRIX	: AQUEOUS
		UNITS	: UG/L

PARAMETER	SAMPLE RESULT	CONC SPIKE	SPIKED SAMPLE	% REC	DUP SPIKE	DUP % REC	RPD	REC LIMITS	RPD LIMITS
1,1-DICHLOROETHANE	**2.0**	10.0	8.4	84	9.5	95	12	(44 - 99)	20
TRICHLOROETHANE	<0.3	10.0	9.5	95	10.7	107	12	(89 - 127)	20
CHLOROBENZENE	<0.5	10.0	9.3	93	10.5	105	12	(87 - 124)	20

CHEMIST NOTES:
N/A

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

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

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806426
PROJECT #	: 104332.03	DATE RECEIVED :	7/1/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806426-01	LYMAN	AQUEOUS	6/29/98	N/A	07/09/98	1

PARAMETER	DET. LIMIT		UNITS
Dichlorodifluoromethane	1.0	< 1.0	ug/L
Chloromethane	1.0	< 1.0	ug/L
Vinyl Chloride	1.0	< 1.0	ug/L
Bromomethane	1.0	< 1.0	ug/L
Chloroethane	1.0	< 1.0	ug/L
Trichlorofluoromethane	1.0	< 1.0	ug/L
Acetone	10	< 10	ug/L
Acrolein	5.0	< 5.0	ug/L
1,1-Dichloroethene	1.0	< 1.0	ug/L
Iodomethane	1.0	< 1.0	ug/L
Methylene Chloride	1.0	< 1.0	ug/L
Acrylonitrile	5.0	< 5.0	ug/L
cis-1,2-Dichloroethene	1.0	< 1.0	ug/L
Methyl-t-butyl Ether	1.0	< 1.0	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 1.0	ug/L
1,1-Dichloroethane	1.0	< 1.0	ug/L
trans-1,2-Dichloroethene	1.0	< 1.0	ug/L
2-Butanone	10	< 10	ug/L
Carbon Disulfide	1.0	< 1.0	ug/L
Bromochloromethane	1.0	< 1.0	ug/L
Chloroform	1.0	< 1.0	ug/L
2,2-Dichloropropane	1.0	< 1.0	ug/L
1,2-Dichloroethane	1.0	< 1.0	ug/L
Vinyl Acetate	1.0	< 1.0	ug/L
1,1,1-Trichloroethane	1.0	< 1.0	ug/L
1,1-Dichloropropene	1.0	< 1.0	ug/L
Carbon Tetrachloride	1.0	< 1.0	ug/L
Benzene	1.0	< 1.0	ug/L
1,2-Dichloropropane	1.0	< 1.0	ug/L
Trichloroethene	1.0	< 1.0	ug/L
Bromodichloromethane	1.0	< 1.0	ug/L
2-Chloroethyl Vinyl Ether	10	< 10	ug/L
cis-1,3-Dichloropropene	1.0	< 1.0	ug/L
trans-1,3-Dichloropropene	1.0	< 1.0	ug/L
1,1,2-Trichloroethane	1.0	< 1.0	ug/L
1,3-Dichloropropane	1.0	< 1.0	ug/L
Dibromomethane	1.0	< 1.0	ug/L
Toluene	1.0	< 1.0	ug/L
1,2-Dibromoethane	1.0	< 1.0	ug/L
4-Methyl-2-Pentanone	10	< 10	ug/L
2-Hexanone	10	< 10	ug/L
Dibromochloromethane	1.0	< 1.0	ug/L
Tetrachloroethene	1.0	< 1.0	ug/L
Chlorobenzene	1.0	< 1.0	ug/L
Ethylbenzene	1.0	< 1.0	ug/L
1,1,1,2-Tetrachloroethane	1.0	< 1.0	ug/L
m&p Xylenes	1.0	< 1.0	ug/L

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806426
PROJECT #	: 104332.03	DATE RECEIVED :	7/1/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806426-01	LYMAN	AQUEOUS	6/29/98	N/A	07/09/98	1

PARAMETER	DET. LIMIT		UNITS
o-Xylene	1.0	< 1.0	ug/L
Styrene	1.0	< 1.0	ug/L
Bromoform	1.0	< 1.0	ug/L
1,1,2,2-Tetrachloroethane	1.0	< 1.0	ug/L
1,2,3-Trichloropropane	1.0	< 1.0	ug/L
Isopropyl Benzene	1.0	< 1.0	ug/L
Bromobenzene	1.0	< 1.0	ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 1.0	ug/L
n-Propylbenzene	1.0	< 1.0	ug/L
2-Chlorotoluene	1.0	< 1.0	ug/L
4-Chlorotoluene	1.0	< 1.0	ug/L
1,3,5-Trimethylbenzene	1.0	< 1.0	ug/L
tert-Butylbenzene	1.0	< 1.0	ug/L
1,2,4-Trimethylbenzene	1.0	< 1.0	ug/L
sec-Butylbenzene	1.0	< 1.0	ug/L
1,3-Dichlorobenzene	1.0	< 1.0	ug/L
1,4-Dichlorobenzene	1.0	< 1.0	ug/L
p-Isopropyltoluene	1.0	< 1.0	ug/L
1,2-Dichlorobenzene	1.0	< 1.0	ug/L
n-Butylbenzene	1.0	< 1.0	ug/L
1,2-Dibromomo-3-chloropropane	1.0	< 1.0	ug/L
1,2,4-Trichlorobenzene	1.0	< 1.0	ug/L
Naphthalene	1.0	< 1.0	ug/L
Hexachlorobutadiene	1.0	< 1.0	ug/L
1,2,3-Trichlorobenzene	1.0	< 1.0	ug/L

SURROGATE % RECOVERY	
1,2-Dichloroethane-d4	101
	(80 - 120)
Toluene-d8	101
	(88 - 110)
Bromofluorobenzene	99
	(86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806426
PROJECT #	: 104332.03	DATE RECEIVED :	7/1/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806426-03	MW-73	AQUEOUS	6/30/98	N/A	07/09/98	1

PARAMETER	DET. LIMIT		UNITS
Dichlorodifluoromethane	1.0	< 1.0	ug/L
Chloromethane	1.0	< 1.0	ug/L
Vinyl Chloride	1.0	< 1.0	ug/L
Bromomethane	1.0	< 1.0	ug/L
Chloroethane	1.0	< 1.0	ug/L
Trichlorofluoromethane	1.0	< 1.0	ug/L
Acetone	10	< 10	ug/L
Acrolein	5.0	< 5.0	ug/L
1,1-Dichloroethene	1.0	< 1.0	ug/L
Iodomethane	1.0	< 1.0	ug/L
Methylene Chloride	1.0	< 1.0	ug/L
Acrylonitrile	5.0	< 5.0	ug/L
cis-1,2-Dichloroethene	1.0	< 1.0	ug/L
Methyl-t-butyl Ether	1.0	< 1.0	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 1.0	ug/L
1,1-Dichloroethane	1.0	< 1.0	ug/L
trans-1,2-Dichloroethene	1.0	< 1.0	ug/L
2-Butanone	10	< 10	ug/L
Carbon Disulfide	1.0	< 1.0	ug/L
Bromochloromethane	1.0	< 1.0	ug/L
Chloroform	1.0	< 1.0	ug/L
2,2-Dichloropropane	1.0	< 1.0	ug/L
1,2-Dichloroethane	1.0	< 1.0	ug/L
Vinyl Acetate	1.0	< 1.0	ug/L
1,1,1-Trichloroethane	1.0	< 1.0	ug/L
1,1-Dichloropropene	1.0	< 1.0	ug/L
Carbon Tetrachloride	1.0	< 1.0	ug/L
Benzene	1.0	**1.1**	**ug/L**
1,2-Dichloropropane	1.0	< 1.0	ug/L
Trichloroethene	1.0	< 1.0	ug/L
Bromodichloromethane	1.0	< 1.0	ug/L
2-Chloroethyl Vinyl Ether	10	< 10	ug/L
cis-1,3-Dichloropropene	1.0	< 1.0	ug/L
trans-1,3-Dichloropropene	1.0	< 1.0	ug/L
1,1,2-Trichloroethane	1.0	< 1.0	ug/L
1,3-Dichloropropane	1.0	< 1.0	ug/L
Dibromomethane	1.0	< 1.0	ug/L
Toluene	1.0	< 1.0	ug/L
1,2-Dibromoethane	1.0	< 1.0	ug/L
4-Methyl-2-Pentanone	10	< 10	ug/L
2-Hexanone	10	< 10	ug/L
Dibromochloromethane	1.0	< 1.0	ug/L
Tetrachloroethene	1.0	< 1.0	ug/L
Chlorobenzene	1.0	< 1.0	ug/L
Ethylbenzene	1.0	< 1.0	ug/L
1,1,1,2-Tetrachloroethane	1.0	< 1.0	ug/L
m&p Xylenes	1.0	< 1.0	ug/L

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806426
PROJECT #	: 104332.03	DATE RECEIVED :	7/1/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806426-03	MW-73	AQUEOUS	6/30/98	N/A	07/09/98	1

PARAMETER	DET. LIMIT		UNITS
o-Xylene	1.0	< 1.0	ug/L
Styrene	1.0	< 1.0	ug/L
Bromoform	1.0	< 1.0	ug/L
1,1,2,2-Tetrachloroethane	1.0	< 1.0	ug/L
1,2,3-Trichloropropane	1.0	< 1.0	ug/L
Isopropyl Benzene	1.0	< 1.0	ug/L
Bromobenzene	1.0	< 1.0	ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 1.0	ug/L
n-Propylbenzene	1.0	< 1.0	ug/L
2-Chlorotoluene	1.0	< 1.0	ug/L
4-Chlorotoluene	1.0	< 1.0	ug/L
1,3,5-Trimethylbenzene	1.0	**2.7**	**ug/L**
tert-Butylbenzene	1.0	< 1.0	ug/L
1,2,4-Trimethylbenzene	1.0	**1.0**	**ug/L**
sec-Butylbenzene	1.0	< 1.0	ug/L
1,3-Dichlorobenzene	1.0	< 1.0	ug/L
1,4-Dichlorobenzene	1.0	< 1.0	ug/L
p-Isopropyltoluene	1.0	**1.1**	**ug/L**
1,2-Dichlorobenzene	1.0	< 1.0	ug/L
n-Butylbenzene	1.0	< 1.0	ug/L
1,2-Dibromomo-3-chloropropane	1.0	< 1.0	ug/L
1,2,4-Trichlorobenzene	1.0	< 1.0	ug/L
Naphthalene	1.0	< 1.0	ug/L
Hexachlorobutadiene	1.0	< 1.0	ug/L
1,2,3-Trichlorobenzene	1.0	< 1.0	ug/L

SURROGATE % RECOVERY	
1,2-Dichloroethane-d4	102 (80 - 120)
Toluene-d8	102 (88 - 110)
Bromofluorobenzene	103 (86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806426
PROJECT #	: 104332.03	DATE RECEIVED :	7/1/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806426-04	MW-72	AQUEOUS	6/30/98	N/A	07/10/98	10

PARAMETER	DET. LIMIT		UNITS
Dichlorodifluoromethane	1.0	< 10	ug/L
Chloromethane	1.0	< 10	ug/L
Vinyl Chloride	1.0	< 10	ug/L
Bromomethane	1.0	< 10	ug/L
Chloroethane	1.0	< 10	ug/L
Trichlorofluoromethane	1.0	< 10	ug/L
Acetone	10	< 100	ug/L
Acrolein	5.0	< 50	ug/L
1,1-Dichloroethene	1.0	< 10	ug/L
Iodomethane	1.0	< 10	ug/L
Methylene Chloride	1.0	< 10	ug/L
Acrylonitrile	5.0	< 50	ug/L
cis-1,2-Dichloroethene	1.0	< 10	ug/L
Methyl-t-butyl Ether	1.0	< 10	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 10	ug/L
1,1-Dichloroethane	1.0	< 10	ug/L
trans-1,2-Dichloroethene	1.0	< 10	ug/L
2-Butanone	10	< 100	ug/L
Carbon Disulfide	1.0	< 10	ug/L
Bromochloromethane	1.0	< 10	ug/L
Chloroform	1.0	< 10	ug/L
2,2-Dichloropropane	1.0	< 10	ug/L
1,2-Dichloroethane	1.0	< 10	ug/L
Vinyl Acetate	1.0	< 10	ug/L
1,1,1-Trichloroethane	1.0	< 10	ug/L
1,1-Dichloropropene	1.0	< 10	ug/L
Carbon Tetrachloride	1.0	< 10	ug/L
Benzene	1.0	**56**	**ug/L**
1,2-Dichloropropane	1.0	< 10	ug/L
Trichloroethene	1.0	< 10	ug/L
Bromodichloromethane	1.0	< 10	ug/L
2-Chloroethyl Vinyl Ether	10	< 100	ug/L
cis-1,3-Dichloropropene	1.0	< 10	ug/L
trans-1,3-Dichloropropene	1.0	< 10	ug/L
1,1,2-Trichloroethane	1.0	< 10	ug/L
1,3-Dichloropropane	1.0	< 10	ug/L
Dibromomethane	1.0	< 10	ug/L
Toluene	1.0	< 10	ug/L
1,2-Dibromoethane	1.0	< 10	ug/L
4-Methyl-2-Pentanone	10	< 100	ug/L
2-Hexanone	10	< 100	ug/L
Dibromochloromethane	1.0	< 10	ug/L
Tetrachloroethene	1.0	< 10	ug/L
Chlorobenzene	1.0	< 10	ug/L
Ethylbenzene	1.0	**100**	**ug/L**
1,1,1,2-Tetrachloroethane	1.0	< 10	ug/L
m&p Xylenes	1.0	< 10	ug/L

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806426
PROJECT #	: 104332.03	DATE RECEIVED :	7/1/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806426-04	*MW-72*	*AQUEOUS*	*6/30/98*	*N/A*	*07/10/98*	*10*

PARAMETER	DET. LIMIT		UNITS
o-Xylene	1.0	< 10	ug/L
Styrene	1.0	< 10	ug/L
Bromoform	1.0	< 10	ug/L
1,1,2,2-Tetrachloroethane	1.0	< 10	ug/L
1,2,3-Trichloropropane	1.0	< 10	ug/L
Isopropyl Benzene	1.0	**24**	**ug/L**
Bromobenzene	1.0	< 10	ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 10	ug/L
n-Propylbenzene	1.0	**25**	**ug/L**
2-Chlorotoluene	1.0	< 10	ug/L
4-Chlorotoluene	1.0	< 10	ug/L
1,3,5-Trimethylbenzene	1.0	**28**	**ug/L**
tert-Butylbenzene	1.0	< 10	ug/L
1,2,4-Trimethylbenzene	1.0	**120**	**ug/L**
sec-Butylbenzene	1.0	< 10	ug/L
1,3-Dichlorobenzene	1.0	< 10	ug/L
1,4-Dichlorobenzene	1.0	< 10	ug/L
p-Isopropyltoluene	1.0	< 10	ug/L
1,2-Dichlorobenzene	1.0	< 10	ug/L
n-Butylbenzene	1.0	**11**	**ug/L**
1,2-Dibromomo-3-chloropropane	1.0	< 10	ug/L
1,2,4-Trichlorobenzene	1.0	< 10	ug/L
Naphthalene	1.0	< 10	ug/L
Hexachlorobutadiene	1.0	< 10	ug/L
1,2,3-Trichlorobenzene	1.0	< 10	ug/L

SURROGATE % RECOVERY	
1,2-Dichloroethane-d4	103 (80 - 120)
Toluene-d8	101 (88 - 110)
Bromofluorobenzene	99 (86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806426
PROJECT #	: 104332.03	DATE RECEIVED :	7/1/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806426-05	MW-75	AQUEOUS	6/30/98	N/A	07/10/98	10

PARAMETER	DET. LIMIT		UNITS
Dichlorodifluoromethane	1.0	< 10	ug/L
Chloromethane	1.0	< 10	ug/L
Vinyl Chloride	1.0	< 10	ug/L
Bromomethane	1.0	< 10	ug/L
Chloroethane	1.0	< 10	ug/L
Trichlorofluoromethane	1.0	< 10	ug/L
Acetone	10	< 100	ug/L
Acrolein	5.0	< 50	ug/L
1,1-Dichloroethene	1.0	< 10	ug/L
Iodomethane	1.0	< 10	ug/L
Methylene Chloride	1.0	< 10	ug/L
Acrylonitrile	5.0	< 50	ug/L
cis-1,2-Dichloroethene	1.0	< 10	ug/L
Methyl-t-butyl Ether	1.0	< 10	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 10	ug/L
1,1-Dichloroethane	1.0	< 10	ug/L
trans-1,2-Dichloroethene	1.0	< 10	ug/L
2-Butanone	10	< 100	ug/L
Carbon Disulfide	1.0	< 10	ug/L
Bromochloromethane	1.0	< 10	ug/L
Chloroform	1.0	< 10	ug/L
2,2-Dichloropropane	1.0	< 10	ug/L
1,2-Dichloroethane	1.0	< 10	ug/L
Vinyl Acetate	1.0	< 10	ug/L
1,1,1-Trichloroethane	1.0	< 10	ug/L
1,1-Dichloropropene	1.0	< 10	ug/L
Carbon Tetrachloride	1.0	< 10	ug/L
Benzene	1.0	**200**	**ug/L**
1,2-Dichloropropane	1.0	< 10	ug/L
Trichloroethene	1.0	< 10	ug/L
Bromodichloromethane	1.0	< 10	ug/L
2-Chloroethyl Vinyl Ether	10	< 100	ug/L
cis-1,3-Dichloropropene	1.0	< 10	ug/L
trans-1,3-Dichloropropene	1.0	< 10	ug/L
1,1,2-Trichloroethane	1.0	< 10	ug/L
1,3-Dichloropropane	1.0	< 10	ug/L
Dibromomethane	1.0	< 10	ug/L
Toluene	1.0	< 10	ug/L
1,2-Dibromoethane	1.0	< 10	ug/L
4-Methyl-2-Pentanone	10	< 100	ug/L
2-Hexanone	10	< 100	ug/L
Dibromochloromethane	1.0	< 10	ug/L
Tetrachloroethene	1.0	< 10	ug/L
Chlorobenzene	1.0	< 10	ug/L
Ethylbenzene	1.0	**89**	**ug/L**
1,1,1,2-Tetrachloroethane	1.0	< 10	ug/L
m&p Xylenes	1.0	**270**	**ug/L**

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806426
PROJECT #	: 104332.03	DATE RECEIVED :	7/1/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806426-05	MW-75	AQUEOUS	6/30/98	N/A	07/10/98	10

PARAMETER	DET. LIMIT		UNITS
o-Xylene	1.0	< 10	ug/L
Styrene	1.0	< 10	ug/L
Bromoform	1.0	< 10	ug/L
1,1,2,2-Tetrachloroethane	1.0	< 10	ug/L
1,2,3-Trichloropropane	1.0	< 10	ug/L
Isopropyl Benzene	1.0	**17**	**ug/L**
Bromobenzene	1.0	< 10	ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 10	ug/L
n-Propylbenzene	1.0	< 10	ug/L
2-Chlorotoluene	1.0	< 10	ug/L
4-Chlorotoluene	1.0	< 10	ug/L
1,3,5-Trimethylbenzene	1.0	**120**	**ug/L**
tert-Butylbenzene	1.0	< 10	ug/L
1,2,4-Trimethylbenzene	1.0	**350**	**ug/L**
sec-Butylbenzene	1.0	< 10	ug/L
1,3-Dichlorobenzene	1.0	< 10	ug/L
1,4-Dichlorobenzene	1.0	< 10	ug/L
p-Isopropyltoluene	1.0	< 10	ug/L
1,2-Dichlorobenzene	1.0	< 10	ug/L
n-Butylbenzene	1.0	< 10	ug/L
1,2-Dibromomo-3-chloropropane	1.0	< 10	ug/L
1,2,4-Trichlorobenzene	1.0	< 10	ug/L
Naphthalene	1.0	< 10	ug/L
Hexachlorobutadiene	1.0	< 10	ug/L
1,2,3-Trichlorobenzene	1.0	< 10	ug/L

SURROGATE % RECOVERY		
1,2-Dichloroethane-d4	100	(80 - 120)
Toluene-d8	100	(88 - 110)
Bromofluorobenzene	102	(86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806426
PROJECT #	: 104332.03	DATE RECEIVED :	7/1/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806426-06	MW-110	AQUEOUS	6/30/98	N/A	07/10/98	10

PARAMETER	DET. LIMIT		UNITS
Dichlorodifluoromethane	1.0	< 10	ug/L
Chloromethane	1.0	< 10	ug/L
Vinyl Chloride	1.0	< 10	ug/L
Bromomethane	1.0	< 10	ug/L
Chloroethane	1.0	< 10	ug/L
Trichlorofluoromethane	1.0	< 10	ug/L
Acetone	10	< 100	ug/L
Acrolein	5.0	< 50	ug/L
1,1-Dichloroethene	1.0	< 10	ug/L
Iodomethane	1.0	< 10	ug/L
Methylene Chloride	1.0	< 10	ug/L
Acrylonitrile	5.0	< 50	ug/L
cis-1,2-Dichloroethene	1.0	< 10	ug/L
Methyl-t-butyl Ether	1.0	< 10	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 10	ug/L
1,1-Dichloroethane	1.0	< 10	ug/L
trans-1,2-Dichloroethene	1.0	< 10	ug/L
2-Butanone	10	< 100	ug/L
Carbon Disulfide	1.0	< 10	ug/L
Bromochloromethane	1.0	< 10	ug/L
Chloroform	1.0	< 10	ug/L
2,2-Dichloropropane	1.0	< 10	ug/L
1,2-Dichloroethane	1.0	< 10	ug/L
Vinyl Acetate	1.0	< 10	ug/L
1,1,1-Trichloroethane	1.0	< 10	ug/L
1,1-Dichloropropene	1.0	< 10	ug/L
Carbon Tetrachloride	1.0	< 10	ug/L
Benzene	1.0	**170**	**ug/L**
1,2-Dichloropropane	1.0	< 10	ug/L
Trichloroethene	1.0	< 10	ug/L
Bromodichloromethane	1.0	< 10	ug/L
2-Chloroethyl Vinyl Ether	10	< 100	ug/L
cis-1,3-Dichloropropene	1.0	< 10	ug/L
trans-1,3-Dichloropropene	1.0	< 10	ug/L
1,1,2-Trichloroethane	1.0	< 10	ug/L
1,3-Dichloropropane	1.0	< 10	ug/L
Dibromomethane	1.0	< 10	ug/L
Toluene	1.0	< 10	ug/L
1,2-Dibromoethane	1.0	< 10	ug/L
4-Methyl-2-Pentanone	10	< 100	ug/L
2-Hexanone	10	< 100	ug/L
Dibromochloromethane	1.0	< 10	ug/L
Tetrachloroethene	1.0	< 10	ug/L
Chlorobenzene	1.0	< 10	ug/L
Ethylbenzene	1.0	**150**	**ug/L**
1,1,1,2-Tetrachloroethane	1.0	< 10	ug/L
m&p Xylenes	1.0	**160**	**ug/L**

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806426
PROJECT #	: 104332.03	DATE RECEIVED :	7/1/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806426-06	MW-110	AQUEOUS	6/30/98	N/A	07/10/98	10

PARAMETER	DET. LIMIT		UNITS
o-Xylene	1.0	< 10	ug/L
Styrene	1.0	< 10	ug/L
Bromoform	1.0	< 10	ug/L
1,1,2,2-Tetrachloroethane	1.0	< 10	ug/L
1,2,3-Trichloropropane	1.0	< 10	ug/L
Isopropyl Benzene	1.0	**36**	**ug/L**
Bromobenzene	1.0	< 10	ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 10	ug/L
n-Propylbenzene	1.0	**51**	**ug/L**
2-Chlorotoluene	1.0	< 10	ug/L
4-Chlorotoluene	1.0	< 10	ug/L
1,3,5-Trimethylbenzene	1.0	**88**	**ug/L**
tert-Butylbenzene	1.0	< 10	ug/L
1,2,4-Trimethylbenzene	1.0	**440**	**ug/L**
sec-Butylbenzene	1.0	**13**	**ug/L**
1,3-Dichlorobenzene	1.0	< 10	ug/L
1,4-Dichlorobenzene	1.0	< 10	ug/L
p-Isopropyltoluene	1.0	**13**	**ug/L**
1,2-Dichlorobenzene	1.0	< 10	ug/L
n-Butylbenzene	1.0	**18**	**ug/L**
1,2-Dibromomo-3-chloropropane	1.0	< 10	ug/L
1,2,4-Trichlorobenzene	1.0	< 10	ug/L
Naphthalene	1.0	< 10	ug/L
Hexachlorobutadiene	1.0	< 10	ug/L
1,2,3-Trichlorobenzene	1.0	< 10	ug/L

SURROGATE % RECOVERY		
1,2-Dichloroethane-d4	97	(80 - 120)
Toluene-d8	97	(88 - 110)
Bromofluorobenzene	99	(86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806426
PROJECT #	: 104332.03	DATE RECEIVED :	7/1/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806426-07	SW-01	AQUEOUS	6/30/98	N/A	07/10/98	1

PARAMETER	DET. LIMIT		UNITS
Dichlorodifluoromethane	1.0	< 1.0	ug/L
Chloromethane	1.0	< 1.0	ug/L
Vinyl Chloride	1.0	< 1.0	ug/L
Bromomethane	1.0	< 1.0	ug/L
Chloroethane	1.0	< 1.0	ug/L
Trichlorofluoromethane	1.0	< 1.0	ug/L
Acetone	10	< 10	ug/L
Acrolein	5.0	< 5.0	ug/L
1,1-Dichloroethene	1.0	< 1.0	ug/L
Iodomethane	1.0	< 1.0	ug/L
Methylene Chloride	1.0	< 1.0	ug/L
Acrylonitrile	5.0	< 5.0	ug/L
cis-1,2-Dichloroethene	1.0	< 1.0	ug/L
Methyl-t-butyl Ether	1.0	< 1.0	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 1.0	ug/L
1,1-Dichloroethane	1.0	< 1.0	ug/L
trans-1,2-Dichloroethene	1.0	< 1.0	ug/L
2-Butanone	10	< 10	ug/L
Carbon Disulfide	1.0	< 1.0	ug/L
Bromochloromethane	1.0	< 1.0	ug/L
Chloroform	1.0	< 1.0	ug/L
2,2-Dichloropropane	1.0	< 1.0	ug/L
1,2-Dichloroethane	1.0	< 1.0	ug/L
Vinyl Acetate	1.0	< 1.0	ug/L
1,1,1-Trichloroethane	1.0	< 1.0	ug/L
1,1-Dichloropropene	1.0	< 1.0	ug/L
Carbon Tetrachloride	1.0	< 1.0	ug/L
Benzene	1.0	< 1.0	ug/L
1,2-Dichloropropane	1.0	< 1.0	ug/L
Trichloroethene	1.0	< 1.0	ug/L
Bromodichloromethane	1.0	< 1.0	ug/L
2-Chloroethyl Vinyl Ether	10	< 10	ug/L
cis-1,3-Dichloropropene	1.0	< 1.0	ug/L
trans-1,3-Dichloropropene	1.0	< 1.0	ug/L
1,1,2-Trichloroethane	1.0	< 1.0	ug/L
1,3-Dichloropropane	1.0	< 1.0	ug/L
Dibromomethane	1.0	< 1.0	ug/L
Toluene	1.0	< 1.0	ug/L
1,2-Dibromoethane	1.0	< 1.0	ug/L
4-Methyl-2-Pentanone	10	< 10	ug/L
2-Hexanone	10	< 10	ug/L
Dibromochloromethane	1.0	< 1.0	ug/L
Tetrachloroethene	1.0	< 1.0	ug/L
Chlorobenzene	1.0	< 1.0	ug/L
Ethylbenzene	1.0	< 1.0	ug/L
1,1,1,2-Tetrachloroethane	1.0	< 1.0	ug/L
m&p Xylenes	1.0	< 1.0	ug/L

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806426
PROJECT #	: 104332.03	DATE RECEIVED :	7/1/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806426-07	SW-01	AQUEOUS	6/30/98	N/A	07/10/98	1

PARAMETER	DET. LIMIT		UNITS
o-Xylene	1.0	< 1.0	ug/L
Styrene	1.0	< 1.0	ug/L
Bromoform	1.0	< 1.0	ug/L
1,1,2,2-Tetrachloroethane	1.0	< 1.0	ug/L
1,2,3-Trichloropropane	1.0	< 1.0	ug/L
Isopropyl Benzene	1.0	< 1.0	ug/L
Bromobenzene	1.0	< 1.0	ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 1.0	ug/L
n-Propylbenzene	1.0	< 1.0	ug/L
2-Chlorotoluene	1.0	< 1.0	ug/L
4-Chlorotoluene	1.0	< 1.0	ug/L
1,3,5-Trimethylbenzene	1.0	< 1.0	ug/L
tert-Butylbenzene	1.0	< 1.0	ug/L
1,2,4-Trimethylbenzene	1.0	< 1.0	ug/L
sec-Butylbenzene	1.0	< 1.0	ug/L
1,3-Dichlorobenzene	1.0	< 1.0	ug/L
1,4-Dichlorobenzene	1.0	< 1.0	ug/L
p-Isopropyltoluene	1.0	< 1.0	ug/L
1,2-Dichlorobenzene	1.0	< 1.0	ug/L
n-Butylbenzene	1.0	< 1.0	ug/L
1,2-Dibromomo-3-chloropropane	1.0	< 1.0	ug/L
1,2,4-Trichlorobenzene	1.0	< 1.0	ug/L
Naphthalene	1.0	< 1.0	ug/L
Hexachlorobutadiene	1.0	< 1.0	ug/L
1,2,3-Trichlorobenzene	1.0	< 1.0	ug/L

SURROGATE % RECOVERY	
1,2-Dichloroethane-d4	98 (80 - 120)
Toluene-d8	98 (88 - 110)
Bromofluorobenzene	100 (86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806426
PROJECT #	: 104332.03	DATE RECEIVED :	7/1/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806426-08	SW-01 DP	AQUEOUS	6/30/98	N/A	07/10/98	1

PARAMETER	DET. LIMIT		UNITS
Dichlorodifluoromethane	1.0	< 1.0	ug/L
Chloromethane	1.0	< 1.0	ug/L
Vinyl Chloride	1.0	< 1.0	ug/L
Bromomethane	1.0	< 1.0	ug/L
Chloroethane	1.0	< 1.0	ug/L
Trichlorofluoromethane	1.0	< 1.0	ug/L
Acetone	10	< 10	ug/L
Acrolein	5.0	< 5.0	ug/L
1,1-Dichloroethene	1.0	< 1.0	ug/L
Iodomethane	1.0	< 1.0	ug/L
Methylene Chloride	1.0	< 1.0	ug/L
Acrylonitrile	5.0	< 5.0	ug/L
cis-1,2-Dichloroethene	1.0	< 1.0	ug/L
Methyl-t-butyl Ether	1.0	< 1.0	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 1.0	ug/L
1,1-Dichloroethane	1.0	< 1.0	ug/L
trans-1,2-Dichloroethene	1.0	< 1.0	ug/L
2-Butanone	10	< 10	ug/L
Carbon Disulfide	1.0	< 1.0	ug/L
Bromochloromethane	1.0	< 1.0	ug/L
Chloroform	1.0	< 1.0	ug/L
2,2-Dichloropropane	1.0	< 1.0	ug/L
1,2-Dichloroethane	1.0	< 1.0	ug/L
Vinyl Acetate	1.0	< 1.0	ug/L
1,1,1-Trichloroethane	1.0	< 1.0	ug/L
1,1-Dichloropropene	1.0	< 1.0	ug/L
Carbon Tetrachloride	1.0	< 1.0	ug/L
Benzene	1.0	< 1.0	ug/L
1,2-Dichloropropane	1.0	< 1.0	ug/L
Trichloroethene	1.0	< 1.0	ug/L
Bromodichloromethane	1.0	< 1.0	ug/L
2-Chloroethyl Vinyl Ether	10	< 10	ug/L
cis-1,3-Dichloropropene	1.0	< 1.0	ug/L
trans-1,3-Dichloropropene	1.0	< 1.0	ug/L
1,1,2-Trichloroethane	1.0	< 1.0	ug/L
1,3-Dichloropropane	1.0	< 1.0	ug/L
Dibromomethane	1.0	< 1.0	ug/L
Toluene	1.0	< 1.0	ug/L
1,2-Dibromoethane	1.0	< 1.0	ug/L
4-Methyl-2-Pentanone	10	< 10	ug/L
2-Hexanone	10	< 10	ug/L
Dibromochloromethane	1.0	< 1.0	ug/L
Tetrachloroethene	1.0	< 1.0	ug/L
Chlorobenzene	1.0	< 1.0	ug/L
Ethylbenzene	1.0	< 1.0	ug/L
1,1,1,2-Tetrachloroethane	1.0	< 1.0	ug/L
m&p Xylenes	1.0	< 1.0	ug/L

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806426
PROJECT #	: 104332.03	DATE RECEIVED :	7/1/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806426-08	SW-01 DP	AQUEOUS	6/30/98	N/A	07/10/98	1

PARAMETER	DET. LIMIT		UNITS
o-Xylene	1.0	< 1.0	ug/L
Styrene	1.0	< 1.0	ug/L
Bromoform	1.0	< 1.0	ug/L
1,1,2,2-Tetrachloroethane	1.0	< 1.0	ug/L
1,2,3-Trichloropropane	1.0	< 1.0	ug/L
Isopropyl Benzene	1.0	< 1.0	ug/L
Bromobenzene	1.0	< 1.0	ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 1.0	ug/L
n-Propylbenzene	1.0	< 1.0	ug/L
2-Chlorotoluene	1.0	< 1.0	ug/L
4-Chlorotoluene	1.0	< 1.0	ug/L
1,3,5-Trimethylbenzene	1.0	< 1.0	ug/L
tert-Butylbenzene	1.0	< 1.0	ug/L
1,2,4-Trimethylbenzene	1.0	< 1.0	ug/L
sec-Butylbenzene	1.0	< 1.0	ug/L
1,3-Dichlorobenzene	1.0	< 1.0	ug/L
1,4-Dichlorobenzene	1.0	< 1.0	ug/L
p-Isopropyltoluene	1.0	< 1.0	ug/L
1,2-Dichlorobenzene	1.0	< 1.0	ug/L
n-Butylbenzene	1.0	< 1.0	ug/L
1,2-Dibromomo-3-chloropropane	1.0	< 1.0	ug/L
1,2,4-Trichlorobenzene	1.0	< 1.0	ug/L
Naphthalene	1.0	< 1.0	ug/L
Hexachlorobutadiene	1.0	< 1.0	ug/L
1,2,3-Trichlorobenzene	1.0	< 1.0	ug/L

SURROGATE % RECOVERY	
1,2-Dichloroethane-d4	99
	(80 - 120)
Toluene-d8	97
	(88 - 110)
Bromofluorobenzene	99
	(86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806426
PROJECT #	: 104332.03	DATE RECEIVED :	7/1/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806426-09	Trip Blank	AQUEOUS	6/11/98	N/A	07/09/98	1

PARAMETER	DET. LIMIT		UNITS
Dichlorodifluoromethane	1.0	< 1.0	ug/L
Chloromethane	1.0	< 1.0	ug/L
Vinyl Chloride	1.0	< 1.0	ug/L
Bromomethane	1.0	< 1.0	ug/L
Chloroethane	1.0	< 1.0	ug/L
Trichlorofluoromethane	1.0	< 1.0	ug/L
Acetone	10	< 10	ug/L
Acrolein	5.0	< 5.0	ug/L
1,1-Dichloroethene	1.0	< 1.0	ug/L
Iodomethane	1.0	< 1.0	ug/L
Methylene Chloride	1.0	< 1.0	ug/L
Acrylonitrile	5.0	< 5.0	ug/L
cis-1,2-Dichloroethene	1.0	< 1.0	ug/L
Methyl-t-butyl Ether	1.0	< 1.0	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 1.0	ug/L
1,1-Dichloroethane	1.0	< 1.0	ug/L
trans-1,2-Dichloroethene	1.0	< 1.0	ug/L
2-Butanone	10	< 10	ug/L
Carbon Disulfide	1.0	< 1.0	ug/L
Bromochloromethane	1.0	< 1.0	ug/L
Chloroform	1.0	< 1.0	ug/L
2,2-Dichloropropane	1.0	< 1.0	ug/L
1,2-Dichloroethane	1.0	< 1.0	ug/L
Vinyl Acetate	1.0	< 1.0	ug/L
1,1,1-Trichloroethane	1.0	< 1.0	ug/L
1,1-Dichloropropene	1.0	< 1.0	ug/L
Carbon Tetrachloride	1.0	< 1.0	ug/L
Benzene	1.0	< 1.0	ug/L
1,2-Dichloropropane	1.0	< 1.0	ug/L
Trichloroethene	1.0	< 1.0	ug/L
Bromodichloromethane	1.0	< 1.0	ug/L
2-Chloroethyl Vinyl Ether	10	< 10	ug/L
cis-1,3-Dichloropropene	1.0	< 1.0	ug/L
trans-1,3-Dichloropropene	1.0	< 1.0	ug/L
1,1,2-Trichloroethane	1.0	< 1.0	ug/L
1,3-Dichloropropane	1.0	< 1.0	ug/L
Dibromomethane	1.0	< 1.0	ug/L
Toluene	1.0	< 1.0	ug/L
1,2-Dibromoethane	1.0	< 1.0	ug/L
4-Methyl-2-Pentanone	10	< 10	ug/L
2-Hexanone	10	< 10	ug/L
Dibromochloromethane	1.0	< 1.0	ug/L
Tetrachloroethene	1.0	< 1.0	ug/L
Chlorobenzene	1.0	< 1.0	ug/L
Ethylbenzene	1.0	< 1.0	ug/L
1,1,1,2-Tetrachloroethane	1.0	< 1.0	ug/L
m&p Xylenes	1.0	< 1.0	ug/L

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806426
PROJECT #	: 104332.03	DATE RECEIVED :	7/1/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806426-09	Trip Blank	AQUEOUS	6/11/98	N/A	07/09/98	1

PARAMETER	DET. LIMIT		UNITS
o-Xylene	1.0	< 1.0	ug/L
Styrene	1.0	< 1.0	ug/L
Bromoform	1.0	< 1.0	ug/L
1,1,2,2-Tetrachloroethane	1.0	< 1.0	ug/L
1,2,3-Trichloropropane	1.0	< 1.0	ug/L
Isopropyl Benzene	1.0	< 1.0	ug/L
Bromobenzene	1.0	< 1.0	ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 1.0	ug/L
n-Propylbenzene	1.0	< 1.0	ug/L
2-Chlorotoluene	1.0	< 1.0	ug/L
4-Chlorotoluene	1.0	< 1.0	ug/L
1,3,5-Trimethylbenzene	1.0	< 1.0	ug/L
tert-Butylbenzene	1.0	< 1.0	ug/L
1,2,4-Trimethylbenzene	1.0	< 1.0	ug/L
sec-Butylbenzene	1.0	< 1.0	ug/L
1,3-Dichlorobenzene	1.0	< 1.0	ug/L
1,4-Dichlorobenzene	1.0	< 1.0	ug/L
p-Isopropyltoluene	1.0	< 1.0	ug/L
1,2-Dichlorobenzene	1.0	< 1.0	ug/L
n-Butylbenzene	1.0	< 1.0	ug/L
1,2-Dibromomo-3-chloropropane	1.0	< 1.0	ug/L
1,2,4-Trichlorobenzene	1.0	< 1.0	ug/L
Naphthalene	1.0	< 1.0	ug/L
Hexachlorobutadiene	1.0	< 1.0	ug/L
1,2,3-Trichlorobenzene	1.0	< 1.0	ug/L

SURROGATE % RECOVERY	
1,2-Dichloroethane-d4	100 (80 - 120)
Toluene-d8	101 (88 - 110)
Bromofluorobenzene	99 (86 - 115)

GC/MS RESULTS

TEST : VOLATILE ORGANICS EPA METHOD 8260
CLIENT : MARATHON OIL COMPANY AEN I.D. : 806426
PROJECT # : 104332.03
PROJECT NAME : IBRP

SAMPLE ID #	BATCH	MATRIX	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
REAGENT BLANK	070998 B	AQUEOUS	N/A	07/09/98	1

PARAMETER	DET. LIMIT		UNITS
Dichlorodifluoromethane	1.0	< 1.0	ug/L
Chloromethane	1.0	< 1.0	ug/L
Vinyl Chloride	1.0	< 1.0	ug/L
Bromomethane	1.0	< 1.0	ug/L
Chloroethane	1.0	< 1.0	ug/L
Trichlorofluoromethane	1.0	< 1.0	ug/L
Acetone	10	< 10	ug/L
Acrolein	5.0	< 5.0	ug/L
1,1-Dichloroethene	1.0	< 1.0	ug/L
Iodomethane	1.0	< 1.0	ug/L
Methylene Chloride	1.0	< 1.0	ug/L
Acrylonitrile	5.0	< 5.0	ug/L
cis-1,2-Dichloroethene	1.0	< 1.0	ug/L
Methyl-t-butyl Ether	1.0	< 1.0	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 1.0	ug/L
1,1-Dichloroethane	1.0	< 1.0	ug/L
trans-1,2-Dichloroethene	1.0	< 1.0	ug/L
2-Butanone	10	< 10	ug/L
Carbon Disulfide	1.0	< 1.0	ug/L
Bromochloromethane	1.0	< 1.0	ug/L
Chloroform	1.0	< 1.0	ug/L
2,2-Dichloropropane	1.0	< 1.0	ug/L
1,2-Dichloroethane	1.0	< 1.0	ug/L
Vinyl Acetate	1.0	< 1.0	ug/L
1,1,1-Trichloroethane	1.0	< 1.0	ug/L
1,1-Dichloropropene	1.0	< 1.0	ug/L
Carbon Tetrachloride	1.0	< 1.0	ug/L
Benzene	1.0	< 1.0	ug/L
1,2-Dichloropropane	1.0	< 1.0	ug/L
Trichloroethene	1.0	< 1.0	ug/L
Bromodichloromethane	1.0	< 1.0	ug/L
2-Chloroethyl Vinyl Ether	10	< 10	ug/L
cis-1,3-Dichloropropene	1.0	< 1.0	ug/L
trans-1,3-Dichloropropene	1.0	< 1.0	ug/L
1,1,2-Trichloroethane	1.0	< 1.0	ug/L
1,3-Dichloropropane	1.0	< 1.0	ug/L
Dibromomethane	1.0	< 1.0	ug/L
Toluene	1.0	< 1.0	ug/L
1,2-Dibromoethane	1.0	< 1.0	ug/L
4-Methyl-2-Pentanone	10	< 10	ug/L
2-Hexanone	10	< 10	ug/L
Dibromochloromethane	1.0	< 1.0	ug/L
Tetrachloroethene	1.0	< 1.0	ug/L
Chlorobenzene	1.0	< 1.0	ug/L
Ethylbenzene	1.0	< 1.0	ug/L
1,1,1,2-Tetrachloroethane	1.0	< 1.0	ug/L

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806426
PROJECT #	: 104332.03		
PROJECT NAME	: IBRP		

SAMPLE ID #	BATCH	MATRIX	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
REAGENT BLANK	070998 B	AQUEOUS	N/A	07/09/98	1

PARAMETER	DET. LIMIT		UNITS
m&p Xylenes	1.0	< 1.0	ug/L
o-Xylene	1.0	< 1.0	ug/L
Styrene	1.0	< 1.0	ug/L
Bromoform	1.0	< 1.0	ug/L
1,1,2,2-Tetrachloroethane	1.0	< 1.0	ug/L
1,2,3-Trichloropropane	1.0	< 1.0	ug/L
Isopropyl Benzene	1.0	< 1.0	ug/L
Bromobenzene	1.0	< 1.0	ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 1.0	ug/L
n-Propylbenzene	1.0	< 1.0	ug/L
2-Chlorotoluene	1.0	< 1.0	ug/L
4-Chlorotoluene	1.0	< 1.0	ug/L
1,3,5-Trimethylbenzene	1.0	< 1.0	ug/L
tert-Butylbenzene	1.0	< 1.0	ug/L
1,2,4-Trimethylbenzene	1.0	< 1.0	ug/L
sec-Butylbenzene	1.0	< 1.0	ug/L
1,3-Dichlorobenzene	1.0	< 1.0	ug/L
1,4-Dichlorobenzene	1.0	< 1.0	ug/L
p-Isopropyltoluene	1.0	< 1.0	ug/L
1,2-Dichlorobenzene	1.0	< 1.0	ug/L
n-Butylbenzene	1.0	< 1.0	ug/L
1,2-Dibromomo-3-chloropropane	1.0	< 1.0	ug/L
1,2,4-Trichlorobenzene	1.0	< 1.0	ug/L
Naphthalene	1.0	< 1.0	ug/L
Hexachlorobutadiene	1.0	< 1.0	ug/L
1,2,3-Trichlorobenzene	1.0	< 1.0	ug/L

SURROGATE % RECOVERY	
1,2-Dichloroethane-d4	100
	(80 - 120)
Toluene-d8	98
	(88 - 110)
Bromofluorobenzene	95
	(86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806426
PROJECT #	: 104332.03		
PROJECT NAME	: IBRP		

SAMPLE ID #	BATCH	MATRIX	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
REAGENT BLANK	071098	AQUEOUS	N/A	07/10/98	1

PARAMETER	DET. LIMIT		UNITS
Dichlorodifluoromethane	1.0	< 1.0	ug/L
Chloromethane	1.0	< 1.0	ug/L
Vinyl Chloride	1.0	< 1.0	ug/L
Bromomethane	1.0	< 1.0	ug/L
Chloroethane	1.0	< 1.0	ug/L
Trichlorofluoromethane	1.0	< 1.0	ug/L
Acetone	10	< 10	ug/L
Acrolein	5.0	< 5.0	ug/L
1,1-Dichloroethene	1.0	< 1.0	ug/L
Iodomethane	1.0	< 1.0	ug/L
Methylene Chloride	1.0	< 1.0	ug/L
Acrylonitrile	5.0	< 5.0	ug/L
cis-1,2-Dichloroethene	1.0	< 1.0	ug/L
Methyl-t-butyl Ether	1.0	< 1.0	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 1.0	ug/L
1,1-Dichloroethane	1.0	< 1.0	ug/L
trans-1,2-Dichloroethene	1.0	< 1.0	ug/L
2-Butanone	10	< 10	ug/L
Carbon Disulfide	1.0	< 1.0	ug/L
Bromochloromethane	1.0	< 1.0	ug/L
Chloroform	1.0	< 1.0	ug/L
2,2-Dichloropropane	1.0	< 1.0	ug/L
1,2-Dichloroethane	1.0	< 1.0	ug/L
Vinyl Acetate	1.0	< 1.0	ug/L
1,1,1-Trichloroethane	1.0	< 1.0	ug/L
1,1-Dichloropropene	1.0	< 1.0	ug/L
Carbon Tetrachloride	1.0	< 1.0	ug/L
Benzene	1.0	< 1.0	ug/L
1,2-Dichloropropane	1.0	< 1.0	ug/L
Trichloroethene	1.0	< 1.0	ug/L
Bromodichloromethane	1.0	< 1.0	ug/L
2-Chloroethyl Vinyl Ether	10	< 10	ug/L
cis-1,3-Dichloropropene	1.0	< 1.0	ug/L
trans-1,3-Dichloropropene	1.0	< 1.0	ug/L
1,1,2-Trichloroethane	1.0	< 1.0	ug/L
1,3-Dichloropropane	1.0	< 1.0	ug/L
Dibromomethane	1.0	< 1.0	ug/L
Toluene	1.0	< 1.0	ug/L
1,2-Dibromoethane	1.0	< 1.0	ug/L
4-Methyl-2-Pentanone	10	< 10	ug/L
2-Hexanone	10	< 10	ug/L
Dibromochloromethane	1.0	< 1.0	ug/L
Tetrachloroethene	1.0	< 1.0	ug/L
Chlorobenzene	1.0	< 1.0	ug/L
Ethylbenzene	1.0	< 1.0	ug/L
1,1,1,2-Tetrachloroethane	1.0	< 1.0	ug/L

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806426
PROJECT #	: 104332.03		
PROJECT NAME	: IBRP		

SAMPLE ID #	BATCH	MATRIX	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
REAGENT BLANK	071098	AQUEOUS	N/A	07/10/98	1

PARAMETER	DET. LIMIT		UNITS
m&p Xylenes	1.0	< 1.0	ug/L
o-Xylene	1.0	< 1.0	ug/L
Styrene	1.0	< 1.0	ug/L
Bromoform	1.0	< 1.0	ug/L
1,1,2,2-Tetrachloroethane	1.0	< 1.0	ug/L
1,2,3-Trichloropropane	1.0	< 1.0	ug/L
Isopropyl Benzene	1.0	< 1.0	ug/L
Bromobenzene	1.0	< 1.0	ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 1.0	ug/L
n-Propylbenzene	1.0	< 1.0	ug/L
2-Chlorotoluene	1.0	< 1.0	ug/L
4-Chlorotoluene	1.0	< 1.0	ug/L
1,3,5-Trimethylbenzene	1.0	< 1.0	ug/L
tert-Butylbenzene	1.0	< 1.0	ug/L
1,2,4-Trimethylbenzene	1.0	< 1.0	ug/L
sec-Butylbenzene	1.0	< 1.0	ug/L
1,3-Dichlorobenzene	1.0	< 1.0	ug/L
1,4-Dichlorobenzene	1.0	< 1.0	ug/L
p-Isopropyltoluene	1.0	< 1.0	ug/L
1,2-Dichlorobenzene	1.0	< 1.0	ug/L
n-Butylbenzene	1.0	< 1.0	ug/L
1,2-Dibromomo-3-chloropropane	1.0	< 1.0	ug/L
1,2,4-Trichlorobenzene	1.0	< 1.0	ug/L
Naphthalene	1.0	< 1.0	ug/L
Hexachlorobutadiene	1.0	< 1.0	ug/L
1,2,3-Trichlorobenzene	1.0	< 1.0	ug/L

SURROGATE % RECOVERY	
1,2-Dichloroethane-d4	101 (80 - 120)
Toluene-d8	103 (88 - 110)
Bromofluorobenzene	101 (86 - 115)

Spike Recovery and RPD Summary Report - WATER

Method : C:\HPCHEM\1\METHODS\82600708.M (RTE Integrator)
Title : AEN New Mexico GC/MS
Last Update : Wed Jul 08 14:15:08 1998
Response via : Initial Calibration

Non-Spiked Sample: 07099817.D

	Spike Sample	Spike Duplicate Sample
File ID :	070998S3.D	070998S4.D
Sample :	806426-01 MS	806426-01 MSD
Acq Time:	9 Jul 98 9:29 pm	9 Jul 98 10:04 pm

Compound	Sample Conc	Spike Added	Spike Res	Dup Res	Spike %Rec	Dup %Rec	RPD	QC Limits RPD	QC Limits % Rec
1,1-Dichloroethene	0.0	50	43	42	86	84	2	14	61-145
Benzene	0.0	50	48	48	97	96	1	11	76-127
Trichloroethene	0.0	50	49	48	98	97	1	14	71-120
Toluene	0.0	50	48	47	96	94	2	13	76-125
Chlorobenzene	0.0	50	49	48	97	96	1	13	75-130

- Fails Limit Check

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Environmental Laboratory Services

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American Environmental Network	Project:	Marathon Oil	Sampled:	6/29/98 to 6/30/98
2709-D Pan American Freeway,NE	Project Number:	104332.03	Received:	7/2/98
Albuquerque, NM 87107	Project Manager:	Kimberly McNeill	Reported:	7/21/98 17:32

ANALYTICAL REPORT FOR SAMPLES:

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
Lyman	P807052-01	Water	6/29/98
LymanLC	P807052-02	Water	6/29/98
MW-73	P807052-03	Water	6/30/98
MW-72	P807052-04	Water	6/30/98
MW-75	P807052-05	Water	6/30/98
MW-110	P807052-06	Water	6/30/98
SW-01	P807052-07	Water	6/30/98
SW-01DP	P807052-08	Water	6/30/98

North Creek Analytical, Inc.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Lisa Domenighini, Project Manager

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American Environmental Network	Project:	Marathon Oil	Sampled:	6/29/98 to 6/30/98
2709-D Pan American Freeway,NE	Project Number:	104332.03	Received:	7/2/98
Albuquerque, NM 87107	Project Manager:	Kimberly McNeill	Reported:	7/21/98 17:32

Total Metals per EPA 6000/7000 Series Methods
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
Lyman			**P807052-01**				**Water**	
Uranium	0780335	7/14/98	7/19/98	EPA 6020	0.00100	**0.00510**	mg/l	
LymanLC			**P807052-02**				**Water**	
Uranium	0780335	7/14/98	7/19/98	EPA 6020	0.00100	**0.00340**	mg/l	
MW-73			**P807052-03**				**Water**	
Uranium	0780335	7/14/98	7/19/98	EPA 6020	0.00100	**0.0201**	mg/l	
MW-72			**P807052-04**				**Water**	
Uranium	0780335	7/14/98	7/19/98	EPA 6020	0.00100	**0.00280**	mg/l	
MW-75			**P807052-05**				**Water**	
Uranium	0780335	7/14/98	7/19/98	EPA 6020	0.00100	**0.00160**	mg/l	
MW-110			**P807052-06**				**Water**	
Uranium	0780335	7/14/98	7/19/98	EPA 6020	0.00100	**0.00200**	mg/l	
SW-01			**P807052-07**				**Water**	
Uranium	0780335	7/14/98	7/19/98	EPA 6020	0.00100	**0.00150**	mg/l	
SW-01DP			**P807052-08**				**Water**	
Uranium	0780335	7/14/98	7/19/98	EPA 6020	0.00100	**0.00150**	mg/l	

North Creek Analytical, Inc.

