

GW - 28

MONITORING REPORTS

DATE:

1995

2042



AVATO - ARISTA

1-1

TRACKING DEVISION

FUEL ISOLAND SHIP

7-29-96



WAVATO-ARTESIO

1-2

TRUCKING DIVISION

DIESEL STORAGE TANK

7-29-96



NAVAJO-ARIZONA

1-3

TRUCKING DIVISION

WHEELS DRUMS

7-29-96



NAANTO- ARDESIA

1-4

TRUCKING DIVISION
WIFREEZE DRUMS

7-29-96



NAVAJO - ARTESIAN

1-5

TRUCKING DIVISION

WASH WATER FILTER SYSTEM

7-29-96



NAVATO-ARTESIA
RAIL LOADING RACK
COLLECTION SHED
7-29-96

1-6



LAJUNTO-ARTESIA
RAIL LOADING RACK
7-29-96

1-7



NAVATO ARTESIA
RAIL CANNING ROCK
BELOW GRADE SHIMPS
7-27-96

1-8



LAJITO-ARTESIA
RACE LOADING RACK
ASPHALT DRUM
7-29-96



NAVAJO ARTESIA

1-10

FCC CENTREFULF

7-29-96



MUNICIPAL ARTESIA

1-11

ASPHALT LOADING RACK

7-29-96



LAVATO - ARTESIA

F12

IMPACT LOADING RACK

7-29-96



NAVARO - ARTEGA

ASSAULT API

7-29-96

1-13



VAVATO - ARTESIA

1-14

Sump AT TANK 406

7-29-96



JAVATO - ARTESIA

1-15

DRUMS IN ASPHALT AREA

7-29-86



NAVAJO - ARTESIA

1-16

HUDSON BASIN

7-29-86



NAVAJO- ARTEXEA

1-17

NE POND

7-29-86



WAVATO-ARTESIA

1-18

TANKS 133+135

7-30-96



NAVAJO - ARTESIA

1-19

TANKS 130 + 132

7-30-96



NAVAJO-ARTESIA

1-20

DRUMS OUTSIDE TOOL ROOM

7-30-96



WVADO-ARTESIA

1-21

OLD PIT?

2-30-96



NAVAJO-ARTESIA

1-22

SULFURIC ACID TANK

2-30-96



NAVAJO-ARTESIA

1-23

TANK III & PUMP 104 AREA

7-30-96



The image shows an industrial site with a fenced-off area. The fence is made of metal pipes and chain-link mesh. Inside the fence, there is a body of water and some industrial equipment. In the background, there are more industrial structures and pipes. The sky is clear and blue.

CAUTION
 H_2S
POISONOUS GAS
MAY BE PRESENT

DANGER
CONFINED SPACE
- ENTER -
BY PERMIT ONLY

LAVAND-ARTESIA

1-24

SOUTH ARI SEPARATOR

7-30-96



1. NFE
CAN BE RE-
FLAMED IN THE
ATMOSPHERE PERIOD
INTERMITTENTLY

UNION-ARTESIA

1-25

SOUTH API SEPARATOR

7-30-86



JAVATO - ARTESIA

2-2

HEAT EXCHANGER CLEANER

2-30-96



MAWATO - ARTESED

2.1

ASPHALT SEEP BETWEEN

TANKS 431 + 432

7-30-86



WAVATO- ARTESIA
DRUMS AT RECEIVING AREA
7-30-96

2-9



NAVAJO - ARTESIA

2-3

HEAT EXCHANGER CLEANER

7-30-96



MAYATO-ARTESEA

2-5

CAUSTEC FAKE DRUMS AT
TANK 71

7-30-96



VAVAJO - ARTESIA
DRUMS OUTSIDE
WAREHOUSE #2

7-30-96

2-6



NAVAJO - ARTESIA

2-7

FIRE TRENCHING POND

7-30-96



WAVATO - ARTESA

2-8

WWT

7-30-86



WAVADO - ARTESIA

2-9

NORTH COAST TOWER

7-30-96



LAVATO-ARTESIA

2-10

7-31-86



NAVAJO- ARIZONA

2-11

FEC SLURRY TANK

2-31-86



NAVAJO - ARIZONA

2-12

WWT

2-31-76



VAVATO - ARTESIA

2-13

UWT

7-31-96



UVAJO - ARTESIA

2-14

FLOC. TANK & SKIMMER

7-31-96



2-15

WAVADO - ARTESIA

DIESEL SMOKE TANK

IN WWT AREA.

7-31-96



DANGER

BENZENE
CANCER HAZARD
FLAMMABLE - NO SMOKING

BENZOL
PELIGRO DE CÁNCER
FUMIGABLE - NO FUMAR

UAVATO - ARTESIA

2-16

WORTH API SEPERATOR

7-31-86



WAVADO - CONVENTON

2-17

RAIL RACK

8-1-96



NAVAJO - CONVENTION

2-18

TRUCK RACK

8-1-96



NAVATO- LOWENSTON

2-19

PIPELINE TERMINAL SUMP

8-1-96



LAUNDRY - LOWINGTON

2-20

TREATMENT FOR WATER BOWL
AT TANK 103D

8-1-96



VANJO. CARBTON

CLEANTH AREA

8-1-86

2-21



VANAJD- LOVINGTON

2-22

CRUDE OFF-LOADING

8-1-96



NAVAJO - LOVELLTON

2-23

RO CHEMICALS

8-1-96



WAIATO - LOUGHTON

2-29

WASTE WATER SKIMMER TANK

8-1-96

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 9, 1998

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

RECEIVED

JUL 10 1998

Environmental Bureau
Oil Conservation Division

RE: SPRING 1998 REPORT GROUND WATER SAMPLING AROUND EVAPORATION PONDS

Dear Roger:

Enclosed are results from our Spring 1998 sampling of the monitor wells around the evaporation ponds. This is on a staggered schedule per your letter of October 21, 1991. The following is a summary of field observations:

<u>Well #</u>	<u>Ground water</u> <u>ft amsL</u>	<u>pH</u>	<u>EC</u> <u>umhos</u>	<u>Deg. C</u>	<u>Description</u>
MW-3	3299.66	7.5	7930	24	Slight Odor
MW-4A	3299.52	6.8	9760	21	Odor
MW-5A	3298.75	7.5	18,000	19	Moderate odor, Brown
MW-6A	3299.90	7.3	5590	23	Mod. Odor
MW-7A	3298.50	7.2	14980	24	Odor, Silty
OCD-1	3302.06	7.17	5490	17	Odor
OCD-3	3299.17	7.44	4050	18.6	Odor
OCD-5	3298.24	8.16	7740	19	Mild odor

You will notice that there are many more analysis than are required. The extra analysis are part of the study to relocate our evaporation ponds. We decided to go ahead and send the entire group for your records.

If you have any questions, please contact me at 748-3311, extension 281.

Respectfully yours,
NAVAJO REFINING CO.

Darrell Moore
Environmental Mgr. for Water and Waste

Encl.
cc: USEPA

TRACE ANALYSIS, INC.

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

June 09, 1998

Receiving Date: 05/08/98

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: 05/08/98

Analysis Date: 05/08/98

Sampling Date: 05/06/98

Sample Condition: Intact & Cool

Sample Received by: VW

Project Name: Semi-Annual Evap. Ponds

TOTAL METALS

TA#	FIELD CODE	As (mg/L)	Cd (mg/L)	Cr (mg/L)	Ba (mg/L)	Co (mg/L)	Cu (mg/L)	Fe (mg/L)	Mn (mg/L)	Mo (mg/L)	Ni (mg/L)
T98094	MW-4A ✓	0.12	<0.01	<0.01	<0.10	<0.05	<0.10	3.3	2.7	<0.10	0.01
ICV		5.1	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
CCV		4.8	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
METHOD BLANK		<0.005	<0.01	<0.01	<0.10	<0.05	<0.10	<0.10	<0.10	<0.10	<0.01
REPORTING LIMIT		0.005	0.01	0.01	0.10	0.05	0.10	0.10	0.10	0.10	0.01
RPD		9	0	2	0	0	0	0	0	0	0
% Extraction Accuracy		115	80	80	90	75	100	95	90	90	75
% Instrument Accuracy		98	106	107	100	106	103	106	103	105	105
		Zn	B	Se	Pb	Ag	Al	U	Hg		
		(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)		
T98094	MW-4A	<0.10	0.69	<0.005	<0.01	<0.005	<0.20	<0.10	<0.0010		
ICV		1.0	1.0	1.0	2.6	0.19	0.98	5.0	0.0050		
CCV		1.0	1.0	1.1	2.6	0.19	1.0	5.0	0.0049		
METHOD BLANK		<0.10	<0.10	<0.005	<0.01	<0.005	<0.20	<0.10	<0.0010		
REPORTING LIMIT		0.10	0.10	0.005	0.01	0.005	0.20	0.10	0.0010		
RPD		6	0	0	0	0*	0	0*	2		
% Extraction Accuracy		75	95	100	95	108*	75	95*	112		
% Instrument Accuracy		101	103	108	107	95	99	100	100		

*NOTE: LCS and LCSD used for Ag and U Extraction Accuracy and RPD due to matrix effect.

METHODS: EPA 200.7, 245.1.

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

TOTAL METALS SPIKE: 0.20 mg/L As; 2.0 mg/L Cd, Cr, Ba, Co, Cu, Fe, Mn, Mo, Ni, Zn, B, Al, U; 0.20 mg/L Se, Pb; 0.50 mg/L Ag; 0.0050 mg/L Hg.

TOTAL METALS CV: 5.0 mg/L As; 1.0 mg/L Cd, Cr, Ba, Co, Cu, Fe, Mn, Mo, Ni, Zn, B, Al, U, Se; 2.5 mg/L Pb; 0.20 mg/L Ag; 5.0 mg/L U; 0.0050 mg/L Hg.

6-5-98

Director, Dr. Blair Leftwich

DATE



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

June 09, 1998
Receiving Date: 05/08/98
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: 05/08/98
Analysis Date: 05/08/98
Sampling Date: 05/06/98
Sample Condition: Intact & Cool
Sample Received by: VW
Project Name: Semi-Annual Evap. Ponds

TOTAL METALS

TA#	FIELD CODE	As (mg/L)	Cd (mg/L)	Cr (mg/L)	Ba (mg/L)	Co (mg/L)	Cu (mg/L)	Fe (mg/L)	Mn (mg/L)	Mo (mg/L)	Ni (mg/L)
T98095	MW-4C	0.12	<0.01	<0.01	<0.10	<0.05	<0.10	1.2	13	<0.10	0.03
ICV		5.1	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
CCV		4.8	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
METHOD BLANK		<0.005	<0.01	<0.01	<0.10	<0.05	<0.10	<0.10	<0.10	<0.10	<0.01
REPORTING LIMIT		0.005	0.01	0.01	0.10	0.05	0.10	0.10	0.10	0.10	0.01
RPD		9	0	2	0	0	0	0	0	0	0
% Extraction Accuracy		115	80	80	90	75	100	95	90	90	75
% Instrument Accuracy		98	106	107	100	106	103	106	103	105	105
		Zn	B	Se	Pb	Ag	Al	U	Hg		

TA#	FIELD CODE	As (mg/L)	Cd (mg/L)	Cr (mg/L)	Ba (mg/L)	Co (mg/L)	Cu (mg/L)	Fe (mg/L)	Mn (mg/L)	Mo (mg/L)	Ni (mg/L)
T98095	MW-4C	<0.10	0.42	<0.005	<0.01	<0.005	<0.20	<0.10	<0.0010		
ICV		1.0	1.0	1.0	2.6	0.19	0.98	5.0	0.0050		
CCV		1.0	1.0	1.1	2.6	0.19	1.0	5.0	0.0049		
METHOD BLANK		<0.10	<0.10	<0.005	<0.01	<0.005	<0.20	<0.10	<0.0010		
REPORTING LIMIT		0.10	0.10	0.005	0.01	0.005	0.20	0.10	0.0010		
RPD		6	0	0	0	0*	0	0*	2		
% Extraction Accuracy		75	95	100	95	108*	75	95*	112		
% Instrument Accuracy		101	103	108	107	95	99	100	100		

*NOTE: LCS and LCS D used for Ag and U Extraction Accuracy and RPD due to matrix effect.

METHODS: EPA 200.7, 245.1.

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

TOTAL METALS SPIKE: 0.20 mg/L As; 2.0 mg/L Cd, Cr, Ba, Co, Cu, Fe, Mn, Mo, Ni, Zn, B, Al, U; 0.20 mg/L Se, Pb; 0.50 mg/L Ag; 0.0050 mg/L Hg.

TOTAL METALS CV: 5.0 mg/L As; 1.0 mg/L Cd, Cr, Ba, Co, Cu, Fe, Mn, Mo, Ni, Zn, B, Al, U, Se; 2.5 mg/L Pb; 0.20 mg/L Ag; 5.0 mg/L U; 0.0050 mg/L Hg.

6-5-98

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

June 09, 1998
 Receiving Date: 05/08/98
 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: 05/08/98
 Analysis Date: 05/08/98
 Sampling Date: 05/06/98
 Sample Condition: Intact & Cool
 Sample Received by: VW
 Project Name: Semi-Annual Evap. Ponds

DISSOLVED METALS

TA#	FIELD CODE	As (mg/L)	Cd (mg/L)	Cr (mg/L)	Ba (mg/L)	Co (mg/L)	Cu (mg/L)	Fe (mg/L)	Mn (mg/L)	Mo (mg/L)	Ni (mg/L)
T98094 MW - 4A		0.10	<0.01	<0.01	<0.10	<0.05	<0.10	2.8	2.6	<0.10	0.01
ICV		5.1	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
CCV		4.8	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
METHOD BLANK		<0.005	<0.01	<0.01	<0.10	<0.05	<0.10	<0.10	<0.10	<0.10	<0.01
REPORTING LIMIT		0.005	0.01	0.01	0.10	0.05	0.10	0.10	0.10	0.10	0.01
RPD		9	3	0	2	2	2	1	0	3	0
% Extraction Accuracy		115	80	80	90	75	95	90	85	90	70
% Instrument Accuracy		98	108	107	101	106	103	108	102	107	105
		Zn	B	Se	Pb	Ag	Al	U	Hg		
		(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)		
T98094 MW - 4A		<0.10	0.65	<0.005	<0.01	<0.005	<0.20	<0.10	<0.0010		
ICV		1.0	1.0	1.0	2.6	0.19	1.0	5.0	0.0051		
CCV		1.0	1.0	1.1	2.6	0.19	0.98	5.0	0.0049		
METHOD BLANK		<0.10	<0.10	<0.005	<0.01	<0.005	<0.20	<0.10	<0.0010		
REPORTING LIMIT		0.10	0.10	0.005	0.01	0.005	0.20	0.10	0.0010		
RPD		0	0	0	0	0	6	0*	2		
% Extraction Accuracy		80	95	100	95	120	85	90*	112		
% Instrument Accuracy		103	103	108	107	95	103	100	100		

*NOTE: LCS and LCSD used for U Extraction Accuracy and RPD due to matrix effect.

METHODS: EPA 200.7, 245.1.

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

DISSOLVED METALS SPIKE: 0.20 mg/L As; 2.0 mg/L Cd, Cr, Ba, Co, Cu, Fe, Mn, Mo, Ni, Zn, B, Al, U; 0.20 mg/L Se, Pb; 0.50 mg/L Ag; 0.0050 mg/L Hg.

DISSOLVED METALS CV: 5.0 mg/L As; 1.0 mg/L Cd, Cr, Ba, Co, Cu, Fe, Mn, Mo, Ni, Zn, B, Al, U, Se; 2.5 mg/L Pb; 0.20 mg/L Ag; 5.0 mg/L U; 0.0050 mg/L Hg.

6-5-98

Director, Dr. Blair Leftwich

DATE



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E-Mail: lab@traceanalysis.com

June 09, 1998

Receiving Date: 05/08/98

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: 05/08/98

Analysis Date: 05/08/98

Sampling Date: 05/06/98

Sample Condition: Intact & Cool

Sample Received by: VW

Project Name: Semi-Annual Evap. Ponds

DISSOLVED METALS

TA#	FIELD CODE	As (mg/L)	Cd (mg/L)	Cr (mg/L)	Ba (mg/L)	Co (mg/L)	Cu (mg/L)	Fe (mg/L)	Mn (mg/L)	Mo (mg/L)	Ni (mg/L)
T98095	MW - 4C	0.11	<0.01	<0.01	<0.10	<0.05	<0.10	1.1	12	<0.10	0.02
ICV		5.1	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
CCV		4.8	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
METHOD BLANK		<0.005	<0.01	<0.01	<0.10	<0.05	<0.10	<0.10	<0.10	<0.10	<0.01
REPORTING LIMIT		0.005	0.01	0.01	0.10	0.05	0.10	0.10	0.10	0.10	0.01
RPD		9	3	0	2	2	2	1	0	3	0
% Extraction Accuracy		115	80	80	90	75	95	90	85	90	70
% Instrument Accuracy		98	108	107	101	106	103	108	102	107	105
Zn		(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
T98095	MW - 4C	<0.10	0.39	<0.005	<0.01	<0.005	<0.20	<0.10	<0.0010		
ICV		1.0	1.0	1.0	2.6	0.19	1.0	5.0	0.0051		
CCV		1.0	1.0	1.1	2.6	0.19	0.98	5.0	0.0049		
METHOD BLANK		<0.10	<0.10	<0.005	<0.01	<0.005	<0.20	<0.10	<0.0010		
REPORTING LIMIT		0.10	0.10	0.005	0.01	0.005	0.20	0.10	0.0010		
RPD		0	0	0	0	0	6	0*	2		
% Extraction Accuracy		80	95	100	95	120	85	90*	112		
% Instrument Accuracy		103	103	108	107	95	103	100	100		

*NOTE: LCS and LCSD used for U Extraction Accuracy and RPD due to matrix effect.

METHODS: EPA 200.7, 245.1.

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

DISSOLVED METALS SPIKE: 0.20 mg/L As; 2.0 mg/L Cd, Cr, Ba, Co, Cu, Fe, Mn, Mo, Ni, Zn, B, Al, U; 0.20 mg/L Se, Pb; 0.50 mg/L Ag; 0.0050 mg/L Hg.

DISSOLVED METALS CV: 5.0 mg/L As; 1.0 mg/L Cd, Cr, Ba, Co, Cu, Fe, Mn, Mo, Ni, Zn, B, Al, U, Se; 2.5 mg/L Pb; 0.20 mg/L Ag; 5.0 mg/L U; 0.0050 mg/L Hg.

Director, Dr. Blair Leftwich

DATE

6-9-98

TRACE ANALYSIS, INC.

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 E-Mail: lab@traceanalysis.com

June 02, 1998
 Receiving Date: 05/08/98
 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: 05/08/98
 Analysis Date: 05/13/98
 Sampling Date: 05/06/98
 Sample Condition: Intact & Cool
 Sample Received by: VW
 Project Name: Semi-Annual Evap.

TA#	Field Code	POTASSIUM (mg/L)	MAGNESIUM (mg/L)	CALCIUM (mg/L)	SODIUM (mg/L)
T98094	MW - 4A	6.0	180	680	1,200
T98095	MW - 4C	4.3	170	410	720
ICV		98	101	101	99
CCV		98	98	100	97

Reporting Limit
 METHOD BLANK

0.50 0.50 0.50 0.50
 <0.50 <0.50 <0.50 <0.50

RPD
 % Extraction Accuracy
 % Instrument Accuracy

3 2 1 6
 118 94 110 390*
 98 99 99 98

LRB SPIKES: Na - RPD = 2

% Extraction Accuracy = 94**
 % Instrument Accuracy = 98

*NOTE: % Extraction Accuracy is out of acceptable limits of 75-125% due to the high amounts of Na in the sample spiked.
 **NOTE: LCS % Extraction Accuracy shows that the test was in control.

METHODS: EPA 200.7.
 CHEMIST: RR
 SPIKE: 100 mg/L POTASSIUM, MAGNESIUM, CALCIUM, SODIUM.
 CV: 100 mg/L POTASSIUM, MAGNESIUM, CALCIUM, SODIUM.

Director, Dr. Blair Leftwich

Date

6-2-98

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

June 02, 1998

Receiving Date: 05/08/98

Sample Type: Water

Project No: NA

Project Location: Artesia, NM 88210

Prep Date: 05/08/98

Analysis Date: 05/08/98

Sampling Date: 05/06/98

Sample Condition: Intact & Cool

Sample Received by: VW

Project Name: Semi-Annual Evap. Ponds

TA#	FIELD CODE	pH (s.u.)	TDS (mg/L)	FLUORIDE (mg/L)	CHLORIDE (mg/L)	N03-N (mg/L)	SULFATE (mg/L)	ALKALINITY (mg/L as CaCO3) HC03 C03	SPECIFIC CONDUCTANCE (uMHOS/cm)
T98095	MW - 4C	7.0	3,800	2.1	960	<1.0	1,400	200 <1.0	4,900
ICV		7.0	—	2.4	12	4.7	12	—	1,283
CCV		7.0	—	2.4	12	4.4	12	—	1,359
REPORTING LIMIT									
		—	—	0.1	0.5	1.0	0.5	1.0 1.0	—
RPD		0	2	1	1	1	1	6 6	3
% Extraction Accuracy		—	—	98	64*	102	35*	—	—
% Instrument Accuracy		100	98	96	97	95	97	97 97	93

LRB SPIKES: Chloride - RPD = 2

% Extraction Accuracy = 97**

LRB SPIKES: Sulfate - RPD = 0

% Extraction Accuracy = 98**

*NOTE: Chloride and Sulfate low matrix % Extraction Accuracy. Blank spikes used due to matrix difficulties.

**NOTE: Blank spikes in range.

METHODS: EPA 150.1, 160.1, 300.0, 310.1, 120.1.

CHEMIST: pH/SPECIFIC CONDUCTANCE: CS TDS: RS FLUORIDE/CHLORIDE/N03-N/SULFATE: JS ALKALINITY: RS

SPIKE: 62.5 mg/L CHLORIDE; 12.5 mg/L FLUORIDE; 12.5 mg/L SULFATE; 25 mg/L N03-N.

CV: 12.5 mg/L CHLORIDE; 2.5 mg/L FLUORIDE; 12.5 mg/L SULFATE; 5.0 mg/L N03-N.

