

GW - 28

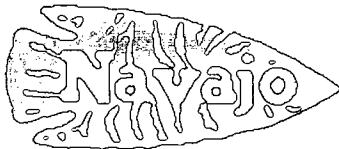
MONITORING REPORTS

DATE:

1998 - 1980

TELEPHONE
(505) 748-3311

EASYLINK
62905278

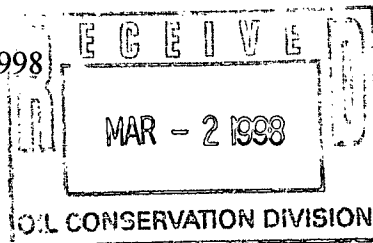


REFINING COMPANY

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

February 27, 1998



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

Dear Roger,

Enclosed are the results of Navajo Refining Company's annual sampling of the effluent into our evaporation ponds. In Navajo's letter of December 21, 1991, (response to NOV NMD048918817), Navajo agreed to send a copy of these results to ED.

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

Sincerely,
NAVAJO REFINING COMPANY

Darrell Moore

Darrell Moore
Environmental Mgr. for Water and Waste

encl.

cc: NM Environment Dept.

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

TRACE ANALYSIS, INC.

February 18, 1998
Receiving Date: 01/16/98
Sample Type: Water
Project No: NA
Project Location: NA

ANALYTICAL RESULTS FOR
NAVAJO REFINING
Attention: Bryan Madrid
501 E. Main
Artesia, NM 88210

Prep Date: 01/21/98
Analysis Date: 01/28/98
Sampling Date: 01/14/98
Sample Condition: Intact & Cool
Sample Received by: VW
Project Name: NA

TA#	Field Code	POTASSIUM (mg/L)	MAGNESIUM (mg/L)	CALCIUM (mg/L)	SODIUM (mg/L)
T89208	KWB-1A	5.4	410	540	350
T89209	KWB-1C	5.9	380	550	370
T89210	KWB-24	4.5	220	440	140
T89211	KWB-12A	5.2	210	510	269
T89212	KWB-9	4.1	160-	370	130
T89213	KWB-3A	6.1	280	620	510
T89214	KWB-11A	10	230	430	290
T89215	KWB-7	5.1	300	440	300
T89216	MW-18	5.4	200	340	70
T89217	MW-45	13.6	340	620	510
T89218	Ponds (Outfall)	51	98	48	1,200
ICV		50	49	49	50
CCV		50	48	48	51
Reporting Limit		0.50	0.50	0.50	0.50
METHOD BLANK		<0.50	<0.50	<0.50	<0.50
RPD		4	3	4	5
% Extraction Accuracy		108	104	107	110
% Instrument Accuracy		100	97	97	101

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

2-18-98

6701 Aberdeen Avenue

Lubbock, Texas 79424

806 • 794 • 1296

FAX 806 • 794 • 1298

TRACE ANALYSIS, INC.

ANALYTICAL RESULTS FOR

NAVAJO REFINING

Attention: Bryan Madrid

501 E. Main

Artesia, NM 88210

January 21, 1998

Receiving Date: 01/16/98

Sample Type: Water

Project No: NA

Project Location: NA

Prep Date: 01/17/98

Analysis Date: 01/17/98

Sampling Date: 01/14/98

Sample Condition: Intact & Cool

Sample Received by: VW

Project Name: NA

TA#	FIELD CODE	MTBE (mg/L)	BENZENE (mg/L)	TOLUENE (mg/L)	ETHYL- BENZENE (mg/L)	M,P,O XYLENE (mg/L)	TOTAL BTX (mg/L)
T89218	Ponds (Outfall)	0.012	0.015	0.034	<0.010	0.028	0.077
QC	Quality Control	0.094	0.096	0.097	0.094	0.283	

REPORTING LIMIT

0.001 0.001 0.001 0.001 0.001

RPD

% Extraction Accuracy

% Instrument Accuracy

1 1 1 2 1
100 103 102 98 101
94 96 98 94 95

METHODS: EPA SW 846-8021B, 5030.

CHEMIST: AG

MTBE/BTEX SPIKE AND QC: 0.100 mg/L MTBE/BTEX.

Director, Dr. Blair Leftwich

Date

BS

1-21-98

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

ANALYTICAL RESULTS FOR

NAVAJO REFINING

Attention: Bryan Madrid
 501 E. Main
 Artesia, NM 88210

February 18, 1998

Receiving Date: 01/16/98

Sample Type: Water

Sampling Date: 01/14/98

Sample Condition: I & C

Sample Received by: VW

Extraction Date: 01/21/98

T89218

Analysis Date: 01/29/98

PAH	Reporting	Ponds				
8270 Compounds (mg/L)	Limit	(Outfall)	QC	RPD	%EA	%IA
Naphthalene	0.001	0.034	74	4	41	93
Acenaphthylene	0.001	ND	74	0	73	93
Acenaphthene	0.001	ND	73	1	71	91
Fluorene	0.001	ND	68	---	72	85
Phenanthrene	0.001	0.004	74	11	76	93
Anthracene	0.001	ND	78	8	80	98
Fluoranthene	0.001	ND	72	20	72	90
Pyrene	0.001	ND	74	---	111	93
Benzo[a]anthracene	0.001	ND	78	---	81	98
Chrysene	0.001	ND	74	---	98	93
Benzo[b]fluoranthene	0.001	ND	74	---	69	93
Benzo[k]fluoranthene	0.001	ND	88	---	98	110
Benzo[a]pyrene	0.001	ND	77	---	85	96
Indeno[1,2,3-cd]pyrene	0.001	ND	74	---	91	93
Dibenz[a,h]anthracene	0.001	ND	69	---	91	86
Benzo[g,h,i]perylene	0.001	ND	70	---	86	87

ND = Not Detected

SURROGATES

% RECOVERY

Nitrobenzene-d5 SURR

40

2-Fluorobiphenyl SURR

30

Terphenyl-d14 SURR

60

METHODS: EPA SW 846-8270, 3510.

CHEMIST: MB

Signature

2-18-98

Director, Dr. Blair Leftwich

DATE

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

ANALYTICAL RESULTS FOR

NAVAJO REFINING

Attention: Bryan Madrid

501 E. Main

Artesia, NM 88210

Prep Date: 01/22/98

Analysis Date: 01/22/98

Sampling Date: 01/14/98

Sample Condition: Intact & Cool

Sample Received by: VW

Project Name: NA

February 18, 1998
Receiving Date: 01/16/98
Sample Type: Water
Project No: NA
Project Location: NA

TA#	FIELD CODE	NITRATE-N (mg/L)	CHLORIDE (mg/L)	FLUORIDE (mg/L)	SULFATE (mg/L)	ALKALINITY (mg/L as CaCO3) HCO3 C03
-----	------------	---------------------	--------------------	--------------------	-------------------	---

T89218	Ponds (Outfall)	<0.01	1,100	3.9	1,500	100 <1.0
ICV		1,338	496	1.07	24	---
CCV		1,350	501	1.04	24	---

REPORTING LIMIT		0.01	0.5	0.1	10	1.0	1.0
-----------------	--	------	-----	-----	----	-----	-----

RPD		2	4	0	0	2	2
% Extraction Accuracy		104	102	100	63	---	---
% Instrument Accuracy		101	100	106	97	---	---

METHODS: EPA 300.0, 310.1.
CHEMIST: NITRATE-N: RS CHLORIDE: RC FLUORIDE: JS/RC SULFATE/ALKALINITY: JS
SPIKE: 5,000 mg/L CHLORIDE; 1.0 mg/L FLUORIDE; 2,500 mg/L SULFATE; 19,995 mg/L NITRATE-N.
CV: 500 mg/L CHLORIDE; 1.0 mg/L FLUORIDE; 25 mg/L SULFATE; 1,333 mg/L NITRATE-N.

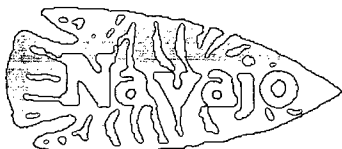
Director, Dr. Blair Leftwich

Date

2-18-98

TELEPHONE
(505) 748-3311

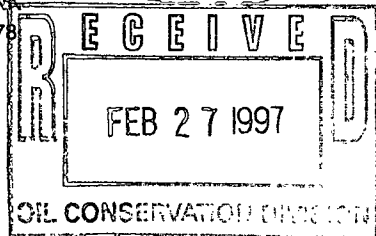
EASYLINK
62905278



REFINING COMPANY

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

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(505) 748-9077 ENGR
(505) 746-4438 P / L



February 25, 1997

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

CERTIFIED MAIL/RETURN RECEIPT
P 355 936 420

Dear Roger,

Enclosed are the results of Navajo Refining Company's annual sampling of the effluent into our evaporation ponds. In Navajo's letter of December 21, 1991, (response to NOV NMD048918817), Navajo agreed to send a copy of these results to ED.

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

Sincerely,
NAVAJO REFINING COMPANY

Darrell Moore
Sr.Environmental Specialist

encl.
cc: NM Environment Dept.

TRACE ANALYSIS, INC.

670 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

ANALYTICAL RESULTS FOR

NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

Prep Date: 01/14/97

Analysis Date: 01/14/97

Sampling Date: 01/02/97

Sample Condition: Intact & Cool

Sample Received by: ML

Project Name: NA

February 19, 1997

Receiving Date: 01/03/97

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

TA#	Field Code	POTASSIUM (mg/L)	MAGNESIUM (mg/L)	CALCIUM (mg/L)	SODIUM (mg/L)
T65296	Annual Effluent	90	65	96	750
QC	Quality Control	24.8	25	26	25

Reporting Limit

0.10 0.01 0.01 0.40

RPD

% Extraction Accuracy

% Instrument Accuracy

5	4	2	3
106	107	82	122
99	102	106	131

METHODS: EPA 200.7.

CHEMIST: SODIUM/MAGNESIUM/CALCIUM: JT POTASSIUM: RR

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

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

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

Date

2-20-97

TRACE ANALYSIS, INC.

5701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1236

FAX 806•794•1238

ANALYTICAL RESULTS FOR

NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 98210

Prep Date: 01/03/97

Analysis Date: 01/06/97

Sampling Date: 01/02/97

Sample Condition: Intact & Cool

Sample Received by: ML

Project Name: NA

February 20, 1997

Receiving Date: 01/03/97

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

TOTAL METALS

TA#	FIELD CODE	As (mg/L)	Cr (mg/L)	Cd (mg/L)	Ba (mg/L)	U (mg/L)	Mo (mg/L)	Zn (mg/L)	Ni (mg/L)	Be (mg/L)	Fe (mg/L)	Mn (mg/L)
T65296	Annual Effluent	<0.10	<0.05	<0.02	<0.20	<0.50	<0.10	<0.10	<0.10	<0.10	4.7	0.24
QC	Quality Control	4.7	4.7	4.7	4.7	5.3	4.9	4.6	4.7	4.9	4.7	4.7
REPORTING LIMIT		0.10	0.05	0.02	0.20	0.50	0.10	0.10	0.10	0.10	0.10	0.10
RPD		2	0	0	0	8	1	10	2	2	0	7
% Extraction Accuracy		97	100	96	98	95	111	90	97	98	100	93
% Instrument Accuracy		96	94	94	94	105	98	92	94	94	94	94
		Co	V	Cu	Al	B	Hg	Se	Pb	Ag		
		(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)		
T65296	Annual Effluent	<0.10	<0.10	<0.10	0.22	0.26	<0.001	<0.010	<0.005	<0.002		
QC	Quality Control	4.5	4.6	4.6	4.6	5.1	0.0049	0.095	0.025	0.021		
REPORTING LIMIT		0.10	0.10	0.10	0.10	0.10	0.001	0.010	0.005	0.002		
RPD		10	0	10	10	0	2	2	7	1		
% Extraction Accuracy		90	97	90	90	97	96	108	120	83		
% Instrument Accuracy		92	92	92	92	103	100	95	100	100		

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

CHEMIST: As, Cd, Cr, Ba, Al, Be, Co, Cu, Fe, Mn, Mo, Ni, V, Zn, Se, Pb, Ag, B: RR Hg: CB U: JT
TOTAL METALS SPIKE: 2.0 mg/L U, B, Mo; 0.005 mg/L Hg, Pb; 3.0 mg/L As, Cd, Cr, Ba, Ni, Be, V, Zn, Al, Fe, Co, Mn, Cu:

0.010 mg/L Ag; 0.050 mg/L Se.

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

0.020 mg/L Ag; 0.100 mg/L Se.

2-20-97

DATE

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

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•754•1296

FAX 806•794•1298

ANALYTICAL RESULTS FOR

NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

January 14, 1997

Receiving Date: 01/03/97

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

Prep Date: 01/03/97

Analysis Date: 01/09/97

Sampling Date: 01/02/97

Sample Condition: Intact & Cool

Sample Received by: ML

Project Name: NA

ALKALINITY

TA#	FIELD CODE	CHLORIDE (mg/L)	FLUORIDE (mg/L)	SULFATE (mg/L)	ALKALINITY (mg/L as CaCO ₃)
T65296	Annual Effluent	1,100	35	780	5.00
QC	Quality Control	25	1.1	25	---
					CO ₃

					0

					10

T65296 Annual Effluent

QC Quality Control

RPD

% Extraction Accuracy

% Instrument Accuracy

REPORTING LIMIT

METHODS: EPA 300.0, 310.1, 340.2.

CHEMIST: Chloride/Fluoride/Sulfate: MS

Alkalinity: RCD/MS

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

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

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

Date

2-14-97

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

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

January 14, 1997
 Receiving Date: 01/03/97
 Sample Type: Water
 Sampling Date: 01/02/97
 Sample Condition: I & C
 Sample Received by: ML
 Project Location: Artesia, NM
 Extraction Date: 01/06/97
 Analysis Date: 01/06/97

T65296

PAH	Reporting	Annual				
8270 Compounds (mg/L)	Limit*	Effluent	QC	RPD	%EA	%IA
Naphthalene	0.05	0.12	75	4	72	94
Acenaphthylene	0.05	ND	73	5	82	91
Acenaphthene	0.05	ND	75	4	80	94
Fluorene	0.05	ND	73	5	80	91
Phenanthrene	0.05	ND	74	5	86	93
Anthracene	0.05	ND	79	4	80	99
Fluoranthene	0.05	ND	75	2	84	94
Pyrene*	0.05	ND	79	2	95	99
Benzo[a]anthracene	0.05	ND	75	12	81	94
Chrysene	0.05	ND	78	10	102	98
Benzo[b]fluoranthene	0.05	ND	77	16	82	96
Benzo[k]fluoranthene	0.05	ND	70	12	91	88
Benzo[a]pyrene	0.05	ND	76	13	85	95
Indeno[1,2,3-cd]pyrene	0.05	ND	66	19	70	83
Dibenz[a,h]anthracene	0.05	ND	65	20	66	81
Benzo[g,h,i]perylene	0.05	ND	66	19	70	83

ND = Not Detected

*NOTE: Elevated reporting limit due to sample matrix

† RECOVERY

interference.

Nitrobenzene-d5 SURR 109
 2-Fluorobiphenyl SURR 109
 Terphenyl-d14 SURR 136

METHODS: EPA SW 846-8270, 3510.

CHEMIST: RD/CC

Director, Dr. Blair Leftwich

Director, Dr. Bruce McDonnell

DATE

2-14-97

TRACE ANALYSIS, INC.

A Laboratory for Advanced Environmental Research and Analysis

TRACE ANALYSIS, INC.

6701 Acee Seen Avenue

Rocky, Texas 75424

ANALYTICAL RESULTS FOR 806-794-1296

FAX 806-794-1298

Navajo Refining

Attention Darrell Moore

501 E. Main

Artesia

Date: Jan 06, 1997

Date Rec: 1/3/97

Project: ARTESIA

Proj Name: NAVAJO

Proj Loc: ARTESIA, NM

Lab Receiving #: 9701000022

Sampling Date: 1/2/97

Sample Condition: Intact and Cool

Sample Received By: ML

NM 88210

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)
T65296	Annual Effluent	Water	<0.200	1.89	2.94	0.852	1.63	7.31
QC			0.099	0.093	0.093	0.095	0.294	

RPD

% Extraction Accuracy

% Instrument Accuracy

0	1	0	1	1
99	95	95	98	101
99	93	93	95	98

Reporting Limit:

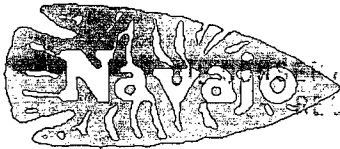
TEST	PREP METHOD	PREP DATE	ANALYSIS METHOD	ANALYSIS COMPLETED	CHEMIST	QC: (mg/L)	SPIKE: (mg/L)
MTBE/BTEX	EPA 5030	1/4/97	EPA 8020	1/4/97	RW	0.100 ea	0.1 ea

Director, Dr. Blair Leftwich

Director, Dr. Bruce McDonnell

Date

1-6-97



IN DIVISION

REFINING COMPANY

TELEPHONE
(505) 748-3311

'94 FEB 4 AM 8:35
501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159

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62905278

FAX

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

January 31, 1994

Mr. Roger Anderson
Oil Conservation Division-Environmental Bureau
State Land Office Bldg.
P.O. Box 2088
Santa Fe, NM 87501

Dear Roger,

Enclosed are the results of Navajo Refining Company's annual sampling of the effluent into our evaporation ponds. In Navajo's letter of December 21, 1991, (response to NOV NMD048918817), Navajo agreed to send a copy of these results to ED.

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

Sincerely,

Darrell Moore
Environmental Specialist

encl.

cc: Mr. Edward Horst, NM Environment Dept.

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

ANALYTICAL RESULTS FOR

NAVAJO REFINING

January 19, 1994

Receiving Date: 01/13/94

Sample Type: Water

Project No: NA

Project Location: NA

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

Analysis Date: 01/18/94

Sampling Date: 01/12/94

Sample Condition: Intact & Cool

Sample Received by: BL

Project Name: NA

-----Alkalinity-----
CARBONATE BICARBONATE
(as CaCO₃)
(mg/L) (mg/L)

pH FLUORIDE SULFATE CHLORIDE
(s.u.) (mg/L) (mg/L) (mg/L)

TA# Field Code

T17388	Evap. Pond Effluent	8.94	213	345	189	153	286
QC	Quality Control	7.01	2.07	20.6	495	---	---
% Precision		100	98	92	100	100	100
% Extraction Accuracy		---	114	122	98	---	---
% Instrument Accuracy		100	107	98	99	---	---

METHODS: EPA 150.1, 340.1, 375.4, 310.1; 3500 Cl-B.

QC: Blank Spiked with 2.0 mg/L FLUORIDE, SULFATE; 500 mg/L CHLORIDE.

BL

1-18-94

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

Date

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue

Lubbock, Texas 79424

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FAX 806•794•1298

ANALYTICAL RESULTS FOR

NAVAJO REFINING

January 18, 1994
 Receiving Date: 01/13/94
 Sample Type: Water
 Project No: NA
 Project Location: NA

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

Analysis Date: 01/14/94
 Sampling Date: 01/12/94
 Sample Condition: Intact & Cool
 Sample Received by: BL
 Project Name: NA

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

T17388	Evap. Pond Eff.	16	32	51	389
QC	Quality Control	97	18.4	18.9	20.3

Detection Limit

1.0 1.0 0.1 1.0

% Precision
 % Extraction Accuracy
 % Instrument Accuracy

100 102 102 103
 96 97 99 99
 97 92 94 101

METHODS: EPA 200.7.

QC: Blank Spiked with 100 mg/L POTASSIUM; 20.0 mg/L MAGNESIUM, CALCIUM, SODIUM.

BL

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

Date

1-19-94

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

January 18, 1994

Receiving Date: 01/13/94

Sample Type: Water

Project No: NA

Project Location: NA

ANALYTICAL RESULTS FOR

NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

Analysis Date: 01/14/94

Sampling Date: 01/12/94

Sample Condition: Intact & Cool

Sample Received by: BL

Project Name: NA

TOTAL METALS

TA#	FIELD CODE	As (ppm)	Se (ppm)	Cr (ppm)	Zn (ppm)	Cd (ppm)	Pb (ppm)	Ni (ppm)	Fe (ppm)	Mo (ppm)	Be (ppm)	Co (ppm)
T17388	Evap. Pond Effluent	0.3	0.3	<0.05	0.09	<0.01	<0.05	<0.05	2.1	<0.05	<0.01	<0.05
QC	Quality Control	4.9	5.0	4.9	5.0	5.0	5.0	5.4	5.0	5.1	5.2	5.2
DETECTION LIMIT												
% Precision		100	100	100	100	100	100	100	92	100	100	100
% Extraction Accuracy		99	100	95	96	97	104	105	100	112	111	109
% Instrument Accuracy		99	100	99	100	99	101	108	100	101	103	104

	Mn (ppm)	V (ppm)	Cu (ppm)	Al (ppm)	B (ppm)	Ag (ppm)	Ba (ppm)	U (ppm)	Hg (ppm)
T17388	0.12	<0.05	<0.01	1.2	0.39	<0.01	<0.1	<0.5	<0.001
QC	5.3	5.3	5.2	10.0	10.0	10.4	9.7	9.5	0.020

DETECTION LIMIT									
% Precision	97	100	100	100	100	100	100	100	100
% Extraction Accuracy	108	112	104	96	104	100	98	104	105
% Instrument Accuracy	106	105	104	100	100	104	97	97	100

METHODS: EPA 200.7, 245.1.

QC: Blank Spiked with 5.0 ppm As, Se, Cr, Zn, Cd, Pb, Ni, Fe, Mo, Be, Co, Mn, V, Cu; 10.0 ppm Al, B, Ag, Ba; 9.8 ppm U; 0.020 ppm Hg.

BS

1-19-94

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

DATE

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

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

January 18, 1994
Receiving Date: 01/13/94
Sample Type: Water
Sample Condition: Intact & Cool
Sample Received by: BL
Analysis Date: 01/17/94

T17388
Evap. Pond

EPA 8270 (ppm)	DL	Effluent	QC	%P	%EA	%IA
Naphthalene	0.001	0.046	0.466	100	NR	93
2-Methylnaphthalene	0.001	0.056	0.478	100	NR	95
Acenaphthylene	0.001	ND	0.479	100	NR	95
Acenaphthene	0.001	0.001	0.503	100	NR	100
Fluorene	0.001	0.002	0.479	100	NR	95
Phenanthrene	0.001	0.003	0.521	100	NR	104
Anthracene	0.001	ND	0.532	100	NR	106
Fluoranthene	0.001	ND	0.492	100	NR	98
Pyrene	0.001	ND	0.499	100	NR	99
Benz[a]anthracene	0.001	ND	0.531	100	NR	106
Chrysene	0.001	ND	0.521	100	NR	104
Benzo[b]fluoranthene	0.001	ND	0.628	100	NR	125
7,12-Dimethylbenz(a)anthracene	0.001	ND	0.479	100	NR	95
Benzo[k]fluoranthene	0.001	ND	0.429	100	NR	85
Benzo[a]pyrene	0.001	ND	0.544	100	NR	108
Dibenzo(a,j)acridine	0.001	ND	0.447	100	NR	89
Indeno[1,2,3-cd]pyrene	0.001	ND	0.427	100	NR	85
Dibenz[a,h]anthracene	0.001	ND	0.479	100	NR	95
Benzo[g,h,i]perylene	0.001	ND	0.495	100	NR	99

*ND = Not Detected

% RECOVERY

2-Fluorophenol SURR	104
Phenol-d5 SURR	86
Nitrobenzene-d5 SURR	98
2-Fluorobiphenyl SURR	109
2,4,6-Tribromophenol SURR	84
Terphenyl-d14 SURR	115

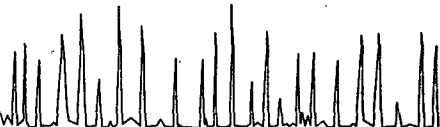
METHODS: EPA SW 846-8270.



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

1-19-94

DATE


TRACE ANALYSIS, INC.

A Laboratory for Advanced Environmental Research and Analysis



TRACE ANALYSIS, INC.

6701 Aberdeen Avenue

Lubbock, Texas 79424

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FAX 806•794•1298

ANALYTICAL RESULTS FOR

NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

January 17, 1994

Receiving Date: 01/13/94

Sample Type: Water

Project No: NA

Project Location: NA

Analysis Date: 01/14/94

Sampling Date: 01/12/94

Sample Condition: Intact & Cool

Sample Received by: BL

Project Name: NA

TA#	FIELD CODE	MTBE (ppb)	BENZENE (ppb)	TOLUENE (ppb)	ETHYL- BENZENE (ppb)	M,P,O XYLENE (ppb)	TOTAL BTEX (ppb)
-----	------------	---------------	------------------	------------------	----------------------------	--------------------------	------------------------

T17388	Evap Pond Effluent	<2	166	283	110	313	872
--------	--------------------	----	-----	-----	-----	-----	-----

QC	Quality Control	192	190	190	189	566	
----	-----------------	-----	-----	-----	-----	-----	--

Detection Limit

% Precision		1	1	1	1	1	
-------------	--	---	---	---	---	---	--

% Extraction Accuracy	102	103	103	103	96	104	
-----------------------	-----	-----	-----	-----	----	-----	--

% Instrument Accuracy	103	101	98	98	101	96	
-----------------------	-----	-----	----	----	-----	----	--

	96	95	95	95	95	94	
--	----	----	----	----	----	----	--

METHODS: EPA SW 846-8020.

BTEX SPIKE AND QC: Sample and Blank Spiked with 200 ppb EACH VOLATILE ORGANICS.

RS
Director, Dr. Blair Leftwich

Director, Dr. Bruce McDonell

Date

1-17-94

TraceAnalysis, Inc.

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

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Project Manager:

Darrell Moore

Phone #: 565-748-3311

FAX #: 505-748-9077

ANALYSIS REQUEST

SPECIAL HANDLING

Company Name & Address:

Navajo Refining Co.

Project Name:

Project Location:

Sampler Signature:

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX					PRESERVATIVE METHOD					SAMPLING		BTEX, MTBE	TPH	TCLP Metals Ag As Ba Cd Cr Pb Hg Se	Total Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Volatiles	TCLP Semi Volatiles	TDS	RCI	Turn around # of days	Fax ASAP	Report TWC direct	Hold						
				WATER	SOIL	AIR	SLUDGE	OTHER	HCL	HNO3	ICE	NONE	OTHER	DATE	TIME																		
17388	RA-3353 Eup. Pond Effl.	5		X							1	5	4			11/2/94	10:30																
17389	KWB-3A	2	46ml	X													11:00	X															
17390	RA-3353	2		X									X				11:30	X															
17391	RA-4196	2		X									X				11:40	X															
17392	RA-2723	2		X									X				13:00	X															
17393	RA-4798 RA-4798	2		X									X				13:40	X															
17394	KWB-7	2		X									X				13:50	X															
17395	KWB-9	2		X									X				14:10	X															
17396	RA-3156	2		X									X				14:20	X															
17397	KWB-2A	2		X									X				14:30	X															
17398	Reverse Osmosis	14		X									2	14	5	7	15:00																

REMARKS

One vial for KWB-2A broke.

See List. Quarterly Reverse Osmosis

Relinquished by:

Date:

Times:

Received by:

Received by Laboratory:

Relinquished by:

Date:

Times:

Received by:

Darrell Moore

11/12/93

16:30

Received by:



REFINING COMPANY

TELEPHONE
(505) 748-3311

94 JAN 13 AM 9:22
EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159

EASYLINK

62905278

FAX

(505) 746-6410 ACCTG

(505) 746-6155 EXEC

(505) 748-9077 ENGR

(505) 746-4438 P / L

January 12, 1994

Mr. Roger Anderson
NM Oil Conservation Division
Land Office Building
P.O. Box 2088
Santa Fe, NM 87501

RE: FALL 1993 REPORT - GROUNDWATER SAMPLING AROUND EVAPORATION PONDS

Dear Roger:

Enclosed are results from our Fall 1993 sampling of the monitor wells around the evaporation ponds. This is on a staggered schedule per your letter of October 21, 1991. We have also included analysis that Navajo agreed to do as part of our consent agreement with EPA. This includes testing for arsenic, chromium, nickel, and lead. Also, Navajo agreed to resample well OCD 11A and OCD 3 for the above mentioned metals.

The following is a summary of field observations:

<u>Well #</u>	<u>Groundwater</u> <u>ft amsL</u>	<u>pH</u>	<u>EC</u> <u>umhos</u>	<u>Deg. C</u>	<u>Description</u>
MW-1	3300.62	7.00	13040	19	Mod. Odor, , Turbid
MW-2	3301.65	6.94	12820	19.2	Odor, Silty, Turbid
MW-3	3299.70	7.12	7160	19	Slight Odor, Silty,
MW-4	3299.49	7.22	6890	17.6	Odor
MW-5	3298.83	7.32	17560	18.1	Moderate odor
OCD-2	3300.93	6.92	12750	18	Odor, Murky
OCD-3	3299.90	7.17	14390	17.6	Murky, odor
OCD-4	3300.06	7.21	15610	17.2	Brown, Mild odor
OCD-6	3299.28	6.93	11800	15.6	Brown, Turbid
OCD-8	3298.94	7.12	11120	15.8	odor, turbid
OCD-11A	3299.61	6.99	18160	17.1	Brown, odor,



REFINING COMPANY

TELEPHONE
(505) 748-3311

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

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62905278

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

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

Respectfully yours,

Darrell Moore

Darrell Moore
Environmental Specialist

cc:MFR, file
enclosures

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

TRACE ANALYSIS, INC.

ANALYTICAL RESULTS FOR

NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

January 06, 1994

Receiving Date: 12/22/93

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

Analysis Date: 12/24/93

Sampling Date: 12/20/93

Sample Condition: Intact & Cool

Sample Received by: MS

Project Name: Evaporation Ponds

TA#	Field Code	MTBE (ppb)	BENZENE (ppb)	TOLUENE (ppb)	ETHYL- BENZENE (ppb)	M, P, O XYLENE (ppb)	TOTAL BTX (ppb)
T16897	MW - 1	<1	<1	<1	<1	<1	<1
T16898	MW - 2	<10	<10	<10	<10	<10	<10
T16899	MW - 3	<10	<10	<10	<10	<10	<10
T16900	MW - 4	<10	<10	<10	<10	<10	<10
T16901	MW - 5	<10	<10	<10	<10	<10	<10
T16902	OCD - 2	10	<2	<2	<2	<2	<2
T16904	OCD - 4	2	<1	<1	<1	<1	<1
T16905	OCD - 6	<10	<10	<10	<10	<10	<10
T16906	OCD - 8	<10	<10	<10	<10	<10	<10
QC	Quality Control	207	189	187	186	556	77
Detection Limit		1	1	1	1	1	1

% Precision

% Extraction Accuracy

% Instrument Accuracy

METHODS: EPA SW 846-8020.

BTX SPIKE AND QC: Sample and Blank spiked with 200 ppb EACH VOLATILE ORGANICS.

PS

1-6-94

Director, Dr. Blair Leftwich

Director, Dr. Bruce McDowell

Date

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

January 06, 1994

Receiving Date: 12/22/93

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

ANALYTICAL RESULTS FOR

NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

Analysis Date: 12/24/93

Sampling Date: 12/20/93

Sample Condition: Intact & Cool

Sample Received by: MS

Project Name: Evaporation Ponds

TA#	Field Code	CHLORIDE (mg/L)	FLUORIDE (mg/L)	SULFATE (mg/L)	CARBONATE BICARBONATE (as CaCO ₃) (mg/L)	Alkalinity (mg/L)	pH
-----	------------	--------------------	--------------------	-------------------	--	----------------------	----

T16897	MW - 1	4,418	1.1	2,523	0	429	6.94
T16898	MW - 2	2,090	11.3	1,808	0	521	7.11
T16899	MW - 3	1,330	2.9	2,452	0	327	7.34
T16900	MW - 4	1,473	1.9	2,205	0	235	7.12
T16901	MW - 5	5,178	3.1	4,913	0	398	7.27
T16902	OCD - 2	3,325	1.2	4,328	0	500	7.08
T16904	OCD - 4	5,510	0.9	3,711	0	191	7.61
T16905	OCD - 6	2,233	3.7	5,044	0	562	7.15
T16906	OCD - 8	2,233	2.9	4,127	0	429	7.06
QC	Quality Control	504	2.10	29.8	---	---	7.01

Precision	100	100	93	99	99	100
% Extraction Accuracy	99	110	116	---	---	99
% Instrument Accuracy	101	107	94	---	---	100

DETECTION LIMIT	1	0.1	1	---	---	10
-----------------	---	-----	---	-----	-----	----

METHODS: EPA 375.4, 310.1, 150.1, 340.2, 3500 Cl-B.
QC: Blank Spiked with 500 mg/L CHLORIDE; 2.0 mg/L FLUORIDE; 30.0 mg/L SULFATE.

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

Date

1-6-94

TRACE ANALYSIS, INC.

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

ANALYTICAL RESULTS FOR

NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

Analysis Date: 12/23/93

Sampling Date: 12/20/93

Sample Condition: Intact & Cool

Sample Received by: MS

Project Name: Evaporation Ponds

January 06, 1994

Receiving Date: 12/22/93

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

TOTAL METALS

TA#	Field Code	As (ppm)	Cr (ppm)	Pb (ppm)	Ni (ppm)	K (ppm)	Mg (ppm)	Ca (ppm)	Na (ppm)
-----	------------	----------	----------	----------	----------	---------	----------	----------	----------

T16897	MW - 1	<0.1	<0.05	<0.05	<0.05	10	472	749	1,870
T16898	MW - 2	<0.1	<0.05	<0.05	0.19	13	69	365	1,800
T16899	MW - 3	0.2	<0.05	<0.05	<0.05	12	138	475	998
T16900	MW - 4	0.2	<0.05	<0.05	<0.05	8	89	548	1,060
T16901	MW - 5	0.1	<0.05	<0.05	<0.05	20	675	583	4,480
T16902	OCD - 2	0.2	<0.05	<0.05	<0.05	19	201	513	2,480
T16904	OCD - 4	<0.1	<0.05	<0.05	<0.05	66	224	892	2,720
QC	Quality Control	5.2	5.1	5.1	5.0	100.8	20.3	19.8	19.6

Precision	100	100	100	100	97	95	98	101
% Extraction Accuracy	103	101	100	103	104	95	97	102
% Instrument Accuracy	104	102	101	100	101	101	99	98

Detection Limit	0.1	0.05	0.05	0.05	1.0	1.0	1.0	1.0
-----------------	-----	------	------	------	-----	-----	-----	-----

METHODS: EPA 200.7.

TOTAL METALS QC: Blank Spiked with 5.0 ppm As, Cr, Pb, Ni, 100.0 ppm K, 20.0 ppm Mg, Ca, Na.

BS

1-6-94

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

Date

TRACE ANALYSIS, INC.

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

ANALYTICAL RESULTS FOR NAVAJO REFINING

Attention: Darrell Moore

501 E. Main

Artesia, NM 88210

January 06, 1994

Receiving Date: 12/22/93

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

Analysis Date: 12/23/93

Sampling Date: 12/20/93

Sample Condition: Intact & Cool

Sample Received by: MS

Project Name: Evaporation Ponds

TOTAL METALS

TA#	Field Code	As (ppm)	Cr (ppm)	Pb (ppm)	Ni (ppm)	K (ppm)	Mg (ppm)	Ca (ppm)	Na (ppm)
-----	------------	----------	----------	----------	----------	---------	----------	----------	----------

T16905	OCD - 6	<1.0	<0.5	<0.5	<0.5	106	112	613	2,720
T16906	OCD - 8	<1.0	<0.5	<0.5	<0.5	73	185	571	1,820
QC	Quality Control	5.2	5.1	5.1	5.0	100.8	20.3	19.8	19.6

% Precision	100	100	100	100	97	95	98	101
% Extraction Accuracy	103	101	100	103	104	95	97	102
% Instrument Accuracy	104	102	101	100	101	101	99	98

Detection Limit	1.0	0.5	0.5	0.5	10	1.0	1.0	1.0
-----------------	-----	-----	-----	-----	----	-----	-----	-----

METHODS: EPA 200.7.

TOTAL METALS QC: Blank Spiked with 5.0 ppm As, Cr, Pb, Ni; 100.0 ppm K; 20.0 ppm Mg, Ca, Na.

BS

1-6-94

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

Date

6701 Aberdeen Avenue

Lubbock, Texas 79424

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FAX 806•794•1298

ANALYTICAL RESULTS FOR
NAVAJO REFINING

Attention: Darrell Moore

501 E. Main
Artesia, NM 88210

January 06, 1994

Receiving Date: 12/22/93

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

Analysis Date: 12/29/93

Sampling Date: 12/20/93

Sample Condition: Intact & Cool

Sample Received by: MS

Project Name: NA

EPA 8240 Compounds
(ppb)

Naphthalene
2-Methylnaphthalene

T16900

MW - 4

Detection

Limit

QC

%P

%EA

%IA

ND

0.001

0.477

100

NR

95

ND

0.001

0.474

100

NR

94

ND = Not Detected

% RECOVERY

105

109

107

92

100

108

2-Fluorophenol SURR

Phenol-d5 SURR

Nitrobenzene-d5 SURR

2-Fluorobiphenyl SURR

2,4,6-Tribromophenol SURR

Terphenyl-d14 SURR

METHODS: EPA SW 846-8270.