**Refer to end of report for text of notes and definitions.*

Lisa Domenighini, Project Manager

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American Environmental Network	Project:	Marathon Oil	Sampled: 6/29/98 to 6/30/98
2709-D Pan American Freeway,NE	Project Number:	104332.03	Received: 7/2/98
Albuquerque, NM 87107	Project Manager:	Kimberly McNeill	Reported: 7/21/98 17:32

Total Metals per EPA 6000/7000 Series Methods/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0780335	**Date Prepared: 7/14/98**					**Extraction Method: EPA 200/3005**				
Blank	**0780335-BLK1**									
Uranium	7/19/98			**ND**	mg/l	**0.00100**				
LCS	**0780335-BS1**									
Uranium	7/19/98	0.100		0.0712	mg/l	75.0-125	71.2			1
Duplicate	**0780335-DUP1**		**P807052-01**							
Uranium	7/19/98		0.00510	0.00220	mg/l			20.0	**79.5**	2
Matrix Spike	**0780335-MS1**		**P807052-01**							
Uranium	7/19/98	0.100	0.00510	0.0716	mg/l	70.0-130	**66.5**			1

North Creek Analytical, Inc.

**Refer to end of report for text of notes and definitions.*

Lisa Domenighini, Project Manager

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American Environmental Network	Project:	Marathon Oil	Sampled: 6/29/98 to 6/30/98
2709-D Pan American Freeway,NE	Project Number:	104332.03	Received: 7/2/98
Albuquerque, NM 87107	Project Manager:	Kimberly McNeill	Reported: 7/21/98 17:32

Notes and Definitions

#	Note
1	The spike recovery for this QC sample is outside of established control limits. Review of associated batch QC indicates the recovery for this analyte does not represent an out-of-control condition for the batch.
2	Analyses are not controlled on RPD values from sample concentrations less than 5 times the reporting limit.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
Recov.	Recovery
RPD	Relative Percent Difference

North Creek Analytical, Inc.

Lisa Domenighini, Project Manager

P807052 W.O.

American Environmental Network (NM), Inc.

CHAIN OF CUSTODY

DATE: 6/29-30/98 PAGE: ___ OF ___

AEN(NM) Accession #: 02 806426

SHADED AREAS ARE FOR LAB USE ONLY

PLEASE FILL THIS FORM IN COMPLETELY.

PROJECT MANAGER:	Paul Peacock
COMPANY:	Marathon Oil Company
ADDRESS:	P.O. Box 552
	Midland, TX 79702-0552
PHONE:	(915) 687-8312
FAX:	(915) 687-8305
BILL TO:	same as above
COMPANY:	
ADDRESS:	

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	Petroleum Hydrocarbons (418.1) TRPH	(MOD.8015) Diesel/Direct Inject	(M8015) Gas/Purge & Trap	8021 (BTEX)/8015 (Gasoline)	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)	Herbicides (615/8151)	Base/Neutral/Acid Compounds GC/MS (625/8270)	Polynuclear Aromatics (610/8310)	General Chemistry:	Uranium	Priority Pollutant Metals (13)	Target Analyte List Metals (23)	RCRA Metals (8)	RCRA Metals by TCLP (Method 1311)	Metals:	# OF CONTAINERS
Lyman	6/29/98	1530	WATER	01																				X						1
Lyman LC	↓	1530		02																				X						1
MW-73	6/30/98	0815		03																				X						1
MW-72		0915		04																				X						1
MW-75		1030		05																				X						1
MW-110		1140		06																				X						1
SW-01		1330		07																				X						1
SW-01DP	↓	1330	↓	08																				X						1
~~Trip Blank~~	~~6/11~~	~~1410~~	~~AQ~~	~~09~~																										

PROJECT INFORMATION	
PROJ. NO.:	104332.03
PROJ. NAME:	IBRP
P.O. NO.:	
SHIPPED VIA:	

SAMPLE RECEIPT	
NO. CONTAINERS:	8
CUSTODY SEALS:	Y / N / NA
RECEIVED INTACT:	Yes
BLUE ICE/ICE:	11°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 ☐

Lyman LC = Lab Control

Relinquished By:
Francine Torivio 17:00
Francine Torivio 7/1/98

On Ice

RELINQUISHED BY: 1	RELINQUISHED BY: 2
Signature: Kevin Cook	Signature:
Time: 1400	Time: 1316
Printed Name: Kevin Cook	Printed Name: CHAS FAITH
Date: 6/30	Date: 7/1
Company: AEN	Company: AEN
RECEIVED BY: 1	**RECEIVED BY: (LAB) 2**
Signature:	Signature: Francine Torivio
Time: 1400	Time: 1:20
Printed Name: CHAS FAITH	Printed Name: Francine Torivio
Date: 6/30	Date: 7/1/98
Company: AEN	Company: American Environmental Network (NM), Inc.



Committed To *Your* Success

Severn Trent Laboratories
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Pensacola FL 32514

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SIGNATURE PAGE

Reviewed by:



Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC. ALBUQUERQUE, NEW MEXICO
Project Name:	IBRP
Project Number:	806426
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Accession Number:	807034
Project Manager:	KIMBERLY D. MCNEILL
Sampled By:	N/S

SEVERN TRENT LABORATORIES 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Analysis Report

Analysis: MARATHON WET CHEMISTRY INORGANICS

Accession:	807034
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806426
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	WET CHEM

SEVERN TRENT LABORATORIES 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 807034
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806426
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON WET CHEMISTRY INORGANICS
QcLevel: II

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: LYMAN			Lab ID: 001		
CHLORIDE (4500-CL B)	MG/L	13	1	CIW075	
CYANIDE, TOTAL (335.2)	MG/L	ND	0.005	CNW041	
FLUORIDE (340.2/4500-F C)	MG/L	0.6	0.2	FLW030	
NITRITE, NITROGEN (354.1)	MG/L	ND	0.1	N2W100	
NITRITE-NITRATE, NITROGEN (353.2)	MG/L	0.6	0.1	N3W50A	
NITRATE, NITROGEN (353.2-354.1)	MG/L	0.6	0.1	NONE	
PH (150.1)	UNITS	7.4	NA	PHW140	R4
PHENOLS, TOTAL (420.1)	MG/L	ND	0.005	PEW029	
SULFATE (375.4)	MG/L	670	250	SEW085	+
TOTAL DISSOLVED SOLIDS (160.1)	MG/L	1000	5	TDW040	

Comments:

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: LYMAN LC			Lab ID: 002		
CHLORIDE (4500-CL B)	MG/L	15	1	CIW075	
CYANIDE, TOTAL (335.2)	MG/L	ND	0.005	CNW041	
FLUORIDE (340.2/4500-F C)	MG/L	0.7	0.2	FLW030	
NITRITE, NITROGEN (354.1)	MG/L	ND	0.1	N2W100	
NITRITE-NITRATE, NITROGEN (353.2)	MG/L	0.6	0.1	N3W50A	
NITRATE, NITROGEN (353.2-354.1)	MG/L	0.6	0.1	NONE	
PH (150.1)	UNITS	7.8	NA	PHW140	R4
PHENOLS, TOTAL (420.1)	MG/L	ND	0.005	PEW029	
SULFATE (375.4)	MG/L	670	250	SEW085	+
TOTAL DISSOLVED SOLIDS (160.1)	MG/L	1000	5	TDW040	

Comments:

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 807034
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806426
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON WET CHEMISTRY INORGANICS
QcLevel: II

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: MW-73			Lab ID: 003		
CHLORIDE (4500-CL B)	MG/L	320	1	CIW075	
CYANIDE, TOTAL (335.2)	MG/L	ND	0.005	CNW041	
FLUORIDE (340.2/4500-F C)	MG/L	1.3	0.2	FLW030	
NITRITE, NITROGEN (354.1)	MG/L	ND	0.1	N2W100	
NITRITE-NITRATE, NITROGEN (353.2)	MG/L	ND	0.1	N3W50A	
NITRATE, NITROGEN (353.2-354.1)	MG/L	ND	0.1	NONE	
PH (150.1)	UNITS	6.9	NA	PHW140	R4
PHENOLS, TOTAL (420.1)	MG/L	ND	0.005	PEW029	
SULFATE (375.4)	MG/L	2800	1000	SEW085	+
TOTAL DISSOLVED SOLIDS (160.1)	MG/L	3700	5	TDW040	
Comments:					
Client ID: MW-72			Lab ID: 004		
CHLORIDE (4500-CL B)	MG/L	49	1	CIW075	
CYANIDE, TOTAL (335.2)	MG/L	ND	0.005	CNW041	
FLUORIDE (340.2/4500-F C)	MG/L	0.8	0.2	FLW030	
NITRITE, NITROGEN (354.1)	MG/L	ND	0.1	N2W100	
NITRITE-NITRATE, NITROGEN (353.2)	MG/L	ND	0.1	N3W50A	
NITRATE, NITROGEN (353.2-354.1)	MG/L	ND	0.1	NONE	
PH (150.1)	UNITS	6.9	NA	PHW140	R4
PHENOLS, TOTAL (420.1)	MG/L	0.015	0.005	PEW029	
SULFATE (375.4)	MG/L	530	250	SEW085	+
TOTAL DISSOLVED SOLIDS (160.1)	MG/L	890	5	TDW040	
Comments:					

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 807034
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806426
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON WET CHEMISTRY INORGANICS
QcLevel: II

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: MW-75			Lab ID: 005		
CHLORIDE (4500-CL B)	MG/L	54	1	CIW075	
CYANIDE, TOTAL (335.2)	MG/L	ND	0.005	CNW041	
FLUORIDE (340.2/4500-F C)	MG/L	1.2	0.2	FLW030	
NITRITE, NITROGEN (354.1)	MG/L	ND	0.1	N2W100	
NITRITE-NITRATE, NITROGEN (353.2)	MG/L	0.1	0.1	N3W50A	
NITRATE, NITROGEN (353.2-354.1)	MG/L	0.1	0.1	NONE	
PH (150.1)	UNITS	7.3	NA	PHW140	R4
PHENOLS, TOTAL (420.1)	MG/L	0.077	0.005	PEW029	
SULFATE (375.4)	MG/L	390	130	SEW085	+
TOTAL DISSOLVED SOLIDS (160.1)	MG/L	870	5	TDW040	
Comments:					
Client ID: MW-110			Lab ID: 006		
CHLORIDE (4500-CL B)	MG/L	54	1	CIW075	
CYANIDE, TOTAL (335.2)	MG/L	ND	0.005	CNW041	
FLUORIDE (340.2/4500-F C)	MG/L	0.7	0.2	FLW030	
NITRITE, NITROGEN (354.1)	MG/L	ND	0.1	N2W100	
NITRITE-NITRATE, NITROGEN (353.2)	MG/L	1.4	0.1	N3W50A	
NITRATE, NITROGEN (353.2-354.1)	MG/L	1.4	0.1	NONE	
PH (150.1)	UNITS	7.2	NA	PHW140	R4
PHENOLS, TOTAL (420.1)	MG/L	0.010	0.005	PEW029	
SULFATE (375.4)	MG/L	130	50	SEW085	+
TOTAL DISSOLVED SOLIDS (160.1)	MG/L	600	5	TDW040	
Comments:					

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 807034
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806426
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON WET CHEMISTRY INORGANICS
QcLevel: II

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: SW-01			Lab ID: 007		
CHLORIDE (4500-CL B)	MG/L	23	1	CIW075	
CYANIDE, TOTAL (335.2)	MG/L	ND	0.005	CNW041	
FLUORIDE (340.2/4500-F C)	MG/L	0.6	0.2	FLW030	
NITRITE, NITROGEN (354.1)	MG/L	ND	0.1	N2W100	
NITRITE-NITRATE, NITROGEN (353.2)	MG/L	2.5	0.1	N3W50A	
NITRATE, NITROGEN (353.2-354.1)	MG/L	2.5	0.1	NONE	
PH (150.1)	UNITS	7.3	NA	PHW140	R4
PHENOLS, TOTAL (420.1)	MG/L	ND	0.005	PEW029	
SULFATE (375.4)	MG/L	230	130	SEW085	+
TOTAL DISSOLVED SOLIDS (160.1)	MG/L	550	5	TDW040	
Comments:					
Client ID: SW-01 DP			Lab ID: 008		
CHLORIDE (4500-CL B)	MG/L	23	1	CIW075	
CYANIDE, TOTAL (335.2)	MG/L	ND	0.005	CNW041	
FLUORIDE (340.2/4500-F C)	MG/L	0.6	0.2	FLW030	
NITRITE, NITROGEN (354.1)	MG/L	ND	0.1	N2W100	
NITRITE-NITRATE, NITROGEN (353.2)	MG/L	2.5	0.1	N3W50A	
NITRATE, NITROGEN (353.2-354.1)	MG/L	2.5	0.1	NONE	
PH (150.1)	UNITS	7.6	NA	PHW140	R4
PHENOLS, TOTAL (420.1)	MG/L	ND	0.005	PEW029	
SULFATE (375.4)	MG/L	220	130	SEW085	+
TOTAL DISSOLVED SOLIDS (160.1)	MG/L	560	5	TDW040	
Comments:					

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 807034
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806426
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON WET CHEMISTRY INORGANICS

Client ID:	Lab ID:	Matrix:	Date/Time Sampled:	Date Received:
LYMAN	001	WATER	29-JUN-98 1530	01-JUL-98
LYMAN LC	002	WATER	29-JUN-98 1530	01-JUL-98
MW-73	003	WATER	30-JUN-98 0815	01-JUL-98
MW-72	004	WATER	30-JUN-98 0915	01-JUL-98
MW-75	005	WATER	30-JUN-98 1030	01-JUL-98
MW-110	006	WATER	30-JUN-98 1140	01-JUL-98
SW-01	007	WATER	30-JUN-98 1330	01-JUL-98
SW-01 DP	008	WATER	30-JUN-98 1330	01-JUL-98

"Method Report Summary"

Accession Number: 807034
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806426
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON WET CHEMISTRY INORGANICS

Client Sample Id:	Parameter:	Unit:	Result:
LYMAN	CHLORIDE (4500-CL B)	MG/L	13
	FLUORIDE (340.2/4500-F C)	MG/L	0.6
	NITRITE-NITRATE, NITROGEN (353.2)	MG/L	0.6
	NITRATE, NITROGEN (353.2-354.1)	MG/L	0.6
	PH (150.1)	UNITS	7.4
	SULFATE (375.4)	MG/L	670
	TOTAL DISSOLVED SOLIDS (160.1)	MG/L	1000
LYMAN LC	CHLORIDE (4500-CL B)	MG/L	15
	FLUORIDE (340.2/4500-F C)	MG/L	0.7
	NITRITE-NITRATE, NITROGEN (353.2)	MG/L	0.6
	NITRATE, NITROGEN (353.2-354.1)	MG/L	0.6
	PH (150.1)	UNITS	7.8
	SULFATE (375.4)	MG/L	670
	TOTAL DISSOLVED SOLIDS (160.1)	MG/L	1000
MW-73	CHLORIDE (4500-CL B)	MG/L	320
	FLUORIDE (340.2/4500-F C)	MG/L	1.3
	PH (150.1)	UNITS	6.9
	SULFATE (375.4)	MG/L	2800
	TOTAL DISSOLVED SOLIDS (160.1)	MG/L	3700
MW-72	CHLORIDE (4500-CL B)	MG/L	49
	FLUORIDE (340.2/4500-F C)	MG/L	0.8
	PH (150.1)	UNITS	6.9
	PHENOLS, TOTAL (420.1)	MG/L	0.015
	SULFATE (375.4)	MG/L	530
	TOTAL DISSOLVED SOLIDS (160.1)	MG/L	890
MW-75	CHLORIDE (4500-CL B)	MG/L	54
	FLUORIDE (340.2/4500-F C)	MG/L	1.2
	NITRITE-NITRATE, NITROGEN (353.2)	MG/L	0.1
	NITRATE, NITROGEN (353.2-354.1)	MG/L	0.1
	PH (150.1)	UNITS	7.3
	PHENOLS, TOTAL (420.1)	MG/L	0.077
	SULFATE (375.4)	MG/L	390
	TOTAL DISSOLVED SOLIDS (160.1)	MG/L	870
MW-110	CHLORIDE (4500-CL B)	MG/L	54
	FLUORIDE (340.2/4500-F C)	MG/L	0.7
	NITRITE-NITRATE, NITROGEN (353.2)	MG/L	1.4
	NITRATE, NITROGEN (353.2-354.1)	MG/L	1.4

"Method Report Summary"

Accession Number: 807034
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806426
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON WET CHEMISTRY INORGANICS

Client Sample Id:	Parameter:	Unit:	Result:
	PH (150.1)	UNITS	7.2
	PHENOLS, TOTAL (420.1)	MG/L	0.010
	SULFATE (375.4)	MG/L	130
	TOTAL DISSOLVED SOLIDS (160.1)	MG/L	600
SW-01	CHLORIDE (4500-CL B)	MG/L	23
	FLUORIDE (340.2/4500-F C)	MG/L	0.6
	NITRITE-NITRATE, NITROGEN (353.2)	MG/L	2.5
	NITRATE, NITROGEN (353.2-354.1)	MG/L	2.5
	PH (150.1)	UNITS	7.3
	SULFATE (375.4)	MG/L	230
	TOTAL DISSOLVED SOLIDS (160.1)	MG/L	550
SW-01 DP	CHLORIDE (4500-CL B)	MG/L	23
	FLUORIDE (340.2/4500-F C)	MG/L	0.6
	NITRITE-NITRATE, NITROGEN (353.2)	MG/L	2.5
	NITRATE, NITROGEN (353.2-354.1)	MG/L	2.5
	PH (150.1)	UNITS	7.6
	SULFATE (375.4)	MG/L	220
	TOTAL DISSOLVED SOLIDS (160.1)	MG/L	560

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Analysis Report

Analysis: MARATHON METALS - OPTIMA

Accession:	807034
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806426
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	METALS

SEVERN TRENT LABORATORIES 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 807034
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806426
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON METALS - OPTIMA
QcLevel: II

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: LYMAN			Lab ID:001		
SILVER (6010A)	MG/L	ND	0.0007	AYW181	
ALUMINUM (6010A)	MG/L	ND	0.026	LYW181	
ARSENIC (6010A)	MG/L	ND	0.0018	RYW181	
BARIUM (6010A)	MG/L	0.018	0.0002	BYW181	
BORON (6010A)	MG/L	0.090	0.0057	OYW181	
CADMIUM (6010A)	MG/L	0.0003	0.0002	CYW181	
COBALT (6010A)	MG/L	ND	0.0003	TYW181	
CHROMIUM (6010A)	MG/L	ND	0.0008	HYW181	
COPPER (6010A)	MG/L	ND	0.0018	FYW181	
MERCURY (7470A)	MG/L	ND	0.0001	M7W087	
NICKEL (6010A)	MG/L	ND	0.0009	EYW181	
IRON (6010A)	MG/L	0.035	0.013	NYW181	
LEAD (6010A)	MG/L	ND	0.0022	PYW181	
MANGANESE (6010A)	MG/L	ND	0.0002	GYW181	
MOLYBDENUM (6010A)	MG/L	0.0034	0.0003	DYW181	
SELENIUM (6010A)	MG/L	ND	0.0023	SYW181	
ZINC (6010A)	MG/L	ND	0.014	5YW181	

Comments:

Client ID: LYMAN LC			Lab ID:002		
SILVER (6010A)	MG/L	ND	0.0007	AYW181	
ALUMINUM (6010A)	MG/L	ND	0.026	LYW181	
ARSENIC (6010A)	MG/L	ND	0.0018	RYW181	
BARIUM (6010A)	MG/L	0.018	0.0002	BYW181	
BORON (6010A)	MG/L	0.11	0.0057	OYW181	
CADMIUM (6010A)	MG/L	0.0011	0.0002	CYW181	
COBALT (6010A)	MG/L	ND	0.0003	TYW181	
CHROMIUM (6010A)	MG/L	0.0008	0.0008	HYW181	
COPPER (6010A)	MG/L	0.0076	0.0018	FYW181	
MERCURY (7470A)	MG/L	ND	0.0001	M7W087	
NICKEL (6010A)	MG/L	ND	0.0009	EYW181	
IRON (6010A)	MG/L	0.042	0.013	NYW181	
LEAD (6010A)	MG/L	0.0064	0.0022	PYW181	
MANGANESE (6010A)	MG/L	ND	0.0002	GYW181	
MOLYBDENUM (6010A)	MG/L	0.0028	0.0003	DYW181	
SELENIUM (6010A)	MG/L	ND	0.0023	SYW181	
ZINC (6010A)	MG/L	0.030	0.014	5YW181	

Comments:

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 807034
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806426
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON METALS - OPTIMA
QcLevel: II

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: MW-73			Lab ID:003		
SILVER (6010A)	MG/L	0.008	0.0007	AYW181	
ALUMINUM (6010A)	MG/L	ND	0.026	LYW181	
ARSENIC (6010A)	MG/L	0.0032	0.0018	RYW181	
BARIUM (6010A)	MG/L	0.034	0.0002	BYW181	
BORON (6010A)	MG/L	0.31	0.0057	OYW181	
CADMIUM (6010A)	MG/L	ND	0.0002	CYW181	
COBALT (6010A)	MG/L	ND	0.0003	TYW181	
CHROMIUM (6010A)	MG/L	0.0084	0.0008	HYW181	
COPPER (6010A)	MG/L	ND	0.0018	FYW181	
MERCURY (7470A)	MG/L	ND	0.0001	M7W087	
NICKEL (6010A)	MG/L	0.0015	0.0009	EYW181	
IRON (6010A)	MG/L	0.26	0.013	NYW181	
LEAD (6010A)	MG/L	ND	0.0022	PYW181	
MANGANESE (6010A)	MG/L	0.065	0.0002	GYW181	
MOLYBDENUM (6010A)	MG/L	0.0028	0.0003	DYW181	
SELENIUM (6010A)	MG/L	ND	0.0023	SYW181	
ZINC (6010A)	MG/L	0.052	0.014	5YW181	
Comments:					
Client ID: MW-72			Lab ID:004		
SILVER (6010A)	MG/L	ND	0.0007	AYW181	
ALUMINUM (6010A)	MG/L	ND	0.026	LYW181	
ARSENIC (6010A)	MG/L	0.0027	0.0018	RYW181	
BARIUM (6010A)	MG/L	0.14	0.0002	BYW181	
BORON (6010A)	MG/L	0.086	0.0057	OYW181	
CADMIUM (6010A)	MG/L	0.0002	0.0002	CYW181	
COBALT (6010A)	MG/L	0.0004	0.0003	TYW181	
CHROMIUM (6010A)	MG/L	0.0077	0.0008	HYW181	
COPPER (6010A)	MG/L	ND	0.0018	FYW181	
MERCURY (7470A)	MG/L	ND	0.0001	M7W087	
NICKEL (6010A)	MG/L	0.0014	0.0009	EYW181	
IRON (6010A)	MG/L	0.89	0.013	NYW181	
LEAD (6010A)	MG/L	ND	0.0022	PYW181	
MANGANESE (6010A)	MG/L	0.65	0.0002	GYW181	
MOLYBDENUM (6010A)	MG/L	0.0035	0.0003	DYW181	
SELENIUM (6010A)	MG/L	ND	0.0023	SYW181	
ZINC (6010A)	MG/L	ND	0.014	5YW181	
Comments:					

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 807034
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806426
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON METALS - OPTIMA
QcLevel: II

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: MW-75			**Lab ID:005**		
SILVER (6010A)	MG/L	ND	0.0007	AYW181	
ALUMINUM (6010A)	MG/L	0.033	0.026	LYW181	
ARSENIC (6010A)	MG/L	0.0045	0.0018	RYW181	
BARIUM (6010A)	MG/L	0.082	0.0002	BYW181	
BORON (6010A)	MG/L	0.11	0.0057	OYW181	
CADMIUM (6010A)	MG/L	ND	0.0002	CYW181	
COBALT (6010A)	MG/L	ND	0.0003	TYW181	
CHROMIUM (6010A)	MG/L	0.0068	0.0008	HYW181	
COPPER (6010A)	MG/L	ND	0.0018	FYW181	
MERCURY (7470A)	MG/L	ND	0.0001	M7W087	
NICKEL (6010A)	MG/L	0.0039	0.0009	EYW181	
IRON (6010A)	MG/L	0.18	0.013	NYW181	
LEAD (6010A)	MG/L	ND	0.0022	PYW181	
MANGANESE (6010A)	MG/L	0.26	0.0002	GYW181	
MOLYBDENUM (6010A)	MG/L	0.0023	0.0003	DYW181	
SELENIUM (6010A)	MG/L	ND	0.0023	SYW181	
ZINC (6010A)	MG/L	0.041	0.014	5YW181	
Comments:					
Client ID: MW-110			**Lab ID:006**		
SILVER (6010A)	MG/L	ND	0.0007	AYW181	
ALUMINUM (6010A)	MG/L	ND	0.026	LYW181	
ARSENIC (6010A)	MG/L	0.0046	0.0018	RYW181	
BARIUM (6010A)	MG/L	0.18	0.0002	BYW181	
BORON (6010A)	MG/L	0.071	0.0057	OYW181	
CADMIUM (6010A)	MG/L	ND	0.0002	CYW181	
COBALT (6010A)	MG/L	ND	0.0003	TYW181	
CHROMIUM (6010A)	MG/L	0.0010	0.0008	HYW181	
COPPER (6010A)	MG/L	ND	0.0018	FYW181	
MERCURY (7470A)	MG/L	ND	0.0001	M7W087	
NICKEL (6010A)	MG/L	ND	0.0009	EYW181	
IRON (6010A)	MG/L	0.043	0.013	NYW181	
LEAD (6010A)	MG/L	ND	0.0022	PYW181	
MANGANESE (6010A)	MG/L	0.065	0.0002	GYW181	
MOLYBDENUM (6010A)	MG/L	0.0038	0.0003	DYW181	
SELENIUM (6010A)	MG/L	ND	0.0023	SYW181	
ZINC (6010A)	MG/L	0.024	0.014	5YW181	
Comments:					

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 807034
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806426
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON METALS - OPTIMA
QcLevel: II

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: SW-01			**Lab ID:007**		
SILVER (6010A)	MG/L	ND	0.0007	AYW181	
ALUMINUM (6010A)	MG/L	ND	0.026	LYW181	
ARSENIC (6010A)	MG/L	ND	0.0018	RYW181	
BARIUM (6010A)	MG/L	0.027	0.0002	BYW181	
BORON (6010A)	MG/L	0.056	0.0057	OYW181	
CADMIUM (6010A)	MG/L	ND	0.0002	CYW181	
COBALT (6010A)	MG/L	ND	0.0003	TYW181	
CHROMIUM (6010A)	MG/L	0.0011	0.0008	HYW181	
COPPER (6010A)	MG/L	ND	0.0018	FYW181	
MERCURY (7470A)	MG/L	ND	0.0001	M7W088	
NICKEL (6010A)	MG/L	ND	0.0009	EYW181	
IRON (6010A)	MG/L	0.060	0.013	NYW181	
LEAD (6010A)	MG/L	0.0031	0.0022	PYW181	
MANGANESE (6010A)	MG/L	0.0032	0.0002	GYW181	
MOLYBDENUM (6010A)	MG/L	0.0019	0.0003	DYW181	
SELENIUM (6010A)	MG/L	ND	0.0023	SYW181	
ZINC (6010A)	MG/L	0.090	0.014	5YW181	
Comments:					
Client ID: SW-01 DP			**Lab ID:008**		
SILVER (6010A)	MG/L	ND	0.0007	AYW181	
ALUMINUM (6010A)	MG/L	ND	0.026	LYW181	
ARSENIC (6010A)	MG/L	ND	0.0018	RYW181	
BARIUM (6010A)	MG/L	0.027	0.0002	BYW181	
BORON (6010A)	MG/L	0.055	0.0057	OYW181	
CADMIUM (6010A)	MG/L	ND	0.0002	CYW181	
COBALT (6010A)	MG/L	ND	0.0003	TYW181	
CHROMIUM (6010A)	MG/L	ND	0.0008	HYW181	
COPPER (6010A)	MG/L	ND	0.0018	FYW181	
MERCURY (7470A)	MG/L	ND	0.0001	M7W087	
NICKEL (6010A)	MG/L	ND	0.0009	EYW181	
IRON (6010A)	MG/L	0.083	0.013	NYW181	
LEAD (6010A)	MG/L	0.0032	0.0022	PYW181	
MANGANESE (6010A)	MG/L	0.0014	0.0002	GYW181	
MOLYBDENUM (6010A)	MG/L	0.0025	0.0003	DYW181	
SELENIUM (6010A)	MG/L	ND	0.0023	SYW181	
ZINC (6010A)	MG/L	0.084	0.014	5YW181	
Comments:					

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 807034
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806426
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON METALS - OPTIMA

Client Id:	Lab Id:	Matrix:	Date/Time Sampled:	Date Received:
LYMAN	001	WATER	29-JUN-98 1530	01-JUL-98
LYMAN LC	002	WATER	29-JUN-98 1530	01-JUL-98
MW-73	003	WATER	30-JUN-98 0815	01-JUL-98
MW-72	004	WATER	30-JUN-98 0915	01-JUL-98
MW-75	005	WATER	30-JUN-98 1030	01-JUL-98
MW-110	006	WATER	30-JUN-98 1140	01-JUL-98
SW-01	007	WATER	30-JUN-98 1330	01-JUL-98
SW-01 DP	008	WATER	30-JUN-98 1330	01-JUL-98

"Method Report Summary"

Accession Number: 807034
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806426
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON METALS - OPTIMA

Client Sample Id:	Parameter:	Unit:	Result:
LYMAN	BARIUM (6010A)	MG/L	0.018
	BORON (6010A)	MG/L	0.090
	CADMIUM (6010A)	MG/L	0.0003
	IRON (6010A)	MG/L	0.035
	MOLYBDENUM (6010A)	MG/L	0.0034
LYMAN LC	BARIUM (6010A)	MG/L	0.018
	BORON (6010A)	MG/L	0.11
	CADMIUM (6010A)	MG/L	0.0011
	CHROMIUM (6010A)	MG/L	0.0008
	COPPER (6010A)	MG/L	0.0076
	IRON (6010A)	MG/L	0.042
	LEAD (6010A)	MG/L	0.0064
	MOLYBDENUM (6010A)	MG/L	0.0028
	ZINC (6010A)	MG/L	0.030
MW-73	SILVER (6010A)	MG/L	0.008
	ARSENIC (6010A)	MG/L	0.0032
	BARIUM (6010A)	MG/L	0.034
	BORON (6010A)	MG/L	0.31
	CHROMIUM (6010A)	MG/L	0.0084
	NICKEL (6010A)	MG/L	0.0015
	IRON (6010A)	MG/L	0.26
	MANGANESE (6010A)	MG/L	0.065
	MOLYBDENUM (6010A)	MG/L	0.0028
	ZINC (6010A)	MG/L	0.052
MW-72	ARSENIC (6010A)	MG/L	0.0027
	BARIUM (6010A)	MG/L	0.14
	BORON (6010A)	MG/L	0.086
	CADMIUM (6010A)	MG/L	0.0002
	COBALT (6010A)	MG/L	0.0004
	CHROMIUM (6010A)	MG/L	0.0077
	NICKEL (6010A)	MG/L	0.0014
	IRON (6010A)	MG/L	0.89
	MANGANESE (6010A)	MG/L	0.65
	MOLYBDENUM (6010A)	MG/L	0.0035
MW-75	ALUMINUM (6010A)	MG/L	0.033
	ARSENIC (6010A)	MG/L	0.0045
	BARIUM (6010A)	MG/L	0.082
	BORON (6010A)	MG/L	0.11
	CHROMIUM (6010A)	MG/L	0.0068
	NICKEL (6010A)	MG/L	0.0039
	IRON (6010A)	MG/L	0.18
	MANGANESE (6010A)	MG/L	0.26
	MOLYBDENUM (6010A)	MG/L	0.0023
	ZINC (6010A)	MG/L	0.041
MW-110	ARSENIC (6010A)	MG/L	0.0046

"Method Report Summary"

Accession Number: 807034
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806426
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON METALS - OPTIMA

Client Sample Id:	Parameter:	Unit:	Result:
	BARIUM (6010A)	MG/L	0.18
	BORON (6010A)	MG/L	0.071
	CHROMIUM (6010A)	MG/L	0.0010
	IRON (6010A)	MG/L	0.043
	MANGANESE (6010A)	MG/L	0.065
	MOLYBDENUM (6010A)	MG/L	0.0038
	ZINC (6010A)	MG/L	0.024
SW-01	BARIUM (6010A)	MG/L	0.027
	BORON (6010A)	MG/L	0.056
	CHROMIUM (6010A)	MG/L	0.0011
	IRON (6010A)	MG/L	0.060
	LEAD (6010A)	MG/L	0.0031
	MANGANESE (6010A)	MG/L	0.0032
	MOLYBDENUM (6010A)	MG/L	0.0019
	ZINC (6010A)	MG/L	0.090
SW-01 DP	BARIUM (6010A)	MG/L	0.027
	BORON (6010A)	MG/L	0.055
	IRON (6010A)	MG/L	0.083
	LEAD (6010A)	MG/L	0.0032
	MANGANESE (6010A)	MG/L	0.0014
	MOLYBDENUM (6010A)	MG/L	0.0025
	ZINC (6010A)	MG/L	0.084

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Analysis Report

Analysis: POLYNUCLEAR AROMATICS BY 8310

Accession:	807034
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806426
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	SEMI-VOLATILE FUELS

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"FINAL REPORT FORMAT - SINGLE"

Accession:	807034
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806426
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Test:	POLYNUCLEAR AROMATICS BY 8310
Analysis Method:	8310/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method:	3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix:	WATER
QC Level:	II

Lab Id:	001		Sample Date/Time:	29-JUN-98 1530
Client Sample Id:	LYMAN		Received Date:	01-JUL-98
Batch: PAW153			Extraction Date:	03-JUL-98
Blank: B	Dry Weight %:	N/A	Analysis Date:	12-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZO(a)PYRENE	UG/L	ND	0.1	
1-METHYLNAPHTHALENE	UG/L	ND	0.3	
2-CHLOROANTHRACENE	%REC/SURR	81	28-138	
ANALYST	INITIALS	HAH		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 807034
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806426
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: POLYNUCLEAR AROMATICS BY 8310
Analysis Method: 8310/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: II

Lab Id: 002 Sample Date/Time: 29-JUN-98 1530
Client Sample Id: LYMAN LC Received Date: 01-JUL-98

Batch: PAW153 Extraction Date: 03-JUL-98
Blank: B Dry Weight %: N/A Analysis Date: 12-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZO(a)PYRENE	UG/L	ND	0.1	
1-METHYLNAPHTHALENE	UG/L	ND	0.3	
2-CHLOROANTHRACENE	%REC/SURR	78	28-138	
ANALYST	INITIALS	HAH		

Comments:

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"FINAL REPORT FORMAT - SINGLE"

Accession:	807034
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806426
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Test:	POLYNUCLEAR AROMATICS BY 8310
Analysis Method:	8310/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method:	3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix:	WATER
QC Level:	II

Lab Id:	003	Sample Date/Time:	30-JUN-98 0815
Client Sample Id:	MW-73	Received Date:	01-JUL-98
Batch: PAW153		Extraction Date:	03-JUL-98
Blank: B	Dry Weight %: N/A	Analysis Date:	12-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZO(a)PYRENE	UG/L	0.3	0.1	
1-METHYLNAPHTHALENE	UG/L	23	0.3	
2-CHLOROANTHRACENE	%REC/SURR	67	28-138	
ANALYST	INITIALS	HAH		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 807034
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806426
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: POLYNUCLEAR AROMATICS BY 8310
Analysis Method: 8310/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: II

Lab Id: 004 Sample Date/Time: 30-JUN-98 0915
Client Sample Id: MW-72 Received Date: 01-JUL-98

Batch: PAW153 Extraction Date: 03-JUL-98
Blank: B Dry Weight %: N/A Analysis Date: 12-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZO(a)PYRENE	UG/L	0.7	0.1	
1-METHYLNAPHTHALENE	UG/L	57	0.3	
2-CHLOROANTHRACENE	%REC/SURR	51	28-138	
ANALYST	INITIALS	HAH		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession:	807034
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806426
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Test:	POLYNUCLEAR AROMATICS BY 8310
Analysis Method:	8310/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method:	3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix:	WATER
QC Level:	II

Lab Id:	005	Sample Date/Time:	30-JUN-98 1030
Client Sample Id:	MW-75	Received Date:	01-JUL-98
Batch: PAW153		Extraction Date:	03-JUL-98
Blank: B	Dry Weight %: N/A	Analysis Date:	13-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZO(a)PYRENE	UG/L	1.2	0.1	
1-METHYLNAPHTHALENE	UG/L	150	0.3	E
2-CHLOROANTHRACENE	%REC/SURR	59	28-138	
ANALYST	INITIALS	HAH		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession:	807034
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806426
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Test:	POLYNUCLEAR AROMATICS BY 8310
Analysis Method:	8310/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method:	3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix:	WATER
QC Level:	II

Lab Id:	006	Sample Date/Time:	30-JUN-98 1140
Client Sample Id:	MW-110	Received Date:	01-JUL-98
Batch: PAW153		Extraction Date:	03-JUL-98
Blank: B	Dry Weight %: N/A	Analysis Date:	13-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZO(a)PYRENE	UG/L	ND	0.1	
1-METHYLNAPHTHALENE	UG/L	360	0.3	E
2-CHLOROANTHRACENE	%REC/SURR	105	28-138	
ANALYST	INITIALS	HAH		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession:	807034
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806426
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Test:	POLYNUCLEAR AROMATICS BY 8310
Analysis Method:	8310/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method:	3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix:	WATER
QC Level:	II

Lab Id:	007		Sample Date/Time:	30-JUN-98 1330
Client Sample Id:	SW-01		Received Date:	01-JUL-98
Batch: PAW153			Extraction Date:	03-JUL-98
Blank: B	Dry Weight %:	N/A	Analysis Date:	13-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZO(a)PYRENE	UG/L	ND	0.1	
1-METHYLNAPHTHALENE	UG/L	ND	0.3	
2-CHLOROANTHRACENE	%REC/SURR	84	28-138	
ANALYST	INITIALS	HAH		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 807034
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806426
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: POLYNUCLEAR AROMATICS BY 8310
Analysis Method: 8310/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: II

Lab Id: 008 Sample Date/Time: 30-JUN-98 1330
Client Sample Id: SW-01 DP Received Date: 01-JUL-98

Batch: PAW153 Extraction Date: 03-JUL-98
Blank: B Dry Weight %: N/A Analysis Date: 13-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZO(a)PYRENE	UG/L	ND	0.1	
1-METHYLNAPHTHALENE	UG/L	ND	0.3	
2-CHLOROANTHRACENE	%REC/SURR	78	28-138	
ANALYST	INITIALS	HAH		

Comments:

"Method Report Summary"

Accession Number: 807034
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806426
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: POLYNUCLEAR AROMATICS BY 8310

Client Sample Id:	Parameter:	Unit:	Result:
MW-73	BENZO(a)PYRENE	UG/L	0.3
	1-METHYLNAPHTHALENE	UG/L	23
MW-72	BENZO(a)PYRENE	UG/L	0.7
	1-METHYLNAPHTHALENE	UG/L	57
MW-75	BENZO(a)PYRENE	UG/L	1.2
	1-METHYLNAPHTHALENE	UG/L	150
MW-110	1-METHYLNAPHTHALENE	UG/L	360

SEVERN TRENT LABORATORIES 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Analysis Report

Analysis: PESTICIDES (8080)

Accession:	807034
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806426
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	PESTICIDES

SEVERN TRENT LABORATORIES 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"FINAL REPORT FORMAT - SINGLE"

Accession: 807034
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806426
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: PESTICIDES (8080)
Analysis Method: 8080 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Extraction Method: 3510 / 3660 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Matrix: WATER
QC Level: IIM

Lab Id: 001 Sample Date/Time: 29-JUN-98 1530
Client Sample Id: LYMAN Received Date: 01-JUL-98

Batch: PSW046 Extraction Date: 04-JUL-98
Blank: B Dry Weight %: N/A Analysis Date: 10-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
ALDRIN	UG/L	ND	0.02	
ALPHA-BHC	UG/L	ND	0.02	
BETA-BHC	UG/L	ND	0.02	
DELTA-BHC	UG/L	ND	0.02	
GAMMA-BHC (LINDANE)	UG/L	ND	0.02	
4,4'-DDD	UG/L	ND	0.02	
4,4'-DDE	UG/L	ND	0.02	
4,4'-DDT	UG/L	ND	0.02	
DIELDRIN	UG/L	ND	0.02	
ENDOSULFAN I	UG/L	ND	0.02	
ENDOSULFAN II	UG/L	ND	0.02	
ENDOSULFAN SULFATE	UG/L	ND	0.02	
ENDRIN	UG/L	ND	0.02	
ENDRIN ALDEHYDE	UG/L	ND	0.02	
HEPTACHLOR	UG/L	ND	0.02	
HEPTACHLOR EPOXIDE	UG/L	ND	0.02	
METHOXYCHLOR	UG/L	ND	0.02	
CHLORDANE	UG/L	ND	0.01	
TOXAPHENE	UG/L	ND	0.12	
PCB-1016	UG/L	ND	0.04	
PCB-1221	UG/L	ND	0.04	
PCB-1232	UG/L	ND	0.04	
PCB-1242	UG/L	ND	0.04	
PCB-1248	UG/L	ND	0.04	
PCB-1254	UG/L	ND	0.04	
PCB-1260	UG/L	ND	0.04	
TCMX	%REC/SURR	81	43-101	
DCB	%REC/SURR	88	17-135	
ANALYST	INITIALS	RP		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 807034
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806426
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: PESTICIDES (8080)
Analysis Method: 8080 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Extraction Method: 3510 / 3660 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Matrix: WATER
QC Level: IIM

Lab Id: 002 Sample Date/Time: 29-JUN-98 1530
Client Sample Id: LYMAN LC Received Date: 01-JUL-98

Batch: PSW046 Extraction Date: 04-JUL-98
Blank: B Dry Weight %: N/A Analysis Date: 10-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
ALDRIN	UG/L	ND	0.02	
ALPHA-BHC	UG/L	ND	0.02	
BETA-BHC	UG/L	ND	0.02	
DELTA-BHC	UG/L	ND	0.02	
GAMMA-BHC (LINDANE)	UG/L	ND	0.02	
4,4'-DDD	UG/L	ND	0.02	
4,4'-DDE	UG/L	ND	0.02	
4,4'-DDT	UG/L	ND	0.02	
DIELDRIN	UG/L	ND	0.02	
ENDOSULFAN I	UG/L	ND	0.02	
ENDOSULFAN II	UG/L	ND	0.02	
ENDOSULFAN SULFATE	UG/L	ND	0.02	
ENDRIN	UG/L	ND	0.02	
ENDRIN ALDEHYDE	UG/L	ND	0.02	
HEPTACHLOR	UG/L	ND	0.02	
HEPTACHLOR EPOXIDE	UG/L	ND	0.02	
METHOXYCHLOR	UG/L	ND	0.02	
CHLORDANE	UG/L	ND	0.01	
TOXAPHENE	UG/L	ND	0.12	
PCB-1016	UG/L	ND	0.04	
PCB-1221	UG/L	ND	0.04	
PCB-1232	UG/L	ND	0.04	
PCB-1242	UG/L	ND	0.04	
PCB-1248	UG/L	ND	0.04	
PCB-1254	UG/L	ND	0.04	
PCB-1260	UG/L	ND	0.04	
TCMX	%REC/SURR	85	43-101	
DCB	%REC/SURR	87	17-135	
ANALYST	INITIALS	RP		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 807034
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806426
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: PESTICIDES (8080)
Analysis Method: 8080 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Extraction Method: 3510 / 3660 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Matrix: WATER
QC Level: IIM

