

GW - 28

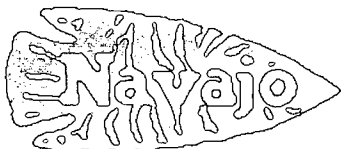
REPORTS

YEAR(S):

1998 - 1995

TELEPHONE
(505) 748-3311

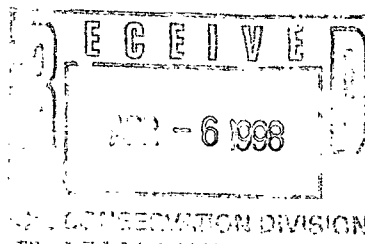
EASYLINK
62905278



REFINING COMPANY

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159

April 1, 1998



FAX
(505) 746-6410 ACCTG
(505) 746-6155 EXEC
(505) 748-9077 ENGR
(505) 746-4438 P/L

Mr. Roger Anderson
Environmental Bureau
Oil Conservation Division
2040 S. Pacheco St.
Santa Fe, NM 87505-5472

RE: 1st Quarter 1998 Report on RO Reject Water, Navajo Refining Co., Eddy County, NM

Dear Mr. Anderson:

This letter is sent in regard to Navajo Refining's permit modification of our discharge plan GW-28 which allows us to put our Reverse Osmosis (RO) reject water on our farm or into Eagle Draw. This permit is administered by OCD and the parameters we sample for were set up by OCD. We are sending these results for your files. We are required by OCD to sample this stream every quarter and once annually, for additional analysis, which is included with the results for this quarter.

For this quarter we discharged a total of 19,057,000 gallons with 12,497,000 of that total being sent to the farm for irrigation, and 6,560,000 being sent to Eagle Draw. Since we started discharging the RO reject water, we have discharged a total of 634,403,426 gallons. This is broken down as follows: 179,872,498 gallons have been put into Eagle Draw and 454,530,928 gallons have been put on the farm.

The RO unit was in full operation for the entire quarter. If you have any questions concerning this matter, please call me at (505) 748-3311. Thank you for your time.

Regards,
NAVAJO REFINING COMPANY

Darrell Moore
Environmental Mgr. for Water and Waste

Enclosure

cc:USEPA, New Mexico Environment Dept - Water Quality

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9
4725 Ripley Avenue, Suite A

Lubbock, Texas 79424 800•378•1296
El Paso, Texas 79922 888•588•3443
E-Mail: lab@traceanalysis.com

806•794•1296 806•794•1298
915•585•3443 915•585•4944

ANALYTICAL RESULTS FOR NAVAJO REFINING

March 24, 1998
Receiving Date: 03/06/98
Sample Type: Water
Project No: NA
Project Location: Artesia, NM 88210

Attention: Darrell Moore
501 E. Main
Artesia, NM 88210

Prep Date: 03/10/98
Analysis Date: 03/10/98
Sampling Date: 03/05/98
Sample Condition: Intact & Cool
Sample Received by: VW
Project Name: RO Reject

TA#	FIELD CODE	CHLORIDE (mg/L)	FLUORIDE (mg/L)	SULFATE (mg/L)	ALKALINITY (mg/L as CaCO ₃)	
					HC03	C03

T92789	RO Reject - Qtrly	660	31	1,900	590	<1.0
ICV		23	4.6	22	--	--
CCV		24	4.6	22	--	--

REPORTING LIMIT

25	5.0	25	1.0	1.0
----	-----	----	-----	-----

RPD
% Extraction Accuracy
% Instrument Accuracy

0	0	0	1	1
105	80	94	--	--
97	93	90	--	--

METHODS: EPA 300.0, 310.1

CHEMIST: JS

SPIKE: 625 mg/L CHLORIDE; 125 mg/L FLUORIDE; 625 mg/L SULFATE.
CV: 25 mg/L CHLORIDE; 5.0 mg/L FLUORIDE; 25 mg/L SULFATE.



Director, Dr. Blair Leftwich

3-24-98

Date

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9
4725 Ripley Avenue, Suite A

Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
El Paso, Texas 79922 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

ANALYTICAL RESULTS FOR NAVAJO REFINING

Attention: Darrell Moore
501 E. Main
Artesia, NM 88210

Prep Date: 03/10/98
Analysis Date: 03/16/98
Sampling Date: 03/05/98
Sample Condition: Intact & Cool
Sample Received by: VW
Project Name: RO Reject

March 23, 1998
Receiving Date: 03/06/98
Sample Type: Water
Project No: NA
Project Location: Artesia, NM 88210

POTASSIUM (mg/L) MAGNESIUM (mg/L) CALCIUM (mg/L) SODIUM (mg/L)

TA# Field Code

RO Reject - Qtrly

T92789	7.1	290	850	275
ICV	50	47	46	52
CCV	49	47	47	48

Reporting Limit
METHOD BLANK

0.20	0.20	0.20	0.20
<0.20	<0.20	<0.20	<0.20

RPD

% Extraction Accuracy
% Instrument Accuracy

2	1	0	3
109	102	99	118
100	94	94	102

METHODS: EPA 200.7.

CHEMIST: RR

SPIKE: 100 mg/L POTASSIUM, MAGNESIUM,
CV: 50 mg/L POTASSIUM, MAGNESIUM, CALCIUM, SODIUM.

3-23-98

Director, Dr. Blair Leftwich

Date

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
4725 Ripley Avenue, Suite A El Paso, Texas 79922 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

March 23, 1998

Receiving Date: 03/06/98

Sample Type: Water

Project No: NA

Project Location: Artesia, NM 88210

ANALYTICAL RESULTS FOR

NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

Prep Date: 03/09/98

Analysis Date: 03/10/98

Sampling Date: 03/05/98

Sample Condition: Intact & Cool

Sample Received by: VW

Project Name: RO Reject

TOTAL METALS

.01

TA#	FIELD CODE	As (mg/L)	Se (mg/L)	Cd (mg/L)	Cr (mg/L)	Pb (mg/L)	Ag (mg/L)	Ba (mg/L)	Al (mg/L)	Be (mg/L)	Hg (mg/L)
T92789	RO Reject - Qtrly	<0.05	<0.01	<0.02	<0.05	<0.005	<0.002	<0.10	<0.10	<0.02	<0.0010
ICV		1.0	1.0	0.97	1.0	1.0	0.22	1.0	0.95	1.0	0.0050
CCV		1.0	0.98	1.0	0.94	0.93	0.22	0.99	0.91	1.0	0.0050
METHOD BLANK		<0.05	<0.01	<0.02	<0.05	<0.005	<0.002	<0.10	<0.10	<0.02	<0.0010
REPORTING LIMIT		0.05	0.01	0.02	0.05	0.005	0.002	0.10	0.10	0.02	0.0010
RPD		8	6	13	0	6	12	0	0	6	14
% Extraction Accuracy		104	87	75	80	82	82	90	95	85	103
% Instrument Accuracy		100	99	98	97	96	110	99	93	100	100
B			U	Co	Cu	Fe	Mn	Mo	Ni	V	Zn
(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
T92789	RO Reject - Qtrly	<0.10	<0.10	<0.05	<0.05	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02
ICV		5.0	5.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.94
CCV		5.0	5.2	1.0	0.95	1.0	0.98	1.0	0.97	1.0	0.97
METHOD BLANK		<0.10	<0.10	<0.05	<0.05	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02
REPORTING LIMIT		0.10	0.10	0.05	0.05	0.05	0.02	0.02	0.02	0.02	0.02
RPD		2	1	6	5	7	8	0	13	6	13
% Extraction Accuracy		105	85	87	92	90	90	90	75	87	75
% Instrument Accuracy		101	102	100	97	100	99	100	98	100	95

METHODS: EPA 200.7, 245.1

CHEMIST: As, Cd, Cr, Ba, Al, Be, Co, Cu, Fe, Mn, Mo, Ni, V, Zn, Se, Pb, Ag, B, U: RR Hg: HC

TOTAL METALS SPIKE: 2.5 mg/L As; 2.0 mg/L Se, Cd, Cr, Pb, Ba, Al, Be, Co, Cu, Fe, Mn, Mo, Ni, B, V, Zn; 0.40 mg/L Ag; 1.0 mg/L U; 0.0050 mg/L Hg.

TOTAL METALS CV: 1.0 mg/L As, Se, Cd, Cr, Pb, Ba, Al, Be, Co, Cu, Fe, Mn, Mo, Ni, V, Zn; 0.20 mg/L Ag; 5.0 mg/L U, B; 0.0050 mg/L Hg.

3-23-98

Director, Dr. Blair Leftwich

DATE

TraceAnalysis, Inc.

6701 Aberdeen Avenue, Ste. 9 Lubbock, Texas 79424
Tel (806) 794 1296 Fax (806) 794 1298
1 (800) 378 1296

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

LAB Order ID #

Company Name: *Morgis Refining*
Address: *501 E main*
Phone #: *(505) 748-3311*
Fax #:

Invoice to: Stevens, J. J.
(If different from above)

Project #: _____
Project Name: San Diego Project

Project Location: 1
Sampler Signature: [Signature]

[illegible]

Relinquished by: <i>Dr. Michael</i>	Date: <i>3/5/98</i>	Time: <i>16:15</i>	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received at Laboratory by:	Date:	Time: <i>10:00 pm</i>

LAB USE ONLY Intact <u> <i>Y</i> </u> N Headspace <u> <i>Y</i> </u> N Temp <u> <i>-2</i> </u> ° Log-In Review <u> <i>aw</i> </u>	REMARKS:

TELEPHONE
(505) 748-3311

EASYLINK
62905278

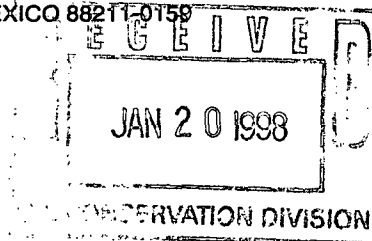


REFINING COMPANY

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159

January 15, 1998

FAX
(505) 746-6410 ACCTG
(505) 746-6155 EXEC
(505) 748-9077 ENGR
(505) 746-4438 P / L



Mr. Roger Anderson
Environmental Bureau
Oil Conservation Division
2040 S. Pacheco St.
Santa Fe, NM 87505-5472

RE: 4th Quarter 1997 Report on RO Reject Water, Navajo Refining Co., Eddy County, NM

Dear Mr. Anderson:

This letter is sent in regard to Navajo Refining's permit modification of our discharge plan GW-28 which allows us to put our Reverse Osmosis (RO) reject water on our farm or into Eagle Draw. This permit is administered by OCD and the parameters we sample for were set up by OCD. We are sending these results for your files. We are required by OCD to sample this stream every quarter and once annually, for additional analysis, which is included with the results for this quarter.

For this quarter we discharged a total of 15,466,000 gallons with none of that total being sent to the farm for irrigation, and the entire 15,466,000 being sent to Eagle Draw. Since we started discharging the RO reject water, we have discharged a total of 615,346,426 gallons. This is broken down as follows: 173,312,498 gallons have been put into Eagle Draw and 442,033,928 gallons have been put on the farm.

The RO unit was not in operation for approximately 55 days during a plant wide turnaround, also less water is discharged during the winter months. If you have any questions concerning this matter, please call me at (505) 748-3311. Thank you for your time.

Regards,
NAVAJO REFINING COMPANY

for Darrell Moore
Environmental Mgr. for Water and Waste

Enclosure

cc:USEPA, New Mexico Environment Dept - Water Quality

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

ANALYTICAL RESULTS FOR

NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

Prep Date: 12/18/97

Analysis Date: 12/18/97

Sampling Date: 12/08/97

Sample Condition: Intact & Cool

Sample Received by: VW

Project Name: Annual RO Reject

December 31, 1997

Receiving Date: 12/09/97

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

TA#	FIELD CODE	NITRATE-N (mg/L)	CHLORIDE (mg/L)	FLUORIDE (mg/L)	SULFATE (mg/L)
-----	------------	---------------------	--------------------	--------------------	-------------------

T86812	RO Reject Water-Ann	<6.0	350	11	1,800
QC	Quality Control	9.4	24	5.0	24

RPD

% Extraction Accuracy

% Instrument Accuracy

0	0	2
93	97	98
94	96	96

REPORTING LIMIT

6.0	20	5.0	10
-----	----	-----	----

METHODS: EPA 300.0.

CHEMIST: CHLORIDE/SULFATE/FLUORIDE/NITRATE-N: RC ALKALINITY: JS

SPIKE: 25 mg/L CHLORIDE; 5.0 mg/L FLUORIDE; 25 mg/L SULFATE; 10 mg/L NITRATE-N.

QC: 24 mg/L CHLORIDE; 4.9 mg/L FLUORIDE; 24 mg/L SULFATE; 9.3 mg/L NITRATE-N.

M. Leitch
Director, Dr. Blair Leitch

12-31-97
Date

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

December 31, 1997

Receiving Date: 12/09/97

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

ANALYTICAL RESULTS FOR

NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

Prep Date: 12/29/97

Analysis Date: 12/30/97

Sampling Date: 12/08/97

Sample Condition: Intact & Cool

Sample Received by: VW

Project Name: Annual RO Reject

TA#	Field Code	POTASSIUM (mg/L)	MAGNESIUM (mg/L)	CALCIUM (mg/L)	SODIUM (mg/L)
T86812	RO Reject Water-Ann	5.3	200	850	200
QC	Quality Control	50	53	52	52
Reporting Limit					
		0.10	0.10	0.10	0.10
RPD		1	1	0	2
% Extraction Accuracy		99	110	114	115
% Instrument Accuracy		100	106	104	104

METHODS: EPA 200.7.

CHEMIST: RR

SPIKE: 100 mg/L POTASSIUM, MAGNESIUM, CALCIUM, SODIUM.

QC: 50 mg/L POTASSIUM, MAGNESIUM, CALCIUM, SODIUM.

M. Lopez
Director, Dr. Blair Leftwich

12-31-97
Date

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
4725 Ripley Avenue, Suite A El Paso, Texas 79922 888•588•3443 915•585•3443 FAX 915•585•4944

E-Mail: lab@traceanalysis.com

ANALYTICAL RESULTS FOR

NAVAJO REFINING CO.

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

December 30, 1997
Receiving Date: 12/09/97
Sample Type: Water
Project No: NA
Project Location: Artesia, NM

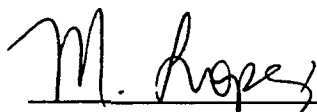
Prep Date: 12/22/97
Analysis Date: 12/22/97
Sampling Date: 12/08/97
Sample Condition: Intact & Cool
Sample Received by: VW
Project Name: Annual RO Reject

TA#	Field Code	PHENOL (mg/L)
T86812	RO Reject Water-Ann	0.09
QC	Quality Control	0.77
Reporting Limit		0.002
RPD		3
% Extraction Accuracy		98
% Instrument Accuracy		96

METHODS: EPA 420.2.

CHEMIST: RC

PHENOL SPIKE AND QC: 0.8 mg/L PHENOL.



Director, Dr. Blair Leftwich

12-30-97

Date

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

CLIENT NAVAJO REFINING COMPANY
501 E MAIN/PO BOX 159
ARTESIA, NM 88211

ANALYTICAL REPORT

SAMPLE NO. : 86812
INVOICE NO.: TE0314
REPORT DATE: 12-15-97
REVIEWED BY: *[Signature]*
PAGE : 1 OF 2

CLIENT SAMPLE ID : RO Reject Water-Ann
SAMPLE TYPE : Water
SAMPLED BY : L. McDaniel
SUBMITTED BY : L. McDaniel
SAMPLE SOURCE : Annual RO Reject Water
ANALYST : K. Costa

AUTHORIZED BY : D. Moore
CLIENT P.O. : --
SAMPLE DATE : 12-08-97
SUBMITTAL DATE : 12-11-97
EXTRACTION DATE: 12-12-97
ANALYSIS DATE : 12-12-97

REMARKS -

Endosulfan I was out of acceptance criteria in the second source standard.

Method 8081A- Pesticides

DATA TABLE

Parameter	Result	Unit	Detection Limit
4,4'-DDD	<0.10	ug/L	0.10
4,4'-DDE	<0.10	ug/L	0.10
4,4'-DDT	<1.0	ug/L	1.0
Aldrin	<1.0	ug/L	1.0
alpha-BHC	<1.0	ug/L	1.0
beta-BHC	<1.0	ug/L	1.0
delta-BHC	<0.5	ug/L	0.5
Chlordane	<2.5	ug/L	2.5
Dieldrin	<0.5	ug/L	0.5
Endosulfan I	<0.5	ug/L	0.5
Endosulfan II	<1.0	ug/L	1.0
Endosulfan sulfate	<0.5	ug/L	0.5
Endrin	<1.0	ug/L	1.0
Endrin aldehyde	<1.0	ug/L	1.0
Heptachlor	<0.5	ug/L	0.5
Hetachlor Epoxide	<1.0	ug/L	1.0
Lindane	<0.5	ug/L	0.5
Methoxychlor	<10.	ug/L	10.
Toxaphene	<10.	ug/L	10.

TRACE ANALYSIS, INC.

(1) Copy to Client

A Laboratory for Advanced Environmental Research and Analysis

[Signature]
MANAGING DIRECTOR

6701 Aberdeen Avenue

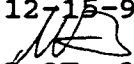
Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

CLIENT NAVAJO REFINING COMPANY
501 E MAIN/PO BOX 159
ARTESIA, NM 88211

ANALYTICAL REPORT

SAMPLE NO. : 86812
INVOICE NO.: TE0314
REPORT DATE: 12-15-97
REVIEWED BY: 
PAGE : 2 OF 2

D A T A T A B L E

(Cont.)

Surrogate Information -

	Percent <u>Recovery</u>	<u>Range</u>
Tetrachloro-m-Xylene	85.8	39-119
Decachlorobiphenyl	89.3	41-120

TRACE ANALYSIS, INC.

(1) copy to client

A Laboratory for Advanced Environmental Research and Analysis

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

ANALYTICAL RESULTS FOR

Navajo Refining

Attention: Darrell Moore

501 E. Main

Artesia

NM 88210

Date: Dec 22, 1997

Date Rec: 12/9/97

Project: Annual RO Reject Water

Proj Name: N/A

Proj Loc: Artesia, NM 88210

Lab Receiving # : 9712000140

Sampling Date: 12/8/97

Sample Condition: Intact and Cool

Sample Received By: VW

TA#	Field Code	MATRIX	BOD5 (mg/L)	TSS (mg/L)	pH (mg/L)
T 86812	Ro Reject Water Ann.	Water	<7.5	1	7.2
Method Blank			0.09	1	---
Reporting Limit			7.5	1	---
QC			203	---	8

RPD

% Instrument Accuracy

2

0

0

102

100

TEST	PREP METHOD	PREP DATE	ANALYSIS METHOD	ANALYSIS COMPLETED	CHEMIST	QC: (mg/L)
BOD	N/A	12/10/97	EPA 405.1	12/15/97	JS	200
TSS	N/A	12/12/97	EPA 160.2	12/12/97	JS	---
pH	N/A	12/9/97	EPA 150.1	12/9/97	JS	7.0

Director, Dr. Blair Leftwich

Date

TRACE ANALYSIS, INC.

An Institute for Advanced Environmental Research and Analysis



TRACE ANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
4725 Ripley Avenue, Suite A El Paso, Texas 79922 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

ANALYTICAL RESULTS FOR
NAVAJO REFINING
Attention: Darrell Moore
501 E. Main
Artesia, NM 88210

December 19, 1997
Receiving Date: 12/09/97
Sample Type: Water
Project No: NA
Project Location: Artesia, NM

Prep Date: 12/11/97
Analysis Date: 12/11/97
Sampling Date: 12/08/97
Sample Condition: Intact & Cool
Sample Received by: VW
Project: Annual RO Reject

TA#	FIELD CODE	CYANIDE (mg/L)	TDS (mg/L)	COD (mg/L)	SEPCIFIC CONDUCTANCE (uMHOS/cm)
T86812	RO Reject H2O ANN	<0.01	3,500	85	3,600
QC	Quality Control	0.039	—	253	1,404
Reporting Limit		0.01	—	20	—
RPD		5	4	3	3
% Extraction Accuracy		95	—	99	—
% Instrument Accuracy		94	102	99	98

METHODS: EPA 160.1, 410.4, 120.1, 335.2.
CHEMIST: TDS/COD/SPECIFIC CONDUCTANCE: JS CYANIDE: RC
COD SPIKE AND QC: 250 mg/L COD.
CYANIDE SPIKE AND QC: 0.04 mg/L CYANIDE.

Director, Dr. Blair Leftwich

12-19-97

DATE

WATER BACTERIOLOGY

A:\lotus\wtrform1 (v. 01/83)
equiv. to TDH G-19 (Rev. 12/91)

City of Lubbock Health Department Laboratory
P.O. Box 2548 / 1902 Texas Ave.
Lubbock, TX 79408 PH# 806 767-2906

Date and Time Rec'd.

Date

Sample No.

Reported

Do not mark above this line - Please Print Below with BALLPOINT or TYPEWRITER

WATER SYSTEM I.D. NO.

NAME OF WATER SYSTEM

POINT OF COLLECTION

COUNTY

SUBMITTOR I.D. NO.

SEND

NAME

RESULTS

STREET ADDRESS (P.O. BOX)

TO:

CITY

TX

ZIP CODE

DATE AND

TIME OF

COLLECTION

MONTH

DAY

YEAR

TIME

AM / PM

COLLECTED BY

TYPE OF SYSTEM

(Public Systems Only)

WATER SOURCE

☐ Public

☐ Dairy

☐ Distribution

☐ Raw

☐ River

☐ Lake

☒ Individual

☐ Bottled

☐ Construction

☐ Repeat

☒ Well

Well Depth _____

☐ School

☐ Special

Chlorine Residual _____

Ownership or other information:

LABORATORY RESULTS (Do not write below)

Water of satisfactory bacteriological quality must be free from Coliform organisms

COLIFORM ORGANISMS

☒ NOT FOUND

☒ FOUND

☒ Total coliform group

☐ Fecal coliform group

☐ Escherichia coli

☐ Repeat samples required

☐ UNSUITABLE - See below

UNSUITABLE FOR ANALYSIS - PLEASE RESUBMIT

☐ Sample too old. Sample not received within 30 hours of collection.

☐ Date discrepancy or form incomplete (See encircled item)

☐ Leaked in transit.

☐ Quantity insufficient for analysis. (100 mL required)

☐ Heavy (silt / bacterial growth) present, possibly compromising test results.

☐ Other:

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
4725 Ripley Avenue, Suite A El Paso, Texas 79922 888•588•3443 915•585•3443 FAX 915•585•4944

E-Mail: lab@traceanalysis.com

ANALYTICAL RESULTS FOR

NAVAJO REFINING CO.

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

December 22, 1997

Receiving Date: 12/09/97

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

Prep Date: 12/12/97

Analysis Date: 12/16/97

Sampling Date: 12/08/97

Sample Condition: Intact & Cool

Sample Received by: VW

Project Name: Annual RO Reject

TA#	Field Code	TOTAL PCB (mg/L)
T86812	RO Reject Water-Ann	<0.001
QC	Quality Control	0.39
Reporting Limit		0.001
RPD		19
% Extraction Accuracy		74
% Instrument Accuracy		98

METHODS: EPA 608.

CHEMIST: MB

TOTAL PCB SPIKE: 0.005 mg/L TOTAL PCB.

TOTAL PCB QC: 0.5 mg/L TOTAL PCB.



Director, Dr. Blair Leftwich

12-22-97

Date

TRACE ANALYSIS, INC.

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E-Mail: lab@traceanalysis.com

ANALYTICAL RESULTS FOR
NAVAJO REFINING
Attention: Darrell Moore
501 E. Main
Artesia, NM 88210

December 22, 1997

Receiving Date: 12/09/97

Sample Type: Water

Sampling Date: 12/08/97

Sample Condition: I & C

Sample Received by: VW

Project Name: Annual RO Reject

Extraction Date: 12/11/97

Analysis Date: 12/15/97

TA # T86812

Field Code: RO Reject Water-Ann

	Reporting	Concentration				
EPA 625	Limit	(mg/L)	QC	RPD	%EA	%IA
N-Nitrosodimethylamine	0.001	ND				
2-Picoline	0.001	ND				
Methyl methanesulfonate	0.001	ND				
Ethyl methanesulfonate	0.001	ND				
Phenol	0.001	ND	70	15	38	88
Aniline	0.005	ND				
bis(2-Chloroethyl)ether	0.005	ND				
2-Chlorophenol -	0.005	ND		11	65	
1,3-Dichlorobenzene	0.001	ND				
1,4-Dichlorobenzene	0.001	ND	80	2	53	100
Benzyl alcohol	0.005	ND				
1,2-Dichlorobenzene	0.001	ND				
2-Methylphenol	0.001	ND				
bis(2-chloroisopropyl)ether	0.005	ND				
4-Methylphenol/3-Methylphenol	0.001	ND				
Acetophenone	0.005	ND				
n-Nitrosodi-n-propylamine	0.001	ND		18	54	
Hexachloroethane	0.001	ND				
Nitrobenzene	0.001	ND				
N-Nitrosopiperidine	0.005	ND				
Isophorone	0.005	ND				
2-Nitrophenol	0.005	ND	77			96
2,4-Dimethylphenol	0.005	ND				
bis(2-Chloroethoxy)methane	0.001	ND				
Benzoic acid	2.5	ND				
2,4-Dichlorophenol	0.005	ND	77			96
1,2,4-Trichlorobenzene	0.001	ND		10	67	
a,a-Dimethylphenethylamine	2.5	ND				
Naphthalene	0.001	ND				

TA# T86812

FIELD CODE: RO Reject Water-Ann

EPA 625	Reporting	Concentration	QC	RPD	%EA	%IA
	Limit	(mg/L)				
4-Chloroaniline	0.005	ND				
2,6-Dichlorophenol	0.005	ND				
Hexachlorobutadiene	0.001	ND	78			98
N-Nitroso-di-n-butylamine	0.005	ND				
4-Chloro-3-methylphenol	0.005	ND	78	9	87	98
2-Methylnaphthalene	0.001	ND				
1,2,4,5-Tetrachlorobenzene	0.001	ND				
Hexachlorocyclopentadiene	0.005	ND				
2,4,6-Trichlorophenol	0.005	ND	80			100
2,4,5-Trichlorophenol	0.005	ND				
2-Chloronaphthalene	0.001	ND				
1-Chloronaphthalene	0.001	ND				
2-Nitroaniline	0.005	ND				
Dimethylphthalate	0.001	ND				
Acenaphthylene	0.001	ND				
2,6-Dinitrotoluene	0.001	ND				
3-Nitroaniline	0.005	ND				
Acenaphthene	0.001	ND	78	10	88	98
2,4-Dinitrophenol	0.025	ND				
Dibenzofuran	0.005	ND				
Pentachlorobenzene	0.001	ND				
4-Nitrophenol	0.005	ND		11	87	
1-Naphthylamine	0.005	ND				
2,4-Dinitrotoluene	0.001	ND		3	108	
2-Naphthylamine	0.005	ND				
2,3,4,6-Tetrachlorophenol	0.005	ND				
Fluorene	0.001	ND				
Diethylphthalate	0.001	ND				
4-Chlorophenyl-phenylether	0.001	ND				
4-Nitroaniline	0.005	ND				
4,6-Dinitro-2-methylphenol	0.005	ND				
n-Nitrosodiphenylamine & Diphenylamine	0.001	ND	71			88
Diphenylhydrazine	0.005	ND				

TA# T86812

FIELD CODE: RO Reject Water-Ann

EPA 625	Reporting	Concentration	QC	RPD	%EA	%IA
	Limit	(mg/L)				
4-Bromophenyl-phenylether	0.001	ND				
Phenacetin	0.005	ND				
Hexachlorobenzene	0.001	ND				
4-Aminobiphenyl	0.005	ND				
Pentachlorophenol	0.005	ND	76	11	195	95
Pentachloronitrobenzene	0.005	ND				
Pronamide	0.001	ND				
Phenanthrene	0.001	ND				
Anthracene	0.001	ND				
Di-n-butylphthalate	0.001	ND				
Fluoranthene	0.001	ND	76			95
Benzidine	2.5	ND				
Pyrene	0.001	ND		5	96	
p-Dimethylaminoazobenzene	0.001	ND				
Butylbenzylphthalate	0.001	ND				
Benzo[a]anthracene	0.001	ND				
3,3-Dichlorobenzidine	0.001	ND				
Chrysene	0.001	ND				
bis(2-Ethylhexyl)phthalate	0.005	ND				
Di-n-octylphthalate	0.001	ND	92			115
Benzo[b]fluoranthene	0.001	ND				
7,12-Dimethylbenz(a)anthracene	0.001	ND				
Benzo[k]fluoranthene	0.001	ND				
Benzo[a]pyrene	0.001	ND	78			98
3-Methylcholanthrene	0.001	ND				
Dibenzo(a,j)acridine	0.001	ND				
Indeno[1,2,3-cd]pyrene	0.001	ND				
Dibenz[a,h]anthracene	0.001	ND				
Benzo[g,h,i]perylene	0.001	ND				

TA #T86812

Field Code: RO Reject Water-Ann

TENTATIVELY IDENTIFIED COMPOUNDS AND ESTIMATED CONCENTRATIONS (mg/L)

	RT	CONC.
(1) Butyl-Hexadecanoate	15.17	0.009
(2) Butyl esters-Octadecanoic acid-	16.68	0.006
(3) 9-octyl-Heptadecane	16.75	0.002
(4) Pentacosane	17.45	0.002
(5) Hexacosane	18.13	0.003
(6) docosane	18.79	0.002
(7) Pentatriacontane	19.43	0.002

ND = NOT DETECTED

SURROGATES	% RECOVERY
2-Fluorophenol SURR	39
Phenol-d6 SURR	36
Nitrobenzene-d5 SURR	60
2-Fluorobiphenyl SURR	58
2,4,6-Tribromophenol SURR	56
Terphenyl-d14 SURR	61

METHODS: EPA 625.

CHEMIST: RP/HW



Director, Dr. Blair Leftwich

12-22-97

Date

TRACE ANALYSIS, INC.

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ANALYTICAL RESULTS FOR NAVAJO REFINING

Attention: Darrell Moore
501 E. Main
Artesia, NM 88210

December 22, 1997
Receiving Date: 12/09/97
Sample Type: Water
Project No: NA
Project Location: Artesia, NM

Prep Date: 12/11/97
Analysis Date: 12/11/97
Sampling Date: 12/08/97
Sample Condition: Intact & Cool
Sample Received by: VW
Project Name: Annual RO Reject

FIELD CODE: RO Reject Water-Ann
TA #: T86812

624 Compounds	Reporting Limit	Concentration (ug/L)	QC	RPD	%EA	%IA
Dichlorodifluoromethane	1	ND				
Chloromethane	1	ND				
Vinyl chloride	1	ND	104			104
Bromomethane	5	ND				
Chloroethane	1	ND				
Trichlorofluoromethane	1	ND				
1,1-Dichloroethene	1	ND	103	8	92	103
Iodomethane	5	ND				
Carbon disulfide	1	ND				
Methylene chloride	5	ND				
trans-1,2-Dichloroethene	1	ND				
1,1-Dichloroethane	1	ND				
Vinyl acetate	1	ND				
2-Butanone	50	ND				
Chloroform	1	ND	103			103
1,1,1-Trichloroethane	1	ND				
1,2-Dichloroethane	1	ND				
Benzene	1	ND	7		112	
Carbon Tetrachloride	1	ND				
1,2-Dichloropropane	1	ND	108			108
Trichloroethene	1	ND		5	108	
Bromodichloromethane	1	ND				
cis-1,3-Dichloropropene	1	ND				
4-Methyl-2-pentanone	50	ND				
trans-1,3-Dichloropropene	1	ND				
Toluene	1	ND	108	6	110	108
1,1,2-Trichloroethane	1	ND				
2-Hexanone	50	ND				
MTBE	1	ND				

NAVAJO REFINING

Project Location: Artesia, NM

Project Name: Annual RO Reject

PAGE 2 of 2

FIELD CODE: RO Reject Water-Ann

TA #: T86812

624 Compounds	Reporting Limit	Concentration (ug/L)	QC	RPD	%EA	%IA
Dibromochloromethane	1	ND				
Tetrachloroethene	1	ND				
Chlorobenzene	1	ND	103	8	103	103
Ethylbenzene	1	ND	102			102
m & p-Xylene	1	ND				
Bromoform	1	ND				
Styrene	1	ND				
o-Xylene	1	ND				
1,1,2,2-Tetrachloroethane	1	ND				
trans 1,4-Dichloro-2-butene	5	ND				
cis 1,4-Dichloro-2-butene	5	ND				
1,4-Dichlorobenzene	2	ND				
1,3-Dichlorobenzene	2	ND				
1,2-Dichlorobenzene	2	ND				
1,2-Dibromoethane EDB	5	ND				

SURROGATES

% RECOVERY

Dibromofluoromethane	106
Toluene-d8	94
4-Bromofluorobenzene	97

ND = Not Detected

METHODS: EPA 624.

CHEMIST: RW



Director, Dr. Blair Leftwich

12-22-97

Date



TRACE ANALYSIS, INC.

December 19, 1997
Receiving Date: 12/09/97
Sample Type: Water
Project No: NA
Project Location: Artesia, NM

6701 Aberdeen Avenue
Lubbock, Texas 79424
ANALYTICAL RESULTS FOR
NAVAJO REFINING
Attention: Darrell Moore
501 E. Main
Artesia, NM 88210

806•794•1296
FAX 806•794•1298
Prep Date: 12/09/97
Analysis Date: 12/11/97
Sampling Date: 12/08/97
Sample Condition: Intact & Cool
Sample Received by: VW
Project Name: Annual RO Reject

TOTAL METALS

TA#	FIELD CODE	As (mg/L)	Se (mg/L)	Cd (mg/L)	Pb (mg/L)	Ba (mg/L)	Ag (mg/L)	Cr (mg/L)	Hg (mg/L)	Al (mg/L)	Be (mg/L)
T86812	RO Reject Water-Ann	<0.10	<0.01	<0.02	<0.01	<0.20	<0.005	<0.05	<0.001	<0.20	<0.05
QC	Quality Control	4.9	5.0	4.8	4.8	4.9	0.98	4.7	0.005	4.9	4.7
REPORTING LIMIT											
0.10 0.01 0.02 0.01 0.20 0.005 0.001 0.001 0.05 0.001 0.20 0.01											
RPD		1	0	0	1	0	5	1	2	2	1
% Extraction Accuracy		92	78	97	91	96	88	92	105	91	92
% Instrument Accuracy		97	99	95	96	98	98	94	108	97	94
		B	Co	Cu	Fe	Mn	Ni	V	Zn	U	Mo
		(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
T86812	RO Reject Water-Ann	<0.10	<0.03	<0.02	<0.10	<0.03	<0.20	<0.05	<0.02	<0.10	<0.10
QC	Quality Control	4.8	4.8	4.8	4.7	4.8	4.8	4.8	4.9	5.1	4.7
REPORTING LIMIT											
0.10 0.03 0.02 0.10 0.03 0.20 0.05 0.02 0.10 0.10 0.10											
RPD		5	0	1	1	0	1	1	1	5	0
% Extraction Accuracy		103	93	94	97	92	963	91	97	98	91
% Instrument Accuracy		96	96	96	93	95	95	95	97	101	91

METHODS: EPA 200.7, 245.1.
CHEMIST: As, Cd, Cr, Ba, Al, Be, Co, Cu, Fe, Mn, Mo, Ni, V, Zn, Se, Pb, Ag, B, U: RR Hg: HC
TOTAL METALS SPIKE: 2.0 mg/L As, Se, Cd, Pb, Ba, Cr, Al, Be, Co, Cu, Fe, Mn, Mo, Ni, V, Zn; 0.5 mg/L Ag; 0.005 mg/L Hg;
TOTAL METALS QC: 5.0 mg/L As, Se, Cd, Pb, Ba, Cr, Al, Be, Co, Cu, Fe, Mn, Mo, Ni, V, Zn; 1.0 mg/L Ag; 0.005 mg/L Hg;
12-19-97
Director, Dr. Blair Leftwich
DATE

TRACE ANALYSIS, INC.

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ANALYTICAL RESULTS FOR NAVAJO REFINING

Attention: Darrell Moore
501 E. Main
Artesia, NM 88210

December 19, 1997

Receiving Date: 12/09/97

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

Prep Date: 12/09/97

Analysis Date: 12/15/97

Sampling Date: 12/08/97

Sample Condition: Intact & Cool

Sample Received by: VW

Project: Annual RO Reject

TA#	FIELD CODE	AMMONIA-N (mg/L)	CHLORINE (mg/L)	C03	HC03
				ALKALINITY (mg/L as CaCO3)	ALKALINITY (mg/L as CaCO3)
T86812	RO Reject Water-ANN	<5	<0.1	<1.00	410
QC	Quality Control	4.5	—	—	—
METHOD BLANK		<5.0	—	—	—
Reporting Limit		5.0	—	—	—
RPD		7	0	2	2
% Extraction Accuracy		91	—	—	—
% Instrument Accuracy		89	—	—	—

METHODS: EPA 350.3; 310.1 330.1.

CHEMIST: JS/RC

NH3-N SPIKE: 5.0 mg/L NH3-N.

NH3-N QC: 5.0 Mg/L NH3-N.



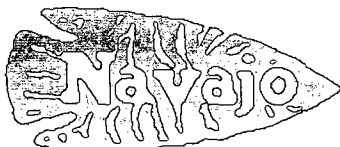
Director, Dr. Blair Leftwich

12-19-97

DATE

TELEPHONE
(505) 748-3311

EASYLINK
62905278



REFINING COMPANY

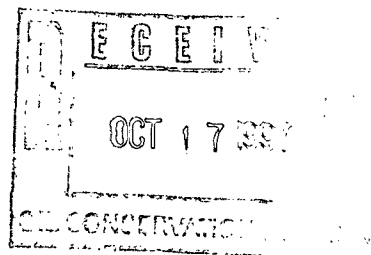
501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159

October 15, 1997

FAX

(505) 746-6410 ACCTG
(505) 746-6155 EXEC
(505) 748-9077 ENGR
(505) 746-4438 P / L

Mr. Roger Anderson
Environmental Bureau
Oil Conservation Division
2040 S. Pacheco St.
Santa Fe, NM 87505-5472



RE: 3rd Quarter 1997 Report on RO Reject Water, Navajo Refining Co., Eddy County, NM

Dear Roger:

This letter is sent in regard to Navajo Refining's permit modification of our discharge plan GW-28 which allows us to put our Reverse Osmosis (RO) reject water on our farm or into Eagle Draw. This permit is administered by OCD and the parameters we sample for were set up by OCD. We are sending these results for your files. We are required by OCD to sample this stream every quarter and those results for this quarter are enclosed.

For this quarter we discharged a total of 29,710,230 gallons with 16,261,230 of that total being sent to the farm for irrigation, and 13,449,000 being sent to Eagle Draw. Since we started discharging the RO reject water, we have discharged a total of 599,880,426 gallons. This is broken down as follows: 157,846,498 gallons have been put into Eagle Draw and 442,033,928 gallons have been put on the farm.

The RO unit was not in operation for 15 days while we installed new RO equipment. If you have any questions concerning this matter, please call me at 505-748-3311. Thank you for your time.

Regards,
NAVAJO REFINING COMPANY

Darrell Moore
Environmental Mgr. for Water and Waste

Enclosure

cc:USEPA, New Mexico Environment Dept.- Water Quality

TRACE ANALYSIS, INC.

October 03, 1997
 Receiving Date: 09/16/97
 Sample Type: Water
 Project No: NA
 Project Location: Artesia, NM

6701 Aberdeen Avenue
 Lubbock, Texas 79424
 ANALYTICAL RESULTS FOR
 NAVAJO REFINING
 Attention: Darrell Moore
 501 E. Main
 Artesia, NM 88210

TOTAL METALS

806•794•1296
 FAX 806•794•1298
 Prep Date: 09/16/97
 Analysis Date: 09/24/97
 Sampling Date: 09/15/97
 Sample Condition: Intact & Cool
 Sample Received by: JH
 Project Name: Qlty RO Reject

TA#	FIELD CODE	As (mg/L)	Se (mg/L)	Cd (mg/L)	Cr (mg/L)	Pb (mg/L)	Ba (mg/L)	Al (mg/L)	Be (mg/L)	U (mg/L)	B (mg/L)
T81656	RO Reject Qlty	<0.10	<0.010	<0.01	<0.05	<0.005	<0.20	<0.20	<0.01	<1.0	<0.1
QC	Quality Control	4.9	4.8	5.3	4.9	4.8	5.0	4.8	5.1	5.0	5.3

REPORTING LIMIT

0.10 0.010 0.01 0.05 0.005 0.20 0.20 0.01 1.0 0.1

RPD		1	1	6	5	4	4	1	5	4	5
% Extraction Accuracy		112	94	115	105	110	101	82	98	118	107
% Instrument Accuracy		97	95	106	98	96	100	96	102	102	106

T81656	RO Reject Qlty	<0.03	<0.02	<0.10	<0.01	<0.10	<0.20	<0.05	<0.02	<0.001	0.030
QC	Quality Control	5.1	4.9	5.0	5.0	4.9	5.0	4.9	4.9	0.0049	1.0

REPORTING LIMIT

0.03 0.02 0.10 0.01 0.10 0.20 0.05 0.02 0.001 0.01

RPD		5	3	4	5	5	6	6	4	2	9
% Extraction Accuracy		111	91	82	101	110	108	98	93	103	86
% Instrument Accuracy		102	97	99	99	98	99	98	97	98	100

METHODS: EPA 200.7, 245.1.
 CHEMIST: As, Cd, Cr, Ba, Al, Be, Co, Cu, Fe, Mn, Mo, Ni, V, Zn, Se, Pb, Ag, B, U; RR Hg; HC
 TOTAL METALS SPIKE: 2.0 mg/L As, Se, Cd, Cr, Pb; Ba, Al, Be, B, Co, Cu, Fe, Mn, Mo, Ni, V, Zn; 4.0 mg/L U; 1.0 mg/L Ag; 0.005 mg/L Hg.
 TOTAL METALS QC: 5.0 mg/L As, Se, Cd, Cr, Pb, Ba, Al, Be, U, B, Co, Cu, Fe, Mn, Mo, Ni, V, Zn; 1.0 mg/L Ag; 0.005 mg/L Hg.

Director, Dr. Blair Leftwich
 10-3-97
 DATE

6701 Aberdeen Avenue

Lubbock, Texas 79424

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TRACE ANALYSIS, INC.

ANALYTICAL RESULTS FOR NAVAJO REFINING

September 29, 1997
Receiving Date: 09/16/97
Sample Type: Water
Project No: NA
Project Location: Artesia, NM

Attention: Darrell Moore
501 E. Main
Artesia, NM 88210

Prep Date: 09/19/97
Analysis Date: 09/19/97
Sampling Date: 09/15/97
Sample Condition: Intact & Cool
Sample Received by: JH
Project Name: Qtrly RO Reject

TA#	FIELD CODE	CHLORIDE		FLUORIDE		SULFATE	ALKALINITY	
		(mg/L)	(mg/L)	(mg/L)	(mg/L)		HC03	C03
T81656	RO Reject Qtrly	83	8.5	1,900	540	<1.0		
QC	Quality Control	23	5.4	26	---	---		

RPD
% Extraction Accuracy 8
% Instrument Accuracy 87 104 98 0 0
90 107 101 --- ---

REPORTING LIMIT 10 1.0 10 1.0 1.0

METHODS: EPA 300.0, 310.1, 340.2.
CHEMIST: CHLORIDE/SULFATE/FLUORIDE: RC ALKALINITY: JS
SPIKE: 25 mg/L CHLORIDE; 5.0 mg/L FLUORIDE; 25 mg/L SULFATE.
QC: 22 mg/L CHLORIDE; 5.3 mg/L FLUORIDE; 25 mg/L SULFATE.

Director, Dr. Blair Leftwich

Date

9-29-97

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Lubbock, Texas 79424

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TRACE ANALYSIS, INC.

ANALYTICAL RESULTS FOR

NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

September 29, 1997

Receiving Date: 09/16/97

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

Prep Date: 09/19/97

Analysis Date: 09/22/97

Sampling Date: 09/15/97

Sample Condition: Intact & Cool

Sample Received by: JH

Project Name: Qtrly RO Reject

TA#	Field Code	POTASSIUM (mg/L)	MAGNESIUM (mg/L)	CALCIUM (mg/L)	SODIUM (mg/L)
-----	------------	---------------------	---------------------	-------------------	------------------

T81656	RO Reject Qtrly.	5.0	210	670	80
--------	------------------	-----	-----	-----	----

QC	Quality Control	53	51	52	53
----	-----------------	----	----	----	----

MET BLK	METHOD BLANK	<0.30	0.23	0.22	<0.40
---------	--------------	-------	------	------	-------

HIGH		*528 106%	*528 106%	---	*528 106%
------	--	-----------	-----------	-----	-----------

Reporting Limit		0.30	0.01	0.01	0.40
-----------------	--	------	------	------	------

RPD		1	1	2	2
% Extraction Accuracy		99	93	94	104
% Instrument Accuracy		105	102	103	105

*NOTE: High is out of range of 95%-105%.

METHODS: EPA 200.7.

CHEMIST: RR

SPIKE: 100 mg/L POTASSIUM, MAGNESIUM, CALCIUM, SODIUM.

QC: 50 mg/L POTASSIUM, MAGNESIUM, CALCIUM, SODIUM.

Director, Dr. Blair Leftwich

9-25-97

Date

01656

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TraceAnalysis, Inc.

6701 Aberdeen Avenue Lubbock, Texas 79424
Tel (806) 794 1296 Fax (806) 794 1298
1 (800) 378 1296

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Project Manager:

Darrell Moore

Phone #:

FAX #:

Company Name & Address:

Project #:

Navage

Project Name:

Brly RD Reject

Sampler Signature:

Artesia NM

[Signature]

LAB #
(LAB USE ONLY)

FIELD CODE

81660 RD Reject Brly

CONTAINERS

Volume/Amount

WATER
SOIL
AIR
SLUDGE

MATRIX

PRESERVATIVE
METHOD

SAMPLING

HCL
HNO3
ICE
NONE

DATE

TIME

BTEX, MTBE

TPH

Total Metals Ag As Ba Cd Cr Pb Hg Se

TCLP Metals Ag As Ba Cd Cr Pb Hg Se

TCLP Volatiles

TCLP Semi Volatiles

RCI

8240 / 8260

8270

Turn around # of days

Fax ASAP

Hold

Relinquished by:

Date:

Time:

Received by:

Date:

Time:

REMARKS

Relinquished by:

Date:

Time:

Received by:

Date:

Time:

Relinquished by:

Date:

Time:

Received at Laboratory by:

Date:

Time:

[Signature] 9/16/97 16:15

[Signature] 9/16/97 9:45 A

FedEx 305 6541 153

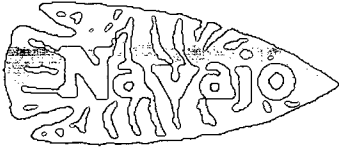
40

839AAA

[Signature] 9-30-97

TELEPHONE
(505) 748-3311

EASYLINK
62905278

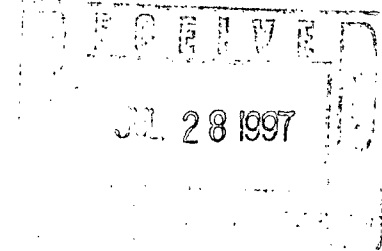


REFINING COMPANY

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159

FAX
(505) 746-6410 ACCTG
(505) 746-6155 EXEC
(505) 748-9077 ENGR
(505) 746-4438 P/L

July 24, 1997



Mr. Roger Anderson
Environmental Bureau
Oil Conservation Division
2040 S. Pacheco St.
Santa Fe, NM 87505-5472

**RE: 2nd Quarter 1997 Report on RO Reject Water, Navajo Refining Co., Eddy
County, NM**

Dear Roger:

This letter is sent in regard to Navajo Refining's permit modification of our discharge plan GW-28 which allows us to put our Reverse Osmosis (RO) reject water on our farm or into Eagle Draw. This permit is administered by OCD and the parameters we sample for were set up by OCD. We are sending these results for your files. We are required by OCD to sample this stream every quarter and those results for this quarter are enclosed.

For this quarter we discharged a total of 33,453,601 gallons with all of that total being sent to the farm for irrigation. Since we started discharging the RO reject water, we have discharged a total of 570,170,196 gallons. This is broken down as follows: 144,397,498 gallons have been put into Eagle Draw and 425,772,698 gallons have been put on the farm.

If you have any questions concerning this matter, please call me at 505-748-3311.
Thank you for your time.

Regards,
NAVAJO REFINING COMPANY

Darrell Moore
Environmental Mgr. for Water and Waste
encl.
cc:USEPA, New Mexico Environment Dept.- Water Quality

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue

Lubbock, Texas 79424 806•794•1296

FAX 806•794•1298

July 02, 1997

Receiving Date: 06/05/97

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

ANALYTICAL RESULTS FOR

NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

Prep Date: 06/09/97

Analysis Date: 06/11/97

Sampling Date: 06/04/97

Sample Condition: Intact & Cool

Sample Received by: JH

Project Name: NA

TOTAL METALS

TA#	FIELD CODE	As (mg/L)	Se (mg/L)	Cd (mg/L)	Cr (mg/L)	Pb (mg/L)	Ba (mg/L)	Al (mg/L)	Ag (mg/L)	Be (mg/L)	B (mg/L)	U (mg/L)
T75002	RO Reject - Qtrly	<0.10	0.021	<0.02	<0.05	0.011	<0.20	0.032	0.11	<0.10	<1.0	<1.0
QC	Quality Control	5.2	4.7	4.8	4.7	4.8	4.9	4.7	0.94	5.3	4.9	5.2
REPORTING LIMIT												
RPD		0	25	0	6	10	0	5	1	0	4	1
% Extraction Accuracy		75	100	80	83	105	80	103	91	115	108	100
% Instrument Accuracy		104	95	96	93	95	98	95	94	105	98	103
T75002 RO Reject - Qtrly												
QC	Quality Control	<0.03	0.88	0.08	<0.01	<0.10	<0.20	<0.05	<0.02	<0.001	<0.001	<0.001
		4.8	4.8	4.7	4.6	4.7	4.7	4.8	4.7	0.0052	0.0052	0.0052
REPORTING LIMIT												
RPD		0.03	0.02	0.03	0.01	0.10	0.20	0.05	0.02	0.001	0.001	0.001
% Extraction Accuracy		6	5	6	0	20	5	15	6	2	2	2
% Instrument Accuracy		88	112	78	87	100	93	87	78	103	103	103
		97	96	95	93	95	95	95	95	95	104	104

METHODS: EPA 200.7, 245.1.

CHEMIST: As, Cd, Cr, Ba, Al, Be, Co, Cu, Fe, Mn, Mo, Ni, V, Zn, Se, Pb, Ag, B, U; RR Hg: DM

TOTAL METALS SPIKE: 0.02 mg/L As, Se, Cd, Cr, Pb, Ba, Al, Co, Fe, Ni; 0.80 mg/L Ag; 2.0 mg/L B, U, Be; 0.1 mg/L Cu;

0.015 mg/L Mn, V, Zn; 0.01 mg/L Mo; 0.005 mg/L Hg.

TOTAL METALS QC: 5.0 mg/L As, Se, Cd, Cr, Pb, Ba, Al, Be, B, U, Co, Cu, Fe, Mn, Mo, Ni, V, Zn; 1.0 mg/L Ag;

0.005 mg/L Hg.

Director, Dr. Blair Leftwich

DATE

7-2-97



TRACE ANALYSIS, INC.