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

1-6-94
DATE

TRACE ANALYSIS, INC.

A Laboratory for Advanced Environmental Research and Analysis

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

January 06, 1994
Receiving Date: 12/22/93
Sample Type: Water
Project No: NA
Project Location: Artesia, NM

Analysis Date: 12/29/93
Sampling Date: 12/20/93
Sample Condition: Intact & Cool
Sample Received by: MS
Project Name: NA

EPA 8240 Compounds (ppb)	T16901 MW - 5	Detection Limit	QC	%P	%EA	%IA
Naphthalene	ND	0.001	0.477	100	NR	95
2-Methylnapthalene	ND	0.001	0.474	100	NR	94

ND = Not Detected

% RECOVERY

2-Fluorophenol SURR 84
Phenol-d5 SURR 112
Nitrobenzene-d5 SURR 96
2-Fluorobiphenyl SURR 93
2,4,6-Tribromophenol SURR 95
Terphenyl-d14 SURR 78

METHODS: EPA SW 846-8270.

PS

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

1-6-94

DATE



TRACE ANALYSIS, INC.

A Laboratory for Advanced Environmental Research and Analysis

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

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

January 06, 1994
Receiving Date: 12/22/93
Sample Type: Water
Project No: NA
Project Location: Artesia, NM

Analysis Date: 12/23/93
Sampling Date: 12/20/93
Sample Condition: Intact & Cool
Sample Received by: MS
Project Name: Evaporation Ponds

TOTAL METALS					
TA#	FIELD CODE	As (ppm)	Cr (ppm)	Pb (ppm)	Ni (ppm)
T16903	OCD - 3	<0.1	<0.05	<0.05	<0.05
QC	Quality Control	5.2	5.1	5.1	5.0
% Precision		100	100	100	100
% Extraction Accuracy		103	101	100	103
% Instrument Accuracy		104	102	101	100
DETECTION LIMIT		0.1	0.05	0.05	0.05

METHODS: EPA 200.7.

TOTAL METALS QC: Blank Spiked with 5.0 ppm As, Cr, Pb, Ni.

BS

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

1-6-94

DATE


TRACE ANALYSIS, INC.

A Laboratory for Advanced Environmental Research and Analysis

6701 Aberdeen Avenue

Lubbock, Texas 79424

806•794•1296

FAX 806•794•1298

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

January 06, 1994

Receiving Date: 12/22/93

Sample Type: Water

Project No: NA

Project Location: Artesia, NM

Analysis Date: 12/23/93

Sampling Date: 12/21/93

Sample Condition: Intact & Cool

Sample Received by: MS

Project Name: Evaporation Ponds

TA#	FIELD CODE	TOTAL METALS			
		As (ppm)	Cr (ppm)	Pb (ppm)	Ni (ppm)
T16907	OCD - 11A	<1.0	<0.5	<0.5	<0.5
QC	Quality Control	5.2	5.1	5.1	5.0
% Precision		100	100	100	100
% Extraction Accuracy		103	101	100	103
% Instrument Accuracy		104	102	101	100
DETECTION LIMIT		1.0	0.5	0.5	0.5

METHODS: EPA 200.7.

TOTAL METALS QC: Blank Spiked with 5.0 ppm As, Cr, Pb, Ni.

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

1-6-94
DATE

TRACE ANALYSIS, INC.

A Laboratory for Advanced Environmental Research and Analysis

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

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Signature: Darrell Moore

Phone #: 505-748-2311

FAX#: 565-748-9077

Company Name & Address:

Company Name & Address
Navajo Refining Co.

Project #:

Project Name :

Project Location:

ject Location: Artesia Evap Ponds

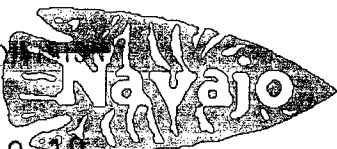
Sampler Signature:

Supplier signature: Daniel Moore

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX					PRESERVATIVE METHOD					SAMPLING		BTX, MTBE	TPH	TCLP Metals Ag As	Total Metals Ag As	TCLP Volatiles	TCLP Semi Volatiles	TDS	RCI	Metals As, C	Turn around # of days	Fax ASAP	Report TWC direct	Hold			
				WATER	SOIL	AIR	SLUDGE	OTHER	HCL	HNO3	ICE	NONE	OTHER	DATE	TIME																
16897	MW-1	6		X							X					12/20/93	11:00														
98	MW-2	"		X							X					"	12:45														
99	MW-3	"		X							X					"	13:30														
16900	MW-4	"		X							X					"	14:00														
1	MW-5	"		X							X					"	14:30														
2	OCDD OCDD-2	"		X							X					"	15:00														
3	OCDD-3	1		X							X					"	15:30														
4	OCDD-4	6		X							X					"	15:45														
5	OCDD-6	"		X							X					"	16:15														
6	OCDD-8	"		X							X					"	16:45														
7	OCDD-11A	1		X							X					12/21/93	10:00														
Relinquished by: Daniel Moore		Date: 12/21/93	Times: 1630		Received by:		REMARKS																								
Relinquished by:		Date:	Times:		Received by:																										
Relinquished by:		Date: 12-22-93	Times:		Received by Laboratory: MS CP																										

TELEPHONE
(505) 748-3311

OIL CONSERVATION DISTRICT
RECEIVED



REFINING COMPANY

501 EAST MAIN STREET • P.O. DRAWER 159

ARTESIA, NEW MEXICO 88211-0159

June 15, 1993

EASYLINK
62905278

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

'93 JUN 17 AM 9 10

Mr. Roger Anderson
NM Oil Conservation Division
Land Office Building
P.O. Box 2088
Santa Fe, NM 87501

RE: SPRING 1993 REPORT - GROUNDWATER SAMPLING AROUND EVAPORATION PONDS

Dear Roger:

Enclosed are results from our Spring 1993 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>Groundwater ft amsl</u>	<u>pH</u>	<u>EC umhos</u>	<u>Deg. C</u>	<u>Description</u>
MW-3	3300.62	6.94	7000	24	Mod. Odor, Silty, Turbid
MW-4	3300.51	7.15	7200	20.3	Mod. Odor, Silty, Turbid
MW-5	3299.97	7.03	12250	18.2	Slight Odor, V., Silty, Brown
MW-6	3300.85	7.36	3700	24.5	Brownish, Silty
MW-7	3299.85	7.24	14400	21.6	Moderate Silt, Brown
OCD-1	3303.63	7.03	13800	18.6	Murky
OCD-3	3301.04	7.05	17300	21	Murky
OCD-5	3300.88	7.13	18200	19.8	Brown, Mild Odor
OCD-7	3302.75	7.04	12000	19.7	Brown, Turbid

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

Respectfully yours,

Darrell Moore
Environmental Specialist

DGM/pb
enclosures

An Independent Refinery Serving . . . NEW MEXICO • ARIZONA • WEST TEXAS



Sample Description: MW-3
Date Sampled: 4/28/93

Laboratory ID: D0430512

TEST	VALUE	UNITS	METHOD	ANALYZED
M-Alkalinity, as CaCO ₃	292	mg/L	EPA 310.1	5/3/93
P-Alkalinity, as CaCO ₃	0	mg/L	EPA 310.1	5/3/93
Chloride, as Cl	1330	mg/L	EPA 9251	5/14/93
Fluoride, total	2.3	mg/L	EPA 340.2	5/5/93
Sulfate, as SO ₄	2520	mg/L	EPA 9038	5/4/93
Bicarbonate, alk as CaCO ₃	356	mg/L	Calculation	5/3/93
Carbonate, alk as CaCO ₃	0	mg/L	Calculation	5/3/93
Aluminum, total	0.83	mg/L	EPA 6010	5/5/93
Boron, total	0.70	mg/L	EPA 6010	5/5/93
Calcium, total	499	mg/L	EPA 6010	5/5/93
Magnesium, total	187	mg/L	EPA 6010	5/5/93
Cobalt, total	< 0.01	mg/L	EPA 6010	5/5/93
Nickel, total	0.02	mg/L	EPA 6010	5/5/93
Potassium, total	7.94	mg/L	EPA 6010	5/5/93
Sodium, total	961	mg/L	EPA 6010	5/5/93
Vanadium, total	< 0.01	mg/L	EPA 6010	5/5/93

EPA Method 8020
Aromatic Volatiles

Betz Laboratory ID D0430512
Client Identification MW-3
Date Sampled 4/28/93
Date Analyzed 5/3/93
Analyst KS
PQL, ug/L 5

Analyte Concentration, ug/L (Liquid)

Benzene 6.0
Toluene 9.3
Ethyl Benzene 6.5
*Xylenes, total 18

*2 times PQL



Sample Description: MW-4
Date Sampled: 4/28/93

Laboratory ID: D0430513

TEST	VALUE	UNITS	METHOD	ANALYZED
M-Alkalinity, as CaCO ₃	244	mg/L	EPA 310.1	5/3/93
P-Alkalinity, as CaCO ₃	0	mg/L	EPA 310.1	5/3/93
Chloride, as Cl	1500	mg/L	EPA 9251	5/14/93
Fluoride, total	1.6	mg/L	EPA 340.2	5/5/93
Sulfate, as SO ₄	2070	mg/L	EPA 9038	5/4/93
Bicarbonate, alk as CaCO ₃	298	mg/L	Calculation	5/3/93
Carbonate, alk as CaCO ₃	0	mg/L	Calculation	5/3/93
Aluminum, total	0.74	mg/L	EPA 6010	5/5/93
Boron, total	0.66	mg/L	EPA 6010	5/5/93
Calcium, total	458	mg/L	EPA 6010	5/5/93
Magnesium, total	130	mg/L	EPA 6010	5/5/93
Cobalt, total	< 0.01	mg/L	EPA 6010	5/5/93
Nickel, total	0.01	mg/L	EPA 6010	5/5/93
Potassium, total	7.8	mg/L	EPA 6010	5/5/93
Sodium, total	1010	mg/L	EPA 6010	5/5/93
Vanadium, total	< 0.01	mg/L	EPA 6010	5/5/93

Sample Description: MW-4
Date Sampled: 4/28/93
Date Extracted: 5/3/93

Laboratory ID: D0430513
Date Analyzed: 5/4/93
Analyst: JR

BASE NEUTRAL EXTRACTABLE ORGANICS (EPA 8270)

Compound	ug/L
-----	-----
Naphthalene	ND
Mononaphthalene	ND

Limit of Practical Quantitation is 10 ug/L, unless otherwise noted in brackets.

Surrogate Recovery:		Recovery Limits	
Nitrobenzene-d5	60 %	35 - 114	%
2-Fluorobiphenyl	72 %	43 - 116	%
Terphenyl-d14	80 %	33 - 141	%

EPA Method 8020
Aromatic Volatiles

Betz Laboratory ID	D0430513
Client Identification	MW-4
Date Sampled	4/28/93
Date Analyzed	5/3/93
Analyst	KS
PQL, ug/L	5

Analyte	Concentration, ug/L (Liquid)
Benzene	20
Toluene	12
Ethyl Benzene	19
*Xylenes, total	43

*2 times PQL



Sample Description: MW-5
Date Sampled: 4/28/93

Laboratory ID: D0430514

TEST	VALUE	UNITS	METHOD	ANALYZED
M-Alkalinity, as CaCO ₃	393	mg/L	EPA 310.1	5/3/93
P-Alkalinity, as CaCO ₃	0	mg/L	EPA 310.1	5/3/93
Chloride, as Cl	3620	mg/L	EPA 9251	5/14/93
Fluoride, total	2.3	mg/L	EPA 340.2	5/5/93
Sulfate, as SO ₄	6330	mg/L	EPA 9038	5/4/93
Bicarbonate, alk as CaCO ₃	479	mg/L	Calculation	5/3/93
Carbonate, alk as CaCO ₃	0	mg/L	Calculation	5/3/93
Aluminum, total	2.7	mg/L	EPA 6010	5/5/95
Boron, total	0.94	mg/L	EPA 6010	5/5/93
Calcium, total	458	mg/L	EPA 6010	5/5/93
Magnesium, total	626	mg/L	EPA 6010	5/5/93
Cobalt, total	< 0.01	mg/L	EPA 6010	5/5/93
Nickel, total	0.04	mg/L	EPA 6010	5/5/93
Potassium, total	15.3	mg/L	EPA 6010	5/5/93
Sodium, total	3260	mg/L	EPA 6010	5/5/93
Vanadium, total	0.01	mg/L	EPA 6010	5/5/93

EPA Method 8020
Aromatic Volatiles

Betz Laboratory ID	D0430514
Client Identification	MW-5
Date Sampled	4/28/93
Date Analyzed	5/3/93
Analyst	KS
PQL, ug/L	5

Analyte	Concentration, ug/L (Liquid)
---------	------------------------------

Benzene	26
Toluene	47
Ethyl Benzene	10
*Xylenes, total	36

*2 times PQL



BETZ
Analytical Services

Navajo Refining Company
501 East Main Street
P.O. Drawer 159
Artesia, New Mexico 88210

Date Submitted: 4/30/93

Date Reported: 5/24/93

Attn: Darrell Moore

Sample Description: MW-6
Date Sampled: 4/28/93

Laboratory ID: D0430511

TEST	VALUE	UNITS	METHOD	ANALYZED
M-Alkalinity, as CaCO ₃	229	mg/L	EPA 310.1	5/3/93
P-Alkalinity, as CaCO ₃	0	mg/L	EPA 310.1	5/3/93
Chloride, as Cl	684	mg/L	EPA 9251	5/14/93
Fluoride, total	2.5	mg/L	EPA 340.2	5/5/93
Sulfate, as SO ₄	1300	mg/L	EPA 9038	5/4/93
Bicarbonate, alk as CaCO ₃	279	mg/L	Calculation	5/3/93
Carbonate, alk as CaCO ₃	0	mg/L	Calculation	5/3/93
Aluminum, total	2.3	mg/L	EPA 6010	5/5/93
Boron, total	0.48	mg/L	EPA 6010	5/5/93
Calcium, total	285	mg/L	EPA 6010	5/5/93
Magnesium, total	83	mg/L	EPA 6010	5/5/93
Cobalt, total	< 0.01	mg/L	EPA 6010	5/5/93
Nickel, total	0.01	mg/L	EPA 6010	5/5/93
Potassium, total	2.5	mg/L	EPA 6010	5/5/93
Sodium, total	570	mg/L	EPA 6010	5/5/93
Vanadium, total	0.02	mg/L	EPA 6010	5/5/93

Sample Description: MW-6
Date Sampled: 4/28/93
Date Extracted: 5/3/93

Laboratory ID: D0430511

Date Analyzed: 5/4/93

Analyst: JR

BASE NEUTRAL EXTRACTABLE ORGANICS (EPA 8270)

Compound	ug/L
Naphthalene	ND
Mononaphthalene	ND

Limit of Practical Quantitation is 10 ug/L, unless otherwise noted in brackets.

Surrogate Recovery:			Recovery Limits
Nitrobenzene-d ₅	32**%	35 - 114	%
2-Fluorobiphenyl	64 %	43 - 116	%
Terphenyl-d ₁₄	70 %	33 - 141	%

**Surrogate recovery is below QC limits, but above 10%.



EPA Method 8020
Aromatic Volatiles

Betz Laboratory ID	D0430511
Client Identification	MW-6
Date Sampled	4/28/93
Date Analyzed	5/3/93
Analyst	KS
PQL, ug/L	5

Analyte	Concentration, ug/L (Liquid)
Benzene	ND
Toluene	5
Ethyl Benzene	5.8
*Xylenes, total	19

*2 times PQL



Sample Description: MW-7
Date Sampled: 4/28/93

Laboratory ID: D0430515

TEST	VALUE	UNITS	METHOD	ANALYZED
M-Alkalinity, as CaCO ₃	265	mg/L	EPA 310.1	5/3/93
P-Alkalinity, as CaCO ₃	0	mg/L	EPA 310.1	5/3/93
Chloride, as Cl	2500	mg/L	EPA 9251	5/14/93
Fluoride, total	1.3	mg/L	EPA 340.2	5/5/93
Sulfate, as SO ₄	4060	mg/L	EPA 9038	5/4/93
Bicarbonate, alk as CaCO ₃	323	mg/L	Calculation	5/3/93
Carbonate, alk as CaCO ₃	0	mg/L	Calculation	5/3/93
Aluminum, total	1.4	mg/L	EPA 6010	5/5/93
Boron, total	0.89	mg/L	EPA 6010	5/5/93
Calcium, total	428	mg/L	EPA 6010	5/5/93
Magnesium, total	356	mg/L	EPA 6010	5/5/93
Cobalt, total	< 0.01	mg/L	EPA 6010	5/5/93
Nickel, total	0.02	mg/L	EPA 6010	5/5/93
Potassium, total	16	mg/L	EPA 6010	5/5/93
Sodium, total	2270	mg/L	EPA 6010	5/5/93
Vanadium, total	0.01	mg/L	EPA 6010	5/5/93

EPA Method 8020
Aromatic Volatiles

Betz Laboratory ID	D0430515
Client Identification	MW-7
Date Sampled	4/28/93
Date Analyzed	5/3/93
Analyst	KS
PQL, ug/L	5

Analyte	Concentration, ug/L (Liquid)
---------	------------------------------

Benzene	ND
Toluene	ND
Ethyl Benzene	ND
*Xylenes, total	ND

*2 times PQL



Sample Description: OCD-1
Date Sampled: 4/28/93

Laboratory ID: D0430519

TEST	VALUE	UNITS	METHOD	ANALYZED
M-Alkalinity, as CaCO ₃	643	mg/L	EPA 310.1	5/3/93
P-Alkalinity, as CaCO ₃	0	mg/L	EPA 310.1	5/3/93
Chloride, as Cl	2450	mg/L	EPA 9251	5/14/93
Fluoride, total	4	mg/L	EPA 340.2	5/5/93
Sulfate, as SO ₄	3670	mg/L	EPA 9038	5/4/93
Bicarbonate, alk as CaCO ₃	784	mg/L	Calculation	5/3/93
Carbonate, alk as CaCO ₃	0	mg/L	Calculation	5/3/93
Aluminum, total	6.1	mg/L	EPA 6010	5/5/93
Boron, total	0.45	mg/L	EPA 6010	5/5/93
Calcium, total	670	mg/L	EPA 6010	5/5/93
Magnesium, total	177	mg/L	EPA 6010	5/5/93
Cobalt, total	0.02	mg/L	EPA 6010	5/5/93
Nickel, total	0.03	mg/L	EPA 6010	5/5/93
Potassium, total	22	mg/L	EPA 6010	5/5/93
Sodium, total	2390	mg/L	EPA 6010	5/5/93
Vanadium, total	0.02	mg/L	EPA 6010	5/5/93

EPA Method 8020
Aromatic Volatiles

Betz Laboratory ID D0430519
Client Identification OCD-1
Date Sampled 4/28/93
Date Analyzed 5/3/93
Analyst KS
PQL, ug/L 5

Analyte Concentration, ug/L (Liquid)

Benzene	ND
Toluene	ND
Ethyl Benzene	ND
*Xylenes, total	ND

*2 times PQL



Sample Description: OCD-3
Date Sampled: 4/28/93

Laboratory ID: D0430518

TEST	VALUE	UNITS	METHOD	ANALYZED
M-Alkalinity, as CaCO ₃	345	mg/L	EPA 310.1	5/3/93
P-Alkalinity, as CaCO ₃	0	mg/L	EPA 310.1	5/3/93
Chloride, as Cl	4710	mg/L	EPA 9251	5/14/93
Fluoride, total	0.8	mg/L	EPA 340.2	5/5/93
Sulfate, as SO ₄	2520	mg/L	EPA 9038	5/4/93
Bicarbonate, alk as CaCO ₃	421	mg/L	Calculation	5/3/93
Carbonate, alk as CaCO ₃	0	mg/L	Calculation	5/3/93
Aluminum, total	35	mg/L	EPA 6010	5/5/93
Boron, total	0.81	mg/L	EPA 6010	5/5/93
Calcium, total	1190	mg/L	EPA 6010	5/5/93
Magnesium, total	304	mg/L	EPA 6010	5/5/93
Cobalt, total	0.01	mg/L	EPA 6010	5/5/93
Nickel, total	0.03	mg/L	EPA 6010	5/5/93
Potassium, total	53	mg/L	EPA 6010	5/5/93
Sodium, total	2440	mg/L	EPA 6010	5/5/93
Vanadium, total	0.06	mg/L	EPA 6010	5/5/93

EPA Method 8020
Aromatic Volatiles

Betz Laboratory ID D0430518
Client Identification OCD-3
Date Sampled 4/28/93
Date Analyzed 5/1/93
Analyst KS
PQL, ug/L 5

Analyte Concentration, ug/L (Liquid)

Benzene	ND
Toluene	ND
Ethyl Benzene	ND
*Xylenes, total	ND

*2 times PQL



Sample Description: OCD-5
Date Sampled: 4/28/93

Laboratory ID: D0430517

TEST	VALUE	UNITS	METHOD	ANALYZED
M-Alkalinity, as CaCO ₃	209	mg/L	EPA 310.1	5/3/93
P-Alkalinity, as CaCO ₃	0	mg/L	EPA 310.1	5/3/93
Chloride, as Cl	4850	mg/L	EPA 9251	5/14/93
Fluoride, total	0.9	mg/L	EPA 340.2	5/5/93
Sulfate, as SO ₄	2990	mg/L	EPA 9038	5/4/93
Bicarbonate, alk as CaCO ₃	255	mg/L	Calculation	5/3/93
Carbonate, alk as CaCO ₃	0	mg/L	Calculation	5/3/93
Aluminum, total	2.6	mg/L	EPA 6010	5/5/93
Boron, total	1.0	mg/L	EPA 6010	5/5/93
Calcium, total	740	mg/L	EPA 6010	5/5/93
Magnesium, total	226	mg/L	EPA 6010	5/5/93
Cobalt, total	< 0.01	mg/L	EPA 6010	5/5/93
Nickel, total	0.02	mg/L	EPA 6010	5/5/93
Potassium, total	51	mg/L	EPA 6010	5/5/93
Sodium, total	2840	mg/L	EPA 6010	5/5/93
Vanadium, total	0.01	mg/L	EPA 6010	5/5/93

EPA Method 8020
Aromatic Volatiles

Betz Laboratory ID D0430517
Client Identification OCD-5
Date Sampled 4/28/93
Date Analyzed 5/1/93
Analyst KS
PQL, ug/L 5

Analyte	Concentration, ug/L (Liquid)
Benzene	ND
Toluene	ND
Ethyl Benzene	ND
*Xylenes, total	ND

*2 times PQL



Sample Description: OCD-7
Date Sampled: 4/28/93

Laboratory ID: D0430516

TEST	VALUE	UNITS	METHOD	ANALYZED
M-Alkalinity, as CaCO ₃	630	mg/L	EPA 310.1	5/3/93
P-Alkalinity, as CaCO ₃	0	mg/L	EPA 310.1	5/3/93
Chloride, as Cl	1940	mg/L	EPA 9251	5/14/93
Fluoride, total	1.8	mg/L	EPA 340.2	5/5/93
Sulfate, as SO ₄	3150	mg/L	EPA 9038	5/4/93
Bicarbonate, alk as CaCO ₃	769	mg/L	Calculation	5/3/93
Carbonate, alk as CaCO ₃	0	mg/L	Calculation	5/3/93
Aluminum, total	3.4	mg/L	EPA 6010	5/5/93
Boron, total	0.53	mg/L	EPA 6010	5/5/93
Calcium, total	579	mg/L	EPA 6010	5/5/93
Magnesium, total	180	mg/L	EPA 6010	5/5/93
Cobalt, total	0.02	mg/L	EPA 6010	5/5/93
Nickel, total	0.05	mg/L	EPA 6010	5/5/93
Potassium, total	14	mg/L	EPA 6010	5/5/93
Sodium, total	1780	mg/L	EPA 6010	5/5/93
Vanadium, total	0.02	mg/L	EPA 6010	5/5/93

EPA Method 8020
Aromatic Volatiles

Betz Laboratory ID D0430516
Client Identification OCD-7
Date Sampled 4/28/93
Date Analyzed 5/3/93
Analyst KS
PQL, ug/L 5

Analyte Concentration, ug/L (Liquid)

Benzene	ND
Toluene	ND
Ethyl Benzene	ND
*Xylenes, total	ND

*2 times PQL

TELEPHONE
(505) 748-3311



REFINING COMPANY

501 EAST MAIN STREET • P.O. DRAWER 159

ARTESIA, NEW MEXICO 88210

EASYLINK
62905278
FAX
(505) 746-6410

March 19, 1993

Mr. William Olson, Hydrogeologist
Environmental Bureau
Oil Conservation Division
P.O. Box 2088
Santa Fe, NM 87504

Dear Bill:

Enclosed are the results of our yearly sampling of our effluent into the Evaporation Ponds. Previously we sent our semi-annual report on our monitor wells around the ponds, but the effluent analysis was not included in that report. If you have any questions please call me at 748-3311, extension 281.

Thanks,

Darrell Moore
Environmental Specialist

DGM/pb

enclosure

**BTEX
AROMATIC VOLATILE ORGANICS**

Client: **K.W. BROWN ENVIRONMENTAL SERVICES, INC.**
Project Name: Navajo Offsite H/C
Sample ID: Navajo Effluent
Sample Number: C930367
Sample Matrix: Water
Preservative: Cool, pH < 2
Condition: Intact

Report Date: 03/01/93
Date Sampled: 02/11/93
Date Received: 02/12/93
Date Analyzed: 02/24/93

Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Methyl tert-Butyl ether	ND	125
Benzene	267	25
Toluene	788	25
Ethylbenzene	253	25
m,p-Xylene	444	25
o-Xylene	232	25

Quality Control: Surrogate Percent Recovery Acceptance Limits
1-Chloro-2-Fluorobenzene 100% 75-125%

Reference: Method 5030, Purge and Trap
 Method 8020, Aromatic Volatile Organics
 SW-846, Test Methods for Evaluating Solid Wastes, United States Environmental
 Protection Agency, September 1986.

Comments:

Mary Hugginsbotham
Analyst

Ulonda M. Kof
Review

METHOD 8010
HALOGENATED VOLATILE ORGANICS

Client: **K.W. BROWN ENVIRONMENTAL SERVICES, INC.**
Project Name: Navajo Offsite H/C
Sample ID: Navajo Effluent
Sample Number: C930367
Sample Matrix: Water
Preservative: Cool, pH<2
Condition: Intact

Report Date: 03/02/93
Date Sampled: 02/11/93
Date Received: 02/12/93
Date Analyzed: 02/23/93

Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Bromodichloromethane	ND	2.5
Bromoform	ND	2.5
Bromomethane	ND	25
Carbon tetrachloride	ND	2.5
Chlorobenzene	ND	2.5
Chloroethane	ND	25
2-Chloroethylvinyl ether	ND	250
Chloroform	ND	2.5
Chloromethane	ND	25
Dibromochloromethane	ND	2.5
1,2-Dichlorobenzene	ND	2.5
1,3-Dichlorobenzene	ND	2.5
1,4-Dichlorobenzene	ND	2.5
Dichlorodifluoromethane	ND	25
1,1-Dichloroethane	ND	2.5
1,2-Dichloroethane	ND	2.5
1,1-Dichloroethene	ND	2.5
trans-1,2-Dichloroethene	ND	2.5
1,2-Dichloropropane	ND	2.5
cis-1,3-Dichloropropene	ND	2.5
trans-1,3-Dichloropropene	ND	2.5
Methylene Chloride	8.4 B	2.5
1,1,2,2-Tetrachloroethane	ND	2.5
Tetrachloroethene	ND	2.5
1,1,1-Trichloroethane	ND	2.5
1,1,2-Trichloroethane	ND	2.5
Trichloroethene	ND	2.5
Trichlorofluoromethane	ND	5.0
Vinyl chloride	ND	5.0

ND - Analyte not detected at stated detection limit

METHOD 8010
HALOGENATED VOLATILE ORGANICS
Page 2 - Quality Control

Client:	K.W. BROWN ENVIRONMENTAL SERVICES, INC.		
Project Name:	Navajo Offsite H/C	Report Date:	03/02/93
Sample ID:	Navajo Effluent	Date Sampled:	02/11/93
Sample Number:	C930367	Date Received:	02/12/93
Sample Matrix:	Water	Date Analyzed:	02/23/93
Preservative:	Cool, pH<2		
Condition:	Intact		

Quality Control:	<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
	Bromochloromethane	84%	75-125%
	1-Chloro-2-Fluorobenzene	73%	75-125%

Reference: Method 5030, Purge and Trap
Method 8010, Halogenated Volatile Organics
SW-846, Test Methods for Evaluating Solid Wastes, United States Environmental Protection Agency, September 1986.

Comments: B - Methylene Chloride is a common laboratory contaminant. Analytical results should not be considered reliable unless the sample result exceeds five times the reporting limit or ten times the blank concentration.

Mary Fitzsimmons
Analyst

Ulonda M. Log
Review

EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS

Client: **K. W. BROWN ENVIRONMENTAL SERVICES**
Project Name: Navajo Offsite H/C
Project Location: Artesia, NM
Project Number: 622092005
Sample ID: Navajo Effluent
Laboratory ID: C930367
Sample Matrix: Water
Condition: Cool, Lid Cracked

Report Date: 02/26/93
Date Sampled: 02/11/93
Date Received: 02/12/93
Date Extracted: 02/18/93
Date Analyzed: 02/25/93

Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Acenaphthene	ND	15
Acenaphthylene	ND	15
Anthracene	ND	15
Benzo(a)anthracene	ND	15
Benzo(b)fluoranthene	ND	15
Benzo(k)fluoranthene	ND	15
Benzo(g,h,i)perylene	ND	15
Benzo(a)pyrene	ND	15
bis(2-Chloroethoxy)methane	ND	15
bis(2-Chloroethyl)ether	ND	15
bis(2-Chloroisopropyl)ether	ND	15
bis(2-Ethylhexyl)phthalate	ND	40
4-Bromophenyl phenyl ether	ND	15
Butyl benzyl phthalate	ND	15
p - Chloroaniline	ND	15
2 - Chloronaphthalene	ND	15
4-Chlorophenyl phenyl ether	ND	15
Chrysene	ND	15
Di - n - butylphthalate	ND	40
Dibenz(a,h)anthracene	ND	15
Dibenzofuran	ND	15
o - Dichlorobenzene	ND	15
m - Dichlorobenzene	ND	15
p - Dichlorobenzene	ND	15
3,3' - Dichlorobenzidine	ND	15
Diethyl phthalate	ND	15
Dimethyl phthalate	ND	15

EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS (cont)

Client: **K. W. BROWN ENVIRONMENTAL SERVICES**
Project Name: Navajo Offsite H/C
Project Location: Artesia, NM
Project Number: 622092005
Sample ID: Navajo Effluent
Laboratory ID: C930367

Report Date: 02/26/93
Date Sampled: 02/18/93
Date Analyzed: 02/25/93

Analyte	Concentration (ug/L)	Detection Limit (ug/L)
3,3' - Dichlorobenzidine	ND	15
Diethyl phthalate	ND	15
Dimethyl phthalate	ND	15
2,4 - Dinitrotoluene	ND	15
2,6 - Dinitrotoluene	ND	15
Di - n - octyl phthalate	ND	40
Fluoranthene	ND	15
Fluorene	ND	15
Hexachlorobenzene	ND	15
Hexachlorocyclopentadiene	ND	40
Hexachloroethane	ND	15
Hexachlorobutadiene	ND	15
Ideno(1,2,3-cd)pyrene	ND	15
Isophorone	ND	15
1 - Methyl naphthalene	31	15
2 - Methyl naphthalene	29	15
Naphthalene	29	15
o - Nitroaniline	ND	15
m - Nitroaniline	ND	15
p - Nitroaniline	ND	15
Nitrobenzene	ND	15
n - Nitrosodimethylamine	ND	15
n - Nitrosodiphenylamine	ND	15
n-Nitroso-di-n-propylamine	ND	15
Phenanthrene	ND	15
Pyrene	ND	15
1,2,4 - Trichlorobenzene	ND	15

ND - Analyte not detected at stated limit of detection

EPA Method 8270
SEMIVOLATILE HYDROCARBONS
ADDITIONAL DETECTED COMPOUNDS

Client: **K. W. BROWN ENVIRONMENTAL SERVICES**
Project Name: Navajo Offsite H/C
Project Location: Artesia, NM
Project Number: 622092005
Sample ID: Navajo Effluent
Laboratory ID: C930367

Report Date: 02/26/93
Date Sampled: 02/18/93
Date Analyzed: 02/25/93

Tentative Identification	Retention Time (Minutes)	Concentration (ug/L)
2,4 - Dimethylphenol	12.86	240
2 - Methylphenol	11.22	750 J
4 - Methylphenol	11.67	1600 J
Phenol	9.90	1900 J
Unknown Hydrocarbon	11.67	190 *
Unknown Hydrocarbon	13.19	62 *
Hydrocarbon Envelope	6 - 22	
Sulfur Envelope	22 - 32	

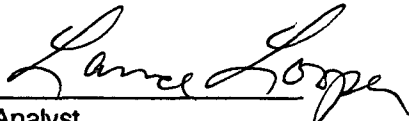
* - Concentration calculated using assumed Relative Response Factor = 1
J - Estimated concentration, above calibration range

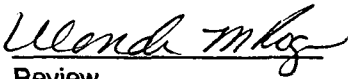
Quality Control:

<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
2 - Fluorophenol	67%	21 - 100%
Phenol - d5	58%	10 - 110%
Nitrobenzene - d5	61%	35 - 114%
2 - Fluorobiphenyl	76%	43 - 116%
2,4,6 - Tribromophenol	80%	10 - 123%
Terphenyl - d14	67%	33 - 141%

References: Method 3510: Separatory Funnel Liquid - Liquid Extraction
Method 8270: Gas Chromatography / Mass Spectrometry for Semivolatile Organics
Test Methods for Evaluating Solid Wastes, SW - 846, United States Environmental
Protection Agency, September 1986.

Comments:


Analyst


Review

**WATER QUALITY REPORT
TRACE METALS**

CLIENT: K.W. BROWN ENVIRONMENTAL SERVICES
PROJECT: NAVAJO - #622092005

Sample ID: Navajo Effluent
Laboratory Number: C930367/W00731
Sample Matrix: WATER
Preservative: HNO₃, COOL
Condition: INTACT

Report Date: 03/05/93
Date Sampled: 02/11/93
Date Received: 02/16/93
Date Extracted: 02/18/93

Analyte	Concentration	Units	Detection Limit	Method Reference
Total Aluminum	1.4	mg/L	0.1	6010
Total Arsenic	0.042	mg/L	0.005	7061
Total Barium	ND	mg/L	0.05	6010
Total Boron	2.09	mg/L	0.05	6010
Total Cadmium	ND	mg/L	0.01	6010
Total Chromium	0.04	mg/L	0.02	6010
Total Cobalt	ND	mg/L	0.02	6010
Total Copper	ND	mg/L	0.01	6010
Total Iron	0.37	mg/L	0.05	6010
Total Manganese	0.11	mg/L	0.02	6010
Total Molybdenum	ND	mg/L	0.05	6010
Total Lead	ND	mg/L	0.01	7421
Total Mercury	ND	mg/L	0.002	7470
Total Nickel	ND	mg/L	0.01	6010
Total Selenium	0.133	mg/L	0.05	7741
Total Silver	ND	mg/L	0.01	6010
Total Zinc	0.12	mg/L	0.01	6010

ND - Parameter not detected at stated detection limit.

Detection limits are derived from practical quantitation levels.

REFERENCE: Analysis performed according to SW-846 "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods," United States Environmental Protection Agency, November, 1986.

Reviewed by:

Mitch Swan
Supervisor--Water Operations

**WATER QUALITY REPORT
GENERAL CHEMISTRY**

CLIENT: K.W. BROWN ENVIRONMENTAL SERVICES
PROJECT: NAVAJO - #622092005

Sample ID: Navajo Effluent
Laboratory Number: C930367/W00731
Sample Matrix: WATER
Preservative: COOL
Condition: INTACT

Report Date: 03/05/93
Date Sampled: 02/11/93
Date Received: 02/16/93

Analyte	Concentration	Units	Detection Limit	Method Reference
pH	8.9	s.u.	0.1	SW-846 9040
Conductivity	9300.	umhos/cm	1.	SW-846 9050
Calcium	21.	mg/L	1.	SW-846 6010
Magnesium	55.	mg/L	1.	SW-846 6010
Potassium	22.	mg/L	1.	SW-846 6010
Sodium	1290.	mg/L	1.	SW-846 6010
Total Alkalinity	829.	mg/L	1.	EPA 310.1
Chloride	1920.	mg/L	1.	SW-846 9251
Sulfate	1034.	mg/L	1.	EPA 375.3
Fluoride	151.	mg/L	0.1	EPA 340.2
Total Dissolved Solids	7348.	mg/L	10.	EPA 160.1

ND - Parameter not detected at stated detection limit.
Detection limits are derived from practical quantitation levels.

REFERENCE: SW-846 - "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods," United States Environmental Protection Agency, November, 1986.

EPA - "Methods for Chemical Analysis of Water and Wastes," US EPA, EPA 600/4-79-020, Revised March 1983.

