GW - 21

REPORTS

YEAR(S):

1998

Comprehensive Site Characterization Report Indian Basin Remediation Project New Mexico

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ENVIRONMENTAL BUREAU
OIL CONSERVATION DIVISION

Volume 3 of 3

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Project No. 105469

December 1998

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

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

IT CORPORATION
A Member of The IT Group

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AEN I.D. 806415

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 6/22/98 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 methods 504.1, 8021 and 8260) arrived at 13.5 degrees C. They were resampled and analyzed under AEN accession number 806429.

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

CLIENT	: MARATHON OIL COMPANY	AEN I.D.	: 806415
PROJECT #	: 104332.03	DATE RECEIVED	: 6/22/98
PROJECT NAME	: IBRP	REPORT DATE	: 7/24/98

AEN ID. #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	MW-88RB	AQUEOUS	6/18/98
02	MW-71RB	AQUEOUS	6/18/98
03	MW-71	AQUEOUS	6/19/98
04	MW-87ARB	AQUEOUS	6/19/98
05	MW-87A	AQUEOUS	6/19/98
06	MW-87	AQUEOUS	6/19/98

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806415
PROJECT #	: 104332.03	DATE RECEIVED :	6/22/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806415-01A	MW-88RB	AQUEOUS	6/18/98	N/A	06/23/98	1

PARAMETER	DET. LIMIT		UNITS
1,1,1,2-Tetrachloroethane	1.0	< 1.0	ug/L
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	99
	(88 - 110)
Bromofluorobenzene	99
	(86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806415
PROJECT #	: 104332.03	DATE RECEIVED :	6/22/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806415-01A	MW-88RB	AQUEOUS	6/18/98	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	< 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

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806415
PROJECT #	: 104332.03	DATE RECEIVED :	6/22/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806415-02A	MW-71RB	AQUEOUS	6/18/98	N/A	06/23/98	1

PARAMETER	DET. LIMIT		UNITS
1,1,1,2-Tetrachloroethane	1.0	< 1.0	ug/L
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	100
	(88 - 110)
Bromofluorobenzene	97
	(86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806415
PROJECT #	: 104332.03	DATE RECEIVED :	6/22/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806415-02A	MW-71RB	AQUEOUS	6/18/98	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	< 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

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806415
PROJECT #	: 104332.03	DATE RECEIVED :	6/22/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806415-04A	MW-87ARB	AQUEOUS	6/18/98	N/A	06/23/98	1

PARAMETER	DET. LIMIT		UNITS
1,1,1,2-Tetrachloroethane	1.0	< 1.0	ug/L
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	107
	(80 - 120)
Toluene-d8	101
	(88 - 110)
Bromofluorobenzene	96
	(86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806415
PROJECT #	: 104332.03	DATE RECEIVED :	6/22/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806415-04A	MW-87ARB	AQUEOUS	6/18/98	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	< 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

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806415
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
1,1,1,2-Tetrachloroethane	1.0	< 1.0	ug/L
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. :	806415
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

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 12:32

ANALYTICAL REPORT FOR SAMPLES:

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
MW-71	P806459-01	Water	6/19/98
MW-87A	P806459-02	Water	6/19/98
MW-87	P806459-03	Water	6/19/98

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

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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 12:32

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: 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 12:32

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*
MW-71			**P806459-01**				**Water**	
Uranium	0780163	7/6/98	7/19/98	EPA 6020	0.00100	**0.00180**	mg/l	
MW-87A			**P806459-02**				**Water**	
Uranium	0780163	7/6/98	7/19/98	EPA 6020	0.00100	**0.00640**	mg/l	
MW-87			**P806459-03**				**Water**	
Uranium	0780163	7/6/98	7/19/98	EPA 6020	0.00100	**0.00150**	mg/l	

PC06459

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

DATE: 6/19/98 PAGE: ___ OF ___

AEN(NM) Accession #: 806415

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:	# OF CONTAINERS
MW-71	6/19/98	0930	water																					X						1
MW-87A	↓	1200	↓																					X						1
MW-87		1330																						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) ☒

CERTIFICATION REQUIRED: ☐ NM ☐ SDWA ☐ OTHER

METHANOL PRESERVATION ☐

COMMENTS: FIXED FEE ☐

RELINQUISHED BY: (LAB) 1.	RELINQUISHED BY:
Signature: Time: 1600	Signature: Time: 1600
Printed Name: KEVIN COOK Date: 6/19	Printed Name: CHRIS FAITH Date: 6/19
Company: FD	Company: AEN
RECEIVED BY: (LAB) 1.	**RECEIVED BY: (LAB) NCA 2.**
Signature: Time: 1600	Signature: Time: 1115
Printed Name: CHRIS FAITH Date: 6/19	Printed Name: S. Vanderhoof Date: 6/23/98
Company: AEN	American Environmental Network (NM), Inc.

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 12:32

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

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 #:	2399 002
STL Work Order #s	98 06 [illegible]
Client Project ID	104832 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: 98-06-404
STL-NC Project Number: 2399-012

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 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

Ross W. Williams, Ph.D.
Manager, Radiological Laboratory
7/17/98

C:\NET2\WP\AEN-NM 2399-012.WPD

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 806415

Project Number: 2399-012

Client Sample ID	Lab ID
MW-71	9806404-01
MW-87A	9806404-02
MW-87	9806404-03

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.

Manager, Radiological Laboratory

Date 7/17/98

STL

Project Number: 2399-012

Severn Trent Laboratories

Radiological Analysis Results

NC 806415

Form I

Client Sample ID	Lab ID	Sample Type	Batch Number	Matrix	Radionuclide	Result	Uncertainty	Q	Units	Analysis Date	Sample Size	MDA
MW-71	9806404-01	Reg	98060054	Water	Ra-226	0.79	0.20		pCi/L	07/06/98	0.5000	0.12
MW-71	9806404-01	Reg	98060056	Water	Ra-228	1.63	1.21		pCi/L	06/30/98	1.0000	2.64
MW-87A	9806404-02	Reg	98060054	Water	Ra-226	1.94	0.29		pCi/L	07/07/98	0.5000	0.15
MW-87A	9806404-02	Reg	98060056	Water	Ra-228	0.15	1.14		pCi/L	06/30/98	1.0000	2.74
MW-87	9806404-03	Reg	98060054	Water	Ra-226	0.18	0.10		pCi/L	07/07/98	0.5000	0.09
MW-87	9806404-03	Reg	98060056	Water	Ra-228	0.84	0.92		pCi/L	06/30/98	1.0000	2.07

Key shall be attached
Comments:

Severn Trent Laboratories

Project Number: 2399-012

QA/QC Results Summary

NC 806415

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: 2399-012

Severn Trent Laboratories

Method Blank Summary

NC 806415

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:

mode

Severn Trent Laboratories

Project Number: 2399-012

Blank Spike Results Summary

NC 806415

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:

MDA mode

STL

Project Number: 2399-012

Severn Trent Laboratories

Chemical Recovery

NC 806415

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-71	9806404-01	Reg	98060054	Ra-226	Ba-133	1223.00	1249.00	97.92 %		pCi	07/06/98	5
MW-71	9806404-01	Reg	98060056	Ra-228	Ba-133	915.90	1256.00	72.92 %		pCi	06/30/98	1
MW-87A	9806404-02	Reg	98060054	Ra-226	Ba-133	1232.00	1256.00	98.09 %		pCi	07/07/98	5
MW-87A	9806404-02	Reg	98060056	Ra-228	Ba-133	978.20	1249.00	78.32 %		pCi	06/30/98	1
MW-87	9806404-03	Reg	98060054	Ra-226	Ba-133	1164.00	1256.00	92.68 %		pCi	07/07/98	5
MW-87	9806404-03	Reg	98060056	Ra-228	Ba-133	923.60	1256.00	73.54 %		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:

Project Number: 2399-012

Severn Trent Laboratories

Duplicate Results

NC 806415

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:

MDA mode

Severn Trent Laboratories

Project Number: 2399-012

Matrix Spike Results Summary

NC 806415

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:

WORK ORDER

Lab

Work Order #	98-06-404	# 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	2399-012	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
9806404-01	01A1	Open	Water	Ra-226	MW-71	06/19/98
9806404-01	01A2	Open	Water	Ra-228	MW-71	06/19/98
9806404-02	02A1	Open	Water	Ra-226	MW-87A	06/19/98
9806404-02	02A2	Open	Water	Ra-228	MW-87A	06/19/98
9806404-03	03A1	Open	Water	Ra-226	MW-87	06/19/98
9806404-03	03A2	Open	Water	Ra-228	MW-87	06/19/98

pH Checked
All Samples pH <2
Initials: GB Date: 6/23/98

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		

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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: 806415
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Accession Number: 806269

Project Manager: KIMBERLY D. MCNEILL
Sampled By: N/S

98-06-404

American Environmental Network (NM), Inc.

CHAIN OF CUSTODY

DATE: 6-19-98 PAGE: ___ OF ___

AEN(NM) Accession #: NC 80641

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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 I.D.	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
6HOXC MW-71	6-19-98	0820	WATER																				X						1
MW-87A	↓	1200	↓																				X						1
MW-87		1330																					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: 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 ☐

RELINQUISHED BY: 1.
Signature: [signature] Time: 1600
Printed Name: KEVIN COOK Date: 6/19
Company: FO

RELINQUISHED BY: 2.
Signature: [signature] Time: 1630
Printed Name: CHRIS FAITH Date: 6/19
Company: AEN

RECEIVED BY: 1.
Signature: [signature] Time: 6/19
Printed Name: CHRIS FAITH Date: 1600
Company: AEN

RECEIVED BY: (LAB) 2.
Signature: [signature] Time: 11:00
Printed Name: [illegible] Date: 6/22/98
American Environmental Network (NM), Inc.

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

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 806269
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806415
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON WET CHEMISTRY INORGANICS
QcLevel: II

Client ID: MW-71 Lab ID: 001

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
CHLORIDE (4500-CL B)	MG/L	4	1	CIW067	
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	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	7.2	NA	PHW130	R4
PHENOLS, TOTAL (420.1)	MG/L	ND	0.005	PEW024	
SULFATE (375.4)	MG/L	650	250	SEW077	+
TOTAL DISSOLVED SOLIDS (160.1)	MG/L	1100	5	TDW037	

Comments:

Client ID: MW-87A Lab ID: 002

CHLORIDE (4500-CL B)	MG/L	160	1	CIW067	
CYANIDE, TOTAL (335.2)	MG/L	ND	0.005	CNW037	
FLUORIDE (340.2/4500-F C)	MG/L	2.4	0.4	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	7.7	NA	PHW130	R4
PHENOLS, TOTAL (420.1)	MG/L	ND	0.005	PEW024	
SULFATE (375.4)	MG/L	2200	1000	SEW077	+
TOTAL DISSOLVED SOLIDS (160.1)	MG/L	3100	5	TDW037	

Comments:

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

Analysis Report

Analysis: MARATHON WET CHEMISTRY INORGANICS

Accession:	806269
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806415
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: 806269
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806415
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-87			Lab ID: 003		
CHLORIDE (4500-CL B)	MG/L	13	1	CIW067	
CYANIDE, TOTAL (335.2)	MG/L	ND	0.005	CNW037	
FLUORIDE (340.2/4500-F C)	MG/L	0.9	0.2	FLW026	
NITRITE, NITROGEN (354.1)	MG/L	ND	0.1	N2W090	
NITRITE-NITRATE, NITROGEN (353.2)	MG/L	0.8	0.1	N3W46B	
NITRATE, NITROGEN (353.2-354.1)	MG/L	0.8	0.1	NONE	
PH (150.1)	UNITS	7.4	NA	PHW130	R4
PHENOLS, TOTAL (420.1)	MG/L	ND	0.005	PEW024	
SULFATE (375.4)	MG/L	360	130	SEW077	+
TOTAL DISSOLVED SOLIDS (160.1)	MG/L	710	5	TDW037	

Comments:

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

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 806269
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806415
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-71	001	WATER	19-JUN-98 0930	20-JUN-98
MW-87A	002	WATER	19-JUN-98 1200	20-JUN-98
MW-87	003	WATER	19-JUN-98 1330	20-JUN-98

"Method Report Summary"

Accession Number: 806269
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806415
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON WET CHEMISTRY INORGANICS

Client Sample Id:	Parameter:	Unit:	Result:
MW-71	CHLORIDE (4500-CL B)	MG/L	4
	FLUORIDE (340.2/4500-F C)	MG/L	2.2
	PH (150.1)	UNITS	7.2
	SULFATE (375.4)	MG/L	650
	TOTAL DISSOLVED SOLIDS (160.1)	MG/L	1100
MW-87A	CHLORIDE (4500-CL B)	MG/L	160
	FLUORIDE (340.2/4500-F C)	MG/L	2.4
	PH (150.1)	UNITS	7.7
	SULFATE (375.4)	MG/L	2200
	TOTAL DISSOLVED SOLIDS (160.1)	MG/L	3100
MW-87	CHLORIDE (4500-CL B)	MG/L	13
	FLUORIDE (340.2/4500-F C)	MG/L	0.9
	NITRITE-NITRATE, NITROGEN (353.2)	MG/L	0.8
	NITRATE, NITROGEN (353.2-354.1)	MG/L	0.8
	PH (150.1)	UNITS	7.4
	SULFATE (375.4)	MG/L	360
	TOTAL DISSOLVED SOLIDS (160.1)	MG/L	710

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

Analysis Report

Analysis: MARATHON METALS - OPTIMA

Accession:	806269
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806415
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: 806269
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806415
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-71			Lab ID:001		
SILVER (6010A)	MG/L	0.0011	0.0007	AYW169	
ALUMINUM (6010A)	MG/L	ND	0.026	LYW169	
ARSENIC (6010A)	MG/L	ND	0.0018	RYW169	
BARIUM (6010A)	MG/L	0.013	0.0002	BYW169	
BORON (6010A)	MG/L	0.24	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	M7W080	
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	0.0027	0.0002	GYW169	
MOLYBDENUM (6010A)	MG/L	0.0005	0.0003	DYW169	
SELENIUM (6010A)	MG/L	ND	0.0023	SYW169	
ZINC (6010A)	MG/L	ND	0.014	5YW169	

Comments:

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: MW-87A			Lab ID:002		
SILVER (6010A)	MG/L	0.0030	0.0007	AYW169	
ALUMINUM (6010A)	MG/L	ND	0.026	LYW169	
ARSENIC (6010A)	MG/L	0.0036	0.0018	RYW169	
BARIUM (6010A)	MG/L	0.024	0.0002	BYW169	
BORON (6010A)	MG/L	0.40	0.0057	OYW169	
CADMIUM (6010A)	MG/L	ND	0.0002	CYW169	
COBALT (6010A)	MG/L	0.0009	0.0003	TYW169	
CHROMIUM (6010A)	MG/L	0.0013	0.0008	HYW169	
COPPER (6010A)	MG/L	ND	0.0018	FYW169	
MERCURY (7470A)	MG/L	ND	0.0001	M7W080	
NICKEL (6010A)	MG/L	0.0099	0.0009	EYW169	
IRON (6010A)	MG/L	0.24	0.013	N6W169	
LEAD (6010A)	MG/L	ND	0.0022	PYW169	
MANGANESE (6010A)	MG/L	0.012	0.0002	GYW169	
MOLYBDENUM (6010A)	MG/L	0.0053	0.0003	DYW169	
SELENIUM (6010A)	MG/L	0.0025	0.0023	SYW169	
ZINC (6010A)	MG/L	0.014	0.014	5YW169	

Comments:

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

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 806269
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806415
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-87			Lab ID:003		
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	0.016	0.0002	BYW169	
BORON (6010A)	MG/L	0.060	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	M7W080	
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	0.0012	0.0002	GYW169	
MOLYBDENUM (6010A)	MG/L	0.0025	0.0003	DYW169	
SELENIUM (6010A)	MG/L	ND	0.0023	SYW169	
ZINC (6010A)	MG/L	0.014	0.014	5YW169	

Comments:

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 806269
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806415
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-71	001	WATER	19-JUN-98 0930	20-JUN-98
MW-87A	002	WATER	19-JUN-98 1200	20-JUN-98
MW-87	003	WATER	19-JUN-98 1330	20-JUN-98

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

"Method Report Summary"

Accession Number: 806269
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806415
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON METALS - OPTIMA

Client Sample Id:	Parameter:	Unit:	Result:
MW-71	SILVER (6010A)	MG/L	0.0011
	BARIUM (6010A)	MG/L	0.013
	BORON (6010A)	MG/L	0.24
	MANGANESE (6010A)	MG/L	0.0027
	MOLYBDENUM (6010A)	MG/L	0.0005
MW-87A	SILVER (6010A)	MG/L	0.0030
	ARSENIC (6010A)	MG/L	0.0036
	BARIUM (6010A)	MG/L	0.024
	BORON (6010A)	MG/L	0.40
	COBALT (6010A)	MG/L	0.0009
	CHROMIUM (6010A)	MG/L	0.0013
	NICKEL (6010A)	MG/L	0.0099
	IRON (6010A)	MG/L	0.24
	MANGANESE (6010A)	MG/L	0.012
	MOLYBDENUM (6010A)	MG/L	0.0053
	SELENIUM (6010A)	MG/L	0.0025
	ZINC (6010A)	MG/L	0.014
MW-87	BARIUM (6010A)	MG/L	0.016
	BORON (6010A)	MG/L	0.060
	MANGANESE (6010A)	MG/L	0.0012
	MOLYBDENUM (6010A)	MG/L	0.0025
	ZINC (6010A)	MG/L	0.014

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

Analysis Report

Analysis: POLYNUCLEAR AROMATICS BY 8310

Accession:	806269
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806415
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: 806269
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806415
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 0930
Client Sample Id: MW-71 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	66	28-138	
ANALYST	INITIALS	HAH		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 806269
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806415
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
Client Sample Id: MW-87A
Sample Date/Time: 19-JUN-98 1200
Received Date: 20-JUN-98

Batch: PAW141
Blank: A
Dry Weight %: N/A
Extraction Date: 23-JUN-98
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	68	28-138	
ANALYST	INITIALS	HAH		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 806269
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806415
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 1330
Client Sample Id: MW-87 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	53	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:	806269
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806415
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: 806269
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806415
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 0930
Client Sample Id: MW-71 Received Date: 20-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	84	43-101	
DCB	%REC/SURR	90	17-135	
ANALYST	INITIALS	RP		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 806269
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806415
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 1200
Client Sample Id: MW-87A Received Date: 20-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	61	43-101	
DCB	%REC/SURR	57	17-135	
ANALYST	INITIALS	RP		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 806269
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806415
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 1330
Client Sample Id: MW-87 Received Date: 20-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	82	43-101	
DCB	%REC/SURR	72	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:	806269
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806415
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: 806269
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806415
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 0930
Client Sample Id: MW-71 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: 806269
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806415
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-71
Sample Date/Time: 19-JUN-98 0930
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: 806269
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806415
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-71
Sample Date/Time: 19-JUN-98 0930
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	91	10-100	
2,4,6-TRIBROMOPHENOL	%REC/SURR	80	10-123	
2-FLUOROBIPHENYL	%REC/SURR	80	43-116	
NITROBENZENE-D5	%REC/SURR	101	35-114	
TERPHENYL-D14	%REC/SURR	102	33-124	
ANALYST	INITIALS	RW		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 806269
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806415
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 1200
Client Sample Id: MW-87A 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: 806269
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806415
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-87A
Sample Date/Time: 19-JUN-98 1200
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: 806269
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806415
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-87A
Sample Date/Time: 19-JUN-98 1200
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	99	21-100	
PHENOL-D6	%REC/SURR	96	10-100	
2,4,6-TRIBROMOPHENOL	%REC/SURR	92	10-123	
2-FLUOROBIPHENYL	%REC/SURR	87	43-116	
NITROBENZENE-D5	%REC/SURR	100	35-114	
TERPHENYL-D14	%REC/SURR	100	33-124	
ANALYST	INITIALS	RW		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 806269
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806415
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
Client Sample Id: MW-87
Sample Date/Time: 19-JUN-98 1330
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: 806269
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806415
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
Client Sample Id: MW-87
Sample Date/Time: 19-JUN-98 1330
Received Date: 20-JUN-98

Batch: ALW075
Blank: A
Dry Weight %: N/A
Extraction Date: 22-JUN-98
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	

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

Quality Control Report

Analysis: MARATHON WET CHEMISTRY INORGANICS

Accession:	806269
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806415
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:	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	1.00	
% 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

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"WetChem Quality Control Report"

Parameter:	PHENOL	SULFATE	TDS
Batch Id:	PEW024	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:	30-JUN-98	26-JUN-98	24-JUN-98
Prep. Date:	29-JUN-98	26-JUN-98	23-JUN-98

Sample Duplication

Sample Dup:	806337-1	806240-1	806172-1
Rept Limit:	<0.005	<130+	<5
Sample Result:	<0.005	303	400
Dup Result:	<0.005	304	446
Sample RPD:	N/C	1 G	11
Max RPD:	0.005	130	16
Dry Weight%	N/A	N/A	N/A

Matrix Spike

Sample Spiked:	806337-2	806240-1	N/A
Rept Limit:	<0.005	<250+	N/A
Sample Result:	<0.005	303	
Spiked Result:	0.025	678	
Spike Added:	0.020	500	
% Recovery:	125	75	
% Rec Limits:	48-149	56-154	
Dry Weight%	N/A	N/A	

ICV

ICV Result:	0.026	20.9	
True Result:	0.025	20	
% Recovery:	104	105	
% Rec Limits:	90-110	90-110	

LCS

LCS Result:			278
True Result:			293
% Recovery:			95
% Rec Limits:			77-129

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

"Quality Control Comments"

Batch Id:	Comments:
PEW024	806309-1,2,3,4 was added to the batch on 30-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:	806269
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806415
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	METALS

"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

"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

----- 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:	806269
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806415
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:	806269
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806415
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:

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.

"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 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Quality Control Report

Analysis: ACID & BASE EXTRACTABLES (8270)

Accession:	806269
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806415
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:
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	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 #: 806269 Date Received: 20-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): 038L, 151L **Shipping Charges:** N/A

Cooler Weight(s): N/A **Cooler Temp(s) (°C):** 038L = 2.0°C - CCK 8, 151L = 2.0°C - CCK 4
(LIST THERMOMETER NUMBER(S) FOR VERIFICATION)

Out of Control Events and Inspection Comments:

10. PH received out of hold time. PHE 6/20/98.

(USE BACK OF PSIF FOR ADDITIONAL NOTES AND COMMENTS)

Inspected By: PHE **Date:** 6/20/98 **Logged By:** PHE **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 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: 6/19/98 PAGE: ___ OF ___

AEN (NM) Accession #: X06-2169

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 ☐	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 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-71	6-19-98	0930	water	1											X					X		X	X		X	X					X	7
MW-87A	↓	1200	↓	2											X					X		X	X		X	X					X	7
MW-87	↓	1330	↓	3											X					X		X	X		X	X					X	7

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 ☐

RELINQUISHED BY: 1

Signature: [signature] Time: 1600

Printed Name: Kevin Cook Date: 6/19

Company: FD

RELINQUISHED BY: 2

Signature: [signature] Time: 1630

Printed Name: Chris Faith Date: 6/19

Company: AEN

RECEIVED BY: 1

Signature: [signature] Time: 1600

Printed Name: Chris Faith Date: 6/19

Company: AEN

RECEIVED BY (LAB): 2

Signature: [signature] Time: 10:30

Printed Name: [illegible] Date: 6/20/98

American Environmental Network (NM) Inc.

American Environmental Network (NM), Inc.

CHAIN OF CUSTODY

DATE: 6/18-19/98 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 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-88RB	6/18/98	1600	Water	-01A													X																2
MW-71RB	↓	1640		-02A													X																2
MW-71	6/19/98	0930		-03									X	X			X																2
MW-87ARB		1010		-04A													X																2
MW-87A	↓	1200		-05A									X	X			X																2
MW-87	6/19/98	1330	↓	-06									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	
BLUE ICE	13.5

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 = OXA
TO BE ANALYZED & Reported

RELINQUISHED BY: 1

Signature: [illegible] Time: 1600
Printed Name: KEVIN COOK Date: 6/19
Company: FA

RELINQUISHED BY: 2

Signature: [illegible] Time: 1630
Printed Name: CHRIS FAITH Date: 6/19
Company: AEN

RECEIVED BY:

Signature: [illegible] Time: 1600
Printed Name: CHRIS FAITH Date: 6/19
Company: AEN

RECEIVED BY (LAB):

Signature: [illegible] Date: [illegible]
Printed Name: [illegible] Date: 6/22/98
Company: American Environmental Network (NM), Inc.

RECEIVED

AEN I.D. 806411

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 6/18/98 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.	: 806411
PROJECT #	: 104332	DATE RECEIVED	: 6/18/98
PROJECT NAME	: IBRP	REPORT DATE	: 7/24/98

AEN ID. #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	MW-90	AQUEOUS	6/17/98
02	MW-89	AQUEOUS	6/17/98
03	MW-66	AQUEOUS	6/17/98
04	MW-90RB	AQUEOUS	6/17/98
05	MW-89RB	AQUEOUS	6/17/98
06	MW-70RB	AQUEOUS	6/17/98
07	TRIP BLANK	AQUEOUS	6/11/98

GAS CHROMOTOGRAPHY RESULTS

TEST : ETHYLENE DIBROMIDE (EPA 504.1)
CLIENT : MARATHON OIL COMPANY AEN I.D.: 806411
PROJECT # : 104332.03
PROJECT NAME : IBRP

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
03	MW-90	AQUEOUS	6/17/98	6/18/98	6/19/98	1
04	MW-89	AQUEOUS	6/17/98	6/18/98	6/19/98	1
06	MW-66	AQUEOUS	6/17/98	6/18/98	6/19/98	1

PARAMETER	DET. LIMIT	UNITS	03	04	06
ETHYLENE DIBROMIDE	0.01	UG/L	< 0.01	< 0.01	< 0.01
SURROGATE:					
1,4-DICHLOROBENZENE			91	89	89
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.	: 806411
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.	: 806411
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.: 806411
PROJECT # : 104332.03
PROJECT NAME : IBRP

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
03	MW-90	AQUEOUS	6/17/98	NA	6/18/98	1
04	MW-89	AQUEOUS	6/17/98	NA	6/18/98	1
06	MW-66	AQUEOUS	6/17/98	NA	6/18/98	1

PARAMETER	DET. LIMIT	UNITS	03	04	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 (%)			107	112	105
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.	: 806411
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.	: 806411
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. :	806411
PROJECT #	: 104332.03	DATE RECEIVED :	6/18/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806411-01	MW-70 RB	AQUEOUS	6/17/98	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. :	806411
PROJECT #	: 104332.03	DATE RECEIVED :	6/18/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806411-01	MW-70 RB	AQUEOUS	6/17/98	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	101 (88 - 110)
Bromofluorobenzene	99 (86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806411
PROJECT #	: 104332.03	DATE RECEIVED :	6/18/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806411-02	MW-90 RB	AQUEOUS	6/17/98	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	**2.1**	**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	**1.1**	**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. :	806411
PROJECT #	: 104332.03	DATE RECEIVED :	6/18/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806411-02	MW-90 RB	AQUEOUS	6/17/98	N/A	06/18/98	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	107	(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. :	806411
PROJECT #	: 104332.03	DATE RECEIVED :	6/18/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806411-03	MW-90	AQUEOUS	6/17/98	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
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. :	806411
PROJECT #	: 104332.03	DATE RECEIVED :	6/18/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806411-03	MW-90	AQUEOUS	6/17/98	N/A	06/18/98	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	107 (80 - 120)
Toluene-d8	105 (88 - 110)
Bromofluorobenzene	102 (86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806411
PROJECT #	: 104332.03	DATE RECEIVED :	6/18/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806411-04	MW-89	AQUEOUS	6/17/98	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	**1.5**	**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. :	806411
PROJECT #	: 104332.03	DATE RECEIVED :	6/18/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806411-04	MW-89	AQUEOUS	6/17/98	N/A	06/18/98	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	110	(80 - 120)
Toluene-d8	107	(88 - 110)
Bromofluorobenzene	105	(86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806411
PROJECT #	: 104332.03	DATE RECEIVED :	6/18/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806411-05	MW-89 RB	AQUEOUS	6/17/98	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	**1.6**	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. :	806411
PROJECT #	: 104332.03	DATE RECEIVED :	6/18/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806411-05	MW-89 RB	AQUEOUS	6/17/98	N/A	06/18/98	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	106
	(80 - 120)
Toluene-d8	104
	(88 - 110)
Bromofluorobenzene	102
	(86 - 115)

*Methylene chloride was observed below the detection limit

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806411
PROJECT #	: 104332.03	DATE RECEIVED :	6/18/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806411-06	MW-66	AQUEOUS	6/17/98	N/A	06/22/98	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	< 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	**1.6**	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. :	806411
PROJECT #	: 104332.03	DATE RECEIVED :	6/18/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806411-06	MW-66	AQUEOUS	6/17/98	N/A	06/22/98	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	94
	(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. :	806411
PROJECT #	: 104332.03	DATE RECEIVED :	6/18/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806411-07	Trip Blank	AQUEOUS	6/11/98	N/A	06/22/98	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	**1.6**	**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. :	806411
PROJECT #	: 104332.03	DATE RECEIVED :	6/18/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806411-07	Trip Blank	AQUEOUS	6/11/98	N/A	06/22/98	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	97 (80 - 120)
Toluene-d8	97 (88 - 110)
Bromofluorobenzene	97 (86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806411
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. :	806411
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. :	806411
PROJECT #	: 104332.03		
PROJECT NAME	: IBRP		

SAMPLE ID #	BATCH	MATRIX	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
REAGENT BLANK	062298	AQUEOUS	N/A	06/22/98	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. :	806411
PROJECT #	: 104332.03		
PROJECT NAME	: IBRP		

SAMPLE ID #	BATCH	MATRIX	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
REAGENT BLANK	062298	AQUEOUS	N/A	06/22/98	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	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:	6/17/98
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 09:41

ANALYTICAL REPORT FOR SAMPLES:

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
MW-90	P806410-01	Water	6/17/98
MW-89	P806410-02	Water	6/17/98
MW-66	P806410-03	Water	6/17/98

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:	6/17/98
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 09:41

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-90			**P806410-01**				**Water**	
Uranium	0780163	7/6/98	7/16/98	EPA 6020	0.00100	**0.00310**	mg/l	
MW-89			**P806410-02**				**Water**	
Uranium	0780163	7/6/98	7/16/98	EPA 6020	0.00100	**0.00150**	mg/l	
MW-66			**P806410-03**				**Water**	
Uranium	0780163	7/6/98	7/16/98	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:	6/17/98
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 09:41

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:	6/17/98
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 09:41

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

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.

COPY CHAIN OF CUSTODY

DATE: _____ PAGE: ___ OF ___

AEN(NM) Accession: OR-30641

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 REQUESTED

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 238	Priority Pollutant Metals (13)	Target Analyte List Metals (23)	RCRA Metals (8)	RCRA Metals by TCLP (Method 1311)	Metals:	# OF CONTAINERS
MW-90	6/17	1100	AQ																				X						
MW-89	6/17	1300	AQ																				X						
MW-66	6/17	1515	AQ																				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

Signature: Kevin Cook Time: 1600

Printed Name: Kevin Cook Date: 6/17/98

Company: PDGTI

RELINQUISHED BY: 3

Signature: [illegible] Time: 1630

Printed Name: CHRIS FAITH Date: 6/17

Company: AEN

RECEIVED BY: 1

Signature: [illegible] Time: 1600

Printed Name: CHRIS FAITH Date: 6/17

Company: AEN

RECEIVED BY: (LAB) 2

Signature: [illegible] Time: 1221

Printed Name: [illegible] Date: 6/18/98

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 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 #:	2399-006
STL Work Order #:	98-06-301
Client Project ID:	101332.03

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: 98-06-301
STL-NC Project Number: 2399-006

Two (2) water samples were received on June 19, 1998, in good condition with the chain-of-custody intact. One of the samples on the chain of custody form (MW66) was not received in this shipment.

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 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

Ross W. Williams, Ph.D.
Manager, Radiological Laboratory
7/17/98

C:\NET2\WP\AEN-NM 2399-006.WPD

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

Project Number: 2399-006

NC - 806411

Client Sample ID	Lab ID
MW 90	9806301-01
MW 89	9806301-02

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.

Manager, Radiological Laboratory

Date 7/17/98

Severn Trent Laboratories

STL

Project Number: 2399-006

Radiological Analysis Results

NC - 806411

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 90	9806301-01	Reg	98060054	Water	Ra-226	0.48	0.13		pCi/L	07/06/98	0.5000	0.07
MW 90	9806301-01	Reg	98060056	Water	Ra-228	3.12	1.15		pCi/L	06/30/98	1.0000	2.23
MW 89	9806301-02	Reg	98060054	Water	Ra-226	0.19	0.09		pCi/L	07/06/98	0.5000	0.07
MW 89	9806301-02	Reg	98060056	Water	Ra-228	0.67	1.10		pCi/L	06/30/98	1.0000	2.56

Key shall be attached

Comments:

mode

Severn Trent Laboratories

Project Number: 2399-006

QA/QC Results Summary

NC - 806411

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

Severn Trent Laboratories

Project Number: 2399-006

Method Blank Summary

NC - 806411

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:

mode

Project Number: 2399-006

Severn Trent Laboratories

Chemical Recovery

NC - 806411

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 90	9806301-01	Reg	98060054	Ra-226	Ba-133	1239.00	1256.00	98.65 %		pCi	07/06/98	5
MW 90	9806301-01	Reg	98060056	Ra-228	Ba-133	1019.00	1249.00	81.59 %		pCi	06/30/98	1
MW 89	9806301-02	Reg	98060054	Ra-226	Ba-133	1213.00	1249.00	97.12 %		pCi	07/06/98	5
MW 89	9806301-02	Reg	98060056	Ra-228	Ba-133	908.80	1256.00	72.36 %		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:

MDA mode

Severn Trent Laboratories

STL

Project Number: 2399-006

Blank Spike Results Summary

NC - 806411

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:

mode

Project Number: 2399-006

Matrix Spike Results Summary

NC - 806411

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

Severn Trent Laboratories

Project Number: 2399-006

Duplicate Results

NC - 806411

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:

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 #	98-06-301	# of Samples	2	Recieved Date	06/19/98	American Environ. Network
Client #	2399	# of Tests	4	Load Date	06/19/98	2709D PanAmerican Freeway NE
Project	2399-006	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
9806301-01	01A1	Open	Water	Ra-226	MW 90	06/17/98
9806301-01	01A2	Open	Water	Ra-228	MW 90	06/17/98
9806301-02	02A1	Open	Water	Ra-226	MW 89	06/17/98
9806301-02	02A2	Open	Water	Ra-228	MW 89	06/17/98

pH Checked
All Samples pH <2
Initials: EB Date: 6/19/98
Arrived unpreserved

American Environmental Network (NM), Inc.

CHAIN OF CUSTODY

DATE: _____ PAGE: ___ OF ___

AEN (NM) Accession #: NC-806411

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 ☐ PGE	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
MW90	6/17	1100	AQ	205																			X						
MW 89	6/17	1300	AQ	204																			X						
~~MW 86~~	~~6/17~~	~~1515~~	~~AQ~~	~~206~~				Not sent (not received @ NM) BA per Kim McNeill 6/19/98 12:00															X						

PROJECT INFORMATION	PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS	RELINQUISHED BY: 1.	RELINQUISHED BY: 2.
PROJ. NO.: 104332.03	(RUSH) ☐ 24hr ☐ 48hr ☐ 72hr ☐ 1 WEEK (NORMAL) ☐	Signature: Kevin Cook Time: 1600	Signature: Time: 1630
PROJ. NAME: IBRP	CERTIFICATION REQUIRED: ☐ NM ☐ SDWA ☐ OTHER	Printed Name: Kevin Cook Date: 6/17/98	Printed Name: CHRIS FAITH Date: 6/17
P.O. NO.:	METHANOL PRESERVATION ☐	Company: FDBTF	Company: AEN
SHIPPED VIA:	COMMENTS: FIXED FEE ☐	RECEIVED BY: 1.	RECEIVED BY: (LAB) 2.
SAMPLE RECEIPT		Signature: Time: 1600	Signature: Time: 1221
NO. CONTAINERS:		Printed Name: CHRIS FAITH Date: 6/17/98	Printed Name: Date: 6/18/98
CUSTODY SEALS: Y/N/NA		Company: AEN	American Environmental Network (NM), Inc.
RECEIVED INTACT:			
BLUE ICE/ICE:			

Received by: B. Trulick 6/19/98 11:00 B. Trulick AEN Rad lab

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 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 #:	2899 003
STL Work order #:	98 06 A00
Client Project ID:	104932.03

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: 98-06-400
STL-NC Project Number: 2399-008

One (1) water sample was received on June 22, 1998, in good condition with the chain-of-custody intact. The two other samples identified on the chain of custody form were received earlier and the results are reported in STL-NC Project Number 2399-006.

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
7/17/98

C:\NET2\WP\AEN-NM 2399-008.WPD

07/09/98

120 Southcenter Ct., Suite 300
Morrisville, NC 27560

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

Environmental Survey

Cover Page

Radiological Data Analysis Package

Project Number:	2399-008

NC - 806411

Client Sample ID	Lab ID
MW-66	9806400-01

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

7/17/98
Date

Project Number: 2399-008

Severn Trent Laboratories

Radiological Analysis Results

NC - 806411

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-66	9806400-01	Reg	98060055	Water	Ra-226	0.47	0.14		pCi/L	07/08/98	0.5000	0.13
MW-66	9806400-01	Reg	98060057	Water	Ra-228	2.34	1.21		pCi/L	07/01/98	1.0000	2.50

Key shall be attached

Comments:

MDA mode

Severn Trent Laboratories

STL

Project Number: 2399-008

QA/QC Results Summary

NC - 806411

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: _____

mode

Severn Trent Laboratories

Project Number: 2399-008

Method Blank Summary

NC - 806411

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

STL

Project Number: 2399-008

Chemical Recovery

NC - 806411

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-66	9806400-01	Reg	98060055	Ra-226	Ba-133	1221.00	1256.00	97.21 %		pCi	07/08/98	5
MW-66	9806400-01	Reg	98060057	Ra-228	Ba-133	890.20	1249.00	71.27 %		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:

Seven Trent Laboratories

Project Number: 2399-008

Blank Spike Results Summary

NC - 806411

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

Project Number: 2399-008

Severn Trent Laboratories

Matrix Spike Results Summary

NC - 806411

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:

mode

Project Number: 2399-008

Severn Trent Laboratories

Duplicate Results

NC - 806411

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		

Lab

WORK ORDER

Work Order #	98-06-400	# of Samples	1	Recieved Date	06/22/98	American Environ. Network
Client #	2399	# of Tests	2	Load Date	06/22/98	2709D PanAmerican Freeway NE
Project	2399-008	Report Level	2	Due Date	07/07/98	Albuquerque, NM 87107
Amount	123.25	Quote #		Export Date	/ /	Mitch Rubenstein
Comment						

Lab ID	Sample #	Status	Matrix	Test	Cust ID	Collected
9806400-01	01A1	Open	Water	Ra-226	MW-66	06/17/98
9806400-01	01A2	Open	Water	Ra-228	MW-66	06/17/98

pH Checked
All Samples pH <2
Initials: YB Date: 6/23/98

98-06-400

American Environmental Network (NM), Inc.

CHAIN OF CUSTODY

DATE: ..... PAGE: .... OF .....

AEN(NM) Accession #: NCF-806411

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:	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
MW9D	6/17	1100	AQ	[illegible]																					X								
MW89	6/17	1300	AQ	[illegible]																					X								
MW66	6/17	1515	AQ	[illegible]																					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 [ ]

(MW66) Received by: B. Trujick 6/22/98 11:00 B. Trujick AEN Rad lab.

RELINQUISHED BY: 1.	RELINQUISHED BY: 2.
Signature: Kevin Cook Time: 1600	Signature: [illegible] Time: 1630
Printed Name: Kevin Cook Date: 6/17/98	Printed Name: CHRIS FAITH Date: 6/17
Company: FDGTF	Company: AEN
RECEIVED BY: 1.	**RECEIVED BY: (LAB) 2.**
Signature: [illegible] Time: 1600	Signature: [illegible] Time: 1322
Printed Name: CHRIS FAITH Date: 6/17/98	Printed Name: [illegible] Date: 6/18/98
Company: AEN	American Environmental Network (NM), Inc.

