AP - 001

ANNUAL MONITORING REPORT

YEAR(S): 1996

American Environmental Network, Inc.

AEN I.D. **606338**

July 11, 1996

NM Oil Conservation Division
2040 S. Pacheco
Santa Fe, NM 87505

Project Name/Number: BRICKLAND REFINERY (NONE)

Attention: Bill Olson

On **06/21/96**, 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 method 8020 analyses were performed by American Environmental Network (NM), Inc., Albuquerque, NM.

All other analyses were performed by Paragon Analytics Inc., 225 Commerce Drive, Fort Collins, CO.

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:ft

Enclosure

2709-D Pan American Freeway, NE • Albuquerque, NM 87107 • (505) 344-3777 • Fax (602) 344-4413

American Environmental Network, Inc.

CLIENT	: NMOCD	DATE RECEIVED	: 06/21/96
PROJECT #	: (NONE)		
PROJECT NAME	: BRICKLAND REFINERY	REPORT DATE	: 07/11/96

AEN ID: 606338

AEN #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	RIO-MW6 DOWNSTREAM	AQUEOUS	06/21/96
02	RIO-MW6 OUTFALL	AQUEOUS	06/21/96
03	RIO-UPSTREAM	AQUEOUS	06/21/96

---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.

American Environmental Network, Inc.

GAS CHROMATOGRAPHY RESULTS

TEST : BTEX (EPA 8020)
CLIENT : NMOCD AEN I.D.: 606338
PROJECT # : (NONE)
PROJECT NAME : BRICKLAND REFINERY

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
01	RIO-MW6 DOWNSTREAM	AQUEOUS	06/21/96	NA	06/24/96	1
02	RIO-MW6 OUTFALL	AQUEOUS	06/21/96	NA	06/24/96	1
03	RIO-UPSTREAM	AQUEOUS	06/21/96	NA	06/24/96	1

PARAMETER	UNITS	01	02	03
BENZENE	UG/L	<0.5	<0.5	<0.5
TOLUENE	UG/L	<0.5	<0.5	<0.5
ETHYLBENZENE	UG/L	<0.5	<0.5	<0.5
TOTAL XYLENES	UG/L	<0.5	<0.5	<0.5
SURROGATE:				
BROMOFLUOROBENZENE (%)		107	98	103

American Environmental Network, Inc.

GAS CHROMATOGRAPHY RESULTS

REAGENT BLANK

TEST	: BTEX (EPA 8020)	AEN I.D.	: 606338
BLANK I.D.	: 062496	MATRIX	: AQUEOUS
CLIENT	: NMOCD	DATE EXTRACTED	: NA
PROJECT #	: (NONE)	DATE ANALYZED	: 06/24/96
PROJECT NAME	: BRICKLAND REFINERY	DILUTION FACTOR	: 1

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 (%)		102

American Environmental Network, Inc.

GAS CHROMATOGRAPHY - QUALITY CONTROL

MSMSD

TEST	: BTEX (EPA 8020)		
MSMSD #	: 60633805	AEN I.D.	: 606338
CLIENT	: NMOCD	DATE EXTRACTED	: NA
PROJECT #	: (NONE)	DATE ANALYZED	: 06/24/96
PROJECT NAME	: BRICKLAND REFINERY	SAMPLE MATRIX	: AQUEOUS
REF. I.D.	: 60633805	UNITS	: UG/L

PARAMETER	SAMPLE RESULT	CONC SPIKE	SPIKED SAMPLE	% REC	DUP SPIKE	DUP % REC	RPD
BENZENE	<0.5	10.0	10.0	100	10.0	100	0
TOLUENE	<0.5	10.0	9.9	99	10.0	100	1
ETHYLBENZENE	<0.5	10.0	9.9	99	9.9	99	0
TOTAL XYLENES	<0.5	30.0	30.3	101	30.5	102	1

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

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

PARAGON ANALYTICS, INC.
225 Commerce Drive ◆ Fort Collins, CO 80524 ◆ (800) 443-1511 ◆ (970) 490-1511 ◆ FAX (970) 490-1522

July 8, 1996

Ms. Kimberly McNeill
American Environmental Network, Inc.
2709-D Pan American Freeway, NE
Albuquerque, NM 87107

RE: Paragon Workorder: 96-06-190
Client Project Name: NMOCD
Client Project Number: 606338

Dear Ms. McNeill,

Three water samples were received from American Environmental Network, Inc. on June 22, 1996. The samples were scheduled for Polynuclear Aromatic Hydrocarbons and Total Recoverable Metals analysis. The results for these analyses are contained in the enclosed report.

Should you have any questions, please call.

Sincerely,

John Whalen

Paragon Analytics, Inc.
John Whalen
Project Manager

JW/dmn
Enclosure: report

Paragon Analytics, Inc.

PAHs by HPLC Case Narrative

AEN-NM

NMOCD/606338

Client ID	Paragon ID	Client ID	Paragon ID
Rio-MW6 Downstream	96-06-190-01	Rio-MW6 Outfall	96-06-190-02
Rio-Upstream	96-06-190-03		

1. This report consists of 3 water samples received by Paragon on 06/22/96.

2. These samples were extracted and analyzed according to SW-846, 3rd Edition procedures. Specifically, the water samples were extracted using continuous liquid-liquid extractors, based on Method 3520.