Reviewed by:

Mitch Swan

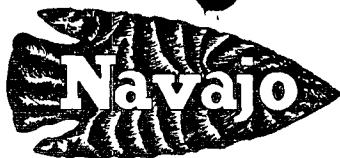
Supervisor--Water Operations

CHAIN OF CUSTODY RECORD

Client/Project Name		Project Location		ANALYSES / PARAMETERS	
Navajo OFFSITE H/C		ARTESIA NM			
Sampler: (Signature) <i>W.H. Roop</i>		Chain of Custody Tape No. Hand delivered		Remarks	
Sample No./ Identification	Date	Time	Lab Number	Matrix	No. of Containers
Navajo Effluent 2/11/93	2/11/93	1145	C930367	Water	5
Water Well RA2023	2/11/93	1230	C930368	"	2
Travel Blank			C930369	"	
<i>W.H. Roop</i>					
Notes: ① Call to confirm metals to be tested for. ② Major Contaminants + Fluoride Phone 690-9280					
Relinquished by: (Signature) <i>W.H. Roop</i>		Date 2/12/93	Time 5:30 PM	Received by: (Signature) <i>Wanda M. Roop</i>	Date 2/12/93
Relinquished by: (Signature)		Date	Time	Received by: (Signature)	Date
Relinquished by: (Signature)		Date	Time	Received by: (Signature)	Date
Inter-Mountain Laboratories, Inc.					8700

☐ 1633 Terra Avenue
Sheridan, Wyoming 82801
Telephone (307) 672-8945
 ☐ 1714 Phillips Circle
Gillette, Wyoming 82716
Telephone (307) 682-8945
 ☐ 2506 West Main Street
Farmington, NM 87401
Telephone (505) 326-4737
 ☐ 910 Technology Blvd. Suite B
Bozeman, Montana 59715
Telephone (406) 586-8450
 ☐ 3304 Longmire Drive
College Station, TX 77845
Telephone (409) 774-4999

TELEPHONE
(505) 748-3311



REFINING COMPANY

501 EAST MAIN STREET • P. O. DRAWER 159

ARTESIA, NEW MEXICO 88210

EASYLINK
62905278

FAX
(505) 746-6410

NEW MEXICO OIL CONSERVATION DIVISION
RECEIVED

OCT 4 11 09 18

February 1, 1993

Mr. Roger Anderson
New Mexico Oil Conservation Division
Land Office Building
P O Box 2088
Santa Fe NM 87501

RE: FALL 1992 REPORT - GROUNDWATER SAMPLING AROUND EVAPORATION
PONDS

Dear Roger:

Enclosed are results from our Fall 1992 sampling. This is on a staggered schedule per your letter of October 21, 1991. If there are any questions concerning this report, please contact me at 505-748-3311.

Respectfully yours,

Darrell Moore
Environmental Specialist

DGM/kds

Enclosure

EPA Method 8240
VOLATILE ORGANIC COMPOUNDS

Client: **K.W. BROWN ENVIRONMENTAL SERVICES, INC.**
Project Name: Navajo Refinery
Project Location: Artesia, NM
Project Number: 622092005
Sample ID: NEP-GW-MW-1
Laboratory ID: C922278
Sample Matrix: Water
Condition: Cool, intact

Report Date: 11/18/92
Date Sampled: 11/10/92
Date Received: 11/12/92
Date Extracted: 11/12/92
Date Analyzed: 11/12/92

Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Acetone	ND	10
Benzene	ND	5
Bromodichloromethane	ND	5
Bromoform	ND	5
Bromomethane	ND	5
2-Butanone (MEK)	ND	10
Carbon disulfide	ND	5
Carbon tetrachloride	ND	5
Chlorobenzene	ND	5
Chloroethane	ND	10
2-Chloroethyl vinyl ether	ND	50
Chloroform	ND	5
Chloromethane	ND	10
Dibromochloromethane	ND	5
1,1-Dichloroethane	ND	5
1,1-Dichloroethene	ND	5
trans-1,2-Dichloroethene	ND	5
1,2-Dichloroethane	ND	5
1,2-Dichloropropane	ND	5
cis-1,3-Dichloropropene	ND	5
trans-1,3-Dichloropropene	ND	5
Ethylbenzene	ND	5
2-Hexanone	ND	5
Methylene chloride	ND	5
4-Methyl-2-pentanone	ND	5
Styrene	ND	5
1,1,2,2-Tetrachloroethane	ND	5
Tetrachloroethene	ND	5
Toluene	ND	5
1,1,1-Trichloroethane	ND	5
1,1,2-Trichloroethane	ND	5
Trichloroethene	ND	5
Vinyl acetate	ND	5
Vinyl chloride	ND	5
Xylenes (total)	ND	5

ND - Analyte not detected at stated limit of detection

EPA Method 8240

VOLATILE ORGANIC COMPOUNDS

ADDITIONAL DETECTED COMPOUNDS

Client: K.W. BROWN ENVIRONMENTAL SERVICES, INC.
Project Name: Navajo Refinery
Project Location: Artesia, NM
Project Number: 622092005
Sample ID: NEP-GW-MW-1
Laboratory ID: C922278

Report Date: 11/18/92
Date Sampled: 11/10/92
Date Analyzed: 11/12/92

Tentative Identification	Retention Time (Minutes)	Concentration (ug/L)
Unknown hydrocarbon	18.04	25 *

* - Concentration calculated using assumed Relative Response Factor = 1

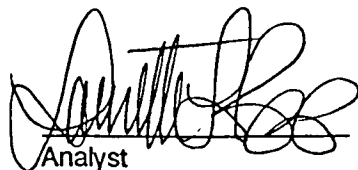
Quality Control:

<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Water Acceptance Limits</u>
1,2-Dichloroethane-d4	90%	76 - 114%
Toluene-d8	103%	88 - 110%
Bromofluorobenzene	99%	86 - 115%

Reference:

Method 8240: Gas Chromatography / Mass Spectrometry for Volatile Organics
Test Methods for Evaluating Solid Wastes, SW - 846, United States Environmental Protection Agency, September 1986.

Comments:


Analyst


Review

EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS

Client: **K. W. BROWN ENVIRONMENTAL SERVICES**
 Project Name: Navajo Refinery
 Project Location: Artesia, NM
 Project Number: 622092005
 Sample ID: NEP - GW - MW - 1
 Laboratory ID: C922278
 Sample Matrix: Water
 Condition: Cool, Intact

Report Date: 12/31/92
 Date Sampled: 11/10/92
 Date Received: 11/12/92
 Date Extracted: 11/13/92
 Date Analyzed: 11/13/92

Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Acenaphthene	ND	10
Acenaphthylene	ND	10
Anthracene	ND	10
Benzo(a)anthracene	ND	10
Benzo(b)fluoranthene	ND	10
Benzo(k)fluoranthene	ND	10
Benzo(g,h,i)perylene	ND	10
Benzo(a)pyrene	ND	10
Benzoic acid	ND	10
Benzyl alcohol	ND	10
bis(2-Chloroethoxy)methane	ND	10
bis(2-Chloroethyl)ether	ND	10
bis(2-Chloroisopropyl)ether	ND	10
bis(2-Ethylhexyl)phthalate	ND	25
4-Bromophenyl phenyl ether	ND	10
Butyl benzyl phthalate	ND	10
p - Chloroaniline	ND	10
p - Chloro - m - cresol	ND	10
2 - Chloronaphthalene	ND	10
2 - Chlorophenol	ND	10
4-Chlorophenyl phenyl ether	ND	10
Chrysene	ND	10
o - Cresol / 2 - Methylphenol	ND	10
p - Cresol / 4 - Methylphenol	ND	10
Di - n - butylphthalate	ND	25
Dibenz(a,h)anthracene	ND	10
Dibenzofuran	ND	10
o - Dichlorobenzene	ND	10
m - Dichlorobenzene	ND	10
p - Dichlorobenzene	ND	10
3,3' - Dichlorobenzidine	ND	10
2,4 - Dichlorophenol	ND	10
Diethyl phthalate	ND	10
2,4 - Dimethylphenol	ND	10
Dimethyl phthalate	ND	10

EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS (cont)

Client: **K. W. BROWN ENVIRONMENTAL SERVICES**
Project Name: Navajo Refinery
Project Location: Artesia, NM
Project Number: 622092005
Sample ID: NEP - GW - MW - 1
Laboratory ID: C922278

Report Date: 12/31/92
Date Sampled: 11/10/92
Date Analyzed: 11/13/92

Analyte	Concentration (ug/L)	Detection Limit (ug/L)
4,6 - Dinitro - o - cresol	ND	25
2,4 - Dinitrophenol	ND	25
2,4 - Dinitrotoluene	ND	10
2,6 - Dinitrotoluene	ND	10
Di - n - octyl phthalate	ND	25
Fluoranthene	ND	10
Fluorene	ND	10
Hexachlorobenzene	ND	10
Hexachlorocyclopentadiene	ND	25
Hexachloroethane	ND	10
Hexachlorobutadiene	ND	10
Ideno(1,2,3-cd)pyrene	ND	10
Isophorone	ND	10
2 - Methyl naphthalene	ND	10
Naphthalene	ND	10
o - Nitroaniline	ND	10
m - Nitroaniline	ND	10
p - Nitroaniline	ND	10
Nitrobenzene	ND	10
o - Nitrophenol	ND	10
p - Nitrophenol	ND	10
n - Nitrosodimethylamine	ND	10
n - Nitrosodiphenylamine	ND	10
n-Nitroso-di-n-propylamine	ND	10
Pentachlorophenol	ND	25
Phenanthrene	ND	10
Phenol	ND	10
Pyrene	ND	10
1,2,4 - Trichlorobenzene	ND	10
2,4,5 - Trichlorophenol	ND	10
2,4,6 - Trichlorophenol	ND	10

ND - Analyte not detected at stated limit of detection

EPA Method 8270
SEMIVOLATILE HYDROCARBONS
ADDITIONAL DETECTED COMPOUNDS

Client: **K. W. BROWN ENVIRONMENTAL SERVICES**

Project Name: Navajo Refinery

Project Location: Artesia, NM

Project Number: 622092005

Sample ID: NEP - GW - MW - 1

Laboratory ID: C922278

Report Date: 12/31/92

Date Sampled: 11/10/92

Date Analyzed: 11/13/92

Tentative Identification	Retention Time (Minutes)	Concentration* (ug/L)
Unknown Hydrocarbon	3.93	10
Unknown Hydrocarbon	11.22	39

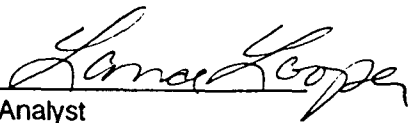
* - Concentration calculated using assumed Relative Response Factor = 1

Quality Control:

<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
2 - Fluorophenol	65%	21 - 100%
Phenol - d5	94%	10 - 110%
Nitrobenzene - d5	76%	35 - 114%
2 - Fluorobiphenyl	82%	43 - 116%
2,4,6 - Tribromophenol	99%	10 - 123%
Terphenyl - d14	95%	33 - 141%

References: Method 3510: Separatory Funnel Liquid - Liquid Extraction
Method 8270: Gas Chromatography / Mass Spectrometry for Semivolatile Organics
Test Methods for Evaluating Solid Wastes, SW - 846, United States Environmental Protection Agency, September 1986.

Comments:


Analyst


Review

**WATER QUALITY REPORT
GENERAL CHEMISTRY**

CLIENT: K.W. BROWN ENVIRONMENTAL SERVICES
PROJECT: NAVAJO - #622092005

Sample ID: C922278/15632
Laboratory Number: NEP-GW-MW-1
Sample Matrix: WATER
Preservative: COOL
Condition: INTACT

Report Date: 12/24/92
Date Sampled: 11/10/92
Date Received: 11/12/92

Analyte	Concentration	Units	Detection Limit	Method Reference
pH	7.5	s.u.	0.1	SW-846 9040
Conductivity	14900.	umhos/cm	1.	SW-846 9050
Calcium	764.	mg/L	1.	SW-846 6010
Magnesium	480.	mg/L	0.1	SW-846 6010
Potassium	14.	mg/L	0.1	SW-846 6010
Sodium	2130.	mg/L	1.	SW-846 6010
Total Alkalinity	406.	mg/L	1.	EPA 310.1
Chloride	3750.	mg/L	1.	SW-846 9251
Sulfate	3020.	mg/L	1.	EPA 375.3
Fluoride	1.1	mg/L	0.1	EPA 340.2
Total Dissolved Solids	11200.	mg/L	10.	EPA 160.1

ND - Parameter not detected at stated detection limit.

Detection limits are derived from practical quantitation levels.

REFERENCE: SW-846 - "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods," United States Environmental Protection Agency, November, 1986.

EPA - "Methods for Chemical Analysis of Water and Wastes," US EPA, EPA 600/4-79-020, Revised March 1983.

Reviewed by:

Mitch Swan

Supervisor-Water Operations

**WATER QUALITY REPORT**
GETRACE METALS**CLIENT: K.W. BROWN ENVIRONMENTAL SERVICES**
PROJECT: NAVAJO - #622092005**Sample ID:** NEP-GW-MW-1
Laboratory Number: C922278/15632
Sample Matrix: WATER
Preservative: HNO₃, COOL
Condition: INTACT**Report Date:** 12/24/92
Date Sampled: 11/10/92
Date Received: 11/12/92
Date Extracted: 11/13/92

Analyte	Concentration	Units	Detection Limit	Method Reference
Total Arsenic	0.020	mg/L	0.005	7061
Dissolved Arsenic	ND	mg/L	0.005	7061
Total Chromium	3.65 ¹⁰⁵	mg/L	0.02	7190
Dissolved Chromium	ND	mg/L	0.02	7191
Total Lead	ND	mg/L	0.02	7421
Dissolved Lead	ND	mg/L	0.02	7421
Total Nickel	0.35	mg/L	0.01	7520
Dissolved Nickel	0.20	mg/L	0.01	7520

ND - Parameter not detected at stated detection limit.

Detection limits are derived from practical quantitation levels.

REFERENCE: Analysis performed according to SW-846 "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods," United States Environmental Protection Agency, November, 1986.

Reviewed by:

Mitch Swan

Supervisor-Water Operations

EPA Method 8240
VOLATILE ORGANIC COMPOUNDS

Client: **K.W. BROWN ENVIRONMENTAL SERVICES, INC.**
 Project Name: Navajo Refinery
 Project Location: Artesia, NM
 Project Number: 622092005
 Sample ID: NEP-GW-MW-1-02 (Duplicate) *pg 2*
 Laboratory ID: C922279
 Sample Matrix: Water
 Condition: Cool, intact

Report Date: 11/18/92
 Date Sampled: 11/11/92
 Date Received: 11/12/92
 Date Extracted: 11/12/92
 Date Analyzed: 11/12/92

Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Acetone	ND	10
Benzene	ND	5
Bromodichloromethane	ND	5
Bromoform	ND	5
Bromomethane	ND	5
2-Butanone (MEK)	ND	10
Carbon disulfide	ND	5
Carbon tetrachloride	ND	5
Chlorobenzene	ND	5
Chloroethane	ND	10
2-Chloroethyl vinyl ether	ND	50
Chloroform	ND	5
Chloromethane	ND	10
Dibromochloromethane	ND	5
1,1-Dichloroethane	ND	5
1,1-Dichloroethene	ND	5
trans-1,2-Dichloroethene	ND	5
1,2-Dichloroethane	ND	5
1,2-Dichloropropane	ND	5
cis-1,3-Dichloropropene	ND	5
trans-1,3-Dichloropropene	ND	5
Ethylbenzene	ND	5
2-Hexanone	ND	5
Methylene chloride	ND	5
4-Methyl-2-pentanone	ND	5
Styrene	ND	5
1,1,2,2-Tetrachloroethane	ND	5
Tetrachloroethene	ND	5
Toluene	ND	5
1,1,1-Trichloroethane	ND	5
1,1,2-Trichloroethane	ND	5
Trichloroethene	ND	5
Vinyl acetate	ND	5
Vinyl chloride	ND	5
Xylenes (total)	ND	5

ND - Analyte not detected at stated limit of detection

EPA Method 8240

Page 2

VOLATILE ORGANIC COMPOUNDS
ADDITIONAL DETECTED COMPOUNDS

Client: **K.W. BROWN ENVIRONMENTAL SERVICES, INC.**
Project Name: Navajo Refinery
Project Location: Artesia, NM
Project Number: 622092005
Sample ID: NEP-GW-MW-1-02 *Duplicate ARB*
Laboratory ID: C922279

Report Date: 11/18/92
Date Sampled: 11/11/92
Date Analyzed: 11/12/92

Tentative Identification	Retention Time (Minutes)	Concentration (ug/L)
Unknown hydrocarbon	18.03	28 *

* - Concentration calculated using assumed Relative Response Factor = 1

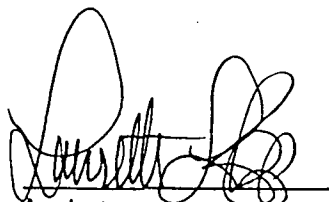
Quality Control:

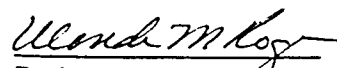
Surrogate	Percent Recovery	Water Acceptance Limits
1,2-Dichloroethane-d4	90%	76 - 114%
Toluene-d8	104%	88 - 110%
Bromofluorobenzene	101%	86 - 115%

Reference:

Method 8240: Gas Chromatography / Mass Spectrometry for Volatile Organics
Test Methods for Evaluating Solid Wastes, SW - 846, United States Environmental Protection Agency, September 1986.

Comments:


Analyst


Review

**WATER QUALITY REPORT
TRACE METALS**

CLIENT: K.W. BROWN ENVIRONMENTAL SERVICES
PROJECT: NAVAJO - #622092005

Sample ID: NEP-GW-OCD-8
Laboratory Number: C922393/15723
Sample Matrix: WATER
Preservative: HNO3, COOL
Condition: INTACT

Report Date: 12/31/92
Date Sampled: 11/17/92
Date Received: 11/23/92
Date Extracted: 11/30/92

Analyte	Concentration	Units	Detection Limit	Method Reference
Total Arsenic	0.032	mg/L	0.005	7061
Dissolved Arsenic	0.019	mg/L	0.005	7061
Total Chromium	ND	mg/L	0.02	7191
Dissolved Chromium	ND	mg/L	0.02	7191
Total Lead	ND	mg/L	0.02	7421
Dissolved Lead	ND	mg/L	0.02	7421
Total Nickel	0.12	mg/L	0.01	7520
Dissolved Nickel	0.11	mg/L	0.01	7520

ND - Parameter not detected at stated detection limit.

Detection limits are derived from practical quantitation levels.

REFERENCE: Analysis performed according to SW-846 "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods," United States Environmental Protection Agency, November, 1986.

Reviewed by:

Mitch Swan

Supervisor-Water Operations

**WATER QUALITY REPORT
GENERAL CHEMISTRY**

CLIENT: K.W. BROWN ENVIRONMENTAL SERVICES
PROJECT: NAVAJO - #622092005

Sample ID: NEP-GW-OCD-8
Laboratory Number: C922393/15723
Sample Matrix: WATER
Preservative: COOL
Condition: INTACT

Report Date: 12/31/92
Date Sampled: 11/17/92
Date Received: 11/23/92

Analyte	Concentration	Units	Detection Limit	Method Reference
pH	7.0	s.u.	0.1	SW-846 9040
Conductivity	12400.	umhos/cm	1.	SW-846 9050
Calcium	633.	mg/L	1.	EPA 215.2
Magnesium	308.	mg/L	0.1	SW-846 6010
Potassium	11.	mg/L	0.1	SW-846 6010
Sodium	1930.	mg/L	1.	SW-846 6010
Total Alkalinity	434.	mg/L	1.	EPA 310.1
Chloride	2290.	mg/L	1.	SW-846 9251
Sulfate	3620.	mg/L	1.	EPA 375.3
Fluoride	2.5	mg/L	0.1	EPA 340.2
Total Dissolved Solids	9670.	mg/L	10.	EPA 160.1

ND - Parameter not detected at stated detection limit.

Detection limits are derived from practical quantitation levels.

REFERENCE: SW-846 - "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods," United States Environmental Protection Agency, November, 1986.

EPA - "Methods for Chemical Analysis of Water and Wastes," US EPA, EPA 600/4-79-020, Revised March 1983.

Reviewed by:

Mitch Swan

Supervisor-Water Operations

EPA Method 8240
VOLATILE ORGANIC COMPOUNDS

Client: **K.W. BROWN ENVIRONMENTAL SERVICES, INC.**
Project Name: Navajo Refinery
Project Location: Artesia, NM
Project Number: 622092005
Sample ID: NEP-GW-MW-2
Laboratory ID: C922280
Sample Matrix: Water
Condition: Cool, intact

Report Date: 11/18/92
Date Sampled: 11/10/92
Date Received: 11/12/92
Date Extracted: 11/13/92
Date Analyzed: 11/13/92

Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Acetone	ND	10
Benzene	ND	5
Bromodichloromethane	ND	5
Bromoform	ND	5
Bromomethane	ND	5
2-Butanone (MEK)	ND	10
Carbon disulfide	ND	5
Carbon tetrachloride	ND	5
Chlorobenzene	ND	5
Chloroethane	ND	10
2-Chloroethyl vinyl ether	ND	50
Chloroform	ND	5
Chloromethane	ND	10
Dibromochloromethane	ND	5
1,1-Dichloroethane	ND	5
1,1-Dichloroethene	ND	5
trans-1,2-Dichloroethene	ND	5
1,2-Dichloroethane	ND	5
1,2-Dichloropropane	ND	5
cis-1,3-Dichloropropene	ND	5
trans-1,3-Dichloropropene	ND	5
Ethylbenzene	ND	5
2-Hexanone	ND	5
Methylene chloride	ND	5
4-Methyl-2-pentanone	ND	5
Styrene	ND	5
1,1,2,2-Tetrachloroethane	ND	5
Tetrachloroethene	ND	5
Toluene	ND	5
1,1,1-Trichloroethane	ND	5
1,1,2-Trichloroethane	ND	5
Trichloroethene	ND	5
Vinyl acetate	ND	5
Vinyl chloride	ND	5
Xylenes (total)	ND	5

ND - Analyte not detected at stated limit of detection

EPA Method 8240

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VOLATILE ORGANIC COMPOUNDS
ADDITIONAL DETECTED COMPOUNDS

Client: **K.W. BROWN ENVIRONMENTAL SERVICES, INC.**
Project Name: Navajo Refinery
Project Location: Artesia, NM
Project Number: 622092005
Sample ID: NEP-GW-MW-2
Laboratory ID: C922280

Report Date: 11/18/92
Date Sampled: 11/10/92
Date Analyzed: 11/13/92

Tentative Identification	Retention Time (Minutes)	Concentration (ug/L)
Methyl tert-Butyl ether	5.35	15
Unknown hydrocarbon	17.10	26 *
Unknown hydrocarbon	18.66	22 *
Unknown hydrocarbon	19.77	39 *
Unknown hydrocarbon	21.35	35 *
Unknown hydrocarbon	21.80	14 *
Unknown hydrocarbon	21.90	26 *
Unknown hydrocarbon	22.45	24 *
Unknown hydrocarbon	22.97	16 *

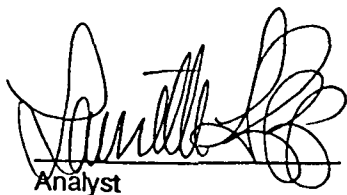
* - Concentration calculated using assumed Relative Response Factor = 1

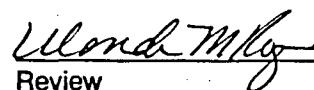
Quality Control:

<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Water Acceptance Limits</u>
1,2-Dichloroethane-d4	94%	76 - 114%
Toluene-d8	102%	88 - 110%
Bromofluorobenzene	101%	86 - 115%

Reference: Method 8240: Gas Chromatography / Mass Spectrometry for Volatile Organics
Test Methods for Evaluating Solid Wastes, SW - 846, United States Environmental
Protection Agency, September 1986.

Comments:


Analyst


Review

EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS

Client: **K. W. BROWN ENVIRONMENTAL SERVICES**
 Project Name: **Navajo Refinery**
 Project Location: **Artesia, NM**
 Project Number: **622092905**
 Sample ID: **NEP - GW - MW - 2**
 Laboratory ID: **C922280**
 Sample Matrix: **Water**
 Condition: **Cool, Intact**

Report Date: **12/31/92**
 Date Sampled: **11/10/92**
 Date Received: **11/12/92**
 Date Extracted: **11/13/92**
 Date Analyzed: **11/16/92**

Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Acenaphthene	ND	10
Acenaphthylene	ND	10
Anthracene	ND	10
Benzo(a)anthracene	ND	10
Benzo(b)fluoranthene	ND	10
Benzo(k)fluoranthene	ND	10
Benzo(g,h,i)perylene	ND	10
Benzo(a)pyrene	ND	10
Benzoic acid	ND	10
Benzyl alcohol	ND	10
bis(2-Chloroethoxy)methane	ND	10
bis(2-Chloroethyl)ether	ND	10
bis(2-Chloroisopropyl)ether	ND	10
bis(2-Ethylhexyl)phthalate	ND	25
4-Bromophenyl phenyl ether	ND	10
Butyl benzyl phthalate	ND	10
p - Chloroaniline	ND	10
p - Chloro - m - cresol	ND	10
2 - Chloronaphthalene	ND	10
2 - Chlorophenol	ND	10
4-Chlorophenyl phenyl ether	ND	10
Chrysene	ND	10
o - Cresol / 2 - Methylphenol	ND	10
p - Cresol / 4 - Methylphenol	ND	10
Di - n - butylphthalate	ND	25
Dibenz(a,h)anthracene	ND	10
Dibenzofuran	ND	10
o - Dichlorobenzene	ND	10
m - Dichlorobenzene	ND	10
p - Dichlorobenzene	ND	10
3,3' - Dichlorobenzidine	ND	10
2,4 - Dichlorophenol	ND	10
Diethyl phthalate	ND	10
2,4 - Dimethylphenol	ND	10
Dimethyl phthalate	ND	10

SEMIVOLATILE ORGANIC COMPOUNDS
SEMIVOLATILE ORGANIC COMPOUNDS (cont)

Client: **K. W. BROWN ENVIRONMENTAL SERVICES**
Project Name: Navajo Refinery
Project Location: Artesia, NM
Project Number: 622092005
Sample ID: NEP - GW - MW - 2
Laboratory ID: C922280

Report Date: 12/31/92
Date Sampled: 11/10/92
Date Analyzed: 11/13/92

Analyte	Concentration (ug/L)	Detection Limit (ug/L)
4,6 - Dinitro - o - cresol	ND	25
2,4 - Dinitrophenol	ND	25
2,4 - Dinitrotoluene	ND	10
2,6 - Dinitrotoluene	ND	10
Di - n - octyl phthalate	ND	25
Fluoranthene	ND	10
Fluorene	ND	10
Hexachlorobenzene	ND	10
Hexachlorocyclopentadiene	ND	25
Hexachloroethane	ND	10
Hexachlorobutadiene	ND	10
Ideno(1,2,3-cd)pyrene	ND	10
Isophorone	ND	10
2 - Methyl naphthalene	ND	10
Naphthalene	ND	10
o - Nitroaniline	ND	10
m - Nitroaniline	ND	10
p - Nitroaniline	ND	10
Nitrobenzene	ND	10
o - Nitrophenol	ND	10
p - Nitrophenol	ND	10
n - Nitrosodimethylamine	ND	10
n - Nitrosodiphenylamine	ND	10
n-Nitroso-di-n-propylamine	ND	10
Pentachlorophenol	ND	25
Phenanthrene	ND	10
Phenol	ND	10
Pyrene	ND	10
1,2,4 - Trichlorobenzene	ND	10
2,4,5 - Trichlorophenol	ND	10
2,4,6 - Trichlorophenol	ND	10

ND - Analyte not detected at stated limit of detection

EPA Method 8270
SEMIVOLATILE HYDROCARBONS
ADDITIONAL DETECTED COMPOUNDS

Client: **K. W. BROWN ENVIRONMENTAL SERVICES**
Project Name: Navajo Refinery
Project Location: Artesia, NM
Project Number: 622092005
Sample ID: NEP - GW - MW - 2
Laboratory ID: C922280

Report Date: 12/31/92
Date Sampled: 11/10/92
Date Analyzed: 11/13/92

Tentative Identification	Retention Time (Minutes)	Concentration* (ug/L)
Unknown Hydrocarbon	8.99	44
Unknown Hydrocarbon	10.75	13
Hydrocarbon Envelope	7 - 28	

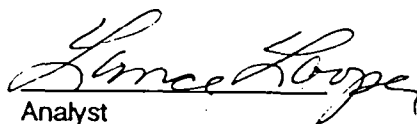
* - Concentration calculated using assumed Relative Response Factor = 1

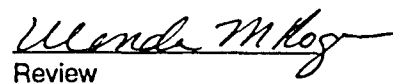
Quality Control:

<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
2 - Fluorophenol	66%	21 - 100%
Phenol - d5	102%	10 - 110%
Nitrobenzene - d5	77%	35 - 114%
2 - Fluorobiphenyl	82%	43 - 116%
2,4,6 - Tribromophenol	98%	10 - 123%
Terphenyl - d14	79%	33 - 141%

References: Method 3510: Separatory Funnel Liquid - Liquid Extraction
Method 8270: Gas Chromatography / Mass Spectrometry for Semivolatile Organics
Test Methods for Evaluating Solid Wastes, SW - 846, United States Environmental
Protection Agency, September 1986.

Comments:


Analyst


Review



Phone (409) 776-8945 FAX (409) 774-4705

Inter-Mountain Laboratories, Inc.

11183 SH 30 College Station, Texas 77845

WATER QUALITY REPORT

GENERAL CHEMISTRY

CLIENT: K.W. BROWN ENVIRONMENTAL SERVICES
PROJECT: NAVAJO - #622092005

Sample ID: NEP-GW-MW-2
Laboratory Number: C922280/15633
Sample Matrix: WATER
Preservative: COOL
Condition: INTACT

Report Date: 12/24/92
Date Sampled: 11/10/92
Date Received: 11/12/92

Analyte	Concentration	Units	Detection Limit	Method Reference
pH	7.4	s.u.	0.1	SW-846 9040
Conductivity	11300.	umhos/cm	1.	SW-846 9050
Calcium	573.	mg/L	1.	SW-846 6010
Magnesium	134.	mg/L	0.1	SW-846 6010
Potassium	14.	mg/L	0.1	SW-846 6010
Sodium	2170.	mg/L	1.	SW-846 6010
Total Alkalinity	523.	mg/L	1.	EPA 310.1
Chloride	2120.	mg/L	1.	SW-846 9251
Sulfate	3180.	mg/L	1.	EPA 375.3
Fluoride	9.9	mg/L	0.1	EPA 340.2
Total Dissolved Solids	8430.	mg/L	10.	EPA 160.1

ND - Parameter not detected at stated detection limit.

Detection limits are derived from practical quantitation levels.

REFERENCE: SW-846 - "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods," United States Environmental Protection Agency, November, 1986.

EPA - "Methods for Chemical Analysis of Water and Wastes," US EPA, EPA 600/4-79-020, Revised March 1983.

Reviewed by:

Mitch Swan

Supervisor-Water Operations

**WATER QUALITY REPORT**
TRACE METALS**CLIENT: K.W. BROWN ENVIRONMENTAL SERVICES**
PROJECT: NAVAJO - #622092005**Sample ID:** NEP-GW-MW-2
Laboratory Number: C922280/15633
Sample Matrix: WATER
Preservative: HNO₃, COOL
Condition: INTACT**Report Date:** 12/24/92
Date Sampled: 11/10/92
Date Received: 11/12/92
Date Extracted: 11/13/92

Analyte	Concentration	Units	Detection Limit	Method Reference
Total Arsenic	0.087	mg/L	0.005	7061
Dissolved Arsenic	0.073	mg/L	0.005	7061
Total Chromium	0.10	mg/L	0.02	7190
Dissolved Chromium	ND	mg/L	0.02	7191
Total Lead	ND	mg/L	0.02	7421
Dissolved Lead	ND	mg/L	0.02	7421
Total Nickel	0.12	mg/L	0.01	7520
Dissolved Nickel	0.10	mg/L	0.01	7520

ND - Parameter not detected at stated detection limit.

Detection limits are derived from practical quantitation levels.

REFERENCE: Analysis performed according to SW-846 "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods," United States Environmental Protection Agency, November, 1986.

Reviewed by:

Mitch Swan

Supervisor—Water Operations

EPA Method 8240
VOLATILE ORGANIC COMPOUNDS

Client: **K.W. BROWN ENVIRONMENTAL SERVICES, INC.**
 Project Name: Navajo Refinery
 Project Location: Artesia, NM
 Project Number: 622092005
 Sample ID: NEP-GW-MW-3
 Laboratory ID: C922322
 Sample Matrix: Water
 Condition: Cool, intact

Report Date: 12/19/92
 Date Sampled: 11/12/92
 Date Received: 11/16/92
 Date Extracted: 11/25/92
 Date Analyzed: 11/25/92

Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Acetone	ND	10
Benzene	17	5
Bromodichloromethane	ND	5
Bromoform	ND	5
Bromomethane	ND	5
2-Butanone (MEK)	ND	10
Carbon disulfide	ND	5
Carbon tetrachloride	ND	5
Chlorobenzene	ND	5
Chloroethane	ND	10
2-Chloroethyl vinyl ether	ND	50
Chloroform	ND	5
Chloromethane	ND	10
Dibromochloromethane	ND	5
1,1-Dichloroethane	ND	5
1,1-Dichloroethene	ND	5
trans-1,2-Dichloroethene	ND	5
1,2-Dichloroethane	ND	5
1,2-Dichloropropane	ND	5
cis-1,3-Dichloropropene	ND	5
trans-1,3-Dichloropropene	ND	5
Ethylbenzene	16	5
2-Hexanone	ND	5
Methylene chloride	ND	5
4-Methyl-2-pentanone	ND	5
Styrene	ND	5
1,1,2,2-Tetrachloroethane	ND	5
Tetrachloroethene	ND	5
Toluene	21	5
1,1,1-Trichloroethane	ND	5
1,1,2-Trichloroethane	ND	5
Trichloroethene	ND	5
Vinyl acetate	ND	5
Vinyl chloride	ND	5
Xylenes (total)	25	5

ND - Analyte not detected at stated limit of detection

EPA Method 8240

Page 2

VOLATILE ORGANIC COMPOUNDS
ADDITIONAL DETECTED COMPOUNDS

Client: **K.W. BROWN ENVIRONMENTAL SERVICES, INC.**
Project Name: Navajo Refinery
Project Location: Artesia, NM
Project Number: 622092005
Sample ID: NEP-GW-MW-3
Laboratory ID: C922322

Report Date: 12/19/92
Date Sampled: 11/12/92
Date Analyzed: 11/25/92

Tentative Identification	Retention Time (Minutes)	Concentration (ug/L)
Unknown hydrocarbon	12.45	90*
Unknown hydrocarbon	17.06	144*
Unknown hydrocarbon	18.00	2000*
Unknown hydrocarbon	18.62	89*
Unknown hydrocarbon	19.48	87*
Unknown hydrocarbon	20.26	224*
Unknown hydrocarbon	20.65	374*
Hydrocarbon envelope	15-24	

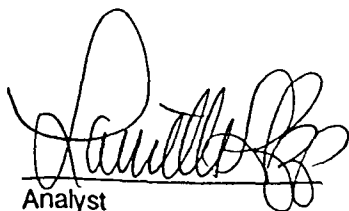
* - Concentration calculated using assumed Relative Response Factor = 1

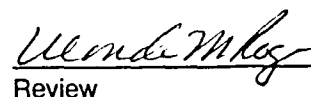
Quality Control:

<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Water Acceptance Limits</u>
1,2-Dichloroethane-d4	99%	76 - 114%
Toluene-d8	102%	88 - 110%
Bromofluorobenzene	109%	86 - 115%

Reference: Method 8240: Gas Chromatography / Mass Spectrometry for Volatile Organics
Test Methods for Evaluating Solid Wastes, SW - 846, United States Environmental Protection Agency, September 1986.