Director, Dr. Blair Leftwich

Date

6-2-98

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915•585•3443 FAX 915•585•4944

ANALYTICAL RESULTS FOR

NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

June 02, 1998

Receiving Date: 05/08/98

Sample Type: Water

Project No: NA

Project Location: Artesia, NM 88210

Prep Date: 05/08/98

Analysis Date: 05/08/98

Sampling Date: 05/06/98

Sample Condition: Intact & Cool

Sample Received by: VW

Project Name: Semi-Annual Evap. Ponds

TA#	FIELD CODE	pH (s.u.)	TDS (mg/L)	FLUORIDE (mg/L)	CHLORIDE (mg/L)	N03-N (mg/L)	SULFATE (mg/L)	ALKALINITY (mg/L as CaCO3) HC03 C03	SPECIFIC CONDUCTANCE (uMHOS/cm)
T98094	MW - 4A	7.1	6,000	2.1	1,400	<1.0	2,300	100 <1.0	7,300
ICV		7.0	—	2.4	12	4.7	12	—	1,283
CCV		7.0	—	2.4	12	4.7	12	—	1,359
REPORTING LIMIT									
		—	—	0.1	0.5	1.0	0.5	1.0 1.0	—
RPD		0	2	4	1	1	1	6 6	3
% Extraction Accuracy		—	—	93	71*	103	9*	—	—
% Instrument Accuracy		100	98	96	99	95	97	97 97	93

LRB SPIKES: Chloride - RPD = 0

% Extraction Accuracy = 98

LRB SPIKES: Sulfate - RPD = 0

% Extraction Accuracy = 97

*NOTE: Chloride and Sulfate low matrix % Extraction Accuracy. Blank spikes used due to matrix difficulties.

METHODS: EPA 150.1, 160.1, 300.0, 310.1, 120.1.

CHEMIST: pH/SPECIFIC CONDUCTANCE: CS TDS: RS FLUORIDE/CHLORIDE/N03-N/SULFATE: JS ALKALINITY: RS

SPIKE: 62.5 mg/L CHLORIDE; 12.5 mg/L FLUORIDE; 62.5 mg/L SULFATE; 25 mg/L N03-N.

CV: 12.5 mg/L CHLORIDE; 2.5 mg/L FLUORIDE; 12.5 mg/L SULFATE; 5.0 mg/L N03-N.

Director, Dr. Blair Leftwich

Date

6.2.2-98

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

Lab Receiving # : 9805000171
 Date Rec: 5/8/98
 Sampling Date: 5/6/98
 Sample Condition: Intact and Cool
 Sample Received By: VW

Date: May 28, 1998
 Project: N/A
 Proj Name: Evaporation Ponds
 Proj Loc: Artesia

TA#	Field Code	MATRIX	MTBE (mg/L)	BENZENE (mg/L)	TOLUENE (mg/L)	ETHYL- BENZENE (mg/L)	M, P, O XYLENE (mg/L)	TOTAL BTX (mg/L)
T 98094	MW-4A	Water	<0.005	0.011	<0.005	0.013	0.013	0.037
T 98095	MW-4C	Water	<0.001	0.003	<0.001	<0.001	0.002	0.005
Method Blank			<0.001	<0.001	<0.001	<0.001	<0.001	
Reporting Limit			0.001	0.001	0.001	0.001	0.001	
QC			0.097	0.091	0.092	0.093	0.274	

RPD
 % Extraction Accuracy
 % Instrument Accuracy

1 8 6 5 5
 110 109 108 107
 97 91 92 93 91

TEST	PREP METHOD	PREP DATE	ANALYSIS METHOD	ANALYSIS COMPLETED	CHEMIST	QC: (mg/L)	SPIKE: (mg/L)
BTEX	EPA 5030	5/13/98	EPA 8021B	5/13/98	JG	0.100 ea	0.1 ea

Director, Dr. Blair Leftwich

Date

5-28-98

Cation-Anion Balance Sheet

Sample #

98094

Date: •

6/2/98

Cations

	ppm	meq/L
Calcium	680	33.932
Magnesium	180	14.8122
Sodium	1200	52.2
Potassium	6	0.15348

Total Cations

101.09768 in meq/L

Anions

	ppm	meq/L
Alkalinity	100	2
Sulfate	2300	47.886
Chloride	1400	39.494
Nitrate as N	0	0
Fluoride	2.1	0.110544

Total Anions

89.490544 in meq/L

Percentage Error

12.180329 %

(needs to be <10%)

Cations to high

OTHER INFORMATION

TDS

6000

EC

7300

Measure EC and Cation Sums	10109.768	Range should be:	6570	to	8030
Measure EC and Anion Sums	8949.0544	Range should be:	6570	to	8030
Calculated TDS/Conductivity	0.821917808	Range should be:	0.55	to	0.77
Measure TDS and Cation Sums	0.593485429	Range should be:	0.55	to	0.77
Measure TDS and Anion Sums	0.670461898	Range should be:	0.55	to	0.77

Sample #

98095

Date:

6/2/98

Cations

	ppm	meq/L
Calcium	410	20.459
Magnesium	170	13.9893
Sodium	720	31.32
Potassium	4.3	0.109994

Total Cations

65.878294 in meq/L

Anions

	ppm	meq/L
Alkalinity	200	4
Sulfate	1400	29.148
Chloride	960	27.0816
Nitrate as N	0	0
Fluoride	2.1	0.110544

Total Anions

60.340144 in meq/L

Percentage Error

8.7755008 %

(needs to be <10%)

OTHER INFORMATION

TDS	3800
EC	4900

Measure EC and Cation Sums	6587.8294	Range should be:	4410	to	5390
Measure EC and Anion Sums	6034.0144	Range should be:	4410	to	5390
Calculated TDS/Conductivity	0.775510204	Range should be:	0.55	to	0.77
Measure TDS and Cation Sums	0.576821252	Range should be:	0.55	to	0.77
Measure TDS and Anion Sums	0.629763164	Range should be:	0.55	to	0.77

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1 (800) 378 1296

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

LAB Order ID #

Company Name:

Phone # 505-748-3311

Address:

Fax #:

Contact Person:

Person: Harrell Moore

Invoice to:

No off site and

Project #:

Project Name:

Project Name: Semi-Annual Expo Ponds

Project Location:

Sampler Signature:

operation: Cartagena A/M 88210 Sampler Signature: Daniel

[illegible]

Relinquished by:

Date: 7/1/2017 Time: 10:00 AM

Received by:

Date: _____ Time: _____

[illegible]

Belinquished by:

Date: _____ Time: _____

Received by:

Date: _____ Time: _____

1

Belinquished by:

Date: _____ Time: _____

Received at L

Date: . Time:

1

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C.O.C.

SECRET

Carrier # red ex

3679541765

carrier # 3679541765
redex

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 4725 Ripley Avenue, Suite A El Paso, Texas 79922 888-588-3443 915-585-3443 FAX 915-585-4944
 E-Mail: lab@traceanalysis.com

June 09, 1998

Receiving Date: 05/06/98

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: 05/06/98

Analysis Date: 05/08/98

Sampling Date: 05/05/98

Sample Condition: Intact & Cool

Sample Received by: VW

Project Name: Semi-Annual Evap. Ponds

TOTAL METALS

TA#	FIELD CODE	As (mg/L)	Cd (mg/L)	Cr (mg/L)	Ba (mg/L)	Co (mg/L)	Cu (mg/L)	Fe (mg/L)	Mn (mg/L)	Mo (mg/L)	Ni (mg/L)
T97676	OCD - 5	0.02	<0.01	<0.01	<0.10	<0.05	<0.1	12.0	0.34	<0.10	<0.01
T97677	OCD - 3	<0.005	<0.01	<0.01	<0.10	<0.05	<0.1	2.2	0.36	<0.10	<0.01
T97678	OCD - 1	0.20	<0.01	<0.01	<0.10	<0.05	<0.1	5.8	2.4	<0.10	<0.01
ICV		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.1	1.0
CCV		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
METHOD BLANK		<0.005	<0.01	<0.01	<0.10	<0.05	<0.1	<0.10	<0.10	<0.10	<0.01
REPORTING LIMIT		0.005	0.02	0.01	0.10	0.05	0.1	0.10	0.10	0.10	0.01
RPD		0	1	1	2	1	1	0	3	1	1
% Extraction Accuracy		100	95	85	100	81	100	100	90	95	75
% Instrument Accuracy		106	107	106	102	105	104	107	102	109	103
		Zn	B	Se	Pb	Al	U	Hg	Ag		
		(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)		
T97676	OCD - 5	<0.10	1.2	<0.005	<0.01	0.92	<0.10	<0.0010	<0.005		
T97677	OCD - 3	<0.10	0.94	<0.005	<0.01	0.51	<0.10	<0.0010	<0.005		
T97678	OCD - 1	<0.10	0.49	<0.005	<0.01	1.1	<0.10	<0.0010	<0.005		
ICV		1.1	0.99	1.0	2.6	1.0	5.1	0.0048	0.20		
CCV		1.0	1.0	1.0	2.6	1.0	5.0	0.0052	0.19		
METHOD BLANK		<0.10	<0.10	<0.005	<0.01	<0.20	<0.10	<0.0010	<0.005		
REPORTING LIMIT		0.10	0.10	0.005	0.01	0.20	0.10	0.0010	0.005		
RPD		1	0	0	0	4	0	4*	9		
% Extraction Accuracy		100	100	90	105	110	75	130*	78		
% Instrument Accuracy		106	101	107	105	110	101	101	95		

*NOTE: LCS and LCSD used for RPD and % Extraction Accuracy in place of MS and MSD due to possible matrix effects in the spiked samples.

METHODS: EPA 200.7, 245.1.

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

TOTAL METALS SPIKE: 2.0 mg/L As, Cd, Cr, Ba, Co, Cu, Fe, Mn, Mo, Ni, Zn, B, Al, U; 0.20 mg/L Se, Pb; 1.0 mg/L Ag; 0.0050 mg/L Hg.

TOTAL METALS CV: 1.0 mg/L As, Cd, Cr, Ba, Co, Cu, Fe, Mn, Mo, Ni, Zn, B, Se, Al; 2.5 mg/L Pb; 0.20 mg/L Ag; 5.0 mg/L U; 0.0050 mg/L Hg.

6-9-98

DATE

Director, Dr. Blair Leftwich



TRACE ANALYSIS, INC.

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ANALYTICAL RESULTS FOR NAVAJO REFINING

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

May 22, 1998
Receiving Date: 05/06/98
Sample Type: Water
Project No: NA
Project Location: Artesia, NM

Prep Date: 05/06/98
Analysis Date: 05/06/98
Sampling Date: 05/05/98
Sample Condition: Intact & Cool
Sample Received by: VW
Project Name: Semi-Annual Evap. Ponds

TA#	FIELD CODE	pH (s.u.)	TDS (mg/L)	FLUORIDE (mg/L)	CHLORIDE (mg/L)	S04 (mg/L)	SPECIFIC CONDUCTANCE (uMHOS/cm)	ALKALINITY (mg/L as CaCo3)		N03-N (mg/L)
								HC03	C03	
T97677	OCD - 3	7.3	6,300	1.9	1,700	2,300	9,100	250	<1.0	<1.0
ICV		7.0	---	2.4	11	11	1,343	---	---	4.7
CCV		7.0	---	2.2	12	12	1,356	---	---	4.6
RPD		0	1	1	1	1	0	1	1	2
% Extraction Accuracy		---	---	96	79*	66*	---	---	---	104
% Instrument Accuracy		100	100	95	95	96	96	99	99	95
Reporting Limit		---	10	0.1	0.5	0.5	---	1.0	1.0	0.2

LRB SPIKES: Chloride - RPD = 1
% Extraction Accuracy = 96**

LRB SPIKES: S04 - RPD = 0
% Extraction Accuracy = 97**

*NOTE: Chloride and S04 matrix spikes % Extrction Accuracy low. Blank spikes used due to matrix difficulties.

**NOTE: LCS recoveries show the test to be in control.

METHODS: EPA 300.0, 150.1, 160.1, 120.1, 310.1.

CHEMIST: pH: CS TDS/SPECIFIC CONDUCTANCE/ALKALINITY: RS FLUORIDE/CHLORIDE/S04/N03-N: JS

FLUORIDE SPIKE: 6.25 mg/L FLUORIDE.

FLUORIDE CV: 2.5 mg/L FLUORIDE.

CHLORIDE SPIKE: 312.5 mg/L CHLORIDE.

CHLORIDE CV: 12.5 mg/L CHLORIDE.

S04 SPIKE: 312.5 mg/L S04.

S04 CV: 12.5 mg/L S04.

N03-N SPIKE: 12.5 mg/L N03-N.

N03-N CV: 5.0 mg/L N03-N.


Director, Dr. Blair Leftwich

5-22-98
DATE

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FAX 915•585•4944

ANALYTICAL RESULTS FOR NAVAJO REFINING

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

June 09, 1998
Receiving Date: 05/06/98
Sample Type: Water
Project No: NA
Project Location: Artesia, NM

Prep Date: 06/05/98
Analysis Date: 06/05/98
Sampling Date: 05/05/98
Sample Condition: Intact & Cool
Sample Received by: VW
Project Name: Semi-Annual Evap. Ponds

TA#	Field Code	POTASSIUM (mg/L)	MAGNESIUM (mg/L)	CALCIUM (mg/L)	SODIUM (mg/L)
T97677	OCD - 3	27	160	514	1,570
ICV		49	50	50	50
CCV		48	49	50	50

Reporting Limit
METHOD BLANK

0.80 0.50 0.50 0.50
<0.80 <0.50 <0.50 <0.50

RPD

% Extraction Accuracy 106*
% Instrument Accuracy 96
1 110 100
1 110 100

*NOTE: Used LCS for Extraction Accuracy due to matrix effects in sample.

METHODS: EPA 200.7.
CHEMIST: RR
SPIKE: 100 mg/L POTASSIUM, MAGNESIUM,
CV: 50 mg/L POTASSIUM, MAGNESIUM, CALCIUM, SODIUM.

RR

6-9-98

Director, Dr. Blair Leftwich

Date

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E-Mail: lab@traceanalysis.com

ANALYTICAL RESULTS FOR NAVAJO REFINING

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

June 09, 1998
Receiving Date: 05/06/98
Sample Type: Water
Project No: NA
Project Location: Artesia, NM

Prep Date: 05/07/98
Analysis Date: 05/13/98
Sampling Date: 05/05/98
Sample Condition: Intact & Cool
Sample Received by: VW
Project Name: Semi-Annual Evap. Ponds

TA#	Field Code	POTASSIUM (mg/L)	MAGNESIUM (mg/L)	CALCIUM (mg/L)	SODIUM (mg/L)
T97676	OCD - 5	63	270	900	3,000
T97678	OCD - 1	34	200	700	2,500
ICV		96	98	98	95
CCV		98	101	101	99

Reporting Limit
METHOD BLANK
0.30 0.10 0.10 0.10
<0.30 <0.10 <0.10 <0.10

RPD
% Extraction Accuracy
% Instrument Accuracy
13 12 12
110 102 96
97 99 97

METHODS: EPA 200.7.
CHEMIST: RR
SPIKE: 100 mg/L POTASSIUM, MAGNESIUM,
CV: 100 mg/L POTASSIUM, MAGNESIUM, CALCIUM, SODIUM.

Director, Dr. Blair Leftwich

Date

6-5-98



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**ANALYTICAL RESULTS FOR
NAVAJO REFINING**

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

May 22, 1998
Receiving Date: 05/06/98
Sample Type: Water
Project No: NA
Project Location: Artesia, NM

Prep Date: 05/06/98
Analysis Date: 05/06/98
Sampling Date: 05/05/98
Sample Condition: Intact & Cool
Sample Received by: VW
Project Name: Semi-Annual Evap. Ponds

TA#	FIELD CODE	pH (s.u.)	TDS (mg/L)	FLUORIDE (mg/L)	CHLORIDE (mg/L)	S04 (mg/L)	SPECIFIC CONDUCTANCE (uMHOS/cm)	ALKALINITY (mg/L as CaCo3)		N03-N (mg/L)
								HC03	C03	
T97676	OCD - 5	7.2	12,000	1.3	4,600	2,700	18,000	200	<1.0	<1.0
ICV		7.0	---	2.4	11	11	1,343	---	---	4.7
CCV		7.0	---	2.2	12	12	1,356	---	---	4.6
RPD		0	1	1	1	1	0	1	1	2
% Extraction Accuracy		---	---	96	79*	66*	---	---	---	104
% Instrument Accuracy		100	100	95	95	96	96	99	99	95
Reporting Limit		---	10	0.1	0.5	0.5	---	1.0	1.0	0.2

LRB SPIKES: Chloride - RPD = 1
% Extraction Accuracy = 96**

LRB SPIKES: S04 - RPD = 0
% Extraction Accuracy = 97**

***NOTE: Chloride and S04 matrix spikes % Extrction Accuracy low. Blank spikes used due to matrix difficulties.**

****NOTE: LCS recoveries show the test to be in control.**

METHODS: EPA 300.0, 150.1, 160.1, 120.1, 310.1.

CHEMIST: pH: CS TDS/SPECIFIC CONDUCTANCE/ALKALINITY: RS FLUORIDE/CHLORIDE/S04/N03-N: JS

FLUORIDE SPIKE: 6.25 mg/L FLUORIDE.

FLUORIDE CV: 2.5 mg/L FLUORIDE.

CHLORIDE SPIKE: 312.5 mg/L CHLORIDE.

CHLORIDE CV: 12.5 mg/L CHLORIDE.

S04 SPIKE: 312.5 mg/L S04.

S04 CV: 12.5 mg/L S04.

N03-N SPIKE: 12.5 mg/L N03-N.

N03-N CV: 5.0 mg/L N03-N.

Director, Dr. Blair Leftwich

5-22-98

DATE



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**ANALYTICAL RESULTS FOR
NAVAJO REFINING**

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

May 22, 1998
Receiving Date: 05/06/98
Sample Type: Water
Project No: NA
Project Location: Artesia, NM

Prep Date: 05/06/98
Analysis Date: 05/06/98
Sampling Date: 05/05/98
Sample Condition: Intact & Cool
Sample Received by: VW
Project Name: Semi-Annual Evap. Ponds

TA#	FIELD CODE	pH (s.u.)	TDS (mg/L)	FLUORIDE (mg/L)	CHLORIDE (mg/L)	S04 (mg/L)	SPECIFIC CONDUCTANCE (uMHOS/cm)	ALKALINITY (mg/L as CaCo3)		N03-N (mg/L)
								HC03	C03	
T97678	OCD - 1	7.2	10,000	9.1	2,700	3,600	14,000	660	<1.0	<1.0
ICV		7.0	---	2.3	11	11	1,343	---	---	4.7
CCV		7.0	---	2.2	12	12	1,356	---	---	4.6
RPD		0	1	1	1	1	0	1	1	2
% Extraction Accuracy		---	---	91	79*	66*	---	---	---	104
% Instrument Accuracy		100	100	93	95	96	96	99	99	95
Reporting Limit		---	10	0.1	0.5	0.5	---	1.0	1.0	0.2

LRB SPIKES: Chloride - RPD = 1
% Extraction Accuracy = 96**

LRB SPIKES: S04 - RPD = 0
% Extraction Accuracy = 97**

*NOTE: Chloride and S04 matrix spikes % Extrction Accuracy low. Blank spikes used due to matrix difficulties.

**NOTE: LCS recoveries show the test to be in control.

METHODS: EPA 300.0, 150.1, 160.1, 120.1, 310.1.

CHEMIST: pH: CS TDS/SPECIFIC CONDUCTANCE/ALKALINITY: RS FLUORIDE/CHLORIDE/S04/N03-N: JS

FLUORIDE SPIKE: 12.5 mg/L FLUORIDE.

FLUORIDE CV: 2.5 mg/L FLUORIDE.

CHLORIDE SPIKE: 312.5 mg/L CHLORIDE.

CHLORIDE CV: 12.5 mg/L CHLORIDE.

S04 SPIKE: 312.5 mg/L S04.

S04 CV: 12.5 mg/L S04.

N03-N SPIKE: 12.5 mg/L N03-N.

N03-N CV: 5.0 mg/L N03-N.


Director, Dr. Blair Leftwich

5-22-98
DATE

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 E-Mail: lab@traceanalysis.com

ANALYTICAL RESULTS FOR

Navajo Refining
 Attention Darrell Moore
 501 E. Main
 Artesia NM 88210

Date: May 16, 1998
 Project: N/A
 Proj Name: Evaporation Ponds
 Proj Loc: Artesia

Lab Receiving #: 9805000094
 Date Rec: 5/6/98
 Sampling Date: 5/5/98
 Sample Condition: Intact and Cool
 Sample Received By: VW

TA#	Field Code	MATRIX	MTBE (mg/L)	BENZENE (mg/L)	TOLUENE (mg/L)	ETHYL- BENZENE (mg/L)	M, P, O XYLENE (mg/L)	TOTAL BTEX (mg/L)
T 97676	OCD-5	Water	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
T 97677	OCD-3	Water	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
T 97678	OCD-1	Water	0.004	<0.001	<0.001	0.002	<0.001	0.002
Method Blank								
Reporting Limit								
QC								
			<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
			0.001	0.001	0.001	0.001	0.001	0.001
			0.088	0.090	0.093	0.091	0.284	0.284

RPD
 % Extraction Accuracy
 % Instrument Accuracy

1 1 0
 99 93 92
 88 90 91 95

TEST	PREP METHOD	PREP DATE	ANALYSIS METHOD	ANALYSIS COMPLETED	CHEMIST	QC: (mg/L)	SPIKE: (mg/L)
BTEX	EPA 5030	5/8/98	EPA 8021B	5/8/98	JG	0.100 ea	0.1 ea

Director, Dr. Blair Leftwich

Date

5-16-98

Cation-Anion Balance Sheet

Sample #

97676

Date:

5/26/98

Cations

	ppm	meq/L
Calcium	900	44.91
Magnesium	270	22.2183
Sodium	3000	130.5
Potassium	63	1.61154

Total Cations

199.24 in meq/L

Anions

	ppm	meq/L
Alkalinity	200	4
Sulfate	2700	56.214
Chloride	4600	129.766
Nitrate as N	0	0
Fluoride	1.3	0.068432

Total Anions

190.048 in meq/L

Percentage Error

4.72216 %

(needs to be <10%)

OTHER INFORMATION

TDS

12000

EC

18000

Measure EC and Cation Sums	19923.984	Range should be:	16200	to	19800
Measure EC and Anion Sums	19004.843	Range should be:	16200	to	19800
Calculated TDS/Conductivity	0.6666667	Range should be:	0.55	to	0.77
Measure TDS and Cation Sums	0.6022892	Range should be:	0.55	to	0.77
Measure TDS and Anion Sums	0.631418	Range should be:	0.55	to	0.77

Cation-Anion Balance Sheet

Sample #

97677

Date:

6/9/98

Cations

	ppm	meq/L
Calcium	514	25.6486
Magnesium	160	13.1664
Sodium	1570	68.295
Potassium	27	0.69066

Total Cations

107.801 in meq/L

Anions

	ppm	meq/L
Alkalinity	250	5
Sulfate	2300	47.886
Chloride	1700	47.957
Nitrate as N	0	0
Fluoride	1.9	0.100016

Total Anions

100.943 in meq/L

Percentage Error

6.5704 %

(needs to be < 10%)

OTHER INFORMATION

TDS	6300
EC	9100

Measure EC and Cation Sums	10780.066	Range should be:	8190	to	10010
Measure EC and Anion Sums	10094.302	Range should be:	8190	to	10010
Calculated TDS/Conductivity	0.6923077	Range should be:	0.55	to	0.77
Measure TDS and Cation Sums	0.584412	Range should be:	0.55	to	0.77
Measure TDS and Anion Sums	0.6241145	Range should be:	0.55	to	0.77

Cation-Anion Balance Sheet

Sample #

97678

Date:

5/26/98

Cations

	ppm	meq/L
Calcium	700	34.93
Magnesium	200	16.458
Sodium	2500	108.75
Potassium	34	0.86972

Total Cations

161.008 in meq/L

Anions

	ppm	meq/L
Alkalinity	660	13.2
Sulfate	3600	74.952
Chloride	2700	76.167
Nitrate as N	0	0
Fluoride	9.1	0.479024

Total Anions

164.798 in meq/L

Percentage Error

2.32673 %

(needs to be <10%)

OTHER INFORMATION

TDS	10000
EC	14000

Measure EC and Cation Sums	16100.772	Range should be:	12600	to	15400
Measure EC and Anion Sums	16479.802	Range should be:	12600	to	15400
Calculated TDS/Conductivity	0.7142857	Range should be:	0.55	to	0.77
Measure TDS and Cation Sums	0.6210882	Range should be:	0.55	to	0.77
Measure TDS and Anion Sums	0.6068034	Range should be:	0.55	to	0.77

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El Paso, Texas 79922 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

June 09, 1998

Receiving Date: 05/08/98

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: 05/08/98

Analysis Date: 05/13/98

Sampling Date: 05/07/98

Sample Condition: Intact & Cool

Sample Received by: VW

Project Name: Semi-Annual Evap.