3. The extracts were then analyzed using HPLC with UV and fluorescence detectors with a reverse phase C18 column according to protocols based on Method 8310. All compounds are analyzed using UV at 254 nm. Confirmation is performed for positive results using the fluorescence detector or confirmed by UV at 280 nm for those compounds that do not respond to the fluorescence detector. The quantitation of each analyte is usually taken from detector that exhibits the fewest interferences. These quantitations minimize the chances of reporting elevated results based on interferences. If compounds do not confirm quantitatively (if the higher amount is greater than twice the lower amount the 2 amounts are considered ***not*** to confirm each other quantitatively), then the value is flagged with a "K" and noted on the report page.

4. All samples were extracted and analyzed within the established holding times.

5. The method blank associated with this project was below the reporting limits for all analytes.

6. All Blank Spike and Blank Spike Duplicate recoveries and RPDs were within the acceptance criteria.

7. Matrix spikes and Matrix Spike Duplicates could not be performed because of insufficient sample volume. A Blank Spike and Blank Spike Duplicate were performed instead. See Item 6 for details on recoveries.

8. All surrogate recoveries were within acceptance criteria.

9. All initial and continuing calibration criteria were within acceptance criteria.

Eddy Hammerquist — 7-8-96
Eddy Hammerquist — Date
Senior Organics Chemist

Reviewer's Initials — 7/9/96
Date

The data contained in the following report have been reviewed and approved by the personnel listed above. In addition, Paragon Analytics, Inc. certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

POLYNUCLEAR AROMATIC HYDROCARBONS

Method 8310

Sample ID

Rio-MW6 Downstream

Lab Name: Paragon Analytics, Inc.
Client Name: AEN-NM
Client Project ID: NMOCD/606338

Lab Sample ID: 96-06-190-01

Sample Matrix: Water
Cleanup: N/A

Date Collected: 6-21-96
Date Extracted: 6-25-96
Date Analyzed: 7-04-96

Sample Volume: 1000 mL
Final Volume: 1 mL

Analyte	Conc (ug/L)	Detection Limit (ug/L)
Naphthalene	0.15 J	0.50
Acenaphthylene	ND	1.0
1-Methylnaphthalene	0.66 J,K	1.0
2-Methylnaphthalene	1.0	1.0
Acenaphthene	ND	1.0
Fluorene	0.086 J	0.10
Phenanthrene	0.22	0.050
Anthracene	0.032 J	0.10
Flouranthrene	0.12	0.10
Pyrene	ND	0.050
Benzo(a)anthracene	ND	0.050
Chrysene	0.026 J	0.050
Benzo(b)fluoranthrene	ND	0.10
Benzo(k)fluoranthrene	ND	0.050
Benzo(a)pyrene	ND	0.050
Dibenzo(a,h)anthracene	ND	0.10
Benzo(g,h,i)perylene	ND	0.10
Indeno(1,2,3-c,d)pyrene	ND	0.10

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2-Chloroanthracene	75	15 - 117

ND = Not Detected at or above client requested detection limit.
J = Estimated value. Below detection limits.
K = Concentration confirmation does not agree within 50%.

PARAGON ANALYTICS, INC.

POLYNUCLEAR AROMATIC HYDROCARBONS

Method 8310

	Sample ID
	Rio-MW6 Outfall

Lab Name: Paragon Analytics, Inc.
Client Name: AEN-NM
Client Project ID: NMOCD/606338

Lab Sample ID: 96-06-190-02

Sample Matrix: Water
Cleanup: N/A

Date Collected: 6-21-96
Date Extracted: 6-25-96
Date Analyzed: 7-04-96

Sample Volume: 1000 mL
Final Volume: 1 mL

Analyte	Conc (ug/L)	Detection Limit (ug/L)
Naphthalene	ND	0.50
Acenaphthylene	ND	1.0
1-Methylnaphthalene	ND	1.0
2-Methylnaphthalene	ND	1.0
Acenaphthene	ND	1.0
Fluorene	ND	0.10
Phenanthrene	ND	0.050
Anthracene	ND	0.10
Flouranthrene	ND	0.10
Pyrene	ND	0.050
Benzo(a)anthracene	ND	0.050
Chrysene	ND	0.050
Benzo(b)fluoranthrene	ND	0.10
Benzo(k)fluoranthrene	ND	0.050
Benzo(a)pyrene	ND	0.050
Dibenzo(a,h)anthracene	ND	0.10
Benzo(g,h,i)perylene	ND	0.10
Indeno(1,2,3-c,d)pyrene	ND	0.10

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2-Chloroanthracene	61	15 - 117

ND = Not Detected at or above client requested detection limit.