Comments:


Analyst


Review

SEMIVOLATILE ORGANIC COMPOUNDS

Client: **K. W. BROWN ENVIRONMENTAL SERVICES**

Project Name: Navajo Refinery

Project Location: Artesia, NM

Project Number: 622092005

Sample ID: NEP - GW - MW - 3

Laboratory ID: C922322

Sample Matrix: Water

Condition: Cool, Intact

Report Date: 01/07/93

Date Sampled: 11/12/92

Date Received: 11/16/92

Date Extracted: 11/19/92

Date Analyzed: 11/24/92

Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Acenaphthene	ND	60
Acenaphthylene	ND	60
Anthracene	ND	60
Benzo(a)anthracene	ND	60
Benzo(b)fluoranthene	ND	60
Benzo(k)fluoranthene	ND	60
Benzo(g,h,i)perylene	ND	60
Benzo(a)pyrene	ND	60
Benzoic acid	ND	60
Benzyl alcohol	ND	60
bis(2-Chloroethoxy)methane	ND	60
bis(2-Chloroethyl)ether	ND	60
bis(2-Chloroisopropyl)ether	ND	60
bis(2-Ethylhexyl)phthalate	ND	150
4-Bromophenyl phenyl ether	ND	60
Butyl benzyl phthalate	ND	60
p - Chloroaniline	ND	60
p - Chloro - m - cresol	ND	60
2 - Chloronaphthalene	ND	60
2 - Chlorophenol	ND	60
4-Chlorophenyl phenyl ether	ND	60
Chrysene	ND	60
o - Cresol / 2 - Methylphenol	ND	60
p - Cresol / 4 - Methylphenol	ND	60
Di - n - butylphthalate	ND	150
Dibenz(a,h)anthracene	ND	60
Dibenzofuran	ND	60
o - Dichlorobenzene	ND	60
m - Dichlorobenzene	ND	60
p - Dichlorobenzene	ND	60
3,3' - Dichlorobenzidine	ND	60
2,4 - Dichlorophenol	ND	60
Diethyl phthalate	ND	60
2,4 - Dimethylphenol	ND	60
Dimethyl phthalate	ND	60

EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS (cont)

Client: **K. W. BROWN ENVIRONMENTAL SERVICES**
Project Name: Navajo Refinery
Project Location: Artesia, NM
Project Number: 622092005
Sample ID: NEP - GW - MW - 3
Laboratory ID: C922322

Report Date: 01/07/93
Date Sampled: 11/12/92
Date Analyzed: 11/24/92

Analyte	Concentration (ug/L)	Detection Limit (ug/L)
4,6 - Dinitro - o - cresol	ND	150
2,4 - Dinitrophenol	ND	150
2,4 - Dinitrotoluene	ND	60
2,6 - Dinitrotoluene	ND	60
Di - n - octyl phthalate	ND	150
Fluoranthene	ND	60
Fluorene	ND	60
Hexachlorobenzene	ND	60
Hexachlorocyclopentadiene	ND	150
Hexachloroethane	ND	60
Hexachlorobutadiene	ND	60
Ideno(1,2,3-cd)pyrene	ND	60
Isophorone	ND	60
2 - Methyl naphthalene	ND	60
Naphthalene	ND	60
o - Nitroaniline	ND	60
m - Nitroaniline	ND	60
p - Nitroaniline	ND	60
Nitrobenzene	ND	60
o - Nitrophenol	ND	60
p - Nitrophenol	ND	60
n - Nitrosodimethylamine	ND	60
n - Nitrosodiphenylamine	ND	60
n-Nitroso-di-n-propylamine	ND	60
Pentachlorophenol	ND	150
Phenanthrene	ND	60
Phenol	ND	60
Pyrene	ND	60
1,2,4 - Trichlorobenzene	ND	60
2,4,5 - Trichlorophenol	ND	60
2,4,6 - Trichlorophenol	ND	60

ND - Analyte not detected at stated limit of detection

EPA Method 8270
SEMIVOLATILE HYDROCARBONS
ADDITIONAL DETECTED COMPOUNDS

Client: **K. W. BROWN ENVIRONMENTAL SERVICES**
Project Name: Navajo Refinery
Project Location: Artesia, NM
Project Number: 622092005
Sample ID: NEP - GW - MW - 3
Laboratory ID: C922322

Report Date: 01/07/93
Date Sampled: 11/10/92
Date Analyzed: 11/13/92

Tentative Identification	Retention Time (Minutes)	Concentration* (ug/L)
Unknown Aromatic	8.76	600
Unknown Hydrocarbon	11.58	160
Unknown Aromatic	11.86	87
Unknown Hydrocarbon	12.04	85
Unknown Hydrocarbon	12.23	140
Hydrocarbon Envelope	10 - 32	

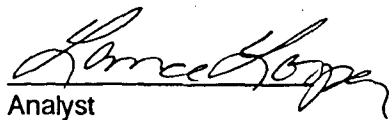
* - Concentration calculated using assumed Relative Response Factor = 1

Quality Control: Surrogate	Percent Recovery	Acceptance Limits
2 - Fluorophenol	74%	21 - 100%
Phenol - d5	85%	10 - 110%
Nitrobenzene - d5	84%	35 - 114%
2 - Fluorobiphenyl	93%	43 - 116%
2,4,6 - Tribromophenol	107%	10 - 123%
Terphenyl - d14	107%	33 - 141%

Method 3510: Separatory Funnel Liquid - Liquid Extraction

References: Method 8270: Gas Chromatography / Mass Spectrometry for Semivolatile Organics
Test Methods for Evaluating Solid Wastes, SW - 846, United States Environmental Protection Agency, September 1986.

Comments:


Analyst


Review

**WATER QUALITY REPORT
GENERAL CHEMISTRY****CLIENT: K.W. BROWN ENVIRONMENTAL SERVICES**
PROJECT: NAVAJO - #622092005**Sample ID:** NEP-GW-MW-3
Laboratory Number: C922322/15647
Sample Matrix: WATER
Preservative: COOL
Condition: INTACT**Report Date:** 12/30/92
Date Sampled: 11/12/92
Date Received: 11/16/92

Analyte	Concentration	Units	Detection Limit	Method Reference
pH	7.3	s.u.	0.1	SW-846 9040
Conductivity	7220.	umhos/cm	1.	SW-846 9050
Calcium	457.	mg/L	1.	SW-846 6010
Magnesium	119.	mg/L	0.1	SW-846 6010
Potassium	12.	mg/L	0.1	SW-846 6010
Sodium	975.	mg/L	1.	SW-846 6010
Total Alkalinity	285.	mg/L	1.	EPA 310.1
Chloride	1820.	mg/L	1.	SW-846 9251
Sulfate	1020.	mg/L	1.	EPA 375.3
Fluoride	3.0	mg/L	0.1	EPA 340.2
Total Dissolved Solids	5310.	mg/L	10.	EPA 160.1

ND - Parameter not detected at stated detection limit.

Detection limits are derived from practical quantitation levels.

REFERENCE: SW-846 - "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods," United States Environmental Protection Agency, November, 1986.

EPA - "Methods for Chemical Analysis of Water and Wastes," US EPA, EPA 600/4-79-020, Revised March 1983.

Reviewed by:

Mitch Swan

Supervisor—Water Operations

**WATER QUALITY REPORT
TRACE METALS**

CLIENT: K.W. BROWN ENVIRONMENTAL SERVICES
PROJECT: NAVAJO - #622092005

Sample ID: NEP-GW-MW-3
Laboratory Number: C922322/15647
Sample Matrix: WATER
Preservative: HNO₃, COOL
Condition: INTACT

Report Date: 12/30/92
Date Sampled: 11/12/92
Date Received: 11/16/92
Date Extracted: 11/19/92

Analyte	Concentration	Units	Detection Limit	Method Reference
Total Arsenic	0.078	mg/L	0.005	7061
Dissolved Arsenic	0.054	mg/L	0.005	7061
Total Chromium	0.03	mg/L	0.02	7191
Dissolved Chromium	ND	mg/L	0.02	7191
Total Lead	ND	mg/L	0.02	7421
Dissolved Lead	ND	mg/L	0.02	7421
Total Nickel	0.12	mg/L	0.01	7520
Dissolved Nickel	0.08	mg/L	0.01	7520

ND - Parameter not detected at stated detection limit.

Detection limits are derived from practical quantitation levels.

REFERENCE: Analysis performed according to SW-846 "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods," United States Environmental Protection Agency, November, 1986.

Reviewed by:

Mitch Swan

Supervisor-Water Operations

EPA Method 8240
VOLATILE ORGANIC COMPOUNDSClient: **K.W. BROWN ENVIRONMENTAL SERVICES, INC.**

Project Name: Navajo Refinery

Project Location: Artesia, NM

Project Number: 622092005

Sample ID: NEP-GW-MW-4

Laboratory ID: C922333

Sample Matrix: Water

Condition: Cool, intact

Report Date: 12/19/92

Date Sampled: 11/12/92

Date Received: 11/16/92

Date Extracted: 11/25/92

Date Analyzed: 11/25/92

Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Acetone	ND	10
Benzene	21	5
Bromodichloromethane	ND	5
Bromoform	ND	5
Bromomethane	ND	5
2-Butanone (MEK)	ND	10
Carbon disulfide	ND	5
Carbon tetrachloride	ND	5
Chlorobenzene	ND	5
Chloroethane	ND	10
2-Chloroethyl vinyl ether	ND	50
Chloroform	ND	5
Chloromethane	ND	5
Dibromochloromethane	ND	5
1,1-Dichloroethane	ND	5
1,1-Dichloroethene	ND	5
trans-1,2-Dichloroethene	ND	5
1,2-Dichloroethane	ND	5
1,2-Dichloropropane	ND	5
cis-1,3-Dichloropropene	ND	5
trans-1,3-Dichloropropene	ND	5
Ethylbenzene	19	5
2-Hexanone	ND	5
Methylene chloride	ND	5
4-Methyl-2-pentanone	ND	5
Styrene	ND	5
1,1,2,2-Tetrachloroethane	ND	5
Tetrachloroethene	ND	5
Toluene	9	5
1,1,1-Trichloroethane	ND	5
1,1,2-Trichloroethane	ND	5
Trichloroethene	ND	5
Vinyl acetate	ND	5
Vinyl chloride	ND	5
Xylenes (total)	32	5

ND - Analyte not detected at stated limit of detection

EPA Method 8240

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VOLATILE ORGANIC COMPOUNDS
ADDITIONAL DETECTED COMPOUNDS

Client: K.W. BROWN ENVIRONMENTAL SERVICES, INC.
Project Name: Navajo Refinery
Project Location: Artesia, NM
Project Number: 622092005
Sample ID: NEP-GW-MW-4
Laboratory ID: C922333

Report Date: 12/19/92
Date Sampled: 11/12/92
Date Analyzed: 11/25/92

Tentative Identification	Retention Time (Minutes)	Concentration (ug/L)
Unknown hydrocarbon	17.06	148*
Unknown hydrocarbon	17.99	2300*
Unknown hydrocarbon	18.61	118*
Unknown hydrocarbon	19.47	115*
Unknown hydrocarbon	19.71	245*
Unknown hydrocarbon	20.24	263*
Unknown hydrocarbon	20.64	120*
Unknown hydrocarbon	21.30	115*

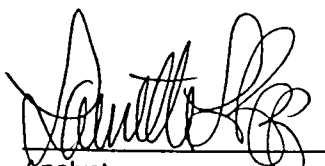
* - Concentration calculated using assumed Relative Response Factor = 1

Quality Control:

<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Water Acceptance Limits</u>
1,2-Dichloroethane-d4	99%	76 - 114%
Toluene-d8	102%	88 - 110%
Bromofluorobenzene	112%	86 - 115%

Reference: Method 8240: Gas Chromatography / Mass Spectrometry for Volatile Organics
Test Methods for Evaluating Solid Wastes, SW - 846, United States Environmental Protection Agency, September 1986.

Comments:


Analyst


Review

EPA Method 8270

SEMIVOLATILE ORGANIC COMPOUNDS

Client: **K. W. BROWN ENVIRONMENTAL SERVICES**

Project Name: Navajo Refinery

Project Location: Artesia, NM

Project Number: 622092005

Sample ID: NEP - GW - MW - 4

Laboratory ID: C922333

Sample Matrix: Water

Condition: Cool, Intact

Report Date: 01/07/93

Date Sampled: 11/12/92

Date Received: 11/16/92

Date Extracted: 11/19/92

Date Analyzed: 11/24/92

Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Acenaphthene	ND	100
Acenaphthylene	ND	100
Anthracene	ND	100
Benzo(a)anthracene	ND	100
Benzo(b)fluoranthene	ND	100
Benzo(k)fluoranthene	ND	100
Benzo(g,h,i)perylene	ND	100
Benzo(a)pyrene	ND	100
Benzoic acid	ND	100
Benzyl alcohol	ND	100
bis(2-Chloroethoxy)methane	ND	100
bis(2-Chloroethyl)ether	ND	100
bis(2-Chloroisopropyl)ether	ND	100
bis(2-Ethylhexyl)phthalate	ND	250
4-Bromophenyl phenyl ether	ND	100
Butyl benzyl phthalate	ND	100
p - Chloroaniline	ND	100
p - Chloro - m - cresol	ND	100
2 - Chloronaphthalene	ND	100
2 - Chlorophenol	ND	100
4-Chlorophenyl phenyl ether	ND	100
Chrysene	ND	100
o - Cresol / 2 - Methylphenol	ND	100
p - Cresol / 4 - Methylphenol	ND	100
Di - n - butylphthalate	ND	250
Dibenz(a,h)anthracene	ND	100
Dibenzofuran	ND	100
o - Dichlorobenzene	ND	100
m - Dichlorobenzene	ND	100
p - Dichlorobenzene	ND	100
3,3' - Dichlorobenzidine	ND	100
2,4 - Dichlorophenol	ND	100
Diethyl phthalate	ND	100
2,4 - Dimethylphenol	ND	100
Dimethyl phthalate	ND	100

EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS (cont)

Client: **K. W. BROWN ENVIRONMENTAL SERVICES**
Project Name: Navajo Refinery
Project Location: Artesia, NM
Project Number: 622092005
Sample ID: NEP - GW - MW - 4
Laboratory ID: C922333

Report Date: 01/07/93
Date Sampled: 11/12/92
Date Analyzed: 11/24/92

Analyte	Concentration (ug/L)	Detection Limit (ug/L)
4,6 - Dinitro - o - cresol	ND	250
2,4 - Dinitrophenol	ND	250
2,4 - Dinitrotoluene	ND	100
2,6 - Dinitrotoluene	ND	100
Di - n - octyl phthalate	ND	250
Fluoranthene	ND	100
Fluorene	ND	100
Hexachlorobenzene	ND	100
Hexachlorocyclopentadiene	ND	250
Hexachloroethane	ND	100
Hexachlorobutadiene	ND	100
Ideno(1,2,3-cd)pyrene	ND	100
Isophorone	ND	100
2 - Methylanththalene	ND	100
Naphthalene	ND	100
o - Nitroaniline	ND	100
m - Nitroaniline	ND	100
p - Nitroaniline	ND	100
Nitrobenzene	ND	100
o - Nitrophenol	ND	100
p - Nitrophenol	ND	100
n - Nitrosodimethylamine	ND	100
n - Nitrosodiphenylamine	ND	100
n-Nitroso-di-n-propylamine	ND	100
Pentachlorophenol	ND	250
Phenanthrene	ND	100
Phenol	ND	100
Pyrene	ND	100
1,2,4 - Trichlorobenzene	ND	100
2,4,5 - Trichlorophenol	ND	100
2,4,6 - Trichlorophenol	ND	100

ND - Analyte not detected at stated limit of detection

EPA Method 8270
SEMIVOLATILE HYDROCARBONS
ADDITIONAL DETECTED COMPOUNDS

Client: K. W. BROWN ENVIRONMENTAL SERVICES

Project Name: Navajo Refinery

Project Location: Artesia, NM

Project Number: 622092005

Sample ID: NEP - GW - MW - 4

Laboratory ID: C922333

Report Date: 01/07/93

Date Sampled: 11/10/92

Date Analyzed: 11/13/92

Tentative Identification	Retention Time (Minutes)	Concentration* (ug/L)
Unknown Hydrocarbon	8.76	730
Unknown Hydrocarbon	10.53	95
Hydrocarbon Envelope	9 - 30	

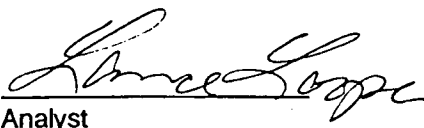
* - Concentration calculated using assumed Relative Response Factor = 1

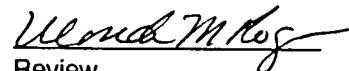
Quality Control:	<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
	2 - Fluorophenol	84%	21 - 100%
	Phenol - d5	94%	10 - 110%
	Nitrobenzene - d5	91%	35 - 114%
	2 - Fluorobiphenyl	106%	43 - 116%
	2,4,6 - Tribromophenol	116%	10 - 123%
	Terphenyl - d14	121%	33 - 141%

Method 3510: Separatory Funnel Liquid - Liquid Extraction

References: Method 8270: Gas Chromatography / Mass Spectrometry for Semivolatile Organics
Test Methods for Evaluating Solid Wastes, SW - 846, United States Environmental
Protection Agency, September 1986.

Comments:


Analyst


Review

**WATER QUALITY REPORT
GENERAL CHEMISTRY**

CLIENT: K.W. BROWN ENVIRONMENTAL SERVICES
PROJECT: NAVAJO - #622092005

Sample ID: NEP-GW-MW-4
Laboratory Number: C922333/15644
Sample Matrix: WATER
Preservative: COOL
Condition: INTACT

Report Date: 12/30/92
Date Sampled: 11/12/92
Date Received: 11/16/92

Analyte	Concentration	Units	Detection Limit	Method Reference
pH	7.3	s.u.	0.1	SW-846 9040
Conductivity	7610.	umhos/cm	1.	SW-846 9050
Calcium	370.	mg/L	1.	SW-846 6010
Magnesium	119.	mg/L	0.1	SW-846 6010
Potassium	5.5	mg/L	0.1	SW-846 6010
Sodium	1180.	mg/L	1.	SW-846 6010
Total Alkalinity	234.	mg/L	1.	EPA 310.1
Chloride	1380.	mg/L	1.	SW-846 9251
Sulfate	1880.	mg/L	1.	EPA 375.3
Fluoride	1.8	mg/L	0.1	EPA 340.2
Total Dissolved Solids	5360.	mg/L	10.	EPA 160.1

ND - Parameter not detected at stated detection limit.

Detection limits are derived from practical quantitation levels.

REFERENCE: SW-846 - "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods," United States Environmental Protection Agency, November, 1986.

EPA - "Methods for Chemical Analysis of Water and Wastes," US EPA, EPA 600/4-79-020, Revised March 1983.

Reviewed by:

Mitch Swan

Supervisor--Water Operations

**WATER QUALITY REPORT
TRACE METALS****CLIENT: K.W. BROWN ENVIRONMENTAL SERVICES**
PROJECT: NAVAJO - #622092005**Sample ID:** NEP-GW-MW-4
Laboratory Number: C922333/15644
Sample Matrix: WATER
Preservative: HNO₃, COOL
Condition: INTACT**Report Date:** 12/30/92
Date Sampled: 11/12/92
Date Received: 11/16/92
Date Extracted: 11/19/92

Analyte	Concentration	Units	Detection Limit	Method Reference
Total Arsenic	0.080	mg/L	0.005	7061
Dissolved Arsenic	0.069	mg/L	0.005	7061
Total Chromium	ND	mg/L	0.02	7191
Dissolved Chromium	ND	mg/L	0.02	7191
Total Lead	ND	mg/L	0.02	7421
Dissolved Lead	ND	mg/L	0.02	7421
Total Nickel	0.11	mg/L	0.01	7520
Dissolved Nickel	0.07	mg/L	0.01	7520

ND - Parameter not detected at stated detection limit.

Detection limits are derived from practical quantitation levels.

REFERENCE: Analysis performed according to SW-846 "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods," United States Environmental Protection Agency, November, 1986.

Reviewed by:

Mitch Swan

Supervisor--Water Operations

EPA Method 8240
VOLATILE ORGANIC COMPOUNDS

Client: K.W. BROWN ENVIRONMENTAL SERVICES, INC.
Project Name: Navajo Refinery
Project Location: Artesia, NM
Project Number: 622092005
Sample ID: NEP-GW-MW-5
Laboratory ID: C922334
Sample Matrix: Water
Condition: Cool, intact

Report Date: 12/19/92
Date Sampled: 11/11/92
Date Received: 11/16/92
Date Extracted: 12/08/92
Date Analyzed: 12/08/92

Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Acetone	ND	10
Benzene	13	5
Bromodichloromethane	ND	5
Bromoform	ND	5
Bromomethane	ND	5
2-Butanone (MEK)	ND	10
Carbon disulfide	ND	5
Carbon tetrachloride	ND	5
Chlorobenzene	ND	5
Chloroethane	ND	10
2-Chloroethyl vinyl ether	ND	50
Chloroform	ND	5
Chloromethane	ND	5
Dibromochloromethane	ND	5
1,1-Dichloroethane	ND	5
1,1-Dichloroethene	ND	5
trans-1,2-Dichloroethene	ND	5
1,2-Dichloroethane	ND	5
1,2-Dichloropropane	ND	5
cis-1,3-Dichloropropene	ND	5
trans-1,3-Dichloropropene	ND	5
Ethylbenzene	6	5
2-Hexanone	ND	5
Methylene chloride	ND	5
4-Methyl-2-pentanone	ND	5
Styrene	ND	5
1,1,2,2-Tetrachloroethane	ND	5
Tetrachloroethene	ND	5
Toluene	27	5
1,1,1-Trichloroethane	ND	5
1,1,2-Trichloroethane	ND	5
Trichloroethene	ND	5
Vinyl acetate	ND	5
Vinyl chloride	ND	5
Xylenes (total)	7	5

ND - Analyte not detected at stated limit of detection

EPA Method 8240

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VOLATILE ORGANIC COMPOUNDS
ADDITIONAL DETECTED COMPOUNDS

Client: **K.W. BROWN ENVIRONMENTAL SERVICES, INC.**
Project Name: Navajo Refinery
Project Location: Artesia, NM
Project Number: 622092005
Sample ID: NEP-GW-MW-5
Laboratory ID: C922334

Report Date: 12/19/92
Date Sampled: 11/11/92
Date Analyzed: 12/08/92

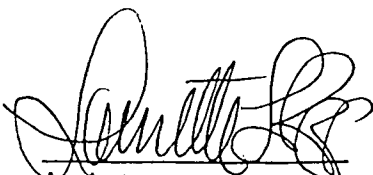
Tentative Identification	Retention Time (Minutes)	Concentration (ug/L)
Unknown hydrocarbon	17.05	137*
Unknown hydrocarbon	17.99	3140*
Unknown hydrocarbon	19.47	106*
Unknown hydrocarbon	19.70	183*
Unknown hydrocarbon	20.24	282*
Unknown hydrocarbon	20.64	188*
Unknown hydrocarbon	20.73	92*
Hydrocarbon envelope	15-22	

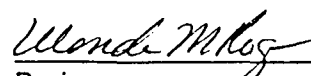
* - Concentration calculated using assumed Relative Response Factor = 1

Quality Control:	Surrogate	Percent Recovery	Water Acceptance Limits
	1,2-Dichloroethane-d4	106%	76 - 114%
	Toluene-d8	100%	88 - 110%
	Bromofluorobenzene	117%	86 - 115%

Reference: Method 8240: Gas Chromatography / Mass Spectrometry for Volatile Organics
Test Methods for Evaluating Solid Wastes, SW - 846, United States Environmental Protection Agency, September 1986.

Comments: The surrogate recovery (Bromofluorobenzene) is high due to matrix interference.
The result was confirmed through re-analysis of the sample.


Analyst


Review

EPA Method 8270

SEMIVOLATILE ORGANIC COMPOUNDS

Client: **K. W. BROWN ENVIRONMENTAL SERVICES**

Project Name: Navajo Refinery

Project Location: Artesia, NM

Project Number: 622092005

Sample ID: NEP - GW - MW - 5

Laboratory ID: C922334

Sample Matrix: Water

Condition: Cool, Intact

Report Date: 01/07/93

Date Sampled: 11/11/92

Date Received: 11/16/92

Date Extracted: 11/19/92

Date Analyzed: 11/23/92

Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Acenaphthene	ND	10
Acenaphthylene	ND	10
Anthracene	ND	10
Benzo(a)anthracene	ND	10
Benzo(b)fluoranthene	ND	10
Benzo(k)fluoranthene	ND	10
Benzo(g,h,i)perylene	ND	10
Benzo(a)pyrene	ND	10
Benzoic acid	ND	10
Benzyl alcohol	ND	10
bis(2-Chloroethoxy)methane	ND	10
bis(2-Chloroethyl)ether	ND	10
bis(2-Chloroisopropyl)ether	ND	10
bis(2-Ethylhexyl)phthalate	ND	25
4-Bromophenyl phenyl ether	ND	10
Butyl benzyl phthalate	ND	10
p - Chloroaniline	ND	10
p - Chloro - m - cresol	ND	10
2 - Chloronaphthalene	ND	10
2 - Chlorophenol	ND	10
4-Chlorophenyl phenyl ether	ND	10
Chrysene	ND	10
o - Cresol / 2 - Methylphenol	ND	10
p - Cresol / 4 - Methylphenol	ND	10
Di - n - butylphthalate	ND	25
Dibenz(a,h)anthracene	ND	10
Dibenzofuran	ND	10
o - Dichlorobenzene	ND	10
m - Dichlorobenzene	ND	10
p - Dichlorobenzene	ND	10
3,3' - Dichlorobenzidine	ND	10
2,4 - Dichlorophenol	ND	10
Diethyl phthalate	ND	10
2,4 - Dimethylphenol	ND	10
Dimethyl phthalate	ND	10

EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS (cont)

Client: K. W. BROWN ENVIRONMENTAL SERVICES

Project Name: Navajo Refinery

Project Location: Artesia, NM

Project Number: 622092005

Sample ID: NEP - GW - MW - 5

Laboratory ID: C922334

Report Date: 01/07/93

Date Sampled: 11/11/92

Date Analyzed: 11/23/92

Analyte	Concentration (ug/L)	Detection Limit (ug/L)
4,6 - Dinitro - o - cresol	ND	25
2,4 - Dinitrophenol	ND	25
2,4 - Dinitrotoluene	ND	10
2,6 - Dinitrotoluene	ND	10
Di - n - octyl phthalate	ND	25
Fluoranthene	ND	10
Fluorene	ND	10
Hexachlorobenzene	ND	10
Hexachlorocyclopentadiene	ND	25
Hexachloroethane	ND	10
Hexachlorobutadiene	ND	10
Ideno(1,2,3-cd)pyrene	ND	10
Isophorone	ND	10
2 - Methyl naphthalene	ND	10
Naphthalene	ND	10
o - Nitroaniline	ND	10
m - Nitroaniline	ND	10
p - Nitroaniline	ND	10
Nitrobenzene	ND	10
o - Nitrophenol	ND	10
p - Nitrophenol	ND	10
n - Nitrosodimethylamine	ND	10
n - Nitrosodiphenylamine	ND	10
n-Nitroso-di-n-propylamine	ND	10
Pentachlorophenol	ND	25
Phenanthrene	ND	10
Phenol	ND	10
Pyrene	ND	10
1,2,4 - Trichlorobenzene	ND	10
2,4,5 - Trichlorophenol	ND	10
2,4,6 - Trichlorophenol	ND	10

ND - Analyte not detected at stated limit of detection

EPA Method 8270
SEMIVOLATILE HYDROCARBONS
ADDITIONAL DETECTED COMPOUNDS

Client: **K. W. BROWN ENVIRONMENTAL SERVICES**
Project Name: Navajo Refinery
Project Location: Artesia, NM
Project Number: 622092005
Sample ID: NEP - GW - MW - 5
Laboratory ID: C922334

Report Date: 01/07/93
Date Sampled: 11/10/92
Date Analyzed: 11/13/92

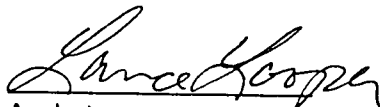
Tentative Identification	Retention Time (Minutes)	Concentration* (ug/L)
Unknown Hydrocarbon	8.81	490
Unknown Hydrocarbon	11.04	84
Unknown Hydrocarbon	11.59	66
Unknown Hydrocarbon	12.05	79
Unknown Hydrocarbon	12.24	49
Hydrocarbon Envelope	10 - 32	

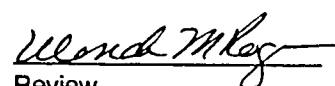
* - Concentration calculated using assumed Relative Response Factor = 1

Quality Control:	<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
	2 - Fluorophenol	87%	21 - 100%
	Phenol - d5	98%	10 - 110%
	Nitrobenzene - d5	92%	35 - 114%
	2 - Fluorobiphenyl	99%	43 - 116%
	2,4,6 - Tribromophenol	113%	10 - 123%
	Terphenyl - d14	105%	33 - 141%

References: Method 3510: Separatory Funnel Liquid - Liquid Extraction
Method 8270: Gas Chromatography / Mass Spectrometry for Semivolatile Organics
Test Methods for Evaluating Solid Wastes, SW - 846, United States Environmental
Protection Agency, September 1986.

Comments: Sample was extracted outside of EPA required holding time; therefore,
concentrations should be considered minimum.


Analyst


Review

**WATER QUALITY REPORT
GENERAL CHEMISTRY****CLIENT: K.W. BROWN ENVIRONMENTAL SERVICES**
PROJECT: NAVAJO - #622092005**Sample ID: NEP-GW-MW-5****Report Date: 12/30/92****Laboratory Number: C922334/15645****Date Sampled: 11/11/92****Sample Matrix: WATER****Date Received: 11/16/92****Preservative: COOL****Condition: INTACT**

Analyte	Concentration	Units	Detection Limit	Method Reference
pH	7.2	s.u.	0.1	SW-846 9040
Conductivity	28000.	umhos/cm	1.	SW-846 9050
Calcium	585.	mg/L	1.	SW-846 6010
Magnesium	1020.	mg/L	0.1	SW-846 6010
Potassium	9.0	mg/L	0.1	SW-846 6010
Sodium	5250.	mg/L	1.	SW-846 6010
Total Alkalinity	423.	mg/L	1.	EPA 310.1
Chloride	5410.	mg/L	1.	SW-846 9251
Sulfate	9770.	mg/L	1.	EPA 375.3
Fluoride	3.3	mg/L	0.1	EPA 340.2
Total Dissolved Solids	24300.	mg/L	10.	EPA 160.1

ND - Parameter not detected at stated detection limit.

Detection limits are derived from practical quantitation levels.

REFERENCE: SW-846 - "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods," United States Environmental Protection Agency, November, 1986.

EPA - "Methods for Chemical Analysis of Water and Wastes," US EPA, EPA 600/4-79-020, Revised March 1983.

Reviewed by:

Mitch Swan

Supervisor--Water Operations

**WATER QUALITY REPORT
TRACE METALS**

CLIENT: K.W. BROWN ENVIRONMENTAL SERVICES
PROJECT: NAVAJO - #622092005

Sample ID: NEP-GW-MW-5
Laboratory Number: C922334/15645
Sample Matrix: WATER
Preservative: HNO₃, COOL
Condition: INTACT

Report Date: 12/30/92
Date Sampled: 11/11/92
Date Received: 11/16/92
Date Extracted: 11/19/92

Analyte	Concentration	Units	Detection Limit	Method Reference
Total Arsenic	0.074	mg/L	0.005	7061
Dissolved Arsenic	0.063	mg/L	0.005	7061
Total Chromium	0.03	mg/L	0.02	7191
Dissolved Chromium	ND	mg/L	0.02	7191
Total Lead	ND	mg/L	0.02	7421
Dissolved Lead	ND	mg/L	0.02	7421
Total Nickel	0.27	mg/L	0.01	7520
Dissolved Nickel	0.25	mg/L	0.01	7520

ND - Parameter not detected at stated detection limit.

Detection limits are derived from practical quantitation levels.

REFERENCE: Analysis performed according to SW-846 "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods," United States Environmental Protection Agency, November, 1986.

Reviewed by:

Mitch Swan

Supervisor—Water Operations

EPA Method 8240
VOLATILE ORGANIC COMPOUNDS

Client: **K.W. BROWN ENVIRONMENTAL SERVICES, INC.**
 Project Name: Navajo Refinery
 Project Location: Artesia, NM
 Project Number: 622092005
 Sample ID: NEP-GW-MW-15 *(Dup of mw. 5)*
 Laboratory ID: C922335 *NRB*
 Sample Matrix: Water
 Condition: Cool, intact

Report Date: 12/19/92
 Date Sampled: 11/11/92
 Date Received: 11/16/92
 Date Extracted: 11/25/92
 Date Analyzed: 11/25/92

Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Acetone	ND	10
Benzene	13	5
Bromodichloromethane	ND	5
Bromoform	ND	5
Bromomethane	ND	5
2-Butanone (MEK)	ND	10
Carbon disulfide	ND	5
Carbon tetrachloride	ND	5
Chlorobenzene	ND	5
Chloroethane	ND	10
2-Chloroethyl vinyl ether	ND	50
Chloroform	ND	5
Chloromethane	ND	5
Dibromochloromethane	ND	5
1,1-Dichloroethane	ND	5
1,1-Dichloroethene	ND	5
trans-1,2-Dichloroethene	ND	5
1,2-Dichloroethane	ND	5
1,2-Dichloropropane	ND	5
cis-1,3-Dichloropropene	ND	5
trans-1,3-Dichloropropene	ND	5
Ethylbenzene	6	5
2-Hexanone	ND	5
Methylene chloride	ND	5
4-Methyl-2-pentanone	ND	5
Styrene	ND	5
1,1,2,2-Tetrachloroethane	ND	5
Tetrachloroethene	ND	5
Toluene	28	5
1,1,1-Trichloroethane	ND	5
1,1,2-Trichloroethane	ND	5
Trichloroethene	ND	5
Vinyl acetate	ND	5
Vinyl chloride	ND	5
Xylenes (total)	8	5

ND - Analyte not detected at stated limit of detection

EPA Method 8240

Page 2

VOLATILE ORGANIC COMPOUNDS
ADDITIONAL DETECTED COMPOUNDS

Client: **K.W. BROWN ENVIRONMENTAL SERVICES, INC.**
Project Name: Navajo Refinery
Project Location: Artesia, NM
Project Number: 622092005
Sample ID: NEP-GW-MW-15 *Dep of MW-5*
Laboratory ID: C922335

Report Date: 12/19/92
Date Sampled: 11/11/92
Date Analyzed: 11/25/92

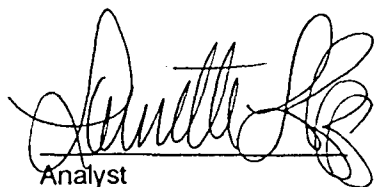
Tentative Identification	Retention Time (Minutes)	Concentration (ug/L)
Unknown hydrocarbon	17.05	127*
Unknown hydrocarbon	17.99	2900*
Unknown hydrocarbon	19.47	94*
Unknown hydrocarbon	19.71	172*
Unknown hydrocarbon	20.23	263*
Unknown hydrocarbon	20.65	167*
Unknown hydrocarbon	20.74	91*
Hydrocarbon envelope	15-22	

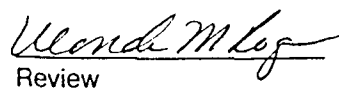
* - Concentration calculated using assumed Relative Response Factor = 1

Quality Control:	Surrogate	Percent Recovery	Water Acceptance Limits
	1,2-Dichloroethane-d4	105%	76 - 114%
	Toluene-d8	102%	88 - 110%
	Bromofluorobenzene	105%	86 - 115%

Reference: Method 8240: Gas Chromatography / Mass Spectrometry for Volatile Organics
Test Methods for Evaluating Solid Wastes, SW - 846, United States Environmental Protection Agency, September 1986.