TA#	Field Code	POTASSIUM (mg/L)	MAGNESIUM (mg/L)	CALCIUM (mg/L)	SODIUM (mg/L)
T98047	MW - 5A	35	1,100	550	4,700
T98048	MW - 5B	12	220	630	1,600
ICV		98	101	101	99
CCV		98	98	100	97

Reporting Limit

METHOD BLANK

RPD

% Extraction Accuracy

% Instrument Accuracy

LRB SPIKES: Na - RPD = 2

% Extraction Accuracy = 94**

% Instrument Accuracy = 98

*NOTE: % Extraction Accuracy is out of acceptable limits of 75-125% due to the high amounts of Na in the sample spiked.

**NOTE: LCS % Extraction Accuracy shows that the test was in control.

METHODS: EPA 200.7.

CHEMIST: RR

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

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

Director, Dr. Blair Leftwich

Date

6-9-98

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June 09, 1998

Receiving Date: 05/08/98

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: 06/05/98

Analysis Date: 06/05/98

Sampling Date: 05/07/98

Sample Condition: Intact & Cool

Sample Received by: VW

Project Name: Semi-Annual Evap.

TA#	Field Code	POTASSIUM (mg/L)	MAGNESIUM (mg/L)	CALCIUM (mg/L)	SODIUM (mg/L)
T98049	MW - 5C	10	150	540	450
ICV		49	50	50	50
CCV		48	49	50	50
Reporting Limit		0.80	0.50	0.50	0.50
METHOD BLANK		<0.80	<0.50	<0.50	<0.50
RPD		0	1	1	1
% Extraction Accuracy		106*	110	110	104*
% Instrument Accuracy		96	98	100	100

*NOTE: Used LCS for Extraction Accuracy due to matrix effects in sample.

METHODS: EPA 200.7.

CHEMIST: RR

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

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

Director, Dr. Blair Leftwich

Date

6-9-98

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ANALYTICAL RESULTS FOR NAVAJO REFINING

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

Prep Date: 05/08/98
Analysis Date: 05/08/98
Sampling Date: 05/07/98
Sample Condition: Intact & Cool
Sample Received by: VW
Project Name: Semi-Annual Evap. Ponds

June 01, 1998
Receiving Date: 05/08/98
Sample Type: Water
Project No: NA
Project Location: Artesia, NM 88210

TA#	FIELD CODE	pH (s.u.)	TDS (mg/L)	FLUORIDE (mg/L)	CHLORIDE (mg/L)	N03-N (mg/L)	SULFATE (mg/L)	ALKALINITY (mg/L as CaCO3) HC03 C03	SPECIFIC CONDUCTANCE (uMHOS/cm)
T98047	MW - 5A	7.1	19,000	4.7	4,900	<1.0	7,400	420 <1.0	29,000
ICV		7.0	—	2.4	11	4.7	12	—	1,283
CCV		7.0	—	2.4	12	4.7	12	—	1,359
REPORTING LIMIT									
		—	—	0.1	0.5	1.0	0.5	1.0 1.0	—
RPD		0	2	4	1	1	0	6 6	3
% Extraction Accuracy		—	—	94	51*	103	—*	—	—
% Instrument Accuracy		100	98	97	97	95	102	97 97	93

LRB SPIKES: Chloride - RPD = 2

% Extraction Accuracy = 97**

LRB SPIKES: Sulfate - RPD = 2

% Extraction Accuracy = 102

*NOTE: Chloride and Sulfate low matrix % Extraction Accuracy. Blank spikes used due to matrix difficulties.

METHODS: EPA 150.1, 160.1, 300.0, 310.1, 120.1.

CHEMIST: pH/SPECIFIC CONDUCTANCE: CS TDS: RS FLUORIDE/CHLORIDE/N03-N/SULFATE: JS ALKALINITY: RS

SPIKE: 62.5 mg/L CHLORIDE; 12.5 mg/L FLUORIDE; 62.5 mg/L SULFATE; 25 mg/L N03-N.

CV: 12.5 mg/L CHLORIDE; 2.5 mg/L FLUORIDE; 12.5 mg/L SULFATE; 5.0 mg/L N03-N.

Director, Dr. Blair Leftwich

Date

6-1-98

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E-Mail: lab@traceanalysis.com
ANALYTICAL RESULTS FOR
NAVAJO REFINING

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

June 01, 1998

Receiving Date: 05/08/98

Sample Type: Water

Project No: NA

Project Location: Artesia, NM 88210

Prep Date: 05/08/98

Analysis Date: 05/08/98

Sampling Date: 05/07/98

Sample Condition: Intact & Cool

Sample Received by: VW

Project Name: Semi-Annual Evap. Ponds

TA#	FIELD CODE	pH (s.u.)	TDS (mg/L)	FLUORIDE (mg/L)	CHLORIDE (mg/L)	N03-N (mg/L)	SULFATE (mg/L)	ALKALINITY (mg/L as CaCO3) HC03 C03	SPECIFIC CONDUCTANCE (uMHOS/cm)
T98048	MW - 5B	6.8	6,800	2.2	1,900	<1.0	2,500	500 <1.0	8,400
ICV		7.0	—	2.4	11	4.7	12	—	1,283
CCV		7.0	—	2.4	12	4.7	12	—	1,359
REPORTING LIMIT		—	—	0.1	0.5	1.0	0.5	1.0 1.0	—
RPD		0	2	4	1	1	1	6 6	3
% Extraction Accuracy		—	—	94	51*	103	—*	—	—
% Instrument Accuracy		100	98	97	97	95	98	97 97	93

LRB SPIKES: Chloride - RPD = 2

% Extraction Accuracy = 97**

LRB SPIKES: Sulfate - RPD = 0

% Extraction Accuracy = 98**

*NOTE: Chloride and Sulfate low matrix % Extraction Accuracy. Blank spikes used due to matrix difficulties.

**NOTE: Blank spikes are in range.

METHODS: EPA 150.1, 160.1, 300.0, 310.1, 120.1.

CHEMIST: pH/SPECIFIC CONDUCTANCE: CS TDS: RS FLUORIDE/CHLORIDE/N03-N/SULFATE: JS ALKALINITY: RS

SPIKE: 62.5 mg/L CHLORIDE; 12.5 mg/L FLUORIDE; 62.5 mg/L SULFATE; 25 mg/L N03-N.

CV: 12.5 mg/L CHLORIDE; 2.5 mg/L FLUORIDE; 12.5 mg/L SULFATE; 5.0 mg/L N03-N.

Director, Dr. Blair Leftwich

Date

6-1-98

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ANALYTICAL RESULTS FOR
NAVAJO REFINING

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

June 09, 1998

Receiving Date: 05/08/98

Sample Type: Water

Project No: NA

Project Location: Artesia, NM 88210

Prep Date: 05/08/98

Analysis Date: 05/08/98

Sampling Date: 05/07/98

Sample Condition: Intact & Cool

Sample Received by: VW

Project Name: Semi-Annual Evap. Ponds

TA#	FIELD CODE	pH (s.u.)	TDS (mg/L)	FLUORIDE (mg/L)	CHLORIDE (mg/L)	N03-N (mg/L)	SULFATE (mg/L)	ALKALINITY (mg/L as CaCO3) HC03 C03	SPECIFIC CONDUCTANCE (uMHOS/cm)
T98049	MW - 5C	7.0	3,400	1.9	600	<1.0	1,900	160	<1.0
ICV		7.0	—	2.4	12	4.7	13	—	1,283
CCV		7.0	—	2.4	12	4.7	13	—	1,359
REPORTING LIMIT									
		—	—	0.1	0.5	1.0	0.5	1.0	1.0
RPD		0	2	4	0	1	1	6	6
% Extraction Accuracy		—	—	93	104	103	116	—	—
% Instrument Accuracy		100	98	96	102	95	109	97	97
									93

METHODS: EPA 150.1, 160.1, 300.0, 310.1, 120.1.

CHEMIST: pH/SPECIFIC CONDUCTANCE: CS TDS: RS FLUORIDE/CHLORIDE/N03-N/SULFATE: JS ALKALINITY: RS

SPIKE: 31.25 mg/L CHLORIDE; 12.5 mg/L FLUORIDE; 31.25 mg/L SULFATE; 25 mg/L N03-N.

CV: 12.5 mg/L CHLORIDE; 2.5 mg/L FLUORIDE; 12.5 mg/L SULFATE; 5.0 mg/L N03-N.

Director, Dr. Blair Leftwich

6-9-98

Date

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ANALYTICAL RESULTS FOR

Navajo Refining
 Attention Darrell Moore
 501 E. Main
 Artesia NM 88210

Lab Receiving # : 9805000166
 Date Rec: 5/8/98
 Sampling Date: 5/7/98
 Sample Condition: Intact and Cool
 Sample Received By: ML

Date: May 16, 1998
 Project: N/A
 Proj Name: Evaporation Ponds
 Proj Loc: Artesia

TA#	Field Code	MATRIX	MTBE (mg/L)	BENZENE (mg/L)	TOLUENE (mg/L)	ETHYL- BENZENE (mg/L)	M, P, O XYLENE (mg/L)	TOTAL BTX (mg/L)
T 98047	MW-5A	Water	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
T 98048	MW-5B	Water	0.007	<0.005	<0.005	<0.005	<0.005	<0.005
T 98049	MW-5C	Water	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Method Blank			<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Reporting Limit			0.001	0.001	0.001	0.001	0.001	0.001
QC			0.097	0.091	0.092	0.093	0.274	0.274

RPD
 % Extraction Accuracy
 % Instrument Accuracy

1 8 5 5
 110 109 108 107
 97 91 92 91

TEST	PREP METHOD	PREP DATE	ANALYSIS METHOD	ANALYSIS COMPLETED	CHEMIST	QC: (mg/L)	SPIKE: (mg/L)
BTEX	EPA 5030	5/13/98	EPA 8021B	5/13/98	JG	0.100 ea	0.1 ea

Director, Dr. Blair Leftwich

Date

5-16-98



TRACE ANALYSIS, INC.

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E-Mail: lab@traceanalysis.com

June 01, 1998
Receiving Date: 05/08/98
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: 05/08/98
Analysis Date: 05/08/98
Sampling Date: 05/07/98
Sample Condition: Intact & Cool
Sample Received by: VW
Project Name: Semi-Annual Evap. Ponds

DISSOLVED METALS

TA#	FIELD CODE	As (mg/L)	Cd (mg/L)	Cr (mg/L)	Ba (mg/L)	Co (mg/L)	Cu (mg/L)	Fe (mg/L)	Mn (mg/L)	Mo (mg/L)	Ni (mg/L)
T98047	MW - 5A	0.12	<0.01	<0.01	<0.10	<0.05	<0.10	3.0	1.4	<0.10	<0.01
ICV		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
CCV		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
METHOD BLANK		<0.005	<0.01	<0.01	<0.10	<0.05	<0.10	<0.10	<0.10	<0.10	<0.01
REPORTING LIMIT		0.005	0.01	0.01	0.10	0.05	0.10	0.10	0.10	0.10	0.01
RPD		2	3	0	2	2	2	1	0	3	0
% Extraction Accuracy		90	80	80	90	75	95	90	85	90	70
% Instrument Accuracy		105	108	107	101	106	103	108	102	107	105
Zn			B	Se	Pb	Ag	Al	U	Hg		
		(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)		
T98047	MW - 5A	<0.10	1.5	<0.005	<0.01	<0.005	<0.20	<0.10	<0.0010		
ICV		1.0	1.0	1.0	2.6	0.19	1.0	5.0	0.0051		
CCV		1.0	1.0	1.1	2.6	0.19	0.98	5.0	0.0049		
METHOD BLANK		<0.10	<0.10	<0.005	<0.01	<0.005	<0.20	<0.10	<0.0010		
REPORTING LIMIT		0.10	0.10	0.005	0.01	0.005	0.20	0.10	0.0010		
RPD		0	0	0	0	0	6	7	2		
% Extraction Accuracy		80	95	100	95	120	85	65	112		
% Instrument Accuracy		103	103	108	107	95	103	100	100		

METHODS: EPA 200.7, 245.1.
CHEMIST: As, Cd, Cr, Ba, Co, Cu, Fe, Mn, Mo, Ni, Zn, B, Se, Pb, Ag, Al, U: RR Hg: SA/HC
DISSOLVED METALS SPIKE: 2.0 mg/L As, Cd, Cr, Ba, Co, Cu, Fe, Mn, Mo, Ni, Zn, B, Al, U; 0.20 mg/L Se, Pb; 0.50 mg/L Ag; 0.0050 mg/L Hg.
DISSOLVED METALS CV: 1.0 mg/L As, Cd, Cr, Ba, Co, Cu, Fe, Mn, Mo, Ni, Zn, B, Al, U, Se; 2.5 mg/L Pb; 0.20 mg/L Ag; 5.0 mg/L U; 0.0050 mg/L Hg.

BS *6-1-98*
Director, Dr. Blair Leftwich
DATE



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E-Mail: lab@traceanalysis.com

June 01, 1998

Receiving Date: 05/08/98

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: 05/08/98

Analysis Date: 05/08/98

Sampling Date: 05/07/98

Sample Condition: Intact & Cool

Sample Received by: VW

Project Name: Semi-Annual Evap. Ponds

DISSOLVED METALS

TA#	FIELD CODE	As (mg/L)	Cd (mg/L)	Cr (mg/L)	Ba (mg/L)	Co (mg/L)	Cu (mg/L)	Fe (mg/L)	Mn (mg/L)	Mo (mg/L)	Ni (mg/L)
T98048	MW - 5B	0.23	<0.01	<0.01	<0.10	<0.05	<0.10	6.2	4.4	<0.10	0.02
ICV		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
CCV		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
METHOD BLANK		<0.005	<0.01	<0.01	<0.10	<0.05	<0.10	<0.10	<0.10	<0.10	<0.01
REPORTING LIMIT		0.005	0.01	0.01	0.10	0.05	0.10	0.10	0.10	0.10	0.01
RPD		2	3	0	2	2	2	1	0	3	0
% Extraction Accuracy		90	80	80	90	75	95	90	85	90	70
% Instrument Accuracy		105	108	107	101	106	103	108	102	107	105
		Zn	B	Se	Pb	Ag	Al	U	Hg		
		(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)		
T98048	MW - 5B	<0.10	0.56	<0.005	<0.01	<0.005	0.26	<0.10	<0.0010		
ICV		1.0	1.0	1.0	2.6	0.19	1.0	5.0	0.0051		
CCV		1.0	1.0	1.1	2.6	0.19	0.98	5.0	0.0049		
METHOD BLANK		<0.10	<0.10	<0.005	<0.01	<0.005	<0.20	<0.10	<0.0010		
REPORTING LIMIT		0.10	0.10	0.005	0.01	0.005	0.20	0.10	0.0010		
RPD		0	0	0	0	0	6	7	2		
% Extraction Accuracy		80	95	100	95	120	85	65	112		
% Instrument Accuracy		103	103	108	107	95	103	100	100		

METHODS: EPA 200.7, 245.1.

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

DISSOLVED METALS SPIKE: 2.0 mg/L As, Cd, Cr, Ba, Co, Cu, Fe, Mn, Mo, Ni, Zn, B, Al, U; 0.20 mg/L Se, Pb; 0.50 mg/L Ag; 0.0050 mg/L Hg.

DISSOLVED METALS CV: 1.0 mg/L As, Cd, Cr, Ba, Co, Cu, Fe, Mn, Mo, Ni, Zn, B, Al, U, Se; 2.5 mg/L Pb; 0.20 mg/L Ag; 5.0 mg/L U; 0.0050 mg/L Hg.

Director, Dr. Blair Leftwich

DATE

6-1-98

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

June 01, 1998

Receiving Date: 05/08/98

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: 05/08/98

Analysis Date: 05/08/98

Sampling Date: 05/07/98

Sample Condition: Intact & Cool

Sample Received by: VW

Project Name: Semi-Annual Evap. Ponds

DISSOLVED METALS

TA#	FIELD CODE	As (mg/L)	Cd (mg/L)	Cr (mg/L)	Ba (mg/L)	Co (mg/L)	Cu (mg/L)	Fe (mg/L)	Mn (mg/L)	Mo (mg/L)	Ni (mg/L)
T98049 MW - 5C		0.01	<0.01	<0.01	<0.10	<0.05	<0.10	0.47	0.63	<0.10	<0.01
ICV		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
CCV		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
METHOD BLANK		<0.005	<0.01	<0.01	<0.10	<0.05	<0.10	<0.10	<0.10	<0.10	<0.01
REPORTING LIMIT		0.005	0.01	0.01	0.10	0.05	0.10	0.10	0.10	0.10	0.01
RPD		2	3	0	2	2	2	1	0	3	0
% Extraction Accuracy		90	80	80	90	75	95	90	85	90	70
% Instrument Accuracy		105	108	107	101	106	103	108	102	107	105
		Zn	B	Se	Pb	Ag	Al	U	Hg		
		(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)		
T98049 MW - 5C		<0.10	0.19	<0.005	<0.01	<0.005	0.27	<0.10	<0.0010		
ICV		1.0	1.0	1.0	2.6	0.19	1.0	5.0	0.0051		
CCV		1.0	1.0	1.1	2.6	0.19	0.98	5.0	0.0049		
METHOD BLANK		<0.10	<0.10	<0.005	<0.01	<0.005	<0.20	<0.10	<0.0010		
REPORTING LIMIT		0.10	0.10	0.005	0.01	0.005	0.20	0.10	0.0010		
RPD		0	0	0	0	0	6	7	2		
% Extraction Accuracy		80	95	100	95	120	85	65	112		
% Instrument Accuracy		103	103	108	107	95	103	100	100		

METHODS: EPA 200.7, 245.1.

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

DISSOLVED METALS SPIKE: 2.0 mg/L As, Cd, Cr, Ba, Co, Cu, Fe, Mn, Mo, Ni, Zn, B, Al, U; 0.20 mg/L Se, Pb; 0.50 mg/L Ag; 0.0050 mg/L Hg.

DISSOLVED METALS CV: 1.0 mg/L As, Cd, Cr, Ba, Co, Cu, Fe, Mn, Mo, Ni, Zn, B, Al, U, Se; 2.5 mg/L Pb; 0.20 mg/L Ag; 5.0 mg/L U; 0.0050 mg/L Hg.

6-1-98

Director, Dr. Blair Leftwich

DATE

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 E-Mail: lab@traceanalysis.com

June 01, 1998

Receiving Date: 05/08/98

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: 05/08/98

Analysis Date: 05/08/98

Sampling Date: 05/07/98

Sample Condition: Intact & Cool

Sample Received by: VW

Project Name: Semi-Annual Evap. Ponds

TOTAL METALS

TA#	FIELD CODE	As (mg/L)	Cd (mg/L)	Cr (mg/L)	Ba (mg/L)	Co (mg/L)	Cu (mg/L)	Fe (mg/L)	Mn (mg/L)	Mo (mg/L)	Ni (mg/L)
T98047	MW - 5A	0.11	<0.01	<0.01	<0.10	<0.05	<0.10	4.7	1.4	<0.10	<0.01
ICV		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
CCV		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
METHOD BLANK		<0.005	<0.01	<0.01	<0.10	<0.05	<0.10	<0.10	<0.10	<0.10	<0.01
REPORTING LIMIT		0.005	0.01	0.01	0.10	0.05	0.10	0.10	0.10	0.10	0.01
RPD		1	0	2	0	0	0	0	0	0	0
% Extraction Accuracy		90	80	80	90	75	100	95	90	90	75
% Instrument Accuracy		104	106	107	100	106	103	106	103	105	105
		Zn	B	Se	Pb	Ag	Al	U	Hg		
		(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)		
T98047	MW - 5A	<0.10	1.6	<0.005	<0.01	<0.005	<0.20	<0.10	<0.0010		
ICV		1.0	1.0	1.0	2.6	0.19	0.98	5.0	0.0050		
CCV		1.0	1.0	1.1	2.6	0.19	1.0	5.0	0.0049		
METHOD BLANK		<0.10	<0.10	<0.005	<0.01	<0.005	<0.20	<0.10	<0.0010		
REPORTING LIMIT		0.10	0.10	0.005	0.01	0.005	0.20	0.10	0.0010		
RPD		6	0	0	0	0*	0	0	2		
% Extraction Accuracy		75	95	100	95	108*	75	70	112		
% Instrument Accuracy		101	103	108	107	95	99	100	100		

*NOTE: LCS and LCSD used for Ag Extraction Accuracy and RPD due to matrix effect.