POLYNUCLEAR AROMATIC HYDROCARBONS

Method 8310

Sample ID

Rio-Upstream

Lab Name: Paragon Analytics, Inc.
Client Name: AEN-NM
Client Project ID: NMOCD/606338

Lab Sample ID: 96-06-190-03

Sample Matrix: Water
Cleanup: N/A

Date Collected: 6-21-96
Date Extracted: 6-25-96
Date Analyzed: 7-04-96

Sample Volume: 1000 mL
Final Volume: 1 mL

Analyte	Conc (ug/L)	Detection Limit (ug/L)
Naphthalene	ND	0.50
Acenaphthylene	ND	1.0
1-Methylnaphthalene	ND	1.0
2-Methylnaphthalene	ND	1.0
Acenaphthene	ND	1.0
Fluorene	ND	0.10
Phenanthrene	ND	0.050
Anthracene	ND	0.10
Flouranthrene	ND	0.10
Pyrene	ND	0.050
Benzo(a)anthracene	ND	0.050
Chrysene	ND	0.050
Benzo(b)fluoranthrene	ND	0.10
Benzo(k)fluoranthrene	ND	0.050
Benzo(a)pyrene	ND	0.050
Dibenzo(a,h)anthracene	ND	0.10
Benzo(g,h,i)perylene	ND	0.10
Indeno(1,2,3-c,d)pyrene	ND	0.10

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2-Chloroanthracene	62	15 - 117

ND = Not Detected at or above client requested detection limit.

POLYNUCLEAR AROMATIC HYDROCARBONS

Method 8310

Sample ID

Reagent Blank

Lab Name: Paragon Analytics, Inc.
Client Name: AEN-NM
Client Project ID: NMOCD/606338

Lab Sample ID: WRB1 06/25/96

Sample Matrix: Water
Cleanup: N/A

Date Collected: N/A
Date Extracted: 6-25-96
Date Analyzed: 7-04-96

Sample Volume: 1000 mL
Final Volume: 1 mL

Analyte	Conc (ug/L)	Detection Limit (ug/L)
Naphthalene	ND	0.50
Acenaphthylene	ND	1.0
1-Methylnaphthalene	ND	1.0
2-Methylnaphthalene	ND	1.0
Acenaphthene	ND	1.0
Fluorene	ND	0.10
Phenanthrene	ND	0.050
Anthracene	ND	0.10
Flouranthrene	ND	0.10
Pyrene	ND	0.050
Benzo(a)anthracene	ND	0.050
Chrysene	ND	0.050
Benzo(b)fluoranthrene	ND	0.10
Benzo(k)fluoranthrene	ND	0.050
Benzo(a)pyrene	ND	0.050
Dibenzo(a,h)anthracene	ND	0.10
Benzo(g,h,i)perylene	ND	0.10
Indeno(1,2,3-c,d)pyrene	ND	0.10

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2-Chloroanthracene	57	15 - 117

ND = Not Detected at or above client requested detection limit.

POLYNUCLEAR AROMATIC HYDROCARBONS BLANK SPIKE

Method 8310

Lab Name: Paragon Analytics, Inc.

Lab Sample ID: WBS1,2 06/25/96

Client Name: AEN-NM
Client Project ID: NMOCD/606338

Date Extracted: 6-25-96
Date Analyzed: 7-04-96

Sample Matrix: Water
Cleanup: N/A

Sample Volume: 1,000 mL
Final Volume: 1 mL

Analyte	Spike Added (ug/L)	BS Concentration (ug/L)	BS Percent Recovery	QC Limits % Rec
Acenaphthylene	10.0	6.37	64	23 - 122
Phenanthrene	1.00	0.741	74	34 - 112
Pyrene	1.00	0.776	78	35 - 116
Benzo(k)fluoranthene	0.250	0.196	78	39 - 119
Dibenzo(a,h)anthracene	1.00	0.813	81	33 - 123

Analyte	Spike Added (ug/L)	BSD Concentration (ug/L)	BSD Percent Recovery	RPD	QC Limits RPD
Acenaphthylene	10.0	7.44	74	15	20
Phenanthrene	1.00	0.865	86	15	20
Pyrene	1.00	0.837	84	8	20
Benzo(k)fluoranthene	0.250	0.235	94	18	20
Dibenzo(a,h)anthracene	1.00	0.903	90	11	20

SURROGATE RECOVERY BS/BSD

Analyte	% Recovery BS	% Recovery BSD	% Rec Limits
2-Chloroanthracene	67	78	15 -117

Paragon Analytics, Inc.

TOTAL RECOVERABLE METALS
CASE NARRATIVE

AEN-NM

NMOCD/606338

Client ID	PAI-ID
Rio-MW6 Downstream	96-06-190-01
Rio-MW6 Outfall	96-06-190-02
Rio-Upstream	96-06-190-03

1. This report consists of 3 water samples.
2. The samples were received cool and intact on 06/22/96.
3. The samples had been correctly preserved for the requested analyses.
4. The samples were prepared for analysis based on SW-846, 3rd Edition procedures.

   For analysis by Trace ICP, the samples were digested following method 3005A.

   For analysis by conventional ICP, the samples were digested following method 3005A.

   For analysis by Cold Vapor AA (CVAA), the samples were digested following method 7470.
5. The samples were analyzed following SW846 protocols by Trace ICP (Method 6010A), CVAA (Method 7470) and conventional ICP (Method 6010A).
6. All standards and solutions are NIST traceable and were used within their recommended shelf life.
7. The samples were prepared and analyzed within the established hold times.
8. Sample results which are below the reporting limit are reported as "ND" on the enclosed report.