Comments:


Analyst


Review

EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS

Client: **K. W. BROWN ENVIRONMENTAL SERVICES**
 Project Name: Navajo Refinery
 Project Location: Artesia, NM
 Project Number: 622092005
 Sample ID: NEP - GW - MW - 15 (mw 5 dup)
 Laboratory ID: C922335
 Sample Matrix: Water
 Condition: Cool, Intact

Report Date: 01/07/93
 Date Sampled: 11/11/92
 Date Received: 11/16/92
 Date Extracted: 11/19/92
 Date Analyzed: 11/24/92

Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Acenaphthene	ND	10
Acenaphthylene	ND	10
Anthracene	ND	10
Benzo(a)anthracene	ND	10
Benzo(b)fluoranthene	ND	10
Benzo(k)fluoranthene	ND	10
Benzo(g,h,i)perylene	ND	10
Benzo(a)pyrene	ND	10
Benzoic acid	ND	10
Benzyl alcohol	ND	10
bis(2-Chloroethoxy)methane	ND	10
bis(2-Chloroethyl)ether	ND	10
bis(2-Chloroisopropyl)ether	ND	10
bis(2-Ethylhexyl)phthalate	ND	25
4-Bromophenyl phenyl ether	ND	10
Butyl benzyl phthalate	ND	10
p - Chloroaniline	ND	10
p - Chloro - m - cresol	ND	10
2 - Chloronaphthalene	ND	10
2 - Chlorophenol	ND	10
4-Chlorophenyl phenyl ether	ND	10
Chrysene	ND	10
o - Cresol / 2 - Methylphenol	ND	10
p - Cresol / 4 - Methylphenol	ND	10
Di - n - butylphthalate	ND	25
Dibenz(a,h)anthracene	ND	10
Dibenzofuran	ND	10
o - Dichlorobenzene	ND	10
m - Dichlorobenzene	ND	10
p - Dichlorobenzene	ND	10
3,3' - Dichlorobenzidine	ND	10
2,4 - Dichlorophenol	ND	10
Diethyl phthalate	ND	10
2,4 - Dimethylphenol	ND	10
Dimethyl phthalate	ND	10

EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS (cont)

Client: **K. W. BROWN ENVIRONMENTAL SERVICES**

Project Name: Navajo Refinery

Project Location: Artesia, NM

Project Number: 622092005

Sample ID: NEP - GW - MW - 15

Laboratory ID: C922335

Report Date: 01/07/93

Date Sampled: 11/11/92

Date Analyzed: 11/24/92

Analyte	Concentration (ug/L)	Detection Limit (ug/L)
4,6 - Dinitro - o - cresol	ND	25
2,4 - Dinitrophenol	ND	25
2,4 - Dinitrotoluene	ND	10
2,6 - Dinitrotoluene	ND	10
Di - n - octyl phthalate	ND	25
Fluoranthene	ND	10
Fluorene	ND	10
Hexachlorobenzene	ND	10
Hexachlorocyclopentadiene	ND	25
Hexachloroethane	ND	10
Hexachlorobutadiene	ND	10
Ideno(1,2,3-cd)pyrene	ND	10
Isophorone	ND	10
2 - Methylanthalene	ND	10
Naphthalene	ND	10
o - Nitroaniline	ND	10
m - Nitroaniline	ND	10
p - Nitroaniline	ND	10
Nitrobenzene	ND	10
o - Nitrophenol	ND	10
p - Nitrophenol	ND	10
n - Nitrosodimethylamine	ND	10
n - Nitrosodiphenylamine	ND	10
n-Nitroso-di-n-propylamine	ND	10
Pentachlorophenol	ND	25
Phenanthrene	ND	10
Phenol	ND	10
Pyrene	ND	10
1,2,4 - Trichlorobenzene	ND	10
2,4,5 - Trichlorophenol	ND	10
2,4,6 - Trichlorophenol	ND	10

ND - Analyte not detected at stated limit of detection

EPA Method 8270
SEMIVOLATILE HYDROCARBONS
ADDITIONAL DETECTED COMPOUNDS

Client: **K. W. BROWN ENVIRONMENTAL SERVICES**
Project Name: Navajo Refinery
Project Location: Artesia, NM
Project Number: 622092005
Sample ID: NEP - GW - MW - 15 (mw5 Dup)
Laboratory ID: C922335 (11/13)

Report Date: 01/07/93
Date Sampled: 11/10/92
Date Analyzed: 11/13/92

Tentative Identification	Retention Time (Minutes)	Concentration* (ug/L)
Unknown Hydrocarbon	7.86	40
Unknown Hydrocarbon	8.82	580
Unknown Hydrocarbon	11.04	100
Unknown Hydrocarbon	11.59	80
Unknown Hydrocarbon	12.25	60
Hydrocarbon Envelope	9 - 32	

* - Concentration calculated using assumed Relative Response Factor = 1

Quality Control: Surrogate	Percent Recovery	Acceptance Limits
2 - Fluorophenol	109%	21 - 100%
Phenol - d5	117%	10 - 110%
Nitrobenzene - d5	108%	35 - 114%
2 - Fluorobiphenyl	113%	43 - 116%
2,4,6 - Tribromophenol	123%	10 - 123%
Terphenyl - d14	119%	33 - 141%

References: Method 3510: Separatory Funnel Liquid - Liquid Extraction
Method 8270: Gas Chromatography / Mass Spectrometry for Semivolatile Organics
Test Methods for Evaluating Solid Wastes, SW - 846, United States Environmental Protection Agency, September 1986.

Comments: One acid surrogate above acceptance limit.
Sample was extracted outside of EPA required holding time; therefore, concentrations should be considered minimum.

Analyst

Review

WATER QUALITY REPORT
GENERAL CHEMISTRYCLIENT: K.W. BROWN ENVIRONMENTAL SERVICES
PROJECT: NAVAJO - #622092005

Sample ID: NEP-GW-MW-15

Laboratory Number: C922335/15646

Sample Matrix: WATER

Preservative: COOL

Condition: INTACT

Report Date: 12/30/92

Date Sampled: 11/11/92

Date Received: 11/16/92

Analyte	Concentration	Units	Detection Limit	Method Reference
pH	7.2	s.u.	0.1	SW-846 9040
Conductivity	28100.	umhos/cm	1.	SW-846 9050
Calcium	579.	mg/L	1.	SW-846 6010
Magnesium	1020.	mg/L	0.1	SW-846 6010
Potassium	9.3	mg/L	0.1	SW-846 6010
Sodium	5150.	mg/L	1.	SW-846 6010
Total Alkalinity	427.	mg/L	1.	EPA 310.1
Chloride	5470.	mg/L	1.	SW-846 9251
Sulfate	9740.	mg/L	1.	EPA 375.3
Fluoride	3.3	mg/L	0.1	EPA 340.2
Total Dissolved Solids	24400.	mg/L	10.	EPA 160.1

ND - Parameter not detected at stated detection limit.

Detection limits are derived from practical quantitation levels.

REFERENCE: SW-846 - "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods," United States Environmental Protection Agency, November, 1986.

EPA - "Methods for Chemical Analysis of Water and Wastes," US EPA, EPA 600/4-79-020, Revised March 1983.

Reviewed by:

Mitch Swan

Supervisor--Water Operations



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WATER QUALITY REPORT TRACE METALS

CLIENT: K.W. BROWN ENVIRONMENTAL SERVICES
PROJECT: NAVAJO - #622092005

Sample ID: NEP-GW-MW-15
Laboratory Number: C922335/15646
Sample Matrix: WATER
Preservative: HNO₃, COOL
Condition: INTACT

Report Date: 12/30/92
Date Sampled: 11/11/92
Date Received: 11/16/92
Date Extracted: 11/19/92

Analyte	Concentration	Units	Detection Limit	Method Reference
Total Arsenic	0.077	mg/L	0.005	7061
Dissolved Arsenic	0.062	mg/L	0.005	7061
Total Chromium	0.02	mg/L	0.02	7191
Dissolved Chromium	ND	mg/L	0.02	7191
Total Lead	ND	mg/L	0.02	7421
Dissolved Lead	ND	mg/L	0.02	7421
Total Nickel	0.26	mg/L	0.01	7520
Dissolved Nickel	0.26	mg/L	0.01	7520

ND - Parameter not detected at stated detection limit.

Detection limits are derived from practical quantitation levels.

REFERENCE: Analysis performed according to SW-846 "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods," United States Environmental Protection Agency, November, 1986.

Reviewed by:

Mitch Swan

Supervisor-Water Operations

EPA Method 8240
VOLATILE ORGANIC COMPOUNDS

Client: **K.W. BROWN ENVIRONMENTAL SERVICES, INC.**
Project Name: Navajo Refinery
Project Location: Artesia, NM
Project Number: 622092005
Sample ID: NEP-GW-OCD-2
Laboratory ID: C922357
Sample Matrix: Water
Condition: Cool, intact

Report Date: 12/23/92
Date Sampled: 11/15/92
Date Received: 11/17/92
Date Extracted: 11/28/92
Date Analyzed: 11/28/92

Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Acetone	ND	10
Benzene	ND	5
Bromodichloromethane	ND	5
Bromoform	ND	5
Bromomethane	ND	5
2-Butanone (MEK)	ND	10
Carbon disulfide	ND	5
Carbon tetrachloride	ND	5
Chlorobenzene	ND	5
Chloroethane	ND	10
2-Chloroethyl vinyl ether	ND	50
Chloroform	ND	5
Chloromethane	ND	10
Dibromochloromethane	ND	5
1,1-Dichloroethane	ND	5
1,1-Dichloroethene	ND	5
trans-1,2-Dichloroethene	ND	5
1,2-Dichloroethane	ND	5
1,2-Dichloropropane	ND	5
cis-1,3-Dichloropropene	ND	5
trans-1,3-Dichloropropene	ND	5
Ethylbenzene	ND	5
2-Hexanone	ND	5
Methylene chloride	ND	5
4-Methyl-2-pentanone	ND	5
Styrene	ND	5
1,1,2,2-Tetrachloroethane	ND	5
Tetrachloroethene	ND	5
Toluene	ND	5
1,1,1-Trichloroethane	ND	5
1,1,2-Trichloroethane	ND	5
Trichloroethene	ND	5
Vinyl acetate	ND	5
Vinyl chloride	ND	5
Xylenes (total)	ND	5

ND - Analyte not detected at stated limit of detection

EPA Method 8240

Page 2

VOLATILE ORGANIC COMPOUNDS
ADDITIONAL DETECTED COMPOUNDS

Client: K.W. BROWN ENVIRONMENTAL SERVICES, INC.
Project Name: Navajo Refinery
Project Location: Artesia, NM
Project Number: 622092005
Sample ID: NEP-GW-OCD-2
Laboratory ID: C922357

Report Date: 12/23/92
Date Sampled: 11/15/92
Date Analyzed: 11/28/92

Tentative Identification	Retention Time (Minutes)	Concentration (ug/L)
Unknown hydrocarbon	14.72	16*
Unknown hydrocarbon	17.05	25*
Unknown hydrocarbon	18.61	24*
Unknown hydrocarbon	19.71	27*
Unknown hydrocarbon	21.30	20*

* - Concentration calculated using assumed Relative Response Factor = 1

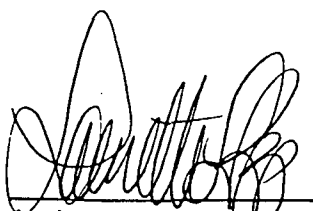
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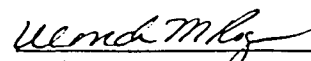
<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Water Acceptance Limits</u>
1,2-Dichloroethane-d4	81%	76 - 114%
Toluene-d8	102%	88 - 110%
Bromofluorobenzene	98%	86 - 115%

Reference:

Method 8240: Gas Chromatography / Mass Spectrometry for Volatile Organics
Test Methods for Evaluating Solid Wastes, SW - 846, United States Environmental Protection Agency, September 1986.

Comments:


Analyst


Review

EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS

Client: **K. W. BROWN ENVIRONMENTAL SERVICES**
 Project Name: Navajo Refinery
 Project Location: Artesia, NM
 Project Number: 622092005
 Sample ID: NEP - GW - OCD - 2
 Laboratory ID: C922357
 Sample Matrix: Water
 Condition: Cool, Intact

Report Date: 01/08/93
 Date Sampled: 11/15/92
 Date Received: 11/17/92
 Date Extracted: 11/22/92
 Date Analyzed: 12/01/92

Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Acenaphthene	ND	10
Acenaphthylene	ND	10
Anthracene	ND	10
Benzo(a)anthracene	ND	10
Benzo(b)fluoranthene	ND	10
Benzo(k)fluoranthene	ND	10
Benzo(g,h,i)perylene	ND	10
Benzo(a)pyrene	ND	10
Benzoic acid	ND	10
Benzyl alcohol	ND	10
bis(2-Chloroethoxy)methane	ND	10
bis(2-Chloroethyl)ether	ND	10
bis(2-Chloroisopropyl)ether	ND	10
bis(2-Ethylhexyl)phthalate	ND	25
4-Bromophenyl phenyl ether	ND	10
Butyl benzyl phthalate	ND	10
p - Chloroaniline	ND	10
p - Chloro - m - cresol	ND	10
2 - Chloronaphthalene	ND	10
2 - Chlorophenol	ND	10
4-Chlorophenyl phenyl ether	ND	10
Chrysene	ND	10
o - Cresol / 2 - Methylphenol	ND	10
p - Cresol / 4 - Methylphenol	ND	10
Di - n - butylphthalate	ND	25
Dibenz(a,h)anthracene	ND	10
Dibenzofuran	ND	10
o - Dichlorobenzene	ND	10
m - Dichlorobenzene	ND	10
p - Dichlorobenzene	ND	10
3,3' - Dichlorobenzidine	ND	10
2,4 - Dichlorophenol	ND	10
Diethyl phthalate	ND	10
2,4 - Dimethylphenol	ND	10
Dimethyl phthalate	ND	25

EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS (cont)

Page 2

Client: **K. W. BROWN ENVIRONMENTAL SERVICES**

Project Name: Navajo Refinery

Project Location: Artesia, NM

Project Number: 622092005

Sample ID: NEP - GW - OCD - 2

Laboratory ID: C922357

Report Date: 01/08/93

Date Sampled: 11/15/92

Date Analyzed: 12/01/92

Analyte	Concentration (ug/L)	Detection Limit (ug/L)
4,6 - Dinitro - o - cresol	ND	25
2,4 - Dinitrophenol	ND	10
2,4 - Dinitrotoluene	ND	10
2,6 - Dinitrotoluene	ND	25
Di - n - octyl phthalate	ND	10
Fluoranthene	ND	10
Fluorene	ND	10
Hexachlorobenzene	ND	25
Hexachlorocyclopentadiene	ND	10
Hexachloroethane	ND	10
Hexachlorobutadiene	ND	10
Ideno(1,2,3-cd)pyrene	ND	10
Isophorone	ND	10
2 - Methyl naphthalene	ND	10
Naphthalene	ND	10
o - Nitroaniline	ND	10
m - Nitroaniline	ND	10
p - Nitroaniline	ND	10
Nitrobenzene	ND	10
o - Nitrophenol	ND	10
p - Nitrophenol	ND	10
n - Nitrosodimethylamine	ND	10
n - Nitrosodiphenylamine	ND	10
n-Nitroso-di-n-propylamine	ND	10
Pentachlorophenol	ND	25
Phenanthrene	ND	10
Phenol	ND	10
Pyrene	ND	10
1,2,4 - Trichlorobenzene	ND	10
2,4,5 - Trichlorophenol	ND	10
2,4,6 - Trichlorophenol	ND	10

ND - Analyte not detected at stated limit of detection

EPA Method 8270
SEMIVOLATILE HYDROCARBONS
ADDITIONAL DETECTED COMPOUNDS

Page 3

Client: **K. W. BROWN ENVIRONMENTAL SERVICES**
Project Name: Navajo Refinery
Project Location: Artesia, NM
Project Number: 622092005
Sample ID: NEP - GW - OCD - 2
Laboratory ID: C922357

Report Date: 01/08/93
Date Sampled: 11/15/92
Date Analyzed: 12/01/92

Tentative Identification	Retention Time (Minutes)	Concentration* (ug/L)
Unknown Hydrocarbon	8.31	20
Unknown Hydrocarbon	8.74	70
Unknown Hydrocarbon	12.03	60
Unknown Hydrocarbon	15.52	20
Hydrocarbon Envelope	9 - 29	

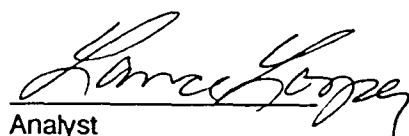
* - Concentration calculated using assumed Relative Response Factor = 1

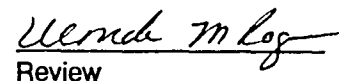
Quality Control:

<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
2 - Fluorophenol	60%	21 - 100%
Phenol - d5	51%	10 - 110%
Nitrobenzene - d5	70%	35 - 114%
2 - Fluorobiphenyl	70%	43 - 116%
2,4,6 - Tribromophenol	82%	10 - 123%
Terphenyl - d14	89%	33 - 141%

References: Method 3510: Separatory Funnel Liquid - Liquid Extraction
Method 8270: Gas Chromatography / Mass Spectrometry for Semivolatile Organics
Test Methods for Evaluating Solid Wastes, SW - 846, United States Environmental
Protection Agency, September 1986.

Comments:


Analyst


Review

**WATER QUALITY REPORT
GENERAL CHEMISTRY**

CLIENT: K.W. BROWN ENVIRONMENTAL SERVICES
PROJECT: NAVAJO - #622092005

Sample ID: NEP-GW-OCD-2 **Report Date:** 12/31/92
Laboratory Number: C922357/15669 **Date Sampled:** 11/15/92
Sample Matrix: WATER **Date Received:** 11/17/92
Preservative: COOL
Condition: INTACT

Analyte	Concentration	Units	Detection Limit	Method Reference
pH	7.0	s.u.	0.1	SW-846 9040
Conductivity	15400.	umhos/cm	1.	SW-846 9050
Calcium	565.	mg/L	1.	EPA 215.2
Magnesium	333.	mg/L	0.1	SW-846 6010
Potassium	8.1	mg/L	0.1	SW-846 6010
Sodium	2510.	mg/L	1.	SW-846 6010
Total Alkalinity	404.	mg/L	1.	EPA 310.1
Chloride	3220.	mg/L	1.	SW-846 9251
Sulfate	3990.	mg/L	1.	EPA 375.3
Fluoride	1.2	mg/L	0.1	EPA 340.2
Total Dissolved Solids	11800.	mg/L	10.	EPA 160.1

ND - Parameter not detected at stated detection limit.

Detection limits are derived from practical quantitation levels.

REFERENCE: SW-846 - "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods," United States Environmental Protection Agency, November, 1986.

EPA - "Methods for Chemical Analysis of Water and Wastes," US EPA, EPA 600/4-79-020, Revised March 1983.

Reviewed by:

Mitch Swan

Supervisor-Water Operations

**WATER QUALITY REPORT
TRACE METALS**

CLIENT: K.W. BROWN ENVIRONMENTAL SERVICES
PROJECT: NAVAJO - #622092005

Sample ID: NEP-GW-OCD-2
Laboratory Number: C922357/15669
Sample Matrix: WATER
Preservative: HNO₃, COOL
Condition: INTACT

Report Date: 12/31/92
Date Sampled: 11/15/92
Date Received: 11/17/92
Date Extracted: 11/19/92

Analyte	Concentration	Units	Detection Limit	Method Reference
Total Arsenic	0.067	mg/L	0.005	7061
Dissolved Arsenic	0.043	mg/L	0.005	7061
Total Chromium	0.04	mg/L	0.02	7191
Dissolved Chromium	ND	mg/L	0.02	7191
Total Lead	ND	mg/L	0.02	7421
Dissolved Lead	ND	mg/L	0.02	7421
Total Nickel	0.15	mg/L	0.01	7520
Dissolved Nickel	0.12	mg/L	0.01	7520

ND - Parameter not detected at stated detection limit.

Detection limits are derived from practical quantitation levels.

REFERENCE: Analysis performed according to SW-846 "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods," United States Environmental Protection Agency, November, 1986.

Reviewed by:

Mitch Swan

Supervisor--Water Operations

EPA Method 8240
VOLATILE ORGANIC COMPOUNDS

Client: **K.W. BROWN ENVIRONMENTAL SERVICES, INC.**
 Project Name: Navajo Refinery
 Project Location: Artesia, NM
 Project Number: 622092005
 Sample ID: NEP-GW-OCD-4
 Laboratory ID: C922398
 Sample Matrix: Water
 Condition: Cool, intact

Report Date: 01/08/93
 Date Sampled: 11/16/92
 Date Received: 11/19/92
 Date Extracted: 12/09/92
 Date Analyzed: 12/09/92

Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Acetone	ND	10
Benzene	ND	5
Bromodichloromethane	ND	5
Bromoform	ND	5
Bromomethane	ND	5
2-Butanone (MEK)	ND	10
Carbon disulfide	ND	5
Carbon tetrachloride	ND	5
Chlorobenzene	ND	5
Chloroethane	ND	10
2-Chloroethyl vinyl ether	ND	50
Chloroform	ND	5
Chloromethane	ND	10
Dibromochloromethane	ND	5
1,1-Dichloroethane	ND	5
1,1-Dichloroethene	ND	5
trans-1,2-Dichloroethene	ND	5
1,2-Dichloroethane	ND	5
1,2-Dichloropropane	ND	5
cis-1,3-Dichloropropene	ND	5
trans-1,3-Dichloropropene	ND	5
Ethylbenzene	ND	5
2-Hexanone	ND	5
Methylene chloride	ND	5
4-Methyl-2-pentanone	ND	5
Styrene	ND	5
1,1,2,2-Tetrachloroethane	ND	5
Tetrachloroethene	ND	5
Toluene	ND	5
1,1,1-Trichloroethane	ND	5
1,1,2-Trichloroethane	ND	5
Trichloroethene	ND	5
Vinyl acetate	ND	5
Vinyl chloride	ND	5
Xylenes (total)	ND	5

ND - Analyte not detected at stated limit of detection

EPA Method 8240

Page 2

VOLATILE ORGANIC COMPOUNDS
ADDITIONAL DETECTED COMPOUNDS

Client: **K.W. BROWN ENVIRONMENTAL SERVICES, INC.**
Project Name: Navajo Refinery
Project Location: Artesia, NM
Project Number: 622092005
Sample ID: NEP-GW-OCD-4
Laboratory ID: C922398

Report Date: 01/08/93
Date Sampled: 11/16/92
Date Analyzed: 12/09/92

Tentative Identification	Retention Time (Minutes)	Concentration (ug/L)
None detected at reportable levels.		

* - Concentration calculated using assumed Relative Response Factor = 1

Quality Control:

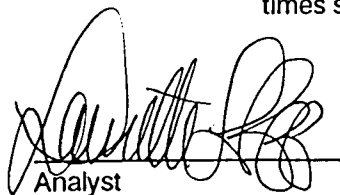
<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Water Acceptance Limits</u>
1,2-Dichloroethane-d4	93%	76 - 114%
Toluene-d8	103%	88 - 110%
Bromofluorobenzene	102%	86 - 115%

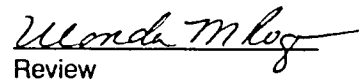
Reference:

Method 8240: Gas Chromatography / Mass Spectrometry for Volatile Organics
Test Methods for Evaluating Solid Wastes, SW - 846, United States Environmental
Protection Agency, September 1986.

Comments:

This sample was analyzed outside of the required holding time.
Analytical results obtained from samples not analyzed within required holding
times should be considered minimum values.


Analyst


Review

EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDSARTESIA, NEW MEXICOClient: **K. W. BROWN ENVIRONMENTAL SERVICES**

Project Name: Navajo Refinery

Project Location: Artesia, NM

Project Number: 622092005

Sample ID: NEP - GW - OCD - 4

Laboratory ID: C922398

Sample Matrix: Water

Condition: Cool, Intact

Report Date: 01/08/93

Date Sampled: 11/16/92

Date Received: 11/19/92

Date Extracted: 11/23/92

Date Analyzed: 12/01/92

Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Acenaphthene	ND	10
Acenaphthylene	ND	10
Anthracene	ND	10
Benzo(a)anthracene	ND	10
Benzo(b)fluoranthene	ND	10
Benzo(k)fluoranthene	ND	10
Benzo(g,h,i)perylene	ND	10
Benzo(a)pyrene	ND	10
Benzoic acid	ND	10
Benzyl alcohol	ND	10
bis(2-Chloroethoxy)methane	ND	10
bis(2-Chloroethyl)ether	ND	10
bis(2-Chloroisopropyl)ether	ND	10
bis(2-Ethylhexyl)phthalate	ND	25
4-Bromophenyl phenyl ether	ND	10
Butyl benzyl phthalate	ND	10
p - Chloroaniline	ND	10
p - Chloro - m - cresol	ND	10
2 - Chloronaphthalene	ND	10
2 - Chlorophenol	ND	10
4-Chlorophenyl phenyl ether	ND	10
Chrysene	ND	10
o - Cresol / 2 - Methylphenol	ND	10
p - Cresol / 4 - Methylphenol	ND	10
Di - n - butylphthalate	ND	25
Dibenz(a,h)anthracene	ND	10
Dibenzofuran	ND	10
o - Dichlorobenzene	ND	10
m - Dichlorobenzene	ND	10
p - Dichlorobenzene	ND	10
3,3' - Dichlorobenzidine	ND	10
2,4 - Dichlorophenol	ND	10
Diethyl phthalate	ND	10
2,4 - Dimethylphenol	ND	10
Dimethyl phthalate	ND	10

EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS (cont)

Client: **K. W. BROWN ENVIRONMENTAL SERVICES**
 Project Name: Navajo Refinery
 Project Location: Artesia, NM
 Project Number: 622092005
 Sample ID: NEP - GW - OCD - 4
 Laboratory ID: C922398

Report Date: 01/08/93
 Date Sampled: 11/16/92
 Date Analyzed: 12/01/92

Analyte	Concentration (ug/L)	Detection Limit (ug/L)
4,6 - Dinitro - o - cresol	ND	25
2,4 - Dinitrophenol	ND	25
2,4 - Dinitrotoluene	ND	10
2,6 - Dinitrotoluene	ND	10
Di - n - octyl phthalate	ND	25
Fluoranthene	ND	10
Fluorene	ND	10
Hexachlorobenzene	ND	10
Hexachlorocyclopentadiene	ND	25
Hexachloroethane	ND	10
Hexachlorobutadiene	ND	10
Ideno(1,2,3-cd)pyrene	ND	10
Isophorone	ND	10
2 - Methylanthralene	ND	10
Naphthalene	ND	10
o - Nitroaniline	ND	10
m - Nitroaniline	ND	10
p - Nitroaniline	ND	10
Nitrobenzene	ND	10
o - Nitrophenol	ND	10
p - Nitrophenol	ND	10
n - Nitrosodimethylamine	ND	10
n - Nitrosodiphenylamine	ND	10
n-Nitroso-di-n-propylamine	ND	10
Pentachlorophenol	ND	25
Phenanthrene	ND	10
Phenol	ND	10
Pyrene	ND	10
1,2,4 - Trichlorobenzene	ND	10
2,4,5 - Trichlorophenol	ND	10
2,4,6 - Trichlorophenol	ND	10

ND - Analyte not detected at stated limit of detection

** - Concentration and detection limit calculated on dry weight basis.

EPA Method 8270
SEMIVOLATILE HYDROCARBONS
ADDITIONAL DETECTED COMPOUNDS

Client: **K. W. BROWN ENVIRONMENTAL SERVICES**

Project Name: Navajo Refinery

Project Location: Artesia, NM

Project Number: 622092005

Sample ID: NEP - GW - OCD - 4

Laboratory ID: C922398

Report Date: 01/08/93

Date Sampled: 11/16/92

Date Analyzed: 12/01/92

Tentative Identification	Retention Time (Minutes)	Concentration* (ug/L)
None detected at reportable levels.		

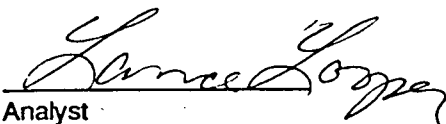
* - Concentration calculated using assumed Relative Response Factor = 1

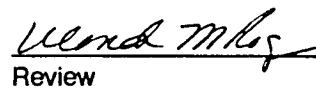
Quality Control:

<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
2 - Fluorophenol	62%	21 - 100%
Phenol - d5	66%	10 - 110%
Nitrobenzene - d5	68%	35 - 114%
2 - Fluorobiphenyl	79%	43 - 116%
2,4,6 - Tribromophenol	103%	10 - 123%
Terphenyl - d14	113%	33 - 141%

References: Method 3510: Separatory Funnel Liquid - Liquid Extraction
Method 8270: Gas Chromatography / Mass Spectrometry for Semivolatile Organics
Test Methods for Evaluating Solid Wastes, SW - 846, United States Environmental
Protection Agency, September 1986.

Comments:


Analyst


Review

**WATER QUALITY REPORT
GENERAL CHEMISTRY**

CLIENT: K.W. BROWN ENVIRONMENTAL SERVICES
PROJECT: NAVAJO - #622092005

Sample ID: NEP-GW-OCD-4
Laboratory Number: C922398/15727
Sample Matrix: WATER
Preservative: COOL
Condition: INTACT

Report Date: 12/31/92
Date Sampled: 11/16/92
Date Received: 11/23/92

Analyte	Concentration	Units	Detection Limit	Method Reference
pH	7.2	s.u.	0.1	SW-846 9040
Conductivity	19000.	umhos/cm	1.	SW-846 9050
Calcium	724.	mg/L	1.	SW-846 6010
Magnesium	240.	mg/L	0.1	SW-846 6010
Potassium	50.	mg/L	0.1	SW-846 6010
Sodium	3120.	mg/L	1.	SW-846 6010
Total Alkalinity	197.	mg/L	1.	EPA 310.1
Chloride	4500.	mg/L	1.	SW-846 9251
Sulfate	3010.	mg/L	1.	EPA 375.3
Fluoride	0.9	mg/L	0.1	EPA 340.2
Total Dissolved Solids	13100.	mg/L	10.	EPA 160.1

ND - Parameter not detected at stated detection limit.

Detection limits are derived from practical quantitation levels.

REFERENCE: SW-846 - "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods," United States Environmental Protection Agency, November, 1986.

EPA - "Methods for Chemical Analysis of Water and Wastes," US EPA, EPA 600/4-79-020, Revised March 1983.

Reviewed by:

Mitch Swan

Supervisor—Water Operations

**WATER QUALITY REPORT
TRACE METALS****CLIENT: K.W. BROWN ENVIRONMENTAL SERVICES**
PROJECT: NAVAJO - #622092005**Sample ID:** NEP-GW-OCD-4
Laboratory Number: C922398/15727
Sample Matrix: WATER
Preservative: HNO₃, COOL
Condition: INTACT**Report Date:** 12/31/92
Date Sampled: 11/16/92
Date Received: 11/23/92
Date Extracted: 11/30/92

Analyte	Concentration	Units	Detection Limit	Method Reference
Total Arsenic	0.015	mg/L	0.005	7061
Dissolved Arsenic	0.005	mg/L	0.005	7061
Total Chromium	ND	mg/L	0.02	7191
Dissolved Chromium	ND	mg/L	0.02	7191
Total Lead	ND	mg/L	0.02	7421
Dissolved Lead	ND	mg/L	0.02	7421
Total Nickel	0.15	mg/L	0.01	7520
Dissolved Nickel	0.11	mg/L	0.01	7520

ND - Parameter not detected at stated detection limit.

Detection limits are derived from practical quantitation levels.

REFERENCE: Analysis performed according to SW-846 "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods," United States Environmental Protection Agency, November, 1986.

Reviewed by:

Mitch Swan

Supervisor—Water Operations

EPA Method 8240
VOLATILE ORGANIC COMPOUNDS

Client: **K.W. BROWN ENVIRONMENTAL SERVICES, INC.**
 Project Name: Navajo Refinery
 Project Location: Artesia, NM
 Project Number: 622092005
 Sample ID: NAV-EP-OCD4
 Laboratory ID: C922568/B925779
 Sample Matrix: Water
 Condition: Cool, intact

Report Date: 01/05/93
 Date Sampled: 12/12/92
 Date Received: 12/24/92
 Date Extracted: 12/24/92
 Date Analyzed: 12/24/92

Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Acetone	ND	10
Benzene	ND	5
Bromodichloromethane	ND	5
Bromoform	ND	5
Bromomethane	ND	5
2-Butanone (MEK)	ND	10
Carbon disulfide	ND	5
Carbon tetrachloride	ND	5
Chlorobenzene	ND	5
Chloroethane	ND	10
2-Chloroethyl vinyl ether	ND	50
Chloroform	ND	5
Chloromethane	ND	10
Dibromochloromethane	ND	5
1,1-Dichloroethane	ND	5
1,1-Dichloroethene	ND	5
trans-1,2-Dichloroethene	ND	5
1,2-Dichloroethane	ND	5
1,2-Dichloropropane	ND	5
cis-1,3-Dichloropropene	ND	5
trans-1,3-Dichloropropene	ND	5
Ethylbenzene	ND	5
2-Hexanone	ND	5
Methylene chloride	ND	5
4-Methyl-2-pentanone	ND	5
Styrene	ND	5
1,1,2,2-Tetrachloroethane	ND	5
Tetrachloroethene	ND	5
Toluene	ND	5
1,1,1-Trichloroethane	ND	5
1,1,2-Trichloroethane	ND	5
Trichloroethene	ND	5
Vinyl acetate	ND	5
Vinyl chloride	ND	5
Xylenes (total)	ND	5

ND - Analyte not detected at stated limit of detection

EPA Method 8240

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VOLATILE ORGANIC COMPOUNDS

ADDITIONAL DETECTED COMPOUNDS

Client: **K.W. BROWN ENVIRONMENTAL SERVICES, INC.**
Project Name: Navajo Refinery
Project Location: Artesia, NM
Project Number: 622092005
Sample ID: NAV-EP-OCD4
Laboratory ID: C922568/B925779

Report Date: 01/05/93
Date Sampled: 12/12/92
Date Analyzed: 12/24/92

Tentative Identification	Retention Time (Minutes)	Concentration (ug/L)
None detected at reportable levels.		

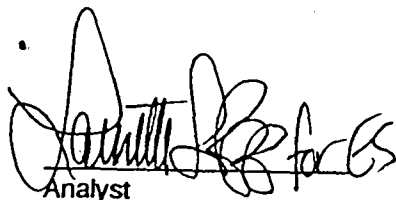
* - Concentration calculated using assumed Relative Response Factor = 1

Quality Control:

<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Water Acceptance Limits</u>
1,2-Dichloroethane-d4	103%	76 - 114%
Toluene-d8	101%	88 - 110%
Bromofluorobenzene	90%	86 - 115%

Reference: Method 8240: Gas Chromatography / Mass Spectrometry for Volatile Organics
Test Methods for Evaluating Solid Wastes, SW - 846, United States Environmental
Protection Agency, September 1986.

Comments:


Analyst


Review

EPA Method 8240
VOLATILE ORGANIC COMPOUNDS

Client: **K.W. BROWN ENVIRONMENTAL SERVICES, INC.**
Project Name: Navajo Refinery
Project Location: Artesia, NM
Project Number: 622092005
Sample ID: NEP-GW-OCD-6
Laboratory ID: C922400
Sample Matrix: Water
Condition: Cool, intact

Report Date: 01/08/93
Date Sampled: 11/16/92
Date Received: 11/19/92
Date Extracted: 12/10/92
Date Analyzed: 12/10/92

Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Acetone	ND	10
Benzene	ND	5
Bromodichloromethane	ND	5
Bromoform	ND	5
Bromomethane	ND	5
2-Butanone (MEK)	ND	10
Carbon disulfide	ND	5
Carbon tetrachloride	ND	5
Chlorobenzene	ND	5
Chloroethane	ND	10
2-Chloroethyl vinyl ether	ND	50
Chloroform	ND	5
Chloromethane	ND	10
Dibromochloromethane	ND	5
1,1-Dichloroethane	ND	5
1,1-Dichloroethene	ND	5
trans-1,2-Dichloroethene	ND	5
1,2-Dichloroethane	ND	5
1,2-Dichloropropane	ND	5
cis-1,3-Dichloropropene	ND	5
trans-1,3-Dichloropropene	ND	5
Ethylbenzene	ND	5
2-Hexanone	ND	5
Methylene chloride	ND	5
4-Methyl-2-pentanone	ND	5
Styrene	ND	5
1,1,2,2-Tetrachloroethane	ND	5
Tetrachloroethene	ND	5
Toluene	ND	5
1,1,1-Trichloroethane	ND	5
1,1,2-Trichloroethane	ND	5
Trichloroethene	ND	5
Vinyl acetate	ND	5
Vinyl chloride	ND	5
Xylenes (total)	ND	5

ND - Analyte not detected at stated limit of detection

EPA Method 8240

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VOLATILE ORGANIC COMPOUNDS
ADDITIONAL DETECTED COMPOUNDS

Client: K.W. BROWN ENVIRONMENTAL SERVICES, INC.
Project Name: Navajo Refinery
Project Location: Artesia, NM
Project Number: 622092005
Sample ID: NEP-GW-OCD-6
Laboratory ID: C922400

Report Date: 01/08/93
Date Sampled: 11/16/92
Date Analyzed: 12/10/92

Tentative Identification	Retention Time (Minutes)	Concentration (ug/L)
Unknown hydrocarbon	13.34	50*
Unknown hydrocarbon	17.05	32*
Unknown hydrocarbon	18.60	37*
Unknown hydrocarbon	19.70	55*
Unknown hydrocarbon	20.64	28*
Unknown hydrocarbon	21.29	49*
Unknown hydrocarbon	22.38	40*

* - Concentration calculated using assumed Relative Response Factor = 1

Quality Control:

<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Water Acceptance Limits</u>
1,2-Dichloroethane-d4	91%	76 - 114%
Toluene-d8	102%	88 - 110%
Bromofluorobenzene	105%	86 - 115%

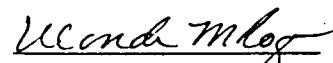
Reference:

Method 8240: Gas Chromatography / Mass Spectrometry for Volatile Organics
Test Methods for Evaluating Solid Wastes, SW - 846, United States Environmental Protection Agency, September 1986.

Comments:

This sample was analyzed outside of the required holding time.
Analytical results obtained from samples not analyzed within required holding times should be considered minimum values.