6701 Aberdeen Avenue
Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

ANALYTICAL RESULTS FOR

NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

July 02, 1997

Receiving Date: 06/05/97

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

Prep Date: 06/18/97

Analysis Date: 06/19/97

Sampling Date: 06/04/97

Sample Condition: Intact & Cool

Sample Received by: JH

Project Name: NA

TA#	Field Code	POTASSIUM (mg/L)	MAGNESIUM (mg/L)	CALCIUM (mg/L)	SODIUM (mg/L)
-----	------------	---------------------	---------------------	-------------------	------------------

T75002	RO Reject - Qtrly	115	280	580	170
QC	Quality Control	25	25	24	25

Reporting Limit

0.3 0.01 0.01 0.40

RPD

% Extraction Accuracy

% Instrument Accuracy

4 5 4 12
104 106 94 104
102 101 97 101

METHODS: EPA 200.7.

CHEMIST: RR

SPIKE: 100 mg/L POTASSIUM, MAGNESIUM, CALCIUM, SODIUM.

QC: 25 mg/L POTASSIUM, MAGNESIUM, CALCIUM, SODIUM.

Director, Dr. Blair Leftwich

7-2-97

Date

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

ANALYTICAL RESULTS FOR

NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

July 02, 1997

Receiving Date: 06/05/97

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

Prep Date: 06/07/97

Analysis Date: 06/07/97

Sampling Date: 06/04/97

Sample Condition: Intact & Cool

Sample Received by: JH

Project Name: NA

TA#	FIELD CODE	CHLORIDE (mg/L)	FLUORIDE (mg/L)	SULFATE (mg/L)	ALKALINITY (mg/L as CaCO ₃) HCO ₃ CO ₃
-----	------------	--------------------	--------------------	-------------------	--

T75002	RO Reject - Qtrly	140	0.57	2,200	<1.0 <1.0
QC	Quality Control	23	1.0	25	---

RPD

% Extraction Accuracy

% Instrument Accuracy

0	1	2	0	0
95	102	103	---	---
95	104	100	---	---

REPORTING LIMIT

1.0	0.1	1.0	1.00	1.00
275	16	261		

METHODS: EPA 300.0, 310.1, 340.2.

CHEMIST: CHLORIDE/SULFATE: RC FLUORIDE/ALKALINITY: JS

SPIKE: 25 mg/L CHLORIDE; 1.0 mg/L FLUORIDE; 25 mg/L SULFATE.

QC: 24 mg/L CHLORIDE; 1.0 mg/L FLUORIDE; 25 mg/L SULFATE.

Director, Dr. Blair Leftwich

Date

7-2-97

TELEPHONE
(505) 748-3311

EASYLINK
62905278



97 APR 14 AM 8 52

REFINING COMPANY

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159

FAX
(505) 746-6410 ACCTG
(505) 746-6155 EXEC
(505) 748-9077 ENGR
(505) 746-4438 P/L

April 15, 1997

Mr. Roger Anderson
Environmental Bureau
Oil Conservation Division
2040 S. Pacheco St.
Santa Fe, NM 87505-5472

CERTIFIED MAIL/RETURN RECEIPT

P 216 710 706

**RE: 1st Quarter 1997 Report on RO Reject Water, Navajo Refining Co., Eddy
County, NM**

Dear Roger:

This letter is sent in regard to Navajo Refining's permit modification of our discharge plan GW-28 which allows us to put our Reverse Osmosis (RO) reject water on our farm or into Eagle Draw. This permit is administered by OCD and the parameters we sample for were set up by OCD. We are sending these results for your files. We are required by OCD to sample this stream every quarter and those results for this quarter are enclosed.

For this quarter we discharged a total of 32,035,467 gallons with 18,324,521 being sent to Eagle Draw and 13,710,946 gallons being sent to the farm for irrigation. Since we started discharging the RO reject water, we have discharged a total of 536,716,595 gallons. This is broken down as follows: 144,397,498 gallons have been put into Eagle Draw and 392,319,097 gallons have been put on the farm.

If you have any questions concerning this matter, please call me at 505-748-3311.
Thank you for your time.

Regards,
NAVAJO REFINING COMPANY

Darrell Moore
Sr. Environmental Specialist
encl.

cc:USEPA, New Mexico Environment Dept.- Water Quality

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

TRACE ANALYSIS, INC.

March 31, 1997

Receiving Date: 03/05/97

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

ANALYTICAL RESULTS FOR
NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

Prep Date: 03/05/97

Analysis Date: 03/05/97

Sampling Date: 03/04/97

Sample Condition: Intact & Cool

Sample Received by: JH

Project Name: NA

TA# FIELD CODE

CHLORIDE
(mg/L)FLUORIDE
(mg/L)SULFATE
(mg/L)ALKALINITY
(mg/L as CaCO₃)
HCO₃ CO₃

T68510	RO Reject Qtrly	210	3.1	1,600	310	<1.00
QC	Quality Control	520	0.99	25	---	---

RPD		0	0	0	0	0
% Extraction Accuracy		101	98	108	---	---
% Instrument Accuracy		104	100	100	---	---

REPORTING LIMIT

0.5

0.1

1.0

10

10

METHODS: EPA 300.0, 310.1, 340.2, SM 4500 Cl-B.

CHEMIST: Chloride/Fluoride/Sulfate: MS

Alkalinity: RCD

SPIKE: 500 mg/L CHLORIDE; 5.0 mg/L FLUORIDE; 25 mg/L SULFATE.

QC: 500 mg/L CHLORIDE; 1.0 mg/L FLUORIDE; 25.0 mg/L SULFATE.

Director, Dr. Blair Leftwich

Date

5-31-97

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

TRACE ANALYSIS, INC.

March 31, 1997

Receiving Date: 03/05/97

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

ANALYTICAL RESULTS FOR

NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

Prep Date: 03/11/97

Analysis Date: 03/11/97

Sampling Date: 03/04/97

Sample Condition: Intact & Cool

Sample Received by: JH

Project Name: NA

TA#	Field Code	POTASSIUM (mg/L)	MAGNESIUM (mg/L)	CALCIUM (mg/L)	SODIUM (mg/L)
-----	------------	---------------------	---------------------	-------------------	------------------

T68510	RO Reject Qtrly	3.8	170	620	130
QC	Quality Control	24	24	24	24

Reporting Limit	0.3	0.01	0.01	0.40
-----------------	-----	------	------	------

RPD	0	0	0	1
% Extraction Accuracy	94	106	108	107
% Instrument Accuracy	98	97	97	96

METHODS: EPA 200.7.

CHEMIST: RR

SPIKE: 100 mg/L POTASSIUM, MAGNESIUM, CALCIUM, SODIUM.

QC: 25 mg/L POTASSIUM, MAGNESIUM, CALCIUM, SODIUM.

BB

3-31-97

Director, Dr. Blair Leftwich

Date

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

TRACE ANALYSIS, INC.

March 31, 1997

Receiving Date: 03/05/97

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

ANALYTICAL RESULTS FOR

NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

Prep Date: 03/06/97

Analysis Date: 03/07/97

Sampling Date: 03/04/97

Sample Condition: Intact & Cool

Sample Received by: JH

Project Name: NA

TOTAL METALS

TA#	FIELD CODE	As (mg/L)	Cr (mg/L)	Cd (mg/L)	Ba (mg/L)	U (mg/L)	Mo (mg/L)	Zn (mg/L)	Ni (mg/L)	Be (mg/L)	Fe (mg/L)	Mn (mg/L)
T68510	RO Reject Qtrly	<0.10	<0.05	<0.02	<0.20	<0.50	<0.10	<0.05	<0.20	<0.01	<0.03	<0.01
QC	Quality Control	5.2	5.0	5.1	5.0	5.1	5.0	5.0	5.0	4.8	5.0	4.9

REPORTING LIMIT

0.10 0.05 0.02 0.20 0.50 0.10 0.05 0.20 0.01 0.03 0.01

RPD	1	4	6	5	6	3	6	7	9	1	6
% Extraction Accuracy	99	96	94	99	105	100	98	85	91	97	88
% Instrument Accuracy	104	100	101	100	102	100	100	100	100	96	99
	Co	V	Cu	Al	B	Hg	Se	Pb	Ag		

T68510	RO Reject Qtrly	<0.03	<0.05	<0.02	0.62	<0.03	<0.001	<0.005	<0.005	0.006	
QC	Quality Control	4.9	5.0	4.7	5.2	5.1	0.0047	0.106	0.025	0.0025	

REPORTING LIMIT

0.03 0.05 0.02 0.20 0.03 0.001 0.005 0.005 0.005

RPD	10	8	6	4	19	2	7	0	8	
% Extraction Accuracy	85	100	78	91	81	98	83	108	96	
% Instrument Accuracy	97	100	94	103	101	97	106	100	100	

METHODS: EPA 200.7, 239.2, 270.2, 272.2, 245.1.

CHEMIST: As, Cd, Cr, Ba, Al, Be, Co, Cu, Fe, Mn, Mo, Ni, V, Zn, Se, Pb, Ag, B, U: RR

Hg: CB

TOTAL METALS SPIKE: 2.0 mg/L As, Cd, Cr, Ba, Al, Be, Co, Cu, Fe, Mn, Mo, Ni, V, Zn; 0.005 mg/L Hg; 6.0 mg/L U;

5.0 mg/L B; 0.025 mg/L Ag, Pb; 0.100 mg/L Se.

TOTAL METALS QC: 5.0 mg/L As, Cd, Cr, Ba, Al, Be, Co, Cu, Fe, Mn, Mo, Ni, V, Zn, U, B; 0.005 Hg; 0.0025 mg/L Ag; 0.100 mg/L Se; 0.025 mg/L Pb.

Director, Dr. Blair Leftwich

DATE

2-31-97

68510

053

TraceAnalysis, Inc.

6701 Aberdeen Avenue Lubbock, Texas 79424
Tel (806) 794 1296 Fax (806) 794 1298
1 (800) 378 1296

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Project Manager:

Darrell Moore

Phone #: 505-748-3311
FAX #: 748-4077

ANALYSIS REQUEST

SPECIAL HANDLING

Company Name & Address:

Navajo Refining

Project #:

Project Name :

Project Location:

Artesia RM

Sampler Signature:

Darrell Moore

LAB #
(LAB USE ONLY)

FIELD CODE

68510

Re Reject Only

CONTAINERS

Volume/Amount

2

WATER

SOIL

AIR

SLUDGE

X

HCL

HNO3

ICE

NONE

X

X

X

DATE

TIME

3/14/97

14:15

BTEX, MTBE

TPH

Total Metals Ag As Ba Cd Cr Pb Hg Se

TCLP Metals Ag As Ba Cd Cr Pb Hg Se

TCLP Volatiles

TCLP Semi Volatiles

RCI

8240 / 8260

8270

See List

Turn around # of days

Fax ASAP

Hold

Relinquished by:

Darrell Moore

3/19/97

16:15

Received by:

Date:

Time:

Relinquished by:

Date:

Time:

Received by:

Date:

Time:

Relinquished by:

Date:

Time:

Received at laboratory by:

Date:

Time:

Darrell Moore 3/5/97 10:00A

REMARKS

B

3-31

C/F

64917

TELEPHONE
(505) 748-3311

EASYLINK
62905278



REFINING COMPANY

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159

FAX
(505) 746-6410 ACCTG
(505) 746-6155 EXEC
(505) 748-9077 ENGR
(505) 746-4438 P / L

November 6, 1996

Mr. Roger Anderson
Environmental Bureau
Oil Conservation Division
2040 S. Pacheco St.
Santa Fe, NM 87505-5472

CERTIFIED MAIL/RETURN RECEIPT
P 355 936 207

**RE: 3rd Quarter 1996 Report on RO Reject Water, Navajo Refining Co., Eddy
County, NM**

Dear Roger:

This letter is sent in regard to Navajo Refining's permit modification of our discharge plan GW-28 which allows us to put our Reverse Osmosis (RO) reject water on our farm or into Eagle Draw. This permit is administered by OCD and the parameters we sample for were set up by OCD. We are sending these results for your files. We are required by OCD to sample this stream every two weeks and those results for this quarter are enclosed.

For this quarter we discharged a total of 32,897,563 with all of that total sent to our farm for irrigation. Since we started discharging the RO reject water, we have discharged a total of 471,812,407 gallons. This is broken down as follows: 100,640,656 gallons have been put into Eagle Draw and 371,171,751 gallons have been put on the farm.

If you have any questions concerning this matter, please call me at 505-748-3311.
Thank you for your time.

Regards,
NAVAJO REFINING COMPANY

Darrell Moore
Sr. Environmental Specialist
encl.

cc:USEPA, New Mexico Environment Dept.- Water Quality

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

TRACE ANALYSIS, INC.

October 23, 1996

Receiving Date: 10/02/96

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

ANALYTICAL RESULTS FOR
NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

Prep Date: 10/03/96

Analysis Date: 10/03/96

Sampling Date: 09/30/96

Sample Condition: Intact & Cool

Sample Received by: ML

Project Name: NA

TA#	FIELD CODE	CHLORIDE	FLUORIDE	SULFATE	ALKALINITY	
		(mg/L)	(mg/L)	(mg/L)	(mg/L as CaCO ₃)	

T59643	RO Reject Btlwly	155	3.1	1,520	504	0
QC	Quality Control	23.9	0.96	25.0	---	---

RPD		2	4	0	1	1
% Extraction Accuracy		97	99	100	---	---
% Instrument Accuracy		97	99	98	---	---

REPORTING LIMIT

1.0	0.1	1.0	10	10
-----	-----	-----	----	----

METHODS: EPA 300.0, 310.1, 340.2.

CHEMIST: Chloride/Fluoride/Sulfate: MS

Alkalinity: RCD

SPIKE: 50 mg/L CHLORIDE; 5.0 mg/L FLUORIDE; 50 mg/L SULFATE.

QC: 25.0 mg/L CHLORIDE; 1.0 mg/L FLUORIDE; 25.0 mg/L SULFATE.

10-23-96

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDowell

Date

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

TRACE ANALYSIS, INC.

ANALYTICAL RESULTS FOR

NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

October 23, 1996

Receiving Date: 10/02/96

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

Prep Date: 10/03/96

Analysis Date: 10/08/96

Sampling Date: 09/30/96

Sample Condition: Intact & Cool

Sample Received by: ML

Project Name: NA

TA# Field Code

POTASSIUM
(mg/L)

MAGNESIUM
(mg/L)

CALCIUM
(mg/L)

SODIUM
(mg/L)

T59643 RO Reject Biweekly
QC Quality Control

4.4	172	550	96.8
26.5	24.9	24.5	25.95

Reporting Limit

0.30	0.10	0.10	0.40
------	------	------	------

RPD
% Extraction Accuracy
% Instrument Accuracy

3	1	1	1
107	98	96	100
106	100	98	104

METHODS: EPA 200.7.

CHEMIST: RR

SPIKE: 100.0 mg/L POTASSIUM, MAGNESIUM, CALCIUM, SODIUM.

QC: 25.0 mg/L POTASSIUM, MAGNESIUM, CALCIUM, SODIUM.

RS

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDowell

Date

10-23-96

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

October 23, 1996

Receiving Date: 10/02/96

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

ANALYTICAL RESULTS FOR

NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

Prep Date: 10/03/96

Analysis Date: 10/07/96

Sampling Date: 09/30/96

Sample Condition: Intact & Cool

Sample Received by: ML

Project Name: NA

TOTAL METALS

TA#	FIELD CODE	As (mg/L)	Cr (mg/L)	Cd (mg/L)	Ba (mg/L)	U (mg/L)	Mo (mg/L)	Zn (mg/L)	Ni (mg/L)	Be (mg/L)	Fe (mg/L)	Mn (mg/L)
-----	------------	--------------	--------------	--------------	--------------	-------------	--------------	--------------	--------------	--------------	--------------	--------------

T59643	RO Reject BiWkly	<0.10	<0.05	<0.02	<0.20	<0.80	<0.10	0.09	<0.20	<0.01	0.37	<0.05
QC	Quality Control	5.22	0.51	0.13	5.22	4.98	1.98	1.25	1.25	0.14	2.53	1.26

REPORTING LIMIT		0.10	0.05	0.02	0.20	0.80	0.10	0.02	0.20	0.01	0.03	0.05
-----------------	--	------	------	------	------	------	------	------	------	------	------	------

RPD	% Extraction Accuracy	Co (mg/L)	V (mg/L)	Cu (mg/L)	Al (mg/L)	B (mg/L)	Hg (mg/L)	Se (mg/L)	Pb (mg/L)	Ag (mg/L)
-----	-----------------------	--------------	-------------	--------------	--------------	-------------	--------------	--------------	--------------	--------------

T59643	RO Reject BiWkly	<0.03	<0.10	<0.02	<0.20	<0.10	<0.001	<0.005	<0.001	<0.001
QC	Quality Control	1.25	1.16	0.64	5.2	6.16	0.0050	0.100	0.025	0.0099

REPORTING LIMIT		0.03	0.10	0.02	0.20	0.10	0.001	0.005	0.001	0.001
-----------------	--	------	------	------	------	------	-------	-------	-------	-------

RPD	% Extraction Accuracy	1	2	4	4	2	7	5
-----	-----------------------	---	---	---	---	---	---	---

% Instrument Accuracy

METHODS: EPA 200.7, 239.2, 270.2, 272.2, 245.1.

CHEMIST: As, Cd, Cr, Ba, Al, Be, Co, Cu, Fe, Mn, Mo, Ni, V, Zn, Se, Pb, Ag, B, U: RR Hg: CB

TOTAL METALS SPIKE: 8.0 mg/L As, Ba, Al; 0.8 mg/L Cr; 0.2 mg/L Cd, Be; 2.0 mg/L Co, Mn, Mo, Ni, V, Zn; 0.005 mg/L Hg;

0.050 mg/L Se; 0.020 mg/L Pb; 0.008 mg/L Ag; 4.0 mg/L B, U.

TOTAL METALS QC: 5.0 mg/L As, Ba, Al, B, U; 0.13 mg/L Cd, Be; 0.5 mg/L Cr; 1.25 mg/L Co, Mn, Ni, V, Zn; 0.63 mg/L Cu;

2.5 mg/L Fe; 2.0 mg/L Mo; 0.005 mg/L Hg; 0.100 mg/L Se, Ag; 0.025 mg/L Pb.

10-28-96

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDowell

DATE

6701 Aberdeen Avenue Lubbock, Texas 79424
Tel (806) 794 1296 Fax (806) 794 1298
1 (800) 378 1296

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Phone #: 505-748-3311

FAX#: 505-748-9077

Address: Navajo Refining Co.

Project Name :

Sampler Signature:

Sampler Signature: Paul Moore

[illegible]

Relinquished by: Daniel Moore Date: 8/1/92 Time: 6:15

Received by: _____ Date: _____ Time: _____

Date: _____ Time: _____

Received by: _____ Date: _____ Time: _____

Date: _____ Time: _____

Received at Laboratory by: _____ Date: _____ Time: _____

REMARKS

10-31

276A ~~EE~~

NAV-tph44.XLS (393) ~~NAV-mod44.XLS (393)~~

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

August 21, 1996

Receiving Date: 07/13/96

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

ANALYTICAL RESULTS FOR
NAVAJO REFINING
Attention: Darrell Moore
501 E. Main
Artesia, NM 88210

Prep Date: 07/15/96

Analysis Date: 07/16/96

Sampling Date: 07/12/96

Sample Condition: Intact & Cool

Sample Received by: DH

Project Name: NA

TOTAL METALS

TA#	FIELD CODE	As (mg/L)	Ba (mg/L)	Cd (mg/L)	Cr (mg/L)	Cu (mg/L)	Al (mg/L)	Fe (mg/L)	Be (mg/L)	Co (mg/L)	Mn (mg/L)	Mo (mg/L)
-----	------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------

T55631	RO Reject BiWeekly	<0.1	<0.2	<0.02	<0.05	<0.02	<0.2	0.11	<0.01	<0.03	0.03	<0.1
QC	Quality Control	5.22	0.92	7.69	1.37	0.2	0.94	1.92	0.45	0.93	0.93	0.81

REPORTING LIMIT		0.1	0.2	0.02	0.05	0.02	0.2	0.03	0.01	0.03	0.01	0.1
-----------------	--	-----	-----	------	------	------	-----	------	------	------	------	-----

RPD		4	0	0	1	0	0	1	0	1	1	7
% Extraction Accuracy		102	95	89	92	92	97	92	93	89	92	91
% Instrument Accuracy		104	92	91	99	94	96	97	91	93	93	81

		Ni (mg/L)	V (mg/L)	Zn (mg/L)	Hg (mg/L)	U (mg/L)	B (mg/L)	Se (mg/L)	Pb (mg/L)	Ag (mg/L)		
--	--	--------------	-------------	--------------	--------------	-------------	-------------	--------------	--------------	--------------	--	--

T55631	RO Reject BiWeekly	<0.2	<0.05	0.02	<0.001	<0.5	0.64	0.071	<0.001	<0.0002		
QC	Quality Control	0.22	0.83	1.42	0.052	4.19	3.34	0.111	0.023	0.0120		

REPORTING LIMIT		0.2	0.05	0.02	0.001	0.5	0.03	0.005	0.001	0.0002		
-----------------	--	-----	------	------	-------	-----	------	-------	-------	--------	--	--

RPD		1	1	2	8	4	11	4	14	3		
% Extraction Accuracy		89	87	95	100	94	104	104	107	85		
% Instrument Accuracy		110	83	95	104	105	83	107	96	96		

METHODS: EPA 200.7, 239.2, 270.2, 272.2, 245.1.

CHEMIST: As, Ba, Cd, Cr, Cu, Al, Fe, Be, Co, Mn, Mo, Ni, V, Zn: RR

Hg: CB

TOTAL METALS SPIKE: 8.0 mg/L As, Ba, Al; 0.8 mg/L Cr; 0.2 mg/L Cd, Be; 2.0 mg/L Co, Mn, Mo, Ni, V, Zn, B; 12.0 mg/L U

1.0 mg/L Cu; 4.0 mg/L Fe; 0.0050 mg/L Hg; 0.110 mg/L Se; 0.0200 mg/L Pb; 0.00200 mg/L Ag.

TOTAL METALS QC: 25.0 mg/L As; 7.5 mg/L Cd, Zn; 2.0 mg/L Cr, Ni; 1.0 mg/L Ba, Co, Cu, V; 20.0 mg/L Al; 2.5 mg/L Be; 5.0 mg/L Mn, Mo; 100.0 mg/L Fe; 0.0050 mg/L Hg; 0.100 mg/L Se; 0.0250 mg/L Pb; 0.0125 Ag; 4.0 U, B.

AS

8-21-96

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDowell

DATE

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

TRACE ANALYSIS, INC.

July 19, 1996

Receiving Date: 07/13/96

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

ANALYTICAL RESULTS FOR

NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

Prep Date: 07/15/96

Analysis Date: 07/18/96

Sampling Date: 07/12/96

Sample Condition: Intact & Cool

Sample Received by: DH

Project Name: NA

TA# Field Code

POTASSIUM
(mg/L)

MAGNESIUM
(mg/L)

CALCIUM
(mg/L)

SODIUM
(mg/L)

T55631 RO Reject Biweekly
QC Quality Control

3.5
3.7

164.0
9.2

501.0
9.54

72.1
1.57

Reporting Limit

0.3

0.01

0.01

0.4

RPD
% Extraction Accuracy
% Instrument Accuracy

0
103
95

3
99
92

2
75
95

4
101
79

METHODS: EPA 200.7.

CHEMIST: RR

SPIKE: 100.0 mg/L POTASSIUM, MAGNESIUM, CALCIUM, SODIUM.

QC: 4.0 mg/L POTASSIUM; 10.0 mg/L MAGNESIUM, CALCIUM; 2.0 mg/L SODIUM.

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonell

Date

8-21-96



TRACE ANALYSIS, INC.

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

October 23, 1996

Receiving Date: 07/13/96

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

ANALYTICAL RESULTS FOR
NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

Prep Date: 07/17, 9/19, 10/18/96

Analysis Date: 07/17, 9/19, 10/18/96

Sampling Date: 07/12/96

Sample Condition: Intact & Cool

Sample Received by: DH

Project Name: NA

TA# FIELD CODE

CHLORIDE
(mg/L)

FLUORIDE
(mg/L)

SULFATE
(mg/L)

ALKALINITY
(mg/L as CaCO₃)
HCO₃ CO₃

T55631 RO Reject BiWeekly

QC Quality Control

114
23.4

2.4
0.87

2,550
26.8

292

0

RPD
% Extraction Accuracy
% Instrument Accuracy

1
92
94

0
85
90

0
108
107

0

0

REPORTING LIMIT

1.0

0.1

1.0

10

10

METHODS: EPA 300.0, 310.1, 340.2.

CHEMIST: MS

SPIKE: 50 mg/L CHLORIDE; 5.0 mg/L FLUORIDE; 50 mg/L SULFATE.

QC: 25.0 mg/L CHLORIDE; 1.0 mg/L FLUORIDE; 25.0 mg/L SULFATE.

10-23-96

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDowell

Date

Trace Analysis, Inc.

6701 Aberdeen Avenue Lubbock, Texas 79424
Tel (806) 794 1296 Fax (806) 794 1298
1 (800) 378 1296

CHAIN-OF-CU

195AB

195AB

Project Manager

Darrell Moore

Phone #: 806-748-3311

FAX #: 806-748-7077

ANALYSIS REQUEST

SPECIAL HANDLING

Company Name & Address:

Navajo Refining

Project #:

Project Name:

Project Location:

Artesia

Sampler Signature:

Darrell Moore

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX				PRESERVATIVE METHOD				DATE	TIME	REMARKS
				WATER	SOIL	AIR	SLUDGE	HCL	HNO3	ICE	NONE			
55023	12" Hydrotest	5		X								7/11/96	12:00	
24	RA-314	2		X								7/12/96	13:30	X
25	RA-2723	"		"				"				"	13:45	X
26	RA-1227	"		"				"				"	14:00	X
27	RA-1331	"		"				"				"	14:15	X
28	RA-307	"		"				"				"	14:30	X
29	RA-4196	"		"				"				"	14:45	X
30	RA-4798	"		"				"				"	15:00	X
31	Re Reject Bunkly	"		"				"				"	15:15	X

Relinquished by:

Date: 7/12/96 Time: 16:15

Received by:

Date: 7/13/96 Time: 9:30

Relinquished by:

Date: 7/13/96 Time: 9:30

Received by:

Date: 7/13/96 Time: 9:30

Hydrotest water was kept on ice.

35623 O+6

noted as 4th pressure

CHINA

NAVJOX 24, XLS

3608

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

TRACE ANALYSIS, INC.

ANALYTICAL RESULTS FOR

NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

September 18, 1996

Receiving Date: 08/26/96

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

Prep Date: 08/27/96

Analysis Date: 08/27/96

Sampling Date: 08/23/96

Sample Condition: Intact & Cool

Sample Received by: ML

Project Name: NA

TA# Field Code

POTASSIUM
(mg/L)

MAGNESIUM
(mg/L)

CALCIUM
(mg/L)

SODIUM
(mg/L)

T57996 RO Reject Bi-Wkly

QC Quality Control

3.7
25.2

164
23.6

485
22.75

70
23.45

Reporting Limit

0.30

0.01

0.01

0.40

RPD

% Extraction Accuracy

% Instrument Accuracy

1
110
101

1
94
94

1
92
91

1
102
94

METHODS: EPA 200.7.

CHEMIST: RR

SPIKE: 100.0 mg/L POTASSIUM, MAGNESIUM, CALCIUM, SODIUM.

QC: 25 mg/L POTASSIUM, MAGNESIUM, CALCIUM, SODIUM.

[Signature]

9-24-96

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDowell

Date



TRACE ANALYSIS, INC.

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

September 18, 1996

Receiving Date: 08/26/96

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

ANALYTICAL RESULTS FOR
NAVAJO REFINING
Attention: Darrell Moore
501 E. Main
Artesia, NM 88210

Prep Date: 08/27/96
Analysis Date: 08/27/96
Sampling Date: 08/23/96
Sample Condition: Intact & Cool
Sample Received by: ML
Project Name: NA

TOTAL METALS

TA#	FIELD CODE	Pb (mg/L)	Se (mg/L)	Ag (mg/L)	As (mg/L)	Cd (mg/L)	Cr (mg/L)	Ba (mg/L)	Al (mg/L)	Be (mg/L)	Hg (mg/L)	U (mg/L)
T57996	RO Reject Bi-Wkly	<0.001	<0.005	<0.0002	<0.10	<0.02	<0.05	<0.20	<0.20	<0.01	<0.001	<1.0
QC	Quality Control	0.0233	0.105	0.0125	4.64	0.12	0.48	4.57	4.81	0.1	0.0045	5.06

REPORTING LIMIT

RPD		12	0	18	1	1	3	1	0	1	6	8
% Extraction Accuracy		95	80	80	99	86	94	91	99	81	76	94
% Instrument Accuracy		93	105	98	93	92	95	91	96	100	90	101

		Co (mg/L)	Cu (mg/L)	Fe (mg/L)	Mn (mg/L)	Mo (mg/L)	Ni (mg/L)	V (mg/L)	Zn (mg/L)	B (mg/L)
T57996	RO Reject Bi-Wkly	<0.03	<0.02	<0.10	<0.01	<0.10	<0.20	<0.05	0.12	<0.03
QC	Quality Control	1.18	0.59	2.36	1.16	1.98	1.16	1.02	1.16	4.83

REPORTING LIMIT

RPD		0	0	3	0	14	2	2	1	6
% Extraction Accuracy		91	93	95	91	90	90	85	86	84
% Instrument Accuracy		95	94	94	93	99	93	82	93	97

METHODS: EPA 200.7, 239.2, 270.2, 272.2, 245.1.

CHEMIST: Pb, Se, Ag, As, Cd, Cr, Ba, Al, Be, U, Co, Cu, Fe, Mn, Mo, Ni, V, Zn, B: RR

TOTAL METALS SPIKE: 0.0250 mg/L Pb; 0.010 mg/L Se; 0.00050 mg/L Ag; 8.0 mg/L As, Ba, Al; 0.2 mg/L Cd, Be; 0.8 mg/L Cr

0.005 mg/L Hg; 1.0 mg/L U, Cu; 2.0 mg/L Co, Mn, Ni, V, Zn, B; 4.0 mg/L Fe; 2.5 mg/L Mo.

TOTAL METALS QC: 0.0250 mg/L Pb; 0.100 mg/L Se; 0.0125 mg/L Ag; 5.0 mg/L As, Ba, Al, U, B; 0.13 mg/L Cd; 0.5 mg/L Cr;

0.1 mg/L Be; 0.005 mg/L Hg; 1.25 mg/L Co, Mn, Ni, V, Zn; 0.63 mg/L Cu; 2.5 mg/L Fe; 2.0 mg/L Mo.

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDowell

DATE

9-24-96



TRACE ANALYSIS, INC.

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

September 18, 1996

Receiving Date: 08/26/96

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

ANALYTICAL RESULTS FOR
NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

Prep Date: 09/04/96

Analysis Date: 09/04/96

Sampling Date: 08/23/96

Sample Condition: Intact & Cool

Sample Received by: ML

Project Name: NA

TA#	FIELD CODE	CHLORIDE (mg/L)	FLUORIDE (mg/L)	SULFATE (mg/L)	ALKALINITY (mg/L as CaCO3)	
					HCO3	CO3

T57996	RO Reject Bi-Wkly	105	2.6	1,430	284	0
QC	Quality Control	498	1.05	24.1	---	---

RPD		0	4	1	0	0
% Extraction Accu		95	93	94	---	---
% Instrument Accuracy		99	105	100	---	---

REPORTING LIMIT		0.5	0.1	1	1	1
-----------------	--	-----	-----	---	---	---

METHODS: EPA 300.0 310.1.
CHEMIST: CHLORIDE/ALKALINITY: MS FLUORIDE: MS/MB SULFATE: MS
SPIKE: 500 mg/L CHLORIDE; 5.0 mg/L FLUORIDE; 50 mg/L SULFATE.
QC: 500 mg/L CHLORIDE; 1.0 mg/L FLUORIDE; 26.0 mg/L SULFATE.

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonnell

Date

9-28-96

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

TRACE ANALYSIS, INC.

September 10, 1996

Receiving Date: 08/20/96

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

ANALYTICAL RESULTS FOR NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

Prep Date: 09/04/96

Analysis Date: 09/04/96

Sampling Date: 08/16/96

Sample Condition: Intact & Cool

Sample Received by: SH

Project Name: NA

TA# FIELD CODE

CHLORIDE
(mg/L)

FLUORIDE
(mg/L)

SULFATE
(mg/L)

ALKALINITY
(mg/L as CaCO₃)
HCO₃ CO₃

T57508 RO Reject Biweekly

QC Quality Control

76	3	2,150	300	0
498	1.05	9.33	---	---

RPD

% Extraction Accuracy
% Instrument Accuracy

0	4	3	1	1
95	93	119	---	---
99	105	92	---	---

REPORTING LIMIT

0.5	0.1	1	10	10
-----	-----	---	----	----

CHEMIST: MS/MB

METHODS: EPA 375.4, 310.1, 340.2; 4500 Cl-B.

SPIKE: 500 mg/L CHLORIDE; 5.0 mg/L FLUORIDE; 2,000 mg/L SULFATE.

QC: 500 mg/L CHLORIDE; 1.0 mg/L FLUORIDE; 10 mg/L SULFATE.

BS

9-10-96

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonell

Date



TRACE ANALYSIS, INC.

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

September 10, 1996

Receiving Date: 08/20/96

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

ANALYTICAL RESULTS FOR

NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

Prep Date: 08/20/96

Analysis Date: 08/23/96

Sampling Date: 08/16/96

Sample Condition: Intact & Cool

Sample Received by: SH

Project Name: RO Reject BiWeekly

TOTAL METALS

TA#	FIELD CODE	As (mg/L)	Cr (mg/L)	Cd (mg/L)	Ba (mg/L)	U (mg/L)	Mo (mg/L)	Zn (mg/L)	Ni (mg/L)	Be (mg/L)	Fe (mg/L)	Mn (mg/L)
-----	------------	--------------	--------------	--------------	--------------	-------------	--------------	--------------	--------------	--------------	--------------	--------------

T57508	RO Reject BiWeekly	<0.10	<0.05	<0.02	<0.20	<1.0	<0.10	<0.05	<0.20	<0.01	<0.10	0.08
QC	Quality Control	5.36	0.52	0.12	5.11	5.06	1.98	1.25	1.23	0.12	2.47	1.25

REPORTING LIMIT

RPD		2	4	6	3	8	14	3	4	4	3	4
% Extraction Accuracy		110	102	96	98	94	90	94	91	104	98	99
% Instrument Accuracy		107	104	98	102	101	99	100	98	99	99	100

T57508	RO Reject BiWeekly	(mg/L) <0.03	(mg/L) <0.05	(mg/L) <0.02	(mg/L) <0.20	(mg/L) <0.03	(mg/L) <0.001	(mg/L) <0.005	(mg/L) <0.001	(mg/L) <0.0002
QC	Quality Control	1.22	1.29	0.69	5.07	4.83	0.0051	0.101	0.0234	0.0122

REPORTING LIMIT

RPD		3	4	2	2	6	4	7	17	18
% Extraction Accuracy		95	96	110	104	84	102	98	93	80
% Instrument Accuracy		98	103	110	102	97	102	101	94	98

METHODS: EPA 200.7, 239.2, 270.2, 272.2, 245.1.

TOTAL METALS SPIKE: 8.0 mg/L As, Ba, Al; 0.8 mg/L Cr; 0.2 mg/L Cd, Be; 2.0 mg/L Co, Mn, 2.5 Mo, 2.0 Ni. V, 2.0 Zn, B, 1.0 mg/L Cu; 4.0 mg/L Fe; 0.0050 mg/L Hg; 0.045 mg/L Se; 0.0250 mg/L Pb; 0.00050 mg/L Ag.

TOTAL METALS QC: 5.0 mg/L As; 0.13 mg/L Cd, Be; 1.25 Zn; 0.5 mg/L Cr, 1.25 Ni; 5.0 mg/L Ba, 1.25 Co, 0.63 Cu, V; 5.0 mg/L B, U, 1.25 Mn, 2.0 Mo; 2.5 mg/L Fe; 0.0050 mg/L Hg; 0.100 mg/L Se; 0.0250 mg/L Pb, 0.0125 A

CHEMIST: RR/RC/CB

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDowell

DATE

9-10-96



TRACE ANALYSIS, INC.

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

September 10, 1996

Receiving Date: 08/20/96

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

ANALYTICAL RESULTS FOR

NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

Prep Date: 08/20/96

Analysis Date: 08/23/96

Sampling Date: 08/16/96

Sample Condition: Intact & Cool

Sample Received by: SH

Project Name: NA

TA# Field Code

POTASSIUM (mg/L)	MAGNESIUM (mg/L)	CALCIUM (mg/L)	SODIUM (mg/L)
---------------------	---------------------	-------------------	------------------

T57508 RO Reject Biweekly

QC Quality Control

3.2	179	510	66.7
23.9	27.05	24.65	27.6

Reporting Limit

0.30	0.01	0.01	0.40
------	------	------	------

RPD

% Extraction Accuracy
& Instrument Accuracy

0	1	3	1
99	104	103	112
96	108	99	110

METHODS: EPA 200.7.

SPIKE: 100.0 mg/L POTASSIUM, MAGNESIUM, CALCIUM, SODIUM.

QC: 25.0 mg/L POTASSIUM, MAGNESIUM, CALCIUM, SODIUM.

CHEMIST: RR

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDowell

Date

9-10-96

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

TRACE ANALYSIS, INC.

August 15, 1996

Receiving Date: 07/31/96

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

ANALYTICAL RESULTS FOR
NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

Prep Date: 07/31/96

Analysis Date: 07/31/96

Sampling Date: 07/26/96

Sample Condition: Intact & Cool

Sample Received by: SH

Project Name: NA

TA# FIELD CODE

CHLORIDE
(mg/L)FLUORIDE
(mg/L)SULFATE
(mg/L)ALKALINITY
(mg/L as CaCO₃)
HCO₃ CO₃T56412 RO Reject BiWkly
QC Quality Control85.5
25.41.8
0.871,600
24.038
---0
---RPD
% Extraction Accuracy
% Instrument Accuracy0
100
1000
85
901
96
963

---3

REPORTING LIMIT

0.5

0.1

1

10

10

METHODS: EPA 300.0, 310.1, 340.2.

CHEMIST: MS

SPIKE: 50 mg/L CHLORIDE, SULFATE; 5.0 mg/L FLUORIDE.

QC: 25 mg/L CHLORIDE, SULFATE; 1.0 mg/L FLUORIDE.

ES

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonnell

8-20-96

Date

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

August 16, 1996

Receiving Date: 07/31/96

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

ANALYTICAL RESULTS FOR

NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

Prep Date: 08/01/96

Analysis Date: 08/05/96

Sampling Date: 07/26/96

Sample Condition: Intact & Cool

Sample Received by: SH

Project Name: NA

TOTAL METALS

TA#	FIELD CODE	As (mg/L)	Cd (mg/L)	Cr (mg/L)	Ba (mg/L)	Al (mg/L)	Be (mg/L)	Co (mg/L)	Cu (mg/L)	Fe (mg/L)	Mn (mg/L)	Mo (mg/L)
-----	------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------

T56412	RO Reject BiWkly	<0.10	<0.02	<0.05	<0.20	<0.20	<0.01	<0.03	<0.02	<0.10	0.02	<0.10
QC	Quality Control	4.77	0.12	0.5	4.8	4.84	0.12	1.21	0.58	2.35	1.17	1.95

REPORTING LIMIT		0.10	0.02	0.05	0.20	0.20	0.01	0.03	0.02	0.10	0.01	0.10
-----------------	--	------	------	------	------	------	------	------	------	------	------	------

RPD		9	3	3	5	2	2	1	2	2	2	4
% Extraction Accuracy		99	94	94	77	91	97	91	89	89	90	95
% Instrument Accuracy		95	99	99	96	97	98	96	93	94	94	98

T56412	RO Reject Bi-Wkly	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
QC	Quality Control	<0.20	<0.05	<0.02	<0.03	<0.5	<0.001	<0.005	<0.001	<0.0002		
		1.19	1.05	1.18	3.34	4.19	0.0051	0.107	0.023	0.0120		

REPORTING LIMIT		0.20	0.05	0.02	0.03	0.5	0.001	0.005	0.001	0.0002		
-----------------	--	------	------	------	------	-----	-------	-------	-------	--------	--	--

RPD		3	3	3	11	4	4	4	0	3		
% Extraction Accuracy		91	88	91	104	94	104	104	110	85		
% Instrument Accuracy		96	84	95	83	105	102	107	92	96		

METHODS: EPA 200.7, 239.2, 270.2, 272.2, 245.1.

CHEMIST: As, Cd, Cr, Ba, Al, Be, Ca, Co, Cu, Fe, K, Mg, Mn, Mo, Na, Ni, V, Zn, B, U, Se, Pb, Ag: RR Hg:

TOTAL METALS SPIKE: 8.0 mg/L As, Ba, Al; 0.2 mg/L Cd, Be; 0.8 mg/L Cr; 2.0 mg/L Co, Mn, Mo, Ni, V, Zn, B; 1.0 mg/L Cu

4.0 mg/L Fe; 12 mg/L U; 0.110 mg/L Se; 0.010 mg/L Pb; 0.0020 mg/L Ag; 0.005 mg/L Hg.

TOTAL METALS QC: 5.0 mg/L As, Ba, Al; 0.13 mg/L Cd, Be; 0.5 mg/L Cr; 1.25 mg/L Co, Mn, Ni, V, Zn; 0.63 mg/L Cu;

2.5 mg/L Fe; 2.0 mg/L Mo; 4.0 mg/L B, U; 0.107 mg/L Se; 0.025 mg/L Pb; 0.0125 mg/L Ag; 0.005 mg/L Hg

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDowell

DATE

8-20-96

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

TRACE ANALYSIS, INC.

August 15, 1996

Receiving Date: 07/31/96

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

ANALYTICAL RESULTS FOR
NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

Prep Date: 08/01/96

Analysis Date: 08/05/96

Sampling Date: 07/26/96

Sample Condition: Intact & Cool

Sample Received by: SH

Project Name: NA

TA# Field Code

POTASSIUM
(mg/L)

MAGNESIUM
(mg/L)

CALCIUM
(mg/L)

SODIUM
(mg/L)

T56412 RO Reject BiWkly

QC Quality Control

3.2
22.8

135.0
23.4

417.0
23.8

47.8
24.7

Reporting Limit

0.3

0.01

0.01

0.4

RPD

% Extraction Accuracy
% Instrument Accuracy

5
102
91

1
91
94

1
92
95

1
100
99

METHODS: EPA 200.7.

CHEMIST: RR

SPIKE: 100.0 mg/L POTASSIUM, MAGNESIUM, CALCIUM; 10.0 mg/L SODIUM.

QC: 25.0 mg/L POTASSIUM, MAGNESIUM, CALCIUM, SODIUM.

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonell

Date

8-16-96

TraceAnalysis, Inc.

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

SPECIAL HANDLING

Sampler Signature: *David Moore*

1907-1908

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

October 23, 1996

Receiving Date: 09/18/96

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

ANALYTICAL RESULTS FOR

NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia. NM 88210

Prep Date: 09/18/96

Analysis Date: 09/18/96

Sampling Date: 09/17/96

Sample Condition: I & C

Sample Received by: ML

Project Name: NA

PARAMETERS (mg/L)	T59008 RO Reject Quarterly	QC	RPD	%EA	%IA
CHLORINE	<0.1	---	0	---	---
SULFATE	1,350	25.0	0	100	98
(NO3-NO2)-N	0.7	1.31	0	99	98
COD	<20	244	1	96	95
FECAL COLIFORM	Not Found	---	---	---	---
TDS	2,610	---	1	---	---
CYANIDE	<0.01	0.035	3	76	90
BOD5	<7.5	---	1	---	116
TSS	5	---	14	---	---
pH (s.u.)	7.6	7.0	0	---	100
TOTAL RADIUM (pCi/liter)	<1	---	---	---	---
AMMONIA-N	<0.5	4.86	1	94	96
SPECIFIC CONDUCTIVITY (uMHOS/cm)	2,370	1,420	5	---	101
PHENOLS	<0.01	0.75	15	102	94
FLUORIDE	3.0	1.04	0	100	106
CHLORIDE	37.4	24.6	2	99	100
CO3 as CaCO3	0	---	1	---	---
HCO3 as CaCO3	553	---	1	---	---
METHODS: EPA 330.4, 300.0, 353.3, 410.4, 160.1, 335.2, 405.1, 160.2, 150.1, 600/8-78-017, 350.2, 120.1, 420.1, 310.1.					
CHEMIST: Chlorine/(NO3-NO2)-N/COD/Cyanide/Ammonia-N/Phenols/Fluoride/Chloride/Sulfate: MS					
TDS/Specific Conductivity: RCD/MS BOD5/TSS/pH: JT Alkalinity: RCD					
SULFATE SPIKE: 25 mg/L SULFATE. SULFATE QC: 25 mg/L SULFATE.					
(NO3-NO2)-N SPIKE: 1.51 mg/L (NO (NO3-NO2)-N QC: 1.333 mg/L (NO3-NO2)-N.					
COD SPIKE: 750 mg/L COD. COD QC: 250 mg/L COD.					
CYANIDE SPIKE AND QC: 0.04 mg/L CYANIDE.					
AMMONIA-N SPIKE: 50 mg/L AMMONIA-N. AMMONIA-N QC: 5 mg/L AMMONIA-N.					
PHENOLS SPIKE: 0.97 mg/L PHENOLS. PHENOLS QC: 0.8 mg/L PHENOLS.					
FLUORIDE SPIKE: 5.0 mg/L FLUORIDE. FLUORIDE QC: 1.0 mg/L FLUORIDE.					
CHLORIDE SPIKE: 50 mg/L CHLORIDE. CHLORIDE QC: 25 mg/L CHLORIDE.					


Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonell

10-23-96
Date

TRACE ANALYSIS, INC.

A Laboratory for Advanced Environmental Research and Analysis



TRACE ANALYSIS, INC.

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

ANALYTICAL RESULTS FOR

October 23, 1996

Receiving Date: 09/18/96

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

Prep Date: 09/19/96

Analysis Date: 09/19/96

Sampling Date: 09/17/96

Sample Condition: Intact & Cool

Sample Received by: ML

Project Name: NA

TOTAL METALS

TA#	FIELD CODE	As (mg/L)	Cr (mg/L)	Cd (mg/L)	Ba (mg/L)	U (mg/L)	Mo (mg/L)	Zn (mg/L)	Ni (mg/L)	Be (mg/L)	Fe (mg/L)	Mn (mg/L)
T59008	RO Reject Quarterly	<0.10	<0.05	<0.02	<0.20	<0.5	<0.10	<0.02	<0.20	<0.01	<0.03	<0.01
QC	Quality Control	4.66	0.48	0.11	4.77	4.97	1.84	1.16	1.18	0.11	2.39	1.2
REPORTING LIMIT												
		0.10	0.05	0.02	0.20	0.5	0.10	0.02	0.20	0.01	0.03	0.01

RPD		2	3	1	0	2	5	0	0	0	1	0
% Extraction Accuracy		98	96	88	98	102	102	91	94	89	95	96
% Instrument Accuracy		93	96	90	95	99	92	93	95	88	96	96

	Co (mg/L)	V (mg/L)	Cu (mg/L)	Al (mg/L)	B (mg/L)	Hg (mg/L)	Se (mg/L)	Pb (mg/L)	Ag (mg/L)
T59008	<0.03	<0.05	<0.02	<0.20	<0.03	<0.001	<0.005	<0.001	<0.001
QC	1.18	1.03	0.58	4.82	4.91	0.0048	0.098	0.025	0.105

REPORTING LIMIT	0.03	0.05	0.02	0.20	0.03	0.001	0.005	0.001	0.001
-----------------	------	------	------	------	------	-------	-------	-------	-------

RPD	1	1	0	1	4	4	4	0	9
% Extraction Accuracy	93	89	95	100	100	102	98	110	100
% Instrument Accuracy	94	83	92	96	98	96	98	100	105

METHODS: EPA 200.7, 239.2, 270.2, 272.2, 245.1.

CHEMIST: As, Cd, Cr, Ba, Al, Be, Co, Cu, Fe, Mn, Mo, Ni, V, Zn, Se, Pb, Ag, B, U: RR Hg: CB

TOTAL METALS SPIKE: 8.0 mg/L As, Ba, Al; 0.8 mg/L Cr; 0.2 mg/L Cd, Be; 2.0 mg/L Co, Mn, Mo, Ni, V, Zn; 0.005 mg/L Hg; 0.050 mg/L Se; 0.020 mg/L Pb; 0.008 mg/L Ag; 4.0 mg/L B, U.

TOTAL METALS QC: 5.0 mg/L As, Ba, Al, B, U; 0.13 mg/L Cd, Be; 0.5 mg/L Cr; 1.25 mg/L Co, Mn, Ni, V, Zn; 0.63 mg/L Cu; 2.5 mg/L Fe; 2.0 mg/L Mo; 0.005 mg/L Hg; 0.100 mg/L Se, Ag; 0.025 mg/L Pb.

10-23-96

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonnell

DATE

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

ANALYTICAL RESULTS FOR

NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

October 01, 1996

Receiving Date: 09/18/96

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

Prep Date: 09/20/96

Analysis Date: 09/23/96

Sampling Date: 09/17/96

Sample Condition: Intact & Cool

Sample Received by: ML

Project Name: NA

TA#	Field Code	POTASSIUM (mg/L)	MAGNESIUM (mg/L)	CALCIUM (mg/L)	SODIUM (mg/L)
T59008	RO Reject Quarterly	3.3	148	518	44.3
QC	Quality Control	25.3	25.25	25.15	26.25

Reporting Limit

0.3 0.01 0.01 0.4

RPD

% Extraction Accuracy

% Instrument Accuracy

1 104 101 1 98 101 1 95 101 1 102 105

METHODS: EPA 200.7.

CHEMIST: RR

SPIKE: 100.0 mg/L POTASSIUM, MAGNESIUM, CALCIUM, SODIUM.

QC: 25.0 mg/L POTASSIUM, MAGNESIUM, CALCIUM, SODIUM.

BB

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonell

Date

10-23-96

6701 Aberdeen Avenue
Lubbock, Texas 79424
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ANALYTICAL RESULTS FOR
NAVAJO REFINING COMPANY
Attention: Darrell Moore
501 E. Main
Artesia, NM 88210

PAGE 1 of 2

October 01, 1996
Receiving Date: 09/18/96
Sample Type: Water
Project No: NA
Project Location: Artesia, NM

Prep Date: 09/20/96
Analysis Date: 09/20/96
Sampling Date: 09/17/96
Sample Condition: Intact & Cool
Sample Received by: ML
Project Name: NA

FIELD CODE: RO Reject Quarterly
TA #: T59008

624 Compounds	Concentration (ug/L)	Reporting Limit
Dichlorodifluoromethane	ND	1
Chloromethane	ND	1
Vinyl chloride	ND	1
Bromomethane	ND	5
Chloroethane	ND	1
Trichlorofluoromethane	ND	1
1,1-Dichloroethene	ND	1
Iodomethane	ND	5
Carbon disulfide	ND	1
Methylene chloride	ND	5
trans-1,2-Dichloroethene	ND	1
1,1-Dichloroethane	ND	1
Vinyl acetate	ND	1
2-Butanone	ND	50
Chloroform	ND	1
1,1,1-Trichloroethane	ND	1
1,2-Dichloroethane	ND	1
Benzene	ND	1
Carbon Tetrachloride	ND	1
1,2-Dichloropropane	ND	1
Trichloroethene	ND	1
Bromodichloromethane	ND	1
cis-1,3-Dichloropropene	ND	1
4-Methyl-2-pentanone	ND	50
trans-1,3-Dichloropropene	ND	1
Toluene	ND	1
1,1,2-Trichloroethane	ND	1
2-Hexanone	ND	50

NAVAJO REFINING COMPANY

PAGE 2 of 2

Project Location: Artesia, NM

FIELD CODE: RO Reject Quarterly

TA#: T59008

624 Compounds	Concentration (ug/L)	Reporting Limit
Dibromochloromethane	ND	1
Tetrachloroethene	ND	1
Chlorobenzene	ND	1
Ethylbenzene	ND	1
m & p-Xylene	ND	1
Bromoform	ND	1
Styrene	ND	1
o-Xylene	ND	1
1,1,2,2-Tetrachloroethane	ND	1
trans 1,4-Dichloro-2-butene	ND	5
cis 1,4-Dichloro-2-butene	ND	5
1,4-Dichlorobenzene	ND	2
1,3-Dichlorobenzene	ND	2
1,2-Dichlorobenzene	ND	2
1,2-Dibromoethane	ND	5
MTBE	ND	1

SURROGATES

% RECOVERY

Dibromofluoromethane	93
Toluene-d8	99
4-Bromofluorobenzene	92

ND = Not Detected

METHODS: EPA 624.