All in house quality control procedures were followed, as described below.

9. General quality control procedures.
   - A preparation (method) blank and laboratory control sample were digested and analyzed with the sample in this digestion batch. There were not more than 20 samples in the digestion batch.

- The preparation (method) blank results associated with this batch were below the reporting limits for the requested analytes. This indicates that no contaminants were introduced to the samples during the digestion procedure.
- The laboratory control sample associated with this batch was within acceptance limits. This indicates complete digestion according to the method.
- All initial and continuing calibration blanks associated with this batch were below the reporting limits for the requested analytes. This indicates a valid calibration and stable instrument conditions.
- All initial and continuing calibration verifications associated with this batch were within acceptance criteria for the requested analytes. This indicates a valid calibration and stable instrument conditions.
- The interference check samples run for Method 6010A analyses were within acceptance criteria.

10. A sample from this Work Order was used as the QC sample for this batch.
    - A matrix spike and matrix spike duplicate were digested and analyzed with this batch. All acceptance criteria were met.
    - A matrix duplicate was digested and analyzed with this batch. All acceptance criteria were met.
    - A serial dilution was analyzed with this batch. All acceptance criteria were met..

The data contained in the following report have been reviewed and approved by the personnel listed below:

DP — Reporter's Initials — 7/3/96 — Date

Steve Workman — Steve Workman, Inorganics — 7/3/96 — Date

CERTIFICATION

Paragon Analytics, Inc. certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

TOTAL RECOVERABLE METALS

Lab Name: Paragon Analytics, Inc.
Client Name: AEN-NM
Client Project ID: NMOCD/606338
Lab Sample ID: 96-06-190-01

Sample Matrix: Aqueous

Sample ID

Rio-MW6 Downstream

Date Collected: 06/21/96
Prep Date: 06/25, 26/96
Date Analyzed: 06/25-27/96

Analyte	Concentration mg/L	Reporting Limit mg/L
Aluminum	1.8	0.2
Antimony	ND	0.02
Arsenic	ND	0.01
Barium	ND	0.1
Beryllium	ND	0.005
Boron	0.2	0.1
Cadmium	ND	0.005
Calcium	71	1
Chromium	ND	0.01
Cobalt	ND	0.01
Copper	ND	0.01
Iron	1.3	0.1
Lead	ND	0.003
Magnesium	15	1
Manganese	0.19	0.01
Mercury	ND	0.0002
Molybdenum	ND	0.01
Nickel	ND	0.02
Potassium	7	1
Selenium	ND	0.005
Silicon	11	0.05
Silver	ND	0.01
Sodium	110	1
Thallium	ND	0.01
Vanadium	ND	0.01
Zinc	ND	0.02

ND = Not detected at or above the reporting limit.

DP

TOTAL RECOVERABLE METALS

Lab Name: Paragon Analytics, Inc.
Client Name: AEN-NM
Client Project ID: NMOCD/606338
Lab Sample ID: 96-06-190-02

Sample Matrix: Aqueous

Sample ID

Rio-MW6 Outfall

Date Collected: 06/21/96
Prep Date: 06/25, 26/96
Date Analyzed: 06/25-27/96

Analyte	Concentration mg/L	Reporting Limit mg/L
Aluminum	1.3	0.2
Antimony	ND	0.02
Arsenic	ND	0.01
Barium	ND	0.1
Beryllium	ND	0.005
Boron	0.2	0.1
Cadmium	ND	0.005
Calcium	67	1
Chromium	ND	0.01
Cobalt	ND	0.01
Copper	ND	0.01
Iron	0.9	0.1
Lead	ND	0.003
Magnesium	15	1
Manganese	0.15	0.01
Mercury	ND	0.0002
Molybdenum	ND	0.01
Nickel	ND	0.02
Potassium	8	1
Selenium	ND	0.005
Silicon	10	0.05
Silver	ND	0.01
Sodium	110	1
Thallium	ND	0.01
Vanadium	ND	0.01
Zinc	ND	0.02

ND = Not detected at or above the reporting limit.

TOTAL RECOVERABLE METALS

Lab Name: Paragon Analytics, Inc.
Client Name: AEN-NM
Client Project ID: NMOCD/606338
Lab Sample ID: 96-06-190-03

Sample Matrix: Aqueous

Sample ID

Rio-Upstream

Date Collected: 06/21/96
Prep Date: 06/25, 26/96
Date Analyzed: 06/25-27/96

Analyte	Concentration mg/L	Reporting Limit mg/L
Aluminum	2.0	0.2
Antimony	ND	0.02
Arsenic	ND	0.01
Barium	ND	0.1
Beryllium	ND	0.005
Boron	0.2	0.1
Cadmium	ND	0.005
Calcium	71	1
Chromium	ND	0.01
Cobalt	ND	0.01
Copper	ND	0.01
Iron	1.5	0.1
Lead	ND	0.003
Magnesium	15	1
Manganese	0.20	0.01
Mercury	ND	0.0002
Molybdenum	ND	0.01
Nickel	ND	0.02
Potassium	7	1
Selenium	ND	0.005
Silicon	11	0.05
Silver	ND	0.01
Sodium	99	1
Thallium	ND	0.01
Vanadium	ND	0.01
Zinc	ND	0.02

ND = Not detected at or above the reporting limit.