JUN 22 '98 08:29AM AEN NEW MEXICO P.1

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 M Patrick
AEN Project Manager

Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC. ALBUQUERQUE, NEW MEXICO
Project Name:	IBRP
Project Number:	806411
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Accession Number:	806219
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:	806219
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806411
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: 806219
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806411
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON WET CHEMISTRY INORGANICS
QcLevel: II

Client ID: MW-89 Lab ID: 001

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
CHLORIDE (4500-CL B)	MG/L	61	1	CIW065	
CYANIDE, TOTAL (335.2)	MG/L	0.247	0.005	CNW037	
FLUORIDE (340.2/4500-F C)	MG/L	0.7	0.2	FLW026	
NITRITE, NITROGEN (354.1)	MG/L	ND	0.1	N2W088	
NITRITE-NITRATE, NITROGEN (353.2)	MG/L	ND	0.1	N3W45B	
NITRATE, NITROGEN (353.2-354.1)	MG/L	ND	0.1	NONE	
PH (150.1)	UNITS	7.1	NA	PHW128	R4
PHENOLS, TOTAL (420.1)	MG/L	ND	0.005	PEW022	
SULFATE (375.4)	MG/L	340	250	SEW074	+
TOTAL DISSOLVED SOLIDS (160.1)	MG/L	780	5	TDW037	

Comments:

Client ID: MW-66 Lab ID: 002

CHLORIDE (4500-CL B)	MG/L	13	1	CIW065	
CYANIDE, TOTAL (335.2)	MG/L	0.761	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	N2W088	
NITRITE-NITRATE, NITROGEN (353.2)	MG/L	0.3	0.1	N3W45B	
NITRATE, NITROGEN (353.2-354.1)	MG/L	0.3	0.1	NONE	
PH (150.1)	UNITS	7.2	NA	PHW128	R4
PHENOLS, TOTAL (420.1)	MG/L	ND	0.005	PEW022	
SULFATE (375.4)	MG/L	430	250	SEW074	+
TOTAL DISSOLVED SOLIDS (160.1)	MG/L	760	5	TDW037	

Comments:

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

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 806219
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806411
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-90			Lab ID: 003		
CHLORIDE (4500-CL B)	MG/L	35	1	CIW065	
CYANIDE, TOTAL (335.2)	MG/L	ND	0.005	CNW037	
FLUORIDE (340.2/4500-F C)	MG/L	0.5	0.2	FLW026	
NITRITE, NITROGEN (354.1)	MG/L	ND	0.1	N2W088	
NITRITE-NITRATE, NITROGEN (353.2)	MG/L	7.1	0.2	N3W45B	+
NITRATE, NITROGEN (353.2-354.1)	MG/L	7.1	0.1	NONE	
PH (150.1)	UNITS	7.5	NA	PHW128	R4
PHENOLS, TOTAL (420.1)	MG/L	ND	0.005	PEW022	
SULFATE (375.4)	MG/L	130	50	SEW074	+
TOTAL DISSOLVED SOLIDS (160.1)	MG/L	530	5	TDW037	

Comments:

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

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 806219
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806411
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-89	001 WATER	17-JUN-98 1300	18-JUN-98
MW-66	002 WATER	17-JUN-98 1515	18-JUN-98
MW-90	003 WATER	17-JUN-98 1100	18-JUN-98

"Method Report Summary"

Accession Number: 806219
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806411
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON WET CHEMISTRY INORGANICS

Client Sample Id:	Parameter:	Unit:	Result:
MW-89	CHLORIDE (4500-CL B)	MG/L	61
	CYANIDE, TOTAL (335.2)	MG/L	0.247
	FLUORIDE (340.2/4500-F C)	MG/L	0.7
	PH (150.1)	UNITS	7.1
	SULFATE (375.4)	MG/L	340
	TOTAL DISSOLVED SOLIDS (160.1)	MG/L	780
MW-66	CHLORIDE (4500-CL B)	MG/L	13
	CYANIDE, TOTAL (335.2)	MG/L	0.761
	FLUORIDE (340.2/4500-F C)	MG/L	0.8
	NITRITE-NITRATE, NITROGEN (353.2)	MG/L	0.3
	NITRATE, NITROGEN (353.2-354.1)	MG/L	0.3
	PH (150.1)	UNITS	7.2
	SULFATE (375.4)	MG/L	430
	TOTAL DISSOLVED SOLIDS (160.1)	MG/L	760
MW-90	CHLORIDE (4500-CL B)	MG/L	35
	FLUORIDE (340.2/4500-F C)	MG/L	0.5
	NITRITE-NITRATE, NITROGEN (353.2)	MG/L	7.1
	NITRATE, NITROGEN (353.2-354.1)	MG/L	7.1
	PH (150.1)	UNITS	7.5
	SULFATE (375.4)	MG/L	130
	TOTAL DISSOLVED SOLIDS (160.1)	MG/L	530

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

Analysis Report

Analysis: MARATHON METALS - OPTIMA

Accession:	806219
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806411
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: 806219
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806411
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-89			Lab ID:001		
SILVER (6010A)	MG/L	0.0009	0.0007	AYW166	
ALUMINUM (6010A)	MG/L	ND	0.026	LYW166	
ARSENIC (6010A)	MG/L	ND	0.0018	RYW166	
BARIUM (6010A)	MG/L	0.018	0.0002	BYW166	
BORON (6010A)	MG/L	0.074	0.0057	OYW166	
CADMIUM (6010A)	MG/L	ND	0.0002	CYW166	
COBALT (6010A)	MG/L	ND	0.0003	TYW166	
CHROMIUM (6010A)	MG/L	ND	0.0008	HYW166	
COPPER (6010A)	MG/L	ND	0.0018	FYW166	
MERCURY (7470A)	MG/L	0.0003	0.0001	M7W080	
NICKEL (6010A)	MG/L	0.0040	0.0009	EYW166	
IRON (6010A)	MG/L	0.014	0.013	NYW166	
LEAD (6010A)	MG/L	ND	0.0022	PYW166	
MANGANESE (6010A)	MG/L	0.046	0.0002	GYW166	
MOLYBDENUM (6010A)	MG/L	0.0033	0.0003	DYW166	
SELENIUM (6010A)	MG/L	ND	0.0023	SYW166	
ZINC (6010A)	MG/L	0.026	0.014	5YW166	

Comments:

Client ID: MW-66			Lab ID:002		
SILVER (6010A)	MG/L	ND	0.0007	AYW166	
ALUMINUM (6010A)	MG/L	0.048	0.026	LYW166	
ARSENIC (6010A)	MG/L	0.0024	0.0018	RYW166	
BARIUM (6010A)	MG/L	0.014	0.0002	BYW166	
BORON (6010A)	MG/L	0.085	0.0057	OYW166	
CADMIUM (6010A)	MG/L	ND	0.0002	CYW166	
COBALT (6010A)	MG/L	ND	0.0003	TYW166	
CHROMIUM (6010A)	MG/L	0.0022	0.0008	HYW166	
COPPER (6010A)	MG/L	0.0024	0.0018	FYW166	
MERCURY (7470A)	MG/L	0.0005	0.0001	M7W080	
NICKEL (6010A)	MG/L	ND	0.0009	EYW166	
IRON (6010A)	MG/L	ND	0.013	NYW166	
LEAD (6010A)	MG/L	ND	0.0022	PYW166	
MANGANESE (6010A)	MG/L	0.0008	0.0002	GYW166	
MOLYBDENUM (6010A)	MG/L	0.0040	0.0003	DYW166	
SELENIUM (6010A)	MG/L	ND	0.0023	SYW166	
ZINC (6010A)	MG/L	0.045	0.014	5YW166	

Comments:

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 806219
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806411
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-90			Lab ID:003		
SILVER (6010A)	MG/L	ND	0.0007	AYW166	
ALUMINUM (6010A)	MG/L	ND	0.026	LYW166	
ARSENIC (6010A)	MG/L	0.0044	0.0018	RYW166	
BARIUM (6010A)	MG/L	0.14	0.0002	BYW166	
BORON (6010A)	MG/L	0.11	0.0057	OYW166	
CADMIUM (6010A)	MG/L	ND	0.0002	CYW166	
COBALT (6010A)	MG/L	ND	0.0003	TYW166	
CHROMIUM (6010A)	MG/L	0.0010	0.0008	HYW166	
COPPER (6010A)	MG/L	ND	0.0018	FYW166	
MERCURY (7470A)	MG/L	ND	0.0001	M7W080	
NICKEL (6010A)	MG/L	0.0021	0.0009	EYW166	
IRON (6010A)	MG/L	ND	0.013	NYW166	
LEAD (6010A)	MG/L	ND	0.0022	PYW166	
MANGANESE (6010A)	MG/L	ND	0.0002	GYW166	
MOLYBDENUM (6010A)	MG/L	0.0025	0.0003	DYW166	
SELENIUM (6010A)	MG/L	ND	0.0023	SYW166	
ZINC (6010A)	MG/L	0.018	0.014	5YW166	

Comments:

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

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 806219
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806411
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-89	001	WATER	17-JUN-98 1300	18-JUN-98
MW-66	002	WATER	17-JUN-98 1515	18-JUN-98
MW-90	003	WATER	17-JUN-98 1100	18-JUN-98

"Method Report Summary"

Accession Number: 806219
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806411
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON METALS - OPTIMA

Client Sample Id:	Parameter:	Unit:	Result:
MW-89	SILVER (6010A)	MG/L	0.0009
	BARIUM (6010A)	MG/L	0.018
	BORON (6010A)	MG/L	0.074
	MERCURY (7470A)	MG/L	0.0003
	NICKEL (6010A)	MG/L	0.0040
	IRON (6010A)	MG/L	0.014
	MANGANESE (6010A)	MG/L	0.046
	MOLYBDENUM (6010A)	MG/L	0.0033
	ZINC (6010A)	MG/L	0.026
MW-66	ALUMINUM (6010A)	MG/L	0.048
	ARSENIC (6010A)	MG/L	0.0024
	BARIUM (6010A)	MG/L	0.014
	BORON (6010A)	MG/L	0.085
	CHROMIUM (6010A)	MG/L	0.0022
	COPPER (6010A)	MG/L	0.0024
	MERCURY (7470A)	MG/L	0.0005
	MANGANESE (6010A)	MG/L	0.0008
	MOLYBDENUM (6010A)	MG/L	0.0040
	ZINC (6010A)	MG/L	0.045
MW-90	ARSENIC (6010A)	MG/L	0.0044
	BARIUM (6010A)	MG/L	0.14
	BORON (6010A)	MG/L	0.11
	CHROMIUM (6010A)	MG/L	0.0010
	NICKEL (6010A)	MG/L	0.0021
	MOLYBDENUM (6010A)	MG/L	0.0025
	ZINC (6010A)	MG/L	0.018

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

Analysis Report

Analysis: POLYNUCLEAR AROMATICS BY 8310

Accession:	806219
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806411
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: 806219
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806411
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: 17-JUN-98 1300
Client Sample Id: MW-89 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	63	28-138	
ANALYST	INITIALS	HAH		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 806219
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806411
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: 17-JUN-98 1515
Client Sample Id: MW-66 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	73	28-138	
ANALYST	INITIALS	HAH		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 806219
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806411
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: 17-JUN-98 1100
Client Sample Id: MW-90 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	59	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:	806219
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806411
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: 806219
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806411
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: 17-JUN-98 1300
Client Sample Id: MW-89 Received Date: 18-JUN-98

Batch: PSW042 Extraction Date: 19-JUN-98
Blank: A Dry Weight %: N/A Analysis Date: 29-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	79	43-101	
DCB	%REC/SURR	84	17-135	
ANALYST	INITIALS	RP		

Comments:

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

"FINAL REPORT FORMAT - SINGLE"

Accession: 806219
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806411
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: 17-JUN-98 1515
Client Sample Id: MW-66 Received Date: 18-JUN-98

Batch: PSW042 Extraction Date: 19-JUN-98
Blank: A Dry Weight %: N/A Analysis Date: 29-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	89	43-101	
DCB	%REC/SURR	77	17-135	
ANALYST	INITIALS	RP		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 806219
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806411
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: 17-JUN-98 1100
Client Sample Id: MW-90 Received Date: 18-JUN-98

Batch: PSW042 Extraction Date: 19-JUN-98
Blank: A Dry Weight %: N/A Analysis Date: 29-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	85	43-101	
DCB	%REC/SURR	76	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:	806219
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806411
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	ORGANIC/MS

"FINAL REPORT FORMAT - SINGLE"

Accession: 806219
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806411
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-89
Sample Date/Time: 17-JUN-98 1300
Received Date: 18-JUN-98

Batch: ALW074
Blank: A Dry Weight %: N/A
Extraction Date: 19-JUN-98
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: 806219
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806411
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-89
Sample Date/Time: 17-JUN-98 1300
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: 806219
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806411
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-89
Sample Date/Time: 17-JUN-98 1300
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	95	21-100	
PHENOL-D6	%REC/SURR	79	10-100	
2,4,6-TRIBROMOPHENOL	%REC/SURR	87	10-123	
2-FLUOROBIPHENYL	%REC/SURR	72	43-116	
NITROBENZENE-D5	%REC/SURR	70	35-114	
TERPHENYL-D14	%REC/SURR	95	33-124	
ANALYST	INITIALS	RW		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 806219
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806411
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-66
Sample Date/Time: 17-JUN-98 1515
Received Date: 18-JUN-98

Batch: ALW074
Blank: A Dry Weight %: N/A
Extraction Date: 19-JUN-98
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: 806219
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806411
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-66
Sample Date/Time: 17-JUN-98 1515
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: 806219
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806411
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: 17-JUN-98 1515
Client Sample Id: MW-66 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	39	21-100	
PHENOL-D6	%REC/SURR	32	10-100	
2,4,6-TRIBROMOPHENOL	%REC/SURR	48	10-123	
2-FLUOROBIPHENYL	%REC/SURR	92	43-116	
NITROBENZENE-D5	%REC/SURR	92	35-114	
TERPHENYL-D14	%REC/SURR	115	33-124	
ANALYST	INITIALS	RW		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 806219
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806411
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-90
Sample Date/Time: 17-JUN-98 1100
Received Date: 18-JUN-98

Batch: ALW074
Blank: A Dry Weight %: N/A
Extraction Date: 19-JUN-98
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: 806219
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806411
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-90
Sample Date/Time: 17-JUN-98 1100
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: 806219
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806411
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-90
Sample Date/Time: 17-JUN-98 1100
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	92	21-100	
PHENOL-D6	%REC/SURR	78	10-100	
2,4,6-TRIBROMOPHENOL	%REC/SURR	84	10-123	
2-FLUOROBIPHENYL	%REC/SURR	77	43-116	
NITROBENZENE-D5	%REC/SURR	77	35-114	
TERPHENYL-D14	%REC/SURR	84	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:	806219
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806411
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:	CIW065	CNW037	FLW026	N2W088	N3W45B	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	18-JUN-98	19-JUN-98	18-JUN-98
Prep. Date:	18-JUN-98	23-JUN-98	24-JUN-98	18-JUN-98	18-JUN-98	18-JUN-98
Sample Duplication						
Sample Dup:	806179-1	806213-1	806213-1	806219-1	806205-2	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	<0.1	5.27
Dup Result:	21.8	<0.005	0.65	<0.1	<0.1	5.19
Sample RPD:	0	N/C	0.05 G	N/C	N/C	0.08
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:	806179-1	806213-1	806213-1	806219-1	806205-2	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	<0.1	
Spiked Result:	77.0	0.218	1.27	0.15	0.97	
Spike Added:	55.0	0.200	0.8	0.20	1.0	
% Recovery:	101	109	84	75	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:	102.9	0.340	1.14	0.19	1.97	10.03
True Result:	100	0.314	1.20	0.20	2.00	10.00
% Recovery:	103	108	95	95	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

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

"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

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

"Quality Control Comments"

Batch Id:	Comments:
CIW065	806213-1 & 806219-1,2,3 were added to batch on 19-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:	806219
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806411
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:	AYW166	LYW166	RYW166	BYW166	OYW166	CYW166
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:	806219-1	806219-1	806219-1	806219-1	806219-1	806219-1
Rept Limit:	<0.005	<0.1	<0.005	<0.001	<0.05	<0.001
Sample Result:	0.20	2.1	2.10	2.05	2.23	1.97
Dup Result:	0.20	2.1	2.10	2.04	2.22	1.96
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:	806219-1	806219-1	806219-1	806219-1	806219-1	806219-1
Rept Limit:	<0.005	<0.1	<0.005	<0.001	<0.05	<0.001
Sample Result:	<0.005	<0.1	<0.005	0.018	0.07	<0.001
Spiked Result:	0.20	2.1	2.10	2.05	2.23	1.97
Spike Added:	0.2	2.0	2.0	2.0	2.0	2.0
% Recovery:	100	105	105	102	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	2.0	2.00	1.99	2.01	1.99
True Result:	0.2	2.0	2.0	2.0	2.0	2.0
% Recovery:	95	100	100	100	101	100
% 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:	TYW166	HYW166	FYW166	M7W080	EYW166	NYW166
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:	27-JUN-98	27-JUN-98	27-JUN-98	02-JUL-98	27-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:	806219-1	806219-1	806219-1	806213-1	806219-1	806219-1
Rept Limit:	<0.005	<0.005	<0.005	<0.0002	<0.005	<0.05
Sample Result:	1.99	2.04	2.03	0.0050	1.98	2.15
Dup Result:	1.98	2.02	2.02	0.0051	1.97	2.14
Sample RPD:	1	1	0	2	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:	806219-1	806219-1	806219-1	806213-1	806219-1	806219-1
Rept Limit:	<0.005	<0.005	<0.005	<0.0002	<0.005	<0.05
Sample Result:	<0.005	<0.005	<0.005	0.0003	<0.005	<0.05
Spiked Result:	1.99	2.04	2.03	0.0050	1.98	2.15
Spike Added:	2.0	2.0	2.0	0.0050	2.0	2.0
% Recovery:	100	102	102	94	99	108
% 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:	1.99	2.00	2.02	0.0050	2.00	2.07
True Result:	2.0	2.0	2.0	0.0050	2.0	2.0
% Recovery:	100	100	101	100	100	104
% 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:	PYW166	GYW166	DYW166	SYW166	5YW166
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:	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
Sample Duplication					
Sample Dup:	806219-1	806219-1	806219-1	806219-1	806219-1
Rept Limit:	<0.003	<0.005	<0.005	<0.005	<0.02
Sample Result:	1.99	2.09	2.16	1.98	1.94
Dup Result:	2.00	2.08	2.18	1.97	1.94
Sample RPD:	1	0	1	1	0
Max RPD:	20	20	20	20	20
Dry Weight%	N/A	N/A	N/A	N/A	N/A
Matrix Spike					
Sample Spiked:	806219-1	806219-1	806219-1	806219-1	806219-1
Rept Limit:	<0.003	<0.005	<0.005	<0.005	<0.02
Sample Result:	<0.003	0.046	<0.005	<0.005	<0.02
Spiked Result:	1.99	2.09	2.16	1.98	1.94
Spike Added:	2.0	2.0	2.0	2.0	2.0
% Recovery:	100	102	108	99	97
% 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	1.063
True Result:	1.0	1.0	1.0	1.0	1.0
% Recovery:	104	101	103	102	106
% Rec Limits:	95-105	95-105	95-105	95-105	95-105
LCS					
LCS Result:	1.99	1.98	2.12	1.94	1.97
True Result:	2.0	2.0	2.0	2.0	2.0
% Recovery:	100	99	106	97	99
% 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: POLYNUCLEAR AROMATICS BY 8310

Accession:	806219
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806411
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:	806219
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806411
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:	806219
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806411
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

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:
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: 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 #: 806219 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? Yes* (No)
   Req By: PM Client Other*
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): 3590055232 Shipped By: FEDEX

Cooler Number(s): 89, 091L 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. AE 6/18/98.

(USE BACK OF PSIF FOR ADDITIONAL NOTES AND COMMENTS)

Inspected By: AE Date: 6/18/98 Logged By: AE 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: 6/17 PAGE: 2 OF 2

AEN(NM) Accession #: 806219

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:	*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-89	6/17	1300	AQ	03											X					X		X	X		X	X						X	9
MW-66	6/17	1515	AQ	06											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	
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 FOR METALS & WET CHEM

RELINQUISHED BY: 1
Signature: Time: 1600 CF
Printed Name: KEVIN COOK Date: 6/17
Company: FD

RELINQUISHED BY: 2
Signature: Time: 1600 CF
Printed Name: CHRIS FAITH Date: 6/17
Company: AEN

RECEIVED BY: 1
Signature: Time: 1600 CF
Printed Name: CHRIS FAITH Date: 6/17
Company: AEN

RECEIVED BY (LAB): 2
Signature: Time: 0800
Printed Name: Date: 6/18/98
American Environmental Network (NM), Inc.

American Environmental Network (NM), Inc.

CHAIN OF CUSTODY

DATE: 6/17 PAGE: 1 OF 2

AEN (NM) Accession #: 806219

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 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
MW-90	6/17	1100	AQ	03											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	
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 FOR METALS & WET CHEM

RELINQUISHED BY: 1

Signature: Kevin Cole Time: 1135
Printed Name: Kevin Cole Date: 6/17/98
Company: FDGI

RELINQUISHED BY: 2

Signature: Time: 1138
Printed Name: CHRIS Date: 6/17
Company: AEN

RECEIVED BY: 1

Signature: Time: 1135
Printed Name: CHRIS FAITH Date: 6/17
Company: AEN

RECEIVED BY (LAB): 2

Signature: Time: 0807
Printed Name: Date: 6/18/98
K. BLISSERMAN
American Environmental Network (NM) Inc.

American Environmental Network (NM), Inc.

CHAIN OF CUSTODY

DATE: _____ PAGE: ___ OF ___

AEN(NM) Accession #: NM-801-641

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-90	6/17	1100	AQ	-05									X	X			X																6
MW-89	6/17	1300	AQ	-02									X	X			X																6
MW-66	6/17	1515	AQ	-06									X	X			X																6
MW-90 RB	6/17	1200	AQ	-04													X																2
MW-89 RB	6/17		AQ	-03													X																2
MW-70 RB	6/17	1100	AQ	-01													X																2
Trip Blank	6/11	1410	AQ	-07													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	4°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 ☐

RELINQUISHED BY: 1

Signature: Kevin Cook Time: 1600
Printed Name: Kevin Cook Date: 6/17/98
Company: FDGTI

RELINQUISHED BY: 2

Signature: [illegible] Time: 1630
Printed Name: Chris Faith Date: 6/17
Company: AEN

RECEIVED BY: 1

Signature: [illegible] Time: 1600
Printed Name: Chris Faith Date: 6/17
Company: AEN

RECEIVED BY (LAB): 2

Signature: [illegible] Time: 1221
Printed Name: Francine Lorenzo Date: 6/18/98
American Environmental Network (NM), Inc.

RECEIVED

AEN I.D. 806424

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.	: 806424
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-57	AQUEOUS	6/25/98
02	ROCKY ARROYO	AQUEOUS	6/26/98
03	MW-94	AQUEOUS	6/26/98
04	MW-68	AQUEOUS	6/26/98
05	MW-86	AQUEOUS	6/26/98
06	MW-62	AQUEOUS	6/26/98
07	TRIP BLANK	AQUEOUS	6/11/98

GAS CHROMOTOGRAPHY RESULTS

TEST : ETHYLENE DIBROMIDE (EPA 504.1)
CLIENT : MARATHON OIL COMPANY AEN I.D.: 806424
PROJECT # : 104332.03
PROJECT NAME : IBRP

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
01	MW-57	AQUEOUS	6/25/98	7/2/98	7/3/98	1
02	ROCKY ARROYO	AQUEOUS	6/26/98	7/2/98	7/3/98	1
03	MW-94	AQUEOUS	6/26/98	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			87	86	85
SURROGATE LIMITS	(75 - 141)				

CHEMIST NOTES:
N/A

GAS CHROMOTOGRAPHY RESULTS

TEST : ETHYLENE DIBROMIDE (EPA 504.1)
CLIENT : MARATHON OIL COMPANY AEN I.D.: 806424
PROJECT # : 104332.03
PROJECT NAME : IBRP

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
04	MW-68	AQUEOUS	6/26/98	7/2/98	7/3/98	1
05	MW-86	AQUEOUS	6/26/98	7/6/98	7/6/98	1
06	MW-62	AQUEOUS	6/26/98	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			78	76	83
SURROGATE LIMITS	(75 - 141)				

CHEMIST NOTES:
N/A

GAS CHROMOTOGRAPHY RESULTS
REAGENT BLANK

TEST	: ETHYLENE DIBROMIDE (EPA 504.1)		
BLANK I.D.	: 070298B	AEN I.D.	: 806424
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
REAGENT BLANK

TEST	: ETHYLENE DIBROMIDE (EPA 504.1)		
BLANK I.D.	: 070698	AEN I.D.	: 806424
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 #	: 070298B	AEN I.D.	: 806424
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.: 806424
PROJECT # : 104332.03
PROJECT NAME : IBRP

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
01	MW-57	AQUEOUS	6/25/98	NA	7/1/98	1
02	ROCKY ARROYO	AQUEOUS	6/26/98	NA	7/1/98	1
03	MW-94	AQUEOUS	6/26/98	NA	7/1/98	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 (%)			109	109	103
SURROGATE LIMITS	(73 - 117)				

CHEMIST NOTES:
N/A

GAS CHROMOTOGRAPHY RESULTS

TEST : PURGEABLE HALOCARBONS / AROMATICS (EPA 8021)
CLIENT : MARATHON OIL COMPANY AEN I.D.: 806424
PROJECT # : 104332.03
PROJECT NAME : IBRP

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
04	MW-68	AQUEOUS	6/26/98	NA	7/2/98	10
05	MW-86	AQUEOUS	6/26/98	NA	7/2/98	10
06	MW-62	AQUEOUS	6/26/98	NA	7/1/98	1

PARAMETER	DET. LIMIT	UNITS	04	05	06
TETRACHLOROETHENE	0.5	UG/L	< 5.0	< 5.0	< 0.5
VINYL CHLORIDE	0.5	UG/L	< 5.0	< 5.0	< 0.5
SURROGATE:					
BROMOCHLOROMETHANE (%)			103	102	103
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.	: 806424
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 RESULTS
REAGENT BLANK

TEST	: PURGEABLE HALOCARBONS / AROMATICS (EPA 8021)		
BLANK I.D.	: 070298	AEN I.D.	: 806424
CLIENT	: MARATHON OIL COMPANY	DATE EXTRACTED	: N/A
PROJECT #	: 104332.03	DATE ANALYZED	: 7/2/98
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 (%)		109
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.	: 806424
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. :	806424
PROJECT #	: 104332.03	DATE RECEIVED :	6/27/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806424-01	MW-57	AQUEOUS	6/24/98	N/A	07/02/98	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. :	806424
PROJECT #	: 104332.03	DATE RECEIVED :	6/27/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806424-01	MW-57	AQUEOUS	6/24/98	N/A	07/02/98	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. :	806424
PROJECT #	: 104332.03	DATE RECEIVED :	6/27/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806424-02	ROCKY ARROYO	AQUEOUS	6/26/98	N/A	07/02/98	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. :	806424
PROJECT #	: 104332.03	DATE RECEIVED :	6/27/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806424-02	ROCKY ARROYO	AQUEOUS	6/26/98	N/A	07/02/98	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	107 (80 - 120)
Toluene-d8	101 (88 - 110)
Bromofluorobenzene	104 (86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806424
PROJECT #	: 104332.03	DATE RECEIVED :	6/27/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806424-03	MW-94	AQUEOUS	6/26/98	N/A	07/02/98	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. :	806424
PROJECT #	: 104332.03	DATE RECEIVED :	6/27/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806424-03	MW-94	AQUEOUS	6/26/98	N/A	07/02/98	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	97 (88 - 110)
Bromofluorobenzene	100 (86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806424
PROJECT #	: 104332.03	DATE RECEIVED :	6/27/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806424-04	MW-68	AQUEOUS	6/26/98	N/A	07/02/98	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	**390**	**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	**26**	**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	**140**	**ug/L**
1,1,1,2-Tetrachloroethane	1.0	< 10	ug/L
m&p Xylenes	1.0	**990**	**ug/L**

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806424
PROJECT #	: 104332.03	DATE RECEIVED :	6/27/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806424-04	MW-68	AQUEOUS	6/26/98	N/A	07/02/98	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	**35**	**ug/L**
Bromobenzene	1.0	< 10	ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 10	ug/L
n-Propylbenzene	1.0	**34**	**ug/L**
2-Chlorotoluene	1.0	< 10	ug/L
4-Chlorotoluene	1.0	< 10	ug/L
1,3,5-Trimethylbenzene	1.0	**290**	**ug/L**
tert-Butylbenzene	1.0	< 10	ug/L
1,2,4-Trimethylbenzene	1.0	**490**	**ug/L**
sec-Butylbenzene	1.0	**18**	**ug/L**
1,3-Dichlorobenzene	1.0	< 10	ug/L
1,4-Dichlorobenzene	1.0	< 10	ug/L
p-Isopropyltoluene	1.0	**20**	**ug/L**
1,2-Dichlorobenzene	1.0	< 10	ug/L
n-Butylbenzene	1.0	**27**	**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	109	(80 - 120)
Toluene-d8	105	(88 - 110)
Bromofluorobenzene	103	(86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806424
PROJECT #	: 104332.03	DATE RECEIVED :	6/27/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806424-05	MW-86	AQUEOUS	6/26/98	N/A	07/02/98	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	**91**	**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	**28**	**ug/L**
1,1,1,2-Tetrachloroethane	1.0	< 10	ug/L
m&p Xylenes	1.0	**360**	**ug/L**

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806424
PROJECT #	: 104332.03	DATE RECEIVED :	6/27/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806424-05	MW-86	AQUEOUS	6/26/98	N/A	07/02/98	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	**23**	**ug/L**
Bromobenzene	1.0	< 10	ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 10	ug/L
n-Propylbenzene	1.0	**21**	**ug/L**
2-Chlorotoluene	1.0	< 10	ug/L
4-Chlorotoluene	1.0	< 10	ug/L
1,3,5-Trimethylbenzene	1.0	**140**	**ug/L**
tert-Butylbenzene	1.0	< 10	ug/L
1,2,4-Trimethylbenzene	1.0	**190**	**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	**12**	**ug/L**
1,2-Dichlorobenzene	1.0	< 10	ug/L
n-Butylbenzene	1.0	**17**	**ug/L**
1,2-Dibromomo-3-chloropropane	1.0	< 10	ug/L
1,2,4-Trichlorobenzene	1.0	< 10	ug/L
Naphthalene	1.0	**15**	**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	101	(88 - 110)
Bromofluorobenzene	102	(86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806424
PROJECT #	: 104332.03	DATE RECEIVED :	6/27/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806424-06	MW-62	AQUEOUS	6/26/98	N/A	07/02/98	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	**41**	**ug/L**
1,1,1,2-Tetrachloroethane	1.0	< 10	ug/L
m&p Xylenes	1.0	**56**	**ug/L**

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806424
PROJECT #	: 104332.03	DATE RECEIVED :	6/27/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806424-06	MW-62	AQUEOUS	6/26/98	N/A	07/02/98	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	**20**	**ug/L**
Bromobenzene	1.0	< 10	ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 10	ug/L
n-Propylbenzene	1.0	**20**	**ug/L**
2-Chlorotoluene	1.0	< 10	ug/L
4-Chlorotoluene	1.0	< 10	ug/L
1,3,5-Trimethylbenzene	1.0	**49**	**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	< 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	115	(80 - 120)
Toluene-d8	108	(88 - 110)
Bromofluorobenzene	110	(86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806424
PROJECT #	: 104332.03	DATE RECEIVED :	6/27/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806424-07	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. :	806424
PROJECT #	: 104332.03	DATE RECEIVED :	6/27/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806424-07	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. :	806424
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. :	806424
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. :	806424
PROJECT #	: 104332.03		
PROJECT NAME	: IBRP		

SAMPLE ID #	BATCH	MATRIX	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
REAGENT BLANK	070298	AQUEOUS	N/A	07/02/98	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. :	806424
PROJECT #	: 104332.03		
PROJECT NAME	: IBRP		

SAMPLE ID #	BATCH	MATRIX	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
REAGENT BLANK	070298	AQUEOUS	N/A	07/02/98	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	94
	(88 - 110)
Bromofluorobenzene	95
	(86 - 115)

Spike Recovery and RPD Summary Report - WATER

Method : C:\HPCHEM\1\METHODS\82600310.M (RTE Integrator)
Title : AEN New Mexicc GC/MS
Last Update : Thu Jul 02 08:45:15 1998
Response via : Initial Calibration

Non-Spiked Sample: 07029805.D

	Spike Sample	Spike Duplicate Sample
File ID :	070298S1.D	070298S2.D
Sample :	806424-01 MS	806424-01 MSD
Acq Time:	2 Jul 98 4:18 pm	2 Jul 98 4:52 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	47	44	94	88	6	14	61-145
Benzene	0.0	50	57	54	113	108	4	11	76-127
Trichloroethene	0.0	50	53	52	107	103	4	14	71-120
Toluene	0.0	50	53	51	106	103	3	13	76-125
Chlorobenzene	0.0	50	53	51	105	101	4	13	75-130

- Fails Limit Check

82600310.M Wed Jul 08 10:46:40 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 to 6/26/98
2709-D Pan American Freeway,NE	Project Number:	104332.03	Received:	6/30/98
Albuquerque, NM 87107	Project Manager:	Kimberly McNeill	Reported:	7/21/98 17:28

ANALYTICAL REPORT FOR SAMPLES:

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
MW-57	P806586-01	Water	6/25/98
ROCKY ARROYO	P806586-02	Water	6/26/98
MW-94	P806586-03	Water	6/26/98
MW-68	P806586-04	Water	6/26/98
MW-86	P806586-05	Water	6/26/98
MW-62	P806586-06	Water	6/26/98

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:	6/25/98 to 6/26/98
2709-D Pan American Freeway,NE	Project Number:	104332.03	Received:	6/30/98
Albuquerque, NM 87107	Project Manager:	Kimberly McNeill	Reported:	7/21/98 17:28

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-57			**P806586-01**				**Water**	
Uranium	0780334	7/14/98	7/20/98	EPA 6020	0.00100	ND	mg/l	
ROCKY ARROYO			**P806586-02**				**Water**	
Uranium	0780334	7/14/98	7/20/98	EPA 6020	0.00100	ND	mg/l	
MW-94			**P806586-03**				**Water**	
Uranium	0780334	7/14/98	7/20/98	EPA 6020	0.00100	**0.00190**	mg/l	
MW-68			**P806586-04**				**Water**	
Uranium	0780334	7/14/98	7/20/98	EPA 6020	0.00100	ND	mg/l	
MW-86			**P806586-05**				**Water**	
Uranium	0780334	7/14/98	7/20/98	EPA 6020	0.00100	**0.00270**	mg/l	
MW-62			**P806586-06**				**Water**	
Uranium	0780334	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:	6/25/98 to 6/26/98
2709-D Pan American Freeway,NE	Project Number:	104332.03	Received:	6/30/98
Albuquerque, NM 87107	Project Manager:	Kimberly McNeill	Reported:	7/21/98 17:28

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

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 to 6/26/98
2709-D Pan American Freeway,NE	Project Number:	104332.03	Received:	6/30/98
Albuquerque, NM 87107	Project Manager:	Kimberly McNeill	Reported:	7/21/98 17:28

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

P806586 24.7

American Environmental Network (NM), Inc. COPY

CHAIN OF CUSTODY

DATE: 6-26-98 PAGE: 1 OF 1

AEN(NM) Accession #: 806586

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 I.D.	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:	Uranium		Priority Pollutant Metals (13)	Target Analyte List Metals (23)	RCRA Metals (8)	RCRA Metals by TCLP (Method 1311)	Metals:		# OF CONTAINERS
MW-57	6-25-98	1700	H_2O																						X								1
Rocky Arroyo	6-26-98	0900	↓																						X								1
MW-94	↓	1030	↓																						X								1
MW-68	↓	1240	↓																						X								1
MW-86	↓	1345	↓																						X								1
MW-62	↓	1440	↓																						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) ☒

CERTIFICATION REQUIRED: ☐ NM ☐ SDWA ☐ OTHER

METHANOL PRESERVATION ☐

COMMENTS: FIXED FEE ☐

MW-94, 68, 86, + 62 Product wells

RELINQUISHED BY: 1.	RELINQUISHED BY:
Signature: Time: 1500	Signature: Time: 1530
Printed Name: Charles Madewell Date: 6-26-98	Printed Name: CHRIS FAITH Date: 6/26
Company: FDGTI	Company: AEN
RECEIVED BY: 1.	**RECEIVED BY: (LAB) 2.**
Signature: Time: 1300	Signature: Time: 0941
Printed Name: CHRIS FAITH Date: 6/26	Printed Name: Sara McClung Date: 6-30-98
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: M Patrick
STL Project Manager

Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
ALBUQUERQUE, NEW MEXICO

Project Name: IBRP
Project Number: 806424
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Accession Number: 806409

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:	806409
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806424
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: 806409
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806424
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON WET CHEMISTRY INORGANICS
QcLevel: II

Client ID: MW-57 Lab ID: 001

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
CHLORIDE (4500-CL B)	MG/L	50	1	CIW072	
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	N2W096	
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	7.3	NA	PHW137	R4
PHENOLS, TOTAL (420.1)	MG/L	0.006	0.005	PEW026	
SULFATE (375.4)	MG/L	110	50	SEW082	+
TOTAL DISSOLVED SOLIDS (160.1)	MG/L	490	5	TDW039	

Comments:

Client ID: ROCKY ARROYO Lab ID: 002

CHLORIDE (4500-CL B)	MG/L	13	1	CIW072	
CYANIDE, TOTAL (335.2)	MG/L	ND	0.005	CNW039	
FLUORIDE (340.2/4500-F C)	MG/L	0.7	0.2	FLW029	
NITRITE, NITROGEN (354.1)	MG/L	ND	0.1	N2W096	
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	PHW137	R4
PHENOLS, TOTAL (420.1)	MG/L	0.006	0.005	PEW026	
SULFATE (375.4)	MG/L	590	250	SEW082	+
TOTAL DISSOLVED SOLIDS (160.1)	MG/L	940	5	TDW039	

Comments:

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 806409
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806424
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON WET CHEMISTRY INORGANICS
QcLevel: II

Client ID: MW-94 Lab ID: 003

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
CHLORIDE (4500-CL B)	MG/L	24	1	CIW073	
CYANIDE, TOTAL (335.2)	MG/L	ND	0.005	CNW039	
FLUORIDE (340.2/4500-F C)	MG/L	0.7	0.2	FLW029	
NITRITE, NITROGEN (354.1)	MG/L	ND	0.1	N2W096	
NITRITE-NITRATE, NITROGEN (353.2)	MG/L	2.5	0.1	N3W49A	
NITRATE, NITROGEN (353.2-354.1)	MG/L	2.5	0.1	NONE	
PH (150.1)	UNITS	7.3	NA	PHW137	R4
PHENOLS, TOTAL (420.1)	MG/L	0.008	0.005	PEW026	
SULFATE (375.4)	MG/L	240	130	SEW082	+
TOTAL DISSOLVED SOLIDS (160.1)	MG/L	600	5	TDW039	

Comments:

Client ID: MW-68 Lab ID: 004

CHLORIDE (4500-CL B)	MG/L	29	1	CIW073	
CYANIDE, TOTAL (335.2)	MG/L	ND	0.005	CNW039	
FLUORIDE (340.2/4500-F C)	MG/L	0.6	0.2	FLW029	
NITRITE, NITROGEN (354.1)	MG/L	ND	0.1	N2W096	
NITRITE-NITRATE, NITROGEN (353.2)	MG/L	1.7	0.1	N3W49A	
NITRATE, NITROGEN (353.2-354.1)	MG/L	1.7	0.1	NONE	
PH (150.1)	UNITS	7.3	NA	PHW137	R4
PHENOLS, TOTAL (420.1)	MG/L	0.025	0.005	PEW026	
SULFATE (375.4)	MG/L	100	50	SEW082	+
TOTAL DISSOLVED SOLIDS (160.1)	MG/L	480	5	TDW039	

Comments:

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 806409
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806424
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON WET CHEMISTRY INORGANICS
QcLevel: II

Client ID: MW-86 Lab ID: 005

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
CHLORIDE (4500-CL B)	MG/L	330	1	CIW073	
CYANIDE, TOTAL (335.2)	MG/L	ND	0.005	CNW039	
FLUORIDE (340.2/4500-F C)	MG/L	1.1	0.2	FLW029	
NITRITE, NITROGEN (354.1)	MG/L	ND	0.1	N2W096	
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	PHW137	R4
PHENOLS, TOTAL (420.1)	MG/L	0.068	0.005	PEW026	
SULFATE (375.4)	MG/L	29	5	SEW082	
TOTAL DISSOLVED SOLIDS (160.1)	MG/L	1500	5	TDW040	

Comments:

Client ID: MW-62 Lab ID: 006

CHLORIDE (4500-CL B)	MG/L	91	1	CIW073	
CYANIDE, TOTAL (335.2)	MG/L	ND	0.005	CNW039	
FLUORIDE (340.2/4500-F C)	MG/L	0.8	0.2	FLW029	
NITRITE, NITROGEN (354.1)	MG/L	ND	0.1	N2W096	
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	PHW137	R4
PHENOLS, TOTAL (420.1)	MG/L	ND	0.005	PEW026	
SULFATE (375.4)	MG/L	140	5	SEW082	+
TOTAL DISSOLVED SOLIDS (160.1)	MG/L	650	5	TDW040	

Comments:

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

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 806409
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806424
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-57	001	WATER	25-JUN-98 1700	27-JUN-98
ROCKY ARROYO	002	WATER	26-JUN-98 0900	27-JUN-98
MW-94	003	WATER	26-JUN-98 1030	27-JUN-98
MW-68	004	WATER	26-JUN-98 1240	27-JUN-98
MW-86	005	WATER	26-JUN-98 1345	27-JUN-98
MW-62	006	WATER	26-JUN-98 1440	27-JUN-98

"Method Report Summary"

Accession Number: 806409
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806424
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON WET CHEMISTRY INORGANICS

Client Sample Id:	Parameter:	Unit:	Result:
MW-57	CHLORIDE (4500-CL B)	MG/L	50
	FLUORIDE (340.2/4500-F C)	MG/L	0.5
	PH (150.1)	UNITS	7.3
	PHENOLS, TOTAL (420.1)	MG/L	0.006
	SULFATE (375.4)	MG/L	110
	TOTAL DISSOLVED SOLIDS (160.1)	MG/L	490
ROCKY ARROYO	CHLORIDE (4500-CL B)	MG/L	13
	FLUORIDE (340.2/4500-F C)	MG/L	0.7
	PH (150.1)	UNITS	7.2
	PHENOLS, TOTAL (420.1)	MG/L	0.006
	SULFATE (375.4)	MG/L	590
	TOTAL DISSOLVED SOLIDS (160.1)	MG/L	940
MW-94	CHLORIDE (4500-CL B)	MG/L	24
	FLUORIDE (340.2/4500-F C)	MG/L	0.7
	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
	PHENOLS, TOTAL (420.1)	MG/L	0.008
	SULFATE (375.4)	MG/L	240
	TOTAL DISSOLVED SOLIDS (160.1)	MG/L	600
MW-68	CHLORIDE (4500-CL B)	MG/L	29
	FLUORIDE (340.2/4500-F C)	MG/L	0.6
	NITRITE-NITRATE, NITROGEN (353.2)	MG/L	1.7
	NITRATE, NITROGEN (353.2-354.1)	MG/L	1.7
	PH (150.1)	UNITS	7.3
	PHENOLS, TOTAL (420.1)	MG/L	0.025
	SULFATE (375.4)	MG/L	100
	TOTAL DISSOLVED SOLIDS (160.1)	MG/L	480
MW-86	CHLORIDE (4500-CL B)	MG/L	330
	FLUORIDE (340.2/4500-F C)	MG/L	1.1
	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	0.068
	SULFATE (375.4)	MG/L	29
	TOTAL DISSOLVED SOLIDS (160.1)	MG/L	1500
MW-62	CHLORIDE (4500-CL B)	MG/L	91
	FLUORIDE (340.2/4500-F C)	MG/L	0.8
	PH (150.1)	UNITS	7.1

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

"Method Report Summary"

Accession Number: 806409
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806424
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON WET CHEMISTRY INORGANICS

Client Sample Id:	Parameter:	Unit:	Result:
	SULFATE (375.4)	MG/L	140
	TOTAL DISSOLVED SOLIDS (160.1)	MG/L	650

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

Analysis Report

Analysis: MARATHON METALS - OPTIMA

Accession:	806409
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806424
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: 806409
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806424
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON METALS - OPTIMA
QcLevel: II

Client ID: MW-57 Lab ID:001

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
SILVER (6010A)	MG/L	ND	0.0007	AYW176	
ALUMINUM (6010A)	MG/L	ND	0.026	LYW176	
ARSENIC (6010A)	MG/L	0.0018	0.0018	RYW176	
BARIUM (6010A)	MG/L	0.42	0.0002	BYW176	
BORON (6010A)	MG/L	0.075	0.0057	OYW176	
CADMIUM (6010A)	MG/L	0.0002	0.0002	CYW176	
COBALT (6010A)	MG/L	0.0005	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	M7W084	
NICKEL (6010A)	MG/L	ND	0.0009	EYW176	
IRON (6010A)	MG/L	1.0	0.013	NYW176	
LEAD (6010A)	MG/L	ND	0.0022	PYW176	
MANGANESE (6010A)	MG/L	0.20	0.0002	GYW176	
MOLYBDENUM (6010A)	MG/L	0.0017	0.0003	DYW176	
ZINC (6010A)	MG/L	0.020	0.014	5YW176	

Comments:

Client ID: ROCKY ARROYO Lab ID:002

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	0.044	0.0002	BYW176	
BORON (6010A)	MG/L	0.078	0.0057	OYW176	
CADMIUM (6010A)	MG/L	ND	0.0002	CYW176	
COBALT (6010A)	MG/L	0.0004	0.0003	TYW176	
CHROMIUM (6010A)	MG/L	ND	0.0008	HYW176	
COPPER (6010A)	MG/L	ND	0.0018	FYW176	
MERCURY (7470A)	MG/L	ND	0.0001	M7W084	
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	0.012	0.0002	GYW176	
MOLYBDENUM (6010A)	MG/L	0.0021	0.0003	DYW176	
ZINC (6010A)	MG/L	0.024	0.014	5YW176	

Comments:

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 806409
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806424
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-94			Lab ID:003		
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	0.040	0.0002	BYW176	
BORON (6010A)	MG/L	0.058	0.0057	OYW176	
CADMIUM (6010A)	MG/L	ND	0.0002	CYW176	
COBALT (6010A)	MG/L	ND	0.0003	TYW176	
CHROMIUM (6010A)	MG/L	0.0066	0.0008	HYW176	
COPPER (6010A)	MG/L	ND	0.0018	FYW176	
MERCURY (7470A)	MG/L	0.0001	0.0001	M7W084	
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	0.0023	0.0002	GYW176	
MOLYBDENUM (6010A)	MG/L	0.0023	0.0003	DYW176	
ZINC (6010A)	MG/L	0.022	0.014	5YW176	

Comments:

Client ID: MW-68			Lab ID:004		
SILVER (6010A)	MG/L	ND	0.0007	AYW176	
ALUMINUM (6010A)	MG/L	ND	0.026	LYW176	
ARSENIC (6010A)	MG/L	0.0085	0.0018	RYW176	
BARIUM (6010A)	MG/L	0.15	0.0002	BYW176	
BORON (6010A)	MG/L	0.10	0.0057	OYW176	
CADMIUM (6010A)	MG/L	0.0002	0.0002	CYW176	
COBALT (6010A)	MG/L	0.0019	0.0003	TYW176	
CHROMIUM (6010A)	MG/L	0.0014	0.0008	HYW176	
COPPER (6010A)	MG/L	ND	0.0018	FYW176	
MERCURY (7470A)	MG/L	0.0002	0.0001	M7W084	
NICKEL (6010A)	MG/L	ND	0.0009	EYW176	
IRON (6010A)	MG/L	0.080	0.013	NYW176	
LEAD (6010A)	MG/L	ND	0.0022	PYW176	
MANGANESE (6010A)	MG/L	0.10	0.0002	GYW176	
MOLYBDENUM (6010A)	MG/L	0.0046	0.0003	DYW176	
ZINC (6010A)	MG/L	0.10	0.014	5YW176	

Comments:

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 806409
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806424
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON METALS - OPTIMA
QcLevel: II

Client ID: MW-86 Lab ID:005

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
SILVER (6010A)	MG/L	ND	0.0007	AYW176	
ALUMINUM (6010A)	MG/L	ND	0.026	LYW176	
ARSENIC (6010A)	MG/L	0.0030	0.0018	RYW176	
BARIUM (6010A)	MG/L	0.66	0.0002	BYW176	
BORON (6010A)	MG/L	0.28	0.0057	OYW176	
CADMIUM (6010A)	MG/L	0.0002	0.0002	CYW176	
COBALT (6010A)	MG/L	0.0020	0.0003	TYW176	
CHROMIUM (6010A)	MG/L	0.0017	0.0008	HYW176	
COPPER (6010A)	MG/L	ND	0.0018	FYW176	
MERCURY (7470A)	MG/L	0.0001	0.0001	M7W084	
NICKEL (6010A)	MG/L	ND	0.0009	EYW176	
IRON (6010A)	MG/L	0.53	0.013	NYW176	
LEAD (6010A)	MG/L	ND	0.0022	PYW176	
MANGANESE (6010A)	MG/L	0.17	0.0002	GYW176	
MOLYBDENUM (6010A)	MG/L	0.0012	0.0003	DYW176	
ZINC (6010A)	MG/L	0.039	0.014	5YW176	

Comments:

Client ID: MW-62 Lab ID:006

SILVER (6010A)	MG/L	ND	0.0007	AYW176	
ALUMINUM (6010A)	MG/L	ND	0.026	LYW176	
ARSENIC (6010A)	MG/L	0.0093	0.0018	RYW176	
BARIUM (6010A)	MG/L	0.36	0.0002	BYW176	
BORON (6010A)	MG/L	0.12	0.0057	OYW176	
CADMIUM (6010A)	MG/L	0.0002	0.0002	CYW176	
COBALT (6010A)	MG/L	0.0006	0.0003	TYW176	
CHROMIUM (6010A)	MG/L	0.0024	0.0008	HYW176	
COPPER (6010A)	MG/L	ND	0.0018	FYW176	
MERCURY (7470A)	MG/L	0.0001	0.0001	M7W084	
NICKEL (6010A)	MG/L	ND	0.0009	EYW176	
IRON (6010A)	MG/L	0.25	0.013	NYW176	
LEAD (6010A)	MG/L	ND	0.0022	PYW176	
MANGANESE (6010A)	MG/L	0.39	0.0002	GYW176	
MOLYBDENUM (6010A)	MG/L	0.0040	0.0003	DYW176	
ZINC (6010A)	MG/L	0.015	0.014	5YW176	

Comments:

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 806409
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806424
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-57	001	WATER	25-JUN-98 1700	27-JUN-98
ROCKY ARROYO	002	WATER	26-JUN-98 0900	27-JUN-98
MW-94	003	WATER	26-JUN-98 1030	27-JUN-98
MW-68	004	WATER	26-JUN-98 1240	27-JUN-98
MW-86	005	WATER	26-JUN-98 1345	27-JUN-98
MW-62	006	WATER	26-JUN-98 1440	27-JUN-98

"Method Report Summary"

Accession Number: 806409
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806424
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON METALS - OPTIMA

Client Sample Id:	Parameter:	Unit:	Result:
MW-57	ARSENIC (6010A)	MG/L	0.0018
	BARIUM (6010A)	MG/L	0.42
	BORON (6010A)	MG/L	0.075
	CADMIUM (6010A)	MG/L	0.0002
	COBALT (6010A)	MG/L	0.0005
	CHROMIUM (6010A)	MG/L	0.0008
	IRON (6010A)	MG/L	1.0
	MANGANESE (6010A)	MG/L	0.20
	MOLYBDENUM (6010A)	MG/L	0.0017
	ZINC (6010A)	MG/L	0.020
ROCKY ARROYO	BARIUM (6010A)	MG/L	0.044
	BORON (6010A)	MG/L	0.078
	COBALT (6010A)	MG/L	0.0004
	IRON (6010A)	MG/L	0.015
	MANGANESE (6010A)	MG/L	0.012
	MOLYBDENUM (6010A)	MG/L	0.0021
	ZINC (6010A)	MG/L	0.024
MW-94	BARIUM (6010A)	MG/L	0.040
	BORON (6010A)	MG/L	0.058
	CHROMIUM (6010A)	MG/L	0.0066
	MERCURY (7470A)	MG/L	0.0001
	MANGANESE (6010A)	MG/L	0.0023
	MOLYBDENUM (6010A)	MG/L	0.0023
	ZINC (6010A)	MG/L	0.022
MW-68	ARSENIC (6010A)	MG/L	0.0085
	BARIUM (6010A)	MG/L	0.15
	BORON (6010A)	MG/L	0.10
	CADMIUM (6010A)	MG/L	0.0002
	COBALT (6010A)	MG/L	0.0019
	CHROMIUM (6010A)	MG/L	0.0014
	MERCURY (7470A)	MG/L	0.0002
	IRON (6010A)	MG/L	0.080
	MANGANESE (6010A)	MG/L	0.10
	MOLYBDENUM (6010A)	MG/L	0.0046
	ZINC (6010A)	MG/L	0.10
MW-86	ARSENIC (6010A)	MG/L	0.0030
	BARIUM (6010A)	MG/L	0.66
	BORON (6010A)	MG/L	0.28
	CADMIUM (6010A)	MG/L	0.0002
	COBALT (6010A)	MG/L	0.0020
	CHROMIUM (6010A)	MG/L	0.0017
	MERCURY (7470A)	MG/L	0.0001
	IRON (6010A)	MG/L	0.53
	MANGANESE (6010A)	MG/L	0.17
	MOLYBDENUM (6010A)	MG/L	0.0012