Lab Id: 003 Sample Date/Time: 30-JUN-98 0815
Client Sample Id: MW-73 Received Date: 01-JUL-98

Batch: PSW046 Extraction Date: 04-JUL-98
Blank: B Dry Weight %: N/A Analysis Date: 10-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
ALDRIN	UG/L	ND	0.02	
ALPHA-BHC	UG/L	ND	0.02	
BETA-BHC	UG/L	0.17	0.02	
DELTA-BHC	UG/L	0.06	0.02	
GAMMA-BHC (LINDANE)	UG/L	0.32	0.02	I
4,4'-DDD	UG/L	ND	0.02	
4,4'-DDE	UG/L	ND	0.02	
4,4'-DDT	UG/L	ND	0.02	
DIELDRIN	UG/L	0.06	0.02	I
ENDOSULFAN I	UG/L	ND	0.02	
ENDOSULFAN II	UG/L	ND	0.02	
ENDOSULFAN SULFATE	UG/L	ND	0.02	
ENDRIN	UG/L	ND	0.02	
ENDRIN ALDEHYDE	UG/L	ND	0.02	
HEPTACHLOR	UG/L	ND	0.02	
HEPTACHLOR EPOXIDE	UG/L	ND	0.02	
METHOXYCHLOR	UG/L	ND	0.02	
CHLORDANE	UG/L	ND	0.01	
TOXAPHENE	UG/L	ND	0.12	
PCB-1016	UG/L	ND	0.04	
PCB-1221	UG/L	ND	0.04	
PCB-1232	UG/L	ND	0.04	
PCB-1242	UG/L	ND	0.04	
PCB-1248	UG/L	ND	0.04	
PCB-1254	UG/L	ND	0.04	
PCB-1260	UG/L	ND	0.04	
TCMX	%REC/SURR	96	43-101	
DCB	%REC/SURR	80	17-135	
ANALYST	INITIALS	RP		

Comments:
I = DUAL-COLUMN RPD > 40%

"FINAL REPORT FORMAT - SINGLE"

Accession: 807034
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806426
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: PESTICIDES (8080)
Analysis Method: 8080 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Extraction Method: 3510 / 3660 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Matrix: WATER
QC Level: IIM

Lab Id: 004 Sample Date/Time: 30-JUN-98 0915
Client Sample Id: MW-72 Received Date: 01-JUL-98

Batch: PSW046 Extraction Date: 04-JUL-98
Blank: B Dry Weight %: N/A Analysis Date: 10-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
ALDRIN	UG/L	ND	0.1	
ALPHA-BHC	UG/L	ND	0.1	
BETA-BHC	UG/L	0.29	0.1	I
DELTA-BHC	UG/L	0.10	0.1	
GAMMA-BHC (LINDANE)	UG/L	ND	0.1	
4,4'-DDD	UG/L	ND	0.1	
4,4'-DDE	UG/L	ND	0.1	
4,4'-DDT	UG/L	ND	0.1	
DIELDRIN	UG/L	ND	0.1	
ENDOSULFAN I	UG/L	ND	0.1	
ENDOSULFAN II	UG/L	ND	0.1	
ENDOSULFAN SULFATE	UG/L	ND	0.1	
ENDRIN	UG/L	ND	0.1	
ENDRIN ALDEHYDE	UG/L	ND	0.1	
HEPTACHLOR	UG/L	ND	0.1	
HEPTACHLOR EPOXIDE	UG/L	ND	0.1	
METHOXYCHLOR	UG/L	ND	0.1	
CHLORDANE	UG/L	ND	0.05	
TOXAPHENE	UG/L	ND	0.6	
PCB-1016	UG/L	ND	0.2	
PCB-1221	UG/L	ND	0.2	
PCB-1232	UG/L	ND	0.2	
PCB-1242	UG/L	ND	0.2	
PCB-1248	UG/L	ND	0.2	
PCB-1254	UG/L	ND	0.2	
PCB-1260	UG/L	ND	0.2	
TCMX	%REC/SURR	73	43-101	
DCB	%REC/SURR	95	17-135	
ANALYST	INITIALS	RP		

Comments:
I = DUAL-COLUMN RPD > 40%

"FINAL REPORT FORMAT - SINGLE"

Accession: 807034
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806426
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: PESTICIDES (8080)
Analysis Method: 8080 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Extraction Method: 3510 / 3660 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Matrix: WATER
QC Level: IIM

Lab Id: 005 Sample Date/Time: 30-JUN-98 1030
Client Sample Id: MW-75 Received Date: 01-JUL-98

Batch: PSW046 Extraction Date: 04-JUL-98
Blank: B Dry Weight %: N/A Analysis Date: 10-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
ALDRIN	UG/L	ND	0.1	
ALPHA-BHC	UG/L	ND	0.1	
BETA-BHC	UG/L	0.26	0.1	
DELTA-BHC	UG/L	0.10	0.1	
GAMMA-BHC (LINDANE)	UG/L	ND	0.1	
4,4'-DDD	UG/L	ND	0.1	
4,4'-DDE	UG/L	ND	0.1	
4,4'-DDT	UG/L	ND	0.1	
DIELDRIN	UG/L	ND	0.1	
ENDOSULFAN I	UG/L	ND	0.1	
ENDOSULFAN II	UG/L	ND	0.1	
ENDOSULFAN SULFATE	UG/L	ND	0.1	
ENDRIN	UG/L	ND	0.1	
ENDRIN ALDEHYDE	UG/L	ND	0.1	
HEPTACHLOR	UG/L	ND	0.1	
HEPTACHLOR EPOXIDE	UG/L	ND	0.1	
METHOXYCHLOR	UG/L	ND	0.1	
CHLORDANE	UG/L	ND	0.05	
TOXAPHENE	UG/L	ND	0.6	
PCB-1016	UG/L	ND	0.2	
PCB-1221	UG/L	ND	0.2	
PCB-1232	UG/L	ND	0.2	
PCB-1242	UG/L	ND	0.2	
PCB-1248	UG/L	ND	0.2	
PCB-1254	UG/L	ND	0.2	
PCB-1260	UG/L	ND	0.2	
TCMX	%REC/SURR	100	43-101	
DCB	%REC/SURR	83	17-135	
ANALYST	INITIALS	RP		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 807034
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806426
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: PESTICIDES (8080)
Analysis Method: 8080 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Extraction Method: 3510 / 3660 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Matrix: WATER
QC Level: IIM

Lab Id: 006 Sample Date/Time: 30-JUN-98 1140
Client Sample Id: MW-110 Received Date: 01-JUL-98

Batch: PSW046 Extraction Date: 04-JUL-98
Blank: B Dry Weight %: N/A Analysis Date: 10-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
ALDRIN	UG/L	ND	0.1	
ALPHA-BHC	UG/L	ND	0.1	
BETA-BHC	UG/L	ND	0.1	
DELTA-BHC	UG/L	ND	0.1	
GAMMA-BHC (LINDANE)	UG/L	ND	0.1	
4,4'-DDD	UG/L	ND	0.1	
4,4'-DDE	UG/L	ND	0.1	
4,4'-DDT	UG/L	ND	0.1	
DIELDRIN	UG/L	ND	0.1	
ENDOSULFAN I	UG/L	ND	0.1	
ENDOSULFAN II	UG/L	ND	0.1	
ENDOSULFAN SULFATE	UG/L	ND	0.1	
ENDRIN	UG/L	ND	0.1	
ENDRIN ALDEHYDE	UG/L	ND	0.1	
HEPTACHLOR	UG/L	ND	0.1	
HEPTACHLOR EPOXIDE	UG/L	ND	0.1	
METHOXYCHLOR	UG/L	ND	0.1	
CHLORDANE	UG/L	ND	0.05	
TOXAPHENE	UG/L	ND	0.6	
PCB-1016	UG/L	ND	0.2	
PCB-1221	UG/L	ND	0.2	
PCB-1232	UG/L	ND	0.2	
PCB-1242	UG/L	ND	0.2	
PCB-1248	UG/L	ND	0.2	
PCB-1254	UG/L	ND	0.2	
PCB-1260	UG/L	ND	0.2	
TCMX	%REC/SURR	85	43-101	
DCB	%REC/SURR	94	17-135	
ANALYST	INITIALS	RP		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 807034
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806426
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: PESTICIDES (8080)
Analysis Method: 8080 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Extraction Method: 3510 / 3660 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Matrix: WATER
QC Level: IIM

Lab Id: 007 Sample Date/Time: 30-JUN-98 1330
Client Sample Id: SW-01 Received Date: 01-JUL-98

Batch: PSW046 Extraction Date: 04-JUL-98
Blank: B Dry Weight %: N/A Analysis Date: 11-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
ALDRIN	UG/L	ND	0.02	
ALPHA-BHC	UG/L	ND	0.02	
BETA-BHC	UG/L	ND	0.02	
DELTA-BHC	UG/L	ND	0.02	
GAMMA-BHC (LINDANE)	UG/L	ND	0.02	
4,4'-DDD	UG/L	ND	0.02	
4,4'-DDE	UG/L	ND	0.02	
4,4'-DDT	UG/L	ND	0.02	
DIELDRIN	UG/L	ND	0.02	
ENDOSULFAN I	UG/L	ND	0.02	
ENDOSULFAN II	UG/L	ND	0.02	
ENDOSULFAN SULFATE	UG/L	ND	0.02	
ENDRIN	UG/L	ND	0.02	
ENDRIN ALDEHYDE	UG/L	ND	0.02	
HEPTACHLOR	UG/L	ND	0.02	
HEPTACHLOR EPOXIDE	UG/L	ND	0.02	
METHOXYCHLOR	UG/L	ND	0.02	
CHLORDANE	UG/L	ND	0.01	
TOXAPHENE	UG/L	ND	0.12	
PCB-1016	UG/L	ND	0.04	
PCB-1221	UG/L	ND	0.04	
PCB-1232	UG/L	ND	0.04	
PCB-1242	UG/L	ND	0.04	
PCB-1248	UG/L	ND	0.04	
PCB-1254	UG/L	ND	0.04	
PCB-1260	UG/L	ND	0.04	
TCMX	%REC/SURR	86	43-101	
DCB	%REC/SURR	93	17-135	
ANALYST	INITIALS	RP		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 807034
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806426
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: PESTICIDES (8080)
Analysis Method: 8080 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Extraction Method: 3510 / 3660 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Matrix: WATER
QC Level: IIM

Lab Id: 008 Sample Date/Time: 30-JUN-98 1330
Client Sample Id: SW-01 DP Received Date: 01-JUL-98

Batch: PSW046 Extraction Date: 04-JUL-98
Blank: B Dry Weight %: N/A Analysis Date: 11-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
ALDRIN	UG/L	ND	0.02	
ALPHA-BHC	UG/L	ND	0.02	
BETA-BHC	UG/L	ND	0.02	
DELTA-BHC	UG/L	ND	0.02	
GAMMA-BHC (LINDANE)	UG/L	ND	0.02	
4,4'-DDD	UG/L	ND	0.02	
4,4'-DDE	UG/L	ND	0.02	
4,4'-DDT	UG/L	ND	0.02	
DIELDRIN	UG/L	ND	0.02	
ENDOSULFAN I	UG/L	ND	0.02	
ENDOSULFAN II	UG/L	ND	0.02	
ENDOSULFAN SULFATE	UG/L	ND	0.02	
ENDRIN	UG/L	ND	0.02	
ENDRIN ALDEHYDE	UG/L	ND	0.02	
HEPTACHLOR	UG/L	ND	0.02	
HEPTACHLOR EPOXIDE	UG/L	ND	0.02	
METHOXYCHLOR	UG/L	ND	0.02	
CHLORDANE	UG/L	ND	0.01	
TOXAPHENE	UG/L	ND	0.12	
PCB-1016	UG/L	ND	0.04	
PCB-1221	UG/L	ND	0.04	
PCB-1232	UG/L	ND	0.04	
PCB-1242	UG/L	ND	0.04	
PCB-1248	UG/L	ND	0.04	
PCB-1254	UG/L	ND	0.04	
PCB-1260	UG/L	ND	0.04	
TCMX	%REC/SURR	84	43-101	
DCB	%REC/SURR	90	17-135	
ANALYST	INITIALS	RP		

Comments:

"Method Report Summary"

Accession Number: 807034
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806426
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: PESTICIDES (8080)

Client Sample Id:	Parameter:	Unit:	Result:
MW-73	BETA-BHC	UG/L	0.17
	DELTA-BHC	UG/L	0.06
	GAMMA-BHC (LINDANE)	UG/L	0.32
	DIELDRIN	UG/L	0.06
MW-72	BETA-BHC	UG/L	0.29
	DELTA-BHC	UG/L	0.10
MW-75	BETA-BHC	UG/L	0.26
	DELTA-BHC	UG/L	0.10

SEVERN TRENT LABORATORIES 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Analysis Report

Analysis: ACID & BASE EXTRACTABLES (8270)

Accession:	807034
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806426
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	ORGANIC/MS

SEVERN TRENT LABORATORIES 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"FINAL REPORT FORMAT - SINGLE"

Accession: 807034
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806426
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: II

Lab Id: 001 Sample Date/Time: 29-JUN-98 1530
Client Sample Id: LYMAN Received Date: 01-JUL-98

Batch: ALW084 Extraction Date: 02-JUL-98
Blank: A Dry Weight %: N/A Analysis Date: 11-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZOIC ACID	UG/L	ND	1.7	
4-CHLORO-3-METHYLPHENOL	UG/L	ND	0.4	
2-CHLOROPHENOL	UG/L	ND	0.5	
2,4-DICHLOROPHENOL	UG/L	ND	3.9	
2,6-DICHLOROPHENOL	UG/L	ND	0.1	
2,4-DIMETHYLPHENOL	UG/L	ND	0.5	
4,6-DINITRO-2-METHYLPHENOL	UG/L	ND	1.6	
2,4-DINITROPHENOL	UG/L	ND	3.3	
2-METHYLPHENOL	UG/L	ND	0.3	
4-METHYLPHENOL	UG/L	ND	0.5	
2-NITROPHENOL	UG/L	ND	0.4	
4-NITROPHENOL	UG/L	ND	0.7	
PENTACHLOROPHENOL	UG/L	ND	0.7	
PHENOL	UG/L	ND	0.5	
2,3,4,6-TETRACHLOROPHENOL	UG/L	ND	0.6	
2,4,5-TRICHLOROPHENOL	UG/L	ND	3.0	
2,4,6-TRICHLOROPHENOL	UG/L	ND	0.3	
ACENAPHTHENE	UG/L	ND	0.4	
ACENAPHTHYLENE	UG/L	ND	0.4	
ACETOPHENONE	UG/L	ND	0.4	
4-AMINOBIPHENYL	UG/L	ND	0.7	
ANILINE	UG/L	ND	0.5	
ANTHRACENE	UG/L	ND	0.4	
BENZIDINE	UG/L	ND	2.7	
BENZO (A) ANTHRACENE	UG/L	ND	0.5	
BENZO (A) PYRENE	UG/L	ND	0.2	
BENZO (B) FLUORANTHENE	UG/L	ND	0.5	
BENZO (G,H,I) PERYLENE	UG/L	ND	0.3	
BENZO (K) FLUORANTHENE	UG/L	ND	0.7	
BENZYL ALCOHOL	UG/L	ND	0.5	
BIS(2-CHLOROETHOXY)METHANE	UG/L	ND	0.4	
BIS(2-CHLOROETHYL)ETHER	UG/L	ND	0.5	
BIS(2-CHLOROISOPROPYL)ETHER	UG/L	ND	1.9	
BIS(2-ETHYLHEXYL)PHTHALATE	UG/L	1.4	0.6	
4-BROMOPHENYL PHENYL ETHER	UG/L	ND	0.4	
BUTYLBENZYL PHTHALATE	UG/L	ND	0.5	
4-CHLOROANILINE	UG/L	ND	0.4	
1-CHLORONAPHTHALENE	UG/L	ND	0.6	
2-CHLORONAPHTHALENE	UG/L	ND	0.4	
4-CHLOROPHENYL PHENYL ETHER	UG/L	ND	0.5	

"FINAL REPORT FORMAT - SINGLE"

Accession: 807034
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806426
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: II

Lab Id: 001 Sample Date/Time: 29-JUN-98 1530
Client Sample Id: LYMAN Received Date: 01-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
CHRYSENE	UG/L	ND	0.7	
DIBENZ(A,J)ACRIDINE	UG/L	ND	0.5	
DIBENZO (A,H) ANTHRACENE	UG/L	ND	0.3	
DIBENZOFURAN	UG/L	ND	0.4	
1,2-DICHLOROBENZENE	UG/L	ND	0.3	
1,3-DICHLOROBENZENE	UG/L	ND	0.3	
1,4-DICHLOROBENZENE	UG/L	ND	0.5	
3,3'-DICHLOROBENZIDINE	UG/L	ND	0.4	
DIETHYLPHTHALATE	UG/L	ND	0.4	
P-DIMETHYLAMINOAZOBENZENE	UG/L	ND	0.4	
7,12-DIMETHYLBENZ(A)ANTHRACENE	UG/L	ND	1.8	
A-,A-DIMETHYLPHENETHYLAMINE	UG/L	ND	0.1	
DIMETHYLPHTHALATE	UG/L	ND	0.4	
DI-N-BUTYLPHTHALATE	UG/L	ND	0.4	
2,4-DINITROTOLUENE	UG/L	ND	0.5	
2,6-DINITROTOLUENE	UG/L	ND	0.5	
DI-N-OCTYLPHTHALATE	UG/L	ND	0.7	
DIPHENYLAMINE	UG/L	ND	0.5	
1,2-DIPHENYLHYDRAZINE	UG/L	ND	0.3	
FLUORANTHENE	UG/L	ND	0.5	
FLUORENE	UG/L	ND	0.6	
HEXACHLOROBENZENE	UG/L	ND	0.5	
HEXACHLOROBUTADIENE	UG/L	ND	0.5	
HEXACHLOROCYCLOPENTADIENE	UG/L	ND	0.6	
HEXACHLOROETHANE	UG/L	ND	0.6	
INDENO (1,2,3-CD) PYRENE	UG/L	ND	0.5	
ISOPHORONE	UG/L	ND	0.4	
3-METHYLCHOLANTHRENE	UG/L	ND	0.4	
2-METHYLNAPHTHALENE	UG/L	ND	0.5	
NAPHTHALENE	UG/L	ND	0.4	
1-NAPHTHYLAMINE	UG/L	ND	1.5	
2-NAPHTHYLAMINE	UG/L	ND	1.0	
2-NITROANILINE	UG/L	ND	0.4	
3-NITROANILINE	UG/L	ND	0.9	
4-NITROANILINE	UG/L	ND	0.8	
NITROBENZENE	UG/L	ND	0.5	
N-NITROSODIMETHYLAMINE	UG/L	ND	1.2	
N-NITROSODI-N-BUTYLAMINE	UG/L	ND	1.1	
N-NITROSODIETHYLAMINE	UG/L*	ND	10	
N-NITROSODIPHENYLAMINE	UG/L	ND	0.4	
N-NITROSO-DI-N-PROPYLAMINE	UG/L	ND	0.4	
N-NITROSOPIPERIDINE	UG/L	ND	0.8	
N-NITROSOPYRROLIDINE	UG/L*	ND	10	
PENTACHLOROBENZENE	UG/L	ND	0.4	
PENTACHLORONITROBENZENE (PCNB)	UG/L	ND	5.0	

"FINAL REPORT FORMAT - SINGLE"

Accession: 807034
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806426
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: II

Lab Id: 001 Sample Date/Time: 29-JUN-98 1530
Client Sample Id: LYMAN Received Date: 01-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
PHENACETIN	UG/L	ND	0.4	
PHENANTHRENE	UG/L	ND	0.4	
2-PICOLINE	UG/L	ND	7.7	
PRONAMIDE	UG/L	ND	0.4	
PYRENE	UG/L	ND	0.5	
1,2,4,5-TETRACHLOROBENZENE	UG/L	ND	0.4	
1,2,4 TRICHLOROBENZENE	UG/L	ND	0.6	
2-FLUOROPHENOL	%REC/SURR	99	21-100	
PHENOL-D6	%REC/SURR	95	10-100	
2,4,6-TRIBROMOPHENOL	%REC/SURR	91	10-123	
2-FLUOROBIPHENYL	%REC/SURR	90	43-116	
NITROBENZENE-D5	%REC/SURR	90	35-114	
TERPHENYL-D14	%REC/SURR	106	33-124	
ANALYST	INITIALS	RW		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession:	807034
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806426
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Test:	ACID & BASE EXTRACTABLES (8270)
Analysis Method:	8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method:	3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix:	WATER
QC Level:	II

Lab Id:	002	Sample Date/Time:	29-JUN-98 1530
Client Sample Id:	LYMAN LC	Received Date:	01-JUL-98
Batch: ALW084		Extraction Date:	02-JUL-98
Blank: A	Dry Weight %: N/A	Analysis Date:	11-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZOIC ACID	UG/L	ND	1.7	
4-CHLORO-3-METHYLPHENOL	UG/L	ND	0.4	
2-CHLOROPHENOL	UG/L	ND	0.5	
2,4-DICHLOROPHENOL	UG/L	ND	3.9	
2,6-DICHLOROPHENOL	UG/L	ND	0.1	
2,4-DIMETHYLPHENOL	UG/L	ND	0.5	
4,6-DINITRO-2-METHYLPHENOL	UG/L	ND	1.6	
2,4-DINITROPHENOL	UG/L	ND	3.3	
2-METHYLPHENOL	UG/L	ND	0.3	
4-METHYLPHENOL	UG/L	ND	0.5	
2-NITROPHENOL	UG/L	ND	0.4	
4-NITROPHENOL	UG/L	ND	0.7	
PENTACHLOROPHENOL	UG/L	ND	0.7	
PHENOL	UG/L	ND	0.5	
2,3,4,6-TETRACHLOROPHENOL	UG/L	ND	0.6	
2,4,5-TRICHLOROPHENOL	UG/L	ND	3.0	
2,4,6-TRICHLOROPHENOL	UG/L	ND	0.3	
ACENAPHTHENE	UG/L	ND	0.4	
ACENAPHTHYLENE	UG/L	ND	0.4	
ACETOPHENONE	UG/L	ND	0.4	
4-AMINOBIPHENYL	UG/L	ND	0.7	
ANILINE	UG/L	ND	0.5	
ANTHRACENE	UG/L	ND	0.4	
BENZIDINE	UG/L	ND	2.7	
BENZO (A) ANTHRACENE	UG/L	ND	0.5	
BENZO (A) PYRENE	UG/L	ND	0.2	
BENZO (B) FLUORANTHENE	UG/L	ND	0.5	
BENZO (G,H,I) PERYLENE	UG/L	ND	0.3	
BENZO (K) FLUORANTHENE	UG/L	ND	0.7	
BENZYL ALCOHOL	UG/L	ND	0.5	
BIS(2-CHLOROETHOXY)METHANE	UG/L	ND	0.4	
BIS(2-CHLOROETHYL)ETHER	UG/L	ND	0.5	
BIS(2-CHLOROISOPROPYL)ETHER	UG/L	ND	1.9	
BIS(2-ETHYLHEXYL)PHTHALATE	UG/L	ND	0.6	
4-BROMOPHENYL PHENYL ETHER	UG/L	ND	0.4	
BUTYLBENZYL PHTHALATE	UG/L	ND	0.5	
4-CHLOROANILINE	UG/L	ND	0.4	
1-CHLORONAPHTHALENE	UG/L	ND	0.6	
2-CHLORONAPHTHALENE	UG/L	ND	0.4	
4-CHLOROPHENYL PHENYL ETHER	UG/L	ND	0.5	

"FINAL REPORT FORMAT - SINGLE"

Accession: 807034
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806426
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: II

Lab Id: 002 Sample Date/Time: 29-JUN-98 1530
Client Sample Id: LYMAN LC Received Date: 01-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
CHRYSENE	UG/L	ND	0.7	
DIBENZ(A,J)ACRIDINE	UG/L	ND	0.5	
DIBENZO (A,H) ANTHRACENE	UG/L	ND	0.3	
DIBENZOFURAN	UG/L	ND	0.4	
1,2-DICHLOROBENZENE	UG/L	ND	0.3	
1,3-DICHLOROBENZENE	UG/L	ND	0.3	
1,4-DICHLOROBENZENE	UG/L	ND	0.5	
3,3'-DICHLOROBENZIDINE	UG/L	ND	0.4	
DIETHYLPHTHALATE	UG/L	ND	0.4	
P-DIMETHYLAMINOAZOBENZENE	UG/L	ND	0.4	
7,12-DIMETHYLBENZ(A)ANTHRACENE	UG/L	ND	1.8	
A-,A-DIMETHYLPHENETHYLAMINE	UG/L	ND	0.1	
DIMETHYLPHTHALATE	UG/L	ND	0.4	
DI-N-BUTYLPHTHALATE	UG/L	ND	0.4	
2,4-DINITROTOLUENE	UG/L	ND	0.5	
2,6-DINITROTOLUENE	UG/L	ND	0.5	
DI-N-OCTYLPHTHALATE	UG/L	ND	0.7	
DIPHENYLAMINE	UG/L	ND	0.5	
1,2-DIPHENYLHYDRAZINE	UG/L	ND	0.3	
FLUORANTHENE	UG/L	ND	0.5	
FLUORENE	UG/L	ND	0.6	
HEXACHLOROBENZENE	UG/L	ND	0.5	
HEXACHLOROBUTADIENE	UG/L	ND	0.5	
HEXACHLOROCYCLOPENTADIENE	UG/L	ND	0.6	
HEXACHLOROETHANE	UG/L	ND	0.6	
INDENO (1,2,3-CD) PYRENE	UG/L	ND	0.5	
ISOPHORONE	UG/L	ND	0.4	
3-METHYLCHOLANTHRENE	UG/L	ND	0.4	
2-METHYLNAPHTHALENE	UG/L	ND	0.5	
NAPHTHALENE	UG/L	ND	0.4	
1-NAPHTHYLAMINE	UG/L	ND	1.5	
2-NAPHTHYLAMINE	UG/L	ND	1.0	
2-NITROANILINE	UG/L	ND	0.4	
3-NITROANILINE	UG/L	ND	0.9	
4-NITROANILINE	UG/L	ND	0.8	
NITROBENZENE	UG/L	ND	0.5	
N-NITROSODIMETHYLAMINE	UG/L	ND	1.2	
N-NITROSODI-N-BUTYLAMINE	UG/L	ND	1.1	
N-NITROSODIETHYLAMINE	UG/L*	ND	10	
N-NITROSODIPHENYLAMINE	UG/L	ND	0.4	
N-NITROSO-DI-N-PROPYLAMINE	UG/L	ND	0.4	
N-NITROSOPIPERIDINE	UG/L	ND	0.8	
N-NITROSOPYRROLIDINE	UG/L*	ND	10	
PENTACHLOROBENZENE	UG/L	ND	0.4	
PENTACHLORONITROBENZENE (PCNB)	UG/L	ND	5.0	

"FINAL REPORT FORMAT - SINGLE"

Accession: 807034
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806426
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: II

Lab Id: 002 Sample Date/Time: 29-JUN-98 1530
Client Sample Id: LYMAN LC Received Date: 01-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
PHENACETIN	UG/L	ND	0.4	
PHENANTHRENE	UG/L	ND	0.4	
2-PICOLINE	UG/L	ND	7.7	
PRONAMIDE	UG/L	ND	0.4	
PYRENE	UG/L	ND	0.5	
1,2,4,5-TETRACHLOROBENZENE	UG/L	ND	0.4	
1,2,4 TRICHLOROBENZENE	UG/L	ND	0.6	
2-FLUOROPHENOL	%REC/SURR	84	21-100	
PHENOL-D6	%REC/SURR	81	10-100	
2,4,6-TRIBROMOPHENOL	%REC/SURR	83	10-123	
2-FLUOROBIPHENYL	%REC/SURR	80	43-116	
NITROBENZENE-D5	%REC/SURR	77	35-114	
TERPHENYL-D14	%REC/SURR	103	33-124	
ANALYST	INITIALS	RW		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 807034
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806426
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: II

Lab Id: 003 Sample Date/Time: 30-JUN-98 0815
Client Sample Id: MW-73 Received Date: 01-JUL-98

Batch: ALW084 Extraction Date: 02-JUL-98
Blank: A Dry Weight %: N/A Analysis Date: 11-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZOIC ACID	UG/L	ND	1.7	
4-CHLORO-3-METHYLPHENOL	UG/L	ND	0.4	
2-CHLOROPHENOL	UG/L	ND	0.5	
2,4-DICHLOROPHENOL	UG/L	ND	3.9	
2,6-DICHLOROPHENOL	UG/L	ND	0.1	
2,4-DIMETHYLPHENOL	UG/L	ND	0.5	
4,6-DINITRO-2-METHYLPHENOL	UG/L	ND	1.6	
2,4-DINITROPHENOL	UG/L	ND	3.3	
2-METHYLPHENOL	UG/L	ND	0.3	
4-METHYLPHENOL	UG/L	ND	0.5	
2-NITROPHENOL	UG/L	ND	0.4	
4-NITROPHENOL	UG/L	ND	0.7	
PENTACHLOROPHENOL	UG/L	ND	0.7	
PHENOL	UG/L	ND	0.5	
2,3,4,6-TETRACHLOROPHENOL	UG/L	ND	0.6	
2,4,5-TRICHLOROPHENOL	UG/L	ND	3.0	
2,4,6-TRICHLOROPHENOL	UG/L	ND	0.3	
ACENAPHTHENE	UG/L	ND	0.4	
ACENAPHTHYLENE	UG/L	ND	0.4	
ACETOPHENONE	UG/L	ND	0.4	
4-AMINOBIPHENYL	UG/L	ND	0.7	
ANILINE	UG/L	ND	0.5	
ANTHRACENE	UG/L	ND	0.4	
BENZIDINE	UG/L	ND	2.7	
BENZO (A) ANTHRACENE	UG/L	ND	0.5	
BENZO (A) PYRENE	UG/L	ND	0.2	
BENZO (B) FLUORANTHENE	UG/L	ND	0.5	
BENZO (G,H,I) PERYLENE	UG/L	ND	0.3	
BENZO (K) FLUORANTHENE	UG/L	ND	0.7	
BENZYL ALCOHOL	UG/L	ND	0.5	
BIS(2-CHLOROETHOXY)METHANE	UG/L	ND	0.4	
BIS(2-CHLOROETHYL)ETHER	UG/L	ND	0.5	
BIS(2-CHLOROISOPROPYL)ETHER	UG/L	ND	1.9	
BIS(2-ETHYLHEXYL)PHTHALATE	UG/L	1.7	0.6	
4-BROMOPHENYL PHENYL ETHER	UG/L	ND	0.4	
BUTYLBENZYL PHTHALATE	UG/L	ND	0.5	
4-CHLOROANILINE	UG/L	ND	0.4	
1-CHLORONAPHTHALENE	UG/L	ND	0.6	
2-CHLORONAPHTHALENE	UG/L	ND	0.4	
4-CHLOROPHENYL PHENYL ETHER	UG/L	ND	0.5	

"FINAL REPORT FORMAT - SINGLE"

Accession: 807034
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806426
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: II

Lab Id: 003 Sample Date/Time: 30-JUN-98 0815
Client Sample Id: MW-73 Received Date: 01-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
CHRYSENE	UG/L	ND	0.7	
DIBENZ(A,J)ACRIDINE	UG/L	ND	0.5	
DIBENZO (A,H) ANTHRACENE	UG/L	ND	0.3	
DIBENZOFURAN	UG/L	ND	0.4	
1,2-DICHLOROBENZENE	UG/L	ND	0.3	
1,3-DICHLOROBENZENE	UG/L	ND	0.3	
1,4-DICHLOROBENZENE	UG/L	ND	0.5	
3,3'-DICHLOROBENZIDINE	UG/L	ND	0.4	
DIETHYLPHTHALATE	UG/L	ND	0.4	
P-DIMETHYLAMINOAZOBENZENE	UG/L	ND	0.4	
7,12-DIMETHYLBENZ(A)ANTHRACENE	UG/L	ND	1.8	
A-,A-DIMETHYLPHENETHYLAMINE	UG/L	ND	0.1	
DIMETHYLPHTHALATE	UG/L	ND	0.4	
DI-N-BUTYLPHTHALATE	UG/L	ND	0.4	
2,4-DINITROTOLUENE	UG/L	ND	0.5	
2,6-DINITROTOLUENE	UG/L	ND	0.5	
DI-N-OCTYLPHTHALATE	UG/L	ND	0.7	
DIPHENYLAMINE	UG/L	ND	0.5	
1,2-DIPHENYLHYDRAZINE	UG/L	ND	0.3	
FLUORANTHENE	UG/L	ND	0.5	
FLUORENE	UG/L	2.8	0.6	
HEXACHLOROBENZENE	UG/L	ND	0.5	
HEXACHLOROBUTADIENE	UG/L	ND	0.5	
HEXACHLOROCYCLOPENTADIENE	UG/L	ND	0.6	
HEXACHLOROETHANE	UG/L	ND	0.6	
INDENO (1,2,3-CD) PYRENE	UG/L	ND	0.5	
ISOPHORONE	UG/L	ND	0.4	
3-METHYLCHOLANTHRENE	UG/L	ND	0.4	
2-METHYLNAPHTHALENE	UG/L	ND	0.5	
NAPHTHALENE	UG/L	ND	0.4	
1-NAPHTHYLAMINE	UG/L	ND	1.5	
2-NAPHTHYLAMINE	UG/L	ND	1.0	
2-NITROANILINE	UG/L	ND	0.4	
3-NITROANILINE	UG/L	ND	0.9	
4-NITROANILINE	UG/L	ND	0.8	
NITROBENZENE	UG/L	ND	0.5	
N-NITROSODIMETHYLAMINE	UG/L	ND	1.2	
N-NITROSODI-N-BUTYLAMINE	UG/L	ND	1.1	
N-NITROSODIETHYLAMINE	UG/L*	ND	10	
N-NITROSODIPHENYLAMINE	UG/L	ND	0.4	
N-NITROSO-DI-N-PROPYLAMINE	UG/L	ND	0.4	
N-NITROSOPIPERIDINE	UG/L	ND	0.8	
N-NITROSOPYRROLIDINE	UG/L*	ND	10	
PENTACHLOROBENZENE	UG/L	ND	0.4	
PENTACHLORONITROBENZENE (PCNB)	UG/L	ND	5.0	

"FINAL REPORT FORMAT - SINGLE"

Accession: 807034
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806426
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: II

Lab Id: 003 Sample Date/Time: 30-JUN-98 0815
Client Sample Id: MW-73 Received Date: 01-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
PHENACETIN	UG/L	ND	0.4	
PHENANTHRENE	UG/L	1.3	0.4	
2-PICOLINE	UG/L	ND	7.7	
PRONAMIDE	UG/L	ND	0.4	
PYRENE	UG/L	ND	0.5	
1,2,4,5-TETRACHLOROBENZENE	UG/L	ND	0.4	
1,2,4 TRICHLOROBENZENE	UG/L	ND	0.6	
2-FLUOROPHENOL	%REC/SURR	85	21-100	
PHENOL-D6	%REC/SURR	89	10-100	
2,4,6-TRIBROMOPHENOL	%REC/SURR	99	10-123	
2-FLUOROBIPHENYL	%REC/SURR	91	43-116	
NITROBENZENE-D5	%REC/SURR	83	35-114	
TERPHENYL-D14	%REC/SURR	104	33-124	
ANALYST	INITIALS	RW		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 807034
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806426
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: II

Lab Id: 004 Sample Date/Time: 30-JUN-98 0915
Client Sample Id: MW-72 Received Date: 01-JUL-98

Batch: ALW084 Extraction Date: 02-JUL-98
Blank: A Dry Weight %: N/A Analysis Date: 11-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZOIC ACID	UG/L	ND	3.4	
4-CHLORO-3-METHYLPHENOL	UG/L	ND	0.8	
2-CHLOROPHENOL	UG/L	ND	1	
2,4-DICHLOROPHENOL	UG/L	ND	7.8	
2,6-DICHLOROPHENOL	UG/L	ND	0.2	
2,4-DIMETHYLPHENOL	UG/L	ND	1	
4,6-DINITRO-2-METHYLPHENOL	UG/L	ND	3.2	
2,4-DINITROPHENOL	UG/L	ND	6.6	
2-METHYLPHENOL	UG/L	ND	0.6	
4-METHYLPHENOL	UG/L	ND	1	
2-NITROPHENOL	UG/L	ND	0.8	
4-NITROPHENOL	UG/L	ND	1	
PENTACHLOROPHENOL	UG/L	ND	1	
PHENOL	UG/L	ND	1	
2,3,4,6-TETRACHLOROPHENOL	UG/L	ND	1	
2,4,5-TRICHLOROPHENOL	UG/L	ND	6	
2,4,6-TRICHLOROPHENOL	UG/L	ND	0.6	
ACENAPHTHENE	UG/L	ND	0.8	
ACENAPHTHYLENE	UG/L	ND	0.8	
ACETOPHENONE	UG/L	ND	0.8	
4-AMINOBIPHENYL	UG/L	ND	1	
ANILINE	UG/L	ND	1	
ANTHRACENE	UG/L	ND	0.8	
BENZIDINE	UG/L	ND	5.4	
BENZO (A) ANTHRACENE	UG/L	ND	1	
BENZO (A) PYRENE	UG/L	ND	0.4	
BENZO (B) FLUORANTHENE	UG/L	ND	1	
BENZO (G,H,I) PERYLENE	UG/L	ND	0.6	
BENZO (K) FLUORANTHENE	UG/L	ND	1	
BENZYL ALCOHOL	UG/L	ND	1	
BIS(2-CHLOROETHOXY)METHANE	UG/L	ND	0.8	
BIS(2-CHLOROETHYL)ETHER	UG/L	ND	1	
BIS(2-CHLOROISOPROPYL)ETHER	UG/L	ND	3.8	
BIS(2-ETHYLHEXYL)PHTHALATE	UG/L	11	1	
4-BROMOPHENYL PHENYL ETHER	UG/L	ND	0.8	
BUTYLBENZYL PHTHALATE	UG/L	ND	1	
4-CHLOROANILINE	UG/L	ND	0.8	
1-CHLORONAPHTHALENE	UG/L	ND	1	
2-CHLORONAPHTHALENE	UG/L	ND	0.8	
4-CHLOROPHENYL PHENYL ETHER	UG/L	ND	1	

"FINAL REPORT FORMAT - SINGLE"

Accession: 807034
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806426
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: II

Lab Id: 004 Sample Date/Time: 30-JUN-98 0915
Client Sample Id: MW-72 Received Date: 01-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
CHRYSENE	UG/L	ND	1	
DIBENZ(A,J)ACRIDINE	UG/L	ND	1	
DIBENZO (A,H) ANTHRACENE	UG/L	ND	0.6	
DIBENZOFURAN	UG/L	ND	0.8	
1,2-DICHLOROBENZENE	UG/L	ND	0.6	
1,3-DICHLOROBENZENE	UG/L	ND	0.6	
1,4-DICHLOROBENZENE	UG/L	ND	1	
3,3'-DICHLOROBENZIDINE	UG/L	ND	0.8	
DIETHYLPHTHALATE	UG/L	ND	0.8	
P-DIMETHYLAMINOAZOBENZENE	UG/L	ND	0.8	
7,12-DIMETHYLBENZ(A)ANTHRACENE	UG/L	ND	3.6	
A-,A-DIMETHYLPHENETHYLAMINE	UG/L	ND	0.2	
DIMETHYLPHTHALATE	UG/L	3.2	0.8	
DI-N-BUTYLPHTHALATE	UG/L	ND	0.8	
2,4-DINITROTOLUENE	UG/L	ND	1	
2,6-DINITROTOLUENE	UG/L	ND	1	
DI-N-OCTYLPHTHALATE	UG/L	ND	1	
DIPHENYLAMINE	UG/L	ND	1	
1,2-DIPHENYLHYDRAZINE	UG/L	ND	0.6	
FLUORANTHENE	UG/L	ND	1	
FLUORENE	UG/L	ND	1	
HEXACHLOROBENZENE	UG/L	ND	1	
HEXACHLOROBUTADIENE	UG/L	ND	1	
HEXACHLOROCYCLOPENTADIENE	UG/L	ND	1	
HEXACHLOROETHANE	UG/L	ND	1	
INDENO (1,2,3-CD) PYRENE	UG/L	ND	1	
ISOPHORONE	UG/L	ND	0.8	
3-METHYLCHOLANTHRENE	UG/L	ND	0.8	
2-METHYLNAPHTHALENE	UG/L	11	1	
NAPHTHALENE	UG/L	5.3	0.8	
1-NAPHTHYLAMINE	UG/L	ND	3	
2-NAPHTHYLAMINE	UG/L	ND	2	
2-NITROANILINE	UG/L	ND	0.8	
3-NITROANILINE	UG/L	ND	2	
4-NITROANILINE	UG/L	ND	2	
NITROBENZENE	UG/L	ND	1	
N-NITROSODIMETHYLAMINE	UG/L	ND	2.4	
N-NITROSODI-N-BUTYLAMINE	UG/L	ND	2.2	
N-NITROSODIETHYLAMINE	UG/L*	ND	20	
N-NITROSODIPHENYLAMINE	UG/L	ND	0.8	
N-NITROSO-DI-N-PROPYLAMINE	UG/L	ND	0.8	
N-NITROSOPIPERIDINE	UG/L	ND	2	
N-NITROSOPYRROLIDINE	UG/L*	ND	20	
PENTACHLOROBENZENE	UG/L	ND	0.8	
PENTACHLORONITROBENZENE (PCNB)	UG/L	ND	10	

"FINAL REPORT FORMAT - SINGLE"

Accession: 807034
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806426
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: II

Lab Id: 004 Sample Date/Time: 30-JUN-98 0915
Client Sample Id: MW-72 Received Date: 01-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
PHENACETIN	UG/L	ND	0.8	
PHENANTHRENE	UG/L	ND	0.8	
2-PICOLINE	UG/L	ND	15	
PRONAMIDE	UG/L	ND	0.8	
PYRENE	UG/L	ND	1	
1,2,4,5-TETRACHLOROBENZENE	UG/L	ND	0.8	
1,2,4 TRICHLOROBENZENE	UG/L	ND	1	
2-FLUOROPHENOL	%REC/SURR	87	21-100	
PHENOL-D6	%REC/SURR	87	10-100	
2,4,6-TRIBROMOPHENOL	%REC/SURR	96	10-123	
2-FLUOROBIPHENYL	%REC/SURR	92	43-116	
NITROBENZENE-D5	%REC/SURR	82	35-114	
TERPHENYL-D14	%REC/SURR	100	33-124	
ANALYST	INITIALS	RW		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 807034
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806426
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: II

Lab Id: 005 Sample Date/Time: 30-JUN-98 1030
Client Sample Id: MW-75 Received Date: 01-JUL-98

Batch: ALW084 Extraction Date: 02-JUL-98
Blank: A Dry Weight %: N/A Analysis Date: 11-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZOIC ACID	UG/L	ND	8.5	
4-CHLORO-3-METHYLPHENOL	UG/L	ND	2	
2-CHLOROPHENOL	UG/L	ND	3	
2,4-DICHLOROPHENOL	UG/L	ND	20	
2,6-DICHLOROPHENOL	UG/L	ND	0.5	
2,4-DIMETHYLPHENOL	UG/L	10	3	
4,6-DINITRO-2-METHYLPHENOL	UG/L	ND	8	
2,4-DINITROPHENOL	UG/L	ND	17	
2-METHYLPHENOL	UG/L	ND	2	
4-METHYLPHENOL	UG/L	ND	3	
2-NITROPHENOL	UG/L	ND	2	
4-NITROPHENOL	UG/L	ND	4	
PENTACHLOROPHENOL	UG/L	ND	4	
PHENOL	UG/L	51	3	
2,3,4,6-TETRACHLOROPHENOL	UG/L	ND	3	
2,4,5-TRICHLOROPHENOL	UG/L	ND	15	
2,4,6-TRICHLOROPHENOL	UG/L	ND	2	
ACENAPHTHENE	UG/L	ND	2	
ACENAPHTHYLENE	UG/L	ND	2	
ACETOPHENONE	UG/L	ND	2	
4-AMINOBIPHENYL	UG/L	ND	4	
ANILINE	UG/L	ND	3	
ANTHRACENE	UG/L	ND	2	
BENZIDINE	UG/L	ND	14	
BENZO (A) ANTHRACENE	UG/L	ND	3	
BENZO (A) PYRENE	UG/L	ND	1	
BENZO (B) FLUORANTHENE	UG/L	ND	3	
BENZO (G,H,I) PERYLENE	UG/L	ND	2	
BENZO (K) FLUORANTHENE	UG/L	ND	4	
BENZYL ALCOHOL	UG/L	ND	3	
BIS(2-CHLOROETHOXY)METHANE	UG/L	ND	2	
BIS(2-CHLOROETHYL)ETHER	UG/L	ND	3	
BIS(2-CHLOROISOPROPYL)ETHER	UG/L	ND	9.5	
BIS(2-ETHYLHEXYL)PHTHALATE	UG/L	26	3	
4-BROMOPHENYL PHENYL ETHER	UG/L	ND	2	
BUTYLBENZYL PHTHALATE	UG/L	ND	3	
4-CHLOROANILINE	UG/L	ND	2	
1-CHLORONAPHTHALENE	UG/L	ND	3	
2-CHLORONAPHTHALENE	UG/L	ND	2	
4-CHLOROPHENYL PHENYL ETHER	UG/L	ND	3	

"FINAL REPORT FORMAT - SINGLE"

Accession: 807034
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806426
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: II

Lab Id: 005 Sample Date/Time: 30-JUN-98 1030
Client Sample Id: MW-75 Received Date: 01-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
CHRYSENE	UG/L	ND	4	
DIBENZ(A,J)ACRIDINE	UG/L	ND	3	
DIBENZO (A,H) ANTHRACENE	UG/L	ND	2	
DIBENZOFURAN	UG/L	ND	2	
1,2-DICHLOROBENZENE	UG/L	ND	2	
1,3-DICHLOROBENZENE	UG/L	ND	2	
1,4-DICHLOROBENZENE	UG/L	ND	3	
3,3'-DICHLOROBENZIDINE	UG/L	ND	2	
DIETHYLPHTHALATE	UG/L	ND	2	
P-DIMETHYLAMINOAZOBENZENE	UG/L	ND	2	
7,12-DIMETHYLBENZ(A)ANTHRACENE	UG/L	ND	9	
A-,A-DIMETHYLPHENETHYLAMINE	UG/L	ND	0.5	
DIMETHYLPHTHALATE	UG/L	ND	2	
DI-N-BUTYLPHTHALATE	UG/L	ND	2	
2,4-DINITROTOLUENE	UG/L	ND	3	
2,6-DINITROTOLUENE	UG/L	ND	3	
DI-N-OCTYLPHTHALATE	UG/L	ND	4	
DIPHENYLAMINE	UG/L	ND	3	
1,2-DIPHENYLHYDRAZINE	UG/L	ND	2	
FLUORANTHENE	UG/L	ND	3	
FLUORENE	UG/L	3.0	3	
HEXACHLOROBENZENE	UG/L	ND	3	
HEXACHLOROBUTADIENE	UG/L	ND	3	
HEXACHLOROCYCLOPENTADIENE	UG/L	ND	3	
HEXACHLOROETHANE	UG/L	ND	3	
INDENO (1,2,3-CD) PYRENE	UG/L	ND	3	
ISOPHORONE	UG/L	ND	2	
3-METHYLCHOLANTHRENE	UG/L	ND	2	
2-METHYLNAPHTHALENE	UG/L	34	3	
NAPHTHALENE	UG/L	12	2	
1-NAPHTHYLAMINE	UG/L	ND	7.5	
2-NAPHTHYLAMINE	UG/L	ND	5	
2-NITROANILINE	UG/L	ND	2	
3-NITROANILINE	UG/L	ND	5	
4-NITROANILINE	UG/L	ND	4	
NITROBENZENE	UG/L	ND	3	
N-NITROSODIMETHYLAMINE	UG/L	ND	6	
N-NITROSODI-N-BUTYLAMINE	UG/L	ND	5.5	
N-NITROSODIETHYLAMINE	UG/L*	ND	50	
N-NITROSODIPHENYLAMINE	UG/L	ND	2	
N-NITROSO-DI-N-PROPYLAMINE	UG/L	ND	2	
N-NITROSOPIPERIDINE	UG/L	ND	4	
N-NITROSOPYRROLIDINE	UG/L*	ND	50	
PENTACHLOROBENZENE	UG/L	ND	2	
PENTACHLORONITROBENZENE (PCNB)	UG/L	ND	25	