CHEMIST: RP



Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonell

10-23-96

Date

6701 Aberdeen Avenue
Lubbock, Texas 79424
806•794•1296
FAX 806•794•1298

ANALYTICAL RESULTS FOR
NAVAJO REFINING COMPANY
Attention: Darrell Moore
501 E. Main
Artesia, NM 88210

October 23, 1996
Receiving Date: 09/18/96
Sample Type: Water
Sampling Date: 09/17/96
Sample Condition: I & C
Sample Received by: ML
Project Name: NA
Project Location: Artesia, NM
Extraction Date: 09/18/96
Analysis Date: 09/20/96

FIELD CODE: RO Reject Quarterly
TA #: T59008

625 Compounds	Reporting	Concentration	QC	RPD	%EA	%IA
	Limit	(mg/L)				
N-Nitrosodimethylamine	0.001	ND				
2-Picoline	0.001	ND				
Methyl methanesulfonate	0.001	ND				
Ethyl methanesulfonate	0.001	ND				
Phenol	0.001	ND	78	9	36	98
Aniline	0.005	ND				
bis(2-Chloroethyl)ether	0.005	ND				
2-Chlorophenol	0.005	ND		10	80	
1,3-Dichlorobenzene	0.001	ND				
1,4-Dichlorobenzene	0.001	ND	75	11	70	94
Benzyl alcohol	0.005	ND				
1,2-Dichlorobenzene	0.001	ND				
2-Methylphenol	0.001	ND				
bis(2-chloroisopropyl)ether	0.005	ND				
4-Methylphenol/3-Methylphenol	0.001	ND				
Acetophenone	0.005	ND				
n-Nitrosodi-n-propylamine	0.001	ND		14	83	
Hexachloroethane	0.001	ND				
Nitrobenzene	0.001	ND				
N-Nitrosopiperidine	0.005	ND				
Isophorone	0.005	ND				
2-Nitrophenol	0.005	ND	79			99
2,4-Dimethylphenol	0.005	ND				
bis(2-Chloroethoxy)methane	0.001	ND				
Benzoic acid	0.01	ND				
2,4-Dichlorophenol	0.005	ND	81			101
1,2,4-Trichlorobenzene	0.001	ND		14	90	
a,a-Dimethylphenethylamine	0.01	ND				
Naphthalene	0.001	ND				

TRACE ANALYSIS, INC.

A Laboratory for Advanced Environmental Research and Analysis

SAVAJO REFINING COMPANY
Project Location: Artesia, NM

Page 2 of 4

FIELD CODE: RO Reject Quarterly
TA #: T59008

	Reporting	Concentration				
625 Compounds	Limit	(mg/L)	QC	RPD	%EA	%IA
4-Chloroaniline	0.005	ND				
2,6-Dichlorophenol	0.005	ND				
Hexachlorobutadiene	0.001	ND	80			100
N-Nitroso-di-n-butylamine	0.005	ND				
4-Chloro-3-methylphenol	0.005	ND	80	15	76	100
2-Methylnaphthalene	0.001	ND				
1,2,4,5-Tetrachlorobenzene	0.001	ND				
Hexachlorocyclopentadiene	0.001	ND				
2,4,6-Trichlorophenol	0.005	ND	81			101
2,4,5-Trichlorophenol	0.005	ND				
2-Chloronaphthalene	0.001	ND				
1-Chloronaphthalene	0.001	ND				
2-Nitroaniline	0.005	ND				
Dimethylphthalate	0.001	ND				
Acenaphthylene	0.001	ND				
2,6-Dinitrotoluene	0.001	ND				
3-Nitroaniline	0.005	ND				
Acenaphthene	0.001	ND	79	16	88	99
2,4-Dinitrophenol	0.005	ND				
Dibenzofuran	0.005	ND				
Pentachlorobenzene	0.001	ND				
4-Nitrophenol	0.005	ND		4	27	
1-Napthylamine	0.005	ND				
2,4-Dinitrotoluene	0.001	ND		15	87	
2-Napthylamine	0.005	ND				
2,3,4,6-Tetrachlorophenol	0.005	ND				
Fluorene	0.001	ND				
Diethylphthalate	0.001	ND				
4-Chlorophenyl-phenylether	0.001	ND				
4-Nitroaniline	0.005	ND				
4,6-Dinitro-2-methylphenol	0.001	ND				
n-Nitrosodiphenylamine & Diphenylamine	0.001	ND	77			96
Diphenylhydrazine	0.005	ND				

FIELD CODE: RO Reject Quarterly
TA #: T59008

625 Compounds	Reporting	Concentration	QC	RPD	%EA	%IA
	Limit	(mg/L)				
4-Bromophenyl-phenylether	0.001	ND				
Phenacetin	0.005	ND				
Hexachlorobenzene	0.001	ND				
4-Aminobiphenyl	0.005	ND				
Pentachlorophenol	0.005	ND	79	10	76	99
Pentachloronitrobenzene	0.005	ND				
Pronamide	0.001	ND				
Phenanthrene	0.001	ND				
Anthracene	0.001	ND				
Di-n-butylphthalate	0.005	ND				
Fluoranthene	0.001	ND	76			95
Benzidine	0.01	ND				
Pyrene	0.001	ND		15	102	
p-Dimethylaminoazobenzene	0.001	ND				
Butylbenzylphthalate	0.001	ND				
Benzo[a]anthracene	0.001	ND				
3,3-Dichlorobenzidine	0.001	ND				
Chrysene	0.001	ND				
bis(2-Ethylhexyl)phthalate	0.005	ND				
Di-n-octylphthalate	0.001	ND	65			81
Benzo[b]fluoranthene	0.001	ND				
7,12-Dimethylbenz(a)anthracene	0.001	ND				
Benzo[k]fluoranthene	0.001	ND				
Benzo[a]pyrene	0.001	ND	76			95
3-Methylcholanthrene	0.001	ND				
Dibenzo(a,j)acridine	0.001	ND				
Indeno[1,2,3-cd]pyrene	0.001	ND				
Dibenz[a,h]anthracene	0.001	ND				
Benzo[g,h,i]perylene	0.001	ND				

Project Location: Artesia, NM

FIELD CODE: RO Reject Quarterly

TA #: T59008

608 Compounds	Reporting	Concentration	QC	RPD	%EA	%IA
	Limit	(mg/L)				
a-BHC	0.0002	ND	---	14	86	104
b-BHC	0.0002	ND	---	15	82	80
g-BHC	0.0002	ND	---	15	78	108
d-BHC	0.0002	ND	---	15	82	80
Heptachlor	0.0002	ND	---	5	78	108
Aldrin	0.0002	ND	---	5	72	100
Heptachlor epoxide	0.0002	ND	---	9	88	104
Endosulfan-1	0.0002	ND	---	9	88	108
Endosulfan-2	0.0002	ND	---	13	92	106
P,P'-DDE	0.0002	ND	---	7	87	96
Dieldrin	0.0002	ND	---	11	91	112
Endrin	0.0002	ND	---	11	93	112
P,P'-DDD	0.0002	ND	---	7	91	102
Endrin Aldehyde	0.001	ND	---	60	60	114
Endosulfan Sulfate/P,P'-DDT	0.001	ND	---	14	83	109
Endrin Ketone	0.001	ND	---	15	93	108
Methoxychlor	0.01	ND	---	10	80	108
a-Chlordane	0.0002	ND	---	9	84	104
g-Chlordane	0.0002	ND	---	9	84	100
Toxaphene	0.005	ND	---	14	94	111
PCB's	0.0002	ND	0.525	0	96	105

TENTATIVELY IDENTIFIED COMPOUNDS AND ESTIMATED CONCENTRATIONS (mg/L)

	RT	CONC.
(1) Tetratriacontane	16.37	0.002
(1) Triacontane	17.10	0.0015

% RECOVERY

2-Fluorophenol SURR	30
Phenol-d6 SURR	23
Nitrobenzene-d5 SURR	49
2-Fluorobiphenyl SURR	48
2,4,6-Tribromophenol SURR	48
Terphenyl-d14 SURR	89

METHOD: EPA 625, 608.

CHEMIST: RD/CC/MB



10-23-96

Director, Dr. Blair Leftwich

Date

Director, Dr. Bruce McDonell

Order # 96-09-115
09/27/96 16:03

Controls for Environmental
TEST RESULTS BY SAMPLE

Page 2

Sample: 01A 59008

Collected: 09/17/96

Test Description
Total Radium

Result
<1

D.L.
1

Units
pCi/liter

Analyzed
09/24/96

By
MM

Controls for Environmental
Pollution, Inc.
P.O. Box 5351
Santa Fe, NM 87502

Phone: (505) 982-9841/(800) 545-2188

TraceAnalysis, Inc.
6701 Aberdeen Avenue
Lubbock, TX 79424

Attn: Melissa Lopez
Invoice Number:

Order #: 96-09-115
Date: 09/27/96 16:03
Work ID: Water (NR)
Date Received: 09/19/96
Date Completed: 09/27/96
Client Code: TRACE_ANAL

SAMPLE IDENTIFICATION

Sample Number	Sample Description	Sample Number	Sample Description
01	59008		

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Remainder of sample(s) for routine analysis will be disposed of three weeks from final report date. Sample(s) for bacteria analysis only, will be disposed of immediately after analysis. This is not applicable if other arrangements have been made.

James Mueller
Certified By
by Heidi L. Wallace

JE
(505) 748-3311

EASYLINK
62905278

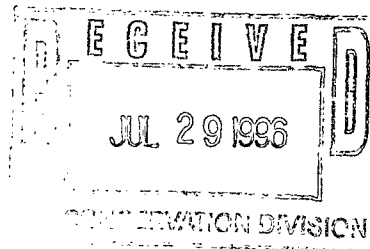


REFINING COMPANY

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159

FAX
(505) 746-6410 ACCTG
(505) 746-6155 EXEC
(505) 748-9077 ENGR
(505) 746-4438 P / L

July 26, 1996



Mr. Roger Anderson
Environmental Bureau
Oil Conservation Division
2040 S. Pacheco St.
Santa Fe, NM 87505-5472

**RE: 2nd Quarter 1996 Report on RO Reject Water, Navajo Refining Co., Eddy
County, NM**

Dear Roger:

This letter is sent in regard to Navajo Refining's permit modification of our discharge plan GW-28 which allows us to put our Reverse Osmosis (RO) reject water on our farm or into Eagle Draw. This permit is administered by OCD and the parameters we sample for were set up by OCD. We are sending these results for your files. We are required by OCD to sample this stream every two weeks and those results for this quarter are enclosed.

For this quarter we discharged a total of 33,143,564 with all of that total sent to our farm for irrigation. Since we started discharging the RO reject water, we have discharged a total of 438,914,844 gallons. This is broken down as follows: 100,640,656 gallons have been put into Eagle Draw and 338,274,188 gallons have been put on the farm.

If you have any questions concerning this matter, please call me at 505-748-3311.
Thank you for your time.

Regards,
NAVAJO REFINING COMPANY

Darrell Moore
Sr. Environmental Specialist
encl.
cc:USEPA, New Mexico Environment Dept.- Water Quality

RO REJECT ANALYSIS																				
DATE SAMPLED		Limits	75% Limit																	
SODIUM	mg/l	no limit		10/26/95	11/09/95	11/22/95	QRTLY	01/09/96	01/18/96	01/30/96	02/14/96	02/28/96	QRTLY	04/23/96	04/30/96	05/10/96	05/31/96	06/13/96	06/28/96	QRTLY
POTASSIUM	mg/l	no limit		116	90.5	115	127	106	94	87.6	94	51.2	77.5	122	72.9	188	122	123	115	
CALCIUM	mg/l	no limit		2.1	5.6	3.1	26.3	1	3	3.5	3.5	3.3	3.9	13	3.4	6.1	4.6	3.7	3.5	
MAGNESIUM	mg/l	no limit		552	272.1	257	650	260	485	444.3	544	492	537	835	245	1,200	489	546	283	
CHLORIDE	mg/l	no limit		181	102.1	88.7	208	104	145	150.8	169	166	180	166	143	332	160	180	153	
SULFATE	mg/l	275	206.25	150	155	120	180	152	107	107	129	73	105	109	115	133	165	203	190	
CARBONATE	mg/l	2661	1995.75	1560	1440	1995	5887	1216	1824	1235	1938	1482	180	703	1913	1,657	1,378	2,380	1980	
BICARBONATE	mg/l	no limit		0	0	0	0	ND	ND	ND	ND	ND	ND	0	0	0	0	0	0	
FLUORIDE	mg/l	no limit	1.875	290	324	369	320	229	285	284	236	288	193	110	120	234	230	248	238	
				2.27	2.45	9.9	2.42	2.3	2.3	2.5	2.7	2.4	2.7	2.3	2.9	3.1	2.4	2.4	2.5	
METALS																				
AG	mg/l	0.0004	0.0003	ND	0.014	ND	0.0013	ND	0.002	ND	ND	ND	0.004	ND	ND	0.0003	ND	0.0003	ND	
AL	mg/l	0.087	0.06525	ND	ND	ND	ND	ND	ND	ND	ND	0.6	ND	0.3	ND	ND	ND	ND	ND	
AS	mg/l	0.1	0.075	ND	ND	ND	ND	ND	ND	ND	ND	0.4	0.2	1	0.2	0.2	1.6	0.7	0.2	
B	mg/l	0.75	0.5625	ND	ND	ND	0.04	ND	0.42	ND	0.31	ND	ND	ND	ND	ND	0.04	0.05	ND	
BA	mg/l	1	0.75	ND	ND	ND	ND	ND	ND	ND	0.1	ND	ND	ND	ND	ND	ND	ND	ND	
BE	mg/l	0.018	0.0135	ND	ND	ND	0.02	ND	ND	ND	ND	ND	ND	ND	ND	0.1	0.1	ND	ND	
CD	mg/l	0.01	0.0075	ND	ND	ND	0.05	ND	ND	ND	ND	0.03	ND	0.02	ND	ND	ND	ND	ND	
CO	mg/l	0.05	0.0375	ND	ND	ND	ND	ND	ND	ND	ND	0.06	ND	0.13	ND	ND	ND	ND	ND	
CR	mg/l	0.05	0.0375	ND	ND	ND	ND	ND	ND	ND	ND	0.11	ND	0.13	ND	ND	ND	ND	ND	
CU	mg/l	1	0.75	ND	ND	ND	0.02	ND	ND	ND	0.07	0.1	ND	0.09	0.11	0.14	ND	ND	ND	
FE	mg/l	1	0.75	ND	ND	ND	ND	ND	ND	ND	0.2	0.1	ND	0.12	0.21	0.14	ND	ND	ND	
HG	mg/l	0.000042	0.000031	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.23	ND	ND	ND	ND	ND	ND	
MN	mg/l	0.2	0.15	ND	ND	ND	ND	ND	ND	ND	ND	0.06	ND	0.02	0.03	ND	ND	ND	ND	
MO	mg/l	1	0.75	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
NI	mg/l	0.2	0.15	ND	1.4	5.4	0.6	0.6	ND	ND	ND	ND	ND	ND	6.9	6.3	ND	8.6	ND	
PB	mg/l	0.006	0.0045	ND	ND	ND	ND	ND	ND	0.003	ND	0.006	ND	ND	0.001	ND	ND	ND	ND	
SE	mg/l	0.012	0.009	ND	ND	ND	ND	ND	0.005	ND	ND	ND	ND	ND	ND	ND	0.005	0.006	0.029	
U	mg/l	5	3.75	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
V	mg/l	0.282	0.2115	ND	ND	ND	0.05	ND	ND	ND	ND	0.13	ND	0.14	0.13	0.13	ND	ND	ND	
ZN	mg/l	10	7.5	ND	0.04	ND	ND	ND	ND	0.13	ND	0.03	ND	0.06	0.26	0.13	0.04	0.03	ND	
TOTAL RADIUM																				
NO3-N							4+/-2						2+/-1						2+/-1	
PH		6.6 - 8.6					ND						0.53						0.3	
PHENOLS	mg/l	0.005	0.00375				6.9						6.8						7	
COD	mg/l	125	93.75				ND						ND						ND	
NH3-N	mg/l	0.00007	0.000053				21.3						ND						ND	
CN-	mg/l	0.018	0.0135				36.4						0.9						ND	
FECAL COLIFORM	mg/l						ND						ND						ND	
BOD5	mg/l						0						ND						not found	
TSS	mg/l						6						ND						8	
CONDUCTIVITY	mg/l						5356						2507						3,203	
TDS	mg/l	4555	3416.25				2957						3039						3,076	
ALKALINITY AS CaCO3	mg/l																		238	
HARDNESS AS CaCO3	mg/l																		0	
CHLORINE	mg/l						ND						0.1						0	
TOTAL WATER DISCHARGED QRTLY (GAL)							34411249						34023979						33143564	
EAGLE DRAW (GAL)							535304						25328962						0	
FARM (GAL)							33875945						8695017						33143564	

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

May 28, 1996

Receiving Date: 04/24/96

Sample Type: Water

Project No: NA

Project Location: Artesia

ANALYTICAL RESULTS FOR

NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

Prep Date: 04/26/96

Analysis Date: 05/06/96

Sampling Date: 04/23/96

Sample Condition: Intact & Cool

Sample Received by: ML

Project Name: NA

TOTAL METALS

TA#	FIELD CODE	As (mg/L)	Cr (mg/L)	Cd (mg/L)	Ba (mg/L)	U (mg/L)	Mo (mg/L)	Zn (mg/L)	Ni (mg/L)	Be (mg/L)	Fe (mg/L)	Mn (mg/L)
-----	------------	--------------	--------------	--------------	--------------	-------------	--------------	--------------	--------------	--------------	--------------	--------------

T51532	RO Reject Biweekly	1.0	0.13	0.02	<0.2	<0.5	<0.1	0.06	<0.2	<0.01	0.12	0.02
QC	Quality Control	2.18	2.32	2.01	2.09	4.81	1.99	1.84	2.39	2.0	1.7	1.94

REPORTING LIMIT

0.1	0.05	0.02	0.2	0.5	0.1	0.02	0.2	0.01	0.03	0.01		
-----	------	------	-----	-----	-----	------	-----	------	------	------	--	--

RPD		9	16	18	11	0	12	12	10	14	0	13
% Extraction Accuracy		97	117	93	94	118	90	79	106	88	103	80
% Instrument Accuracy		109	116	100	104	96	99	92	120	101	85	97

T51532	RO Reject Biweekly	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
QC	Quality Control	0.13	0.14	0.09	0.3	<0.03	<0.001	<0.005	<0.001	<0.001		
		1.99	1.84	2.08	2.09	4.2	0.0053	0.100	0.0234	0.00239		

REPORTING LIMIT

0.03	0.02	0.02	0.2	0.03	0.001	0.005	0.001	0.0001				
------	------	------	-----	------	-------	-------	-------	--------	--	--	--	--

RPD		12	12	10	11	2	0	7	2	4		
% Extraction Accuracy		84	79	101	109	84	98	56	78	80		
% Instrument Accuracy		99	92	104	104	84	102	100	94	104		

METHODS: EPA 200.7, 270.2, 239.2, 272.2, 245.1.

CHEMIST: As, CR, Cd, Ba, U, Mo, Zn, Ni, Be, Fe, Mn, Co, V, Cu, Al, B, Se, Pb, Ag: RR

Hg: RC

TOTAL METALS SPIKE: 8.0 mg/L As, Ba, Al; 0.8 mg/L Cr; 0.2 mg/L Cd, Be; 2.0 mg/L Co, U, B, Mn, Mo, Ni, V, Zn;

1.0 mg/L Cu; 0.100 mg/L Se; 0.028 mg/L Pb; 0.00200 mg/L Ag; 0.0050 mg/L Hg.

TOTAL METALS QC: 2.0 mg/L As, Cd, Cr, Ba, A, Be, Co, Cu, Mn, Mo, Ni, V, Zn; 0.100 mg/L Se; 0.0250 mg/L Pb;

0.00250 mg/L Ag; 5.0 mg/L U, B; 0.0050 mg/L Hg.

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonell

DATE

5-28-96

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

TRACE ANALYSIS, INC.

ANALYTICAL RESULTS FOR

NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

May 28, 1996

Receiving Date: 04/24/96

Sample Type: Water

Project No: NA

Project Location: Artesia

Prep Date: 04/26/96

Analysis Date: 05/11/96

Sampling Date: 04/23/96

Sample Condition: Intact & cool

Sample Received by: ML

Project Name: NA

TA#	Field Code	POTASSIUM (mg/L)	MAGNESIUM (mg/L)	CALCIUM (mg/L)	SODIUM (mg/L)
-----	------------	---------------------	---------------------	-------------------	------------------

T51532	RO Reject Biweekly	13	273	836	122
QC	Quality Control	44	3.6	4.4	3.9

Reporting Limit	0.3	0.01	0.01	0.4
-----------------	-----	------	------	-----

RPD	3	17	13	1
% Extraction Accuracy	90	89	80	98
% Instrument Accuracy	110	90	110	98

METHODS: EPA 200.7.

CHEMIST: RR

SPIKE: 200.0 mg/L MAGNESIUM, CALCIUM, SODIUM; 4.0 mg/L POTASSIUM.

QC: 4.0 mg/L MAGNESIUM, CALCIUM, SODIUM; 40 mg/L POTASSIUM.

BS

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDowell

5-28-96

Date

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

TRACE ANALYSIS, INC.

May 28, 1996

Receiving Date: 04/24/96

Sample Type: Water

Project No: NA

Project Location: Artesia

ANALYTICAL RESULTS FOR
NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

Prep Date: 04/24/96

Analysis Date: 04/24/96

Sampling Date: 04/23/96

Sample Condition: Intact & Cool

Sample Received by: ML

Project Name: NA

TA# FIELD CODE

CHLORIDE
(mg/L)FLUORIDE
(mg/L)SULFATE
(mg/L)ALKALINITY
(mg/L as CaCO₃)
HCO₃ CO₃T51532 RO Reject Biweekly
QC Quality Control109
4942.3
0.91703
10.0110
---0
---RPD
% Extraction Accuracy
% Instrument Accuracy1
100
9913
85
952
83
1035
---5

REPORTING LIMIT

0.5

0.1

1

10

10

METHODS: EPA 375.4, 310.1, 340.2; 4500 Cl-B.

CHEMIST: Chloride, Sulfate: MS

Fluoride: MS/BD

Alkalinity: RCD

SPIKE: 500 mg/L CHLORIDE; 1.0 mg/L FLUORIDE; 10 mg/L SULFATE.

QC: 500 mg/L CHLORIDE; 1.0 mg/L FLUORIDE; 10 mg/L SULFATE.

BZ

5-28-96

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonell

Date



TRACE ANALYSIS, INC.

6701 Aberdeen Avenue Lubbock, Texas 79424 806•794•1296 FAX 806•794•1298

June 04, 1996
Receiving Date: 05/01/96
Sample Type: Water
Project No: NA
Project Location: Artesia, NM

ANALYTICAL RESULTS FOR
NAVAJO REFINING
Attention: Darrell Moore
501 E. Main
Artesia, NM 88210

Prep Date: 05/02/96
Analysis Date: 05/06/96
Sampling Date: 04/30/96
Sample Condition: Intact & Cool
Sample Received by: SH
Project Name: NA

TOTAL METALS

TA#	FIELD CODE	As (mg/L)	Cr (mg/L)	Cd (mg/L)	Ba (mg/L)	U (mg/L)	Mo (mg/L)	Zn (mg/L)	Ni (mg/L)	Be (mg/L)	Fe (mg/L)	Mn (mg/L)
T51847	RO Reject Biweekly	0.2	<0.05	<0.02	<0.2	<0.5	<0.1	0.26	6.9	0.10	0.21	0.03
QC	Quality Control	5.3	5.26	5.26	5.1	4.8	4.6	4.7	4.7	4.66	4.57	0.46

REPORTING LIMIT 0.1 0.05 0.02 0.2 0.5 0.1 0.02 0.2 0.01 0.03 0.01

RPD		2	4	0	12	0	8	2	4	0	2	1
% Extraction Accuracy		95	90	81	103	118	91	94	49	87	93	91
% Instrument Accuracy		106	105	105	102	96	93	94	95	93	91	91

T51847	RO Reject Biweekly	<0.03	0.13	0.11	<0.2	<0.03	<0.001	<0.005	0.001	<0.001		
QC	Quality Control	0.42	4.48	4.44	4.3	4.28	0.0048	0.100	0.0234	0.00259		

REPORTING LIMIT 0.03 0.05 0.02 0.2 0.03 0.001 0.005 0.001 0.001

RPD		1	2	2	0	2	4	7	2	4		
% Extraction Accuracy		84	96	95	83	83	100	56	78	80		
% Instrument Accuracy		85	90	89	87	86	96	100	94	104		

METHODS: EPA 200.7, 239.2, 270.2, 272.2, 245.1.
CHEMIST: As, Cr, Cd, Ba, U, Mo, Zn, Ni, Be, Fe, Mn, Co, V, Cu, Al, B: RR Hg: RC Se, Pb, Ag: JT
TOTAL METALS SPIKE: 0.0050 mg/L Hg; 2.0 mg/L Mn, B, U, Mo, Zn, Ni, V, Co; 8.0 mg/L Ba, Al, As; 0.8 mg/L Cr;
0.2 mg/L Cd; Be; 4.0 mg/L Fe; 1.0 mg/L Cu; 0.100 mg/L Se; 0.028 mg/L Pb; 0.00200 mg/L Ag;
TOTAL METALS QC: 0.0050 mg/L Hg; 5.0 mg/L B, U, Mo, Ba, Al, As, Cr, Cd, Zn, Ni, Be, Fe, V, Cu; 0.100 mg/L Se;
0.0250 mg/L Pb; 0.00250 mg/L Ag; 0.5 mg/L Co, Mn.

6-4-96

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDowell

DATE

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

May 30, 1996

Receiving Date: 05/01/96

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

ANALYTICAL RESULTS FOR NAVAJO REFINING

Attention: Darrell Moore
501 E. Main
Artesia, NM 88210

Prep Date: 05/04/96
Analysis Date: 05/04/96
Sampling Date: 04/30/96
Sample Condition: Intact & Cool
Sample Received by: SH
Project Name: NA

TA#	FIELD CODE	ALKALINITY		
		CHLORIDE (mg/L)	FLUORIDE (mg/L)	SULFATE (mg/L)
T51847	RO Reject Biweekly	115	2.8	1,913
QC	Quality Control	471	1.10	9.1

RPD	% Extraction Accuracy & Instrument Accuracy	1	1	9
		97	98	101
		94	107	92
		---	---	---

REPORTING LIMIT		0.5	0.1	1	10	10
-----------------	--	-----	-----	---	----	----

METHODS: EPA 375.4, 310.1, 340.2; 4500 Cl-B.
CHEMIST: Chloride: JT Fluoride: MB/MS Sulfate: MS Alkalinity: RCD
SPIKE: 500 mg/L CHLORIDE; 5.0 mg/L FLUORIDE; 500 mg/L SULFATE.
QC: 500 mg/L CHLORIDE; 1.0 mg/L FLUORIDE; 10 mg/L SULFATE.

RS

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonell

5-30-96

Date

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

TRACE ANALYSIS, INC.

May 30, 1996

Receiving Date: 05/01/96

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

ANALYTICAL RESULTS FOR

NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

Prep Date: 05/03/96

Analysis Date: 05/29/96

Sampling Date: 04/30/96

Sample Condition: Intact & Cool

Sample Received by: SH

Project Name: NA

TA# Field Code

POTASSIUM
(mg/L)

MAGNESIUM
(mg/L)

CALCIUM
(mg/L)

SODIUM
(mg/L)

T51847 RO Reject Biweekly
QC Quality Control

3.4 143.0 245.0 72.9
20.0 20.3 18.6 19.7

Reporting Limit

0.3 0.01 0.01 0.4

RPD

% Extraction Accuracy
& Instrument Accuracy

14 2 2 12
102 90 94 81
100 101 93 99

METHODS: EPA 200.7.

CHEMIST: RR

SPIKE: 100.0 mg/L POTASSIUM, MAGNESIUM, CALCIUM, SODIUM.
QC: 20.0 mg/L POTASSIUM, MAGNESIUM, CALCIUM, SODIUM.

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDowell

Date

5-30-96

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

TRACE ANALYSIS, INC.

June 6, 1996

Receiving Date: 05/13/96

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

ANALYTICAL RESULTS FOR
NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

Prep Date: 05/15/96

Analysis Date: 05/15/96

Sampling Date: 05/10/96

Sample Condition: Intact & Cool

Sample Received by: SH

Project Name: NA

TA# FIELD CODE

CHLORIDE
(mg/L)FLUORIDE
(mg/L)SULFATE
(mg/L)ALKALINITY
(mg/L as CaCO₃)
HCO₃ CO₃T52193 RO Reject Bi-Weekly
QC Quality Control133
4893.1
1.101,657
9.5234
---234
---RPD
% Extraction Accuracy
% Instrument Accuracy1
96
971
98
1072
107
962

---2

REPORTING LIMIT

0.5

0.1

1

10

10

METHODS: EPA 375.4, 310.1, 340.2; 4500 Cl-B.

SPIKE: 500 mg/L CHLORIDE; 5.0 mg/L FLUORIDE; 500 mg/L SULFATE.

QC: 500 mg/L CHLORIDE; 1.0 mg/L FLUORIDE; 10 mg/L SULFATE.

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonell

Date

6-6-96

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

TRACE ANALYSIS, INC.

June 6, 1996

Receiving Date: 05/13/96

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

ANALYTICAL RESULTS FOR NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

Prep Date: 05/15/96

Analysis Date: 06/06/96

Sampling Date: 05/10/96

Sample Condition: Intact & Cool

Sample Received by: SH

Project Name: NA

TA#	Field Code	POTASSIUM (mg/L)	MAGNESIUM (mg/L)	CALCIUM (mg/L)	SODIUM (mg/L)
-----	------------	---------------------	---------------------	-------------------	------------------

T52193	RO Reject Bi-Weekly	6.1	332	1,200	188
QC	Quality Control	4.02	4.38	5.21	5.31

Reporting Limit	0.30	0.01	0.01	0.40
-----------------	------	------	------	------

RPD	4	0	0	0
% Extraction Accuracy	110	86	102	90
% Instrument Accuracy	80	88	104	106

METHODS: EPA 200.7.

SPIKE: 50.0 mg/L POTASSIUM, 100 mg/L MAGNESIUM, CALCIUM, SODIUM.

QC: 5.0 mg/L POTASSIUM, MAGNESIUM, CALCIUM, SODIUM.

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonell

Date

6-6-96

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue Lubbock, Texas 79424 806•794•1296 FAX 806•794•1298

June 13, 1996
 Receiving Date: 05/13/96
 Sample Type: Water
 Project No: NA
 Project Location: Artesia, NM

ANALYTICAL RESULTS FOR
 NAVAJO REFINING
 Attention: Darrell Moore
 501 E. Main
 Artesia, NM 88210

Prep Date: 05/13/96
 Analysis Date: 05/25/96
 Sampling Date: 05/10/96
 Sample Condition: Intact & Cool
 Sample Received by: SH
 Project Name: NA

TOTAL METALS

TA#	FIELD CODE	As (mg/L)	Cr (mg/L)	Cd (mg/L)	Ba (mg/L)	U (mg/L)	Mo (mg/L)	Zn (mg/L)	Ni (mg/L)	Be (mg/L)	Fe (mg/L)	Mn (mg/L)
T52193	RO Reject Bi-Weekly	0.2	<0.05	<0.02	<0.2	<0.5	<0.1	0.13	6.3	0.10	0.14	<0.01
QC	Quality Control	5.32	5.26	5.26	5.11	4.81	4.66	4.7	4.73	4.66	4.57	0.46

REPORTING LIMIT

RPD	2	4	0	12	0	8	2	4	4	0	2	2
% Extraction Accuracy	95	90	81	103	118	91	94	94	49	87	93	81
% Instrument Accuracy	106	105	105	102	96	93	94	95	95	93	91	93

	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
T52193	RO Reject Bi-Weekly	<0.03	0.13	0.11	<0.2	<0.03	<0.001	<0.001	<0.001	0.0003		
QC	Quality Control	0.57	4.48	4.44	4.35	4.2	0.00505	0.095	0.023	0.00274		

REPORTING LIMIT

RPD	2	2	2	0	2	4	4	7	20			
% Extraction Accuracy	100	96	95	83	84	96	90	125	108			
% Instrument Accuracy	113	90	89	87	84	101	95	93	110			

METHODS: EPA 200.7, 239.2, 270.2, 272.2, 245.1.
 TOTAL METALS SPIKE: 8.0 mg/L As, Ba, Al; 0.8 mg/L Cr; 0.2 mg/L Cd, Be, Fe; 2.0 mg/L U, Zn, Ni, V, B, Mn; 1.0 mg/L Cu;
 4.0 mg/L Fe, V; 0.0050 mg/L Hg; 0.080 mg/L Se; 0.020 mg/L Pb; 0.0020 mg/L Ag, , 3.0 mg/L Co.
 TOTAL METALS QC: 5.0 mg/L As, Cr, B, Ni, Cd, Zn, Ba, Mn, U, Mo; 1.0 mg/L Co; 0.5 mg/L Cu, Mn;
 0.050 mg/L Se; 0.025 mg/L Pb; 0.0025 mg/L Ag; 0.005 mg/L Hg; 5.0 mg/L Be, Al, Fe, V, Cu.

Director, Dr. Blair Leftwich
 Director, Dr. Bruce McDonnell

DATE

6-13-96

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

TRACE ANALYSIS, INC.

June 24, 1996

Receiving Date: 06/01/96

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

ANALYTICAL RESULTS FOR

NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

Prep Date: 02/06/96

Analysis Date: 02/12/96

Sampling Date: 05/31/96

Sample Condition: Intact & Cool

Sample Received by: DH

Project Name: NA

TOTAL METALS

TA#	FIELD CODE	As (mg/L)	Cr (mg/L)	Cd (mg/L)	Ba (mg/L)	U (mg/L)	Mo (mg/L)	Zn (mg/L)	Ni (mg/L)	Be (mg/L)	Fe (mg/L)	Mn (mg/L)
T53424	RO Reject Biweekly	1.6	<0.05	<0.02	<0.2	<0.5	<0.1	0.04	<0.2	<0.01	<0.03	<0.01
QC	Quality Control	2.36	0.21	0.04	1.97	5.7	2.0	0.51	0.5	0.05	0.99	0.51

REPORTING LIMIT

0.1 0.05 0.02 0.2 0.5 0.1 0.02 0.2 0.01 0.03 0.01

RPD		0	7	4	7	0	20	0	0	10	14	10
% Extraction Accuracy		104	102	95	102	105	110	100	100	105	107	105
% Instrument Accuracy		118	105	84	99	114	100	102	100	100	99	102
	Co		V	Cu	Al	B	Hg	Se	Pb	Ag		

T53424	RO Reject Biweekly	<0.03	<0.05	<0.02	<0.2	0.04	<0.001	0.005	<0.001	<0.0002		
QC	Quality Control	0.48	0.50	0.25	1.95	4.61	0.00495	0.096	0.024	0.00258		

REPORTING LIMIT

0.03 0.05 0.02 0.2 0.03 0.001 0.005 0.001 0.0002

RPD		10	10	0	7	2	4	4	8	10		
% Extraction Accuracy		105	105	100	104	88	102	96	85	101		
% Instrument Accuracy		96	100	100	98	92	99	92	98	103		

METHODS: EPA 200.7, 239.2, 270.2, 272.2, 245.1.

CHEMIST: As,Cd,Cr,Ba,U,Be,Ni,V,Mo,Zn,Al,Fe,Co,Mn,Cu,B: RR

Hg: RC

Se,Pb,Ag: JT

TOTAL METALS SPIKE: 8.0 mg/L As, Ba, Al; 0.2 mg/L Cd, Be; 0.8 mg/L Cr; 2.0 mg/L U, Ni, V, Mo, Zn, Co, Mn, B;

4.0 mg/L Fe; 1.0 mg/L Cu; 0.00200 mg/L Ag; 0.0050 mg/L Hg; 0.100 mg/L Se; 0.020 mg/L Pb.

TOTAL METALS QC:

2.0 mg/L As, Ba, Mo, Al; 0.05 mg/L Cd; 0.2 mg/L Cr; 5.0 mg/L U, B; 0.05 mg/L Be; 0.5 mg/L Ni, V, Zn, Co, Mn; 1.0 mg/L Fe; 0.25 mg/L Cu; 0.002500 mg/L Ag; 0.0050 mg/L Hg; 0.100 mg/L Se; 0.025 mg/L Pb.

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonnell

DATE

6701 Aberdeen Avenue

Lubbock, Texas 79424

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TRACE ANALYSIS, INC.

June 24, 1996
Receiving Date: 06/01/96
Sample Type: Water
Project No: NA
Project location: Artesia, NM

ANALYTICAL RESULTS FOR
NAVAJO REFINING
Attention: Darrell Moore
501 E. Main
Artesia, NM 88210

Prep Date: 06/02/96
Analysis Date: 06/12/96
Sampling Date: 05/31/96
Sample Condition: Intact & Cool
Sample Received by: DH
Project Name: NA

TA#	Field Code	POTASSIUM (mg/L)	MAGNESIUM (mg/L)	CALCIUM (mg/L)	SODIUM (mg/L)
T53424	RO Reject BiWeekly	4.6	169	489	122
QC	Quality Control	5.63	5.2	5.4	6.33

Reporting Limit 0.3 0.01 0.01 0.4

RPD
& Extraction Accuracy 3 4 6 5
& Instrument Accuracy 99 85 125 94
113 104 108 106

METHODS: EPA 200.7.
CHEMIST: RR
SPIKE: 100.0 mg/L POTASSIUM, MAGNESIUM, CALCIUM, SODIUM.
QC: 5.0 mg/L POTASSIUM, MAGNESIUM, CALCIUM; 6.0 mg/L SODIUM.

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDowell

6-24-96
Date

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue Lubbock, Texas 79424 806•794•1296 FAX 806•794•1298

ANALYTICAL RESULTS FOR

June 24, 1996
 Receiving Date: 06/01/96
 Sample Type: Water
 Project No: NA
 Project Location: Artesia, NM
 NAVAJO REFINING
 Attention: Darrell Moore
 501 E. Main
 Artesia, NM 88210
 Prep Date: 06/05/96
 Analysis Date: 06/05/96
 Sampling Date: 05/31/96
 Sample Condition: Intact & Cool
 Sample Received by: DH
 Project Name: NA

TA#	FIELD CODE	CHLORIDE (mg/L)	FLUORIDE (mg/L)	SULFATE (mg/L)	ALKALINITY (mg/L as CaCO3)	
T53424	RO Reject Biweekly	165	2.4	1,378	230	0
QC	Quality Control	500	0.99	9.2	---	---

RPD	2	0	9	0	0
% Extraction Accuracy	101	100	103	---	---
% Instrument Accuracy	100	9	98	---	---

REPORTING LIMIT	0.5	0.1	1	10	10
-----------------	-----	-----	---	----	----

METHODS: EPA 375.4, 310.1, 340.2; SM 4500 Cl-B.
 CHEMIST: CHLORIDE: JT FLUORIDE, SULFATE: MS ALKALINITY: RCD
 SPIKE: 500 mg/L CHLORIDE; 1.1 mg/L FLUORIDE; 50,000 mg/L SULFATE.
 QC: 500 mg/L CHLORIDE; 1.0 mg/L FLUORIDE; 10 mg/L SULFATE.

Director, Dr. Blair Leftwich
 Director, Dr. Bruce McDowell

6-24-96
 Date

6701 Aberdeen Avenue

Lubbock, Texas 79424

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TRACE ANALYSIS, INC.

June 27, 1996

Receiving Date: 06/14/96

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

ANALYTICAL RESULTS FOR

NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

Prep Date: 06/15/96

Analysis Date: 06/18/96

Sampling Date: 06/13/96

Sample Condition: Intact & Cool

Sample Received by: SH

Project Name: NA

TA# Field Code

POTASSIUM (mg/L) MAGNESIUM (mg/L) CALCIUM (mg/L) SODIUM (mg/L)

T54081	RO Reject Biweekly	3.7	180	546	123
QC	Quality Control	4.92	5.1	5.09	5.06

Reporting Limit

0.3 0.01 0.01 0.4

RPD	3	1	0	2
% Extraction Accuracy	104	81	102	89
% Instrument Accuracy	98	102	102	101

METHODS: EPA 200.7.

CHEMIST: RR

SPIKE: 100.0 mg/L POTASSIUM, MAGNESIUM, CALCIUM, SODIUM.

QC: 5.0 mg/L POTASSIUM, MAGNESIUM, CALCIUM; 6.0 mg/L SODIUM.

BS

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDowell

Date

6-27-96

6701 Aberdeen Avenue

Lubbock, Texas 79424

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TRACE ANALYSIS, INC.

ANALYTICAL RESULTS FOR

NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

Prep Date: 06/20/96

Analysis Date: 06/20/96

Sampling Date: 06/13/96

Sample Condition: Intact & Cool

Sample Received by: SH

Project Name: NA

June 27, 1996

Receiving Date: 06/14/96

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

TA# FIELD CODE

T54081 RO Reject Biweekly
QC Quality ControlCHLORIDE
(mg/L)FLUORIDE
(mg/L)SULFATE
(mg/L)ALKALINITY
(mg/L as CaCO3)
HCO3 CO3203 2.4 2,390 248 0
490 0.94 11.8 --- ---RPD 2 4 5 0 0
& Extraction Accuracy 95 75 106 --- ---
& Instrument Accuracy 98 94 104 --- ---

REPORTING LIMIT

0.5 0.1 1 10 10

METHODS: EPA 375.4, 310.1, 340.2; SM 4500 Cl-B.
CHEMIST: CHLORIDE: JT FLUORIDE: MB/MS SULFATE: MS ALKALINITY: RCD
SPIKE: 500 mg/L CHLORIDE; 1.0 mg/L FLUORIDE; 5,000 mg/L SULFATE.
QC: 500 mg/L CHLORIDE; 1.0 mg/L FLUORIDE; 10 mg/L SULFATE.Director, Dr. Blair Leftwich
Director, Dr. Bruce McDowell

Date

6-27-96

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue Lubbock, Texas 79424 806•794•1296 FAX 806•794•1298

June 27, 1996
 Receiving Date: 06/14/96
 Sample Type: Water
 Project No: NA
 Project Location: Artesia, NM

ANALYTICAL RESULTS FOR
 NAVAJO REFINING
 Attention: Darrell Moore
 501 E. Main
 Artesia, NM 88210

Prep Date: 06/14/96
 Analysis Date: 06/17/96
 Sampling Date: 06/13/96
 Sample Condition: Intact & Cool
 Sample Received by: SH
 Project Name: NA

TOTAL METALS

TA#	FIELD CODE	As (mg/L)	Cr (mg/L)	Cd (mg/L)	Ba (mg/L)	U (mg/L)	Mo (mg/L)	Zn (mg/L)	Ni (mg/L)	Be (mg/L)	Fe (mg/L)	Mn (mg/L)
T54081	RO Reject Biweekly	0.7	<0.05	<0.02	<0.2	<0.5	<0.1	0.03	<0.2	<0.01	<0.03	<0.01
QC	Quality Control	2.05	0.2	0.05	2.03	5.11	1.97	0.56	0.57	0.05	1.13	0.57

REPORTING LIMIT 0.1 0.05 0.02 0.2 0.5 0.1 0.02 0.2 0.01 0.03 0.01

RPD	0	2	1	5	0	3	4	3	2	3	1
% Extraction Accuracy	97	97	93	96	105	96	105	111	106	110	112
% Instrument Accuracy	102	101	105	102	102	99	112	115	109	113	114

T54081	RO Reject Biweekly	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
QC	Quality Control	<0.03	<0.05	<0.02	<0.2	0.05	<0.001	0.006	<0.001	0.0003	0.00258
		0.56	0.54	0.27	2.13	4.57	0.00505	0.092	0.024	0.00258	

REPORTING LIMIT 0.03 0.05 0.02 0.2 0.03 0.001 0.005 0.001 0.0002

RPD	3	2	2	2	4	4	4	8	10
% Extraction Accuracy	107	110	103	106	88	102	96	85	101
% Instrument Accuracy	111	107	107	107	91	101	92	98	103

METHODS: EPA 200.7, 239.2, 270.2, 272.2, 245.1.
 CHEMIST: As,Cd,Cr,Ba,U,Be,Ni,V,Mo,Zn,Al,Fe,Co,Mn,Cu,B: RR Hg: RC Se,Pb,Ag: JT
 TOTAL METALS SPIKE: 8.0 mg/L As, Ba, Al; 0.2 mg/L Cd, Be; 0.8 mg/L Cr; 2.0 mg/L U, Ni, V, Mo, Zn, Co, Mn, B;
 4.0 mg/L Fe; 1.0 mg/L Cu; 0.00200 mg/L Ag; 0.0050 mg/L Hg; 0.100 mg/L Se; 0.020 mg/L Pb.
 TOTAL METALS QC: 2.0 mg/L As, Ba, Mo, Al; 0.05 mg/L Cd; 0.2 mg/L Cr; 5.0 mg/L U, B; 0.05 mg/L Be; 0.5 mg/L Ni, V, Zn,
 Co, Mn; 1.0 mg/L Fe; 0.25 mg/L Cu; 0.002500 mg/L Ag; 0.0050 mg/L Hg; 0.100 mg/L Se; 0.025 mg/L Pb.

Director, Dr. Blair Leftwich
 Director, Dr. Bruce McDowell

DATE

6-27-96

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

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July 23, 1996

Receiving Date: 06/29/96

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

ANALYTICAL RESULTS FOR
NAVAJO REFINING COMPANY

Attention: Darrell Moore

501 E. Main

Artesia. NM 88210

Prep Date: 07/01/96

Analysis Date: 07/01/96

Sampling Date: 06/28/96

Sample Condition: I & C

Sample Received by: ML

Project Name: NA

PARAMETERS (mg/L)	T54950 RO Reject Qtrly	QC	RPD	%EA	%IA
CHLORINE	<0.1	---	---	---	---
SULFATE	1,980	10.87	2	112	100
(NO3-NO2)-N	0.3	1.28	5	93	100
COD	<20	265	1	104	105
FECAL COLIFORMS	Not Found	---	---	---	---
TDS	3,076	---	0	---	---
CYANIDE	<0.01	0.039	3	79	101
BOD5	<8	---	4	---	104
TSS	8	---	8	---	---
pH (s.u.)	7.0	7.0	0	---	100
TOTAL RADIUM (pCi/liter)	2+/-1	---	---	---	---
AMMONIA-N	<0.50	4.37	1	96	88
SPECIFIC CONDUCTIVITY (uMHOS/cm)	3,203	1,364	1	---	97
PHENOLS	<0.01	0.84	2	98	105
FLUORIDE	2.5	1.07	0	118	105
CHLORIDE	190	22.5	1	97	90
CO3 as CaCO3	0	---	1	---	---
HCO3 as CaCO3	238	---	1	---	---

METHODS: EPA 330.4, 375.4, 353.3, 410.4, 160.1, 335.2, 405.1, 160.2, 150.1, 600/8-78-017, 350.2, 120.1, 420.1, 340.2, 300.0, 310.1.

CHEMIST: Chlorine, Sulfate, (NO3-NO2)-N, COD, Cyanide, Ammonia-N, Specific Conductance: MS
Phenols, Fluoride, Chloride: MS TDS: RP BOD5, TSS, pH: JT Alkalinity: RCD

SULFATE SPIKE: 50,000 mg/L SULFATE.

SULFATE QC: 10 mg/L SULFATE.

(NO3-NO2)-N SPIKE: 1.51 mg/L (NO

(NO3-NO2)-N QC: 1.333 mg/L (NO3-NO2)-N.

COD SPIKE: 750 mg/L COD.

COD QC: 250 mg/L COD.

CYANIDE SPIKE AND QC: 0.04 mg/L CYANIDE.

AMMONIA-N SPIKE: 50 mg/L AMMONIA-N.

AMMONIA-N QC: 5.0 mg/L AMMONIA-N.

PHENOLS SPIKE: 1.6 mg/L PHENOLS.

PHENOLS QC: 0.8 mg/L PHENOLS.

FLUORIDE SPIKE: 4.0 mg/L FLUORIDE.

FLUORIDE QC: 1.0 mg/L FLUORIDE.

CHLORIDE SPIKE: 100 mg/L CHLORIDE.

CHLORIDE QC: 25.0 mg/L CHLORIDE.

BS
Director, Dr. Blair Leftwich

Director, Dr. Bruce McDonell

7-23-96
Date

TRACE ANALYSIS, INC.

A Laboratory for Advanced Environmental Research and Analysis



TRACE ANALYSIS, INC.

6701 Aberdeen Avenue Lubbock, Texas 79424 806•794•1296 FAX 806•794•1298

July 23, 1996
Receiving Date: 06/29/96
Sample Type: Water
Project No: NA
Project Location: Artesia, NM

ANALYTICAL RESULTS FOR
NAVAJO REFINING
Attention: Darrell Moore
501 E. Main
Artesia, NM 88210

Prep Date: 07/01/96
Analysis Date: 07/02/96
Sampling Date: 06/28/96
Sample Condition: Intact & Cool
Sample Received by: ML
Project Name: NA

TOTAL METALS

TA#	FIELD CODE	As (mg/L)	Ba (mg/L)	Cd (mg/L)	Cr (mg/L)	Cu (mg/L)	Al (mg/L)	Fe (mg/L)	Be (mg/L)	Co (mg/L)	Mn (mg/L)	Mo (mg/L)
T54950	RO Reject Qtrly	0.2	<0.2	<0.02	<0.05	<0.02	<0.2	<0.05	<0.01	<0.01	0.02	0.02
QC	Quality Control	4.82	4.36	0.12	0.5	5.03	4.96	2.45	0.122	1.23	1.24	2.04
REPORTING LIMIT		0.1	0.2	0.02	0.05	0.02	0.2	0.05	0.01	0.01	0.01	0.01
RPD		2	0	2	0	0	0	2	10	6	2	10
% Extraction Accuracy		93	89	74	87	100	103	99	95	97	99	105
% Instrument Accuracy		96	87	96	100	101	99	98	98	98	99	102
		Ni	V	Zn	Hg	U	B	Se	Pb	Ag		
		(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)		
T54950	RO Reject Qtrly	8.6	<0.01	<0.02	<0.001	<0.5	<0.03	0.029	<0.001	<0.001		
QC	Quality Control	1.3	1.22	1.25	0.0048	2.4	1.03	0.098	0.025	0.00268		
REPORTING LIMIT		0.2	0.01	0.02	0.001	0.5	0.03	0.005	0.001	0.001		
RPD		2	0	0	0	0	6	8	2	15		
% Extraction Accuracy		107	100	103	94	93	103	96	122	94		
% Instrument Accuracy		96	98	100	96	96	82	98	100	107		

METHODS: EPA 200.7, 239.2, 270.2, 272.2, 245.1.
CHEMIST: As, Ba, Cd, Cr, Cu, Al, Fe, Be, Co, Mn, Mo, Ni, V, Zn: RR Hg: RC
TOTAL METALS SPIKE: 8.0 mg/L As, Ba, Al, Cu; 0.8 mg/L Cr; 0.2 mg/L Cd; 2.00 mg/L Mo, Co, V, Mn; 4.00 mg/L Fe; 0.20 mg/L Be; 2.0 mg/L Zn, Ni, B, U; 0.0050 mg/L Hg; 0.100 mg/L Se; 0.025 mg/L Pb; 0.0250 mg/L Ag.
TOTAL METALS QC: 5.0 mg/L As, Ba, Al, Cu; 0.5 mg/L Cr; 0.125 mg/L Cd, Be; 2.00 mg/L Mo; 2.50 mg/L Fe; 1.25 mg/L Co, V, Mn, Zn, Ni, B; 0.0050 mg/L Hg; 2.5 mg/L U; 0.100 mg/L Se; 0.025 mg/L Pb; 0.00250 mg/L Ag.