METHODS: EPA 200.7, 245.1.

CHEMIST: As, Cd, Cr, Ba, Co, Cu, Fe, Mn, Mo, Ni, Zn, B, Se, Pb, Ag, Al, U; RR Hg: SA/Hc

TOTAL METALS SPIKE: 2.0 mg/L As, Cd, Cr, Ba, Co, Cu, Fe, Mn, Mo, Ni, Zn, B, Al, U; 0.20 mg/L Se, Pb; 0.50 mg/L Ag; 0.0050 mg/L Hg.

TOTAL METALS CV: 1.0 mg/L As, Cd, Cr, Ba, Co, Cu, Fe, Mn, Mo, Ni, Zn, B, Al, U, Se; 2.5 mg/L Pb; 0.20 mg/L Ag; 5.0 mg/L U; 0.0050 mg/L Hg.

Director, Dr. Blair Leftwich

DATE

6-1-98



TRACE ANALYSIS, INC.

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4725 Ripley Avenue, Suite A El Paso, Texas 79922 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

June 01, 1998
Receiving Date: 05/08/98
Sample Type: Water
Project No: NA
Project Location: Artesia, NM 88210
Prep Date: 05/08/98
Analysis Date: 05/08/98
Sampling Date: 05/07/98
Sample Condition: Intact & Cool
Sample Received by: VW
Project Name: Semi-Annual Evap. Ponds

ANALYTICAL RESULTS FOR

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

TOTAL METALS

TA#	FIELD CODE	As (mg/L)	Cd (mg/L)	Cr (mg/L)	Ba (mg/L)	Co (mg/L)	Cu (mg/L)	Fe (mg/L)	Mn (mg/L)	Mo (mg/L)	Ni (mg/L)
T98048 MW - 5B		0.25	<0.01	<0.01	<0.10	<0.05	<0.10	7.2	4.5	<0.10	0.02
ICV		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
CCV		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
METHOD BLANK		<0.005	<0.01	<0.01	<0.10	<0.05	<0.10	<0.10	<0.10	<0.10	<0.01
REPORTING LIMIT		0.005	0.01	0.01	0.10	0.05	0.10	0.10	0.10	0.10	0.01
RPD		1	0	2	0	0	0	0	0	0	0
% Extraction Accuracy		90	80	80	90	75	100	95	90	90	75
% Instrument Accuracy		104	106	107	100	106	103	106	103	105	105
Zn											
		(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
		<0.10	0.59	<0.005	<0.01	<0.005	<0.20	<0.10	<0.0010		
		1.0	1.0	1.0	2.6	0.19	0.98	5.0	0.0050		
		1.0	1.0	1.1	2.6	0.19	1.0	5.0	0.0049		
METHOD BLANK		<0.10	<0.10	<0.005	<0.01	<0.005	<0.20	<0.10	<0.0010		
REPORTING LIMIT		0.10	0.10	0.005	0.01	0.005	0.20	0.10	0.0010		
RPD		6	0	0	0	0*	0	0	2		
% Extraction Accuracy		75	95	100	95	108*	75	70	112		
% Instrument Accuracy		101	103	108	107	95	99	100	100		

*NOTE: LCS and LCSD used for Ag Extraction Accuracy and RPD due to matrix effect.
METHODS: EPA 200.7, 245.1.
CHEMIST: As, Cd, Cr, Ba, Co, Cu, Fe, Mn, Mo, Ni, Zn, B, Se, Pb, Ag, Al, U: RR Hg: SA/HC
TOTAL METALS SPIKE: 2.0 mg/L As, Cd, Cr, Ba, Co, Cu, Fe, Mn, Mo, Ni, Zn, B, Al, U; 0.20 mg/L Se, Pb; 0.50 mg/L Ag; 0.0050 mg/L Hg.
TOTAL METALS CV: 1.0 mg/L As, Cd, Cr, Ba, Co, Cu, Fe, Mn, Mo, Ni, Zn, B, Al, U, Se; 2.5 mg/L Pb; 0.20 mg/L Ag; 5.0 mg/L U; 0.0050 mg/L Hg.

6-1-98
DATE

Director, Dr. Blair Leftwich



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E-Mail: lab@traceanalysis.com

June 01, 1998
Receiving Date: 05/08/98
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: 05/08/98
Analysis Date: 05/08/98
Sampling Date: 05/07/98
Sample Condition: Intact & Cool
Sample Received by: VW
Project Name: Semi-Annual Evap. Ponds

TOTAL METALS

TA#	FIELD CODE	As (mg/L)	Cd (mg/L)	Cr (mg/L)	Ba (mg/L)	Co (mg/L)	Cu (mg/L)	Fe (mg/L)	Mn (mg/L)	Mo (mg/L)	Ni (mg/L)
T98049	MW - 5C	0.01	<0.01	<0.01	<0.10	0.01	<0.10	0.77	0.66	<0.10	0.01
ICV		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
CCV		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
METHOD BLANK		<0.005	<0.01	<0.01	<0.10	<0.05	<0.10	<0.10	<0.10	<0.10	<0.01
REPORTING LIMIT		0.005	0.01	0.01	0.10	0.05	0.10	0.10	0.10	0.10	0.01
RPD		1	0	2	0	0	0	0	0	0	0
% Extraction Accuracy		90	80	80	90	75	100	95	90	90	75
% Instrument Accuracy		104	106	107	100	106	103	106	103	105	105
Zn			B	Se	Pb	Ag	Al	U	Hg		

	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
T98049	MW - 5C	<0.10	0.21	<0.005	<0.01	<0.005	<0.20	<0.10	<0.0010		
ICV		1.0	1.0	1.0	2.6	0.19	0.98	5.0	0.0050		
CCV		1.0	1.0	1.1	2.6	0.19	1.0	5.0	0.0049		
METHOD BLANK		<0.10	<0.10	<0.005	<0.01	<0.005	<0.20	<0.10	<0.0010		
REPORTING LIMIT		0.10	0.10	0.005	0.01	0.005	0.20	0.10	0.0010		
RPD		6	0	0	0	0*	0	0	2		
% Extraction Accuracy		75	95	100	95	108*	75	70	112		
% Instrument Accuracy		101	103	108	107	95	99	100	100		

*NOTE: LCS and LCS-D used for Ag Extraction Accuracy and RPD due to matrix effect.

METHODS: EPA 200.7, 245.1.

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

TOTAL METALS SPIKE: 2.0 mg/L As, Cd, Cr, Ba, Co, Cu, Fe, Mn, Mo, Ni, Zn, B, Al, U; 0.20 mg/L Se, Pb; 0.50 mg/L Ag; 0.0050 mg/L Hg.

TOTAL METALS CV: 1.0 mg/L As, Cd, Cr, Ba, Co, Cu, Fe, Mn, Mo, Ni, Zn, B, Al, U; Se; 2.5 mg/L Pb; 0.20 mg/L Ag; 5.0 mg/L U; 0.0050 mg/L Hg.

Director, Dr. Blair Leftwich

DATE

6-1-98

Cation-Anion Balance Sheet

Sample #

98047

Date:

6/1/98

Cations

	ppm	meq/L
Calcium	550	27.445
Magnesium	1100	90.519
Sodium	4700	204.45
Potassium	35	0.8953

Total Cations

323.309 in meq/L

Anions

	ppm	meq/L
Alkalinity	420	8.4
Sulfate	7400	154.068
Chloride	4900	138.229
Nitrate as N	0	0
Fluoride	4.7	0.247408

Total Anions

300.944 in meq/L

Percentage Error

7.16532 %

(needs to be <10%)

OTHER INFORMATION

TDS	19000
EC	29000

Measure EC and Cation Sums	32330.93	Range should be:	26100	to	31900
Measure EC and Anion Sums	30094.441	Range should be:	26100	to	31900
Calculated TDS/Conductivity	0.6551724	Range should be:	0.55	to	0.77
Measure TDS and Cation Sums	0.5876725	Range should be:	0.55	to	0.77
Measure TDS and Anion Sums	0.6313458	Range should be:	0.55	to	0.77

Cation-Anion Balance Sheet

Sample #

98048

Date:

6/1/98

Cations

	ppm	meq/L
Calcium	630	31.437
Magnesium	220	18.1038
Sodium	1600	69.6
Potassium	12	0.30696

Total Cations

119.448 in meq/L

Anions

	ppm	meq/L
Alkalinity	500	10
Sulfate	2500	52.05
Chloride	1900	53.599
Nitrate as N	0	0
Fluoride	2.2	0.115808

Total Anions

115.765 in meq/L

Percentage Error

3.13159 %

(needs to be <10%)

OTHER INFORMATION

TDS

6800

EC

8400

Measure EC and Cation Sums	11944.776	Range should be:	7560	to	9240
Measure EC and Anion Sums	11576.481	Range should be:	7560	to	9240
Calculated TDS/Conductivity	0.8095238	Range should be:	0.55	to	0.77
Measure TDS and Cation Sums	0.5692865	Range should be:	0.55	to	0.77
Measure TDS and Anion Sums	0.5873979	Range should be:	0.55	to	0.77

Cation-Anion Balance Sheet

Sample #

98049

Date:

6/9/98

Cations

	ppm	meq/L
Calcium	540	26.946
Magnesium	150	12.3435
Sodium	450	19.575
Potassium	10	0.2558

Total Cations

59.1203 in meq/L

Anions

	ppm	meq/L
Alkalinity	160	3.2
Sulfate	1900	39.558
Chloride	600	16.926
Nitrate as N	0	0
Fluoride	1.9	0.100016

Total Anions

59.784 in meq/L

Percentage Error

1.11639 %

(needs to be <10%)

OTHER INFORMATION

TDS

3400

EC

3900

Measure EC and Cation Sums	5912.03	Range should be:	3510	to	4290
Measure EC and Anion Sums	5978.4016	Range should be:	3510	to	4290
Calculated TDS/Conductivity	0.8717949	Range should be:	0.55	to	0.77
Measure TDS and Cation Sums	0.5750986	Range should be:	0.55	to	0.77
Measure TDS and Anion Sums	0.5687139	Range should be:	0.55	to	0.77

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

Fax #: 505-748-9077

Invoice to:
(If different from above)

Project Name: Semi-Annual Eval. Ponds

Sampler Signature: Laurie Madril

MATRIX	PRESERVATIVE METHOD				SAMPLING					
	WATER	SOIL	AIR	SLUDGE	HCL	HNO3	ICE	NONE	DATE	TIME
✓	X				X	X	X	X	5/7/98	8:30
	X				X	X	X	X	11	9:30
	X				X	X	X	X	11	10:30

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1

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[illegible]

Age Group	Percentage of Respondents
18-29	85%
30-49	80%
50-69	75%
70+	70%

0.304

11.30 PM

10

ORIGINAL COPY

ANALYSIS REQUEST
(Circle or Specify Method No.)

[illegible]

REMARKS:

LAB USE ONLY	REMARKS:
Intact ☒ Y ☐ N	1- 12 Pt Nonrefr Cat / Q mi
Headspace ☐ Y ☒ N	1- 500 Pt HNO ₃ for Metals
Temp - 18 °C	1- 500 Pt HNO ₃ for Dissolved Metals
Log-In Review ☒ Y ☐ N	2- 40 ml V443 + H ₂ O for 8020
Carrier # - Fed Ex 3679541796	1- Fax also to Dave Boyer (360-388-1333)

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 E-Mail: lab@traceanalysis.com

ANALYTICAL RESULTS FOR

Navajo Refining
 Attention Darrell Moore
 501 E. Main
 Artesia NM 88210

Lab Receiving # : 9805000125
 Date Rec: 5/7/98
 Sampling Date: 5/6/98
 Sample Condition: Intact and Cool
 Sample Received By: ML

Date: May 13, 1998
 Project: N/A
 Proj Name: Evaporation Ponds
 Proj Loc: Artesia

TA#	Field Code	MATRIX	MTBE (mg/L)	BENZENE (mg/L)	TOLUENE (mg/L)	ETHYL- BENZENE (mg/L)	M, P, O XYLENE (mg/L)	TOTAL BTX (mg/L)
T 97839	MW-6A	Water	<0.005	<0.005	<0.005	<0.005	0.010	0.010
T 97840	MW-6B	Water	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
T 97841	MW-3	Water	<0.005	<0.005	0.006	<0.005	<0.005	0.006
Method Blank			<0.001	<0.001	<0.001	<0.001	<0.001	
Reporting Limit			0.001	0.001	0.001	0.001	0.001	
QC			0.088	0.090	0.093	0.091	0.284	

RPD
 % Extraction Accuracy
 % Instrument Accuracy

1 1 0
 99 93 92
 88 90 93
 91 91 95

TEST	PREP METHOD	PREP DATE	ANALYSIS METHOD	ANALYSIS COMPLETED	CHEMIST	QC: (mg/L)	SPIKE: (mg/L)
BTEX	EPA 5030	5/8/98	EPA 8021B	5/8/98	JG	0.100 ea	0.1 ea

Director, Dr. Blair Leftwich

Date

5-13-98

TRACE ANALYSIS, INC.

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El Paso, Texas 79922 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

June 16, 1998

Receiving Date: 05/07/98

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: 05/07/98

Analysis Date: 05/13/98

Sampling Date: 05/06/98

Sample Condition: Intact & Cool

Sample Received by: VW

Project Name: Semi-Annual Evap.

Ponds

TA#	Field Code	POTASSIUM (mg/L)	MAGNESIUM (mg/L)	CALCIUM (mg/L)	SODIUM (mg/L)
T97839	MW - 6A	4.3	130	640	670
T97840	MW - 6B	8.2	130	440	590
T97841	MW - 3	10	260	610	1,200
ICV		96	98	98	95
CCV		98	101	101	99

Reporting Limit

0.30 0.10 0.10 0.10

METHOD BLANK

2.7 0.93 <0.10 4.0

RPD

% Extraction Accuracy

% Instrument Accuracy

13 12 12
110 102 125
97 99 97

METHODS: EPA 200.7.

CHEMIST: RR

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

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

Director, Dr. Blair Leftwich

Date

6-16-98

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E-Mail: lab@traceanalysis.com
ANALYTICAL RESULTS FOR

NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

June 16, 1998

Receiving Date: 05/07/98

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

Prep Date: 05/07/98

Analysis Date: 05/07/98

Sampling Date: 05/06/98

Sample Condition: Intact & Cool

Sample Received by: VW

Project Name: Semi-Annual Evap. Ponds

TA#	FIELD CODE	pH (s.u.)	TDS (mg/L)	FLUORIDE (mg/L)	CHLORIDE (mg/L)	N03-N (mg/L)	ALKALINITY		SULFATE (mg/L)	SPECIFIC CONDUCTANCE	
							HC03	C03		HC03	(uMHOS/cm)
T97839	MW - 6A	7.5	4,200	3.1	670	<1.0	160	<1.0	2,100	160	5,600
ICV		7.0	—	2.4	13	4.7	—	—	12	—	1,343
CCV		7.0	—	2.2	11	4.6	—	—	12	—	1,356
REPORTING LIMIT											
		—	—	0.1	0.5	0.2	1.0	1.0	0.5	1.0	—
RPD		0	1	1	1	2	6	6	1	6	0
% Extraction Accuracy		—	—	96	94	104	—	—	—*	—	—
% Instrument Accuracy		100	100	95	101	95	97	97	99	97	96

LRB SPIKES: Sulfate - RPD = 1

% Extraction Accuracy = 100

*NOTE: Sulfate matrix % Extraction Accuracy low. Blank spikes used due to matrix difficulties. Blank spikes in range.

METHODS: EPA 150.1, 160.1, 300.0, 310.1, 120.1.

CHEMIST: pH: CS SPECIFIC CONDUCTANCE/TDS: RS FLUORIDE/CHLO

SPIKE: 31.25 mg/L CHLORIDE; 6.25 mg/L FLUORIDE; 31.25 mg/L SULFATE; 12.5 mg/L N03-N.

CV: 12.5 mg/L CHLORIDE; 2.5 mg/L FLUORIDE; 12.5 mg/L SULFATE; 5.0 mg/L N03-N.



Director, Dr. Blair Leftwich

6-16-98

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ANALYTICAL RESULTS FOR

NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

June 16, 1998

Receiving Date: 05/07/98

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

Prep Date: 05/07/98

Analysis Date: 05/07/98

Sampling Date: 05/06/98

Sample Condition: Intact & Cool

Sample Received by: VW

Project Name: Semi-Annual Evap. Ponds

TA#	FIELD CODE	pH (s.u.)	TDS (mg/L)	FLUORIDE (mg/L)	CHLORIDE (mg/L)	N03-N (mg/L)	SULFATE (mg/L)	ALKALINITY (mg/L as CaCO3) HC03 C03	SPECIFIC CONDUCTANCE (uMHOS/cm)
T97840	MW - 6B	7.5	3,400	1.4	920	<1.0	1,100	90 <1.0	5,100
ICV		7.0	—	2.2	11	4.6	12	—	1,343
CCV		7.0	—	2.4	11	4.7	12	—	1,356
REPORTING LIMIT		—	—	0.1	0.5	0.2	0.5	1.0 1.0	—
RPD		0	1	4	0	0	0	6 6	0
% Extraction Accuracy		—	—	94	68*	103	1*	—	—
% Instrument Accuracy		100	100	94	95	94	99	97 97	96

LRB SPIKES: Chloride - RPD = 0

% Extraction Accuracy = 96

LRB SPIKES: Sulfate - RPD = 1

% Extraction Accuracy = 98

*NOTE: Chloride and Sulfate matrix % Extraction Accuracy low. Blank spikes used due to matrix difficulties. Blank spikes in range.

METHODS: EPA 150.1, 160.1, 300.0, 310.1, 120.1.

CHEMIST: pH: CS SPECIFIC CONDUCTANCE/TDS: RS FLUORIDE/CHLO

SPIKE: 31.25 mg/L CHLORIDE; 6.25 mg/L FLUORIDE; 31.25 mg/L SULFATE; 12.5 mg/L N03-N.

CV: 12.5 mg/L CHLORIDE; 2.5 mg/L FLUORIDE; 12.5 mg/L SULFATE; 5.0 mg/L N03-N.

Director, Dr. Blair Leftwich

Date

6-16-98

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ANALYTICAL RESULTS FOR

NAVAJO REFINING

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

June 16, 1998

Receiving Date: 05/07/98

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

Prep Date: 05/07/98

Analysis Date: 05/07/98

Sampling Date: 05/06/98

Sample Condition: Intact & Cool

Sample Received by: VW

Project Name: Semi-Annual Evap. Ponds

TA#	FIELD CODE	pH (s.u.)	TDS (mg/L)	FLUORIDE (mg/L)	CHLORIDE (mg/L)	NO3-N (mg/L)	SULFATE (mg/L)	ALKALINITY		SPECIFIC CONDUCTANCE (uMHOS/cm)
								HC03	C03	
T97841	MW - 3	7.0	6,100	3.2	1,200	<1.0	2,600	290	<1.0	8,100
ICV		7.0	—	2.2	11	4.6	12	—	—	1,343
CCV		7.0	—	2.4	11	4.7	12	—	—	1,356
REPORTING LIMIT										
		—	—	0.1	0.5	0.2	0.5	1.0	1.0	—
RPD		0	1	4	0	0	0	6	6	0
% Extraction Accuracy		—	—	94	68*	103	1*	—	—	—
% Instrument Accuracy		100	100	94	95	94	99	97	97	96

LRB SPIKES: Chloride - RPD = 0

% Extraction Accuracy = 96

LRB SPIKES: Sulfate - RPD = 1

% Extraction Accuracy = 98

*NOTE: Chloride and Sulfate matrix % Extraction Accuracy low. Blank spikes used due to matrix difficulties. Blank spikes in range.

METHODS: EPA 150.1, 160.1, 300.0, 310.1, 120.1.

CHEMIST: pH: CS SPECIFIC CONDUCTANCE/TDS: RS FLUORIDE/CHLO

SPIKE: 31.25 mg/L CHLORIDE; 6.25 mg/L FLUORIDE; 31.25 mg/L SULFATE; 12.5 mg/L NO3-N.

CV: 12.5 mg/L CHLORIDE; 2.5 mg/L FLUORIDE; 12.5 mg/L SULFATE; 5.0 mg/L NO3-N.

Director, Dr. Blair Leftwich

Date

6-16-98



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E-Mail: lab@traceanalysis.com

June 16, 1998

Receiving Date: 05/07/98

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: 05/07/98

Analysis Date: 05/08/98

Sampling Date: 05/06/98

Sample Condition: Intact & Cool

Sample Received by: VW

Project Name: Semi-Annual Evap. Ponds

DISSOLVED METALS

TA#	FIELD CODE	As (mg/L)	Cd (mg/L)	Cr (mg/L)	Ba (mg/L)	Co (mg/L)	Cu (mg/L)	Fe (mg/L)	Mn (mg/L)	Mo (mg/L)	Ni (mg/L)
T97839	MW - 6A	0.02	<0.01	<0.01	<0.10	<0.05	<0.10	0.37	0.52	<0.10	<0.01
ICV		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
CCV		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
METHOD BLANK		<0.005	<0.01	<0.01	<0.10	<0.05	<0.10	<0.10	<0.10	<0.10	<0.01
REPORTING LIMIT		0.005	0.01	0.01	0.10	0.05	0.10	0.10	0.10	0.10	0.01
RPD		1	1	1	1	2	1	9	1	1	0
% Extraction Accuracy		98	97	96	100	96	96	104	95	100	92
% Instrument Accuracy		105	106	106	101	105	103	105	102	107	104
		Zn	B	Se	Pb	Ag	Al	U	Hg		
		(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)		
T97839	MW - 6A	<0.10	0.41	<0.01	<0.01	<0.005	0.36	<0.10	<0.0010		
ICV		1.0	1.0	1.0	2.6	0.19	1.0	5.0	0.0049		
CCV		1.0	1.0	1.0	2.6	0.19	1.1	5.0	0.0048		
METHOD BLANK		<0.10	<0.10	<0.01	<0.01	<0.005	<0.20	<0.10	<0.0010		
REPORTING LIMIT		0.10	0.10	0.01	0.01	0.005	0.20	0.10	0.0010		
RPD		3	1	6	0	0	0	0	6		
% Extraction Accuracy		93	95	90	90	90	100	95	102		
% Instrument Accuracy		102	101	106	104	95	105	100	97		

METHODS: EPA 200.7, 245.1.