"FINAL REPORT FORMAT - SINGLE"

Accession: 807034
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806426
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: II

Lab Id: 005 Sample Date/Time: 30-JUN-98 1030
Client Sample Id: MW-75 Received Date: 01-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
PHENACETIN	UG/L	ND	2	
PHENANTHRENE	UG/L	ND	2	
2-PICOLINE	UG/L	ND	39	
PRONAMIDE	UG/L	ND	2	
PYRENE	UG/L	ND	3	
1,2,4,5-TETRACHLOROBENZENE	UG/L	ND	2	
1,2,4 TRICHLOROBENZENE	UG/L	ND	3	
2-FLUOROPHENOL	%REC/SURR	96	21-100	
PHENOL-D6	%REC/SURR	97	10-100	
2,4,6-TRIBROMOPHENOL	%REC/SURR	110	10-123	
2-FLUOROBIPHENYL	%REC/SURR	112	43-116	
NITROBENZENE-D5	%REC/SURR	100	35-114	
TERPHENYL-D14	%REC/SURR	117	33-124	
ANALYST	INITIALS	RW		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 807034
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806426
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: II

Lab Id: 006 Sample Date/Time: 30-JUN-98 1140
Client Sample Id: MW-110 Received Date: 01-JUL-98

Batch: ALW084 Extraction Date: 02-JUL-98
Blank: A Dry Weight %: N/A Analysis Date: 11-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZOIC ACID	UG/L	ND	8.5	
4-CHLORO-3-METHYLPHENOL	UG/L	ND	2	
2-CHLOROPHENOL	UG/L	ND	3	
2,4-DICHLOROPHENOL	UG/L	ND	20	
2,6-DICHLOROPHENOL	UG/L	ND	0.5	
2,4-DIMETHYLPHENOL	UG/L	ND	3	
4,6-DINITRO-2-METHYLPHENOL	UG/L	ND	8	
2,4-DINITROPHENOL	UG/L	ND	17	
2-METHYLPHENOL	UG/L	ND	2	
4-METHYLPHENOL	UG/L	ND	3	
2-NITROPHENOL	UG/L	ND	2	
4-NITROPHENOL	UG/L	ND	4	
PENTACHLOROPHENOL	UG/L	ND	4	
PHENOL	UG/L	8.9	3	
2,3,4,6-TETRACHLOROPHENOL	UG/L	ND	3	
2,4,5-TRICHLOROPHENOL	UG/L	ND	15	
2,4,6-TRICHLOROPHENOL	UG/L	ND	2	
ACENAPHTHENE	UG/L	ND	2	
ACENAPHTHYLENE	UG/L	ND	2	
ACETOPHENONE	UG/L	ND	2	
4-AMINOBIPHENYL	UG/L	ND	4	
ANILINE	UG/L	ND	3	
ANTHRACENE	UG/L	ND	2	
BENZIDINE	UG/L	ND	14	
BENZO (A) ANTHRACENE	UG/L	ND	3	
BENZO (A) PYRENE	UG/L	ND	1	
BENZO (B) FLUORANTHENE	UG/L	ND	3	
BENZO (G,H,I) PERYLENE	UG/L	ND	2	
BENZO (K) FLUORANTHENE	UG/L	ND	4	
BENZYL ALCOHOL	UG/L	ND	3	
BIS(2-CHLOROETHOXY)METHANE	UG/L	ND	2	
BIS(2-CHLOROETHYL)ETHER	UG/L	ND	3	
BIS(2-CHLOROISOPROPYL)ETHER	UG/L	ND	9.5	
BIS(2-ETHYLHEXYL)PHTHALATE	UG/L	4.5	3	
4-BROMOPHENYL PHENYL ETHER	UG/L	ND	2	
BUTYLBENZYL PHTHALATE	UG/L	ND	3	
4-CHLOROANILINE	UG/L	ND	2	
1-CHLORONAPHTHALENE	UG/L	ND	3	
2-CHLORONAPHTHALENE	UG/L	ND	2	
4-CHLOROPHENYL PHENYL ETHER	UG/L	ND	3	

"FINAL REPORT FORMAT - SINGLE"

Accession: 807034
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806426
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: II

Lab Id: 006
Client Sample Id: MW-110
Sample Date/Time: 30-JUN-98 1140
Received Date: 01-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
CHRYSENE	UG/L	ND	4	
DIBENZ(A,J)ACRIDINE	UG/L	ND	3	
DIBENZO (A,H) ANTHRACENE	UG/L	ND	2	
DIBENZOFURAN	UG/L	ND	2	
1,2-DICHLOROBENZENE	UG/L	ND	2	
1,3-DICHLOROBENZENE	UG/L	ND	2	
1,4-DICHLOROBENZENE	UG/L	ND	3	
3,3'-DICHLOROBENZIDINE	UG/L	ND	2	
DIETHYLPHTHALATE	UG/L	ND	2	
P-DIMETHYLAMINOAZOBENZENE	UG/L	ND	2	
7,12-DIMETHYLBENZ(A)ANTHRACENE	UG/L	ND	9	
A-,A-DIMETHYLPHENETHYLAMINE	UG/L	ND	0.5	
DIMETHYLPHTHALATE	UG/L	5.4	2	
DI-N-BUTYLPHTHALATE	UG/L	ND	2	
2,4-DINITROTOLUENE	UG/L	ND	3	
2,6-DINITROTOLUENE	UG/L	ND	3	
DI-N-OCTYLPHTHALATE	UG/L	ND	4	
DIPHENYLAMINE	UG/L	ND	3	
1,2-DIPHENYLHYDRAZINE	UG/L	ND	2	
FLUORANTHENE	UG/L	ND	3	
FLUORENE	UG/L	ND	3	
HEXACHLOROBENZENE	UG/L	ND	3	
HEXACHLOROBUTADIENE	UG/L	ND	3	
HEXACHLOROCYCLOPENTADIENE	UG/L	ND	3	
HEXACHLOROETHANE	UG/L	ND	3	
INDENO (1,2,3-CD) PYRENE	UG/L	ND	3	
ISOPHORONE	UG/L	ND	2	
3-METHYLCHOLANTHRENE	UG/L	ND	2	
2-METHYLNAPHTHALENE	UG/L	15	3	
NAPHTHALENE	UG/L	8.3	2	
1-NAPHTHYLAMINE	UG/L	ND	7.5	
2-NAPHTHYLAMINE	UG/L	ND	5	
2-NITROANILINE	UG/L	ND	2	
3-NITROANILINE	UG/L	ND	5	
4-NITROANILINE	UG/L	ND	4	
NITROBENZENE	UG/L	ND	3	
N-NITROSODIMETHYLAMINE	UG/L	ND	6	
N-NITROSODI-N-BUTYLAMINE	UG/L	ND	5.5	
N-NITROSODIETHYLAMINE	UG/L*	ND	50	
N-NITROSODIPHENYLAMINE	UG/L	ND	2	
N-NITROSO-DI-N-PROPYLAMINE	UG/L	ND	2	
N-NITROSOPIPERIDINE	UG/L	ND	4	
N-NITROSOPYRROLIDINE	UG/L*	ND	50	
PENTACHLOROBENZENE	UG/L	ND	2	
PENTACHLORONITROBENZENE (PCNB)	UG/L	ND	25	

"FINAL REPORT FORMAT - SINGLE"

Accession:	807034
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806426
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Test:	ACID & BASE EXTRACTABLES (8270)
Analysis Method:	8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method:	3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix:	WATER
QC Level:	II

Lab Id: 006 Sample Date/Time: 30-JUN-98 1140
Client Sample Id: MW-110 Received Date: 01-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
PHENACETIN	UG/L	ND	2	
PHENANTHRENE	UG/L	ND	2	
2-PICOLINE	UG/L	ND	39	
PRONAMIDE	UG/L	ND	2	
PYRENE	UG/L	ND	3	
1,2,4,5-TETRACHLOROBENZENE	UG/L	ND	2	
1,2,4 TRICHLOROBENZENE	UG/L	ND	3	
2-FLUOROPHENOL	%REC/SURR	96	21-100	
PHENOL-D6	%REC/SURR	97	10-100	
2,4,6-TRIBROMOPHENOL	%REC/SURR	111	10-123	
2-FLUOROBIPHENYL	%REC/SURR	112	43-116	
NITROBENZENE-D5	%REC/SURR	95	35-114	
TERPHENYL-D14	%REC/SURR	121	33-124	
ANALYST	INITIALS	RW		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 807034
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806426
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: II

Lab Id: 007 Sample Date/Time: 30-JUN-98 1330
Client Sample Id: SW-01 Received Date: 01-JUL-98

Batch: ALW084 Extraction Date: 02-JUL-98
Blank: A Dry Weight %: N/A Analysis Date: 10-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZOIC ACID	UG/L	ND	1.7	
4-CHLORO-3-METHYLPHENOL	UG/L	ND	0.4	
2-CHLOROPHENOL	UG/L	ND	0.5	
2,4-DICHLOROPHENOL	UG/L	ND	3.9	
2,6-DICHLOROPHENOL	UG/L	ND	0.1	
2,4-DIMETHYLPHENOL	UG/L	ND	0.5	
4,6-DINITRO-2-METHYLPHENOL	UG/L	ND	1.6	
2,4-DINITROPHENOL	UG/L	ND	3.3	
2-METHYLPHENOL	UG/L	ND	0.3	
4-METHYLPHENOL	UG/L	ND	0.5	
2-NITROPHENOL	UG/L	ND	0.4	
4-NITROPHENOL	UG/L	ND	0.7	
PENTACHLOROPHENOL	UG/L	ND	0.7	
PHENOL	UG/L	ND	0.5	
2,3,4,6-TETRACHLOROPHENOL	UG/L	ND	0.6	
2,4,5-TRICHLOROPHENOL	UG/L	ND	3.0	
2,4,6-TRICHLOROPHENOL	UG/L	ND	0.3	
ACENAPHTHENE	UG/L	ND	0.4	
ACENAPHTHYLENE	UG/L	ND	0.4	
ACETOPHENONE	UG/L	ND	0.4	
4-AMINOBIPHENYL	UG/L	ND	0.7	
ANILINE	UG/L	ND	0.5	
ANTHRACENE	UG/L	ND	0.4	
BENZIDINE	UG/L	ND	2.7	
BENZO (A) ANTHRACENE	UG/L	ND	0.5	
BENZO (A) PYRENE	UG/L	ND	0.2	
BENZO (B) FLUORANTHENE	UG/L	ND	0.5	
BENZO (G,H,I) PERYLENE	UG/L	ND	0.3	
BENZO (K) FLUORANTHENE	UG/L	ND	0.7	
BENZYL ALCOHOL	UG/L	ND	0.5	
BIS(2-CHLOROETHOXY)METHANE	UG/L	ND	0.4	
BIS(2-CHLOROETHYL)ETHER	UG/L	ND	0.5	
BIS(2-CHLOROISOPROPYL)ETHER	UG/L	ND	1.9	
BIS(2-ETHYLHEXYL)PHTHALATE	UG/L	0.93	0.6	
4-BROMOPHENYL PHENYL ETHER	UG/L	ND	0.4	
BUTYLBENZYL PHTHALATE	UG/L	ND	0.5	
4-CHLOROANILINE	UG/L	ND	0.4	
1-CHLORONAPHTHALENE	UG/L	ND	0.6	
2-CHLORONAPHTHALENE	UG/L	ND	0.4	
4-CHLOROPHENYL PHENYL ETHER	UG/L	ND	0.5	

"FINAL REPORT FORMAT - SINGLE"

Accession: 807034
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806426
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: II

Lab Id: 007 Sample Date/Time: 30-JUN-98 1330
Client Sample Id: SW-01 Received Date: 01-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
CHRYSENE	UG/L	ND	0.7	
DIBENZ(A,J)ACRIDINE	UG/L	ND	0.5	
DIBENZO (A,H) ANTHRACENE	UG/L	ND	0.3	
DIBENZOFURAN	UG/L	ND	0.4	
1,2-DICHLOROBENZENE	UG/L	ND	0.3	
1,3-DICHLOROBENZENE	UG/L	ND	0.3	
1,4-DICHLOROBENZENE	UG/L	ND	0.5	
3,3'-DICHLOROBENZIDINE	UG/L	ND	0.4	
DIETHYLPHTHALATE	UG/L	ND	0.4	
P-DIMETHYLAMINOAZOBENZENE	UG/L	ND	0.4	
7,12-DIMETHYLBENZ(A)ANTHRACENE	UG/L	ND	1.8	
A-,A-DIMETHYLPHENETHYLAMINE	UG/L	ND	0.1	
DIMETHYLPHTHALATE	UG/L	ND	0.4	
DI-N-BUTYLPHTHALATE	UG/L	ND	0.4	
2,4-DINITROTOLUENE	UG/L	ND	0.5	
2,6-DINITROTOLUENE	UG/L	ND	0.5	
DI-N-OCTYLPHTHALATE	UG/L	ND	0.7	
DIPHENYLAMINE	UG/L	ND	0.5	
1,2-DIPHENYLHYDRAZINE	UG/L	ND	0.3	
FLUORANTHENE	UG/L	ND	0.5	
FLUORENE	UG/L	ND	0.6	
HEXACHLOROBENZENE	UG/L	ND	0.5	
HEXACHLOROBUTADIENE	UG/L	ND	0.5	
HEXACHLOROCYCLOPENTADIENE	UG/L	ND	0.6	
HEXACHLOROETHANE	UG/L	ND	0.6	
INDENO (1,2,3-CD) PYRENE	UG/L	ND	0.5	
ISOPHORONE	UG/L	ND	0.4	
3-METHYLCHOLANTHRENE	UG/L	ND	0.4	
2-METHYLNAPHTHALENE	UG/L	ND	0.5	
NAPHTHALENE	UG/L	ND	0.4	
1-NAPHTHYLAMINE	UG/L	ND	1.5	
2-NAPHTHYLAMINE	UG/L	ND	1.0	
2-NITROANILINE	UG/L	ND	0.4	
3-NITROANILINE	UG/L	ND	0.9	
4-NITROANILINE	UG/L	ND	0.8	
NITROBENZENE	UG/L	ND	0.5	
N-NITROSODIMETHYLAMINE	UG/L	ND	1.2	
N-NITROSODI-N-BUTYLAMINE	UG/L	ND	1.1	
N-NITROSODIETHYLAMINE	UG/L*	ND	10	
N-NITROSODIPHENYLAMINE	UG/L	ND	0.4	
N-NITROSO-DI-N-PROPYLAMINE	UG/L	ND	0.4	
N-NITROSOPIPERIDINE	UG/L	ND	0.8	
N-NITROSOPYRROLIDINE	UG/L*	ND	10	
PENTACHLOROBENZENE	UG/L	ND	0.4	
PENTACHLORONITROBENZENE (PCNB)	UG/L	ND	5.0	

"FINAL REPORT FORMAT - SINGLE"

Accession: 807034
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806426
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: II

Lab Id: 007 Sample Date/Time: 30-JUN-98 1330
Client Sample Id: SW-01 Received Date: 01-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
PHENACETIN	UG/L	ND	0.4	
PHENANTHRENE	UG/L	ND	0.4	
2-PICOLINE	UG/L	ND	7.7	
PRONAMIDE	UG/L	ND	0.4	
PYRENE	UG/L	ND	0.5	
1,2,4,5-TETRACHLOROBENZENE	UG/L	ND	0.4	
1,2,4 TRICHLOROBENZENE	UG/L	ND	0.6	
2-FLUOROPHENOL	%REC/SURR	82	21-100	
PHENOL-D6	%REC/SURR	81	10-100	
2,4,6-TRIBROMOPHENOL	%REC/SURR	77	10-123	
2-FLUOROBIPHENYL	%REC/SURR	76	43-116	
NITROBENZENE-D5	%REC/SURR	73	35-114	
TERPHENYL-D14	%REC/SURR	96	33-124	
ANALYST	INITIALS	RW		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 807034
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806426
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: II

Lab Id: 008 Sample Date/Time: 30-JUN-98 1330
Client Sample Id: SW-01 DP Received Date: 01-JUL-98

Batch: ALW084 Extraction Date: 02-JUL-98
Blank: A Dry Weight %: N/A Analysis Date: 10-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZOIC ACID	UG/L	ND	1.7	
4-CHLORO-3-METHYLPHENOL	UG/L	ND	0.4	
2-CHLOROPHENOL	UG/L	ND	0.5	
2,4-DICHLOROPHENOL	UG/L	ND	3.9	
2,6-DICHLOROPHENOL	UG/L	ND	0.1	
2,4-DIMETHYLPHENOL	UG/L	ND	0.5	
4,6-DINITRO-2-METHYLPHENOL	UG/L	ND	1.6	
2,4-DINITROPHENOL	UG/L	ND	3.3	
2-METHYLPHENOL	UG/L	ND	0.3	
4-METHYLPHENOL	UG/L	ND	0.5	
2-NITROPHENOL	UG/L	ND	0.4	
4-NITROPHENOL	UG/L	ND	0.7	
PENTACHLOROPHENOL	UG/L	ND	0.7	
PHENOL	UG/L	ND	0.5	
2,3,4,6-TETRACHLOROPHENOL	UG/L	ND	0.6	
2,4,5-TRICHLOROPHENOL	UG/L	ND	3.0	
2,4,6-TRICHLOROPHENOL	UG/L	ND	0.3	
ACENAPHTHENE	UG/L	ND	0.4	
ACENAPHTHYLENE	UG/L	ND	0.4	
ACETOPHENONE	UG/L	ND	0.4	
4-AMINOBIPHENYL	UG/L	ND	0.7	
ANILINE	UG/L	ND	0.5	
ANTHRACENE	UG/L	ND	0.4	
BENZIDINE	UG/L	ND	2.7	
BENZO (A) ANTHRACENE	UG/L	ND	0.5	
BENZO (A) PYRENE	UG/L	ND	0.2	
BENZO (B) FLUORANTHENE	UG/L	ND	0.5	
BENZO (G,H,I) PERYLENE	UG/L	ND	0.3	
BENZO (K) FLUORANTHENE	UG/L	ND	0.7	
BENZYL ALCOHOL	UG/L	ND	0.5	
BIS(2-CHLOROETHOXY)METHANE	UG/L	ND	0.4	
BIS(2-CHLOROETHYL)ETHER	UG/L	ND	0.5	
BIS(2-CHLOROISOPROPYL)ETHER	UG/L	ND	1.9	
BIS(2-ETHYLHEXYL)PHTHALATE	UG/L	1.3	0.6	
4-BROMOPHENYL PHENYL ETHER	UG/L	ND	0.4	
BUTYLBENZYL PHTHALATE	UG/L	ND	0.5	
4-CHLOROANILINE	UG/L	ND	0.4	
1-CHLORONAPHTHALENE	UG/L	ND	0.6	
2-CHLORONAPHTHALENE	UG/L	ND	0.4	
4-CHLOROPHENYL PHENYL ETHER	UG/L	ND	0.5	

"FINAL REPORT FORMAT - SINGLE"

Accession: 807034
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806426
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: II

Lab Id: 008 Sample Date/Time: 30-JUN-98 1330
Client Sample Id: SW-01 DP Received Date: 01-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
CHRYSENE	UG/L	ND	0.7	
DIBENZ(A,J)ACRIDINE	UG/L	ND	0.5	
DIBENZO (A,H) ANTHRACENE	UG/L	ND	0.3	
DIBENZOFURAN	UG/L	ND	0.4	
1,2-DICHLOROBENZENE	UG/L	ND	0.3	
1,3-DICHLOROBENZENE	UG/L	ND	0.3	
1,4-DICHLOROBENZENE	UG/L	ND	0.5	
3,3'-DICHLOROBENZIDINE	UG/L	ND	0.4	
DIETHYLPHTHALATE	UG/L	ND	0.4	
P-DIMETHYLAMINOAZOBENZENE	UG/L	ND	0.4	
7,12-DIMETHYLBENZ(A)ANTHRACENE	UG/L	ND	1.8	
A-,A-DIMETHYLPHENETHYLAMINE	UG/L	ND	0.1	
DIMETHYLPHTHALATE	UG/L	ND	0.4	
DI-N-BUTYLPHTHALATE	UG/L	ND	0.4	
2,4-DINITROTOLUENE	UG/L	ND	0.5	
2,6-DINITROTOLUENE	UG/L	ND	0.5	
DI-N-OCTYLPHTHALATE	UG/L	ND	0.7	
DIPHENYLAMINE	UG/L	ND	0.5	
1,2-DIPHENYLHYDRAZINE	UG/L	ND	0.3	
FLUORANTHENE	UG/L	ND	0.5	
FLUORENE	UG/L	ND	0.6	
HEXACHLOROBENZENE	UG/L	ND	0.5	
HEXACHLOROBUTADIENE	UG/L	ND	0.5	
HEXACHLOROCYCLOPENTADIENE	UG/L	ND	0.6	
HEXACHLOROETHANE	UG/L	ND	0.6	
INDENO (1,2,3-CD) PYRENE	UG/L	ND	0.5	
ISOPHORONE	UG/L	ND	0.4	
3-METHYLCHOLANTHRENE	UG/L	ND	0.4	
2-METHYLNAPHTHALENE	UG/L	ND	0.5	
NAPHTHALENE	UG/L	ND	0.4	
1-NAPHTHYLAMINE	UG/L	ND	1.5	
2-NAPHTHYLAMINE	UG/L	ND	1.0	
2-NITROANILINE	UG/L	ND	0.4	
3-NITROANILINE	UG/L	ND	0.9	
4-NITROANILINE	UG/L	ND	0.8	
NITROBENZENE	UG/L	ND	0.5	
N-NITROSODIMETHYLAMINE	UG/L	ND	1.2	
N-NITROSODI-N-BUTYLAMINE	UG/L	ND	1.1	
N-NITROSODIETHYLAMINE	UG/L*	ND	10	
N-NITROSODIPHENYLAMINE	UG/L	ND	0.4	
N-NITROSO-DI-N-PROPYLAMINE	UG/L	ND	0.4	
N-NITROSOPIPERIDINE	UG/L	ND	0.8	
N-NITROSOPYRROLIDINE	UG/L*	ND	10	
PENTACHLOROBENZENE	UG/L	ND	0.4	
PENTACHLORONITROBENZENE (PCNB)	UG/L	ND	5.0	

"FINAL REPORT FORMAT - SINGLE"

Accession: 807034
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806426
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: II

Lab Id: 008 Sample Date/Time: 30-JUN-98 1330
Client Sample Id: SW-01 DP Received Date: 01-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
PHENACETIN	UG/L	ND	0.4	
PHENANTHRENE	UG/L	ND	0.4	
2-PICOLINE	UG/L	ND	7.7	
PRONAMIDE	UG/L	ND	0.4	
PYRENE	UG/L	ND	0.5	
1,2,4,5-TETRACHLOROBENZENE	UG/L	ND	0.4	
1,2,4 TRICHLOROBENZENE	UG/L	ND	0.6	
2-FLUOROPHENOL	%REC/SURR	99	21-100	
PHENOL-D6	%REC/SURR	97	10-100	
2,4,6-TRIBROMOPHENOL	%REC/SURR	97	10-123	
2-FLUOROBIPHENYL	%REC/SURR	94	43-116	
NITROBENZENE-D5	%REC/SURR	89	35-114	
TERPHENYL-D14	%REC/SURR	109	33-124	
ANALYST	INITIALS	RW		

Comments:

"Method Report Summary"

Accession Number: 807034
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806426
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)

Client Sample Id:	Parameter:	Unit:	Result:
LYMAN	BIS(2-ETHYLHEXYL) PHTHALATE	UG/L	1.4
MW-73	BIS(2-ETHYLHEXYL) PHTHALATE	UG/L	1.7
	FLUORENE	UG/L	2.8
	PHENANTHRENE	UG/L	1.3
MW-72	BIS(2-ETHYLHEXYL) PHTHALATE	UG/L	11
	DIMETHYLPHTHALATE	UG/L	3.2
	2-METHYLNAPHTHALENE	UG/L	11
	NAPHTHALENE	UG/L	5.3
MW-75	2,4-DIMETHYLPHENOL	UG/L	10
	PHENOL	UG/L	51
	BIS(2-ETHYLHEXYL) PHTHALATE	UG/L	26
	FLUORENE	UG/L	3.0
	2-METHYLNAPHTHALENE	UG/L	34
	NAPHTHALENE	UG/L	12
MW-110	PHENOL	UG/L	8.9
	BIS(2-ETHYLHEXYL) PHTHALATE	UG/L	4.5
	DIMETHYLPHTHALATE	UG/L	5.4
	2-METHYLNAPHTHALENE	UG/L	15
	NAPHTHALENE	UG/L	8.3
SW-01	BIS(2-ETHYLHEXYL) PHTHALATE	UG/L	0.93
SW-01 DP	BIS(2-ETHYLHEXYL) PHTHALATE	UG/L	1.3

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Rd Pensacola, FL 32514 (850) 474-1001

Data Qualifiers for Final Report

AEN-Pensacola Inorganic/Organic

@	Adjusted reporting limit due to sample matrix (dilution prior to digestion and/or analysis)
+	Elevated reporting limit due to dilution into calibration range
*	Elevated reporting limit due to matrix interference (dilution prior to digestion and/or analysis)
#	Elevated reporting limit due to insufficient sample size
D	Diluted out
J5	The reported value is quantitated as a TIC; therefore, it is estimated

ND = Not Detected N/S = Not Submitted N/A = Not Applicable

Florida Projects Inorganic/Organic

Y1	Improper preservation, no preservative present in sample upon receipt
Y2	Improper preservation, incorrect preservative present in sample upon receipt
Y3	Improper preservation, sample temperature exceeded EPA temperature limits of 2-6°C upon receipt
Y (FL description)	The laboratory analysis was from an unpreserved or improperly preserved sample. The data may not be accurate.
Q	Sample held beyond the accepted holding time
I	The reported value is < Laboratory RL and > laboratory MDL
U1	The reported value is ≤ Laboratory MDL (value for sample result is reported as the MDL)
U (FL description)	Indicates the compound was analyzed for but not detected.
T	The reported value is < Laboratory MDL (value shall not be used for statistical analysis)
V	The analyte was detected in both the sample and the associated method blank.
J1	Surrogate recovery limits have been exceeded
J2	The sample matrix interfered with the ability to make any accurate determinations
J3	The reported value failed to meet the established quality control criteria for either precision or accuracy
J (FL description)	Estimated value; not accurate.

AFCEE Projects (under QAPP) and All Other (AEN-PN) Projects/Sites for Inorganic/Organic Parameters

J4	(For positive results) Temperature limits exceeded (≤2°C or ≥ 6°C)
J (AFCEE description)	The analyte was positively identified, the quantitation is an estimation
R1	(For nondetects) Temperature limits exceeded (≤2°C or ≥ 6°C)
R2	Improper preservation, no preservative present in sample upon receipt
R3	Improper preservation, incorrect preservative present in sample upon receipt
R4	Holding time exceeded
R5	Collection requirements not met, improper container used for sample
R (AFCEE description)	The data are unusable due to deficiencies in the ability to analyze the sample and meet QC criteria
F	< RL and > laboratory MDL
F (AFCEE description)	The analyte was positively identified but the associated numerical value is below the AFCEE or lab RL
U2	≤ Laboratory MDL (value for result will be the MDL, never below the MDL)
U (AFCEE description)	The analyte was analyzed for but not detected. The associated numerical value is at or below the MDL
B (AFCEE description)	The analyte was found in the associated blank, as well as in the sample

ICR Projects Inorganic/Organic

A	Acceptable
R6	Rejected

Examples: ICR Flags

R6 = Laboratory extracted the sample but the refrigerator malfunctioned so the extract became warm and client was notified

R6 = Sample arrived in laboratory in good condition; however, the laboratory did not analyze it within EPA's established holding time limit.

CLP and CLP-like Projects

Refer to referenced CLP Statement of Work (SOW) for explanation of data qualifiers

IDL = Laboratory Instrument Detection Limit
MDL = Laboratory Method Detection Limit
RL = Reporting Limit (AFCEE RLs are listed in the AFCEE QAPP)
CLP CRDL = CLP Contract Required Detection Limit (these limits are listed in the EPA CLP Statement of Work or SOW)
CLP CRQL = CLP Contract Required Quantitation Limit (these limits are listed in the EPA CLP Statement of Work or SOW)

Any time a sample arrives at the laboratory improperly preserved (at improper pH or temperature) or after holding time has expired or prepared or analyzed after holding time, client must be notified in writing (i.e. case narrative).

AEN-Pensacola uses the most current promulgated methods contained in the reference manuals.

SEVERN TRENT LABORATORIES 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Quality Control Report

Analysis: MARATHON WET CHEMISTRY INORGANICS

Accession:	807034
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806426
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	WET CHEM

SEVERN TRENT LABORATORIES 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Date 15-Jul-98

"WetChem Quality Control Report"

Parameter:	CHLORIDE	CYANIDE	FLUORIDE	NO2	NO2NO3	PH
Batch Id:	CIW075	CNW041	FLW030	N2W100	N3W50A	PHW140
Blank Result:	<1	<0.005	<0.2	<0.1	<0.1	N/A
Anal. Method:	4500-CL B	335.2	340.2	354.1	353.2	150.1
Prep. Method:	NA	N/A	N/A	N/A	N/A	NA
Analysis Date:	02-JUL-98	07-JUL-98	08-JUL-98	01-JUL-98	02-JUL-98	01-JUL-98
Prep. Date:	02-JUL-98	06-JUL-98	08-JUL-98	01-JUL-98	01-JUL-98	01-JUL-98
Sample Duplication						
Sample Dup:	807034-3	807005-1	807141-2	807034-1	807005-1	807040-1
Rept Limit:	<1	<0.005	<0.2	<0.1	<0.1	N/A
Sample Result:	316.3	<0.005	0.71	<0.1	2.54	7.15
Dup Result:	316.4	<0.005	0.72	<0.1	2.56	7.14
Sample RPD:	0	N/C	0.01 G	N/C	1	0.01
Max RPD:	5	0.005	0.2	0.1	4	0.12
Dry Weight%	N/A	N/A	N/A	N/A	N/A	NA
Matrix Spike						
Sample Spiked:	807034-3	807005-1	807141-1	807034-1	807005-1	NA
Rept Limit:	<1	<0.005	<0.2	<0.1	<0.1	N/A
Sample Result:	316.3	<0.005	<0.2	<0.1	2.54	
Spiked Result:	369.8	0.175	0.76	0.18	3.60	
Spike Added:	55.0	0.200	0.80	0.20	1.00	
% Recovery:	97	88	95	90	106	
% Rec Limits:	90-111	67-127	79-132	70-131	71-125	
Dry Weight%	N/A	N/A	N/A	N/A	N/A	
ICV						
ICV Result:	102.2	0.291	1.09	0.19	2.04	10.11
True Result:	100.0	0.314	1.20	0.20	2.00	10.00
% Recovery:	102	93	91	95	102	101
% Rec Limits:	90-110	90-110	90-110	90-110	90-110	90-110
LCS						
LCS Result:		0.835				7.02
True Result:		0.900				6.87
% Recovery:		93				102
% Rec Limits:		80-120				96-104

"WetChem Quality Control Report"

Parameter:	PHENOL	SULFATE	TDS
Batch Id:	PEW029	SEW085	TDW040
Blank Result:	<0.005	<10	<5
Anal. Method:	420.1	375.4	160.1
Prep. Method:	N/A	N/A	N/A
Analysis Date:	14-JUL-98	03-JUL-98	01-JUL-98
Prep. Date:	13-JUL-98	03-JUL-98	30-JUN-98
Sample Duplication			
Sample Dup:	807181-1	807005-1	806409-5
Rept Limit:	<0.005	<10	<5
Sample Result:	<0.005	32	1464
Dup Result:	<0.005	30	1486
Sample RPD:	N/C	2 G	1
Max RPD:	0.005	10	16
Dry Weight%	N/A	N/A	N/A
Matrix Spike			
Sample Spiked:	807181-2	807005-1	N/A
Rept Limit:	<0.005	<20+	N/A
Sample Result:	<0.005	32	
Spiked Result:	0.021	58	
Spike Added:	0.020	40	
% Recovery:	105	65	
% Rec Limits:	48-149	56-154	
Dry Weight%	N/A	N/A	
ICV			
ICV Result:	0.026	22.0	
True Result:	0.025	20.0	
% Recovery:	104	110	
% Rec Limits:	90-110	90-110	
LCS			
LCS Result:			284
True Result:			293
% Recovery:			97
% Rec Limits:			90-110

"Quality Control Comments"

Batch Id:	Comments:
CNW041	807126-1 was added to the batch on 8-Jul-98.
TDW040	806355-1,2,3,4,5 & 807034-1,2,3,4,5,6,7,8 were added to the
TDW040	batch on 2-Jul-98.

----- Common Footnotes WetChem -----

N/A = NOT APPLICABLE.
N/S = NOT SUBMITTED.
N/C = SAMPLE AND DUPLICATE RESULTS ARE AT OR BELOW AEN REPORTING LIMIT; THEREFORE, THE RPD IS "NOT CALCULABLE" AND NO CONTROL LIMITS APPLY.
N/D = NOT DETECTED.
R = REACTIVE
T = TOTAL
G = SAMPLE AND/OR DUPLICATE RESULT IS BELOW 5 X AEN REPORTING LIMIT AND THE ABSOLUTE DIFFERENCE BETWEEN THE SAMPLE AND DUPLICATE RESULT IS AT OR BELOW AEN REPORTING LIMIT; THEREFORE, THE RESULTS ARE "IN CONTROL".
Q = THE ANALYTICAL (POST-DISTILLATION) SPIKE IS REPORTED DUE TO PERCENT RECOVERY BEING OUTSIDE ACCEPTANCE LIMITS ON THE MATRIX (PRE-DISTILLATION) SPIKE.
= ELEVATED REPORTING LIMIT DUE TO INSUFFICIENT SAMPLE.
+ = ELEVATED REPORTING LIMIT DUE TO DILUTION INTO CALIBRATION RANGE.
* = ELEVATED REPORTING LIMIT DUE TO MATRIX INTERFERENCE (DILUTION PRIOR DIGESTION AND/OR ANALYSIS).
@ = ADJUSTED REPORTING LIMIT DUE TO SAMPLE MATRIX (DILUTION PRIOR TO DIGESTION AND/OR ANALYSIS).
P = ANALYTICAL (POST DIGESTION) SPIKE.
I = DUPLICATE INJECTION.
& = AUTOMATED
F = SAMPLE SPIKED > 4 X SPIKE CONCENTRATION.
N/C+ = NOT CALCULABLE
H = SAMPLE AND/OR DUPLICATE RESULT IS BELOW 5 X AEN REPORTING LIMIT AND THE ABSOLUTE DIFFERENCE BETWEEN THE RESULTS EXCEEDS THE AEN REPORTING LIMIT; THEREFORE, THE RESULTS ARE "OUT OF CONTROL".
A = SAMPLE AND DUPLICATE RESULTS ARE "OUT OF CONTROL".
Z = THE SAMPLE RESULT FOR THE SPIKE IS BELOW THE REPORTING LIMIT. HOWEVER, THIS RESULT IS REPORTED FOR ACCURATE QC CALCULATIONS.
NH= SAMPLE AND / OR DUPLICATE RESULT IS BELOW 5 X AEN REPORTING LIMIT AND THE ABSOLUTE DIFFERENCE BETWEEN THE RESULTS EXCEEDS THE AEN REPORTING LIMIT; THEREFORE, THE RESULTS ARE "OUT OF CONTROL". SAMPLE IS NON-HOMOGENEOUS.
(*) = REPORTING LIMITS RAISED DUE TO CLP METHOD NOT REQUIRING A CONCENTRATION STEP FOR CN.
(CA) = SEE CORRECTIVE ACTIONS FORM.
**= MATRIX INTERFERENCE
SW-846, 3rd Edition, latest EPA-approved edition.
EPA 600/4-79-020, Revised March 1983.
STANDARD METHODS, For the Examination of Water and Wastewater, latest EPA-approved edition.
NIOSH Manual of Analytical Methods, 4th Edition.
ANNUAL BOOK OF ASTM STANDARDS, VOLUMES 11.01 and 11.02, latest EPA-approved edition.
METHODS FOR THE DETERMINATION OF INORGANIC SUBSTANCES IN ENVIRONMENTAL SAMPLES, EPA600/R-93/100, AUGUST 1993
METHODS FOR SOIL ANALYSIS, PART 2, CHEMICAL AND MICROBILOGICAL PROPERTIES, 2ND EDITION.
AEN-PN USES THE MOST CURRENT PROMULGATED METHODS FROM THE REFERENCES LISTED ABOVE.

1. COLIFORM. COLIFORM PRECISION IS MEASURED BY THE ABSOLUTE DIFFERENCE BETWEEN THE LOGARITHM OF COLONIES PER 100 MLS OF SAMPLE ON DUPLICATE PLATES.
2. PH. PH PRECISION IS MEASURED BY THE ABSOLUTE DIFFERENCE BETWEEN THE SAMPLE AND DUPLICATE ANALYSIS.
3. FLASHPOINT. FLASHPOINT PRECISION IS MEASURED BY THE ABSOLUTE DIFFERENCE BETWEEN THE SAMPLE AND DUPLICATE ANALYSIS.

RPD = RELATIVE PERCENT DIFFERENCE (OR DEVIATION).
RPT LMTS = REPORTING LIMITS BASED ON METHOD DETECTION LIMIT STUDIES.

DPH = DOLLY P. HWANG RB = REBECCA BROWN WH = WENDY HAGGARD
ED = ESTHER DANTIN CR = CYNTHIA ROBERTS AB = AMY BRADLEY
BE = BETTY EVERTON PLD = PAULA L. DOUGHTY JTZ = JONATHAN T. ZIENTARSKI
RH = RICKY HAGENDORFER

SEVERN TRENT LABORATORIES 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Quality Control Report

Analysis: MARATHON METALS - OPTIMA

Accession:	807034
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806426
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	METALS

SEVERN TRENT LABORATORIES 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Date 21-Jul-98

"Metals Quality Control Report"

Parameter:	SILVER	ALUMINUM	ARSENIC	BARIUM	BORON	CADMIUM
Batch Id:	AYW181	LYW181	RYW181	BYW181	OYW181	CYW181
Blank Result:	<0.005	<0.1	<0.005	<0.001	<0.05	<0.001
Anal. Method:	6010A	6010A	6010A	6010A	6010A	6010A
Prep. Method:	3010A	3010A	3010A	3010A	3010A	3010A
Analysis Date:	06-JUL-98	06-JUL-98	06-JUL-98	06-JUL-98	07-JUL-98	06-JUL-98
Prep. Date:	02-JUL-98	02-JUL-98	02-JUL-98	02-JUL-98	02-JUL-98	02-JUL-98
Sample Duplication						
Sample Dup:	807034-1	807034-1	807034-1	807034-1	807034-1	807034-1
Rept Limit:	<0.005	<0.1	<0.005	<0.001	<0.05	<0.001
Sample Result:	0.20	2.1	2.10	2.03	2.16	1.90
Dup Result:	0.20	2.1	2.11	2.04	2.18	1.91
Sample RPD:	0	0	0	0	1	1
Max RPD:	20	20	20	20	20	20
Dry Weight%	N/A	N/A	N/A	N/A	N/A	N/A
Matrix Spike						
Sample Spiked:	807034-1	807034-1	807034-1	807034-1	807034-1	807034-1
Rept Limit:	<0.005	<0.1	<0.005	<0.001	<0.05	<0.001
Sample Result:	<0.005	<0.1	<0.005	0.018	0.09	<0.001
Spiked Result:	0.20	2.1	2.10	2.03	2.16	1.90
Spike Added:	0.2	2.0	2.0	2.0	2.0	2.0
% Recovery:	100	105	105	101	104	95
% Rec Limits:	75-125	75-125	75-125	75-125	75-125	75-125
Dry Weight%	N/A	N/A	N/A	N/A	N/A	N/A
ICV						
ICV Result:	0.50	4.9	1.00	0.99	1.01	1.03
True Result:	0.5	5	1.0	1.0	1.0	1.0
% Recovery:	100	98	100	99	101	103
% Rec Limits:	95-105	95-105	95-105	95-105	95-105	95-105
LCS						
LCS Result:	0.19	2.0	1.99	1.95	1.93	1.93
True Result:	0.2	2.0	2.0	2.0	2.0	2.0
% Recovery:	95	100	100	98	97	97
% Rec Limits:	80-120	80-120	80-120	80-120	80-120	80-120

"Metals Quality Control Report"

Parameter:	COBALT	CHROMIUM	COPPER	MERCURY	NICKEL	IRON
Batch Id:	TYW181	HYW181	FYW181	M7W087	EYW181	NYW181
Blank Result:	<0.005	<0.005	<0.005	<0.0002	<0.005	<0.05
Anal. Method:	6010A	6010A	6010A	7470A	6010A	6010A
Prep. Method:	3010A	3010A	3010A	7470A	3010A	3010A
Analysis Date:	06-JUL-98	06-JUL-98	06-JUL-98	14-JUL-98	06-JUL-98	06-JUL-98
Prep. Date:	02-JUL-98	02-JUL-98	02-JUL-98	14-JUL-98	02-JUL-98	02-JUL-98
Sample Duplication						
Sample Dup:	807034-1	807034-1	807034-1	807057-1	807034-1	807034-1
Rept Limit:	<0.005	<0.005	<0.005	<0.0002	<0.005	<0.05
Sample Result:	1.98	1.97	2.10	0.0054	1.93	2.05
Dup Result:	1.98	1.97	2.10	0.0051	1.93	2.06
Sample RPD:	0	0	0	6	0	0
Max RPD:	20	20	20	20	20	20
Dry Weight%	N/A	N/A	N/A	N/A	N/A	N/A
Matrix Spike						
Sample Spiked:	807034-1	807034-1	807034-1	807057-1	807034-1	807034-1
Rept Limit:	<0.005	<0.005	<0.005	<0.0002	<0.005	<0.05
Sample Result:	<0.005	<0.005	<0.005	<0.0002	<0.005	<0.05
Spiked Result:	1.98	1.97	2.10	0.0054	1.93	2.05
Spike Added:	2.0	2.0	2.0	0.0050	2.0	2.0
% Recovery:	99	99	105	108	97	103
% Rec Limits:	75-125	75-125	75-125	75-125	75-125	75-125
Dry Weight%	N/A	N/A	N/A	N/A	N/A	N/A
ICV						
ICV Result:	1.00	0.98	1.02	0.0041	0.98	4.91
True Result:	1.0	1.0	1.0	0.0040	1.0	5.0
% Recovery:	100	98	102	103	98	98
% Rec Limits:	95-105	95-105	95-105	90-110	95-105	95-105
LCS						
LCS Result:	1.95	1.94	2.06	0.0050	1.94	1.98
True Result:	2.0	2.0	2.0	0.0050	2.0	2.0
% Recovery:	98	97	103	100	97	99
% Rec Limits:	80-120	80-120	80-120	85-115	80-120	80-120

"Metals Quality Control Report"

Parameter:	LEAD	MANGANESE	MOLYBDENUM	SELENIUM	ZINC	MERCURY
Batch Id:	PYW181	GYW181	DYW181	SYW181	5YW181	M7W088
Blank Result:	<0.003	<0.005	<0.005	<0.005	<0.02	<0.0002
Anal. Method:	6010A	6010A	6010A	6010A	6010A	7470A
Prep. Method:	3010A	3010A	3010A	3010A	3010A	7470A
Analysis Date:	07-JUL-98	06-JUL-98	06-JUL-98	07-JUL-98	06-JUL-98	15-JUL-98
Prep. Date:	02-JUL-98	02-JUL-98	02-JUL-98	02-JUL-98	02-JUL-98	15-JUL-98
Sample Duplication						
Sample Dup:	807034-1	807034-1	807034-1	807034-1	807034-1	807268-1
Rept Limit:	<0.003	<0.005	<0.005	<0.005	<0.02	<0.0002
Sample Result:	1.99	2.01	2.15	1.98	1.84	0.0050
Dup Result:	1.99	2.01	2.14	2.00	1.85	0.0050
Sample RPD:	0	0	0	1	1	0
Max RPD:	20	20	20	20	20	20
Dry Weight%	N/A	N/A	N/A	N/A	N/A	N/A
Matrix Spike						
Sample Spiked:	807034-1	807034-1	807034-1	807034-1	807034-1	807268-1
Rept Limit:	<0.003	<0.005	<0.005	<0.005	<0.02	<0.0002
Sample Result:	<0.003	<0.005	<0.005	<0.005	<0.02	<0.0002
Spiked Result:	1.99	2.01	2.15	1.98	1.84	0.0050
Spike Added:	2.0	2.0	2.0	2.0	2.0	0.0050
% Recovery:	100	101	108	99	92	100
% Rec Limits:	75-125	75-125	75-125	75-125	75-125	75-125
Dry Weight%	N/A	N/A	N/A	N/A	N/A	N/A
ICV						
ICV Result:	1.03	0.99	0.98	1.02	1.02	0.0038
True Result:	1.0	1.0	1.0	1.0	1.0	0.0040
% Recovery:	103	99	98	102	102	95
% Rec Limits:	95-105	95-105	95-105	95-105	95-105	90-110
LCS						
LCS Result:	1.98	1.91	2.07	1.91	1.87	0.0051
True Result:	2.0	2.0	2.0	2.0	2.0	0.0050
% Recovery:	99	96	104	96	94	102
% Rec Limits:	80-120	80-120	80-120	80-120	80-120	85-115

----- Common Footnotes Metals -----

N/A = NOT APPLICABLE.
N/S = NOT SUBMITTED.
N/C = SAMPLE AND DUPLICATE RESULTS ARE AT OR BELOW THE REPORTING LIMIT; THEREFORE, THE RPD IS "NOT CALCULABLE" AND NO CONTROL LIMITS APPLY.
N/D = NOT DETECTED.
DISS. OR D = DISSOLVED
T & D = TOTAL AND DISSOLVED
R = REACTIVE
T = TOTAL
G = SAMPLE AND/OR DUPLICATE RESULT IS BELOW 5 X THE REPORTING LIMIT AND THE ABSOLUTE DIFFERENCE BETWEEN THE SAMPLE AND DUPLICATE RESULT IS AT OR BELOW AEN REPORTING LIMIT; THEREFORE, THE RESULTS ARE "IN CONTROL".
Q = THE ANALYTICAL (POST-DIGESTION) SPIKE IS REPORTED DUE TO PERCENT RECOVERY BEING OUTSIDE ACCEPTANCE LIMITS ON THE MATRIX (PRE-DIGESTION) SPIKE.
= ELEVATED REPORTING LIMIT DUE TO INSUFFICIENT SAMPLE.
+ = ELEVATED REPORTING LIMIT DUE TO DILUTION INTO CALIBRATION RANGE.
* = ELEVATED REPORTING LIMIT DUE TO MATRIX INTERFERENCE. (DILUTION PRIOR TO ANALYSIS)
@ = ADJUSTED REPORTING LIMIT DUE TO SAMPLE MATRIX. (DILUTION PRIOR TO DIGESTION)
P = ANALYTICAL (POST DIGESTION) SPIKE.
I = DUPLICATE INJECTION.
& = AUTOMATED
F = SAMPLE SPIKED > 4 X SPIKE CONCENTRATION.
N/C+ = NOT CALCULABLE
N/C* = NOT CALCULABLE; SAMPLE SPIKED > 4 X SPIKE CONCENTRATION.
H = SAMPLE AND/OR DUPLICATE RESULT IS BELOW 5 X AEN REPORTING LIMIT AND THE ABSOLUTE DIFFERENCE BETWEEN THE RESULTS EXCEEDS THE AEN REPORTING LIMIT; THEREFORE, THE RESULTS ARE "OUT OF CONTROL".
A = SAMPLE AND DUPLICATE RESULTS ARE "OUT OF CONTROL".
Z = THE SAMPLE RESULT FOR THE SPIKE IS BELOW THE AEN REPORTING LIMIT. HOWEVER, THIS RESULT IS REPORTED FOR ACCURATE QC CALCULATIONS.
NH= THE RELATIVE PERCENT DIFFERENCE (RPD) EXCEEDS THE AEN CONTROL LIMIT AND IS "OUT OF CONTROL; DUE TO A NON-HOMOGENEOUS SAMPLE MATRIX.
J = (FLORIDA DEP 'J' FLAG) - MATRIX SPIKE AND POST SPIKE RECOVERY IS OUT OF THE ACCEPTABLE RANGE. SEE OUT OF CONTROL EVENTS FORM.
U = (FLORIDA DEP 'U' FLAG) - THE COMPOUND WAS ANALYZED FOR, BUT NOT DETECTED.
S = METHOD OF STANDARD ADDITIONS (MSA) WAS PERFORMED ON THIS SAMPLE.