"Method Report Summary"

Accession Number: 806409
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806424
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON METALS - OPTIMA

Client Sample Id:	Parameter:	Unit:	Result:
	ZINC (6010A)	MG/L	0.039
MW-62	ARSENIC (6010A)	MG/L	0.0093
	BARIUM (6010A)	MG/L	0.36
	BORON (6010A)	MG/L	0.12
	CADMIUM (6010A)	MG/L	0.0002
	COBALT (6010A)	MG/L	0.0006
	CHROMIUM (6010A)	MG/L	0.0024
	MERCURY (7470A)	MG/L	0.0001
	IRON (6010A)	MG/L	0.25
	MANGANESE (6010A)	MG/L	0.39
	MOLYBDENUM (6010A)	MG/L	0.0040
	ZINC (6010A)	MG/L	0.015

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

Analysis Report

Analysis: Group of Single Metals

Accession:	806409
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806424
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: 806409
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806424
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-57			Lab ID:001		
SELENIUM (7740)	MG/L	ND	0.005	S7W092	
Comments:					
Client ID: ROCKY ARROYO			Lab ID:002		
SELENIUM (7740)	MG/L	ND	0.005	S7W092	
Comments:					
Client ID: MW-94			Lab ID:003		
SELENIUM (7740)	MG/L	ND	0.005	S7W092	
Comments:					
Client ID: MW-68			Lab ID:004		
SELENIUM (7740)	MG/L	ND	0.005	S7W092	
Comments:					
Client ID: MW-86			Lab ID:005		
SELENIUM (7740)	MG/L	ND	0.005	S7W092	
Comments:					
Client ID: MW-62			Lab ID:006		
SELENIUM (7740)	MG/L	ND	0.005	S7W092	
Comments:					

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 806409
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806424
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-57	001	WATER	25-JUN-98 1700	27-JUN-98
ROCKY ARROYO	002	WATER	26-JUN-98 0900	27-JUN-98
MW-94	003	WATER	26-JUN-98 1030	27-JUN-98
MW-68	004	WATER	26-JUN-98 1240	27-JUN-98
MW-86	005	WATER	26-JUN-98 1345	27-JUN-98
MW-62	006	WATER	26-JUN-98 1440	27-JUN-98

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

Analysis Report

Analysis: ACID & BASE EXTRACTABLES (8270)

Accession:	806409
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806424
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	ORGANIC/MS

"FINAL REPORT FORMAT - SINGLE"

Accession: 806409
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806424
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-57
Sample Date/Time: 25-JUN-98 1700
Received Date: 27-JUN-98

Batch: ALW081
Blank: A
Dry Weight %: N/A
Extraction Date: 30-JUN-98
Analysis Date: 06-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: 806409
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806424
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-57
Sample Date/Time: 25-JUN-98 1700
Received Date: 27-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: 806409
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806424
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-57
Sample Date/Time: 25-JUN-98 1700
Received Date: 27-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	90	21-100	
PHENOL-D6	%REC/SURR	88	10-100	
2,4,6-TRIBROMOPHENOL	%REC/SURR	107	10-123	
2-FLUOROBIPHENYL	%REC/SURR	80	43-116	
NITROBENZENE-D5	%REC/SURR	87	35-114	
TERPHENYL-D14	%REC/SURR	108	33-124	
ANALYST	INITIALS	RW		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 806409
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806424
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: 26-JUN-98 0900
Client Sample Id: ROCKY ARROYO Received Date: 27-JUN-98

Batch: ALW081 Extraction Date: 30-JUN-98
Blank: A Dry Weight %: N/A Analysis Date: 06-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: 806409
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806424
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: 26-JUN-98 0900
Client Sample Id: ROCKY ARROYO Received Date: 27-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: 806409
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806424
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: ROCKY ARROYO
Sample Date/Time: 26-JUN-98 0900
Received Date: 27-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	87	21-100	
PHENOL-D6	%REC/SURR	83	10-100	
2,4,6-TRIBROMOPHENOL	%REC/SURR	90	10-123	
2-FLUOROBIPHENYL	%REC/SURR	73	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: 806409
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806424
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-94
Sample Date/Time: 26-JUN-98 1030
Received Date: 27-JUN-98

Batch: ALW081
Blank: A
Dry Weight %: N/A
Extraction Date: 30-JUN-98
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: 806409
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806424
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-94
Sample Date/Time: 26-JUN-98 1030
Received Date: 27-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: 806409
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806424
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-94
Sample Date/Time: 26-JUN-98 1030
Received Date: 27-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	87	10-100	
2,4,6-TRIBROMOPHENOL	%REC/SURR	90	10-123	
2-FLUOROBIPHENYL	%REC/SURR	77	43-116	
NITROBENZENE-D5	%REC/SURR	86	35-114	
TERPHENYL-D14	%REC/SURR	88	33-124	
ANALYST	INITIALS	RW		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 806409
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806424
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: 26-JUN-98 1240
Client Sample Id: MW-68 Received Date: 27-JUN-98

Batch: ALW081 Extraction Date: 30-JUN-98
Blank: A Dry Weight %: N/A Analysis Date: 05-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	16	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	140	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: 806409
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806424
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-68
Sample Date/Time: 26-JUN-98 1240
Received Date: 27-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	80	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	ND	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: 806409
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806424
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-68
Sample Date/Time: 26-JUN-98 1240
Received Date: 27-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	80	21-100	
PHENOL-D6	%REC/SURR	76	10-100	
2,4,6-TRIBROMOPHENOL	%REC/SURR	73	10-123	
2-FLUOROBIPHENYL	%REC/SURR	73	43-116	
NITROBENZENE-D5	%REC/SURR	86	35-114	
TERPHENYL-D14	%REC/SURR	67	33-124	
ANALYST	INITIALS	RW		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 806409
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806424
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: 005 Sample Date/Time: 26-JUN-98 1345
Client Sample Id: MW-86 Received Date: 27-JUN-98

Batch: ALW081 Extraction Date: 30-JUN-98
Blank: A Dry Weight %: N/A Analysis Date: 05-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	57	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: 806409
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806424
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: 005
Client Sample Id: MW-86
Sample Date/Time: 26-JUN-98 1345
Received Date: 27-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	23	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: 806409
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806424
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: 005
Client Sample Id: MW-86
Sample Date/Time: 26-JUN-98 1345
Received Date: 27-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	90	21-100	
PHENOL-D6	%REC/SURR	96	10-100	
2,4,6-TRIBROMOPHENOL	%REC/SURR	94	10-123	
2-FLUOROBIPHENYL	%REC/SURR	87	43-116	
NITROBENZENE-D5	%REC/SURR	228	35-114	J1
TERPHENYL-D14	%REC/SURR	77	33-124	
ANALYST	INITIALS	RW		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 806409
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806424
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: 006 Sample Date/Time: 26-JUN-98 1440
Client Sample Id: MW-62 Received Date: 27-JUN-98

Batch: ALW081 Extraction Date: 30-JUN-98
Blank: A Dry Weight %: N/A Analysis Date: 06-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: 806409
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806424
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: 006
Client Sample Id: MW-62
Sample Date/Time: 26-JUN-98 1440
Received Date: 27-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	ND	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: 806409
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806424
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: 006
Client Sample Id: MW-62
Sample Date/Time: 26-JUN-98 1440
Received Date: 27-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	56	21-100	
PHENOL-D6	%REC/SURR	54	10-100	
2,4,6-TRIBROMOPHENOL	%REC/SURR	39	10-123	
2-FLUOROBIPHENYL	%REC/SURR	56	43-116	
NITROBENZENE-D5	%REC/SURR	39	35-114	
TERPHENYL-D14	%REC/SURR	52	33-124	
ANALYST	INITIALS	RW		

Comments:

"Method Report Summary"

Accession Number: 806409
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806424
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)

Client Sample Id:	Parameter:	Unit:	Result:
MW-68	PHENOL	UG/L	16
	BIS(2-ETHYLHEXYL)PHTHALATE	UG/L	140
	DIMETHYLPHTHALATE	UG/L	80
MW-86	2,4-DIMETHYLPHENOL	UG/L	57
	2-METHYLNAPHTHALENE	UG/L	23

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

Analysis Report

Analysis: PESTICIDES (8080)

Accession:	806409
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806424
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: 806409
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806424
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 1700
Client Sample Id: MW-57 Received Date: 27-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	82	17-135	
ANALYST	INITIALS	RP		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 806409
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806424
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: 26-JUN-98 0900
Client Sample Id: ROCKY ARROYO Received Date: 27-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	75	43-101	
DCB	%REC/SURR	75	17-135	
ANALYST	INITIALS	RP		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 806409
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806424
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: 26-JUN-98 1030
Client Sample Id: MW-94 Received Date: 27-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	85	43-101	
DCB	%REC/SURR	120	17-135	
ANALYST	INITIALS	RP		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 806409
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806424
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: 26-JUN-98 1240
Client Sample Id: MW-68 Received Date: 27-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	0.1	
ALPHA-BHC	UG/L	0.18	0.1	I
BETA-BHC	UG/L	1.29	0.1	
DELTA-BHC	UG/L	0.26	0.1	I
GAMMA-BHC (LINDANE)	UG/L	0.43	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	115*	43-101	
DCB	%REC/SURR	86	17-135	
ANALYST	INITIALS	RP		

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

"FINAL REPORT FORMAT - SINGLE"

Accession: 806409
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806424
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: 26-JUN-98 1345
Client Sample Id: MW-86 Received Date: 27-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	0.16	0.02	I
ALPHA-BHC	UG/L	0.46	0.02	I
BETA-BHC	UG/L	0.31	0.02	
DELTA-BHC	UG/L	0.14	0.02	
GAMMA-BHC (LINDANE)	UG/L	0.53	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	55	43-101	
DCB	%REC/SURR	49	17-135	
ANALYST	INITIALS	RP		

Comments:
I = DUAL-COLUMN RPD > 40%

"FINAL REPORT FORMAT - SINGLE"

Accession: 806409
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806424
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: 006 Sample Date/Time: 26-JUN-98 1440
Client Sample Id: MW-62 Received Date: 27-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	0.08	0.02	I
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	79	43-101	
DCB	%REC/SURR	78	17-135	
ANALYST	INITIALS	RP		

Comments:
I = DUAL-COLUMN RPD > 40%

"Method Report Summary"

Accession Number: 806409
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806424
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: PESTICIDES (8080)

Client Sample Id:	Parameter:	Unit:	Result:
MW-68	ALPHA-BHC	UG/L	0.18
	BETA-BHC	UG/L	1.29
	DELTA-BHC	UG/L	0.26
	GAMMA-BHC (LINDANE)	UG/L	0.43
MW-86	ALDRIN	UG/L	0.16
	ALPHA-BHC	UG/L	0.46
	BETA-BHC	UG/L	0.31
	DELTA-BHC	UG/L	0.14
	GAMMA-BHC (LINDANE)	UG/L	0.53
MW-62	BETA-BHC	UG/L	0.08

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

Analysis Report

Analysis: POLYNUCLEAR AROMATICS BY 8310

Accession:	806409
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806424
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	SEMI-VOLATILE FUELS

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"FINAL REPORT FORMAT - SINGLE"

Accession: 806409
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806424
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 1700
Client Sample Id: MW-57 Received Date: 27-JUN-98

Batch: PAW151 Extraction Date: 01-JUL-98
Blank: A Dry Weight %: N/A Analysis Date: 03-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	69	28-138	
ANALYST	INITIALS	HAH		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 806409
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806424
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: 26-JUN-98 0900
Client Sample Id: ROCKY ARROYO Received Date: 27-JUN-98

Batch: PAW152 Extraction Date: 02-JUL-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	62	28-138	
ANALYST	INITIALS	HAH		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 806409
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806424
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: 26-JUN-98 1030
Client Sample Id: MW-94 Received Date: 27-JUN-98

Batch: PAW152 Extraction Date: 02-JUL-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	62	28-138	
ANALYST	INITIALS	HAH		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 806409
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806424
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: 26-JUN-98 1240
Client Sample Id: MW-68 Received Date: 27-JUN-98

Batch: PAW152 Extraction Date: 02-JUL-98
Blank: A Dry Weight %: N/A Analysis Date: 07-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZO(a)PYRENE	UG/L	9.9	0.1	
1-METHYLNAPHTHALENE	UG/L	120	0.3	E
2-CHLOROANTHRACENE	%REC/SURR	65	28-138	
ANALYST	INITIALS	HAH		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 806409
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806424
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
Client Sample Id: MW-86
Sample Date/Time: 26-JUN-98 1345
Received Date: 27-JUN-98

Batch: PAW152
Blank: A
Dry Weight %: N/A
Extraction Date: 02-JUL-98
Analysis Date: 07-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZO(a)PYRENE	UG/L	ND	0.1	
1-METHYLNAPHTHALENE	UG/L	300	0.3	E
2-CHLOROANTHRACENE	%REC/SURR	100	28-138	
ANALYST	INITIALS	HAH		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 806409
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806424
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: 26-JUN-98 1440
Client Sample Id: MW-62 Received Date: 27-JUN-98

Batch: PAW152 Extraction Date: 02-JUL-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	41	0.3	
2-CHLOROANTHRACENE	%REC/SURR	58	28-138	
ANALYST	INITIALS	HAH		

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:	806409
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806424
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	N2W096	N3W49A	PHW137
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	27-JUN-98	30-JUN-98	27-JUN-98
Prep. Date:	29-JUN-98	29-JUN-98	01-JUL-98	27-JUN-98	29-JUN-98	27-JUN-98
Sample Duplication						
Sample Dup:	806423-1	806355-4	806323-1	806409-1	806382-8	806409-1
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	7.32
Dup Result:	228.0	<0.005	0.87	<0.1	0.36	7.32
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:	806423-1	806355-4	806323-1	806409-1	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	0.19	2.03	9.97
True Result:	100.0	0.314	1.20	0.20	2.00	10.00
% Recovery:	101	91	90	95	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

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"WetChem Quality Control Report"

Parameter:	PHENOL	SULFATE	TDS	FLUORIDE	CHLORIDE	TDS
Batch Id:	PEW026	SEW082	TDW039	FLW029	CIW073	TDW040
Blank Result:	<0.005	<10	<5	<0.2	<1	<5
Anal. Method:	420.1	375.4	160.1	340.2	4500-CL B	160.1
Prep. Method:	NA	N/A	N/A	N/A	N/A	N/A
Analysis Date:	07-JUL-98	03-JUL-98	01-JUL-98	01-JUL-98	29-JUN-98	01-JUL-98
Prep. Date:	06-JUL-98	03-JUL-98	30-JUN-98	01-JUL-98	29-JUN-98	30-JUN-98
Sample Duplication						
Sample Dup:	806423-1	806388-4	806355-2	806409-2	806424-1	806409-5
Rept Limit:	<0.005	<20+	<5	<0.2	<10@	<5
Sample Result:	<0.005	55	1468	0.66	81.5	1464
Dup Result:	<0.005	55	1424	0.66	81.5	1486
Sample RPD:	N/C	0 G	3	0 G	0	1
Max RPD:	0.005	20	16	0.2	5	16
Dry Weight%	N/A	N/A	N/A	N/A	N/A	N/A
Matrix Spike						
Sample Spiked:	806423-2	806388-4	N/A	806409-2	806424-1	N/A
Rept Limit:	<0.005	<20+	N/A	<0.2	<10@	N/A
Sample Result:	<0.005	55		0.66	81.5	
Spiked Result:	0.025	132		1.42	661.9	
Spike Added:	0.020	100		0.80	550.0	
% Recovery:	125	77		95	106	
% Rec Limits:	48-149	56-154		79-132	90-111	
Dry Weight%	N/A	N/A		N/A	N/A	
ICV						
ICV Result:	0.027	22.0		1.10	98.6	
True Result:	0.025	20		1.20	100	
% Recovery:	108	110		92	99	
% Rec Limits:	90-110	90-110		90-110	90-110	
LCS						
LCS Result:			300			284
True Result:			293			293
% Recovery:			102			97
% Rec Limits:			77-129			90-110

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

"Quality Control Comments"

Batch Id:	Comments:
PEW026	806409-5,6 were added on to batch on 7-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:	806409
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806424
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	M7W084	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	07-JUL-98	06-JUL-98	06-JUL-98
Prep. Date:	29-JUN-98	29-JUN-98	29-JUN-98	07-JUL-98	29-JUN-98	29-JUN-98
Sample Duplication						
Sample Dup:	806424-1	806424-1	806424-1	806298-1	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	0.0050	1.98	2.08
Dup Result:	1.87	1.89	2.14	0.0050	1.97	2.07
Sample RPD:	2	2	1	0	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	806298-1	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	0.0050	1.98	2.08
Spike Added:	2.0	2.0	2.0	0.0050	2.0	2.0
% Recovery:	95	96	108	100	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	0.0036	0.98	4.91
True Result:	1.0	1.0	1.0	0.0040	1.0	5.0
% Recovery:	99	100	101	90	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	0.0050	1.97	2.01
True Result:	2.0	2.0	2.0	0.0050	2.0	2.0
% Recovery:	97	98	105	100	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
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: Group of Single Metals

Accession:	806409
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806424
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:	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 -----

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

Quality Control Report

Analysis: ACID & BASE EXTRACTABLES (8270)

Accession:	806409
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806424
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: ALW081
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: 05-JUL-98 Date Extracted: 30-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: ALW081
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: ALW081
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	94	21-100
PHENOL-D6	%REC/SURR	96	10-100
2,4,6-TRIBROMOPHENOL	%REC/SURR	116	10-123
2-FLUOROBIPHENYL	%REC/SURR	90	43-116
NITROBENZENE-D5	%REC/SURR	98	35-114
TERPHENYL-D14	%REC/SURR	112	33-124
ANALYST	INITIALS	RW	

Comments:

"QC Report"

Title: Water LCS
Batch: ALW081
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: 30-JUN-98

Parameters:	Spike Added	Sample Conc	RS Conc	RS %Rec	Rec Lmts
PHENOL	150	<10	100	67	5-112
2-CHLOROPHENOL	150	<10	98	65	40-120
1,4-DICHLOROBENZENE	100	<10	64	64	32-119
N-NITRO-DI-N-PROPYLAMINE	100	<10	62	62	26-128
1,2,4 TRICHLOROBENZENE	100	<10	62	62	44-142
4-CHLORO-3-METHYLPHENOL	150	<10	106	71	30-128
ACENAPHTHENE	100	<10	66	66	47-145
4-NITROPHENOL	150	<50	94	63	1-132
2,4-DINITROTOLUENE	100	<10	72	72	39-138
PENTACHLOROPHENOL	150	<50	112	75	15-157
PYRENE	100	<10	84	84	52-115
Surrogates:					
NITROBENZENE-D5				83	35-114
2-FLUOROBIPHENYL				78	43-116
TERPHENYL-D14				113	33-124
PHENOL-D6				81	10-100
2-FLUOROPHENOL				85	21-100
2,4,6-TRIBROMOPHENOL				115	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: PESTICIDES (8080)

Accession:	806409
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806424
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.

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

"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:
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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)

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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:	806409
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806424
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: PAW151
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: 06-JUL-98 Date Extracted: 01-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	73	28-138
ANALYST	INITIALS	HAH	

Comments:

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

"QC Report"

Title: Water Blank
Batch: PAW152
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: 07-JUL-98 Date Extracted: 02-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	69	28-138
ANALYST	INITIALS	HAH	

Comments:

"QC Report"

Title: Water LCS
Batch: PAW151
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: 01-JUL-98

Parameters:	Spike Added	Sample Conc	RS Conc	RS %Rec	Rec Lmts
ACENAPHTHYLENE	7.1	<1	4.9	69	45-127
BENZO(k)FLUORANTHENE	9.2	<1	8.0	87	68-131
CHRYSENE	9.1	<1	8.1	89	69-131
PHENANTHRENE	9.1	<1	8.0	88	63-124
PYRENE	8.8	<1	7.9	90	61-126
Surrogates:					
2-CHLOROANTHRACENE				80	28-138

Comments:

Notes:
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"QC Report"

Title: Water LCS
Batch: PAW152
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: 07-JUL-98 RS Date Extracted: 02-JUL-98

Parameters:	Spike Added	Sample Conc	RS Conc	RS %Rec	Rec Lmts
ACENAPHTHYLENE	7.1	<1	7.8	110	45-127
BENZO(k)FLUORANTHENE	9.2	<1	8.9	97	68-131
CHRYSENE	9.1	<1	8.9	98	69-131
PHENANTHRENE	9.1	<1	8.5	93	63-124
PYRENE	8.8	<1	8.4	95	61-126
Surrogates:					
2-CHLOROANTHRACENE				81	28-138

Comments:

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"QC Report"

Title: Water Matrix Spike/Matrix Spike Duplicate
Batch: PAW151
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 %: MS Date Analyzed: MS Date Extracted:
Sample Spiked: MSD Date Analyzed: MSD Date Extracted:

Parameters:	Spike Added	Sample Conc	MS Conc	MS %Rec	MSD Conc	MSD %Rec	RPD	RPD Lmts	Rec Lmts
ACENAPHTHYLENE								51	18-146
BENZO(k)FLUORANTHENE								40	26-137
CHRYSENE								69	16-156
PHENANTHRENE								36	30-145
PYRENE								41	39-137
Surrogates:									
2-CHLOROANTHRACENE									28-138

Comments:
NOT ENOUGH SAMPLE SUBMITTED TO EXTRACT MATRIX SPIKE/MATRIX SPIKE DUPLICATE.

Notes:
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"QC Report"

Title: Water Matrix Spike/Matrix Spike Duplicate
Batch: PAW152
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: 807013-1

MS Date Analyzed: 07-JUL-98
MSD Date Analyzed: 07-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	87.1	106.3	270*	101.9	208*	26	51	18-146
BENZO(k)FLUORANTHENE	9.2	<1	7.3	79	7.7	84	6	40	26-137
CHRYSENE	9.1	<1	7.5	82	7.9	87	6	69	16-156
PHENANTHRENE	9.10	2.5	10.9	92	10.5	88	4	36	30-145
PYRENE	8.8	3.0	9.0	68	10.0	80	16	41	39-137
Surrogates:									
2-CHLOROANTHRACENE				100		85			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:
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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 of Florida
PROJECT SAMPLE INSPECTION FORM

Lab Accession #: 806409 Date Received: 27-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? Yes* (No)
   Req By: PM Client Other♦
6. Were samples received in proper containers for analysis requested? (Yes) No* PHE 6/27/98
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): **Shipping Charges:** N/A

Cooler Weight(s): N/A **Cooler Temp(s) (°C):**

(LIST THERMOMETER NUMBER(S) FOR VERIFICATION)

Out of Control Events and Inspection Comments:

7. For sample MW-57, one 1L amber bottle (8310) was received broken. The 1L amber bottle labeled spare will be used to run 8310 analysis. PHE 6/27/98.

(USE BACK OF PSIF FOR ADDITIONAL NOTES AND COMMENTS)

Inspected By: PHE **Date:** 6/27/98 **Logged By:** PHE **Date:** 6/27/98

* *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: 6-26-98 PAGE: 1 OF 1

AEN (NM) Accession #: 806409

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 ☐	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:	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	NUMBER OF CONTAINERS
MW-57	6-26-98	1700	H_2O	1											X					X		X	X		X	X					X	4
Rocky Arroyo	6-26-98	0900	↓	2											X					X		X	X		X	X					X	4
MW-94	↓	1030	↓	3											X					X		X	X		X	X					X	4
MW-68	↓	1240	↓	4											X					X		X	X		X	X					X	4
MW-86	↓	1345	↓	5											X					X		X	X		X	X					X	4
MW-62	↓	1440	↓	6											X					X		X	X		X	X					X	4

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-94, 68, 86, + 62 Product Wells

RELINQUISHED BY: 1	RELINQUISHED BY: 2
Signature: Time: 1500	Signature: Time:
Printed Name: Charles Madewell Date: 6-26-98	Printed Name: Date:
Company: FDGE	Company:

RECEIVED BY: 1	RECEIVED BY (LAB): 2
Signature: Time:	Signature: Time: 0955
Printed Name: Date:	Printed Name: Date: 6-29-98
Company:	American Environmental Network (NM) Inc.

American Environmental Network (NM), Inc.

CHAIN OF CUSTODY

DATE: 6-26-98 PAGE: 1 OF 1

AEN(NM) Accession #: [illegible]

SHADED AREAS ARE FOR LAB USE ONLY.

PLEASE FILL THIS FORM IN COMPLETELY.

PROJECT MANAGER: Paul Pearcock

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-57	6-25-98	1700	H_2O	01									X	X			X																6
Rocky Arroyo	6-26-98	0900	↓	02									X	X			X																6
MW-94	↓	1030	↓	03									X	X			X																6
MW-68	↓	1240	↓	04									X	X			X																6
MW-86	↓	1345	↓	05									X	X			X																6
MW-62	↓	1440	↓	06									X	X			X																6
Trip Blank	6/11	1410	AQ	07													X																1

PROJECT INFORMATION

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

SAMPLE RECEIPT

NO. CONTAINERS: 37
CUSTODY SEALS: Y / N / NA
RECEIVED INTACT: [illegible]
BLUE ICE/ICE: [illegible]

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-94, 68, 86, + 62 Product Wells

RELINQUISHED BY: 1	RELINQUISHED BY: 2
Signature: [illegible] Time: 1500	Signature: [illegible] Time: 1530
Printed Name: Charles Mitchell Date: 6-26-98	Printed Name: CHRIS FAIRM Date: 6/26
Company: FDGE	Company: AEN

RECEIVED BY: 1	RECEIVED BY (LAB): 2
Signature: [illegible] Time: 1500	Signature: [illegible] Time: 1545
Printed Name: CHRIS FAIRM Date: 6/26	Printed Name: Francine Torres Date: 6/26/98
Company: AEN	American Environmental Network (NM), Inc.

RECEIVED

AEN I.D. 806424

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 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.	: 806424
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-57	AQUEOUS	6/25/98
02	ROCKY ARROYO	AQUEOUS	6/26/98
03	MW-94	AQUEOUS	6/26/98
04	MW-68	AQUEOUS	6/26/98
05	MW-86	AQUEOUS	6/26/98
06	MW-62	AQUEOUS	6/26/98
07	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	2399-022
STL Work Order #s	98-06-504
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: 98-06-504
STL-NC Project Number: 2399-022

Six (6) water samples were received on June 30, 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
7/30/98

C:\NET2\WP\AEN-NM 2399-022.WPD

07/30/98

Environmental Survey

Cover Page

Radiological Data Analysis Package

120 Southcenter Ct., Suite 300
Morrisville, NC 27560

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

Project Number: 2399-022

NC 806424

Client Sample ID	Lab ID
MW-57	9806504-01
Rocky Arroyo	9806504-02
MW-94	9806504-03
MW-68	9806504-04
MW-86	9806504-05
MW-62	9806504-06

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.

Ron W. Williams
Manager, Radiological Laboratory

7/30/98
Date

STL

Project Number: 2399-022

Severn Trent Laboratories

Radiological Analysis Results

NC 806424

Form I

Client Sample ID	Lab ID	Sample Type	Batch Number	Matrix	Radionuclide	Result	Uncertainty	Q	Units	Analysis Date	Sample Size	MDA
MW-57	9806504-01	Reg	98070008	Water	Ra-226	0.52	0.15		pCi/L	07/27/98	0.5000	0.11
MW-57	9806504-01	Reg	98070010	Water	Ra-228	2.54	0.88		pCi/L	07/17/98	1.0000	1.67
Rocky Arroyo	9806504-02	Reg	98070008	Water	Ra-226	0.25	0.09		pCi/L	07/28/98	0.5000	0.08
Rocky Arroyo	9806504-02	Reg	98070010	Water	Ra-228	2.57	0.93		pCi/L	07/17/98	1.0000	1.80
MW-94	9806504-03	Reg	98070008	Water	Ra-226	0.30	0.17		pCi/L	07/28/98	0.5000	0.17
MW-94	9806504-03	Reg	98070010	Water	Ra-228	4.52	1.04		pCi/L	07/17/98	1.0000	1.74
MW-68	9806504-04	Reg	98070008	Water	Ra-226	0.30	0.09		pCi/L	07/28/98	0.5000	0.07
MW-68	9806504-04	Reg	98070010	Water	Ra-228	3.35	0.96		pCi/L	07/17/98	1.0000	1.75
MW-86	9806504-05	Reg	98070008	Water	Ra-226	1.75	0.20		pCi/L	07/28/98	0.5000	0.09
MW-86	9806504-05	Reg	98070010	Water	Ra-228	0.82	1.05		pCi/L	07/20/98	1.0000	2.40
MW-62	9806504-06	Reg	98070008	Water	Ra-226	0.91	0.14		pCi/L	07/28/98	0.5000	0.06
MW-62	9806504-06	Reg	98070010	Water	Ra-228	2.80	0.84		pCi/L	07/20/98	1.0000	1.52

Key shall be attached
Comments:

MDA mode

Severn Trent Laboratories

Project Number: 2399-022

QA/QC Results Summary

NC 806424

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

Severn Trent Laboratories

Project Number: 2399-022

Method Blank Summary

NC 806424

07/30/98

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:

MDA mo

Project Number: 2399-022

Severn Trent Laboratories

Chemical Recovery

NC 806424

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
MW-57	9806504-01	Reg	98070008	Ra-226	Ba-133	1174.00	1258.00	93.32 %		pCi	07/27/98	5
MW-57	9806504-01	Reg	98070010	Ra-228	Ba-133	1128.00	1258.00	89.67 %		pCi	07/17/98	1
Rocky Arroyo	9806504-02	Reg	98070008	Ra-226	Ba-133	1199.00	1240.00	96.69 %		pCi	07/28/98	5
Rocky Arroyo	9806504-02	Reg	98070010	Ra-228	Ba-133	1050.00	1240.00	84.68 %		pCi	07/17/98	1
MW-94	9806504-03	Reg	98070008	Ra-226	Ba-133	1183.00	1258.00	94.04 %		pCi	07/28/98	5
MW-94	9806504-03	Reg	98070010	Ra-228	Ba-133	1067.00	1258.00	84.82 %		pCi	07/17/98	1
MW-68	9806504-04	Reg	98070008	Ra-226	Ba-133	1232.00	1240.00	99.35 %		pCi	07/28/98	5
MW-68	9806504-04	Reg	98070010	Ra-228	Ba-133	1119.00	1240.00	90.24 %		pCi	07/17/98	1
MW-86	9806504-05	Reg	98070008	Ra-226	Ba-133	1103.00	1258.00	87.68 %		pCi	07/28/98	5
MW-86	9806504-05	Reg	98070010	Ra-228	Ba-133	974.30	1258.00	77.45 %		pCi	07/20/98	1
MW-62	9806504-06	Reg	98070008	Ra-226	Ba-133	1194.00	1240.00	96.29 %		pCi	07/28/98	5
MW-62	9806504-06	Reg	98070010	Ra-228	Ba-133	1109.00	1240.00	89.44 %		pCi	07/20/98	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

Severn Trent Laboratories

Project Number: 2399-022

Blank Spike Results Summary

NC 806424

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:

MDA made

Project Number: 2399-022

Severn Trent Laboratories

Matrix Spike Results Summary

NC 806424

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:

MDA mode

STL

Project Number: 2399-022

Severn Trent Laboratories

Duplicate Results

NC 806424

07/30/98

Form VII

Client Sample ID	Lab ID	Batch Number	Radionuclide	Sample Result	Uncertainty	Dup. Result	Dup. Uncertainty	CER	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 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 #	98-06-504	# of Samples	6	Recieved Date	06/30/98	American Environ. Network
Client #	2399	# of Tests	12	Load Date	06/30/98	2709D PanAmerican Freeway NE
Project	2399-022	Report Level	2	Due Date	07/17/98	Albuquerque, NM 87107
Amount	123.25	Quote #		Export Date	/ /	Mitch Rubenstein
Comment						

Lab ID	Sample #	Status	Matrix	Test	Cust ID	Collected
9806504-01	01A1	Open	Water	Ra-226	MW-57	06/25/98
9806504-01	01A2	Open	Water	Ra-228	MW-57	06/25/98
9806504-02	02A1	Open	Water	Ra-226	Rocky Arroyo	06/26/98
9806504-02	02A2	Open	Water	Ra-228	Rocky Arroyo	06/26/98
9806504-03	03A1	Open	Water	Ra-226	MW-94	06/26/98
9806504-03	03A2	Open	Water	Ra-228	MW-94	06/26/98
9806504-04	04A1	Open	Water	Ra-226	MW-68	06/26/98
9806504-04	04A2	Open	Water	Ra-228	MW-68	06/26/98
9806504-05	05A1	Open	Water	Ra-226	MW-86	06/26/98
9806504-05	05A2	Open	Water	Ra-228	MW-86	06/26/98
9806504-06	06A1	Open	Water	Ra-226	MW-62	06/26/98
9806504-06	06A2	Open	Water	Ra-228	MW-62	06/26/98

pH Checked
All Samples pH <2
Initials: ds Date: 7-1-98

9806504

American Environmental Network (NM), Inc.

CHAIN OF CUSTODY

DATE: 6-26-98 PAGE: 1 OF 1

AEN(NM) Accession #: NC 806427

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:	Cl, SO4, NO3		Priority Pollutant Metals (13)	Target Analyte List Metals (23)	RCRA Metals (8)	RCRA Metals by TCLP (Method 1311)	Metals:		NUMBER OF CONTAINERS
✓ MW-57	6-25-98	1200	H_2O																						X								1
✓ ~~MW~~ Rocky Arroyo	6-26-98	0900	↓																						X								1
✓ MW-94	↓	1030	↓																						X								1
✓ MW-68	↓	1240	↓																						X								1
✓ MW-86	↓	1345	↓																						X								1
✓ MW-62	↓	1440	↓																						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 SEALS	Y/N/NA
RECEIVED INTACT	
BLUE ICE/DI	

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 94, 68, 86, + 62 Product wells

RELINQUISHED BY: 1.	RELINQUISHED BY: 2.
Signature: Time: 1500	Signature: Time: 1530
Printed Name: Charles Madewell Date: 6-26-98	Printed Name: Chris Faim Date: 6/26
Company: FDGTI	Company: AEN
RECEIVED BY: 1.	**RECEIVED BY: (LAB) 2.**
Signature: Time: 1500	Signature: Time: 1425
Printed Name: Chris Faim Date: 6-26	Printed Name: Sallie Sandoval Date: 6-30-98
Company: ~~Chris Faim~~ AEN	American Environmental Network (NM), Inc.

RECEIVED

AEN I.D. 806417

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 6/26/98 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.	: 806417
PROJECT #	: 104332.03	DATE RECEIVED	: 6/26/98
PROJECT NAME	: IBRP	REPORT DATE	: 7/24/98

AEN ID. #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	MW-87RB	AQUEOUS	6/20/98
02	MW-60RB	AQUEOUS	7/1/98
03	MW-104RB	AQUEOUS	7/1/98
04	MW-60	AQUEOUS	7/1/98
05	MW-104	AQUEOUS	7/1/98
06	MW-96	AQUEOUS	7/1/98
07	MW-97	AQUEOUS	7/1/98
08	MW-96RB	AQUEOUS	7/1/98
09	MW-97RB	AQUEOUS	7/1/98
10	TRIP BLANK	AQUEOUS	6/11/98

GAS CHROMOTOGRAPHY RESULTS

TEST : ETHYLENE DIBROMIDE (EPA 504.1)
CLIENT : MARATHON OIL COMPANY AEN I.D.: 806417A
PROJECT # : 104332.03
PROJECT NAME : IBRP

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
04	MW-60	AQUEOUS	7/1/98	7/9/98	7/9/98	1
05	MW-104	AQUEOUS	7/1/98	7/9/98	7/10/98	1
06	MW-96	AQUEOUS	7/1/98	7/9/98	7/10/98	1

PARAMETER	DET. LIMIT	UNITS	04	05	06
ETHYLENE DIBROMIDE	0.01	UG/L	< 0.01	< 0.01	< 0.01

SURROGATE:					
1,4-DICHLOROBENZENE			102	110	110
SURROGATE LIMITS	(75 - 141)				

CHEMIST NOTES:
N/A

GAS CHROMOTOGRAPHY RESULTS

TEST : ETHYLENE DIBROMIDE (EPA 504.1)
CLIENT : MARATHON OIL COMPANY AEN I.D.: 806417A
PROJECT # : 104332.03
PROJECT NAME : IBRP

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
07	MW-97	AQUEOUS	7/1/98	7/9/98	7/10/98	1

PARAMETER	DET. LIMIT	UNITS	07
ETHYLENE DIBROMIDE	0.01	UG/L	< 0.01

SURROGATE:

1,4-DICHLOROBENZENE		107
SURROGATE LIMITS	(75 - 141)	

CHEMIST NOTES:
N/A

GAS CHROMOTOGRAPHY RESULTS
REAGENT BLANK

TEST	: ETHYLENE DIBROMIDE (EPA 504.1)		
BLANK I.D.	: 070998	AEN I.D.	: 806417A
CLIENT	: MARATHON OIL COMPANY	MATRIX	: AQUEOUS
PROJECT #	: 104332.03	DATE EXTRACTED	: 7/9/98
PROJECT NAME	: IBRP	DATE ANALYZED	: 7/9/98

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

SURROGATE:		
1,4-DICHLOROBENZENE		116
SURROGATE LIMITS	(78 - 140)	

CHEMIST NOTES:
N/A

GAS CHROMOTOGRAPHY RESULTS
QUALITY CONTROL
MSMSD

TEST	: ETHYLENE DIBROMIDE (EPA 504.1)		
MSMSD #	: 070998	AEN I.D.	: 806417A
CLIENT	: MARATHON OIL COMPANY	DATE EXTRACTED	: 7/9/98
PROJECT #	: 104332.03	DATE ANALYZED	: 7/9/98
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	0.23	92%	0.24	96%	4%

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.: 806417A
PROJECT # : 104332.03
PROJECT NAME : IBRP

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
04	MW-60	AQUEOUS	7/1/98	NA	7/6/98	1
05	MW-104	AQUEOUS	7/1/98	NA	7/6/98	1
06	MW-96	AQUEOUS	7/1/98	NA	7/6/98	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 (%)			105	96	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.: 806417A
PROJECT # : 104332.03
PROJECT NAME : IBRP

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
07	MW-97	AQUEOUS	7/1/98	NA	7/6/98	1

PARAMETER	DET. LIMIT	UNITS	07
TETRACHLOROETHENE	0.5	UG/L	< 0.5
VINYL CHLORIDE	0.5	UG/L	< 0.5

SURROGATE:

BROMOCHLOROMETHANE (%)		102
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.	: 806417A
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.	: 806417A
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. :	806417
PROJECT #	: 104332.03	DATE RECEIVED :	6/26/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806417-01	MW-87 RB	AQUEOUS	6/20/98	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. :	806417
PROJECT #	: 104332.03	DATE RECEIVED :	6/26/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806417-01	MW-87 RB	AQUEOUS	6/20/98	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	99
	(80 - 120)
Toluene-d8	95
	(88 - 110)
Bromofluorobenzene	96
	(86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806417
PROJECT #	: 104332.03	DATE RECEIVED :	6/26/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806417-02	MW-60 RB	AQUEOUS	6/20/98	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. :	806417
PROJECT #	: 104332.03	DATE RECEIVED :	6/26/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806417-02	MW-60 RB	AQUEOUS	6/20/98	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	100 (88 - 110)
Bromofluorobenzene	99 (86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806417
PROJECT #	: 104332.03	DATE RECEIVED :	6/26/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806417-03	MW-104 RB	AQUEOUS	6/20/98	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. :	806417
PROJECT #	: 104332.03	DATE RECEIVED :	6/26/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806417-03	MW-104 RB	AQUEOUS	6/20/98	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	105 (80 - 120)
Toluene-d8	101 (88 - 110)
Bromofluorobenzene	102 (86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806417
PROJECT #	: 104332.03	DATE RECEIVED :	6/26/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806417-08	MW-96 RB	AQUEOUS	6/20/98	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	**1.7**	**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. :	806417
PROJECT #	: 104332.03	DATE RECEIVED :	6/26/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806417-08	MW-96 RB	AQUEOUS	6/20/98	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	96 (88 - 110)
Bromofluorobenzene	96 (86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806417
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. :	806417
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. :	806417
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. :	806417
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)

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

82600310.M Mon Jun 29 08:16:14 1998

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806417 A
PROJECT #	: 104332.03	DATE RECEIVED :	7/1/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806417A-02	MW-60 RB	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	**2.3**	**ug/L**

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806417 A
PROJECT #	: 104332.03	DATE RECEIVED :	7/1/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806417A-02	MW-60 RB	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	95	(88 - 110)
Bromofluorobenzene	94	(86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806417 A
PROJECT #	: 104332.03	DATE RECEIVED :	7/1/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806417A-04	MW-60	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. :	806417 A
PROJECT #	: 104332.03	DATE RECEIVED :	7/1/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806417A-04	MW-60	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	99 (86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806417 A
PROJECT #	: 104332.03	DATE RECEIVED :	7/1/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806417A-05	MW-104	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. :	806417 A
PROJECT #	: 104332.03	DATE RECEIVED :	7/1/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806417A-05	MW-104	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	102
	(80 - 120)
Toluene-d8	97
	(88 - 110)
Bromofluorobenzene	94
	(86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806417 A
PROJECT #	: 104332.03	DATE RECEIVED :	7/1/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806417A-06	MW-96	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

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 12:32

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*
MW-71			**P806459-01**				**Water**	
Uranium	0780163	7/6/98	7/19/98	EPA 6020	0.00100	**0.00180**	mg/l	
MW-87A			**P806459-02**				**Water**	
Uranium	0780163	7/6/98	7/19/98	EPA 6020	0.00100	**0.00640**	mg/l	
MW-87			**P806459-03**				**Water**	
Uranium	0780163	7/6/98	7/19/98	EPA 6020	0.00100	**0.00150**	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 12:32

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: 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
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 12:32

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

PCC6A59 C3.4

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

DATE: 6/19/98 PAGE: ___ OF ___

AEN(NM) Accession #: 806415

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-71	6/19/98	0930	water																					X						1
MW-87A	↓	1200	↓																					X						1
MW-87	↓	1330	↓																					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) ☒

CERTIFICATION REQUIRED: ☐ NM ☐ SDWA ☐ OTHER

METHANOL PRESERVATION ☐

COMMENTS: FIXED FEE ☐

RELINQUISHED BY: 1.
Signature: [signature] Time: 1600
Printed Name: KEVIN COOK Date: 6/19
Company: FD

RELINQUISHED BY:
Signature: [signature] Time: 1600
Printed Name: CHRIS FAITH Date: 6/19
Company: AEN

RECEIVED BY: 1.
Signature: [signature] Time: 1600
Printed Name: CHRIS FAITH Date: 6/19
Company: AEN

RECEIVED BY: (LAB) NCA 2.
Signature: S. Vandelisf Time: 1115
Printed Name: S. Vandelisf Date: 6/23/98
American Environmental Network (NM), Inc.

DISTRIBUTION: White - AEN, Canary - Originator

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 #:	8239-002
STL Work Order #:	98-06-04
Client Project ID:	104382.08

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

Committed To *Your* Success

CASE NARRATIVE
Client: American Environmental Network - NM
Client Project ID: 104332.03
STL-NC Order Number: 98-06-404
STL-NC Project Number: 2399-012

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 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

Ross W. Williams, Ph.D.
Manager, Radiological Laboratory
7/17/98

C:\NET2\WP\AEN-NM 2399-012.WPD

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

Project Number: 2399-012

NC 806415

Client Sample ID	Lab ID
MW-71	9806404-01
MW-87A	9806404-02
MW-87	9806404-03

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.

Rona W. Willis
Manager, Radiological Laboratory

Date 7/17/98

STL

Project Number: 2399-012

Severn Trent Laboratories

Radiological Analysis Results

NC 806415

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-71	9806404-01	Reg	98060054	Water	Ra-226	0.79	0.20		pCi/L	07/06/98	0.5000	0.12
MW-71	9806404-01	Reg	98060056	Water	Ra-228	1.63	1.21		pCi/L	06/30/98	1.0000	2.64
MW-87A	9806404-02	Reg	98060054	Water	Ra-226	1.94	0.29		pCi/L	07/07/98	0.5000	0.15
MW-87A	9806404-02	Reg	98060056	Water	Ra-228	0.15	1.14		pCi/L	06/30/98	1.0000	2.74
MW-87	9806404-03	Reg	98060054	Water	Ra-226	0.18	0.10		pCi/L	07/07/98	0.5000	0.09
MW-87	9806404-03	Reg	98060056	Water	Ra-228	0.84	0.92		pCi/L	06/30/98	1.0000	2.07

Key shall be attached

Comments:

Project Number: 2399-012

QA/QC Results Summary

NC 806415

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

Severn Trent Laboratories

Project Number: 2399-012

Method Blank Summary

NC 806415

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: 2399-012

Severn Trent Laboratories

Chemical Recovery

NC 806415

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-71	9806404-01	Reg	98060054	Ra-226	Ba-133	1223.00	1249.00	97.92 %		pCi	07/06/98	5
MW-71	9806404-01	Reg	98060056	Ra-228	Ba-133	915.90	1256.00	72.92 %		pCi	06/30/98	1
MW-87A	9806404-02	Reg	98060054	Ra-226	Ba-133	1232.00	1256.00	98.09 %		pCi	07/07/98	5
MW-87A	9806404-02	Reg	98060056	Ra-228	Ba-133	978.20	1249.00	78.32 %		pCi	06/30/98	1
MW-87	9806404-03	Reg	98060054	Ra-226	Ba-133	1164.00	1256.00	92.68 %		pCi	07/07/98	5
MW-87	9806404-03	Reg	98060056	Ra-228	Ba-133	923.60	1256.00	73.54 %		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:

MDA mode

Severn Trent Laboratories

STL

Project Number: 2399-012

Blank Spike Results Summary

NC 806415

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: 2399-012

Severn Trent Laboratories

Matrix Spike Results Summary

NC 806415

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

Project Number: 2399-012

Severn Trent Laboratories

NC 806415

07/08/98

Duplicate Results

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 #	98-06-404	# 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	2399-012	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
9806404-01	01A1	Open	Water	Ra-226	MW-71	06/19/98
9806404-01	01A2	Open	Water	Ra-228	MW-71	06/19/98
9806404-02	02A1	Open	Water	Ra-226	MW-87A	06/19/98
9806404-02	02A2	Open	Water	Ra-228	MW-87A	06/19/98
9806404-03	03A1	Open	Water	Ra-226	MW-87	06/19/98
9806404-03	03A2	Open	Water	Ra-228	MW-87	06/19/98

pH Checked
All Samples pH <2
Initials: RB Date: 6/23/98

98-06-404

American Environmental Network (NM), Inc.