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

DISSOLVED METALS SPIKE: 2.0 mg/L As, Cd, Cr, Ba, Co, Cu, Fe, Mn, Mo, Ni, Zn, B, Al, U; 0.20 mg/L Se, Pb; 0.40 mg/L Ag; 0.0050 mg/L Hg.

DISSOLVED METALS CV: 1.0 mg/L As, Cd, Cr, Ba, Co, Cu, Fe, Mn, Mo, Ni, Zn, B, Al, U, Se; 2.5 mg/L Pb; 0.20 mg/L Ag; 5.0 mg/L U; 0.0050 mg/L Hg.

Director, Dr. Blair Leftwich

16 JUN 98

DATE



TRACE ANALYSIS, INC.

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E-Mail: lab@traceanalysis.com

June 16, 1998
Receiving Date: 05/07/98
Sample Type: Water
Project No: NA
Project Location: Artesia, NM

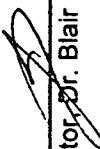
ANALYTICAL RESULTS FOR
NAVAJO REFINING
Attention: Darrell Moore
501 E. Main
Artesia, NM 88210

Prep Date: 05/07/98
Analysis Date: 05/08/98
Sampling Date: 05/06/98
Sample Condition: Intact & Cool
Sample Received by: VW
Project Name: Semi-Annual Evap. Ponds

DISSOLVED METALS

TA#	FIELD CODE	As (mg/L)	Cd (mg/L)	Cr (mg/L)	Ba (mg/L)	Co (mg/L)	Cu (mg/L)	Fe (mg/L)	Mn (mg/L)	Mo (mg/L)	Ni (mg/L)
T97840	MW - 6B	0.01	<0.01	<0.01	<0.10	<0.05	<0.10	0.13	2.2	<0.10	<0.01
ICV		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
CCV		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
METHOD BLANK		<0.005	<0.01	<0.01	<0.10	<0.05	<0.10	<0.10	<0.10	<0.10	<0.01
REPORTING LIMIT		0.005	0.01	0.01	0.10	0.05	0.10	0.10	0.10	0.10	0.01
RPD		1	1	1	1	2	1	9	1	1	0
% Extraction Accuracy		98	97	96	100	96	96	104	95	100	92
% Instrument Accuracy		105	106	106	101	105	103	105	102	107	104
		Zn	B	Se	Pb	Ag	Al	U	Hg		
		(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
T97840	MW - 6B	<0.10	0.28	<0.005	<0.01	<0.005	0.32	<0.10	<0.0010		
ICV		1.0	1.0	1.0	2.6	0.19	1.0	5.0	0.0049		
CCV		1.0	1.0	1.0	2.6	0.19	1.1	5.0	0.0048		
METHOD BLANK		<0.10	<0.10	<0.005	<0.01	<0.005	<0.20	<0.10	<0.0010		
REPORTING LIMIT		0.10	0.10	0.005	0.01	0.005	0.20	0.10	0.0010		
RPD		3	1	5	0	0	0	0	6		
% Extraction Accuracy		93	95	100	90	90	100	95	102		
% Instrument Accuracy		102	101	106	106	95	105	100	97		

METHODS: EPA 200.7, 245.1.
CHEMIST: As, Cd, Cr, Ba, Co, Cu, Fe, Mn, Mo, Ni, Zn, B, Se, Pb, Ag, Al, U: RR Hg: HC
DISSOLVED METALS SPIKE: 2.0 mg/L As, Cd, Cr, Ba, Co, Cu, Fe, Mn, Mo, Ni, Zn, B, Al, U; 0.20 mg/L Se, Pb; 0.40 mg/L Ag; 0.0050 mg/L Hg.
DISSOLVED METALS CV: 1.0 mg/L As, Cd, Cr, Ba, Co, Cu, Fe, Mn, Mo, Ni, Zn, B, Al, U, Se, Pb; 0.20 mg/L Ag; 5.0 mg/L U; 0.0050 mg/L Hg.

 Director, Dr. Blair Leftwich
16 JUN 98
DATE

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E-Mail: lab@traceanalysis.com

June 16, 1998

Receiving Date: 05/07/98

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: 05/07/98

Analysis Date: 05/08/98

Sampling Date: 05/06/98

Sample Condition: Intact & Cool

Sample Received by: VW

Project Name: Semi-Annual Evap. Ponds

DISSOLVED METALS

TA#	FIELD CODE	As (mg/L)	Cd (mg/L)	Cr (mg/L)	Ba (mg/L)	Co (mg/L)	Cu (mg/L)	Fe (mg/L)	Mn (mg/L)	Mo (mg/L)	Ni (mg/L)
T97841 MW - 3		0.05	<0.01	<0.01	<0.10	<0.05	<0.10	1.2	3.3	<0.10	0.01
ICV		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
CCV		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
METHOD BLANK		<0.005	<0.01	<0.01	<0.10	<0.05	<0.10	<0.10	<0.10	<0.10	<0.01
REPORTING LIMIT		0.005	0.01	0.01	0.10	0.05	0.10	0.10	0.10	0.10	0.01
RPD		1	1	1	1	2	1	9	1	1	0
% Extraction Accuracy		98	97	96	100	96	96	104	95	100	92
% Instrument Accuracy		105	106	106	101	105	103	105	102	107	104
		Zn	B	Se	Pb	Ag	Al	U	Hg		
		(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)		
T97841 MW - 3		<0.10	0.86	<0.005	<0.01	<0.005	0.31	<0.10	<0.0010		
ICV		1.0	1.0	1.0	2.6	0.19	1.0	5.0	0.0049		
CCV		1.0	1.0	1.0	2.6	0.19	1.1	5.0	0.0048		
METHOD BLANK		<0.10	<0.10	<0.005	<0.01	<0.005	<0.20	<0.10	<0.0010		
REPORTING LIMIT		0.10	0.10	0.005	0.01	0.005	0.20	0.10	0.0010		
RPD		3	1	5	0	0	0	0	6		
% Extraction Accuracy		93	95	100	90	90	100	95	102		
% Instrument Accuracy		102	101	106	106	95	105	100	97		

METHODS: EPA 200.7, 245.1.

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

DISSOLVED METALS SPIKE: 2.0 mg/L As, Cd, Cr, Ba, Co, Cu, Fe, Mn, Mo, Ni, Zn, B, Al, U; 0.20 mg/L Se, Pb; 0.40 mg/L Ag; 0.0050 mg/L Hg.

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

Director, Dr. Blair Leftwich

16 JUN 98

DATE



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E-Mail: lab@traceanalysis.com

June 16, 1998

Receiving Date: 05/07/98

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: 05/07/98

Analysis Date: 05/08/98

Sampling Date: 05/06/98

Sample Condition: Intact & Cool

Sample Received by: VW

Project Name: Semi-Annual Evap. Ponds

TOTAL METALS

TA#	FIELD CODE	As (mg/L)	Cd (mg/L)	Cr (mg/L)	Ba (mg/L)	Co (mg/L)	Cu (mg/L)	Fe (mg/L)	Mn (mg/L)	Mo (mg/L)	Ni (mg/L)
T97839	MW - 6A	0.03	<0.01	<0.01	<0.10	<0.05	<0.10	1.1	0.58	<0.10	<0.01
ICV		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
CCV		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
METHOD BLANK		<0.005	<0.01	<0.01	<0.10	<0.05	<0.10	<0.10	<0.10	<0.10	<0.01
REPORTING LIMIT		0.005	0.01	0.01	0.10	0.05	0.10	0.10	0.10	0.10	0.01
RPD		2	0	0	0	1	3	2	0	20	5
% Extraction Accuracy		105	103	105	107	99	100	110	100	106	99
% Instrument Accuracy		100	100	100	100	100	100	100	100	105	100
Zn			B	Se	Pb	Al	Ag	U	Hg		
(mg/L)		(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)		
<0.10		0.43	<0.005	<0.01	<0.01	0.94	<0.005	<0.10	<0.0010		
1.1		1.0	1.0	1.26	1.0	1.0	0.20	5.0	0.0049		
1.1		1.0	1.0	2.6	1.0	1.0	0.19	5.1	0.0048		
METHOD BLANK		<0.10	<0.005	<0.01	<0.01	<0.02	<0.005	<0.10	<0.0010		
REPORTING LIMIT		0.10	0.10	0.005	0.01	0.02	0.005	0.10	0.0010		
RPD		0	1	6	0	0	0	0	6		
% Extraction Accuracy		109	101	90	90	85	80	90	102		
% Instrument Accuracy		110	100	106	104	103	95	101	97		

METHODS: EPA 200.7, 245.1.

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

TOTAL METALS SPIKE: 2.0 mg/L As, Cd, Cr, Ba, Co, Cu, Fe, Mn, Mo, Ni, Zn, U, B: 0.20 mg/L Se, Pb, Al: 0.40 mg/L Ag: 0.0050 mg/L Hg.

TOTAL METALS CV: 1.0 mg/L As, Cd, Cr, Ba, Co, Cu, Fe, Mn, Mo, Ni, Zn, B, Se, Al: 2.5 mg/L Pb; 0.20 mg/L Ag; 5.0 mg/L U; 0.0050 mg/L Hg.

Director, Dr. Blair Leftwich

16 JUN 98
DATE



TRACE ANALYSIS, INC.

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4725 Ripley Avenue, Suite A El Paso, Texas 79922 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

June 16, 1998

Receiving Date: 05/07/98

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: 05/07/98

Analysis Date: 05/08/98

Sampling Date: 05/06/98

Sample Condition: Intact & Cool

Sample Received by: VW

Project Name: Semi-Annual Evap. Ponds

TOTAL METALS

TA#	FIELD CODE	As (mg/L)	Cd (mg/L)	Cr (mg/L)	Ba (mg/L)	Co (mg/L)	Cu (mg/L)	Fe (mg/L)	Mn (mg/L)	Mo (mg/L)	Ni (mg/L)
T97840 MW - 6B		0.02	<0.01	<0.01	<0.10	<0.05	<0.10	0.18	2.2	<0.10	<0.01
ICV		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
CCV		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
METHOD BLANK		<0.005	<0.01	<0.01	<0.10	<0.05	<0.10	<0.10	<0.10	<0.10	<0.01
REPORTING LIMIT		0.005	0.01	0.01	0.10	0.05	0.10	0.10	0.10	0.10	0.01
RPD		2	0	0	0	1	3	2	0	20	5
% Extraction Accuracy		105	103	105	107	99	100	110	100	106	99
% Instrument Accuracy		100	100	100	100	100	100	100	100	105	100
Zn			B	Se	Pb	Al	Ag	U	Hg		
(mg/L)		(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)		
T97840 MW - 6B		<0.10	0.29	<0.005	<0.01	0.27	<0.005	<0.10	<0.0010		
ICV		1.1	1.0	1.0	1.26	1.0	0.20	5.0	0.0049		
CCV		1.1	1.0	1.0	2.6	1.0	0.19	5.1	0.0048		
METHOD BLANK		<0.10	<0.10	<0.005	<0.01	<0.02	<0.005	<0.10	<0.0010		
REPORTING LIMIT		0.10	0.10	0.005	0.01	0.02	0.005	0.10	0.0010		
RPD		0	1	6	0	0	0	0	6		
% Extraction Accuracy		109	101	90	90	85	80	90	102		
% Instrument Accuracy		110	100	106	104	103	95	101	97		

METHODS: EPA 200.7, 245.1.

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

TOTAL METALS SPIKE: 2.0 mg/L As, Cd, Cr, Ba, Co, Cu, Fe, Mn, Mo, Ni, Zn, U, B; 0.20 mg/L Se, Pb, Al; 0.40 mg/L Ag; 0.0050 mg/L Hg.

TOTAL METALS CV: 1.0 mg/L As, Cd, Cr, Ba, Co, Cu, Fe, Mn, Mo, Ni, Zn, B, Se, Al; 2.5 mg/L Pb; 0.20 mg/L Ag; 5.0 mg/L U; 0.0050 mg/L Hg.

Director: Dr. Blair Leftwich

16 JUN 98

DATE



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E-Mail: lab@traceanalysis.com

June 16, 1998

Receiving Date: 05/07/98

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: 05/07/98

Analysis Date: 05/08/98

Sampling Date: 05/06/98

Sample Condition: Intact & Cool

Sample Received by: VW

Project Name: Semi-Annual Evap. Ponds

TOTAL METALS

TA#	FIELD CODE	As (mg/L)	Cd (mg/L)	Cr (mg/L)	Ba (mg/L)	Co (mg/L)	Cu (mg/L)	Fe (mg/L)	Mn (mg/L)	Mo (mg/L)	Ni (mg/L)
T97841 MW - 3		0.06	<0.01	<0.01	<0.10	<0.05	<0.10	2.3	3.3	<0.10	0.02
ICV		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
CCV		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
METHOD BLANK		<0.005	<0.01	<0.01	<0.10	<0.05	<0.10	<0.10	<0.10	<0.10	<0.01
REPORTING LIMIT		0.005	0.01	0.01	0.10	0.05	0.10	0.10	0.10	0.10	0.01
RPD		2	0	0	0	1	3	2	0	20	5
% Extraction Accuracy		105	103	105	107	99	100	110	100	106	99
% Instrument Accuracy		100	100	100	100	100	100	100	100	105	100
Zn			B	Se	Pb	Al	Ag	U	Hg		
		(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)		
T97841 MW - 3		<0.10	0.88	<0.005	<0.01	1.0	<0.005	<0.10	<0.0010		
ICV		1.1	1.0	1.0	1.26	1.0	0.20	5.0	0.0049		
CCV		1.1	1.0	1.0	2.6	1.0	0.19	5.1	0.0048		
METHOD BLANK		<0.10	<0.10	<0.005	<0.01	<0.02	<0.005	<0.10	<0.0010		
REPORTING LIMIT		0.10	0.10	0.005	0.01	0.02	0.005	0.10	0.0010		
RPD		0	1	6	0	0	0	0	6		
% Extraction Accuracy		109	101	90	90	85	80	90	102		
% Instrument Accuracy		110	100	106	104	103	95	101	97		

METHODS: EPA 200.7, 245.1.

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

TOTAL METALS SPIKE: 2.0 mg/L As, Cd, Cr, Ba, Co, Cu, Fe, Mn, Mo, Ni, Zn, U, B; 0.20 mg/L Se, Pb, Al; 0.40 mg/L Ag; 0.0050 mg/L Hg.

TOTAL METALS CV: 1.0 mg/L As, Cd, Cr, Ba, Co, Cu, Fe, Mn, Mo, Ni, Zn, B, Se, Al; 2.5 mg/L Pb; 0.20 mg/L Ag; 5.0 mg/L U; 0.0050 mg/L Hg.

Director, Dr. Blair Leftwich

16 JUN 98
DATE

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E-Mail: lab@traceanalysis.com

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

June 16, 1998
Receiving Date: 05/07/98
Sample Type: Water
Sampling Date: 05/06/98
Sample Condition: I & C
Sample Received by: VW
Project Location: Artesia, NM
Project Name: Semi-Annual Evap.
Extraction Date: 05/07/98
Analysis Date: 05/08/98

PAH Reporting T97839

8270 Compounds (mg/L)	Limit	MW - 6A	QC	RPD	%EA	%IA
Naphthalene	0.001	ND	72	4	55	90
2-Methylnaphthaene	0.001	ND	---	---	---	---
1-Methylnaphthaene	0.001	ND	---	---	---	---

ND = Not Detected

SURROGATES	% RECOVERY
Nitrobenzene-d5 SURR	81
2-Fluorobiphenyl SURR	79
Terphenyl-d14 SURR	81

METHODS: EPA SW 846-8270, 3510.

CHEMIST: MB

182

Director, Dr. Blair Leftwich

6-16-98

DATE

1 (800) 378 1296

505748331

Fax #:

Daniel Moore

Project Name: Semi-annual ETP Fundo
 Sampler Signature: [Signature]

Sampler Signature:	J. J. J. J. J.	
MAINT	PRESERVATIVE	CA

MTBE 8020/602

BTEX 8020/602

TPH

PAH 8270

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

GC/MS Vol. 8240/8260/624

GC/MS Semi. Vol. 8270/625

PCB's 8080/608

Pest. 8080/608

BOD, TSS, PH

Metals Total
Dissolved Metals

Turn Around Time if different from standard

Hold

the first and the
the first and the

[illegible]

For $A/\mathbb{Q}$

LAB USE ONLY
INMAC (X) N

REMARKS: 1L Pt none for
Cations + anions
1500 ml + HNO₃ for Metals

Headspace Y (N)
Temp 2 °
Log-in Review 9
1500 ml + HANB3 for
215501 used at Metabala
240ml VAS + 141 for 8020

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ANALYTICAL RESULTS FOR

Navajo Refining
Attention Darrell Moore
501 E. Main
Artesia NM 88210

Date: May 28, 1998
Project: N/A
Proj Name: Evaporation Ponds
Proj Loc: Artesia

Lab Receiving #: 9805000189
Date Rec: 5/9/98
Sampling Date: 5/7/98 - 5/8/98
Sample Condition: Intact and Cool
Sample Received By: NG

TA#	Field Code	MATRIX	MTBE (mg/L)	BENZENE (mg/L)	TOLUENE (mg/L)	ETHYL- BENZENE (mg/L)	M,P,O XYLENE (mg/L)	TOTAL BTX (mg/L)
T98149	MW-7A	Water	0.010	<0.005	<0.005	<0.005	<0.005	<0.005
T98150	MW-7B	Water	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
T98151	OCD-8A	Water	0.010	<0.001	<0.001	<0.001	<0.001	<0.001
T98152	OCD-8B	Water	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
T98153	OCD-7AR	Water	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
T98154	OCD-7B	Water	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
T98155	OCD-7C	Water	0.002	<0.001	<0.001	<0.001	<0.001	<0.001
T98156	Pond 5	Water	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
T98157	Pecos River	Water	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Method Blank			<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Reporting Limit			0.001	0.001	0.001	0.001	0.001	
QC			0.100	0.095	0.098	0.100	0.310	
RPD			18	0	1	1	1	
% Extraction Accuracy			90	102	105	107	110	
% Instrument Accuracy			100	95	98	100	103	

TEST	PREP METHOD	PREP DATE	ANALYSIS METHOD	ANALYSIS COMPLETED	CHEMIST	QC: (mg/L)	SPIKE: (mg/L)
BTEX	EPA 5030	5/14/98	EPA 8021B	5/15/98	JG	0.100 ea	0.1 ea

Director, Dr. Blair Leftwich

Date

5-28-98

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 E-Mail: lab@traceanalysis.com

June 16, 1998
 Receiving Date: 05/09/98
 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: 05/11/98
 Analysis Date: 05/25/98
 Sampling Date: 05/07-08/98
 Sample Condition: Intact & Cool
 Sample Received by: VW
 Project Name: Semi-Annual Evap.

Ponds

TA#	Field Code	POTASSIUM (mg/L)	MAGNESIUM (mg/L)	CALCIUM (mg/L)	SODIUM (mg/L)
T98149	MW - 7A	10	330	420	2,100
T98150	MW - 7B	11	200	540	880
ICV		52	47	47	49
CCV		51	49	49	50

Reporting Limit

0.50 0.50 0.50 0.50

METHOD BLANK

<0.50 <0.50 <0.50 <0.50

RPD

% Extraction Accuracy
 % Instrument Accuracy

0* 0 0 3*
 107* 100 100 107*
 98 96 96 98

*NOTE: LCS and LCSD for Extraction Accuracy and RPD for Na and K due to dilutions required for matrix spike.

METHODS: EPA 200.7.
 CHEMIST: RR
 SPIKE: 100 mg/L POTASSIUM, MAGNESIUM, CALCIUM, SODIUM.
 CV: 100 mg/L POTASSIUM, MAGNESIUM, CALCIUM, SODIUM.

Director, Dr. Blair Leftwich

Date

16 JUN 98

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June 16, 1998

Receiving Date: 05/09/98

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: 05/11/98

Analysis Date: 05/25/98

Sampling Date: 05/07-08/98

Sample Condition: Intact & Cool

Sample Received by: VW

Project Name: Semi-Annual Evap.

Ponds

TA#	Field Code	POTASSIUM (mg/L)	MAGNESIUM (mg/L)	CALCIUM (mg/L)	SODIUM (mg/L)
T98151	OCD - 8A	10	360	680	2,000
T98152	OCD - 8B	10	230	880	1,100
T98153	OCD - 7AR	8.0	220	670	2,100
T98154	OCD - 7B	13	130	650	780
T98155	OCD - 7C	12	240	770	1,850
T98156	Pond 5	79	120	74	1,340
T98157	Pecos River	12	240	670	1,300
ICV		98	101	104	99
CCV		99	103	105	99
Reporting Limit		0.50	0.50	0.50	0.50
METHOD BLANK		<0.50	<0.50	<0.50	<0.50
RPD		0*	0	0	3*
% Extraction Accuracy		107*	100	100	107*
% Instrument Accuracy		98	102	104	100

*NOTE: LCS and LCSD for Extraction Accuracy and RPD for Na and K due to dilutions required for matrix spike.

METHODS: EPA 200.7.

CHEMIST: RR

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

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

Director, Dr. Blair Leftwich

16 JUN 98
Date

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ANALYTICAL RESULTS FOR

NAVAJO REFINING

Attention: Darrell Moore
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Artesia, NM 88210

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915•585•3443
FAX 915•585•4944

June 15, 1998

Receiving Date: 05/09/98

Sample Type: Water

Project No: NA

Project Location: Artesia, NM 88210

Prep Date: 05/09/98

Analysis Date: 05/09/98

Sampling Date: 05/07/98

Sample Condition: Intact & Cool

Sample Received by: VW

Project Name: Semi-Annual Evap. Ponds

TA#	FIELD CODE	pH (s.u.)	TDS (mg/L)	FLUORIDE (mg/L)	CHLORIDE (mg/L)	N03-N (mg/L)	SULFATE (mg/L)	ALKALINITY (mg/L as CaCO3) HCO3 C03	SPECIFIC CONDUCTANCE (µMHOS/cm)
T98149	MW - 7A	7.2	8,700	5.7	2,200	<1.0	3,200	280	<1.0
T98150	MW - 7B	7.1	5,000	4.2	1,200	<1.0	1,900	190	<1.0
ICV		7.0	—	2.4	11	4.8	11	—	1,335
CCV		7.0	—	2.3	11	4.5	11	—	1,339
REPORTING LIMIT		—	—	0.1	0.5	0.2	0.5	1.0	1.0
RPD		0	2	0	0	0	0	1	1
% Extraction Accuracy		—	—	103	123*	102	26*	—	—
% Instrument Accuracy		100	96	95	92	94	95	93	93

LRB SPIKES: Chloride - RPD = 1

% Extraction Accuracy = 90

LRB SPIKES: Sulfate - RPD = 0

% Extraction Accuracy = 94

*NOTE: Chloride matrix % Extraction Accuracy high. Blank spikes used due to matrix difficulties. Blank spikes in range.