FROM QUALITY CONTROL REPORT:
RPD= RELATIVE PERCENT DEVIATION.
REPT LIMIT= REPORTING LIMIT BASED ON METHOD DETECTION LIMIT STUDIES.

NOTE: ALL RESULTS REPORTED UNDER 'SAMPLE DUPLICATION' ARE THE MS/MSD.

NOTE: THE UNITS REPORTED ON THE QUALITY CONTROL REPORT ARE REPORTED ON AN AS RUN BASIS. (NOT ADJUSTED FOR DRY WEIGHT).

SW-846, 3rd Edition.
EPA 600/4-79-020, Revised March 1983.
NIOSH Manual of Analytical Methods, 4th Edition.
Standard Methods For the Examination of Water and Wastewater, 18th Edition, 1992.
Methods For the Determination of Metals in Environmental Samples - Supplement I, EPA 600/R-94-111, May 1994.

GJ = GARY JACOBS
GSP = GARY ST PERE
JLH = JAMES L. HERED
JL = JANET LECLEAR

SEVERN TRENT LABORATORIES 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Quality Control Report

Analysis: POLYNUCLEAR AROMATICS BY 8310

Accession:	807034
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806426
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	SEMI-VOLATILE FUELS

SEVERN TRENT LABORATORIES 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"QC Report"

Title: Water Blank
Batch: PAW153
Analysis Method: 8310/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.

Blank Id: B Date Analyzed: 11-JUL-98 Date Extracted: 03-JUL-98

Parameters:	Units:	Results:	Reporting Limits:
ACENAPHTHENE	UG/L	ND	1
ACENAPHTHYLENE	UG/L	ND	1
ANTHRACENE	UG/L	ND	1
BENZO(a)ANTHRACENE	UG/L	ND	1
BENZO(a)PYRENE	UG/L	ND	0.1
BENZO(b)FLUORANTHENE	UG/L	ND	1
BENZO(g,h,i)PERYLENE	UG/L	ND	1
BENZO(k)FLUORANTHENE	UG/L	ND	1
CHRYSENE	UG/L	ND	1
DIBENZO(a,h)ANTHRACENE	UG/L	ND	1
FLUORANTHENE	UG/L	ND	1
FLUORENE	UG/L	ND	1
INDENO(1,2,3-cd)PYRENE	UG/L	ND	1
NAPHTHALENE	UG/L	ND	1
PHENANTHRENE	UG/L	ND	1
PYRENE	UG/L	ND	1
1-METHYLNAPHTHALENE	UG/L	ND	0.3
2-METHYLNAPHTHALENE	UG/L	ND	1
2-CHLOROANTHRACENE	%REC/SURR	78	28-138
ANALYST	INITIALS	HAH	

Comments:

"QC Report"

Title: Water LCS
Batch: PAW153
Analysis Method: 8310/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.

RS Date Analyzed: 10-JUL-98 RS Date Extracted: 02-JUL-98

Parameters:	Spike Added	Sample Conc	RS Conc	RS %Rec	Rec Lmts
ACENAPHTHYLENE	7.1	<1	1.6	23*	45-127
BENZO(k)FLUORANTHENE	9.2	<1	7.9	86	68-131
CHRYSENE	9.1	<1	7.9	87	69-131
PHENANTHRENE	9.1	<1	6.8	75	63-124
PYRENE	8.8	<1	7.3	83	61-126
BENZO(A)PYRENE	10.0	<1	6.0	60	2-110
Surrogates:					
2-CHLOROANTHRACENE				76	28-138

Comments:
* ACENAPHTHYLENE RECOVERED BELOW RECOVERY LIMITS

Notes:
N/S = NOT SUBMITTED N/A = NOT APPLICABLE D = DILUTED OUT
UG/L = PARTS PER BILLION. < = LESS THAN REPORTING LIMIT.
* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS.
SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

"QC Report"

Title: Water Matrix Spike/Matrix Spike Duplicate
Batch: PAW153
Analysis Method: 8310/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.

Dry Weight %: N/A
Sample Spiked: 807014-3

MS Date Analyzed: 13-JUL-98
MSD Date Analyzed: 10-JUL-98

MS Date Extracted: 02-JUL-98
MSD Date Extracted: 02-JUL-98

Parameters:	Spike Added	Sample Conc	MS Conc	MS %Rec	MSD Conc	MSD %Rec	RPD	RPD Lmts	Rec Lmts
ACENAPHTHYLENE	7.1	170	N/C	N/C	N/C	N/C	N/C	51	18-146
BENZO(k)FLUORANTHENE	9.2	<1	8.1	88	7.1	77	13	40	26-137
CHRYSENE	9.1	<1	7.8	86	6.7	74	15	69	16-156
PHENANTHRENE	9.1	<1	10.6	116	8.1	89	26	36	30-145
PYRENE	8.8	<1	9.0	102	7.9	90	13	41	39-137
BENZO(A)PYRENE	10.0	<1	7.1	71	6.6	66	7	50	1-128
Surrogates:									
2-CHLOROANTHRACENE				71		74			28-138

Comments:
N/C = NOT CALCULABLE DUE TO HIGH LEVEL OF ANALYTE IN SAMPLE.

Notes:
N/S = NOT SUBMITTED N/A = NOT APPLICABLE D = DILUTED OUT
UG/L = PARTS PER BILLION. < = LESS THAN REPORTING LIMIT.
* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS.
SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

Common Notation for Organic Reporting

N/S = NOT SUBMITTED
N/A = NOT APPLICABLE
UG = MICROGRAMS
UG/L = PARTS PER BILLION
UG/KG = PARTS PER BILLION
MG/M3 = MILLIGRAM PER CUBIC METER
PPMV = PART PER MILLION BY VOLUME
MG/KG = PARTS PER MILLION
MG/L = PARTS PER MILLION
< = LESS THAN
ND = NOT DETECTED
E = EXCEED THE CALIBRATION CURVE; THEREFORE, RESULTS ARE ESTIMATED.

SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

ORGANIC SOILS ARE REPORTED ON A DRYWEIGHT BASIS.

RPT LMTS = REPORTING LIMITS BASED ON METHOD DETECTION LIMIT STUDIES.

RPD = RELATIVE PERCENT DIFFERENCE (OR DEVIATION)

AEN/GC/FID
AEN GAS CHROMATOGRAPHIC METHOD EMPLOYING DIRECT INJECTION ON COLUMN WITH FLAME IONIZATION DETECTOR (FID).

AEN/GC/FIX
AEN GAS CHROMATOGRAPHIC METHOD FOR ANALYSIS OF FIXED GASES EMPLOYING DIRECT INJECTION ON COLUMN WITH THERMAL CONDUCTIVITY DETECTOR (TCD) AND FLAME IONIZATION DETECTOR (FID).

AEN/GC/FPD
AEN GAS CHROMATOGRAPHIC METHOD EMPLOYING DIRECT INJECTION ON COLUMN WITH FLAME PHOTOMETRIC DETECTOR (FPD) IN SULFUR-SPECIFIC MODE.

AEN/GC/PID
AEN GAS CHROMATOGRAPHIC METHOD EMPLOYING DIRECT INJECTION ON COLUMN WITH PHOTOIONIZATION DETECTOR (PID).

AEN/GC/TCD
AEN GAS CHROMATOGRAPHIC METHOD EMPLOYING DIRECT INJECTION ON COLUMN WITH THERMAL CONDUCTIVITY DETECTOR (TCD).

SW-846 METHOD 9020
PARTICULATE MATTER IS REMOVED BY ALLOWING PARTICULATES TO SETTLE IN THE SAMPLE CONTAINER AND DECANTING THE SUPERNATANT LIQUID. EXCESSIVE PARTICULATES ARE REMOVED BY FILTRATION OF THE SUPERNATANT LIQUID.

RSK 175
SAMPLE PREPARATION AND CALCULATIONS FOR DISSOLVED GAS ANALYSIS IN WATER SAMPLES USING A GC HEADSPACE EQUILIBRATION TECHNIQUE, RSK SOP-175, ROBERT S. KERR ENVIRONMENTAL RESEARCH LABORATORY, USEPA, AUGUST 11, 1994.

AEN-PN USES THE MOST CURRENT PROMULGATED METHODS CONTAINED IN THE REFERENCE MANUALS.

SW = STEVE WILHITE
RW = ROBERT WOLFE
KS = KENDALL SMITH
LB = LISA BIZZELL
LP = LEVERNE PETERSON
PLD = PAULA DOUGHTY
DK = DARLENE KINCHEN
BT = BECKY TREMMEL
HAH = HOLLIE HOFFMAN

SEVERN TRENT LABORATORIES 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Quality Control Report

Analysis: PESTICIDES (8080)

Accession:	807034
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806426
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	PESTICIDES

SEVERN TRENT LABORATORIES 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"QC Report"

Title: Water Blank
Batch: PSW046
Analysis Method: 8080 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Extraction Method: 3510 / 3660 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.

Blank Id: B Date Analyzed: 10-JUL-98 Date Extracted: 04-JUL-98

Parameters:	Units:	Results:	Reporting Limits:
ALDRIN	UG/L	ND	0.02
ALPHA-BHC	UG/L	ND	0.02
BETA-BHC	UG/L	ND	0.02
DELTA-BHC	UG/L	ND	0.02
GAMMA-BHC (LINDANE)	UG/L	ND	0.02
4,4'-DDD	UG/L	ND	0.02
4,4'-DDE	UG/L	ND	0.02
4,4'-DDT	UG/L	ND	0.02
DIELDRIN	UG/L	ND	0.02
ENDOSULFAN I	UG/L	ND	0.02
ENDOSULFAN II	UG/L	ND	0.02
ENDOSULFAN SULFATE	UG/L	ND	0.02
ENDRIN	UG/L	ND	0.02
ENDRIN ALDEHYDE	UG/L	ND	0.02
HEPTACHLOR	UG/L	ND	0.02
HEPTACHLOR EPOXIDE	UG/L	ND	0.02
METHOXYCHLOR	UG/L	ND	0.02
CHLORDANE	UG/L	ND	0.01
TOXAPHENE	UG/L	ND	0.12
PCB-1016	UG/L	ND	0.04
PCB-1221	UG/L	ND	0.04
PCB-1232	UG/L	ND	0.04
PCB-1242	UG/L	ND	0.04
PCB-1248	UG/L	ND	0.04
PCB-1254	UG/L	ND	0.04
PCB-1260	UG/L	ND	0.04
TCMX	%REC/SURR	98	43-101
DCB	%REC/SURR	88	17-135
ANALYST	INITIALS	RP	

Comments:

"QC Report"

Title: Water Matrix
Batch: PSW046
Analysis Method: 8080 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Extraction Method: 3510 / 3660 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.

Dry Weight %: N/A
Sample Spiked: 807034-02

MS Date Analyzed: 10-JUL-98
MSD Date Analyzed: 10-JUL-98

MS Date Extracted: 04-JUL-98
MSD Date Extracted: 04-JUL-98

Parameters:	Spike Added	Sample Conc	MS Conc	MS %Rec	MSD Conc	MSD %Rec	RPD	RPD Lmts	Rec Lmts
LINDANE	2.00	<0.02	1.57	79	1.67	84	6	27	40-119
HEPTACHLOR	2.00	<0.02	1.91	96	1.99	100	4	30	53-123
ALDRIN	2.00	<0.02	1.89	95	1.99	100	5	31	42-130
DIELDRIN	2.00	<0.02	1.94	97	2.02	101	4	18	61-124
ENDRIN	2.00	<0.02	1.96	98	2.06	103	5	30	50-125
DDT	2.00	<0.02	2.26	113	2.48	124	9	32	25-138
Surrogates:									
DCB				104		106			17-135
TCMX				87		89			43-101

Comments:

Notes:
N/S = NOT SUBMITTED N/A = NOT APPLICABLE D = DILUTED OUT
UG/L = PARTS PER BILLION. < = LESS THAN REPORTING LIMIT.
* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS.
SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

Common notation for Organic reporting

N/S = NOT SUBMITTED
N/A = NOT APPLICABLE
D = DILUTED OUT
UG/L = PARTS PER BILLION.
UG/KG = PARTS PER BILLION.
MG/KG = PARTS PER MILLION.
MG/L = PARTS PER MILLION.
< = LESS THAN.
* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS.
ND = NOT DETECTED ABOVE REPORTING LIMIT.
Rpt Lmts = REPORTING LIMITS BASED ON METHOD DETECTION LIMIT STUDIES.
RPD = RELATIVE PERCENT DIFFERENCE (OR DEVIATION)

SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

ORGANIC SOILS ARE REPORTED ON A DRY WEIGHT BASIS.

AEN-PN USES THE MOST CURRENT PROMULGATED METHODS CONTAINED IN THE REFERENCE MANUALS.

RP = ROBERT PEREZ
LP = LEVERNE PETERSON
RW = ROBERT WOLFE

SEVERN TRENT LABORATORIES 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Quality Control Report

Analysis: ACID & BASE EXTRACTABLES (8270)

Accession:	807034
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806426
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	ORGANIC/MS

SEVERN TRENT LABORATORIES 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"QC Report"

Title: Water Blank
Batch: ALW084
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.

Blank Id: A Date Analyzed: 09-JUL-98 Date Extracted: 02-JUL-98

Parameters:	Units:	Results:	Reporting Limits:
BENZOIC ACID	UG/L	ND	1.7
4-CHLORO-3-METHYLPHENOL	UG/L	ND	0.4
2-CHLOROPHENOL	UG/L	ND	0.5
2,4-DICHLOROPHENOL	UG/L	ND	3.9
2,6-DICHLOROPHENOL	UG/L	ND	0.1
2,4-DIMETHYLPHENOL	UG/L	ND	0.5
4,6-DINITRO-2-METHYLPHENOL	UG/L	ND	1.6
2,4-DINITROPHENOL	UG/L	ND	3.3
2-METHYLPHENOL	UG/L	ND	0.3
4-METHYLPHENOL	UG/L	ND	0.5
2-NITROPHENOL	UG/L	ND	0.4
4-NITROPHENOL	UG/L	ND	0.7
PENTACHLOROPHENOL	UG/L	ND	0.7
PHENOL	UG/L	ND	0.5
2,3,4,6-TETRACHLOROPHENOL	UG/L	ND	0.6
2,4,5-TRICHLOROPHENOL	UG/L	ND	3.0
2,4,6-TRICHLOROPHENOL	UG/L	ND	0.3
ACENAPHTHENE	UG/L	ND	0.4
ACENAPHTHYLENE	UG/L	ND	0.4
ACETOPHENONE	UG/L	ND	0.4
4-AMINOBIPHENYL	UG/L	ND	0.7
ANILINE	UG/L	ND	0.5
ANTHRACENE	UG/L	ND	0.4
BENZIDINE	UG/L	ND	2.7
BENZO (A) ANTHRACENE	UG/L	ND	0.5
BENZO (A) PYRENE	UG/L	ND	0.2
BENZO (B) FLUORANTHENE	UG/L	ND	0.5
BENZO (G,H,I) PERYLENE	UG/L	ND	0.3
BENZO (K) FLUORANTHENE	UG/L	ND	0.7
BENZYL ALCOHOL	UG/L	ND	0.5
BIS(2-CHLOROETHOXY)METHANE	UG/L	ND	0.4
BIS(2-CHLOROETHYL)ETHER	UG/L	ND	0.5
BIS(2-CHLOROISOPROPYL)ETHER	UG/L	ND	1.9
BIS(2-ETHYLHEXYL)PHTHALATE	UG/L	ND	0.6
4-BROMOPHENYL PHENYL ETHER	UG/L	ND	0.4
BUTYLBENZYL PHTHALATE	UG/L	ND	0.5
4-CHLOROANILINE	UG/L	ND	0.4
1-CHLORONAPHTHALENE	UG/L	ND	0.6
2-CHLORONAPHTHALENE	UG/L	ND	0.4
4-CHLOROPHENYL PHENYL ETHER	UG/L	ND	0.5
CHRYSENE	UG/L	ND	0.7
DIBENZ(A,J)ACRIDINE	UG/L	ND	0.5
DIBENZO (A,H) ANTHRACENE	UG/L	ND	0.3
DIBENZOFURAN	UG/L	ND	0.4
1,2-DICHLOROBENZENE	UG/L	ND	0.3
1,3-DICHLOROBENZENE	UG/L	ND	0.3

"QC Report"

Title: Water Blank
Batch: ALW084
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.

Parameters:	Units:	Results:	Reporting Limits:
1,4-DICHLOROBENZENE	UG/L	ND	0.5
3,3'-DICHLOROBENZIDINE	UG/L	ND	0.4
DIETHYLPHTHALATE	UG/L	ND	0.4
P-DIMETHYLAMINOAZOBENZENE	UG/L	ND	0.4
7,12-DIMETHYLBENZ(A)ANTHRACENE	UG/L	ND	1.8
A-,A-DIMETHYLPHENETHYLAMINE	UG/L	ND	0.1
DIMETHYLPHTHALATE	UG/L	ND	0.4
DI-N-BUTYLPHTHALATE	UG/L	ND	0.4
2,4-DINITROTOLUENE	UG/L	ND	0.5
2,6-DINITROTOLUENE	UG/L	ND	0.5
DI-N-OCTYLPHTHALATE	UG/L	ND	0.7
DIPHENYLAMINE	UG/L	ND	0.5
1,2-DIPHENYLHYDRAZINE	UG/L	ND	0.3
FLUORANTHENE	UG/L	ND	0.5
FLUORENE	UG/L	ND	0.6
HEXACHLOROBENZENE	UG/L	ND	0.5
HEXACHLOROBUTADIENE	UG/L	ND	0.5
HEXACHLOROCYCLOPENTADIENE	UG/L	ND	0.6
HEXACHLOROETHANE	UG/L	ND	0.6
INDENO (1,2,3-CD) PYRENE	UG/L	ND	0.5
ISOPHORONE	UG/L	ND	0.4
3-METHYLCHOLANTHRENE	UG/L	ND	0.4
2-METHYLNAPHTHALENE	UG/L	ND	0.5
NAPHTHALENE	UG/L	ND	0.4
1-NAPHTHYLAMINE	UG/L	ND	1.5
2-NAPHTHYLAMINE	UG/L	ND	1.0
2-NITROANILINE	UG/L	ND	0.4
3-NITROANILINE	UG/L	ND	0.9
4-NITROANILINE	UG/L	ND	0.8
NITROBENZENE	UG/L	ND	0.5
N-NITROSODIMETHYLAMINE	UG/L	ND	1.2
N-NITROSODI-N-BUTYLAMINE	UG/L	ND	1.1
N-NITROSODIETHYLAMINE	UG/L*	ND	10
N-NITROSODIPHENYLAMINE	UG/L	ND	0.4
N-NITROSO-DI-N-PROPYLAMINE	UG/L	ND	0.4
N-NITROSOPIPERIDINE	UG/L	ND	0.8
N-NITROSOPYRROLIDINE	UG/L*	ND	10
PENTACHLOROBENZENE	UG/L	ND	0.4
PENTACHLORONITROBENZENE (PCNB)	UG/L	ND	5.0
PHENACETIN	UG/L	ND	0.4
PHENANTHRENE	UG/L	ND	0.4
2-PICOLINE	UG/L	ND	7.7
PRONAMIDE	UG/L	ND	0.4
PYRENE	UG/L	ND	0.5
1,2,4,5-TETRACHLOROBENZENE	UG/L	ND	0.4
1,2,4 TRICHLOROBENZENE	UG/L	ND	0.6
2-FLUOROPHENOL	%REC/SURR	78	21-100

SEVERN TRENT LABORATORIES 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"QC Report"

Title: Water Blank
Batch: ALW084
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.

Parameters:	Units:	Results:	Reporting Limits:
PHENOL-D6	%REC/SURR	32	10-100
2,4,6-TRIBROMOPHENOL	%REC/SURR	76	10-123
2-FLUOROBIPHENYL	%REC/SURR	76	43-116
NITROBENZENE-D5	%REC/SURR	75	35-114
TERPHENYL-D14	%REC/SURR	95	33-124
ANALYST	INITIALS	RW	

Comments:

"QC Report"

Title: Water LCS
Batch: ALW084
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.

RS Date Analyzed: 13-JUL-98 RS Date Extracted: 02-JUL-98

Parameters:	Spike Added	Sample Conc	RS Conc	RS %Rec	Rec Lmts
PHENOL	150	<0.5	82	55	5-112
2-CHLOROPHENOL	150	<0.5	86	57	40-120
1,4-DICHLOROBENZENE	100	<0.5	56	56	32-119
N-NITRO-DI-N-PROPYLAMINE	100	<0.4	56	56	26-128
1,2,4 TRICHLOROBENZENE	100	<0.6	52	52	44-142
4-CHLORO-3-METHYLPHENOL	150	<0.5	78	52	30-128
ACENAPHTHENE	100	<0.4	56	56	47-145
4-NITROPHENOL	150	<0.7	60	40	1-132
2,4-DINITROTOLUENE	100	<0.5	50	50	39-138
PENTACHLOROPHENOL	150	<0.7	62	41	15-157
PYRENE	100	<0.5	58	58	52-115
Surrogates:					
NITROBENZENE-D5				52	35-114
2-FLUOROBIPHENYL				54	43-116
TERPHENYL-D14				57	33-124
PHENOL-D6				55	10-100
2-FLUOROPHENOL				58	21-100
2,4,6-TRIBROMOPHENOL				54	10-123

Comments:

Notes:
N/S = NOT SUBMITTED N/A = NOT APPLICABLE D = DILUTED OUT
UG/L = PARTS PER BILLION. < = LESS THAN REPORTING LIMIT.
* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS.
SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

"QC Report"

Title: Water Matrix Spike/Matrix Spike Duplicate
Batch: ALW084
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.

Dry Weight %: N/A
Sample Spiked: 807034-1

MS Date Analyzed: 13-JUL-98
MSD Date Analyzed: 13-JUL-98

MS Date Extracted: 02-JUL-98
MSD Date Extracted: 02-JUL-98

Parameters:	Spike Added	Sample Conc	MS Conc	MS %Rec	MSD Conc	MSD %Rec	RPD	RPD Lmts	Rec Lmts
PHENOL	300	<10	228	76	268	89	16	38	5-112
2-CHLOROPHENOL	300	<10	256	85	280	93	9	25	38-120
1,4-DICHLOROBENZENE	200	<10	156	78	168	84	7	27	39-112
N-NITRO-DI-N-PROPYLAMINE	200	<10	120	60	176	88	38*	30	32-125
1,2,4 TRICHLOROBENZENE	200	<10	152	76	160	80	5	30	44-118
4-CHLORO-3-METHYLPHENOL	300	<10	232	77	264	88	13	23	42-131
ACENAPHTHENE	200	<10	104	52	176	88	51*	21	47-131
4-NITROPHENOL	300	<50	208	69	244	81	16	36	1-116
2,4-DINITROTOLUENE	200	<10	164	82	184	92	11	22	39-138
PENTACHLOROPHENOL	300	<50	220	73	248	83	13	36	14-164
PYRENE	200	<10	152	76	200	100	27*	21	52-115
Surrogates:									
NITROBENZENE-D5				86		86			35-114
2-FLUOROBIPHENYL				87		85			43-116
TERPHENYL-D14				95		108			33-124
PHENOL-D6				41		84			10-100
2-FLUOROPHENOL				88		102*			21-100
2,4,6-TRIBROMOPHENOL				93		104			10-123

Comments:
* MATRIX SPIKE/MATRIX SPIKE DUPLICATE HAD RECOVERY(S), RPD'S AND/OR SURROGATE(S) OUTSIDE ACCEPTANCE LIMITS DUE TO MATRIX INTERFERENCE. SEE LCS DATA.

Notes:
N/S = NOT SUBMITTED N/A = NOT APPLICABLE D = DILUTED OUT
UG/L = PARTS PER BILLION. < = LESS THAN REPORTING LIMIT.
* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS.
SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

Common notation for Organic reporting

N/S = NOT SUBMITTED
N/A = NOT APPLICABLE
UG/L = PARTS PER BILLION.
UG/KG = PARTS PER BILLION.
MG/KG = PARTS PER MILLION.
MG/L = PARTS PER MILLION.
MG/M3 = MILLIGRAMS PER CUBIC METER.
NG = NANOGRAMS.
UG = MICROGRAMS.
PPBV = PARTS PER BILLION/VOLUME.
< = LESS THAN.
ND = NOT DETECTED ABOVE REPORT LIMIT.
RPT LMTS = REPORTING LIMITS BASED ON METHOD DETECTION LIMIT STUDIES.
RPD = RELATIVE PERCENT DIFFERENCE (OR DEVIATION)

SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

ORGANIC SOILS ARE REPORTED ON A DRY WEIGHT BASIS.

DUE TO THE NATURE OF THE SAMPLE MATRIX, MATRIX SPIKE/MATRIX SPIKE DUPLICATE ANALYSIS CANNOT BE PERFORMED FOR AIR ANALYSIS.

CLP SOW 1991, USEPA CONTRACT LABORATORY PROGRAM, STATEMENT OF WORK FOR ORGANICS ANALYSIS, DOCUMENT NUMBER OLM01.8, AUGUST 1991.

AEN-PN USES THE MOST CURRENT PROMULGATED METHODS CONTAINED IN THE REFERENCE MANUALS.

LP = LEVERNE PETERSON	RW = RITA WINGO
LD = LARRY DILMORE	BDH = BRUCE D. HUNT
DWB = DAVID BOWERS	HB = HEATHER E. BLAIR

American Environmental Network of Florida
PROJECT SAMPLE INSPECTION FORM

Lab Accession #: 807034 Date Received: 01-Jul-98

1.	Was there a Chain of Custody?	(Yes)	No*		8.	Were samples checked for preservative? *(Check pH of all H_2O requiring preservative (AEN-PN SOP 917) except VOA vials that require zero headspace)*+	(Yes) No* N/A
2.	Was Chain of Custody properly filled out and relinquished?	(Yes)	No*		9.	Is there sufficient volume for analysis requested?	(Yes) No*
3.	Were samples received cold? (Criteria: 2° - 6°C: AEN-SOP 1055)	(Yes)	No*	N/A	10.	Were samples received within Holding Time? (REFER TO AEN-SOP 1040)	(Yes) No*
4.	Were all samples properly labeled and identified?	(Yes)	No*		11.	Is Headspace visible > ¼" in diameter in VOA vials?* If any headspace is evident, comment in out-of-control	Yes* No (N/A)
5.	Did samples require splitting? Req By: PM Client Other*	Yes*	(No)		12.	If sent, were matrix spike bottles returned?	Yes No* (N/A)
6.	Were samples received in proper containers for analysis requested?	(Yes)	No*		13.	Was Project Manager notified of problems? (initials:_____)	Yes No* (N/A)
7.	Were all sample containers received intact?	(Yes)	No*				

Airbill Number(s): See attached **Shipped By:** FEDEX

Cooler Number(s): 210L, 320L **Shipping Charges:** N/A

Cooler Weight(s): N/A **Cooler Temp(s) (°C):** 210L = 2-0°C-CCK2, 320L = 2-0°C-CCK7
(LIST THERMOMETER NUMBER(S) FOR VERIFICATION)

Out of Control Events and Inspection Comments:

(USE BACK OF PSIF FOR ADDITIONAL NOTES AND COMMENTS)

Inspected By: [illegible] **Date:** 01/7/98 **Logged By:** [illegible] **Date:** 01/7/98

* *Note all Out-of-Control and/or questionable events on Comment Section of this form.*

♦ *Note who requested the splitting of samples on the Comment Section of this form.*

\+ *All preservatives for the State of North Carolina, the State of New York, and other requested samples are to be recorded on the sheet provided to record pH results (AEN-SOP 938, section 2.2.9).*

✱ *According to EPA, ¼" of headspace is allowed in 40 ml vials requiring volatile analysis, however, AEN makes it policy to record any headspace as out-of-control (AEN-SOP 938, section 2.2.12).*

American Environmental Network (NM), Inc.

CHAIN OF CUSTODY

DATE: 6/29-30/98 PAGE: ___ OF ___

AEN (NM) Accession #: 32 1C34

SHADED AREAS ARE FOR LAB USE ONLY.

PLEASE FILL THIS FORM IN COMPLETELY.

PROJECT MANAGER: Paul Peacock

COMPANY: Marathon Oil Company
ADDRESS: P.O. Box 552
Midland, TX 79702-0552
PHONE: (915) 687-8312
FAX: (915) 687-8305

BILL TO: same as above
COMPANY:
ADDRESS:

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	NUMBER OF CONTAINERS
Lyman	6/29/98	1530	Water		3
Lyman LC	↓	1530			3
MW-73	6/30/98	0815			3
MW-72		0915			3
MW-75		1030			3
MW-110		1140			3
SW-01		1330			3
SW-01DP	↓	1330	↓		3

ANALYSIS REQUEST

Petroleum Hydrocarbons (418.1) TRPH	(MOD.8015) Diesel/Direct Inject	(M8015) Gas/Purge & Trap	8021 (BTEX)/8015 (Gasoline)	8021 (BTEX) ☐ MTBE ☐ TMB ☐ PCE	8021 (TCL)	8021 (EDX)	8021 (HALO)	8021 (CUST)	504.1 EDB ☐ / DBCP ☐	CHANGE/ARMANI/TKN	8260 (TCL) Volatile Organics	8260 (Full) Volatile Organics	8260 (CUST) Volatile Organics	8260 (Landfill) Volatile Organics	Pesticides /PCB (608/8081)	Herbicides (615/8151)	Base/Neutral/Acid Compounds GC/MS (625/8270)	Polynuclear Aromatics (610/8310)	General Chemistry: TOT PHEN	SEE LIST	Priority Pollutant Metals (13)	Target Analyte List Metals (23)	RCRA Metals (8)	RCRA Metals by TCLP (Method 1311)	Metals: SEE LIST
										X					X		X	X	X	X					X
										X	X				X		X	X	X	X					X
										X	X				X		X	X	X	X					X
										X	X				X		X	X	X	X					X
										X	X				X		X	X	X	X					X
										X	X				X		X	X	X	X					X
										X	X				X		X	X	X	X					X
										X	X				X		X	X	X	X					X

PROJECT INFORMATION

PROJ. NO.: 104332.03
PROJ. NAME: IBRP
P.O. NO.:
SHIPPED VIA:

SAMPLE RECEIPT

NO. CONTAINERS:
CUSTODY SEALS: Y / N / NA
RECEIVED INTACT:
BLUE ICE/ICE:

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

(RUSH) ☐ 24hr ☐ 48hr ☐ 72hr ☐ 1 WEEK (NORMAL) ☒

CERTIFICATION REQUIRED: ☐ NM ☐ SDWA ☐ OTHER

METHANOL PRESERVATION ☐

COMMENTS: FIXED FEE ☐

Lyman LC = Lab Control

RELINQUISHED BY: 1	RELINQUISHED BY: 2
Signature: Kevin Cook Time: 1400	Signature: Time: 1430
Printed Name: Kevin Cook Date: 6/30	Printed Name: CHRIS FANT Date: 6/30
Company: PGTI	Company: AEN
RECEIVED BY: 1	**RECEIVED BY (LAB): 2**
Signature: Time: 1400	Signature: Time: 1400
Printed Name: CHRIS FANT Date: 6/30	Printed Name: K. ELSBERND Date: 7/1/98
Company: AEN	American Environmental Network (NM) Inc.

American Environmental Network (NM), Inc.

CHAIN OF CUSTODY

DATE: 6/29-30/98 PAGE: ___ OF ___

AEN(NM) Accession #: [illegible]

SHADED AREAS ARE FOR LAB USE ONLY.

PLEASE FILL THIS FORM IN COMPLETELY.

PROJECT MANAGER:	Paul Peacock
COMPANY:	Marathon Oil Company
ADDRESS:	P.O. Box 552
	Midland, TX 79702-0552
PHONE:	(915) 687-8312
FAX:	(915) 687-8305
BILL TO:	same as above
COMPANY:	
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) ☐ 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)	Herbicides (615/8151)	Base/Neutral/Acid Compounds GC/MS (625/8270)	Polynuclear Aromatics (610/8310)	General Chemistry:			Priority Pollutant Metals (13)	Target Analyte List Metals (23)	RCRA Metals (8)	RCRA Metals by TCLP (Method 1311)	Metals:		NUMBER OF CONTAINERS
Lyman	6/29/98	1530	Water	01								X	X		X																6
Lyman LC	↓	1530		02								X	X		X																6
MW-73	6/30/98	0815		03								X	X		X																6
MW-72		0915		04								X	X		X																6
MW-75		1030		05								X	X		X																6
MW-110		1140		06								X	X		X																6
SW-01		1330		07								X	X		X																6
SW-01DP		1330		08								X	X		X																6
Trip Blank	6/11	1410	AQ	09											X																1

PROJECT INFORMATION	
PROJ. NO.:	104332.03
PROJ. NAME:	IBRP
P.O. NO.:	
SHIPPED VIA:	

SAMPLE RECEIPT	
NO. CONTAINERS	49
CUSTODY SEALS	Y / N / NA
RECEIVED INTACT	Yes
BLUE ICE/ICE	1°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 ☐

Lyman LC = Lab Control

On Ice

RELINQUISHED BY: 1	RELINQUISHED BY: 2
Signature: Kevin Cook	Signature: [illegible]
Time: 1400	Time: 1330 & 1500
Printed Name: Kevin Cook	Printed Name: Chris Faith
Date: 6/30	Date: 6/30 & 7/1
Company: FOGTI	Company: AEN
RECEIVED BY: 1	**RECEIVED BY: (LAB) 2**
Signature: [illegible]	Signature: [illegible]
Time: 1430	Time: 1420
Printed Name: Chris Faith	Printed Name: [illegible]
Date: 6/30	Date: 7/1/98
Company: AEN	American Environmental Network (NM), Inc.

AEN I.D. 806426

July 31, 1998

MARATHON OIL COMPANY
P.O. BOX 552
MIDLAND, TX 79702-0552

Project Name IBRP
Project Number 104332.03

Attention: PAUL PEACOCK

On 7/1/98 American Environmental Network (NM), Inc. (ADHS License No. AZ0015), 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.

This report is being reissued in part to include the radiochemistry results. This report was originally dated 7/28/98. Radiochemistry was performed by STL, Morrisville, NC.

EPA methods 504.1, 8021 and 8260 were performed by American Environmental Network (NM) Inc., Albuquerque, NM.

Uranium was performed by North Creek Analytical, Portland, OR.

All other parameters were performed by STL, Pensacola, FL.

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	: MARATHON OIL COMPANY	AEN I.D.	: 806426
PROJECT #	: 104332.03	DATE RECEIVED	: 7/1/98
PROJECT NAME	: IBRP	REPORT DATE	: 7/28/98

AEN ID. #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	LYMAN	AQUEOUS	6/29/98
02	LYMAN LC	AQUEOUS	6/29/98
03	MW-73	AQUEOUS	6/30/98
04	MW-72	AQUEOUS	6/30/98
05	MW-75	AQUEOUS	6/30/98
06	MW-110	AQUEOUS	6/30/98
07	SW-01	AQUEOUS	6/30/98
08	SW-01DP	AQUEOUS	6/30/98
09	TRIP BLANK	AQUEOUS	6/11/98

Committed To *Your* Success

Severn Trent Laboratories
120 Southcenter Court, Suite 300
Morrisville NC 27560

Tel: (919) 460-8505
Fax: (919) 469-2646

July 30, 1998

American Environmental Network
Attn: Dr. Mitch Rubenstein
2709D PanAmerican Freeway NE
Albuquerque, NM 87107

Dear Dr. Rubenstein:

Please find enclosed the radiological results of six (6) water samples. This report contains sections addressing the following information at a minimum:

- case narrative
- sample summary
- analytical results (forms I thru VII), key, and COC's if applicable

STL Project #s	2399-024
STL WorkOrder #s	198-06-507
Client Project ID	104332.03

Copies of this radiological report and supporting data are maintained in our files for a minimum of three years unless special arrangements have been made. Except where specifically indicated, all radiological testing was performed at this laboratory location and no portion of the testing was subcontracted.

We appreciate your selection of our services and welcome any questions or suggestions you may have relative to this report. Please contact your customer service representative at (919) 460-8505 for any additional information. Thank you for utilizing our services. We hope you will consider us for your future analytical needs.

I have reviewed and approved the enclosed data for final release.

Sincerely,

Ross W. Williams

Ross W. Williams, Ph.D.
Manager, Radiological Laboratory
STL-North Carolina

RWW/mevl

Committed To Your Success

CASE NARRATIVE

Client: American Environmental Network - NM
Client Project ID: 104332.03
STL-NC Order Number: 98-06-507
STL-NC Project Number: 2399-024

Six (6) water samples were received on July 2, 1998, in good condition with the chain-of-custody intact. The samples were analyzed for Ra-226 and Ra-228.

A method blank was analyzed with each batch, and the activities of the blanks were equal to or less than the acceptance criteria of less than three times the MDL.

A blank spike sample was analyzed with each batch, and the recoveries were within the 80-120% acceptance criteria.

A matrix spike analysis was made with each batch also. The matrix spike recoveries were within the acceptance criteria of 80-120% for water samples.

A duplicate sample was analyzed for each batch. The duplicate analyses were within our acceptance criteria of a Duplicate Error Ratio (DER) of less than 1.5. The DER is defined as follows:

$$DER = \frac{|S-D|}{(2\sigma_s + 2\sigma_d)}$$

Where: S = Original Sample Value
D = Duplicate Value
$2\sigma_s$ = Original Sample Uncertainty
$2\sigma_d$ = Duplicate Sample Uncertainty

Ross W. Williams, Ph.D.
Manager, Radiological Laboratory
7/30/98

Environmental Survey

Cover Page

Radiological Data Analysis Package

07/30/98

120 Southcenter Ct., Suite 300
Morrisville, NC 27560

Phone (919) 460-8505
Fax (919) 469-2646

NC 806426

Project Number: 2399-024

Client Sample ID	Lab ID
LYMAN	9806507-01
MW-73	9806507-02
MW-72	9806507-03
MW-75	9806507-04
MW-110	9806507-05
SW-01	9806507-06

Comments: _____

Release of the data contained in this package has been authorized by the laboratory manager or the manager's designee, as verified by the following signature.

Ross W. Williams
Manager, Radiological Laboratory

7/30/98
Date

STL

Project Number: 2399-024

Severn Trent Laboratories

Radiological Analysis Results

NC 806426

07/30/98

Form I

Client Sample ID	Lab ID	Sample Type	Batch Number	Matrix	Radionuclide	Result	Uncertainty	Q	Units	Analysis Date	Sample Size	MDA
LYMAN	9806507-01	Reg	98070008	Water	Ra-226	0.25	0.12		pCi/L	07/28/98	0.5000	0.10
LYMAN	9806507-01	Reg	98070010	Water	Ra-228	3.25	0.99		pCi/L	07/17/98	1.0000	1.90
MW-73	9806507-02	Reg	98070008	Water	Ra-226	7.26	0.67		pCi/L	07/28/98	0.5000	0.21
MW-73	9806507-02	Reg	98070010	Water	Ra-228	5.99	1.17		pCi/L	07/20/98	1.0000	1.89
MW-72	9806507-03	Reg	98070008	Water	Ra-226	0.70	0.17		pCi/L	07/28/98	0.5000	0.11
MW-72	9806507-03	Reg	98070010	Water	Ra-228	3.22	0.99		pCi/L	07/20/98	1.0000	1.91
MW-75	9806507-04	Reg	98070008	Water	Ra-226	1.28	0.26		pCi/L	07/28/98	0.5000	0.16
MW-75	9806507-04	Reg	98070010	Water	Ra-228	2.22	0.81		pCi/L	07/20/98	1.0000	1.54
MW-110	9806507-05	Reg	98070008	Water	Ra-226	0.76	0.18		pCi/L	07/29/98	0.5000	0.13
MW-110	9806507-05	Reg	98070010	Water	Ra-228	-2.68	0.70		pCi/L	07/20/98	1.0000	2.10
SW-01	9806507-06	Reg	98070008	Water	Ra-226	0.17	0.09		pCi/L	07/29/98	0.5000	0.09
SW-01	9806507-06	Reg	98070010	Water	Ra-228	-1.28	0.73		pCi/L	07/21/98	1.0000	1.98

Key shall be attached

Comments: _____

MDA

Project Number: 2399-024

QA/QC Results Summary

NC 806426

07/30/98

Form II

Client Sample ID	Lab ID	Sample Type	Batch Number	Matrix	Radionuclide	Result	Uncertainty	Units	Analysis Date	Sample Size	MDA	Inst ID
Blank Spike	N/A	BS	98070008	Water	Ra-226	166.82	1.88	pCi/L	07/20/98	0.5000	0.13	5
Blank Spike	N/A	BS	98070010	Water	Ra-228	88.99	3.18	pCi/L	07/17/98	1.0000	1.49	1
SW-01	9806507-06	Dup	98070008	Water	Ra-226	0.26	0.14	pCi/L	07/27/98	0.5000	0.14	5
SW-01	9806507-06	Dup	98070010	Water	Ra-228	-1.49	0.63	pCi/L	07/17/98	1.0000	1.86	1
Method Blank	N/A	MB	98070008	Water	Ra-226	0.04	0.10	pCi/L	07/20/98	0.5000	0.15	5
Method Blank	N/A	MB	98070010	Water	Ra-228	0.93	0.94	pCi/L	07/17/98	1.0000	2.14	1
LYMAN	9806507-01	MS	98070008	Water	Ra-226	157.69	2.00	pCi/L	07/27/98	0.5000	0.14	5
LYMAN	9806507-01	MS	98070010	Water	Ra-228	106.44	3.83	pCi/L	07/20/98	1.0000	1.85	1

Key shall be attached

Comments: _____

_____

_____

MDA mode

Form III

Client Sample ID	Batch Number	Matrix	Radionuclide	Result	Uncertainty	Q	Units	Analysis Date	Sample Size	Method Number	Inst ID
Method Blank	98070008	Water	Ra-226	0.04	0.10		pCi/L	07/20/98	0.5000	RAS01900	5
Method Blank	98070010	Water	Ra-228	0.93	0.94		pCi/L	07/17/98	1.0000	RAS08500	1

Key shall be attached

Comments: _____

Project Number: 2399-024

Severn Trent Laboratories

Chemical Recovery

NC 806426

07/30/98

Form IV

Client Sample ID	Lab ID	Sample Type	Batch Number	Radionuclide	Chemical Tracer	Tracer Result	Tracer Added	Percent Recovery	Q	Tracer Units	Analysis Date	Inst ID
LYMAN	9806507-01	Reg	98070008	Ra-226	Ba-133	1191.00	1240.00	96.05 %		pCi	07/28/98	5
LYMAN	9806507-01	Reg	98070010	Ra-228	Ba-133	1161.00	1240.00	93.63 %		pCi	07/17/98	1
MW-73	9806507-02	Reg	98070008	Ra-226	Ba-133	1075.00	1258.00	85.45 %		pCi	07/28/98	5
MW-73	9806507-02	Reg	98070010	Ra-228	Ba-133	987.40	1258.00	78.49 %		pCi	07/20/98	1
MW-72	9806507-03	Reg	98070008	Ra-226	Ba-133	1146.00	1240.00	92.42 %		pCi	07/28/98	5
MW-72	9806507-03	Reg	98070010	Ra-228	Ba-133	1079.00	1240.00	87.02 %		pCi	07/20/98	1
MW-75	9806507-04	Reg	98070008	Ra-226	Ba-133	1204.00	1258.00	95.71 %		pCi	07/28/98	5
MW-75	9806507-04	Reg	98070010	Ra-228	Ba-133	978.60	1258.00	77.79 %		pCi	07/20/98	1
MW-110	9806507-05	Reg	98070008	Ra-226	Ba-133	1202.00	1258.00	95.55 %		pCi	07/29/98	5
MW-110	9806507-05	Reg	98070010	Ra-228	Ba-133	1100.00	1240.00	88.71 %		pCi	07/20/98	1
SW-01	9806507-06	Reg	98070008	Ra-226	Ba-133	1068.00	1258.00	84.90 %		pCi	07/29/98	5
SW-01	9806507-06	Reg	98070010	Ra-228	Ba-133	1041.00	1258.00	82.75 %		pCi	07/21/98	1
Blank Spike	N/A	BS	98070008	Ra-226	Ba-133	1291.00	1309.00	98.62 %		pCi	07/20/98	5
Blank Spike	N/A	BS	98070010	Ra-228	Ba-133	1223.00	1258.00	97.22 %		pCi	07/17/98	1
SW-01	9806507-06	Dup	98070008	Ra-226	Ba-133	1155.00	1258.00	91.81 %		pCi	07/27/98	5
SW-01	9806507-06	Dup	98070010	Ra-228	Ba-133	1067.00	1258.00	84.82 %		pCi	07/17/98	1
Method Blank	N/A	MB	98070008	Ra-226	Ba-133	1276.00	1309.00	97.48 %		pCi	07/20/98	5
Method Blank	N/A	MB	98070010	Ra-228	Ba-133	1152.00	1240.00	92.90 %		pCi	07/17/98	1
LYMAN	9806507-01	MS	98070008	Ra-226	Ba-133	1185.00	1240.00	95.56 %		pCi	07/27/98	5
LYMAN	9806507-01	MS	98070010	Ra-228	Ba-133	928.30	1240.00	74.86 %		pCi	07/20/98	1

Key shall be attached

Comments:

MDA mode

Blank Spike Results Summary

NC 806426

07/30/98

Form V

Client Sample ID	Batch Number	Matrix	Radionuclide	Spike	Result	Spike Value	Percent Recovery	Q	Units	Analysis Date	Method Number
Blank Spike	98070008	Water	Ra-226	Ra-226	166.82	145.40	114.73%		pCi/L	07/20/98	RAS01900
Blank Spike	98070010	Water	Ra-228	Ra-228	88.99	87.75	101.41%		pCi/L	07/17/98	RAS08500

Key shall be attached

Comments: _____

Matrix Spike Results Summary

NC 806426

07/30/98

Form VI

Client Sample ID	Lab ID	Batch Number	Spike	SSR	Sample Result	Spike Added	Percent Recovery	Q	Units	Analysis Date	Inst ID
LYMAN	9806507-01	98070008	Ra-226	157.69	0.25	145.40	108.28 %		pCi/L	07/27/98	5
LYMAN	9806507-01	98070010	Ra-228	106.44	3.25	87.75	117.60 %		pCi/L	07/20/98	1

Key shall be attached

Comments: _____

STL

Project Number: 2399-024

Severn Trent Laboratories

Duplicate Results

NC 806426

07/30/98

Form VII

Client Sample ID	Lab ID	Batch Number	Radionuclide	Sample Result	Uncertainty	Dup. Result	Dup. Uncertainty	DER	Q	Units
SW-01	9806507-06	98070008	Ra-226	0.17	0.09	0.26	0.14	0.39		pCi/L
SW-01	9806507-06	98070010	Ra-228	-1.28	0.73	-1.49	0.63	0.15		pCi/L

Key shall be attached

Comments: _____

MDA

Committed To *Your* Success

REPORT FORM KEY

Severn Trent Laboratories
120 Southcenter Court, Suite 300
Morrisville NC 27560

Tel: (919) 460-8505
Fax: (919) 469-2646

Instrument ID:

#1 - Gas Proportional Counter
#2 - High Purity Germanium Detectors (HPGe)
#3 - Alpha Spectrometry Counter
#4 - Liquid Scintillation Counter
#5 - Lucas Cell Counter
#6 - Sodium Iodide Detector

Sample Type:

REG - Regular Sample
DUP - Duplicate Sample
MS - Matrix Spike
BS - Blank Spike
MB - Method Blank

Units:

pCi/L - Picocuries per Liter
pCi/g - Picocuries per Gram
pCi/ml - Picocuries per Milliliter
pCi/mg - Picocuries per Milligram
pCi/F - Picocuries per Air Filter

Radionuclides:

H-3	Tritium	C-14	Carbon-14
Cl-36	Chlorine-36	K-40	Potassium-40
Co-60	Cobalt-60	Sr-89	Strontium-89
Sr-90	Strontium-90	Tc-99	Technetium-99
Cs-137	Cesium-137	Tl-208	Thallium-208
Pb-210	Lead-210	Pb-212	Lead-212
Pb-214	Lead-214	Bi-214	Bismuth-214
Ra-226	Radium-226	Ac-228	Actinium-228
Ra-228	Radium-228	Th-234	Thorium-234
Th-227	Thorium-227	Th-232/230/228	Isotopic Thorium
U-234/235/238	Isotopic Uranium	Pu-238	Plutonium-238
Pu-239/240	Plutonium-239&240	Am-241	Americium-241
Np-237	Neptunium-237		

WORK ORDER

Lab

American Environ. Network
2709D PanAmerican Freeway NE
Albuquerque, NM 87107

Mitch Rubenstein

Work Order #	98-06-507	# of Samples	6	Recieved Date	07/02/98
Client #	2399	# of Tests	12	Load Date	07/02/98
Project	2399-024	Report Level	2	Due Date	07/16/98
Amount	123.25	Quote #		Export Date	/ /
Comment	Specific client QC				

Lab ID	Sample #	Status	Matrix	Test	Cust ID	Collected
9806507-01	01A1	Open	Water	Ra-226	LYMAN	06/29/98
9806507-01	01A2	Open	Water	Ra-228	LYMAN	06/29/98
9806507-02	02A1	Open	Water	Ra-226	MW-73	06/30/98
9806507-02	02A2	Open	Water	Ra-228	MW-73	06/30/98
9806507-03	03A1	Open	Water	Ra-226	MW-72	06/30/98
9806507-03	03A2	Open	Water	Ra-228	MW-72	06/30/98
9806507-04	04A1	Open	Water	Ra-226	MW-75	06/30/98
9806507-04	04A2	Open	Water	Ra-228	MW-75	06/30/98
9806507-05	05A1	Open	Water	Ra-226	MW-110	06/30/98
9806507-05	05A2	Open	Water	Ra-228	MW-110	06/30/98
9806507-06	06A1	Open	Water	Ra-226	SW-01	06/30/98
9806507-06	06A2	Open	Water	Ra-228	SW-01	06/30/98

(1) MS on 9806507-1 (Lyman)

(2) Dup on 9806507-6 (SW-01)

pH Checked
All Samples pH <2
Initials: JB Date: 7/6/98
not preserved on arrival

4/8-06 SC

American Environmental Network (NM), Inc.