CHAIN OF CUSTODY

DATE: 6-19-98 PAGE: ___ OF ___

AEN(NM) Accession #: NC 806415

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 I.D.	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
6/10 ka MW-71	6-19-98	0830	WATER																				X						1
MW-87A	↓	1200	↓																				X						1
MW-87		1330																					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) ☒

CERTIFICATION REQUIRED: ☐ NM ☐ SDWA ☐ OTHER

METHANOL PRESERVATION ☐

COMMENTS: FIXED FEE ☐

RELINQUISHED BY: 1.	RELINQUISHED BY: 2.
Signature: [signature] Time: 1600	Signature: [signature] Time: 1630
Printed Name: KEVIN COOK Date: 6/19	Printed Name: CHRIS FAITH Date: 6/19
Company: FO	Company: AEN

RECEIVED BY: 1.	RECEIVED BY: (LAB) 2.
Signature: [signature] Time: 6/19	Signature: [signature] Time: 11:00
Printed Name: CHRIS FAITH Date: 1600	Printed Name: [signature] Date: 6/19/98
Company: AEN	American Enviromental Network (NM), Inc. Red Lab

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

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
AEN Project Manager

Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC. ALBUQUERQUE, NEW MEXICO
Project Name:	IBRP
Project Number:	806415
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Accession Number:	806269
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:	806269
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806415
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: 806269
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806415
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON WET CHEMISTRY INORGANICS
QcLevel: II

Client ID: MW-71 Lab ID: 001

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
CHLORIDE (4500-CL B)	MG/L	4	1	CIW067	
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	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	7.2	NA	PHW130	R4
PHENOLS, TOTAL (420.1)	MG/L	ND	0.005	PEW024	
SULFATE (375.4)	MG/L	650	250	SEW077	+
TOTAL DISSOLVED SOLIDS (160.1)	MG/L	1100	5	TDW037	

Comments:

Client ID: MW-87A Lab ID: 002

CHLORIDE (4500-CL B)	MG/L	160	1	CIW067	
CYANIDE, TOTAL (335.2)	MG/L	ND	0.005	CNW037	
FLUORIDE (340.2/4500-F C)	MG/L	2.4	0.4	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	7.7	NA	PHW130	R4
PHENOLS, TOTAL (420.1)	MG/L	ND	0.005	PEW024	
SULFATE (375.4)	MG/L	2200	1000	SEW077	+
TOTAL DISSOLVED SOLIDS (160.1)	MG/L	3100	5	TDW037	

Comments:

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

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 806269
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806415
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON WET CHEMISTRY INORGANICS
QcLevel: II

Client ID: MW-87 Lab ID: 003

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
CHLORIDE (4500-CL B)	MG/L	13	1	CIW067	
CYANIDE, TOTAL (335.2)	MG/L	ND	0.005	CNW037	
FLUORIDE (340.2/4500-F C)	MG/L	0.9	0.2	FLW026	
NITRITE, NITROGEN (354.1)	MG/L	ND	0.1	N2W090	
NITRITE-NITRATE, NITROGEN (353.2)	MG/L	0.8	0.1	N3W46B	
NITRATE, NITROGEN (353.2-354.1)	MG/L	0.8	0.1	NONE	
PH (150.1)	UNITS	7.4	NA	PHW130	R4
PHENOLS, TOTAL (420.1)	MG/L	ND	0.005	PEW024	
SULFATE (375.4)	MG/L	360	130	SEW077	+
TOTAL DISSOLVED SOLIDS (160.1)	MG/L	710	5	TDW037	

Comments:

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

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 806269
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806415
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-71	001	WATER	19-JUN-98 0930	20-JUN-98
MW-87A	002	WATER	19-JUN-98 1200	20-JUN-98
MW-87	003	WATER	19-JUN-98 1330	20-JUN-98

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

"Method Report Summary"

Accession Number: 806269
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806415
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON WET CHEMISTRY INORGANICS

Client Sample Id:	Parameter:	Unit:	Result:
MW-71	CHLORIDE (4500-CL B)	MG/L	4
	FLUORIDE (340.2/4500-F C)	MG/L	2.2
	PH (150.1)	UNITS	7.2
	SULFATE (375.4)	MG/L	650
	TOTAL DISSOLVED SOLIDS (160.1)	MG/L	1100
MW-87A	CHLORIDE (4500-CL B)	MG/L	160
	FLUORIDE (340.2/4500-F C)	MG/L	2.4
	PH (150.1)	UNITS	7.7
	SULFATE (375.4)	MG/L	2200
	TOTAL DISSOLVED SOLIDS (160.1)	MG/L	3100
MW-87	CHLORIDE (4500-CL B)	MG/L	13
	FLUORIDE (340.2/4500-F C)	MG/L	0.9
	NITRITE-NITRATE, NITROGEN (353.2)	MG/L	0.8
	NITRATE, NITROGEN (353.2-354.1)	MG/L	0.8
	PH (150.1)	UNITS	7.4
	SULFATE (375.4)	MG/L	360
	TOTAL DISSOLVED SOLIDS (160.1)	MG/L	710

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

Analysis Report

Analysis: MARATHON METALS - OPTIMA

Accession:	806269
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806415
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: 806269
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806415
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-71			Lab ID:001		
SILVER (6010A)	MG/L	0.0011	0.0007	AYW169	
ALUMINUM (6010A)	MG/L	ND	0.026	LYW169	
ARSENIC (6010A)	MG/L	ND	0.0018	RYW169	
BARIUM (6010A)	MG/L	0.013	0.0002	BYW169	
BORON (6010A)	MG/L	0.24	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	M7W080	
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	0.0027	0.0002	GYW169	
MOLYBDENUM (6010A)	MG/L	0.0005	0.0003	DYW169	
SELENIUM (6010A)	MG/L	ND	0.0023	SYW169	
ZINC (6010A)	MG/L	ND	0.014	5YW169	

Comments:

Client ID: MW-87A			Lab ID:002		
SILVER (6010A)	MG/L	0.0030	0.0007	AYW169	
ALUMINUM (6010A)	MG/L	ND	0.026	LYW169	
ARSENIC (6010A)	MG/L	0.0036	0.0018	RYW169	
BARIUM (6010A)	MG/L	0.024	0.0002	BYW169	
BORON (6010A)	MG/L	0.40	0.0057	OYW169	
CADMIUM (6010A)	MG/L	ND	0.0002	CYW169	
COBALT (6010A)	MG/L	0.0009	0.0003	TYW169	
CHROMIUM (6010A)	MG/L	0.0013	0.0008	HYW169	
COPPER (6010A)	MG/L	ND	0.0018	FYW169	
MERCURY (7470A)	MG/L	ND	0.0001	M7W080	
NICKEL (6010A)	MG/L	0.0099	0.0009	EYW169	
IRON (6010A)	MG/L	0.24	0.013	N6W169	
LEAD (6010A)	MG/L	ND	0.0022	PYW169	
MANGANESE (6010A)	MG/L	0.012	0.0002	GYW169	
MOLYBDENUM (6010A)	MG/L	0.0053	0.0003	DYW169	
SELENIUM (6010A)	MG/L	0.0025	0.0023	SYW169	
ZINC (6010A)	MG/L	0.014	0.014	5YW169	

Comments:

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

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 806269
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806415
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-87			Lab ID:003		
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	0.016	0.0002	BYW169	
BORON (6010A)	MG/L	0.060	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	M7W080	
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	0.0012	0.0002	GYW169	
MOLYBDENUM (6010A)	MG/L	0.0025	0.0003	DYW169	
SELENIUM (6010A)	MG/L	ND	0.0023	SYW169	
ZINC (6010A)	MG/L	0.014	0.014	5YW169	

Comments:

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 806269
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806415
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-71	001	WATER	19-JUN-98 0930	20-JUN-98
MW-87A	002	WATER	19-JUN-98 1200	20-JUN-98
MW-87	003	WATER	19-JUN-98 1330	20-JUN-98

"Method Report Summary"

Accession Number: 806269
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806415
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON METALS - OPTIMA

Client Sample Id:	Parameter:	Unit:	Result:
MW-71	SILVER (6010A)	MG/L	0.0011
	BARIUM (6010A)	MG/L	0.013
	BORON (6010A)	MG/L	0.24
	MANGANESE (6010A)	MG/L	0.0027
	MOLYBDENUM (6010A)	MG/L	0.0005
MW-87A	SILVER (6010A)	MG/L	0.0030
	ARSENIC (6010A)	MG/L	0.0036
	BARIUM (6010A)	MG/L	0.024
	BORON (6010A)	MG/L	0.40
	COBALT (6010A)	MG/L	0.0009
	CHROMIUM (6010A)	MG/L	0.0013
	NICKEL (6010A)	MG/L	0.0099
	IRON (6010A)	MG/L	0.24
	MANGANESE (6010A)	MG/L	0.012
	MOLYBDENUM (6010A)	MG/L	0.0053
	SELENIUM (6010A)	MG/L	0.0025
	ZINC (6010A)	MG/L	0.014
MW-87	BARIUM (6010A)	MG/L	0.016
	BORON (6010A)	MG/L	0.060
	MANGANESE (6010A)	MG/L	0.0012
	MOLYBDENUM (6010A)	MG/L	0.0025
	ZINC (6010A)	MG/L	0.014

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

Analysis Report

Analysis: POLYNUCLEAR AROMATICS BY 8310

Accession:	806269
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806415
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: 806269
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806415
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-71
Sample Date/Time: 19-JUN-98 0930
Received Date: 20-JUN-98

Batch: PAW141
Blank: A
Dry Weight %: N/A
Extraction Date: 23-JUN-98
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	66	28-138	
ANALYST	INITIALS	HAH		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 806269
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806415
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 1200
Client Sample Id: MW-87A 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	68	28-138	
ANALYST	INITIALS	HAH		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 806269
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806415
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-87
Sample Date/Time: 19-JUN-98 1330
Received Date: 20-JUN-98

Batch: PAW141
Blank: A
Dry Weight %: N/A
Extraction Date: 23-JUN-98
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	53	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:	806269
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806415
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: 806269
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806415
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 0930
Client Sample Id: MW-71 Received Date: 20-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	84	43-101	
DCB	%REC/SURR	90	17-135	
ANALYST	INITIALS	RP		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 806269
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806415
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 1200
Client Sample Id: MW-87A Received Date: 20-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	61	43-101	
DCB	%REC/SURR	57	17-135	
ANALYST	INITIALS	RP		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 806269
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806415
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
Client Sample Id: MW-87
Sample Date/Time: 19-JUN-98 1330
Received Date: 20-JUN-98

Batch: PSW044
Blank: A
Dry Weight %: N/A
Extraction Date: 25-JUN-98
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	82	43-101	
DCB	%REC/SURR	72	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:	806269
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806415
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	ORGANIC/MS

"FINAL REPORT FORMAT - SINGLE"

Accession: 806269
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806415
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-71
Sample Date/Time: 19-JUN-98 0930
Received Date: 20-JUN-98

Batch: ALW075
Blank: A
Dry Weight %: N/A
Extraction Date: 22-JUN-98
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: 806269
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806415
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-71
Sample Date/Time: 19-JUN-98 0930
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: 806269
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806415
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-71
Sample Date/Time: 19-JUN-98 0930
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	91	10-100	
2,4,6-TRIBROMOPHENOL	%REC/SURR	80	10-123	
2-FLUOROBIPHENYL	%REC/SURR	80	43-116	
NITROBENZENE-D5	%REC/SURR	101	35-114	
TERPHENYL-D14	%REC/SURR	102	33-124	
ANALYST	INITIALS	RW		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 806269
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806415
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 1200
Client Sample Id: MW-87A 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: 806269
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806415
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-87A
Sample Date/Time: 19-JUN-98 1200
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: 806269
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806415
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-87A
Sample Date/Time: 19-JUN-98 1200
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	99	21-100	
PHENOL-D6	%REC/SURR	96	10-100	
2,4,6-TRIBROMOPHENOL	%REC/SURR	92	10-123	
2-FLUOROBIPHENYL	%REC/SURR	87	43-116	
NITROBENZENE-D5	%REC/SURR	100	35-114	
TERPHENYL-D14	%REC/SURR	100	33-124	
ANALYST	INITIALS	RW		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 806269
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806415
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
Client Sample Id: MW-87
Sample Date/Time: 19-JUN-98 1330
Received Date: 20-JUN-98

Batch: ALW075
Blank: A
Dry Weight %: N/A
Extraction Date: 22-JUN-98
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: 806269
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806415
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
Client Sample Id: MW-87
Sample Date/Time: 19-JUN-98 1330
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	

RECEIVED

AEN I.D. **806413**

July 27, 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 22°C. 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 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	: 07/27/98

AEN ID: 806413

	AEN ID #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	806413-01	MW-106	AQUEOUS	06/18/98
02	806413-02	MW-105	AQUEOUS	06/18/98
03	806413-03	MW-79	AQUEOUS	06/18/98

—TOTALS—

MATRIX	#SAMPLES
AQUEOUS	3

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:	6/18/98
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 09:43

ANALYTICAL REPORT FOR SAMPLES:

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
MW-106	P806455-01	Water	6/18/98

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:	6/18/98
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 09:43

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-106			**P806455-01**				**Water**	
Uranium	0780163	7/6/98	7/16/98	EPA 6020	0.00100	**0.00350**	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:	6/18/98
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 09:43

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:	6/18/98
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 09:43

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

COPY

P806455 23.12

American Environmental Network (NM), Inc.

CHAIN OF CUSTODY

DATE: _____ PAGE: ___ OF ___

AEN(NM) Accession #: 01 806455

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:		# OF CONTAINERS
MW-106	6/18	0835	AQ																						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) ☐

CERTIFICATION REQUIRED: ☐ NM ☐ SDWA ☐ OTHER

METHANOL PRESERVATION ☐

COMMENTS: FIXED FEE ☐

RELINQUISHED BY: 1	RELINQUISHED BY: 2
Signature: Time: 1245	Signature: Time: 1700
Printed Name: Charles Medwell Date: 6-18-98	Printed Name: CHRIS FAITH Date: 6/18
Company: Fluor Daniel GTI	Company: AEN
RECEIVED BY: 1	**RECEIVED BY: (LAB) 2**
Signature: Time: 1245	Signature: Time: 1135
Printed Name: CHRIS FAITH Date: 6/18	Printed Name: Sarah McCling Date: 6-29-98
Company: AEN	American Enviromental 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 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 #s	2399-011
STL Work Order #s	98-06-403
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: 98-06-403
STL-NC Project Number: 2399-011

One (1) water sample was received on June 22, 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
7/17/98

C:\NET2\WP\AEN-NM 2399-011.WPD

07/09/98

Environmental Survey

Cover Page

Radiological Data Analysis Package

120 Southcenter Ct., Suite 300
Morrisville, NC 27560

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

Project Number: 2399-011

NC - 80613

Client Sample ID	Lab ID
MW-106	9806403-01

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. Wellins
Manager, Radiological Laboratory

7/17/98
Date

Severn Trent Laboratories

Project Number: 2399-011

Radiological Analysis Results

NC - 80613

07/09/98

Form 1

Client Sample ID	Lab ID	Sample Type	Batch Number	Matrix	Radionuclide	Result	Uncertainty	Q	Units	Analysis Date	Sample Size	MDA
MW-106	9806403-01	Reg	98060055	Water	Ra-226	1.96	0.19		pCi/L	07/08/98	0.5000	0.08
MW-106	9806403-01	Reg	98060057	Water	Ra-228	3.67	1.10		pCi/L	06/30/98	1.0000	2.16

Key shall be attached

Comments:

MDA mode

Severn Trent Laboratories

STL

Project Number: 2399-011

QA/QC Results Summary

NC - 80613

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:

Project Number: 2399-011

Method Blank Summary

NC - 80613

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

STL

Project Number: 2399-011

Chemical Recovery

NC - 80613

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-106	9806403-01	Reg	98060055	Ra-226	Ba-133	1190.00	1256.00	94.75 %		pCi	07/08/98	5
MW-106	9806403-01	Reg	98060057	Ra-228	Ba-133	1079.00	1256.00	85.91 %		pCi	06/30/98	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:

Project Number: 2399-011

Blank Spike Results Summary

NC - 80613

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: 2399-011

Matrix Spike Results Summary

NC - 80613

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: 2399-011

Severn Trent Laboratories

NC - 80613

07/09/98

Duplicate Results

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 #	98-06-403	# of Samples	1	Recieved Date	06/22/98	American Environ. Network
Client #	2399	# of Tests	2	Load Date	06/22/98	2709D PanAmerican Freeway NE
Project	2399-011	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
9806403-01	01A1	Open	Water	Ra-226	MW-106	06/18/98
9806403-01	01A2	Open	Water	Ra-228	MW-106	06/18/98

pH Checked
All Samples pH <2
Initials: SB Date: 6/23/98

98-06-403

American Environmental Network (NM), Inc.

CHAIN OF CUSTODY

DATE: _____ 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:	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-106	6/18	0835	AQ	[illegible]																					X								1
~~MW-106~~	~~6/18~~	~~1015~~	~~AQ~~	[illegible]	CF																												

PROJECT INFORMATION

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

SAMPLE RECEIPT

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

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: [illegible] Time: 1245	Signature: [illegible] Time: 1300
Printed Name: Charles Madewell Date: 6/18/98	Printed Name: CHRIS FAITH Date: 6/18
Company: Alva Daniel GTI	Company: AEN

RECEIVED BY: 1.	RECEIVED BY: (LAB) 2.
Signature: [illegible] Time: 1245	Signature: [illegible] Time: 1150
Printed Name: CHRIS FAITH Date: 6/18	Printed Name: [illegible] Date: 6/22/98
Company: AEN	American Environmental Network (NM), Inc. Lab

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: G M Patrick
AEN Project Manager

Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
ALBUQUERQUE, NEW MEXICO

Project Name: IBRP
Project Number: 806413
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Accession Number: 806262

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:	806262
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806413
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: 806262
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806413
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON WET CHEMISTRY INORGANICS
Matrix: WATER
QC Level: II

Lab ID: 001 Sample Date/Time: 18-JUN-98 0835
Client Sample Id: MW-106 Received Date: 19-JUN-98

Parameters:	Units:	Results:	Rpt Lmts:	Q:	Batch:	Analyst:
CHLORIDE (4500-CL B)	MG/L	4	1		CIW066	RB
CYANIDE, TOTAL (335.2)	MG/L	ND	0.005		CNW037	CR
FLUORIDE (340.2/4500-F C)	MG/L	0.3	0.2		FLW026	ED
NITRITE, NITROGEN (354.1)	MG/L	ND	0.1		N2W089	AB
NITRITE-NITRATE, NITROGEN (353.2)	MG/L	1.9	0.1		N3W46B	WH
NITRATE, NITROGEN (353.2-354.1)	MG/L	1.9	0.1		NONE	DPH
PH (150.1)	UNITS	7.3	NA	R4	PHW129	BE
PHENOLS, TOTAL (420.1)	MG/L	ND	0.005		PEW023	CR
SULFATE (375.4)	MG/L	33	5		SEW077	BE
TOTAL DISSOLVED SOLIDS (160.1)	MG/L	380	5		TDW037	ED

Comments:

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

"Method Report Summary"

Accession Number: 806262
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806413
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON WET CHEMISTRY INORGANICS

Client Sample Id:	Parameter:	Unit:	Result:
MW-106	CHLORIDE (4500-CL B)	MG/L	4
	FLUORIDE (340.2/4500-F C)	MG/L	0.3
	NITRITE-NITRATE, NITROGEN (353.2)	MG/L	1.9
	NITRATE, NITROGEN (353.2-354.1)	MG/L	1.9
	PH (150.1)	UNITS	7.3
	SULFATE (375.4)	MG/L	33
	TOTAL DISSOLVED SOLIDS (160.1)	MG/L	380

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

Analysis Report

Analysis: MARATHON METALS - OPTIMA

Accession:	806262
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806413
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: 806262
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806413
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: 18-JUN-98 0835
Client Sample Id: MW-106 Received Date: 19-JUN-98

Parameters:	Units:	Results:	Rpt Lmts:	Q:	Batch:	Analyst:
SILVER (6010A)	MG/L	ND	0.0007		AYW164	GJ
ALUMINUM (6010A)	MG/L	ND	0.026		LYW164	GJ
ARSENIC (6010A)	MG/L	0.0035	0.0018		RYW164	GJ
BARIUM (6010A)	MG/L	0.22	0.0002		BYW164	GJ
BORON (6010A)	MG/L	0.074	0.0057		OYW164	GJ
CADMIUM (6010A)	MG/L	ND	0.0002		CYW164	GJ
COBALT (6010A)	MG/L	ND	0.0003		TYW164	GJ
CHROMIUM (6010A)	MG/L	ND	0.0008		HYW164	GJ
COPPER (6010A)	MG/L	0.0033	0.0018		FYW164	GJ
MERCURY (7470A)	MG/L	0.0005	0.0001		M7W080	JL
NICKEL (6010A)	MG/L	ND	0.0009		EYW164	GJ
IRON (6010A)	MG/L	ND	0.013		NYW164	GJ
LEAD (6010A)	MG/L	ND	0.0022		PYW164	GJ
MANGANESE (6010A)	MG/L	0.0066	0.0002		GYW164	GJ
MOLYBDENUM (6010A)	MG/L	0.0019	0.0003		DYW164	GJ
SELENIUM (6010A)	MG/L	ND	0.0023		SYW164	GJ
ZINC (6010A)	MG/L	0.046	0.014		5YW164	GJ

Comments:

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

"Method Report Summary"

Accession Number: 806262
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806413
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON METALS - OPTIMA

Client Sample Id:	Parameter:	Unit:	Result:
MW-106	ARSENIC (6010A)	MG/L	0.0035
	BARIUM (6010A)	MG/L	0.22
	BORON (6010A)	MG/L	0.074
	COPPER (6010A)	MG/L	0.0033
	MERCURY (7470A)	MG/L	0.0005
	MANGANESE (6010A)	MG/L	0.0066
	MOLYBDENUM (6010A)	MG/L	0.0019
	ZINC (6010A)	MG/L	0.046

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

Analysis Report

Analysis: POLYNUCLEAR AROMATICS BY 8310

Accession:	806262
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806413
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: 806262
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806413
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: 18-JUN-98 0835
Client Sample Id: MW-106 Received Date: 19-JUN-98

Batch: PAW140 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	76	28-138	
ANALYST	INITIALS	HAH		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 806262
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806413
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: 18-JUN-98 1110
Client Sample Id: MW-79 Received Date: 19-JUN-98

Batch: PAW140 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	78	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:	806262
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806413
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: 806262
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806413
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 0835
Client Sample Id: MW-106 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	73	43-101	
DCB	%REC/SURR	41	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:	806262
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806413
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	ORGANIC/MS

"FINAL REPORT FORMAT - SINGLE"

Accession: 806262
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806413
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-106
Sample Date/Time: 18-JUN-98 0835
Received Date: 19-JUN-98

Batch: ALW075
Blank: A
Dry Weight %: N/A
Extraction Date: 22-JUN-98
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: 806262
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806413
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-106
Sample Date/Time: 18-JUN-98 0835
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: 806262
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806413
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-106
Sample Date/Time: 18-JUN-98 0835
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	91	21-100	
PHENOL-D6	%REC/SURR	83	10-100	
2,4,6-TRIBROMOPHENOL	%REC/SURR	82	10-123	
2-FLUOROBIPHENYL	%REC/SURR	80	43-116	
NITROBENZENE-D5	%REC/SURR	88	35-114	
TERPHENYL-D14	%REC/SURR	101	33-124	
ANALYST	INITIALS	RW		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 806262
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806413
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 1110
Client Sample Id: MW-79 Received Date: 19-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: 806262
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806413
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-79
Sample Date/Time: 18-JUN-98 1110
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: 806262
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806413
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-79
Sample Date/Time: 18-JUN-98 1110
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	77	10-100	
2,4,6-TRIBROMOPHENOL	%REC/SURR	87	10-123	
2-FLUOROBIPHENYL	%REC/SURR	35	43-116	J1
NITROBENZENE-D5	%REC/SURR	27	35-114	J1
TERPHENYL-D14	%REC/SURR	45	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:	806262
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806413
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:	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	1.0	
% 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

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

"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

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

"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

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

Quality Control Report

Analysis: MARATHON METALS - OPTIMA

Accession:	806262
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806413
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:	AYW164	LYW164	RYW164	BYW164	OYW164	CYW164
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:	23-JUN-98	24-JUN-98	23-JUN-98	23-JUN-98	23-JUN-98	23-JUN-98
Prep. Date:	23-JUN-98	23-JUN-98	23-JUN-98	23-JUN-98	23-JUN-98	23-JUN-98
Sample Duplication						
Sample Dup:	806129-28	806129-28	806129-28	806129-28	806129-28	806129-28
Rept Limit:	<0.005	<0.1	<0.005	<0.001	<0.05	<0.001
Sample Result:	0.19	5.7	1.95	2.09	2.13	1.92
Dup Result:	0.19	5.0	1.93	2.07	2.13	1.91
Sample RPD:	0	13	1	1	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:	806129-28	806129-28	806129-28	806129-28	806129-28	806129-28
Rept Limit:	<0.005	<0.1	<0.005	<0.001	<0.05	<0.001
Sample Result:	<0.005	3.2	<0.005	0.13	<0.05	<0.001
Spiked Result:	0.19	5.7	1.95	2.09	2.13	1.92
Spike Added:	0.2	2.0	2.0	2.0	2.0	2.0
% Recovery:	95	125	98	98	107	96
% 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:	0.49	5.0	0.98	0.97	1.02	1.00
True Result:	0.5	5	1.0	1.0	1.0	1.0
% Recovery:	98	100	98	97	102	100
% Rec Limits:	95-105	95-105	95-105	95-105	95-105	95-105
LCS						
LCS Result:	0.19	2.2	1.95	1.95	2.11	1.93
True Result:	0.2	2.0	2.0	2.0	2.0	2.0
% Recovery:	95	110	98	98	106	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:	TYW164	HYW164	FYW164	M7W080	EYW164	NYW164
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:	23-JUN-98	23-JUN-98	23-JUN-98	02-JUL-98	23-JUN-98	23-JUN-98
Prep. Date:	23-JUN-98	23-JUN-98	23-JUN-98	02-JUL-98	23-JUN-98	23-JUN-98
Sample Duplication						
Sample Dup:	806129-28	806129-28	806129-28	806213-1	806129-1	806129-28
Rept Limit:	<0.005	<0.005	<0.005	<0.0002	<0.005	<0.05
Sample Result:	1.92	2.04	1.99	0.0050	1.94	4.00
Dup Result:	1.91	2.03	1.96	0.0051	1.93	3.80
Sample RPD:	1	0	2	2	1	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:	806129-28	806129-28	806129-28	806213-1	806129-1	806129-28
Rept Limit:	<0.005	<0.005	<0.005	<0.0002	<0.005	<0.05
Sample Result:	<0.005	0.008	<0.005	0.0003	<0.005	1.73
Spiked Result:	1.92	2.04	1.99	0.0050	1.94	4.00
Spike Added:	2.0	2.0	2.0	0.0050	2.0	2.0
% Recovery:	96	102	100	94	97	114
% 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:	0.98	0.97	1.00	0.0040	0.96	5.03
True Result:	1.0	1.0	1.0	0.0040	1.0	5.0
% Recovery:	98	97	100	100	96	101
% Rec Limits:	95-105	95-105	95-105	90-110	95-105	95-105
LCS						
LCS Result:	1.92	2.05	2.00	0.0050	1.94	2.02
True Result:	2.0	2.0	2.0	0.0050	2.0	2.0
% Recovery:	96	103	100	100	97	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:	LEAD	MANGANESE	MOLYBDENUM	SELENIUM	ZINC
Batch Id:	PYW164	GYW164	DYW164	SYW164	5YW164
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:	23-JUN-98	23-JUN-98	23-JUN-98	23-JUN-98	23-JUN-98
Prep. Date:	23-JUN-98	23-JUN-98	23-JUN-98	23-JUN-98	23-JUN-98
Sample Duplication					
Sample Dup:	806129-28	806129-28	806129-28	806129-28	806129-28
Rept Limit:	<0.003	<0.005	<0.005	<0.005	<0.02
Sample Result:	1.90	2.06	2.03	1.83	1.90
Dup Result:	1.89	2.05	2.02	1.82	1.90
Sample RPD:	1	0	0	1	0
Max RPD:	20	20	20	20	20
Dry Weight%	N/A	N/A	N/A	N/A	N/A
Matrix Spike					
Sample Spiked:	806129-28	806129-28	806129-28	806129-28	806129-28
Rept Limit:	<0.003	<0.005	<0.005	<0.005	<0.02
Sample Result:	<0.003	0.033	<0.005	<0.005	<0.02
Spiked Result:	1.90	2.06	2.03	1.83	1.90
Spike Added:	2.0	2.0	2.0	2.0	2.0
% Recovery:	95	101	102	92	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:	0.99	0.98	1.00	0.97	0.99
True Result:	1.0	1.0	1.0	1.0	1.0
% Recovery:	99	98	100	97	99
% Rec Limits:	95-105	95-105	95-105	95-105	95-105
LCS					
LCS Result:	1.91	2.03	2.07	1.84	1.90
True Result:	2.0	2.0	2.0	2.0	2.0
% Recovery:	96	102	104	92	95
% 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: POLYNUCLEAR AROMATICS BY 8310

Accession:	806262
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806413
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	SEMI-VOLATILE FUELS

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

"QC Report"

Title: Water Blank
Batch: PAW140
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: 24-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	1
2-METHYLNAPHTHALENE	UG/L	ND	1
2-CHLOROANTHRACENE	%REC/SURR	72	28-138
ANALYST	INITIALS	HAH	

Comments:

"QC Report"

Title: Water LCS
Batch: PAW140
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: 24-JUN-98 RS Date Extracted: 23-JUN-98

Parameters:	Spike Added	Sample Conc	RS Conc	RS %Rec	Rec Lmts
ACENAPHTHYLENE	7.1	<1	6.8	96	45-127
BENZO(k)FLUORANTHENE	9.2	<1	10.0	109	68-131
CHRYSENE	9.1	<1	9.8	108	69-131
PHENANTHRENE	9.1	<1	9.7	107	63-124
PYRENE	8.8	<1	9.6	109	61-126
Surrogates:					
2-CHLOROANTHRACENE				98	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

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

Quality Control Report

Analysis: POLYNUCLEAR AROMATICS BY 8310

Accession:	806262
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806413
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: PAW140
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: 24-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	72	28-138
ANALYST	INITIALS	HAH	

Comments:

"QC Report"

Title: Water LCS
Batch: PAW140
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: 24-JUN-98 RS Date Extracted: 23-JUN-98

Parameters:	Spike Added	Sample Conc	RS Conc	RS %Rec	Rec Lmts
ACENAPHTHYLENE	7.1	<1	6.8	96	45-127
BENZO(k)FLUORANTHENE	9.2	<1	10.0	109	68-131
CHRYSENE	9.1	<1	9.8	108	69-131
PHENANTHRENE	9.1	<1	9.7	107	63-124
PYRENE	8.8	<1	9.6	109	61-126
Surrogates:					
2-CHLOROANTHRACENE				98	28-138

Comments:
NOT ENOUGH SAMPLE SUBMITTED TO EXTRACT MATRIX SPIKE/MATRIX SPIKE DUPLICATE.

Notes:
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ND = NOT DETECTED

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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.

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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:	806262
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806413
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:

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

"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:
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"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:

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Common notation for Organic reporting

N/S = NOT SUBMITTED
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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.
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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:	806262
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806413
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

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.

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:
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	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 #: 806267 Date Received: 19-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? Yes+ (No)
   Req By: PM Client Other♦
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: N/A

Cooler Weight(s): N/A

Cooler Temp(s) (°C): 2.0°C on all Coolers.
(LIST THERMOMETER NUMBER(S) FOR VERIFICATION)

Out of Control Events and Inspection Comments:

10. pH received out of hold time. PHE 6/19/98.

(USE BACK OF PSIF FOR ADDITIONAL NOTES AND COMMENTS)

Inspected By: PHE Date: 6/19/98 Logged By: PHE 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 PAGE: ___ OF ___

AEN(NM) Accession #: 806267

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:	* 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-106	6/18	0935	AQ												X					X		X	X		X	X					X	2
MW-79	6/18	1110	AQ																			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:
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-79 SEEMED TO HAVE CONCRETE IN IT

RELINQUISHED BY: 1	RELINQUISHED BY: 2
Signature: Time: 1245	Signature: Time: 1300
Printed Name: Charles Maxwell Date: 6/18/98	Printed Name: CHRIS FAITH Date: 6/18
Company: Flour Daniel GTI	Company: AEN
RECEIVED BY: 1	RECEIVED BY (LAB): 2
Signature: Time: 1245	Signature: Time: 0834
Printed Name: CHRIS FAITH Date: 6/18	Printed Name: Date: 6/19/98
Company: AEN	American Environmental Network (NM), Inc.

American Environmental Network (NM), Inc.

CHAIN OF CUSTODY

DATE: 6/18 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 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-106	6/18	0835	AQ	[illegible]									X	X		X																6
MW-105	6/18	1015	AQ	[illegible]									X			X																4
MW-79	6/18	1110	AQ	[illegible]									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	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 ☐

MW-79 SEEMED TO HAVE CONCRETE IN IT

TO BE RESAMPLED

RELINQUISHED BY: 1.	RELINQUISHED BY: 2.
Signature: [illegible] Time: 1245	Signature: [illegible] Time: 1300
Printed Name: Charles Madewell Date: 6-1898	Printed Name: CHRIS FAITH Date: 6/18
Company: Flint Daniel GTI	Company: AEN
RECEIVED BY: 1.	**RECEIVED BY: (LAB) 2.**
Signature: [illegible] Time: 1245	Signature: [illegible] Time: 11:30
Printed Name: CHRIS FAITH Date: 6/18	Printed Name: Francine Torres Date: 6/22/98
Company: AEN	American Environmental Network (NM), Inc.

RECEIVED

AEN I.D. 806418

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 6/24/98 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.

Sample MW-95 arrived broken and could not be analyzed for EPA method 8310.

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.	: 806418
PROJECT #	: 104332.03	DATE RECEIVED	: 6/24/98
PROJECT NAME	: IBRP	REPORT DATE	: 7/28/98

AEN ID. #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	MW-97RB	AQUEOUS	6/22/98
02	MW-95	AQUEOUS	6/22/98
03	MW-95RB	AQUEOUS	6/22/98
04	MW-108	AQUEOUS	6/22/98
05	MW-108DP	AQUEOUS	6/22/98
06	TRIP BLANK	AQUEOUS	6/11/98

GAS CHROMOTOGRAPHY RESULTS

TEST : ETHYLENE DIBROMIDE (EPA 504.1)
CLIENT : MARATHON OIL COMPANY AEN I.D.: 806418
PROJECT # : 104332.03
PROJECT NAME : IBRP

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
02	MW-95	AQUEOUS	6/22/98	6/24/98	6/24/98	1
04	MW-108	AQUEOUS	6/22/98	6/24/98	6/24/98	1
05	MW-108DP	AQUEOUS	6/22/98	6/24/98	6/24/98	1

PARAMETER	DET. LIMIT	UNITS	02	04	05
ETHYLENE DIBROMIDE	0.01	UG/L	< 0.01	< 0.01	< 0.01

SURROGATE:					
1,4-DICHLOROBENZENE			92	99	93
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.	: 806418
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.	: 806418
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.	: 806418
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.: 806418
PROJECT # : 104332.03
PROJECT NAME : IBRP

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
02	MW-95	AQUEOUS	6/22/98	NA	6/25/98	1
04	MW-108	AQUEOUS	6/22/98	NA	6/25/98	1
05	MW-108DP	AQUEOUS	6/22/98	NA	6/25/98	1

PARAMETER	DET. LIMIT	UNITS	02	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 (%)			106	106	105
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.	: 806418
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.	: 806418
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. :	806418
PROJECT #	: 104332.03	DATE RECEIVED :	6/24/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806418-01	MW-97RB	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	< 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. :	806418
PROJECT #	: 104332.03	DATE RECEIVED :	6/24/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806418-01	MW-97RB	AQUEOUS	6/22/98	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	107 (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. :	806418
PROJECT #	: 104332.03	DATE RECEIVED :	6/24/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806418-02	MW-95	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	< 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. :	806418
PROJECT #	: 104332.03	DATE RECEIVED :	6/24/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806418-02	MW-95	AQUEOUS	6/22/98	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	108
	(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. :	806418
PROJECT #	: 104332.03	DATE RECEIVED :	6/24/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806418-03	MW-95RB	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	< 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	**1.3**	**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. :	806418
PROJECT #	: 104332.03	DATE RECEIVED :	6/24/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806418-03	MW-95RB	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	< 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	106	(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. :	806418
PROJECT #	: 104332.03	DATE RECEIVED :	6/24/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806418-04	MW-108	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	< 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. :	806418
PROJECT #	: 104332.03	DATE RECEIVED :	6/24/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806418-04	MW-108	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	< 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	107 (80 - 120)
Toluene-d8	100 (88 - 110)
Bromofluorobenzene	98 (86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806418
PROJECT #	: 104332.03	DATE RECEIVED :	6/24/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806418-05	MW-108DP	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	< 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. :	806418
PROJECT #	: 104332.03	DATE RECEIVED :	6/24/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806418-05	MW-108DP	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	< 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	99
	(86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806418
PROJECT #	: 104332.03	DATE RECEIVED :	6/24/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806418-06	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. :	806418
PROJECT #	: 104332.03	DATE RECEIVED :	6/24/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806418-06	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. :	806418
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. :	806418
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. :	806418
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. :	806418
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	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:	6/22/98
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 17:16

ANALYTICAL REPORT FOR SAMPLES:

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
MW-95	P806529-01	Water	6/22/98
MW 108 DP	P806529-02	Water	6/22/98
MW 108	P806529-03	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 17:16

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-95			**P806529-01**				**Water**	
Uranium	0780333	7/14/98	7/20/98	EPA 6020	0.00100	**0.00170**	mg/l	
MW 108 DP			**P806529-02**				**Water**	
Uranium	0780333	7/14/98	7/20/98	EPA 6020	0.00100	ND	mg/l	
MW 108			**P806529-03**				**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

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 17:16

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 17:16

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

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

COPY

American Environmental Network (NM), Inc.

CHAIN OF CUSTODY

DATE: _____ PAGE: ___ OF ___

AEN(NM) Accession #: P806529 23.8° OR 806418

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) 687-3812
FAX: (915) 687-3805

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:	# OF CONTAINERS
MW-95	6/22/98	1115	Water																				X						1
MW108DP		1430																					X						1
MW 108		1430																					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) ☒

CERTIFICATION REQUIRED: ☐ NM ☐ SDWA ☐ OTHER

METHANOL PRESERVATION ☐

COMMENTS: FIXED FEE ☐

RELINQUISHED BY: 1.	RELINQUISHED BY:
Signature: [signature] Time: 1600	Signature: [signature] Time: 1630
Printed Name: Ron Cook Date: 6/22	Printed Name: Chris Faith Date: 6/22
Company: AFN	Company: AFN
RECEIVED BY: 1.	**RECEIVED BY: (LAB) 2.**
Signature: [signature] Time: 1600	Signature: [signature] Time: 1000
Printed Name: Chris Faith Date: 6/22	Printed Name: Barb McClung Date: 6-26-98
Company: AFN	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
AEN Project Manager

Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC. ALBUQUERQUE, NEW MEXICO
Project Name:	IBRP
Project Number:	806418
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Accession Number:	806298
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:	806298
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806418
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: 806298
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806418
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-95			Lab ID: 001		
CHLORIDE (4500-CL B)	MG/L	5	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	3.2	0.1	N3W46B	
NITRATE, NITROGEN (353.2-354.1)	MG/L	3.2	0.1	NONE	
PH (150.1)	UNITS	7.5	NA	PHW132	R4
PHENOLS, TOTAL (420.1)	MG/L	ND	0.005	PEW025	
SULFATE (375.4)	MG/L	21	5	SEW078	
TOTAL DISSOLVED SOLIDS (160.1)	MG/L	360	5	TDW038	

Comments:

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: MW-108			Lab ID: 002		
CHLORIDE (4500-CL B)	MG/L	5	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	2.4	0.1	N3W46B	
NITRATE, NITROGEN (353.2-354.1)	MG/L	2.4	0.1	NONE	
PH (150.1)	UNITS	7.4	NA	PHW132	R4
PHENOLS, TOTAL (420.1)	MG/L	ND	0.005	PEW025	
SULFATE (375.4)	MG/L	35	5	SEW078	
TOTAL DISSOLVED SOLIDS (160.1)	MG/L	340	5	TDW038	

Comments:

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

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 806298
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806418
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-108 DP			Lab ID: 003		
CHLORIDE (4500-CL B)	MG/L	5	1	CIW068	
CYANIDE, TOTAL (335.2)	MG/L	ND	0.005	CNW038	
FLUORIDE (340.2/4500-F C)	MG/L	0.5	0.2	FLW027	
NITRITE, NITROGEN (354.1)	MG/L	ND	0.1	N2W091	
NITRITE-NITRATE, NITROGEN (353.2)	MG/L	2.4	0.1	N3W46B	
NITRATE, NITROGEN (353.2-354.1)	MG/L	2.4	0.1	NONE	
PH (150.1)	UNITS	7.3	NA	PHW132	R4
PHENOLS, TOTAL (420.1)	MG/L	ND	0.005	PEW025	
SULFATE (375.4)	MG/L	36	5	SEW078	
TOTAL DISSOLVED SOLIDS (160.1)	MG/L	350	5	TDW038	

Comments:

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

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 806298
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806418
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-95	001	WATER	22-JUN-98 1115	23-JUN-98
MW-108	002	WATER	22-JUN-98 1430	23-JUN-98
MW-108 DP	003	WATER	22-JUN-98 1430	23-JUN-98

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

"Method Report Summary"

Accession Number: 806298
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806418
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON WET CHEMISTRY INORGANICS

Client Sample Id:	Parameter:	Unit:	Result:
MW-95	CHLORIDE (4500-CL B)	MG/L	5
	FLUORIDE (340.2/4500-F C)	MG/L	0.4
	NITRITE-NITRATE, NITROGEN (353.2)	MG/L	3.2
	NITRATE, NITROGEN (353.2-354.1)	MG/L	3.2
	PH (150.1)	UNITS	7.5
	SULFATE (375.4)	MG/L	21
	TOTAL DISSOLVED SOLIDS (160.1)	MG/L	360
MW-108	CHLORIDE (4500-CL B)	MG/L	5
	FLUORIDE (340.2/4500-F C)	MG/L	0.4
	NITRITE-NITRATE, NITROGEN (353.2)	MG/L	2.4
	NITRATE, NITROGEN (353.2-354.1)	MG/L	2.4
	PH (150.1)	UNITS	7.4
	SULFATE (375.4)	MG/L	35
	TOTAL DISSOLVED SOLIDS (160.1)	MG/L	340
MW-108 DP	CHLORIDE (4500-CL B)	MG/L	5
	FLUORIDE (340.2/4500-F C)	MG/L	0.5
	NITRITE-NITRATE, NITROGEN (353.2)	MG/L	2.4
	NITRATE, NITROGEN (353.2-354.1)	MG/L	2.4
	PH (150.1)	UNITS	7.3
	SULFATE (375.4)	MG/L	36
	TOTAL DISSOLVED SOLIDS (160.1)	MG/L	350

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

Analysis Report

Analysis: MARATHON METALS - OPTIMA

Accession:	806298
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806418
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: 806298
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806418
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-95			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	0.28	0.0002	BYW169	
BORON (6010A)	MG/L	0.049	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	M7W084	
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	0.019	0.0002	GYW169	
MOLYBDENUM (6010A)	MG/L	0.0025	0.0003	DYW169	
SELENIUM (6010A)	MG/L	ND	0.0023	SYW169	
ZINC (6010A)	MG/L	0.017	0.014	5YW169	

Comments:

Client ID: MW-108			Lab ID:002		
SILVER (6010A)	MG/L	ND	0.0007	AYW169	
ALUMINUM (6010A)	MG/L	ND	0.026	LYW169	
ARSENIC (6010A)	MG/L	0.0019	0.0018	RYW169	
BARIUM (6010A)	MG/L	0.11	0.0002	BYW169	
BORON (6010A)	MG/L	0.046	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	M7W084	
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	0.0004	0.0002	GYW169	
MOLYBDENUM (6010A)	MG/L	0.0028	0.0003	DYW169	
SELENIUM (6010A)	MG/L	ND	0.0023	SYW169	
ZINC (6010A)	MG/L	ND	0.014	5YW169	

Comments:

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

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 806298
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806418
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-108 DP			Lab ID:003		
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	0.12	0.0002	BYW169	
BORON (6010A)	MG/L	0.045	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	M7W084	
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	0.0023	0.0002	GYW169	
MOLYBDENUM (6010A)	MG/L	0.0021	0.0003	DYW169	
SELENIUM (6010A)	MG/L	ND	0.0023	SYW169	
ZINC (6010A)	MG/L	0.015	0.014	5YW169	

Comments:

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 806298
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806418
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-95	001	WATER	22-JUN-98 1115	23-JUN-98
MW-108	002	WATER	22-JUN-98 1430	23-JUN-98
MW-108 DP	003	WATER	22-JUN-98 1430	23-JUN-98

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

"Method Report Summary"

Accession Number: 806298
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806418
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON METALS - OPTIMA

Client Sample Id:	Parameter:	Unit:	Result:
MW-95	BARIUM (6010A)	MG/L	0.28
	BORON (6010A)	MG/L	0.049
	MANGANESE (6010A)	MG/L	0.019
	MOLYBDENUM (6010A)	MG/L	0.0025
	ZINC (6010A)	MG/L	0.017
MW-108	ARSENIC (6010A)	MG/L	0.0019
	BARIUM (6010A)	MG/L	0.11
	BORON (6010A)	MG/L	0.046
	MANGANESE (6010A)	MG/L	0.0004
	MOLYBDENUM (6010A)	MG/L	0.0028
MW-108 DP	BARIUM (6010A)	MG/L	0.12
	BORON (6010A)	MG/L	0.045
	MANGANESE (6010A)	MG/L	0.0023
	MOLYBDENUM (6010A)	MG/L	0.0021
	ZINC (6010A)	MG/L	0.015

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

Analysis Report

Analysis: POLYNUCLEAR AROMATICS BY 8310

Accession:	806298
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806418
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	SEMI-VOLATILE FUELS

"FINAL REPORT FORMAT - SINGLE"

Accession:	806298
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806418
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 1430
Client Sample Id:	MW-108	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	50	28-138	
ANALYST	INITIALS	HAH		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 806298
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806418
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-108 DP
Sample Date/Time: 22-JUN-98 1430
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	ND	0.3	
2-CHLOROANTHRACENE	%REC/SURR	52	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:	806298
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806418
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: 806298
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806418
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 1115
Client Sample Id: MW-95 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	78	43-101	
DCB	%REC/SURR	59	17-135	
ANALYST	INITIALS	RP		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 806298
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806418
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 1430
Client Sample Id: MW-108 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	74	43-101	
DCB	%REC/SURR	62	17-135	
ANALYST	INITIALS	RP		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 806298
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806418
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 1430
Client Sample Id: MW-108 DP 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	78	43-101	
DCB	%REC/SURR	76	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:	806298
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806418
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	ORGANIC/MS

"FINAL REPORT FORMAT - SINGLE"

Accession: 806298
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806418
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 1115
Client Sample Id: MW-95 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	3.5	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: 806298
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806418
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 1115
Client Sample Id: MW-95 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: 806298
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806418
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-95
Sample Date/Time: 22-JUN-98 1115
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	90	10-100	
2,4,6-TRIBROMOPHENOL	%REC/SURR	98	10-123	
2-FLUOROBIPHENYL	%REC/SURR	72	43-116	
NITROBENZENE-D5	%REC/SURR	79	35-114	
TERPHENYL-D14	%REC/SURR	100	33-124	
ANALYST	INITIALS	RW		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 806298
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806418
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 1430
Client Sample Id: MW-108 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: 806298
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806418
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 1430
Client Sample Id: MW-108 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: 806298
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806418
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-108
Sample Date/Time: 22-JUN-98 1430
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	91	21-100	
PHENOL-D6	%REC/SURR	84	10-100	
2,4,6-TRIBROMOPHENOL	%REC/SURR	96	10-123	
2-FLUOROBIPHENYL	%REC/SURR	85	43-116	
NITROBENZENE-D5	%REC/SURR	87	35-114	
TERPHENYL-D14	%REC/SURR	100	33-124	
ANALYST	INITIALS	RW		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 806298
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806418
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-108 DP
Sample Date/Time: 22-JUN-98 1430
Received Date: 23-JUN-98

Batch: ALW077
Blank: A
Dry Weight %: N/A
Extraction Date: 26-JUN-98
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: 806298
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806418
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 1430
Client Sample Id: MW-108 DP 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: 806298
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806418
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-108 DP
Sample Date/Time: 22-JUN-98 1430
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	97	21-100	
PHENOL-D6	%REC/SURR	91	10-100	
2,4,6-TRIBROMOPHENOL	%REC/SURR	97	10-123	
2-FLUOROBIPHENYL	%REC/SURR	78	43-116	
NITROBENZENE-D5	%REC/SURR	80	35-114	
TERPHENYL-D14	%REC/SURR	105	33-124	
ANALYST	INITIALS	RW		

Comments:

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

"Method Report Summary"

Accession Number: 806298
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806418
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)

Client Sample Id:	Parameter:	Unit:	Result:
MW-95	BIS(2-ETHYLHEXYL)PHTHALATE	UG/L	3.5

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) 474-100

Quality Control Report

Analysis: MARATHON WET CHEMISTRY INORGANICS

Accession:	806298
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806418
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	CNW038	FLW027	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	26-JUN-98	24-JUN-98	23-JUN-98	23-JUN-98	23-JUN-98
Prep. Date:	22-JUN-98	25-JUN-98	24-JUN-98	23-JUN-98	22-JUN-98	23-JUN-98
Sample Duplication						
Sample Dup:	806270-1	806298-1	806298-1	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	0.35	<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	806240-1	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	0.84	
Spike Added:	55.0	0.200	0.80	0.20	1.00	
% Recovery:	101	106	79	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	0.284	1.28	0.20	1.98	10.13
True Result:	100	0.314	1.20	0.20	2.00	10.00
% Recovery:	100	90	107	100	99	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

AMERICAN ENVIRONMENTAL NETWORK 11 East Olive Road Pensacola, Florida 32514 (850) 474-100

"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

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

"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:	806298
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806418
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 | 80
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

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:	TYW169	HYW169	FYW169	M7W084	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	07-JUL-98	28-JUN-98	29-JUN-98
Prep. Date:	25-JUN-98	25-JUN-98	25-JUN-98	07-JUL-98	25-JUN-98	25-JUN-98
Sample Duplication						
Sample Dup:	806267-1	806267-1	806267-1	806298-1	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	0.0050	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	806298-1	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	0.0050	1.95	1.8
Spike Added:	2.0	2.0	2.0	0.0050	2.0	2.0
% Recovery:	97	100	107	100	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	0.0036	0.99	25
True Result:	1.0	1.0	1.0	0.0040	1.0	25
% Recovery:	99	99	102	90	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	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

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

Quality Control Report

Analysis: POLYNUCLEAR AROMATICS BY 8310

Accession:	806298
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806418
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: PESTICIDES (8080)

Accession:	806298
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806418
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: 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:

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.