*NOTE: Sulfate matrix % Extraction Accuracy low. Blank spikes used due to matrix difficulties. Blank spikes in range.

METHODS: EPA 150.1, 160.1, 300.0, 310.1, 120.1.

CHEMIST: pH: CS SPECIFIC CONDUCTANCE/TDS: RS FLUORIDE/CHLORIDE/N03-N/SULFATE: JS ALKALINITY: RS

SPIKE: 62.5 mg/L CHLORIDE; 12.5 mg/L FLUORIDE; 62.5 mg/L SULFATE; 25 mg/L N03-N.

CV: 12.5 mg/L CHLORIDE; 2.5 mg/L FLUORIDE; 12.5 mg/L SULFATE; 5.0 mg/L N03-N.

Director, Dr. Blair Leftwich

Date

16 JUN 98

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ANALYTICAL RESULTS FOR

NAVAJO REFINING

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

June 15, 1998

Receiving Date: 05/09/98

Sample Type: Water

Project No: NA

Project Location: Artesia, NM 88210

Prep Date: 05/09/98

Analysis Date: 05/09/98

Sampling Date: 05/07/98

Sample Condition: Intact & Cool

Sample Received by: VW

Project Name: Semi-Annual Evap. Ponds

TA#	FIELD CODE	pH (s.u.)	TDS (mg/L)	FLUORIDE (mg/L)	CHLORIDE (mg/L)	NO3-N (mg/L)	SULFATE (mg/L)	ALKALINITY (mg/L as CaCO3)		SPECIFIC CONDUCTANCE (uMHOS/cm)
								HC03	C03	
T98151	OCD - 8A	7.1	9,100	7.2	2,300	<1.0	3,300	430	<1.0	9,300
T98152	OCD - 8B	6.9	6,300	4.5	1,900	<1.0	2,200	200	<1.0	6,700
ICV		7.0	—	2.3	11	4.5	11	—	—	1,335
CCV		7.0	—	2.4	12	4.7	12	—	—	1,339
REPORTING LIMIT		—	—	0.1	0.5	0.2	0.5	1.0	1.0	—
RPD		0	2	1	4	0	0	1	1	2
% Extraction Accuracy		—	—	102	118	102	8*	—	—	—
% Instrument Accuracy		100	96	95	96	93	95	93	93	95

LRB SPIKES: Sulfate - RPD = 1

% Extraction Accuracy = 95

*NOTE: Sulfate matrix % Extraction Accuracy low. Blank spikes used due to matrix difficulties. Blank spikes in range.

METHODS: EPA 150.1, 160.1, 300.0, 310.1, 120.1.

CHEMIST: pH: CS SPECIFIC CONDUCTANCE/TDS: RS FLUORIDE/CHLORIDE/NO3-N/SULFATE: JS ALKALINITY: RS

SPIKE: 62.5 mg/L CHLORIDE; 12.5 mg/L FLUORIDE; 62.5 mg/L SULFATE; 25 mg/L NO3-N.

CV: 12.5 mg/L CHLORIDE; 2.5 mg/L FLUORIDE; 12.5 mg/L SULFATE; 5.0 mg/L NO3-N.

Director, Dr. Blair Leftwich

Date

6 JUN 98

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ANALYTICAL RESULTS FOR NAVAJO REFINING

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

Prep Date: 05/09/98
Analysis Date: 05/09/98
Sampling Date: 05/08/98
Sample Condition: Intact & Cool
Sample Received by: VW
Project Name: Semi-Annual Evap. Ponds

June 15, 1998
Receiving Date: 05/09/98
Sample Type: Water
Project No: NA
Project Location: Artesia, NM 88210

TA#	FIELD CODE	pH (s.u.)	TDS (mg/L)	FLUORIDE (mg/L)	CHLORIDE (mg/L)	N03-N (mg/L)	SULFATE (mg/L)	ALKALINITY (mg/L as CaCO3) HC03 C03	SPECIFIC CONDUCTANCE (uMHOS/cm)
T98153	OCD - 7AR	7.1	8,300	7.5	2,000	0.62	3,100	600 <1.0	8,600
ICV		7.0	—	2.4	12	1.4	12	—	1,335
CCV		7.0	—	2.4	12	1.1	12	—	1,339
REPORTING LIMIT									
		—	—	0.1	0.5	0.10	0.5	1.0 1.0	—
RPD		0	2	1	0	2	0	1 1	2
% Extraction Accuracy		—	—	89	83	106	—*	—	—
% Instrument Accuracy		100	96	98	101	97	97	93 93	95

LRB SPIKES: Sulfate - RPD = 0

% Extraction Accuracy = 98

% Instrument Accuracy = 97

*NOTE: Sulfate matrix % Extraction Accuracy low. Blank spikes used due to matrix difficulties. Blank spikes in range.

METHODS: EPA 150.1, 160.1, 300.0, 310.1, 120.1, 353.3.

CHEMIST: pH: CS SPECIFIC CONDUCTANCE/TDS: RS FLUORIDE/CHLO

SPIKE: 62.5 mg/L CHLORIDE; 12.5 mg/L FLUORIDE; 62.5 mg/L SULFATE; 1.333 mg/L N03-N.

CV: 12.5 mg/L CHLORIDE; 2.5 mg/L FLUORIDE; 12.5 mg/L SULFATE; 1.333 mg/L N03-N.

Director, Dr. Blair Leftwich

Date

16 JUN 98

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E-Mail: lab@traceanalysis.com
ANALYTICAL RESULTS FOR

NAVAJO REFINING

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

June 15, 1998

Receiving Date: 05/09/98

Sample Type: Water

Project No: NA

Project Location: Artesia, NM 88210

Prep Date: 05/09/98

Analysis Date: 05/09/98

Sampling Date: 05/08/98

Sample Condition: Intact & Cool

Sample Received by: VW

Project Name: Semi-Annual Evap. Ponds

TA#	FIELD CODE	pH (s.u.)	TDS (mg/L)	FLUORIDE (mg/L)	CHLORIDE (mg/L)	NO3-N (mg/L)	ALKALINITY		SPECIFIC CONDUCTANCE (uMHOS/cm)
							HC03	C03	
T98154	OCD - 7B	7.5	4,500	3.3	690	<1.0	160	<1.0	4,900
ICV		7.0	---	2.4	12	4.7	---	---	1,335
CCV		7.0	---	2.4	12	4.7	---	---	1,339
REPORTING LIMIT									
		---	---	0.1	0.5	0.2	1.0	1.0	---
RPD		0	2	1	0	0	1	1	2
% Extraction Accuracy		---	---	89	83	102	---	---	---
% Instrument Accuracy		100	96	98	101	105	93	93	95

LRB SPIKES: Sulfate - RPD = 0

% Extraction Accuracy = 98

% Instrument Accuracy = 97

*NOTE: Sulfate matrix % Extraction Accuracy low. Blank spikes used due to matrix difficulties. Blank spikes in range.

METHODS: EPA 150.1, 160.1, 300.0, 310.1, 120.1.

CHEMIST: pH: CS SPECIFIC CONDUCTANCE/TDS: RS FLUORIDE/CHLO

SPIKE: 62.5 mg/L CHLORIDE; 12.5 mg/L FLUORIDE; 62.5 mg/L SULFATE; 25 mg/L NO3-N.

CV: 12.5 mg/L CHLORIDE; 2.5 mg/L FLUORIDE; 12.5 mg/L SULFATE; 5.0 mg/L NO3-N.

Director, Dr. Blair Leftwich

Date

16 JUN 98

TRACE ANALYSIS, INC.

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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

June 15, 1998

Receiving Date: 05/09/98

Sample Type: Water

Project No: NA

Project Location: Artesia, NM 88210

Prep Date: 05/09/98

Analysis Date: 05/09/98

Sampling Date: 05/08/98

Sample Condition: Intact & Cool

Sample Received by: VW

Project Name: Semi-Annual Evap. Ponds

TA#	FIELD CODE	pH (s.u.)	TDS (mg/L)	FLUORIDE (mg/L)	CHLORIDE (mg/L)	NO3-N (mg/L)	ALKALINITY		SPECIFIC CONDUCTANCE (uMHOS/cm)
							(mg/L as CaCO3) HCO3	C03	
T98155	OCD - 7C	6.9	8,100	4.4	2,200	<1.0	330	<1.0	4,900
T98156	Pond 5	7.7	4,400	67	1,300	<1.0	120	<1.0	
ICV		7.0	—	2.4	12	4.7	—	—	1,335
CCV		7.0	—	2.4	11	4.7	—	—	1,339
REPORTING LIMIT									
		—	—	0.1	0.5	0.2	1.0	1.0	—
RPD		0	2	2	2	2	1	1	2
% Extraction Accuracy		—	—	96	52*	109	—	—	—
% Instrument Accuracy		100	96	97	97	94	93	93	95

LRB SPIKES: Chloride - RPD = 1

% Extraction Accuracy = 94

LRB SPIKES: Sulfate - RPD = 1

% Extraction Accuracy = 97

*NOTE: Chloride matrix % Extraction Accuracy low. Blank spikes used due to matrix difficulties. Blank spikes in range.

*NOTE: Sulfate matrix % Extraction Accuracy low. Blank spikes used due to matrix difficulties. Blank spikes in range.

METHODS: EPA 150.1, 160.1, 300.0, 310.1, 120.1.

CHEMIST: pH: CS SPECIFIC CONDUCTANCE/TDS: RS FLUORIDE/CHLO

SPIKE: 62.5 mg/L CHLORIDE; 12.5 mg/L FLUORIDE; 62.5 mg/L SULFATE; 25 mg/L NO3-N.

CV: 12.5 mg/L CHLORIDE; 2.5 mg/L FLUORIDE; 12.5 mg/L SULFATE; 5.0 mg/L NO3-N.

Director, Dr. Blair Leftwich

Date

16 JUN 98

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E-Mail: lab@traceanalysis.com
ANALYTICAL RESULTS FOR
NAVAJO REFINING

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

Prep Date: 05/09/98
Analysis Date: 05/09/98
Sampling Date: 05/08/98
Sample Condition: Intact & Cool
Sample Received by: VW
Project Name: Semi-Annual Evap. Ponds

June 15, 1998
Receiving Date: 05/09/98
Sample Type: Water
Project No: NA
Project Location: Artesia, NM 88210

TA#	FIELD CODE	pH (s.u.)	TDS (mg/L)	FLUORIDE (mg/L)	CHLORIDE (mg/L)	N03-N (mg/L)	ALKALINITY		SPECIFIC CONDUCTANCE (µMHOS/cm)
							SULFATE (mg/L)	(mg/L as CaCO3) HC03 C03	
T98157	Pecos River	8.1	6,200	3.5	2,300	<1.0	2,000	250	<1.0
ICV		7.0	—	2.4	11	4.7	12	—	1,335
CCV		7.0	—	2.4	11	4.6	12	—	1,339
REPORTING LIMIT									
		—	—	0.1	0.5	0.2	0.5	1.0	1.0
RPD		0	2	2	10	6	7	1	1
% Extraction Accuracy		—	—	94	—*	101	—*	—	—
% Instrument Accuracy		100	96	97	94	94	98	93	93
									95

LRB SPIKES: Chloride - RPD = 2

% Extraction Accuracy = 92

% Instrument Accuracy = 94

LRB SPIKES: Sulfate - RPD = 0

% Extraction Accuracy = 98

% Instrument Accuracy = 98

*NOTE: Chloride matrix % Extraction Accuracy low. Blank spikes used due to matrix difficulties. Blank spikes in range.

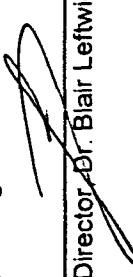
*NOTE: Sulfate matrix % Extraction Accuracy low. Blank spikes used due to matrix difficulties. Blank spikes in range.

METHODS: EPA 150.1, 160.1, 300.0, 310.1, 120.1.

CHEMIST: pH: CS SPECIFIC CONDUCTANCE/TDS: RS FLUORIDE/CHLO

SPIKE: 62.5 mg/L CHLORIDE; 12.5 mg/L FLUORIDE; 62.5 mg/L SULFATE; 25 mg/L N03-N.

CV: 12.5 mg/L CHLORIDE; 2.5 mg/L FLUORIDE; 12.5 mg/L SULFATE; 5.0 mg/L N03-N.

Director:  Blair Leftwich

Date

16 JUN 98

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E-Mail: lab@traceanalysis.com

June 15, 1998

Receiving Date: 05/09/98

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: 05/09/98

Analysis Date: 05/12/98

Sampling Date: 05/07/98

Sample Condition: Intact & Cool

Sample Received by: VW

Project Name: Semi-Annual Evap. Ponds

DISSOLVED METALS

TA#	FIELD CODE	As (mg/L)	B (mg/L)	Se (mg/L)	Cd (mg/L)	Cr (mg/L)	Pb (mg/L)	Ag (mg/L)	Ba (mg/L)	Al (mg/L)	Co (mg/L)
T98149 MW - 7A		0.023	1.1	<0.005	<0.01	<0.01	<0.01	<0.01	<0.50	<0.50	<0.05
ICV		2.4	1.0	1.0	0.99	1.0	1.0	0.19	1.0	1.0	1.0
CCV		2.5	1.1	1.0	0.98	1.0	0.95	0.20	0.99	1.0	1.0
METHOD BLANK		<0.005	<0.50	<0.005	<0.01	<0.01	<0.01	<0.01	<0.50	<0.50	<0.05
REPORTING LIMIT		0.005	0.50	0.005	0.01	0.01	0.01	0.01	0.50	0.50	0.05
RPD		5	0	0	5	5	0	2	0	0	0
% Extraction Accuracy		105	95	90	90	90	90	104	95	100	85
% Instrument Accuracy		98	105	100	98	100	97	95	99	100	100
		Cu	Fe	Mn	Mo	Ni	Zn	U	Hg		
		(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)		
T98149 MW - 7A		<0.50	2.1	0.49	<0.50	0.02	<0.50	<0.10	<0.0010		
ICV		1.0	1.0	1.0	0.96	1.0	1.0	4.9	0.0053		
CCV		1.0	1.0	1.0	0.97	1.1	0.99	5.0	0.0054		
METHOD BLANK		<0.50	<0.50	<0.10	<0.50	<0.01	<0.50	<0.10	<0.0010		
REPORTING LIMIT		0.50	0.50	0.10	0.50	0.01	0.50	0.10	0.0010		
RPD		5	0	0	0	0	5	12	2		
% Extraction Accuracy		95	95	90	90	85	95	80	114		
% Instrument Accuracy		100	100	100	96	105	99	99	108		

METHODS: EPA 200.7, 245.1.

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

DISSOLVED METALS SPIKE: 2.0 mg/L As, Cd, Cr, Ba, Co, Cu, Fe, Mn, Mo, Ni, Zn, B, Al, U, Se, Pb; 0.50 mg/L Ag; 0.0050 mg/L Hg.

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

Director, Dr. Blair Leftwich

DATE

16J 4 1998



TRACE ANALYSIS, INC.

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E-Mail: lab@traceanalysis.com

June 15, 1998
Receiving Date: 05/09/98
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: 05/09/98
Analysis Date: 05/12/98
Sampling Date: 05/07/98
Sample Condition: Intact & Cool
Sample Received by: VW
Project Name: Semi-Annual Evap. Ponds

DISSOLVED METALS

TA#	FIELD CODE	As (mg/L)	B (mg/L)	Se (mg/L)	Cd (mg/L)	Cr (mg/L)	Pb (mg/L)	Ag (mg/L)	Ba (mg/L)	Al (mg/L)	Co (mg/L)
T98150 MW - 7B		<0.005	<0.50	<0.005	<0.01	<0.01	<0.01	<0.01	<0.50	<0.50	<0.05
ICV		2.4	1.0	1.0	0.99	1.0	1.0	0.19	1.0	1.0	1.0
CCV		2.5	1.1	1.0	0.98	1.0	0.95	0.20	0.99	1.0	1.0
METHOD BLANK		<0.005	<0.50	<0.005	<0.01	<0.01	<0.01	<0.01	<0.50	<0.50	<0.05
REPORTING LIMIT		0.005	0.50	0.005	0.01	0.01	0.01	0.01	0.50	0.50	0.05
RPD		5	0	0	5	5	0	2	0	0	0
% Extraction Accuracy		105	95	90	90	90	90	104	95	100	85
% Instrument Accuracy		98	105	100	98	100	97	95	99	100	100
		Cu	Fe	Mn	Mo	Ni	Zn	U	Hg		
T98150 MW - 7B		<0.50	<0.50	0.58	<0.50	0.02	<0.50	<0.10	<0.0010		
ICV		1.0	1.0	1.0	0.96	1.0	1.0	4.9	0.0053		
CCV		1.0	1.0	1.0	0.97	1.1	0.99	5.0	0.0054		
METHOD BLANK		<0.50	<0.50	<0.10	<0.50	<0.01	<0.50	<0.10	<0.0010		
REPORTING LIMIT		0.50	0.50	0.10	0.50	0.01	0.50	0.10	0.0010		
RPD		5	0	0	0	0	5	12	2		
% Extraction Accuracy		95	95	90	90	85	95	80	114		
% Instrument Accuracy		100	100	100	96	105	99	99	108		

METHODS: EPA 200.7, 245.1.
CHEMIST: As, Cd, Cr, Ba, Co, Cu, Fe, Mn, Mo, Ni, Zn, B, Se, Pb, Ag, Al, U; RR Hg: HC
DISSOLVED METALS SPIKE: 2.0 mg/L As, Cd, Cr, Ba, Co, Cu, Fe, Mn, Mo, Ni, Zn, B, Al, U, Se, Pb; 0.50 mg/L Ag; 0.0050 mg/L Hg.
DISSOLVED METALS CV: 1.0 mg/L As, Cd, Cr, Ba, Co, Cu, Fe, Mn, Mo, Ni, Zn, B, Al, U, Se, Pb; 0.20 mg/L Ag; 5.0 mg/L U; 0.0050 mg/L Hg.

Director, Dr. Blair Leftwich

16 JUN 98
DATE

TRACE ANALYSIS, INC.

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E-Mail: lab@traceanalysis.com

June 15, 1998

Receiving Date: 05/09/98

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: 05/09/98

Analysis Date: 05/12/98

Sampling Date: 05/07/98

Sample Condition: Intact & Cool

Sample Received by: VW

Project Name: Semi-Annual Evap. Ponds

DISSOLVED METALS

TA#	FIELD CODE	As (mg/L)	B (mg/L)	Se (mg/L)	Cd (mg/L)	Cr (mg/L)	Pb (mg/L)	Ag (mg/L)	Ba (mg/L)	Al (mg/L)	Co (mg/L)
T98151	OCD - 8A	0.088	0.82	0.006	<0.01	<0.01	<0.01	<0.01	<0.50	<0.50	<0.05
ICV		2.4	1.0	1.0	0.99	1.0	1.0	0.19	1.0	1.0	1.0
CCV		2.5	1.1	1.0	0.98	1.0	0.95	0.20	0.99	1.0	1.0
METHOD BLANK		<0.005	<0.50	<0.005	<0.01	<0.01	<0.01	<0.01	<0.50	<0.50	<0.05
REPORTING LIMIT		0.005	0.50	0.005	0.01	0.01	0.01	0.01	0.50	0.50	0.05
RPD		5	0	0	5	5	0	2	0	0	0
% Extraction Accuracy		105	95	90	90	90	90	104	95	100	85
% Instrument Accuracy		98	105	100	98	100	97	95	99	100	100
		Cu	Fe	Mn	Mo	Ni	Zn	U	Hg		
		(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
T98151	OCD - 8A	<0.50	1.6	4.0	<0.50	0.03	<0.50	<0.10	<0.0010	<0.50	<0.05
ICV		1.0	1.0	1.0	0.96	1.0	1.0	4.9	0.0053	1.0	1.0
CCV		1.0	1.0	1.0	0.97	1.1	0.99	5.0	0.0054	1.0	1.0
METHOD BLANK		<0.50	<0.50	<0.10	<0.50	<0.01	<0.50	<0.10	<0.0010	<0.50	<0.05
REPORTING LIMIT		0.50	0.50	0.10	0.50	0.01	0.50	0.10	0.0010	0.50	0.05
RPD		5	0	0	0	0	5	12	2	0	0
% Extraction Accuracy		95	95	90	90	85	95	80	114	100	85
% Instrument Accuracy		100	100	100	96	105	99	99	108	100	100

METHODS: EPA 200.7, 245.1.

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

DISSOLVED METALS SPIKE: 2.0 mg/L As, Cd, Cr, Ba, Co, Cu, Fe, Mn, Mo, Ni, Zn, B, Al, U, Se, Pb; 0.50 mg/L Ag; 0.0050 mg/L Hg.