CHAIN OF CUSTODY

DATE 6/29-6/29-30/98 PAGE: ___ OF ___

AEN(NM) Accession #: NC-806426

SHADED AREAS ARE FOR LAB USE ONLY.

PLEASE FILL THIS FORM IN COMPLETELY.

PROJECT MANAGER: Paul Peacock

COMPANY: Marathon Oil Company
ADDRESS: P.O. Box 552
Midland TX 79702-0552
PHONE: (915) 687-8312
FAX: (915) 687-8305

BILL TO: same as above
COMPANY:
ADDRESS:

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB I.D.	NUMBER OF CONTAINERS
Lyman	6/29/98	1530	Water	01	2
Lyman LC (MS)(D)	↓	1530		02	2
mw-73	6/30/98	0815		03	2
mw-72		0915		04	2
mw-75		1030		05	2
mw-110		1140 PC		06	2
sw-01		1330		07	2
sw-01 DP	↓	1330	↓	08	2

Petroleum Hydrocarbons (418.1) TRPH
(MOD.8015) Diesel/Direct Inject
(M8015) Gas/Purge & Trap
8021 (BTEX)/8015 (Gasoline)
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)
Herbicides (615/8151)
Base/Neutral/Acid Compounds GC/MS (625/8270)
Polynuclear Aromatics (610/8310)
General Chemistry: 12 22/2225
Priority Pollutant Metals (13)
Target Analyte List Metals (23)
RCRA Metals (8)
RCRA Metals by TCLP (Method 1311)
Metals:

PROJECT INFORMATION

PROJ. NO.: 104332.03
PROJ. NAME: IBRP
P.O. NO.:
SHIPPED VIA:

SAMPLE RECEIPT

NO. CONTAINERS	8
CUSTODY SEALS	(Y) N/NA
RECEIVED INTACT	YES
BLUE ICE/ICE	11 °C

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

(RUSH) ☐ 24hr ☐ 48hr ☐ 72hr ☐ 1 WEEK (NORMAL) X

CERTIFICATION REQUIRED: ☐ NM ☐ SDWA ☐ OTHER

METHANOL PRESERVATION ☐

COMMENTS: FIXED FEE ☐

Lyman LC = Lab Control

Relinquished By:
Francine Faint 17:00
F. Torivio 7/1/98

On Ice

Received by:
B. Trolick
B. Trolick
NC Rad Lab 7/2/98 11:00

RELINQUISHED BY: 1.

Signature: Kevin Cook Time: 1400
Printed Name: Kevin Cook Date: 6/30
Company: FOCUS

RECEIVED BY: 1.

Signature: Time: 1400
Printed Name: Chris Faint Date: 6/30
Company: AEN

RELINQUISHED BY: 2.

Signature: Time: 1316
Printed Name: Chris Faint Date: 7/1
Company: AEN

RECEIVED BY: (LAB) 2.

Signature: Francine Torivio Time: 1:20
Printed Name: Francine Torivio Date: 7/1/98
Company: American Environmental Network (NM), Inc.

RECEIVED

AEN I.D. **806412**

July 24, 1998

Marathon Oil Company
P.O. Box 552
Midland, TX 79702-0552

Project Name/Number: IBRP 104332.03

Attention: Paul Peacock

On **06/22/98**, American Environmental Network (NM) Inc., (ADHS License No. AZ0015), 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.

The volatiles (EPA Method 504.1, 8021 and 8260) arrived at 16 degrees Celsius. They were resampled and analyzed under AEN accession number 806429.

Uranium analyses were performed by North Creek Analytical Laboratories, Beaverton, OR.

Radiochemistry analyses were performed by Severn Trent Laboratories, Morrisville, NC.

All other anlayses were performed by Severn Trent Laboratories, Pensacola, FL.

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:jt

Enclosure

CLIENT	: MARATHON OIL COMPANY	DATE RECEIVED	: 06/22/98
PROJECT #	: 104332.03		
PROJECT NAME	: IBRP	REPORT DATE	: 07/24/98

AEN ID: 806412

	AEN ID #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	806412-01	MW-66RB	AQUEOUS	06/17/98
02	806412-02	MW-61A	AQUEOUS	06/18/98
03	806412-03	MW-61ARB	AQUEOUS	06/18/98
04	806412-04	MW-61RB	AQUEOUS	06/18/98
05	806412-05	MW-88	AQUEOUS	06/18/98
06	806412-06	MW-61	AQUEOUS	06/18/98
07	806412-07	MW-61DUP	AQUEOUS	06/18/98

---TOTALS---

MATRIX	#SAMPLES
AQUEOUS	7

AEN STANDARD DISPOSAL PRACTICE

The samples from this project will be disposed of in thirty (30) days from the date of this report. If an extended storage period is required, please contact our sample control department before the scheduled disposal date.

GC/MS RESULTS

TEST : VOLATILE ORGANICS EPA METHOD 8260
CLIENT : MARATHON OIL COMPANY AEN I.D. : 806412
PROJECT # : 104332.03 DATE RECEIVED : 6/22/98
PROJECT NAME : IBRP

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806412-01A	MW-66RB	AQUEOUS	6/17/98	N/A	06/23/98	1

PARAMETER	DET. LIMIT		UNITS
Dichlorodifluoromethane	1.0	< 1.0	ug/L
Chloromethane	1.0	< 1.0	ug/L
Vinyl Chloride	1.0	< 1.0	ug/L
Bromomethane	1.0	< 1.0	ug/L
Chloroethane	1.0	< 1.0	ug/L
Trichlorofluoromethane	1.0	< 1.0	ug/L
Acetone	10	**11**	**ug/L**
Acrolein	5.0	< 5.0	ug/L
1,1-Dichloroethene	1.0	< 1.0	ug/L
Iodomethane	1.0	< 1.0	ug/L
Methylene Chloride	1.0	< 1.0	ug/L
Acrylonitrile	5.0	< 5.0	ug/L
cis-1,2-Dichloroethene	1.0	< 1.0	ug/L
Methyl-t-butyl Ether	1.0	< 1.0	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	**2.0**	**ug/L**
1,1-Dichloroethane	1.0	< 1.0	ug/L
trans-1,2-Dichloroethene	1.0	< 1.0	ug/L
2-Butanone	10	< 10	ug/L
Carbon Disulfide	1.0	< 1.0	ug/L
Bromochloromethane	1.0	< 1.0	ug/L
Chloroform	1.0	< 1.0	ug/L
2,2-Dichloropropane	1.0	< 1.0	ug/L
1,2-Dichloroethane	1.0	< 1.0	ug/L
Vinyl Acetate	1.0	< 1.0	ug/L
1,1,1-Trichloroethane	1.0	< 1.0	ug/L
1,1-Dichloropropene	1.0	< 1.0	ug/L
Carbon Tetrachloride	1.0	< 1.0	ug/L
Benzene	1.0	< 1.0	ug/L
1,2-Dichloropropane	1.0	< 1.0	ug/L
Trichloroethene	1.0	< 1.0	ug/L
Bromodichloromethane	1.0	< 1.0	ug/L
2-Chloroethyl Vinyl Ether	10	< 10	ug/L
cis-1,3-Dichloropropene	1.0	< 1.0	ug/L
trans-1,3-Dichloropropene	1.0	< 1.0	ug/L
1,1,2-Trichloroethane	1.0	< 1.0	ug/L
1,3-Dichloropropane	1.0	< 1.0	ug/L
Dibromomethane	1.0	< 1.0	ug/L
Toluene	1.0	< 1.0	ug/L
1,2-Dibromoethane	1.0	< 1.0	ug/L
4-Methyl-2-Pentanone	10	< 10	ug/L
2-Hexanone	10	< 10	ug/L
Dibromochloromethane	1.0	< 1.0	ug/L
Tetrachloroethene	1.0	< 1.0	ug/L
Chlorobenzene	1.0	< 1.0	ug/L
Ethylbenzene	1.0	< 1.0	ug/L
1,1,1,2-Tetrachloroethane	1.0	< 1.0	ug/L

GC/MS RESULTS

TEST : VOLATILE ORGANICS EPA METHOD 8260
CLIENT : MARATHON OIL COMPANY AEN I.D. : 806412
PROJECT # : 104332.03 DATE RECEIVED : 6/22/98
PROJECT NAME : IBRP

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806412-01A	MW-66RB	AQUEOUS	6/17/98	N/A	06/23/98	1

PARAMETER	DET. LIMIT		UNITS
m&p Xylenes	1.0	< 1.0	ug/L
o-Xylene	1.0	< 1.0	ug/L
Styrene	1.0	< 1.0	ug/L
Bromoform	1.0	< 1.0	ug/L
1,1,2,2-Tetrachloroethane	1.0	< 1.0	ug/L
1,2,3-Trichloropropane	1.0	< 1.0	ug/L
Isopropyl Benzene	1.0	< 1.0	ug/L
Bromobenzene	1.0	< 1.0	ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 1.0	ug/L
n-Propylbenzene	1.0	< 1.0	ug/L
2-Chlorotoluene	1.0	< 1.0	ug/L
4-Chlorotoluene	1.0	< 1.0	ug/L
1,3,5-Trimethylbenzene	1.0	< 1.0	ug/L
tert-Butylbenzene	1.0	< 1.0	ug/L
1,2,4-Trimethylbenzene	1.0	< 1.0	ug/L
sec-Butylbenzene	1.0	< 1.0	ug/L
1,3-Dichlorobenzene	1.0	< 1.0	ug/L
1,4-Dichlorobenzene	1.0	< 1.0	ug/L
p-Isopropyltoluene	1.0	< 1.0	ug/L
1,2-Dichlorobenzene	1.0	< 1.0	ug/L
n-Butylbenzene	1.0	< 1.0	ug/L
1,2-Dibromomo-3-chloropropane	1.0	< 1.0	ug/L
1,2,4-Trichlorobenzene	1.0	< 1.0	ug/L
Naphthalene	1.0	< 1.0	ug/L
Hexachlorobutadiene	1.0	< 1.0	ug/L
1,2,3-Trichlorobenzene	1.0	< 1.0	ug/L

SURROGATE % RECOVERY		
1,2-Dichloroethane-d4	104	(80 - 120)
Toluene-d8	102	(88 - 110)
Bromofluorobenzene	99	(86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806412
PROJECT #	: 104332.03		
PROJECT NAME	: IBRP		

SAMPLE ID #	BATCH	MATRIX	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
REAGENT BLANK	062398	AQUEOUS	N/A	06/23/98	1

PARAMETER	DET. LIMIT		UNITS
Dichlorodifluoromethane	1.0	< 1.0	ug/L
Chloromethane	1.0	< 1.0	ug/L
Vinyl Chloride	1.0	< 1.0	ug/L
Bromomethane	1.0	< 1.0	ug/L
Chloroethane	1.0	< 1.0	ug/L
Trichlorofluoromethane	1.0	< 1.0	ug/L
Acetone	10	< 10	ug/L
Acrolein	5.0	< 5.0	ug/L
1,1-Dichloroethene	1.0	< 1.0	ug/L
Iodomethane	1.0	< 1.0	ug/L
Methylene Chloride	1.0	< 1.0	ug/L
Acrylonitrile	5.0	< 5.0	ug/L
cis-1,2-Dichloroethene	1.0	< 1.0	ug/L
Methyl-t-butyl Ether	1.0	< 1.0	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 1.0	ug/L
1,1-Dichloroethane	1.0	< 1.0	ug/L
trans-1,2-Dichloroethene	1.0	< 1.0	ug/L
2-Butanone	10	< 10	ug/L
Carbon Disulfide	1.0	< 1.0	ug/L
Bromochloromethane	1.0	< 1.0	ug/L
Chloroform	1.0	< 1.0	ug/L
2,2-Dichloropropane	1.0	< 1.0	ug/L
1,2-Dichloroethane	1.0	< 1.0	ug/L
Vinyl Acetate	1.0	< 1.0	ug/L
1,1,1-Trichloroethane	1.0	< 1.0	ug/L
1,1-Dichloropropene	1.0	< 1.0	ug/L
Carbon Tetrachloride	1.0	< 1.0	ug/L
Benzene	1.0	< 1.0	ug/L
1,2-Dichloropropane	1.0	< 1.0	ug/L
Trichloroethene	1.0	< 1.0	ug/L
Bromodichloromethane	1.0	< 1.0	ug/L
2-Chloroethyl Vinyl Ether	10	< 10	ug/L
cis-1,3-Dichloropropene	1.0	< 1.0	ug/L
trans-1,3-Dichloropropene	1.0	< 1.0	ug/L
1,1,2-Trichloroethane	1.0	< 1.0	ug/L
1,3-Dichloropropane	1.0	< 1.0	ug/L
Dibromomethane	1.0	< 1.0	ug/L
Toluene	1.0	< 1.0	ug/L
1,2-Dibromoethane	1.0	< 1.0	ug/L
4-Methyl-2-Pentanone	10	< 10	ug/L
2-Hexanone	10	< 10	ug/L
Dibromochloromethane	1.0	< 1.0	ug/L
Tetrachloroethene	1.0	< 1.0	ug/L
Chlorobenzene	1.0	< 1.0	ug/L
Ethylbenzene	1.0	< 1.0	ug/L
1,1,1,2-Tetrachloroethane	1.0	< 1.0	ug/L

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806412
PROJECT #	: 104332.03		
PROJECT NAME	: IBRP		

SAMPLE ID #	BATCH	MATRIX	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
REAGENT BLANK	062398	AQUEOUS	N/A	06/23/98	1

PARAMETER	DET. LIMIT		UNITS
m&p Xylenes	1.0	< 1.0	ug/L
o-Xylene	1.0	< 1.0	ug/L
Styrene	1.0	< 1.0	ug/L
Bromoform	1.0	< 1.0	ug/L
1,1,2,2-Tetrachloroethane	1.0	< 1.0	ug/L
1,2,3-Trichloropropane	1.0	< 1.0	ug/L
Isopropyl Benzene	1.0	< 1.0	ug/L
Bromobenzene	1.0	< 1.0	ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 1.0	ug/L
n-Propylbenzene	1.0	< 1.0	ug/L
2-Chlorotoluene	1.0	< 1.0	ug/L
4-Chlorotoluene	1.0	< 1.0	ug/L
1,3,5-Trimethylbenzene	1.0	< 1.0	ug/L
tert-Butylbenzene	1.0	< 1.0	ug/L
1,2,4-Trimethylbenzene	1.0	< 1.0	ug/L
sec-Butylbenzene	1.0	< 1.0	ug/L
1,3-Dichlorobenzene	1.0	< 1.0	ug/L
1,4-Dichlorobenzene	1.0	< 1.0	ug/L
p-Isopropyltoluene	1.0	< 1.0	ug/L
1,2-Dichlorobenzene	1.0	< 1.0	ug/L
n-Butylbenzene	1.0	< 1.0	ug/L
1,2-Dibromomo-3-chloropropane	1.0	< 1.0	ug/L
1,2,4-Trichlorobenzene	1.0	< 1.0	ug/L
Naphthalene	1.0	< 1.0	ug/L
Hexachlorobutadiene	1.0	< 1.0	ug/L
1,2,3-Trichlorobenzene	1.0	< 1.0	ug/L

SURROGATE % RECOVERY	
1,2-Dichloroethane-d4	100
	(80 - 120)
Toluene-d8	96
	(88 - 110)
Bromofluorobenzene	96
	(86 - 115)

Spike Recovery and RPD Summary Report - WATER

Method : C:\HPCHEM\1\METHODS\82600310.M (RTE Integrator)
Title : AEN New Mexico GC/MS
Last Update : Tue Jun 23 12:31:08 1998
Response via : Initial Calibration

Non-Spiked Sample: 06239804.D

	Spike Sample	Spike Duplicate Sample
File ID :	062398S1.D	062398S2.D
Sample :	806368-02 MS	806368-02 MSD
Acq Time:	23 Jun 98 5:08 pm	23 Jun 98 5:41 pm

Compound	Sample Conc	Spike Added	Spike Res	Dup Res	Spike %Rec	Dup %Rec	RPD	QC Limits RPD	QC Limits % Rec
1,1-Dichloroethene	0.0	50	49	49	98	98	1	14	61-145
Benzene	0.0	50	54	53	108	105	3	11	76-127
Trichloroethene	0.0	50	53	50	105	101	4	14	71-120
Toluene	0.0	50	52	50	104	100	4	13	76-125
Chlorobenzene	0.0	50	52	50	103	100	3	13	75-130

- Fails Limit Check

82600310.M Thu Jun 25 10:45:45 1998

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ▪ (425) 420-9200 ▪ FAX 420-9210
SPOKANE ▪ (509) 924-9200 ▪ FAX 924-9290
PORTLAND ▪ (503) 906-9200 ▪ FAX 906-9210

American Environmental Network	Project:	Marathon Oil	Sampled:	6/18/98
2709-D Pan American Freeway,NE	Project Number:	104332.03	Received:	6/23/98
Albuquerque, NM 87107	Project Manager:	Kimberly McNeill	Reported:	7/17/98 09:47

ANALYTICAL REPORT FOR SAMPLES:

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
MW-61A	P806457-01	Water	6/18/98
MW-88	P806457-02	Water	6/18/98
MW-61	P806457-03	Water	6/18/98
MW-61DP	P806457-04	Water	6/18/98

North Creek Analytical, Inc.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Lisa Domenighini, Project Manager

18939 120th Avenue N.E., Suite 101, Bothell, WA 98011-9508
East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ▪ (425) 420-9200 ▪ FAX 420-9210
SPOKANE ▪ (509) 924-9200 ▪ FAX 924-9290
PORTLAND ▪ (503) 906-9200 ▪ FAX 906-9210

American Environmental Network	Project:	Marathon Oil	Sampled: 6/18/98
2709-D Pan American Freeway,NE	Project Number:	104332.03	Received: 6/23/98
Albuquerque, NM 87107	Project Manager:	Kimberly McNeill	Reported: 7/17/98 09:47

Total Metals per EPA 6000/7000 Series Methods
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
MW-61A			**P806457-01**				**Water**	
Uranium	0780163	7/6/98	7/16/98	EPA 6020	0.00100	ND	mg/l	
MW-88			**P806457-02**				**Water**	
Uranium	0780163	7/6/98	7/16/98	EPA 6020	0.00100	ND	mg/l	
MW-61			**P806457-03**				**Water**	
Uranium	0780163	7/6/98	7/16/98	EPA 6020	0.00100	ND	mg/l	
MW-61DP			**P806457-04**				**Water**	
Uranium	0780163	7/6/98	7/16/98	EPA 6020	0.00100	ND	mg/l	

North Creek Analytical, Inc.

**Refer to end of report for text of notes and definitions.*

Lisa Domenighini, Project Manager

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ▪ (425) 420-9200 ▪ FAX 420-9210
SPOKANE ▪ (509) 924-9200 ▪ FAX 924-9290
PORTLAND ▪ (503) 906-9200 ▪ FAX 906-9210

American Environmental Network	Project:	Marathon Oil	Sampled: 6/18/98
2709-D Pan American Freeway,NE	Project Number:	104332.03	Received: 6/23/98
Albuquerque, NM 87107	Project Manager:	Kimberly McNeill	Reported: 7/17/98 09:47

Total Metals per EPA 6000/7000 Series Methods/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0780163	**Date Prepared: 7/6/98**					**Extraction Method: EPA 200/3005**				
Blank	**0780163-BLK1**									
Uranium	7/16/98			**ND**	mg/l	**0.00100**				
LCS	**0780163-BS1**									
Uranium	7/16/98	0.0500		0.0537	mg/l	80.0-120	107			
Duplicate	**0780163-DUP1**		**P806407-01**							
Uranium	7/16/98		0.00160	0.00120	mg/l			20.0	**28.6**	1
Matrix Spike	**0780163-MS1**		**P806407-01**							
Uranium	7/16/98	0.0500	0.00160	0.0601	mg/l	75.0-125	**117**			
Matrix Spike	**0780163-MS2**		**P806457-03**							
Uranium	7/16/98	0.0500	ND	ND	mg/l	75.0-125	**NR**			

North Creek Analytical, Inc.

**Refer to end of report for text of notes and definitions.*

Lisa Domenighini, Project Manager

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ▪ (425) 420-9200 ▪ FAX 420-9210
SPOKANE ▪ (509) 924-9200 ▪ FAX 924-9290
PORTLAND ▪ (503) 906-9200 ▪ FAX 906-9210

American Environmental Network	Project:	Marathon Oil	Sampled: 6/18/98
2709-D Pan American Freeway,NE	Project Number:	104332.03	Received: 6/23/98
Albuquerque, NM 87107	Project Manager:	Kimberly McNeill	Reported: 7/17/98 09:47

Notes and Definitions

#	Note
1	Analyses are not controlled on RPD values from sample concentrations less than 5 times the reporting limit.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
Recov.	Recovery
RPD	Relative Percent Difference

North Creek Analytical, Inc.

Lisa Domenighini, Project Manager

P806457 2316

American Environmental Network (NM) Inc. COPY

CHAIN OF CUSTODY

DATE: 6/18/98 PAGE: ___ OF ___

AEN (NM) Accession #: 01C-806457

SHADED AREAS ARE FOR LAB USE ONLY.

PLEASE FILL THIS FORM IN COMPLETELY.

PROJECT MANAGER: Paul Peacock

COMPANY: Marathon Oil Company
ADDRESS: P.O. Box 552
Midland, TX 79702-0552
PHONE: (915) 687-8312
FAX: (915) 687-8305
BILL TO: same as above
COMPANY:
ADDRESS:

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	# CONTAINERS
MW-61A	6/18/98	0915			1
MW-88		1120			1
MW61		1545			1
MW-61DP		1545			1

Petroleum Hydrocarbons (418.1) TRPH
(MOD.8015) Diesel/Direct Inject
(M8015) Gas/Purge & Trap
8021 (BTEX)/8015 (Gasoline)
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)
Herbicides (615/8151)
Base/Neutral/Acid Compounds GC/MS (625/8270)
Polynuclear Aromatics (610/8310)
General Chemistry:
URANIUM - ICPMS
Priority Pollutant Metals (13)
Target Analyte List Metals (23)
RCRA Metals (8)
RCRA Metals by TCLP (Method 1311)
Metals:

PROJECT INFORMATION	
PROJ. NO.:	104332.03
PROJ. NAME:	IBRP
P.O. NO.:	
SHIPPED VIA:	

SAMPLE RECEIPT	
NO. CONTAINERS:	
CUSTODY SEALS:	Y / N / NA
RECEIVED INTACT:	
BLUE ICE/ICE:	

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

(RUSH) ☐ 24hr ☐ 48hr ☐ 72hr ☐ 1 WEEK (NORMAL) ☐

CERTIFICATION REQUIRED: ☐ NM ☐ SDWA ☐ OTHER

METHANOL PRESERVATION ☐

COMMENTS: FIXED FEE ☐

RELINQUISHED BY: 1.	RELINQUISHED BY: 2.
Signature:	Signature:
Time: 1600	Time: 1630
Printed Name: Kevin Cook	Printed Name: CHRIS FAITH
Date: 6/18	Date: 6/18
Company: FDTF	Company: AEN
RECEIVED BY: 1.	**RECEIVED BY: (LAB) 2.**
Signature:	Signature:
Time: 1600	Time:
Printed Name: CHRIS FAITH	Printed Name:
Date: 6/18	Date:
Company: AEN	American Environmental Network (NM), Inc.



Committed To *Your* Success

July 16, 1998

Severn Trent Laboratories
120 Southcenter Court, Suite 300
Morrisville NC 27560

Tel: (919) 460-8505
Fax: (919) 469-2646

American Environmental Network
Attn: Dr. Mitch Rubenstein
2709D PanAmerican Freeway NE
Albuquerque, NM 87107

Dear Dr. Rubenstein:

Please find enclosed the radiological results of three (3) water samples. This report contains sections addressing the following information at a minimum:

- case narrative
- sample summary
- analytical results (forms I thru VII), key, and COC's if applicable

STL Project #s	2399-010
STL Work Order #s	98-06-402
Client Project ID	104382.03

Copies of this radiological report and supporting data are maintained in our files for a minimum of three years unless special arrangements have been made. Except where specifically indicated, all radiological testing was performed at this laboratory location and no portion of the testing was subcontracted.

We appreciate your selection of our services and welcome any questions or suggestions you may have relative to this report. Please contact your customer service representative at (919) 460-8505 for any additional information. Thank you for utilizing our services. We hope you will consider us for your future analytical needs.

I have reviewed and approved the enclosed data for final release.

Sincerely,

Ross W. Williams

Ross W. Williams, Ph.D.
Manager, Radiological Laboratory
STL-North Carolina

RWW/mevl

Committed To *Your* Success

CASE NARRATIVE
Client: American Environmental Network - NM
Client Project ID: 104332.03
STL-NC Order Number: 98-06-402
STL-NC Project Number: 2399-010

Three (3) water samples were received on June 22, 1998, in good condition with the chain-of-custody intact.

The samples were analyzed for Ra-226 and Ra-228.

A method blank was analyzed with each batch, and the activities of the blanks were equal to or less than the acceptance criteria of less than three times the MDL.

A blank spike sample was analyzed with each batch, and the recoveries were within the 80-120% acceptance criteria.

A matrix spike analysis was made with each batch also. The matrix spike recoveries were within the acceptance criteria of 80-120% for water samples.

A duplicate sample was analyzed for each batch. The duplicate analyses were within our acceptance criteria of a Duplicate Error Ratio (DER) of less than 1.5. The DER is defined as follows:

$$DER = \frac{|S-D|}{(2\sigma_s + 2\sigma_d)}$$

Where: S = Original Sample Value
D = Duplicate Value
$2\sigma_s$ = Original Sample Uncertainty
$2\sigma_d$ = Duplicate Sample Uncertainty

Ross W. Williams, Ph.D.
Manager, Radiological Laboratory
7/17/98

Environmental Survey

Cover Page

Radiological Data Analysis Package

07/09/98

120 Southcenter Ct., Suite 300
Morrisville, NC 27560

Phone (919) 460-8505
Fax (919) 469-2646

Project Number: 2399-010

NC - 806412

Client Sample ID	Lab ID
MW-61A	9806402-01
MW-88	9806402-02
MW-61	9806402-03

Comments: _____

Release of the data contained in this package has been authorized by the laboratory manager or the manager's designee, as verified by the following signature.

Rose W. Williams
Manager, Radiological Laboratory

7/17/98
Date

Project Number: 2399-010

Severn Trent Laboratories

Radiological Analysis Results

NC - 806412

07/09/98

Form I

Client Sample ID	Lab ID	Sample Type	Batch Number	Matrix	Radionuclide	Result	Uncertainty	Q	Units	Analysis Date	Sample Size	MDA
MW-61A	9806402-01	Reg	98060055	Water	Ra-226	0.38	0.12		pCi/L	07/08/98	0.5000	0.10
MW-61A	9806402-01	Reg	98060057	Water	Ra-228	5.68	1.74		pCi/L	07/01/98	1.0000	3.33
MW-88	9806402-02	Reg	98060055	Water	Ra-226	1.07	0.22		pCi/L	07/08/98	0.5000	0.15
MW-88	9806402-02	Reg	98060057	Water	Ra-228	1.82	0.91		pCi/L	07/01/98	1.0000	1.85
MW-61	9806402-03	Reg	98060055	Water	Ra-226	3.79	0.28		pCi/L	07/08/98	0.5000	0.10
MW-61	9806402-03	Reg	98060057	Water	Ra-228	3.60	1.48		pCi/L	07/01/98	1.0000	3.09

Key shall be attached

Comments: _____

_____

_____

MDA mode

Severn Trent Laboratories

Project Number: 2399-010

QA/QC Results Summary

NC - 806412

07/09/98

Form II

Client Sample ID	Lab ID	Sample Type	Batch Number	Matrix	Radionuclide	Result	Uncertainty	Units	Analysis Date	Sample Size	MDA	Inst ID
Blank Spike	N/A	BS	98060055	Water	Ra-226	147.55	1.83	pCi/L	07/07/98	0.5000	0.13	5
Blank Spike	N/A	BS	98060057	Water	Ra-228	91.87	3.99	pCi/L	07/01/98	1.0000	2.25	1
MW-61	9806402-03	Dup	98060055	Water	Ra-226	4.01	0.32	pCi/L	07/07/98	0.5000	0.11	5
MW-61	9806402-03	Dup	98060057	Water	Ra-228	4.94	1.39	pCi/L	07/01/98	1.0000	2.55	1
Method Blank	N/A	MB	98060055	Water	Ra-226	0.12	0.12	pCi/L	07/07/98	0.5000	0.13	5
Method Blank	N/A	MB	98060057	Water	Ra-228	1.89	1.21	pCi/L	07/01/98	1.0000	2.64	1
MW-61	9806402-03	MS	98060055	Water	Ra-226	131.62	1.64	pCi/L	07/07/98	0.5000	0.11	5
MW-61	9806402-03	MS	98060057	Water	Ra-228	104.15	4.57	pCi/L	07/01/98	1.0000	3.10	1

Key shall be attached

Comments:

MDA = Minimum Detectable Activity

Project Number: 2399-010

Method Blank Summary

NC - 806412

07/09/98

Form III

Client Sample ID	Batch Number	Matrix	Radionuclide	Result	Uncertainty	Q	Units	Analysis Date	Sample Size	Method Number	Inst ID
Method Blank	98060055	Water	Ra-226	0.12	0.12		pCi/L	07/07/98	0.5000	RAS01900	5
Method Blank	98060057	Water	Ra-228	1.89	1.21		pCi/L	07/01/98	1.0000	RAS08500	1

Key shall be attached
Comments: _____

MDA mode

Severn Trent Laboratories

Project Number: 2399-010

Chemical Recovery

NC - 806412

07/09/98

Form IV

Client Sample ID	Lab ID	Sample Type	Batch Number	Radionuclide	Chemical Tracer	Tracer Result	Tracer Added	Percent Recovery	Q	Tracer Units	Analysis Date	Inst ID
MW-61A	9806402-01	Reg	98060055	Ra-226	Ba-133	1250.00	1256.00	99.52 %		pCi	07/08/98	5
MW-61A	9806402-01	Reg	98060057	Ra-228	Ba-133	788.20	1249.00	63.11 %		pCi	07/01/98	1
MW-88	9806402-02	Reg	98060055	Ra-226	Ba-133	1200.00	1249.00	96.08 %		pCi	07/08/98	5
MW-88	9806402-02	Reg	98060057	Ra-228	Ba-133	986.20	1256.00	78.52 %		pCi	07/01/98	1
MW-61	9806402-03	Reg	98060055	Ra-226	Ba-133	1171.00	1256.00	93.23 %		pCi	07/08/98	5
MW-61	9806402-03	Reg	98060057	Ra-228	Ba-133	911.40	1249.00	72.97 %		pCi	07/01/98	1
Blank Spike	N/A	BS	98060055	Ra-226	Ba-133	1232.00	1249.00	98.64 %		pCi	07/07/98	5
Blank Spike	N/A	BS	98060057	Ra-228	Ba-133	964.90	1256.00	76.82 %		pCi	07/01/98	1
MW-61	9806402-03	Dup	98060055	Ra-226	Ba-133	1252.00	1256.00	99.68 %		pCi	07/07/98	5
MW-61	9806402-03	Dup	98060057	Ra-228	Ba-133	921.10	1249.00	73.75 %		pCi	07/01/98	1
Method Blank	N/A	MB	98060055	Ra-226	Ba-133	1215.00	1249.00	97.28 %		pCi	07/07/98	5
Method Blank	N/A	MB	98060057	Ra-228	Ba-133	1118.00	1249.00	89.51 %		pCi	07/01/98	1
MW-61	9806402-03	MS	98060055	Ra-226	Ba-133	1246.00	1249.00	99.76 %		pCi	07/07/98	5
MW-61	9806402-03	MS	98060057	Ra-228	Ba-133	857.20	1256.00	68.25 %		pCi	07/01/98	1

Key shall be attached

Comments:

MDA

Project Number: 2399-010

Blank Spike Results Summary

NC - 806412

07/09/98

Form V

Client Sample ID	Batch Number	Matrix	Radionuclide	Spike	Result	Spike Value	Percent Recovery	Q	Units	Analysis Date	Method Number
Blank Spike	98060055	Water	Ra-226	Ra-226	147.55	145.40	101.48%		pCi/L	07/07/98	RAS01900
Blank Spike	98060057	Water	Ra-228	Ra-228	91.87	87.75	104.70%		pCi/L	07/01/98	RAS08500

Key shall be attached

Comments: _____

MDA mode

Severn Trent Laboratories

Project Number: 2399-010

Matrix Spike Results Summary

NC - 806412

07/09/98

Form VI

Client Sample ID	Lab ID	Batch Number	Spike	SSR	Sample Result	Spike Added	Percent Recovery	Q	Units	Analysis Date	Inst ID
MW-61	9806402-03	98060055	Ra-226	131.62	3.79	145.40	87.92 %		pCi/L	07/07/98	5
MW-61	9806402-03	98060057	Ra-228	104.15	3.60	87.75	114.59 %		pCi/L	07/01/98	1

Key shall be attached

Comments: _____

Project Number: 2399-010

Duplicate Results

NC - 806412

07/09/98

Form VII

Client Sample ID	Lab ID	Batch Number	Radionuclide	Sample Result	Uncertainty	Dup. Result	Dup. Uncertainty	DER	Q	Units
MW-61	9806402-03	98060055	Ra-226	3.79	0.28	4.01	0.32	0.37		pCi/L
MW-61	9806402-03	98060057	Ra-228	3.60	1.48	4.94	1.39	0.47		pCi/L

Key shall be attached

Comments: _____

MDA mode



Committed To *Your* Success

REPORT FORM KEY

Severn Trent Laboratories
120 Southcenter Court, Suite 300
Morrisville NC 27560

Tel: (919) 460-8505
Fax: (919) 469-2646

Instrument ID:

#1 - Gas Proportional Counter
#2 - High Purity Germanium Detectors (HPGe)
#3 - Alpha Spectrometry Counter
#4 - Liquid Scintillation Counter
#5 - Lucas Cell Counter
#6 - Sodium Iodide Detector

Sample Type:

REG - Regular Sample
DUP - Duplicate Sample
MS - Matrix Spike
BS - Blank Spike
MB - Method Blank

Units:

pCi/L - Picocuries per Liter
pCi/g - Picocuries per Gram
pCi/ml - Picocuries per Milliliter
pCi/mg - Picocuries per Milligram
pCi/F - Picocuries per Air Filter

Radionuclides:

H-3	Tritium	C-14	Carbon-14
Cl-36	Chlorine-36	K-40	Potassium-40
Co-60	Cobalt-60	Sr-89	Strontium-89
Sr-90	Strontium-90	Tc-99	Technetium-99
Cs-137	Cesium-137	Tl-208	Thallium-208
Pb-210	Lead-210	Pb-212	Lead-212
Pb-214	Lead-214	Bi-214	Bismuth-214
Ra-226	Radium-226	Ac-228	Actinium-228
Ra-228	Radium-228	Th-234	Thorium-234
Th-227	Thorium-227	Th-232/230/228	Isotopic Thorium
U-234/235/238	Isotopic Uranium	Pu-238	Plutonium-238
Pu-239/240	Plutonium-239&240	Am-241	Americium-241
Np-237	Neptunium-237		

WORK ORDER

Lab

Work Order #	98-06-402	# of Samples	3	Recieved Date	06/22/98	American Environ. Network
Client #	2399	# of Tests	6	Load Date	06/22/98	2709D PanAmerican Freeway NE
Project	2399-010	Report Level	2	Due Date	07/09/98	Albuquerque, NM 87107
Amount	123.25	Quote #		Export Date	/ /	Mitch Rubenstein
Comment	QA on MW-61					

Lab ID	Sample #	Status	Matrix	Test	Cust ID	Collected
9806402-01	01A1	Open	Water	Ra-226	MW-61A	06/18/98
9806402-01	01A2	Open	Water	Ra-228	MW-61A	06/18/98
9806402-02	02A1	Open	Water	Ra-226	MW-88	06/18/98
9806402-02	02A2	Open	Water	Ra-228	MW-88	06/18/98
9806402-03	03A1	Open	Water	Ra-226	MW-61	06/18/98
9806402-03	03A2	Open	Water	Ra-228	MW-61	06/18/98

pH Checked
All Samples pH <2
Initials: SB Date: 6/23/98

98-06-402

American Environmental Network (NM), Inc.

CHAIN OF CUSTODY

DATE: 6/18/98 PAGE: ___ OF ___

AEN(NM) Accession #: [illegible]

SHADED AREAS ARE FOR LAB USE ONLY.

PLEASE FILL THIS FORM IN COMPLETELY.

PROJECT MANAGER: Paul Peacock

COMPANY: Marathon Oil Company
ADDRESS: P.O. Box 552
Midland, TX 79702-0552
PHONE: (915) 687-8312
FAX: (915) 687-8305
BILL TO: same as above
COMPANY:
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)	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)	Herbicides (615/8151)	Base/Neutral/Acid Compounds GC/MS (625/8270)	Polynuclear Aromatics (610/8310)	General Chemistry:	Priority Pollutant Metals (13)	Target Analyte List Metals (23)	RCRA Metals (8)	RCRA Metals by TCLP (Method 1311)	Metals:	NUMBER OF CONTAINERS
MW-61A	6/18/98	0915	Water											X									X QA 226/228						1
MW-88	↓	1130	↓																				X						2
MW-61	↓	1345	↓		Added to COC @ login per Mitch, AEN-NM @ 6/22/98																		X						2

PROJECT INFORMATION

PROJ. NO.: 104332.03
PROJ. NAME: IBRP
P.O. NO.:
SHIPPED VIA:

SAMPLE RECEIPT

NO. CONTAINERS	
CUSTODY SEALS	Y / N / NA
RECEIVED INTACT	
BLUE ICE/ICE	

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

(RUSH) ☐ 24hr ☐ 48hr ☐ 72hr ☐ 1 WEEK (NORMAL) ☐

CERTIFICATION REQUIRED: ☐ NM ☐ SDWA ☐ OTHER

METHANOL PRESERVATION ☐

COMMENTS: FIXED FEE ☐

*QA on MW-61 per Mitch @ AEN-NM

RELINQUISHED BY: 1	RELINQUISHED BY: 2
Signature: Kevin Cook	Signature:
Time: 1400	Time: 1500
Printed Name: Kevin Cook	Printed Name: Chris Faith
Date: 6/18	Date: 6/18
Company: Foster	Company: AEN
RECEIVED BY: 1	**RECEIVED BY: (LAB) 2**
Signature:	Signature:
Time: 1400	Time: 11:00
Printed Name: Chris Faith	Printed Name: Bill Olmstead
Date: 6/18	Date: 6/19/98
Company: AEN	American Environmental Network (NM), Inc. Kevin Cook

DISTRIBUTION: White - AEN, Canary - Originator

Committed To *Your* Success

Severn Trent Laboratories
11 East Olive Road
Pensacola FL 32514

Tel: (850) 474-1001
Fax: (850) 474-4789

SIGNATURE PAGE

Reviewed by: YM Patrick
AEN Project Manager

Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC. ALBUQUERQUE, NEW MEXICO
Project Name:	IBRP
Project Number:	806412
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Accession Number:	806240
Project Manager:	KIMBERLY D. MCNEILL
Sampled By:	N/S

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Analysis Report

Analysis: MARATHON WET CHEMISTRY INORGANICS

Accession:	806240
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806412
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	WET CHEM

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 806240
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806412
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON WET CHEMISTRY INORGANICS
QcLevel: II

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: MW-61A			Lab ID: 001		
CHLORIDE (4500-CL B)	MG/L	4	1	CIW066	
CYANIDE, TOTAL (335.2)	MG/L	0.025	0.005	CNW037	
FLUORIDE (340.2/4500-F C)	MG/L	0.8	0.2	FLW026	
NITRITE, NITROGEN (354.1)	MG/L	ND	0.1	N2W089	
NITRITE-NITRATE, NITROGEN (353.2)	MG/L	ND	0.1	N3W46B	
NITRATE, NITROGEN (353.2-354.1)	MG/L	ND	0.1	NONE	
PH (150.1)	UNITS	7.3	NA	PHW129	R4
PHENOLS, TOTAL (420.1)	MG/L	ND	0.005	PEW023	
SULFATE (375.4)	MG/L	300	130	SEW077	+
TOTAL DISSOLVED SOLIDS (160.1)	MG/L	690	5	TDW037	

Comments:

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: MW-88			Lab ID: 002		
CHLORIDE (4500-CL B)	MG/L	22	1	CIW066	
CYANIDE, TOTAL (335.2)	MG/L	ND	0.005	CNW037	
FLUORIDE (340.2/4500-F C)	MG/L	1.1	0.2	FLW026	
NITRITE, NITROGEN (354.1)	MG/L	ND	0.1	N2W089	
NITRITE-NITRATE, NITROGEN (353.2)	MG/L	ND	0.1	N3W46B	
NITRATE, NITROGEN (353.2-354.1)	MG/L	ND	0.1	NONE	
PH (150.1)	UNITS	7.2	NA	PHW129	R4
PHENOLS, TOTAL (420.1)	MG/L	ND	0.005	PEW023	
SULFATE (375.4)	MG/L	450	250	SEW077	+
TOTAL DISSOLVED SOLIDS (160.1)	MG/L	840	5	TDW037	

Comments:

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 806240
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806412
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON WET CHEMISTRY INORGANICS
QcLevel: II

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: MW-61			Lab ID: 003		
CHLORIDE (4500-CL B)	MG/L	480	1	CIW066	
CYANIDE, TOTAL (335.2)	MG/L	ND	0.005	CNW037	
FLUORIDE (340.2/4500-F C)	MG/L	2.2	0.4	FLW026	+
NITRITE, NITROGEN (354.1)	MG/L	ND	0.1	N2W089	
NITRITE-NITRATE, NITROGEN (353.2)	MG/L	ND	0.1	N3W46B	
NITRATE, NITROGEN (353.2-354.1)	MG/L	ND	0.1	NONE	
PH (150.1)	UNITS	6.9	NA	PHW129	R4
PHENOLS, TOTAL (420.1)	MG/L	ND	0.005	PEW023	
SULFATE (375.4)	MG/L	1600	1000	SEW077	+
TOTAL DISSOLVED SOLIDS (160.1)	MG/L	3200	5	TDW037	

Comments:

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: MW-61DUP			Lab ID: 004		
CHLORIDE (4500-CL B)	MG/L	380	1	CIW066	
CYANIDE, TOTAL (335.2)	MG/L	ND	0.005	CNW037	
FLUORIDE (340.2/4500-F C)	MG/L	2.2	0.4	FLW026	+
NITRITE, NITROGEN (354.1)	MG/L	ND	0.1	N2W089	
NITRITE-NITRATE, NITROGEN (353.2)	MG/L	ND	0.1	N3W46B	
NITRATE, NITROGEN (353.2-354.1)	MG/L	ND	0.1	NONE	
PH (150.1)	UNITS	6.9	NA	PHW129	R4
PHENOLS, TOTAL (420.1)	MG/L	ND	0.005	PEW023	
SULFATE (375.4)	MG/L	1700	1000	SEW077	+
TOTAL DISSOLVED SOLIDS (160.1)	MG/L	3200	5	TDW037	

Comments:

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 806240
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806412
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON WET CHEMISTRY INORGANICS

Client ID:	Lab ID:	Matrix:	Date/Time Sampled:	Date Received:
MW-61A	001	WATER	18-JUN-98 0915	19-JUN-98
MW-88	002	WATER	18-JUN-98 1130	19-JUN-98
MW-61	003	WATER	18-JUN-98 1545	19-JUN-98
MW-61DUP	004	WATER	18-JUN-98 1545	19-JUN-98

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"Method Report Summary"

Accession Number: 806240
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806412
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON WET CHEMISTRY INORGANICS

Client Sample Id:	Parameter:	Unit:	Result:
MW-61A	CHLORIDE (4500-CL B)	MG/L	4
	CYANIDE, TOTAL (335.2)	MG/L	0.025
	FLUORIDE (340.2/4500-F C)	MG/L	0.8
	PH (150.1)	UNITS	7.3
	SULFATE (375.4)	MG/L	300
	TOTAL DISSOLVED SOLIDS (160.1)	MG/L	690
MW-88	CHLORIDE (4500-CL B)	MG/L	22
	FLUORIDE (340.2/4500-F C)	MG/L	1.1
	PH (150.1)	UNITS	7.2
	SULFATE (375.4)	MG/L	450
	TOTAL DISSOLVED SOLIDS (160.1)	MG/L	840
MW-61	CHLORIDE (4500-CL B)	MG/L	480
	FLUORIDE (340.2/4500-F C)	MG/L	2.2
	PH (150.1)	UNITS	6.9
	SULFATE (375.4)	MG/L	1600
	TOTAL DISSOLVED SOLIDS (160.1)	MG/L	3200
MW-61DUP	CHLORIDE (4500-CL B)	MG/L	380
	FLUORIDE (340.2/4500-F C)	MG/L	2.2
	PH (150.1)	UNITS	6.9
	SULFATE (375.4)	MG/L	1700
	TOTAL DISSOLVED SOLIDS (160.1)	MG/L	3200

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Analysis Report

Analysis: MARATHON METALS - OPTIMA

Accession:	806240
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806412
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	METALS

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 806240
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806412
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON METALS - OPTIMA
QcLevel: II