Analyst


Review

EPA Method 8270

SEMIVOLATILE ORGANIC COMPOUNDS

Client: **K. W. BROWN ENVIRONMENTAL SERVICES**

Project Name: Navajo Refinery

Project Location: Artesia, NM

Project Number: 622092005

Sample ID: NEP - GW - OCD - 6

Laboratory ID: C922400

Sample Matrix: Water

Condition: Cool, Intact

Report Date: 01/08/93

Date Sampled: 11/16/92

Date Received: 11/19/92

Date Extracted: 11/23/92

Date Analyzed: 12/01/92

Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Acenaphthene	ND	10
Acenaphthylene	ND	10
Anthracene	ND	10
Benzo(a)anthracene	ND	10
Benzo(b)fluoranthene	ND	10
Benzo(k)fluoranthene	ND	10
Benzo(g,h,i)perylene	ND	10
Benzo(a)pyrene	ND	10
Benzoic acid	ND	10
Benzyl alcohol	ND	10
bis(2-Chloroethoxy)methane	ND	10
bis(2-Chloroethyl)ether	ND	10
bis(2-Chloroisopropyl)ether	ND	10
bis(2-Ethylhexyl)phthalate	ND	25
4-Bromophenyl phenyl ether	ND	10
Butyl benzyl phthalate	ND	10
p - Chloroaniline	ND	10
p - Chloro - m - cresol	ND	10
2 - Chloronaphthalene	ND	10
2 - Chlorophenol	ND	10
4-Chlorophenyl phenyl ether	ND	10
Chrysene	ND	10
o - Cresol / 2 - Methylphenol	ND	10
p - Cresol / 4 - Methylphenol	ND	10
Di - n - butylphthalate	ND	25
Dibenz(a,h)anthracene	ND	10
Dibenzofuran	ND	10
o - Dichlorobenzene	ND	10
m - Dichlorobenzene	ND	10
p - Dichlorobenzene	ND	10
3,3' - Dichlorobenzidine	ND	10
2,4 - Dichlorophenol	ND	10
Diethyl phthalate	ND	10
2,4 - Dimethylphenol	ND	10
Dimethyl phthalate	ND	10

EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS (cont)

Client: **K. W. BROWN ENVIRONMENTAL SERVICES**
Project Name: Navajo Refinery
Project Location: Artesia, NM
Project Number: 622092005
Sample ID: NEP - GW - OCD - 6
Laboratory ID: C922400

Report Date: 01/08/93
Date Sampled: 11/16/92
Date Analyzed: 12/01/92

Analyte	Concentration (ug/L)	Detection Limit (ug/L)
4,6 - Dinitro - o - cresol	ND	25
2,4 - Dinitrophenol	ND	25
2,4 - Dinitrotoluene	ND	10
2,6 - Dinitrotoluene	ND	10
Di - n - octyl phthalate	ND	25
Fluoranthene	ND	10
Fluorene	ND	10
Hexachlorobenzene	ND	10
Hexachlorocyclopentadiene	ND	25
Hexachloroethane	ND	10
Hexachlorobutadiene	ND	10
Ideno(1,2,3-cd)pyrene	ND	10
Isophorone	ND	10
2 - Methyl naphthalene	ND	10
Naphthalene	ND	10
o - Nitroaniline	ND	10
m - Nitroaniline	ND	10
p - Nitroaniline	ND	10
Nitrobenzene	ND	10
o - Nitrophenol	ND	10
p - Nitrophenol	ND	10
n - Nitrosodimethylamine	ND	10
n - Nitrosodiphenylamine	ND	10
n-Nitroso-di-n-propylamine	ND	10
Pentachlorophenol	ND	25
Phenanthrene	ND	10
Phenol	ND	10
Pyrene	ND	10
1,2,4 - Trichlorobenzene	ND	10
2,4,5 - Trichlorophenol	ND	10
2,4,6 - Trichlorophenol	ND	10

ND - Analyte not detected at stated limit of detection

** - Concentration and detection limit calculated on dry weight basis.

EPA Method 8270
SEMIVOLATILE HYDROCARBONS
ADDITIONAL DETECTED COMPOUNDS

Client: K. W. BROWN ENVIRONMENTAL SERVICES

Project Name: Navajo Refinery

Project Location: Artesia, NM

Project Number: 622092005

Sample ID: NEP - GW - OCD - 6

Laboratory ID: C922400

Report Date: 01/08/93

Date Sampled: 11/16/92

Date Analyzed: 12/01/92

Tentative Identification	Retention Time (Minutes)	Concentration* (ug/L)
Unknown Hydrocarbon	8.01	0.06
Unknown Hydrocarbon	8.75	0.11
Unknown Hydrocarbon	10.53	0.02
Unknown Hydrocarbon	12.04	0.07
Unknown Hydrocarbon	15.52	0.02
Hydrocarbon Envelope	7 - 29	

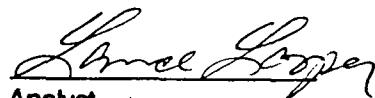
* - Concentration calculated using assumed Relative Response Factor = 1

Quality Control:

<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
2 - Fluorophenol	73%	21 - 100%
Phenol - d5	91%	10 - 110%
Nitrobenzene - d5	85%	35 - 114%
2 - Fluorobiphenyl	96%	43 - 116%
2,4,6 - Tribromophenol	103%	10 - 123%
Terphenyl - d14	118%	33 - 141%

References: Method 3510: Separatory Funnel Liquid - Liquid Extraction
Method 8270: Gas Chromatography / Mass Spectrometry for Semivolatile Organics
Test Methods for Evaluating Solid Wastes, SW - 846, United States Environmental Protection Agency, September 1986.

Comments:


Analyst


Review

WATER QUALITY REPORT
GENERAL CHEMISTRY

CLIENT: K.W. BROWN ENVIRONMENTAL SERVICES
PROJECT: NAVAJO - #622092005

Sample ID: NEP-GW-OCD-6
Laboratory Number: C922400/15729
Sample Matrix: WATER
Preservative: COOL
Condition: INTACT

Report Date: 12/31/92
Date Sampled: 11/16/92
Date Received: 11/23/92

Analyte	Concentration	Units	Detection Limit	Method Reference
pH	7.1	s.u.	0.1	SW-846 9040
Conductivity	14500.	umhos/cm	1.	SW-846 9050
Calcium	675.	mg/L	1.	EPA 215.2
Magnesium	210.	mg/L	0.1	SW-846 6010
Potassium	15.	mg/L	0.1	SW-846 6010
Sodium	2550.	mg/L	1.	SW-846 6010
Total Alkalinity	495.	mg/L	1.	EPA 310.1
Chloride	3000.	mg/L	1.	SW-846 9251
Sulfate	3670.	mg/L	1.	EPA 375.3
Fluoride	2.9	mg/L	0.1	EPA 340.2
Total Dissolved Solids	10900.	mg/L	10.	EPA 160.1

ND - Parameter not detected at stated detection limit.

Detection limits are derived from practical quantitation levels.

REFERENCE: SW-846 - "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods," United States Environmental Protection Agency, November, 1986.

EPA - "Methods for Chemical Analysis of Water and Wastes," US EPA, EPA 600/4-79-020, Revised March 1983.

Reviewed by:

Mitch Swan

Supervisor-Water Operations

**WATER QUALITY REPORT
TRACE METALS**

CLIENT: K.W. BROWN ENVIRONMENTAL SERVICES
PROJECT: NAVAJO - #622092005

Sample ID: NEP-GW-OCD-6
Laboratory Number: C922400/15729
Sample Matrix: WATER
Preservative: HNO₃, COOL
Condition: INTACT

Report Date: 12/31/92
Date Sampled: 11/16/92
Date Received: 11/23/92
Date Extracted: 11/30/92

Analyte	Concentration	Units	Detection Limit	Method Reference
Total Arsenic	0.036	mg/L	0.005	7061
Dissolved Arsenic	0.028	mg/L	0.005	7061
Total Chromium	ND	mg/L	0.02	7191
Dissolved Chromium	ND	mg/L	0.02	7191
Total Lead	ND	mg/L	0.02	7421
Dissolved Lead	ND	mg/L	0.02	7421
Total Nickel	0.14	mg/L	0.01	7520
Dissolved Nickel	0.13	mg/L	0.01	7520

ND - Parameter not detected at stated detection limit.

Detection limits are derived from practical quantitation levels.

REFERENCE: Analysis performed according to SW-846 "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods," United States Environmental Protection Agency, November, 1986.

Reviewed by:

Mitch Swan

Supervisor-Water Operations

EPA Method 8240
VOLATILE ORGANIC COMPOUNDS

Client: **K.W. BROWN ENVIRONMENTAL SERVICES, INC.**
 Project Name: Navajo Refinery
 Project Location: Artesia, NM
 Project Number: 622092005
 Sample ID: NAV-EP-OCD6
 Laboratory ID: C922569/B925780
 Sample Matrix: Water
 Condition: Cool, intact

Report Date: 01/05/93
 Date Sampled: 12/12/92
 Date Received: 12/24/92
 Date Extracted: 12/24/92
 Date Analyzed: 12/24/92

Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Acetone	ND	10
Benzene	ND	5
Bromodichloromethane	ND	5
Bromoform	ND	5
Bromomethane	ND	5
2-Butanone (MEK)	ND	10
Carbon disulfide	ND	5
Carbon tetrachloride	ND	5
Chlorobenzene	ND	5
Chloroethane	ND	10
2-Chloroethyl vinyl ether	ND	50
Chloroform	ND	5
Chloromethane	ND	10
Dibromochloromethane	ND	5
1,1-Dichloroethane	ND	5
1,1-Dichloroethene	ND	5
trans-1,2-Dichloroethene	ND	5
1,2-Dichloroethane	ND	5
1,2-Dichloropropane	ND	5
cis-1,3-Dichloropropene	ND	5
trans-1,3-Dichloropropene	ND	5
Ethylbenzene	ND	5
2-Hexanone	ND	5
Methylene chloride	ND	5
4-Methyl-2-pentanone	ND	5
Styrene	ND	5
1,1,2,2-Tetrachloroethane	ND	5
Tetrachloroethene	ND	5
Toluene	ND	5
1,1,1-Trichloroethane	ND	5
1,1,2-Trichloroethane	ND	5
Trichloroethene	ND	5
Vinyl acetate	ND	5
Vinyl chloride	ND	5
Xylenes (total)	ND	5

ND - Analyte not detected at stated limit of detection

EPA Method 8240

Page 2

VOLATILE ORGANIC COMPOUNDS
ADDITIONAL DETECTED COMPOUNDS

Client: **K.W. BROWN ENVIRONMENTAL SERVICES, INC.**
Project Name: Navajo Refinery
Project Location: Artesia, NM
Project Number: 622092005
Sample ID: NAV-EP-OCD6
Laboratory ID: C922569/B925780

Report Date: 01/05/93
Date Sampled: 12/12/92
Date Analyzed: 12/24/92

Tentative Identification	Retention Time (Minutes)	Concentration (ug/L)
Unknown phthalate	18.10	300*
Unknown hydrocarbon	19.83	70*
Unknown hydrocarbon	20.38	70*
Unknown hydrocarbon	20.77	40*
Unknown hydrocarbon	21.44	60*

* - Concentration calculated using assumed Relative Response Factor = 1

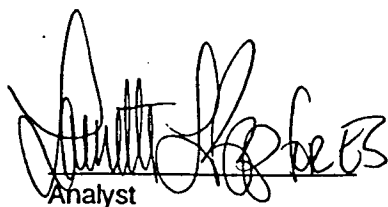
Quality Control:

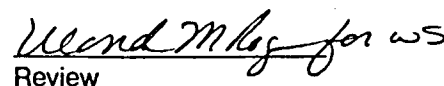
<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Water Acceptance Limits</u>
1,2-Dichloroethane-d4	99%	76 - 114%
Toluene-d8	99%	88 - 110%
Bromofluorobenzene	94%	86 - 115%

Reference:

Method 8240: Gas Chromatography / Mass Spectrometry for Volatile Organics
Test Methods for Evaluating Solid Wastes, SW - 846, United States Environmental
Protection Agency, September 1986.

Comments:


Analyst


Review

EPA Method 8240
VOLATILE ORGANIC COMPOUNDS

Client: **K.W. BROWN ENVIRONMENTAL SERVICES, INC.**
Project Name: Navajo Refinery
Project Location: Artesia, NM
Project Number: 622092005
Sample ID: NEP-GW-OCD-8
Laboratory ID: C922393
Sample Matrix: Water
Condition: Cool, intact

Report Date: 01/08/93
Date Sampled: 11/17/92
Date Received: 11/19/92
Date Extracted: 11/29/92
Date Analyzed: 11/29/92

Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Acetone	ND	10
Benzene	ND	5
Bromodichloromethane	ND	5
Bromoform	ND	5
Bromomethane	ND	5
2-Butanone (MEK)	ND	10
Carbon disulfide	ND	5
Carbon tetrachloride	ND	5
Chlorobenzene	ND	5
Chloroethane	ND	10
2-Chloroethyl vinyl ether	ND	50
Chloroform	ND	5
Chloromethane	ND	10
Dibromochloromethane	ND	5
1,1-Dichloroethane	ND	5
1,1-Dichloroethene	ND	5
trans-1,2-Dichloroethene	ND	5
1,2-Dichloroethane	ND	5
1,2-Dichloropropane	ND	5
cis-1,3-Dichloropropene	ND	5
trans-1,3-Dichloropropene	ND	5
Ethylbenzene	ND	5
2-Hexanone	ND	5
Methylene chloride	ND	5
4-Methyl-2-pentanone	ND	5
Styrene	ND	5
1,1,2,2-Tetrachloroethane	ND	5
Tetrachloroethene	ND	5
Toluene	ND	5
1,1,1-Trichloroethane	ND	5
1,1,2-Trichloroethane	ND	5
Trichloroethene	ND	5
Vinyl acetate	ND	5
Vinyl chloride	ND	5
Xylenes (total)	ND	5

ND - Analyte not detected at stated limit of detection

EPA Method 8240

Page 2

VOLATILE ORGANIC COMPOUNDS

ADDITIONAL DETECTED COMPOUNDS

K.W. BROWN ENVIRONMENTAL SERVICES, INC.

Client: K.W. BROWN ENVIRONMENTAL SERVICES, INC.
Project Name: Navajo Refinery
Project Location: Artesia, NM
Project Number: 622092005
Sample ID: NEP-GW-OCD-8
Laboratory ID: C922393

Report Date: 01/08/93
Date Sampled: 11/17/92
Date Analyzed: 11/29/92

Tentative Identification	Retention Time (Minutes)	Concentration (ug/L)
Unknown hydrocarbon	14.71	110*
Unknown hydrocarbon	17.05	57*
Unknown hydrocarbon	17.97	974*
Unknown hydrocarbon	18.60	41*
Unknown hydrocarbon	19.69	133*
Unknown hydrocarbon	20.23	120*
Unknown hydrocarbon	21.29	108*
Unknown hydrocarbon	21.83	59*
Hydrocarbon envelope	18-24	

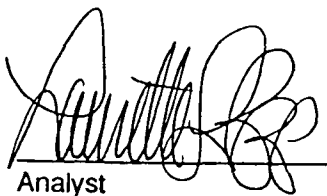
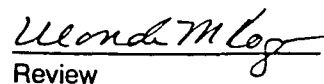
* - Concentration calculated using assumed Relative Response Factor = 1

Quality Control:

Surrogate	Percent Recovery	Water Acceptance Limits
1,2-Dichloroethane-d4	93%	76 - 114%
Toluene-d8	103%	88 - 110%
Bromofluorobenzene	99%	86 - 115%

Reference: Method 8240: Gas Chromatography / Mass Spectrometry for Volatile Organics
Test Methods for Evaluating Solid Wastes, SW - 846, United States Environmental Protection Agency, September 1986.

Comments:


Analyst
Review

EPA Method 8270 **SEMIVOLATILE ORGANIC COMPOUNDS**

Client: K. W. BROWN ENVIRONMENTAL SERVICES

Project Name: Navajo Refinery

Project Location: Artesia, NM

Project Number: 622092005

Sample ID: NEP - GW - OCD - 8

Laboratory ID: C922393

Sample Matrix: Water

Condition: Cool, Intact

Report Date: 01/08/93

Date Sampled: 11/17/92

Date Received: 11/19/92

Date Extracted: 11/24/92

Date Analyzed: 12/02/92

Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Acenaphthene	ND	10
Acenaphthylene	ND	10
Anthracene	ND	10
Benzo(a)anthracene	ND	10
Benzo(b)fluoranthene	ND	10
Benzo(k)fluoranthene	ND	10
Benzo(g,h,i)perylene	ND	10
Benzo(a)pyrene	ND	10
Benzoic acid	ND	10
Benzyl alcohol	ND	10
bis(2-Chloroethoxy)methane	ND	10
bis(2-Chloroethyl)ether	ND	10
bis(2-Chloroisopropyl)ether	ND	10
bis(2-Ethylhexyl)phthalate	ND	25
4-Bromophenyl phenyl ether	ND	10
Butyl benzyl phthalate	ND	10
p - Chloroaniline	ND	10
p - Chloro - m - cresol	ND	10
2 - Chloronaphthalene	ND	10
2 - Chlorophenol	ND	10
4-Chlorophenyl phenyl ether	ND	10
Chrysene	ND	10
o - Cresol / 2 - Methylphenol	ND	10
p - Cresol / 4 - Methylphenol	ND	10
Di - n - butylphthalate	ND	25
Dibenz(a,h)anthracene	ND	10
Dibenzofuran	ND	10
o - Dichlorobenzene	ND	10
m - Dichlorobenzene	ND	10
p - Dichlorobenzene	ND	10
3,3' - Dichlorobenzidine	ND	10
2,4 - Dichlorophenol	ND	10
Diethyl phthalate	ND	10
2,4 - Dimethylphenol	ND	10
Dimethyl phthalate	ND	25

EPA Method 8270
SEMIVOLATILE ORGANIC COMPOUNDS (cont)

Page 2

Client: **K. W. BROWN ENVIRONMENTAL SERVICES**

Project Name: Navajo Refinery

Project Location: Artesia, NM

Project Number: 622092005

Sample ID: NEP - GW - OCD - 8

Laboratory ID: C922393

Report Date: 01/08/93

Date Sampled: 11/17/92

Date Analyzed: 12/02/92

Analyte	Concentration (ug/L)	Detection Limit (ug/L)
4,6 - Dinitro - o - cresol	ND	25
2,4 - Dinitrophenol	ND	10
2,4 - Dinitrotoluene	ND	10
2,6 - Dinitrotoluene	ND	25
Di - n - octyl phthalate	ND	10
Fluoranthene	ND	10
Fluorene	ND	10
Hexachlorobenzene	ND	25
Hexachlorocyclopentadiene	ND	10
Hexachloroethane	ND	10
Hexachlorobutadiene	ND	10
Indeno(1,2,3-cd)pyrene	ND	10
Isophorone	ND	10
2 - Methylanthralene	ND	10
Naphthalene	ND	10
o - Nitroaniline	ND	10
m - Nitroaniline	ND	10
p - Nitroaniline	ND	10
Nitrobenzene	ND	10
o - Nitrophenol	ND	10
p - Nitrophenol	ND	10
n - Nitrosodimethylamine	ND	10
n - Nitrosodiphenylamine	ND	10
n-Nitroso-di-n-propylamine	ND	10
Pentachlorophenol	ND	25
Phenanthrene	ND	10
Phenol	ND	10
Pyrene	ND	10
1,2,4 - Trichlorobenzene	ND	10
2,4,5 - Trichlorophenol	ND	10
2,4,6 - Trichlorophenol	ND	10

ND - Analyte not detected at stated limit of detection

EPA Method 8270
SEMIVOLATILE HYDROCARBONS
ADDITIONAL DETECTED COMPOUNDS

Page 3

Client: **K. W. BROWN ENVIRONMENTAL SERVICES**
Project Name: Navajo Refinery
Project Location: Artesia, NM
Project Number: 622092005
Sample ID: NEP - GW - OCD - 8
Laboratory ID: C922393

Report Date: 01/08/93
Date Sampled: 11/17/92
Date Analyzed: 12/02/92

Tentative Identification	Retention Time (Minutes)	Concentration* (ug/L)
Unknown Hydrocarbon	8.75	170
Unknown Hydrocarbon	10.51	40
Unknown Hydrocarbon	11.01	20
Unknown Hydrocarbon	12.02	30
Unknown Hydrocarbon	15.50	20
Hydrocarbon Envelope	10 - 29	

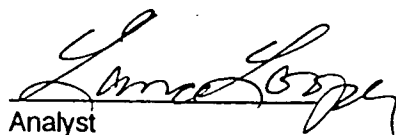
* - Concentration calculated using assumed Relative Response Factor = 1

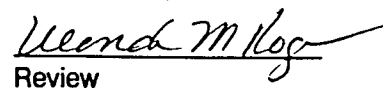
Quality Control:

<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
2 - Fluorophenol	16%	21 - 100%
Phenol - d5	17%	10 - 110%
Nitrobenzene - d5	40%	35 - 114%
2 - Fluorobiphenyl	35%	43 - 116%
2,4,6 - Tribromophenol	26%	10 - 123%
Terphenyl - d14	54%	33 - 141%

References: Method 3510: Separatory Funnel Liquid - Liquid Extraction
Method 8270: Gas Chromatography / Mass Spectrometry for Semivolatile Organics
Test Methods for Evaluating Solid Wastes, SW - 846, United States Environmental
Protection Agency, September 1986.

Comments: One acid and one B/N surrogate outside acceptance limits.


Analyst


Review

TELEPHONE
(505) 748-3311



REFINING COMPANY

501 EAST MAIN STREET • P. O. DRAWER 1597ED

EASYLINK
62905278

FAX
(505) 746-6410

ARTESIA, NEW MEXICO 88210

'92 00 PM 10 20

October 12, 1992

Mr. Roger Anderson
NM Oil Conservation Division
Land Office Building
P.O. Box 2088
Santa Fe, NM 87501

RE: SPRING 1992 REPORT - GROUNDWATER SAMPLING AROUND EVAPORATION PONDS

Dear Roger:

Enclosed are results from our Spring '92 sampling. 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>Groundwater</u> <u>ft amsl</u>	<u>pH</u>	<u>EC</u> <u>umhos</u>	<u>Deg. C</u>	<u>Description</u>
MW-3	3303.75	6.88	7100	21.7	Mod. Odor, Slightly Soapy
MW-4	3306.48	7.06	6830	20.5	Mod. Odor, Slightly Foamy
MW-5	3302.79	6.99	28200	19.9	Soapy, Slt. Odor, Silty, Oil Sheen
MW-6	3304.01	7.07	4380	23.7	Brown H ₂ O, Silty, Organic Odor
MW-7	3302.48	7.2	13900	18.9	Slight Odor, Mod. Silt, Brown
OCD-1	3306.08	7.15	14800	17.7	Lt. Oily Sheen, Murky Water
OCD-3	3303.04	6.93	15600	18.8	Murky Water
OCD-5	3302.82	6.99	16200	18.3	Brown Color
OCD-7	3304.61	7.31	13500	20.0	Gas Odor, Brown Color

Mr. Roger Anderson
Page 2

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

Respectfully yours,

A handwritten signature in black ink that reads "Darrell Moore". The signature is written in a cursive style with a large, prominent "D" and "M".

Darrell Moore
Environmental Specialist

DGM/pb
enclosures

DGM-QRTL:pb

Hobbs
Midland
Amarillo
Trevose

BETZ INDUSTRIAL

Navajo Refining Co.
Artesia, New Mexico

Analytical Services

Report to: Mr. David Griffin; Mr. Ronald Loyd

SAMPLE WELLS

	MW-6	MW-3	MW-4	MW-5	MW-7				
Hold	9	6	6	7	6				
Cut	1' -2"	1' -4"	1' -8"	2' 6-1/4	2' -4"				
Conductivity	4380	7100	6830	28200	13900				
pH	7.07	6.88	7.06	6.99	7.2				
Temp.	23.7	21.7	20.5	19.9	18.9				

	OCD-1	OCD-3	OCD-5	OCD-7					
Hold	8	11	9	6					
Cut	1'4-3/4"	1'6-1/2"	1'8-7/8"	1'4-3/8"					
Conductivity	14800	15600	16200	13500					
pH	7.15	6.93	6.99	7.31					
Temp.	17.7	18.8	18.3	20					

Comments:

MW-6 Water discolored brownish, silt present, moderate organic odor.

MW-3 Moderate odor, slightly soapy.

MW-4 Moderate odor, slightly foamy.

MW-5 Soapy, slight odor, very silty, brownish color, light oil sheen.

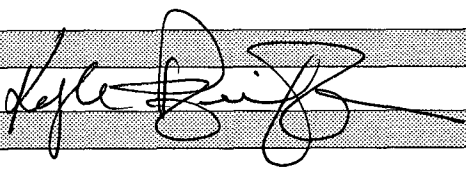
MW-7 Slight odor, moderate silt, brownish color.

OCD-1 Light oily sheen, murky water.

OCD-3 Murky water.

OCD-5 Brownish in color.

OCD-7 Gas odor, brownish in color.

SIGNED: 

06/11/92



Sample Description: MW-3
Date Sampled: 6/10/92

Laboratory ID: C0612575

TEST	VALUE	UNITS	METHOD	ANALYZED
M-Alkalinity, as CaCO ₃	250.0	mg/L	SM 403 16th	6/25/92
P-Alkalinity, as CaCO ₃	0.0	mg/L	SM 403 16th	6/25/92
Chloride, as Cl	1480.0	mg/L	EPA 9251	6/24/92
Flouride, total	2.40	mg/L	EPA 340.2	6/16/92
Sulfate, as SO ₄	2620.0	mg/L	EPA 9038	6/19/92
Calcium, total	498.0	mg/L	EPA 6010	6/26/92
Magnesium, total	167.0	mg/L	EPA 6010	6/26/92
Potassium, total	10.3	mg/L	EPA 6010	6/26/92
Sodium, total	1030.0	mg/L	EPA 6010	6/26/92
Bicarbonate, alk as CaCO ₃	250.0	mg/L	calculation	N/A
Carbonate, alk as CaCO ₃	0.0	mg/L	calculation	N/A

Sample Description: MW-3
Date Sampled: 6/10/92

Laboratory ID: C0612575
Date Analyzed: 6/17/92 19:28
Analyst: AF/RDW

TEST	VALUE	QUANT. LIM.	METHOD
BTEX		5.0 ug/L	EPA 8020
Benzene	10 ug/L		
Ethylbenzene	10 ug/L		
Toluene	16 ug/L		
*Total Xylenes	24 ug/L		

8020 Surrogate recovery:
Trifluorotoluene 117 %

Limits:
78-168 %

* = 2 times limit of detection.



BETZ
Analytical Services

Page 6

Sample Description: MW-4
Date Sampled: 6/10/92

Laboratory ID: C0612576

TEST	VALUE	UNITS	METHOD	ANALYZED
M-Alkalinity, as CaCO ₃	217.0	mg/L	SM 403 16th	6/25/92
P-Alkalinity, as CaCO ₃	0.0	mg/L	SM 403 16th	6/25/92
Chloride, as Cl	1500.0	mg/L	EPA 9251	6/24/92
Flouride, total	1.70	mg/L	EPA 340.2	6/16/92
Sulfate, as SO ₄	1630.0	mg/L	EPA 9038	6/19/92
Calcium, total	382.0	mg/L	EPA 6010	6/26/92
Magnesium, total	117.0	mg/L	EPA 6010	6/26/92
Potassium, total	6.0	mg/L	EPA 6010	6/26/92
Sodium, total	1010.0	mg/L	EPA 6010	6/26/92
Bicarbonate, alk as CaCO ₃	217.0	mg/L	calculation	N/A
Carbonate, alk as CaCO ₃	0.0	mg/L	calculation	N/A

Sample Description: MW-4
Date Sampled: 6/10/92

Laboratory ID: C0612576
Date Analyzed: 6/17/92 20:04
Analyst: AF/RDW

TEST	VALUE	QUANT. LIM.	METHOD
BTEX		5.0 ug/L	EPA 8020
Benzene	18 ug/L		
Ethylbenzene	14 ug/L		
Toluene	6 ug/L		
*Total Xylenes	35 ug/L		

8020 Surrogate recovery:
Trifluorotoluene 121 %

Limits:
78-168 %

* = 2 times limit of detection.



BETZ
Analytical Services

Page 7

Sample Description: MW-4
Date Sampled: 6/10/92
Date Extracted: 6/15/92
Dilution: 1:10

Laboratory ID: C0612576
Date Analyzed: 7/24/92 09:51
Analyst: JC

ACID EXTRACTABLE ORGANICS (EPA 8270)

Compound	ug/L
4-Chloro-3-methylphenol	ND
2-Chlorophenol	ND
2,4-Dichlorophenol	ND
2,4-Dimethylphenol	ND
2,4-Dinitrophenol	ND *
2-Methyl-4,6-dinitrophenol	ND *
2-Nitrophenol	ND
4-Nitrophenol	ND *
Pentachlorophenol	ND *
Phenol	ND
2,4,6-Trichlorophenol	ND

Limit of Practical Quantitation is 100 ug/L, unless otherwise noted in brackets.

* = 5 times limit of detection

Surrogate Recovery:

2-Fluorophenol	39 %
Phenol-d5	69 %
2,4,6-Tribromophenol	60 %

Recovery Limits:

10- 94 %
21-100 %
10-123 %



BETZ
Analytical Services

Page 8

Sample Description: MW-4
Date Sampled: 6/10/92
Date Extracted: 6/15/92
Dilution: 1:10

Laboratory ID: C0612576
Date Analyzed: 7/24/92 09:51
Analyst: JC

BASE NEUTRAL EXTRACTABLE ORGANICS (EPA 8270)

Compound	ug/L
Acenaphthene	ND
Acenaphthylene	ND
Anthracene	ND
Benzidine	ND
Benzo(a)anthracene	ND
Benzo(b)fluoranthene	ND
Benzo(k)fluoranthene	ND
Benzo(a)pyrene	ND
Benzo(ghi)perylene	ND
Benzyl alcohol	ND
Benzyl butyl phthalate	ND
Bis(2-chloroethyl)ether	ND
Bis(2-chloroethoxy)methane	ND
Bis(2-ethylhexyl)phthalate	ND
Bis(2-chloroisopropyl)ether	ND
4-Bromophenyl phenyl ether	ND
4-Chloroaniline	ND
2-Chloronaphthalene	ND
4-Chlorophenyl phenyl ether	ND
Chrysene	ND
Dibenzo(a,h)anthracene	ND
Di-n-butyl phthalate	ND
1,2-Dichlorobenzene	ND
1,3-Dichlorobenzene	ND
1,4-Dichlorobenzene	ND
3,3'-Dichlorobenzidine	ND *



BASE/NEUTRAL EXTRACTABLE ORGANICS (EPA 8270)
Laboratory ID: C0612576 (Continued)

Compound	ug/L
Diethyl phthalate	ND
Dimethyl phthalate	ND
2,4-Dinitrotoluene	ND
2,6-Dinitrotoluene	ND
Di-n-octyl phthalate	ND
Fluoranthene	ND
Fluorene	ND
Hexachlorobenzene	ND
Hexachlorobutadiene	ND
Hexachloroethane	ND
Indeno(1,2,3-cd)pyrene	ND
Isophorone	ND
2-Methylnaphthalene	ND
Naphthalene	ND
2-Nitroaniline	ND
3-Nitroaniline	ND
4-Nitroaniline	ND
Nitrobenzene	ND
N-Nitrosodi-n-propylamine	ND
N-Nitrosodimethylamine	ND
N-Nitrosodiphenylamine	ND
Phenanthrene	ND
Pyrene	ND
1,2,4-Trichlorobenzene	ND

Limit of Practical Quantitation is 100 ug/L, unless otherwise noted in brackets.

* = 2 times limit of detection

		Recovery Limits	
Surrogate Recovery:	Nitrobenzene-d5	70 %	35 - 114 %
	2-Fluorobiphenyl	91 %	43 - 116 %
	Terphenyl-d14	98 %	33 - 141 %



BETZ
Analytical Services

Page 10

Sample Description: MW-5
Date Sampled: 6/10/92

Laboratory ID: C0612577

TEST	VALUE	UNITS	METHOD	ANALYZED
M-Alkalinity, as CaCO ₃	493.0	mg/L	SM 403 16th	6/25/92
P-Alkalinity, as CaCO ₃	0.0	mg/L	SM 403 16th	6/25/92
Chloride, as Cl	7860.0	mg/L	EPA 9251	6/24/92
Flouride, total	3.50	mg/L	EPA 340.2	6/16/92
Sulfate, as SO ₄	11100.0	mg/L	EPA 9038	6/19/92
Calcium, total	817.0	mg/L	EPA 6010	6/24/92
Magnesium, total	1360.0	mg/L	EPA 6010	6/24/92
Potassium, total	62.5	mg/L	EPA 6010	6/24/92
Sodium, total	5780.0	mg/L	EPA 6010	6/24/92
Bicarbonate, alk as CaCO ₃	493.0	mg/L	calculation	N/A
Carbonate, alk as CaCO ₃	0.0	mg/L	calculation	N/A

Sample Description: MW-5
Date Sampled: 6/10/92

Laboratory ID: C0612577
Date Analyzed: 6/17/92 20:39
Analyst: AF/RDW

TEST	VALUE	QUANT. LIM.	METHOD
BTEX		5.0 ug/L	EPA 8020
Benzene	ND		
Ethylbenzene	ND		
Toluene	< 5 ug/L		
*Total Xylenes	< 10 ug/L		

8020 Surrogate recovery:
Trifluorotoluene 115 %

Limits:
78-168 %

* = 2 times limit of detection.



BETZ
Analytical Services

Navajo Refining Company
501 East Main Street
P.O. Drawer 159
Artesia, New Mexico 88210

Date Submitted: 6/12/92
Date Reported: 7/29/92
Partial Reported: 7/14/92

Attn: David Griffin

Sample Description: MW-6
Date Sampled: 6/10/92

Laboratory ID: C0612574

TEST	VALUE	UNITS	METHOD	ANALYZED
M-Alkalinity, as CaCO ₃	135.0	mg/L	SM 403 16th	6/25/92
P-Alkalinity, as CaCO ₃	0.0	mg/L	SM 403 16th	6/25/92
Chloride, as Cl	966.0	mg/L	EPA 9251	6/24/92
Flouride, total	2.40	mg/L	EPA 340.2	6/16/92
Sulfate, as SO ₄	1520.0	mg/L	EPA 9038	6/19/92
Calcium, total	343.0	mg/L	EPA 6010	6/26/92
Magnesium, total	92.5	mg/L	EPA 6010	6/26/92
Potassium, total	6.78	mg/L	EPA 6010	6/26/92
Sodium, total	637.0	mg/L	EPA 6010	6/26/92
Bicarbonate, alk as CaCO ₃	135.0	mg/L	calculation	N/A
Carbonate, alk as CaCO ₃	0.0	mg/L	calculation	N/A

Sample Description: MW-6
Date Sampled: 6/10/92

Laboratory ID: C0612574
Date Analyzed: 6/17/92 18:53
Analyst: AF/RDW

TEST	VALUE	QUANT. LIM.	METHOD
BTEX		5.0 ug/L	EPA 8020
Benzene	< 5 ug/L		
Ethylbenzene	< 5 ug/L		
Toluene	< 5 ug/L		
*Total Xylenes	14 ug/L		

8020 Surrogate recovery:
Trifluorotoluene 117 %

Limits:
78-168 %

* = 2 times limit of detection.



BETZ
Analytical Services

Page 2

Sample Description: MW-6
Date Sampled: 6/10/92
Date Extracted: 6/15/92
Dilution: 1:10

Laboratory ID: C0612574
Date Analyzed: 7/24/92 08:52
Analyst: JC

ACID EXTRACTABLE ORGANICS (EPA 8270)

Compound	ug/L
4-Chloro-3-methylphenol	ND
2-Chlorophenol	ND
2,4-Dichlorophenol	ND
2,4-Dimethylphenol	ND
2,4-Dinitrophenol	ND *
2-Methyl-4,6-dinitrophenol	ND *
2-Nitrophenol	ND
4-Nitrophenol	ND *
Pentachlorophenol	ND *
Phenol	ND
2,4,6-Trichlorophenol	ND

Limit of Practical Quantitation is 100 ug/L, unless otherwise noted in brackets.

* = 5 times limit of detection

Surrogate Recovery:

2-Fluorophenol	71 %
Phenol-d5	83 %
2,4,6-Tribromophenol	65 %

Recovery Limits:

10-94 %
21-100 %
10-123 %



BETZ
Analytical Services

Page 3

Sample Description: MW-6
Date Sampled: 6/10/92
Date Extracted: 6/15/92
Dilution: 1:10

Laboratory ID: C0612574
Date Analyzed: 7/24/92 08:52
Analyst: JC

BASE NEUTRAL EXTRACTABLE ORGANICS (EPA 8270)

Compound	ug/L
Acenaphthene	ND
Acenaphthylene	ND
Anthracene	ND
Benzidine	ND
Benzo(a)anthracene	ND
Benzo(b)fluoranthene	ND
Benzo(k)fluoranthene	ND
Benzo(a)pyrene	ND
Benzo(ghi)perylene	ND
Benzyl alcohol	ND
Benzyl butyl phthalate	ND
Bis(2-chloroethyl)ether	ND
Bis(2-chloroethoxy)methane	ND
Bis(2-ethylhexyl)phthalate	ND
Bis(2-chloroisopropyl)ether	ND
4-Bromophenyl phenyl ether	ND
4-Chloroaniline	ND
2-Chloronaphthalene	ND
4-Chlorophenyl phenyl ether	ND
Chrysene	ND
Dibenzo(a,h)anthracene	ND
Di-n-butyl phthalate	ND
1,2-Dichlorobenzene	ND
1,3-Dichlorobenzene	ND
1,4-Dichlorobenzene	ND
3,3'-Dichlorobenzidine	ND *



BASE/NEUTRAL EXTRACTABLE ORGANICS (EPA 8270)
Laboratory ID: C0612574 (Continued)

Compound	ug/L
Diethyl phthalate	ND
Dimethyl phthalate	ND
2,4-Dinitrotoluene	ND
2,6-Dinitrotoluene	ND
Di-n-octyl phthalate	ND
Fluoranthene	ND
Fluorene	ND
Hexachlorobenzene	ND
Hexachlorobutadiene	ND
Hexachloroethane	ND
Indeno(1,2,3-cd)pyrene	ND
Isophorone	ND
2-Methylnaphthalene	ND
Naphthalene	ND
2-Nitroaniline	ND
3-Nitroaniline	ND
4-Nitroaniline	ND
Nitrobenzene	ND
N-Nitrosodi-n-propylamine	ND
N-Nitrosodimethylamine	ND
N-Nitrosodiphenylamine	ND
Phenanthrene	ND
Pyrene	ND
1,2,4-Trichlorobenzene	ND

Limit of Practical Quantitation is 100 ug/L, unless otherwise noted in brackets.