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

Director, Dr. Blair Leftwich

DATE

6/14/98



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E-Mail: lab@traceanalysis.com

June 15, 1998
Receiving Date: 05/09/98
Sample Type: Water
Project No: NA
Project Location: Artesia, NM 88210

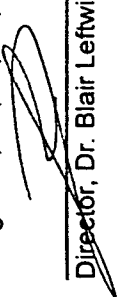
ANALYTICAL RESULTS FOR
NAVAJO REFINING
Attention: Darrell Moore
501 E. Main
Artesia, NM 88210

Prep Date: 05/09/98
Analysis Date: 05/12/98
Sampling Date: 05/07/98
Sample Condition: Intact & Cool
Sample Received by: VW
Project Name: Semi-Annual Evap. Ponds

DISSOLVED METALS

TA#	FIELD CODE	As (mg/L)	B (mg/L)	Se (mg/L)	Cd (mg/L)	Cr (mg/L)	Pb (mg/L)	Ag (mg/L)	Ba (mg/L)	Al (mg/L)	Co (mg/L)
T98152	OCD - 8B	<0.005	<0.50	<0.005	0.01	<0.01	<0.01	<0.01	<0.50	<0.50	<0.05
ICV		2.4	1.0	1.0	0.99	1.0	1.0	0.19	1.0	1.0	1.0
CCV		2.5	1.1	1.0	0.98	1.0	0.95	0.20	0.99	1.0	1.0
METHOD BLANK		<0.005	<0.50	<0.005	<0.01	<0.01	<0.01	<0.01	<0.50	<0.50	<0.05
REPORTING LIMIT		0.005	0.50	0.005	0.01	0.01	0.01	0.01	0.50	0.50	0.05
RPD		5	0	0	5	5	0	2	0	0	0
% Extraction Accuracy		105	95	90	90	90	90	104	95	100	85
% Instrument Accuracy		98	105	100	98	100	97	95	99	100	100
		Cu	Fe	Mn	Mo	Ni	Zn	U	Hg		
T98152	OCD - 8B	<0.50	<0.50	0.34	<0.50	0.03	<0.50	<0.10	<0.0010		
ICV		1.0	1.0	1.0	0.96	1.0	1.0	4.9	0.0053		
CCV		1.0	1.0	1.0	0.97	1.1	0.99	5.0	0.0054		
METHOD BLANK		<0.50	<0.50	<0.10	<0.50	<0.01	<0.50	<0.10	<0.0010		
REPORTING LIMIT		0.50	0.50	0.10	0.50	0.01	0.50	0.10	0.0010		
RPD		5	0	0	0	0	5	12	2		
% Extraction Accuracy		95	95	90	90	85	95	80	114		
% Instrument Accuracy		100	100	100	96	105	99	99	108		

METHODS: EPA 200.7, 245.1.
CHEMIST: As, Cd, Cr, Ba, Co, Cu, Fe, Mn, Mo, Ni, Zn, B, Se, Pb, Ag, Al, U: RR Hg: HC
DISSOLVED METALS SPIKE: 2.0 mg/L As, Cd, Cr, Ba, Co, Cu, Fe, Mn, Mo, Ni, Zn, B, Al, U, Se, Pb; 0.50 mg/L Ag; 0.0050 mg/L Hg.
DISSOLVED METALS CV: 1.0 mg/L As, Cd, Cr, Ba, Co, Cu, Fe, Mn, Mo, Ni, Zn, B, Al, U, Se, Pb; 0.20 mg/L Ag; 5.0 mg/L U; 0.0050 mg/L Hg.


Director, Dr. Blair Leftwich
DATE 6 JUN 98

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E-Mail: lab@traceanalysis.com

June 15, 1998

Receiving Date: 05/09/98

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: 05/09/98

Analysis Date: 05/12/98

Sampling Date: 05/08/98

Sample Condition: Intact & Cool

Sample Received by: VW

Project Name: Semi-Annual Evap. Ponds

DISSOLVED METALS

TA#	FIELD CODE	As (mg/L)	B (mg/L)	Se (mg/L)	Cd (mg/L)	Cr (mg/L)	Pb (mg/L)	Ag (mg/L)	Ba (mg/L)	Al (mg/L)	Co (mg/L)
T98153	OCD - 7AR	0.17	0.67	<0.005	0.01	<0.01	<0.01	<0.01	<0.50	<0.50	<0.05
ICV		2.4	1.0	1.0	0.99	1.0	1.0	0.19	1.0	1.0	1.0
CCV		2.5	1.1	1.0	0.98	1.0	0.95	0.20	0.99	1.0	1.0
METHOD BLANK		<0.005	<0.50	<0.005	<0.01	<0.01	<0.01	<0.01	<0.50	<0.50	<0.05
REPORTING LIMIT		0.005	0.50	0.005	0.01	0.01	0.01	0.01	0.50	0.50	0.05
RPD		5	0	0	5	5	0	2	0	0	0
% Extraction Accuracy		105	95	90	90	90	90	104	95	100	85
% Instrument Accuracy		98	105	100	98	100	97	95	99	100	100
		Cu	Fe	Mn	Mo	Ni	Zn	U	Hg		
T98153	OCD - 7AR	<0.50	1.4	4.5	<0.50	0.04	<0.50	<0.10	<0.0010		
ICV		1.0	1.0	1.0	0.96	1.0	1.0	4.9	0.0053		
CCV		1.0	1.0	1.0	0.97	1.1	0.99	5.0	0.0054		
METHOD BLANK		<0.50	<0.50	<0.10	<0.50	<0.01	<0.50	<0.10	<0.0010		
REPORTING LIMIT		0.50	0.50	0.10	0.50	0.01	0.50	0.10	0.0010		
RPD		5	0	0	0	0	5	12	2		
% Extraction Accuracy		95	95	90	90	85	95	80	114		
% Instrument Accuracy		100	100	100	96	105	99	99	108		

METHODS: EPA 200.7, 245.1.

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

DISSOLVED METALS SPIKE: 2.0 mg/L As, Cd, Cr, Ba, Co, Cu, Fe, Mn, Mo, Ni, Zn, B, Al, U, Se, Pb; 0.50 mg/L Ag; 0.0050 mg/L Hg.

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

Director, Dr. Blair Leftwich

DATE

16 JUN 98



TRACE ANALYSIS, INC.

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4725 Ripley Avenue, Suite A El Paso, Texas 79922 888-588-3443 915-585-3443 FAX 915-585-4944
E-Mail: lab@traceanalysis.com

June 15, 1998
Receiving Date: 05/09/98
Sample Type: Water
Project No: NA
Project Location: Artesia, NM 88210

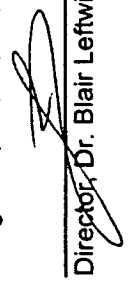
ANALYTICAL RESULTS FOR
NAVAJO REFINING
Attention: Darrell Moore
501 E. Main
Artesia, NM 88210

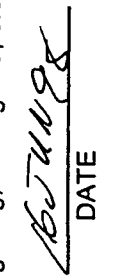
Prep Date: 05/09/98
Analysis Date: 05/12/98
Sampling Date: 05/08/98
Sample Condition: Intact & Cool
Sample Received by: VW
Project Name: Semi-Annual Evap. Ponds

DISSOLVED METALS

TA#	FIELD CODE	As (mg/L)	B (mg/L)	Se (mg/L)	Cd (mg/L)	Cr (mg/L)	Pb (mg/L)	Ag (mg/L)	Ba (mg/L)	Al (mg/L)	Co (mg/L)
T98154	OCD - 7B	<0.005	0.66	<0.005	0.01	<0.01	<0.01	<0.01	<0.50	<0.50	<0.05
ICV		2.4	1.0	1.0	0.99	1.0	1.0	0.19	1.0	1.0	1.0
CCV		2.5	1.1	1.0	0.98	1.0	0.95	0.20	0.99	1.0	1.0
METHOD BLANK		<0.005	<0.50	<0.005	<0.01	<0.01	<0.01	<0.01	<0.50	<0.50	<0.05
REPORTING LIMIT		0.005	0.50	0.005	0.01	0.01	0.01	0.01	0.50	0.50	0.05
RPD		5	0	0	5	5	0	2	0	0	0
% Extraction Accuracy		105	95	90	90	90	90	104	95	100	85
% Instrument Accuracy		98	105	100	98	100	97	95	99	100	100
		Cu	Fe	Mn	Mo	Ni	Zn	U	Hg		
		(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)		
T98154	OCD - 7B	<0.50	<0.50	0.64	<0.50	0.02	<0.50	<0.10	<0.0010		
ICV		1.0	1.0	1.0	0.96	1.0	1.0	4.9	0.0053		
CCV		1.0	1.0	1.0	0.97	1.1	0.99	5.0	0.0054		
METHOD BLANK		<0.50	<0.50	<0.10	<0.50	<0.01	<0.50	<0.10	<0.0010		
REPORTING LIMIT		0.50	0.50	0.10	0.50	0.01	0.50	0.10	0.0010		
RPD		5	0	0	0	0	5	12	2		
% Extraction Accuracy		95	95	90	90	85	95	80	114		
% Instrument Accuracy		100	100	100	96	105	99	99	108		

METHODS: EPA 200.7, 245.1.
CHEMIST: As, Cd, Cr, Ba, Co, Cu, Fe, Mn, Mo, Ni, Zn, B, Se, Pb, Ag, Al, U, RR Hg: HC
DISSOLVED METALS SPIKE: 2.0 mg/L As, Cd, Cr, Ba, Co, Cu, Fe, Mn, Mo, Ni, Zn, B, Al, U, Se, Pb; 0.50 mg/L Ag; 0.0050 mg/L Hg.
DISSOLVED METALS CV: 1.0 mg/L As, Cd, Cr, Ba, Co, Cu, Fe, Mn, Mo, Ni, Zn, B, Al, U, Se, Pb; 0.20 mg/L Ag; 5.0 mg/L U; 0.0050 mg/L Hg.


Director, Dr. Blair Leftwich


DATE

TRACE ANALYSIS, INC.

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E-Mail: lab@traceanalysis.com

June 15, 1998

Receiving Date: 05/09/98

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: 05/09/98

Analysis Date: 05/12/98

Sampling Date: 05/08/98

Sample Condition: Intact & Cool

Sample Received by: VW

Project Name: Semi-Annual Evap. Ponds

DISSOLVED METALS

TA#	FIELD CODE	As (mg/L)	B (mg/L)	Se (mg/L)	Cd (mg/L)	Cr (mg/L)	Pb (mg/L)	Ag (mg/L)	Ba (mg/L)	Al (mg/L)	Co (mg/L)
T98155	OCD - 7C	0.057	0.53	<0.005	0.01	<0.01	<0.01	<0.01	<0.50	<0.50	<0.05
ICV		2.4	1.0	1.0	0.99	1.0	1.0	0.19	1.0	1.0	1.0
CCV		2.5	1.1	1.0	0.98	1.0	0.95	0.20	0.99	1.0	1.0
METHOD BLANK		<0.005	<0.50	<0.005	<0.01	<0.01	<0.01	<0.01	<0.50	<0.50	<0.05
REPORTING LIMIT		0.005	0.50	0.005	0.01	0.01	0.01	0.01	0.50	0.50	0.05
RPD		5	0	0	5	5	0	2	0	0	0
% Extraction Accuracy		105	95	90	90	90	90	104	95	100	85
% Instrument Accuracy		98	105	100	98	100	97	95	99	100	100
		Cu	Fe	Mn	Mo	Ni	Zn	U	Hg		
T98155	OCD - 7C	<0.50	5.1	0.58	<0.50	0.03	<0.50	<0.10	<0.0010		
ICV		1.0	1.0	1.0	0.96	1.0	1.0	4.9	0.0053		
CCV		1.0	1.0	1.0	0.97	1.1	0.99	5.0	0.0054		
METHOD BLANK		<0.50	<0.50	<0.10	<0.50	<0.01	<0.50	<0.10	<0.0010		
REPORTING LIMIT		0.50	0.50	0.10	0.50	0.01	0.50	0.10	0.0010		
RPD		5	0	0	0	0	5	12	2		
% Extraction Accuracy		95	95	90	90	85	95	80	114		
% Instrument Accuracy		100	100	100	96	105	99	99	108		

METHODS: EPA 200.7, 245.1.

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

DISSOLVED METALS SPIKE: 2.0 mg/L As, Cd, Cr, Ba, Co, Cu, Fe, Mn, Mo, Ni, Zn, B, Al, U, Se, Pb; 0.50 mg/L Ag; 0.0050 mg/L Hg.

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

Director, Dr. Blair Leftwich

DATE

6/24/98

TRACE ANALYSIS, INC.

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 E-Mail: lab@traceanalysis.com

June 15, 1998

Receiving Date: 05/09/98

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: 05/09/98

Analysis Date: 05/12/98

Sampling Date: 05/08/98

Sample Condition: Intact & Cool

Sample Received by: VW

Project Name: Semi-Annual Evap. Ponds

DISSOLVED METALS

TA#	FIELD CODE	As (mg/L)	B (mg/L)	Se (mg/L)	Cd (mg/L)	Cr (mg/L)	Pb (mg/L)	Ag (mg/L)	Ba (mg/L)	Al (mg/L)	Co (mg/L)
T98156	Pond 5	0.36	0.69	0.07	0.01	<0.01	<0.01	<0.01	<0.50	<0.50	<0.05
ICV		2.4	1.0	1.0	0.99	1.0	1.0	0.19	1.0	1.0	1.0
CCV		2.5	1.1	1.0	0.98	1.0	0.95	0.20	0.99	1.0	1.0
METHOD BLANK		<0.005	<0.50	<0.005	<0.01	<0.01	<0.01	<0.01	<0.50	<0.50	<0.05
REPORTING LIMIT		0.005	0.50	0.005	0.01	0.01	0.01	0.01	0.50	0.50	0.05
RPD		5	0	0	5	5	0	2	0	0	0
% Extraction Accuracy		105	95	90	90	90	90	104	95	100	85
% Instrument Accuracy		98	105	100	98	100	97	95	99	100	100
		Cu	Fe	Mn	Mo	Ni	Zn	U	Hg		
T98156	Pond 5	<0.50	<0.50	0.67	<0.50	0.03	<0.50	<0.10	<0.0010		
ICV		1.0	1.0	1.0	0.96	1.0	1.0	4.9	0.0053		
CCV		1.0	1.0	1.0	0.97	1.1	0.99	5.0	0.0054		
METHOD BLANK		<0.50	<0.50	<0.10	<0.50	<0.01	<0.50	<0.10	<0.0010		
REPORTING LIMIT		0.50	0.50	0.10	0.50	0.01	0.50	0.10	0.0010		
RPD		5	0	0	0	0	5	12	2		
% Extraction Accuracy		95	95	90	90	85	95	80	114		
% Instrument Accuracy		100	100	100	96	105	99	99	108		

METHODS: EPA 200.7, 245.1.

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

DISSOLVED METALS SPIKE: 2.0 mg/L As, Cd, Cr, Ba, Co, Cu, Fe, Mn, Mo, Ni, Zn, B, Al, U, Se, Pb; 0.50 mg/L Ag; 0.0050 mg/L Hg.

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

Director, Dr. Blair Leftwich

DATE

16 JUN 98



TRACE ANALYSIS, INC.

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E-Mail: lab@traceanalysis.com

June 15, 1998

Receiving Date: 05/09/98

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: 05/09/98

Analysis Date: 05/12/98

Sampling Date: 05/08/98

Sample Condition: Intact & Cool

Sample Received by: VW

Project Name: Semi-Annual Evap. Ponds

DISSOLVED METALS

TA#	FIELD CODE	As (mg/L)	B (mg/L)	Se (mg/L)	Cd (mg/L)	Cr (mg/L)	Pb (mg/L)	Ag (mg/L)	Ba (mg/L)	Al (mg/L)	Co (mg/L)
T98157	Pecos River	<0.005	0.55	<0.005	0.01	<0.01	<0.01	<0.01	<0.50	<0.50	<0.05
ICV		2.4	1.0	1.0	0.99	1.0	1.0	0.19	1.0	1.0	1.0
CCV		2.5	1.1	1.0	0.98	1.0	0.95	0.20	0.99	1.0	1.0
METHOD BLANK		<0.005	<0.50	<0.005	<0.01	<0.01	<0.01	<0.01	<0.50	<0.50	<0.05
REPORTING LIMIT		0.005	0.50	0.005	0.01	0.01	0.01	0.01	0.50	0.50	0.05
RPD		5	0	0	5	5	0	2	0	0	0
% Extraction Accuracy		105	95	90	90	90	90	104	95	100	85
% Instrument Accuracy		98	105	100	98	100	97	95	99	100	100
		Cu	Fe	Mn	Mo	Ni	Zn	U	Hg		
T98157	Pecos River	<0.50	<0.50	<0.10	<0.50	0.02	<0.50	<0.10	<0.0010		
ICV		1.0	1.0	1.0	0.96	1.0	1.0	4.9	0.0053		
CCV		1.0	1.0	1.0	0.97	1.1	0.99	5.0	0.0054		
METHOD BLANK		<0.50	<0.50	<0.10	<0.50	<0.01	<0.50	<0.10	<0.0010		
REPORTING LIMIT		0.50	0.50	0.10	0.50	0.01	0.50	0.10	0.0010		
RPD		5	0	0	0	0	5	12	2		
% Extraction Accuracy		95	95	90	90	85	95	80	114		
% Instrument Accuracy		100	100	100	96	105	99	99	108		

METHODS: EPA 200.7, 245.1.

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

DISSOLVED METALS SPIKE: 2.0 mg/L As, Cd, Cr, Ba, Co, Cu, Fe, Mn, Mo, Ni, Zn, B, Al, U, Se, Pb; 0.50 mg/L Ag; 0.0050 mg/L Hg.

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

Director, Dr. Blair Leftwich

DATE

16 JAN 98



TRACE ANALYSIS, INC.

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E-Mail: lab@traceanalysis.com

June 15, 1998	Receiving Date: 05/09/98	Prep Date: 05/09/98
Sample Type: Water	Analysis Date: 05/12/98	Analysis Date: 05/12/98
Project No: NA	Sampling Date: 05/07/98	Sampling Date: 05/07/98
Project Location: Artesia, NM 88210	Sample Condition: Intact & Cool	Sample Condition: Intact & Cool
	Sample Received by: NG	Sample Received by: NG
	Project Name: Semi-Annual Evap. Ponds	Project Name: Semi-Annual Evap. Ponds

ANALYTICAL RESULTS FOR

NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

TOTAL METALS

TA#	FIELD CODE	As (mg/L)	B (mg/L)	Se (mg/L)	Cd (mg/L)	Cr (mg/L)	Pb (mg/L)	Ag (mg/L)	Ba (mg/L)	Al (mg/L)	Co (mg/L)
T98149	MW-7A	0.039	1.2	<0.005	<0.01	<0.01	<0.01	<0.01	<0.50	0.70	<0.05
ICV		2.5	1.0	1.0	1.0	1.0	1.0	0.20	1.0	1.0	1.0
CCV		2.4	1.0	1.0	0.99	1.0	1.0	0.19	1.0	1.0	1.0
METHOD BLANK		<0.005	<0.50	<0.005	<0.01	<0.01	<0.01	<0.01	<0.50	<0.50	<0.05
REPORTING LIMIT		0.005	0.50	0.005	0.01	0.01	0.01	0.01	0.50	0.50	0.05
RPD		0	3	0	0	0	0	2	0	20	6
% Extraction Accuracy		105	100	90	85	90	85	112	95	100	85
% Instrument Accuracy		98	100	100	99	100	100	95	100	100	100
		Cu	Fe	Mn	Mo	Ni	Zn	U	Hg		

T98149	MW-7A	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
ICV		<0.50	8.8	0.50	<0.50	0.02	<0.50	<0.10	<0.0010	<0.0010	<0.0010
CCV		1.0	1.0	1.0	1.0	1.0	1.0	5.0	0.0053	0.0053	0.0053
METHOD BLANK		<0.50	<0.50	<0.10	<0.50	<0.01	<0.50	<0.10	<0.0010	<0.0010	<0.0010
REPORTING LIMIT		0.50	0.50	0.10	0.50	0.01	0.50	0.10	0.0010	0.0010	0.0010
RPD		5	0*	0	5	0	0	0	2	2	2
% Extraction Accuracy		95	100*	95	90	90	90	85	114	114	114
% Instrument Accuracy		100	100	100	98	100	100	99	108	108	108

*NOTE: LCS and LCS used for Extraction Accuracy and RPD for Fe due to high concentration in matrix sample.

METHODS: EPA 200.7, 245.1.

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

TOTAL METALS SPIKE: 2.0 mg/L As, Cd, Cr, Ba, Co, Cu, Fe, Mn, Mo, Ni, Zn, B, Al, U, Se, Pb; 0.50 mg/L Ag; 0.0050 mg/L Hg.

TOTAL METALS CV: 2.5 mg/L As; 1.0 mg/L Cd, Cr, Ba, Co, Cu, Fe, Mn, Mo, Ni, Zn, B, Al, U, Se, Pb; 0.20 mg/L Ag; 5.0 mg/L U; 0.0050 mg/L Hg.

Director: Dr. Blair Leftwich
16 JUN 98
DATE



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E-Mail: lab@traceanalysis.com

June 15, 1998
Receiving Date: 05/09/98
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: 05/09/98
Analysis Date: 05/12/98
Sampling Date: 05/07/98
Sample Condition: Intact & Cool
Sample Received by: NG
Project Name: Semi-Annual Evap. Ponds

TOTAL METALS

TA#	FIELD CODE	As (mg/L)	B (mg/L)	Se (mg/L)	Cd (mg/L)	Cr (mg/L)	Pb (mg/L)	Ag (mg/L)	Ba (mg/L)	Al (mg/L)	Co (mg/L)
T98150 MW-7B		<0.005	<0.50	<0.005	<0.01	<0.01	<0.01	<0.01	<0.50	<0.50	<0.05
ICV		2.5	1.0	1.0	1.0	1.0	1.0	0.20	1.0	1.0	1.0
CCV		2.4	1.0	1.0	0.99	1.0	1.0	0.19	1.0	1.0	1.0
METHOD BLANK		<0.005	<0.50	<0.005	<0.01	<0.01	<0.01	<0.01	<0.50	<0.50	<0.05
REPORTING LIMIT		0.005	0.50	0.005	0.01	0.01	0.01	0.01	0.50	0.50	0.05
RPD		0	3	0	0	0	0	2	0	20	6
% Extraction Accuracy		105	100	90	85	90	85	112	95	100	85
% Instrument Accuracy		98	100	100	99	100	100	95	100	100	100
		Cu	Fe	Mn	Mo	Ni	Zn	U	Hg		
		(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)		
T98150 MW-7B		<0.50	<0.50	0.56	<0.50	0.02	<0.50	<0.10	<0.0010		
ICV		1.0	1.0	1.0	1.0	1.0	1.0	5.0	0.0053		
CCV		1.0	1.0	1.0	0.98	1.0	1.0	4.9	0.0054		
METHOD BLANK		<0.50	<0.50	<0.10	<0.50	<0.01	<0.50	<0.10	<0.0010		
REPORTING LIMIT		0.50	0.50	0.10	0.50	0.01	0.50	0.10	0.0010		
RPD		5	0*	0	5	0	0	0	2		
% Extraction Accuracy		95	100*	95	90	90	90	85	114		
% Instrument Accuracy		100	100	100	98	100	100	99	108		

*NOTE: LCS and LCS D used for Extraction Accuracy and RPD for Fe due to high concentration in matrix sample.

METHODS: EPA 200.7, 245.1.

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

TOTAL METALS SPIKE: 2.0 mg/L As, Cd, Cr, Ba, Co, Cu, Fe, Mn, Mo, Ni, Zn, B, Al, U, Se, Pb; 0.50 mg/L Ag; 0.0050 mg/L Hg.

TOTAL METALS CV: 2.5 mg/L As; 1.0 mg/L Cd, Cr, Ba, Co, Cu, Fe, Mn, Mo, Ni, Zn, B, Al, U, Se, Pb; 0.20 mg/L Ag; 5.0 mg/L U; 0.0050 mg/L Hg.