DP

TOTAL RECOVERABLE METALS

Lab Name: Paragon Analytics, Inc.
Client Name: AEN-NM
Client Project ID: NMOCD/606338
Lab Sample ID: RB 96-06-190

Sample ID

Reagent Blank

Date Collected: N/A
Prep Date: 06/25, 26/96
Date Analyzed: 06/25-27/96

Analyte	Concentration mg/L	Reporting Limit mg/L
Aluminum	ND	0.2
Antimony	ND	0.02
Arsenic	ND	0.01
Barium	ND	0.1
Beryllium	ND	0.005
Boron	ND	0.1
Cadmium	ND	0.005
Calcium	ND	1
Chromium	ND	0.01
Cobalt	ND	0.01
Copper	ND	0.01
Iron	ND	0.1
Lead	ND	0.003
Magnesium	ND	1
Manganese	ND	0.01
Mercury	ND	0.0002
Molybdenum	ND	0.01
Nickel	ND	0.02
Potassium	ND	1
Selenium	ND	0.005
Silicon	ND	0.05
Silver	ND	0.01
Sodium	ND	1
Thallium	ND	0.01
Vanadium	ND	0.01
Zinc	ND	0.02

ND = Not detected at or above the reporting limit.

TOTAL RECOVERABLE METALS
MATRIX SPIKE

Lab Name: Paragon Analytics, Inc.
Client Name: AEN-NM
Lab Sample ID: 96-06-162-01

Sample ID: **In House**

Sample Matrix: Aqueous

Prep Date: 06/25/96
Date Analyzed: 06/25-27/96

Analyte	Spike Added mg/L	Sample Conc. mg/L	MS Conc. mg/L	% Rec (limits 80-120%)	Flags
Aluminum	2.0	< 0.2	2.3	115	
Antimony	0.50	< 0.02	0.52	104	
Arsenic	2.00	0.02	2.20	109	
Barium	2.0	< 0.1	2.1	105	
Beryllium	0.050	< 0.005	0.050	100	
Boron	1.0	1.1	2.1	100	
Cadmium	0.050	< 0.005	0.049	98	
Calcium	40	1	43	105	
Chromium	0.20	< 0.01	0.20	100	
Cobalt	0.50	< 0.01	0.51	102	
Copper	0.25	< 0.01	0.25	100	
Iron	1.0	< 0.1	1.0	100	
Lead	0.500	< 0.003	0.515	103	
Magnesium	40	< 1	42	105	
Manganese	0.50	< 0.01	0.50	100	
Molybdenum	1.00	0.02	0.97	95	
Nickel	0.50	< 0.02	0.52	104	
Potassium	40	2	41	98	
Selenium	2.00	< 0.005	2.15	108	
Silicon	0.5	3.8	4.5	140	See note
Silver	0.20	< 0.01	0.20	100	
Sodium	40	592	619	68	See note
Thallium	2.00	< 0.01	2.03	102	
Vanadium	0.50	< 0.01	0.50	100	
Zinc	0.50	< 0.02	0.50	100	

See note on following page.

TOTAL RECOVERABLE METALS
MATRIX SPIKE DUPLICATE

Sample ID

In House

Lab Name: Paragon Analytics, Inc.
Client Name: AEN-NM
Lab Sample ID: 96-06-162-01

Prep Date: 06/25/96
Sample Matrix: Aqueous
Date Analyzed: 06/25-27/96

Analyte	MSD Conc. mg/L	MSD % Rec (limits 80-120%)	Relative % Difference (limits 0-20%)	Flags
Aluminum	2.3	115	0	
Antimony	0.52	104	0	
Arsenic	2.21	110	0	
Barium	2.1	105	0	
Beryllium	0.050	100	0	
Boron	2.0	90	5	
Cadmium	0.049	98	0	
Calcium	43	105	0	
Chromium	0.21	105	5	
Cobalt	0.51	102	0	
Copper	0.25	100	0	
Iron	1.0	100	0	
Lead	0.520	104	1	
Magnesium	42	105	0	
Manganese	0.51	102	2	
Molybdenum	0.93	91	4	
Nickel	0.53	106	2	
Potassium	39	93	5	
Selenium	2.14	107	0	
Silicon	4.4	120	2	See note
Silver	0.20	100	0	
Sodium	626	85	1	See note
Thallium	2.04	102	0	
Vanadium	0.51	102	2	
Zinc	0.51	102	2	

Sample results shown on spike page(s) may differ slightly from results on sample page(s). Where sample concentration is sufficiently high, three significant figures are used to determine spike recoveries and relative percent difference.

Note: Due to the large concentration of analyte in the sample, matrix spike recoveries may not be accurate. The Laboratory Control Sample (LCS) is included on a separate page to show that the digestion and analysis were in control.