83 2-23-96

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonell

DATE

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

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July 19, 1996

Receiving Date: 06/29/96

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

ANALYTICAL RESULTS FOR

NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

Prep Date: 07/01/96

Analysis Date: 07/05/96

Sampling Date: 06/28/96

Sample Condition: Intact & Cool

Sample Received by: ML

Project Name: NA

TA#	Field Code	POTASSIUM (mg/L)	MAGNESIUM (mg/L)	CALCIUM (mg/L)	SODIUM (mg/L)
T54950	RO Reject Qtrly	3.5	153.0	283.0	115.0
QC	Quality Control	24.55	27.35	29.6	25.2

Reporting Limit

0.3

0.01

0.01

0.4

RPD

% Extraction Accuracy

% Instrument Accuracy

2

94

98

0

91

109

2

96

118

6

96

101

METHODS: EPA 200.7.

CHEMIST: RR

SPIKE: 100.0 mg/L POTASSIUM, MAGNESIUM, CALCIUM, SODIUM.

QC: 25.0 mg/L POTASSIUM, MAGNESIUM, CALCIUM, SODIUM.

RB

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonell

7-23-96

Date

6701 Aberdeen Avenue

Lubbock, Texas 79424

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ANALYTICAL RESULTS FOR
NAVAJO REFINING COMPANY
Attention: Darrell Moore
501 E. Main
Artesia, NM 88210

PAGE 1 of 2

July 23, 1996
Receiving Date: 06/29/96
Sample Type: Water
Project No: NA
Project Location: Artesia, NM

Prep Date: 07/05/96
Analysis Date: 07/05/96
Sampling Date: 06/28/96
Sample Condition: Intact & Cool
Sample Received by: ML
Project Name: NA

FIELD CODE: RO Reject Qtrly
TA #: T54950

624 Compounds	Concentration (ug/L)	Reporting Limit
Dichlorodifluoromethane	ND	1
Chloromethane	ND	1
Vinyl chloride	ND	1
Bromomethane	ND	5
Chloroethane	ND	1
Trichlorofluoromethane	ND	1
1,1-Dichloroethene	ND	1
Iodomethane	ND	5
Carbon disulfide	ND	1
Methylene chloride	ND	5
trans-1,2-Dichloroethene	ND	1
1,1-Dichloroethane	ND	1
Vinyl acetate	ND	1
2-Butanone	ND	50
Chloroform	ND	1
1,1,1-Trichloroethane	ND	1
1,2-Dichloroethane	ND	1
Benzene	ND	1
Carbon Tetrachloride	ND	1
1,2-Dichloropropane	ND	1
Trichloroethene	ND	1
Bromodichloromethane	ND	1
cis-1,3-Dichloropropene	ND	1
4-Methyl-2-pentanone	ND	50
trans-1,3-Dichloropropene	ND	1
Toluene	ND	1
1,1,2-Trichloroethane	ND	1
2-Hexanone	ND	50

TRACE ANALYSIS, INC.

A Laboratory for Advanced Environmental Research and Analysis

FIELD CODE: RO Reject Qtrly
TA#: T54950

624 Compounds	Concentration (ug/L)	Reporting Limit
Dibromochloromethane	ND	1
Tetrachloroethene	ND	1
Chlorobenzene	ND	1
Ethylbenzene	ND	1
m & p-Xylene	ND	1
Bromoform	ND	1
Styrene	ND	1
o-Xylene	ND	1
1,1,2,2-Tetrachloroethane	ND	1
trans 1,4-Dichloro-2-butene	ND	5
cis 1,4-Dichloro-2-butene	ND	5
1,4-Dichlorobenzene	ND	2
1,3-Dichlorobenzene	ND	2
1,2-Dichlorobenzene	ND	2
1,2-Dibromoethane	ND	5
MTBE	ND	1

SURROGATES	% RECOVERY
Dibromofluoromethane	98
Toluene-d8	101
4-Bromofluorobenzene	101

ND = Not Detected

METHODS: EPA 624.
CHEMIST: RP



Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonell

7-23-96
Date

6701 Aberdeen Avenue
Lubbock, Texas 79424
806•794•1296
FAX 806•794•1298

ANALYTICAL RESULTS FOR
NAVAJO REFINING COMPANY
Attention: Darrell Moore
501 E. Main
Artesia, NM 88210

July 23, 1996
Receiving Date: 06/29/96
Sample Type: Water
Sampling Date: 06/28/96
Sample Condition: I & C
Sample Received by: ML
Project Name: NA
Project Location: Artesia, NM
Extraction Date: 07/01/96
Analysis Date: 07/03/96

FIELD CODE: RO Reject Qtrly
TA #: T54950

	Reporting	Concentration				
625 Compounds	Limit	(mg/L)	QC	RPD	%EA	%IA
N-Nitrosodimethylamine	0.001	ND				
2-Picoline	0.001	ND				
Methyl methanesulfonate	0.001	ND				
Ethyl methanesulfonate	0.001	ND				
Phenol	0.001	ND	116	5	52	116
Aniline	0.005	ND				
bis(2-Chloroethyl)ether	0.005	ND				
2-Chlorophenol	0.005	ND		7	81	
1,3-Dichlorobenzene	0.001	ND				
1,4-Dichlorobenzene	0.001	ND	91	4	52	91
Benzyl alcohol	0.005	ND				
1,2-Dichlorobenzene	0.001	ND				
2-Methylphenol	0.001	ND				
bis(2-chloroisopropyl)ether	0.005	ND				
4-Methylphenol/3-Methylphenol	0.001	ND				
Acetophenone	0.005	ND				
n-Nitrosodi-n-propylamine	0.001	ND		8	96	
Hexachloroethane	0.001	ND				
Nitrobenzene	0.001	ND				
N-Nitrosopiperidine	0.005	ND				
Isophorone	0.005	ND				
2-Nitrophenol	0.005	ND	97			97
2,4-Dimethylphenol	0.005	ND				
bis(2-Chloroethoxy)methane	0.001	ND				
Benzoic acid	0.01	ND				
2,4-Dichlorophenol	0.005	ND	98			98
1,2,4-Trichlorobenzene	0.001	ND		12	66	
α,α-Dimethylphenethylamine	0.01	ND				
Naphthalene	0.001	ND				

TRACE ANALYSIS, INC.

A Laboratory for Advanced Environmental Research and Analysis

FIELD CODE: RO Reject Qtrly
TA #: T54950

625 Compounds	Reporting	Concentration	QC	RPD	%EA	%IA
	Limit	(mg/L)				
4-Chloroaniline	0.005	ND				
2,6-Dichlorophenol	0.005	ND				
Hexachlorobutadiene	0.001	ND	98			98
N-Nitroso-di-n-butylamine	0.005	ND				
4-Chloro-3-methylphenol	0.005	ND		18	71	
2-Methylnaphthalene	0.001	ND				
1,2,4,5-Tetrachlorobenzene	0.001	ND				
Hexachlorocyclopentadiene	0.001	ND				
2,4,6-Trichlorophenol	0.005	ND	104			104
2,4,5-Trichlorophenol	0.005	ND				
2-Chloronaphthalene	0.001	ND				
1-Chloronaphthalene	0.001	ND				
2-Nitroaniline	0.005	ND				
Dimethylphthalate	0.001	ND				
Acenaphthylene	0.001	ND				
2,6-Dinitrotoluene	0.001	ND				
3-Nitroaniline	0.005	ND				
Acenaphthene	0.001	ND	96	13	89	96
2,4-Dinitrophenol	0.005	ND				
Dibenzofuran	0.005	ND				
Pentachlorobenzene	0.001	ND				
4-Nitrophenol	0.005	ND		2	33	
1-Naphthylamine	0.005	ND				
2,4-Dinitrotoluene	0.001	ND		17	78	
2-Naphthylamine	0.005	ND				
2,3,4,6-Tetrachlorophenol	0.005	ND				
Fluorene	0.001	ND				
Diethylphthalate	0.001	ND				
4-Chlorophenyl-phenylether	0.001	ND				
4-Nitroaniline	0.005	ND				
4,6-Dinitro-2-methylphenol	0.001	ND				
n-Nitrosodiphenylamine & Diphenylamine	0.001	ND	102			102
Diphenylhydrazine	0.005	ND				

FIELD CODE: RO Reject Qtrly
TA #: T54950

625 Compounds	Reporting	Concentration	QC	RPD	%EA	%IA
	Limit	(mg/L)				
4-Bromophenyl-phenylether	0.001	ND				
Phenacetin	0.005	ND				
Hexachlorobenzene	0.001	ND				
4-Aminobiphenyl	0.005	ND				
Pentachlorophenol	0.005	ND	106	15	75	106
Pentachloronitrobenzene	0.005	ND				
Pronanide	0.001	ND				
Phenanthrene	0.001	ND				
Anthracene	0.001	ND				
Di-n-butylphthalate	0.005	ND				
Fluoranthene	0.001	ND	101			101
Benzidine	0.01	ND				
Pyrene	0.001	ND		16	21	
p-Dimethylaminoazobenzene	0.001	ND				
Butylbenzylphthalate	0.001	ND				
Benzo[a]anthracene	0.001	ND				
3,3-Dichlorobenzidine	0.001	ND				
Chrysene	0.001	ND				
bis(2-Ethylhexyl)phthalate	0.20	ND				
Di-n-octylphthalate	0.001	ND				
Benzo[b]fluoranthene	0.001	ND				
7,12-Dimethylbenz(a)anthracene	0.001	ND				
Benzo[k]fluoranthene	0.001	ND				
Benzo[a]pyrene	0.001	ND	103			103
3-Methylcholanthrene	0.001	ND				
Dibenzo(a,j)acridine	0.001	ND				
Indeno[1,2,3-cd]pyrene	0.001	ND				
Dibenz[a,h]anthracene	0.001	ND				
Benzo[g,h,i]perylene	0.001	ND				

FIELD CODE: RO Reject Qtrly
TA #: T54950

608 Compounds	Reporting	Concentration				
	Limit	(mg/L)	QC	RPD	%EA	%IA
a-BHC	0.0001	ND	0.022	4	96	88
b-BHC	0.0001	ND	0.031	4	112	124
g-BHC	0.0001	ND	0.024	0	92	96
d-BHC	0.0001	ND	0.031	10	128	124
Heptachlor	0.0001	ND	0.025	8	100	100
Aldrin	0.0001	ND	0.030	4	104	120
Heptachlor epoxide	0.0001	ND	0.028	4	92	112
Endosulfan-1	0.0001	ND	0.025	4	88	100
Endosulfan-2	0.0001	ND	0.059	6	96	118
P,P'-DDE	0.0001	ND	0.054	6	102	108
Dieldrin	0.0001	ND	0.050	0	94	100
Endrin	0.0001	ND	0.049	2	102	98
P,P'-DDD	0.0001	ND	0.051	0	104	102
Endrin Aldehyde	0.0005	ND	0.060	93	92	120
Endosulfan Sulfate/P,P'-DDT	0.0005	ND	0.054	6	96	108
Endrin Ketone	0.0005	ND	0.059	2	98	118
Methoxychlor	0.005	ND	0.278	0	98	111
a-Chlordane	0.0001	ND	0.028	8	100	112
g-Chlordane	0.0001	ND	0.028	5	88	112
Toxaphene	0.0025	ND	2.05	5	92	103
PCB's	0.0001	ND	0.51	8	100	102

% RECOVERY

2-Fluorophenol SURR	73
Phenol-d6 SURR	42
Nitrobenzene-d5 SURR	88
2-Fluorobiphenyl SURR	111
2,4,6-Tribromophenol SURR	85
Terphenyl-d14 SURR	91

METHOD: EPA 625, 608.

CHEMIST: RD/CC/MB

ES

7-23-96

Director, Dr. Blair Leftwich

Date

Director, Dr. Bruce McDonell

6701 Aberdeen Avenue Lubbock, Texas 79424
Tel (806) 794 1296 Fax (806) 794 1298
1 (800) 378 1296

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Phone #:**FAX #:**

3: Naveio

Project Name :

Artesia

Sampler Signature:

[illegible]

Date: _____ **Time:** _____

David Moore 6/28/96 16:15

Date: _____ **Time:** _____

Date: _____ Time: _____

Date: _____ Time: _____

Date: _____ Time: _____

Received at Laboratory of: *McJannet* Date: *6-7-96*

CH 181

17Aixbix115x15

$f(x) = 0.5 - 1.5x + 0.5x^2$

CH 181

(363)

REMARKS

!stuf J.

Date:

Received by:

Time:

Date:

Relinquished by:

Time:

Date:

Received by:

Time:

Date:

Relinquished by:

11-11-11

Date: _____

Received at 19

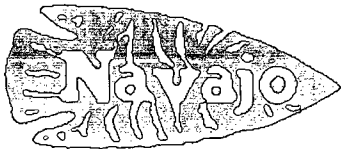
Time:

Date:

Relinquished by:

TELEPHONE
(505) 748-3311

EASYLINK
62905278



REFINING COMPANY

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159

FAX
(505) 746-6410 ACCTG
(505) 746-6155 EXEC
(505) 748-9077 ENGR
(505) 746-4438 P/L

CONSERVATION DIVISION
RECEIVED

May 6, 1996

MAY 8 8 52

Mr. Roger Anderson
Environmental Bureau
Oil Conservation Division
2040 S. Pacheco St.
Santa Fe, NM 87505-5472

**RE: 1st Quarter 1996 Report on RO Reject Water, Navajo Refining Co., Eddy
County, NM**

Dear Roger:

This letter is sent in regard to Navajo Refining's permit modification of our discharge plan GW-28 which allows us to put our Reverse Osmosis (RO) reject water on our farm or into Eagle Draw. This permit is administered by OCD and the parameters we sample for were set up by OCD. We are sending these results for your files. We are required by OCD to sample this stream every two weeks and those results for this quarter are enclosed.

For this quarter we discharged a total of 34,023,979 gallons with 8,695,017 gallons being sent to the farm for irrigation and 25,328,962 gallons being put to Eagle Draw. Since we started discharging the RO reject water, we have discharged a total of 405,771,280 gallons. This is broken down as follows: 100,640,656 gallons have been put into Eagle Draw and 305,130,624 gallons have been put on the farm.

If you have any questions concerning this matter, please call me at 505-748-3311.
Thank you for your time.

Regards,
NAVAJO REFINING COMPANY

Darrell Moore
Sr. Environmental Specialist
encl.

cc:USEPA, New Mexico Environment Dept.- Water Quality

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

ANALYTICAL RESULTS FOR

January 30, 1996
Receiving Date: 01/09/96
Sample Type: Water
Project No: NA
Project Location: Artesia, NM

NAVAJO REFINING
Attention: Darrell Moore
501 E. Main
Artesia, NM 88210

Prep Date: 01/09/96

Analysis Date: 01/10/96

Sampling Date: 01/08/96

Sample Condition: Intact & Cool

Sample Received by: ML

Project Name: NA

TOTAL METALS

TA#	FIELD CODE	As (mg/L)	Cr (mg/L)	Cd (mg/L)	Ba (mg/L)	U (mg/L)	Mo (mg/L)	Zn (mg/L)	Ni (mg/L)	Be (mg/L)	Fe (mg/L)	Mn (mg/L)
T46644	RO Reject Bi-Wkly	<0.1	<0.05	<0.02	<0.2	<0.5	<0.1	<0.02	0.6	<0.01	<0.03	<0.01
QC	Quality Control	4.8	4.7	4.8	4.8	4.9	4.8	4.9	5.0	4.7	4.9	5.0
REPORTING LIMIT		0.1	0.05	0.02	0.2	0.5	0.1	0.02	0.2	0.01	0.03	0.01
RPD		0	0	2	2	0	0	2	2	4	2	0
% Extraction Accuracy		93	96	94	97	90	88	88	88	77	89	88
% Instrument Accuracy		95	94	96	96	98	97	98	99	95	98	99
		Co	V	Cu	Al	B	Hg	Se	Pb	Ag		

T46644	RO Reject Bi-Wkly	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
QC	Quality Control	<0.03	<0.05	<0.02	<0.2	<0.03	<0.001	<0.005	<0.001	<0.0005	<0.0005	<0.0005
		4.9	4.9	5.0	4.5	4.4	0.0050	0.049	0.023	0.0026		

REPORTING LIMIT		0.03	0.05	0.02	0.2	0.03	0.001	0.005	0.001	0.0005		
-----------------	--	------	------	------	-----	------	-------	-------	-------	--------	--	--

RPD		0	2	2	2	2	4	12	8	4		
% Extraction Accuracy		67	92	88	88	84	96	85	90	88		
% Instrument Accuracy		98	98	99	90	88	97	98	92	104		

METHODS: EPA 200.7, 239.2, 270.2, 272.2, 245.1.

TOTAL METALS SPIKE: 8.0 mg/L As, Ba, Al; 0.8 mg/L Cr; 0.2 mg/L Cd, Be, Fe; 2.0 mg/L U, Zn, Ni, Mn, B, Mo, Co, Cu; 4.0 mg/L V; 0.0050 mg/L Hg; 0.050 mg/L Se; 0.025 mg/L Pb; 0.0025 mg/L Ag.

TOTAL METALS QC: 5.0 mg/L As, Cr, Cd, Ba, U, Mo, Zn, Ni, Be, Fe, Mn, Cu, V, B, Al, Co; 0.0050 mg/L Hg; 0.050 mg/L Se; 0.025 mg/L Pb; 0.0025 mg/L Ag.

1-30-96

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonell

DATE

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

January 25, 1996

Receiving Date: 01/09/96

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

ANALYTICAL RESULTS FOR
NAVAJO REFINING
Attention: Darrell Moore
501 E. Main
Artesia, NM 88210

Prep Date: 01/10/96

Analysis Date: 01/10/96

Sampling Date: 01/08/96

Sample Condition: Intact & Cool

Sample Received by: ML

Project Name: NA

TA#	FIELD CODE	CHLORIDE	FLUORIDE	SULFATE	ALKALINITY	
		(mg/L)	(mg/L)	(mg/L)	(mg/L as CaCO ₃)	CO ₃

T46644	RO Reject Bi-Wkly	152	2.3	1,216	229	0
QC	Quality Control	486	0.98	9.57	---	---

RPD		10	0	0	0	0
% Extraction Accuracy		95	100	106	---	---
% Instrument Accuracy		97	98	97	---	---

REPORTING LIMIT		0.5	0.1	1	10	10
-----------------	--	-----	-----	---	----	----

METHODS: EPA 375.4, 310.1, 340.2; 4500 Cl-B.
SPIKE: 500 mg/L CHLORIDE; 2.5 mg/L FLUORIDE; 1.0 mg/L SULFATE.
QC: 500 mg/L CHLORIDE; 1.0 mg/L FLUORIDE; 1.0 mg/L SULFATE.



Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonnell

1-30-96

Date

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

TRACE ANALYSIS, INC.

January 30, 1996
Receiving Date: 01/09/96
Sample Type: Water
Project No: NA
Project Location: Artesia, NM

ANALYTICAL RESULTS FOR
NAVAJO REFINING
Attention: Darrell Moore
501 E. Main
Artesia, NM 88210

Prep Date: 01/09/96
Analysis Date: 01/10/96
Sampling Date: 01/08/96
Sample Condition: Intact & Cool
Sample Received by: ML
Project Name: NA

TA#	Field Code	POTASSIUM (mg/L)	MAGNESIUM (mg/L)	CALCIUM (mg/L)	SODIUM (mg/L)
T46644	RO Reject Bi-Wkly	<1.0	104.0	260.0	106
QC	Quality Control	99.9	4.2	21.2	48.9

Reporting Limit

1.0

0.01

0.01

0.4

RPD
% Extraction Accuracy
% Instrument Accuracy

4
93
100

0
89
104

0
85
106

2
94
98

METHODS: EPA 200.7.

SPIKE: 100.0 mg/L POTASSIUM, MAGNESIUM, CALCIUM, SODIUM.

QC: 100.0 mg/L POTASSIUM; 4.0 mg/L MAGNESIUM; 20.0 mg/L CALCIUM; 50.0 mg/L SODIUM.

RS

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonnell

Date

1-30-96

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

TRACE ANALYSIS, INC.

January 31, 1996

Receiving Date: 01/19/96

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

ANALYTICAL RESULTS FOR

NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

Prep Date: 01/22/96

Analysis Date: 01/22/96

Sampling Date: 01/18/96

Sample Condition: Intact & Cool

Sample Received by: ML

Project Name: NA

TA# FIELD CODE

CHLORIDE
(mg/L)FLUORIDE
(mg/L)SULFATE
(mg/L)ALKALINITY
(mg/L as CaCO₃)
HCO₃ CO₃

T47111	RO Reject	107	2.3	1,824	285	0
QC	Quality Control	491	0.98	8.39	---	---

RPD		0	0	15	0	0
% Extraction Accuracy		97	100	105	---	---
% Instrument Accuracy		99	98	83	---	---

REPORTING LIMIT

0.5

0.1

1

10

10

METHODS: EPA 375.4, 310.1, 340.2; 4500 Cl-B.

SPIKE: 500 mg/L CHLORIDE; 2.5 mg/L FLUORIDE; 10 mg/L SULFATE.

QC: 500 mg/L CHLORIDE; 1.0 mg/L FLUORIDE; 10 mg/L SULFATE.

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonell

Date

1-31-96

FAX 806•794•1298

Prep Date: 01/20/96
Analysis Date: 01/29/96
Sampling Date: 01/18/96
Sample Condition: Intact & Cool
Sample Received by: ML
Project Name: NA

TA#	Field Code
-----	------------

T47111	RO Reject
QC	Quality Control

Reporting Limit

RPD
& Extraction Accuracy
& Instrument Accuracy

METHODS: EPA 200.7.

SPIKE: 100.0 mg/L POTASSIUM, MAGNESIUM, CALCIUM, SODIUM.

QC: 10.0 mg/L POTASSIUM; 1.0 mg/L MAGNESIUM, CALCIUM; 50.0 mg/L SODIUM..

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonell

Date _____

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

TRACE ANALYSIS, INC.

January 31, 1996

Receiving Date: 01/19/96

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

ANALYTICAL RESULTS FOR

NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

Prep Date: 01/19/96

Analysis Date: 01/23/96

Sampling Date: 01/18/96

Sample Condition: Intact & Cool

Sample Received by: ML

Project Name: NA

TOTAL METALS

TA#	FIELD CODE	As (mg/L)	Cr (mg/L)	Cd (mg/L)	Ba (mg/L)	U (mg/L)	Mo (mg/L)	Zn (mg/L)	Ni (mg/L)	Be (mg/L)	Fe (mg/L)	Mn (mg/L)
T47111	RO Reject	<0.1	<0.05	<0.02	<0.2	<0.5	<0.1	<0.02	<0.1	<0.01	<0.03	<0.01
QC	Quality Control	4.9	4.9	4.9	4.9	4.9	0.96	0.98	0.96	0.99	0.98	0.98
REPORTING LIMIT												
RPD		2	4	0	6	0	2	4	2	0	6	0
% Extraction Accuracy		98	89	89	88	90	99	88	94	99	93	103
% Instrument Accuracy		98	98	98	97	98	96	98	96	99	98	98
		Co	V	Cu	Al	B	Hg	Se	Pb	Ag		
		(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)		
T47111	RO Reject	<0.03	<0.05	<0.02	<0.2	0.42	<0.001	0.005	<0.001	0.0020		
QC	Quality Control	0.99	0.98	0.99	1.03	0.94	0.0049	0.053	0.025	0.0029		
REPORTING LIMIT												
		0.03	0.05	0.02	0.2	0.03	0.001	0.005	0.001	0.0001		
RPD		2	0	0	2	0	4	1	5	0		
% Extraction Accuracy		89	100	100	91	103	102	106	103	100		
% Instrument Accuracy		99	98	99	103	94	98	106	100	116		

METHODS: EPA 200.7, 239.2, 270.2, 272.2, 245.1.

TOTAL METALS SPIKE: 8.0 mg/L As, Ba, Al; 0.8 mg/L Cr; 0.2 mg/L Cd, Be, Fe; 2.0 mg/L U, Zn, Ni, Mn, B, Mo, Co, Cu; 4.0 mg/L V; 0.0050 mg/L Hg; 0.040 mg/L Se; 0.0100 mg/L Pb; 0.0010 mg/L Ag.

TOTAL METALS QC: 5.0 mg/L As, Cr, Cd, Ba, U, Mo, Zn, Ni, Be, Fe, Mn, Cu, V, B, Al, Co; 0.0050 mg/L Hg; 0.050 mg/L Se; 0.025 mg/L Pb; 0.0025 mg/L Ag.

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonnell

DATE

1-31-96

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

TRACE ANALYSIS, INC.

February 16, 1996

Receiving Date: 01/31/96

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

ANALYTICAL RESULTS FOR

NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

Prep Date: 02/01/96

Analysis Date: 02/07/96

Sampling Date: 01/30/96

Sample Condition: Intact & Cool

Sample Received by: ML

Project Name: NA

TOTAL METALS

TA#	FIELD CODE	As (mg/L)	Cr (mg/L)	Cd (mg/L)	Ba (mg/L)	U (mg/L)	Mo (mg/L)	Zn (mg/L)	Ni (mg/L)	Be (mg/L)	Fe (mg/L)	Mn (mg/L)
-----	------------	--------------	--------------	--------------	--------------	-------------	--------------	--------------	--------------	--------------	--------------	--------------

T47582	RO Reject Bi-Weekly	<0.1	<0.05	<0.02	<0.2	<0.5	<0.10	0.13	<0.1	<0.01	<0.03	<0.01
QC	Quality Control	0.55	0.52	0.55	1.1	4.9	0.49	0.52	0.48	0.54	0.50	0.51

REPORTING LIMIT

0.1	0.05	0.02	0.2	0.5	0.10	0.2	0.1	0.01	0.03	0.01
-----	------	------	-----	-----	------	-----	-----	------	------	------

RPD		0	0	0	2	2	4	2	0	0	2	2
% Extraction Accuracy		109	114	105	106	77	106	100	95	100	105	106
% Instrument Accuracy		110	104	110	110	99	99	102	96	108	100	102

	Co	V	Cu	Al	B	Hg	Se	Pb	Ag
--	----	---	----	----	---	----	----	----	----

T47582	RO Reject Bi-Weekly	<0.03	<0.05	<0.02	<0.20	<0.03	<0.001	<0.005	0.003	<0.0001
QC	Quality Control	0.50	0.55	0.51	1.03	0.51	0.0049	0.048	0.0293	0.0026

REPORTING LIMIT

0.03	0.05	0.02	0.20	0.03	0.001	0.005	0.001	0.0001
------	------	------	------	------	-------	-------	-------	--------

RPD		4	20	0	2	0	4	10	26	0
% Extraction Accuracy		103	105	108	109	103	102	100	103	120
% Instrument Accuracy		100	110	102	103	102	98	95	117	104

METHODS: EPA 200.7, 239.2, 270.2, 272.2, 245.1.

TOTAL METALS SPIKE: 8.0 mg/L As, Ba, Al; 0.8 mg/L Cr; 0.2 mg/L Cd, Be, Fe; 2.0 mg/L U, Zn, Ni, Mn, B, Mo, Co, V; 1.0 mg/L Cu; 0.0050 mg/L Hg; 0.040 mg/L Se; 0.0100 mg/L Pb; 0.0010 mg/L Ag; 4.0 mg/L Fe.

TOTAL METALS QC: 0.50 mg/L As, Cr, Cd, U, Mo, Zn, Ni, Be, Fe, Mn, Cu, V, B, Co; 0.0050 mg/L Hg; 0.050 mg/L Se; 0.0250 mg/L Pb; 0.0025 mg/L Ag; 1.0 mg/L Ba, Al.

BS

2-16-96

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDowell

DATE

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

TRACE ANALYSIS, INC.

February 16, 1996

Receiving Date: 01/31/96

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

ANALYTICAL RESULTS FOR NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

Prep Date: 02/01/96

Analysis Date: 02/07/96

Sampling Date: 01/30/96

Sample Condition: Intact & Cool

Sample Received by: ML

Project Name: NA

TA#	Field Code	POTASSIUM (mg/L)	MAGNESIUM (mg/L)	CALCIUM (mg/L)	SODIUM (mg/L)
T47582	RO Reject Bi-Weekly	3.5	150.8	444.3	87.6
QC	Quality Control	10.1	0.50	0.51	50.1

Reporting Limit

0.30

0.01

0.01

0.40

RPD
& Extraction Accuracy
& Instrument Accuracy

2
107
101

0
93
100

4
92
102

2
90
100

METHODS: EPA 200.7.

SPIKE: 100.0 mg/L POTASSIUM, MAGNESIUM, CALCIUM, SODIUM.

QC: 10.0 mg/L POTASSIUM; 50.0 mg/L MAGNESIUM, CALCIUM, SODIUM.

BS

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDowell

Date

2-16-96

6701 Aberdeen Avenue

Lubbock, Texas 79424

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TRACE ANALYSIS, INC.

February 16, 1996

Receiving Date: 01/31/96

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

ANALYTICAL RESULTS FOR
NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

Prep Date: 02/01/96

Analysis Date: 02/01/96

Sampling Date: 01/30/96

Sample Condition: Intact & Cool

Sample Received by: ML

Project Name: NA

TOTAL

TA# FIELD CODE

CHLORIDE
(mg/L)FLUORIDE
(mg/L)SULFATE
(mg/L)ALKALINITY
(mg/L as CaCO₃)
HCO₃ CO₃ALKALINITY
(mg/L as CaCO₃)T47582 RO Reject Bi-Weekly
QC Quality Control107 2.5 1,235
515 1.1 9.1264 0 264
--- --- ---

RPD

% Extraction Accuracy
% Instrument Accuracy0 4 16
105 100 100
103 105 910 0 0
--- --- ---
--- --- ---

REPORTING LIMIT

0.5 0.1 1 10 10

METHODS: EPA 375.4, 310.1, 340.2; 4500 Cl-B.

SPIKE: 500 mg/L CHLORIDE; 2.0 mg/L FLUORIDE; 10 mg/L SULFATE.

QC: 500 mg/L CHLORIDE; 1.0 mg/L FLUORIDE; 10 mg/L SULFATE.

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonell

Date

2-16-96

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

TRACE ANALYSIS, INC.

February 16, 1996

Receiving Date: 02/15/96

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

ANALYTICAL RESULTS FOR

NAVAJO REFINING COMPANY

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

Prep Date: 02/15/96

Analysis Date: 02/15/96

Sampling Date: 02/14/96

Sample Condition: Intact & Cool

Sample Received by: ML

Project Name: NA

TA# Field Code

T48253 RA 2723
T48254 RA 4796
T48255 RA 4798
QC Quality Control

Reporting Limit

RPD
& Extraction Accuracy
& Instrument Accuracy

METHODS: EPA SW 846-8020, 5030.
MTBE/BTEX SPIKE AND QC: 100 ug/L MTBE/BTEX.

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonnell

MTBE (ug/L)	BENZENE (ug/L)	TOLUENE (ug/L)	ETHYL- BENZENE (ug/L)	M,P,O XYLENE (ug/L)	TOTAL BTEX (ug/L)
----------------	-------------------	-------------------	-----------------------------	---------------------------	-------------------------

<1	<1	<1	<1	<1	<1
<1	<1	1	<1	<1	1
<1	<1	<1	<1	<1	<1
or		95	92	306	

1 1 1

4	3	6	3	2
94	94	95	90	101
96	96	96	92	102

2-16-96

Date

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

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TRACE ANALYSIS, INC.

ANALYTICAL RESULTS FOR

NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

Prep Date: 02/16/96

Analysis Date: 02/16/96

Sampling Date: 02/14/96

Sample Condition: Intact & Cool

Sample Received by: ML

Project Name: NA

February 28, 1996

Receiving Date: 02/15/96

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

TA# FIELD CODE

CHLORIDE
(mg/L)FLUORIDE
(mg/L)SULFATE
(mg/L)ALKALINITY
(mg/L as CaCO₃)T48252 RO Reject Bi-Weekly
QC Quality Control129
5142.7
11,938
8.4236
---RPD
% Extraction Accuracy
% Instrument Accuracy1
97
1034
102
1006
117
841

REPORTING LIMIT

0.5

0.1

1

10

METHODS: EPA 375.4, 310.1, 340.2; 4500 Cl-B.

SPIKE: 500 mg/L CHLORIDE; 2.0 mg/L FLUORIDE; 10 mg/L SULFATE.

QC: 500 mg/L CHLORIDE; 1.0 mg/L FLUORIDE; 10 mg/L SULFATE.


Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonellDate
2/28/96



TRACE ANALYSIS, INC.

6701 Aberdeen Avenue

Lubbock, Texas 79424

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FAX 806•794•1298

ANALYTICAL RESULTS FOR

NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

February 28, 1996

Receiving Date: 02/15/96

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

Prep Date: 02/16/96

Analysis Date: 02/21/96

Sampling Date: 02/14/96

Sample Condition: Intact & Cool

Sample Received by: ML

Project Name: NA

TA#	Field Code	POTASSIUM (mg/L)	MAGNESIUM (mg/L)	CALCIUM (mg/L)	SODIUM (mg/L)
-----	------------	---------------------	---------------------	-------------------	------------------

T48252	RO Reject Bi-Weekly	3.5	169	544	94
QC	Quality Control	39	20.6	107	19.8

Reporting Limit		0.3	0.01	0.01	0.4
-----------------	--	-----	------	------	-----

RPD		0	0	0	0
% Extraction Accuracy		100	106	103	89
% Instrument Accuracy		99	82	107	98

METHODS: EPA 200.7.

SPIKE: 100.0 mg/L POTASSIUM, MAGNESIUM, CALCIUM, SODIUM.

QC: 40.0 mg/L POTASSIUM; 25.0 mg/L MAGNESIUM; 99.7 mg/L CALCIUM; 20.0 mg/L SODIUM.

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonell

2/28/96
Date

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

February 28, 1996

Receiving Date: 02/15/96

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

ANALYTICAL RESULTS FOR

NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

Prep Date: 02/16/96

Analysis Date: 02/21/96

Sampling Date: 02/14/96

Sample Condition: Intact & Cool

Sample Received by: ML

Project Name: NA

TOTAL METALS

TA#	FIELD CODE	As (mg/L)	Cr (mg/L)	Cd (mg/L)	Ba (mg/L)	U (mg/L)	Mo (mg/L)	Zn (mg/L)	Ni (mg/L)	Be (mg/L)	Fe (mg/L)	Mn (mg/L)
-----	------------	-----------	-----------	-----------	-----------	----------	-----------	-----------	-----------	-----------	-----------	-----------

T48252	RO Reject Bi-Weekly	<0.1	<0.05	<0.02	0.1	<0.5	<0.1	<0.02	<0.1	<0.01	0.2	<0.01
QC	Quality Control	24.7	2.2	7.8	1.0	4.22	5.0	7.7	2.1	2.5	100	5.3

REPORTING LIMIT 0.1 0.05 0.02 0.2 0.5 0.1 0.02 0.1 0.01 0.03 0.01

RPD	% Extraction Accuracy	Co (mg/L)	V (mg/L)	Cu (mg/L)	Al (mg/L)	B (mg/L)	Hg (mg/L)	Se (mg/L)	Pb (mg/L)	Ag (mg/L)
-----	-----------------------	-----------	----------	-----------	-----------	----------	-----------	-----------	-----------	-----------

T48252	RO Reject Bi-Weekly	<0.03	<0.05	<0.02	<0.1	0.31	<0.001	<0.005	<0.001	<0.0002
QC	Quality Control	1.0	1.1	1.0	20.8	0.96	0.0052	0.048	0.024	0.0026

REPORTING LIMIT 0.03 0.05 0.02 0.1 0.03 0.001 0.005 0.001 0.0002

RPD	0	0	0	0	0	4	1	12	4
% Extraction Accuracy	100	110	100	110	103	102	73	85	112
% Instrument Accuracy	100	110	100	104	96	104	96	96	104

METHODS: EPA 200.7, 239.2, 270.2, 272.2, 245.1.

TOTAL METALS SPIKE: 8.0 mg/L As, Ba, Al; 0.8 mg/L Cr; 0.2 mg/L Cd, Be, Fe; 2.0 mg/L U, Zn, Ni, Mn, B, Mo, Co, Cu; 4.0 mg/L V; 0.0050 mg/L Hg; 0.080 mg/L Se; 0.020 mg/L Pb; 0.0020 mg/L Ag.

TOTAL METALS QC: 25.0 mg/L As; 2.0 mg/L Cr, Ni; 7.5 mg/L Cd, Zn; 1.0 mg/L Ba, V, B, Co, Cu; 5.0 mg/L Mn, U, Mo; 0.050 mg/L Se; 0.025 mg/L Pb; 0.0025 mg/L Ag; 0.005 mg/L Hg; 2.5 mg/L Be; 20.0 mg/L Al; 100 mg/L Fe.

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDowell

DATE

2/28/96

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

TRACE ANALYSIS, INC.

March 04, 1996

Receiving Date: 03/01/96

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

Prep Date: 03/03/96

Analysis Date: 03/03/96

Sampling Date: 02/28/96

Sample Condition: Intact & Cool

Sample Received by: ML

Project Name: NA

TA# Field Code

MTBE (ug/L)	BENZENE (ug/L)	TOLUENE (ug/L)	ETHYL- BENZENE (ug/L)	M,P,O XYLENE (ug/L)	TOTAL BTX (ug/L)
----------------	-------------------	-------------------	-----------------------------	---------------------------	------------------------

T48952	RA 2723	<1	<1	<1	<1	<1
QC	Quality Control	105	99	96	95	309

Reporting Limit

1	1	1	1	1	1
---	---	---	---	---	---

RPD	10	8	8	8	7
% Extraction Accuracy	109	105	102	100	107
% Instrument Accuracy	105	100	96	96	104

METHODS: EPA SW 846-8020, 5030.
MTBE/BTEX SPIKE AND QC: 100 ug/L MTBE/BTEX.

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonnell

Date

3-4-96

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

TRACE ANALYSIS, INC.

ANALYTICAL RESULTS FOR

NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

Prep Date: 03/03/96

Analysis Date: 03/03/96

Sampling Date: 02/28/96

Sample Condition: Intact & Cool

Sample Received by: ML

Project Name: NA

March 15, 1996
Receiving Date: 03/01/96
Sample Type: Water
Project No: NA
Project Location: Artesia, NM

TA#	FIELD CODE	CHLORIDE		FLUORIDE		SULFATE		ALKALINITY	
		(mg/L)		(mg/L)		(mg/L)		(mg/L as CaCO ₃)	
T48949	RO Reject Biweekly	73		2.4		1,492		288	0
QC	Quality Control	532		0.98		9.5		---	---

RPD	1	0	8	4	4
% Extraction Accuracy	108	100	101	---	---
% Instrument Accuracy	107	98	91	---	---

REPORTING LIMIT

0.5	0.1	1	10	10
-----	-----	---	----	----

METHODS: EPA 375.4, 310.1, 340.2; 4500 Cl-B.

SPIKE: 500 mg/L CHLORIDE; 0.5 mg/L FLUORIDE; 10 mg/L SULFATE.

QC: 500 mg/L CHLORIDE; 1.0 mg/L FLUORIDE; 10 mg/L SULFATE.

BS

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonell

Date

3-15-96



TRACE ANALYSIS, INC.

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

March 15, 1996

Receiving Date: 03/01/96

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

ANALYTICAL RESULTS FOR NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

Prep Date: 03/03/96

Analysis Date: 03/14/96

Sampling Date: 02/28/96

Sample Condition: Intact & Cool

Sample Received by: ML

Project Name: NA

TA#	Field Code	POTASSIUM (mg/L)	MAGNESIUM (mg/L)	CALCIUM (mg/L)	SODIUM (mg/L)
T48949	RO Reject Biweekly	3.3	166	492	51.2
QC	Quality Control	3.68	36.9	9.49	2.33

Reporting Limit

0.3

0.01

0.01

0.4

RPD
% Extraction Accuracy
% Instrument Accuracy

9
112
90

1
99
104

1
97
99

6
103
105

METHODS: EPA 200.7.

SPIKE: 100.0 mg/L POTASSIUM, MAGNESIUM, CALCIUM, SODIUM.

QC: 4.0 mg/L POTASSIUM; 35.0 mg/L MAGNESIUM; 9.5 mg/L CALCIUM; 2.0 mg/L SODIUM.

BS

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDowell

Date

3-15-96

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

March 15, 1996

Receiving Date: 03/01/96

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

ANALYTICAL RESULTS FOR

NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

Prep Date: 03/03/96

Analysis Date: 03/04/96

Sampling Date: 02/28/96

Sample Condition: Intact & Cool

Sample Received by: ML

Project Name: NA

TOTAL METALS

TA#	FIELD CODE	As (mg/L)	Cr (mg/L)	Cd (mg/L)	Ba (mg/L)	U (mg/L)	Mo (mg/L)	Zn (mg/L)	Ni (mg/L)	Be (mg/L)	Fe (mg/L)	Mn (mg/L)
-----	------------	-----------	-----------	-----------	-----------	----------	-----------	-----------	-----------	-----------	-----------	-----------

T48949	RO Reject Biweekly	0.4	0.11	0.03	<0.2	<0.5	<0.1	0.03	<0.2	<0.01	0.1	0.06
QC	Quality Control	25.9	2.14	7.69	0.97	4.65	5.02	7.59	2.24	2.46	94.15	4.84

REPORTING LIMIT		0.1	0.05	0.02	0.2	0.5	0.1	0.02	0.2	0.01	0.03	0.01
-----------------	--	-----	------	------	-----	-----	-----	------	-----	------	------	------

RPD	% Extraction Accuracy	Co (mg/L)	V (mg/L)	Cu (mg/L)	Al (mg/L)	B (mg/L)	Hg (mg/L)	Se (mg/L)	Pb (mg/L)	Ag (mg/L)
-----	-----------------------	-----------	----------	-----------	-----------	----------	-----------	-----------	-----------	-----------

97	110	104	89	88	95	95	101	93	87	89
104	107	102	97	93	100	101	112	98	94	97

T48949	RO Reject Biweekly	0.06	0.13	0.07	0.6	<0.03	<0.001	0.006	<0.001	<0.0001
QC	Quality Control	1.05	1.08	0.99	19.15	5.3	0.0049	0.0527	0.0231	0.00268

REPORTING LIMIT		0.03	0.05	0.02	0.2	0.03	0.001	0.005	0.001	0.0001
-----------------	--	------	------	------	-----	------	-------	-------	-------	--------

RPD	3	3	2	2	6	6	0	10	2
% Extraction Accuracy	95	95	88	94	88	102	83	86	107
% Instrument Accuracy	105	108	99	96	106	98	105	92	107

METHODS: EPA 200.7, 239.2, 270.2, 272.2, 245.1.

TOTAL METALS SPIKE: 8.0 mg/L As, Ba, Al; 0.8 mg/L Cr; 0.2 mg/L Cd, Be; 2.0 mg/L Co, Mn, Mo, Ni, V, Zn, B, U;

1.0 mg/L Cu; 4.0 mg/L Fe; 0.0050 mg/L Hg; 0.0800 mg/L Se; 0.0100 mg/L Pb; 0.00200 mg/L Ag.

TOTAL METALS QC: 25.0 mg/L As; 7.5 mg/L Cd, Zn; 2.0 mg/L Cr, Ni; 1.0 mg/L Ba, Co, Cu, V; 20.0 mg/L Al; 2.5 mg/L Be;

5.0 mg/L B, U, Mn, Mo; 100.0 mg/L Fe; 0.0050 mg/L Hg; 0.0500 mg/L Se; 0.0250 mg/L Pb, Ag.

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonnell

DATE

3-15-96

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

FAX #:

NAVATC REF IN INC CO. ARTEZIA N77 882200

Project Name:

Sampler Signature:

12

For a more detailed description of the system, see the Appendix.

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

ANALYTICAL RESULTS FOR
NAVAJO REFINING WATER
Attention: Darrell Moore
501 E. Main
Artesia. NM 88210

April 25, 1996

Receiving Date: 03/25/96

Sample Type: Water

Project No: NA

Project Location: Artesia

Prep Date: 03/26/96

Analysis Date: 03/26/96

Sampling Date: 03/22/96

Sample Condition: I & C

Sample Received by: ML

Project Name: NA

T50024
RO Reject
Quarterly

PARAMETERS (mg/L)

		QC	RPD	%EA	%IA
CHLORINE	0.1	---	---	---	---
SULFATE	2,821	10.9	9	80	108
(NO3-NO2)-N	0.83	1.01	3	88	99
COD	<20	75	0	108	102
FECAL COLIFORMS	Not Found	---	---	---	---
TDS	3,039	---	1	---	---
CYANIDE	<0.01	0.04	0	100	100
BOD5	<8	184	10	---	92
TSS	<1	---	5	---	---
pH (s.u.)	6.8	7.0	0	---	100
TOTAL RADIUM (pCi/liter)	2+/-1	---	---	---	---
AMMONIA-N	0.9	4.5	4	83	92
SPECIFIC CONDUCTIVITY (uMHOS/cm)	2,507	1,446	1	---	103
PHENOLS	<0.01	0.74	0	93	93
FLUORIDE	2.7	1.01	1	97	100
CHLORIDE	105	499	0	99	100
CO3 as CaCO3	0	---	1	---	---
HCO3 as CaCO3	193	---	1	---	---

METHODS: EPA 330.4, 375.4, 353.3, 410.4, 160.1, 335.2, 405.1, 160.2, 150.1, 600/8-78-017,
350.2, 120.1, 420.1, 340.2, SM 4500 Cl-B, 310.1.

SULFATE SPIKE AND QC: 10 mg/L SU

(NO3-NO2)-N SPIKE: 1.33 mg/L (NO

(NO3-NO2)-N QC: 1.00 mg/L (NO3-NO2)-N.

COD SPIKE AND QC: 75 mg/L COD.

CYANIDE SPIKE AND QC: 0.04 mg/L CYANIDE.

AMMONIA-N SPIKE AND QC: 5.0 mg/L AMMONIA-N.

PHENOLS SPIKE AND QC: 0.8 mg/L P

FLUORIDE SPIKE AND QC: 1.0 mg/L FLUORIDE.

CHLORIDE SPIKE AND QC: 500 mg/L CHLORIDE.

RS
Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonell

4-25-96
Date



TRACE ANALYSIS, INC.

A Laboratory for Advanced Environmental Research and Analysis

TRAC

6701 Aberdeen Avenue

Libbon

6701 Aberdeen Avenue

ANALYTICAL
NAVAJO
Attention:
501 R.
Artesia

sia

April 24, 1996
Receiving Date: 03/25/96
Sample Type: Water
Project No: NA
Project Location: Artesia

Al B
(mg/L) (mg/L)

terly <0.2 <0.03
1 46.4 4.43
0.2 0.03

2 2
110 83
105 89
Ba Cr

(mg/L) (mg/L)
terly <0.2 <0.0
21 41.65 0.4
0.2 0.01

1 1
98 111
95 100

12.2, 270.2, 239.2, 272.2
20 mg/L Al; 2.0 mg/L B,
0050 mg/L Hg; 8.0 mg/L A
5 mg/L Al; 5.0 mg/L B, U,
250 mg/L Ag; 0.0050 mg/L
mg/L Co, V; 20.0 mg/L Fe

Director, Dr. Blair
Director, Dr. Bruce

TA# Field Code
750024 NO Reject Quarterly
QC Quality Control

Reporting Limit

RPD
% Extraction Accuracy
% Instrument Accuracy

METHODS: EPA 200.7.
SPIKE: 100.0 mg/L POTASSIUM, MAGNESI
QC: 1.0 mg/L POTASSIUM; 11.0 mg/L MA

Director, Dr. E
Director, Dr. B

6701 Aberdeen Avenue
Lubbock, Texas 79424
OCC-794-1296
FAX 806-794-1298

**ANALYTICAL RESULTS FOR
NAVAJO REFINING COMPANY**
Attention: Darrell Moore
501 E. Main
Artesia, NM 88210

PAGE 1 of 2

April 12, 1996
Receiving Date: 03/25/96
Sample Type: Water
Project No: NA
Project Location: Artesia

Prep Date: 03/29/96
Analysis Date: 03/29/96
Sampling Date: 03/22/96
Sample Condition: Intact & Cool
Sample Received by: ML
Project Name: NA

FIELD CODE: RO Reject Quarterly
TA #: T50024

624 Compounds	Concentration (ug/L)	Reporting Limit
Dichlorodifluoromethane	ND	1
Chloromethane	ND	5
Vinyl chloride	ND	1
Bromomethane	ND	10
Chloroethane	ND	1
Trichlorofluoromethane	ND	1
1,1-Dichloroethene	ND	1
Iodomethane	ND	5
Carbon disulfide	ND	1
Methylene chloride	ND	5
trans-1,2-Dichloroethene	ND	1
1,1-Dichloroethane	ND	1
Vinyl acetate	ND	1
2-Butanone	ND	50
Chloroform	ND	1
1,1,1-Trichloroethane	ND	1
1,2-Dichloroethane	ND	1
Benzene	ND	1
Carbon Tetrachloride	ND	1
1,2-Dichloropropane	ND	1
Trichloroethene	ND	1
Bromodichloromethane	ND	1
cis-1,3-Dichloropropene	ND	1
4-Methyl-2-pentanone	ND	50
trans-1,3-Dichloropropene	ND	1
Toluene	ND	1
1,1,2-Trichloroethane	ND	1
2-Hexanone	ND	50



TRACE ANALYSIS, INC.

A Laboratory for Advanced Environmental Research and Analysis

NAVAJO REFINING COMPANY
Project Location: Artesia

PAGE 2 of 2

FIELD CODE: RO Reject Quarterly
TAF: T50024

624 Compounds	Concentration (ug/L)	Reporting Limit
Dibromochloromethane	2	1
Tetrachloroethene	ND	1
Chlorobenzene	ND	1
Ethylbenzene	ND	1
m & p-Xylene	ND	1
Bromoform	2	1
Styrene	ND	1
o-Xylene	ND	1
1,1,2,2-Tetrachloroethane	ND	1
trans 1,4-Dichloro-2-butene	ND	5
cis 1,4-Dichloro-2-butene	ND	5
1,4-Dichlorobenzene	ND	2
1,3-Dichlorobenzene	ND	2
1,2-Dichlorobenzene	ND	2
1,2-Dibromoethane	ND	5
MTBE	ND	2

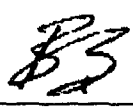
SURROGATES

% RECOVERY

Dibromofluoromethane	103
Toluene-d8	90
4-Bromofluorobenzene	102

ND = Not Detected

METHODS: EPA 624.



Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonell

4-12-96

Date

6701 Aberdeen Avenue
Lubbock, Texas 79424
806•794•1295
FAX 806•794•1298

**ANALYTICAL RESULTS FOR
NAVAJO REFINING COMPANY**
Attention: Darrell Moore
501 E. Main
Artesia, NM 88210

April 12, 1996
Receiving Date: 03/25/96
Sample Type: Water
Sampling Date: 03/22/96
Sample Condition: I & C
Sample Received by: ML
Project Name: NA
Project Location: Artesia
Extraction Date: 03/26/96
Analysis Date: 03/26/96

FIELD CODE: RO Reject Quarterly
TA #: T50024

625 Compounds	Reporting	Concentration	QC	RPD	%EA	%IA
	Limit	(mg/L)				
N-Nitrosodimethylaniline	0.001	ND				
2-Picoline	0.001	ND				
Methyl methanesulfonate	0.001	ND				
Ethyl methanesulfonate	0.001	ND				
Phenol	0.001	ND	102	18	41	102
Aniline	0.005	ND				
bis(2-Chloroethyl)ether	0.005	ND				
2-Chlorophenol	0.005	ND		17	73	
1,3-Dichlorobenzene	0.001	ND				
1,4-Dichlorobenzene	0.001	ND	103	26	37	103
Benzyl alcohol	0.005	ND				
1,2-Dichlorobenzene	0.001	ND				
2-Methylphenol	0.001	ND				
bis(2-chloroisopropyl)ether	0.005	ND				
4-Methylphenol/3-Methylphenol	0.001	ND				
Acetophenone	0.005	ND				
n-Nitrosodi-n-propylaniline	0.001	ND		26	80	
Hexachloroethane	0.001	ND				
Nitrobenzene	0.001	ND				
N-Nitrosopiperidine	0.005	ND				
Isophorone	0.005	ND				
2-Nitrophenol	0.005	ND	105			105
2,4-Dimethylphenol	0.005	ND				
bis(2-Chloroethoxy)methane	0.001	ND				
Benzoic acid	0.01	ND				
2,4-Dichlorophenol	0.005	ND	109			109
1,2,4-Trichlorobenzene	0.001	ND		34	53	
o,o-Dimethylphenethylamine	0.01	ND				
Naphthalene	0.001	ND				

TRACE ANALYSIS, INC.

A Laboratory for Advanced Environmental Research and Analysis

NAVAJO REFINING COMPANY
Project Location: Artesia
FIELD CODE: RO Reject Quarterly
TA #: T50024

625 Compounds	Reporting	Concentration	QC	RPD	%EA	%IA
	Limit	(mg/L)				
4-Chloroaniline	0.005	ND				
2,6-Dichlorophenol	0.005	ND				
Hexachlorobutadiene	0.001	ND	106			106
N-Nitroso-di-n-butylamine	0.005	ND				
4-Chloro-3-methylphenol	0.005	ND	109	9	76	109
2-Methylnaphthalene	0.001	ND				
1,2,4,5-Tetrachlorobenzene	0.001	ND				
Hexachlorocyclopentadiene	0.001	ND				
2,4,6-Trichlorophenol	0.005	ND	99			99
2,4,5-Trichlorophenol	0.005	ND				
2-Chloronaphthalene	0.001	ND				
1-Chloronaphthalene	0.001	ND				
2-Nitroaniline	0.005	ND				
Dimethylphthalate	0.001	ND				
Acenaphthylene	0.001	ND				
2,6-Dinitrotoluene	0.001	ND				
3-Nitroaniline	0.005	ND				
Acenaphthene	0.001	ND	100	34	77	100
2,4-Dinitrophenol	0.005	ND				
Dibenzofuran	0.005	ND				
Pentachlorobenzene	0.001	ND				
4-Nitrophenol	0.005	ND		18	30	
1-Naphthylamine	0.005	ND				
2,6-Dinitroanisole	0.001	ND		24	75	
2-Naphthylamine	0.005	ND				
2,3,4,6-Tetrachlorophenol	0.005	ND				
Fluorane	0.001	ND				
Diethylphthalate	0.001	ND				
4-Chlorophenyl-phenylether	0.001	ND				
4-Nitroaniline	0.005	ND				
4,6-Dinitro-2-methylphenol	0.001	ND				
n-Nitrosodiphenylamine & Diphenylamine	0.001	ND	99			99
Diphenylhydrazine	0.005	ND				

NAVALO REFINING COMPANY
Project Location: Artesia

Page 3 of 4

FIELD CODE: RO Reject Quarterly
TA #: T50024

625 Compounds	Reporting	Concentration	QC	RPD	%EA	%IA
	Limit	(mg/L)				
4-Bromophenyl-phenylether	0.001	ND				
Phenanthrene	0.005	ND				
Hexachlorobenzene	0.001	ND				
4-Aminodiphenyl	0.005	ND				
Pentachlorophenol	0.005	ND	91	26	70	91
Pentachloronitrobenzene	0.005	ND				
Propionitrile	0.001	ND				
Phenanthrene	0.001	ND				
Anthracene	0.001	ND				
Di-n-butylphthalate	0.005	ND				
Fluoranthene	0.001	ND	106			106
Benzidine	0.01	ND				
Pyrene	0.001	ND		14	97	
p-Dimethylaminobenzoic acid	0.001	ND				
Butylbenzylphthalate	0.001	ND				
Benzo[a]anthracene	0.001	ND				
3,3-Dichlorobenzidine	0.001	ND				
Chrysene	0.001	ND				
bis(2-Ethylhexyl)phthalate	0.005	ND				
Di-n-octylphthalate	0.001	ND				
Benzo[b]fluoranthene	0.001	ND				
7,12-Dimethylbenz[a]anthracene	0.001	ND				
Benzo[k]fluoranthene	0.001	ND				
Benzo[a]pyrene	0.001	ND	108			108
3-Methylcholanthrene	0.001	ND				
Dibenzo[a,j]acridine	0.001	ND				
Indeno[1,2,3-cd]pyrene	0.001	ND				
Dibenzo[a,h]anthracene	0.001	ND				
Benzo[g,h,i]perylene	0.001	ND				

NAVALO REFINING COMPANY
Project Location: Artesia

FIELD CODE: RO Reject Quarterly
TA #: T50024

608 Compounds	Reporting	Concentration				
	Limit	(mg/L)	QC	RPD	%EA	%IA
a-BHC	0.0001	ND	0.027	4	116	108
b-BHC	0.0001	ND	0.027	11	120	100
g-BHC	0.0001	ND	0.028	6	120	112
d-BHC	0.0001	ND	0.027	12	104	108
Heptachlor	0.0001	ND	0.027	5	84	108
Aldrin	0.0001	ND	0.024	6	64	95
Heptachlor epoxide	0.0001	ND	0.024	19	92	96
Endosulfan-1	0.0001	ND	0.027	13	96	108
Endosulfan-2	0.0001	ND	0.049	21	84	98
P,P'-DDE	0.0001	ND	0.051	22	82	102
Dieldrin	0.0001	ND	0.052	10	88	104
Endrin	0.0001	ND	0.051	5	88	102
P,P'-DDD	0.0001	ND	0.046	14	76	92
Endrin Aldehyde	0.0005	ND	0.051	34	104	102
Endosulfan sulfate/P,P'-DDT	0.0005	ND	0.058	20	93	112
Endrin Ketone	0.0005	ND	0.053	24	84	106
Methoxychlor	0.005	ND	0.273	15	85	109
a-Chlordane	0.0001	ND	0.024	2	88	96
g-Chlordane	0.0001	ND	0.025	14	92	100
Toxaphene	0.0025	ND	1.81	11	98	90
PCE's	0.0001	ND	0.53	0	98	106

% RECOVERY

2-Fluorophenol SURR	28
Phenol-d6 SURR	20
Nitrobenzene-d5 SURR	78
2-Fluorobiphenyl SURR	69
2,4,6-Tribromophenol SURR	62
Tetraphenyl-d14 SURR	107

METHOD: EPA 625, 608.

BS
Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonell

4-24-96
Date

TELEPHONE
(505) 748-3311

EASYLINK
62905278

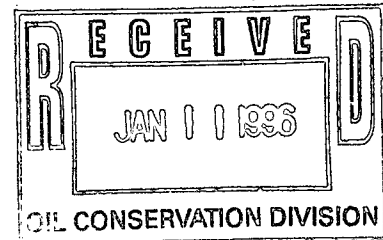


REFINING COMPANY

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159

FAX
(505) 746-6410 ACCTG
(505) 746-6155 EXEC
(505) 748-9077 ENGR
(505) 746-4438 P / L

January 8, 1996



Mr. Roger Anderson
Environmental Bureau
Oil Conservation Division
2040 S. Pacheco St.
Santa Fe, NM 87505-5472

**RE: 4th Quarter 1995 Report on RO Reject Water, Navajo Refining Co., Eddy
County, NM**

Dear Roger:

This letter is sent in regard to Navajo Refining's permit modification of our discharge plan GW-28 which allows us to put our Reverse Osmosis (RO) reject water on our farm or into Eagle Draw. This permit is administered by OCD and the parameters we sample for were set up by OCD. We are sending these results for your files. We are required by OCD to sample this stream every two weeks and those results for this quarter are enclosed.

For this quarter we discharged a total of 34,411,249 gallons with the entire total being sent to the farm for irrigation. Since we started discharging the RO reject water, we have discharged a total of 371,747,301 gallons. This is broken down as follows: 75,311,694 gallons have been put into Eagle Draw and 296,435,607 gallons have been put on the farm.

If you have any questions concerning this matter, please call me at 505-748-3311.
Thank you for your time.

Regards,
NAVAJO REFINING COMPANY

Darrell Moore
Sr. Environmental Specialist
encl.

cc:USEPA, New Mexico Environment Dept.- Water Quality

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

ANALYTICAL RESULTS FOR

NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

October 25, 1995

Receiving Date: 10/13/95

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

Prep Date: 10/13/95

Analysis Date: 10/13/95

Sampling Date: 10/12/95

Sample Condition: Intact & Cool

Sample Received by: McD

Project Name: NA

ALKALINITY
(mg/L as CaCO₃)
HCO₃ CO₃

SULFATE
(mg/L)

FLUORIDE
(mg/L)

CHLORIDE
(mg/L)

FIELD CODE

TA#

T42702 RO Reject BiWkly
QC Quality Control

332 --- ---

1,544 10.0

2.6 0.99

144 495

RPD

% Extraction Accuracy

% Instrument Accuracy

4

119

99

2

99

100

2

90

100

REPORTING LIMIT

1

0.1

1

10

10

METHODS: EPA 375.4, 310.1, 340.2; 4500 Cl-B.

SPIKE: 500 mg/L CHLORIDE; 1.0 mg/L FLUORIDE; 10.0 mg/L SULFATE.

QC: 500 mg/L CHLORIDE; 1.0 mg/L FLUORIDE; 10.0 mg/L SULFATE.

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonell

Date

10-25-95

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue

Lubbock, Texas 79424

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ANALYTICAL RESULTS FOR

NAVAJO REFINING

October 25, 1995

Receiving Date: 10/13/95

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

Prep Date: 10/16/95

Analysis Date: 10/16/95

Sampling Date: 10/12/95

Sample Condition: Intact & Cool

Sample Received by: McD

Project Name: NA

TA#	Field Code	POTASSIUM (mg/L)	MAGNESIUM (mg/L)	CALCIUM (mg/L)	SODIUM (mg/L)
T42702	RO Reject BiWkly	3.4	177.0	510.0	110.0
QC	Quality Control	49.9	4.0	20.1	18.7
Reporting Limit					
		0.3	0.01	0.01	0.4
RPD		8	6	4	2
% Extraction Accuracy		115	123	113	103
% Instrument Accuracy		100	99	100	93

METHODS: EPA 200.7.

QC: 50.0 mg/L POTASSIUM; 4.0 mg/L MAGNESIUM; 20.0 mg/L CALCIUM, SODIUM.

SPIKE: 100.0 mg/L POTASSIUM, MAGNESIUM, CALCIUM, SODIUM.

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonnell

Date

10-25-95

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

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ANALYTICAL RESULTS FOR

October 25, 1995

Receiving Date: 10/13/95

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

Prep Date: 10/13/95

Analysis Date: 10/13/95

Sampling Date: 10/12/95

Sample Condition: Intact & Cool

Sample Received by: McD

Project Name: NA

TOTAL METALS

TA#	FIELD CODE	As (mg/L)	Cr (mg/L)	Cd (mg/L)	Ba (mg/L)	U (mg/L)	Mo (mg/L)	Zn (mg/L)	Ni (mg/L)	Be (mg/L)	Fe (mg/L)	Mn (mg/L)
T42702	RO Reject BiWkly	<0.2	<0.05	<0.02	0.06	<0.5	0.04	<0.02	0.6	<0.01	0.10	0.02
QC	Quality Control	5.0	5.1	4.9	4.9	5.1	5.1	4.9	5.1	5.0	5.0	5.1
REPORTING LIMIT												
		0.2	0.05	0.02	0.03	0.5	0.03	0.02	0.2	0.01	0.03	0.01
RPD		0	2	0	0	6	8	2	8	2	4	2
% Extraction Accuracy		88	81	84	86	85	86	102	68	87	103	99
% Instrument Accuracy		100	101	99	99	102	103	99	101	99	99	102
		Co	V	Cu	Al	B	Hg	Se	Pb	Ag		
		(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)		
T42702	RO Reject BiWkly	<0.03	<0.05	<0.02	<0.2	<0.03	<0.001	<0.001	<0.001	<0.001		
QC	Quality Control	5.1	5.5	5.0	5.3	5.3	0.00495	0.048	0.025	0.0020		
REPORTING LIMIT												
		0.03	0.05	0.02	0.2	0.03	0.001	0.001	0.001	0.001		
RPD		0	2	2	2	4	6	10	8	0		
% Extraction Accuracy		76	100	95	100	105	99	96	115	92		
% Instrument Accuracy		101	110	100	105	107	99	96	100	80		

METHODS: EPA 200.7, 239.2, 270.2, 272.2, 245.1.

TOTAL METALS SPIKE: 8.0 mg/L As, Ba, Al; 0.8 mg/L Cr; 0.2 mg/L Cd, Be; 2.0 mg/L U, Zn, Ni, Mn, V, B; 2.00 mg/L Mo, Co; 4.0 mg/L Fe; 1.0 mg/L Cu; 0.0050 mg/L Hg; 0.050 mg/L Se; 0.010 mg/L Pb; 0.0025 mg/L Ag.

TOTAL METALS QC: 5.0 mg/L As, Cr, Cd, Ba, U, Mo, Zn, Ni, Be, Fe, Mn, Cu, V, B, Al; 5.00 mg/L Co; 0.0050 mg/L Hg; 0.050 mg/L Se; 0.025 mg/L Pb; 0.0025 mg/L Ag.

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonell

DATE

10-25-95

6701 Aberdeen Avenue Lubbock, Texas 79424
Tel (806) 794 1296 Fax (806) 794 1298
1 (800) 378 1296

Phone #: 505-748-3311

FAX #: 505-748-9077

Name & Address: Navajo Refining Co.

Project Name :

Sampler Signature:

Sampler Signature: *Nirial Jagan*

[illegible]

Date: _____ Time: _____

Date: _____ Time: _____

Date: _____ Time: _____

10-13-95

STAIN

286A IN

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

ANALYSIS REQUEST

SPECIAL HANDLING

Turn around # of days	Fax ASAP	Hold
-----------------------	----------	------

PIOH

BTEX, MTBE

DATE _____
TIME _____

10/12/98	8:55
10/12/98	9:12

10/12/98	8:55
10/12/98	9:12



TRACE ANALYSIS, INC.

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

ANALYTICAL RESULTS FOR

NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

November 24, 1995

Receiving Date: 10/27/95

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

Prep Date: 10/27/95

Analysis Date: 10/30/95

Sampling Date: 10/26/95

Sample Condition: Intact & Cool

Sample Received by: MCD

Project Name: NA

TOTAL METALS

TA#	FIELD CODE	As (mg/L)	Cr (mg/L)	Cd (mg/L)	Ba (mg/L)	U (mg/L)	Mo (mg/L)	Zn (mg/L)	Ni (mg/L)	Be (mg/L)	Fe (mg/L)	Mn (mg/L)
T43367	RO Reject BiWeekly	<0.2	<0.05	<0.02	<0.03	<0.5	<0.1	<0.02	1.2	<0.01	<0.03	<0.01
QC	Quality Control	4.9	4.93	4.99	5.0	5.1	4.47	4.81	4.77	5.37	4.76	4.76
REPORTING LIMIT												
RPD		10	10	12	10	4	8	8	10	6	12	6
% Extraction Accuracy		139	132	118	124	91	85	82	79	72	77	80
% Instrument Accuracy		98	99	100	100	102	89	96	95	107	95	95
Co V Cu Al B Hg Se Pb Ag												
(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)

T43367	RO Reject BiWeekly	<0.03	<0.05	<0.02	<0.2	<0.03	<0.001	<0.001	<0.001	<0.001	<0.0001	<0.0001
QC	Quality Control	4.49	4.77	4.77	4.88	4.85	0.0049	0.050	0.025	0.023		

REPORTING LIMIT	0.03	0.05	0.02	0.2	0.03	0.03	0.001	0.001	0.001	0.0001		
-----------------	------	------	------	-----	------	------	-------	-------	-------	--------	--	--

RPD	54	4	6	4	2	0	14	4	0			
% Extraction Accuracy	99	84	78	96	81	102	90	98	84			
% Instrument Accuracy	90	95	95	98	97	98	100	100	92			

METHODS: EPA 200.7, 239.2, 270.2, 272.2, 245.1.

TOTAL METALS SPIKE: 8.0 mg/L As, Ba, Al; 0.8 mg/L Cr; 0.2 mg/L Cd, Be; 2.0 mg/L U, Zn, Ni, Mn, V; 2.00 mg/L Mo, Co; 4.0 mg/L Fe, B; 1.0 mg/L Cu; 0.0050 mg/L Hg; 0.050 mg/L Se; 0.025 mg/L Pb; 0.0025 mg/L Ag.

TOTAL METALS QC: 5.0 mg/L As, Cr, Cd, Ba, U, Mo, Zn, Ni, Be, Fe, Mn, Cu, V, B, Al; 5.00 mg/L Co; 0.0050 mg/L Hg; 0.050 mg/L Se; 0.025 mg/L Pb; 0.025 mg/L Ag.

11-27-95

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDowell

DATE

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

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ANALYTICAL RESULTS FOR

NAVAJO REFINING

November 24, 1995

Prep Date: 10/31/95

Receiving Date: 10/27/95

Analysis Date: 10/31/95

Sample Type: Water

Sampling Date: 10/26/95

Project No: NA

Sample Condition: Intact & Cool
Sample Received by: McD
Project Name: NA

Project Location: Artesia, NM

ALKALINITY

(mg/L as CaCO₃)
HCO₃ CO₃

SULFATE
(mg/L)

FLUORIDE
(mg/L)

CHLORIDE
(mg/L)

TA# FIELD CODE

T43367 RO Reject BiWeekly
QC Quality Control

290 0
--- ---

1,560 9.5

2.27 0.99

180 505

RPD

% Extraction Accuracy
% Instrument Accuracy

2 2
--- ---

112 99

8 102 105

2 99 101

REPORTING LIMIT

1 10 10

METHODS: EPA 375.4, 310.1, 340.2; 4500 Cl-B.
SPIKE: 500 mg/L CHLORIDE; 1.0 mg/L FLUORIDE; 10.0 mg/L SULFATE.
QC: 500 mg/L CHLORIDE; 1.0 mg/L FLUORIDE; 10.0 mg/L SULFATE.

BR

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonnell

11-27-95

Date

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

ANALYTICAL RESULTS FOR

NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

Prep Date: 10/27/95

Analysis Date: 10/31/95

Sampling Date: 10/26/95

Sample Condition: Intact & Cool

Sample Received by: MCD

Project Name: NA

November 15, 1995

Receiving Date: 10/27/95

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

TA#	Field Code	POTASSIUM (mg/L)	MAGNESIUM (mg/L)	CALCIUM (mg/L)	SODIUM (mg/L)
T43367	RO Reject BiWeekly	2.1	181	552	116
QC	Quality Control	51.68	4.99	4.95	4.65

Reporting Limit

RPD

% Extraction Accuracy

% Instrument Accuracy

2

106

103

18

114

100

16

111

99

8

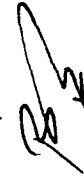
94

93

METHODS: EPA 200.7.

QC: 50.0 mg/L POTASSIUM; 5.0 mg/L MAGNESIUM, CALCIUM, SODIUM.

SPIKE: 100.0 mg/L POTASSIUM, MAGNESIUM, CALCIUM, 10.0 mg/L SODIUM.



Director, Dr. Blair Leftwich

Director, Dr. Bruce McDonnell

11-27-95

Date

6701 Aberdeen Avenue Lubbock, Texas 79424
Tel (806) 794 1296 Fax (806) 794 1298
1 (800) 378 1296

Phone #: 505-748-3311

FAX #: 505-748-0877

Address: Navajo Refining

Project Name :

Artesia NM

Sampler Signature:[illegible]

Relinquished by: Daniel Moore Date: 10/26/95 Time: 16:30

Received by: _____ Date: _____ Time: _____

Date: _____ **Time:** _____

Received by: _____ Date: _____ Time: _____

Date: _____ **Time:** _____

Received at Laboratory by: _____ Date: _____ Time: _____

REMARKS

300AJ

300A.J

NAVB6TX65.XS (300)

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

ANALYTICAL RESULTS FOR

NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

November 29, 1995

Receiving Date: 11/10/95

Sample Type: Water

Project No: NA

Project Location: Artesia, NM 88211

Prep Date: 11/15/95

Analysis Date: 11/15/95

Sampling Date: 11/09/95

Sample Condition: Intact & Cool

Sample Received by: ML

Project Name: NA

TA#	FIELD CODE	CHLORIDE (mg/L)	FLUORIDE (mg/L)	SULFATE (mg/L)	ALKALINITY	
					HC03	C03

T43998	RO Reject Bi-Weekly	155	2.45	1,440	324	0
--------	---------------------	-----	------	-------	-----	---

QC	Quality Control	486	0.99	9.6	---	---
----	-----------------	-----	------	-----	-----	-----

RPD		4	8	20	2	2
-----	--	---	---	----	---	---

% Extraction Accuracy		98	102	90	---	---
-----------------------	--	----	-----	----	-----	-----

% Instrument Accuracy		99	105	96	---	---
-----------------------	--	----	-----	----	-----	-----

REPORTING LIMIT

1	0.1	1	10	10
---	-----	---	----	----

METHODS: EPA 375.4, 310.1, 340.2; 4500 Cl-B.

SPIKE: 500 mg/L CHLORIDE; 1.0 mg/L FLUORIDE; 10.0 mg/L SULFATE.

QC: 500 mg/L CHLORIDE; 1.0 mg/L FLUORIDE; 10.0 mg/L SULFATE.

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonell

Date

11-29-95

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue

Lubbock, Texas 79424

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ANALYTICAL RESULTS FOR

Prep Date: 11/14/95

November 29, 1995

Receiving Date: 11/10/95

NAVAJO REFINING

Attention: Darrell Moore

Analysis Date: 11/16/95

Sample Type: Water

501 E. Main

Artesia, NM 88210

Sampling Date: 11/09/95

Project No: NA

Sample Condition: Intact & Cool

Sample Received by: ML

Project Location: Artesia, NM 88211

Project Name: NA

TOTAL METALS

TA#	FIELD CODE	As (mg/L)	Cr (mg/L)	Cd (mg/L)	Ba (mg/L)	U (mg/L)	Mo (mg/L)	Zn (mg/L)	Ni (mg/L)	Be (mg/L)	Fe (mg/L)	Mn (mg/L)
T43998	RO Reject Bi-Weekly	<0.1	<0.05	<0.02	<0.2	<0.5	<0.1	0.04	1.4	<0.01	<0.03	<0.01
QC	Quality Control	4.7	4.8	4.7	4.8	4.9	4.9	5.2	5.4	5.2	5.3	4.8
	REPORTING LIMIT	0.1	0.05	0.02	0.2	0.5	0.1	0.02	0.2	0.01	0.03	0.01
RPD		4	0	4	2	4	0	2	2	2	12	0
% Extraction Accuracy		90	75	116	80	85	89	100	98	94	93	81
% Instrument Accuracy		95	96	94	96	99	98	105	108	103	105	96
		Co	V	Cu	Al	B	Hg	Se	Pb	Ag		
T43998	RO Reject Bi-Weekly	<0.03	<0.05	<0.02	<0.2	<0.03	<0.001	<0.001	<0.001	0.0140		
QC	Quality Control	5.0	5.2	5.1	4.9	4.9	0.0051	0.050	0.027	0.023		
	REPORTING LIMIT	0.03	0.05	0.02	0.2	0.03	0.001	0.001	0.001	0.0001		
RPD		0	2	4	0	2	0	14	8	0		
% Extraction Accuracy		75	100	98	102	97	100	90	104	84		
% Instrument Accuracy		100	103	101	99	97	102	100	108	92		

METHODS: EPA 200.7, 239.2, 270.2, 272.2, 245.1.

TOTAL METALS SPIKE: 8.0 mg/L As, Ba, Al; 0.8 mg/L Cr; 0.2 mg/L Cd, Be; 2.0 mg/L U, Zn, Ni, Mn, V, B; 2.00 mg/L Mo, Co; 4.0 mg/L Fe; 1.0 mg/L Cu; 0.0050 mg/L Hg; 0.050 mg/L Se; 0.025 mg/L Pb; 0.0025 mg/L Ag.

TOTAL METALS QC: 5.0 mg/L As, Cr, Cd, Ba, U, Mo, Zn, Ni, Be, Fe, Mn, Cu, V, E, Al; 5.00 mg/L Co; 0.0050 mg/L Hg; 0.050 mg/L Se; 0.025 mg/L Pb; 0.025 mg/L Ag.

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonell

DATE

11-29-95

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue

Lubbock, Texas 79424

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ANALYTICAL RESULTS FOR

NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

Prep Date: 11/14/95

Analysis Date: 11/16/95

Sampling Date: 11/09/95

Sample Condition: Intact & Cool

Sample Received by: ML

Project Name: NA

November 29, 1995

Receiving Date: 11/10/95

Sample Type: Water

Project No: NA

Project Location: Artesia, NM 88211

TA#	Field Code	POTASSIUM (mg/L)	MAGNESIUM (mg/L)	CALCIUM (mg/L)	SODIUM (mg/L)
-----	------------	---------------------	---------------------	-------------------	------------------

T43998	RO Reject Bi-Weekly	5.6	102.1	272.1	90.5
--------	---------------------	-----	-------	-------	------

QC	Quality Control	47.7	4.13	21.39	21.2
----	-----------------	------	------	-------	------

Reporting Limit

0.3

0.01

0.01

0.4

RPD

% Extraction Accuracy

% Instrument Accuracy

2

102

95

14

107

103

8

88

107

10

109

106

METHODS: EPA 200.7.

QC: 50.0 mg/L POTASSIUM; 4.0 mg/L MAGNESIUM; 20.0 mg/L CALCIUM, SODIUM.

SPIKE: 100.0 mg/L POTASSIUM, MAGNESIUM, SODIUM; 500.0 mg/L CALCIUM



Director, Dr. Blair Leftwich

Director, Dr. Bruce McDonell

11-29-95

Date

TRACE ANALYSIS, INC.

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ANALYTICAL RESULTS FOR

December 07, 1995

Receiving Date: 11/24/95

Sample Type: Water

Project No: NA

Project Location: Artesia, NM 88211

Prep Date: 11/27/95

Analysis Date: 11/28/95

Sampling Date: 11/22/95

Sample Condition: Intact & Cool

Sample Received by: MCD

Project Name: NA

TOTAL METALS

TA#	FIELD CODE	As (mg/L)	Cr (mg/L)	Cd (mg/L)	Ba (mg/L)	U (mg/L)	Mo (mg/L)	Zn (mg/L)	Ni (mg/L)	Be (mg/L)	Fe (mg/L)	Mn (mg/L)
T44687	RO Reject Bi-Wkly	<0.1	<0.05	<0.02	<0.2	<0.5	<0.1	<0.02	5.4	<0.01	<0.03	<0.01
QC	Quality Control	4.9	4.7	4.7	4.8	4.9	4.9	4.7	4.9	4.6	4.8	4.8
REPORTING LIMIT												
		0.1	0.05	0.02	0.2	0.5	0.1	0.02	0.2	0.01	0.03	0.01
RPD		8	8	6	4	4	0	0	4	0	20	0
% Extraction Accuracy		81	84	113	81	85	89	115	97	110	105	81
% Instrument Accuracy		97	95	95	95	99	98	94	98	91	96	96
		Co	V	Cu	Al	B	Hg	Se	Pb	Ag		
		(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)		
T44687	RO Reject Bi-Wkly	<0.03	<0.05	<0.02	<0.2	<0.03	<0.001	<0.001	<0.001	<0.0001		
QC	Quality Control	5.0	4.0	4.4	5.0	4.9	C.0048	0.057	0.023	0.0022		
REPORTING LIMIT												
		0.03	0.05	0.02	0.2	0.03	0.001	0.001	0.001	0.0001		
RPD		0	2	2	8	0	2	8	18	20		
% Extraction Accuracy		75	78	78	92	120	99	116	82	80		
% Instrument Accuracy		100	100	89	100	99	96	114	92	88		

METHODS: EPA 200.7, 239.2, 270.2, 272.2, 245.1.

TOTAL METALS SPIKE: 8.0 mg/L As, Ba, Al; 0.8 mg/L Cr; 0.2 mg/L Cd, Be, Fe; 2.0 mg/L U, Zn, Ni, Mn, B, Mo, Co, Cu; 4.0 mg/L V; 0.0050 mg/L Hg; 0.050 mg/L Se; 0.0020 mg/L Pb; 0.0025 mg/L Ag.

TOTAL METALS QC: 5.0 mg/L As, Cr, Cd, Ba, U, Mo, Zn, Ni, Be, Fe, Mn, Cu, V, B, Al, Co; 0.0050 mg/L Hg; 0.050 mg/L Se; 0.025 mg/L Pb; 0.0025 mg/L Ag.

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonnell

DATE

12-7-95

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue

Lubbock, Texas 79424

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ANALYTICAL RESULTS FOR

NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

Prep Date: 11/27/95

Analysis Date: 11/30/95

Sampling Date: 11/22/95

Sample Condition: Intact & Cool

Sample Received by: McD

Project Name: NA

December 07, 1995

Receiving Date: 11/24/95

Sample Type: Water

Project No: NA

Project Location: Artesia, NM 88211

TA#	Field Code	POTASSIUM (mg/L)	MAGNESIUM (mg/L)	CALCIUM (mg/L)	SODIUM (mg/L)
T44687	RO Reject Bi-Wkly	3.1	88.7	257.0	115.0
QC	Quality Control	4.2	3.9	18.6	24.0
	Reporting Limit	0.3	0.01	0.01	0.4
RPD		6	0	0	10
% Extraction Accuracy		118	98	97	115
% Instrument Accuracy		104	97	93	120

METHODS: EPA 200.7.

QC: 4.0 mg/L POTASSIUM, MAGNESIUM; 20.0 mg/L CALCIUM, SODIUM.

SPIKE: 100.0 mg/L POTASSIUM, SODIUM; 800.0 mg/L MAGNESIUM, CALCIUM.

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonell

Date

12-7-95

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue

Lubbock, Texas 79424

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ANALYTICAL RESULTS FOR NAVAJO REFINING

December 07, 1995

Receiving Date: 11/24/95

Sample Type: Water

Project No: NA

Project Location: Artesia, NM 88211

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

Prep Date: 11/28/95

Analysis Date: 11/28/95

Sampling Date: 11/22/95

Sample Condition: Intact & Cool

Sample Received by: McD

Project Name: NA

ALKALINITY

(mg/L as CaCO₃)

SULFATE
(mg/L)

FLUORIDE
(mg/L)

CHLORIDE
(mg/L)

FIELD CODE

TA#

T44687 RO Reject Bi-Wkly 120 9.9 1,995 369 0

QC Quality Control 505 0.98 9.3 --- ---

RPD

% Extraction Accuracy 12 2 14 2 2

% Instrument Accuracy 100 84 93 --- ---

101 99 93 --- ---

REPORTING LIMIT

1

0.1

1

10

10

METHODS: EPA 375.4, 310.1, 340.2; 4500 Cl-B.

SPIKE: 500 mg/L CHLORIDE; 1.0 mg/L FLUORIDE; 10.0 mg/L SULFATE.

QC: 500 mg/L CHLORIDE; 1.0 mg/L FLUORIDE; 10.0 mg/L SULFATE.

BB

Director, Dr. Blair Leftwich

Director, Dr. Bruce McDonell

Date

12-7-95

18.91
F-10324

6701 Aberdeen Avenue Lubbock, Texas 79424
Tel (806) 794 1296 Fax (806) 794 1298
1 (800) 378 1296

Phone #: 505-748-3311
FAX #: 505-748-9077

Project Name:

ARTESIA, NM. 88211

[illegible]

Received by:

Time:

REMARKS

Date: _____ Time: _____

Received by:

Time;

Date: _____ Time: _____

Received at La

Time:

NAVBTX88.XCS (3056)

מאמר זה ידוע

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue

Lubbock, Texas 79424

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ANALYTICAL RESULTS FOR NAVAJO REFINING

December 20, 1995

Receiving Date: 12/06/95

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

Prep Date: 12/08/95

Analysis Date: 12/08/95

Sampling Date: 12/05/95

Sample Condition: Intact & Cool

Sample Received by: ML

Project Name: NA

ALKALINITY
(mg/L as CaCO₃)
HCO₃ CO₃

CHLORIDE
(mg/L)
FLUORIDE
(mg/L)
SULFATE
(mg/L)

TA# FIELD CODE

T45222 RO Reject Qtrly
QC Quality Control

RPD
% Extraction Accuracy
% Instrument Accuracy

REPORTING LIMIT

180	2.42	5,897	320	0
490	1.06	9.68	---	---
2	24	28	4	4
101	89	88	---	---
98	105	94	---	---
0.5	0.1	1	10	10

METHODS: EPA 375.4, 310.1, 340.2; 4500 Cl-B.
SPIKE: 500 mg/L CHLORIDE; 1.0 mg/L FLUORIDE; 10.0 mg/L SULFATE.
QC: 500 mg/L CHLORIDE; 1.0 mg/L FLUORIDE; 10.0 mg/L SULFATE.

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonell

Date

12-21-95

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue

Lubbock, Texas 79424

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ANALYTICAL RESULTS FOR

NAVAJO REFINING

December 20, 1995

Prep Date: 12/06/95

Receiving Date: 12/06/95

Analysis Date: 12/08/95

Sample Type: Water

Sampling Date: 12/05/95

Project No: NA

Artesia, NM 88210

Sample Condition: Intact & Cool

Sample Received by: ML

Project Location: Artesia, NM

Project Name: RO Reject

TA#	Field Code	POTASSIUM (mg/L)	MAGNESIUM (mg/L)	CALCIUM (mg/L)	SODIUM (mg/L)
T45222	RO Reject Qtrly	26.3	208	650	127
QC	Quality Control	3.32	3.95	19.97	22.0
Reporting Limit		0.3	0.01	0.01	0.4
RPD		2	2	6	0
% Extraction Accuracy		110	109	113	112
% Instrument Accuracy		83	99	100	110

METHODS: EPA 200.7.

QC: 4.0 mg/L POTASSIUM, MAGNESIUM, 20.0 mg/L CALCIUM, SODIUM.

SPIKE: 1000.0 mg/L POTASSIUM, MAGNESIUM, CALCIUM, 100.0 mg/L SODIUM.

BL
Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonell

Date

12-28-95

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue

Lubbock, Texas 79424

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ANALYTICAL RESULTS FOR

NAVAJO REFINING

December 20, 1995

Receiving Date: 12/06/95

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

Prep Date: 12/06/95

Analysis Date: 12/06/95

Sampling Date: 12/05/95

Sample Condition: Intact & Cool

Sample Received by: ML

Project Name: RO Reject

TA#	FIELD CODE	FECAL		BOD5 (mg/L)	TSS (mg/L)	pH (mg/L)	PHENOLS (mg/L)	TOTAL	
		COLIFORM (/100mL)	0					RADIUM (pCi/liter)	CYANIDE (mg/L)
T45222	RO Reject Qtrly	---	0	6	<1	6.9	<0.002	4+/-2	<0.02
QC	Quality Control	---	---	---	---	7.0	0.78	---	0.032
RPD		---	---	7	16	0	4	---	22
% Extraction Accuracy		---	---	---	---	---	98	---	112
% Instrument Accuracy		---	---	95	---	100	98	---	98
REPORTING LIMIT		---	---	---	---	---	0.005	1	0.02

METHODS: EPA 405.1, 160.2, 150.1, 420.2, 335.2, 600-8-78-017.

PHENOLS SPIKE AND QC: 0.8 mg/L PHENOLS.

CYANIDE SPIKE AND QC: 0.04 mg/L CYANIDE.

BS

Director, Dr. Blair Leftwich

Director, Dr. Bruce McDonell

Date

12-21-95

6701 Aberdeen Avenue

Lubbock, Texas 79424

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ANALYTICAL RESULTS FOR
NAVAJO REFINING COMPANY
Attention: Darrell Moore
501 E. Main
Artesia, NM 88210

PAGE 1 of 2

December 20, 1995

Receiving Date: 12/06/95

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

Prep Date: 12/14/95

Analysis Date: 12/14/95

Sampling Date: 12/05/95

Sample Condition: Intact & Cool

Sample Received by: ML

Project Name: RO Reject Qtrly

EPA 624 Compounds (ug/L)	T45222 RO Reject Qtrly	Reporting Limit
Dichlorodifluoromethane	ND	1
Chloromethane	ND	1
Vinyl chloride	ND	1
Bromomethane	ND	5
Chloroethane	ND	1
Trichlorofluoromethane	ND	1
1,1-Dichloroethene	ND	1
Iodomethane	ND	5
Carbon disulfide	ND	1
Methylene chloride	ND	5
trans-1,2-Dichloroethene	ND	1
1,1-Dichloroethane	ND	1
Vinyl acetate	ND	1
2-Butanone	ND	50
Chloroform	ND	1
1,1,1-Trichloroethane	ND	1
1,2-Dichloroethane	ND	1
Benzene	ND	1
Carbon Tetrachloride	ND	1
1,2-Dichloropropane	ND	1
Trichloroethene	ND	1
Bromodichloromethane	ND	1
cis-1,3-Dichloropropene	ND	1
4-Methyl-2-pentanone	ND	50
trans-1,3-Dichloropropene	ND	1
Toluene	ND	1
1,1,2-Trichloroethane	ND	1
2-Hexanone	ND	50

TRACE ANALYSIS, INC.

A Laboratory for Advanced Environmental Research and Analysis

Project Location: Artesia, NM

EPA 624 Compounds (ug/L)	T45222 RO Reject Qtrly	Reporting Limit
Dibromochloromethane	2	1
Tetrachloroethene	ND	1
Chlorobenzene	ND	1
Ethylbenzene	ND	1
m & p-Xylene	ND	1
Bromoform	10	1
Styrene	ND	1
o-Xylene	ND	1
1,1,2,2-Tetrachloroethane	ND	1
trans 1,4-Dichloro-2-butene	ND	5
cis 1,4-Dichloro-2-butene	ND	5
1,4-Dichlorobenzene	ND	2
1,3-Dichlorobenzene	ND	2
1,2-Dichlorobenzene	ND	2
MTBE	ND	2
EDB	ND	1

SURROGATES

% RECOVERY

Dibromofluoromethane	96
Toluene-d8	94
4-Bromofluorobenzene	106

*ND = Not Detected

METHODS: EPA 624.



Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonell

12-21-95

Date

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ANALYTICAL RESULTS FOR
NAVAJO REFINING COMPANY
Attention: Darrell Moore
501 E. Main
Artesia, NM 88210

December 21, 1995
Receiving Date: 12/06/95
Sample Type: Water
Sampling Date: 12/05/95
Sample Condition: I & C
Sample Received by: ML
Project Name: RO Reject
Project Location: Artesia, NM
Extraction Date: 12/07/95
Analysis Date: 12/08/95

Reporting T45222

EPA 625 (mg/L)	Limit	RO Reject Qtrly	QC	RPD	%EA	%IA
N-Nitrosodimethylamine	0.002	ND				
2-Picoline	0.002	ND				
Methyl methanesulfonate	0.002	ND				
Ethyl methanesulfonate	0.002	ND				
Phenol	0.002	ND	96	3	40	96
Aniline	0.010	ND				
bis(2-Chloroethyl)ether	0.010	ND				
2-Chlorophenol	0.010	ND		0	85	
1,3-Dichlorobenzene	0.002	ND				
1,4-Dichlorobenzene	0.002	ND	102	11	43	102
Benzyl alcohol	0.010	ND				
1,2-Dichlorobenzene	0.002	ND				
2-Methylphenol	0.002	ND				
bis(2-chloroisopropyl)ether	0.010	ND				
4-Methylphenol/3-Methylphenol	0.002	ND				
Acetophenone	0.010	ND				
n-Nitrosodi-n-propylamine	0.002	ND		1	88	
Hexachloroethane	0.002	ND				
Nitrobenzene	0.002	ND				
N-Nitrosopiperidine	0.010	ND				
Isophorone	0.010	ND				
2-Nitrophenol	0.010	ND	99			99
2,4-Dimethylphenol	0.010	ND				
bis(2-Chloroethoxy)methane	0.002	ND				
Benzoic acid	0.02	ND				
2,4-Dichlorophenol	0.010	ND	96			96
1,2,4-Trichlorobenzene	0.002	ND		12	48	
a,a-Dimethylphenethylamine	0.02	ND				
Naphthalene	0.002	ND				

TRACE ANALYSIS, INC.

A Laboratory for Advanced Environmental Research and Analysis

NAVAJO REFINING COMPANY

Project Name: RO Reject

Project Location: Artesia, NM

Reporting		T45222				
EPA 625 (mg/L)	Limit	RO Reject Qtrly	QC	RPD	%EA	%IA
4-Chloroaniline	0.010	ND				
2,6-Dichlorophenol	0.010	ND				
Hexachlorobutadiene	0.002	ND	95			95
N-Nitroso-di-n-butylamine	0.010	ND				
4-Chloro-3-methylphenol	0.010	ND	95	4	100	95
2-Methylnaphthalene	0.002	ND				
1,2,4,5-Tetrachlorobenzene	0.002	ND				
Hexachlorocyclopentadiene	0.002	ND				
2,4,6-Trichlorophenol	0.010	ND	100			100
2,4,5-Trichlorophenol	0.010	ND				
2-Chloronaphthalene	0.002	ND				
1-Chloronaphthalene	0.002	ND				
2-Nitroaniline	0.010	ND				
Dimethylphthalate	0.002	ND				
Acenaphthylene	0.002	ND				
2,6-Dinitrotoluene	0.002	ND				
3-Nitroaniline	0.010	ND				
Acenaphthene	0.002	ND	98	1	62	98
2,4-Dinitrophenol	0.010	ND				
Dibenzofuran	0.010	ND				
Pentachlorobenzene	0.002	ND				
4-Nitrophenol	0.010	ND		3	36	
1-Naphthylamine	0.010	ND				
2,6-Dinitrotoluene	0.002	ND		1	96	
2-Naphthylamine	0.010	ND				
2,3,4,6-Tetrachlorophenol	0.010	ND				
Fluorene	0.002	ND				
Diethylphthalate	0.002	ND				
4-Chlorophenyl-phenylether	0.002	ND				
4-Nitroaniline	0.010	ND				
4,6-Dinitro-2-methylphenol	0.002	ND				
n-Nitrosodiphenylamine & Diphenylamine	0.002	ND	99			99
Diphenylhydrazine	0.010	ND				

Project Name: RO Reject

Project Location: Artesia, NM

Reporting

T45222

EPA 625 (mg/L)	Limit	RO Reject Qtrly	QC	RPD	%EA	%IA
4-Bromophenyl-phenylether	0.002	ND				
Phenacetin	0.010	ND				
Hexachlorobenzene	0.002	ND				
4-Aminobiphenyl	0.010	ND				
Pentachlorophenol	0.010	ND	104	0	105	104
Pentachloronitrobenzene	0.010	ND				
Pronamide	0.002	ND				
Phenanthrene	0.002	ND				
Anthracene	0.002	ND				
Di-n-butylphthalate	0.010	ND				
Fluoranthene	0.002	ND	98			98
Benzidine	0.02	ND				
Pyrene	0.002	ND		4	110	
p-Dimethylaminoazobenzene	0.002	ND				
Butylbenzylphthalate	0.002	ND				
Benzo[a]anthracene	0.002	ND				
3,3-Dichlorobenzidine	0.002	ND				
Chrysene	0.002	ND				
bis(2-Ethylhexyl)phthalate	0.010	ND				
Di-n-octylphthalate	0.002	ND				
Benzo[b]fluoranthene	0.002	ND				
7,12-Dimethylbenz(a)anthracene	0.002	ND				
Benzo[k]fluoranthene	0.002	ND				
Benzo[a]pyrene	0.002	ND	98			98
3-Methylcholanthrene	0.002	ND				
Dibenzo(a,j)acridine	0.002	ND				
Indeno[1,2,3-cd]pyrene	0.002	ND				
Dibenz[a,h]anthracene	0.002	ND				
Benzo[g,h,i]perylene	0.002	ND				

Project Name: RO Reject

Project Location: Artesia, NM

Reporting T45222

EPA 625 (mg/L)	Limit	RO Reject Qtrly	QC	RPD	%EA	%IA
a-BHC	0.0002	ND	0.026	0	88	104
b-BHC	0.0002	ND	0.025	4	100	100
g-BHC	0.0002	ND	0.026	0	88	104
d-BHC	0.0002	ND	0.025	4	104	100
Heptachlor	0.0002	ND	0.027	67	96	108
Aldrin	0.0002	ND	0.026	79	92	104
Heptachlor epoxide	0.0002	ND	0.025	0	96	100
Endosulfan-1	0.0002	ND	0.025	13	88	100
Endosulfan-2	0.0002	ND	0.054	7	108	108
P,P'-DDE	0.0002	ND	0.050	8	94	100
Dieldrin	0.0002	ND	0.047	29	110	94
Endrin	0.0002	ND	0.052	15	102	104
P,P'-DDD	0.0002	ND	0.047	30	114	94
Endrin Aldehyde	0.0010	ND	0.051	8	100	102
Endosulfan Sulfate/P,P'-DDT	0.0010	ND	0.109	22	109	109
Endrin Ketone	0.0010	ND	0.053	7	118	106
Methoxychlor	0.010	ND	0.27	24	132	108
a-Chlordane	0.0002	ND	0.024	8	96	96
g-Chlordane	0.0002	ND	0.025	9	88	100
Toxaphene	0.0050	ND	1.96	66	77	98
PCB's	0.0001	ND	0.47	91	79	94

% RECOVERY

2-Fluorophenol SURR	67
Phenol-d6 SURR	54
Nitrobenzene-d5 SURR	87
2-Fluorobiphenyl SURR	89
2,4,6-Tribromophenol SURR	94
Terphenyl-d14 SURR	108

METHOD: EPA 625, 608.

Director, Dr. Blair Leftwich

Director, Dr. Bruce McDonell

Date

12-21-95

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

December 20, 1995

Receiving Date: 12/06/95

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

ANALYTICAL RESULTS FOR

NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

Prep Date: 12/06/95

Analysis Date: 12/07/95

Sampling Date: 12/05/95

Sample Condition: Intact & Cool

Sample Received by: ML

Project Name: NA

TOTAL METALS

TR#	FIELD CODE	As (mg/L)	Cr (mg/L)	Cd (mg/L)	Ba (mg/L)	U (mg/L)	Mo (mg/L)	Zn (mg/L)	Ni (mg/L)	Be (mg/L)	Fe (mg/L)	Mn (mg/L)
T45222	RO Reject Qtrly	<0.1	<0.05	0.05	<0.2	<0.5	<0.1	<0.02	0.6	0.02	<0.03	<0.01
QC	Quality Control	4.9	4.9	5.0	4.9	4.5	4.1	4.5	4.7	4.5	4.5	4.1

REPORTING LIMIT

0.1	0.05	0.02	0.2	0.5	0.1	0.02	0.2	0.01	0.03	0.01		
-----	------	------	-----	-----	-----	------	-----	------	------	------	--	--

RPD
% Extraction Accuracy
% Instrument Accuracy

0	2	2	0	2	6	0	8	2	4	2		
92	85	84	89	83	101	80	75	82	108	96		
97	98	100	98	89	82	90	94	90	90	82		
Co	V	Cu	Al	B	Hg	Se	Pb	Ag				

T45222	RO Reject Qtrly	<0.03	0.05	0.02	<0.2	0.04	<0.001	<0.005	<0.001	0.0013		
QC	Quality Control	4.1	4.5	4.5	4.9	4.5	0.0048	0.052	0.022	0.0027		

REPORTING LIMIT

0.03	0.05	0.02	0.2	0.03	0.001	0.005	0.001	0.0001				
------	------	------	-----	------	-------	-------	-------	--------	--	--	--	--

RPD
% Extraction Accuracy
% Instrument Accuracy

6	0	4	2	6	4	6	2	4				
92	82	78	95	93	100	97	99	100				
81	90	89	99	90	96	103	90	108				

METHODS: EPA 200.7, 239.2, 270.2, 272.2, 245.1.

TOTAL METALS SPIKE: 8.0 mg/L As, Ba, Al; 0.8 mg/L Cr; 0.2 mg/L Cd, Be; 2.0 mg/L U, Zn, Ni, Mn, V, B; 2.00 mg/L Mo, Co; 4.0 mg/L Fe; 1.0 mg/L Cu; 0.0050 mg/L Hg; 0.050 mg/L Se; 0.025 mg/L Pb; 0.0025 mg/L Ag.

TOTAL METALS QC: 5.0 mg/L As, Cr, Cd, Ba, U, Mo, Zn, Ni, Be, Fe, Mn, Cu, V, B, Al; 5.00 mg/L Co; 0.0050 mg/L Hg; 0.050 mg/L Se; 0.025 mg/L Pb; 0.025 mg/L Ag.

12-21-95

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDowell

DATE

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

TRACE ANALYSIS, INC.

December 20, 1995

Receiving Date: 12/06/95

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

ANALYTICAL RESULTS FOR
NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

Prep Date: 12/06/95

Analysis Date: 12/06/95

Sampling Date: 12/05/95

Sample Condition: Intact & Cool

Sample Received by: ML

Project Name: RO Reject

TA# FIELD CODE

(NO₃-NO₂)-N
(mg/L)NH₃-N
(mg/L)CHLORINE
(mg/L)COD
(mg/L)SPECIFIC
CONDUCTANCE
(umhos/cm)TDS
(mg/L)T45222 RO Reject Qtrly
QC Quality Control<0.01
1.0436.4
4.87<0.1
---21.3
73.65,356
1,5492,957
---RPD
% Extraction Accuracy
% Instrument Accuracy10
95
1062
101
960
---16
92
1032
---14

REPORTING LIMIT

0.01

0.05

20

METHODS: EPA 353.3, 350.3, 410.4; 160.1; 120.1.