Director: Dr. Blair Leftwich

DATE

16 JUN 98

TRACE ANALYSIS, INC.

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E-Mail: lab@traceanalysis.com

June 15, 1998

Receiving Date: 05/09/98

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: 05/09/98

Analysis Date: 05/12/98

Sampling Date: 05/07/98

Sample Condition: Intact & Cool

Sample Received by: NG

Project Name: Semi-Annual Evap. Ponds

TOTAL METALS

TA#	FIELD CODE	As (mg/L)	B (mg/L)	Se (mg/L)	Cd (mg/L)	Cr (mg/L)	Pb (mg/L)	Ag (mg/L)	Ba (mg/L)	Al (mg/L)	Co (mg/L)
T98151	OCD-8A	0.088	0.82	<0.005	<0.01	<0.01	<0.01	<0.01	<0.50	<0.50	<0.05
ICV		2.5	1.0	1.0	1.0	1.0	1.0	0.20	1.0	1.0	1.0
CCV		2.4	1.0	1.0	0.99	1.0	1.0	0.19	1.0	1.0	1.0
METHOD BLANK		<0.005	<0.50	<0.005	<0.01	<0.01	<0.01	<0.01	<0.50	<0.50	<0.05
REPORTING LIMIT		0.005	0.50	0.005	0.01	0.01	0.01	0.01	0.50	0.50	0.05
RPD		0	3	0	0	0	0	2	0	20	6
% Extraction Accuracy		105	100	90	85	90	85	112	95	100	85
% Instrument Accuracy		98	100	100	99	100	100	95	100	100	100
		Cu	Fe	Mn	Mo	Ni	Zn	U	Hg		

TA#	FIELD CODE	As (mg/L)	B (mg/L)	Se (mg/L)	Cd (mg/L)	Cr (mg/L)	Pb (mg/L)	Ag (mg/L)	Ba (mg/L)	Al (mg/L)	Co (mg/L)
T98151	OCD-8A	<0.50	1.4	4.0	<0.50	0.03	<0.50	<0.10	<0.0010	<0.50	<0.05
ICV		1.0	1.0	1.0	1.0	1.0	1.0	5.0	0.0053	1.0	1.0
CCV		1.0	1.0	1.0	0.98	1.0	1.0	4.9	0.0054	1.0	1.0
METHOD BLANK		<0.50	<0.50	<0.10	<0.50	<0.01	<0.50	<0.10	<0.0010	<0.50	<0.05
REPORTING LIMIT		0.50	0.50	0.10	0.50	0.01	0.50	0.10	0.0010	0.50	0.05
RPD		5	0*	0	5	0	0	0	2	20	6
% Extraction Accuracy		95	100*	95	90	90	90	85	114	100	85
% Instrument Accuracy		100	100	100	98	100	100	99	108	100	100

*NOTE: LCS and LCS D used for Extraction Accuracy and RPD for Fe due to high concentration in matrix sample.

METHODS: EPA 200.7, 245.1.

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

TOTAL METALS SPIKE: 2.0 mg/L As, Cd, Cr, Ba, Co, Cu, Fe, Mn, Mo, Ni, Zn, B, Al, U, Se, Pb; 0.50 mg/L Ag; 0.0050 mg/L Hg.

TOTAL METALS CV: 2.5 mg/L As; 1.0 mg/L Cd, Cr, Ba, Co, Cu, Fe, Mn, Mo, Ni, Zn, B, Al, U, Se, Pb; 0.20 mg/L Ag; 5.0 mg/L U; 0.0050 mg/L Hg.

Director, Dr. Blair Leftwich

DATE

6/15/98

TRACE ANALYSIS, INC.

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 4725 Ripley Avenue, Suite A El Paso, Texas 79922 888•588•3443 915•585•3443 FAX 915•585•4944
 E-Mail: lab@traceanalysis.com

June 15, 1998

Receiving Date: 05/09/98

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: 05/09/98

Analysis Date: 05/12/98

Sampling Date: 05/07/98

Sample Condition: Intact & Cool

Sample Received by: NG

Project Name: Semi-Annual Evap. Ponds

TOTAL METALS

TA#	FIELD CODE	As (mg/L)	B (mg/L)	Se (mg/L)	Cd (mg/L)	Cr (mg/L)	Pb (mg/L)	Ag (mg/L)	Ba (mg/L)	Al (mg/L)	Co (mg/L)
T98152	OCD-8B	<0.005	<0.50	0.013	<0.01	<0.01	<0.01	<0.01	<0.50	<0.50	<0.05
ICV		2.5	1.0	1.0	1.0	1.0	1.0	0.20	1.0	1.0	1.0
CCV		2.4	1.0	1.0	0.99	1.0	1.0	0.19	1.0	1.0	1.0
METHOD BLANK		<0.005	<0.50	<0.005	<0.01	<0.01	<0.01	<0.01	<0.50	<0.50	<0.05
REPORTING LIMIT		0.005	0.50	0.005	0.01	0.01	0.01	0.01	0.50	0.50	0.05
RPD		0	3	0	0	0	0	2	0	20	6
% Extraction Accuracy		105	100	90	85	90	85	112	95	100	85
% Instrument Accuracy		98	100	100	99	100	100	95	100	100	100
		Cu	Fe	Mn	Mo	Ni	Zn	U	Hg		

TA#	FIELD CODE	As (mg/L)	B (mg/L)	Se (mg/L)	Cd (mg/L)	Cr (mg/L)	Pb (mg/L)	Ag (mg/L)	Ba (mg/L)	Al (mg/L)	Co (mg/L)
T98152	OCD-8B	<0.50	<0.50	0.33	<0.50	0.02	<0.50	<0.10	<0.0010	<0.50	<0.05
ICV		1.0	1.0	1.0	1.0	1.0	1.0	5.0	0.0053	1.0	1.0
CCV		1.0	1.0	1.0	0.98	1.0	1.0	4.9	0.0054	1.0	1.0
METHOD BLANK		<0.50	<0.50	<0.10	<0.50	<0.01	<0.50	<0.10	<0.0010	<0.50	<0.05
REPORTING LIMIT		0.50	0.50	0.10	0.50	0.01	0.50	0.10	0.0010	0.50	0.05
RPD		5	0*	0	5	0	0	0	2	20	6
% Extraction Accuracy		95	100*	95	90	90	90	85	114	100	85
% Instrument Accuracy		100	100	100	98	100	100	99	108	100	100

*NOTE: LCS and LCS used for Extraction Accuracy and RPD for Fe due to high concentration in matrix sample.

METHODS: EPA 200.7, 245.1.

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

TOTAL METALS SPIKE: 2.0 mg/L As, Cd, Cr, Ba, Co, Cu, Fe, Mn, Mo, Ni, Zn, B, Al, U, Se, Pb; 0.50 mg/L Ag; 0.0050 mg/L Hg.

TOTAL METALS CV: 2.5 mg/L As; 1.0 mg/L Cd, Cr, Ba, Co, Cu, Fe, Mn, Mo, Ni, Zn, B, Al, U, Se, Pb; 0.20 mg/L Ag; 5.0 mg/L U; 0.0050 mg/L Hg.

Director, Dr. Blair Leftwich

DATE

1654498

TRACE ANALYSIS, INC.

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4725 Ripley Avenue, Suite A El Paso, Texas 79922 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

June 15, 1998

Receiving Date: 05/09/98

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: 05/09/98

Analysis Date: 05/12/98

Sampling Date: 05/08/98

Sample Condition: Intact & Cool

Sample Received by: NG

Project Name: Semi-Annual Evap. Ponds

TOTAL METALS

TA#	FIELD CODE	As (mg/L)	B (mg/L)	Se (mg/L)	Cd (mg/L)	Cr (mg/L)	Pb (mg/L)	Ag (mg/L)	Ba (mg/L)	Al (mg/L)	Co (mg/L)
T98153	OCD-7AR	0.17	0.66	0.011	<0.01	<0.01	<0.01	<0.01	<0.50	0.90	<0.05
ICV		2.5	1.0	1.0	1.0	1.0	1.0	0.20	1.0	1.0	1.0
CCV		2.4	1.0	1.0	0.99	1.0	1.0	0.19	1.0	1.0	1.0
METHOD BLANK		<0.005	<0.50	<0.005	<0.01	<0.01	<0.01	<0.01	<0.50	<0.50	<0.05
REPORTING LIMIT		0.005	0.50	0.005	0.01	0.01	0.01	0.01	0.50	0.50	0.05
RPD		0	3	0	0	0	0	2	0	20	6
% Extraction Accuracy		105	100	90	85	90	85	112	95	100	85
% Instrument Accuracy		98	100	100	99	100	100	95	100	100	100
		Cu	Fe	Mn	Mo	Ni	Zn	U	Hg		
		(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)		
T98153	OCD-7AR	<0.50	2.3	4.6	<0.50	0.03	<0.50	<0.10	<0.0010		
ICV		1.0	1.0	1.0	1.0	1.0	1.0	5.0	0.0053		
CCV		1.0	1.0	1.0	0.98	1.0	1.0	4.9	0.0054		
METHOD BLANK		<0.50	<0.50	<0.10	<0.50	<0.01	<0.50	<0.10	<0.0010		
REPORTING LIMIT		0.50	0.50	0.10	0.50	0.01	0.50	0.10	0.0010		
RPD		5	0*	0	5	0	0	0	2		
% Extraction Accuracy		95	100*	95	90	90	90	85	114		
% Instrument Accuracy		100	100	100	98	100	100	99	108		

*NOTE: LCS and LCSD used for Extraction Accuracy and RPD for Fe due to high concentration in matrix sample.

METHODS: EPA 200.7, 245.1.

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

TOTAL METALS SPIKE: 2.0 mg/L As, Cd, Cr, Ba, Co, Cu, Fe, Mn, Mo, Ni, Zn, B, Al, U, Se, Pb; 0.50 mg/L Ag; 0.0050 mg/L Hg.

TOTAL METALS CV: 2.5 mg/L As; 1.0 mg/L Cd, Cr, Ba, Co, Cu, Fe, Mn, Mo, Ni, Zn, B, Al, U, Se, Pb; 0.20 mg/L Ag; 5.0 mg/L U; 0.0050 mg/L Hg.

Director, Dr. Blair Leftwich

DATE

6/24/98

TRACE ANALYSIS, INC.

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 4725 Ripley Avenue, Suite A El Paso, Texas 79922 888-588-3443 915-585-3443 FAX 915-585-4944
 E-Mail: lab@traceanalysis.com

June 15, 1998

Receiving Date: 05/09/98

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: 05/09/98

Analysis Date: 05/12/98

Sampling Date: 05/08/98

Sample Condition: Intact & Cool

Sample Received by: NG

Project Name: Semi-Annual Evap. Ponds

TOTAL METALS

TA#	FIELD CODE	As (mg/L)	B (mg/L)	Se (mg/L)	Cd (mg/L)	Cr (mg/L)	Pb (mg/L)	Ag (mg/L)	Ba (mg/L)	Al (mg/L)	Co (mg/L)
T98154	OCD-7B	<0.005	0.65	<0.005	<0.01	<0.01	<0.01	<0.01	<0.50	0.90	<0.05
ICV		2.5	1.0	1.0	1.0	1.0	1.0	0.20	1.0	1.0	1.0
CCV		2.4	1.0	1.0	0.99	1.0	1.0	0.19	1.0	1.0	1.0
METHOD BLANK		<0.005	<0.50	<0.005	<0.01	<0.01	<0.01	<0.01	<0.50	<0.50	<0.05
REPORTING LIMIT		0.005	0.50	0.005	0.01	0.01	0.01	0.01	0.50	0.50	0.05
RPD		0	3	0	0	0	0	2	0	20	6
% Extraction Accuracy		105	100	90	85	90	85	112	95	100	85
% Instrument Accuracy		98	100	100	99	100	100	95	100	100	100
		Cu	Fe	Mn	Mo	Ni	Zn	U	Hg		
		(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)		
T98154	OCD-7B	<0.50	0.87	0.65	<0.50	0.02	<0.50	<0.10	<0.0010		
ICV		1.0	1.0	1.0	1.0	1.0	1.0	5.0	0.0053		
CCV		1.0	1.0	1.0	0.98	1.0	1.0	4.9	0.0054		
METHOD BLANK		<0.50	<0.50	<0.10	<0.50	<0.01	<0.50	<0.10	<0.0010		
REPORTING LIMIT		0.50	0.50	0.10	0.50	0.01	0.50	0.10	0.0010		
RPD		5	0*	0	5	0	0	0	2		
% Extraction Accuracy		95	100*	95	90	90	90	85	114		
% Instrument Accuracy		100	100	100	98	100	100	99	108		

*NOTE: LCS and LCS/D used for Extraction Accuracy and RPD for Fe due to high concentration in matrix sample.

METHODS: EPA 200.7, 245.1.

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

TOTAL METALS SPIKE: 2.0 mg/L As, Cd, Cr, Ba, Co, Cu, Fe, Mn, Mo, Ni, Zn, B, Al, U, Se, Pb; 0.50 mg/L Ag; 0.0050 mg/L Hg.

TOTAL METALS CV: 2.5 mg/L As; 1.0 mg/L Cd, Cr, Ba, Co, Cu, Fe, Mn, Mo, Ni, Zn, B, Al, U, Se, Pb; 0.20 mg/L Ag; 5.0 mg/L U; 0.0050 mg/L Hg.

Director: Dr. Blair Leftwich

DATE

16 JUN 98

TRACE ANALYSIS, INC.

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4725 Ripley Avenue, Suite A El Paso, Texas 79922 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

June 15, 1998

Receiving Date: 05/09/98

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: 05/09/98

Analysis Date: 05/12/98

Sampling Date: 05/08/98

Sample Condition: Intact & Cool

Sample Received by: NG

Project Name: Semi-Annual Evap. Ponds

TOTAL METALS

TA#	FIELD CODE	As (mg/L)	B (mg/L)	Se (mg/L)	Cd (mg/L)	Cr (mg/L)	Pb (mg/L)	Ag (mg/L)	Ba (mg/L)	Al (mg/L)	Co (mg/L)
T98155	OCD-7C	0.055	0.51	<0.005	<0.01	<0.01	<0.01	<0.01	<0.50	0.90	<0.05
ICV		2.5	1.0	1.0	1.0	1.0	1.0	0.20	1.0	1.0	1.0
CCV		2.4	1.0	1.0	0.99	1.0	1.0	0.19	1.0	1.0	1.0
METHOD BLANK		<0.005	<0.50	<0.005	<0.01	<0.01	<0.01	<0.01	<0.50	<0.50	<0.05
REPORTING LIMIT		0.005	0.50	0.005	0.01	0.01	0.01	0.01	0.50	0.50	0.05
RPD		0	3	0	0	0	0	2	0	20	6
% Extraction Accuracy		105	100	90	85	90	85	112	95	100	85
% Instrument Accuracy		98	100	100	99	100	100	95	100	100	100
		Cu	Fe	Mn	Mo	Ni	Zn	U	Hg		
		(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
T98155	OCD-7C	<0.50	5.5	0.59	<0.50	0.03	<0.50	<0.10	<0.0010		
ICV		1.0	1.0	1.0	1.0	1.0	1.0	5.0	0.0053		
CCV		1.0	1.0	1.0	0.98	1.0	1.0	4.9	0.0054		
METHOD BLANK		<0.50	<0.50	<0.10	<0.50	<0.01	<0.50	<0.10	<0.0010		
REPORTING LIMIT		0.50	0.50	0.10	0.50	0.01	0.50	0.10	0.0010		
RPD		5	0*	0	5	0	0	0	2		
% Extraction Accuracy		95	100*	95	90	90	90	85	114		
% Instrument Accuracy		100	100	100	98	100	100	99	108		

*NOTE: LCS and LCSD used for Extraction Accuracy and RPD for Fe due to high concentration in matrix sample.

METHODS: EPA 200.7, 245.1.

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

TOTAL METALS SPIKE: 2.0 mg/L As, Cd, Cr, Ba, Co, Cu, Fe, Mn, Mo, Ni, Zn, B, Al, U, Se, Pb; 0.50 mg/L Ag; 0.0050 mg/L Hg.

TOTAL METALS CV: 2.5 mg/L As; 1.0 mg/L Cd, Cr, Ba, Co, Cu, Fe, Mn, Mo, Ni, Zn, B, Al, U, Se, Pb; 0.20 mg/L Ag; 5.0 mg/L U; 0.0050 mg/L Hg.

Director: Dr. Blair Leftwich

DATE

16 JUL 98

TRACE ANALYSIS, INC.

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4725 Ripley Avenue, Suite A El Paso, Texas 79922 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

June 15, 1998

Receiving Date: 05/09/98

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: 05/09/98

Analysis Date: 05/12/98

Sampling Date: 05/08/98

Sample Condition: Intact & Cool

Sample Received by: NG

Project Name: Semi-Annual Evap. Ponds

TOTAL METALS

TA#	FIELD CODE	As (mg/L)	B (mg/L)	Se (mg/L)	Cd (mg/L)	Cr (mg/L)	Pb (mg/L)	Ag (mg/L)	Ba (mg/L)	Al (mg/L)	Co (mg/L)
T98156	Pond 5	0.34	0.68	0.05	<0.01	<0.01	<0.01	<0.01	<0.50	0.90	<0.05
ICV		2.5	1.0	1.0	1.0	1.0	1.0	0.20	1.0	1.0	1.0
CCV		2.4	1.0	1.0	0.99	1.0	1.0	0.19	1.0	1.0	1.0
METHOD BLANK		<0.005	<0.50	<0.005	<0.01	<0.01	<0.01	<0.01	<0.50	<0.50	<0.05
REPORTING LIMIT		0.005	0.50	0.005	0.01	0.01	0.01	0.01	0.50	0.50	0.05
RPD		0	3	0	0	0	0	2	0	20	6
% Extraction Accuracy		105	100	90	85	90	85	112	95	100	85
% Instrument Accuracy		98	100	100	99	100	100	95	100	100	100
		Cu	Fe	Mn	Mo	Ni	Zn	U	Hg		
T98156	Pond 5	<0.50	<0.50	0.75	<0.50	0.03	<0.50	<0.10	<0.0010		
ICV		1.0	1.0	1.0	1.0	1.0	1.0	5.0	0.0053		
CCV		1.0	1.0	1.0	0.98	1.0	1.0	4.9	0.0054		
METHOD BLANK		<0.50	<0.50	<0.10	<0.50	<0.01	<0.50	<0.10	<0.0010		
REPORTING LIMIT		0.50	0.50	0.10	0.50	0.01	0.50	0.10	0.0010		
RPD		5	0*	0	5	0	0	0	2		
% Extraction Accuracy		95	100*	95	90	90	90	85	114		
% Instrument Accuracy		100	100	100	98	100	100	99	108		

*NOTE: LCS and LCS-D used for Extraction Accuracy and RPD for Fe due to high concentration in matrix sample.

METHODS: EPA 200.7, 245.1.

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

TOTAL METALS SPIKE: 2.0 mg/L As, Cd, Cr, Ba, Co, Cu, Fe, Mn, Mo, Ni, Zn, B, Al, U, Se, Pb; 0.50 mg/L Ag; 0.0050 mg/L Hg.

TOTAL METALS CV: 2.5 mg/L As; 1.0 mg/L Cd, Cr, Ba, Co, Cu, Fe, Mn, Mo, Ni, Zn, B, Al, U, Se, Pb; 0.20 mg/L Ag; 5.0 mg/L U; 0.0050 mg/L Hg.

Director, Dr. Blair Leftwich

DATE

16JUN98

TRACE ANALYSIS, INC.

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4725 Ripley Avenue, Suite A El Paso, Texas 79922 888-588-3443 915-585-3443 FAX 915-585-4944
E-Mail: lab@traceanalysis.com

June 15, 1998

Receiving Date: 05/09/98

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: 05/09/98

Analysis Date: 05/12/98

Sampling Date: 05/08/98

Sample Condition: Intact & Cool

Sample Received by: NG

Project Name: Semi-Annual Evap. Ponds

TOTAL METALS

TA#	FIELD CODE	As (mg/L)	B (mg/L)	Se (mg/L)	Cd (mg/L)	Cr (mg/L)	Pb (mg/L)	Ag (mg/L)	Ba (mg/L)	Al (mg/L)	Co (mg/L)
T98157	Pecos River	<0.005	0.54	<0.005	<0.01	<0.01	<0.01	<0.01	<0.50	0.90	<0.05
ICV		2.5	1.0	1.0	1.0	1.0	1.0	0.20	1.0	1.0	1.0
CCV		2.4	1.0	1.0	0.99	1.0	1.0	0.19	1.0	1.0	1.0
METHOD BLANK		<0.005	<0.50	<0.005	<0.01	<0.01	<0.01	<0.01	<0.50	<0.50	<0.05
REPORTING LIMIT		0.005	0.50	0.005	0.01	0.01	0.01	0.01	0.50	0.50	0.05
RPD		0	3	0	0	0	0	2	0	20	6
% Extraction Accuracy		105	100	90	85	90	85	112	95	100	85
% Instrument Accuracy		98	100	100	99	100	100	95	100	100	100
		Cu	Fe	Mn	Mo	Ni	Zn	U	Hg		

T98157	Pecos River	<0.50	<0.50	<0.10	<0.50	0.01	<0.50	<0.10	<0.0010
ICV		1.0	1.0	1.0	1.0	1.0	1.0	5.0	0.0053
CCV		1.0	1.0	1.0	0.98	1.0	1.0	4.9	0.0054
METHOD BLANK		<0.50	<0.50	<0.10	<0.50	<0.01	<0.50	<0.10	<0.0010
REPORTING LIMIT		0.50	0.50	0.10	0.50	0.01	0.50	0.10	0.0010
RPD		5	0*	0	5	0	0	0	2
% Extraction Accuracy		95	100*	95	90	90	90	85	114
% Instrument Accuracy		100	100	100	98	100	100	99	108

*NOTE: LCS and LCSD used for Extraction Accuracy and RPD for Fe due to high concentration in matrix sample.

METHODS: EPA 200.7, 245.1.

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

TOTAL METALS SPIKE: 2.0 mg/L As, Cd, Cr, Ba, Co, Cu, Fe, Mn, Mo, Ni, Zn, B, Al, U, Se, Pb; 0.50 mg/L Ag; 0.0050 mg/L Hg.

TOTAL METALS CV: 2.5 mg/L As; 1.0 mg/L Cd, Cr, Ba, Co, Cu, Fe, Mn, Mo, Ni, Zn, B, Al, U, Se, Pb; 0.20 mg/L Ag; 5.0 mg/L U; 0.0050 mg/L Hg.

Director, Dr. Blair Leftwich

DATE