TOTAL RECOVERABLE METALS
MATRIX SPIKE

Lab Name: Paragon Analytics, Inc.
Client Name: AEN-NM
Lab Sample ID: 96-06-207-01

Sample ID: **In House**

Sample Matrix: Aqueous

Prep Date: 06/26/96
Date Analyzed: 06/27/96

Analyte	Spike Added mg/L	Sample Conc. mg/L	MS Conc. mg/L	% Rec (limits 80-120%)	Flags
Mercury	0.0020	< 0.0002	0.0019	95	

Analyte	MSD Conc. mg/L	MSD % Rec (limits 80-120%)	Relative % Difference (limits 0-20%)	Flags
Mercury	0.0019	95	0	

Sample results shown on spike page(s) may differ slightly from results on sample page(s).
Where sample concentration is sufficiently high, three significant figures are used to determine spike recoveries and relative percent difference.

DP

TOTAL RECOVERABLE METALS
LABORATORY CONTROL SAMPLE

Lab Name: Paragon Analytics, Inc.
Client Name: AEN-NM
Client Project ID: NMOCD/606338
Work Order Number: 96-06-190 Date Analyzed: 06/25/96

Analyte	LCS Result mg/L	LCS True Value mg/L	LCS % Recovery	Limits
Silicon	0.48	0.50	96	80 - 120%
Sodium	11	11	100	80 - 120%

DP

Analytical**Technologies** of New Mexico, Inc.
Albuquerque, New Mexico

Interlab Chain of Custody

96-06190

DATE: 6/21/96 PAGE: 1 OF 1

NETWORK PROJECT MANAGER: KIMBERLY D. McNEILL

COMPANY: **Analytical Technologies of New Mexico, Inc.**
ADDRESS: 2709-D Pan American Freeway, NE
Albuquerque, NM 87107

CLIENT PROJECT MANAGER:
Kimberly

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	Metals - TAL	Metals - PP List	Metals - RCRA	RCRA Metals by TCLP (1311)	metals: Al, Sb, As, Ba, Be, B, Cd	Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn	~~TOX~~ Mo, Ni, K, Se, Silicon	~~TOC~~ Ag, Na, Tl, V, Zn	Gen Chemistry	H2S	5310	Oil and Grease	BOD	COD	Pesticides/PCB (608/8080)	Herbicides (615/8150)	Base/Neutral Acid Compounds GC/MS (625/8270)	Volatile Organics GC/MS (624/8240)	Polynuclear Aromatics (610/8310)	8240 (TCLP 1311) ZHE	8270 (TCLP 1311)			TO-14	Gross Alpha/Beta				NUMBER OF CONTAINERS
606338-01	6/21/96	0945	AQ	01					X	X	X	X		X	X	2																	3
-02		1030		02					X	X	X	X		X	X																			
-03		1130		03					X	X	X	X		X	X	you	Dan	@	AEN	-	NM.	6/24/96	B										

PROJECT INFORMATION		SAMPLE RECEIPT	
PROJECT NUMBER:	606338	TOTAL NUMBER OF CONTAINERS	
PROJECT NAME:	NMOCD	CHAIN OF CUSTODY SEALS	
QC LEVEL:	(STD) IV	INTACT?	
QC REQUIRED:	MS MSD BLANK	RECEIVED GOOD COND./COLD	
TAT:	(STANDARD) RUSH!	LAB NUMBER	

DUE DATE: 7/8
RUSH SURCHARGE: 0
CLIENT DISCOUNT: 0
SPECIAL CERTIFICATION REQUIRED: ☐ YES ☐ NO

SAMPLES SENT TO:	
SAN DIEGO	
FT. COLLINS	X
RENTON	
PENSACOLA	
PORTLAND	
PHOENIX	

RELINQUISHED BY: 1.	RELINQUISHED BY: 2.
Signature: Kimberly Time: 500	Signature: Time:
Printed Name: Kimberly Date: 6/21/96	Printed Name: Date:
Company: Analytical Technologies of New Mexico, Inc. Albuquerque	Company: Fedex
RECEIVED BY: 1.	**RECEIVED BY: (LAB) 2.**
Signature: Time:	Signature: Time: 930
Printed Name: Date:	Printed Name: Date: 6/22/96
Company: Fedex	Company: ATI

American Environmental Network (NM), Inc.
Albuquerque • Phoenix • Pensacola • Portland • Pleasant Hills • Columbia

CHAIN OF CUSTODY

DATE: _____ PAGE: ___ OF ___

AEN LAB I.D. 606338

SHADED AREAS ARE FOR LAB USE ONLY.

PLEASE FILL THIS FORM IN COMPLETELY.

PROJECT MANAGER: Bill Olson

COMPANY: NM Oil Conservation Division
ADDRESS: 2040 S. Pacheco
Santa Fe, NM 87505
PHONE: (505) 827-7154
FAX:

BILL TO: same
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	Gasoline/BTEX & MTBE (M8015/8020)	BTXE/MTBE (8020)	BTEX & Chlorinated Aromatics (602/8020)	BTEX/MTBE/EDC & EDB (8020/8010/Short)	Chlorinated Hydrocarbons (601/8010)	504 EDB☐ / DBCP☐	Polynuclear Aromatics (610/8310)	Volatile Organics (624/8240) GC/MS	Volatile Organics (8260) GC/MS	Pesticides/PCB (608/8080)	Herbicides (615/8150)	Base/Neutral/Acid Compounds GC/MS (625/8270)	General Chemistry:	Priority Pollutant Metals (13)	Target Analyte List Metals (23)	RCRA Metals (8)	RCRA Metals by TCLP (Method 1311)	Metals: see note	NUMBER OF CONTAINERS
Rio - MW6 downstream	6/21/96	0945	water	01						3				2											1	6
Rio - MW6 outfall	6/21/96	1030	water	02						3				2											1	6
Rio - upstream	6/21/96	1130	water	03						3				2											1	6