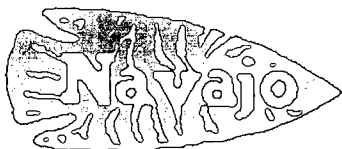
QC: 1.0 mg/L (NO₃-NO₂)-N; 5.0 mg/L NH₃-N; 75 mg/L COD.SPIKE: 1.33 mg/L (NO₃-NO₂)-N; 5.0 mg/L NH₃-N; 75 mg/L COD.Director, Dr. Blair Leftwich
Director, Dr. Bruce McDowell

Date

12-21-95

TELEPHONE
(505) 748-3311

EASYLINK
62905278

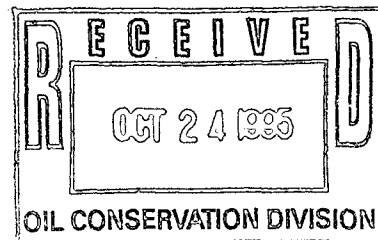


REFINING COMPANY

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159

FAX
(505) 746-6410 ACCTG
(505) 746-6155 EXEC
(505) 748-9077 ENGR
(505) 746-4438 P / L

October 20, 1995



Mr. Roger Anderson
Environmental Bureau
Oil Conservation Division
2040 S. Pacheco St.
Santa Fe, NM 87505-5472

**RE: 3rd Quarter 1995 Report on RO Reject Water, Navajo Refining Co., Eddy
County, NM**

Dear Roger:

This letter is sent in regard to Navajo Refining's permit modification of our discharge plan GW-28 which allows us to put our Reverse Osmosis (RO) reject water on our farm or into Eagle Draw. This permit is administered by OCD and the parameters we sample for were set up by OCD. We are sending these results for your files. We are required by OCD to sample this stream every two weeks and those results for this quarter are enclosed.

For this quarter we discharged a total of 32,231,232 gallons with the entire total being sent to the farm for irrigation. Since we started discharging the RO reject water, we have discharged a total of 337,336,052 gallons. This is broken down as follows: 74,776,390 gallons have been put into Eagle Draw and 262,559,662 gallons have been put on the farm.

If you have any questions concerning this matter, please call me at 505-748-3311.
Thank you for your time.

Regards,
NAVAJO REFINING COMPANY

Darrell Moore

Darrell Moore
Sr. Environmental Specialist
encl.

cc:USEPA, New Mexico Environment Dept.- Water Quality

RO REJECT ANALYSIS

[illegible]

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue

Lubbock Texas 79424

806•794•1296

FAX 806•794•1298

August 19, 1995

Receiving Date: 07/25/95

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

ANALYTICAL RESULTS FOR

NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

Prep Date: 07/25/95

Analysis Date: 07/27/95

Sampling Date: 07/24/95

Sample Condition: Intact & Cool

Sample Received by: MS

Project Name: NA

TOTAL METALS

TA#	FIELD CODE	As (mg/L)	Cr (mg/L)	Cd (mg/L)	Ba (mg/L)	V (mg/L)	Mo (mg/L)	Zn (mg/L)	Ni (mg/L)	Be (mg/L)	Fe (mg/L)	Mn (mg/L)
-----	------------	-----------	-----------	-----------	-----------	----------	-----------	-----------	-----------	-----------	-----------	-----------

T38982	RO Reject BiWkly	<0.1	0.02	<0.01	0.16	<0.5	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05
QC	Quality Control	5.3	5.0	5.1	5.3	9.7	5.2	5.0	5.1	5.1	5.0	5.0

REPORTING LIMIT

2	2	2	6	2	12	4	10	8	0	18
---	---	---	---	---	----	---	----	---	---	----

% Extraction Accuracy

83	89	96	132	82	96	113	95	97	102	95
----	----	----	-----	----	----	-----	----	----	-----	----

106	101	103	106	108	104	99	101	102	100	99
-----	-----	-----	-----	-----	-----	----	-----	-----	-----	----

QC	RO Reject BiWkly	Co (mg/L)	V (mg/L)	Cu (mg/L)	Al (mg/L)	B (mg/L)	Hg (mg/L)	Se (mg/L)	Pb (mg/L)	Ag (mg/L)
----	------------------	-----------	----------	-----------	-----------	----------	-----------	-----------	-----------	-----------

REPORTING LIMIT

0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.001	0.001	0.001	0.001
------	------	------	------	------	------	------	-------	-------	-------	-------

6	10	26	2	10	6	0	0	0	96
---	----	----	---	----	---	---	---	---	----

% Extraction Accuracy

99	93	85	74	98	99	100	100	96
----	----	----	----	----	----	-----	-----	----

102	99	102	111	101	98	107	98	102
-----	----	-----	-----	-----	----	-----	----	-----

% Instrument Accuracy

METHODS: EPA 200.7, 239.2, 270.2, 272.2, 245.1.

QC: 5.0 mg/L As, Cr, Cd, Ba, Mo, Zn, Ni, Be, Fe, Mn, Cu, Al, B; 9.0 mg/L V; 10.0 mg/L Co, V; 0.05 mg/L Hg;

0.050 mg/L Se; 0.0025 mg/L Ag; 0.025 mg/L Pb;

SPIKE: 2.0 mg/L As, Cr, Cd, Ba, U, Mo, Zn, Ni, Be, Fe, Mn, Co, V, Cu; 1.0 mg/L Al, B; 0.05 mg/L Hg;

0.050 mg/L Se; 0.0025 mg/L Ag; 0.025 mg/L Pb.

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonnell

DATE

8-19-95

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

August 19, 1995
 Receiving Date: 07/25/95
 Sample Type: Water
 Project No: NA
 Project Location: Artesia, NM

ANALYTICAL RESULTS FOR
 NAVAJO REFINING
 Attention: Darrell Moore
 501 E. Main
 Artesia, NM 88210

Prep Date: 07/27/95
 Analysis Date: 08/08/95
 Sampling Date: 07/24/95
 Sample Condition: Intact & Cool
 Sample Received by: MS
 Project Name: RO Reject

TA#	Field Code	POTASSIUM (mg/L)	MAGNESIUM (mg/L)	CALCIUM (mg/L)	SODIUM (mg/L)
T38982	RO Reject Blwly	4.0	194.0	599	81.3
QC	Quality Control	44.2	9.95	20.2	19.7

Reporting Limit

0.1

0.1

0.05

0.1

RPD
 % Extraction Accuracy
 % Instrument Accuracy

2
 124
 88

2
 120
 100

2
 122
 101

0
 118
 98

METHODS: EPA 200.7.
 QC: 50.0 mg/L POTASSIUM; 5.0 mg/L MAGNESIUM, CALCIUM, SODIUM.
 SPIKE: 5.0 mg/L POTASSIUM; 200.0 mg/L MAGNESIUM, CALCIUM, SODIUM.

Director, Dr. Blair Leftwich
 Director, Dr. Bruce McDowell

Date

BS

8-19-95

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

TRACE ANALYSIS, INC.

July 31, 1995

Receiving Date: 07/25/95

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

ANALYTICAL RESULTS FOR

NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

Prep Date: 07/25/95

Analysis Date: 07/25/95

Sampling Date: 07/24/95

Sample Condition: Intact & Cool

Sample Received by: MS

Project Name: NA

TA# FIELD CODE

CHLORIDE
(mg/L)

FLUORIDE
(mg/L)

SULFATE
(mg/L)

ALKALINITY
(mg/L as CaCO₃)
HCO₃ CO₃

T38982 RO Reject Blwly
QC Quality Control

103
499

2.3
0.98

1,260
10

0

203

RPD
% Extraction Accuracy
% Instrument Accuracy

0
100
100

2
100
99

4
119
96

1

1

REPORTING LIMIT

1

0.1

1

10

10

METHODS: EPA 375.4, 310.1, 340.2, 4500 Cl-B.
QC: 500 mg/L CHLORIDE, 1.0 mg/L FLUORIDE, 10.0 mg/L SULFATE.

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonnell

Date

8-15-95

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

July 26, 1995

Receiving Date: 07/07/95

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

ANALYTICAL RESULTS FOR
NAVAJO REFINING
Attention: Darrell Moore
501 E. Main
Artesia, NM 88210

Prep Date: 07/10/95

Analysis Date: 07/11/95

Sampling Date: 07/06/95

Sample Condition: Intact & Cool

Sample Received by: LW

Project Name: RO Reject

TOTAL METALS

TA#	FIELD CODE	As (mg/L)	Mo (mg/L)	Cr (mg/L)	Zn (mg/L)	Cd (mg/L)	Ni (mg/L)	Be (mg/L)	Fe (mg/L)	Co (mg/L)	Mn (mg/L)	V (mg/L)
-----	------------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	----------

T38435	RO Reject Biweekly	0.1	<0.05	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
QC	Quality Control	5.1	5.2	5.0	5.0	4.9	4.9	5.0	5.0	5.2	5.2	5.0

REPORTING LIMIT 0.1 0.05 0.01 0.01 0.01 0.05 0.05 0.05 0.05 0.05 0.05 0.05

RPD		6	30	2	4	6	0	2	4	28	18	0
% Extraction Accuracy		105	111	112	100	109	109	94	109	115	107	102
% Instrument Accuracy		101	104	100	101	99	97	100	99	105	104	99

	Cu (mg/L)	Al (mg/L)	B (mg/L)	Ba (mg/L)	V (mg/L)	Hg (mg/L)	Se (mg/L)	Pb (mg/L)	Ag (mg/L)
--	-----------	-----------	----------	-----------	----------	-----------	-----------	-----------	-----------

T38435	RO Reject Biweekly	<0.05	0.14	<0.05	0.08	<0.5	<0.001	<0.001	<0.001
QC	Quality Control	4.9	5.1	5.1	4.8	9.6	0.0048	0.046	0.026

REPORTING LIMIT	0.05	0.05	0.05	0.05	0.5	0.001	0.001	0.001	0.001
RPD	2	12	8	4	30	0	4	0	0
% Extraction Accuracy	99	116	85	52	115	98	92	96	80
% Instrument Accuracy	98	102	103	97	106	95	92	102	114

METHODS: EPA 200.7, 239.2, 270.2, 272.2.

QC: 0.050 mg/L Se, Pb; 0.100 mg/L Ag; 5.0 mg/L As, Cr, Cd, Ba, Mo, Be, Co, Mn, V, Al, B, Ni, Zn, Fe, Cu; 9.80 mg/L U; 0.0050 mg/L Hg.

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonnell

DATE

7/26/95

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

July 26, 1995

Receiving Date: 07/07/95

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

ANALYTICAL RESULTS FOR
NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

Prep Date: 07/10/95

Analysis Date: 07/11/95

Sampling Date: 07/06/95

Sample Condition: Intact & Cool

Sample Received by: LW

Project Name: RO Reject

TA# Field Code

T38435 RO Reject Qtrly
QC Quality Control

Reporting Limit

RPD
% Extraction Accuracy
% Instrument Accuracy

POTASSIUM (mg/L) MAGNESIUM (mg/L) CALCIUM (mg/L) SODIUM (mg/L)

2.4 181 563 84.4
40.4 9.98 20.7 19.9

0.1 0.1 0.05 0.1

0 0 0 16
85 124 104 120
101 100 104 100

METHODS: EPA 200.7.

QC: 40.0 mg/L POTASSIUM; 10.0 mg/L MAGNESIUM; 20.0 mg/L CALCIUM, SODIUM.

SPIKE: 10.0 mg/L POTASSIUM; 200.0 mg/L MAGNESIUM, CALCIUM, SODIUM.

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDowell

Date

7/24/95



6701 Aberdeen Avenue Lubbock, Texas 79424 806•794•1296 FAX 806•794•1298

TRACE ANALYSIS, INC.

ANALYTICAL RESULTS FOR

NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

Prep Date: 07/07/95

Analysis Date: 07/07/95

Sampling Date: 07/06/95

Sample Condition: Intact & Cool

Sample Received by: LW

Project Name: RO Reject

July 26, 1995
Receiving Date: 07/07/95
Sample Type: Water
Project No: NA
Project Location: Artesia, NM

TA#	FIELD CODE	CHLORIDE	FLUORIDE	SULFATE	ALKALINITY	
		(mg/L)	(mg/L)	(mg/L)	(mg/L as CaCO ₃)	CO ₃

T38435	RO Reject BiWeekly	108	2.2	1,257	256	0
QC	Quality Control	499	1.0	10	---	---

RPD		0	4	4	2	2
% Extraction Accuracy		100	104	97	---	---
% Instrument Accuracy		100	101	97	---	---

REPORTING LIMIT		1	0.1	1	10	10
-----------------	--	---	-----	---	----	----

METHODS: EPA 375.4, 310.1, 340.2; 4500 Cl-B.
QC: 500 mg/L CHLORIDE; 1.0 mg/L FLUORIDE; 10.0 mg/L SULFATE.

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonnell

7/26/95

Date

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

August 30, 1995
 Receiving Date: 08/10/95
 Sample Type: Water
 Project No: NA
 Project Location: Artesia, NM

ANALYTICAL RESULTS FOR
 NAVAJO REFINING
 Attention: Darrell Moore
 501 E. Main
 Artesia, NM 88210

Prep Date: 08/10/95
 Analysis Date: 08/10/95
 Sampling Date: 08/09/95
 Sample Condition: Intact & Cool
 Sample Received by: MS
 Project Name: RO Reject

TA#	FIELD CODE	CHLORIDE (mg/L)	FLUORIDE (mg/L)	SULFATE (mg/L)	ALKALINITY (mg/L as CaCO3) HCO3 CO3
T39624	RO Reject BiWeekly	106	2.2	1,268	209 0
QC	Quality Control	499	1.0	9	---

RPD	0	4	8	2	2
% Extraction Accuracy	100	98	121	---	---
% Instrument Accuracy	100	99	89	---	---

REPORTING LIMIT	1	0.1	1	10	10
-----------------	---	-----	---	----	----

METHODS: EPA 375.4, 310.1, 340.2; 4500 Cl-B.
 QC: 500 mg/L CHLORIDE; 1.0 mg/L FLUORIDE; 10.0 mg/L SULFATE.

Director, Dr. Blair Leftwich
 Director, Dr. Bruce McDonnell

Date

8-30-95

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

September 01, 1995
 Receiving Date: 08/10/95
 Sample Type: Water
 Project No: NA
 Project Location: Artesia, NM

ANALYTICAL RESULTS FOR
 NAVAJO REFINING
 Attention: Darrell Moore
 501 E. Main
 Artesia, NM 88210

Prep Date: 08/10/95
 Analysis Date: 08/17/95
 Sampling Date: 08/09/95
 Sample Condition: Intact & Cool
 Sample Received by: MS
 Project Name: RO Reject Biwily

TA# Field Code

POTASSIUM ² MAGNESIUM ^A CALCIUM ³ SODIUM ¹
 (mg/L) (mg/L) (mg/L) (mg/L)

T39624	RO Reject Biwily	3.4	182.0	634.0	89.96
QC	Quality Control	48.0	4.1	2.2	22.0

Reporting Limit 0.1 0.01 0.01 0.4

RPD
 % Extraction Accuracy 4 4 6 2
 % Instrument Accuracy 90 80 103 120
 96 101 107 110

METHODS: EPA 200.7.
 QC: 50.0 mg/L POTASSIUM; 4.0 mg/L MAGNESIUM; 2.0 mg/L CALCIUM; 20.0 mg/L SODIUM.
 SPIKE: 5.0 mg/L POTASSIUM; 100.0 mg/L MAGNESIUM; 200.0 mg/L CALCIUM, SODIUM.

Director, Dr. Blair Leftwich
 Director, Dr. Bruce McDonell

Date

9-1-95

FAX 806 • 794 • 1298

Project Name: RO Reject

Director, Dr. Bruce McDonnell

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

TRACE ANALYSIS, INC.

September 20, 1995
Receiving Date: 09/01/95
Sample Type: Water
Project No: NA
Project Location: Artesia, NM

ANALYTICAL RESULTS FOR
NAVAJO REFINING
Attention: Darrell Moore
501 E. Main
Artesia, NM 88210

Prep Date: 09/01/95
Analysis Date: 09/01/95
Sampling Date: 08/31/95
Sample Condition: Intact & Cool
Sample Received by: MS
Project Name: NA

TA#	FIELD CODE	CHLORIDE (mg/L)	FLUORIDE (mg/L)	SULFATE (mg/L)	ALKALINITY (mg/L as CaCO3)	
					HCO3	CO3
T40642	RO Reject	113	2.4	1,551	163	0
QC	Quality Control	494	1.0	10.15	---	---

RPD
% Extraction Accuracy
% Instrument Accuracy

2	4	4	0	0
99	104	103	---	---
99	100	99	---	---

REPORTING LIMIT

1	0.1	1	10	10
---	-----	---	----	----

METHODS: EPA 375.4, 310.1, 340.2; 4500 Cl-B.
SPIKE: 500 mg/L CHLORIDE; 1.0 mg/L FLUORIDE; 10.0 mg/L SULFATE.
QC: 500 mg/L CHLORIDE; 1.0 mg/L FLUORIDE; 10.0 mg/L SULFATE.

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonell

Date

9-20-95

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

ANALYTICAL RESULTS FOR

NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

September 20, 1995

Receiving Date: 09/01/95

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

Prep. Date: 09/06/95

Analysis Date: 09/06/95

Sampling Date: 08/31/95

Sample Condition: Intact & Cool

Sample Received by: MS

Project Name: NA

TA#

Field Code

POTASSIUM
(mg/L)

MAGNESIUM
(mg/L)

CALCIUM
(mg/L)

SODIUM
(mg/L)

T40642

RO Reject

QC

Quality Control

3.7
19.5

173.0
4.0

587.0
20.3

115.0
20.0

Reporting Limit

0.3

0.01

0.01

0.4

RPD

0

16

18

2

% Extraction Accuracy

127

77

87

108

% Instrument Accuracy

98

101

102

100

METHODS: EPA 200.7.

QC: 20.0 mg/L POTASSIUM, CALCIUM, SODIUM; 4.0 mg/L MAGNESIUM.

SPIKE: 20.0 mg/L POTASSIUM; 200.0 mg/L MAGNESIUM, CALCIUM, SODIUM.

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonnell

Date

4-22-95

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

September 22, 1995

Receiving Date: 09/01/95

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

ANALYTICAL RESULTS FOR
NAVAJO REFINING
Attention: Darrell Moore
501 E. Main
Artesia, NM 88210

Prep Date: 09/04/95

Analysis Date: 09/05/95

Sampling Date: 08/31/95

Sample Condition: Intact & Cool

Sample Received by: MS

Project Name: NA

TOTAL METALS

TA#	FIELD CODE	As (mg/L)	Cr (mg/L)	Cd (mg/L)	Ba (mg/L)	V (mg/L)	Mo (mg/L)	Zn (mg/L)	Ni (mg/L)	Be (mg/L)	Fe (mg/L)	Mn (mg/L)
-----	------------	-----------	-----------	-----------	-----------	----------	-----------	-----------	-----------	-----------	-----------	-----------

T40642	RO Reject	0.4	<0.05	<0.02	0.11	<0.5	<0.1	<0.02	<0.2	<0.01	0.06	<0.01
QC	Quality Control	4.7	5.1	5.0	5.0	4.9	4.9	2.1	2.1	2.1	2.1	5.4

REPORTING LIMIT

RPD		6	4	0	2	16	30	30	22	18	16	6
% Extraction Accuracy		113	136	134	138	76	82	99	92	93	118	83
% Instrument Accuracy		94	102	100	101	98	97	104	103	103	106	107

		Co (mg/L)	V (mg/L)	Cu (mg/L)	Al (mg/L)	B (mg/L)	Hg (mg/L)	Se (mg/L)	Pb (mg/L)	Ag (mg/L)
--	--	-----------	----------	-----------	-----------	----------	-----------	-----------	-----------	-----------

T40642	RO Reject	<0.03	0.07	0.02	1.8	<0.03	<0.001	<0.001	<0.001	0.0009
QC	Quality Control	5.5	4.9	2.1	1.8	1.7	0.0049	0.045	0.020	0.0027

REPORTING LIMIT

RPD		4	16	4	6	2	6	0	6	0
% Extraction Accuracy		85	76	87	128	98	99	120	100	90
% Instrument Accuracy		111	97	103	91	87	99	98	80	108

METHODS: EPA 200.7, 239.2, 270.2, 272.2, 245.1.

QC: 5.0 mg/L As, Cr, Cd, Ba, U, Co, Mn, Mo, V; 2.0 mg/L B, Al, Zn, Ni, Be, Fe, Cu; 0.0025 mg/L Ag; 0.0049 mg/L Hg;

0.025 mg/L Pb; 0.045 mg/L Se.
SPIKE: 2.0 mg/L As, Cr, Cd, Ba, U, Co, Mn, Mo, V, B, Al, Zn, Ni, Be, Fe, Cu; 0.005 mg/L Hg; 0.005 mg/L Pb;
0.0010 mg/L Ag; 0.005 mg/L Se.

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDowell

DATE

9-22-95

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

ANALYTICAL RESULTS FOR NAVAJO REFINING

September 28, 1995

Attention: Darrell Moore

Receiving Date: 09/09/95

501 E. Main

Sample Type: Water

Artesia, NM 88210

Project No: NA

Project Location: Artesia & Lovington, NM

Prep Date: 09/19/95

Analysis Date: 09/19/95

Sampling Date: 09/7-8/95

Sample Condition: Intact & Cool

Sample Received by: MCD

Project Name: NA

TA# Field Code

POTASSIUM	MAGNESIUM	CALCIUM	SODIUM
(mg/L)	(mg/L)	(mg/L)	(mg/L)

T41052	RO Reject BiWkly	5.3	181	572	99.7
QC	Quality Control	3.66	3.74	18.87	20.26

Reporting Limit	0.30	0.01	0.01	0.4
-----------------	------	------	------	-----

RPD	2	4	4	4
% Extraction Accuracy	100	120	121	134
% Instrument Accuracy	92	93	94	101

METHODS: EPA 200.7.

QC: 4.0 mg/L POTASSIUM, MAGNESIUM; 20.0 mg/L CALCIUM, SODIUM.

SPIKE: 20.0 mg/L POTASSIUM; 200.0 mg/L MAGNESIUM, CALCIUM, SODIUM.

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonnell

Date

9-28-95

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

ANALYTICAL RESULTS FOR
NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

Prep Date: 09/11/95

Analysis Date: 09/11/95

Sampling Date: 09/7-8/95

October 02, 1995
Receiving Date: 09/09/95
Sample Type: Water
Project No: NA
Project Location: Artesia & Lovington, NM

Sample Condition: Intact & Cool
Sample Received by: MS
Project Name: NA

TA#

FIELD CODE

CHLORIDE
(mg/L)

FLUORIDE
(mg/L)

SULFATE
(mg/L)

ALKALINITY
(mg/L as CaCO₃)
HCO₃ CO₃

T41052
QC

RO Reject BlwKly
Quality Control

88
494

2.4
1.0

1,679
9.9

197

0

RPD
% Extraction Accura
% Instrument Accuracy

0
99
99

2
97
100

8
96
99

2

2

REPORTING LIMIT

1

0.1

1

10

10

METHODS: EPA 375.4, 310.1, 340.2, 4500 Cl-B.
CHLORIDE SPIKE: 500 mg/L CHLORIDE.
FLUORIDE SPIKE: 1.0 mg/L FLUORIDE.
SULFATE SPIKE: 10 mg/L SULFATE.

CHLORIDE QC: 500 mg/L CHLORIDE.
FLUORIDE QC: 1.0 mg/L FLUORIDE.
SULFATE QC: 10 mg/L SULFATE.

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonell

Date

10-2-95

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

September 28, 1995

Receiving Date: 09/09/95

Sample Type: Water

Project No: NA

Project Location: Artesia & Lovington, NM

ANALYTICAL RESULTS FOR

NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

Prep Date: 09/14/95

Analysis Date: 09/14/95

Sampling Date: 09/7-8/95

Sample Condition: Intact & Cool

Sample Received by: MCD

Project Name: NA

TA#	FIELD CODE	TOTAL METALS												
		As ³	Cr ³	Cd	Ba	U	Mo	Zn	Ni	Be	Fe	Mn		
		(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)

T41052	RO Reject Biweekly	<0.2	<0.05	<0.02	0.08	<0.5	0.1	0.03	<0.2	<0.01	0.14	<0.01		
QC	Quality Control	5.3	1.98	5.2	2.0	4.9	1.98	1.9	1.8	1.97	1.86	1.95		

REPORTING LIMIT		0.2	0.05	0.02	0.03	0.5	0.1	0.02	0.20	0.01	0.03	0.01		
-----------------	--	-----	------	------	------	-----	-----	------	------	------	------	------	--	--

RPD		6	10	4	2	4	2	6	8	4	2	2		
% Extraction Accuracy		68	82	98	92	110	86	93	76	88	86	87		
% Instrument Accuracy		107	99	104	100	99	99	97	92	98	93	98		

T41052	RO Reject Biweekly	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
QC	Quality Control	<0.03	<0.05	<0.02	1.4	0.08	<0.001	0.002	<0.001	<0.0001				
		1.96	1.9	1.97	1.9	2.0	0.0049	0.045	0.02	0.030				

REPORTING LIMIT		0.03	0.05	0.05	0.20	0.03	0.001	0.001	0.001	0.0001				
-----------------	--	------	------	------	------	------	-------	-------	-------	--------	--	--	--	--

RPD		4	2	2	8	0	6	0	6	0				
% Extraction Accuracy		82	85	85	115	97	99	120	100	107				
% Instrument Accuracy		98	93	99	97	99	99	98	80	120				

METHODS: EPA 200.7, 239.2, 270.2, 272.2, 245.1.

QC: 2.0 mg/L As, Cr, Cd, Ba, Mo, Zn, Ni, Be, Fe, Mn, Cu; 8.0 mg/L Al, B, Co, V; 9.0 mg/L U; 0.005 mg/L Hg;

0.025 mg/L Pb; 0.003 mg/L Ag; 0.050 mg/L Se.

SPIKE: 2.0 mg/L As, Cr, Cd, Ba, U, Ni, Mn, V, Al, Mo, Zn, Be, Fe, Co, Cu; 1.0 mg/L B; 0.005 mg/L Hg;

0.025 mg/L Pb; 0.003 mg/L Ag; 0.020 mg/L Se.

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonnell

DATE

9-28-95

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue Libbick, Texas 79424 806•794•1296 FAX 806•794•1298

ANALYTICAL RESULTS FOR

MAVADO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

October 2, 1995

Receiving Date: 09/27/95

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

Prep Date: 09/27/95

Analysis Date: 09/27/95

Sampling Date: 09/26/95

Sample Condition: Intact & Cool

Sample Received by: MS

Project Name: RO Reject

TA#	FIELD CODE	(NO3-NO2)-N (mg/L)	NE3-N (mg/L)	CHLORINE (mg/L)	COD (mg/L)	SPECIFIC CONDUCTANCE (umhos/cm)	TDS (mg/L)
-----	------------	-----------------------	-----------------	--------------------	---------------	---------------------------------------	---------------

T41853	RO Reject Quarterly	0.31	<0.5	<0.5	<20	2,687	1,095
QC	Quality Control	1.02	4.29	---	70	1,443	---

R2D		4	14	0	14	0	0
% Extraction Accuracy		104	114	---	84	---	---
% Instrument Accuracy		103	98	---	95	101	---

REPORTING LIMIT		0.01	0.5	---	20	---	---
-----------------	--	------	-----	-----	----	-----	-----

METHODS: EPA 353.3, 350.3, 410.4; 160.1; 120.1.
 QC: 1.3 mg/L (NO3-NO2)-N; 5.0 mg/L NH3-N; 75 mg/L COD.
 SPIKE: 1.33 mg/L (NO3-NO2)-N; 5.0 mg/L NH3-N; 75 mg/L COD.

Director, Dr. Blair Leftwich
 Director, Dr. Bruce McDonnell

Date

10-2-95



TRACE ANALYSIS, Inc.

6701 Aberdeen Avenue Lubbock, Texas 79424 806•794•1296 FAX 806•794•1293

ANALYTICAL RESULTS FOR
NAVAJO REFINING

October 2, 1995
Receiving Date: 09/27/95
Sample Type: Water
Project No: NA
Project Location: Artesia, NM
Prep Date: 09/27/95
Analysis Date: 09/27/95
Sampling Date: 09/26/95
Sample Condition: Intact & Cool
Sample Received by: MS
Project Name: RO Reject

TA#	FIELD CODE	CHLORIDE		FLUORIDE		SULFATE		ALKALINITY	
		(mg/L)		(mg/L)		(mg/L)		(mg/L as CaCO3)	
T41853	RO Reject	111	2.4	1,417	248	0			
QC	Quality Control	499	1.00	10.2	---	---			

RPD		2	0	4	2	2			
% Extraction Accuracy		100	98	117	---	---			
% Instrument Accuracy		99	101	101	---	---			

REPORTING LIMIT		1	0.1	1	10	10			
-----------------	--	---	-----	---	----	----	--	--	--

METHODS: EPA 375.4, 313.1, 340.2; 4500 Cl-B.
QC: 500 mg/L CHLORIDE; 1.0 mg/L FLUORIDE; 10.0 mg/L SULFATE.

BS

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDowell

10-16-95

Date

TRACE ANALYSIS, INC.

2701 Aberdeen Avenue Lubbock, Texas 79424 806•794•1296 FAX 806•794•1293

ANALYTICAL RESULTS FOR

NAVJO REFINING
 Attention: Darrell Moore
 501 E. Main
 Artesia, NM 88210

Prep Date: 09/29/95
 Analysis Date: 10/04/95
 Sampling Date: 09/26/95
 Sample Condition: Intact & Cool
 Sample Received by: MS
 Project Name: RO Reject

October 16, 1995
 Receiving Date: 09/27/95
 Sample Type: Water
 Project No: NA
 Project Location: Artesia, NM

TA#	Field Code	POTASSIUM (mg/L)	MAGNESIUM (mg/L)	CALCIUM (mg/L)	SODIUM (mg/L)
T41853	RO Reject	3.9	23.2	70.6	22.4
QC	Quality Control	51.4	3.9	20.0	20.1

Reporting Limit 0.3 0.01 0.01 0.4

RFD
 % Extraction Accuracy 4 14 16 6
 % Instrument Accuracy 120 104 102 117
 103 96 99 100

METHODS: EPA 200.7.
 SFIKE: 5.0 mg/L POTASSIUM; 55.0 mg/L MAGNESIUM, CALCIUM, SODIUM.
 QC: 100.0 mg/L POTASSIUM; 4.0 mg/L MAGNESIUM; 20.0 mg/L CALCIUM, SODIUM.

Director, Dr. Blair Lefschick
 Director, Dr. Bruce McDowell

Date

10-16-95

October 16, 1995
 Receiving Date: 09/27/95
 Sample Type: Water
 Project No: NA
 Project Location: Artesia, NM

ANALYTICAL RESULTS FOR
 NAVAJO REFINING
 Attention: Darrell Moore
 501 E. Main
 Artesia, NM 88210

Prep Date: 09/29/95
 Analysis Date: 09/30/95
 Sampling Date: 09/26/95
 Sample Condition: Intact & Cool
 Sample Received by: MS
 Project Name: NA

TOTAL METALS

TA#	FIELD CODE	As (mg/L)	Cr (mg/L)	Cd (mg/L)	Ba (mg/L)	U (mg/L)	Mo (mg/L)	Zn (mg/L)	Ni (mg/L)	Be (mg/L)	Fe (mg/L)	Mn (mg/L)
T41853	FO Reject	<0.2	<0.05	<0.01	<3.1	<0.5	<0.1	<3.02	0.2	<0.01	0.29	<0.01
QC	Quality Control	5.1	5.1	5.1	5.2	3.6	5.6	2.0	1.9	2.3	2.0	2.0

REPORTING LIMIT

RPD		14	22	12	13	4	4	22	8	17	6	6
% Extraction Accuracy		90	90	101	95	96	95	79	76	62	82	73
% Instrument Accuracy		102	102	102	104	89	112	100	97	101	99	100

T41853	FO Reject	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
QC	Quality Control	<0.03	<0.05	0.03	2.2	<0.03	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
		2.0	2.0	1.20	4.4	4.8	0.00475	0.046	0.024	0.022		

REPORTING LIMIT

RPD		0	2	3	34	16	6	0	28	8		
% Extraction Accuracy		79	98	82	75	81	99	80	102	100		
% Instrument Accuracy		93	93	99	88	95	95	92	93	88		

METHODS: EPA 200.7, 239.2, 270.2, 272.2, 245.1.
 QC: 5.0 mg/L As, Cr, Cd, Ba, U, Mo, B, Al; 2.0 mg/L V, Zn, Ni, Be, Fe, Co, Mn, Cu; 0.0050 mg/L Hg; 0.050 mg/L Se;
 0.025 mg/L Pb; 0.0025 mg/L Ag.
 SPIKES: 8.0 mg/L As, Ba; 0.8 mg/L Cr; 0.2 mg/L Cd; 2.0 mg/L U, Mo, V, Zn, Ni, Co, Mn, Cu, Al; 0.2 mg/L Be; 4.0 mg/L Fe;
 1.0 mg/L Cu; 0.0050 mg/L Hg; 0.010 mg/L Se; 0.005 mg/L Pb; 0.0025 mg/L Ag.

Director, Dr. Blair Leftwich
 Director, Dr. Bruce McDonnell

DATE

10-16-95

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue Lubbock, Texas 79424 306•794•1296 FAX 806•794•1293

October 16, 1995

Receiving Date: 09/27/95

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

ANALYTICAL RESULTS FOR
NATURAL REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

Prep Date: 09/27/95

Analysis Date: 09/27/95

Sampling Date: 09/26/95

Sample Condition: Intact & cool

Sample Received by: MS

Project Name: RO Reject

TEST	FIELD CODE	COLIFORM	BOD5	TSS	pH	PHENOLS	TOTAL RADICL	CYANIDE
		(/100mL)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(pcil/liter)	(ng/L)
T41853	RO Reject	Not Found	7	6	7.4	<0.005	2+/-1	<0.01
QC	Quality Control	---	196	---	7.0	0.819	---	0.035

RPD	---	0	36	0	2	---	---	0
% Extraction Accuracy	---	---	---	---	---	103	---	108
% Instrument Accuracy	---	98	---	---	100	102	---	91

REPORTING LIMIT	---	---	---	---	---	0.005	1	0.01
-----------------	-----	-----	-----	-----	-----	-------	---	------

METHODS: EPA 405.1, 160.2, 150.1, 420.2, 335.2, 600-8-78-017.
PHENOLS SPIKE AND QC: 3.8 mg/L PHENOLS.
CYANIDE SPIKE AND QC: 5.04 mg/L CYANIDE.

JS

Director, Dr. Blair Jeffewich
Director, Dr. Bruce McDowell

Date

10-16-95

NAVAJO REFINING COMPANY
Project Location: Artesia, NM
Project Name: RO Reject

PAGE 2 of 2

EPA 624 Compounds (ug/L)	T41853 RO Reject	Reporting Limit
Dibromochloromethane	ND	1
Tetrachloroethene	ND	1
Chlorobenzene	ND	1
Ethylbenzene	ND	1
m & p-Xylene	ND	1
Bromoform	ND	1
Styrene	ND	1
o-Xylene	ND	1
1,1,2,2-Tetrachloroethane	ND	1
trans 1,4-Dichloro-2-butene	ND	5
cis 1,4-Dichloro-2-butene	ND	5
1,4-Dichlorobenzene	ND	2
1,3-Dichlorobenzene	ND	2
1,2-Dichlorobenzene	ND	2
MTBE	ND	2

SURROGATES

% RECOVERY

Dibromofluoromethane	106
Toluene-d8	102
4-Bromofluorobenzene	97

*ND = Not Detected

METHODS: EPA 624.



Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonell

10-16-95

Date

6701 Aberdeen Avenue
Lubbock, Texas 79424
806•794•1246
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ANALYTICAL RESULTS FOR
NAVAJO REFINING COMPANY
Attention: Darrell Moore
501 E. Main
Artesia, NM 88210

PAGE 1 of 2

October 16, 1995
Receiving Date: 09/27/95
Sample Type: Water
Project No: NA
Project Location: Artesia, NM

Prep Date: 09/28/95
Analysis Date: 09/28/95
Sampling Date: 09/26/95
Sample Condition: Intact & Cool
Sample Received by: MS
Project Name: RO Reject

EPA 624 Compounds (ug/L)	T41853 RO Reject	Reporting Limit
Dichlorodifluoromethane	ND	1
Chloromethane	ND	1
Vinyl chloride	ND	1
Bromomethane	ND	5
Chloroethane	ND	1
Trichlorofluoromethane	ND	1
1,1-Dichloroethene	ND	1
Iodomethane	ND	5
Carbon disulfide	ND	1
Methylene chloride	ND	5
trans-1,2-Dichloroethene	ND	1
1,1-Dichloroethane	ND	1
Vinyl acetate	ND	1
2-Butanone	ND	50
Chloroform	ND	1
1,1,1-Trichloroethane	ND	1
1,2-Dichloroethane	ND	1
Benzene	ND	1
Carbon Tetrachloride	ND	1
1,2-Dichloropropane	ND	1
Trichloroethene	ND	1
Bromodichloromethane	ND	1
cis-1,3-Dichloropropene	ND	1
4-Methyl-2-pentanone	ND	50
trans-1,3-Dichloropropene	ND	1
Toluene	ND	1
1,1,2-Trichloroethane	ND	1
2-Hexanone	ND	50



TRACE ANALYSIS, INC.

A Laboratory for Advanced Environmental Research and Analysis

NAVAJO REFINING COMPANY
 Project Name: RO Reject
 Project Location: Artesia, NM

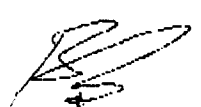
Page 4 of 4

Reporting		T41853				
EPA 825	(mg/L)	Limit	RO Reject	QC	RPD	%EA
Chlordane		0.0002	ND	0.0495		99
Toluene		0.005	ND	1.57		79
p-BHC		0.0001	ND	0.032	7	132
o-BHC		0.0001	ND	0.028	17	126
g BHC		0.0001	ND	0.029	8	114
o BHC		0.0001	ND	0.035	14	124
Heptachlor		0.0001	ND	0.032	11	122
Aldrin		0.0001	ND	0.029	6	106
Heptachlor epoxide		0.0001	ND	0.026	6	138
Endosulfan-1		0.0001	ND	0.027	19	112
Endosulfan 2		0.0001	ND	0.056	5	130
DDE		0.0001	ND	0.029	0	80
Dieldrin		0.0001	ND	0.057	2	128
Endrin		0.0001	ND	0.073	4	162
DDD		0.0001	ND	0.064	7	108
Endrin Aldehyde		0.0005	ND	0.048	6	90
Endosulfan Sulfate/DDT		0.0005	ND	0.114	4	140
Methoxychlor		0.0005	ND	0.35	11	142
PCBs		0.0001	ND	0.59		118

* RECOVERY

2-Fluorophenol SURR 52
 Phenol-d6 SURR 47
 Nitrobenzene-d5 SURR 70
 2-Fluorobiphenyl SURR 70
 2,4,6-Trichlorophenol SURR 69
 Terphenyl-d14 SURR 88

METHOD: EPA 825, 808.


 Director, Dr. Blair Leftwich
 Director, Dr. Bruce McDonell

Date

10-16-95

NAVAJO REFINING COMPANY

Page 3 of 4

Project Name: RO Reject

Project Location: Artesia, NM

Reporting: T41853

EPA 625 (mg/L)	Limit	RO Reject	QC	RPD	%FA	%LA
4-Bromophenyl phenylether	0.001	ND				
Phenacetin	0.005	ND				
Hexachlorobenzene	0.001	ND				
4-Aminobiphenyl	0.005	ND				
Pentachlorophenol	0.005	ND	106	5	66	106
Pentachloronitrobenzene	0.005	ND				
Formamide	0.001	ND				
Phenanthrene	0.001	ND				
Anthracene	0.001	ND				
Di-n-butylphthalate	0.005	ND				
Fluoranthene	0.001	ND	108			108
Benidine	0.01	ND				
Pyrene	0.001	ND		8	92	
p-Dimethylaminobenzene	0.001	ND				
Butylbenzylphthalate	0.001	ND				
Benzo[a]anthracene	0.001	ND				
3,3-Dichlorobenzidine	0.001	ND				
Chrysene	0.001	ND				
Di-(2-Ethylhexyl)phthalate	0.005	ND				
Di-p-octylphthalate	0.001	ND	113			113
Benzo[b]fluoranthene	0.001	ND				
7,12-Dimethylbenz[a]anthracene	0.001	ND				
Benzo[k]fluoranthene	0.001	ND				
Benzo[a]pyrene	0.001	ND	104			104
3-Methylcholanthrene	0.001	ND				
Dibenzo[a,j]acridine	0.001	ND				
Indeno[1,2,3-cd]pyrene	0.001	ND				
Dibenz[ah]anthracene	0.001	ND				
Benzo[ghi]perylene	0.001	ND				

NAVAJO REFINING COMPANY

Project Name: RO Reject

Page 2 of 4

Project Location: Artesia, NM

Reporting		T41853				
1 P A 625 (mg/L)	Limit	RO Reject	QC	RPD	%FA	%IA
1 Chloroaniline	0.005	ND				
2,6-Dichlorophenol	0.005	ND				
Hexachlorobutadiene	0.001	ND	108			108
N-Nitroso di n-butylamine	0.005	ND				
4 Chloro 3 methylphenol	0.005	ND	95	9	63	95
1 Methyl-naphthalene	0.001	ND				
1,2,4,5-Tetrachlorobenzene	0.001	ND				
Hexachlorocyclopentadiene	0.001	ND				
2,4,6-Trichlorophenol	0.005	ND	109			109
2,4,5-Trichlorophenol	0.005	ND				
2 Chloronaphthalene	0.001	ND				
1 Chloronaphthalene	0.001	ND				
2 Nitroaniline	0.005	ND				
Dimethylphthalate	0.001	ND				
Acenaphthylene	0.001	ND				
2,6-Dinitrotoluene	0.001	ND				
3-Nitroaniline	0.005	ND				
Acenaphthene	0.001	ND	108	5	71	108
2,4-Dinitrophenol	0.005	ND				
Dibenzofuran	0.005	ND				
Pentachlorobenzene	0.001	ND				
4 Nitrophenol	0.005	ND		2	27	
1 Naphthylamine	0.005	ND				
2,6-Dinitrotoluene	0.001	ND		3	78	
2 Naphthylamine	0.005	ND				
2,3,4,6-Tetrachlorophenol	0.005	ND				
Fluorene	0.001	ND				
Diethylphthalate	0.001	ND				
4 Chlorophenyl-phenylether	0.001	ND				
1 Nitroaniline	0.005	ND				
4,6-Dinitro-2-methylphenol	0.001	ND				
1-Nitroindiphenylamine & Diphenylamine	0.001	ND	103			103
Diphenylhydrazine	0.005	ND				

6701 Aberdeen Avenue
Lubbock, Texas 79424
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FAX 806•/94•1798

**ANALYTICAL RESULTS FOR
NAVAJO REFINING COMPANY**
Attention: Darrell Moore
501 E. Main
Artesia, NM 88210

October 16, 1995
Receiving Date: 09/27/95
Sample Type: Water
Sampling Date: 09/26/95
Sample Condition: T & C
Sample Received by: MRS
Project Name: RO Reject
Project Location: Artesia, NM
Extraction Date: 09/29/95
Analysis Date: 10/02/95

Reporting: T41853						
EPA 625 (mg/L)	Limit	RO Reject	QC	RPD	%dA	%dA
N-Nitrosodimethylamine	0.001	ND				
2-Picoline	0.001	ND				
Methylmethanesulfonate	0.001	ND				
Ethylmethanesulfonate	0.001	ND				
Phenol	0.001	ND	100	4	51	100
Aniline	0.005	ND				
Di-(2-Chloroethoxy)ether	0.005	ND				
2-Chlorophenol	0.005	ND		5	61	
1,3-Dichlorobenzene	0.001	ND				
1,4-Dichlorobenzene	0.001	ND	101	4	51	101
Benzyl Alcohol	0.005	ND				
1,2-Dichlorobenzene	0.001	ND				
2-Methylphenol	0.001	ND				
Di-(2-chloroisopropyl)ether	0.005	ND				
4-Methylphenol/3-Methylphenol	0.001	ND				
Acetophenone	0.005	ND				
n-Nitrosodi-n-propylamine	0.001	ND		5	68	
Hexachloroethane	0.001	ND				
Nitrobenzene	0.001	ND				
N-Nitrosopiperidine	0.005	ND				
Isophorone	0.005	ND				
2-Nitrophenol	0.005	ND	101			101
2,4-Dimethylphenol	0.005	ND				
Di-(2-Chloroethoxy)methane	0.001	ND				
Benzoic acid	0.01	ND				
2,4-Dichlorophenol	0.005	ND	95			95
1,2,4-Trichlorobenzene	0.001	ND		4	50	
N,N-Dimethylphenethylamine	0.01	ND				
Naphthalene	0.001	ND				

TRACE ANALYSIS, INC.

A Laboratory for Advanced Environmental Research and Analysis

TELEPHONE
(505) 748-3311

EASYLINK
62905278

OIL CONSERVATION
RECEIVED
JUL 12 1995



REFINING COMPANY

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159

FAX
(505) 746-6410 ACCTG
(505) 746-6155 EXEC
(505) 748-9077 ENGR
(505) 746-4438 P / L

July 12, 1995

Mr. Roger Anderson
Environmental Bureau
Oil Conservation Division
2040 S. Pacheco St.
Santa Fe, NM 87505-5472

**RE: 2nd Quarter 1995 Report on RO Reject Water, Navajo Refining Co., Eddy
County, NM**

Dear Roger:

This letter is sent in regard to Navajo Refining's permit modification of our discharge plan GW-28 which allows us to put our Reverse Osmosis (RO) reject water on our farm or into Eagle Draw. This permit is administered by OCD and the parameters we sample for were set up by OCD. We are sending these results for your files. We are required by OCD to sample this stream every two weeks and those results for this quarter are enclosed.

For this quarter we discharged a total of 32,695,458 gallons with the entire total being sent to the farm for irrigation. Since we started discharging the RO reject water, we have discharged a total of 305,104,820 gallons. This is broken down as follows: 74,776,390 gallons have been put into Eagle Draw and 230,328,430 gallons have been put on the farm.

Also, we would like to take this opportunity to ask you to re-visit our sampling schedule and parameters for this stream. We have now been sampling this stream well over two years, and some of the parameters, especially the metals, have never failed even your 75% of the WQCC standards. Since some of these metals have to be run by ICP to reach your desired detection levels, this is not an inexpensive undertaking. Perhaps we could do away with the bi-weekly sampling and continue the quarterly sampling. More realistically, maybe monthly sampling or do away with analyzing for certain metals except on the quarterly samples. When this stream first came on line, OCD made the provision that after an adequate period, the frequency and parameters would be reviewed. We feel there is enough data at this time to show trends and variability's between the sampling events for each parameter. Surely some relief is in order.

If you have any questions concerning this matter, please call me at 505-748-3311.
Thank you for your time.

Regards,
NAVAJO REFINING COMPANY

Darrell Moore

Darrell Moore
Sr. Environmental Specialist
encl.

cc:USEPA, New Mexico Environment Dept.- Water Quality

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue

Lubbock, Texas 79424

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ANALYTICAL RESULTS FOR

NAVAJO REFINING

April 19, 1995

Receiving Date: 04/11/95

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

Analysis Date: 04/11/95

Sampling Date: 04/10/95

Sample Condition: Intact & Cool

Sample Received by: DA

Project Name: NA

TA#	FIELD CODE	CHLORIDE (mg/L)	FLUORIDE (mg/L)	SULFATE (mg/L)	ALKALINITY	
					HC03	C03
T34660	RO Reject BiWeekly	7.3	2.4	1,791	187	0
QC	Quality Control	489	1.00	10.0	---	---
% Precision		101	99	87	99	99
% Extraction Accuracy		95	101	130	---	---
% Instrument Accuracy		98	99	100	---	---

DETECTION LIMIT

1 0.1 1 10 10

METHODS: EPA 375.4, 310.1, 340.2; 4500 Cl-B.

QC: Blank Spiked with 500 mg/L CHLORIDE; 1.0 mg/L FLUORIDE; 10.0 mg/L SULFATE.

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonell

Date

4-19-95

TRACE ANALYSIS, INC.

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ANALYTICAL RESULTS FOR

NAVAJO REFINING

April 28, 1995

Receiving Date: 04/11/95

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

Analysis Date: 04/19/95

Sampling Date: 04/10/95

Sample Condition: Intact & Cool

Sample Received by: DA

Project Name: NA

TA#	Field Code	POTASSIUM (mg/L)	MAGNESIUM (mg/L)	CALCIUM (mg/L)	SODIUM (mg/L)
-----	------------	---------------------	---------------------	-------------------	------------------

T34660	RO Reject BiWeekly	4.0	176.9	547.29	65.1
--------	--------------------	-----	-------	--------	------

QC	Quality Control	47.12	20.4	20.2	21.3
----	-----------------	-------	------	------	------

Detection Limit

0.1

0.1

0.1

% Precision

% Extraction Accuracy

% Instrument Accuracy

100

71

94

100

96

102

101

117

107

METHODS: EPA 200.7.

QC: Blank Spiked with 50.0 mg/L POTASSIUM; 20.0 mg/L MAGNESIUM, CALCIUM, SODIUM.



Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonell

4-28-95

Date

TRACE ANALYSIS, INC.

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Lubbock, Texas 79424

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ANALYTICAL RESULTS FOR

NAVAJO REFINING

April 28, 1995

Analysis Date: 04/11/95

Attention: Darrell Moore

Sampling Date: 04/10/95

Sample Type: Water

Sample Condition: Intact & Cool

Project No: NA

Sample Received by: DA

Project Location: Artesia, NM

Project Name: NA

TOTAL METALS

TA#	FIELD CODE	As (mg/L)	Mo (mg/L)	Cr (mg/L)	Zn (mg/L)	Cd (mg/L)	Ni (mg/L)	Be (mg/L)	Fe (mg/L)	Co (mg/L)	Mn (mg/L)	V (mg/L)
T34660	RO Reject BiWeekly	0.1	<0.05	0.15	<0.01	0.12	0.08	<0.05	<0.05	<0.05	<0.05	<0.05
QC	Quality Control	5.2	4.75	4.98	5.11	5.13	4.54	4.89	5.15	4.92	4.8	4.84
DETECTION LIMIT												
		0.1	0.05	0.01	0.01	0.01	0.05	0.01	0.05	0.05	0.1	0.05
% Precision		101	111	103	99	101	113	103	100	106	107	101
% Extraction Accuracy		99	104	98	113	94	116	90	122	95	95	88
% Instrument Accuracy		104	95	100	102	103	91	98	103	98	96	97
DETECTION LIMIT												
		0.05	0.05	0.05	0.05	0.5	0.001	0.001	0.001	0.001	0.001	0.001
T34660	RO Reject BiWeekly	<0.05	0.08	<0.05	0.06	<0.5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
QC	Quality Control	5.09	4.86	4.82	4.89	9.32	0.0045	0.048	0.051	0.100		
DETECTION LIMIT												
		0.05	0.05	0.05	0.05	0.5	0.001	0.001	0.001	0.001	0.001	0.001
% Precision		100	95	100	110	96	99	104	105	97		
% Extraction Accuracy		109	64	71	77	77	90	92	88	100		
% Instrument Accuracy		102	97	96	98	95	90	96	102	100		

METHODS: EPA 200.7, 239.2, 270.2, 272.2.

QC: Blank Spiked with 0.050 mg/L Se, Pb; 0.100 mg/L Ag; 5.0 mg/L As, Cr, Cd, Ba, Mo, Be, Co, Mn, V, Al, B, Ni, Zn, Fe, Cu; 9.80 mg/L U; 0.0050 mg/L Hg.

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonell

DATE

4-28-95

34658-61

101 AE

TraceAnalysis, Inc.