* = 2 times limit of detection

Surrogate Recovery:		Recovery Limits			
Nitrobenzene-d5	82 %	35	-	114	%
2-Fluorobiphenyl	92 %	43	-	116	%
Terphenyl-d14	110 %	33	-	141	%



BETZ
Analytical Services

Page 11

Sample Description: MW-7
Date Sampled: 6/10/92

Laboratory ID: C0612578

TEST	VALUE	UNITS	METHOD	ANALYZED
M-Alkalinity, as CaCO ₃	457.0	mg/L	SM 403 16th	6/25/92
P-Alkalinity, as CaCO ₃	0.0	mg/L	SM 403 16th	6/25/92
Chloride, as Cl	3750.0	mg/L	EPA 9251	6/24/92
Flouride, total	1.40	mg/L	EPA 340.2	6/16/92
Sulfate, as SO ₄	3480.0	mg/L	EPA 9038	6/23/92
Calcium, total	482.0	mg/L	EPA 6010	6/26/92
Magnesium, total	406.0	mg/L	EPA 6010	6/26/92
Potassium, total	18.9	mg/L	EPA 6010	6/26/92
Sodium, total	2400.0	mg/L	EPA 6010	6/26/92
Bicarbonate, alk as CaCO ₃	457.0	mg/L	calculation	N/A
Carbonate, alk as CaCO ₃	0.0	mg/L	calculation	N/A

Sample Description: MW-7
Date Sampled: 6/10/92

Laboratory ID: C0612578
Date Analyzed: 6/17/92 21:14
Analyst: AF/RDW

TEST	VALUE	QUANT. LIM.	METHOD
BTEX		5.0 ug/L	EPA 8020
Benzene	ND		
Ethylbenzene	< 5 ug/L		
Toluene	ND		
*Total Xylenes	< 10 ug/L		

8020 Surrogate recovery:
Trifluorotoluene 109 %

Limits:
78-168 %

* = 2 times limit of detection.



Sample Description: OCD-1
Date Sampled: 6/11/92

Laboratory ID: C0612579

TEST	VALUE	UNITS	METHOD	ANALYZED
M-Alkalinity, as CaCO ₃	555.0	mg/L	SM 403 16th	6/25/92
P-Alkalinity, as CaCO ₃	0.0	mg/L	SM 403 16th	6/25/92
Chloride, as Cl	4090.0	mg/L	EPA 9251	6/24/92
Flouride, total	4.80	mg/L	EPA 340.2	6/16/92
Sulfate, as SO ₄	3880.0	mg/L	EPA 9038	6/23/92
Calcium, total	740.0	mg/L	EPA 6010	6/26/92
Magnesium, total	229.0	mg/L	EPA 6010	6/26/92
Potassium, total	26.2	mg/L	EPA 6010	6/26/92
Sodium, total	2660.0	mg/L	EPA 6010	6/26/92
Bicarbonate, alk as CaCO ₃	555.0	mg/L	calculation	N/A
Carbonate, alk as CaCO ₃	0.0	mg/L	calculation	N/A

Sample Description: OCD-1
Date Sampled: 6/11/92

Laboratory ID: C0612579
Date Analyzed: 6/17/92 21:49
Analyst: AF/RDW

TEST	VALUE	QUANT. LIM.	METHOD
BTEX		5.0 ug/L	EPA 8020
Benzene	ND		
Ethylbenzene	ND		
Toluene	ND		
*Total Xylenes	< 10 ug/L		

8020 Surrogate recovery:
Trifluorotoluene 103 %

Limits:
78-168 %

* = 2 times limit of detection.



BETZ
Analytical Services

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Sample Description: OCD-3
Date Sampled: 6/11/92

Laboratory ID: C0612580

TEST	VALUE	UNITS	METHOD	ANALYZED
M-Alkalinity, as CaCO ₃	276.0	mg/L	SM 403 16th	6/25/92
P-Alkalinity, as CaCO ₃	0.0	mg/L	SM 403 16th	6/25/92
Chloride, as Cl	5500.0	mg/L	EPA 9251	6/24/92
Flouride, total	0.90	mg/L	EPA 340.2	6/16/92
Sulfate, as SO ₄	2560.0	mg/L	EPA 9038	6/23/92
Calcium, total	918.0	mg/L	EPA 6010	6/26/92
Magnesium, total	280.0	mg/L	EPA 6010	6/26/92
Potassium, total	40.9	mg/L	EPA 6010	6/26/92
Sodium, total	2470.0	mg/L	EPA 6010	6/26/92
Bicarbonate, alk as CaCO ₃	276.0	mg/L	calculation	N/A
Carbonate, alk as CaCO ₃	0.0	mg/L	calculation	N/A

Sample Description: OCD-3
Date Sampled: 6/11/92

Laboratory ID: C0612580
Date Analyzed: 6/17/92 22:24
Analyst: AF/RDW

TEST	VALUE	QUANT. LIM.	METHOD
BTEX		5.0 ug/L	EPA 8020
Benzene	ND		
Ethylbenzene	ND		
Toluene	ND		
*Total Xylenes	ND		

8020 Surrogate recovery:
Trifluorotoluene 96 %

Limits:
78-168 %

* = 2 times limit of detection.



BETZ
Analytical Services

Page 14

Sample Description: OCD-5
Date Sampled: 6/11/92

Laboratory ID: C0612581

TEST	VALUE	UNITS	METHOD	ANALYZED
M-Alkalinity, as CaCO ₃	273.0	mg/L	SM 403 16th	6/25/92
P-Alkalinity, as CaCO ₃	0.0	mg/L	SM 403 16th	6/25/92
Chloride, as Cl	5740.0	mg/L	EPA 9251	6/24/92
Flouride, total	0.90	mg/L	EPA 340.2	7/06/92
Sulfate, as SO ₄	3140.0	mg/L	EPA 9038	6/23/92
Calcium, total	790.0	mg/L	EPA 6010	6/24/92
Magnesium, total	246.0	mg/L	EPA 6010	6/24/92
Potassium, total	40.6	mg/L	EPA 6010	6/24/92
Sodium, total	2830.0	mg/L	EPA 6010	6/24/92
Bicarbonate, alk as CaCO ₃	273.0	mg/L	calculation	N/A
Carbonate, alk as CaCO ₃	0.0	mg/L	calculation	N/A

Sample Description: OCD-5
Date Sampled: 6/11/92

Laboratory ID: C0612581
Date Analyzed: 6/17/92 22:59
Analyst: AF/RDW

TEST	VALUE	QUANT. LIM.	METHOD
BTEX		5.0 ug/L	EPA 8020
Benzene	ND		
Ethylbenzene	ND		
Toluene	ND		
*Total Xylenes	< 10 ug/L		
8020 Surrogate recovery:		Limits:	
Trifluorotoluene	99 %	78-168 %	

* = 2 times limit of detection.



BETZ
Analytical Services

Page 15

Sample Description: OCD-7
Date Sampled: 6/11/92

Laboratory ID: C0612582

TEST	VALUE	UNITS	METHOD	ANALYZED
M-Alkalinity, as CaCO ₃	607.0	mg/L	SM 403 16th	6/25/92
P-Alkalinity, as CaCO ₃	0.0	mg/L	SM 403 16th	6/25/92
Chloride, as Cl	3820.0	mg/L	EPA 9251	6/24/92
Flouride, total	7.60	mg/L	EPA 340.2	7/06/92
Sulfate, as SO ₄	3470.0	mg/L	EPA 9038	6/23/92
Calcium, total	720.0	mg/L	EPA 6010	6/24/92
Magnesium, total	218.0	mg/L	EPA 6010	6/24/92
Potassium, total	18.3	mg/L	EPA 6010	6/24/92
Sodium, total	2260.0	mg/L	EPA 6010	6/24/92
Bicarbonate, alk as CaCO ₃	607.0	mg/L	calculation	N/A
Carbonate, alk as CaCO ₃	0.0	mg/L	calculation	N/A

Sample Description: OCD-7
Date Sampled: 6/11/92

Laboratory ID: C0612582
Date Analyzed: 6/17/92 23:34
Analyst: AF/RDW

TEST	VALUE	QUANT. LIM.	METHOD
BTEX		5.0 ug/L	EPA 8020
Benzene	ND		
Ethylbenzene	ND		
Toluene	ND		
*Total Xylenes	< 10 ug/L		

8020 Surrogate recovery:
Trifluorotoluene 101 %

Limits:
78-168 %

* = 2 times limit of detection.

Client Name/Address:

MR. DAVID GRIFFIN

NAVATO REFINING Co. 501 E. MAIN ARTESIA, N.M.

P.O. Number	Invoice to: SAME AS
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Samplers (Signature)

Project Number

5

Mike T. & Rick D.

Sta No. 48 Date 4 Time

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ORGANIC CHEMISTRY ANALYTICAL REQUEST FORM

SCIENTIFIC LABORATORY DIVISION

700 CAMINO DE SALUD N.E., ALBUQUERQUE, NM 87106

Organic Chemistry Section - Telephone: (505) 841-2570

SLD No. **OR92 0514 -C**

Date Received: **3/20/92**

2 User Code #: **7103210** 3 Request ID No.: **028740-C** 4 Priority Code #: **11110** (If 11 or 12, call SLD Coordinator)

5 Facility Name: **NAVAJO REFINERY** 6 County: **EDDY** 7 City: **ARTESIA** 8 State: **NM**

9 Sample Location: **FINAL EFFLUENT**

10 Collected By: **ROGER ANDERSON** On: **92/03/16** At: **11110** hrs. (First Last) Date: (YY/MM/DD) Time: 24 hr. clock 3:00 pm = 1500 hrs.

11 Codes: Submitter **WSS #** Organization **Latitude (DDMMSS)** Longitude (DDMMSS) 2 Digit ID (If needed)

13 Report To: **ROGER ANDERSON** 14 Phone #: **(505) 827-5812**

Address: **New Mexico Oil Conservation Division** **P. O. Box 2088** **Santa Fe, New Mexico 87504-2088** 15 Sampling Information: Sample Purpose: ☐ - Grab ☐ - Composite (Composite Time Period) ☐ - Compliance ☐ - Flow Proportioned ☐ - Check ☐ - Equal Aliquot ☐ - Monitoring ☐ - Sample Split w/Permittee ☐ - Special ☐ - Chain of Custody

16 Field Data: pH: **12.5** Conductivity: **12800** umhos @ **35** °C. Temperature: **°C** Chlorine Residual: **mg/l** Flow: **l/min**

17 Sample Source: ☐ -Stream ☐ -Well; Depth: ☐ -Lake ☐ -Spring ☐ -Drain ☐ -Distribution ☐ -Pool ☒ -Point-of-Entry ☐ -WWTP ☐ -Other: 18 Field Notes/Sample #:

19 Sample Type: ☐ -Water, ☐ -Soil, ☐ -Food, ☒ -Wastewater, ☐ -Other This form accompanies a single sample consisting of: 2 - septum vial(s) (volume =) - glass jugs (volume =) (volume =) 20 Preservation: ☐ - NP No Preservation; Sample stored at room temperature ☒ - P-ice Sample stored in an ice bath (Not Frozen) ☐ - P-TS Sample Preserved with Sodium Thiosulfate to remove chlorine residual ☐ - P-HCl Sample Preserved with Hydrochloric Acid (2 drops/40 ml) ☒ - Other HgCl

21 Analyses Requested: Please check the appropriate box(es) below to indicate the type of analytical screen(s) required. Whenever possible, list specific compounds suspected or required.

Volatile Screens:

- ☐ - (753) Aliphatic Headspace (1-5 Carbons)
☒ - (754) Aromatic & Halogenated Purgeables (EPA 601 & 602)
☐ - (765) Mass Spectrometer Purgeables (EPA 624)
☐ - (766) SDWA Total Trihalomethanes (EPA 501.1)
☐ - (774) SDWA VOC's I [8 Regulated +] (EPA 502.2)
☐ - (775) SDWA VOC's II [EDB & DBCP] (EPA 504)

Other Specific Compounds or Classes:

- ☐ - ()
☐ - ()
☐ - ()

Semivolatile Screens:

- ☐ - (763) Acid Extractables
☐ - (751) Aliphatic Hydrocarbons
☐ - (755) Base/Neutral Extractables (EPA 625)
☐ - (756) Base/Neutral/Acid Extractables (EPA 8270)
☐ - (758) Herbicides, Chlorophenoxy Acid
☐ - (759) Herbicides, Triazines
☐ - (760) Organochlorine Pesticides
☐ - (761) Organophosphate Pesticides
☐ - (767) Polychlorinated Biphenyls (PCB's)
☐ - (764) Polynuclear Aromatic Hydrocarbons
☐ - (762) SDWA Pesticides & Herbicides

Remarks:

RECEIVED

APR 21 1992

OIL CONSERVATION DIV
SANTA FE

DEFINITIONS:

The term **SDWA Pesticides & Herbicides** shall mean that the following parameters will be determined: Endrin, Lindane, Methoxychlor, Toxaphene, 2, 4-D, and 2, 4, 5-TP (Silvex). Special container(s) required. Sample should be refrigerated.

The term **SDWA VOC's I** shall mean that the following parameters shall be determined: Aromatic and Halogenated purgeables to determine the presence of Benzene, Carbon tetrachloride, 1,1-Dichloroethylene, 1,2-Dichloroethane, para-Dichlorobenzene, Trichloroethylene, and Vinyl chloride plus 49 unregulated contaminants. Special container(s) required. Sample should be refrigerated.

The term **SDWA VOC's II** shall mean that the following parameters shall be determined: Ethylene dibromide (EDB) and 1,2-Dibromo-3-chloropropane (DBCP). Special container(s) required. Sample should be refrigerated.

The term **SDWA Total Trihalomethanes** that the following parameters shall be determined: Total Trihalomethanes. Special container(s) required. Sample should be refrigerated.

SAMPLE CONTAINERS:

All Volatile Screens require two 40 ml VOC Septum Vials.

All Semivolatile Screens (except 762) require two 1-liter bottles filled approximately 4/5ths full.

SDWA Pesticides & Herbicides Screen (762) requires three 1-liter bottles filled approximately 4/5ths full.

Refrigerated means keep cool (0-4 °C), but do not freeze.

Please contact the Organic Section with questions on sampling or interpretation of data/results.

//////////////////// Use Only When Necessary //////////////////////////////////////
CHAIN OF CUSTODY

I certify that this sample was transferred from _____ to _____

at (location) _____ on _____ Date at _____ Time

Evidentiary Seals: ☐ -Not Sealed

Seals Intact: ☐ -Yes ☐ -No

Signatures _____

and from (if applicable) _____ to _____

at (location) _____ on _____ Date at _____ Time

Evidentiary Seals: ☐ -Not Sealed

Seals Intact: ☐ -Yes ☐ -No

Signatures _____

SCIENTIFIC LABORATORY DIVISION

P.O. Box 4700
Albuquerque, NM 87196-4700700 Camino de Salud, NE
[505]-841-2500

ORGANIC CHEMISTRY SECTION [505]-841-2570

APR 21 1992

OIL CONSERVATION DIV.

SANTA FE

Distribution

☐ User 70320☒ Submitter 998☒ SLD Files

April 15, 1992

Request

ID No. 028740

ANALYTICAL REPORT
SLD Accession No. OR-92-0514To: R. Anderson
New Mexico Oil Conservation Division
P.O. Box 2088
Santa Fe, NM 87504-2088From: Organic Chemistry Section
Scientific Laboratory Div.
700 Camino de Salud, NE
Albuquerque, NM 87106

Re: A water, purgeable sample submitted to this laboratory on March 20, 1992

DEMOGRAPHIC DATA

COLLECTION		LOCATION
On: 16-Mar-92	By: And ...	Final Effluent
At: 11:10 hrs.	In/Near: Artesia	

ANALYTICAL RESULTS: Aromatic & Halogenated Purgeable [EPA-601/2] Screen {754}

Parameter	Value	Note	MDL	Units
Halogenated Volatiles (42)	0.00	N	200.00	ppb
Benzene	10500.00		200.00	ppb
Toluene	9900.00		200.00	ppb
Ethylbenzene	1100.00		200.00	ppb
p- & m-Xylene	1200.00		200.00	ppb
o-Xylene	1500.00		200.00	ppb
1,2,4-Trimethylbenzene	407.00		200.00	ppb

See Laboratory Remarks for Additional Information

Notations & Comments:

MDL = Minimal Detectable Level.

A = Approximate Value; N = None Detected above Detection Limit; P = Compound Present, but not quantified;

T = Trace (<Detection Limit); U = Compound Identity Not Confirmed.

Evidentiary Seals: Not Sealed ☒; Intact: No ☐, Yes ☐ & Broken By: _____ Date: _____

Laboratory Remarks:

One compound eluting from near toluene at approximately 60,000 ppb detected by the photoionization detector but not identified.

In addition to the compounds in the above table the following were also detected;

Naphthalene 615.0 ppb 200

VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: NM SCIENTIFIC LABORATORY DIVISION Contract: N/A

(Continued on page 2.)

ANALYTICAL REPORT

SLD Accession No. OR-92-0514

Continuation, Page 2 of 4

Lab Code: N/A Case No.: N/A
Matrix: (soil/water) Water
Sample wt/vol: 5.0 (g/mL) mL
Level: (low/med) Low
% Moisture: not dec. N/A dec. N/A
Extraction: (SepF/Cont/Sonc) N/A
GPC Cleanup: (Y/N) No pH:

SAS No.: N/A SDG No.: N/A
Lab Sample ID: OR-92-0514
SLD Batch No: 64
Date Received: 3/20/92
Date Extracted: N/A
Date Analyzed: 4/1/92
Dilution Factor: 200
CONCENTRATION UNITS:
(ug/L or ug/Kg): ug/L

This sample was analyzed for the following compounds
using EPA Methods 601 & 602

CAS NO.	COMPOUND	CONC.	QUALIFIER
67-64-1	Acetone	1000.0	U
71-43-2	Benzene	10500.	
108-86-1	Bromobenzene	200.0	U
74-97-5	Bromochloromethane	200.0	U
75-27-4	Bromodichloromethane	200.0	U
75-25-2	Bromoform	200.0	U
78-93-3	2-Butanone (MEK)	1000.0	U
104-51-8	n-Butylbenzene	200.0	U
135-98-8	sec-Butylbenzene	200.0	U
98-06-6	tert-Butylbenzene	200.0	U
1634-04-4	tert-Butyl methyl ether (MTBE)	1000.0	U
56-23-5	Carbon tetrachloride	200.0	U
108-90-7	Chlorobenzene	200.0	U
67-66-3	Chloroform	200.0	U
95-49-8	2-Chlorotoluene	200.0	U
106-43-4	4-Chlorotoluene	200.0	U
96-12-8	1,2-Dibromo-3-chloropropane	200.0	U
124-48-1	Dibromochloromethane	200.0	U
106-93-4	1,2-Dibromoethane	200.0	U
74-95-3	Dibromomethane	200.0	U
95-50-1	1,2-Dichlorobenzene	200.0	U
541-73-1	1,3-Dichlorobenzene	200.0	U
106-46-7	1,4-Dichlorobenzene	200.0	U
75-71-8	Dichlorodifluoromethane	200.0	U
75-34-3	1,1-Dichloroethane	200.0	U
107-06-2	1,2-Dichloroethane	200.0	U
75-35-4	1,1-Dichloroethene	200.0	U
156-59-4	cis-1,2-Dichloroethene	200.0	U
156-60-5	trans-1,2-Dichloroethene	200.0	U

(Continued on page 3.)

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SANTA FE

ANALYTICAL REPORT
 SLD Accession No. OR-92-0514
 Continuation, Page 3 of 4

78-87-5	1,2-Dichloropropane	200.0	U
142-28-9	1,3-Dichloropropane	200.0	U
590-20-7	2,2-Dichloropropane	200.0	U
563-58-6	1,1-Dichloropropene	200.0	U
1006-01-5	cis-1,3-Dichloropropene	200.0	U
1006-02-6	trans-1,3-Dichloropropene	200.0	U
100-41-4	Ethylbenzene	1100.0	
87-68-3	Hexachlorobutadiene	200.0	U
98-82-8	Isopropylbenzene	200.0	U
99-87-6	4-Isopropyltoluene	200.0	U
75-09-2	Methylene chloride	200.0	U
90-12-0	1-Methylnaphthalene	200.0	U
91-57-6	2-Methylnaphthalene	200.0	U
91-20-3	Naphthalene	615.0	
103-65-1	Propylbenzene	200.0	U
100-42-5	Styrene	200.0	U
630-20-6	1,1,1,2-Tetrachloroethane	200.0	U
79-34-5	1,1,2,2-Tetrachloroethane	200.0	U
127-18-4	Tetrachloroethene	200.0	U
109-99-9	Tetrahydrofuran (THF)	1000.0	U
108-88-3	Toluene	9900.0	
87-61-5	1,2,3-Trichlorobenzene	200.0	U
120-82-1	1,2,4-Trichlorobenzene	200.0	U
71-55-6	1,1,1-Trichloroethane	200.0	U
79-00-5	1,1,2-Trichloroethane	200.0	U
79-01-6	Trichloroethene	200.0	U
75-69-4	Trichlorofluoromethane	200.0	U
96-18-4	1,2,3-Trichloropropane	200.0	U
95-63-6	1,2,4-Trimethylbenzene	407.0	
108-67-8	1,3,5-Trimethylbenzene	200.0	U
75-01-4	Vinyl chloride	200.0	U
95-47-6	o-Xylene	1500.0	
N/A	p- & m-Xylene	1200.0	

Qualifier Definitions:

- B - Indicates compound was detected in the Lab Blank as well as in the sample.
- D - Indicates value taken from a secondary (diluted) sample analysis.
- E - Indicates compound concentration exceeded the range of the standard curve.
- J - Indicates an estimated value for tentatively identified compounds, or for compounds detected and identified but present at a

(Continued on page 4.)

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 SANTA FE

- concentration less than the quantitation limit.
N - Indicates that more than one peak was used for quantitation.
U - Indicates compound was analyzed for, but not detected above the concentration listed (Quantitation Limit).

QUALITY CONTROL SUMMARY FOR VOLATILES SCREEN

METHOD BLANK: A laboratory method blank was analyzed along with this sample to assure the absence of interfering contaminants from lab reagents, instruments, or the general laboratory environment. Unless listed below, no contaminants were detected in this blank above the reported detection limit.

COMPOUND DETECTED	CONCENTRATION (PPB)
No Compounds Detected	

SURROGATE RECOVERIES:

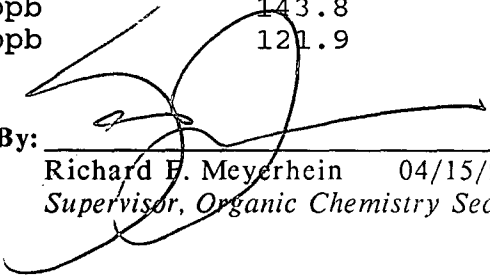
SURROGATE	CONCENTRATION	% RECOVERY
Bromofluorobenzene	25.0 ppb	99.5
2-Bromo-1-chloropropane	25.0 ppb	95.9

SPIKE RECOVERY: The % recoveries for compounds in the batch spike were from 80% to 120% with the exception of the compounds listed below:

COMPOUND	CONCENTRATION	% RECOVERY
1,1-Dichloroethene	36.0 ppb	143.8
1,2-Dichlorobenzene	30.5 ppb	121.9

Analyst: 

Gary C. Eden
Analyst, Organic Chemistry

Reviewed By: 

Richard F. Meyerhein 04/15/92
Supervisor, Organic Chemistry Section

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OIL CONSERVATION DIV
SANTA FE



STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

92 MAR 25 AM 9 04

Contract Lab SWL

Contract No. _____

OCD Sample No. 9203161110

Collection Date	Collection Time	Collected by —Person/Agency
92/03/16	1110	ROGER ANDERSON/OCD

SITE INFORMATION

Sample location

NAVARO REFINERY

Collection Site Description

FINAL EFFLUENT AT POND 2

Township, Range, Section, Tract:

SEND
FINAL
REPORT
TO ↓ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted: 2

SAMPLING CONDITIONS	☐ Bailed ☐ Pump	Water level	
	☒ Dipped ☐ Tap	Discharge	
		Sample type <u>GRAB</u>	
	pH(00400) <u>12.5</u>	Conductivity (Uncorrected) <u>12800</u> μ mho	
	Water Temp. (00010) <u>35°C</u>	Conductivity at 25° C <u> </u> μ mho	
		☒ NF: Whole sample (Non-filtered)	
		☐ F: Filtered in field with 0.45 μ m membrane filter	
		☐ PF: Pre-filtered w/45 μ m membrane filter	
		☐ NA: No acid added	☐ A: 5ml conc. HNO ₃ added
		☐ A: HCL	☐ A: 4ml fuming HNO ₃ added
		☐ A: 2ml H ₂ SO ₄ added	<u>X</u> : <u>HgCl</u>
		FIELD COMMENTS:	

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METH
☒ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	7
☐ 002	VOA	602	☐ 014	VOC	8240	☐ 027	Pb	7
☐ 003	VOH	8010	☐ 015	VOC	624	☐ 028	Hg(L)	7
☐ 004	VOH	601	☐ 016	SVOC	8250	☐ 031	Se	7
☒ 005	SUITE	8010-8020	☐ 017	SVOC	625	☐ 032	ICAP	6
☐ 006	SUITE	601-602	☐ 018	VOC	8260	☐ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N SUITE	
☐ 008	PAH	8100	☐ 020	O&G	9070	☐ 035	NITRATE	
☐ 009	PAH	610	☐ 022	AS	7060	☐ 036	NITRITE	
☐ 010	PCB	8080	☐ 023	Ba	7080	☐ 037	AMMONIA	
☐ 011	PCB	608	☐ 024	Cr	7190	☐ 038	TKN	
☐ 012	PHENOL	8040	☐ 025	Cr6	7198	☐	OTHER	



SOUTHWESTERN LABORATORIES

OIL CONSERVATION
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Materials, environmental and geotechnical engineering, nondestructive, metallurgical and analytical services

2575 LONE STAR DRIVE * P.O. BOX 224227, DALLAS, TEXAS 75222 * 214/631-2700

'92 APR 10 AM

Client OIL CONSERVATION DIVISION
P.O. BOX 2088,
SANTA FE, NEW MEXICO
87504-2088
Attn: KATHY M. BROWN

Client No. 23178400
Report No. D2-03-255
Report Date 04/07/92 16:08

Project HALLBRTN ARTESIA/NAVAJO RFNRY

Date Sampled 03/16/92

Sampled By ROGER ANDERSON/OCD

Sample Type WASTE WATER

Transported by LSO

P.O. # CONTRACT#80-521.07-140

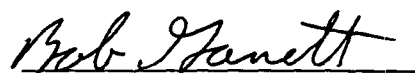
Date Received 03/25/92

Lab No.
D2-03-255-01
D2-03-255-02

Sample Identification
9203161110/NAVAJO REFINERY
9203161445/HALLBRTN ARTSIA

SOUTHWESTERN LABORATORIES


Reviewed By


Bob Garrett, Mgr., EAS

SOUTHWESTERN LABORATORIES

Order # D2-03-255
04/07/92 16:08
Client: OIL CONSERVATION DIVISION

Page 2

TEST RESULTS BY SAMPLE

Sample: 01A 9203161110/NAVAJO REFINERY Collected: 03/16/92 11:10

<u>Test Name</u>	<u>Method</u>	<u>Result</u>	<u>Units</u>	<u>Detection</u>	<u>Date</u>	<u>Limit</u>	<u>Started</u>	<u>Analyst</u>
Volatile Organics	EPA 624/8240	Enclosure	Date Com				04/02/92	LK

Sample: 02A 9203161445/HALLBRTN ARTSIA Collected: 03/16/92 14:45

<u>Test Name</u>	<u>Method</u>	<u>Result</u>	<u>Units</u>	<u>Detection</u>	<u>Date</u>	<u>Limit</u>	<u>Started</u>	<u>Analyst</u>
Volatile Organics	EPA 624/8240	Enclosure	Date Com				04/01/92	LK

Lab Name: SOUTHWESTERN LABORATORIES

Client: Oil Conservation

Instrument ID: 70 1

[illegible]

William J. Gase
William J. Gase, Lab Supervisor, EAS

VOLATILE ORGANICS ANALYSIS DATA SHEET
EPA METHOD 8240

Lab Name: SOUTHWESTERN LABORATORIES
Lab Code: 54-55 Dallas
Matrix: (soil/water) WATER
Sample wt/vol: 0.05 (g/mL) mL
Level: (low/med) LOW
Dilution Factor: 1.0

Lab Number: 9203255-1
Client: Oil Conservation
Sample ID: 9203161110/Navajo
Lab File ID: >AF819
Date Received: 3/25/92
Date Analyzed: 4/02/92

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
107-02-8-----	Acrolein_____	5000.	U
107-13-1-----	Acrylonitrile_____	5000.	U
75-71-8-----	Dichlorodifluoromethane_____	1000.	U
74-88-4-----	Iodomethane_____	1000.	U
74-87-3-----	Chloromethane_____	1000.	U
74-83-9-----	Bromomethane_____	1000.	U
75-01-4-----	Vinyl Chloride_____	1000.	U
75-69-4-----	Trichlorofluoromethane_____	1000.	U
75-00-3-----	Chloroethane_____	1000.	U
75-09-2-----	Methylene_Chloride_____	500.	U
75-15-0-----	Carbon Disulfide_____	500.	U
75-35-4-----	1,1-Dichloroethene_____	500.	U
75-34-3-----	1,1-Dichloroethane_____	500.	U
156-60-5-----	trans-1,2-Dichloroethene_____	500.	U
67-66-3-----	Chloroform_____	500.	U
107-02-2-----	1,2-Dichloroethane_____	500.	U
78-93-3-----	2-Butanone_____	10000.	U
71-55-6-----	1,1,1-Trichloroethane_____	500.	U
56-23-5-----	Carbon Tetrachloride_____	500.	U
108-05-4-----	Vinyl Acetate_____	5000.	U
74-95-3-----	Dibromomethane_____	500.	U

NOTE: U - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.
D - The result is from a diluted sample.
B - The compound was found in the method blank.

VOLATILE ORGANICS ANALYSIS DATA SHEET
EPA METHOD 8240

Lab Name: SOUTHWESTERN LABORATORIES
Lab Code: 54-55 Dallas
Matrix: (soil/water) WATER
Sample wt/vol: 0.05 (g/mL) mL
Level: (low/med) LOW
Dilution Factor: 1.0

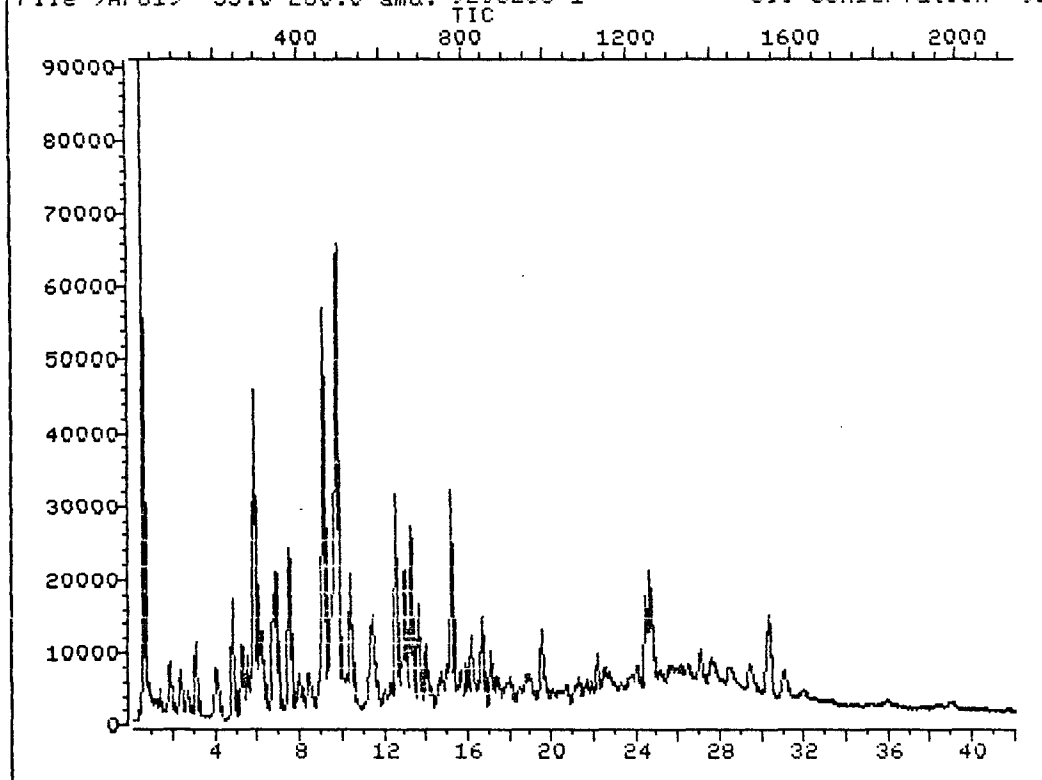
Lab Number: 9203255-1
Client: Oil Conservation
Sample ID: 9203161110/Navajo
Lab File ID: >AF819
Date Received: 3/25/92
Date Analyzed: 4/02/92

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
110-57-6-----	1,4-Dichloro-2-Butene_____	500.	U
75-27-4-----	Bromodichloromethane_____	500.	U
78-87-5-----	1,2-Dichloropropane_____	500.	U
110-75-8-----	2-Chloroethylvinyl_Ether_____	1000.	U
10061-01-5-----	cis-1,3-Dichloropropene_____	500.	U
79-01-6-----	Trichloroethene_____	500.	U
124-48-1-----	Dibromochloromethane_____	500.	U
79-00-5-----	1,1,2-Trichloroethane_____	500.	U
71-43-2-----	Benzene_____	14000.	
10061-02-6-----	trans-1,3-Dichloropropene_____	500.	U
75-25-2-----	Bromoform_____	500.	U
108-10-1-----	4-Methyl-2-pentanone_____	5000.	U
591-78-6-----	2-Hexanone_____	5000.	U
127-18-4-----	Tetrachloroethene_____	500.	U
96-18-4-----	1,2,3-Trichloropropane_____	500.	U
97-63-2-----	Ethyl Methacrylate_____	500.	U
79-34-5-----	1,1,2,2-Tetrachloroethane_____	500.	U
108-88-3-----	Toluene_____	16000.	
108-90-7-----	Chlorobenzene_____	500.	U
100-41-4-----	Ethylbenzene_____	4100.	
100-42-5-----	Styrene_____	500.	U
133-02-7-----	Xylene (total)_____	1800.	

NOTE: U - Compound analyzed for but not detected. The reported value is the minimum attainable detection limit for the sample.
D - The result is from a diluted sample.
B - The compound was found in the method blank.

TOTAL ION CHROMATOGRAM

File >AF819 35.0-260.0 amu. 9203255-1 Oil Conservation 92



Data File: >AF819::D3

Quant Output File: ^AF819::QT

Name: 9203255-1

Misc: Oil Conservation 9203161110/Navajo 50ul

Id File: ID_VOA::SC

Title: SWL VOA Standards for 5 Point Calibration Curve MAR '92

Last Calibration: 920303 09:49

Operator ID: RET

Quant Time: 920402 18:08

Injected at: 920402 17:25

TELEPHONE
(505) 746-3311

OIL CONSERVATION DIVISION
RECEIVED
92 MAR 24



REFINING COMPANY

501 EAST MAIN STREET • P. O. DRAWER 159

ARTESIA, NEW MEXICO 88210

March 24, 1992

EASYLINK
62905278

FAX
(505) 746-6410

Mr. Roger Anderson, Acting Chief
Environmental Bureau
Oil Conservation Division
P.O. Box 2088
Santa Fe, NM 87501

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MAR 26 1992

OIL CONSERVATION DIV.
SANTA FE

RE: EVAPORATION PONDS MONITORING RESULTS
SCOPE OF WORK - HYDROCARBON PLUME

Fall '91
Report

Dear Roger:

Enclosed are the documents that Bill Olson of your staff requested. It is regrettable that time did not permit, during your recent sampling visit, for copies to be made for you then.

Concerning the high pH seen during your sampling, Refining Operations informs me that they had experienced a major unit upset in the Merox Unit, which uses caustic (NaOH) to sweeten gasoline blendstock. The upset caused a loss of the caustic inventory in the unit to sewer. Normally the caustic is used in the unit until spent, then shipped to Merichem in Houston, which markets the sulfidic caustic for its sodium sulfide content to paper mills, etc. The upset had been corrected before your visit, but with the residence time in wastewater treatment, the effects of the upset were still seen in your samples.