PROJECT INFORMATION	PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS	RELINQUISHED BY: 1.	RELINQUISHED BY: 2.
PROJ. NO.:	(RUSH) ☐24hr ☐48hr ☐72hr ☐1 WEEK (NORMAL) ☐	Signature: Time: 1630	Signature: Time
PROJ. NAME: Brickland Refinery	CERTIFICATION REQUIRED: ☐NM ☐SDWA ☐OTHER	Printed Name: William Olson Date: 6/21/96	Printed Name: Date:
P.O. NO.:	METHANOL PRESERVATION ☐	Company:	Company:
SHIPPED VIA:	COMMENTS: FIXED FEE ☐	RECEIVED BY: 1.	RECEIVED BY: (LAB) 2.
SAMPLE RECEIPT	Metals by contract: Al, Sb As, Ba, Be B, Cd Ca, Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Silicon Ag Na Tl, V, Zn + Hg	Signature: Time:	Signature: Time:
NO. CONTAINERS		Printed Name: Date:	Printed Name: Date:
CUSTODY SEALS		Company:	American Environmental Network (NM), Inc.
RECEIVED			
BLUE ICE/ICE			

DISTRIBUTION: White, Canary - AEN Pink - ORIGINATOR

Paragon Analytics - Fort Collins, Colorado

CONDITION OF SAMPLE UPON RECEIPT

CLIENT: AENA SHIPPING CONTAINER #: Cooler

WORKORDER NO. 96-06-190 INITIALS: DN DATE: 6/20/96

1.	Does this project require special handling according to NEESA. Level 3, or CLP protocols? If yes, complete a. and b. a. Cooler Temperature_____ b. Lot No's._____ c. Airbill Number _____		Yes	(No)
2.	Are custody seals on the cooler intact? If so, how many _____	(N/A)	Yes	No
3.	Are custody seals on sample containers intact?	(N/A)	Yes	No
4.	Is there a Chain of Custody (COC) or other representative documents, letters or shipping memos?		(Yes)	No
5.	Is the COC complete? Relinquished: Yes ✓ No___ Requested Analysis: Yes ✓ No___		(Yes)	No
6.	Is the COC in agreement with the samples received? No. of Samples: Yes ✓ No___ Sample ID's: Yes ✓ No___ Matrix: Yes ✓ No___ No. of Containers: Yes ✓ No___		(Yes)	No
7.	Are the samples preserved correctly?	N/A	(Yes)	No
8.	Is there enough sample? If so, are they in the proper containers?		(Yes)	No
9.	Are all samples within holding times for the requested analyses?		(Yes)	No
10.	Were the sample received on ice?	N/A	(Yes)	No
11.	Were all sample containers received intact? (not broken or leaking, etc.)		(Yes)	No
12.	Are samples requiring no headspace, headspace free?	(N/A)	Yes	No
13.	Do the samples require quarantine?		Yes	(No)
14.	Do samples require ATI disposal?		Yes	(No)
15.	Did the client return any unused bottles?		Yes	(No)

Describe "NO" items (except No's 1, 13, &14):_____

Was the client contacted? Yes_____ No_____

If yes, Date:_____ Name of person contacted:_____

Describe actions taken or client instructions:_____

Group Leader's Signature:_____ Date:_____

Cooler Temperature: -3°

American Environmental Network (NM), Inc.
Albuquerque • Phoenix • Pensacola • Portland • Pleasant Hills • Columbia

CHAIN OF CUSTODY

DATE: _____ PAGE: ___ OF ___

AEN LAB I.D. 606338

SHADED AREAS ARE FOR LAB USE ONLY.

PLEASE FILL THIS FORM IN COMPLETELY.

PROJECT MANAGER: Bill Olson

COMPANY: NM Oil Conservation Division
ADDRESS: 2040 S. Pacheco
Santa Fe, NM 87505
PHONE: (505) 827-7154
FAX:

BILL TO: same
COMPANY:
ADDRESS:

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB I.D.	BTEX & Chlorinated Aromatics (602/8020)	Polynuclear Aromatics (610/8310)	Metals: Sb As Ba Be	NUMBER OF CONTAINERS
Rio - MW6 downstream	6/21/96	0945	water	01	3	2	1	6
Rio - MW6 outfall	6/21/96	1030	water	02	3	2	1	6
Rio - upstream	6/21/96	1130	water	03	3	2	1	6

PROJECT INFORMATION	
PROJ. NO.:	
PROJ. NAME:	Bridgeland Refinery
P.O. NO.:	
SHIPPED VIA:	