6701 Aberdeen Avenue Lubbock, Texas 79424
Tel (806) 794 1296 Fax (806) 794 1298

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Project Manager:

Darrell Moore

Phone #: 525-748-3311

FAX #: 525-748-9077

Company Name & Address:

Navajo Refining Co.

Project #:

Project Name:

Project Location:

Artesia NM

Sampler Signature:

Darrell Moore

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX				PRESERVATIVE METHOD				SAMPLING		
				WATER	SOIL	AIR	SLUDGE	OTHER	HCL	HNO3	ICE	NONE	OTHER	DATE
34658	Diesel Cont. Soil	1	1L	X							X		4/10/95	13:00
34659	Pipeline Cartridge Filters	1	5lbs				X				X		" "	13:30
34660	RO Reject Biweekly	2		X					X		X		" "	14:00
34661	RA-2723	2	2 bbl	X							X		" "	14:30

ANALYSIS REQUEST										SPECIAL HANDLING	
TPH											
TCLP Metals Ag As Ba Cd Cr Pb Hg Se	X	"	"								
Total Metals Ag As Ba Cd Cr Pb Hg Se	X	"	"								
TCLP Volatiles	X	"	"								
TCLP Semi Volatiles	X	"	"								
TDS	X	"	"								
RCI	X	"	"								
Methad 624 + MTBE											
Turn around # of days											
Fax ASAP											
Report TWC direct											
Hold											

(anions/cations/metals)

REMARKS

OIL FILTER LEAKED
WFO cooler
nt

Received by:

Times: 16:30

Date: 4/10/95

Relinquished by:

Darrell Moore

Received by:

Times:

Date:

Relinquished by:

Received by Laboratory:

Times:

Date:

Relinquished by:

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue

Lubbock, Texas 79424

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FAX 806•794•1298

ANALYTICAL RESULTS FOR NAVAJO REFINING

May 10, 1995

Receiving Date: 04/22/95

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

Analysis Date: 04/24/95

Sampling Date: 04/21/95

Sample Condition: Intact & Cool

Sample Received by: DH

Project Name: NA

620

TA#	FIELD CODE	CHLORIDE (mg/L)	FLUORIDE (mg/L)	SULFATE (mg/L)	ALKALINITY (mg/L as CaCO ₃) HCO ₃ CO ₃
-----	------------	--------------------	--------------------	-------------------	--

T35093	RO Reject BiWeekly	106	2.3	1,901	177
QC	Quality Control	499	0.95	9.1	---

% Precision	100	101	102	99
% Extraction Accuracy	97	100	103	---
% Instrument Accuracy	100	98	95	---

DETECTION LIMIT

1	0.1	1	10	10
---	-----	---	----	----

METHODS: EPA 375.4, 310.1, 340.2; 4500 Cl-B.

QC: Blank Spiked with 500 mg/L CHLORIDE; 1.0 mg/L FLUORIDE; 10.0 mg/L SULFATE.

BS

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonell

5-18-95
Date

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue

Lubbock, Texas 79424

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ANALYTICAL RESULTS FOR

NAVAJO REFINING

May 18, 1995

Receiving Date: 04/22/95

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

Analysis Date: 05/11/95

Sampling Date: 04/21/95

Sample Condition: Intact & Cool

Sample Received by: DH

Project Name: NA

TA#	Field Code	POTASSIUM (mg/L)	MAGNESIUM (mg/L)	CALCIUM (mg/L)	SODIUM (mg/L)
-----	------------	---------------------	---------------------	-------------------	------------------

T35093	RO Reject BiWeekly	3.1	165.5	520.17	80.4
QC	Quality Control	47.11	10.49	21.11	18.69

Detection Limit

0.1	0.1	0.05	0.1
-----	-----	------	-----

% Precision	101	103	103	97
% Extraction Accuracy	83	86	88	85
% Instrument Accuracy	94	105	106	93

METHODS: EPA 200.7.

QC: Blank Spiked with 50.0 mg/L POTASSIUM; 10.0 mg/L MAGNESIUM; 20.0 mg/L CALCIUM, SODIUM 20.0 mg/L

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonell

Date

5-18-95

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue

Lubbock, Texas 79424

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FAX 806•794•1298

ANALYTICAL RESULTS FOR

May 18, 1995

Receiving Date: 04/22/95

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

Analysis Date: 05/04/95

Sampling Date: 04/21/95

Sample Condition: Intact & Cool

Sample Received by: DH

Project Name: NA

TOTAL METALS

TA#	FIELD CODE	As (mg/L)	Mo (mg/L)	Cr (mg/L)	Zn (mg/L)	Cd (mg/L)	Ni (mg/L)	Be (mg/L)	Fe (mg/L)	Co (mg/L)	Mn (mg/L)	V (mg/L)
T35093	RO Reject BiWeekly	<0.1	<0.05	<0.01	<0.05	<0.01	<0.05	<0.05	0.06	<0.05	<0.05	<0.05
QC	Quality Control	5.51	5.25	4.76	4.77	5.03	4.84	4.56	5.23	5.19	5.19	5.06
REPORTING LIMIT												
% Precision		98	111	98	101	94	97	100	118	122	117	103
% Extraction Accuracy		85	96	77	81	83	70	67	104	98	91	90
% Instrument Accuracy		110	105	95	95	101	97	91	105	104	104	101

	Cu (mg/L)	Al (mg/L)	B (mg/L)	Ba (mg/L)	U (mg/L)	Hg (mg/L)	Se (mg/L)	Pb (mg/L)	Ag (mg/L)
T35093	RO Reject BiWeekly	<0.05	<0.05	<0.05	<0.5	<0.001	<0.001	<0.001	<0.001
QC	Quality Control	4.71	5.26	4.88	4.99	9.52	0.024	0.025	0.028
REPORTING LIMIT									
	0.05	0.05	0.05	0.05	0.5	0.001	0.001	0.001	0.001
% Precision	98	92	101	104	100	101	102	100	98
% Extraction Accuracy	68	60	72	78	128	100	96	96	114
% Instrument Accuracy	94	105	98	100	106	100	96	100	112

METHODS: EPA 200.7, 239.2, 270.2, 272.2.

QC: Blank Spiked with 0.025 mg/L Se, Pb, Ag; 5.0 mg/L Al, Ba, B, As, Mo, Fe, Co, Mn, V, Cr, Zn, Cd, Ni, Be, Cu
9.0 mg/L U; 0.0050 mg/L Hg

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonell

DATE

5-18-95

112AE

6701 Aberdeen Avenue Lubbock, Texas 79424
Tel (806) 794 1296 Fax (806) 794 1298

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Phone #: 525-748-3311

FAX #: 505-748-9077

US: NAVASO REFINING CO.

Project Name :

Sampler Signature:

Sampler Signature: David Moore

[illegible]

Relinquished by: Dorell Moss

Times: 16:30

Received by:

Times:

Received by:

Times:

Received by Laboratory:

REMARKS

ARKS
Zachary

12/24/21

Received by:	
Received by Laboratory:	

11-7-95

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

ANALYTICAL RESULTS FOR

NAVAJO REFINING

May 17, 1995

Receiving Date: 05/02/95

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

Analysis Date: 05/09/95

Sampling Date: 05/01/95

Sample Condition: Intact & Cool

Sample Received by: JT

Project Name: RO Reject

TA#	Field Code	POTASSIUM (mg/L)	MAGNESIUM (mg/L)	CALCIUM (mg/L)	SODIUM (mg/L)
T35481	RO Reject BiWkly	3.3	162.8	503.54	103.1
QC	Quality Control	47.11	10.49	21.11	18.69
Detection Limit					
		0.1	0.1	0.05	0.1
% Precision					
		101	103	103	97
% Extraction Accuracy					
		83	86	88	85
% Instrument Accuracy					
		94	105	106	93

METHODS: EPA 200.7.

QC: Blank Spiked with 50.0 mg/L POTASSIUM; 10.0 mg/L MAGNESIUM; 20.0 mg/L CALCIUM, SODIUM.

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonell

Date

[Signature]

5-17-95



TRACE ANALYSIS, INC.

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

ANALYTICAL RESULTS FOR NAVAJO REFINING

May 10, 1995	Analysis Date: 05/04/95
Receiving Date: 05/02/95	Sampling Date: 05/01/95
Sample Type: Water	Sample Condition: Intact & Cool
Project No: NA	Sample Received by: JT
Project Location: Artesia, NM	Project Name: RO Reject

TA#	FIELD CODE	CHLORIDE (mg/L)	FLUORIDE (mg/L)	SULFATE (mg/L)	ALKALINITY (mg/L as CaCO ₃)	
					HCO ₃	CO ₃

T35481	RO Reject BiWkly	158	2.3	1,211	182	0
QC	Quality Control	499	1.04	9.0	---	---
% Precision		100	102	85	99	99
% Extraction Accuracy		98	102	101	---	---
% Instrument Accuracy		100	99	97	---	---

DETECTION LIMIT	1	0.1	1	10	10
-----------------	---	-----	---	----	----

METHODS: EPA 375.4, 310.1, 340.2; 4500 Cl-B.
QC: Blank Spiked with 500 mg/L CHLORIDE; 1.0 mg/L FLUORIDE; 10.0 mg/L SULFATE.

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonell

5-17-95

Date

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

ANALYTICAL RESULTS FOR

NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

May 17, 1995

Receiving Date: 05/02/95

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

Analysis Date: 05/04/95

Sampling Date: 05/01/95

Sample Condition: Intact & Cool

Sample Received by: JT

Project Name: NA

TOTAL METALS

05

TA#	FIELD CODE	As (ppm)	Mo (ppm)	Cr (ppm)	Zn (ppm)	Cd (ppm)	Ni (ppm)	Be (ppm)	Fe (ppm)	Co (ppm)	Mn (ppm)	V (ppm)
T35481	RO Reject BiWkly	<0.1	<0.05	0.05	<0.05	0.04	0.08	<0.05	<0.05	<0.05	<0.05	<0.05
QC	Quality Control	5.5	5.25	4.2	4.38	4.25	4.39	4.39	5.23	5.19	5.19	5.06
DETECTION LIMIT												
% Precision		0.10	0.05	0.01	0.05	0.01	0.05	0.05	0.05	0.05	0.05	0.05
% Extraction Accuracy		98	111	87	90	87	84	89	118	122	117	103
% Instrument Accuracy		85	96	76	76	73	70	68	104	98	91	90
		110	105	84	88	85	88	88	105	104	104	101

	Cu (ppm)	Al (ppm)	B (ppm)	Ba (ppm)	U (ppm)	Hg (ppm)	Se (ppm)	Pb (ppm)	Ag (ppm)
T35481	<0.05	<0.05	0.82	0.06	<0.5	<0.0010	0.002	<0.001	<0.001
QC	4.28	5.26	4.88	4.98	9.52	0.005	0.024	0.024	0.024
DETECTION LIMIT									
% Precision	0.05	0.05	0.05	0.05	0.50	0.001	0.001	0.001	0.001
% Extraction Accuracy	86	127	93	96	100	101	98	100	100
% Instrument Accuracy	69	90	62	75	128	100	88	92	72
	86	105	98	100	106	100	96	96	98

METHODS: EPA 200.7, 239.2, 270.2, 272.2.

TOTAL METALS QC: Blank spiked with 5.0 ppm As, Al, Ba, B, Cr, Zn, Cd, Ni, Be, Cu, Mo, Fe, Co, Mn, V;

0.025 ppm Se, Pb, Ag; 9.0 ppm U; and 0.0050 ppm Hg.

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonnell

DATE

5-17-95

TraceAnalysis, Inc.

6701 Aberdeen Avenue Lubbock, Texas 79424
Tel (806) 794 1296 Fax (806) 794 1298

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Project Manager:

Darrell Moore

Phone #: 505-748-3311

FAX #: 505-748-9077

Company Name & Address:

Navajo Refining Co.

Project #:

Project Name:

Project Location:

Artesia NM

Sampler Signature:

Darrell Moore

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX					PRESERVATIVE METHOD					SAMPLING		
				WATER	SOIL	AIR	SLUDGE	OTHER	HCL	HNO3	ICE	NONE	OTHER	DATE	TIME	
35479	Alky Cooling Tower Inlet	2	40ml X	X								X	X		4/28/95	16:00
480	" " Outlet	2	40ml X	X								X	X	(1)	" "	16:15
481	RO Reject Bi. Wkly	2	X	X								X	X	(2)	5/1/95	14:25
482	RA 2723	2	40ml X	X								X	X		" "	14:45

ANALYSIS REQUEST	SPECIAL HANDLING	Turn around # of days	Fax ASAP	Report TWC direct	Hold
TPH					
TCLP Metals Ag As Ba Cd Cr Pb Hg Se					
Total Metals Ag As Ba Cd Cr Pb Hg Se					
TCLP Volatiles					
TCLP Semi Volatiles					
TDS					
RCI					
629 + MTBE					

Relinquished by:	Date:	Times:	Received by:	Times:	Remarks
Darrell Moore	5/1/95	16:30			Alky Cooling Twr. Samples were kept cool in refrig. over weekend.
Relinquished by:	Date:	Times:	Received by:	Times:	
Relinquished by:	Date:	Times:	Received by Laboratory:	Times:	

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

ANALYTICAL RESULTS FOR

NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

Prep Date: 05/23/95

Analysis Date: 05/25/95

Sampling Date: 05/22/95

Sample Condition: Intact & Cool

Sample Received by: JW

Project Name: RO Reject

June 12, 1995

Receiving Date: 05/23/95

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

TA#

Field Code

POTASSIUM

(mg/L)

MAGNESIUM

(mg/L)

CALCIUM

(mg/L)

SODIUM

(mg/L)

T35390 RO Reject Biweekly

QC Quality Control

Reporting Limit

RPD

% Extraction Accuracy

% Instrument Accuracy

METHODS: EPA 200.7.

QC: 50.0 mg/L POTASSIUM; 10.0 mg/L MAGNESIUM; 20.0 mg/L CALCIUM, SODIUM.

Director, Dr. Blair Leftwich

Director, Dr. Bruce McDonell

Date

6-12-95

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

ANALYTICAL RESULTS FOR

NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

June 12, 1995

Receiving Date: 05/23/95

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

Analysis Date: 05/23/95

Sampling Date: 05/22/95

Sample Condition: Intact & Cool

Sample Received by: JW

Project Name: RO Reject

TOTAL METALS

TA#	FIELD CODE	As (mg/L)	Mo (mg/L)	Cr (mg/L)	Zn (mg/L)	Cd (mg/L)	Ni (mg/L)	Be (mg/L)	Fe (mg/L)	Co (mg/L)	Mn (mg/L)	V (mg/L)
T36390	RO Reject BiWeekly	0.7	<0.05	0.01	<0.01	<0.01	<0.05	<0.05	0.03	<0.05	<0.05	<0.05
QC	Quality Control	4.6	4.9	4.8	4.9	4.7	4.8	5.1	4.8	5.0	4.8	5.0
	DETECTION LIMIT	0.1	0.05	0.01	0.01	0.01	0.05	0.05	0.05	0.05	0.05	0.05
RPD		0	2	2	0	2	4	6	34	18	2	2
% Extraction Accuracy		75	83	88	90	86	94	92	83	91	83	89
% Instrument Accuracy		92	98	96	97	94	95	102	97	100	96	100

	Cu (mg/L)	Al (mg/L)	B (mg/L)	Ba (mg/L)	U (mg/L)	Hg (mg/L)	Se (mg/L)	Pb (mg/L)	Ag (mg/L)
T36390	RO Reject BiWeekly	0.01	0.09	0.02	<0.05	<0.001	0.002	<0.001	<0.001
QC	Quality Control	4.8	5.2	5.0	4.7	9.7	0.0048	0.026	0.024
	DETECTION LIMIT	0.05	0.05	0.05	0.05	0.001	0.001	0.001	0.001
RPD		6	4	2	6	0	0	32	8
% Extraction Accuracy		100	122	111	92	82	100	90	100
% Instrument Accuracy		95	104	101	94	108	102	96	92

METHODS: EPA 200.7, 239.2, 270.2, 272.2.

QC: 0.050 mg/L Se, Pb; 0.100 mg/L Ag; 5.0 mg/L As, Cr, Cd, Ba, Mo, Be, Co, Mn, V, Al, B, Ni, Zn, Fe, Cu; 9.80 mg/L U; 0.0050 mg/L Hg.

6-12-95

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonell

DATE

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

ANALYTICAL RESULTS FOR

NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

Prep Date: 05/23/95

Analysis Date: 05/23/95

Sampling Date: 05/22/95

Sample Condition: Intact & Cool

Sample Received by: JW

Project Name: RO Reject

June 12, 1995

Receiving Date: 05/23/95

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

ALKALINITY

(mg/L as CaCO₃)

SULFATE (mg/L)

FLUORIDE (mg/L)

CHLORIDE (mg/L)

FIELD CODE

T36390 RO Reject BiWkly

QC Quality Control

RPD

% Extraction Accuracy

% Instrument Accuracy

REPORTING LIMIT

METHODS: EPA 375.4, 310.1, 340.2; 4500 Cl-B.
QC: 500 mg/L CHLORIDE; 1.0 mg/L FLUORIDE; 10.0 mg/L SULFATE.



Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonell

6-12-95

Date

50570-18

143 AL

TraceAnalysis, Inc.

6701 Aberdeen Avenue Lubbock, Texas 79424
Tel (806) 794 1296 Fax (806) 794 1298

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Project Manager:

Darrell Moore

Phone #: 505 - 748 - 3311

FAX #: 505 - 748 - 9077

Company Name & Address:

Navajo Refining Co.

Project #:

Project Name:

Project Location:

Artesia NM

Sampler Signature:

Darrell Moore

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX					PRESERVATIVE METHOD					SAMPLING	
				WATER	SOIL	AIR	SLUDGE	OTHER	HCL	HNO3	ICE	NONE	OTHER	DATE	TIME
36390	RO Reject B.Wtly	2		X							X	X		5/22/95	10:00
36391	RA-313	2		"							X	X		"	10:15
36392	RA-2723	"		"							"	"		"	10:30
36393	RA-1331	"		"							"	"		"	10:45
36394	RA-1227	"		"							"	"		"	11:00
36395	RA-307	"		"							"	"		"	11:15
36396	RA-4196	"		"							"	"		"	11:30
36397	RA-4798	"		"							"	"		"	11:45
36398	Navajo Effluent	"		"							X	X		"	12:00

Relinquished by:

Darrell Moore

Date:

5/22/95

Times:

16:30

Received by:

REMARKS

BTX-MTBE and 624 Compounds

Relinquished by:

Date:

Times:

Received by:

Received by Laboratory:

JW 5-23-95

ANALYSIS REQUEST

SPECIAL HANDLING

TPH
TCLP Metals Ag As Ba Cd Cr Pb Hg Se
Total Metals Ag As Ba Cd Cr Pb Hg Se
TCLP Volatiles
TCLP Semi Volatiles
TDS
RCI

See List

Turn around # of days

Fax ASAP
Report TWC direct
Hold

See List

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue

Lubbock, Texas 79424
ANALYTICAL RESULTS FOR

806•794•1296

FAX 806•794•1298
Prep Date: 06/09/95

June 1995

Receiving Date: 06/06/95

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

Sample Condition: Intact & Cool
Sample Received by: LW
Project Name: NA

TOTAL METALS

TA#	FIELD CODE	As (mg/L)	Mo (mg/L)	Cr (mg/L)	Zn (mg/L)	Cd (mg/L)	Ni (mg/L)	Be (mg/L)	Fe (mg/L)	Co (mg/L)	Mn (mg/L)	V (mg/L)
T36839	RO Reject Quarterly	<0.1	<0.05	<0.01	<0.01	<0.01	<0.05	<0.05	0.08	<0.05	<0.05	<0.05
QC	Quality Control	4.81	4.57	4.76	4.66	4.68	4.58	5.15	4.54	9.89	4.68	9.89
REPORTING LIMIT												
RPD		0	2	0	2	0	10	0	8	10	0	10
% Extraction Accuracy		115	88	107	89	105	70	91	68	82	85	90
% Instrument Accuracy		96	91	95	93	94	92	103	91	99	94	99

	Cu (mg/L)	Al (mg/L)	B (mg/L)	Ba (mg/L)	U (mg/L)	Hg (mg/L)	Se (mg/L)	Pb (mg/L)	Ag (mg/L)
T36839	RO Reject Quarterly	<0.05	<0.05	<0.05	<0.5	<0.001	0.001	<0.001	<0.001
QC	Quality Control	4.50	4.9	4.83	4.84	9.74	0.00445	0.028	0.024
REPORTING LIMIT									
	0.05	0.05	0.05	0.05	0.5	0.001	0.001	0.001	0.001
RPD	24	10	8	2	0	16	8	6	0
% Extraction Accuracy	88	114	110	113	82	93	100	74	114
% Instrument Accuracy	90	98	97	97	108	89	112	98	110

METHODS: EPA 200.7, 239.2, 270.2, 272.2.

QC: 0.025 mg/L Se, Pb, Ag; 0.005 mg/L Hg; 9.0 mg/L U; 10.0 mg/L Co, V; 5.0 mg/L As, Cr, Cd, Ba, Mo, Zn, Ni, Fe, Mn, Cu, Al, B, Be.

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonnell

DATE

6-29-95

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

ANALYTICAL RESULTS FOR

NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

June 29, 1995

Receiving Date: 06/06/95

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

Prep Date: 06/06/95

Analysis Date: 06/06/95

Sampling Date: 06/05/95

Sample Condition: Intact & Cool

Sample Received by: LW

Project Name: RO Reject Qtrly

ALKALINITY

(mg/L as CaCO₃)

HCO₃ CO₃

SULFATE

(mg/L)

FLUORIDE

(mg/L)

CHLORIDE

(mg/L)

FIELD CODE

RO Reject Qtrly

Quality Control

T36839

QC

127

499

2,890

10.1

323

0

RPD

% Extraction Accuracy

% Instrument Accuracy

2

99

100

0

100

102

20

100

102

0

REPORTING LIMIT

1

0.1

1

10

10

METHODS: EPA 375.4, 310.1, 340.2; 4500 Cl-B.

QC: 500 mg/L CHLORIDE; 1.0 mg/L FLUORIDE; 10.0 mg/L SULFATE.

Director, Dr. Blair Leftwich

Director, Dr. Bruce McDonell

Date

6-29-95

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

ANALYTICAL RESULTS FOR

NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

June 29, 1995

Receiving Date: 06/06/95

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

Prep Date: 06/09/95

Analysis Date: 06/14/95

Sampling Date: 06/05/95

Sample Condition: Intact & Cool

Sample Received by: LW

Project Name: RO Reject Qtrly

TA#	Field Code	POTASSIUM (mg/L)	MAGNESIUM (mg/L)	CALCIUM (mg/L)	SODIUM (mg/L)
T36839	RO Reject Qtrly	4	179	532	103
QC	Quality Control	49	10	21	20
Reporting Limit		0.1	0.1	0.05	0.1
RPD		12	2	2	0
% Extraction Accuracy		88	102	83	94
% Instrument Accuracy		97	99	103	100

METHODS: EPA 200.7.

QC: 50.0 mg/L POTASSIUM; 10.0 mg/L MAGNESIUM; 20.0 mg/L CALCIUM, SODIUM.

SPIKE: 10.0 mg/L POTASSIUM; 200.0 mg/L MAGNESIUM, CALCIUM, SODIUM.

Director, Dr. Blair Leftwich

Director, Dr. Bruce McDonell

Date

6-29-95

6701 Aberdeen Avenue
Lubbock, Texas 79424
806•794•1296
FAX 806•794•1298

ANALYTICAL RESULTS FOR
NAVAJO REFINING

Attention: Darrell Moore
501 E. Main
Artesia, NM 88210

June 29, 1995
Receiving Date: 06/06/95
Sample Type: Water
Project No: NA
Project Location: Artesia, NM

Prep Date: 06/09/95
Analysis Date: 06/09/95
Sampling Date: 06/05/95
Sample Condition: Intact & Cool
Sample Received by: LW
Project Name: RO Reject Qtrly

TA#	FIELD CODE	TOTAL CN- (mg/L)
T36839	RO Reject Qtrly	<0.01
QC	Quality Control	0.04
RPD		6
% Extraction Accuracy		90
% Instrument Accuracy		99
Reporting Limit		0.01

METHODS: EPA 335.2.

TOTAL CN- SPIKE AND QC: 0.04 mg/L TOTAL CN-.



Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonell

6-29-95

DATE

TRACE ANALYSIS, INC.

A Laboratory for Advanced Environmental Research and Analysis

6701 Aberdeen Avenue
Lubbock, Texas 79424
806•794•1296
FAX 806•794•1298

ANALYTICAL RESULTS FOR
NAVAJO REFINING
Attention: Darrell Moore
501 E. Main
Artesia, NM 88210

June 29, 1995
Receiving Date: 06/06/95
Sample Type: Water
Project No: NA
Project Location: Artesia, NM

Prep Date: 06/07/95
Analysis Date: 06/12/95
Sampling Date: 06/05/95
Sample Condition: I & C
Sample Received by: LW
Project Name: RO Reject Qtrly

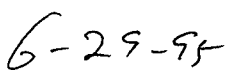
TA#	FIELD CODE	TOTAL RADIUM (pci/liter)
T36839	RO Reject Qtrly	4+/-2

Reporting Limit

1



Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonell



DATE


TRACE ANALYSIS, INC.

A Laboratory for Advanced Environmental Research and Analysis

6701 Aberdeen Avenue
Lubbock, Texas 79424
806•794•1296
FAX 806•794•1298

ANALYTICAL RESULTS FOR
NAVAJO REFINING
Attention: Darrell Moore
501 E. Main
Artesia, NM 88210

June 29, 1995
Receiving Date: 06/06/95
Sample Type: Water
Project No: NA
Project Location: Artesia, NM

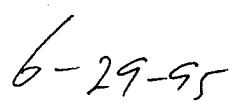
Analysis Date: 06/06/95
Sampling Date: 06/05/95
Sample Condition: Intact & Cool
Sample Received by: LW
Project Name: RO Reject Qtrly

TA#	FIELD CODE	FECAL COLIFORM (/100mL)
T36839	RO Reject Qtrly.	Not Detected

METHODS: EPA 600/8-78-017.



Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonell



DATE


TRACE ANALYSIS, INC.

A Laboratory for Advanced Environmental Research and Analysis

6701 Aberdeen Avenue
Lubbock, Texas 79424
806•794•1296
FAX 806•794•1298

ANALYTICAL RESULTS FOR
NAVAJO REFINING
Attention: Darrell Moore
501 E. Main
Artesia, NM 88210

June 29, 1995
Receiving Date: 06/06/95
Sample Type: Water
Sample Condition: I & C
Sample Received by: LW
Project: RO Reject Qtrly
Prep Date: 06/18/95
Analysis Date: 06/18/95

T36839

EPA 625 (mg/L)	DL	RO Reject Qtrly.	QC	RPD	%EA	%IA
N-Nitrosodimethylamine	0.001	ND	54.1			108
Phenol	0.001	ND	51.6	0	95	103
bis(2-Chloroethyl)ether	0.005	ND	50.6			101
2-Chlorophenol	0.005	ND	52.2	2	93	104
1,3-Dichlorobenzene	0.001	ND	51.4	2	97	103
1,4-Dichlorobenzene	0.001	ND	49.2	4	89	98
1,2-Dichlorobenzene	0.001	ND	51.1			102
bis(2-chloroisopropyl)ether	0.005	ND	49.4			99
n-Nitrosodi-n-propylamine	0.001	ND	50.7	2	117	101
Hexachloroethane	0.001	ND	52.5			105
Nitrobenzene	0.001	ND	51.8			104
Isophorone	0.005	ND	52.3			109
2-Nitrophenol	0.005	ND	49.7			99
2,4-Dimethylphenol	0.005	ND	50.8			102
bis(2-Chloroethoxy)methane	0.001	ND	51.9			104
2,4-Dichlorophenol	0.005	ND	53.1			106
1,2,4-Trichlorobenzene	0.001	ND	52.4	4	96	105
Naphthalene	0.001	ND	55.6			111
Hexachlorobutadiene	0.001	ND	54.3			109
4-Chloro-3-methylphenol	0.005	ND	51.6	2	89	103
Hexachlorocyclopentadiene	0.001	ND	46.9			94
2,4,6-Trichlorophenol	0.005	ND	51.9			104
2-Chloronaphthalene	0.001	ND	51.6			103
Dimethylphthalate	0.001	ND	45.6			91
Acenaphthylene	0.001	ND	54.2			102
2,6-Dinitrotoluene	0.001	ND	49.0	4	95	98
Acenaphthene	0.001	ND	49.6	4	102	99
2,4-Dinitrophenol	0.005	ND	30.0			60
4-Nitrophenol	0.005	ND	56.2			112
2,4-Dinitrotoluene	0.001	ND	51.1			102

T36839
RO

EPA 625 (mg/L)	DL	Reject Qtrly.	QC	RPD	%EA	%IA
Fluorene	0.001	ND	51.8			104
Diethylphthalate	0.001	ND	48.4			97
4-Chlorophenyl-phenylether	0.001	ND	50.3			101
4,6-Dinitro-2-methylphenol	0.001	ND	35.7			71
n-Nitrosodiphenylamine	0.001	ND	53.5			107
Diphenylhydrazine	0.005	ND	58.6			117
4-Bromophenyl-phenylether	0.001	ND	51.0			102
Hexachlorobenzene	0.001	ND	51.2			102
Pentachlorophenol	0.005	ND	48.6	4	84	97
Phenanthrene	0.001	ND	50.3			101
Anthracene	0.001	ND	50.1			100
Di-n-butylphthalate	0.001	ND	48.9			98
Fluoranthene	0.001	ND	50.9			102
Benzidine	0.01	ND	50.1			100
Pyrene	0.001	ND	52.5	4	118	105
Butylbenzylphthalate	0.001	ND	52.5			105
Benz[a]anthracene	0.001	ND	52.6			105
3,3-Dichlorobenzidine	0.001	ND	56.4			113
Chrysene	0.001	ND	50.7			101
bis(2-Ethylhexyl)phthalate	0.001	0.003	50.3			101
Di-n-octylphthalate	0.001	ND	54.3			109
Benzo[b]fluoranthene	0.001	ND	52.6			105
Benzo[k]fluoranthene	0.001	ND	47.0			94
Benzo[a]pyrene	0.001	ND	50.7			101
Indeno[1,2,3-cd]pyrene	0.001	ND	46.5			93
Dibenz[a,h]anthracene	0.001	ND	46.3			93
Benzo[g,h,i]perylene	0.001	ND	46.2			92

ND = Not Detected

% RECOVERY

2-Fluorophenol SURR	51
Phenol-d5 SURR	52
Nitrobenzene-d5 SURR	61
2-Fluorobiphenyl SURR	76
2,4,6-Tribromophenol SURR	58
Terphenyl-d14 SURR	102

METHODS: EPA 625.

Director, Dr. Blair Leftwich
Dr. Bruce McDonell

DATE

6-29-95

6701 Aberdeen Avenue
Lubbock, Texas 79424
806•794•1296
FAX 806•794•1298

ANALYTICAL RESULTS FOR
NAVAJO REFINING COMPANY
Attention: Darrell Moore
501 E. Main
Artesia, NM 88210

PAGE 1 of 2

June 29, 1995
Receiving Date: 06/06/95
Sample Type: Water
Project No: NA
Project Location: Artesia, NM

Prep Date: 06/12/95
Analysis Date: 06/12/95
Sampling Date: 06/05/95
Sample Condition: Intact & Cool
Sample Received by: LW
Project Name: RO Reject Qtrly

EPA 624 Compounds (ug/L)	T36839 RO Reject Qtrly	Reporting Limit
Chloromethane	ND	1
Vinyl chloride	ND	1
Bromomethane	ND	5
Chloroethane	ND	1
Trichlorofluoromethane	ND	1
1,1-Dichloroethene	ND	1
Methylene chloride	ND	5
trans-1,2-Dichloroethene	ND	1
1,1-Dichloroethane	ND	1
Chloroform	ND	1
1,1,1-Trichloroethane	ND	1
1,2-Dichloroethane	ND	1
Benzene	ND	1
Carbon Tetrachloride	ND	1
1,2-Dichloropropene	ND	1
Trichloroethene	ND	1
Bromodichloromethane	ND	1
cis-1,3-Dichloropropene	ND	1
trans-1,3-Dichloropropene	ND	1
Toluene	1	1
1,1,2-Trichloroethane	ND	1
MTBE	ND	1

EPA 624 Compounds (ug/L)	T36839 RO Reject Qtrly	Reporting Limit
-----------------------------	---------------------------	--------------------

Dibromochloromethane	2	1
Tetrachloroethene	ND	1
Chlorobenzene	ND	1
Ethylbenzene	ND	1
m,p-Xylene	ND	1
Bromoform	ND	1
o-Xylene	ND	1
1,1,2,2-Tetrachloroethane	ND	1
1,4-Dichlorobenzene	ND	2
1,3-Dichlorobenzene	ND	2
1,2-Dichlorobenzene	ND	2

SURROGATES

% RECOVERY

Dibromofluoromethane	101
Toluene-d8	99
4-Bromofluorobenzene	96

*ND = Not Detected

METHODS: EPA 624.



Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonell

6-29-95

Date

6701 Aberdeen Avenue
Lubbock, Texas 79424
806•794•1296
FAX 806•794•1298

ANALYTICAL RESULTS FOR
NAVAJO REFINING
Attention: Darrell Moore
501 E. Main
Artesia, NM 88210

June 29, 1995
Receiving Date: 06/06/95
Sample Type: Water
Project No: NA
Project Location: Artesia, NM

Extraction Date: 06/14/95
Analysis Date: 06/16/95
Sampling Date: 06/05/95
Sample Condition: Intact & Cool
Sample Received by: LW
Project Name: RO Reject Qtrly

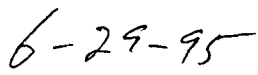
ORGANOCHLORINE INSECTICIDES (mg/L)	T36839 RO Reject Qtrly	Detection Limit	QC	RPD	%EA	%IA
a-BHC	ND	0.0001	0.189	0	94	95
b-BHC	ND	0.0001	0.199	0	100	100
g-BHC	ND	0.0001	0.181	2	95	91
s-BHC	ND	0.0001	0.208	0	104	104
Heptachlor	ND	0.0001	0.224	0	114	112
Aldrin	ND	0.0001	0.230	2	120	115
Heptachlor epoxide	ND	0.0001	0.224	2	115	112
Endosulfan-1	ND	0.0001	0.220	2	110	110
Endosulfan-2	ND	0.0001	0.244	4	131	122
DDE	ND	0.0001	0.428	4	102	107
Dieldrin	ND	0.0001	0.428	4	102	107
Endrin	ND	0.0001	0.215	2	117	108
DDD	ND	0.0001	0.240	30	122	120
Endrin Aldehyde	ND	0.0005	0.207	2	101	104
Endosulfan Sulphate	ND	0.0005	0.208	4	85	104
DDT	ND	0.0001	0.242	4	123	121
Methoxychlor	ND	0.0005	0.220	4	106	110
Total PCB	ND	0.0001	0.0072	6	98	144
Chlordane	ND	0.0002	0.191	6	100	96
Toxaphene	ND	0.005	2.128	4	95	107

ND = Not Detected

METHODS: EPA 608.



Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonell



DATE


TRACE ANALYSIS, INC.

A Laboratory for Advanced Environmental Research and Analysis

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

ANALYTICAL RESULTS FOR

NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

Prep Date: 06/06/95

Analysis Date: 06/06/95

Sampling Date: 06/05/95

Sample Condition: Intact & Cool

Sample Received by: LW

Project Name: RO Reject Qtrly

June 29, 1995

Receiving Date: 06/06/95

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

TA#	FIELD CODE	PHENOL (mg/L)	pH (s.u.)	CHLORINE (mg/L)	EC (uMHOS/cm)	TSS (mg/L)	BOD (mg/L)	TDS (mg/L)
T36839	RO Reject Qtrly.	<0.01	6.9	<0.1	2,940	10	<3	2,777
QC	Quality Control	0.81	7.0	---	1,410	---	213	---
RPD		3	0	0	0	2	2	0
% Extraction Accuracy		102	---	---	---	---	---	---
% Instrument Accuracy		101	100	---	100	---	109	---
Reporting Limit		0.01	---	0.1	---	1	---	1

(NO3-NO2)-N

COD

(mg/L)

0.6

1.0

2

103

103

92

20

0.2

METHODS: EPA 150.1, 405.1, 160.2, 160.1, 330.4, 420.1, 353.3, 410.4, 350.2.

COD SPIKE AND QC: 75 mg/L COD.

NH3-N SPIKE: 1 mg/L NH3-N.

(NO3-NO2)-N SPIKE: 1 mg/L (NO3-NO2)-N.

NH3-N QC: 1 mg/L NH3-N.

(NO3-NO2)-N QC: 1 mg/L (NO3-NO2)-N.

BL

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonnell

6-29-95

Date

157A5

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

FAX #: 505-748-9077

ss: Navajo Refining Co.

Project Name :

Sampler Signature:

Artesia NM

Sampler Signature: _____

Sampler Signature: David Moore

TPH	
TCLP Metals Ag As	
Total Metals Ag As B	
TCLP Volatiles	
TCLP Semi Volatiles	
TDS	
RCI	
Turn around # of	
Fax ASAP	
Report TWC dire	
Hold	

Relinquished by: Daniel Moore Date: 6/5/95

Times: 16:30

--	--

Date:

Times:

--	--

Date: _____

Times:

1

MARKS
Cold + intact *W*

57X 07X 197X

RO REJECT ANALYSIS

	DATE SAMPLED		Limits	75% Limit	QRTLY																QRTLY				
	mg/l	no limit			07/19/94	07/29/94	08/09/94	09/09/94	09/25/94	10/11/94	10/20/94	11/30/94	12/09/94	12/30/94	01/12/95	01/26/95	02/10/95	02/25/95	03/10/95	04/10/95	04/21/95	05/01/95	05/22/95	06/05/95	
B I W E E K L Y	SODIUM	mg/l	no limit		145.8	135.6	169.5	132	130.9	116.1	155.3	135	144	129	130	171	133	116	62.7	65.1	80.4	103.1	107.4	103	
	POTASSIUM	mg/l	no limit		3.2	3.1	3.6	3.6	4	3.5	3	3.2	3.6	ND	0.4	3.3	3.3	4	1.8	4	3.1	3.3	0.3	4	
	CALCIUM	mg/l	no limit		585.7	460.2	707	523.1	490	532.5	545.5	542	550	182	534	589	510	160	207	547.29	520.17	503.54	549	532	
	MAGNESIUM	mg/l	no limit		248.7	140.2	258	186	196	191.1	200.7	193	218	504	203	209	176	454	75.9	176.9	165.5	162.8	170	179	
	CHLORIDE	mg/l	275	206.25	218.3	237	222.9	218	209	195	223	204	197	214	211	225	205	161	210	7.3	106	158	147	127	
	SULFATE	mg/l	2661	1995.75	1772	2078	1577	2830	1953	2202	1944	1682	2096	1578	1641	1495	1562	1626	729	1791	1901	1211	2460	<2890>	
	CARBONATE	mg/l	no limit		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	BICARBONATE	mg/l	no limit		338	311	323	346	311	346	311	323	280	323	334	231	286	288	310	187	177	182	317	323	
	FLUORIDE	mg/l	2.5	1.875	2.4	2.4	2.5	2.5	2.4	2.3	2.2	2.49	2.3	2.4	<2.3>	<2.7>	<2.4>	<2.3>	<2.4>	<2.3>	<2.3>	<2.5>	<2.5>	2.5	
	METALS																								
S A M P L E S	AG	mg/l	0.0004	0.0003	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
	AL	mg/l	0.0087	0.06525	0.11	ND	ND	0.3	0.28	ND	ND	ND	0.13	ND	ND	ND	ND	ND	0.11	0.08	ND	ND	ND	ND	
	AS	mg/l	0.1	0.075	ND	0.1	ND	ND	ND	ND	ND	ND	ND	0.2	ND	ND	ND	ND	ND	0.1	ND	ND	ND	ND	
	B	mg/l	0.75	0.5625	ND	0.06	ND	0.28	0.06	ND	0.05	0.12	ND	ND	ND	ND	ND	ND	ND	ND	0.06	ND	ND	0.05	
	BA	mg/l	1	0.75	ND	0.1	0.15	0.1	0.09	0.08	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
	BE	mg/l	0.018	0.0135	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
	CD	mg/l	0.01	0.0075	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
	CO	mg/l	0.05	0.0375	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
	CR	mg/l	0.05	0.0375	ND	ND	ND	0.02	0.01	ND	ND	ND	ND	ND	0.02	ND	ND	ND	ND	ND	ND	ND	ND	ND	
	CU	mg/l	1	0.75	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
	FE	mg/l	1	0.75	ND	0.14	ND	0.08	0.11	ND	0.12	0.17	ND	0.04	0.03	0.04	0.09	0.02	ND	ND	ND	ND	ND	0.08	
	HG	mg/l	0.000042	0.000031	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
	MN	mg/l	0.2	0.15	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
	MO	mg/l	1	0.75	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.06	ND	ND	ND	ND	ND	ND	ND	ND	ND	
	NI	mg/l	0.2	0.15	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
	PB	mg/l	0.006	0.0045	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
	SE	mg/l	0.012	0.009	ND	ND	ND	ND	ND	0.001	ND	0.002	ND	ND	ND	0.005	ND	ND	0.001	ND	ND	0.002	0.002	0.001	
	U	mg/l	5	3.75	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
	V	mg/l	0.282	0.2115	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
	ZN	mg/l	10	7.5	ND	0.01	0.01	0.07	0.05	ND	0.02	ND	ND	ND	0.02	0.01	ND	ND	ND	ND	ND	ND	ND	ND	
	RADIUM 226	pCi/l	30	22.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	4+/-2	
	RADIUM 228	pCi/l	30	22.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
	NO3-N	mg/l	6.6 - 8.6	0.00375	2.1	7.3	7.1	0.83	7.1	7.8	7.8	7.8	0.58	7.8	7.8	7.8	7.8	0.49	7.9	7.9	7.9	7.9	7.9	0.6	
	PH	mg/l	0.005	0.00375	0.133	0.133	0.133	0.133	0.133	0.133	0.133	0.133	0.133	0.133	0.133	0.133	0.133	0.133	0.133	0.133	0.133	0.133	0.133	6.9	
	PHENOLS	mg/l	125	93.75	29	29	29	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	ND	
	COD	mg/l	0.00007	0.0000525	0.07	0.07	0.07	0.08	0.08	0.08	0.08	0.08	0.64	0.64	0.64	0.64	0.64	0.1	0.1	0.1	0.1	0.1	0.1	0.6	
	NH3-N	mg/l	0.018	0.0135	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0	ND	ND	ND	ND	ND	
	CN-	mg/l	NOT FOUND	NOT FOUND	NOT FOUND	NOT FOUND	NOT FOUND	NOT FOUND	NOT FOUND	NOT FOUND	NOT FOUND	NOT FOUND	NOT FOUND	NOT FOUND	NOT FOUND	NOT FOUND	NOT FOUND	NOT FOUND	0	ND	ND	ND	ND	ND	
	FECAL COLIFORM	mg/l																							ND
	BOD5	mg/l			<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	5	<3	<3	<3	<3	10	
	TSS	mg/l			3302	3302	3302	3102	3102	3102	3102	3102	3097	3097	3097	3097	3097	3097	3066	3097	3097	3097	3097	2940	
	CONDUCTIVITY	mg/l	4555	3416.25															2880	2880	2880	2880	2880	2777	2777
	TDS	mg/l																							
	ALKALINITY AS CaCO3	mg/l																							
HARDNESS AS CaCO3	mg/l																								
CHLORINE	mg/l	30	22.5																						
TOTAL WATER DISCHARGED ORTLY (GAL)				49361300																					
EAGLE DRAW (GAL)				11700006																					
FARM (GAL)				37861294																					

RO REJECT ANALYSIS		Limits		75% Limit																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
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TELEPHONE
(505) 748-3311

EASYLINK
62905278



REFINING COMPANY

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159

FAX
(505) 746-6410 ACCTG
(505) 746-6155 EXEC
(505) 748-9077 ENGR
(505) 746-4438 P / L

April 11, 1995

RECEIVED

APR 18 1995

Environmental Bureau
Oil Conservation Division

Mr. Roger Anderson
Environmental Bureau
Oil Conservation Division
P.O. Box 2088
Santa Fe, NM 87502

**RE: 1st Quarter 1995 Report on RO Reject Water, Navajo Refining Co., Eddy
County, NM**

Dear Roger,

This letter is sent in regard to Navajo Refining's permit modification of our discharge plan GW-28 which allows us to put our Reverse Osmosis (RO) reject water on our farm or into Eagle Draw. This permit is administered by OCD and the parameters we sample for were set up by OCD. We are sending these results for your files. We are required by OCD to sample this stream every two weeks and those results for this quarter are enclosed.

For this quarter we discharged a total of 33,052,273 gallons. This is broken down as follows: 23,871,086 gallons discharged to Eagle Draw and 9,181,187 gallons discharged to the farm. Since we started discharging the RO reject water we have discharged a total of 272,409,362 gallons. This is broken down as follows: 74,776,390 gallons have been put into Eagle Draw and 197,632,972 gallons have been put on the farm.

If you have any questions concerning this matter, please call me at 505-748-3311.
Thank you for your time.

Regards,
NAVAJO REFINING COMPANY

Darrell Moore
Environmental Specialist

encl.
cc:USEPA, NMED

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

ANALYTICAL RESULTS FOR

NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

Analysis Date: 01/05, 10/95

Sampling Date: 12/30/94

Sample Condition: Intact & Cool

Sample Received by: BL

Project Name: NA

January 13, 1995
Receiving Date: 12/31/94
Sample Type: Water
Project No: NA
Project Location: Artesia, NM

TA#	FIELD CODE	CHLORIDE (mg/L)	FLUORIDE (mg/L)	SULFATE (mg/L)	ALKALINITY (mg/L as CaCO3)	
					HCO3	CO3

T30555	RO Reject Biweekly	214	2.4	1,578	323	0
QC	Quality Control	499	1.0	10	---	---

% Precision	100	97	98	100	100
% Extraction Accuracy	106	100	98	---	---
% Instrument Accuracy	100	100	97	---	---

DETECTION LIMIT	1	0.1	1	10	10
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METHODS: EPA 375.4, 310.1, 340.2; 4500 Cl-B.
QC: Blank Spiked with 500 mg/L CHLORIDE; 1.0 mg/L FLUORIDE; 10.0 mg/L SULFATE.

BL

1-13-95

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDowell

Date

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

ANALYTICAL RESULTS FOR

NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

Analysis Date: 01/12/95

Sampling Date: 12/30/94

Sample Condition: Intact & Cool

Sample Received by: BL

Project Name: NA

January 13, 1995
Receiving Date: 12/31/94
Sample Type: Water
Project No: NA
Project Location: Artesia, NM

TA#	Field Code	POTASSIUM (mg/L)	MAGNESIUM (mg/L)	CALCIUM (mg/L)	SODIUM (mg/L)
-----	------------	---------------------	---------------------	-------------------	------------------

T30555	RO Reject BiWkly	<0.1	504	182	129
QC	Quality Control	51.6	20.0	20.2	21.0

Detection Limit 0.1 0.1 0.05 0.1

% Precision	100	98	98	99
% Extraction Accuracy	91	96	98	101
% Instrument Accuracy	103	100	101	105

METHODS: EPA 200.7.

QC: Blank Spiked with 50.0 mg/L POTASSIUM; 20.0 mg/L MAGNESIUM, CALCIUM, SODIUM.

BS

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonnell

1-13-95

Date

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue

Lubbock, Texas 79424
ANALYTICAL RESULTS FOR

806•794•1296

FAX 806•794•1298

January 13, 1995

Receiving Date: 12/31/94

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

Analysis Date: 01/12/95

Sampling Date: 12/30/94

Sample Condition: Intact & Cool

Sample Received by: BL

Project Name: NA

TOTAL METALS

TA#	FIELD CODE	As (ppm)	Mo (ppm)	Cr (ppm)	Zn (ppm)	Cd (ppm)	Ni (ppm)	Be (ppm)	Fe (ppm)	Co (ppm)	Mn (ppm)	V (ppm)
-----	------------	-------------	-------------	-------------	-------------	-------------	-------------	-------------	-------------	-------------	-------------	------------

T30555	RO Reject BiWkly	0.2	0.07	0.02	0.02	0.02	<0.05	<0.01	0.04	<0.05	<0.1	<0.05
QC	Quality Control	4.9	5.12	5.16	5.08	5.07	5.10	5.01	5.02	5.06	5.1	5.08

DETECTION LIMIT		0.1	0.05	0.01	0.01	0.01	0.05	0.01	0.01	0.05	0.1	0.05
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% Precision		106	104	104	103	102	102	102	100	100	101	102
% Extraction Accuracy		91	92	92	95	94	95	97	94	95	96	98
% Instrument Accuracy		98	102	103	102	101	102	100	100	101	102	102

	Cu (ppm)	Al (ppm)	B (ppm)	Ba (ppm)	V (ppm)	Hg (ppm)	Se (ppm)	Pb (ppm)	Ag (ppm)
T30555	RO Reject BiWkly	<0.05	<0.08	<0.05	<0.5	<0.5	<0.001	<0.001	<0.001
QC	Quality Control	5.15	4.38	4.44	4.6	9.3	0.022	0.046	0.048

DETECTION LIMIT		0.08	0.05	0.5	0.5	0.5	0.001	0.001	0.001
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% Precision		100	107	109	102	102	100	96	100
% Extraction Accuracy		96	75	88	93	98	100	108	112
% Instrument Accuracy		103	88	89	92	95	100	92	96

METHODS: EPA 200.7, 239.2, 270.2, 272.2.

QC: Blank Spiked with 5.0 ppm As, Mn, Ba; 5.00 ppm Mo, Cr, Zn, Cd, Ni, Be, Fe, Co, V, Cu, Al, B; 9.8 ppm V;
0.022 ppm Hg; 0.050 ppm Se, Pb; 0.100 ppm Ag.

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonnell

DATE

1-13-95

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

FAX #: 565-746-9217

Project Name :

Sampler Signature:
David Mace

[illegible]

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue

Lubbock, Texas 79424
ANALYTICAL RESULTS FOR

806•794•1296

FAX 806•794•1298

January 28, 1995

Receiving Date: 01/13/95

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

Analysis Date: 01/26/95

Sampling Date: 01/12/95

Sample Condition: Intact & Cool

Sample Received by: MCD

Project Name: RO Reject Biweekly

TOTAL METALS

TA#	FIELD CODE	AS (ppm)	MO (ppm)	CR (ppm)	ZN (ppm)	CD (ppm)	NI (ppm)	BE (ppm)	FE (ppm)	MN (ppm)	V (ppm)	CU (ppm)
-----	------------	----------	----------	----------	----------	----------	----------	----------	----------	----------	---------	----------

T30946	RO Reject Biweekly	<0.1	0.06	0.01	0.01	0.01	<0.05	<0.05	0.03	<0.1	<0.05	<0.05
QC	Quality Control	5.1	4.84	5.54	5.14	4.46	5.62	4.77	4.69	4.6	4.70	5.48

DETECTION LIMIT		0.1	0.05	0.01	0.01	0.01	0.01	0.01	0.05	0.05	0.05	0.05
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% Precision	100	100	102	102	102	101	101	101	101	104	101	1,000
% Extraction Accuracy	93	88	99	96	79	109	90	85	78	86	110	110
% Instrument Accuracy	102	97	111	103	89	112	95	94	92	94	110	110

	AL (ppm)	B (ppm)	CO (ppm)	BA (ppm)	V (ppm)	Hg (ppm)	Se (ppm)	Pb (ppm)	Ag (ppm)
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T30946	RO Reject Biweekly	<0.08	<0.05	<0.05	<0.5	<0.5	<0.001	<0.001	<0.001
QC	Quality Control	5.18	4.96	4.74	5.0	9.8	0.022	0.046	0.104

DETECTION LIMIT		0.08	0.05	0.05	0.05	0.5	0.001	0.001	0.001
% Precision	101	100	100	102	101	100	104	100	97
% Extraction Accuracy	104	98	91	100	99	100	88	104	108
% Instrument Accuracy	104	99	95	100	100	100	92	92	104

METHODS: EPA 200.7, 239.2, 270.2, 272.2.