"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 11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Quality Control Report

Analysis: ACID & BASE EXTRACTABLES (8270)

Accession:	806298
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806418
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 01-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

"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

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:
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 #: 806298 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? Yes* (No)
   Req By: PM Client Other♦
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: LK, PSIF + red folder) (Yes) No* N/A

Airbill Number(s): 806603416430, 806603416429

Shipped By: fedex

Cooler Number(s): Blue + white 15, 341L

Shipping Charges: N/A

Cooler Weight(s): N/A

Cooler Temp(s) (°C): 3.0°C, 3.0°C, 2.0°C
CCK7
(LIST THERMOMETER NUMBER(S) FOR VERIFICATION)

Out of Control Events and Inspection Comments:

~~Temp blanks not received, temp. taken of Ambient air. LK 6/23/98~~

Temp blank not received in cooler w/ ID MW-108DP, LK 6/23

One liter Amber for MW-95 for 8310 Analysis received broken. LK 6/23/98

(USE BACK OF PSIF FOR ADDITIONAL NOTES AND COMMENTS.)

Inspected By: [signature] Date: 23-Jun-98 Logged By: [signature] 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 #: FL 806298

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) 687-3812
FAX: (915) 687-3805

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:	* SEE LIST	TOTAL PHENOL	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-95	6/20/98	1115	Water												X					X		X	X		X	X						X		9
MW-108		1430													X					X		X	X		X	X						X		9
MW-108 DP		1430													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:
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: [signature] Time: 1600
Printed Name: Kevin Cook Date:
Company: FOGTF

RELINQUISHED BY: 2.
Signature: [signature] Time: 1600
Printed Name: CHRIS FAITH Date: 6/22
Company: AEN

RECEIVED BY: 1.
Signature: [signature] Time: 1600
Printed Name: CHRIS FAITH Date: 6/22
Company: AEN

RECEIVED BY (LAB): 2.
Signature: [signature] Time: 0807
Printed Name: [signature] Date: 6/23/98
American Environmental Network (NM) Inc.

American Environmental Network (NM), Inc.

CHAIN OF CUSTODY

DATE: _____ PAGE: ___ OF ___

AEN(NM) Accession #: NM 804418

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) 687-3812
FAX: (915) 687-3805

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-97RB	6/22/98	0945	Water	01								X	X	X	X		X																2
MW-95		1115		02									X	X			X																2
MW-95RB		1230		03													X																2
MW-108		1430		04									X	X			X																6
MW-108DP		1430		05									X	X			X																6
Trip Blank	6/11	1410	AQ	06													X																1

PROJECT INFORMATION

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

SAMPLE RECEIPT

NO. CONTAINERS	23
CUSTODY SEALS	Y N / NA
RECEIVED INTACT	YES
BLUE ICE/ICE	30°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 ☐

RELINQUISHED BY: 1	RELINQUISHED BY: 2
Signature: Kevin Cole Time: 1600	Signature: [illegible] Time: 1630
Printed Name: Kevin Cole Date: 6/22	Printed Name: CHRIS FAITH Date: 6/22
Company: [illegible]	Company: AEN

RECEIVED BY: 1	RECEIVED BY: LAB 2
Signature: [illegible] Time: 1600	Signature: [illegible] Time: 1610
Printed Name: CHRIS FAITH Date: 6/22	Printed Name: [illegible] Date: 6/24/98
Company: AEN	American Environmental Network (NM), Inc.

RECEIVED

AEN I.D. 806418

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 6/24/98 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.

Sample MW-95 arrived broken and could not be analyzed for EPA method 8310.

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

CLIENT	: MARATHON OIL COMPANY	AEN I.D.	: 806418
PROJECT #	: 104332.03	DATE RECEIVED	: 6/24/98
PROJECT NAME	: IBRP	REPORT DATE	: 7/28/98

AEN ID. #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	MW-97RB	AQUEOUS	6/22/98
02	MW-95	AQUEOUS	6/22/98
03	MW-95RB	AQUEOUS	6/22/98
04	MW-108	AQUEOUS	6/22/98
05	MW-108DP	AQUEOUS	6/22/98
06	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 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 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	2399-018
STL Work Order #s	1998-06-411
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: 98-06-411
STL-NC Project Number: 2399-018

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, Ph.D.
Manager, Radiological Laboratory
7/29/98

C:\NET2\WP\AEN-NM 2399-018.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: 2399-018

NC 806418

Client Sample ID	Lab ID
MW-95	9806411-01
MW-108	9806411-02
MW-108DP	9806411-03

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

Date 7/29/98

Severn Trent Laboratories

Project Number: 2399-018

Radiological Analysis Results

NC 806418

Form I

Client Sample ID	Lab ID	Sample Type	Batch Number	Matrix	Radionuclide	Result	Uncertainty	Q	Units	Analysis Date	Sample Size	MDA
MW-95	9806411-01	Reg	98070007	Water	Ra-226	0.88	0.12		pCi/L	07/20/98	0.5000	0.08
MW-95	9806411-01	Reg	98070009	Water	Ra-228	7.85	1.47		pCi/L	07/10/98	1.0000	2.44
MW-108	9806411-02	Reg	98070007	Water	Ra-226	0.21	0.07		pCi/L	07/20/98	0.5000	0.07
MW-108	9806411-02	Reg	98070009	Water	Ra-228	1.44	0.85		pCi/L	07/10/98	1.0000	1.78
MW-108DP	9806411-03	Reg	98070007	Water	Ra-226	0.26	0.08		pCi/L	07/20/98	0.5000	0.07
MW-108DP	9806411-03	Reg	98070009	Water	Ra-228	-3.92	0.84		pCi/L	07/10/98	1.0000	2.66

Key shall be attached

Comments:

MDA mod

Project Number: 2399-018

Severn Trent Laboratories

QA/QC Results Summary

NC 806418

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

Severn Trent Laboratories

Project Number: 2399-018

Method Blank Summary

NC 806418

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:

Severn Trent Laboratories

Project Number: 2399-018

Chemical Recovery

NC 806418

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-95	9806411-01	Reg	98070007	Ra-226	Ba-133	1239.00	1260.00	98.33 %		pCi	07/20/98	5
MW-95	9806411-01	Reg	98070009	Ra-228	Ba-133	1052.00	1260.00	83.49 %		pCi	07/10/98	1
MW-108	9806411-02	Reg	98070007	Ra-226	Ba-133	1194.00	1309.00	91.21 %		pCi	07/20/98	5
MW-108	9806411-02	Reg	98070009	Ra-228	Ba-133	1054.00	1309.00	80.52 %		pCi	07/10/98	1
MW-108DP	9806411-03	Reg	98070007	Ra-226	Ba-133	1141.00	1260.00	90.56 %		pCi	07/20/98	5
MW-108DP	9806411-03	Reg	98070009	Ra-228	Ba-133	1054.00	1260.00	83.65 %		pCi	07/10/98	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

Severn Trent Laboratories

Project Number: 2399-018

Blank Spike Results Summary

NC 806418

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 mode

Project Number: 2399-018

Severn Trent Laboratories

Matrix Spike Results Summary

NC 806418

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

Project Number: 2399-018

Severn Trent Laboratories

Duplicate Results

NC 806418

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 #	98-06-411	# 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	2399-018	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
9806411-01	01A1	Open	Water	Ra-226	MW-95	06/22/98
9806411-01	01A2	Open	Water	Ra-228	MW-95	06/22/98
9806411-02	02A1	Open	Water	Ra-226	MW-108	06/22/98
9806411-02	02A2	Open	Water	Ra-228	MW-108	06/22/98
9806411-03	03A1	Open	Water	Ra-226	MW-108DP	06/22/98
9806411-03	03A2	Open	Water	Ra-228	MW-108DP	06/22/98

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

American Environmental Network (NM), Inc.

CHAIN OF CUSTODY

DATE: _____ PAGE: ___ OF ___

AEN(NM) Accession #: 806418

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) 687-3812
FAX: (915) 687-3805

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:	Rc 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-95	6/22/98	1115	Water																						X							
MW-108		1430																							X							
MW-108DP		1430																							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:

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

Signature: Kevin Cole Time: 1600
Printed Name: Kevin Cole Date: 6/22
Company: EDGE

RELINQUISHED BY: 2

Signature: Time: 1630
Printed Name: Date:
Company:

RECEIVED BY: 1

Signature: Time: 1600
Printed Name: CHRIS PATTY Date: 6/22
Company: AEN

RECEIVED BY: LAB 2

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

DISTRIBUTION: White - AEN, Canary - Originator

RECEIVED

AEN I.D. 806425

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.	: 806425
PROJECT #	: 104332.03	DATE RECEIVED	: 7/1/98
PROJECT NAME	: IBRP	REPORT DATE	: 7/28/98

AEN ID. #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	MW-98	AQUEOUS	6/29/98
02	MW-69	AQUEOUS	6/29/98
03	MW-81	AQUEOUS	6/29/98
04	MW-76	AQUEOUS	6/29/98
05	MW-111	AQUEOUS	6/29/98
06	TRIP BLANK	AQUEOUS	6/11/98

GAS CHROMOTOGRAPHY RESULTS

TEST : ETHYLENE DIBROMIDE (EPA 504.1)
CLIENT : MARATHON OIL COMPANY AEN I.D.: 806425
PROJECT # : 104332.03
PROJECT NAME : IBRP

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
01	MW-98	AQUEOUS	6/29/98	7/6/98	7/6/98	1
02	MW-69	AQUEOUS	6/29/98	7/6/98	7/6/98	1
03	MW-81	AQUEOUS	6/29/98	7/6/98	7/6/98	1

PARAMETER	DET. LIMIT	UNITS	01	02	03
ETHYLENE DIBROMIDE	0.01	UG/L	< 0.01	< 0.01	< 0.01
SURROGATE:					
1,4-DICHLOROBENZENE			93	80	79
SURROGATE LIMITS	(75 - 141)				

CHEMIST NOTES:
N/A

GAS CHROMOTOGRAPHY RESULTS

TEST : ETHYLENE DIBROMIDE (EPA 504.1)
CLIENT : MARATHON OIL COMPANY AEN I.D.: 806425
PROJECT # : 104332.03
PROJECT NAME : IBRP

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
04	MW-76	AQUEOUS	6/29/98	7/2/98	7/2/98	1
05	MW-111	AQUEOUS	6/29/98	7/2/98	7/2/98	1

PARAMETER	DET. LIMIT	UNITS	04	05
ETHYLENE DIBROMIDE	0.01	UG/L	< 0.01	< 0.01
SURROGATE:				
1,4-DICHLOROBENZENE			78	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.	: 806425
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.	: 806425
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.	: 806425
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.: 806425
PROJECT # : 104332.03
PROJECT NAME : IBRP

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
01	MW-98	AQUEOUS	6/29/98	NA	7/2/98	1
02	MW-69	AQUEOUS	6/29/98	NA	7/2/98	1
03	MW-81	AQUEOUS	6/29/98	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 (%)			108	109	93
SURROGATE LIMITS	(73 - 117)				

CHEMIST NOTES:
N/A

GAS CHROMOTOGRAPHY RESULTS

TEST : PURGEABLE HALOCARBONS / AROMATICS (EPA 8021)
CLIENT : MARATHON OIL COMPANY AEN I.D.: 806425
PROJECT # : 104332.03
PROJECT NAME : IBRP

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
04	MW-76	AQUEOUS	6/29/98	NA	7/2/98	1
05	MW-111	AQUEOUS	6/29/98	NA	7/2/98	1

PARAMETER	DET. LIMIT	UNITS	04	05
TETRACHLOROETHENE	0.5	UG/L	< 0.5	< 0.5
VINYL CHLORIDE	0.5	UG/L	< 0.5	< 0.5
SURROGATE:				
BROMOCHLOROMETHANE (%)			107	100
SURROGATE LIMITS	(73 - 117)			

CHEMIST NOTES:
N/A

GAS CHROMOTOGRAPHY RESULTS
REAGENT BLANK

TEST	: PURGEABLE HALOCARBONS / AROMATICS (EPA 8021)		
BLANK I.D.	: 070298	AEN I.D.	: 806425
CLIENT	: MARATHON OIL COMPANY	DATE EXTRACTED	: N/A
PROJECT #	: 104332.03	DATE ANALYZED	: 7/2/98
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 (%)			109
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.	: 806425
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 #	: 806398-07	AEN I.D.	: 806425
CLIENT	: MARATHON OIL COMPANY	DATE EXTRACTED	: N/A
PROJECT #	: 104332.03	DATE ANALYZED	: 7/2/98
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	8.1	81	8	(44 - 99)	20
TRICHLOROETHENE	<0.3	10.0	9.7	97	9.5	95	2	(89 - 127)	20
CHLOROBENZENE	<0.5	10.0	9.6	96	8.8	88	9	(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. :	806425
PROJECT #	: 104332.03	DATE RECEIVED :	7/1/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806425-01	MW-98	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	**7.1**	**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	**20**	**ug/L**
1,1,1,2-Tetrachloroethane	1.0	< 1.0	ug/L
m&p Xylenes	1.0	**780 (D10)**	**ug/L**

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806425
PROJECT #	: 104332.03	DATE RECEIVED :	7/1/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806425-01	MW-98	AQUEOUS	6/29/98	N/A	07/09/98	1

PARAMETER	DET. LIMIT		UNITS
o-Xylene	1.0	**230 (D10)**	**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	**13**	**ug/L**
2-Chlorotoluene	1.0	< 1.0	ug/L
4-Chlorotoluene	1.0	< 1.0	ug/L
1,3,5-Trimethylbenzene	1.0	**170**	**ug/L**
tert-Butylbenzene	1.0	< 1.0	ug/L
1,2,4-Trimethylbenzene	1.0	**290 (D10)**	**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	**7.4**	**ug/L**
1,2-Dichlorobenzene	1.0	< 1.0	ug/L
n-Butylbenzene	1.0	**9.7**	**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	**2.9**	**ug/L**
Hexachlorobutadiene	1.0	< 1.0	ug/L
1,2,3-Trichlorobenzene	1.0	< 1.0	ug/L

(D10) = 10 X DILUTION, ANALYZED ON 7/10/98

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

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806425
PROJECT #	: 104332.03	DATE RECEIVED :	7/1/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806425-02	MW-69	AQUEOUS	6/29/98	N/A	07/09/98	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	**1200**	**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	**520**	**ug/L**
1,1,1,2-Tetrachloroethane	1.0	< 10	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. :	806425
PROJECT #	: 104332.03	DATE RECEIVED :	7/1/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806425-02	MW-69	AQUEOUS	6/29/98	N/A	07/09/98	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	**73**	**ug/L**
Bromobenzene	1.0	< 10	ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 10	ug/L
n-Propylbenzene	1.0	**77**	**ug/L**
2-Chlorotoluene	1.0	< 10	ug/L
4-Chlorotoluene	1.0	< 10	ug/L
1,3,5-Trimethylbenzene	1.0	**160**	**ug/L**
tert-Butylbenzene	1.0	< 10	ug/L
1,2,4-Trimethylbenzene	1.0	**610**	**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	**12**	**ug/L**
1,2-Dichlorobenzene	1.0	< 10	ug/L
n-Butylbenzene	1.0	**17**	**ug/L**
1,2-Dibromomo-3-chloropropane	1.0	< 10	ug/L
1,2,4-Trichlorobenzene	1.0	< 10	ug/L
Naphthalene	1.0	**13**	**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	104
	(86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806425
PROJECT #	: 104332.03	DATE RECEIVED :	7/1/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806425-03	MW-81	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	**1.5**	**ug/L**

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806425
PROJECT #	: 104332.03	DATE RECEIVED :	7/1/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806425-03	MW-81	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	**24**	**ug/L**
tert-Butylbenzene	1.0	< 1.0	ug/L
1,2,4-Trimethylbenzene	1.0	**6.1**	**ug/L**
sec-Butylbenzene	1.0	**1.1**	**ug/L**
1,3-Dichlorobenzene	1.0	< 1.0	ug/L
1,4-Dichlorobenzene	1.0	< 1.0	ug/L
p-Isopropyltoluene	1.0	**2.5**	**ug/L**
1,2-Dichlorobenzene	1.0	< 1.0	ug/L
n-Butylbenzene	1.0	**2.3**	**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	106	(88 - 110)
Bromofluorobenzene	103	(86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806425
PROJECT #	: 104332.03	DATE RECEIVED :	7/1/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806425-04	MW-76	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. :	806425
PROJECT #	: 104332.03	DATE RECEIVED :	7/1/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806425-04	MW-76	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	102 (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. :	806425
PROJECT #	: 104332.03	DATE RECEIVED :	7/1/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806425-05	MW-111	AQUEOUS	6/29/98	N/A	07/02/98	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	**28**	**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. :	806425
PROJECT #	: 104332.03	DATE RECEIVED :	7/1/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806425-05	MW-111	AQUEOUS	6/29/98	N/A	07/02/98	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	99 (88 - 110)
Bromofluorobenzene	99 (86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806425
PROJECT #	: 104332.03	DATE RECEIVED :	7/1/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806425-06	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. :	806425
PROJECT #	: 104332.03	DATE RECEIVED :	7/1/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806425-06	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. :	806425
PROJECT #	: 104332.03		
PROJECT NAME	: IBRP		

SAMPLE ID #	BATCH	MATRIX	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
REAGENT BLANK	070298	AQUEOUS	N/A	07/02/98	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. :	806425
PROJECT #	: 104332.03		
PROJECT NAME	: IBRP		

SAMPLE ID #	BATCH	MATRIX	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
REAGENT BLANK	070298	AQUEOUS	N/A	07/02/98	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	94 (88 - 110)
Bromofluorobenzene	95 (86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806425
PROJECT #	: 104332.03		
PROJECT NAME	: IBRP		

SAMPLE ID #	BATCH	MATRIX	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
REAGENT BLANK	070998	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. :	806425
PROJECT #	: 104332.03		
PROJECT NAME	: IBRP		

SAMPLE ID #	BATCH	MATRIX	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
REAGENT BLANK	070998	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	102 (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. :	806425
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. :	806425
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. :	806425
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. :	806425
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\82600310.M (RTE Integrator)
Title : AEN New Mexico GC/MS
Last Update : Thu Jul 02 08:45:15 1998
Response via : Initial Calibration

Non-Spiked Sample: 07029805.D

	Spike Sample	Spike Duplicate Sample
File ID :	070298S1.D	070298S2.D
Sample :	806424-01 MS	806424-01 MSD
Acq Time:	2 Jul 98 4:18 pm	2 Jul 98 4:52 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	47	44	94	88	6	14	61-145
Benzene	0.0	50	57	54	113	108	4	11	76-127
Trichloroethene	0.0	50	53	52	107	103	4	14	71-120
Toluene	0.0	50	53	51	106	103	3	13	76-125
Chlorobenzene	0.0	50	53	51	105	101	4	13	75-130

- Fails Limit Check

82600310.M Wed Jul 08 10:46:40 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:	6/28/98
2709-D Pan American Freeway,NE	Project Number:	104332.03	Received:	6/30/98
Albuquerque, NM 87107	Project Manager:	Kimberly McNeill	Reported:	7/21/98 17:30

ANALYTICAL REPORT FOR SAMPLES:

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
MW-98	P806588-01	Water	6/28/98
MW-69	P806588-02	Water	6/28/98
MW-81	P806588-03	Water	6/28/98
MW-76	P806588-04	Water	6/28/98
MW-111	P806588-05	Water	6/28/98

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American Environmental Network	Project:	Marathon Oil	Sampled:	6/28/98
2709-D Pan American Freeway,NE	Project Number:	104332.03	Received:	6/30/98
Albuquerque, NM 87107	Project Manager:	Kimberly McNeill	Reported:	7/21/98 17:30

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-98			**P806588-01**				**Water**	
Uranium	0780334	7/14/98	7/20/98	EPA 6020	0.00100	**0.00120**	mg/l	
MW-69			**P806588-02**				**Water**	
Uranium	0780334	7/14/98	7/20/98	EPA 6020	0.00100	ND	mg/l	
MW-81			**P806588-03**				**Water**	
Uranium	0780334	7/14/98	7/20/98	EPA 6020	0.00100	ND	mg/l	
MW-76			**P806588-04**				**Water**	
Uranium	0780334	7/14/98	7/20/98	EPA 6020	0.00100	**0.00130**	mg/l	
MW-111			**P806588-05**				**Water**	
Uranium	0780334	7/14/98	7/20/98	EPA 6020	0.00100	**0.00300**	mg/l	

NORTH CREEK ANALYTICAL
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PORTLAND ▪ (503) 906-9200 ▪ FAX 906-9210

American Environmental Network	Project:	Marathon Oil	Sampled:	6/28/98
2709-D Pan American Freeway,NE	Project Number:	104332.03	Received:	6/30/98
Albuquerque, NM 87107	Project Manager:	Kimberly McNeill	Reported:	7/21/98 17:30

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

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:	6/28/98
2709-D Pan American Freeway,NE	Project Number:	104332.03	Received:	6/30/98
Albuquerque, NM 87107	Project Manager:	Kimberly McNeill	Reported:	7/21/98 17:30

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

P806588 24.7

American Environmental Network (NM), Inc. COPY

CHAIN OF CUSTODY

DATE: 6/29/98 PAGE: ___ OF ___

AEN(NM) Accession#: 6/8 – 3016425

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:	URANIUM		Priority Pollutant Metals (13)	Target Analyte List Metals (23)	RCRA Metals (8)	RCRA Metals by TCLP (Method 1311)	Metals:		# OF CONTAINERS
mw-98	6/29/98	0815	water																						X								1
mw-69		0930																							X								1
mw-81		1050																							X								1
mw-76		1230																							X								1
mw-111		1415																							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 ☐
Samples had PSH in well

RELINQUISHED BY: 1.	RELINQUISHED BY: 2.
Signature: Rea Cole Time: 1430	Signature: [illegible] Time: 1500
Printed Name: Karin Cole Date: 6/29/98	Printed Name: Chris Faith Date: 6/29
Company: FOGTT	Company: AEN
RECEIVED BY: 1.	**RECEIVED BY: (LAB) 2.**
Signature: [illegible] Time: 1430	Signature: [illegible] Time: 0942
Printed Name: Chris Faith Date: 6/29	Printed Name: Mary McShane Date: 6/30/98
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: 806425
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Accession Number: 807005

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:	807005
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806425
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: 807005
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806425
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-98			Lab ID: 001		
CHLORIDE (4500-CL B)	MG/L	14	1	CIW074	
CYANIDE, TOTAL (335.2)	MG/L	ND	0.005	CNW041	
FLUORIDE (340.2/4500-F C)	MG/L	0.3	0.2	FLW029	
NITRITE, NITROGEN (354.1)	MG/L	ND	0.1	N2W098	
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	PHW139	R4
PHENOLS, TOTAL (420.1)	MG/L	0.010	0.005	PEW027	
SULFATE (375.4)	MG/L	32	5	SEW085	
TOTAL DISSOLVED SOLIDS (160.1)	MG/L	310	5	TDW040	

Comments:

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: MW-69			Lab ID: 002		
CHLORIDE (4500-CL B)	MG/L	120	1	CIW074	
CYANIDE, TOTAL (335.2)	MG/L	ND	0.005	CNW041	
FLUORIDE (340.2/4500-F C)	MG/L	0.3	0.2	FLW029	
NITRITE, NITROGEN (354.1)	MG/L	ND	0.1	N2W098	
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	PHW139	R4
PHENOLS, TOTAL (420.1)	MG/L	0.015	0.005	PEW027	
SULFATE (375.4)	MG/L	ND	5	SEW085	
TOTAL DISSOLVED SOLIDS (160.1)	MG/L	860	5	TDW040	

Comments:

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 807005
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806425
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-81			Lab ID: 003		
CHLORIDE (4500-CL B)	MG/L	16	1	CIW074	
CYANIDE, TOTAL (335.2)	MG/L	ND	0.005	CNW041	
FLUORIDE (340.2/4500-F C)	MG/L	0.7	0.2	FLW029	
NITRITE, NITROGEN (354.1)	MG/L	ND	0.1	N2W098	
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	7.4	NA	PHW139	R4
PHENOLS, TOTAL (420.1)	MG/L	ND	0.005	PEW027	
SULFATE (375.4)	MG/L	450	250	SEW085	+
TOTAL DISSOLVED SOLIDS (160.1)	MG/L	800	5	TDW040	

Comments:

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: MW-76			Lab ID: 004		
CHLORIDE (4500-CL B)	MG/L	23	1	CIW074	
CYANIDE, TOTAL (335.2)	MG/L	ND	0.005	CNW041	
FLUORIDE (340.2/4500-F C)	MG/L	0.5	0.2	FLW029	
NITRITE, NITROGEN (354.1)	MG/L	ND	0.1	N2W098	
NITRITE-NITRATE, NITROGEN (353.2)	MG/L	1.3	0.1	N3W50A	
NITRATE, NITROGEN (353.2-354.1)	MG/L	1.3	0.1	NONE	
PH (150.1)	UNITS	7.3	NA	PHW139	R4
PHENOLS, TOTAL (420.1)	MG/L	0.008	0.005	PEW027	
SULFATE (375.4)	MG/L	51	20	SEW085	+
TOTAL DISSOLVED SOLIDS (160.1)	MG/L	400	5	TDW040	

Comments:

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 807005
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806425
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-111			Lab ID: 005		
CHLORIDE (4500-CL B)	MG/L	100	1	CIW074	
CYANIDE, TOTAL (335.2)	MG/L	ND	0.005	CNW041	
FLUORIDE (340.2/4500-F C)	MG/L	0.7	0.2	FLW029	
NITRITE, NITROGEN (354.1)	MG/L	ND	0.1	N2W098	
NITRITE-NITRATE, NITROGEN (353.2)	MG/L	0.4	0.1	N3W50A	
NITRATE, NITROGEN (353.2-354.1)	MG/L	0.4	0.1	NONE	
PH (150.1)	UNITS	7.2	NA	PHW139	R4
PHENOLS, TOTAL (420.1)	MG/L	ND	0.005	PEW027	
SULFATE (375.4)	MG/L	310	130	SEW085	+
TOTAL DISSOLVED SOLIDS (160.1)	MG/L	900	5	TDW040	

Comments:

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

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 807005
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806425
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-98	001 WATER	29-JUN-98 0815	30-JUN-98
MW-69	002 WATER	29-JUN-98 0930	30-JUN-98
MW-81	003 WATER	29-JUN-98 1050	30-JUN-98
MW-76	004 WATER	29-JUN-98 1230	30-JUN-98
MW-111	005 WATER	29-JUN-98 1415	30-JUN-98

"Method Report Summary"

Accession Number: 807005
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806425
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON WET CHEMISTRY INORGANICS

Client Sample Id:	Parameter:	Unit:	Result:
MW-98	CHLORIDE (4500-CL B)	MG/L	14
	FLUORIDE (340.2/4500-F C)	MG/L	0.3
	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
	PHENOLS, TOTAL (420.1)	MG/L	0.010
	SULFATE (375.4)	MG/L	32
	TOTAL DISSOLVED SOLIDS (160.1)	MG/L	310
MW-69	CHLORIDE (4500-CL B)	MG/L	120
	FLUORIDE (340.2/4500-F C)	MG/L	0.3
	PH (150.1)	UNITS	6.9
	PHENOLS, TOTAL (420.1)	MG/L	0.015
	TOTAL DISSOLVED SOLIDS (160.1)	MG/L	860
MW-81	CHLORIDE (4500-CL B)	MG/L	16
	FLUORIDE (340.2/4500-F C)	MG/L	0.7
	PH (150.1)	UNITS	7.4
	SULFATE (375.4)	MG/L	450
	TOTAL DISSOLVED SOLIDS (160.1)	MG/L	800
MW-76	CHLORIDE (4500-CL B)	MG/L	23
	FLUORIDE (340.2/4500-F C)	MG/L	0.5
	NITRITE-NITRATE, NITROGEN (353.2)	MG/L	1.3
	NITRATE, NITROGEN (353.2-354.1)	MG/L	1.3
	PH (150.1)	UNITS	7.3
	PHENOLS, TOTAL (420.1)	MG/L	0.008
	SULFATE (375.4)	MG/L	51
	TOTAL DISSOLVED SOLIDS (160.1)	MG/L	400
MW-111	CHLORIDE (4500-CL B)	MG/L	100
	FLUORIDE (340.2/4500-F C)	MG/L	0.7
	NITRITE-NITRATE, NITROGEN (353.2)	MG/L	0.4
	NITRATE, NITROGEN (353.2-354.1)	MG/L	0.4
	PH (150.1)	UNITS	7.2
	SULFATE (375.4)	MG/L	310
	TOTAL DISSOLVED SOLIDS (160.1)	MG/L	900

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Analysis Report

Analysis: Group of Single Metals

Accession:	807005
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806425
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	METALS

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 807005
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806425
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-98			Lab ID:001		
SELENIUM (7740)	MG/L	ND	0.005	S7W093	
Comments:					
Client ID: MW-69			Lab ID:002		
SELENIUM (7740)	MG/L	ND	0.005	S7W093	
Comments:					
Client ID: MW-81			Lab ID:003		
SELENIUM (7740)	MG/L	ND	0.005	S7W093	
Comments:					
Client ID: MW-76			Lab ID:004		
SELENIUM (7740)	MG/L	ND	0.005	S7W093	
Comments:					
Client ID: MW-111			Lab ID:005		
SELENIUM (7740)	MG/L	ND	0.005	S7W093	
Comments:					

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 807005
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806425
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-98	001	WATER	29-JUN-98 0815	30-JUN-98
MW-69	002	WATER	29-JUN-98 0930	30-JUN-98
MW-81	003	WATER	29-JUN-98 1050	30-JUN-98
MW-76	004	WATER	29-JUN-98 1230	30-JUN-98
MW-111	005	WATER	29-JUN-98 1415	30-JUN-98

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

Analysis Report

Analysis: MARATHON METALS - OPTIMA

Accession:	807005
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806425
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: 807005
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806425
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON METALS - OPTIMA
QcLevel: II

Client ID: MW-98 Lab ID:001

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
SILVER (6010A)	MG/L	ND	0.0007	AYW180	
ALUMINUM (6010A)	MG/L	ND	0.026	LYW180	
ARSENIC (6010A)	MG/L	0.0047	0.0018	RYW180	
BARIUM (6010A)	MG/L	0.20	0.0002	BYW180	
BORON (6010A)	MG/L	0.055	0.0057	OYW180	
CADMIUM (6010A)	MG/L	0.0003	0.0002	CYW180	
COBALT (6010A)	MG/L	ND	0.0003	TYW180	
CHROMIUM (6010A)	MG/L	0.0010	0.0008	HYW180	
COPPER (6010A)	MG/L	ND	0.0018	FYW180	
MERCURY (7470A)	MG/L	ND	0.0001	M7W086	
NICKEL (6010A)	MG/L	ND	0.0009	EYW180	
IRON (6010A)	MG/L	0.034	0.013	NYW180	
LEAD (6010A)	MG/L	ND	0.0022	PYW180	
MANGANESE (6010A)	MG/L	ND	0.0002	GYW180	
MOLYBDENUM (6010A)	MG/L	0.0034	0.0003	DYW180	
ZINC (6010A)	MG/L	0.022	0.014	5YW180	

Comments:

Client ID: MW-69 Lab ID:002

SILVER (6010A)	MG/L	ND	0.0007	AYW180	
ALUMINUM (6010A)	MG/L	ND	0.026	LYW180	
ARSENIC (6010A)	MG/L	0.0062	0.0018	RYW180	
BARIUM (6010A)	MG/L	1.2	0.0002	BYW180	
BORON (6010A)	MG/L	0.16	0.0057	OYW180	
CADMIUM (6010A)	MG/L	0.0005	0.0002	CYW180	
COBALT (6010A)	MG/L	0.0005	0.0003	TYW180	
CHROMIUM (6010A)	MG/L	0.0010	0.0008	HYW180	
COPPER (6010A)	MG/L	ND	0.0018	FYW180	
MERCURY (7470A)	MG/L	ND	0.0001	M7W086	
NICKEL (6010A)	MG/L	ND	0.0009	EYW180	
IRON (6010A)	MG/L	2.7	0.013	NYW180	
LEAD (6010A)	MG/L	ND	0.0022	PYW180	
MANGANESE (6010A)	MG/L	0.59	0.0002	GYW180	
MOLYBDENUM (6010A)	MG/L	0.0033	0.0003	DYW180	
ZINC (6010A)	MG/L	0.024	0.014	5YW180	

Comments:

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 807005
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806425
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON METALS - OPTIMA
QcLevel: II

Client ID: MW-81 Lab ID:003

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
SILVER (6010A)	MG/L	ND	0.0007	AYW180	
ALUMINUM (6010A)	MG/L	ND	0.026	LYW180	
ARSENIC (6010A)	MG/L	0.011	0.0018	RYW180	
BARIUM (6010A)	MG/L	0.054	0.0002	BYW180	
BORON (6010A)	MG/L	0.087	0.0057	OYW180	
CADMIUM (6010A)	MG/L	0.0002	0.0002	CYW180	
COBALT (6010A)	MG/L	ND	0.0003	TYW180	
CHROMIUM (6010A)	MG/L	0.0010	0.0008	HYW180	
COPPER (6010A)	MG/L	ND	0.0018	FYW180	
MERCURY (7470A)	MG/L	ND	0.0001	M7W086	
NICKEL (6010A)	MG/L	ND	0.0009	EYW180	
IRON (6010A)	MG/L	0.99	0.013	NYW180	
LEAD (6010A)	MG/L	ND	0.0022	PYW180	
MANGANESE (6010A)	MG/L	0.20	0.0002	GYW180	
MOLYBDENUM (6010A)	MG/L	ND	0.0003	DYW180	
ZINC (6010A)	MG/L	ND	0.014	5YW180	

Comments:

Client ID: MW-76 Lab ID:004

SILVER (6010A)	MG/L	ND	0.0007	AYW180	
ALUMINUM (6010A)	MG/L	ND	0.026	LYW180	
ARSENIC (6010A)	MG/L	0.0031	0.0018	RYW180	
BARIUM (6010A)	MG/L	0.27	0.0002	BYW180	
BORON (6010A)	MG/L	0.066	0.0057	OYW180	
CADMIUM (6010A)	MG/L	ND	0.0002	CYW180	
COBALT (6010A)	MG/L	ND	0.0003	TYW180	
CHROMIUM (6010A)	MG/L	0.0010	0.0008	HYW180	
COPPER (6010A)	MG/L	ND	0.0018	FYW180	
MERCURY (7470A)	MG/L	0.0003	0.0001	M7W086	
NICKEL (6010A)	MG/L	ND	0.0009	EYW180	
IRON (6010A)	MG/L	0.031	0.013	NYW180	
LEAD (6010A)	MG/L	ND	0.0022	PYW180	
MANGANESE (6010A)	MG/L	0.15	0.0002	GYW180	
MOLYBDENUM (6010A)	MG/L	0.0042	0.0003	DYW180	
ZINC (6010A)	MG/L	0.041	0.014	5YW180	

Comments:

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 807005
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806425
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-111			Lab ID:005		
SILVER (6010A)	MG/L	ND	0.0007	AYW180	
ALUMINUM (6010A)	MG/L	ND	0.026	LYW180	
ARSENIC (6010A)	MG/L	ND	0.0018	RYW180	
BARIUM (6010A)	MG/L	0.035	0.0002	BYW180	
BORON (6010A)	MG/L	0.13	0.0057	OYW180	
CADMIUM (6010A)	MG/L	ND	0.0002	CYW180	
COBALT (6010A)	MG/L	ND	0.0003	TYW180	
CHROMIUM (6010A)	MG/L	0.0010	0.0008	HYW180	
COPPER (6010A)	MG/L	ND	0.0018	FYW180	
MERCURY (7470A)	MG/L	ND	0.0001	M7W086	
NICKEL (6010A)	MG/L	ND	0.0009	EYW180	
IRON (6010A)	MG/L	0.092	0.013	NYW180	
LEAD (6010A)	MG/L	ND	0.0022	PYW180	
MANGANESE (6010A)	MG/L	0.22	0.0002	GYW180	
MOLYBDENUM (6010A)	MG/L	0.0044	0.0003	DYW180	
ZINC (6010A)	MG/L	ND	0.014	5YW180	

Comments:

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 807005
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806425
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-98	001	WATER	29-JUN-98 0815	30-JUN-98
MW-69	002	WATER	29-JUN-98 0930	30-JUN-98
MW-81	003	WATER	29-JUN-98 1050	30-JUN-98
MW-76	004	WATER	29-JUN-98 1230	30-JUN-98
MW-111	005	WATER	29-JUN-98 1415	30-JUN-98

"Method Report Summary"

Accession Number: 807005
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806425
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: MARATHON METALS - OPTIMA

Client Sample Id:	Parameter:	Unit:	Result:
MW-98	ARSENIC (6010A)	MG/L	0.0047
	BARIUM (6010A)	MG/L	0.20
	BORON (6010A)	MG/L	0.055
	CADMIUM (6010A)	MG/L	0.0003
	CHROMIUM (6010A)	MG/L	0.0010
	IRON (6010A)	MG/L	0.034
	MOLYBDENUM (6010A)	MG/L	0.0034
	ZINC (6010A)	MG/L	0.022
MW-69	ARSENIC (6010A)	MG/L	0.0062
	BARIUM (6010A)	MG/L	1.2
	BORON (6010A)	MG/L	0.16
	CADMIUM (6010A)	MG/L	0.0005
	COBALT (6010A)	MG/L	0.0005
	CHROMIUM (6010A)	MG/L	0.0010
	IRON (6010A)	MG/L	2.7
	MANGANESE (6010A)	MG/L	0.59
	MOLYBDENUM (6010A)	MG/L	0.0033
	ZINC (6010A)	MG/L	0.024
MW-81	ARSENIC (6010A)	MG/L	0.011
	BARIUM (6010A)	MG/L	0.054
	BORON (6010A)	MG/L	0.087
	CADMIUM (6010A)	MG/L	0.0002
	CHROMIUM (6010A)	MG/L	0.0010
	IRON (6010A)	MG/L	0.99
	MANGANESE (6010A)	MG/L	0.20
MW-76	ARSENIC (6010A)	MG/L	0.0031
	BARIUM (6010A)	MG/L	0.27
	BORON (6010A)	MG/L	0.066
	CHROMIUM (6010A)	MG/L	0.0010
	MERCURY (7470A)	MG/L	0.0003
	IRON (6010A)	MG/L	0.031
	MANGANESE (6010A)	MG/L	0.15
	MOLYBDENUM (6010A)	MG/L	0.0042
	ZINC (6010A)	MG/L	0.041
MW-111	BARIUM (6010A)	MG/L	0.035
	BORON (6010A)	MG/L	0.13
	CHROMIUM (6010A)	MG/L	0.0010
	IRON (6010A)	MG/L	0.092
	MANGANESE (6010A)	MG/L	0.22
	MOLYBDENUM (6010A)	MG/L	0.0044

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Analysis Report

Analysis: ACID & BASE EXTRACTABLES (8270)

Accession:	807005
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806425
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	ORGANIC/MS

"FINAL REPORT FORMAT - SINGLE"

Accession: 807005
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806425
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-98
Sample Date/Time: 29-JUN-98 0815
Received Date: 30-JUN-98

Batch: ALW084
Blank: A
Dry Weight %: N/A
Extraction Date: 02-JUL-98
Analysis Date: 09-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: 807005
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806425
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-98
Sample Date/Time: 29-JUN-98 0815
Received Date: 30-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	16	3	
NAPHTHALENE	UG/L	6.9	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: 807005
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806425
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 0815
Client Sample Id: MW-98 Received Date: 30-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	92	21-100	
PHENOL-D6	%REC/SURR	88	10-100	
2,4,6-TRIBROMOPHENOL	%REC/SURR	73	10-123	
2-FLUOROBIPHENYL	%REC/SURR	96	43-116	
NITROBENZENE-D5	%REC/SURR	79	35-114	
TERPHENYL-D14	%REC/SURR	100	33-124	
ANALYST	INITIALS	RW		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 807005
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806425
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 0930
Client Sample Id: MW-69 Received Date: 30-JUN-98

Batch: ALW084 Extraction Date: 02-JUL-98
Blank: A Dry Weight %: N/A Analysis Date: 09-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	9.2	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: 807005
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806425
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-69
Sample Date/Time: 29-JUN-98 0930
Received Date: 30-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	30	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: 807005
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806425
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-69
Sample Date/Time: 29-JUN-98 0930
Received Date: 30-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	80	21-100	
PHENOL-D6	%REC/SURR	81	10-100	
2,4,6-TRIBROMOPHENOL	%REC/SURR	79	10-123	
2-FLUOROBIPHENYL	%REC/SURR	92	43-116	
NITROBENZENE-D5	%REC/SURR	80	35-114	
TERPHENYL-D14	%REC/SURR	94	33-124	
ANALYST	INITIALS	RW		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 807005
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806425
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
Client Sample Id: MW-81
Sample Date/Time: 29-JUN-98 1050
Received Date: 30-JUN-98