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: MW-61A			Lab ID:001		
SILVER (6010A)	MG/L	0.0007	0.0007	AYW167	
ALUMINUM (6010A)	MG/L	0.25	0.026	LYW167	
ARSENIC (6010A)	MG/L	0.0047	0.0018	RYW167	
BARIUM (6010A)	MG/L	0.054	0.0002	BYW167	
BORON (6010A)	MG/L	0.073	0.0057	OYW167	
CADMIUM (6010A)	MG/L	ND	0.0002	CYW167	
COBALT (6010A)	MG/L	ND	0.0003	TYW167	
CHROMIUM (6010A)	MG/L	ND	0.0008	HYW167	
COPPER (6010A)	MG/L	ND	0.0018	FYW167	
MERCURY (7470A)	MG/L	ND	0.0001	M7W080	
NICKEL (6010A)	MG/L	0.0048	0.0009	EYW167	
IRON (6010A)	MG/L	0.061	0.013	NYW167	
LEAD (6010A)	MG/L	ND	0.0022	PYW167	
MANGANESE (6010A)	MG/L	0.11	0.0002	GYW167	
MOLYBDENUM (6010A)	MG/L	0.0013	0.0003	DYW167	
SELENIUM (6010A)	MG/L	ND	0.0023	SYW167	
ZINC (6010A)	MG/L	0.17	0.014	5YW167	
Comments:					
Client ID: MW-88			Lab ID:002		
SILVER (6010A)	MG/L	0.0007	0.0007	AYW167	
ALUMINUM (6010A)	MG/L	0.055	0.026	LYW167	
ARSENIC (6010A)	MG/L	ND	0.0018	RYW167	
BARIUM (6010A)	MG/L	0.016	0.0002	BYW167	
BORON (6010A)	MG/L	0.11	0.0057	OYW167	
CADMIUM (6010A)	MG/L	ND	0.0002	CYW167	
COBALT (6010A)	MG/L	ND	0.0003	TYW167	
CHROMIUM (6010A)	MG/L	ND	0.0008	HYW167	
COPPER (6010A)	MG/L	ND	0.0018	FYW167	
MERCURY (7470A)	MG/L	ND	0.0001	M7W080	
NICKEL (6010A)	MG/L	ND	0.0009	EYW167	
IRON (6010A)	MG/L	0.064	0.013	NYW167	
LEAD (6010A)	MG/L	ND	0.0022	PYW167	
MANGANESE (6010A)	MG/L	0.0062	0.0002	GYW167	
MOLYBDENUM (6010A)	MG/L	0.0041	0.0003	DYW167	
SELENIUM (6010A)	MG/L	ND	0.0023	SYW167	
ZINC (6010A)	MG/L	0.055	0.014	5YW167	
Comments:					

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 806240
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806412
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON METALS - OPTIMA
QcLevel: II

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: MW-61			Lab ID:003		
SILVER (6010A)	MG/L	0.0025	0.0007	AYW167	
ALUMINUM (6010A)	MG/L	0.090	0.026	LYW167	
ARSENIC (6010A)	MG/L	0.0024	0.0018	RYW167	
BARIUM (6010A)	MG/L	0.025	0.0002	BYW167	
BORON (6010A)	MG/L	0.068	0.0057	OYW167	
CADMIUM (6010A)	MG/L	ND	0.0002	CYW167	
COBALT (6010A)	MG/L	ND	0.0003	TYW167	
CHROMIUM (6010A)	MG/L	ND	0.0008	HYW167	
COPPER (6010A)	MG/L	ND	0.0018	FYW167	
MERCURY (7470A)	MG/L	0.0010	0.0001	M7W080	
NICKEL (6010A)	MG/L	ND	0.0009	EYW167	
IRON (6010A)	MG/L	0.032	0.013	NYW167	
LEAD (6010A)	MG/L	ND	0.0022	PYW167	
MANGANESE (6010A)	MG/L	0.0010	0.0002	GYW167	
MOLYBDENUM (6010A)	MG/L	0.0011	0.0003	DYW167	
SELENIUM (6010A)	MG/L	ND	0.0023	SYW167	
ZINC (6010A)	MG/L	0.054	0.014	5YW167	

Comments:

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: MW-61DUP			Lab ID:004		
SILVER (6010A)	MG/L	0.0025	0.0007	AYW167	
ALUMINUM (6010A)	MG/L	ND	0.026	LYW167	
ARSENIC (6010A)	MG/L	ND	0.0018	RYW167	
BARIUM (6010A)	MG/L	0.024	0.0002	BYW167	
BORON (6010A)	MG/L	0.68	0.0057	OYW167	
CADMIUM (6010A)	MG/L	ND	0.0002	CYW167	
COBALT (6010A)	MG/L	ND	0.0003	TYW167	
CHROMIUM (6010A)	MG/L	ND	0.0008	HYW167	
COPPER (6010A)	MG/L	0.0018	0.0018	FYW167	
MERCURY (7470A)	MG/L	ND	0.0001	M7W080	
NICKEL (6010A)	MG/L	ND	0.0009	EYW167	
IRON (6010A)	MG/L	ND	0.013	NYW167	
LEAD (6010A)	MG/L	ND	0.0022	PYW167	
MANGANESE (6010A)	MG/L	ND	0.0002	GYW167	
MOLYBDENUM (6010A)	MG/L	0.0009	0.0003	DYW167	
SELENIUM (6010A)	MG/L	ND	0.0023	SYW167	
ZINC (6010A)	MG/L	ND	0.014	5YW167	

Comments:

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 806240
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806412
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON METALS - OPTIMA

Client Id:	Lab Id:	Matrix:	Date/Time Sampled:	Date Received:
MW-61A	001	WATER	18-JUN-98 0915	19-JUN-98
MW-88	002	WATER	18-JUN-98 1130	19-JUN-98
MW-61	003	WATER	18-JUN-98 1545	19-JUN-98
MW-61DUP	004	WATER	18-JUN-98 1545	19-JUN-98

"Method Report Summary"

Accession Number: 806240
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806412
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON METALS - OPTIMA

Client Sample Id:	Parameter:	Unit:	Result:
MW-61A	SILVER (6010A)	MG/L	0.0007
	ALUMINUM (6010A)	MG/L	0.25
	ARSENIC (6010A)	MG/L	0.0047
	BARIUM (6010A)	MG/L	0.054
	BORON (6010A)	MG/L	0.073
	NICKEL (6010A)	MG/L	0.0048
	IRON (6010A)	MG/L	0.061
	MANGANESE (6010A)	MG/L	0.11
	MOLYBDENUM (6010A)	MG/L	0.0013
	ZINC (6010A)	MG/L	0.17
MW-88	SILVER (6010A)	MG/L	0.0007
	ALUMINUM (6010A)	MG/L	0.055
	BARIUM (6010A)	MG/L	0.016
	BORON (6010A)	MG/L	0.11
	IRON (6010A)	MG/L	0.064
	MANGANESE (6010A)	MG/L	0.0062
	MOLYBDENUM (6010A)	MG/L	0.0041
	ZINC (6010A)	MG/L	0.055
MW-61	SILVER (6010A)	MG/L	0.0025
	ALUMINUM (6010A)	MG/L	0.090
	ARSENIC (6010A)	MG/L	0.0024
	BARIUM (6010A)	MG/L	0.025
	BORON (6010A)	MG/L	0.068
	MERCURY (7470A)	MG/L	0.0010
	IRON (6010A)	MG/L	0.032
	MANGANESE (6010A)	MG/L	0.0010
	MOLYBDENUM (6010A)	MG/L	0.0011
	ZINC (6010A)	MG/L	0.054
MW-61DUP	SILVER (6010A)	MG/L	0.0025
	BARIUM (6010A)	MG/L	0.024
	BORON (6010A)	MG/L	0.68
	COPPER (6010A)	MG/L	0.0018
	MOLYBDENUM (6010A)	MG/L	0.0009

SEVERN TRENT LABORATORIES 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Analysis Report

Analysis: POLYNUCLEAR AROMATICS BY 8310

Accession:	806240
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806412
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	SEMI-VOLATILE FUELS

SEVERN TRENT LABORATORIES 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"FINAL REPORT FORMAT - SINGLE"

Accession:	806240
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806412
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Test:	POLYNUCLEAR AROMATICS BY 8310
Analysis Method:	8310/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method:	3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix:	WATER
QC Level:	II

Lab Id:	001	Sample Date/Time:	18-JUN-98 0915
Client Sample Id:	MW-61A	Received Date:	19-JUN-98
Batch: PAW141		Extraction Date:	23-JUN-98
Blank: A	Dry Weight %: N/A	Analysis Date:	25-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZO(a)PYRENE	UG/L	ND	0.1	
1-METHYLNAPHTHALENE	UG/L	20	0.3	
2-CHLOROANTHRACENE	%REC/SURR	84	28-138	
ANALYST	INITIALS	HAH		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession:	806240
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806412
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Test:	POLYNUCLEAR AROMATICS BY 8310
Analysis Method:	8310/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method:	3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix:	WATER
QC Level:	II

Lab Id:	002		Sample Date/Time:	18-JUN-98 1130
Client Sample Id:	MW-88		Received Date:	19-JUN-98
Batch: PAW141			Extraction Date:	23-JUN-98
Blank: A	Dry Weight %:	N/A	Analysis Date:	26-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZO(a)PYRENE	UG/L	ND	0.1	
1-METHYLNAPHTHALENE	UG/L	ND	0.3	
2-CHLOROANTHRACENE	%REC/SURR	92	28-138	
ANALYST	INITIALS	HAH		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 806240
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806412
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: POLYNUCLEAR AROMATICS BY 8310
Analysis Method: 8310/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: II

Lab Id: 003
Client Sample Id: MW-61
Sample Date/Time: 18-JUN-98 1545
Received Date: 19-JUN-98

Batch: PAW141
Blank: A
Dry Weight %: N/A
Extraction Date: 23-JUN-98
Analysis Date: 26-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZO(a)PYRENE	UG/L	ND	0.1	
1-METHYLNAPHTHALENE	UG/L	ND	0.3	
2-CHLOROANTHRACENE	%REC/SURR	78	28-138	
ANALYST	INITIALS	HAH		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession:	806240
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806412
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Test:	POLYNUCLEAR AROMATICS BY 8310
Analysis Method:	8310/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method:	3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix:	WATER
QC Level:	II

Lab Id:	004		Sample Date/Time:	18-JUN-98 1545
Client Sample Id:	MW-61DUP		Received Date:	19-JUN-98
Batch: PAW141			Extraction Date:	23-JUN-98
Blank: A	Dry Weight %:	N/A	Analysis Date:	26-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZO(a)PYRENE	UG/L	ND	0.1	
1-METHYLNAPHTHALENE	UG/L	ND	0.3	
2-CHLOROANTHRACENE	%REC/SURR	78	28-138	
ANALYST	INITIALS	HAH		

Comments:

"Method Report Summary"

Accession Number: 806240
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806412
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: POLYNUCLEAR AROMATICS BY 8310

Client Sample Id:	Parameter:	Unit:	Result:
MW-61A	1-METHYLNAPHTHALENE	UG/L	20

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Analysis Report

Analysis: PESTICIDES (8080)

Accession:	806240
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806412
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	PESTICIDES

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"FINAL REPORT FORMAT - SINGLE"

Accession: 806240
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806412
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: PESTICIDES (8080)
Analysis Method: 8080 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Extraction Method: 3510 / 3660 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Matrix: WATER
QC Level: II

Lab Id: 001 Sample Date/Time: 18-JUN-98 0915
Client Sample Id: MW-61A Received Date: 19-JUN-98

Batch: PSW043 Extraction Date: 22-JUN-98
Blank: A Dry Weight %: N/A Analysis Date: 30-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
ALDRIN	UG/L	ND	0.02	
ALPHA-BHC	UG/L	ND	0.02	
BETA-BHC	UG/L	ND	0.02	
DELTA-BHC	UG/L	ND	0.02	
GAMMA-BHC (LINDANE)	UG/L	0.11	0.02	I
4,4'-DDD	UG/L	ND	0.02	
4,4'-DDE	UG/L	ND	0.02	
4,4'-DDT	UG/L	ND	0.02	
DIELDRIN	UG/L	ND	0.02	
ENDOSULFAN I	UG/L	ND	0.02	
ENDOSULFAN II	UG/L	ND	0.02	
ENDOSULFAN SULFATE	UG/L	ND	0.02	
ENDRIN	UG/L	ND	0.02	
ENDRIN ALDEHYDE	UG/L	ND	0.02	
HEPTACHLOR	UG/L	ND	0.02	
HEPTACHLOR EPOXIDE	UG/L	ND	0.02	
METHOXYCHLOR	UG/L	ND	0.02	
CHLORDANE	UG/L	ND	0.01	
TOXAPHENE	UG/L	ND	0.12	
PCB-1016	UG/L	ND	0.04	
PCB-1221	UG/L	ND	0.04	
PCB-1232	UG/L	ND	0.04	
PCB-1242	UG/L	ND	0.04	
PCB-1248	UG/L	ND	0.04	
PCB-1254	UG/L	ND	0.04	
PCB-1260	UG/L	ND	0.04	
TCMX	%REC/SURR	59	43-101	
DCB	%REC/SURR	57	17-135	
ANALYST	INITIALS	RP		

Comments:
I=DUAL-COLUMN RPD >40%.

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"FINAL REPORT FORMAT - SINGLE"

Accession:	806240
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806412
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Test:	PESTICIDES (8080)
Analysis Method:	8080 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Extraction Method:	3510 / 3660 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Matrix:	WATER
QC Level:	II

Lab Id:	002	Sample Date/Time:	18-JUN-98 1130
Client Sample Id:	MW-88	Received Date:	19-JUN-98
Batch: PSW043		Extraction Date:	22-JUN-98
Blank: A	Dry Weight %: N/A	Analysis Date:	30-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
ALDRIN	UG/L	ND	0.02	
ALPHA-BHC	UG/L	ND	0.02	
BETA-BHC	UG/L	ND	0.02	
DELTA-BHC	UG/L	ND	0.02	
GAMMA-BHC (LINDANE)	UG/L	ND	0.02	
4,4'-DDD	UG/L	ND	0.02	
4,4'-DDE	UG/L	ND	0.02	
4,4'-DDT	UG/L	ND	0.02	
DIELDRIN	UG/L	ND	0.02	
ENDOSULFAN I	UG/L	ND	0.02	
ENDOSULFAN II	UG/L	ND	0.02	
ENDOSULFAN SULFATE	UG/L	ND	0.02	
ENDRIN	UG/L	ND	0.02	
ENDRIN ALDEHYDE	UG/L	ND	0.02	
HEPTACHLOR	UG/L	ND	0.02	
HEPTACHLOR EPOXIDE	UG/L	ND	0.02	
METHOXYCHLOR	UG/L	ND	0.02	
CHLORDANE	UG/L	ND	0.01	
TOXAPHENE	UG/L	ND	0.12	
PCB-1016	UG/L	ND	0.04	
PCB-1221	UG/L	ND	0.04	
PCB-1232	UG/L	ND	0.04	
PCB-1242	UG/L	ND	0.04	
PCB-1248	UG/L	ND	0.04	
PCB-1254	UG/L	ND	0.04	
PCB-1260	UG/L	ND	0.04	
TCMX	%REC/SURR	64	43-101	
DCB	%REC/SURR	62	17-135	
ANALYST	INITIALS	RP		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 806240
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806412
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: PESTICIDES (8080)
Analysis Method: 8080 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Extraction Method: 3510 / 3660 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Matrix: WATER
QC Level: II

Lab Id: 003 Sample Date/Time: 18-JUN-98 1545
Client Sample Id: MW-61 Received Date: 19-JUN-98

Batch: PSW043 Extraction Date: 22-JUN-98
Blank: A Dry Weight %: N/A Analysis Date: 30-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
ALDRIN	UG/L	ND	0.02	
ALPHA-BHC	UG/L	ND	0.02	
BETA-BHC	UG/L	ND	0.02	
DELTA-BHC	UG/L	ND	0.02	
GAMMA-BHC (LINDANE)	UG/L	ND	0.02	
4,4'-DDD	UG/L	ND	0.02	
4,4'-DDE	UG/L	ND	0.02	
4,4'-DDT	UG/L	ND	0.02	
DIELDRIN	UG/L	ND	0.02	
ENDOSULFAN I	UG/L	ND	0.02	
ENDOSULFAN II	UG/L	ND	0.02	
ENDOSULFAN SULFATE	UG/L	ND	0.02	
ENDRIN	UG/L	ND	0.02	
ENDRIN ALDEHYDE	UG/L	ND	0.02	
HEPTACHLOR	UG/L	ND	0.02	
HEPTACHLOR EPOXIDE	UG/L	ND	0.02	
METHOXYCHLOR	UG/L	ND	0.02	
CHLORDANE	UG/L	ND	0.01	
TOXAPHENE	UG/L	ND	0.12	
PCB-1016	UG/L	ND	0.04	
PCB-1221	UG/L	ND	0.04	
PCB-1232	UG/L	ND	0.04	
PCB-1242	UG/L	ND	0.04	
PCB-1248	UG/L	ND	0.04	
PCB-1254	UG/L	ND	0.04	
PCB-1260	UG/L	ND	0.04	
TCMX	%REC/SURR	64	43-101	
DCB	%REC/SURR	70	17-135	
ANALYST	INITIALS	RP		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 806240
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806412
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: PESTICIDES (8080)
Analysis Method: 8080 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Extraction Method: 3510 / 3660 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Matrix: WATER
QC Level: II

Lab Id: 004 Sample Date/Time: 18-JUN-98 1545
Client Sample Id: MW-61DUP Received Date: 19-JUN-98

Batch: PSW043 Extraction Date: 22-JUN-98
Blank: A Dry Weight %: N/A Analysis Date: 30-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
ALDRIN	UG/L	ND	0.02	
ALPHA-BHC	UG/L	ND	0.02	
BETA-BHC	UG/L	ND	0.02	
DELTA-BHC	UG/L	ND	0.02	
GAMMA-BHC (LINDANE)	UG/L	ND	0.02	
4,4'-DDD	UG/L	ND	0.02	
4,4'-DDE	UG/L	ND	0.02	
4,4'-DDT	UG/L	ND	0.02	
DIELDRIN	UG/L	ND	0.02	
ENDOSULFAN I	UG/L	ND	0.02	
ENDOSULFAN II	UG/L	ND	0.02	
ENDOSULFAN SULFATE	UG/L	ND	0.02	
ENDRIN	UG/L	ND	0.02	
ENDRIN ALDEHYDE	UG/L	ND	0.02	
HEPTACHLOR	UG/L	ND	0.02	
HEPTACHLOR EPOXIDE	UG/L	ND	0.02	
METHOXYCHLOR	UG/L	ND	0.02	
CHLORDANE	UG/L	ND	0.01	
TOXAPHENE	UG/L	ND	0.12	
PCB-1016	UG/L	ND	0.04	
PCB-1221	UG/L	ND	0.04	
PCB-1232	UG/L	ND	0.04	
PCB-1242	UG/L	ND	0.04	
PCB-1248	UG/L	ND	0.04	
PCB-1254	UG/L	ND	0.04	
PCB-1260	UG/L	ND	0.04	
TCMX	%REC/SURR	72	43-101	
DCB	%REC/SURR	75	17-135	
ANALYST	INITIALS	RP		

Comments:

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"Method Report Summary"

Accession Number: 806240
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806412
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: PESTICIDES (8080)

Client Sample Id:	Parameter:	Unit:	Result:
MW-61A	GAMMA-BHC (LINDANE)	UG/L	0.11

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Analysis Report

Analysis: ACID & BASE EXTRACTABLES (8270)

Accession:	806240
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806412
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	ORGANIC/MS

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"FINAL REPORT FORMAT - SINGLE"

Accession:	806240
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806412
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Test:	ACID & BASE EXTRACTABLES (8270)
Analysis Method:	8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method:	3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix:	WATER
QC Level:	II

Lab Id:	001	Sample Date/Time:	18-JUN-98 0915
Client Sample Id:	MW-61A	Received Date:	19-JUN-98
Batch: ALW075		Extraction Date:	22-JUN-98
Blank: A	Dry Weight %: N/A	Analysis Date:	26-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZOIC ACID	UG/L	ND	1.7	
4-CHLORO-3-METHYLPHENOL	UG/L	ND	0.4	
2-CHLOROPHENOL	UG/L	ND	0.5	
2,4-DICHLOROPHENOL	UG/L	ND	3.9	
2,6-DICHLOROPHENOL	UG/L	ND	0.1	
2,4-DIMETHYLPHENOL	UG/L	ND	0.5	
4,6-DINITRO-2-METHYLPHENOL	UG/L	ND	1.6	
2,4-DINITROPHENOL	UG/L	ND	3.3	
2-METHYLPHENOL	UG/L	ND	0.3	
4-METHYLPHENOL	UG/L	ND	0.5	
2-NITROPHENOL	UG/L	ND	0.4	
4-NITROPHENOL	UG/L	ND	0.7	
PENTACHLOROPHENOL	UG/L	ND	0.7	
PHENOL	UG/L	ND	0.5	
2,3,4,6-TETRACHLOROPHENOL	UG/L	ND	0.6	
2,4,5-TRICHLOROPHENOL	UG/L	ND	3.0	
2,4,6-TRICHLOROPHENOL	UG/L	ND	0.3	
ACENAPHTHENE	UG/L	ND	0.4	
ACENAPHTHYLENE	UG/L	ND	0.4	
ACETOPHENONE	UG/L	ND	0.4	
4-AMINOBIPHENYL	UG/L	ND	0.7	
ANILINE	UG/L	ND	0.5	
ANTHRACENE	UG/L	ND	0.4	
BENZIDINE	UG/L	ND	2.7	
BENZO (A) ANTHRACENE	UG/L	ND	0.5	
BENZO (A) PYRENE	UG/L	ND	0.2	
BENZO (B) FLUORANTHENE	UG/L	ND	0.5	
BENZO (G,H,I) PERYLENE	UG/L	ND	0.3	
BENZO (K) FLUORANTHENE	UG/L	ND	0.7	
BENZYL ALCOHOL	UG/L	ND	0.5	
BIS(2-CHLOROETHOXY)METHANE	UG/L	ND	0.4	
BIS(2-CHLOROETHYL)ETHER	UG/L	ND	0.5	
BIS(2-CHLOROISOPROPYL)ETHER	UG/L	ND	1.9	
BIS(2-ETHYLHEXYL)PHTHALATE	UG/L	14	0.6	
4-BROMOPHENYL PHENYL ETHER	UG/L	ND	0.4	
BUTYLBENZYL PHTHALATE	UG/L	ND	0.5	
4-CHLOROANILINE	UG/L	ND	0.4	
1-CHLORONAPHTHALENE	UG/L	ND	0.6	
2-CHLORONAPHTHALENE	UG/L	ND	0.4	
4-CHLOROPHENYL PHENYL ETHER	UG/L	ND	0.5	

"FINAL REPORT FORMAT - SINGLE"

Accession: 806240
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806412
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: II

Lab Id: 001
Client Sample Id: MW-61A
Sample Date/Time: 18-JUN-98 0915
Received Date: 19-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
CHRYSENE	UG/L	ND	0.7	
DIBENZ(A,J)ACRIDINE	UG/L	ND	0.5	
DIBENZO (A,H) ANTHRACENE	UG/L	ND	0.3	
DIBENZOFURAN	UG/L	ND	0.4	
1,2-DICHLOROBENZENE	UG/L	ND	0.3	
1,3-DICHLOROBENZENE	UG/L	ND	0.3	
1,4-DICHLOROBENZENE	UG/L	ND	0.5	
3,3'-DICHLOROBENZIDINE	UG/L	ND	0.4	
DIETHYLPHTHALATE	UG/L	ND	0.4	
P-DIMETHYLAMINOAZOBENZENE	UG/L	ND	0.4	
7,12-DIMETHYLBENZ(A)ANTHRACENE	UG/L	ND	1.8	
A-,A-DIMETHYLPHENETHYLAMINE	UG/L	ND	0.1	
DIMETHYLPHTHALATE	UG/L	ND	0.4	
DI-N-BUTYLPHTHALATE	UG/L	ND	0.4	
2,4-DINITROTOLUENE	UG/L	ND	0.5	
2,6-DINITROTOLUENE	UG/L	ND	0.5	
DI-N-OCTYLPHTHALATE	UG/L	ND	0.7	
DIPHENYLAMINE	UG/L	ND	0.5	
1,2-DIPHENYLHYDRAZINE	UG/L	ND	0.3	
FLUORANTHENE	UG/L	ND	0.5	
FLUORENE	UG/L	ND	0.6	
HEXACHLOROBENZENE	UG/L	ND	0.5	
HEXACHLOROBUTADIENE	UG/L	ND	0.5	
HEXACHLOROCYCLOPENTADIENE	UG/L	ND	0.6	
HEXACHLOROETHANE	UG/L	ND	0.6	
INDENO (1,2,3-CD) PYRENE	UG/L	ND	0.5	
ISOPHORONE	UG/L	ND	0.4	
3-METHYLCHOLANTHRENE	UG/L	ND	0.4	
2-METHYLNAPHTHALENE	UG/L	ND	0.5	
NAPHTHALENE	UG/L	ND	0.4	
1-NAPHTHYLAMINE	UG/L	ND	1.5	
2-NAPHTHYLAMINE	UG/L	ND	1.0	
2-NITROANILINE	UG/L	ND	0.4	
3-NITROANILINE	UG/L	ND	0.9	
4-NITROANILINE	UG/L	ND	0.8	
NITROBENZENE	UG/L	ND	0.5	
N-NITROSODIMETHYLAMINE	UG/L	ND	1.2	
N-NITROSODI-N-BUTYLAMINE	UG/L	ND	1.1	
N-NITROSODIETHYLAMINE	UG/L*	ND	10	
N-NITROSODIPHENYLAMINE	UG/L	ND	0.4	
N-NITROSO-DI-N-PROPYLAMINE	UG/L	ND	0.4	
N-NITROSOPIPERIDINE	UG/L	ND	0.8	
N-NITROSOPYRROLIDINE	UG/L*	ND	10	
PENTACHLOROBENZENE	UG/L	ND	0.4	
PENTACHLORONITROBENZENE (PCNB)	UG/L	ND	5.0	

"FINAL REPORT FORMAT - SINGLE"

Accession:	806240
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806412
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Test:	ACID & BASE EXTRACTABLES (8270)
Analysis Method:	8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method:	3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix:	WATER
QC Level:	II

Lab Id: 001 Sample Date/Time: 18-JUN-98 0915
Client Sample Id: MW-61A Received Date: 19-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
PHENACETIN	UG/L	ND	0.4	
PHENANTHRENE	UG/L	ND	0.4	
2-PICOLINE	UG/L	ND	7.7	
PRONAMIDE	UG/L	ND	0.4	
PYRENE	UG/L	ND	0.5	
1,2,4,5-TETRACHLOROBENZENE	UG/L	ND	0.4	
1,2,4 TRICHLOROBENZENE	UG/L	ND	0.6	
2-FLUOROPHENOL	%REC/SURR	99	21-100	
PHENOL-D6	%REC/SURR	90	10-100	
2,4,6-TRIBROMOPHENOL	%REC/SURR	102	10-123	
2-FLUOROBIPHENYL	%REC/SURR	103	43-116	
NITROBENZENE-D5	%REC/SURR	113	35-114	
TERPHENYL-D14	%REC/SURR	116	33-124	
ANALYST	INITIALS	RW		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession:	806240
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806412
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Test:	ACID & BASE EXTRACTABLES (8270)
Analysis Method:	8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method:	3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix:	WATER
QC Level:	II

Lab Id:	002		Sample Date/Time:	18-JUN-98 1130
Client Sample Id:	MW-88		Received Date:	19-JUN-98
Batch: ALW075			Extraction Date:	22-JUN-98
Blank: A	Dry Weight %:	N/A	Analysis Date:	26-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZOIC ACID	UG/L	ND	1.7	
4-CHLORO-3-METHYLPHENOL	UG/L	ND	0.4	
2-CHLOROPHENOL	UG/L	ND	0.5	
2,4-DICHLOROPHENOL	UG/L	ND	3.9	
2,6-DICHLOROPHENOL	UG/L	ND	0.1	
2,4-DIMETHYLPHENOL	UG/L	ND	0.5	
4,6-DINITRO-2-METHYLPHENOL	UG/L	ND	1.6	
2,4-DINITROPHENOL	UG/L	ND	3.3	
2-METHYLPHENOL	UG/L	ND	0.3	
4-METHYLPHENOL	UG/L	ND	0.5	
2-NITROPHENOL	UG/L	ND	0.4	
4-NITROPHENOL	UG/L	ND	0.7	
PENTACHLOROPHENOL	UG/L	ND	0.7	
PHENOL	UG/L	ND	0.5	
2,3,4,6-TETRACHLOROPHENOL	UG/L	ND	0.6	
2,4,5-TRICHLOROPHENOL	UG/L	ND	3.0	
2,4,6-TRICHLOROPHENOL	UG/L	ND	0.3	
ACENAPHTHENE	UG/L	ND	0.4	
ACENAPHTHYLENE	UG/L	ND	0.4	
ACETOPHENONE	UG/L	ND	0.4	
4-AMINOBIPHENYL	UG/L	ND	0.7	
ANILINE	UG/L	ND	0.5	
ANTHRACENE	UG/L	ND	0.4	
BENZIDINE	UG/L	ND	2.7	
BENZO (A) ANTHRACENE	UG/L	ND	0.5	
BENZO (A) PYRENE	UG/L	ND	0.2	
BENZO (B) FLUORANTHENE	UG/L	ND	0.5	
BENZO (G,H,I) PERYLENE	UG/L	ND	0.3	
BENZO (K) FLUORANTHENE	UG/L	ND	0.7	
BENZYL ALCOHOL	UG/L	ND	0.5	
BIS(2-CHLOROETHOXY)METHANE	UG/L	ND	0.4	
BIS(2-CHLOROETHYL)ETHER	UG/L	ND	0.5	
BIS(2-CHLOROISOPROPYL)ETHER	UG/L	ND	1.9	
BIS(2-ETHYLHEXYL)PHTHALATE	UG/L	ND	0.6	
4-BROMOPHENYL PHENYL ETHER	UG/L	ND	0.4	
BUTYLBENZYL PHTHALATE	UG/L	ND	0.5	
4-CHLOROANILINE	UG/L	ND	0.4	
1-CHLORONAPHTHALENE	UG/L	ND	0.6	
2-CHLORONAPHTHALENE	UG/L	ND	0.4	
4-CHLOROPHENYL PHENYL ETHER	UG/L	ND	0.5	

"FINAL REPORT FORMAT - SINGLE"

Accession: 806240
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806412
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: II

Lab Id: 002 Sample Date/Time: 18-JUN-98 1130
Client Sample Id: MW-88 Received Date: 19-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
CHRYSENE	UG/L	ND	0.7	
DIBENZ(A,J)ACRIDINE	UG/L	ND	0.5	
DIBENZO (A,H) ANTHRACENE	UG/L	ND	0.3	
DIBENZOFURAN	UG/L	ND	0.4	
1,2-DICHLOROBENZENE	UG/L	ND	0.3	
1,3-DICHLOROBENZENE	UG/L	ND	0.3	
1,4-DICHLOROBENZENE	UG/L	ND	0.5	
3,3'-DICHLOROBENZIDINE	UG/L	ND	0.4	
DIETHYLPHTHALATE	UG/L	ND	0.4	
P-DIMETHYLAMINOAZOBENZENE	UG/L	ND	0.4	
7,12-DIMETHYLBENZ(A)ANTHRACENE	UG/L	ND	1.8	
A-,A-DIMETHYLPHENETHYLAMINE	UG/L	ND	0.1	
DIMETHYLPHTHALATE	UG/L	ND	0.4	
DI-N-BUTYLPHTHALATE	UG/L	ND	0.4	
2,4-DINITROTOLUENE	UG/L	ND	0.5	
2,6-DINITROTOLUENE	UG/L	ND	0.5	
DI-N-OCTYLPHTHALATE	UG/L	ND	0.7	
DIPHENYLAMINE	UG/L	ND	0.5	
1,2-DIPHENYLHYDRAZINE	UG/L	ND	0.3	
FLUORANTHENE	UG/L	ND	0.5	
FLUORENE	UG/L	ND	0.6	
HEXACHLOROBENZENE	UG/L	ND	0.5	
HEXACHLOROBUTADIENE	UG/L	ND	0.5	
HEXACHLOROCYCLOPENTADIENE	UG/L	ND	0.6	
HEXACHLOROETHANE	UG/L	ND	0.6	
INDENO (1,2,3-CD) PYRENE	UG/L	ND	0.5	
ISOPHORONE	UG/L	ND	0.4	
3-METHYLCHOLANTHRENE	UG/L	ND	0.4	
2-METHYLNAPHTHALENE	UG/L	ND	0.5	
NAPHTHALENE	UG/L	ND	0.4	
1-NAPHTHYLAMINE	UG/L	ND	1.5	
2-NAPHTHYLAMINE	UG/L	ND	1.0	
2-NITROANILINE	UG/L	ND	0.4	
3-NITROANILINE	UG/L	ND	0.9	
4-NITROANILINE	UG/L	ND	0.8	
NITROBENZENE	UG/L	ND	0.5	
N-NITROSODIMETHYLAMINE	UG/L	ND	1.2	
N-NITROSODI-N-BUTYLAMINE	UG/L	ND	1.1	
N-NITROSODIETHYLAMINE	UG/L*	ND	10	
N-NITROSODIPHENYLAMINE	UG/L	ND	0.4	
N-NITROSO-DI-N-PROPYLAMINE	UG/L	ND	0.4	
N-NITROSOPIPERIDINE	UG/L	ND	0.8	
N-NITROSOPYRROLIDINE	UG/L*	ND	10	
PENTACHLOROBENZENE	UG/L	ND	0.4	
PENTACHLORONITROBENZENE (PCNB)	UG/L	ND	5.0	

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"FINAL REPORT FORMAT - SINGLE"

Accession: 806240
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806412
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: II

Lab Id: 002 Sample Date/Time: 18-JUN-98 1130
Client Sample Id: MW-88 Received Date: 19-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
PHENACETIN	UG/L	ND	0.4	
PHENANTHRENE	UG/L	ND	0.4	
2-PICOLINE	UG/L	ND	7.7	
PRONAMIDE	UG/L	ND	0.4	
PYRENE	UG/L	ND	0.5	
1,2,4,5-TETRACHLOROBENZENE	UG/L	ND	0.4	
1,2,4 TRICHLOROBENZENE	UG/L	ND	0.6	
2-FLUOROPHENOL	%REC/SURR	88	21-100	
PHENOL-D6	%REC/SURR	79	10-100	
2,4,6-TRIBROMOPHENOL	%REC/SURR	78	10-123	
2-FLUOROBIPHENYL	%REC/SURR	88	43-116	
NITROBENZENE-D5	%REC/SURR	101	35-114	
TERPHENYL-D14	%REC/SURR	109	33-124	
ANALYST	INITIALS	RW		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 806240
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806412
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: II

Lab Id: 003 Sample Date/Time: 18-JUN-98 1545
Client Sample Id: MW-61 Received Date: 19-JUN-98

Batch: ALW075 Extraction Date: 22-JUN-98
Blank: A Dry Weight %: N/A Analysis Date: 26-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZOIC ACID	UG/L	ND	1.7	
4-CHLORO-3-METHYLPHENOL	UG/L	ND	0.4	
2-CHLOROPHENOL	UG/L	ND	0.5	
2,4-DICHLOROPHENOL	UG/L	ND	3.9	
2,6-DICHLOROPHENOL	UG/L	ND	0.1	
2,4-DIMETHYLPHENOL	UG/L	ND	0.5	
4,6-DINITRO-2-METHYLPHENOL	UG/L	ND	1.6	
2,4-DINITROPHENOL	UG/L	ND	3.3	
2-METHYLPHENOL	UG/L	ND	0.3	
4-METHYLPHENOL	UG/L	ND	0.5	
2-NITROPHENOL	UG/L	ND	0.4	
4-NITROPHENOL	UG/L	ND	0.7	
PENTACHLOROPHENOL	UG/L	ND	0.7	
PHENOL	UG/L	ND	0.5	
2,3,4,6-TETRACHLOROPHENOL	UG/L	ND	0.6	
2,4,5-TRICHLOROPHENOL	UG/L	ND	3.0	
2,4,6-TRICHLOROPHENOL	UG/L	ND	0.3	
ACENAPHTHENE	UG/L	ND	0.4	
ACENAPHTHYLENE	UG/L	ND	0.4	
ACETOPHENONE	UG/L	ND	0.4	
4-AMINOBIPHENYL	UG/L	ND	0.7	
ANILINE	UG/L	ND	0.5	
ANTHRACENE	UG/L	ND	0.4	
BENZIDINE	UG/L	ND	2.7	
BENZO (A) ANTHRACENE	UG/L	ND	0.5	
BENZO (A) PYRENE	UG/L	ND	0.2	
BENZO (B) FLUORANTHENE	UG/L	ND	0.5	
BENZO (G,H,I) PERYLENE	UG/L	ND	0.3	
BENZO (K) FLUORANTHENE	UG/L	ND	0.7	
BENZYL ALCOHOL	UG/L	ND	0.5	
BIS(2-CHLOROETHOXY)METHANE	UG/L	ND	0.4	
BIS(2-CHLOROETHYL)ETHER	UG/L	ND	0.5	
BIS(2-CHLOROISOPROPYL)ETHER	UG/L	ND	1.9	
BIS(2-ETHYLHEXYL)PHTHALATE	UG/L	ND	0.6	
4-BROMOPHENYL PHENYL ETHER	UG/L	ND	0.4	
BUTYLBENZYL PHTHALATE	UG/L	ND	0.5	
4-CHLOROANILINE	UG/L	ND	0.4	
1-CHLORONAPHTHALENE	UG/L	ND	0.6	
2-CHLORONAPHTHALENE	UG/L	ND	0.4	
4-CHLOROPHENYL PHENYL ETHER	UG/L	ND	0.5	

"FINAL REPORT FORMAT - SINGLE"

Accession: 806240
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806412
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: II

Lab Id: 003 Sample Date/Time: 18-JUN-98 1545
Client Sample Id: MW-61 Received Date: 19-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
CHRYSENE	UG/L	ND	0.7	
DIBENZ(A,J)ACRIDINE	UG/L	ND	0.5	
DIBENZO (A,H) ANTHRACENE	UG/L	ND	0.3	
DIBENZOFURAN	UG/L	ND	0.4	
1,2-DICHLOROBENZENE	UG/L	ND	0.3	
1,3-DICHLOROBENZENE	UG/L	ND	0.3	
1,4-DICHLOROBENZENE	UG/L	ND	0.5	
3,3'-DICHLOROBENZIDINE	UG/L	ND	0.4	
DIETHYLPHTHALATE	UG/L	ND	0.4	
P-DIMETHYLAMINOAZOBENZENE	UG/L	ND	0.4	
7,12-DIMETHYLBENZ(A)ANTHRACENE	UG/L	ND	1.8	
A-,A-DIMETHYLPHENETHYLAMINE	UG/L	ND	0.1	
DIMETHYLPHTHALATE	UG/L	ND	0.4	
DI-N-BUTYLPHTHALATE	UG/L	ND	0.4	
2,4-DINITROTOLUENE	UG/L	ND	0.5	
2,6-DINITROTOLUENE	UG/L	ND	0.5	
DI-N-OCTYLPHTHALATE	UG/L	ND	0.7	
DIPHENYLAMINE	UG/L	ND	0.5	
1,2-DIPHENYLHYDRAZINE	UG/L	ND	0.3	
FLUORANTHENE	UG/L	ND	0.5	
FLUORENE	UG/L	ND	0.6	
HEXACHLOROBENZENE	UG/L	ND	0.5	
HEXACHLOROBUTADIENE	UG/L	ND	0.5	
HEXACHLOROCYCLOPENTADIENE	UG/L	ND	0.6	
HEXACHLOROETHANE	UG/L	ND	0.6	
INDENO (1,2,3-CD) PYRENE	UG/L	ND	0.5	
ISOPHORONE	UG/L	ND	0.4	
3-METHYLCHOLANTHRENE	UG/L	ND	0.4	
2-METHYLNAPHTHALENE	UG/L	ND	0.5	
NAPHTHALENE	UG/L	ND	0.4	
1-NAPHTHYLAMINE	UG/L	ND	1.5	
2-NAPHTHYLAMINE	UG/L	ND	1.0	
2-NITROANILINE	UG/L	ND	0.4	
3-NITROANILINE	UG/L	ND	0.9	
4-NITROANILINE	UG/L	ND	0.8	
NITROBENZENE	UG/L	ND	0.5	
N-NITROSODIMETHYLAMINE	UG/L	ND	1.2	
N-NITROSODI-N-BUTYLAMINE	UG/L	ND	1.1	
N-NITROSODIETHYLAMINE	UG/L*	ND	10	
N-NITROSODIPHENYLAMINE	UG/L	ND	0.4	
N-NITROSO-DI-N-PROPYLAMINE	UG/L	ND	0.4	
N-NITROSOPIPERIDINE	UG/L	ND	0.8	
N-NITROSOPYRROLIDINE	UG/L*	ND	10	
PENTACHLOROBENZENE	UG/L	ND	0.4	
PENTACHLORONITROBENZENE (PCNB)	UG/L	ND	5.0	

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"FINAL REPORT FORMAT - SINGLE"

Accession:	806240
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806412
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Test:	ACID & BASE EXTRACTABLES (8270)
Analysis Method:	8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method:	3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix:	WATER
QC Level:	II

Lab Id: 003 Sample Date/Time: 18-JUN-98 1545
Client Sample Id: MW-61 Received Date: 19-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
PHENACETIN	UG/L	ND	0.4	
PHENANTHRENE	UG/L	ND	0.4	
2-PICOLINE	UG/L	ND	7.7	
PRONAMIDE	UG/L	ND	0.4	
PYRENE	UG/L	ND	0.5	
1,2,4,5-TETRACHLOROBENZENE	UG/L	ND	0.4	
1,2,4 TRICHLOROBENZENE	UG/L	ND	0.6	
2-FLUOROPHENOL	%REC/SURR	88	21-100	
PHENOL-D6	%REC/SURR	81	10-100	
2,4,6-TRIBROMOPHENOL	%REC/SURR	89	10-123	
2-FLUOROBIPHENYL	%REC/SURR	86	43-116	
NITROBENZENE-D5	%REC/SURR	101	35-114	
TERPHENYL-D14	%REC/SURR	101	33-124	
ANALYST	INITIALS	RW		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession:	806240
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806412
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Test:	ACID & BASE EXTRACTABLES (8270)
Analysis Method:	8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method:	3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix:	WATER
QC Level:	II

Lab Id:	004	Sample Date/Time:	18-JUN-98 1545
Client Sample Id:	MW-61DUP	Received Date:	19-JUN-98
Batch: ALW075		Extraction Date:	22-JUN-98
Blank: A	Dry Weight %: N/A	Analysis Date:	26-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZOIC ACID	UG/L	ND	1.7	
4-CHLORO-3-METHYLPHENOL	UG/L	ND	0.4	
2-CHLOROPHENOL	UG/L	ND	0.5	
2,4-DICHLOROPHENOL	UG/L	ND	3.9	
2,6-DICHLOROPHENOL	UG/L	ND	0.1	
2,4-DIMETHYLPHENOL	UG/L	ND	0.5	
4,6-DINITRO-2-METHYLPHENOL	UG/L	ND	1.6	
2,4-DINITROPHENOL	UG/L	ND	3.3	
2-METHYLPHENOL	UG/L	ND	0.3	
4-METHYLPHENOL	UG/L	ND	0.5	
2-NITROPHENOL	UG/L	ND	0.4	
4-NITROPHENOL	UG/L	ND	0.7	
PENTACHLOROPHENOL	UG/L	ND	0.7	
PHENOL	UG/L	ND	0.5	
2,3,4,6-TETRACHLOROPHENOL	UG/L	ND	0.6	
2,4,5-TRICHLOROPHENOL	UG/L	ND	3.0	
2,4,6-TRICHLOROPHENOL	UG/L	ND	0.3	
ACENAPHTHENE	UG/L	ND	0.4	
ACENAPHTHYLENE	UG/L	ND	0.4	
ACETOPHENONE	UG/L	ND	0.4	
4-AMINOBIPHENYL	UG/L	ND	0.7	
ANILINE	UG/L	ND	0.5	
ANTHRACENE	UG/L	ND	0.4	
BENZIDINE	UG/L	ND	2.7	
BENZO (A) ANTHRACENE	UG/L	ND	0.5	
BENZO (A) PYRENE	UG/L	ND	0.2	
BENZO (B) FLUORANTHENE	UG/L	ND	0.5	
BENZO (G,H,I) PERYLENE	UG/L	ND	0.3	
BENZO (K) FLUORANTHENE	UG/L	ND	0.7	
BENZYL ALCOHOL	UG/L	ND	0.5	
BIS(2-CHLOROETHOXY)METHANE	UG/L	ND	0.4	
BIS(2-CHLOROETHYL)ETHER	UG/L	ND	0.5	
BIS(2-CHLOROISOPROPYL)ETHER	UG/L	ND	1.9	
BIS(2-ETHYLHEXYL)PHTHALATE	UG/L	ND	0.6	
4-BROMOPHENYL PHENYL ETHER	UG/L	ND	0.4	
BUTYLBENZYL PHTHALATE	UG/L	ND	0.5	
4-CHLOROANILINE	UG/L	ND	0.4	
1-CHLORONAPHTHALENE	UG/L	ND	0.6	
2-CHLORONAPHTHALENE	UG/L	ND	0.4	
4-CHLOROPHENYL PHENYL ETHER	UG/L	ND	0.5	

"FINAL REPORT FORMAT - SINGLE"

Accession: 806240
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806412
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: II

Lab Id: 004 Sample Date/Time: 18-JUN-98 1545
Client Sample Id: MW-61DUP Received Date: 19-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
CHRYSENE	UG/L	ND	0.7	
DIBENZ(A,J)ACRIDINE	UG/L	ND	0.5	
DIBENZO (A,H) ANTHRACENE	UG/L	ND	0.3	
DIBENZOFURAN	UG/L	ND	0.4	
1,2-DICHLOROBENZENE	UG/L	ND	0.3	
1,3-DICHLOROBENZENE	UG/L	ND	0.3	
1,4-DICHLOROBENZENE	UG/L	ND	0.5	
3,3'-DICHLOROBENZIDINE	UG/L	ND	0.4	
DIETHYLPHTHALATE	UG/L	ND	0.4	
P-DIMETHYLAMINOAZOBENZENE	UG/L	ND	0.4	
7,12-DIMETHYLBENZ(A)ANTHRACENE	UG/L	ND	1.8	
A-,A-DIMETHYLPHENETHYLAMINE	UG/L	ND	0.1	
DIMETHYLPHTHALATE	UG/L	ND	0.4	
DI-N-BUTYLPHTHALATE	UG/L	ND	0.4	
2,4-DINITROTOLUENE	UG/L	ND	0.5	
2,6-DINITROTOLUENE	UG/L	ND	0.5	
DI-N-OCTYLPHTHALATE	UG/L	ND	0.7	
DIPHENYLAMINE	UG/L	ND	0.5	
1,2-DIPHENYLHYDRAZINE	UG/L	ND	0.3	
FLUORANTHENE	UG/L	ND	0.5	
FLUORENE	UG/L	ND	0.6	
HEXACHLOROBENZENE	UG/L	ND	0.5	
HEXACHLOROBUTADIENE	UG/L	ND	0.5	
HEXACHLOROCYCLOPENTADIENE	UG/L	ND	0.6	
HEXACHLOROETHANE	UG/L	ND	0.6	
INDENO (1,2,3-CD) PYRENE	UG/L	ND	0.5	
ISOPHORONE	UG/L	ND	0.4	
3-METHYLCHOLANTHRENE	UG/L	ND	0.4	
2-METHYLNAPHTHALENE	UG/L	ND	0.5	
NAPHTHALENE	UG/L	ND	0.4	
1-NAPHTHYLAMINE	UG/L	ND	1.5	
2-NAPHTHYLAMINE	UG/L	ND	1.0	
2-NITROANILINE	UG/L	ND	0.4	
3-NITROANILINE	UG/L	ND	0.9	
4-NITROANILINE	UG/L	ND	0.8	
NITROBENZENE	UG/L	ND	0.5	
N-NITROSODIMETHYLAMINE	UG/L	ND	1.2	
N-NITROSODI-N-BUTYLAMINE	UG/L	ND	1.1	
N-NITROSODIETHYLAMINE	UG/L*	ND	10	
N-NITROSODIPHENYLAMINE	UG/L	ND	0.4	
N-NITROSO-DI-N-PROPYLAMINE	UG/L	ND	0.4	
N-NITROSOPIPERIDINE	UG/L	ND	0.8	
N-NITROSOPYRROLIDINE	UG/L*	ND	10	
PENTACHLOROBENZENE	UG/L	ND	0.4	
PENTACHLORONITROBENZENE (PCNB)	UG/L	ND	5.0	

"FINAL REPORT FORMAT - SINGLE"

Accession: 806240
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806412
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Matrix: WATER
QC Level: II

Lab Id: 004 Sample Date/Time: 18-JUN-98 1545
Client Sample Id: MW-61DUP Received Date: 19-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
PHENACETIN	UG/L	ND	0.4	
PHENANTHRENE	UG/L	ND	0.4	
2-PICOLINE	UG/L	ND	7.7	
PRONAMIDE	UG/L	ND	0.4	
PYRENE	UG/L	ND	0.5	
1,2,4,5-TETRACHLOROBENZENE	UG/L	ND	0.4	
1,2,4 TRICHLOROBENZENE	UG/L	ND	0.6	
2-FLUOROPHENOL	%REC/SURR	100	21-100	
PHENOL-D6	%REC/SURR	92	10-100	
2,4,6-TRIBROMOPHENOL	%REC/SURR	88	10-123	
2-FLUOROBIPHENYL	%REC/SURR	96	43-116	
NITROBENZENE-D5	%REC/SURR	103	35-114	
TERPHENYL-D14	%REC/SURR	102	33-124	
ANALYST	INITIALS	RW		

Comments:

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"Method Report Summary"

Accession Number: 806240
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806412
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)

Client Sample Id:	Parameter:	Unit:	Result:
MW-61A	BIS(2-ETHYLHEXYL)PHTHALATE	UG/L	14

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Rd Pensacola, FL 32514 (850) 474-1001

Data Qualifiers for Final Report

AEN-Pensacola Inorganic/Organic

@	Adjusted reporting limit due to sample matrix (dilution prior to digestion and/or analysis)
+	Elevated reporting limit due to dilution into calibration range
*	Elevated reporting limit due to matrix interference (dilution prior to digestion and/or analysis)
#	Elevated reporting limit due to insufficient sample size
D	Diluted out
J5	The reported value is quantitated as a TIC; therefore, it is estimated
ND = Not Detected	N/S = Not Submitted N/A = Not Applicable

Florida Projects Inorganic/Organic

Y1	Improper preservation, no preservative present in sample upon receipt
Y2	Improper preservation, incorrect preservative present in sample upon receipt
Y3	Improper preservation, sample temperature exceeded EPA temperature limits of 2-6°C upon receipt
Y (FL description)	The laboratory analysis was from an unpreserved or improperly preserved sample. The data may not be accurate.
Q	Sample held beyond the accepted holding time
I	The reported value is < Laboratory RL and > laboratory MDL
U1	The reported value is ≤ Laboratory MDL (value for sample result is reported as the MDL)
U (FL description)	Indicates the compound was analyzed for but not detected.
T	The reported value is < Laboratory MDL (value shall not be used for statistical analysis)
V	The analyte was detected in both the sample and the associated method blank.
J1	Surrogate recovery limits have been exceeded
J2	The sample matrix interfered with the ability to make any accurate determinations
J3	The reported value failed to meet the established quality control criteria for either precision or accuracy
J (FL description)	Estimated value; not accurate.