QC: Blank Spiked with 0.050 ppm Se, Pb; 0.100 ppm Ag; 10.0 ppm As, Cr; 5.00 ppm Mo, Cd, Ni, Fe, Mn, V, Cu, Al, B, Co; 2.00 ppm Cd; 200 ppm Ba; 9.8 ppm U; 0.022 ppm Hg.

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonell

DATE

1-28-95



TRACE ANALYSIS, INC.

6701 Aberdeen Avenue Lubbock, Texas 79424 806•794•1296 FAX 806•794•1298

ANALYTICAL RESULTS FOR

NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

Analysis Date: 01/13/95

Sampling Date: 01/12/95

Sample Condition: Intact & Cool

Sample Received by: MCD

Project Name: RO Reject Biweekly

January 28, 1995
Receiving Date: 01/13/95
Sample Type: Water
Project No: NA
Project Location: Artesia, NM

TA#	FIELD CODE	CHLORIDE	FLUORIDE	SULFATE	ALKALINITY	
		(mg/L)	(mg/L)	(mg/L)	(mg/L as CaCO3) HCO3	CO3

T30946	RO Reject Biweekly	211	2.3	1,641	334	0
QC	Quality Control	505	0.9	52	---	---

% Precision	100	106	100	100	100	100
% Extraction Accuracy	98	98	105	---	---	---
% Instrument Accuracy	101	100	104	---	---	---

DETECTION LIMIT	1	0.1	1	10	10	
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METHODS: EPA 375.4, 310.1, 340.2; 4500 Cl-B.
QC: Blank Spiked with 500 mg/L CHLORIDE; 1.0 mg/L FLUORIDE; 10.0 mg/L SULFATE.

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonnell

1-28-95

Date

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

ANALYTICAL RESULTS FOR
NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

January 30, 1995

Receiving Date: 01/13/95

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

Analysis Date: 01/26/95

Sampling Date: 01/12/95

Sample Condition: Intact & Cool

Sample Received by: MCD

Project Name: RO Reject Bivkly

TA#	Field Code	POTASSIUM (mg/L)	MAGNESIUM (mg/L)	CALCIUM (mg/L)	SODIUM (mg/L)
-----	------------	---------------------	---------------------	-------------------	------------------

T30946	RO Reject Bivkly	0.4	203	534	130
QC	Quality Control	46.0	21.4	20.5	18.1

Detection Limit		0.1	0.1	0.05	0.1
-----------------	--	-----	-----	------	-----

% Precision		102	98	96	100
% Extraction Accuracy		115	94	87	84
% Instrument Accuracy		92	107	102	90

METHODS: EPA 200.7.

QC: Blank Spiked with 50.0 mg/L POTASSIUM; 20.0 mg/L MAGNESIUM, CALCIUM, SODIUM.

BS

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDowell

1-30-95

Date

6701 Aberdeen Avenue Lubbock, Texas 79424
Tel (806) 794 1296 Fax (806) 794 1298

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Darrell Moore

Phone #: 505 - 746 - 3311

FAX #: 505-748-9077

Company Name & Address:

Address: Navajo Refining Co.

Project #:

Project Name :

Project Location:

Sampler Signature:

[illegible]

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

February 09, 1995

Receiving Date: 01/27/95

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

ANALYTICAL RESULTS FOR
NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

Analysis Date: 01/27/95

Sampling Date: 01/26/95

Sample Condition: Intact & Cool

Sample Received by: DA

Project Name: RO Reject

TA#	FIELD CODE	CHLORIDE	FLUORIDE	SULFATE	ALKALINITY	
		(mg/L)	(mg/L)	(mg/L)	(mg/L as CaCO ₃)	HC03

T31530	RO Reject Biweekly	225	2.7	1,495	231	0
QC	Quality Control	489	1.1	10	---	---

% Precision	101	100	96	100	100
% Extraction Accuracy	99	104	104	---	---
% Instrument Accuracy	99	104	102	---	---

DETECTION LIMIT	1	0.1	1	10	10
-----------------	---	-----	---	----	----

METHODS: EPA 375.4, 310.1, 340.2; 4500 Cl-B.

QC: Blank Spiked with 500 mg/L CHLORIDE; 1.0 mg/L FLUORIDE; 10.0 mg/L SULFATE.

BS

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDowell

2-9-95

Date

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

ANALYTICAL RESULTS FOR
NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

Analysis Date: 02/06/95

Sampling Date: 01/26/95

Sample Condition: Intact & Cool

Sample Received by: YL

Project Name: RO Reject

February 09, 1995

Receiving Date: 01/27/95

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

TA# Field Code

POTASSIUM
(mg/L)

MAGNESIUM
(mg/L)

CALCIUM
(mg/L)

SODIUM
(mg/L)

T31530 RO Reject Biweekly
QC Quality Control

3.3 209 589 171
10.0 20.2 19.3 18.6

Detection Limit

0.1 0.1 0.05 0.1

% Precision	104	96	96	101
% Extraction Accuracy	115	102	93	98
% Instrument Accuracy	100	101	96	93

METHODS: EPA 200.7.

QC: Blank Spiked with 10.0 mg/L POTASSIUM; 20.0 mg/L MAGNESIUM, CALCIUM, SODIUM.

BS

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonell

2-4-95

Date

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue

Lubbock, Texas 79424

ANALYTICAL RESULTS FOR

806•794•1296

FAX 806•794•1298

February 09, 1995

Receiving Date: 01/27/95

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

Analysis Date: 02/06/95

Sampling Date: 01/26/95

Sample Condition: Intact & Cool

Sample Received by: DA

Project Name: RO Reject

TOTAL METALS

TA#	FIELD CODE	As (mg/L)	Mo (mg/L)	Cr (mg/L)	Zn (mg/L)	Cd (mg/L)	Ni (mg/L)	Be (mg/L)	Fe (mg/L)	Co (mg/L)	Mn (mg/L)	V (mg/L)
-----	------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	-------------

T31530	RO Reject Biweekly	<0.1	<0.05	<0.01	<0.01	<0.01	<0.05	<0.01	0.04	<0.05	<0.1	<0.05
QC	Quality Control	5.5	5.50	5.43	5.42	5.79	5.36	5.30	5.46	5.40	5.4	5.38

DETECTION LIMIT		0.1	0.05	0.01	0.01	0.01	0.05	0.01	0.01	0.05	0.1	0.05
-----------------	--	-----	------	------	------	------	------	------	------	------	-----	------

% Precision	100	101	101	101	101	98	98	99	98	97	98	95
% Extraction Accuracy	100	99	98	101	101	105	95	98	103	98	100	104
% Instrument Accuracy	110	110	109	108	116	107	106	109	108	108	108	108

	Cu (mg/L)	Al (mg/L)	B (mg/L)	Ba (mg/L)	U (mg/L)	Hg (mg/L)	Se (mg/L)	Pb (mg/L)	Ag (mg/L)
T31530	RO Reject Biweekly	<0.05	<0.08	<0.05	<0.5	<0.5	<0.001	0.005	<0.001
QC	Quality Control	5.06	5.06	5.20	222	9.8	0.022	0.046	0.048
DETECTION LIMIT		0.05	0.08	0.05	0.5	0.5	0.001	0.001	0.001

% Precision	96	98	97	96	93	100	105	106	96
% Extraction Accuracy	96	87	108	91	96	100	71	96	114
% Instrument Accuracy	101	101	104	111	100	100	93	96	94

METHODS: EPA 200.7, 239.2, 270.2, 272.2.

QC: Blank Spiked with 0.050 mg/L Se, Pb; 0.100 mg/L Ag; 5.0 mg/L As, Mn, Cu; 5.00 mg/L Mo, Cr, Zn, Cd, Ni, Be, Fe, Co, V, Al, B; 200 mg/L Ba; 9.8 mg/L U; 0.022 mg/L Hg.

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonnell

DATE

2-9-95

027A14

6701 Aberdeen Avenue Lubbock, Texas 79424
Tel (806) 794 1296 Fax (806) 794 1298

Project Manager:

Darrell Moore

Phone #: 505-748-3311

FAX #: 525-748-9077

Company Name & Address:

Address: Navajo Refining Co.

Project #:

Project Name :

Project Location:

Sampler Signature:

[illegible]

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

ANALYTICAL RESULTS FOR

NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

Analysis Date: 02/13/95

Sampling Date: 02/10/95

Sample Condition: Intact & Cool

Sample Received by: BL

Project Name: RO Reject

Bi-Weekly

February 16, 1995
Receiving Date: 02/11/95
Sample Type: Water
Project No: NA
Project Location: Artesia, NM

TA#	FIELD CODE	CHLORIDE (mg/L)	FLUORIDE (mg/L)	SULFATE (mg/L)	ALKALINITY (mg/L as CaCO ₃)	
					HCO ₃	CO ₃

T32134	RO Reject Bi-Weekly	205	2.4	1,562	286	0
QC	Quality Control	504	1.1	11	---	---

% Precision	100	97	103	100	100
% Extraction Accuracy	101	98	100	---	---
% Instrument Accuracy	101	102	102	---	---

DETECTION LIMIT	1	0.1	1	10	10
-----------------	---	-----	---	----	----

METHODS: EPA 375.4, 310.1, 340.2; 4500 Cl-B.
QC: Blank Spiked with 500 mg/L CHLORIDE; 1.0 mg/L FLUORIDE; 10.0 mg/L SULFATE.

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonnell

Date

2-16-95

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

ANALYTICAL RESULTS FOR

NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

Analysis Date: 02/21/95

Sampling Date: 02/10/95

Sample Condition: Intact & Cool

Sample Received by: BL

Project Name: RO Reject Bi-Weekly

February 21, 1995
Receiving Date: 02/11/95
Sample Type: Water
Project No: NA
Project Location: Artesia, NM

TA#	Field Code	POTASSIUM (mg/L)	MAGNESIUM (mg/L)	CALCIUM (mg/L)	SODIUM (mg/L)
-----	------------	---------------------	---------------------	-------------------	------------------

T32134	RO Reject Bi-Weekly	3.3	176	510	133
QC	Quality Control	52.0	19.4	19.2	20.2

Detection Limit 0.1 0.1 0.05 0.1

% Precision	% Extraction Accuracy	% Instrument Accuracy
94	98	100
88	116	100
104	97	96
		101

METHODS: EPA 200.7.
QC: Blank Spiked with 50.0 mg/L POTASSIUM; 20.0 mg/L MAGNESIUM, CALCIUM, SODIUM.

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonell

Date

2-21-95

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue

Lubbock Texas 79424
ANALYTICAL RESULTS FOR

806•794•1296

FAX 806•794•1298

February 21, 1995
Receiving Date: 02/11/95
Sample Type: Water
Project No: NA
Project Location: Artesia, NM

Attention: Darrell Moore
501 E. Main
Artesia, NM 88210

Analysis Date: 02/21/95
Sampling Date: 02/10/95
Sample Condition: Intact & Cool
Sample Received by: BL
Project Name: RO Reject Bi-Weekly

TOTAL METALS

TA#	FIELD CODE	As (mg/L)	Mo (mg/L)	Cr (mg/L)	Zn (mg/L)	Cd (mg/L)	Ni (mg/L)	Be (mg/L)	Fe (mg/L)	Co (mg/L)	Mn (mg/L)	V (mg/L)
T32134	RO Reject Biweekly	<0.1	<0.05	<0.01	<0.01	<0.01	<0.05	<0.01	0.09	<0.05	<0.05	<0.05
QC	Quality Control	5.2	5.37	5.14	5.60	5.21	5.44	5.31	5.56	5.55	5.56	5.21
DETECTION LIMIT												
		0.1	0.05	0.01	0.01	0.01	0.05	0.01	0.01	0.05	0.1	0.05
% Precision												
		101	100	101	99	100	99	102	98	94	100	100
% Extraction Accuracy												
		105	93	92	115	96	92	100	102	86	103	98
% Instrument Accuracy												
		104	107	103	112	104	109	106	111	111	111	104
DETECTION LIMIT												
		0.1	0.08	0.05	0.5	0.5	0.001	0.001	0.001	0.001	0.001	0.001
T32134	RO Reject Biweekly	<0.05	<0.05	<0.05	<0.05	<0.5	<0.001	<0.001	0.004	<0.001	<0.001	<0.001
QC	Quality Control	5.24	4.73	4.80	197	9.8	0.022	0.087	0.050	0.107		
DETECTION LIMIT												
		0.05	0.08	0.05	0.5	0.5	0.001	0.001	0.001	0.001	0.001	0.001
% Precision												
		102	106	100	103	96	100	111	98	98		
% Extraction Accuracy												
		98	99	98	113	96	100	100	92	116		
% Instrument Accuracy												
		105	95	96	98	100	100	87	100	107		

METHODS: EPA 200.7, 239.2, 270.2, 272.2.

TOTAL METALS QC: Blank spiked with 0.100 mg/L Se, Ag; 0.050 mg/L Pb; 5.0 mg/L As; 5.00 mg/L Mo, Cr, Zn, Cd, Ni, Be, Fe, Co, Mn, V, Cu, Al, B; 200 mg/L Ba; 9.8 mg/L U and 0.022 mg/L Hg.

BS

2-21-95

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDowell

DATE

TraceAnalysis, Inc.

6701 Aberdeen Avenue Lubbock, Texas 79424
Tel (806) 794 1296 Fax (806) 794 1298

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Project Manager:

DARRELL MOORE

Phone #: 505-748-3311

FAX #: 505-748-9077

ANALYSIS REQUEST

SPECIAL HANDLING

Company Name & Address:

Alavajo Refining Co.

Project #:

Project Name:

Project Location:

Artesia Area

Sampler Signature:

Darrell Moore

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX					PRESERVATIVE METHOD					SAMPLING		BTEX, MTBE	TPH	TCLP Metals Ag As Ba Cd Cr Pb Hg Se	Total Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Volatiles	TCLP Semi Volatiles	TDS	RCI	Turn around # of days	Fax ASAP	Report TWC direct	Hold					
				WATER	SOIL	AIR	SLUDGE	OTHER	HCL	HNO3	ICE	NONE	OTHER	DATE	TIME																	
32/34	Rocky	2		X						X	X	X			1/13/95	13:30	X		Sec 4, 5, 6													
35	RA 200	2		X						X	X	X			1/14/95	14:00	X		Sec 4, 5, 6													
36	RA 200	2		X						X	X	X			1/15/95	15:00	X		Sec 4, 5, 6													
37	RA 200	2		X						X	X	X			1/15/95	15:00	X		Sec 4, 5, 6													
38	RA 200	2		X						X	X	X			1/15/95	15:00	X		Sec 4, 5, 6													
39	RA 200	2		X						X	X	X			1/15/95	15:00	X		Sec 4, 5, 6													

Relinquished by:

Darrell Moore

Date:

2/10/95

Times:

16:30

Received by:

REMARKS

Alky Ceiling Two. Insufficiently caught only one VOM for each kept with.

Relinquished by:

Date:

2-11-95

Times:

11:16

Received by Laboratory:

1/27

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

FAX #: 505-748-9077

Project Name :

Sampler Signature: Daniel Moore

[illegible]



TRACE ANALYSIS, INC.

6701 Aberdeen Avenue Lubbock, Texas 79424 806•794•1296 FAX 806•794•1298

ANALYTICAL RESULTS FOR

NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

Analysis Date: 02/23/95

Sampling Date: 02/22/95

Sample Condition: Intact & Cool

Sample Received by: DA

Project Name: RO Reject Biweekly

March 07, 1995
Receiving Date: 02/23/95
Sample Type: Water
Project No: NA
Project Location: Artesia, NM

TA# FIELD CODE

CHLORIDE (mg/L)	FLUORIDE (mg/L)	SULFATE (mg/L)	ALKALINITY (mg/L as CaCO3)	
			HCO3	CO3

T32435	RO Reject Biweekly	161	2.3	1,626	288	0
QC	Quality Control	504	1.0	10	---	---

% Precision	100	100	103	101	101
% Extraction Accuracy	103	98	86	---	---
% Instrument Accuracy	101	101	98	---	---

DETECTION LIMIT	1	0.1	1	10	10
-----------------	---	-----	---	----	----

METHODS: EPA 375.4, 310.1, 340.2; 4500 Cl-B.

QC: Blank Spiked with 500 mg/L CHLORIDE; 1.0 mg/L FLUORIDE; 10.0 mg/L SULFATE.

3-7-95

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonell

Date

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

ANALYTICAL RESULTS FOR

NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

Analysis Date: 03/02/95

Sampling Date: 02/22/95

Sample Condition: Intact & Cool

Sample Received by: DA

Project Name: RO Reject Biweekly

March 07, 1995

Receiving Date: 02/23/95

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

TA#	Field Code	POTASSIUM (mg/L)	MAGNESIUM (mg/L)	CALCIUM (mg/L)	SODIUM (mg/L)
-----	------------	---------------------	---------------------	-------------------	------------------

T32435	RO Reject Biweekly	4.0	454	160	116
QC	Quality Control	48.7	18.8	19.7	19.8

Detection Limit	0.1	0.1	0.05	0.1
-----------------	-----	-----	------	-----

% Precision	99	101	102	102
% Extraction Accuracy	111	92	98	112
% Instrument Accuracy	97	94	98	99

METHODS: EPA 200.7.

QC: Blank Spiked with 50.0 mg/L POTASSIUM; 20.0 mg/L MAGNESIUM, CALCIUM, SODIUM.



Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonnell

3-7-95

Date

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

March 07, 1995

Receiving Date: 02/23/95

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

Analysis Date: 03/02/95

Sampling Date: 02/22/95

Sample Condition: Intact & Cool

Sample Received by: DA

Project Name: RO Reject Biweekly

TOTAL METALS

TA#	FIELD CODE	As (mg/L)	Mo (mg/L)	Cr (mg/L)	Zn (mg/L)	Cd (mg/L)	Ni (mg/L)	Be (mg/L)	Fe (mg/L)	Co (mg/L)	Mn (mg/L)	V (mg/L)
-----	------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	-------------

T32435	RO Reject Biweekly	<0.1	<0.05	<0.01	<0.01	<0.01	<0.05	<0.01	0.02	<0.05	<0.1	<0.05
QC	Quality Control	5.3	5.25	5.05	5.10	5.02	5.81	5.22	5.28	4.94	5.2	5.10

DETECTION LIMIT		0.1	0.05	0.01	0.01	0.01	0.05	0.01	0.01	0.05	0.1	0.05
-----------------	--	-----	------	------	------	------	------	------	------	------	-----	------

% Precision	98	98	100	97	100	98	98	98	98	99	99	98
% Extraction Accuracy	105	98	100	95	95	106	98	96	90	96	98	98
% Instrument Accuracy	106	105	101	102	100	116	104	106	99	104	102	102

	Cu (mg/L)	Al (mg/L)	B (mg/L)	Ba (mg/L)	V (mg/L)	Hg (mg/L)	Se (mg/L)	Pb (mg/L)	Ag (mg/L)
T32435	RO Reject Biweekly	<0.05	<0.08	<0.05	<0.5	<0.5	<0.001	<0.001	<0.001
QC	Quality Control	5.18	5.31	5.38	204	10.1	0.022	0.047	0.110

DETECTION LIMIT		0.05	0.08	0.05	0.5	0.5	0.001	0.001	0.001
-----------------	--	------	------	------	-----	-----	-------	-------	-------

% Precision	98	99	95	100	100	100	112	104	100
% Extraction Accuracy	92	108	105	110	125	100	92	108	106
% Instrument Accuracy	104	106	108	102	103	100	94	106	110

METHODS: EPA 200.7, 239.2, 270.2, 272.2.

QC: Blank Spiked with 0.050 mg/L Se, Pb; 0.100 mg/L Ag; 5.0 mg/L As, Mn, Al; 5.00 mg/L Mo, Cr, Zn, Cd, Ni, Be, Fe, Co, V, Cu, B; 200 mg/L Ba; 9.8 mg/L V, Al, B; 200 mg/L Ba; 9.8 mg/L U; 0.022 mg/L Hg

BS

3-7-95

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonnell

DATE

OS4 AG

TraceAnalysis, Inc.

6701 Aberdeen Avenue Lubbock, Texas 79424
Tel (806) 794 1296 Fax (806) 794 1298

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Project Manager:

Darrell Moore

Phone #: 505-748-3311

FAX #: 505-748-9017

ANALYSIS REQUEST

SPECIAL HANDLING

Company Name & Address:

Navajo Refining Co.

Project #:

Project Name:

Project Location:

Artesia NM

Sampler Signature:

Darrell Moore

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX					PRESERVATIVE METHOD					DATE	TIME	BTEX, MTBE	TPH	TCLP Metals Ag As Ba Cd Cr Pb Hg Se	Total Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Volatiles	TCLP Semi Volatiles	TDS	RCI	Turn around # of days	Fax ASAP	Report TWC direct	Hold					
				WATER	SOIL	AIR	SLUDGE	OTHER	HCL	HNO3	ICE	NONE	OTHER																			
32435	RO 12-gal B. w/ky	2		X						X	X	X			7/24/95 15:00																	
32436	RA 2723	2	400 ml	X						X	X	X			7/24/95 15:15	X																
32437	RA 4194	"	"	"						"	"	"			" 15:30	X																
32438	RA 4793	"	"	"						"	"	"			" 15:45	X																
32439	RA 5000	"	"	"						"	"	"			" 16:00	X																

Relinquished by:

Darrell Moore

Date: 7/22/95

Times:

16:30

Received by:

REMARKS

Relinquished by:

Date:

Times:

Received by:

Relinquished by:

Date:

Times:

Received by Laboratory:

PLA 2355

6701 Aberdeen Avenue
Lubbock, Texas 79424
806•794•1296
FAX 806•794•1298

ANALYTICAL RESULTS FOR
NAVAJO REFINING
Attention: Darrell Moore
501 E. Main
Artesia, NM 88210

March 31, 1995
Receiving Date: 03/11/95
Sample Type: Water
Project No: NA
Project Location: Artesia, NM

Analysis Date: 03/27/95
Sampling Date: 03/10/95
Sample Condition: Intact & Cool
Sample Received by: CC
Project Name: NA

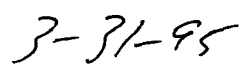
TA#	FIELD CODE	TOTAL RADIUM (pCi/liter)
T33139	RO Rejecrt Qtrly.	<1

Detection Limit

1



Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonell



DATE


TRACE ANALYSIS, INC.

A Laboratory for Advanced Environmental Research and Analysis

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

ANALYTICAL RESULTS FOR

NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

March 31, 1995

Receiving Date: 03/11/95

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

Analysis Date: 03/13/95

Sampling Date: 03/10/95

Sample Condition: Intact & Cool

Sample Received by: CC

Project Name: NA

TA#	FIELD CODE	CHLORIDE (mg/L)	FLUORIDE (mg/L)	SULFATE (mg/L)	ALKALINITY (mg/L as CaCO ₃)	
					HCO ₃	CO ₃
T33139	RO Reject Qtrly.	210	2.4	729	310	0
QC	Quality Control	504	1.1	10	---	---
	% Precision	100	100	98	98	98
	% Extraction Accuracy	99	109	123	---	---
	% Instrument Accuracy	101	106	98	---	---

DETECTION LIMIT

1	0.1	1	10	10
---	-----	---	----	----

METHODS: EPA 375.4, 310.1, 340.2; 4500 Cl-B.

QC: Blank Spiked with 500 mg/L CHLORIDE; 1.0 mg/L FLUORIDE; 10.0 mg/L SULFATE.

PS

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonell

3-31-95

Date

6701 Aberdeen Avenue
Lubbock, Texas 79424
806•794•1296
FAX 806•794•1298

ANALYTICAL RESULTS FOR
NAVAJO REFINING
Attention: Darrell Moore
501 E. Main
Artesia, NM 88210

March 31, 1995
Receiving Date: 03/11/95
Sample Type: Water
Project No: NA
Project Location: Artesia, NM

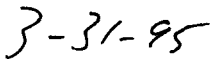
Sampling Date: 03/10/95
Sample Condition: Intact & Cool
Sample Received by: CC
Project Name: NA

TA#	FIELD CODE	FECAL COLIFORM (/100mL)
T33139	RO Reject Qtrly.	0

METHODS: EPA 600/8-78-017.



Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonell



DATE


TRACE ANALYSIS, INC.

A Laboratory for Advanced Environmental Research and Analysis

6701 Aberdeen Avenue
Lubbock, Texas 79424
806•794•1296
FAX 806•794•1298

ANALYTICAL RESULTS FOR
NAVAJO REFINING
Attention: Darrell Moore
501 E. Main
Artesia, NM 88210

March 31, 1995
Receiving Date: 03/11/95
Sample Type: Water
Project No: NA
Project Location: Artesia, NM

Analysis Date: 03/22/95
Sampling Date: 03/10/95
Sample Condition: Intact & Cool
Sample Received by: CC
Project Name: NA

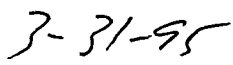
TA#	FIELD CODE	TOTAL CN- (mg/L)
T33139	RO Reject Qtrly.	<0.01
QC	Quality Control	0.41
% Precision		101
% Extraction Accuracy		90
% Instrument Accuracy		101
Detection Limit		0.01

METHODS: EPA 335.2.

TOTAL CN- SPIKE AND QC: Sample and Blank spiked with 0.04 mg/L TOTAL CN-.



Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonell



DATE


TRACE ANALYSIS, INC.

A Laboratory for Advanced Environmental Research and Analysis

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue

Lubbock, Texas 79424

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ANALYTICAL RESULTS FOR

NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

March 31, 1995

Receiving Date: 03/11/95

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

Analysis Date: 03/13/95

Sampling Date: 03/10/95

Sample Condition: Intact & Cool

Sample Received by: CC

Project Name: NA

TA#	FIELD CODE	pH (s.u.)	CHLORINE (mg/L)	PHENOL (mg/L)	COD (mg/L)	NH3-N (mg/L)	TDS (mg/L)
T33139	RO Reject Qtrly.	7.9	<0.1	<0.1	<20	0.1	2,880
QC	Quality Control	7.0	---	0.8	73	4.6	---
% Precision		100	100	99	100	103	100
% Extraction Accuracy		---	---	113	81	92	---
% Instrument Accuracy		100	---	101	97	97	---
DETECTION LIMIT		---	0.1	0.1	20	0.1	1
		BOD (mg/L)	TSS (mg/L)	EC (uMHOS/cm)	NO3-N (mg/L)		
T33139	RO Reject Qtrly.	<3	5	3,066	0.49		
QC	Quality Control	207	---	1,415	1.03		
% Precision		91	103	101	101		
% Extraction Accuracy		---	---	---	109		
% Instrument Accuracy		104	---	100	103		

DETECTION LIMIT

3 1
METHODS: EPA 420.1, 353.3, 410.4, 350.2, 405.1, 160.2, 150.1, 160.1, 330.4.
NH3-N SPIKE AND QC: Sample and Blank spiked with 5.0 mg/L NH3-N.
COD SPIKE AND QC: Sample and Blank spiked with 75 mg/L COD.

3-31-95

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonnell

Date

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ANALYTICAL RESULTS FOR

NAVAJO REFINING

March 31, 1995

Receiving Date: 03/11/95

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

Analysis Date: 03/21/95

Sampling Date: 03/10/95

Sample Condition: Intact & Cool

Sample Received by: CC

Project Name: NA

TA#	Field Code	POTASSIUM (mg/L)	MAGNESIUM (mg/L)	CALCIUM (mg/L)	SODIUM (mg/L)
T33139	RO Reject Qtrly.	1.8	75.9	207	62.7
QC	Quality Control	51.5	20.4	20.0	19.8
Detection Limit					
		0.1	0.1	0.05	0.1
% Precision					
		96	95	88	94
% Extraction Accuracy					
		117	109	138	92
% Instrument Accuracy					
		102	102	100	99

METHODS: EPA 200.7.

QC: Blank Spiked with 50.0 mg/L POTASSIUM; 20.0 mg/L MAGNESIUM, CALCIUM, SODIUM.

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonell

Date

3-31-95



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ANALYTICAL RESULTS FOR

NAVAJO REFINING

Analysis Date: 03/20/95

March 31, 1995

Receiving Date: 03/11/95

Sampling Date: 03/10/95

Sample Type: Water

Attention: Darrell Moore

Sample Condition: Intact & Cool

Project No: NA

501 E. Main

Sample Received by: CC

Project Location: Artesia, NM

Artesia, NM 88210

Project Name: NA

TOTAL METALS

TA#	FIELD CODE	As (mg/L)	Mo (mg/L)	Cr (mg/L)	Zn (mg/L)	Cd (mg/L)	Ni (mg/L)	Be (mg/L)	Fe (mg/L)	Co (mg/L)	Mn (mg/L)	V (mg/L)
T33139	RO Reject Qtrly.	<0.1	<0.05	<0.01	<0.01	0.01	<0.05	<0.01	<0.01	<0.05	<0.1	<0.05
QC	Quality Control	5.2	5.15	5.09	5.06	5.10	5.24	5.07	5.06	5.02	5.2	5.12
DETECTION LIMIT												
% Precision		98	99	99	99	98	101	99	98	99	98	98
% Extraction Accuracy		110	103	101	105	101	110	106	102	96	100	106
% Instrument Accuracy		104	103	102	101	102	105	101	101	100	104	102

	Cu (mg/L)	Al (mg/L)	B (mg/L)	Ba (mg/L)	U (mg/L)	Hg (mg/L)	Se (mg/L)	Pb (mg/L)	Ag (mg/L)
T33139	RO Reject Qtrly.	<0.05	0.11	<0.05	<0.5	<0.001	0.001	<0.001	<0.001
QC	Quality Control	5.13	5.18	5.21	5.1	0.022	0.045	0.050	0.108
DETECTION LIMIT									
% Precision		99	100	100	98	100	100	100	108
% Extraction Accuracy		102	114	118	100	95	92	88	108
% Instrument Accuracy		103	104	104	102	100	90	98	108

METHODS: EPA 200.7, 239.2, 270.2, 272.2.

QC: Blank Spiked with 0.022 mg/L Hg; 0.050 mg/L Se, Pb; 0.100 mg/L Ag; 9.8 mg/L U, 5.0 mg/L Ba, As, Mo, Cr, Zn, Cd, Ni, Be, Fe, Co, Mn, V, Cu; 5.00 mg/L Al, B.

BS

3-31-95

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonell

DATE

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ANALYTICAL RESULTS FOR
NAVAJO REFINING
Attention: Darrell Moore
501 E. Main
Artesia, NM 88210

PAGE 1 of 2

March 31, 1995
Receiving Date: 03/11/95
Sample Type: Water
Project No: NA
Project Location: Artesia, NM

Analysis Date: 03/18/95
Sampling Date: 03/10/95
Sample Condition: Intact & Cool
Sample Received by: CC
Project Name: NA

EPA 624 Compounds (ppb)	T33139 RO Reject Qtrly.	Detection Limit
Dichlorodifluoromethane	ND	1
Chloromethane	ND	1
Vinyl chloride	ND	1
Bromomethane	ND	1
Chloroethane	ND	1
Trichlorofluoromethane	ND	1
1,1-Dichloroethene	ND	1
Iodomethane	ND	1
Carbon disulfide	ND	1
Methylene chloride	ND	1
trans-1,2-Dichloroethene	ND	1
1,1-Dichloroethane	ND	1
Vinyl acetate	ND	1
2-Butanone	ND	50
Chloroform	ND	1
1,1,1-Trichloroethane	ND	1
1,2-Dichloroethane	ND	1
Benzene	ND	1
Carbon Tetrachloride	ND	1
1,2-Dichloropropane	ND	1
Trichloroethene	ND	1
Bromodichloromethane	ND	1
cis-1,3-Dichloropropene	ND	1
4-Methyl-2-pentanone	ND	50
trans-1,3-Dichloropropene	ND	1
Toluene	ND	1
1,1,2-Trichloroethane	ND	1
2-Hexanone	ND	50

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EPA 624 Compounds (ppb)	T33139	
	RO Reject Qtrly.	Detection Limit
Dibromochloromethane	1	1
Tetrachloroethene	ND	1
Chlorobenzene	ND	1
Ethylbenzene	ND	1
m & p-Xylene	ND	1
Bromoform	2	1
Styrene	ND	1
o-Xylene	ND	1
1,1,2,2-Tetrachloroethane	ND	1
trans 1,4-Dichloro-2-butene	ND	5
cis 1,4-Dichloro-2-butene	ND	5
1,4-Dichlorobenzene	ND	2
1,3-Dichlorobenzene	ND	2
1,2-Dichlorobenzene	ND	2

SURROGATES

% RECOVERY

Dibromofluoromethane	102
Toluene-d8	99
4-Bromofluorobenzene	99

*ND = Not Detected

METHODS: EPA 624.



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Director, Dr. Bruce McDonell

3-31-95

Date

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ANALYTICAL RESULTS FOR
NAVAJO REFINING
Attention: Darrell Moore
501 E. Main
Artesia, NM 88210

March 31, 1995
Receiving Date: 03/11/95
Sample Type: Water
Sample Condition: I & C
Sample Received by: CC
Project # NA
Project Location: Artesia, NM
Analysis Date: 03/24/95

T33139

EPA 625 (ppm)	DL	RO Reject Qtrly.	QC	%P	%EA	%IA
N-Nitrosodimethylamine	0.001	ND	44.5			89
Phenol	0.001	ND	52.8	99	31	106
bis(2-Chloroethyl)ether	0.005	ND	46.7			93
2-Chlorophenol	0.005	ND	49.9	99	73	100
1,3-Dichlorobenzene	0.001	ND	49.9	100	67	100
1,4-Dichlorobenzene	0.001	ND	49.7	99	72	99
1,2-Dichlorobenzene	0.001	ND	50.			101
bis(2-chloroisopropyl)ether	0.005	ND	40.2			80
n-Nitrosodi-n-propylamine	0.001	ND	50.8	100	67	102
Hexachloroethane	0.001	ND	46.6			93
Nitrobenzene	0.001	ND	51.2			102
Isophorone	0.005	ND	48.6			97
2-Nitrophenol	0.005	ND	46.9			94
2,4-Dimethylphenol	0.005	ND	49.7			99
bis(2-Chloroethoxy)methane	0.001	ND	51.7			103
2,4-Dichlorophenol	0.005	ND	49.4			99
1,2,4-Trichlorobenzene	0.001	ND	33.4	100	82	67
Naphthalene	0.001	ND	47.4			95
Hexachlorobutadiene	0.001	ND	43.9			88
4-Chloro-3-methylphenol	0.005	ND	49.6	99	61	99
Hexachlorocyclopentadiene	0.001	ND	45.8			92
2,4,6-Trichlorophenol	0.005	ND	45.0			90
2-Chloronaphthalene	0.001	ND	45.7			91
Dimethylphthalate	0.001	ND	48.5			97
Acenaphthylene	0.001	ND	46.7			93
2,6-Dinitrotoluene	0.001	ND	49.2			98
Acenaphthene	0.001	ND	48.5	99	78	97
2,4-Dinitrophenol	0.005	ND	41.0			82
4-Nitrophenol	0.005	ND	39.7	115	33	79
2,4-Dinitrotoluene	0.001	ND	47.8	100	62	96

NO REJECT ANALYSIS		1791 Lm		06/17/03		06/10/03		07/02/03		08/11/03		09/17/03		11/11/03		12/02/03		12/17/03		01/16/04		01/29/04		02/19/04		02/26/04		03/10/04		03/20/04		04/14/04		05/06/04		05/19/04		06/03/04		06/24/04		07/07/04		07/28/04		08/11/04		08/26/04		09/09/04		09/24/04		10/07/04		10/20/04		10/29/04		11/05/04		11/19/04		12/03/04		12/17/04		01/07/05		01/21/05		02/04/05		02/18/05		03/05/05		03/19/05		04/02/05		04/16/05		05/03/05		05/17/05		06/04/05		06/18/05		07/02/05		07/16/05		08/03/05		08/17/05		09/04/05		09/18/05		10/02/05		10/16/05		10/30/05		11/13/05		11/27/05		12/11/05		12/25/05		01/08/06		01/22/06		02/05/06		02/19/06		03/05/06		03/19/06		04/02/06		04/16/06		05/03/06		05/17/06		06/04/06		06/18/06		07/02/06		07/16/06		08/03/06		08/17/06		09/04/06		09/18/06		10/02/06		10/16/06		10/30/06		11/13/06		11/27/06		12/11/06		12/25/06		01/08/07		01/22/07		02/05/07		02/19/07		03/05/07		03/19/07		04/02/07		04/16/07		05/03/07		05/17/07		06/04/07		06/18/07		07/02/07		07/16/07		08/03/07		08/17/07		09/04/07		09/18/07		10/02/07		10/16/07		10/30/07		11/13/07		11/27/07		12/11/07		12/25/07		01/08/08		01/22/08		02/05/08		02/19/08		03/05/08		03/19/08		04/02/08		04/16/08		05/03/08		05/17/08		06/04/08		06/18/08		07/02/08		07/16/08		08/03/08		08/17/08		09/04/08		09/18/08		10/02/08		10/16/08		10/30/08		11/13/08		11/27/08		12/11/08		12/25/08		01/08/09		01/22/09		02/05/09		02/19/09		03/05/09		03/19/09		04/02/09		04/16/09		05/03/09		05/17/09		06/04/09		06/18/09		07/02/09		07/16/09		08/03/09		08/17/09		09/04/09		09/18/09		10/02/09		10/16/09		10/30/09		11/13/09		11/27/09		12/11/09		12/25/09		01/08/10		01/22/10		02/05/10		02/19/10		03/05/10		03/19/10		04/02/10		04/16/10		05/03/10		05/17/10		06/04/10		06/18/10		07/02/10		07/16/10		08/03/10		08/17/10		09/04/10		09/18/10		10/02/10		10/16/10		10/30/10		11/13/10		11/27/10		12/11/10		12/25/10		01/08/11		01/22/11		02/05/11		02/19/11		03/05/11		03/19/11		04/02/11		04/16/11		05/03/11		05/17/11		06/04/11		06/18/11		07/02/11		07/16/11		08/03/11		08/17/11		09/04/11		09/18/11		10/02/11		10/16/11		10/30/11		11/13/11		11/27/11		12/11/11		12/25/11		01/08/12		01/22/12		02/05/12		02/19/12		03/05/12		03/19/12		04/02/12		04/16/12		05/03/12		05/17/12		06/04/12		06/18/12		07/02/12		07/16/12		08/03/12		08/17/12		09/04/12		09/18/12		10/02/12		10/16/12		10/30/12		11/13/12		11/27/12		12/11/12		12/25/12		01/08/13		01/22/13		02/05/13		02/19/13		03/05/13		03/19/13		04/02/13		04/16/13		05/03/13		05/17/13		06/04/13		06/18/13		07/02/13		07/16/13		08/03/13		08/17/13		09/04/13		09/18/13		10/02/13		10/16/13		10/30/13		11/13/13		11/27/13		12/11/13		12/25/13		01/08/14		01/22/14		02/05/14		02/19/14		03/05/14		03/19/14		04/02/14		04/16/14		05/03/14		05/17/14		06/04/14		06/18/14		07/02/14		07/16/14		08/03/14		08/17/14		09/04/14		09/18/14		10/02/14		10/16/14		10/30/14		11/13/14		11/27/14		12/11/14		12/25/14		01/08/15		01/22/15		02/05/15		02/19/15		03/05/15		03/19/15		04/02/15		04/16/15		05/03/15		05/17/15		06/04/15		06/18/15		07/02/15		07/16/15		08/03/15		08/17/15		09/04/15		09/18/15		10/02/15		10/16/15		10/30/15		11/13/15		11/27/15		12/11/15		12/25/15		01/08/16		01/22/16		02/05/16		02/19/16		03/05/16		03/19/16		04/02/16		04/16/16		05/03/16		05/17/16		06/04/16		06/18/16		07/02/16		07/16/16		08/03/16		08/17/16		09/04/16		09/18/16		10/02/16		10/16/16		10/30/16		11/13/16		11/27/16		12/11/16		12/25/16		01/08/17		01/22/17		02/05/17		02/19/17		03/05/17		03/19/17		04/02/17		04/16/17		05/03/17		05/17/17		06/04/17		06/18/17		07/02/17		07/16/17		08/03/17		08/17/17		09/04/17		09/18/17		10/02/17		10/16/17		10/30/17		11/13/17		11/27/17		12/11/17		12/25/17		01/08/18		01/22/18		02/05/18		02/19/18		03/05/18		03/19/18		04/02/18		04/16/18		05/03/18		05/17/18		06/04/18		06/18/18		07/02/18		07/16/18		08/03/18		08/17/18		09/04/18		09/18/18		10/02/18		10/16/18		10/30/18		11/13/18		11/27/18		12/11/18		12/25/18		01/08/19		01/22/19		02/05/19		02/19/19		03/05/19		03/19/19		04/02/19		04/16/19		05/03/19		05/17/19		06/04/19		06/18/19		07/02/19		07/16/19		08/03/19		08/17/19		09/04/19		09/18/19		10/02/19		10/16/19		10/30/19		11/13/19		11/27/19		12/11/19		12/25/19		01/08/20		01/22/20		02/05/20		02/19/20		03/05/20		03/19/20		04/02/20		04/16/20		05/03/20		05/17/20		06/04/20		06/18/20		07/02/20		07/16/20		08/03/20		08/17/20		09/04/20		09/18/20		10/02/20		10/16/20		10/30/20		11/13/20		11/27/20		12/11/20		12/25/20		01/08/21		01/22/21		02/05/21		02/19/21		03/05/21		03/19/21		04/02/21		04/16/21		05/03/21		05/17/21		06/04/21		06/18/21		07/02/21		07/16/21		08/03/21		08/17/21		09/04/21		09/18/21		10/02/21		10/16/21		10/30/21		11/13/21		11/27/21		12/11/21		12/25/21		01/08/22		01/22/22		02/05/22		02/19/22		03/05/22		03/19/22		04/02/22		04/16/22		05/03/22		05/17/22		06/04/22		06/18/22		07/02/22		07/16/22		08/03/22		08/17/22		09/04/22		09/18/22		10/02/22		10/16/22		10/30/22		11/13/22		11/27/22		12/11/22		12/25/22		01/08/23		01/22/23		02/05/23		02/19/23		03/05/23		03/19/23		04/02/23		04/16/23		05/03/23		05/17/23		06/04/23		06/18/23		07/02/23		07/16/23		08/03/23		08/17/23		09/04/23		09/18/23		10/02/23		10/16/23		10/30/23		11/13/23		11/27/23		12/11/23		12/25/23		01/08/24		01/22/24		02/05/24		02/19/24		03/05/24		03/19/24		04/02/24		04/16/24		05/03/24		05/17/24		06/04/24		06/18/24		07/02/24		07/16/24		08/03/24		08/17/24		09/04/24		09/18/24		10/02/24		10/16/24		10/30/24		11/13/24		11/27/24		12/11/24		12/25/24		01/08/25		01/22/25		02/05/25		02/19/25		03/05/25		03/19/25		04/02/25		04/16/25		05/03/25		05/17/25		06/04/25		06/18/25		07/02/25		07/16/25		08/03/25		08/17/25		09/04/25		09/18/25		10/02/25		10/16/25		10/30/25		11/13/25		11/27/25		12/11/25		12/25/25		01/08/26		01/22/26		02/05/26		02/19/26		03/05/26		03/19/26		04/02/26		04/16/26		05/03/26		05/17/26		06/04/26		06/18/26		07/02/26		07/16/26		08/03/26		08/17/26		09/04/26		09/18/26		10/02/26		10/16/26		10/30/26		11/13/26		11/27/26		12/11/26		12/25/26		01/08/27		01/22/27		02/05/27		02/19/27		03/05/27		03/19/27		04/02/27		04/16/27		05/03/27		05/17/27		06/04/27		06/18/27		07/02/27		07/16/27		08/03/27		08/17/27		09/04/27		09/18/27		10/02/27		10/16/27		10/30/27		11/13/27		11/27/27		12/11/27		12/25/27		01/08/28		01/22/28		02/05/28		02/19/28		03/05/28		03/19/28		04/02/28		04/16/28		05/03/28		05/17/28		06/04/28		06/18/28		07/02/28		07/16/28		08/03/28		08/17/28		09/04/28		09/18/28		10/02/28		10/16/28		10/30/28		11/13/28		11/27/28		12/11/28		12/25/28		01/08/29		01/22/29		02/05/29		02/19/29		03/05/29		03/19/29		04/02/29		04/16/29		05/03/29		05/17/29		06/04/29		06/18/29		07/02/29		07/16/29		08/03/29		08/17/29		09/04/29		09/18/29		10/02/29		10/16/29		10/30/29		11/13/29		11/27/29		12/11/29		12/25/29		01/08/30		01/22/30		02/05/30		02/19/30		03/05/30		03/19/30		04/02/30		04/16/30		05/03/30		05/17/30		06/04/30		06/18/30		07/02/30		07/16/30		08/03/30		08/17/30		09/04/30		09/18/30		10/02/30		10/16/30		10/30/30		11/13/30		11/27/30		12/11/30		12/25/30		01/08/31		01/22/31		02/05/31		02/19/31		03/05/31		03/19/31		04/02/31		04/16/31		05/03/31		05/17/31		06/04/31		06/18/31		07/02/31		07/16/31		08/03/31		08/17/31		09/04/31		09/18/31		10/02/31		10/16/31		10/30/31		11/13/31		11/27/31		12/11/31		12/25/31		01/08/32		01/22/32		02/05/32		02/19/32		03/05/32		03/19/32		04/02/32		04/16/32		05/03/32		05/17/32		06/04/32		06/18/32		07/02/32		07/16/32		08/03/32		08/17/32		09/04/32		09/18/32		10/02/32		10/16/32		10/30/32		11/13/32		11/27/32		12/11/32		12/25/32		01/08/33		01/22/33		02/05/33		02/19/33		03/05/33		03/19/33		04/02/33		04/16/33		05/03/33		05/17/33		06/04/33		06/18/33		07/02/33		07/16/33		08/03/33		08/17/33		09/04/33		09/18/33		10/02/33		10/16/33		10/30/33		11/13/33		11/27/33		12/11/33		12/25/33		01/08/34		01/22/34		02/05/34		02/19/34		03/05/34		03/19/34		04/02/34		04/16/34		05/03/34		05/17/34		06/04/34		06/18/34		07/02/34		07/16/34		08/03/34	
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NAVAJO ARTESIA REFINERY -- RO REJECT WATER ANALYSES

ELEMENT	STANDARD	DATE	TEST TYPE	PH	ALUMINUM	BERYLLIUM	BARIUM	BORON	CADMIUM	CHROMIUM	COBALT	COPPER	IRON	LEAD	MANGANESE	AMMONIA as N
				6.6-8.6	0.087	0.018	1,000	0.750	0.010	0.050	0.050	1,000	1,000	0.006	0.200	0.000070
05/17/93	BI-WKLY	7.12														0.4
06/03/93	BI-WKLY	6.88														
06/15/93	BI-WKLY	6.8														
07/02/93	BI-WKLY															
07/15/93	BI-WKLY															
08/02/93	BI-WKLY															
08/11/93	QTRLY	7														<0.1
09/02/93	BI-WKLY															
09/21/93	BI-WKLY															
10/02/93	BI-WKLY															
10/15/93	BI-WKLY															
11/02/93	BI-WKLY															
11/15/93	QTRLY															
12/02/93	BI-WKLY															
12/15/93	BI-WKLY															
01/02/94	BI-WKLY															
01/12/94	QTRLY	7.26														0.1
01/26/94	BI-WKLY															

ELEMENT	STANDARD	DATE	TEST TYPE	TDS	MERCURY	NICKEL	SELENIUM	SILVER	VANADIUM	ZINC	CHLORINE	RADIUM	ARSENIC	CYANIDE	CHLORDANE	CHEM O2 DEMAND
				4555	0.0000042	0.200	0.012	0.0004	0.282	10	0.030	30 pCi/L	0.100	0.018	0.000015	125
05/17/93	BI-WKLY	3160														<30
06/03/93	BI-WKLY															
06/15/93	BI-WKLY															
07/02/93	BI-WKLY															
07/15/93	BI-WKLY															
08/02/93	BI-WKLY															
08/11/93	QTRLY	3100														<5
09/02/93	BI-WKLY															
09/21/93	BI-WKLY															
10/02/93	BI-WKLY															
10/15/93	BI-WKLY															
11/02/93	BI-WKLY															
11/15/93	QTRLY															
12/02/93	BI-WKLY															
12/15/93	BI-WKLY															
01/02/94	BI-WKLY															
01/12/94	QTRLY															
01/26/94	BI-WKLY															

ELEMENT	STANDARD	DATE	TEST TYPE	CALCIUM	MAGNESIUM	POTASSIUM	SODIUM	SULFATE	CHLORIDE	FLUORIDE
				2661	2661	275	2500	2500	2500	2500
05/17/93	BI-WKLY									
06/03/93	BI-WKLY	442								
06/15/93	BI-WKLY	448								
07/02/93	BI-WKLY	413								
07/15/93	BI-WKLY									
08/02/93	BI-WKLY	511								
08/11/93	QTRLY									
09/02/93	BI-WKLY	542								
09/21/93	BI-WKLY									
10/02/93	BI-WKLY									
10/15/93	BI-WKLY									
11/02/93	BI-WKLY									
11/15/93	QTRLY									
12/02/93	BI-WKLY									
12/15/93	BI-WKLY									
01/02/94	BI-WKLY	480								
01/12/94	QTRLY	528								
01/26/94	BI-WKLY									

- REQUIRED ANALYSIS NOT REPORTED

- ANALYSIS EXCEEDS STANDARD

- DETECTION LIMIT MEETS OR EXCEEDS STANDARD

NAVAJO REFINING COMPANY
DISCHARGE PLAN REQUIREMENTS
(April 27, 1993)

1. The \$50 filing fee and the \$3910 flat fee (either total payment or installment) will be paid upon receipt of this approval.
2. The discharge of reject water from the reverse osmosis treatment facility to Eagle Draw shall not exceed the following standards:

Aluminum	87	ug/l
Arsenic	100	ug/l
Beryllium	18	ug/l
Barium	1000	ug/l
Boron	750	ug/l
Cadmium	10	ug/l
Chlordane	0.015	ug/l
Chlorine	30	ug/l
Chromium	50	ug/l
Cobalt	50	ug/l
Copper	1000	ug/l
Cyanide	18	ug/l
Fluoride	1600	ug/l
Iron	1000	ug/l
Manganese	200	ug/l
Lead	6	ug/l
Mercury	0.042	ug/l
Nickel	200	ug/l
NH3 as N	0.07	ug/l
Radium 226+228	30	pCi/l
Selenium	12	ug/l
Silver	0.4	ug/l
Vanadium	282	ug/l
Zinc	10	mg/l
Sulfate	2661	mg/l
Chloride	275	mg/l
Total Dissolved Solids	4555	mg/l
Chemical Oxygen Demand	125	mg/l
Ph	between 6.6 and 8.6	S.U.

3. Constituents not listed in 2. above for which there are standards established pursuant to WQCC Regulation 3-103 will not exceed the set numerical standard in that regulation.
4. No toxic pollutant listed in WQCC Regulation 1-101 UU. will be present in the discharge.