Batch: ALW084
Blank: A
Dry Weight %: N/A
Extraction Date: 02-JUL-98
Analysis Date: 09-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	62	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: 807005
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806425
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
Client Sample Id: MW-81
Sample Date/Time: 29-JUN-98 1050
Received Date: 30-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	1.2	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	1.9	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: 807005
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806425
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
Client Sample Id: MW-81
Sample Date/Time: 29-JUN-98 1050
Received Date: 30-JUN-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
PHENACETIN	UG/L	ND	0.4	
PHENANTHRENE	UG/L	0.74	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	72	21-100	
PHENOL-D6	%REC/SURR	74	10-100	
2,4,6-TRIBROMOPHENOL	%REC/SURR	83	10-123	
2-FLUOROBIPHENYL	%REC/SURR	85	43-116	
NITROBENZENE-D5	%REC/SURR	86	35-114	
TERPHENYL-D14	%REC/SURR	98	33-124	
ANALYST	INITIALS	RW		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 807005
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806425
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: 29-JUN-98 1230
Client Sample Id: MW-76 Received Date: 30-JUN-98

Batch: ALW084 Extraction Date: 02-JUL-98
Blank: A Dry Weight %: N/A Analysis Date: 09-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: 807005
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806425
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
Client Sample Id: MW-76
Sample Date/Time: 29-JUN-98 1230
Received Date: 30-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	ND	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: 807005
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806425
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
Client Sample Id: MW-76
Sample Date/Time: 29-JUN-98 1230
Received Date: 30-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	70	21-100	
PHENOL-D6	%REC/SURR	70	10-100	
2,4,6-TRIBROMOPHENOL	%REC/SURR	75	10-123	
2-FLUOROBIPHENYL	%REC/SURR	92	43-116	
NITROBENZENE-D5	%REC/SURR	75	35-114	
TERPHENYL-D14	%REC/SURR	103	33-124	
ANALYST	INITIALS	RW		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 807005
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806425
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: 29-JUN-98 1415
Client Sample Id: MW-111 Received Date: 30-JUN-98

Batch: ALW084 Extraction Date: 02-JUL-98
Blank: A Dry Weight %: N/A Analysis Date: 09-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	0.71	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: 807005
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806425
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
Client Sample Id: MW-111
Sample Date/Time: 29-JUN-98 1415
Received Date: 30-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	1.8	0.4	
DI-N-BUTYLPHTHALATE	UG/L	1.8	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: 807005
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806425
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
Client Sample Id: MW-111
Sample Date/Time: 29-JUN-98 1415
Received Date: 30-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	82	10-100	
2,4,6-TRIBROMOPHENOL	%REC/SURR	81	10-123	
2-FLUOROBIPHENYL	%REC/SURR	87	43-116	
NITROBENZENE-D5	%REC/SURR	83	35-114	
TERPHENYL-D14	%REC/SURR	99	33-124	
ANALYST	INITIALS	RW		

Comments:

"Method Report Summary"

Accession Number: 807005
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806425
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: ACID & BASE EXTRACTABLES (8270)

Client Sample Id:	Parameter:	Unit:	Result:
MW-98	2-METHYLNAPHTHALENE	UG/L	16
	NAPHTHALENE	UG/L	6.9
MW-69	BIS(2-ETHYLHEXYL)PHTHALATE	UG/L	9.2
	2-METHYLNAPHTHALENE	UG/L	30
	NAPHTHALENE	UG/L	12
MW-81	BIS(2-ETHYLHEXYL)PHTHALATE	UG/L	62
	DI-N-BUTYLPHTHALATE	UG/L	1.2
	2-METHYLNAPHTHALENE	UG/L	1.9
	PHENANTHRENE	UG/L	0.74
MW-111	BIS(2-ETHYLHEXYL)PHTHALATE	UG/L	0.71
	DIMETHYLPHTHALATE	UG/L	1.8
	DI-N-BUTYLPHTHALATE	UG/L	1.8

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Analysis Report

Analysis: POLYNUCLEAR AROMATICS BY 8310

Accession:	807005
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806425
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	SEMI-VOLATILE FUELS

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"FINAL REPORT FORMAT - SINGLE"

Accession: 807005
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806425
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-98
Sample Date/Time: 29-JUN-98 0815
Received Date: 30-JUN-98

Batch: PAW153
Blank: B
Dry Weight %: N/A
Extraction Date: 03-JUL-98
Analysis Date: 11-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZO(a)PYRENE	UG/L	ND	0.1	
1-METHYLNAPHTHALENE	UG/L	83	0.3	
2-CHLOROANTHRACENE	%REC/SURR	102	28-138	
ANALYST	INITIALS	HAH		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 807005
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806425
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
Client Sample Id: MW-69
Sample Date/Time: 29-JUN-98 0930
Received Date: 30-JUN-98

Batch: PAW153
Blank: B
Dry Weight %: N/A
Extraction Date: 03-JUL-98
Analysis Date: 11-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZO(a)PYRENE	UG/L	ND	0.1	
1-METHYLNAPHTHALENE	UG/L	300	0.3	E
2-CHLOROANTHRACENE	%REC/SURR	105	28-138	
ANALYST	INITIALS	HAH		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 807005
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806425
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-81
Sample Date/Time: 29-JUN-98 1050
Received Date: 30-JUN-98

Batch: PAW153
Blank: B
Dry Weight %: N/A
Extraction Date: 03-JUL-98
Analysis Date: 11-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZO(a)PYRENE	UG/L	2.6	0.1	
1-METHYLNAPHTHALENE	UG/L	32	0.3	
2-CHLOROANTHRACENE	%REC/SURR	137	28-138	
ANALYST	INITIALS	HAH		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 807005
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806425
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: 29-JUN-98 1230
Client Sample Id: MW-76 Received Date: 30-JUN-98

Batch: PAW153 Extraction Date: 03-JUL-98
Blank: B Dry Weight %: N/A Analysis Date: 11-JUL-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZO(a)PYRENE	UG/L	7.6	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: 807005
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806425
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: 29-JUN-98 1415
Client Sample Id: MW-111 Received Date: 30-JUN-98

Batch: PAW153 Extraction Date: 03-JUL-98
Blank: B Dry Weight %: N/A Analysis Date: 11-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:

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"Method Report Summary"

Accession Number: 807005
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806425
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: POLYNUCLEAR AROMATICS BY 8310

Client Sample Id:	Parameter:	Unit:	Result:
MW-98	1-METHYLNAPHTHALENE	UG/L	83
MW-69	1-METHYLNAPHTHALENE	UG/L	300
MW-81	BENZO(a)PYRENE	UG/L	2.6
	1-METHYLNAPHTHALENE	UG/L	32
MW-76	BENZO(a)PYRENE	UG/L	7.6

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Analysis Report

Analysis: PESTICIDES (8080)

Accession:	807005
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806425
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	PESTICIDES

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"FINAL REPORT FORMAT - SINGLE"

Accession: 807005
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806425
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 0815
Client Sample Id: MW-98 Received Date: 30-JUN-98

Batch: PSW046 Extraction Date: 02-JUL-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	0.03	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	85	17-135	
ANALYST	INITIALS	RP		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 807005
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806425
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 0930
Client Sample Id: MW-69 Received Date: 30-JUN-98

Batch: PSW046 Extraction Date: 02-JUL-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	60	43-101	
DCB	%REC/SURR	73	17-135	
ANALYST	INITIALS	RP		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 807005
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806425
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: 29-JUN-98 1050
Client Sample Id: MW-81 Received Date: 30-JUN-98

Batch: PSW046 Extraction Date: 02-JUL-98
Blank: A Dry Weight %: N/A Analysis Date: 07-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	0.51	0.2	I
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	92	43-101	
DCB	%REC/SURR	94	17-135	
ANALYST	INITIALS	RP		

Comments:
I = DUAL-COLUMN RPD > 40%

"FINAL REPORT FORMAT - SINGLE"

Accession: 807005
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806425
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: 29-JUN-98 1230
Client Sample Id: MW-76 Received Date: 30-JUN-98

Batch: PSW046 Extraction Date: 02-JUL-98
Blank: A 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	110*	43-101	
DCB	%REC/SURR	112	17-135	
ANALYST	INITIALS	RP		

Comments:
* SURROGATE RECOVERY OUTSIDE ACCEPTANCE LIMITS DUE TO MATRIX INTERFERENCE.

"FINAL REPORT FORMAT - SINGLE"

Accession: 807005
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806425
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: 29-JUN-98 1415
Client Sample Id: MW-111 Received Date: 30-JUN-98

Batch: PSW046 Extraction Date: 02-JUL-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	54	43-101	
DCB	%REC/SURR	56	17-135	
ANALYST	INITIALS	RP		

Comments:

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"Method Report Summary"

Accession Number: 807005
Client: AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number: 806425
Project Name: IBRP
Project Location: MARATHON OIL COMPANY, MIDLAND, TX
Test: PESTICIDES (8080)

Client Sample Id:	Parameter:	Unit:	Result:
MW-98	GAMMA-BHC (LINDANE)	UG/L	0.03
MW-81	BETA-BHC	UG/L	0.51

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:	807005
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806425
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:	CIW074	CNW041	FLW029	N2W098	N3W50A	PHW139
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	NA
Analysis Date:	29-JUN-98	07-JUL-98	01-JUL-98	30-JUN-98	02-JUL-98	30-JUN-98
Prep. Date:	29-JUN-98	06-JUL-98	01-JUL-98	30-JUN-98	01-JUL-98	30-JUN-98
Sample Duplication						
Sample Dup:	806380-13	807005-1	806409-2	807005-1	807005-1	807005-1
Rept Limit:	<1	<0.005	<0.2	<0.1	<0.1	N/A
Sample Result:	8.2	<0.005	0.66	<0.1	2.54	7.56
Dup Result:	8.2	<0.005	0.66	<0.1	2.56	7.56
Sample RPD:	0	N/C	0 G	N/C	1	0
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:	806380-13	807005-1	806409-2	807005-1	807005-1	NA
Rept Limit:	<1	<0.005	<0.2	<0.1	<0.1	N/A
Sample Result:	8.2	<0.005	0.66	<0.1	2.54	
Spiked Result:	63.0	0.175	1.42	0.20	3.60	
Spike Added:	55.0	0.200	0.80	0.20	1.00	
% Recovery:	100	88	95	100	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:	100.6	0.291	1.10	0.20	2.04	10.15
True Result:	100.0	0.314	1.20	0.20	2.00	10.00
% Recovery:	101	93	92	100	102	102
% Rec Limits:	90-110	90-110	90-110	90-110	90-110	90-110
LCS						
LCS Result:		0.835				7.05
True Result:		0.900				6.87
% Recovery:		93				103
% 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:	PEW027	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:	08-JUL-98	03-JUL-98	01-JUL-98
Prep. Date:	07-JUL-98	03-JUL-98	30-JUN-98

Sample Duplication

Sample Dup:	806387-2	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:	806387-3	807005-1	N/A
Rept Limit:	<0.005	<20+	N/A
Sample Result:	0.006	32	
Spiked Result:	0.030	58	
Spike Added:	0.020	40	
% Recovery:	120	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

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

"Quality Control Comments"

Batch Id:	Comments:
CIW074	807005-1,2,3,4,5 was added to the batch on 1-Jul-98.
CNW041	807126-1 was added to the batch on 8-Jul-98.
N2W098	807040-1,2,3,4,5,6,7,8,9,10,11 was added to batch on 1-Jul-98.
N2W098	807047-1 was added to batch on 2-Jul-98.
PEW027	806388-1,2,3,4,5 & 807005-1,2,3,4,5 were added to batch 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

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Quality Control Report

Analysis: Group of Single Metals

Accession:	807005
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806425
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:	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
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:	807005
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806425
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:	AYW180	LYW180	RYW180	BYW180	OYW180	CYW180
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:	01-JUL-98	01-JUL-98	01-JUL-98	01-JUL-98	01-JUL-98	01-JUL-98
Sample Duplication						
Sample Dup:	807005-1	807005-1	807005-1	807005-1	807005-1	807005-1
Rept Limit:	<0.005	<0.1	<0.005	<0.001	<0.05	<0.001
Sample Result:	0.19	2.1	2.05	2.17	2.08	1.90
Dup Result:	0.19	2.1	2.08	2.18	2.09	1.92
Sample RPD:	0	0	1	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:	807005-1	807005-1	807005-1	807005-1	807005-1	807005-1
Rept Limit:	<0.005	<0.1	<0.005	<0.001	<0.05	<0.001
Sample Result:	<0.005	<0.1	<0.005	0.20	0.06	<0.001
Spiked Result:	0.19	2.1	2.05	2.17	2.08	1.90
Spike Added:	0.2	2.0	2.0	2.0	2.0	2.0
% Recovery:	95	105	103	99	101	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	2.01	1.97	1.98	1.95
True Result:	0.2	2.0	2.0	2.0	2.0	2.0
% Recovery:	95	100	101	99	99	98
% Rec Limits:	80-120	80-120	80-120	80-120	80-120	80-120

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"Metals Quality Control Report"

Parameter:	COBALT	CHROMIUM	COPPER	MERCURY	NICKEL	IRON
Batch Id:	TYW180	HYW180	FYW180	M7W086	EYW180	NYW180
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	10-JUL-98	06-JUL-98	06-JUL-98
Prep. Date:	01-JUL-98	01-JUL-98	01-JUL-98	09-JUL-98	01-JUL-98	01-JUL-98
Sample Duplication						
Sample Dup:	807005-1	807005-1	807005-1	807005-1	807005-1	807005-1
Rept Limit:	<0.005	<0.005	<0.005	<0.0002	<0.005	<0.05
Sample Result:	1.95	1.97	2.09	0.0051	1.91	2.01
Dup Result:	1.96	1.99	2.11	0.0050	1.92	2.02
Sample RPD:	1	1	1	2	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:	807005-1	807005-1	807005-1	807005-1	807005-1	807005-1
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:	1.95	1.97	2.09	0.0051	1.91	2.01
Spike Added:	2.0	2.0	2.0	0.0050	2.0	2.0
% Recovery:	98	99	105	102	96	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:	1.03	0.98	1.02	0.0039	0.98	4.91
True Result:	1.0	1.0	1.0	0.0040	1.0	5.0
% Recovery:	103	98	102	98	98	98
% Rec Limits:	95-105	95-105	95-105	90-110	95-105	95-105
LCS						
LCS Result:	1.97	1.98	2.09	0.0051	1.95	1.99
True Result:	2.0	2.0	2.0	0.0050	2.0	2.0
% Recovery:	99	99	105	102	98	100
% 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:	PYW180	GYW180	DYW180	5YW180
Blank Result:	<0.003	<0.005	<0.005	<0.02
Anal. Method:	6010A	6010A	6010A	6010A
Prep. Method:	3010A	3010A	3010A	3010A
Analysis Date:	07-JUL-98	06-JUL-98	06-JUL-98	06-JUL-98
Prep. Date:	01-JUL-98	01-JUL-98	01-JUL-98	01-JUL-98
Sample Duplication				
Sample Dup:	807005-1	807005-1	807005-1	807005-1
Rept Limit:	<0.003	<0.005	<0.005	<0.02
Sample Result:	1.97	1.97	2.11	1.85
Dup Result:	1.99	1.99	2.11	1.86
Sample RPD:	1	1	0	1
Max RPD:	20	20	20	20
Dry Weight%	N/A	N/A	N/A	N/A
Matrix Spike				
Sample Spiked:	807005-1	807005-1	807005-1	807005-1
Rept Limit:	<0.003	<0.005	<0.005	<0.02
Sample Result:	<0.003	<0.005	<0.005	0.02
Spiked Result:	1.97	1.97	2.11	1.85
Spike Added:	2.0	2.0	2.0	2.0
% Recovery:	99	99	106	92
% Rec Limits:	75-125	75-125	75-125	75-125
Dry Weight%	N/A	N/A	N/A	N/A
ICV				
ICV Result:	1.03	0.99	0.98	1.02
True Result:	1.0	1.0	1.0	1.0
% Recovery:	103	99	98	102
% Rec Limits:	95-105	95-105	95-105	95-105
LCS				
LCS Result:	2.00	1.95	2.09	1.89
True Result:	2.0	2.0	2.0	2.0
% Recovery:	100	98	105	95
% 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".
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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".
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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.
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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.
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Methods For the Determination of Metals in Environmental Samples - Supplement I, EPA 600/R-94-111, May 1994.

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

Quality Control Report

Analysis: ACID & BASE EXTRACTABLES (8270)

Accession:	807005
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806425
Project Name:	IBRP
Project Location:	MARATHON OIL COMPANY, MIDLAND, TX
Department:	ORGANIC/MS

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"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

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"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

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

Quality Control Report

Analysis: POLYNUCLEAR AROMATICS BY 8310

Accession:	807005
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806425
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.

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

"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:
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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

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

Quality Control Report

Analysis: PESTICIDES (8080)

Accession:	807005
Client:	AMERICAN ENVIRONMENTAL NETWORK (NEW MEXICO) INC.
Project Number:	806425
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: A Date Analyzed: 10-JUL-98 Date Extracted: 02-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	105	43-101
DCB	%REC/SURR	95	17-135
ANALYST	INITIALS	RP	

Comments:

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

"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:
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Common notation for Organic reporting

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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)

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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 of Florida
PROJECT SAMPLE INSPECTION FORM

Lab Accession #: 807005 Date Received: 30 - 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? Yes* (No)
   Req By: PM Client Other*
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:** N/A

Cooler Weight(s): N/A **Cooler Temp(s) (°C):** 4 - LG B/W = 2°C - CCK 7, CCK5, CCK 2, CCK5 1-LG R/W = 2.0°C - CCK5
(LIST THERMOMETER NUMBER(S) FOR VERIFICATION)

Out of Control Events and Inspection Comments:

(USE BACK OF PSIF FOR ADDITIONAL NOTES AND COMMENTS)

Inspected By: PHE **Date:** 6/30/98 **Logged By:** PHE **Date:** 6/30/98

* *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: 6/29/98 PAGE: ___ OF ___

AEN(NM) Accession #: 807005

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 ☐	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
mw-98	6/29/98	0815	water	1											X					X		X	X		X	X					X	9
mw-69	↓	0930	↓	2											X					X		X	X		X	X					X	9
mw-81		1050		3											X					X		X	X		X	X					X	9
mw-76		1230		4											X					X		X	X		X	X					X	9
mw-111		1415		5											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:

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 ☐

Samples had PSH in well

* SEE LIST

RELINQUISHED BY: 1

Signature: Kevin Cook Time: 1430

Printed Name: Kevin Cook Date: 6/29/98

Company: PDGE

RELINQUISHED BY: 2

Signature: [illegible] Time: 1500

Printed Name: CHRIS FAIRM Date: 6/29

Company: AEN

RECEIVED BY: 1

Signature: [illegible] Time: 1430

Printed Name: CHRIS FAIRM Date: 6/29

Company: AEN

RECEIVED BY (LAB): 2

Signature: [illegible] Time: 0800

Printed Name: [illegible] Date: 6/30/98

American Environmental Network (NM), Inc.

American Environmental Network (NM), Inc.

CHAIN OF CUSTODY

DATE: 6/29/98 PAGE: ___ OF ___

AEN(NM) Accession #: NM 80625

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 (UST)	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-98	6/29/98	0815	Water	01									X	X		X																6
MW-69		0930		02									X	X		X																6
MW-81		1050		03									X	X		X																6
MW-76		1230		04									X	X		X																6
MW-111		1415		05									X	X		X																6
Trip Blank	6/11	1410	AQ	06												X																1

PROJECT INFORMATION

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

SAMPLE RECEIPT

NO. CONTAINERS	31
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 ☐

Well Samples ~~are Hot~~
Had PSH in Well

On Ice

RELINQUISHED BY: 1	RELINQUISHED BY: 2
Signature: Kevin Cook Time: 1430	Signature: [illegible] Time: 1500
Printed Name: Kevin Cook Date: 6/29/98	Printed Name: Chris Faun Date: 6/29
Company: PCI	Company: AEN
RECEIVED BY: 1	**RECEIVED BY (LAB): 2**
Signature: [illegible] Time: 1430	Signature: [illegible] Time: 1:20
Printed Name: Chris Faun Date: 6/29	Printed Name: Francine Tarrio Date: 7/1/98
Company: AEN	American Environmental Network (NM), Inc.

RECEIVED

AEN I.D. 806425

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 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.	: 806425
PROJECT #	: 104332.03	DATE RECEIVED	: 7/1/98
PROJECT NAME	: IBRP	REPORT DATE	: 7/28/98

AEN ID. #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	MW-98	AQUEOUS	6/29/98
02	MW-69	AQUEOUS	6/29/98
03	MW-81	AQUEOUS	6/29/98
04	MW-76	AQUEOUS	6/29/98
05	MW-111	AQUEOUS	6/29/98
06	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 five (5) 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	2399-023
STL Work Order #s	98-06-506
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: 98-06-506
STL-NC Project Number: 2399-023

Five (5) 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

Ross W. Williams, Ph.D.
Manager, Radiological Laboratory
7/30/98

C:\NET2\WP\AEN-NM 2399-023.WPD

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 806425

Project Number: 2399-023

Client Sample ID	Lab ID
MW-98	9806506-01
MW-69	9806506-02
MW-81	9806506-03
MW-76	9806506-04
MW-111	9806506-05

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

7/30/98
Date

Severn Trent Laboratories

Project Number: 2399-023

Radiological Analysis Results

NC 806425

Form I

Client Sample ID	Lab ID	Sample Type	Batch Number	Matrix	Radionuclide	Result	Uncertainty	Q	Units	Analysis Date	Sample Size	MDA
MW-98	9806506-01	Reg	98070008	Water	Ra-226	0.86	0.14		pCi/L	07/28/98	0.5000	0.06
MW-98	9806506-01	Reg	98070010	Water	Ra-228	1.57	0.69		pCi/L	07/20/98	1.0000	1.35
MW-69	9806506-02	Reg	98070008	Water	Ra-226	1.03	0.22		pCi/L	07/28/98	0.5000	0.14
MW-69	9806506-02	Reg	98070010	Water	Ra-228	1.36	0.81		pCi/L	07/20/98	1.0000	1.71
MW-81	9806506-03	Reg	98070008	Water	Ra-226	0.54	0.18		pCi/L	07/28/98	0.5000	0.15
MW-81	9806506-03	Reg	98070010	Water	Ra-228	2.78	1.01		pCi/L	07/20/98	1.0000	2.01
MW-76	9806506-04	Reg	98070008	Water	Ra-226	1.14	0.22		pCi/L	07/28/98	0.5000	0.15
MW-76	9806506-04	Reg	98070010	Water	Ra-228	4.32	0.93		pCi/L	07/20/98	1.0000	1.53
MW-111	9806506-05	Reg	98070008	Water	Ra-226	1.22	0.31		pCi/L	07/28/98	0.5000	0.22
MW-111	9806506-05	Reg	98070010	Water	Ra-228	3.23	0.88		pCi/L	07/20/98	1.0000	1.59

Key shall be attached
Comments:

MDA mod

Severn Trent Laboratories

Project Number: 2399-023

QA/QC Results Summary

NC 806425

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

Project Number: 2399-023

Severn Trent Laboratories

Method Blank Summary

NC 806425

07/30/98

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:

Severn Trent Laboratories

Project Number: 2399-023

Chemical Recovery

NC 806425

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
MW-98	9806506-01	Reg	98070008	Ra-226	Ba-133	1247.00	1258.00	99.13 %		pCi	07/28/98	5
MW-98	9806506-01	Reg	98070010	Ra-228	Ba-133	1096.00	1258.00	87.12 %		pCi	07/20/98	1
MW-69	9806506-02	Reg	98070008	Ra-226	Ba-133	1159.00	1240.00	93.47 %		pCi	07/28/98	5
MW-69	9806506-02	Reg	98070010	Ra-228	Ba-133	1074.00	1240.00	86.61 %		pCi	07/20/98	1
MW-81	9806506-03	Reg	98070008	Ra-226	Ba-133	1146.00	1258.00	91.10 %		pCi	07/28/98	5
MW-81	9806506-03	Reg	98070010	Ra-228	Ba-133	1042.00	1258.00	82.83 %		pCi	07/20/98	1
MW-76	9806506-04	Reg	98070008	Ra-226	Ba-133	1200.00	1240.00	96.77 %		pCi	07/28/98	5
MW-76	9806506-04	Reg	98070010	Ra-228	Ba-133	1142.00	1240.00	92.10 %		pCi	07/20/98	1
MW-111	9806506-05	Reg	98070008	Ra-226	Ba-133	1253.00	1258.00	99.60 %		pCi	07/28/98	5
MW-111	9806506-05	Reg	98070010	Ra-228	Ba-133	1132.00	1258.00	89.98 %		pCi	07/20/98	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

Severn Trent Laboratories

Project Number: 2399-023

Blank Spike Results Summary

NC 806425

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:

Project Number: 2399-023

Severn Trent Laboratories

Matrix Spike Results Summary

NC 806425

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:

MDA mode

Project Number: 2399-023

Severn Trent Laboratories

Duplicate Results

NC 806425

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 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		

Lab

WORK ORDER

Work Order #	98-06-506	# of Samples	5	Recieved Date	07/02/98	American Environ. Network
Client #	2399	# of Tests	10	Load Date	07/02/98	2709D PanAmerican Freeway NE
Project	2399-023	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
9806506-01	01A1	Open	Water	Ra-226	MW-98	06/29/98
9806506-01	01A2	Open	Water	Ra-228	MW-98	06/29/98
9806506-02	02A1	Open	Water	Ra-226	MW-69	06/29/98
9806506-02	02A2	Open	Water	Ra-228	MW-69	06/29/98
9806506-03	03A1	Open	Water	Ra-226	MW-81	06/29/98
9806506-03	03A2	Open	Water	Ra-228	MW-81	06/29/98
9806506-04	04A1	Open	Water	Ra-226	MW-76	06/29/98
9806506-04	04A2	Open	Water	Ra-228	MW-76	06/29/98
9806506-05	05A1	Open	Water	Ra-226	MW-111	06/29/98
9806506-05	05A2	Open	Water	Ra-228	MW-111	06/29/98

pH Checked
All Samples pH <2
Initials: GB Date: 7/6/98
Arrived unpreserved

98-06-506

American Environmental Network (NM), Inc.

CHAIN OF CUSTODY

DATE: 6/29/98 PAGE: ___ OF ___

AEN(NM) Accession #: NC806425

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 ☐		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-98	6/29/98	0815	Water	01																				X							1
mw-69		0830		02																				X							1
mw-81		1050		03																				X							1
mw-76		1230		04																				X							1
mw-111		1415		05																				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: 5
CUSTODY SEALS: (Y) N NA
RECEIVED INTACT: Y
BLUE ICE/ICE: Y

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 ☐

Samples ~~are Hot~~
Had PSH in well
Relinquished By: Francine Irizo
F. Torres 7/1/98
17:00

On Ice | Received by: R. Trujillo 7/1/98

RELINQUISHED BY: 1.
Signature: Kevin Cook Time: 1430
Printed Name: Kevin Cook Date: 6/29/98
Company: FDGTI

RELINQUISHED BY: 2.
Signature: [illegible] Time: 1500
Printed Name: CHRIS FAITH Date: 6/29
Company: AEN

RECEIVED BY: 1.
Signature: [illegible] Time: 1430
Printed Name: CHRIS FAITH Date: 6/29
Company: AEN

RECEIVED BY: (LAB) 2.
Signature: Francine Irizo Time: 1:20
Printed Name: Francine Irizo Date: 7/1/98
American Environmental Network (NM), Inc.

DISTRIBUTION: White - AEN, Canary - Originator

RECEIVED

AEN I.D. 806429

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 6/30/98 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.

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.	: 806429
PROJECT #	: 104332.03	DATE RECEIVED	: 6/30/98
PROJECT NAME	: IBRP	REPORT DATE	: 7/24/98

AEN ID. #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	MW-57RB	AQUEOUS	6/26/98
02	MW-87ARB	AQUEOUS	6/26/98
03	MW-87A	AQUEOUS	6/27/98
04	MW-87	AQUEOUS	6/27/98
05	MW-87RB	AQUEOUS	6/27/98
06	MW-88	AQUEOUS	6/27/98
07	MW-88RB	AQUEOUS	6/27/98
08	MW-71RB	AQUEOUS	6/27/98
09	MW-61RB	AQUEOUS	6/27/98
10	MW-61ARB	AQUEOUS	6/27/98
11	MW-106	AQUEOUS	6/28/98
12	MW-105	AQUEOUS	6/28/98
13	MW-78	AQUEOUS	6/28/98
14	MW-79	AQUEOUS	6/28/98
15	MW-50	AQUEOUS	6/28/98
16	MW-41	AQUEOUS	6/28/98
17	MW-61A	AQUEOUS	6/28/98
18	MW-61	AQUEOUS	6/28/98
19	MW-61DP	AQUEOUS	6/28/98
20	MW-71	AQUEOUS	6/28/98

GAS CHROMOTOGRAPHY RESULTS

TEST : ETHYLENE DIBROMIDE (EPA 504.1)
CLIENT : MARATHON OIL COMPANY AEN I.D.: 806429
PROJECT # : 104332.03
PROJECT NAME : IBRP

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
03	MW-87A	AQUEOUS	6/27/98	7/10/98	7/10/98	1
04	MW-87	AQUEOUS	6/27/98	7/10/98	7/10/98	1
06	MW-88	AQUEOUS	6/27/98	7/10/98	7/11/98	1

PARAMETER	DET. LIMIT	UNITS	03	04	06
ETHYLENE DIBROMIDE	0.01	UG/L	< 0.01	< 0.01	< 0.01
SURROGATE:					
1,4-DICHLOROBENZENE			100	101	98
SURROGATE LIMITS	(75 - 141)				

CHEMIST NOTES:
N/A

GAS CHROMOTOGRAPHY RESULTS

TEST : ETHYLENE DIBROMIDE (EPA 504.1)
CLIENT : MARATHON OIL COMPANY AEN I.D.: 806429
PROJECT # : 104332.03
PROJECT NAME : IBRP

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
11	MW-106	AQUEOUS	6/28/98	7/9/98	7/9/98	1
13	MW-78	AQUEOUS	6/28/98	7/9/98	7/9/98	1
14	MW-79	AQUEOUS	6/28/98	7/9/98	7/9/98	1

PARAMETER	DET. LIMIT	UNITS	11	13	14
ETHYLENE DIBROMIDE	0.01	UG/L	< 0.01	< 0.01	< 0.01

SURROGATE:				
1,4-DICHLOROBENZENE		110	99	106
SURROGATE LIMITS	(75 - 141)			

CHEMIST NOTES:
N/A

GAS CHROMOTOGRAPHY RESULTS

TEST : ETHYLENE DIBROMIDE (EPA 504.1)
CLIENT : MARATHON OIL COMPANY AEN I.D.: 806429
PROJECT # : 104332.03
PROJECT NAME : IBRP

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
15	MW-50	AQUEOUS	6/28/98	7/9/98	7/9/98	1
16	MW-41	AQUEOUS	6/28/98	7/9/98	7/9/98	1
17	MW-61A	AQUEOUS	6/28/98	7/9/98	7/9/98	1

PARAMETER	DET. LIMIT		15	16	17
ETHYLENE DIBROMIDE	0.01	UG/L	< 0.01	< 0.01	< 0.01
SURROGATE:					
1,4-DICHLOROBENZENE			104	92	98
SURROGATE LIMITS	(75 - 141)				

CHEMIST NOTES:

GAS CHROMOTOGRAPHY RESULTS

TEST : ETHYLENE DIBROMIDE (EPA 504.1)
CLIENT : MARATHON OIL COMPANY AEN I.D.: 806429
PROJECT # : 104332.03
PROJECT NAME : IBRP

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
18	MW-61	AQUEOUS	6/28/98	7/9/98	7/9/98	1
19	MW-61DP	AQUEOUS	6/28/98	7/9/98	7/9/98	1
20	MW-71	AQUEOUS	6/28/98	7/9/98	7/9/98	1

PARAMETER	DET. LIMIT	UNITS	18	19	20
ETHYLENE DIBROMIDE	0.01	UG/L	< 0.01	< 0.01	< 0.01

SURROGATE:					
1,4-DICHLOROBENZENE			103	94	93
SURROGATE LIMITS	(75 - 141)				

CHEMIST NOTES:
N/A

GAS CHROMOTOGRAPHY RESULTS
REAGENT BLANK

TEST	: ETHYLENE DIBROMIDE (EPA 504.1)		
BLANK I.D.	: 070998	AEN I.D.	: 806429
CLIENT	: MARATHON OIL COMPANY	MATRIX	: AQUEOUS
PROJECT #	: 104332.03	DATE EXTRACTED	: 7/9/98
PROJECT NAME	: IBRP	DATE ANALYZED	: 7/9/98

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

SURROGATE:		
1,4-DICHLOROBENZENE		116
SURROGATE LIMITS	(78 - 140)	

CHEMIST NOTES:
N/A

GAS CHROMOTOGRAPHY RESULTS
REAGENT BLANK

TEST	: ETHYLENE DIBROMIDE (EPA 504.1)		
BLANK I.D.	: 071098	AEN I.D.	: 806429
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-DBCP (EPA 504.1)		
MSMSD #	: 070998	AEN I.D.	: 806429
CLIENT	: MARATHON OIL COMPANY	DATE EXTRACTED	: 7/9/98
PROJECT #	: 104332.03	DATE ANALYZED	: 7/9/98
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	0.23	92%	0.24	96%	4%

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.: 806429
PROJECT # : 104332.03
PROJECT NAME : IBRP

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
03	MW-87A	AQUEOUS	6/27/98	NA	7/8/98	1
04	MW-87	AQUEOUS	6/27/98	NA	7/8/98	1
06	MW-88	AQUEOUS	6/27/98	NA	7/8/98	1

PARAMETER	DET. LIMIT	UNITS	03	04	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 (%)			111	106	112
SURROGATE LIMITS	(73 - 117)				

CHEMIST NOTES:
N/A

GAS CHROMOTOGRAPHY RESULTS

TEST : PURGEABLE HALOCARBONS / AROMATICS (EPA 8021)
CLIENT : MARATHON OIL COMPANY AEN I.D.: 806429
PROJECT # : 104332.03
PROJECT NAME : IBRP

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
11	MW-106	AQUEOUS	6/28/98	NA	7/8/98	1
13	MW-78	AQUEOUS	6/28/98	NA	7/8/98	1
14	MW-79	AQUEOUS	6/28/98	NA	7/8/98	1

PARAMETER	DET. LIMIT	UNITS	11	13	14
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 (%)			110	105	107
SURROGATE LIMITS	(73 - 117)				

CHEMIST NOTES:
N/A

GAS CHROMOTOGRAPHY RESULTS

TEST : PURGEABLE HALOCARBONS / AROMATICS (EPA 8021)
CLIENT : MARATHON OIL COMPANY AEN I.D.: 806429
PROJECT # : 104332.03
PROJECT NAME : IBRP

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
15	MW-50	AQUEOUS	6/28/98	NA	7/8/98	1
16	MW-41	AQUEOUS	6/28/98	NA	7/8/98	1
17	MW-61A	AQUEOUS	6/28/98	NA	7/8/98	1

PARAMETER	DET. LIMIT	UNITS	15	16	17
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 (%)			103	108	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.: 806429
PROJECT # : 104332.03
PROJECT NAME : IBRP

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
18	MW-61	AQUEOUS	6/28/98	NA	7/9/98	1
19	MW-61DP	AQUEOUS	6/28/98	NA	7/9/98	1
20	MW-71	AQUEOUS	6/28/98	NA	7/9/98	1

PARAMETER	DET. LIMIT	UNITS	18	19	20
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 (%)			110	111	109
SURROGATE LIMITS	(73 - 117)				

CHEMIST NOTES:
N/A

GAS CHROMOTOGRAPHY RESULTS
REAGENT BLANK

TEST	: PURGEABLE HALOCARBONS / AROMATICS (EPA 8021)		
BLANK I.D.	: 070898	AEN I.D.	: 806429
CLIENT	: MARATHON OIL COMPANY	DATE EXTRACTED	: N/A
PROJECT #	: 104332.03	DATE ANALYZED	: 7/8/98
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 (%)		100
SURROGATE LIMITS	(73 - 117)	

CHEMIST NOTES:
N/A

GAS CHROMOTOGRAPHY RESULTS

REAGENT BLANK

TEST	: PURGEABLE HALOCARBONS / AROMATICS (EPA 8021)		
BLANK I.D.	: 070998	AEN I.D.	: 806429
CLIENT	: MARATHON OIL COMPANY	DATE EXTRACTED	: N/A
PROJECT #	: 104332.03	DATE ANALYZED	: 7/9/98
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 #	: 807312-01	AEN I.D.	: 806429
CLIENT	: MARATHON OIL COMPANY	DATE EXTRACTED	: N/A
PROJECT #	: 104332.03	DATE ANALYZED	: 7/9/98
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
BENZENE	<0.5	10.0	9.7	97	9.6	96	1	(82 -128)	20
TOLUENE	<0.5	10.0	9.5	95	9.4	94	1	(87 -128)	20
1,1-DICHLOROETHENE	<0.2	10.0	9.5	95	9.2	92	3	(44 - 99)	20
TRICHLOROETHENE	<0.3	10.0	10.7	107	10.6	106	1	(89 - 127)	20
CHLOROBENZENE	<0.5	10.0	10.4	104	10.2	102	2	(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. :	806429
PROJECT #	: 104332.03	DATE RECEIVED :	6/30/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806429-03	MW-87A	AQUEOUS	6/27/98	N/A	07/08/98	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. :	806429
PROJECT #	: 104332.03	DATE RECEIVED :	6/30/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806429-03	MW-87A	AQUEOUS	6/27/98	N/A	07/08/98	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	99
	(88 - 110)
Bromofluorobenzene	98
	(86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806429
PROJECT #	: 104332.03	DATE RECEIVED :	6/30/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806429-04	MW-87	AQUEOUS	6/27/98	N/A	07/08/98	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. :	806429
PROJECT #	: 104332.03	DATE RECEIVED :	6/30/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806429-04	MW-87	AQUEOUS	6/27/98	N/A	07/08/98	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	95
	(80 - 120)
Toluene-d8	98
	(88 - 110)
Bromofluorobenzene	96
	(86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806429
PROJECT #	: 104332.03	DATE RECEIVED :	6/30/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806429-05	MW-87 RB	AQUEOUS	6/27/98	N/A	07/08/98	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. :	806429
PROJECT #	: 104332.03	DATE RECEIVED :	6/30/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806429-05	MW-87 RB	AQUEOUS	6/27/98	N/A	07/08/98	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	97	(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. :	806429
PROJECT #	: 104332.03	DATE RECEIVED :	6/30/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806429-06	MW-88	AQUEOUS	6/27/98	N/A	07/08/98	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. :	806429
PROJECT #	: 104332.03	DATE RECEIVED :	6/30/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806429-06	MW-88	AQUEOUS	6/27/98	N/A	07/08/98	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. :	806429
PROJECT #	: 104332.03	DATE RECEIVED :	6/30/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806429-07	MW-88 RB	AQUEOUS	6/27/98	N/A	07/08/98	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	**13**	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	**1.4**	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. :	806429
PROJECT #	: 104332.03	DATE RECEIVED :	6/30/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806429-07	MW-88 RB	AQUEOUS	6/27/98	N/A	07/08/98	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	103 (88 - 110)
Bromofluorobenzene	103 (86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806429
PROJECT #	: 104332.03	DATE RECEIVED :	6/30/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806429-08	MW-71 RB	AQUEOUS	6/27/98	N/A	07/08/98	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	< 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. :	806429
PROJECT #	: 104332.03	DATE RECEIVED :	6/30/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806429-08	MW-71 RB	AQUEOUS	6/27/98	N/A	07/08/98	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	100	(88 - 110)
Bromofluorobenzene	100	(86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806429
PROJECT #	: 104332.03	DATE RECEIVED :	6/30/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806429-09	MW-61 RB	AQUEOUS	6/27/98	N/A	07/08/98	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	< 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. :	806429
PROJECT #	: 104332.03	DATE RECEIVED :	6/30/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806429-09	MW-61 RB	AQUEOUS	6/27/98	N/A	07/08/98	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	104	(86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806429
PROJECT #	: 104332.03	DATE RECEIVED :	6/30/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806429-10	MW-61A RB	AQUEOUS	6/27/98	N/A	07/08/98	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	< 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. :	806429
PROJECT #	: 104332.03	DATE RECEIVED :	6/30/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806429-10	MW-61A RB	AQUEOUS	6/27/98	N/A	07/08/98	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	98 (88 - 110)
Bromofluorobenzene	99 (86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806429
PROJECT #	: 104332.03	DATE RECEIVED :	6/30/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806429-11	MW-106	AQUEOUS	6/28/98	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. :	806429
PROJECT #	: 104332.03	DATE RECEIVED :	6/30/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806429-11	MW-106	AQUEOUS	6/28/98	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	100
	(88 - 110)
Bromofluorobenzene	98
	(86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806429
PROJECT #	: 104332.03	DATE RECEIVED :	6/30/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806429-12	MW-105	AQUEOUS	6/28/98	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. :	806429
PROJECT #	: 104332.03	DATE RECEIVED :	6/30/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806429-12	MW-105	AQUEOUS	6/28/98	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	103	(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. :	806429
PROJECT #	: 104332.03	DATE RECEIVED :	6/30/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806429-13	MW-78	AQUEOUS	6/28/98	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. :	806429
PROJECT #	: 104332.03	DATE RECEIVED :	6/30/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806429-13	MW-78	AQUEOUS	6/28/98	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	96
	(80 - 120)
Toluene-d8	98
	(88 - 110)
Bromofluorobenzene	96
	(86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806429
PROJECT #	: 104332.03	DATE RECEIVED :	6/30/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806429-14	MW-79	AQUEOUS	6/28/98	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. :	806429
PROJECT #	: 104332.03	DATE RECEIVED :	6/30/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806429-14	MW-79	AQUEOUS	6/28/98	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	98	(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. :	806429
PROJECT #	: 104332.03	DATE RECEIVED :	6/30/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806429-15	MW-50	AQUEOUS	6/28/98	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. :	806429
PROJECT #	: 104332.03	DATE RECEIVED :	6/30/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806429-15	MW-50	AQUEOUS	6/28/98	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	99	(88 - 110)
Bromofluorobenzene	98	(86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806429
PROJECT #	: 104332.03	DATE RECEIVED :	6/30/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806429-16	MW-41	AQUEOUS	6/28/98	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	**41**	**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. :	806429
PROJECT #	: 104332.03	DATE RECEIVED :	6/30/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806429-16	MW-41	AQUEOUS	6/28/98	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	**10**	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	**2.1**	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	89	(88 - 110)
Bromofluorobenzene	101	(86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806429
PROJECT #	: 104332.03	DATE RECEIVED :	6/30/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806429-17	MW-61A	AQUEOUS	6/28/98	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	**1.5**	**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	**7.9**	**ug/L**
1,1,1,2-Tetrachloroethane	1.0	< 1.0	ug/L
m&p Xylenes	1.0	**20**	**ug/L**

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806429
PROJECT #	: 104332.03	DATE RECEIVED :	6/30/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806429-17	MW-61A	AQUEOUS	6/28/98	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	**3.7**	**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	**3.2**	**ug/L**
2-Chlorotoluene	1.0	< 1.0	ug/L
4-Chlorotoluene	1.0	< 1.0	ug/L
1,3,5-Trimethylbenzene	1.0	**36**	**ug/L**
tert-Butylbenzene	1.0	< 1.0	ug/L
1,2,4-Trimethylbenzene	1.0	**80**	**ug/L**
sec-Butylbenzene	1.0	**2.7**	**ug/L**
1,3-Dichlorobenzene	1.0	< 1.0	ug/L
1,4-Dichlorobenzene	1.0	< 1.0	ug/L
p-Isopropyltoluene	1.0	**3.9**	**ug/L**
1,2-Dichlorobenzene	1.0	< 1.0	ug/L
n-Butylbenzene	1.0	**2.3**	**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	99	(88 - 110)
Bromofluorobenzene	101	(86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806429
PROJECT #	: 104332.03	DATE RECEIVED :	6/30/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806429-18	MW-61	AQUEOUS	6/28/98	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. :	806429
PROJECT #	: 104332.03	DATE RECEIVED :	6/30/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806429-18	MW-61	AQUEOUS	6/28/98	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	104 (80 - 120)
Toluene-d8	99 (88 - 110)
Bromofluorobenzene	103 (86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806429
PROJECT #	: 104332.03	DATE RECEIVED :	6/30/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806429-19	MW-61 DP	AQUEOUS	6/28/98	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. :	806429
PROJECT #	: 104332.03	DATE RECEIVED :	6/30/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806429-19	MW-61 DP	AQUEOUS	6/28/98	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	104 (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. :	806429
PROJECT #	: 104332.03	DATE RECEIVED :	6/30/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806429-20	MW-71	AQUEOUS	6/28/98	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. :	806429
PROJECT #	: 104332.03	DATE RECEIVED :	6/30/98
PROJECT NAME	: IBRP		

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
806429-20	MW-71	AQUEOUS	6/28/98	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	99 (88 - 110)
Bromofluorobenzene	100 (86 - 115)

GC/MS RESULTS

TEST	: VOLATILE ORGANICS EPA METHOD 8260		
CLIENT	: MARATHON OIL COMPANY	AEN I.D. :	806429
PROJECT #	: 104332.03		
PROJECT NAME	: IBRP		

SAMPLE ID #	BATCH	MATRIX	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
REAGENT BLANK	070898	AQUEOUS	N/A	07/08/98	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. :	806429
PROJECT #	: 104332.03		
PROJECT NAME	: IBRP		

SAMPLE ID #	BATCH	MATRIX	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
REAGENT BLANK	070898	AQUEOUS	N/A	07/08/98	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. :	806429
PROJECT #	: 104332.03		
PROJECT NAME	: IBRP		

SAMPLE ID #	BATCH	MATRIX	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
REAGENT BLANK	070898 B	AQUEOUS	N/A	07/08/98	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. :	806429
PROJECT #	: 104332.03		
PROJECT NAME	: IBRP		

SAMPLE ID #	BATCH	MATRIX	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
REAGENT BLANK	070898 B	AQUEOUS	N/A	07/08/98	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	98
	(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. :	806429
PROJECT #	: 104332.03		
PROJECT NAME	: IBRP		

SAMPLE ID #	BATCH	MATRIX	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
REAGENT BLANK	070998	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. :	806429
PROJECT #	: 104332.03		
PROJECT NAME	: IBRP		

SAMPLE ID #	BATCH	MATRIX	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
REAGENT BLANK	070998	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	102	(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. :	806429
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. :	806429
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)

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: 07099801.D

	Spike Sample	Spike Duplicate Sample
File ID :	070998S1.D	070998S2.D
Sample :	806429-11 MS	806429-11 MSD
Acq Time:	9 Jul 98 2:54 pm	9 Jul 98 3:27 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	45	41	89	81	9	14	61-145
Benzene	0.0	50	50	47	101	93	8	11	76-127
Trichloroethene	0.0	50	50	46	100	92	8	14	71-120
Toluene	0.0	50	49	46	99	92	7	13	76-125
Chlorobenzene	0.0	50	50	47	99	93	6	13	75-130

- Fails Limit Check

82600708.M Thu Jul 09 15:57:25 1998

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: 07109815.D

	Spike Sample	Spike Duplicate Sample
File ID :	071398S1.D	071398S2.D
Sample :	806417-04 MS	806417-04 MSD
Acq Time:	13 Jul 98 4:36 pm	13 Jul 98 5:09 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	39	39	79	79	0	14	61-145
Benzene	0.0	50	47	48	94	95	1	11	76-127
Trichloroethene	0.0	50	48	48	96	96	1	14	71-120
Toluene	0.0	50	48	48	95	96	1	13	76-125
Chlorobenzene	0.0	50	48	49	96	97	1	13	75-130

- Fails Limit Check

82600708.M Tue Jul 14 08:17:37 1998

American Environmental Network (NM), Inc.