AFCEE Projects (under QAPP) and All Other (AEN-PN) Projects/Sites for Inorganic/Organic Parameters

J4	(For positive results) Temperature limits exceeded (≤2°C or ≥ 6°C)
J (AFCEE description)	The analyte was positively identified, the quantitation is an estimation
R1	(For nondetects) Temperature limits exceeded (≤2°C or ≥ 6°C)
R2	Improper preservation, no preservative present in sample upon receipt
R3	Improper preservation, incorrect preservative present in sample upon receipt
R4	Holding time exceeded
R5	Collection requirements not met, improper container used for sample
R (AFCEE description)	The data are unusable due to deficiencies in the ability to analyze the sample and meet QC criteria
F	< RL and > laboratory MDL
F (AFCEE description)	The analyte was positively identified but the associated numerical value is below the AFCEE or lab RL
U2	≤ Laboratory MDL (value for result will be the MDL, never below the MDL)
U (AFCEE description)	The analyte was analyzed for but not detected. The associated numerical value is at or below the MDL
B (AFCEE description)	The analyte was found in the associated blank, as well as in the sample

ICR Projects Inorganic/Organic

A	Acceptable
R6	Rejected

Examples: ICR Flags

R6 = Laboratory extracted the sample but the refrigerator malfunctioned so the extract became warm and client was notified

R6 = Sample arrived in laboratory in good condition; however, the laboratory did not analyze it within EPA's established holding time limit.

CLP and CLP-like Projects

Refer to referenced CLP Statement of Work (SOW) for explanation of data qualifiers

IDL = Laboratory Instrument Detection Limit
MDL = Laboratory Method Detection Limit
RL = Reporting Limit (AFCEE RLs are listed in the AFCEE QAPP)
CLP CRDL = CLP Contract Required Detection Limit (these limits are listed in the EPA CLP Statement of Work or SOW)
CLP CRQL = CLP Contract Required Quantitation Limit (these limits are listed in the EPA CLP Statement of Work or SOW)

Any time a sample arrives at the laboratory improperly preserved (at improper pH or temperature) or after holding time has expired or prepared or analyzed after holding time, client must be notified in writing (i.e. case narrative).

AEN-Pensacola uses the most current promulgated methods contained in the reference manuals.

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Quality Control Report

Analysis: MARATHON WET CHEMISTRY INORGANICS

Accession:	806240
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806412
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	WET CHEM

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Date 06-Jul-98

"WetChem Quality Control Report"

Parameter:	CHLORIDE	CYANIDE	FLUORIDE	NO2	NO2NO3	PH
Batch Id:	CIW066	CNW037	FLW026	N2W089	N3W46B	PHW129
Blank Result:	<1	<0.005	<0.2	<0.1	<0.1	N/A
Anal. Method:	4500-CL B	335.2	340.2	354.1	353.2	150.1
Prep. Method:	N/A	N/A	N/A	N/A	N/A	N/A
Analysis Date:	22-JUN-98	24-JUN-98	24-JUN-98	19-JUN-98	23-JUN-98	19-JUN-98
Prep. Date:	22-JUN-98	23-JUN-98	24-JUN-98	19-JUN-98	22-JUN-98	19-JUN-98
Sample Duplication						
Sample Dup:	806222-4	806213-1	806213-1	806236-4	806240-1	806240-1
Rept Limit:	<1	<0.005	<0.2	<0.1	<0.1	N/A
Sample Result:	69.2	<0.005	0.60	<0.1	<0.1	7.27
Dup Result:	69.1	<0.005	0.65	<0.1	<0.1	7.27
Sample RPD:	0	N/C	0.05 G	N/C	N/C	0
Max RPD:	5	0.005	0.2	0.1	0.1	0.12
Dry Weight%	N/A	N/A	N/A	N/A	N/A	N/A
Matrix Spike						
Sample Spiked:	806222-4	806213-1	806213-1	806236-4	806240-1	806240-1
Rept Limit:	<1	<0.005	<0.2	<0.1	<0.1	N/A
Sample Result:	69.2	<0.005	0.60	<0.1	<0.1	
Spiked Result:	120.4	0.218	1.27	0.16	0.84	
Spike Added:	55.0	0.200	0.80	0.20	1.00	
% Recovery:	93	109	84	80	84	
% Rec Limits:	90-111	67-127	79-132	70-131	71-125	
Dry Weight%	N/A	N/A	N/A	N/A	N/A	
ICV						
ICV Result:	100.9	0.340	1.14	0.20	1.98	10.04
True Result:	100	0.314	1.20	0.20	2.00	10.00
% Recovery:	101	108	95	100	99	100
% Rec Limits:	90-110	90-110	90-110	90-110	90-110	90-110
LCS						
LCS Result:						7.03
True Result:						6.87
% Recovery:						102
% Rec Limits:						96-104

"WetChem Quality Control Report"

Parameter:	PHENOL	SULFATE	TDS
Batch Id:	PEW023	SEW077	TDW037
Blank Result:	<0.005	<10	<5
Anal. Method:	420.1	375.4	160.1
Prep. Method:	N/A	N/A	N/A
Analysis Date:	26-JUN-98	26-JUN-98	24-JUN-98
Prep. Date:	25-JUN-98	26-JUN-98	23-JUN-98
Sample Duplication			
Sample Dup:	806272-1	806240-1	806172-1
Rept Limit:	<0.005	<130+	<5
Sample Result:	0.010	303	400
Dup Result:	0.009	304	446
Sample RPD:	0.001 G	1 G	11
Max RPD:	0.005	130	16
Dry Weight%	N/A	N/A	N/A
Matrix Spike			
Sample Spiked:	806272-1	806240-1	N/A
Rept Limit:	<0.005	<250+	N/A
Sample Result:	<0.005	303	
Spiked Result:	0.022	678	
Spike Added:	0.020	500	
% Recovery:	110	75	
% Rec Limits:	48-149	56-154	
Dry Weight%	N/A	N/A	
ICV			
ICV Result:	0.027	20.9	
True Result:	0.025	20	
% Recovery:	108	105	
% Rec Limits:	90-110	90-110	
LCS			
LCS Result:			278
True Result:			293
% Recovery:			95
% Rec Limits:			77-129

"Quality Control Comments"

Batch Id:	Comments:
N2W089	806266-1,2,3 & 806268-1,2,3,4 were added to batch on 20-Jun-98.

----- Common Footnotes WetChem -----

N/A = NOT APPLICABLE.
N/S = NOT SUBMITTED.
N/C = SAMPLE AND DUPLICATE RESULTS ARE AT OR BELOW AEN REPORTING LIMIT; THEREFORE, THE RPD IS "NOT CALCULABLE" AND NO CONTROL LIMITS APPLY.
N/D = NOT DETECTED.
R = REACTIVE
T = TOTAL
G = SAMPLE AND/OR DUPLICATE RESULT IS BELOW 5 X AEN REPORTING LIMIT AND THE ABSOLUTE DIFFERENCE BETWEEN THE SAMPLE AND DUPLICATE RESULT IS AT OR BELOW AEN REPORTING LIMIT; THEREFORE, THE RESULTS ARE "IN CONTROL".
Q = THE ANALYTICAL (POST-DISTILLATION) SPIKE IS REPORTED DUE TO PERCENT RECOVERY BEING OUTSIDE ACCEPTANCE LIMITS ON THE MATRIX (PRE-DISTILLATION) SPIKE.
= ELEVATED REPORTING LIMIT DUE TO INSUFFICIENT SAMPLE.
+ = ELEVATED REPORTING LIMIT DUE TO DILUTION INTO CALIBRATION RANGE.
* = ELEVATED REPORTING LIMIT DUE TO MATRIX INTERFERENCE (DILUTION PRIOR DIGESTION AND/OR ANALYSIS).
@ = ADJUSTED REPORTING LIMIT DUE TO SAMPLE MATRIX (DILUTION PRIOR TO DIGESTION AND/OR ANALYSIS).
P = ANALYTICAL (POST DIGESTION) SPIKE.
I = DUPLICATE INJECTION.
& = AUTOMATED
F = SAMPLE SPIKED > 4 X SPIKE CONCENTRATION.
N/C+ = NOT CALCULABLE
H = SAMPLE AND/OR DUPLICATE RESULT IS BELOW 5 X AEN REPORTING LIMIT AND THE ABSOLUTE DIFFERENCE BETWEEN THE RESULTS EXCEEDS THE AEN REPORTING LIMIT; THEREFORE, THE RESULTS ARE "OUT OF CONTROL".
A = SAMPLE AND DUPLICATE RESULTS ARE "OUT OF CONTROL".
Z = THE SAMPLE RESULT FOR THE SPIKE IS BELOW THE REPORTING LIMIT. HOWEVER, THIS RESULT IS REPORTED FOR ACCURATE QC CALCULATIONS.
NH= SAMPLE AND / OR DUPLICATE RESULT IS BELOW 5 X AEN REPORTING LIMIT AND THE ABSOLUTE DIFFERENCE BETWEEN THE RESULTS EXCEEDS THE AEN REPORTING LIMIT; THEREFORE, THE RESULTS ARE "OUT OF CONTROL". SAMPLE IS NON-HOMOGENEOUS.
(*) = REPORTING LIMITS RAISED DUE TO CLP METHOD NOT REQUIRING A CONCENTRATION STEP FOR CN.
(CA) = SEE CORRECTIVE ACTIONS FORM.
**= MATRIX INTERFERENCE
SW-846, 3rd Edition, latest EPA-approved edition.
EPA 600/4-79-020, Revised March 1983.
STANDARD METHODS, For the Examination of Water and Wastewater, latest EPA-approved edition.
NIOSH Manual of Analytical Methods, 4th Edition.
ANNUAL BOOK OF ASTM STANDARDS, VOLUMES 11.01 and 11.02, latest EPA-approved edition.
METHODS FOR THE DETERMINATION OF INORGANIC SUBSTANCES IN ENVIRONMENTAL SAMPLES, EPA600/R-93/100, AUGUST 1993
METHODS FOR SOIL ANALYSIS, PART 2, CHEMICAL AND MICROBILOGICAL PROPERTIES, 2ND EDITION.
AEN-PN USES THE MOST CURRENT PROMULGATED METHODS FROM THE REFERENCES LISTED ABOVE.

1. COLIFORM. COLIFORM PRECISION IS MEASURED BY THE ABSOLUTE DIFFERENCE BETWEEN THE LOGARITHM OF COLONIES PER 100 MLS OF SAMPLE ON DUPLICATE PLATES.
2. PH. PH PRECISION IS MEASURED BY THE ABSOLUTE DIFFERENCE BETWEEN THE SAMPLE AND DUPLICATE ANALYSIS.
3. FLASHPOINT. FLASHPOINT PRECISION IS MEASURED BY THE ABSOLUTE DIFFERENCE BETWEEN THE SAMPLE AND DUPLICATE ANALYSIS.

RPD = RELATIVE PERCENT DIFFERENCE (OR DEVIATION).
RPT LMTS = REPORTING LIMITS BASED ON METHOD DETECTION LIMIT STUDIES.

DPH = DOLLY P. HWANG RB = REBECCA BROWN WH = WENDY HAGGARD
ED = ESTHER DANTIN CR = CYNTHIA ROBERTS AB = AMY BRADLEY
BE = BETTY EVERTON PLD = PAULA L. DOUGHTY JTZ = JONATHAN T. ZIENTARSKI
RH = RICKY HAGENDORFER

SEVERN TRENT LABORATORIES 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Quality Control Report

Analysis: POLYNUCLEAR AROMATICS BY 8310

Accession:	806240
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806412
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	SEMI-VOLATILE FUELS

SEVERN TRENT LABORATORIES 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"QC Report"

Title: Water Blank
Batch: PAW141
Analysis Method: 8310/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.

Blank Id: A Date Analyzed: 25-JUN-98 Date Extracted: 23-JUN-98

Parameters:	Units:	Results:	Reporting Limits:
ACENAPHTHENE	UG/L	ND	1
ACENAPHTHYLENE	UG/L	ND	1
ANTHRACENE	UG/L	ND	1
BENZO(a)ANTHRACENE	UG/L	ND	1
BENZO(a)PYRENE	UG/L	ND	0.1
BENZO(b)FLUORANTHENE	UG/L	ND	1
BENZO(g,h,i)PERYLENE	UG/L	ND	1
BENZO(k)FLUORANTHENE	UG/L	ND	1
CHRYSENE	UG/L	ND	1
DIBENZO(a,h)ANTHRACENE	UG/L	ND	1
FLUORANTHENE	UG/L	ND	1
FLUORENE	UG/L	ND	1
INDENO(1,2,3-cd)PYRENE	UG/L	ND	1
NAPHTHALENE	UG/L	ND	1
PHENANTHRENE	UG/L	ND	1
PYRENE	UG/L	ND	1
1-METHYLNAPHTHALENE	UG/L	ND	0.3
2-METHYLNAPHTHALENE	UG/L	ND	1
2-CHLOROANTHRACENE	%REC/SURR	82	28-138
ANALYST	INITIALS	HAH	

Comments:

"QC Report"

Title: Water LCS
Batch: PAW141
Analysis Method: 8310/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.

RS Date Analyzed: 25-JUN-98 RS Date Extracted: 23-JUN-98

Parameters:	Spike Added	Sample Conc	RS Conc	RS %Rec	Rec Lmts
ACENAPHTHYLENE	7.1	<1	5.7	80	45-127
BENZO(k)FLUORANTHENE	9.2	<1	8.6	93	68-131
CHRYSENE	9.1	<1	8.8	97	69-131
PHENANTHRENE	9.1	<1	8.6	95	63-124
PYRENE	8.8	<1	8.5	97	61-126
Surrogates:					
2-CHLOROANTHRACENE				85	28-138

Comments:

Notes:
N/S = NOT SUBMITTED N/A = NOT APPLICABLE D = DILUTED OUT
UG/L = PARTS PER BILLION. < = LESS THAN REPORTING LIMIT.
* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS.
SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

"QC Report"

Title: Water Matrix Spike/Matrix Spike Duplicate
Batch: PAW141
Analysis Method: 8310/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3510/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.

Dry Weight %: N/A
Sample Spiked: 806229-1

MS Date Analyzed: 25-JUN-98
MSD Date Analyzed: 25-JUN-98

MS Date Extracted: 23-JUN-98
MSD Date Extracted: 23-JUN-98

Parameters:	Spike Added	Sample Conc	MS Conc	MS %Rec	MSD Conc	MSD %Rec	RPD	RPD Lmts	Rec Lmts
ACENAPHTHYLENE	7.1	<1	5.1	72	6.7	94	27	51	18-146
BENZO(k)FLUORANTHENE	9.2	<1	6.6	72	7.0	76	5	40	26-137
CHRYSENE	9.1	<1	7.4	81	7.9	87	7	69	16-156
PHENANTHRENE	9.1	<1	7.3	80	8.1	89	11	36	30-145
PYRENE	8.8	<1	7.3	83	8.1	92	10	41	39-137
Surrogates:									
2-CHLOROANTHRACENE				77		84			28-138

Comments:

Notes:
N/S = NOT SUBMITTED N/A = NOT APPLICABLE D = DILUTED OUT
UG/L = PARTS PER BILLION. < = LESS THAN REPORTING LIMIT.
* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS.
SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

Common Notation for Organic Reporting

N/S = NOT SUBMITTED
N/A = NOT APPLICABLE
UG = MICROGRAMS
UG/L = PARTS PER BILLION
UG/KG = PARTS PER BILLION
MG/M3 = MILLIGRAM PER CUBIC METER
PPMV = PART PER MILLION BY VOLUME
MG/KG = PARTS PER MILLION
MG/L = PARTS PER MILLION
< = LESS THAN
ND = NOT DETECTED

SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

ORGANIC SOILS ARE REPORTED ON A DRYWEIGHT BASIS.

RPT LMTS = REPORTING LIMITS BASED ON METHOD DETECTION LIMIT STUDIES.

RPD = RELATIVE PERCENT DIFFERENCE (OR DEVIATION)

AEN/GC/FID
AEN GAS CHROMATOGRAPHIC METHOD EMPLOYING DIRECT INJECTION ON COLUMN WITH FLAME IONIZATION DETECTOR (FID).

AEN/GC/FIX
AEN GAS CHROMATOGRAPHIC METHOD FOR ANALYSIS OF FIXED GASES EMPLOYING DIRECT INJECTION ON COLUMN WITH THERMAL CONDUCTIVITY DETECTOR (TCD) AND FLAME IONIZATION DETECTOR (FID).

AEN/GC/FPD
AEN GAS CHROMATOGRAPHIC METHOD EMPLOYING DIRECT INJECTION ON COLUMN WITH FLAME PHOTOMETRIC DETECTOR (FPD) IN SULFUR-SPECIFIC MODE.

AEN/GC/PID
AEN GAS CHROMATOGRAPHIC METHOD EMPLOYING DIRECT INJECTION ON COLUMN WITH PHOTOIONIZATION DETECTOR (PID).

AEN/GC/TCD
AEN GAS CHROMATOGRAPHIC METHOD EMPLOYING DIRECT INJECTION ON COLUMN WITH THERMAL CONDUCTIVITY DETECTOR (TCD).

SW-846 METHOD 9020
PARTICULATE MATTER IS REMOVED BY ALLOWING PARTICULATES TO SETTLE IN THE SAMPLE CONTAINER AND DECANTING THE SUPERNATANT LIQUID. EXCESSIVE PARTICULATES ARE REMOVED BY FILTRATION OF THE SUPERNATANT LIQUID.

RSK 175
SAMPLE PREPARATION AND CALCULATIONS FOR DISSOLVED GAS ANALYSIS IN WATER SAMPLES USING A GC HEADSPACE EQUILIBRATION TECHNIQUE, RSK SOP-175, ROBERT S. KERR ENVIRONMENTAL RESEARCH LABORATORY, USEPA, AUGUST 11, 1994.

AEN-PN USES THE MOST CURRENT PROMULGATED METHODS CONTAINED IN THE REFERENCE MANUALS.

SW = STEVE WILHITE
RW = ROBERT WOLFE
KS = KENDALL SMITH
LB = LISA BIZZELL
LP = LEVERNE PETERSON
PLD = PAULA DOUGHTY
DK = DARLENE KINCHEN
BT = BECKY TREMMEL
HAH = HOLLIE HOFFMAN

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Quality Control Report

Analysis: PESTICIDES (8080)

Accession:	806240
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806412
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	PESTICIDES

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"QC Report"

Title: Water Blank
Batch: PSW043
Analysis Method: 8080 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Extraction Method: 3510 / 3660 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.

Blank Id: A Date Analyzed: 30-JUN-98 Date Extracted: 22-JUN-98

Parameters:	Units:	Results:	Reporting Limits:
ALDRIN	UG/L	ND	0.05
ALPHA-BHC	UG/L	ND	0.05
BETA-BHC	UG/L	ND	0.05
DELTA-BHC	UG/L	ND	0.05
GAMMA-BHC (LINDANE)	UG/L	ND	0.05
4,4'-DDD	UG/L	ND	0.10
4,4'-DDE	UG/L	ND	0.10
4,4'-DDT	UG/L	ND	0.10
DIELDRIN	UG/L	ND	0.10
ENDOSULFAN I	UG/L	ND	0.05
ENDOSULFAN II	UG/L	ND	0.10
ENDOSULFAN SULFATE	UG/L	ND	0.10
ENDRIN	UG/L	ND	0.10
ENDRIN ALDEHYDE	UG/L	ND	0.10
HEPTACHLOR	UG/L	ND	0.05
HEPTACHLOR EPOXIDE	UG/L	ND	0.05
METHOXYCHLOR	UG/L	ND	0.5
CHLORDANE	UG/L	ND	0.5
TOXAPHENE	UG/L	ND	3.0
PCB-1016	UG/L	ND	1.0
PCB-1221	UG/L	ND	1.0
PCB-1232	UG/L	ND	1.0
PCB-1242	UG/L	ND	1.0
PCB-1248	UG/L	ND	1.0
PCB-1254	UG/L	ND	1.0
PCB-1260	UG/L	ND	1.0
MICROBAN	UG/L	ND	0.5
TCMX	%REC/SURR	92	43-101
DCB	%REC/SURR	104	17-135
ANALYST	INITIALS	RP	

Comments:

"QC Report"

Title: Water LCS
Batch: PSW043
Analysis Method: 8080 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Extraction Method: 3510 / 3660 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.

RS Date Analyzed: 30-JUN-98 RS Date Extracted: 22-JUN-98

Parameters:	Spike Added	Sample Conc	RS Conc	RS %Rec	Rec Lmts
LINDANE	1.00	<0.05	0.91	91	51-118
HEPTACHLOR	1.00	<0.05	1.06	106	70-123
ALDRIN	1.00	<0.05	1.04	104	54-122
DIELDRIN	1.00	<0.10	1.10	110	75-119
ENDRIN	1.00	<0.10	1.13	113	67-122
DDT	1.00	<0.10	1.33	133*	59-127
Surrogates:					
DCB				104	17-135
TCMX				91	43-101

Comments:
* PER AEN-PENSACOLA POLICY, WHEN AN ANALYTE IN THE LCS EXCEEDS THE UPPER CONTROL LIMIT AND THAT ANALYTE IS NOT DETECTED IN THE ASSOCIATED SAMPLES,THE DATA FOR THAT ANALYTE DOES NOT NEED TO BE QUALIFIED AND NO CORRECTIVE ACTION IS REQUIRED.

Notes:
N/S = NOT SUBMITTED N/A = NOT APPLICABLE D = DILUTED OUT
UG/L = PARTS PER BILLION. < = LESS THAN REPORTING LIMIT.
* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS.
SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

"QC Report"

Title: Water Matrix
Batch: PSW043
Analysis Method: 8080 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.
Extraction Method: 3510 / 3660 / Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.

Dry Weight %: N/A
Sample Spiked: 806240-1

MS Date Analyzed: 30-JUN-98
MSD Date Analyzed: 30-JUN-98

MS Date Extracted: 22-JUN-98
MSD Date Extracted: 22-JUN-98

Parameters:	Spike Added	Sample Conc	MS Conc	MS %Rec	MSD Conc	MSD %Rec	RPD	RPD Lmts	Rec Lmts
LINDANE	2.00	<0.05	1.32	66	1.48	74	11	27	40-119
HEPTACHLOR	2.00	<0.05	1.46	73	1.70	85	15	30	53-123
ALDRIN	2.00	<0.05	1.46	73	1.58	79	8	31	42-130
DIELDRIN	2.00	<0.10	1.31	66	1.57	79	18	18	61-124
ENDRIN	2.00	<0.10	1.39	70	1.63	82	16	30	50-125
DDT	2.00	<0.10	1.58	79	1.96	98	21	32	25-138
Surrogates:									
DCB				69		76			17-135
TCMX				69		75			43-101

Comments:

Notes:
N/S = NOT SUBMITTED N/A = NOT APPLICABLE D = DILUTED OUT
UG/L = PARTS PER BILLION. < = LESS THAN REPORTING LIMIT.
* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS.
SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

Common notation for Organic reporting

N/S = NOT SUBMITTED
N/A = NOT APPLICABLE
D = DILUTED OUT
UG/L = PARTS PER BILLION.
UG/KG = PARTS PER BILLION.
MG/KG = PARTS PER MILLION.
MG/L = PARTS PER MILLION.
< = LESS THAN.
* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS.
ND = NOT DETECTED ABOVE REPORTING LIMIT.
Rpt Lmts = REPORTING LIMITS BASED ON METHOD DETECTION LIMIT STUDIES.
RPD = RELATIVE PERCENT DIFFERENCE (OR DEVIATION)

SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

ORGANIC SOILS ARE REPORTED ON A DRY WEIGHT BASIS.

AEN-PN USES THE MOST CURRENT PROMULGATED METHODS CONTAINED IN THE REFERENCE MANUALS.

RP = ROBERT PEREZ
LP = LEVERNE PETERSON
RW = ROBERT WOLFE

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Quality Control Report

Analysis: ACID & BASE EXTRACTABLES (8270)

Accession:	806240
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806412
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	ORGANIC/MS

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"QC Report"

Title: Water Blank
Batch: ALW075
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.

Blank Id: A Date Analyzed: 25-JUN-98 Date Extracted: 22-JUN-98

Parameters:	Units:	Results:	Reporting Limits:
P-CHLORO-M-CRESOL	UG/L	ND	10
2-CHLOROPHENOL	UG/L	ND	10
O-CRESOL	UG/L	ND	10
M,P CRESOL	UG/L	ND	10
2,4-DICHLOROPHENOL	UG/L	ND	10
2,6-DICHLOROPHENOL	UG/L	ND	10
2,4-DIMETHYLPHENOL	UG/L	ND	10
4,6-DINITRO-O-CRESOL	UG/L	ND	50
2,4-DINITROPHENOL	UG/L	ND	10
2-NITROPHENOL	UG/L	ND	10
4-NITROPHENOL	UG/L	ND	50
PENTACHLOROPHENOL	UG/L	ND	50
PHENOL	UG/L	ND	10
2,3,4,6-TETRACHLOROPHENOL	UG/L	ND	10
2,4,5-TRICHLOROPHENOL	UG/L	ND	50
2,4,6-TRICHLOROPHENOL	UG/L	ND	10
ACENAPHTHENE	UG/L	ND	10
ACENAPHTHYLENE	UG/L	ND	10
ACETOPHENONE	UG/L	ND	10
2-ACETYLAMINOFLUORENE	UG/L	ND	10
4-AMINOBIPHENYL	UG/L	ND	10
ANILINE	UG/L	ND	10
ANTHRACENE	UG/L	ND	10
ARAMITE	UG/L	ND	10
BENZO (A) ANTHRACENE	UG/L	ND	10
BENZO (A) PYRENE	UG/L	ND	10
BENZO (B) FLUORANTHENE	UG/L	ND	10
BENZO (G,H,I) PERYLENE	UG/L	ND	10
BENZO (K) FLUORANTHENE	UG/L	ND	10
BENZYL ALCOHOL	UG/L	ND	10
BIS(2-CHLORO-1-METHYLETHYL)ETHER	UG/L	ND	10
BIS(2-CHLOROETHOXY)METHANE	UG/L	ND	10
BIS(2-CHLOROETHYL)ETHER	UG/L	ND	10
BIS(2-ETHYLHEXYL)PHTHALATE	UG/L	ND	10
4-BROMOPHENYL PHENYL ETHER	UG/L	ND	10
BUTYLBENZYL PHTHALATE	UG/L	ND	10
P-CHLOROANILINE	UG/L	ND	10
CHLOROBENZILATE	UG/L	ND	10
2-CHLORONAPHTHALENE	UG/L	ND	10
4-CHLOROPHENYL PHENYL ETHER	UG/L	ND	10
CHRYSENE	UG/L	ND	10
DIALLATE	UG/L	ND	10
DIBENZO (A,H) ANTHRACENE	UG/L	ND	10
DIBENZOFURAN	UG/L	ND	10
1,2-DICHLOROBENZENE	UG/L	ND	10
1,3-DICHLOROBENZENE	UG/L	ND	10

"QC Report"

Title: Water Blank
Batch: ALW075
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.

Parameters:	Units:	Results:	Reporting Limits:
1,4-DICHLOROBENZENE	UG/L	ND	10
3,3'-DICHLOROBENZIDINE	UG/L	ND	50
DIETHYLPHTHALATE	UG/L	ND	10
DIMETHOATE	UG/L	ND	10
P-DIMETHYLAMINOAZOBENZENE	UG/L	ND	10
7,12-DIMETHYLBENZ(A)ANTHRACENE	UG/L	ND	10
3,3'-DIMETHYLBENZIDINE	UG/L	ND	10
A,A-DIMETHYLPHENETHYLAMINE	UG/L	ND	10
DIMETHYLPHTHALATE	UG/L	ND	10
DI-N-BUTYLPHTHALATE	UG/L	ND	10
M-DINITROBENZENE	UG/L	ND	10
2,4-DINITROTOLUENE	UG/L	ND	10
2,6-DINITROTOLUENE	UG/L	ND	10
DI-N-OCTYLPHTHALATE	UG/L	ND	10
DIPHENYLAMINE	UG/L	ND	10
ETHYL METHANESULFONATE	UG/L	ND	10
FAMPHUR	UG/L	ND	10
FLUORANTHENE	UG/L	ND	10
FLUORENE	UG/L	ND	10
HEXACHLOROBENZENE	UG/L	ND	10
HEXACHLOROBUTADIENE	UG/L	ND	10
HEXACHLOROCYCLOPENTADIENE	UG/L	ND	10
HEXACHLOROETHANE	UG/L	ND	10
HEXACHLOROPHENE	UG/L	ND	10
HEXACHLOROPROPENE	UG/L	ND	10
INDENO (1,2,3-CD) PYRENE	UG/L	ND	10
ISODRIN	UG/L	ND	10
ISOPHORONE	UG/L	ND	10
ISOSAFROLE	UG/L	ND	10
KEPONE	UG/L	ND	10
METHAPYRILENE	UG/L	ND	10
3-METHYLCHOLANTHRENE	UG/L	ND	10
METHYL METHANESULFONATE	UG/L	ND	10
1-METHYLNAPHTHALENE	UG/L	ND	10
2-METHYLNAPHTHALENE	UG/L	ND	10
NAPHTHALENE	UG/L	ND	10
1,4-NAPHTHOQUINONE	UG/L	ND	10
1-NAPHTHYLAMINE	UG/L	ND	10
2-NAPHTHYLAMINE	UG/L	ND	10
2-NITROANILINE	UG/L	ND	50
3-NITROANILINE	UG/L	ND	50
4-NITROANILINE	UG/L	ND	50
NITROBENZENE	UG/L	ND	10
5-NITRO-O-TOLUIDINE	UG/L	ND	10
4-NITROQUINOLINE-1-OXIDE	UG/L	ND	10
N-NITROSODIETHYLAMINE	UG/L	ND	10
N-NITROSODIMETHYLAMINE	UG/L	ND	10

"QC Report"

Title: Water Blank
Batch: ALW075
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.

Parameters:	Units:	Results:	Reporting Limits:
N-NITROSODI-N-BUTYLAMINE	UG/L	ND	10
N-NITROSODIPHENYLAMINE	UG/L	ND	10
N-NITROSOMETHYLETHYLAMINE	UG/L	ND	10
N-NITROSOMORPHOLINE	UG/L	ND	10
N-NITROSOPIPERIDINE	UG/L	ND	10
N-NITROSOPYRROLIDINE	UG/L	ND	10
PARATHION	UG/L	ND	10
PENTACHLOROBENZENE	UG/L	ND	10
PENTACHLOROETHANE	UG/L	ND	10
PENTACHLORONITROBENZENE	UG/L	ND	10
PHENACETIN	UG/L	ND	10
PHENANTHRENE	UG/L	ND	10
2-PICOLINE	UG/L	ND	10
P-PHENYLENEDIAMINE	UG/L	ND	10
PRONAMIDE	UG/L	ND	10
PYRENE	UG/L	ND	10
PYRIDINE	UG/L	ND	10
SAFROLE	UG/L	ND	10
SULFOTEPP	UG/L	ND	10
1,2,4,5-TETRACHLOROBENZENE	UG/L	ND	10
THIONAZIN	UG/L	ND	10
O-TOLUIDINE	UG/L	ND	10
1,2,4 TRICHLOROBENZENE	UG/L	ND	10
SYM-TRINITROBENZENE	UG/L	ND	10
O,O,O-TRIETHYL PHOSPHOROTHIATE	UG/L	ND	10
BENZIDINE	UG/L	ND	10
BIS(2-CHLOROISOPROPYL)ETHER	UG/L	ND	10
2-(SEC BUTYL)4,6-DINITRO-PHENOL(DINOSEB)	UG/L	ND	10
0~NITROSO-DI-N-PROPYLAMINE	UG/L	ND	10
6-METHYL CHRYSENE	UG/L	ND	20
INDENE	UG/L	ND	20
QUINOLINE	UG/L	ND	50
BENZENETHIOL	UG/L	ND	20
PARATOLIUDINE	UG/L	ND	50
TOLUENE DIISOCYANATE	UG/L	ND	50
TOLUENE DIAMINE	UG/L	ND	50
MONONITROTOLUENE	UG/L	ND	50
DIETHYLENE GLYCOL MONOBUTYL ETHER	UG/L	ND	10
2-FLUOROPHENOL	%REC/SURR	89	21-100
PHENOL-D6	%REC/SURR	72	10-100
2,4,6-TRIBROMOPHENOL	%REC/SURR	66	10-123
2-FLUOROBIPHENYL	%REC/SURR	74	43-116
NITROBENZENE-D5	%REC/SURR	73	35-114
TERPHENYL-D14	%REC/SURR	93	33-124
ANALYST	INITIALS	RW	

Comments:

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"QC Report"

Title: Water LCS
Batch: ALW075
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.

RS Date Analyzed: 26-JUN-98 RS Date Extracted: 22-JUN-98

Parameters:	Spike Added	Sample Conc	RS Conc	RS %Rec	Rec Lmts
PHENOL	150	<10	108	72	5-112
2-CHLOROPHENOL	150	<10	112	75	40-120
1,4-DICHLOROBENZENE	100	<10	70	70	32-119
N-NITRO-DI-N-PROPYLAMINE	100	<10	72	72	26-128
1,2,4 TRICHLOROBENZENE	100	<10	68	68	44-142
4-CHLORO-3-METHYLPHENOL	150	<10	112	75	30-128
ACENAPHTHENE	100	<10	70	70	47-145
4-NITROPHENOL	150	<50	92	61	1-132
2,4-DINITROTOLUENE	100	<10	66	66	39-138
PENTACHLOROPHENOL	150	<50	88	59	15-157
PYRENE	100	<10	84	84	52-115
Surrogates:					
NITROBENZENE-D5				84	35-114
2-FLUOROBIPHENYL				77	43-116
TERPHENYL-D14				92	33-124
PHENOL-D6				81	10-100
2-FLUOROPHENOL				91	21-100
2,4,6-TRIBROMOPHENOL				83	10-123

Comments:

Notes:
N/S = NOT SUBMITTED N/A = NOT APPLICABLE D = DILUTED OUT
UG/L = PARTS PER BILLION. < = LESS THAN REPORTING LIMIT.
* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS.
SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

"QC Report"

Title: Water Matrix Spike/Matrix Spike Duplicate
Batch: ALW075
Analysis Method: 8270/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: 3520/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.

Dry Weight %: N/A
Sample Spiked: 806240-3

MS Date Analyzed: 26-JUN-98
MSD Date Analyzed: 26-JUN-98

MS Date Extracted: 22-JUN-98
MSD Date Extracted: 22-JUN-98

Parameters:	Spike Added	Sample Conc	MS Conc	MS %Rec	MSD Conc	MSD %Rec	RPD	RPD Lmts	Rec Lmts
PHENOL	300	<10	260	87	252	84	4	38	5-112
2-CHLOROPHENOL	300	<10	260	87	260	87	0	25	38-120
1,4-DICHLOROBENZENE	200	<10	112	56	116	58	4	27	39-112
N-NITRO-DI-N-PROPYLAMINE	200	<10	144	72	140	70	3	30	32-125
1,2,4 TRICHLOROBENZENE	200	<10	112	56	112	56	0	30	44-118
4-CHLORO-3-METHYLPHENOL	300	<10	280	93	276	92	1	23	42-131
ACENAPHTHENE	200	<10	148	74	144	72	3	21	47-131
4-NITROPHENOL	300	<50	240	80	236	79	1	36	1-116
2,4-DINITROTOLUENE	200	<10	156	78	152	76	3	22	39-138
PENTACHLOROPHENOL	300	<50	268	89	260	87	2	36	14-164
PYRENE	200	<10	180	90	184	92	2	21	52-115
Surrogates:									
NITROBENZENE-D5				79		77			35-114
2-FLUOROBIPHENYL				73		73			43-116
TERPHENYL-D14				87		92			33-124
PHENOL-D6				92		92			10-100
2-FLUOROPHENOL				97		97			21-100
2,4,6-TRIBROMOPHENOL				92		89			10-123

Comments:

Notes:
N/S = NOT SUBMITTED N/A = NOT APPLICABLE D = DILUTED OUT
UG/L = PARTS PER BILLION. < = LESS THAN REPORTING LIMIT.
* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS.
SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

Common notation for Organic reporting

N/S = NOT SUBMITTED
N/A = NOT APPLICABLE
UG/L = PARTS PER BILLION.
UG/KG = PARTS PER BILLION.
MG/KG = PARTS PER MILLION.
MG/L = PARTS PER MILLION.
MG/M3 = MILLIGRAMS PER CUBIC METER.
NG = NANOGRAMS.
UG = MICROGRAMS.
PPBV = PARTS PER BILLION/VOLUME.
< = LESS THAN.
ND = NOT DETECTED ABOVE REPORT LIMIT.
RPT LMTS = REPORTING LIMITS BASED ON METHOD DETECTION LIMIT STUDIES.
RPD = RELATIVE PERCENT DIFFERENCE (OR DEVIATION)

SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

ORGANIC SOILS ARE REPORTED ON A DRY WEIGHT BASIS.

DUE TO THE NATURE OF THE SAMPLE MATRIX, MATRIX SPIKE/MATRIX SPIKE DUPLICATE ANALYSIS CANNOT BE PERFORMED FOR AIR ANALYSIS.

CLP SOW 1991, USEPA CONTRACT LABORATORY PROGRAM, STATEMENT OF WORK FOR ORGANICS ANALYSIS, DOCUMENT NUMBER OLM01.8, AUGUST 1991.

AEN-PN USES THE MOST CURRENT PROMULGATED METHODS CONTAINED IN THE REFERENCE MANUALS.

LP = LEVERNE PETERSON
LD = LARRY DILMORE
DWB = DAVID BOWERS
RW = RITA WINGO
BDH = BRUCE D. HUNT
HB = HEATHER E. BLAIR

American Environmental Network of Florida
PROJECT SAMPLE INSPECTION FORM

Lab Accession #: 806240 Date Received: 19-Jan-98

1.	Was there a Chain of Custody?	(Yes)	No*		
2.	Was Chain of Custody properly filled out and relinquished?	(Yes)	No*		
3.	Were samples received cold? (Criteria: 2° - 6°C: AEN-SOP 1055)	(Yes)	No*	N/A	
4.	Were all samples properly labeled and identified?	(Yes)	No*		
5.	Did samples require splitting? Req By: PM Client Other*	Yes*	(No)		
6.	Were samples received in proper containers for analysis requested?	(Yes)	No*		
7.	Were all sample containers received intact?	(Yes)	No*		
8.	Were samples checked for preservative? *(Check pH of all H_2O requiring preservative (AEN-PN SOP 917) except VOA vials that require zero headspace)+*	(Yes)	No*	N/A	
9.	Is there sufficient volume for analysis requested?	(Yes)	No*		
10.	Were samples received within Holding Time? (REFER TO AEN-SOP 1040)	Yes	(No*)		
11.	Is Headspace visible > ¼" in diameter in VOA vials?* If any headspace is evident, comment in out-of-control	Yes*	No	(N/A)	
12.	If sent, were matrix spike bottles returned?	Yes	No*	(N/A)	
13.	Was Project Manager notified of problems? (initials:_____)	Yes	No*	(N/A)	

Airbill Number(s): See attached Shipped By: FEDEX

Cooler Number(s): Client Coolers Shipping Charges: _____

Cooler Weight(s): N/A Cooler Temp(s) (°C): _____

(LIST THERMOMETER NUMBER(S) FOR VERIFICATION)

Out of Control Events and Inspection Comments:

10. pH received out of hold time.

(USE BACK OF PSIFFOR ADDITIONAL NOTES AND COMMENTS) ☞

Inspected By: PE Date: 6/19/98 Logged By: PE Date: 6/19/98

♣ *Note all Out-of-Control and/or questionable events on Comment Section of this form.*

♦ *Note who requested the splitting of samples on the Comment Section of this form.*

\+ *All preservatives for the State of North Carolina, the State of New York, and other requested samples are to be recorded on the sheet provided to record pH results (AEN-SOP 938, section 2.2.9).*

* *According to EPA, ¼" of headspace is allowed in 40 ml vials requiring volatile analysis, however, AEN makes it policy to record any headspace as out-of-control (AEN-SOP 938, section 2.2.12).*

American Environmental Network (NM), Inc.

CHAIN OF CUSTODY

DATE: 6/18/98 PAGE: ___ OF ___

AEN (NM) Accession #: 20624

SHADED AREAS ARE FOR LAB USE ONLY

PLEASE FILL THIS FORM IN COMPLETELY.

PROJECT MANAGER: Paul Peacock

COMPANY: Marathon Oil Company
ADDRESS: P.O. Box 552
Midland, TX 79702-0552
PHONE: (915) 687-8312
FAX: (915) 687-8305

BILL TO: same as above
COMPANY:
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)	8021 (BTEX) ☐ MTBE ☐ TMB ☐ PCE	8021 (TCL)	8021 (EDX)	8021 (HALO)	8021 (CUST)	504.1 EDB ☐ / DBCP ☐	CHLORIDE/Arsenic/TKN	8260 (TCL) Volatile Organics	8260 (Full) Volatile Organics	8260 (CUST) Volatile Organics	8260 (Landfill) Volatile Organics	Pesticides /PCB (608/8081)	Herbicides (615/8151)	Base/Neutral/Acid Compounds GC/MS (625/8270)	Polynuclear Aromatics (610/8310)	General Chemistry:	PET CHEM * SEE LIST	TOTAL METALS	Priority Pollutant Metals (13)	Target Analyte List Metals (23)	RCRA Metals (8)	RCRA Metals by TCLP (Method 1311)	Metals: 6010-T/7471		NUMBER OF CONTAINERS
MW-61A	6/18/98	0915	WATER	-02	1										X					X		X	X			X				X			2
MW-88		1130		-03	2										X					X		X	X			X				X			2
MW-61		1545		-06	3										X					X		X	X			X				X			2
MW-61 DUP		1545		-07	4										X					X		X	X			X				X			2

PROJECT INFORMATION

PROJ. NO.: 104332.03
PROJ. NAME: IBRP
P.O. NO.:
SHIPPED VIA:

SAMPLE RECEIPT

NO. CONTAINERS	
CUSTODY SEALS	Y / N / NA
RECEIVED INTACT	Y / N
BLUE ICE/ICE	Y / N

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

(RUSH) ☐ 24hr ☐ 48hr ☐ 72hr ☐ 1 WEEK (NORMAL) ☒

CERTIFICATION REQUIRED: ☐ NM ☐ SDWA ☐ OTHER

METHANOL PRESERVATION ☐

COMMENTS: FIXED FEE ☐

* SEE LIST

4 COOLERS

RELINQUISHED BY: 1.

Signature: Kevin Cook Time: 1550
Printed Name: KEVIN COOK Date: 6/18
Company: FO

RELINQUISHED BY: 2.

Signature: Time: 1600
Printed Name: CHRIS FAITH Date: 6/18
Company: AEN

RECEIVED BY: 1.

Signature: Time: 1550
Printed Name: CHRIS FAITH Date: 6/18
Company: AEN

RECEIVED BY: (LAB) 2.

Signature: Time: 0834
Printed Name: K. GUESPELMAN Date: 6/19/98
American Environmental Network (NM), Inc.

American Environmental Network (NM), Inc.

CHAIN OF CUSTODY

DATE: 6/17-18/98 PAGE: 1 OF ____

AEN (NM) Accession #: NM-806-118

SHADED AREAS ARE FOR LAB USE ONLY.

PLEASE FILL THIS FORM IN COMPLETELY.

PROJECT MANAGER:	Paul Peacock
COMPANY:	Marathon Oil Company
ADDRESS:	P.O. Box 552
	Midland, TX 79702-0552
PHONE:	(915) 687-8312
FAX:	(915) 687-8305
BILL TO:	same as above
COMPANY:	
ADDRESS:	

SAMPLE ID	DATE	TIME	MATRIX	LAB I.D.
MW-66RB	6/17/98	1600	WATER	01A
MW-61A	6/18/98	0915		02
MW-61A RB	6/18/98	0945		03A
MW-61 RB	6/18/98	1025		04A
MW-58	6/18/98	1130		05
MW-61				06
MW-61 DUP				07

ANALYSIS REQUEST

Petroleum Hydrocarbons (418.1) TRPH	(MOD.8015) Diesel/Direct Inject	(M8015) Gas/Purge & Trap	8021 (BTEX)/8015 (Gasoline)	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)	Herbicides (615/8151)	Base/Neutral/Acid Compounds GC/MS (625/8270)	Polynuclear Aromatics (610/8310)	General Chemistry:			Priority Pollutant Metals (13)	Target Analyte List Metals (23)	RCRA Metals (8)	RCRA Metals by TCLP (Method 1311)	Metals:		NUMBER OF CONTAINERS
							X	X	X		X															1
								X	X		X															1
											X															1
											X															1
							X	X			X															1

PROJECT INFORMATION	
PROJ. NO.:	104332.03
PROJ. NAME:	IBRP
P.O. NO.:	
SHIPPED VIA:	

SAMPLE RECEIPT	
NO. CONTAINERS:	
CUSTODY SEALS:	Y / N / NA
RECEIVED INTACT:	
BLUE ICE/ICE:	22°

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

(RUSH) ☐ 24hr ☐ 48hr ☐ 72hr ☐ 1 WEEK (NORMAL) ☒

CERTIFICATION REQUIRED: ☐ NM ☐ SDWA ☐ OTHER

METHANOL PRESERVATION ☐

COMMENTS: FIXED FEE ☐

-RB = 0XA
(1) MW66RB = 01A
TO BE ANALYZED & REPORTED

RELINQUISHED BY: 1	
Signature:	Time: 1630
Printed Name: KEVIN COOK	Date:
Company: FDGTF	

RECEIVED BY: 1	
Signature:	Time: 1630
Printed Name: CHRIS FAITH	Date: 6/18
Company: AEN	

RELINQUISHED BY: 2	
Signature:	Time: 1645
Printed Name: CHRIS FAITH	Date: 6/18
Company: AEN	

RECEIVED BY: (LAB) 2	
Signature:	Time: 11:30
Printed Name:	Date: 6/22/98
American Environmental Network (NM), Inc.	