SAMPLE RECEIPT	
NO. CONTAINERS	18
CUSTODY SEALS	Y (N) NA
RECEIVED INTACT	Y
BLUE ICE/ICE	ICE

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

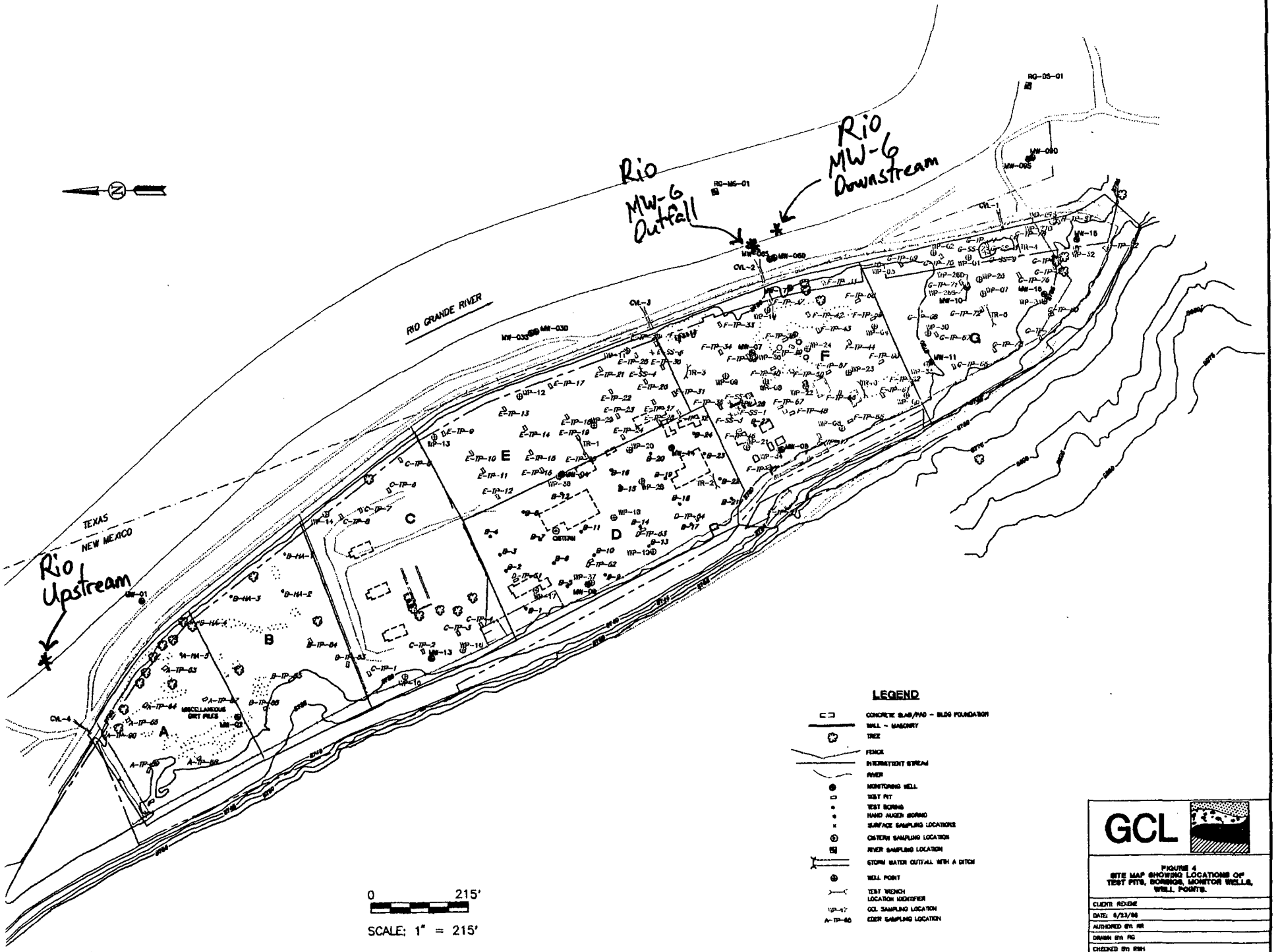
(RUSH) ☐ 24hr ☐ 48hr ☐ 72hr ☐ 1 WEEK (NORMAL) ☐

CERTIFICATION REQUIRED: ☐ NM ☐ SDWA ☐ OTHER

METHANOL PRESERVATION ☐

COMMENTS: FIXED FEE ☐
Metals by contract: Al, Sb As, Ba, Be B, Cd Ca, Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Silicon Ag Na Tl, V, Zn + Hg

RELINQUISHED BY: 1.	RELINQUISHED BY: 2.
Signature: Bill Olson Time: 1630	Signature: Time:
Printed Name: William Olson Date: 6/21/96	Printed Name: Date:
Company:	Company:
RECEIVED BY: 1.	**RECEIVED BY: (LAB) 2.**
Signature: Time:	Signature: John Epley Time: 16:30
Printed Name: Date:	Printed Name: JOHN EPLEY Date: 6/21/96
Company:	American Enviromental Network (NM), Inc.



GCL

FIGURE 4
SITE MAP SHOWING LOCATIONS OF TEST PITS, BORINGS, MONITOR WELLS, WELL POINTS.

CLIENT: ROUND	
DATE: 6/23/98	
AUTHORED BY: RR	
DRAWN BY: RG	
CHECKED BY: RRH	
DWG. NO.: G:\ROUND\FIG4BASE2.DWG	