CHAIN OF CUSTODY

DATE: 6/26-27/98 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-[redacted] 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-57RB	6/26/98	1515	Water	01								KC	*	*	KC		X																2
mw-87 ~~RB~~ ARB	↓	1600		02													X																2
mw-87A	6/27/98	0915		03									X	X			X																2
mw-87		0945		04									X	X			X																2
mw-87RB		1000		05													X																2
mw-88		1100		06									X	X			X																2
mw-88RB		1125		07													X																2
mw-71RB		1245		08													X																2
mw-61RB		1330		09													X																2
mw-61ARB	↓	1405	↓	10													X																2

PROJECT INFORMATION

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

SAMPLE RECEIPT

NO. CONTAINERS: 32
CUSTODY SEALS: Y N / NA
RECEIVED INTACT: YES
BLUE ICE/ICE: 8°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: 1
Signature: [illegible] Time: 1500
Printed Name: Kevin Cole Date: 6/29
Company: EDGE

RELINQUISHED BY: 2
Signature: [illegible] Time: 1530
Printed Name: Chris Farry Date: 6/29
Company: AEN

RECEIVED BY: 1
Signature: [illegible] Time: 1500
Printed Name: Chris Farry Date: 6/29
Company: AEN

RECEIVED BY: LAB 2
Signature: [illegible] Time: 1520
Printed Name: [illegible] Date: 6/30/98
Company: American Environmental Network (NM), Inc.

American Environmental Network (NM), Inc.

CHAIN OF CUSTODY

DATE: 6/28/98 PAGE: ___ OF ___

AEN (NM) Accession #: [redacted]

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-106	6/28/98	1040	Water	[redacted]									X	X			X																6
MW-105		1100		[redacted]													X																2
MW-78		1135		[redacted]									X	X			X																3
MW-79		1210		[redacted]									X	X			X																3
MW-50		1240		[redacted]									X	X			X																3
MW-41		1300		[redacted]									X	X			X																3
MW-61A		1330		[redacted]									X	X			X																3
MW-61		1350		[redacted]									X	X			X																3
MW-61DP		1350		[redacted]									X	X			X																3
MW-71		1400		[redacted]									X	X			X																3

PROJECT INFORMATION

PROJ. NO.: 104332.03

PROJ. NAME: IBRP

P.O. NO.:

SHIPPED VIA:

SAMPLE RECEIPT

NO. CONTAINERS	56
CUSTODY SEALS	Y/N/NA
RECEIVED INTACT	Yes
BLUE ICE/ICE	8°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 ☐

RELINQUISHED BY: 1.	RELINQUISHED BY: 2.
Signature: [signature] Time: 1500	Signature: [signature] Time: 1500
Printed Name: Kevin Cook Date: 6/29	Printed Name: Chris Fath Date: 6/29
Company: FDGTI	Company: AEN
RECEIVED BY: 1.	**RECEIVED BY: (LAB) 2.**
Signature: [signature] Time: 1500	Signature: [signature] Time: 11:20
Printed Name: Chris Fath Date: 6/29	Printed Name: [illegible] Date: 6/30/98
Company: AEN	American Environmental Network (NM), Inc.

APPENDIX E

Groundwater Analytical Data: October 1998

Mid-Continent Region
Production United States

Marathon Oil Company

P.O. Box 552
Midland, TX 79702-0552
Telephone 915/682-1626

November 9, 1998

RECEIVED

Ms. Cymantha Diaz Liakos
Senior Geologist
Fluor Daniel GTI
2501 Yale Blvd. SE, Suite 204
Albuquerque, New Mexico 87106

RE: Laboratory Reports
Indian Basin Remediation Project

Dear Ms. Liakos:

I have enclosed the laboratory report for the 3rd quarter groundwater sampling event at the Indian Basin Remediation Project. As we discussed, the laboratory report includes the additional laboratory analyses performed on select monitoring wells that are to be incorporated into the Comprehensive Site Characterization Report. If you have any questions or need additional information, then please call me at (915) 687-8398.

Sincerely,

M. Paul Peacock

M. Paul Peacock
Advanced Environmental & Safety Engineer

Attachments
MPP\cscrgtid.wpd

File 576-14

2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

PINNACLE LABORATORIES

Pinnacle Lab ID number **810048**
November 05, 1998

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

Project Name INDIAN BASIN REMEDIATION
Project Number 104332.40

Attention: PAUL PEACOCK

On 10/13/98 Pinnacle Laboratories, Inc. Inc., (ADHS License No. AZ0592), received a request to analyze **aqueous** samples. The samples were analyzed with EPA methodology or equivalent methods. The results of these analyses and the quality control data, which follow each set of analyses, are enclosed.

EPA method 8021 was performed by Pinnacle Laboratories, Inc., Albuquerque, NM.

EPA methods 8310 and 376.1 were performed by Severn Trent (FL) Inc., Pensacola, FL.

All other parameters were performed by ESL (OR) Inc., Durham, OR.

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

Kimberly D. McNeill
Project Manager

H. Mitchell Rubenstein, Ph. D.
General Manager

MR: mt

Enclosure

2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

PINNACLE LABORATORIES

CLIENT	: MARATHON OIL COMPANY	PINNACLE ID	: 810048
PROJECT #	: 104332.40	DATE RECEIVED	: 10/13/98
PROJECT NAME	: INDIAN BASIN REMEDIATION	REPORT DATE	: 11/5/98

AEN ID. #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	DI H2O	AQUEOUS	10/11/98
02	INT RB	AQUEOUS	10/11/98
03	MW-63	AQUEOUS	10/11/98
04	MW-63RB	AQUEOUS	10/11/98
05	MW-111	AQUEOUS	10/11/98
06	MW-111RB	AQUEOUS	10/11/98
07	MW-89	AQUEOUS	10/11/98
08	MW-89RB	AQUEOUS	10/11/98
09	MW-66	AQUEOUS	10/11/98
10	MW-66RB	AQUEOUS	10/11/98
11	MW-61A	AQUEOUS	10/11/98
12	MW-61ARB	AQUEOUS	10/11/98
13	MW-88	AQUEOUS	10/11/98
14	MW-88RB	AQUEOUS	10/11/98
15	MW-71	AQUEOUS	10/11/98
16	MW-71RB	AQUEOUS	10/12/98
17	MW-87ARB	AQUEOUS	10/12/98
18	MW-87	AQUEOUS	10/12/98
19	MW-87RB	AQUEOUS	10/12/98
20	MW-60	AQUEOUS	10/12/98
21	MW-60RB	AQUEOUS	10/12/98
22	MW-95	AQUEOUS	10/12/98
23	MW-95RB	AQUEOUS	10/12/98
24	MW-97	AQUEOUS	10/12/98
25	MW-97RB	AQUEOUS	10/12/98
26	MW-96	AQUEOUS	10/12/98
27	MW-82	AQUEOUS	10/12/98
28	MW-68	AQUEOUS	10/12/98
29	TRIP BLANK	AQUEOUS	10/1/98

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PINNACLE LABORATORIES

GAS CHROMOTOGRAPHY RESULTS

TEST : EPA 8021 MODIFIED
CLIENT : MARATHON OIL COMPANY
PROJECT # : 104332.40
PROJECT NAME : INDIAN BASIN REMEDIATION

PINNACLE I.D.: 810048

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
01	DI H2O	AQUEOUS	10/11/98	NA	10/15/98	1
02	INT RB	AQUEOUS	10/11/98	NA	10/15/98	1
04	MW-63	AQUEOUS	10/11/98	NA	10/15/98	1

PARAMETER	DET. LIMIT	UNITS	01	02	04
BENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
TOLUENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
ETHYLBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
TOTAL XYLENES	0.5	**UG/L**	**45**	< 0.5	< 0.5

SURROGATE:

BROMOFLUOROBENZENE (%)		119	118	105
SURROGATE LIMITS	(80 - 120)			

CHEMIST NOTES:
N/A

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PINNACLE LABORATORIES

GAS CHROMOTOGRAPHY RESULTS

TEST : EPA 8021 MODIFIED
CLIENT : MARATHON OIL COMPANY
PINNACLE I.D.: 810048
PROJECT # : 104332.40
PROJECT NAME : INDIAN BASIN REMEDIATION

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
05	MW-63RB	AQUEOUS	10/11/98	NA	10/16/98	1
06	MW-111	AQUEOUS	10/11/98	NA	10/16/98	1
07	MW-111RB	AQUEOUS	10/11/98	NA	10/16/98	1

PARAMETER	DET. LIMIT	UNITS	05	06	07
BENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
TOLUENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
ETHYLBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
TOTAL XYLENES	0.5	UG/L	< 0.5	< 0.5	< 0.5

SURROGATE:

BROMOFLUOROBENZENE (%)			112	112	117
SURROGATE LIMITS	(80 - 120)				

CHEMIST NOTES:
N/A

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PINNACLE LABORATORIES

GAS CHROMOTOGRAPHY RESULTS

TEST : EPA 8021 MODIFIED
CLIENT : MARATHON OIL COMPANY
PINNACLE I.D.: 810048
PROJECT # : 104332.40
PROJECT NAME : INDIAN BASIN REMEDIATION

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
08	MW-89RB	AQUEOUS	10/11/98	NA	10/16/98	1
09	MW-66	AQUEOUS	10/11/98	NA	10/16/98	1
10	MW-66RB	AQUEOUS	10/11/98	NA	10/16/98	1

PARAMETER	DET. LIMIT	UNITS	08	09	10
BENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
TOLUENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
ETHYLBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
TOTAL XYLENES	0.5	UG/L	< 0.5	< 0.5	< 0.5

SURROGATE:

BROMOFLUOROBENZENE (%)			112	112	110
SURROGATE LIMITS	(80 - 120)				

CHEMIST NOTES:
N/A

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PINNACLE LABORATORIES

GAS CHROMOTOGRAPHY RESULTS

TEST : EPA 8021 MODIFIED
CLIENT : MARATHON OIL COMPANY
PINNACLE I.D.: 810048
PROJECT # : 104332.40
PROJECT NAME : INDIAN BASIN REMEDIATION

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
11	MW-61A	AQUEOUS	10/11/98	NA	10/19/98	5
12	MW-61ARB	AQUEOUS	10/11/98	NA	10/16/98	1
13	MW-88	AQUEOUS	10/11/98	NA	10/16/98	1

PARAMETER	DET. LIMIT	UNITS	11	12	13
BENZENE	0.5	**UG/L**	**4.5**	< 0.5	< 0.5
TOLUENE	0.5	**UG/L**	**15**	< 0.5	< 0.5
ETHYLBENZENE	0.5	**UG/L**	**22**	< 0.5	< 0.5
TOTAL XYLENES	0.5	**UG/L**	**61**	< 0.5	< 0.5

SURROGATE:

BROMOFLUOROBENZENE (%)		124 *	112	111
SURROGATE LIMITS	(80 - 120)			

CHEMIST NOTES: *= HIGH SURROGATE RECOVERY DUE TO MATRIX EFFECT.

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PINNACLE LABORATORIES

GAS CHROMOTOGRAPHY RESULTS

TEST : EPA 8021 MODIFIED
CLIENT : MARATHON OIL COMPANY
PROJECT # : 104332.40
PROJECT NAME : INDIAN BASIN REMEDIATION

PINNACLE I.D.: 810048

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
14	MW-88RB	AQUEOUS	10/11/98	NA	10/16/98	1
15	MW-71	AQUEOUS	10/11/98	NA	10/19/98	1
16	MW-71RB	AQUEOUS	10/12/98	NA	10/16/98	1

PARAMETER	DET. LIMIT	UNITS	14	15	16
BENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
TOLUENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
ETHYLBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
TOTAL XYLENES	0.5	**UG/L**	< 0.5	< 0.5	**0.5**

SURROGATE:

BROMOFLUOROBENZENE (%)		110	107	115
SURROGATE LIMITS	(80 - 120)			

CHEMIST NOTES:
N/A

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PINNACLE LABORATORIES

GAS CHROMOTOGRAPHY RESULTS

TEST : EPA 8021 MODIFIED
CLIENT : MARATHON OIL COMPANY
PINNACLE I.D.: 810048
PROJECT # : 104332.40
PROJECT NAME : INDIAN BASIN REMEDIATION

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
17	MW-87ARB	AQUEOUS	10/12/98	NA	10/16/98	1
18	MW-87	AQUEOUS	10/12/98	NA	10/16/98	1
19	MW-87RB	AQUEOUS	10/12/98	NA	10/16/98	1

PARAMETER	DET. LIMIT	UNITS	17	18	19
BENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
TOLUENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
ETHYLBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
TOTAL XYLENES	0.5	UG/L	< 0.5	< 0.5	< 0.5

SURROGATE:

BROMOFLUOROBENZENE (%)			120	116	117
SURROGATE LIMITS	(80 - 120)				

CHEMIST NOTES:
N/A

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PINNACLE LABORATORIES

GAS CHROMOTOGRAPHY RESULTS

TEST : EPA 8021 MODIFIED
CLIENT : MARATHON OIL COMPANY
PROJECT # : 104332.40
PROJECT NAME : INDIAN BASIN REMEDIATION

PINNACLE I.D.: 810048

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
20	MW-60	AQUEOUS	10/12/98	NA	10/16/98	1
21	MW-60RB	AQUEOUS	10/12/98	NA	10/16/98	1
23	MW-85RB	AQUEOUS	10/12/98	NA	10/16/98	1

PARAMETER	DET. LIMIT	UNITS	20	21	23
BENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
TOLUENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
ETHYLBENZENE	0.5	UG/L	< 0.5	< 0.5	< 0.5
TOTAL XYLENES	0.5	UG/L	< 0.5	< 0.5	< 0.5

SURROGATE:

BROMOFLUOROBENZENE (%)			114	120	120
SURROGATE LIMITS	(80 - 120)				

CHEMIST NOTES:
N/A

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PINNACLE LABORATORIES

GAS CHROMOTOGRAPHY RESULTS

TEST : EPA 8021 MODIFIED
CLIENT : MARATHON OIL COMPANY
PINNACLE I.D.: 810048
PROJECT # : 104332.40
PROJECT NAME : INDIAN BASIN REMEDIATION

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
24	MW-97	AQUEOUS	10/12/98	NA	10/16/98	5
25	MW-97RB	AQUEOUS	10/12/98	NA	10/16/98	1
26	MW-96	AQUEOUS	10/12/98	NA	10/16/98	1

PARAMETER	DET. LIMIT	UNITS	24	25	26
BENZENE	0.5	UG/L	< 2.5	< 0.5	< 0.5
TOLUENE	0.5	UG/L	< 2.5	< 0.5	< 0.5
ETHYLBENZENE	0.5	UG/L	< 2.5	< 0.5	< 0.5
TOTAL XYLENES	0.5	UG/L	< 2.5	< 0.5	< 0.5

SURROGATE:

BROMOFLUOROBENZENE (%)			107	109	109
SURROGATE LIMITS	(80 - 120)				

CHEMIST NOTES:
N/A

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PINNACLE LABORATORIES

GAS CHROMOTOGRAPHY RESULTS

TEST : EPA 8021 MODIFIED
CLIENT : MARATHON OIL COMPANY
PINNACLE I.D.: 810048
PROJECT # : 104332.40
PROJECT NAME : INDIAN BASIN REMEDIATION

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
29	MW-71	AQUEOUS	10/11/98	NA	10/16/98	1

PARAMETER	DET. LIMIT	UNITS	29
BENZENE	0.5	UG/L	< 0.5
TOLUENE	0.5	UG/L	< 0.5
ETHYLBENZENE	0.5	UG/L	< 0.5
TOTAL XYLENES	0.5	UG/L	< 0.5
METHYL-t-BUTYL ETHER	2.5	UG/L	< 2.5

SURROGATE:
BROMOFLUOROBENZENE (%) 97
SURROGATE LIMITS (80 - 120)

CHEMIST NOTES:
N/A

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PINNACLE LABORATORIES

GAS CHROMOTOGRAPHY RESULTS
REAGENT BLANK

TEST	: EPA 8021 MODIFIED	PINNACLE I.D.	: 810048
BLANK I. D.	: 101598B	DATE EXTRACTED	: NA
CLIENT	: MARATHON OIL COMPANY	DATE ANALYZED	: 10/15/98
PROJECT #	: 104332.40	SAMPLE MATRIX	: AQUEOUS
PROJECT NAME	: INDIAN BASIN REMEDIATION		

PARAMETER	UNITS	
BENZENE	UG/L	<0.5
TOLUENE	UG/L	<0.5
ETHYLBENZENE	UG/L	<0.5
TOTAL XYLENES	UG/L	<0.5

SURROGATE:
BROMOFLUOROBENZENE (%) 113
SURROGATE LIMITS: (80 - 120)
CHEMIST NOTES:
N/A

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PINNACLE LABORATORIES

GAS CHROMOTOGRAPHY RESULTS
REAGENT BLANK

TEST	: EPA 8021 MODIFIED	PINNACLE I.D.	: 810048
BLANK I. D.	: 101698	DATE EXRACTED	: NA
CLIENT	: MARATHON OIL COMPANY	DATE ANALYZED	: 10/16/98
PROJECT #	: 104332.40	SAMPLE MATRIX	: AQUEOUS
PROJECT NAME	: INDIAN BASIN REMEDIATION		

PARAMETER	UNITS	
BENZENE	UG/L	<0.5
TOLUENE	UG/L	<0.5
ETHYLBENZENE	UG/L	<0.5
TOTAL XYLENES	UG/L	<0.5

SURROGATE:
BROMOFLUOROBENZENE (%) 110
SURROGATE LIMITS: (80 - 120)
CHEMIST NOTES:
N/A

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PINNACLE LABORATORIES

GAS CHROMOTOGRAPHY RESULTS
REAGENT BLANK

TEST	: EPA 8021 MODIFIED	PINNACLE I.D.	: 810048
BLANK I. D.	: 101698B	DATE EXRACTED	: NA
CLIENT	: MARATHON OIL COMPANY	DATE ANALYZED	: 10/16/98
PROJECT #	: 104332.40	SAMPLE MATRIX	: AQUEOUS
PROJECT NAME	: INDIAN BASIN REMEDIATION		

PARAMETER	UNITS	
BENZENE	UG/L	<0.5
TOLUENE	UG/L	<0.5
ETHYLBENZENE	UG/L	<0.5
TOTAL XYLENES	UG/L	<0.5
SURROGATE:		
BROMOFLUOROBENZENE (%)		109
SURROGATE LIMITS:	(80 - 120)	

CHEMIST NOTES:
N/A

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PINNACLE LABORATORIES

GAS CHROMOTOGRAPHY RESULTS
REAGENT BLANK

TEST	: EPA 8021 MODIFIED	PINNACLE I.D.	: 810048
BLANK I. D.	: 101998	DATE EXRACTED	: NA
CLIENT	: MARATHON OIL COMPANY	DATE ANALYZED	: 10/19/98
PROJECT #	: 104332.40	SAMPLE MATRIX	: AQUEOUS
PROJECT NAME	: INDIAN BASIN REMEDIATION		

PARAMETER	UNITS	
BENZENE	UG/L	<0.5
TOLUENE	UG/L	<0.5
ETHYLBENZENE	UG/L	<0.5
TOTAL XYLENES	UG/L	<0.5

SURROGATE:
BROMOFLUOROBENZENE (%) 106
SURROGATE LIMITS: (80 - 120)
CHEMIST NOTES:
N/A

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PINNACLE LABORATORIES

GAS CHROMOTOGRAPHY QUALITY CONTROL
MSMSD

TEST	: EPA 8021 MODIFIED		
MSMSD #	: 810042-08	PINNACLE I.D.	: 810048
CLIENT	: MARATHON OIL COMPANY	DATE EXTRACTED	: NA
PROJECT #	: 104332.40	DATE ANALYZED	: 10/15/98
PROJECT NAME	: INDIAN BASIN REMEDIATION	SAMPLE MATRIX	: AQUEOUS
		UNITS	: UG/L

PARAMETER	SAMPLE RESULT	CONC SPIKE	SPIKED SAMPLE	% REC	DUP SPIKE	DUP % REC	RPD	REC LIMITS	RPD LIMITS
BENZENE	<0.5	10.0	8.6	86	8.9	89	3	(80 - 120)	20
TOLUENE	<0.5	10.0	9.8	98	10.1	101	3	(80 - 120)	20
ETHYLBENZENE	<0.5	10.0	10.2	102	10.5	105	3	(80 - 120)	20
TOTAL XYLENES	<0.5	30.0	29.8	99	30.2	101	1	(80 - 120)	20

CHEMIST NOTES:
N/A

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

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

GAS CHROMOTOGRAPHY QUALITY CONTROL
MSMSD

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PINNACLE LABORATORIES

GAS CHROMOTOGRAPHY QUALITY CONTROL
MSMSD

TEST	: EPA 8021 MODIFIED		
MSMSD #	: 810048-20	PINNACLE I.D.	: 810048
CLIENT	: MARATHON OIL COMPANY	DATE EXTRACTED	: NA
PROJECT #	: 104332.40	DATE ANALYZED	: 10/16/98
PROJECT NAME	: INDIAN BASIN REMEDIATION	SAMPLE MATRIX	: AQUEOUS
		UNITS	: UG/L

PARAMETER	SAMPLE RESULT	CONC SPIKE	SPIKED SAMPLE	% REC	DUP SPIKE	DUP % REC	RPD	REC LIMITS	RPD LIMITS
BENZENE	<0.5	10.0	9.4	94	9.6	96	2	(80 - 120)	20
TOLUENE	<0.5	10.0	10.4	104	10.7	107	3	(80 - 120)	20
ETHYLBENZENE	<0.5	10.0	10.7	107	11.2	112	5	(80 - 120)	20
TOTAL XYLENES	<0.5	30.0	31.4	105	32.5	108	3	(80 - 120)	20

CHEMIST NOTES:
N/A

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

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

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: _____
STL Project Manager

Client:	PINNACLE LABORATORIES ALBUQUERQUE, NEW MEXICO
Project Name:	MOC
Project Number:	810048
Project Location:	INDIAN BASIN REMEDIATION
Accession Number:	810238 OCT 28 1998
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: Group of Single Wetchem

Accession:	810238
Client:	PINNACLE LABORATORIES
Project Number:	810048
Project Name:	MOC
Project Location:	INDIAN BASIN REMEDIATION
Department:	WET CHEM

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 810238
Client: PINNACLE LABORATORIES
Project Number: 810048
Project Name: MOC
Project Location: INDIAN BASIN REMEDIATION
Test: Group of Single Wetchem
QcLevel: II

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: 810048-22			Lab ID: 001		
SULFIDE (376.1)	MG/L	ND	1	FEW060	
Comments:					
Client ID: 810048-03			Lab ID: 002		
SULFIDE (376.1)	MG/L	ND	1	FEW060	
Comments:					
Client ID: 810048-15			Lab ID: 003		
SULFIDE (376.1)	MG/L	15	1	FEW060	
Comments:					
Client ID: 810048-18			Lab ID: 004		
SULFIDE (376.1)	MG/L	ND	1	FEW060	
Comments:					
Client ID: 810048-24			Lab ID: 005		
SULFIDE (376.1)	MG/L	ND	1	FEW060	
Comments:					
Client ID: 810048-27			Lab ID: 006		
SULFIDE (376.1)	MG/L	ND	1	FEW060	
Comments:					
Client ID: 810048-28			Lab ID: 007		
SULFIDE (376.1)	MG/L	ND	1	FEW060	
Comments:					

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 810238
Client: PINNACLE LABORATORIES
Project Number: 810048
Project Name: MOC
Project Location: INDIAN BASIN REMEDIATION
Test: Group of Single Wetchem

Client ID:	Lab Matrix: ID:	Date/Time Sampled:	Date Received:
810048-22	001 WATER	12-OCT-98 1215	14-OCT-98
810048-03	002 WATER	11-OCT-98 0915	14-OCT-98
810048-15	003 WATER	11-OCT-98 1710	14-OCT-98
810048-18	004 WATER	12-OCT-98 1030	14-OCT-98
810048-24	005 WATER	12-OCT-98 1410	14-OCT-98
810048-27	006 WATER	12-OCT-98 1550	14-OCT-98
810048-28	007 WATER	12-OCT-98 1630	14-OCT-98

"Method Report Summary"

Accession Number: 810238
Client: PINNACLE LABORATORIES
Project Number: 810048
Project Name: MOC
Project Location: INDIAN BASIN REMEDIATION
Test: Group of Single Wetchem

Client Sample Id:	Parameter:	Unit:	Result:
810048-15	SULFIDE (376.1)	MG/L	15

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

Analysis Report

Analysis: POLYNUCLEAR AROMATICS BY 8310

Accession:	810238
Client:	PINNACLE LABORATORIES
Project Number:	810048
Project Name:	MOC
Project Location:	INDIAN BASIN REMEDIATION
Department:	SEMI-VOLATILE FUELS

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

"FINAL REPORT FORMAT - SINGLE"

Accession: 810238
Client: PINNACLE LABORATORIES
Project Number: 810048
Project Name: MOC
Project Location: INDIAN BASIN REMEDIATION
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: 810048-22
Sample Date/Time: 12-OCT-98 1215
Received Date: 14-OCT-98

Batch: PAW236
Blank: A
Dry Weight %: N/A
Extraction Date: 16-OCT-98
Analysis Date: 21-OCT-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
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	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	1	1	
2-METHYLNAPHTHALENE	UG/L	ND	1	
2-CHLOROANTHRACENE	%REC/SURR	90	28-138	
ANALYST	INITIALS	HAH		

Comments:

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

"Method Report Summary"

Accession Number: 810238
Client: PINNACLE LABORATORIES
Project Number: 810048
Project Name: MOC
Project Location: INDIAN BASIN REMEDIATION
Test: POLYNUCLEAR AROMATICS BY 8310

Client Sample Id:	Parameter:	Unit:	Result:
810048-22	1-METHYLNAPHTHALENE	UG/L	1

SEVERN TRENT LABORATORIES 11 East Olive Rd. Pensacola, FL 32514 (850) 474-1001

Data Qualifiers for Final Report

STL-Pensacola Inorganic/Organic and AFCEE Projects (under QAPP)

J4	(For positive results)	Temperature limits exceeded (≤2°C or ≥ 6°C)
J5	(TICs)	The reported value is quantitated as a TIC; therefore, it is estimated
J6	(For positive results)	Surrogate %R is > upper control limit (UCL) or < lower control limit (LCL)
J7	(For positive results)	The reported value is > the laboratory MDL and < lowest calibration standards; therefore, the quantitation is an estimation.
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	
R6	Surrogate %R is < LCL and analyte is not detected or surrogate %R is < 10% for detects and nondetects	
R (AFCEE description)	The data are unusable due to deficiencies in the ability to analyze the sample and meet QC criteria	
F	< laboratory or AFCEE 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	
@	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	
A2	Surrogate %R is > UCL (upper control limit) and analyte is not detected. No corrective action required	
M	A matrix effect was present (sample was analyzed twice to confirm or chromatogram had interfering peaks)	
S	Incorrect sample amount was submitted to the laboratory for analysis	

ND = Not Detected at or above the STL-Pensacola reporting limit (RL) N/S = Not Submitted N/A = Not Applicable
IDL = Laboratory Instrument Detection Limit MDL = Laboratory Method Detection Limit
RL = Reporting Limit (AFCEE RLs are listed in the AFCEE QAPP)

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

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)

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 analysis was from an unpreserved or improperly preserved sample. 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

ICR Projects Inorganic/Organic

A1	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

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

Quality Control Report

Analysis: Group of Single Wetchem

Accession:	810238
Client:	PINNACLE LABORATORIES
Project Number:	810048
Project Name:	MOC
Project Location:	INDIAN BASIN REMEDIATION
Department:	WET CHEM

"WetChem Quality Control Report"

Parameter:	SULFIDE
Batch Id:	FEW060
Blank Result:	<1
Anal. Method:	376.1
Prep. Method:	N/A
Analysis Date:	12-OCT-98
Prep. Date:	12-OCT-98

Sample Duplication

Sample Dup:	810160-1
Rept Limit:	<1
Sample Result:	1.38
Dup Result:	1.30
Sample RPD:	0.08 G
Max RPD:	1
Dry Weight%	N/A

Matrix Spike

Sample Spiked:	810160-1
Rept Limit:	<1
Sample Result:	<1
Spiked Result:	9.2
Spike Added:	10.0
% Recovery:	92
% Rec Limits:	78-111
Dry Weight%	N/A

ICV

ICV Result:	18.2
True Result:	20.0
% Recovery:	91
% Rec Limits:	90-110

LCS

LCS Result:	
True Result:	
% Recovery:	
% Rec Limits:	

"Quality Control Comments"

Batch Id:	Comments:
FEW060	810238-1,2,3,4,5,6,7 were added to the batch on 14-Oct-98.

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

N/A = NOT APPLICABLE.
N/S = NOT SUBMITTED.
N/C = SAMPLE AND DUPLICATE RESULTS ARE AT OR BELOW STL REPORTING LIMIT; THEREFORE, THE RPD IS "NOT CALCULABLE" AND NO CONTROL LIMITS APPLY.
N/D = NOT DETECTED AT OR ABOVE THE STL-PENSACOLA REPORTING LIMIT (RL).
R = REACTIVE
T = TOTAL
G = SAMPLE AND/OR DUPLICATE RESULT IS BELOW 5 X STL REPORTING LIMIT AND THE ABSOLUTE DIFFERENCE BETWEEN THE SAMPLE AND DUPLICATE RESULT IS AT OR BELOW STL 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 STL REPORTING LIMIT AND THE ABSOLUTE DIFFERENCE BETWEEN THE RESULTS EXCEEDS THE STL 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 STL REPORTING LIMIT AND THE ABSOLUTE DIFFERENCE BETWEEN THE RESULTS EXCEEDS THE STL 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.
STL-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).
RPD 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	LT = LISA TORRES	

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

Quality Control Report

Analysis: POLYNUCLEAR AROMATICS BY 8310

Accession:	810238
Client:	PINNACLE LABORATORIES
Project Number:	810048
Project Name:	MOC
Project Location:	INDIAN BASIN REMEDIATION
Department:	SEMI-VOLATILE FUELS

"QC Report"

Title: Water Blank
Batch: PAW236
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: 21-OCT-98 Date Extracted: 16-OCT-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	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	1
2-METHYLNAPHTHALENE	UG/L	ND	1
2-CHLOROANTHRACENE	%REC/SURR	81	28-138
ANALYST	INITIALS	HAH	

Comments:

"QC Report"

Title: Water LCS
Batch: PAW236
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: 21-OCT-98 RS Date Extracted: 16-OCT-98

Parameters:	Spike Added	Sample Conc	RS Conc	RS %Rec	Rec Lmts
ACENAPHTHYLENE	9.7	<1	12.5	129*	45-127
BENZO(k)FLUORANTHENE	9.2	<1	12.6	137*	68-131
CHRYSENE	9.6	<1	12.6	131	69-131
PHENANTHRENE	9.2	<1	12.5	136*	63-124
PYRENE	9.7	<1	12.8	132*	61-126
Surrogates:					
2-CHLOROANTHRACENE				122	28-138

Comments:
LCS HAD RECOVERY(S) AND/OR RPD(S) OUTSIDE ACCEPTANCE LIMITS. SEE MATRIX SPIKE/ MATRIX SPIKE DUPLICATE 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.

"QC Report"

Title: Water Matrix Spike/Matrix Spike Duplicate
Batch: PAW236
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: 810238-1

MS Date Analyzed: 21-OCT-98
MSD Date Analyzed: 21-OCT-98

MS Date Extracted: 16-OCT-98
MSD Date Extracted: 16-OCT-98

Parameters:	Spike Added	Sample Conc	MS Conc	MS %Rec	MSD Conc	MSD %Rec	RPD	RPD Lmts	Rec Lmts
ACENAPHTHYLENE	9.7	<1	9.8	101	8.5	88	14	51	18-146
BENZO(k)FLUORANTHENE	9.2	<1	5.6	61	5.0	54	12	40	26-137
CHRYSENE	9.6	<1	7.2	75	6.5	68	10	69	16-156
PHENANTHRENE	9.2	<1	10.4	113	8.7	95	17	36	30-145
PYRENE	9.7	<1	10.1	104	9.7	100	4	41	39-137
Surrogates:									
2-CHLOROANTHRACENE				101		88			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 AT OR ABOVE THE STL-PENSACOLA REPORTING LIMIT (RL).
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 = RITA WINGO
KS = KENDALL SMITH
LBL = LISA BIZZELL-LOWE
LP = LEVERNE PETERSON
PLD = PAULA DOUGHTY
DK = DARLENE KINCHEN
BT = BECKY TREMMEL
HAH = HOLLIE HOFFMAN

Severn Trent Laboratories of Florida

PROJECT SAMPLE INSPECTION FORM

Lab Accession #: 810238 Date Received: 14-Oct-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: STL-SOP 1055) Yes No* N/A
4. Were all samples properly labeled and identified? Yes No*
5. Did samples require splitting? Yes* No
   Req By: PM Client Other*
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 (STL-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 STL-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): 4412 6309 2946

Shipped By: FED EX

Cooler Number(s): Thermo

Shipping Charges: n/a

Cooler Weight(s): n/a

Cooler Temp(s) (°C): 3.5°C

CCK6

(LIST THERMOMETER NUMBER(S) FOR VERIFICATION)

Out of Control Events and Inspection Comments:

(USE BACK OF PSIF FOR ADDITIONAL NOTES AND COMMENTS)

Inspected By: UBP Date: 10-14-98 Logged By: UBP Date: 10-14-98

* *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 (STL-SOP 938, section 2.2.9).*

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

WORD\VEL\INS\LAMPCTRL\PSIF.DOC July 30, 1998

Network Project Manager: Kimberly D. McNeill

Pinnacle Laboratories, Inc.
2709-D Pan American Freeway, NE
Albuquerque, New Mexico 87107
(505) 344-3777 Fax (505) 344-4413

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	Metals (8) RCRA	RCRA TCLP METALS	Metals-13 PP List	Metals-TAL	Sulfide	TOX	TOC	Gen Chemistry		Oil and Grease	Volatile Organics GC/MS (8260)	BOD	COD	PESTICIDES/PCB (608/8080)	8270 BY GC/MS	PNA (8310) + 1 methyl & 2 methyl Naphth.	8240 (TCLP 1311) ZHE	Herbicides (615/8150)	Base/Neutral Acid Compounds GC/MS (625/8270)	URANIUM	RADIUM 226+228	Gross Alpha/Beta	TO-14	NUMBER OF CONTAINERS
810048-22 (MW-95)	10/12	1215	A2						X											X								
-03 (MW-63)	10/11	0915							X																			
-15 (MW-71)	10/11	1710							X																			
-18 (MW-67)	10/12	1030							X																			
-24 (MW-97)		1410							X																			
-27 (MW-82)		1550							X																			
-28 (MW-68		1630							X																			

PROJECT INFORMATION	SAMPLE RECEIPT	SAMPLES SENT TO:	RELINQUISHED BY: 1.	RELINQUISHED BY: 2.
PROJECT #: 810048	Total Number of Containers	PENSACOLA - STL-FL ✓	Signature: Time: 3:40	Signature: Time:
PROJ. NAME: MOC	Chain of Custody Seals	PORTLAND - ESL-OR	Printed Name: Date: Kim McNeill 10/13/98	Printed Name: Date:
QC LEVEL: STD IV	Received Intact?	STL - CT	Pinnacle Laboratories, Inc.	Company
QC REQUIRED: MS MSD BLANK	Received Good Cond./Cold	STL- NEW JERSEY	RECEIVED BY: 1.	RECEIVED BY: 2
TAT: STANDARD RUSH!!	LAB NUMBER:	N. CREEK	Signature: Time: 0818	Signature: Time:
DUE DATE: 10/23	COMMENTS:	BARRINGER	Printed Name: Date: Leslie B. Phillips 10-14-98	Printed Name: Date:
RUSH SURCHARGE: Ø		SEQUOIA	Company	Company
CLIENT DISCOUNT: NA				
SPECIAL CERTIFICATION REQUIRED: YES NO				

Environmental Services Laboratory, Inc. E S L

17400 SW Upper Boones Ferry Road • Suite 270 • Portland, OR 97224 • (503) 670-8520

Kim McNeill
Pinnacle Laboratories
2709-D Pan American Fwy NE
Albuquerque, NM 87107

Date: 10/22/1998
ESL Account No.: 90147
ESL Job Number: 98.02005

Project: 810048 / MOC
Location: Indian Basin Remediation

Sample analysis in support of the project referenced above has been completed and results are presented on the following pages. Should you have questions regarding procedures or results, please feel welcome to contact Client Services.

Sample Number	Sample Description	Matrix Type	Date Taken	Date Received
106512	810048-03 (MW-63)	Water	10/11/1998	10/14/1998
106513	810048-07 (MW-89)	Water	10/11/1998	10/14/1998
106514	810048-09 (MW-66)	Water	10/11/1998	10/14/1998
106515	810048-11 (MW-61A)	Water	10/11/1998	10/14/1998
106516	810048-15 (MW-71)	Water	10/11/1998	10/14/1998
106517	810048-18 (MW-87)	Water	10/12/1998	10/14/1998
106518	810048-22 (MW-95)	Water	10/12/1998	10/14/1998
106519	810048-24 (MW-97)	Water	10/12/1998	10/14/1998
106520	810048-27 (MW-82)	Water	10/12/1998	10/14/1998
106521	810048-28 (MW-68)	Water	10/12/1998	10/14/1998

Approved by:

Andi Hoevet
Project Manager
ESL, INC.

Technical Review
ESL, INC.

The results from these samples relate only to the items tested. This report shall not be reproduced, except in full, without the written approval of the laboratory.

ANALYTICAL SERVICES FOR THE ENVIRONMENT

ANALYTICAL REPORT

Kim McNeill
Pinnacle Laboratories
2709-D Pan American Fwy NE
Albuquerque, NM 87107

10/22/1998
Job No.: 98.02005

Project Name: 810048 / MOC
Date Received: 10/14/1998

Sample Number 106512 — Sample Description 810048-03 (MW-63)

PARAMETERS	METHODS	RESULTS	REPORT LIMIT	UNITS	DATE ANALYZED	FLAG
Alkalinity, Bicarb.(CaCO3)	SM 2320 B	330	5.0	mg/L	10/15/1998	
Alkalinity, Carb. (CaCO3)	SM 2320 B	ND	5.0	mg/L	10/15/1998	
Alkalinity, Total (CaCO3)	310.1	330	5.0	mg/L	10/15/1998	
Chloride	EPA 300.0	1.3	0.5	mg/L	10/16/1998	
ICP/AA Digestion - Water	ICP	-			10/16/1998	
Calcium, ICP	6010	74	0.05	mg/L	10/20/1998	MD
Magnesium, ICP	6010	31	0.05	mg/L	10/20/1998	MD
Potassium, ICP	6010	2.3	0.2	mg/L	10/20/1998	
Sodium, ICP	6010	6.2	0.2	mg/L	10/20/1998	

Sample Number 106513 — Sample Description 810048-07 (MW-89)

PARAMETERS	METHODS	RESULTS	REPORT LIMIT	UNITS	DATE ANALYZED	FLAG
Cyanide Distillation		-			10/16/1998	
Cyanide, Total	9010	ND	0.02	mg/L	10/20/1998	

Sample Number 106514 — Sample Description 810048-09 (MW-66)

PARAMETERS	METHODS	RESULTS	REPORT LIMIT	UNITS	DATE ANALYZED	FLAG
Cyanide Distillation		-			10/16/1998	
Cyanide, Total	9010	ND	0.02	mg/L	10/20/1998	

Sample Number 106515 — Sample Description 810048-11 (MW-61A)

PARAMETERS	METHODS	RESULTS	REPORT LIMIT	UNITS	DATE ANALYZED	FLAG
Cyanide Distillation		-			10/16/1998	
Cyanide, Total	9010	ND	0.02	mg/L	10/20/1998	

A sample result of ND indicates the parameter was Not Detected at the reporting limit.

ANALYTICAL REPORT

Kim McNeill
Pinnacle Laboratories
2709-D Pan American Fwy NE
Albuquerque, NM 87107

10/22/1998
Job No.: 98.02005

Project Name: 810048 / MOC
Date Received: 10/14/1998

Sample Number 106516 — Sample Description 810048-15 (MW-71)

PARAMETERS	METHODS	RESULTS	REPORT LIMIT	UNITS	DATE ANALYZED	FLAG
Alkalinity, Bicarb.(CaCO3)	SM 2320 B	320	5.0	mg/L	10/15/1998	
Alkalinity, Carb. (CaCO3)	SM 2320 B	ND	5.0	mg/L	10/15/1998	
Alkalinity, Total (CaCO3)	310.1	320	5.0	mg/L	10/15/1998	
Chloride	EPA 300.0	35	5.0	mg/L	10/16/1998	DIL,Q
Fluoride, Total	340.2	2.0	0.2	mg/L	10/20/1998	
Solids, Total Dissolved	160.1	1200	10	mg/L	10/16/1998	
ICP/AA Digestion - Water	ICP	-			10/16/1998	
Calcium, ICP	6010	200	0.05	mg/L	10/20/1998	
Magnesium, ICP	6010	87	0.05	mg/L	10/20/1998	
Potassium, ICP	6010	12	0.2	mg/L	10/20/1998	
Sodium, ICP	6010	27	4.0	mg/L	10/20/1998	DIL,Q

Sample Number 106517 — Sample Description 810048-18 (MW-87)

PARAMETERS	METHODS	RESULTS	REPORT LIMIT	UNITS	DATE ANALYZED	FLAG
Alkalinity, Bicarb.(CaCO3)	SM 2320 B	270	5.0	mg/L	10/15/1998	
Alkalinity, Carb. (CaCO3)	SM 2320 B	ND	5.0	mg/L	10/15/1998	
Alkalinity, Total (CaCO3)	310.1	270	5.0	mg/L	10/15/1998	
Chloride	EPA 300.0	1.8	0.5	mg/L	10/16/1998	
ICP/AA Digestion - Water	ICP	-			10/16/1998	
Calcium, ICP	6010	130	0.05	mg/L	10/20/1998	
Magnesium, ICP	6010	50	0.05	mg/L	10/20/1998	
Potassium, ICP	6010	1.6	0.2	mg/L	10/19/1998	
Sodium, ICP	6010	10	0.2	mg/L	10/20/1998	

Sample Number 106518 — Sample Description 810048-22 (MW-95)

PARAMETERS	METHODS	RESULTS	REPORT LIMIT	UNITS	DATE ANALYZED	FLAG
Alkalinity, Bicarb.(CaCO3)	SM 2320 B	320	5.0	mg/L	10/15/1998	
Alkalinity, Carb. (CaCO3)	SM 2320 B	ND	5.0	mg/L	10/15/1998	

A sample result of ND indicates the parameter was Not Detected at the reporting limit.

ANALYTICAL REPORT

Kim McNeill
Pinnacle Laboratories
2709-D Pan American Fwy NE
Albuquerque, NM 87107

10/22/1998
Job No.: 98.02005

Project Name: 810048 / MOC
Date Received: 10/14/1998

Sample Number 106518 — Sample Description 810048-22 (MW-95)

PARAMETERS	METHODS	RESULTS	REPORT LIMIT	UNITS	DATE ANALYZED	FLAG
Alkalinity, Total (CaCO3)	310.1	320	5.0	mg/L	10/15/1998	
Chloride	EPA 300.0	1.3	0.5	mg/L	10/16/1998	
ICP/AA Digestion - Water	ICP	-			10/16/1998	
Calcium, ICP	6010	79	0.05	mg/L	10/20/1998	
Magnesium, ICP	6010	35	0.05	mg/L	10/20/1998	
Potassium, ICP	6010	1.9	0.2	mg/L	10/19/1998	
Sodium, ICP	6010	3.6	0.2	mg/L	10/20/1998	

Sample Number 106519 — Sample Description 810048-24 (MW-97)

PARAMETERS	METHODS	RESULTS	REPORT LIMIT	UNITS	DATE ANALYZED	FLAG
Alkalinity, Bicarb.(CaCO3)	SM 2320 B	280	5.0	mg/L	10/15/1998	
Alkalinity, Carb. (CaCO3)	SM 2320 B	ND	5.0	mg/L	10/15/1998	
Alkalinity, Total (CaCO3)	310.1	280	5.0	mg/L	10/15/1998	
Chloride	EPA 300.0	1.0	0.5	mg/L	10/16/1998	
ICP/AA Digestion - Water	ICP	-			10/16/1998	
Calcium, ICP	6010	110	0.05	mg/L	10/20/1998	
Magnesium, ICP	6010	41	0.05	mg/L	10/20/1998	
Potassium, ICP	6010	2.6	0.2	mg/L	10/19/1998	
Sodium, ICP	6010	6.6	0.2	mg/L	10/20/1998	

Sample Number 106520 — Sample Description 810048-27 (MW-82)

PARAMETERS	METHODS	RESULTS	REPORT LIMIT	UNITS	DATE ANALYZED	FLAG
Alkalinity, Bicarb.(CaCO3)	SM 2320 B	300	5.0	mg/L	10/15/1998	
Alkalinity, Carb. (CaCO3)	SM 2320 B	ND	5.0	mg/L	10/15/1998	
Alkalinity, Total (CaCO3)	310.1	300	5.0	mg/L	10/15/1998	
Chloride	EPA 300.0	7.0	0.5	mg/L	10/16/1998	
ICP/AA Digestion - Water	ICP	-			10/16/1998	
Calcium, ICP	6010	120	0.05	mg/L	10/20/1998	

A sample result of ND indicates the parameter was Not Detected at the reporting limit.

ANALYTICAL REPORT

Kim McNeill
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2709-D Pan American Fwy NE
Albuquerque, NM 87107

10/22/1998
Job No.: 98.02005

Project Name: 810048 / MOC
Date Received: 10/14/1998

Sample Number	Sample Description
106520	810048-27 (MW-82)

PARAMETERS	METHODS	RESULTS	REPORT LIMIT	UNITS	DATE ANALYZED	FLAG
Magnesium, ICP	6010	51	0.05	mg/L	10/20/1998	
Potassium, ICP	6010	2.1	0.2	mg/L	10/19/1998	
Sodium, ICP	6010	44	4.0	mg/L	10/20/1998	DIL,Q

Sample Number	Sample Description
106521	810048-28 (MW-68)

PARAMETERS	METHODS	RESULTS	REPORT LIMIT	UNITS	DATE ANALYZED	FLAG
Alkalinity, Bicarb.(CaCO3)	SM 2320 B	300	5.0	mg/L	10/15/1998	
Alkalinity, Carb. (CaCO3)	SM 2320 B	ND	5.0	mg/L	10/15/1998	
Alkalinity, Total (CaCO3)	310.1	300	5.0	mg/L	10/15/1998	
Chloride	EPA 300.0	2.8	0.5	mg/L	10/16/1998	
ICP/AA Digestion - Water	ICP	-			10/16/1998	
Calcium, ICP	6010	84	0.05	mg/L	10/20/1998	
Magnesium, ICP	6010	34	0.05	mg/L	10/20/1998	
Potassium, ICP	6010	2.3	0.2	mg/L	10/19/1998	
Sodium, ICP	6010	14	0.2	mg/L	10/20/1998	

A sample result of ND indicates the parameter was Not Detected at the reporting limit.

QUALITY CONTROL REPORT
CONTINUING CALIBRATION VERIFICATION

Pinnacle Laboratories
2709-D Pan American Fwy NE
Albuquerque, NM 87107

Date: 10/22/1998

Job Number: 98.02005

Contact: Kim McNeill
Project: 810048 / MOC

Analyte	CCV True Concentration	Concentration Found	Percent Recovery	Date Analyzed
Alkalinity, Bicarb.(CaCO3)	201	220	109.5	10/15/1998
Chloride	10.0	9.5	95.0	10/16/1998
Fluoride, Total	7.0	7.2	102.9	10/20/1998
Calcium, ICP	25.0	23.5	94.0	10/20/1998
Calcium, ICP	25.0	23.8	95.2	10/19/1998
Magnesium, ICP	25.0	25.1	100.4	10/20/1998
Potassium, ICP	5.00	4.98	99.6	10/20/1998
Sodium, ICP	5.00	4.76	95.2	10/20/1998

CCV - Continuing Calibration Verification

QUALITY CONTROL REPORT
LABORATORY CONTROL STANDARD

Pinnacle Laboratories
2709-D Pan American Fwy NE
Albuquerque, NM 87107

Date: 10/22/1998

Job Number: 98.02005

Contact: Kim McNeill
Project: 810048 / MOC

Analyte	LCS True Concentration	Concentration Found	LCS % Recovery	Flags	Date Analyzed
Cyanide, Total	0.20	0.212	106.0		10/16/1998
Cyanide, Total	0.20	0.191	95.5		10/20/1998
Solids, Total Dissolved	1904	2014	105.8		10/16/1998
Calcium, ICP	5.00	4.58	91.6		10/20/1998
Magnesium, ICP	5.00	4.90	98.0		10/20/1998
Potassium, ICP	5.00	5.14	102.8		10/20/1998
Sodium, ICP	5.00	4.58	91.6		10/20/1998

LCS - Laboratory Control Standard

QUALITY CONTROL REPORT
MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Pinnacle Laboratories
2709-D Pan American Fwy NE
Albuquerque, NM 87107

Date: 10/22/1998

Job Number: 98.02005

Contact: Kim McNeill
Project: 810048 / MOC

Analyte	Matrix Spike Result	Sample Result	Spike Amount	Units	Percent Recovery	MSD Result	MSD Spike Amount	Units	Percent Recovery	MS/MSD RPD	Flags
Chloride	13.8	3.5	10.0	mg/L	103.0	13.3	10.0	mg/L	98.0	4.9	
Fluoride, Total	7.0	2.0	5.0	mg/L	100.0	7.0	5.0	mg/L	100.0	0.0	
Calcium, ICP		74	5.00	mg/L			5.00	mg/L			MD
Magnesium, ICP		31	5.00	mg/L			5.00	mg/L			MD
Potassium, ICP	8.06	2.3	5.00	mg/L	115.2	8.05	5.00	mg/L	115.0	0.2	
Sodium, ICP	10.7	6.2	5.00	mg/L	90.0	10.7	5.00	mg/L	90.0	0.0	

QC Sample:

NOTE: Matrix Spike Samples may not be samples from this job.

MS = Matrix Spike
MSD = Matrix Spike Duplicate
RPD = Relative Percent Difference
dil.= Diluted Out

Environmental Services Laboratory,Inc. (503)670-8520 (503)670-9243 FAX
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QUALITY CONTROL REPORT
SPIKE

Pinnacle Laboratories
2709-D Pan American Fwy NE
Albuquerque, NM 87107

Date: 10/22/1998

Job Number: 98.02005

Contact: Kim McNeill
Project: 810048 / MOC

Analyte	Original Analysis	Spike Analysis	Spike Amount	Units	Percent Recovery	Flag
Cyanide, Total	ND	0.193	0.20	mg/L	96.5	

QUALITY CONTROL REPORT
BLANKS

Pinnacle Laboratories
2709-D Pan American Fwy NE
Albuquerque, NM 87107

Date: 10/22/1998

Job Number: 98.02005

Contact: Kim McNeill
Project: 810048 / MOC
Location: Indian Basin Remediation

Analyte	Blank Analysis	Report Limit	Units	Date Analyzed
Alkalinity, Bicarb.(CaCO3)	ND	5.0	mg/L	10/15/1998
Chloride	ND	0.5	mg/L	10/16/1998
Cyanide, Total	ND	0.02	mg/L	10/16/1998
Cyanide, Total	ND	0.02	mg/L	10/20/1998
Fluoride, Total	ND	0.2	mg/L	10/20/1998
Solids, Total Dissolved	ND	10	mg/L	10/16/1998
Calcium, ICP	ND	0.05	mg/L	10/20/1998
Magnesium, ICP	ND	0.05	mg/L	10/20/1998
Potassium, ICP	ND	0.2	mg/L	10/20/1998
Sodium, ICP	ND	0.2	mg/L	10/20/1998

QUALITY CONTROL REPORT
DUPLICATES

Pinnacle Laboratories
2709-D Pan American Fwy NE
Albuquerque, NM 87107

Date: 10/22/1998

Job Number: 98.02005

Contact: Kim McNeill
Project: 810048 / MOC

Analyte	Original Analysis	Duplicate Analysis	Units	RPD	Date Analyzed	Flag
Alkalinity, Bicarb.(CaCO3)	320	330	mg/L	3.1	10/15/1998	
Alkalinity, Bicarb.(CaCO3)	ND	ND	mg/L		10/15/1998	
Alkalinity, Bicarb.(CaCO3)	320	330	mg/L	3.1	10/15/1998	
Alkalinity, Carb. (CaCO3)	320	330	mg/L	3.1	10/15/1998	
Alkalinity, Carb. (CaCO3)	ND	ND	mg/L		10/15/1998	
Alkalinity, Carb. (CaCO3)	320	330	mg/L	3.1	10/15/1998	
Alkalinity, Total (CaCO3)	320	330	mg/L	3.1	10/15/1998	
Alkalinity, Total (CaCO3)	ND	ND	mg/L		10/15/1998	
Alkalinity, Total (CaCO3)	320	330	mg/L	3.1	10/15/1998	
Chloride	3.5	3.8	mg/L	8.2	10/16/1998	
Cyanide, Total	ND	ND	mg/L		10/16/1998	
Cyanide, Total	ND	ND	mg/L		10/20/1998	
Fluoride, Total	2.0	2.0	mg/L	0.0	10/20/1998	
Solids, Total Dissolved	680	730	mg/L	7.1	10/16/1998	

NOTE: Duplicates may not be samples from this job.

RPD - Relative Percent Difference

FLAG GLOSSARY

A	This sample does not have a typical gasoline pattern.
B1	This sample does not have a typical diesel pattern.
B	Analyte found in the associated blank as well as the sample.
C	The sample contains a lighter hydrocarbon than gasoline.
CN	See case narrative
CS	Outside control limits or unusual matrix; see case narrative.
D	The sample extends to a heavier hydrocarbon range than gasoline.
d	Results on a dry weight basis
DIL	Result was calculated from dilution.
E	The sample extends to a lighter hydrocarbon range than diesel.
F	The sample extends to a heavier hydrocarbon range than diesel.
G	The positive result for gasoline is due to single component comtamination.
H	The sample extends to a lighter hydrocarbon range than oil.
I	The oil pattern for this sample is not typical.
J	The result for this compound is an estimated concentration.
L	The LCS recovery exceeded control limits. See the LCS page of this report.
LM	The LCS recovery exeeded control limits; the MS/MSD were in control validating the batch.
M	MS and/or MSD percent recovery exceeds control limits.
MD	Unable to calculate MS/MSD recovery due to high amount of analyte; greater than 4 times spike level.
MR	The MS/MSD RPD is greater than method critera. The sample was re-extracted and re-analyzed with similar results indicating a non-homogeneous sample.
MM	The Matrix Spike exceeded control limits; LCS was in control validating the batch.
MI	Outside control limits due to matrix interference.
N	Manual integration performed on sample for quantification.
N/A	Not Applicable.
NC	Not calcuable.
NO	Not Analyzed.
P	A post digestion spike was analyzed, and recoveries were within control limits.
Q	Detection limits elevated due to sample matrix.
Q1	Detection limits elevated due to high levels of non-target compounds. Sample(s) run at a dilution.
R	The duplicate RPD was greater than 20%. The sample was re-extracted and re-analyzed with similar results. This indicates a matrix interference in the sample, likely a non-homogeneity of the sample.
R1	The duplicate RPD was greater than 20%. Visual inspection showed the sample to be non-homogeneous.
RD	RPD not applicable for results less than five times the reporting limit.
RH	The Relative Percent Difference (RPD) between two columns was greater than 40%, the higher result was reported.
RL	The Relative Percent Difference (RPD) between two columns was greater than 40%, the lower result was reported due to obvious interference with the higher result.
RP	MS/MSD RPD is greater than 20%
SR	Surrogate recovery outside control limits. See the surrogate page of the report.
SD	Unable to quantitate surrogate due to sample dilution.
SC	Sample not provided to laboratory in proper sampling container.
V	Volatile analysis was requested, sample container received with headspace.
X1	The duplicate RPD was greater than 20%. Due to insufficient sample, re-analysis was not possible.
X	Sample was analyzed outside recommended holding times.
Y	The result for this parameter was greater than the TCLP regulatory limit.
Z	The pattern seen for the parameter being analyzed is not typical.

Environmental Services Laboratory, Inc.

E S L

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Kim McNeill
Pinnacle Laboratories
2709-D Pan American Fwy NE
Albuquerque, NM 87107

Date: 11/03/1998
ESL Account No.: 90147
ESL Job Number: 98.02114

Project: 810048 / MOC
Location: Indian Basin

Sample analysis in support of the project referenced above has been completed and results are presented on the following pages. Should you have questions regarding procedures or results, please feel welcome to contact Client Services.

Sample Number	Sample Description	Matrix Type	Date Taken	Date Received
106939	810048-15 (MW-71)	Water	10/11/1998	10/14/1998

Approved by:

Andi Hoevet
Project Manager
ESL, INC.

Technical Review
ESL, INC.

The results from these samples relate only to the items tested. This report shall not be reproduced, except in full, without the written approval of the laboratory.

ANALYTICAL SERVICES FOR THE ENVIRONMENT

ANALYTICAL REPORT

Kim McNeill
Pinnacle Laboratories
2709-D Pan American Fwy NE
Albuquerque, NM 87107

11/03/1998
Job No.: 98.02114

Project Name: 810048 / MOC
Date Received: 10/14/1998

Sample Number	Sample Description
106939	810048-15 (MW-71)

PARAMETERS	METHODS	RESULTS	REPORT LIMIT	UNITS	DATE ANALYZED	FLAG
Sulfate	375.4	500	125	mg/L	11/03/1998	DIL,Q

A sample result of ND indicates the parameter was Not Detected at the reporting limit.
mg = ppm ug = ppb su = standard units

QUALITY CONTROL REPORT
CONTINUING CALIBRATION VERIFICATION

Pinnacle Laboratories
2709-D Pan American Fwy NE
Albuquerque, NM 87107

Date: 11/03/1998

Job Number: 98.02114

Contact: Kim McNeill
Project: 810048 / MOC

Analyte	CCV True Concentration	Concentration Found	Percent Recovery	Date Analyzed
Sulfate	13.9	12.9	92.8	11/03/1998

CCV - Continuing Calibration Verification

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QUALITY CONTROL REPORT
MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Pinnacle Laboratories
2709-D Pan American Fwy NE
Albuquerque, NM 87107

Date: 11/03/1998

Job Number: 98.02114

Contact: Kim McNeill
Project: 810048 / MOC

Analyte	Matrix Spike Result	Sample Result	Spike Amount	Units	Percent Recovery	MSD Result	MSD Spike Amount	Units	Percent Recovery	MS/MSD RPD	Flags
Sulfate	18.6	ND	15.0	mg/L	124.0	17.3	15.0	mg/L	115.3	7.3	

QC Sample:

NOTE: Matrix Spike Samples may not be samples from this job.

MS = Matrix Spike
MSD = Matrix Spike Duplicate
RPD = Relative Percent Difference
dil.= Diluted Out

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QUALITY CONTROL REPORT
BLANKS

Pinnacle Laboratories
2709-D Pan American Fwy NE
Albuquerque, NM 87107

Date: 11/03/1998

Job Number: 98.02114

Contact: Kim McNeill
Project: 810048 / MOC
Location: Indian Basin

Analyte	Blank Analysis	Report Limit	Units	Date Analyzed
Sulfate	ND	5.0	mg/L	11/03/1998

QUALITY CONTROL REPORT
DUPLICATES

Pinnacle Laboratories
2709-D Pan American Fwy NE
Albuquerque, NM 87107

Date: 11/03/1998

Job Number: 98.02114

Contact: Kim McNeill
Project: 810048 / MOC

Analyte	Original Analysis	Duplicate Analysis	Units	RPD	Date Analyzed	Flag
Sulfate	ND	ND	mg/L		11/03/1998	

NOTE: Duplicates may not be samples from this job.

RPD - Relative Percent Difference

FLAG GLOSSARY

A	This sample does not have a typical gasoline pattern.
B1	This sample does not have a typical diesel pattern.
B	Analyte found in the associated blank as well as the sample.
C	The sample contains a lighter hydrocarbon than gasoline.
CN	See case narrative
CS	Outside control limits or unusual matrix; see case narrative.
D	The sample extends to a heavier hydrocarbon range than gasoline.
d	Results on a dry weight basis
DIL	Result was calculated from dilution.
E	The sample extends to a lighter hydrocarbon range than diesel.
F	The sample extends to a heavier hydrocarbon range than diesel.
G	The positive result for gasoline is due to single component comtamination.
H	The sample extends to a lighter hydrocarbon range than oil.
I	The oil pattern for this sample is not typical.
J	The result for this compound is an estimated concentration.
L	The LCS recovery exceeded control limits. See the LCS page of this report.
LM	The LCS recovery exeeded control limits; the MS/MSD were in control validating the batch.
M	MS and/or MSD percent recovery exceeds control limits.
MD	Unable to calculate MS/MSD recovery due to high amount of analyte; greater than 4 times spike level.
MR	The MS/MSD RPD is greater than method critera. The sample was re-extracted and re-analyzed with similar results indicating a non-homogeneous sample.
MM	The Matrix Spike exceeded control limits; LCS was in control validating the batch.
MI	Outside control limits due to matrix interference.
N	Manual integration performed on sample for quantification.
N/A	Not Applicable.
NC	Not calcuable.
NO	Not Analyzed.
P	A post digestion spike was analyzed, and recoveries were within control limits.
Q	Detection limits elevated due to sample matrix.
Q1	Detection limits elevated due to high levels of non-target compounds. Sample(s) run at a dilution.
R	The duplicate RPD was greater than 20%. The sample was re-extracted and re-analyzed with similar results. This indicates a matrix interference in the sample, likely a non-homogeneity of the sample.
R1	The duplicate RPD was greater than 20%. Visual inspection showed the sample to be non-homogeneous.
RD	RPD not applicable for results less than five times the reporting limit.
RH	The Relative Percent Difference (RPD) between two columns was greater than 40%, the higher result was reported.
RL	The Relative Percent Difference (RPD) between two columns was greater than 40%, the lower result was reported due to obvious interference with the higher result.
RP	MS/MSD RPD is greater than 20%
SR	Surrogate recovery outside control limits. See the surrogate page of the report.
SD	Unable to quantitate surrogate due to sample dilution.
SC	Sample not provided to laboratory in proper sampling container.
V	Volatile analysis was requested, sample container received with headspace.
X1	The duplicate RPD was greater than 20%. Due to insufficient sample, re-analysis was not possible.
X	Sample was analyzed outside recommended holding times.
Y	The result for this parameter was greater than the TCLP regulatory limit.
Z	The pattern seen for the parameter being analyzed is not typical.

Pinnacle Laboratories, Inc. **Interlab Chain of Custody** Date: 10/13 Page: 1 of 1

Network Project Manager: Kimberly D. McNeill

Pinnacle Laboratories, Inc.
2709-D Pan American Freeway, NE
Albuquerque, New Mexico 87107
(505) 344-3777 Fax (505) 344-4413

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	Metals (8) RCRA	RCRA TCLP METALS	Metals-13 PP List	~~Metals TAL~~ Na, Ca, Mg, K	Alk (Bicarb+carb), ~~SO4~~, CL	CN	~~TSS~~ TDS	Gen Chemistry FL		Oil and Grease	Volatile Organics GC/MS (8260)	BOD	COD	PESTICIDES/PCB (608/8080)	8270 BY GC/MS	PNA (8310)	8240 (TCLP 1311) ZHE	Herbicides (615/8150)	Base/Neutral Acid Compounds GC/MS (625/8270)	URANIUM	RADIUM 226+228	Gross Alpha/Beta	TO-14	NUMBER OF CONTAINERS
810048-03 (MW-63)	10/11/98	0915	AQ					X	X																			2
-07 (MW-89)	↓	1145	↓							X																		1
-09 (MW-66)	↓	1255	↓							X																		1
-11 (MW-61A)	↓	1430	↓							X																		1
-15 (MW-71)	↓	1710	↓					X	X		X	X																3
-18 (MW-87)	10/12	1030	↓					X	X																			2
-22 (MW-95)	↓	1255	↓					X	X																			2
-24 (MW-97)	↓	1410	↓					X	X																			2
-27 (MW-82)	↓	1550	↓					X	X																			2
-28 (MW-68)	↓	1630	↓					X	X																			2

PROJECT INFORMATION	SAMPLE RECEIPT		SAMPLES SENT TO:		RELINQUISHED BY: 1.	RELINQUISHED BY: 2.
PROJECT #: 810048	Total Number of Containers	18	PENSACOLA - STL-FL		Signature: McNeill Time: 3:30	Signature: Time:
PROJ. NAME: MOC	Chain of Custody Seals	N	PORTLAND - ESL-OR	X	Printed Name: Kim McNeill Date: 10/13/98	Printed Name: Date:
QC LEVEL: STD. IV	Received Intact?	Y	STL - CT		Pinnacle Laboratories, Inc.	Company
QC REQUIRED: MS MSD BLANK	Received Good Cond./Cold	Y	STL- NEW JERSEY		RECEIVED BY: 1.	RECEIVED BY: 2
TAT: STANDARD RUSHII	LAB NUMBER: 98.02005		N. CREEK		Signature: Time: 1000	Signature: Time:
DUE DATE: 10/23	COMMENTS:		BARRINGER		Printed Name: A. Hague Date: 10/14/98	Printed Name: Date:
RUSH SURCHARGE: Ø			SEQUOIA		Company ESL	Company
CLIENT DISCOUNT: NA						
SPECIAL CERTIFICATION REQUIRED: YES (NO)						

American Environmental Network (NM), Inc.

CHAIN OF CUSTODY

DATE: 10/11/98 PAGE: 1 OF 3

AEN(NM) Accession #: 810048

SHADED AREAS ARE FOR LAB USE ONLY.

PLEASE FILL THIS FORM IN COMPLETELY.

PROJECT MANAGER: Paul Peacock

COMPANY: Marathon Oil Co

ADDRESS:

Midland Tx

PHONE:

FAX:

BILL TO:

COMPANY:

ADDRESS: Same As Above

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~~ ☐ ~~EDC~~	8021 (TCL)	8021 (EDX)	8021 (HALO)	8021 (CUST)	504.1 EDB ☐ / DBCP ☐	TDS 160.1	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) PAH	General Chemistry:	Cyanide 335.2	Cations/Anions (Na)(Ca)(Mg)(K) (HCO3)(SO4)(Cl)	Priority Pollutant Metals (13)	Target Analyte List Metals (23)	RCRA Metals (8)	RCRA Metals by TCLP (Method 1311)	~~Metals~~ Sulfate 375.4	Fluoride 340.2 / 4500-FC	NUMBER OF CONTAINERS
DI H2O	10/11/98	0820	Water	01					X																								2
Int RB		0825		02					X																								2
mw-63		0915		03																						X							3
mw-63RB		0940		04					X																								2
mw-111		1035		05					X																								2
mw-111RB		1055		06					X																								2
mw-89		1145		07					X																X								3
mw-89RB		1205		08					X																								2
mw-66		1255		09					X																X								3
mw-66RB		1340		10					X																								2

PROJECT INFORMATION

PROJ. NO. 104332.40

PROJ. NAME: Indian Basin Remediation

P.O. NO.

SHIPPED VIA

SAMPLE RECEIPT

NO. CONTAINERS	23
CUSTODY SEALS	Y/N/NA
RECEIVED INTACT	Y
BLUE ICE/ICE	Y

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 [ ]

Metals Bottle has been Field Filtered

RELINQUISHED BY: 1.

Signature: K R Cook Time: 1540

Printed Name: Kevin Cook Date: 10/13/98

Company: FDGFT

RECEIVED BY: 1.

Signature: Time:

Printed Name: Date:

Company

RELINQUISHED BY: 2.

Signature: Time:

Printed Name: Date:

Company:

RECEIVED BY: (LAB) 2.

Signature: Time: 1540

Printed Name: Date: 10/13/98

American Enviromental Network (NM) Inc.

DISTRIBUTION: White - AEN, Canary - Originator

American Environmental Network (NM), Inc.

CHAIN OF CUSTODY

DATE: 10/11-12/98 PAGE: 2 OF 3

AEN(NM) Accession #: 8101145

SHADED AREAS ARE FOR LAB USE ONLY.

PLEASE FILL THIS FORM IN COMPLETELY.

PROJECT MANAGER: Paul Peacock

COMPANY: Marathon Oil Co

ADDRESS: Midland TX

PHONE:

FAX:

BILL TO:

COMPANY:

ADDRESS: Same as above

ANALYSIS REQUESTED

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 335.2	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:	TDS, Cl, SO4, Cations/Carbonates (Ca, Mg, Na, K, HCO3, CO3, Cl, SO4)	Priority Pollutant Metals (13)	Target Analyte List Metals (23)	RCRA Metals (8)	RCRA Metals by TCLP (Method 1311)	Metals: Sulfide 375.4	Fluoride 340.2 / 4500-F C	NUMBER OF CONTAINERS
MW-61A	10/11/98	1430	WATER	11					X						X																	3
MW-61ARB		1455		12					X																							2
MW-88		1525		13					X																							2
MW-88RB		1545		14					X																							2
MW-71		1710		15					X																X	X				X	X	6
MW-71RB	10/12/98	0750		16					X																							2
MW-87ARB		0850		17					X																							2
~~MW-87A~~		~~0950~~							X																X	X				X	X	6
MW-87		1030		18					X																	X						5
MW-87RB		1100		19					X																							2

KC

PROJECT INFORMATION	
PROJ NO.	104332.40
PROJ NAME	Indian Basin Remediation
PO NO	
SHIPPED VIA	
SAMPLE RECEIPT	
NO. CONTAINERS	26
CUSTODY SEALS	Y/N/(NA)
RECEIVED INTACT	Y
BLUE ICE/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 [ ]

Metals Bottle has been Field filtered

RELINQUISHED BY: 1.	RELINQUISHED BY: 2.
Signature: Kevin Cole Time: 1540	Signature: Time:
Printed Name: Kevin Cole Date: 10/13/98	Printed Name: Date:
Company: PDGTI	Company:
RECEIVED BY: 1.	**RECEIVED BY: (LAB) 2.**
Signature: Time:	Signature: Time: 1540
Printed Name: Date:	Printed Name: Date: 10/13/98
Company:	American Environmental Network (NM), Inc.

ASSAIGAI ANALYTICAL LABORATORIES

Chain of Custody Record

7300 JEFFERSON, N.E.
ALBUQUERQUE, NEW MEXICO 87109
(505) 345-8964

3332 WEDGEWOOD
EL PASO, TEXAS 79925
(915) 593-6000

1910 N. BIG SPRING
MIDLAND, TEXAS 79705
(915) 570-1116

MELQUIADES ALANIS
6411 LOCAL UNO
CIUDAD JUAREZ, CHIHUAHUA MEXICO 32320

810048

Lab Job no.: _____ Date 10/12/98

Page 3 of 3

Client: Marathon O/C

Project Manager / Contact: Paul Peacock

Address: _____

Telephone No.: _____

City / State / Zip: Midland TX

Fax No.: _____

Project Name / Number: _____

Samplers: (Signature) Kevin Cook

Contract / Purchase Order / Quote: _____

Analysis Required

AAL Fraction Number	Field Sample Number / Location	Date	Time	Sample Type	Type / Size of Container	Preservation Temp.	Preservation Chemical	No. of Containers	BTEX 8021	Cyanide 335.2	TDS 160.1	Anions/Cations (Na, Ca, Mg, K, HCO3, SO4, Cl, Br)	pH AH 8310	Sulfate 375.4	Fluoride 340.2/4500-F C	Remarks
20	MW-60	10/12/98	1145	WAT	2				X							
21	MW-60RB		1215		2				X							
22	MW-95		1255		5							X	X			
23	MW-95RB		1330		2				X							
24	MW-97		1410		5				X			X				
25	MW-97RB		1425		2				X							
26	MW-96		1515		2				X							
27	MW-82		1550		3							X				
28	MW-68		1630		3							X				
29	Trip Blank	10/1/98	1720		1				X							

27

Relinquished by:	Date	Received by:	Relinquished by:	Date	Received by:
Signature: Kevin Cook	10/13/98	Signature:	Signature:	10/13/98	Signature:
Printed: Kevin Cook	Time	Printed:	Printed:	Time	Printed:
Company: FDGT	1540	Company:	Company:	1540	Company:
Reason:		Reason:	Reason:		Reason:

Method of Shipment: _____

Shipment No. _____

Special Instructions: _____

Comments: _____

After analysis, samples are to be:

- ☐ Disposed of (additional fee)
- ☐ Stored (30 days max)
- ☐ Stored over 30 days (additional fee)
- ☐ Returned to customer

LABORATORY

Marathon October 1998 Gauging/Sampling Event
October 8-15, 1998

Note: Paul will turn have pumps turned off the day before gauging are collected. Static gauging event is needed for modelling.

Well ID	BTEX	Cyanide	Anions/Cations	Sulfate	Fluoride	TDS	PAH	Comments
MW-60	X							
MW-61A	X	X						
MW-63			X					
MW-66	X	X						
MW-68			X					Has pump in well
MW-71	X		X	X	X	X		
MW-82			X					(has pump in well)
MW-87	X		X					
MW-87A	X		X	X	X	X		
MW-88	X							
MW-89	X	X						
MW-95			X				X	bottle broke during shipment in 6/98
MW-96	X							
MW-97	X		X					
MW-111	X							

Analysis	Constituents	Method
BTEX	Benzene, Toluene, Ethylbenzene, Xylene	EPA 8021 VOA'S
Cyanide	Cyanide	335.2 1 Liter Poly w/NAOH
Anions/ Cations	Sodium (Na), Calcium (Ca), Magnesium (Mg), Potassium (K), Bicarbonate (HCO_3), Sulfide (SO_4), Chloride (Cl), Carbonate (CO_3)	
Sulfate	Sulfate	375.4
Fluoride	Fluoride	340.2/4506-FC
TDS	TDS	160.1 1 500 ml NO ACID
PAH	benzo(a)pyrene and 1-methylnaphthalene	EPA 8310 2 Amber Liters NO ACID

9/30/98 - not confirmed by Paul. Left voice mail for him 7:15P. No word back. Gave him Terry's name

ANALYTICAL REPORT

Kim McNeill
Pinnacle Laboratories
2709-D Pan American Fwy NE
Albuquerque, NM 87107

11/18/1998
Job No.: 98.02179

Page: 2

Project Name: 810048 / MOC
Date Received: 10/14/1998

Sample Number 107186 — Sample Description 810048-03 (MW-63)

PARAMETERS	METHODS	RESULTS	REPORT LIMIT	UNITS	DATE ANALYZED	FLAG
Sulfate	375.4	28.1	5.0	mg/L	11/18/1998	

Sample Number 107187 — Sample Description 810048-15 (MW-71)

PARAMETERS	METHODS	RESULTS	REPORT LIMIT	UNITS	DATE ANALYZED	FLAG
Sulfate	375.4	550	250	mg/L	11/18/1998	DIL

Sample Number 107188 — Sample Description 810048-18 (MW-87)

PARAMETERS	METHODS	RESULTS	REPORT LIMIT	UNITS	DATE ANALYZED	FLAG
Sulfate	375.4	260	250	mg/L	11/18/1998	DIL

Sample Number 107189 — Sample Description 810048-22 (MW-95)

PARAMETERS	METHODS	RESULTS	REPORT LIMIT	UNITS	DATE ANALYZED	FLAG
Sulfate	375.4	19	5.0	mg/L	11/18/1998	

Sample Number 107190 — Sample Description 810048-24 (MW-97)

PARAMETERS	METHODS	RESULTS	REPORT LIMIT	UNITS	DATE ANALYZED	FLAG
Sulfate	375.4	200	50.0	mg/L	11/18/1998	DIL

Sample Number 107191 — Sample Description 810048-27 (MW-82)

PARAMETERS	METHODS	RESULTS	REPORT LIMIT	UNITS	DATE ANALYZED	FLAG
Sulfate	375.4	190	50.0	mg/L	11/18/1998	DIL

A sample result of ND indicates the parameter was Not Detected at the reporting limit.
mg = ppm ug = ppb su = standard units

Environmental Services Laboratory, Inc. (503) 670-8520 (503) 670-9243 FAX
17400 SW Upper Boones Ferry Rd., Suite 270, Portland, OR 97224

ANALYTICAL REPORT

Kim McNeill
Pinnacle Laboratories
2709-D Pan American Fwy NE
Albuquerque, NM 87107

11/18/1998
Job No.: 98.02179

Page: 3

Project Name: 810048 / MOC
Date Received: 10/14/1998

Sample Number	Sample Description
107192	810048-29 (MW-69)

PARAMETERS	METHODS	RESULTS	REPORT LIMIT	UNITS	DATE ANALYZED	FLAG
Sulfate	375.4	70	50.0	mg/L	11/18/1998	DIL

A sample result of ND indicates the parameter was Not Detected at the reporting limit.
mg = ppm ug = ppb su = standard units

Environmental Services Laboratory. Inc.(503) 670-8520 (503) 670-9243 FAX
17400 SW Upper Boones Ferry Rd., Suite 270, Portland, OR 97224

ANALYTICAL REPORT

Kim McNeill
Pinnacle Laboratories
2709-D Pan American Fwy NE
Albuquerque, NM 87107

10/22/1998
Job No.: 98.02005

Project Name: 810048 / MOC
Date Received: 10/14/1998

Sample Number 106512 — Sample Description 810048-03 (MW-63)

PARAMETERS	METHODS	RESULTS	REPORT LIMIT	UNITS	DATE ANALYZED	FLAG
Alkalinity, Bicarb.(CaCO3)	SM 2320 B	330	5.0	mg/L	10/15/1998	
Alkalinity, Carb. (CaCO3)	SM 2320 B	ND	5.0	mg/L	10/15/1998	
Alkalinity, Total (CaCO3)	310.1	330	5.0	mg/L	10/15/1998	
Chloride	EPA 300.0	1.3	0.5	mg/L	10/16/1998	
ICP/AA Digestion - Water	ICP	-			10/16/1998	
Calcium, ICP	6010	74	0.05	mg/L	10/20/1998	MD
Magnesium, ICP	6010	31	0.05	mg/L	10/20/1998	MD
Potassium, ICP	6010	2.3	0.2	mg/L	10/20/1998	
Sodium, ICP	6010	6.2	0.2	mg/L	10/20/1998	

Sample Number 106513 — Sample Description 810048-07 (MW-89)

PARAMETERS	METHODS	RESULTS	REPORT LIMIT	UNITS	DATE ANALYZED	FLAG
Cyanide Distillation		-			10/16/1998	
Cyanide, Total	9010	ND	0.02	mg/L	10/20/1998	

Sample Number 106514 — Sample Description 810048-09 (MW-66)

PARAMETERS	METHODS	RESULTS	REPORT LIMIT	UNITS	DATE ANALYZED	FLAG
Cyanide Distillation		-			10/16/1998	
Cyanide, Total	9010	ND	0.02	mg/L	10/20/1998	

Sample Number 106515 — Sample Description 810048-11 (MW-61A)

PARAMETERS	METHODS	RESULTS	REPORT LIMIT	UNITS	DATE ANALYZED	FLAG
Cyanide Distillation		-			10/16/1998	
Cyanide, Total	9010	ND	0.02	mg/L	10/20/1998	

A sample result of ND indicates the parameter was Not Detected at the reporting limit.

ANALYTICAL REPORT

Kim McNeill
Pinnacle Laboratories
2709-D Pan American Fwy NE
Albuquerque, NM 87107

10/22/1998
Job No.: 98.02005

Project Name: 810048 / MOC
Date Received: 10/14/1998

Sample Number 106516 — Sample Description 810048-15 (MW-71)

PARAMETERS	METHODS	RESULTS	REPORT LIMIT	UNITS	DATE ANALYZED	FLAG
Alkalinity, Bicarb.(CaCO3)	SM 2320 B	320	5.0	mg/L	10/15/1998	
Alkalinity, Carb. (CaCO3)	SM 2320 B	ND	5.0	mg/L	10/15/1998	
Alkalinity, Total (CaCO3)	310.1	320	5.0	mg/L	10/15/1998	
Chloride	EPA 300.0	35	5.0	mg/L	10/16/1998	DIL,Q
Fluoride, Total	340.2	2.0	0.2	mg/L	10/20/1998	
Solids, Total Dissolved	160.1	1200	10	mg/L	10/16/1998	
ICP/AA Digestion - Water	ICP	-			10/16/1998	
Calcium, ICP	6010	200	0.05	mg/L	10/20/1998	
Magnesium, ICP	6010	87	0.05	mg/L	10/20/1998	
Potassium, ICP	6010	12	0.2	mg/L	10/20/1998	
Sodium, ICP	6010	27	4.0	mg/L	10/20/1998	DIL,Q

Sample Number 106517 — Sample Description 810048-18 (MW-87)

PARAMETERS	METHODS	RESULTS	REPORT LIMIT	UNITS	DATE ANALYZED	FLAG
Alkalinity, Bicarb.(CaCO3)	SM 2320 B	270	5.0	mg/L	10/15/1998	
Alkalinity, Carb. (CaCO3)	SM 2320 B	ND	5.0	mg/L	10/15/1998	
Alkalinity, Total (CaCO3)	310.1	270	5.0	mg/L	10/15/1998	
Chloride	EPA 300.0	1.8	0.5	mg/L	10/16/1998	
ICP/AA Digestion - Water	ICP	-			10/16/1998	
Calcium, ICP	6010	130	0.05	mg/L	10/20/1998	
Magnesium, ICP	6010	50	0.05	mg/L	10/20/1998	
Potassium, ICP	6010	1.6	0.2	mg/L	10/19/1998	
Sodium, ICP	6010	10	0.2	mg/L	10/20/1998	

Sample Number 106518 — Sample Description 810048-22 (MW-95)

PARAMETERS	METHODS	RESULTS	REPORT LIMIT	UNITS	DATE ANALYZED	FLAG
Alkalinity, Bicarb.(CaCO3)	SM 2320 B	320	5.0	mg/L	10/15/1998	
Alkalinity, Carb. (CaCO3)	SM 2320 B	ND	5.0	mg/L	10/15/1998	

A sample result of ND indicates the parameter was Not Detected at the reporting limit.

ANALYTICAL REPORT

Kim McNeill
Pinnacle Laboratories
2709-D Pan American Fwy NE
Albuquerque, NM 87107

10/22/1998
Job No.: 98.02005

Project Name: 810048 / MOC
Date Received: 10/14/1998

Sample Number 106518 — Sample Description 810048-22 (MW-95)

PARAMETERS	METHODS	RESULTS	REPORT LIMIT	UNITS	DATE ANALYZED	FLAG
Alkalinity, Total (CaCO3)	310.1	320	5.0	mg/L	10/15/1998	
Chloride	EPA 300.0	1.3	0.5	mg/L	10/16/1998	
ICP/AA Digestion - Water	ICP	-			10/16/1998	
Calcium, ICP	6010	79	0.05	mg/L	10/20/1998	
Magnesium, ICP	6010	35	0.05	mg/L	10/20/1998	
Potassium, ICP	6010	1.9	0.2	mg/L	10/19/1998	
Sodium, ICP	6010	3.6	0.2	mg/L	10/20/1998	

Sample Number 106519 — Sample Description 810048-24 (MW-97)

PARAMETERS	METHODS	RESULTS	REPORT LIMIT	UNITS	DATE ANALYZED	FLAG
Alkalinity, Bicarb.(CaCO3)	SM 2320 B	280	5.0	mg/L	10/15/1998	
Alkalinity, Carb. (CaCO3)	SM 2320 B	ND	5.0	mg/L	10/15/1998	
Alkalinity, Total (CaCO3)	310.1	280	5.0	mg/L	10/15/1998	
Chloride	EPA 300.0	1.0	0.5	mg/L	10/16/1998	
ICP/AA Digestion - Water	ICP	-			10/16/1998	
Calcium, ICP	6010	110	0.05	mg/L	10/20/1998	
Magnesium, ICP	6010	41	0.05	mg/L	10/20/1998	
Potassium, ICP	6010	2.6	0.2	mg/L	10/19/1998	
Sodium, ICP	6010	6.6	0.2	mg/L	10/20/1998	

Sample Number 106520 — Sample Description 810048-27 (MW-82)

PARAMETERS	METHODS	RESULTS	REPORT LIMIT	UNITS	DATE ANALYZED	FLAG
Alkalinity, Bicarb.(CaCO3)	SM 2320 B	300	5.0	mg/L	10/15/1998	
Alkalinity, Carb. (CaCO3)	SM 2320 B	ND	5.0	mg/L	10/15/1998	
Alkalinity, Total (CaCO3)	310.1	300	5.0	mg/L	10/15/1998	
Chloride	EPA 300.0	7.0	0.5	mg/L	10/16/1998	
ICP/AA Digestion - Water	ICP	-			10/16/1998	
Calcium, ICP	6010	120	0.05	mg/L	10/20/1998	

A sample result of ND indicates the parameter was Not Detected at the reporting limit.

ANALYTICAL REPORT

Kim McNeill
Pinnacle Laboratories
2709-D Pan American Fwy NE
Albuquerque, NM 87107

10/22/1998
Job No.: 98.02005

Project Name: 810048 / MOC
Date Received: 10/14/1998

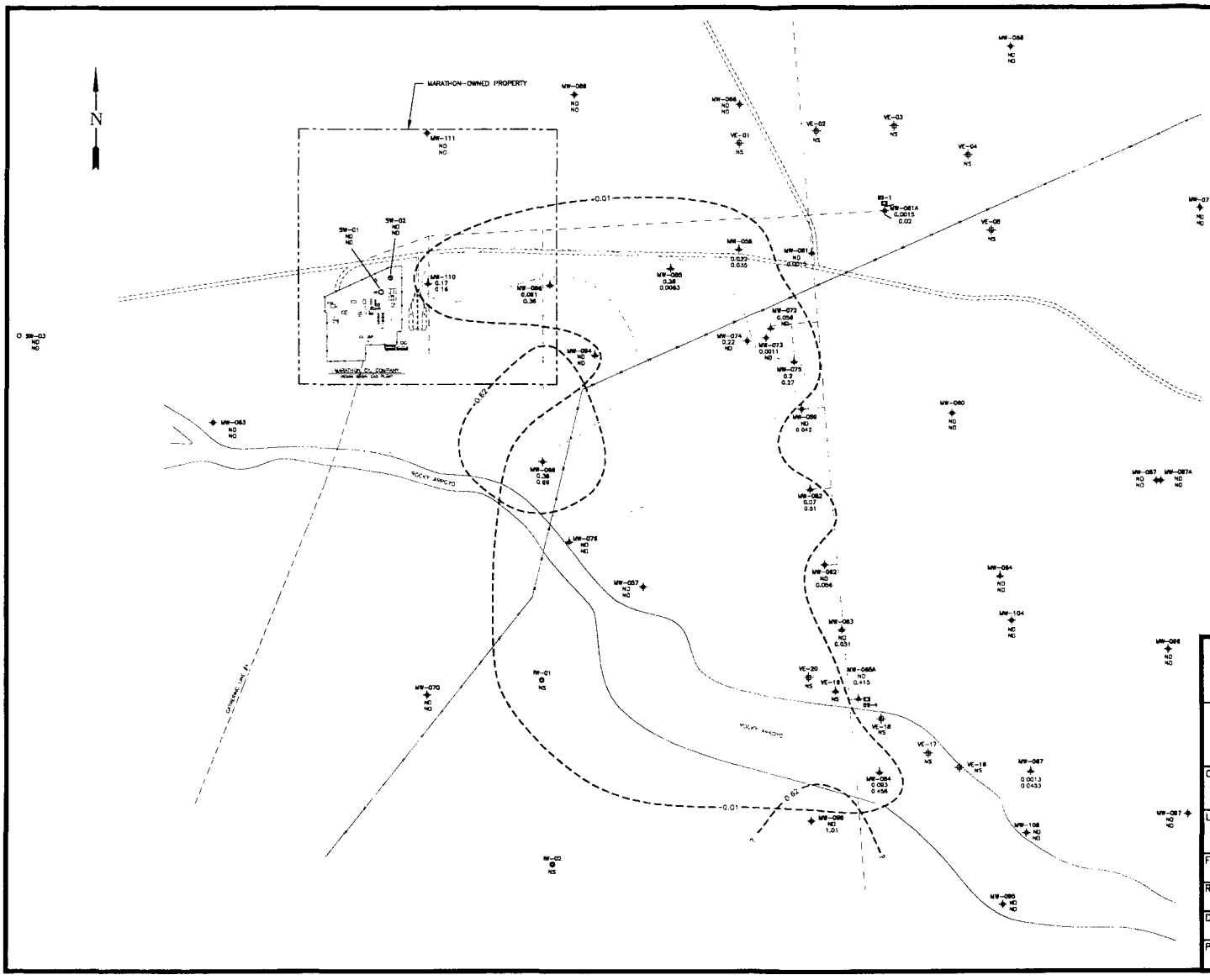
Sample Number 106520 — Sample Description 810048-27 (MW-82)

PARAMETERS	METHODS	RESULTS	REPORT LIMIT	UNITS	DATE ANALYZED	FLAG
Magnesium, ICP	6010	51	0.05	mg/L	10/20/1998	
Potassium, ICP	6010	2.1	0.2	mg/L	10/19/1998	
Sodium, ICP	6010	44	4.0	mg/L	10/20/1998	DIL,Q

Sample Number 106521 — Sample Description 810048-28 (MW-68)

PARAMETERS	METHODS	RESULTS	REPORT LIMIT	UNITS	DATE ANALYZED	FLAG
Alkalinity, Bicarb.(CaCO3)	SM 2320 B	300	5.0	mg/L	10/15/1998	
Alkalinity, Carb. (CaCO3)	SM 2320 B	ND	5.0	mg/L	10/15/1998	
Alkalinity, Total (CaCO3)	310.1	300	5.0	mg/L	10/15/1998	
Chloride	EPA 300.0	2.8	0.5	mg/L	10/16/1998	
ICP/AA Digestion - Water	ICP	-			10/16/1998	
Calcium, ICP	6010	84	0.05	mg/L	10/20/1998	
Magnesium, ICP	6010	34	0.05	mg/L	10/20/1998	
Potassium, ICP	6010	2.3	0.2	mg/L	10/19/1998	
Sodium, ICP	6010	14	0.2	mg/L	10/20/1998	

A sample result of ND indicates the parameter was Not Detected at the reporting limit.



LEGEND

- MONITORING WELL (LOWER QUEEN)
- INFILTRATION WELL (LOWER QUEEN)
- INDUSTRIAL SUPPLY WELL (LOWER QUEEN)
- RECOVERY WELL (LOWER QUEEN)
- VAPOR EXTRACTION WELL (LOWER QUEEN)
- 0.0012 BENZENE CONCENTRATION IN mg/L
- INTERPRETED CONCENTRATION ISOPLETH FOR BENZENE
- 0.01 WQCC STANDARD FOR BENZENE (ISOPLETH INTERPRETED)
- 0.62 WQCC STANDARD FOR XYLENE (ISOPLETH INTERPRETED)
- 0.0012 XYLENE CONCENTRATION IN mg/L
- ND NOT DETECTED ABOVE METHOD DETECTION LIMITS
- NS NOT SAMPLED
- BLOWER STATION
- FENCE
- POWER LINES

FLUOR DANIEL GTI

0 FEET 1000
SCALE

LOWER QUEEN BENZENE AND XYLENE DISTRIBUTION MAP JUNE-JULY 1998

CLIENT: MARATHON OIL COMPANY

LOCATION: INDIAN BASIN REMEDIATION PROJECT
EDDY COUNTY, NEW MEXICO

FILE:	PROJECT NO.:
BENZ_LQ (1:1000)	105469

REV.:

DES.:	DET.:	DATE:	FIGURE:
ES	SWL	10/12/98	3-4
PM:		PE/RG:	