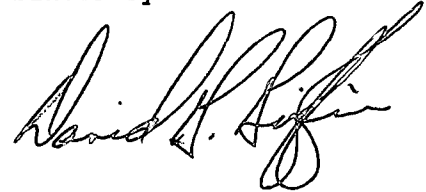
Also for your information, Navajo appears to have finally discovered and corrected the odor problem in Lovington. There were still complaints after Navajo began treating our Lea Refinery Discharge with Fe Cl_3 . The ferric chloride effectively deodorized the effluent, leaving us baffled as to the complaints. Navajo hired consultants to review the City of Lovington's sewer system, and to monitor the home of Mrs. Hillard, who had complained. In addition, Mrs. Hillard's home plumbing was repaired as a joint effort between Navajo and the City (several plumbing code violations were corrected).

The investigation results showed that there is a flow problem in the City sewer main behind Mrs. Hillard's home, which resulted in sewer gas being pumped into her home each time the nearby lift station came on. This had apparently been going on for sometime with the Hillards' becoming accustomed to the odor, at least until Navajo changed the smell.

Mr. Roger Anderson
Page 2

Once the problem was identified, the City relocated the Hillard's and another adjacent sewer tie-in to a new location, where sewer gas will not back pressure the connections. There have now been no complaints and no detectable odors associated with Navajo for the past three days, during which Navajo had discharged around the clock. Needless to say, there is a feeling here that we know more about sewers than we care to. Navajo has decided for the long term, to extend its effluent pipeline directly to the City's POTW and avoid the City sewer collection system.

Sincerely

A handwritten signature in black ink, appearing to read "David G. Griffin". The signature is fluid and cursive, with a large, stylized "G" and "F".

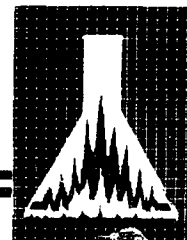
David G. Griffin
Supt. Environmental
Affairs/Quality Control

DGG/pb

enclosures

BETZ

ANALYTICAL SERVICES



P.O. BOX 4300 • 9669 GROGANS MILL ROAD • THE WOODLANDS, TX 77380 • 713-367-6201 • FAX 713-367-3189

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JAN 10 1992

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MAR 26 1992

NAVAJO REFINING CO.

OIL CONSERVATION DIV.
SANTA FE

Navajo Refining Company
501 East Main Street
P.O. Drawer 159
Artesia, New Mexico 88210

January 6, 1992

Attn: Zeke Sherman

Dear Sir:

Attached are the analytical results for your samples identified as as B1209518 through B1209532, which was sampled on December 5 and 6, 1991; your Project No. Req# 883.

We at Betz appreciate the opportunity to serve you with quality analytical testing. If you have any questions about the results, please do not hesitate to contact me.

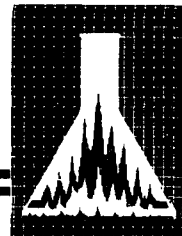
Idelis Z. Williams

Idelis Z. Williams
Project Manager
Betz Laboratories
(713) 367-6201
FAX (713) 367-3189

IZW:jlh
cc: K. Tooker

BETZ

ANALYTICAL SERVICES



P.O. BOX 4300 • 9669 GROGANS MILL ROAD • THE WOODLANDS, TX 77380 • 713-367-6201 • FAX 713-367-3189

Navajo Refining Company
501 East Main Street
P.O. Drawer 159
Artesia, New Mexico 88210

Date Submitted: 12/9/91
Date Reported: 12/6/91

Attn: Zeke Sherman

Sample Description: MW1
Date Sampled: 12/6/91

Laboratory ID: B1209518

TEST	VALUE	UNITS	METHOD	ANALYZED
M-Alkalinity, as CaCO ₃	511	mg/L	EPA 310.1	12/9/91
P-Alkalinity, as CaCO ₃	0.0	mg/L	EPA 310.1	12/9/91
Chloride, as Cl	4740	mg/L	EPA 325.2	12/16/91
Sulfate, as SO ₄	4280	mg/L	EPA 375.4	12/11/91
Calcium, total	624	mg/L	EPA 200.7	12/11/91
Magnesium, total	1030	mg/L	EPA 200.7	12/11/91
Potassium, total	28.0	mg/L	EPA 200.7	12/11/91
Sodium, total	3360	mg/L	EPA 200.7	12/11/91
Hydroxide	0	mg/L	calculation	N/A
Total Dissolved Solids	14700	mg/L	calculation	N/A

Sample Description: MW1
Date Sampled: 12/6/91

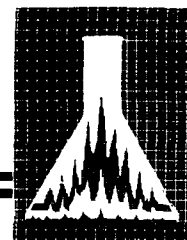
Laboratory ID: B1209518
Date Analyzed: 12/9/91

TEST	VALUE	QUANT. LIM.	METHOD
BTEX		5 ug/L	EPA 8020
Benzene	ND		
Ethylbenzene	ND		
Toluene	< 5 ug/L		
*Total Xylenes	< 10 ug/L		

8020 Surrogate recovery:
Trifluorotoluene 120 %

Limits:
78-168 %

* = 2 times limit of detection.



Page 2

Sample Description: MW2
Date Sampled: 12/6/91

Laboratory ID: B1209519

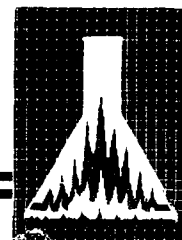
TEST	VALUE	UNITS	METHOD	ANALYZED
M-Alkalinity, as CaCO ₃	422	mg/L	EPA 310.1	12/9/91
P-Alkalinity, as CaCO ₃	0.0	mg/L	EPA 310.1	12/9/91
Chloride, as Cl	2330	mg/L	EPA 325.2	12/16/91
Sulfate, as SO ₄	3460	mg/L	EPA 375.4	12/11/91
Calcium, total	589	mg/L	EPA 200.7	12/11/91
Magnesium, total	151	mg/L	EPA 200.7	12/11/91
Potassium, total	15.5	mg/L	EPA 200.7	12/11/91
Sodium, total	2350	mg/L	EPA 200.7	12/11/91
Hydroxide	0	mg/L	calculation	N/A
Total Dissolved Solids	9410	mg/L	calculation	N/A

Sample Description: MW2
Date Sampled: 12/6/91Laboratory ID: B1209519
Date Analyzed: 12/9/91

TEST	VALUE	QUANT. LIM.	METHOD
BTEX		5 ug/L	EPA 8020
Benzene	ND		
Ethylbenzene	ND		
Toluene	< 5 ug/L		
*Total Xylenes	< 10 ug/L		

8020 Surrogate recovery:
Trifluorotoluene 118 %Limits:
78-168 %

* = 2 times limit of detection.



Page 3

Sample Description: MW3
Date Sampled: 12/5/91

Laboratory ID: B1209520

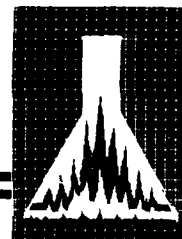
TEST	VALUE	UNITS	METHOD	ANALYZED
M-Alkalinity, as CaCO ₃	276	mg/L	EPA 310.1	12/9/91
P-Alkalinity, as CaCO ₃	0.0	mg/L	EPA 310.1	12/9/91
Chloride, as Cl	1230	mg/L	EPA 325.2	12/16/91
Sulfate, as SO ₄	2570	mg/L	EPA 375.4	12/12/91
Calcium, total	545	mg/L	EPA 200.7	12/11/91
Magnesium, total	199	mg/L	EPA 200.7	12/11/91
Potassium, total	11.9	mg/L	EPA 200.7	12/11/91
Sodium, total	1310	mg/L	EPA 200.7	12/11/91
Hydroxide	0	mg/L	calculation	N/A
Total Dissolved Solids	6200	mg/L	calculation	N/A

Sample Description: MW3
Date Sampled: 12/5/91Laboratory ID: B1209520
Date Analyzed: 12/9/91

TEST	VALUE	QUANT. LIM.	METHOD
BTEX		5 ug/L	EPA 8020
Benzene	< 5 ug/L		
Ethylbenzene	< 5 ug/L		
Toluene	< 5 ug/L		
*Total Xylenes	14 ug/L		

8020 Surrogate recovery:
Trifluorotoluene 111 %Limits:
78-168 %

* = 2 times limit of detection.



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Sample Description: MW4
Date Sampled: 12/5/91

Laboratory ID: B1209521

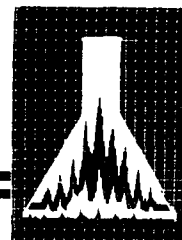
TEST	VALUE	UNITS	METHOD	ANALYZED
M-Alkalinity, as CaCO ₃	234	mg/L	EPA 310.1	12/9/91
P-Alkalinity, as CaCO ₃	0.0	mg/L	EPA 310.1	12/9/91
Chloride, as Cl	1460	mg/L	EPA 325.2	12/16/91
Sulfate, as SO ₄	2200	mg/L	EPA 375.4	12/12/91
Calcium, total	481	mg/L	EPA 200.7	12/11/91
Magnesium, total	140	mg/L	EPA 200.7	12/11/91
Potassium, total	7.24	mg/L	EPA 200.7	12/11/91
Sodium, total	1460	mg/L	EPA 200.7	12/11/91
Hydroxide	0	mg/L	calculation	N/A
Total Dissolved Solids	6030	mg/L	calculation	N/A

Sample Description: MW4
Date Sampled: 12/6/91Laboratory ID: B1209521
Date Analyzed: 12/9/91

TEST	VALUE	QUANT. LIM.	METHOD
BTEX		5 ug/L	EPA 8020
Benzene	17 ug/L		
Ethylbenzene	10 ug/L		
Toluene	7 ug/L		
*Total Xylenes	28 ug/L		

8020 Surrogate recovery:	Limits:
Trifluorotoluene 112 %	78-168 %

* = 2 times limit of detection.



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Sample Description: MW4
Date Sampled: 12/6/91
Date Extracted: 12/9/91

Laboratory ID: B1209521
Date Analyzed: 12/31/91

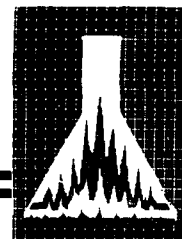
ACID EXTRACTABLE ORGANICS (EPA 8270)

Compound	ug/L
Benzoic acid	ND*
4-Chloro-3-methylphenol	ND
2-Chlorophenol	ND
2,4-Dichlorophenol	ND
2,4-Dimethylphenol	ND
2,4-Dinitrophenol	ND*
o-Cresol	ND
p-Cresol	ND
2-Methyl-4,6-dinitrophenol	ND*
2-Nitrophenol	ND
4-Nitrophenol	ND*
Pentachlorophenol	ND*
Phenol	ND
2,4,5-Trichlorophenol	ND
2,4,6-Trichlorophenol	ND

Limit of Detection is 1000 ug/L, unless otherwise noted.
* = 5 times limit of detection.

Surrogate Recovery:	Limits:
2-Fluorophenol - ** %	10 - 94 %
Phenol-d5 - ** %	21 - 100 %
2,4,6-Tribromophenol - ** %	10 - 123 %

** No surrogate recovery due to the dilution



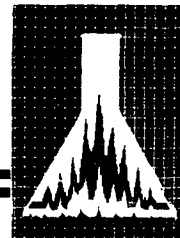
Page 6

Sample Description: MW4
Date Sampled: 12/6/91
Date Extracted: 12/9/91

Laboratory ID: B1209521
Date Analyzed: 12/31/91

BASE/NEUTRAL EXTRACTABLE ORGANICS (EPA 8270)

Compound	ug/L
-----	-----
Acenaphthene	ND
Acenaphthylene	ND
Anthracene	ND
Benzo(a)anthracene	ND
Benzo(b)fluoranthene	ND
Benzo(k)fluoranthene	ND
Benzo(a)pyrene	ND
Benzo(ghi)perylene	ND
Benzyl alcohol	ND**
Butylbenzylphthalate	ND
Bis(2-chloroethyl)ether	ND
Bis(2-chloroethoxy)methane	ND
Bis(2-ethylhexyl)phthalate	ND
Bis(2-chloroisopropyl)ether	ND
4-Bromophenyl phenyl ether	ND
4-Chloroaniline	ND**
2-Chloronaphthalene	ND
4-Chlorophenyl phenyl ether	ND
Chrysene	ND
Dibenzo(a,h)anthracene	ND
Dibenzofuran	ND
Di-n-butyl phthalate	ND
1,3-Dichlorobenzene	ND
1,2-Dichlorobenzene	ND
1,4-Dichlorobenzene	ND



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BASE/NEUTRAL EXTRACTABLE ORGANICS (EPA 8270)

(cont'd) Laboratory ID: B1209521

Compound	ug/L
3,3'-Dichlorobenzidine	ND**
Diethyl phthalate	ND
Dimethyl phthalate	ND
2,4-Dinitrotoluene	ND
2,6-Dinitrotoluene	ND
Di-n-octyl phthalate	ND
Fluoranthene	ND
Fluorene	ND
Hexachlorocyclopentadiene	ND
Hexachlorobenzene	ND
Hexachlorobutadiene	ND
Hexachloroethane	ND
Indeno(1,2,3-cd)pyrene	ND
Isophorone	ND
2-Methylnaphthalene	ND
Naphthalene	ND
2-Nitroaniline	ND*
3-Nitroaniline	ND*
4-Nitroaniline	ND*
Nitrobenzene	ND
N-Nitrosodiphenylamine	ND
N-Nitrosodi-n-propylamine	ND
Phenanthrene	ND
Pyrene	ND
1,2,4-Trichlorobenzene	ND

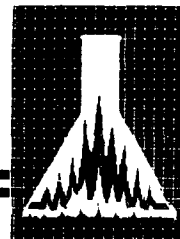
Limit of Practical Quantitation is 1000 ug/L, unless otherwise noted.

* = 5 times limit of detection.

** = 2 times limit of detection.

Surrogate Recovery:		Recovery Limits
Nitrobenzene-d5	*** %	35 - 114 %
2-Fluorobiphenyl	*** %	43 - 116 %
Terphenyl-d14	*** %	33 - 141 %

*** No surrogate recovery due to the dilution



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Sample Description: MW5
Date Sampled: 12/5/91

Laboratory ID: B1209522

TEST	VALUE	UNITS	METHOD	ANALYZED
M-Alkalinity, as CaCO_3	434	mg/L	EPA 310.1	12/9/91
P-Alkalinity, as CaCO_3	0.0	mg/L	EPA 310.1	12/9/91
Chloride, as Cl	6760	mg/L	EPA 325.2	12/16/91
Sulfate, as SO_4	7460	mg/L	EPA 375.4	12/12/91
Calcium, total	442	mg/L	EPA 200.7	12/11/91
Magnesium, total	1310	mg/L	EPA 200.7	12/11/91
Potassium, total	44.7	mg/L	EPA 200.7	12/11/91
Sodium, total	5540	mg/L	EPA 200.7	12/11/91
Hydroxide	0	mg/L	calculation	N/A
Total Dissolved Solids	22100	mg/L	calculation	N/A

Sample Description: MW5
Date Sampled: 12/5/91Laboratory ID: B1209522
Date Analyzed: 12/9/91

TEST	VALUE	QUANT. LIM.	METHOD
BTEX		5 ug/L	EPA 8020
Benzene	ND		
Ethylbenzene	ND		
Toluene	< 5 ug/L		
*Total Xylenes	< 10 ug/L		

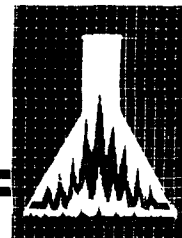
8020 Surrogate recovery:

Trifluorotoluene 118 %

Limits:

78-168 %

* = 2 times limit of detection.



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Sample Description: MW5
Date Sampled: 12/6/91
Date Analyzed: 12/31/91

Laboratory ID: B1209522
Date Extracted: 12/9/91

ACID EXTRACTABLE ORGANICS (EPA 8270)

Compound	ug/L
-----	-----
Benzoic acid	ND*
4-Chloro-3-methylphenol	ND
2-Chlorophenol	ND
2,4-Dichlorophenol	ND
2,4-Dimethylphenol	ND
2,4-Dinitrophenol	ND*
o-Cresol	ND
p-Cresol	ND
2-Methyl-4,6-dinitrophenol	ND*
2-Nitrophenol	ND
4-Nitrophenol	ND*
Pentachlorophenol	ND*
Phenol	ND
2,4,5-Trichlorophenol	ND
2,4,6-Trichlorophenol	ND

Limit of Detection is 500 ug/L, unless otherwise noted.

* = 5 times limit of detection.

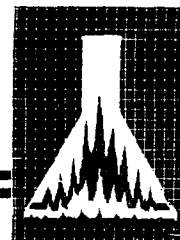
Surrogate Recovery:

2-Fluorophenol - ** %
Phenol-d5 - ** %
2,4,6-Tribromophenol - ** %

Limits:

10 - 94 %
21 - 100 %
10 - 123 %

** No surrogate recovery due to the dilution



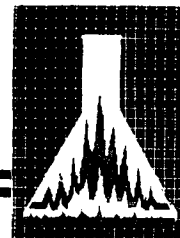
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Sample Description: MW5
Date Sampled: 12/6/91
Date Analyzed: 12/31/91

Laboratory ID: B1209522
Date Extracted: 12/9/91

BASE/NEUTRAL EXTRACTABLE ORGANICS (EPA 8270)

Compound	ug/L
Acenaphthene	ND
Acenaphthylene	ND
Anthracene	ND
Benzo(a)anthracene	ND
Benzo(b)fluoranthene	ND
Benzo(k)fluoranthene	ND
Benzo(a)pyrene	ND
Benzo(ghi)perylene	ND
Benzyl alcohol	ND**
Butylbenzylphthalate	ND
Bis(2-chloroethyl)ether	ND
Bis(2-chloroethoxy)methane	ND
Bis(2-ethylhexyl)phthalate	ND
Bis(2-chloroisopropyl)ether	ND
4-Bromophenyl phenyl ether	ND
4-Chloroaniline	ND**
2-Chloronaphthalene	ND
4-Chlorophenyl phenyl ether	ND
Chrysene	ND
Dibenzo(a,h)anthracene	ND
Dibenzofuran	ND
Di-n-butyl phthalate	ND
1,3-Dichlorobenzene	ND
1,2-Dichlorobenzene	ND
1,4-Dichlorobenzene	ND



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BASE/NEUTRAL EXTRACTABLE ORGANICS (EPA 8270)

(cont'd) Laboratory ID: B1209522

Compound	ug/L
3,3'-Dichlorobenzidine	ND**
Diethyl phthalate	ND
Dimethyl phthalate	ND
2,4-Dinitrotoluene	ND
2,6-Dinitrotoluene	ND
Di-n-octyl phthalate	ND
Fluoranthene	ND
Fluorene	ND
Hexachlorocyclopentadiene	ND
Hexachlorobenzene	ND
Hexachlorobutadiene	ND
Hexachloroethane	ND
Indeno(1,2,3-cd)pyrene	ND
Isophorone	ND
2-Methylnaphthalene	ND
Naphthalene	ND
2-Nitroaniline	ND*
3-Nitroaniline	ND*
4-Nitroaniline	ND*
Nitrobenzene	ND
N-Nitrosodiphenylamine	ND
N-Nitrosodi-n-propylamine	ND
Phenanthrene	ND
Pyrene	ND
1,2,4-Trichlorobenzene	ND

Limit of Practical Quantitation is 500 ug/L, unless otherwise noted.

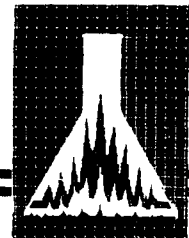
* = 5 times limit of detection.

** = 2 times limit of detection.

Surrogate Recovery:

		Recovery Limits
Nitrobenzene-d5	*** %	35 - 114 %
2-Fluorobiphenyl	*** %	43 - 116 %
Terphenyl-d14	*** %	33 - 141 %

*** No surrogate recovery due to the dilution



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Sample Description: MW6
Date Sampled: 12/5/91

Laboratory ID: B1209523

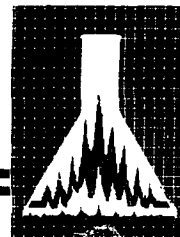
TEST	VALUE	UNITS	METHOD	ANALYZED
M-Alkalinity, as CaCO ₃	165	mg/L	EPA 310.1	12/9/91
P-Alkalinity, as CaCO ₃	0.0	mg/L	EPA 310.1	12/9/91
Chloride, as Cl	871	mg/L	EPA 325.2	12/16/91
Sulfate, as SO ₄	2020	mg/L	EPA 375.4	12/12/91
Calcium, total	631	mg/L	EPA 200.7	12/11/91
Magnesium, total	114	mg/L	EPA 200.7	12/11/91
Potassium, total	5.58	mg/L	EPA 200.7	12/11/91
Sodium, total	830	mg/L	EPA 200.7	12/11/91
Hydroxide	0	mg/L	calculation	N/A
Total Dissolved Solids	4670	mg/L	calculation	N/A

Sample Description: MW6
Date Sampled: 12/5/91Laboratory ID: B1209523
Date Analyzed: 12/9/91

TEST	VALUE	QUANT. LIM.	METHOD
BTEX		5 ug/L	EPA 8020
Benzene	8.4 ug/L		
Ethylbenzene	5.5 ug/L		
Toluene	8.6 ug/L		
*Total Xylenes	12.0 ug/L		

8020 Surrogate recovery:
Trifluorotoluene 106 %Limits:
78-168 %

* = 2 times limit of detection.



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Sample Description: MW7
Date Sampled: 12/7/91

Laboratory ID: B1209524

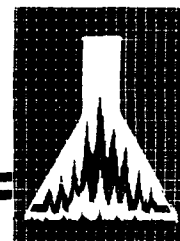
TEST	VALUE	UNITS	METHOD	ANALYZED
M-Alkalinity, as CaCO ₃	304	mg/L	EPA 310.1	12/9/91
P-Alkalinity, as CaCO ₃	0.0	mg/L	EPA 310.1	12/9/91
Chloride, as Cl	3170	mg/L	EPA 325.2	12/16/91
Sulfate, as SO ₄	3680	mg/L	EPA 375.4	12/12/91
Calcium, total	489	mg/L	EPA 200.7	12/11/91
Magnesium, total	428	mg/L	EPA 200.7	12/11/91
Potassium, total	20.3	mg/L	EPA 200.7	12/11/91
Sodium, total	3070	mg/L	EPA 200.7	12/11/91
Hydroxide	0	mg/L	calculation	N/A
Total Dissolved Solids	11200	mg/L	calculation	N/A

Sample Description: MW7
Date Sampled: 12/5/91Laboratory ID: B1209524
Date Analyzed: 12/9/91

TEST	VALUE	QUANT. LIM.	METHOD
BTEX		5 ug/L	EPA 8020
Benzene	ND		
Ethylbenzene	ND		
Toluene	< 5 ug/L		
*Total Xylenes	< 10 ug/L		

8020 Surrogate recovery:
Trifluorotoluene 118 %Limits:
78-168 %

* = 2 times limit of detection.



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Sample Description: OCD1
Date Sampled: 12/6/91

Laboratory ID: B1209525

TEST	VALUE	UNITS	METHOD	ANALYZED
M-Alkalinity, as CaCO ₃	550	mg/L	EPA 310.1	12/10/91
P-Alkalinity, as CaCO ₃	0.0	mg/L	EPA 310.1	12/10/91
Chloride, as Cl	3230	mg/L	EPA 325.2	12/16/91
Sulfate, as SO ₄	3000	mg/L	EPA 375.4	12/12/91
Calcium, total	703	mg/L	EPA 200.7	12/11/91
Magnesium, total	200	mg/L	EPA 200.7	12/11/91
Potassium, total	19.7	mg/L	EPA 200.7	12/11/91
Sodium, total	2900	mg/L	EPA 200.7	12/11/91
Hydroxide	0	mg/L	calculation	N/A
Total Dissolved Solids	10700	mg/L	calculation	N/A

Sample Description: OCD1
Date Sampled: 12/6/91Laboratory ID: B1209525
Date Analyzed: 12/9/91

TEST	VALUE	QUANT. LIM.	METHOD
BTEX		5 ug/L	EPA 8020
Benzene	ND		
Ethylbenzene	ND		
Toluene	ND		
*Total Xylenes	< 10 ug/L		

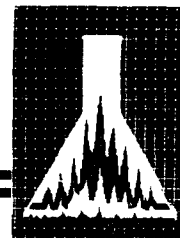
8020 Surrogate recovery:

Trifluorotoluene 118 %

Limits:

78-168 %

* = 2 times limit of detection.



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Sample Description: OCD8
Date Sampled: 12/6/91

Laboratory ID: B1209526

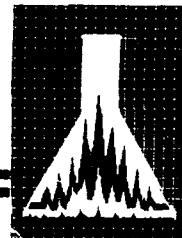
TEST	VALUE	UNITS	METHOD	ANALYZED
M-Alkalinity, as CaCO ₃	445	mg/L	EPA 310.1	12/10/91
P-Alkalinity, as CaCO ₃	0.0	mg/L	EPA 310.1	12/10/91
Chloride, as Cl	2390	mg/L	EPA 325.2	12/16/91
Sulfate, as SO ₄	3060	mg/L	EPA 375.4	12/12/91
Calcium, total	584	mg/L	EPA 200.7	12/11/91
Magnesium, total	336	mg/L	EPA 200.7	12/11/91
Potassium, total	19.3	mg/L	EPA 200.7	12/11/91
Sodium, total	2240	mg/L	EPA 200.7	12/11/91
Hydroxide	0	mg/L	calculation	N/A
Total Dissolved Solids	9170	mg/L	calculation	N/A

Sample Description: OCD8
Date Sampled: 12/6/91Laboratory ID: B1209526
Date Analyzed: 12/9/91

TEST	VALUE	QUANT. LIM.	METHOD
BTEX		5 ug/L	EPA 8020
Benzene	ND		
Ethylbenzene	ND		
Toluene	< 5 ug/L		
*Total Xylenes	< 10 ug/L		

8020 Surrogate recovery:
Trifluorotoluene 114 %Limits:
78-168 %

* = 2 times limit of detection.



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Sample Description: OCD7
Date Sampled: 12/6/91

Laboratory ID: B1209527

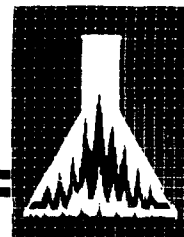
TEST	VALUE	UNITS	METHOD	ANALYZED
M-Alkalinity, as CaCO ₃	661	mg/L	EPA 310.1	12/10/91
P-Alkalinity, as CaCO ₃	0.0	mg/L	EPA 310.1	12/10/91
Chloride, as Cl	2290	mg/L	EPA 325.2	12/16/91
Sulfate, as SO ₄	2880	mg/L	EPA 375.4	12/12/91
Calcium, total	6.30	mg/L	EPA 200.7	12/11/91
Magnesium, total	199	mg/L	EPA 200.7	12/11/91
Potassium, total	19.6	mg/L	EPA 200.7	12/11/91
Sodium, total	2480	mg/L	EPA 200.7	12/11/91
Hydroxide	0	mg/L	calculation	N/A
Total Dissolved Solids	8680	mg/L	calculation	N/A

Sample Description: OCD7
Date Sampled: 12/6/91Laboratory ID: B1209527
Date Analyzed: 12/9/91

TEST	VALUE	QUANT. LIM.	METHOD
BTEX		5 ug/L	EPA 8020
Benzene	ND		
Ethylbenzene	ND		
Toluene	ND		
*Total Xylenes	< 10 ug/L		

8020 Surrogate recovery:
Trifluorotoluene 116 %Limits:
78-168 %

* = 2 times limit of detection.



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Sample Description: OCD6
Date Sampled: 12/6/91

Laboratory ID: B1209528

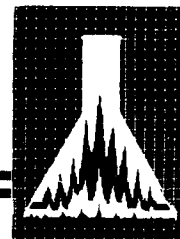
TEST	VALUE	UNITS	METHOD	ANALYZED
M-Alkalinity, as CaCO_3	499	mg/L	EPA 310.1	12/10/91
P-Alkalinity, as CaCO_3	0.0	mg/L	EPA 310.1	12/10/91
Chloride, as Cl	3350	mg/L	EPA 325.2	12/16/91
Sulfate, as SO_4	3220	mg/L	EPA 375.4	12/12/91
Calcium, total	781	mg/L	EPA 200.7	12/11/91
Magnesium, total	268	mg/L	EPA 200.7	12/11/91
Potassium, total	29.9	mg/L	EPA 200.7	12/11/91
Sodium, total	2930	mg/L	EPA 200.7	12/11/91
Hydroxide	0	mg/L	calculation	N/A
Total Dissolved Solids	12000	mg/L	calculation	N/A

Sample Description: OCD6
Date Sampled: 12/6/91Laboratory ID: B1209528
Date Analyzed: 12/9/91

TEST	VALUE	QUANT. LIM.	METHOD
BTEX		5 ug/L	EPA 8020
Benzene	ND		
Ethylbenzene	ND		
Toluene	< 5 ug/L		
*Total Xylenes	< 10 ug/L		

8020 Surrogate recovery:
Trifluorotoluene 116 %Limits:
78-168 %

* = 2 times limit of detection.



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Sample Description: OCD5
Date Sampled: 12/6/91

Laboratory ID: B1209529

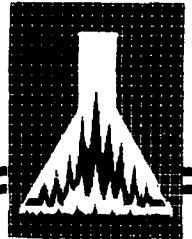
TEST	VALUE	UNITS	METHOD	ANALYZED
M-Alkalinity, as CaCO ₃	262	mg/L	EPA 310.1	12/10/91
P-Alkalinity, as CaCO ₃	0.0	mg/L	EPA 310.1	12/10/91
Chloride, as Cl	4750	mg/L	EPA 325.2	12/16/91
Sulfate, as SO ₄	2710	mg/L	EPA 375.4	12/12/91
Calcium, total	723	mg/L	EPA 200.7	12/11/91
Magnesium, total	227	mg/L	EPA 200.7	12/11/91
Potassium, total	47.2	mg/L	EPA 200.7	12/11/91
Sodium, total	3400	mg/L	EPA 200.7	12/11/91
Hydroxide	0	mg/L	calculation	N/A
Total Dissolved Solids	12200	mg/L	calculation	N/A

Sample Description: OCD5
Date Sampled: 12/6/91Laboratory ID: B1209529
Date Analyzed: 12/9/91

TEST	VALUE	QUANT. LIM.	METHOD
BTEX		5 ug/L	EPA 8020
Benzene	ND		
Ethylbenzene	ND		
Toluene	ND		
*Total Xylenes	< 10 ug/L		

8020 Surrogate recovery:
Trifluorotoluene 118 %Limits:
78-168 %

* = 2 times limit of detection.



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Sample Description: OCD4
Date Sampled: 12/6/91

Laboratory ID: B1209530

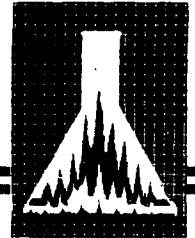
TEST	VALUE	UNITS	METHOD	ANALYZED
M-Alkalinity, as CaCO ₃	243	mg/L	EPA 310.1	12/10/91
P-Alkalinity, as CaCO ₃	0.0	mg/L	EPA 310.1	12/10/91
Chloride, as Cl	5830	mg/L	EPA 325.2	12/16/91
Sulfate, as SO ₄	2740	mg/L	EPA 375.4	12/12/91
Calcium, total	779	mg/L	EPA 200.7	12/11/91
Magnesium, total	267	mg/L	EPA 200.7	12/11/91
Potassium, total	62.1	mg/L	EPA 200.7	12/11/91
Sodium, total	4240	mg/L	EPA 200.7	12/11/91
Hydroxide	0	mg/L	calculation	N/A
Total Dissolved Solids	14200	mg/L	calculation	N/A

Sample Description: OCD4
Date Sampled: 12/6/91Laboratory ID: B1209530
Date Analyzed: 12/9/91

TEST	VALUE	QUANT. LIM.	METHOD
BTEX		5 ug/L	EPA 8020
Benzene	ND		
Ethylbenzene	ND		
Toluene	ND		
*Total Xylenes	ND		

8020 Surrogate recovery:
Trifluorotoluene 122 %Limits:
78-168 %

* = 2 times limit of detection.



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Sample Description: OCD3
Date Sampled: 12/6/91

Laboratory ID: B1209531

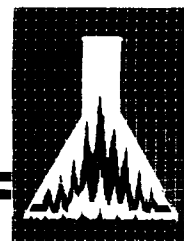
TEST	VALUE	UNITS	METHOD	ANALYZED
M-Alkalinity, as CaCO ₃	545	mg/L	EPA 310.1	12/10/91
P-Alkalinity, as CaCO ₃	0.0	mg/L	EPA 310.1	12/10/91
Chloride, as Cl	5380	mg/L	EPA 325.2	12/16/91
Sulfate, as SO ₄	2520	mg/L	EPA 375.4	12/12/91
Calcium, total	938	mg/L	EPA 200.7	12/11/91
Magnesium, total	314	mg/L	EPA 200.7	12/11/91
Potassium, total	40.4	mg/L	EPA 200.7	12/11/91
Sodium, total	3340	mg/L	EPA 200.7	12/11/91
Hydroxide	0	mg/L	calculation	N/A
Total Dissolved Solids	13200	mg/L	calculation	N/A

Sample Description: OCD3
Date Sampled: 12/6/91Laboratory ID: B1209531
Date Analyzed: 12/9/91

TEST	VALUE	QUANT. LIM.	METHOD
BTEX		5 ug/L	EPA 8020
Benzene	ND		
Ethylbenzene	ND		
Toluene	< 5 ug/L		
*Total Xylenes	< 10 ug/L		

8020 Surrogate recovery:
Trifluorotoluene 108 %Limits:
78-168 %

* = 2 times limit of detection.



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Sample Description: OCD2
Date Sampled: 12/6/91

Laboratory ID: B1209532

TEST	VALUE	UNITS	METHOD	ANALYZED
M-Alkalinity, as CaCO ₃	398	mg/L	EPA 310.1	12/10/91
P-Alkalinity, as CaCO ₃	0.0	mg/L	EPA 310.1	12/10/91
Chloride, as Cl	3840	mg/L	EPA 325.2	12/16/91
Sulfate, as SO ₄	3390	mg/L	EPA 375.4	12/12/91
Calcium, total	584	mg/L	EPA 200.7	12/11/91
Magnesium, total	402	mg/L	EPA 200.7	12/11/91
Potassium, total	17.6	mg/L	EPA 200.7	12/11/91
Sodium, total	3190	mg/L	EPA 200.7	12/11/91
Hydroxide	0	mg/L	calculation	N/A
Total Dissolved Solids	11900	mg/L	calculation	N/A

Sample Description: OCD2
Date Sampled: 12/6/91Laboratory ID: B1209532
Date Analyzed: 12/12/91

TEST	VALUE	QUANT. LIM.	METHOD
BTEX		5 ug/L	EPA 8020
Benzene	ND		
Ethylbenzene	ND		
Toluene	< 5 ug/L		
*Total Xylenes	< 10 ug/L		

8020 Surrogate recovery:
Trifluorotoluene 104 %Limits:
78-168 %

* = 2 times limit of detection.



ANALYTICAL SERVICES

Chain of Custody

P.O. Box 4300 • 9669 Grogans Mill Road • The Woodlands, TX 77380 • 713-367-6201 • Fax 713-367-3189

Client Name/Address:		Invoice to:		Project Number		Station Location		Containers		Send Report to:	
NAVAJO REFINING CO		501 E. Main		ARRESIA, NM 88510						MR. ZEE SHERMAN	
P.O. Number		Invoice to: Navajo Refining Co.		Project Number		Station Location		Containers		Remarks	
NAW: Zeke Sherman				REQ # 883							
Samplers (Signature)		Date		Time		Comp.		Grab		Remarks	
Sta No.		Date		Time		Comp.		Grab		Remarks	
MW-1		12/6/91	13:00								
MW-2		12/6/91	09:30								
MW-3		12/5/91	14:30								
MW-4		12/5/91	15:30								
MW-5		12/5/91	16:30								
MW-6		12/5/91	14:20								
MW-7		12/5/91	17:00								
QCD-1		12/6/91	10:00								
QCD-8		12/5/91	17:30								
QCD-7		12/6/91	08:00								
QCD-6		12/6/91	12:00								
QCD-5		12/6/91	11:30								
QCD-4		12/6/91	08:50								
QCD-3		12/6/91	11:00								
QCD-2		12/6/91	10:30								
Relinquished by (Signature)		Date / Time		Received by (Signature)		Date / Time		Relinquished by (Signature)		Date / Time	
Zeke Sherman		12/6/91 16:30									
Relinquished by (Signature)		Date / Time		Received by (Signature)		Date / Time		Relinquished by (Signature)		Date / Time	
Relinquished by (Signature)		Date / Time		Received for Laboratory by (Sig.)		Date / Time		Relinquished by (Signature)		Date / Time	
				Linda Denton							
Method of Shipment:											



November 30, 1990

Mr. Zeke Sherman
Navajo Refining
501 East Main Street
Artesia, NM 88210

Dear Mr. Sherman:

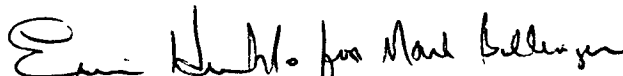
Recently, Enseco was late in delivering the analytical results to you for RMAL Project #011768. I am sending this letter to formally apologize, and to assure you that we are taking steps to prevent this from occurring again.

Navajo Refining is a valued customer to Enseco. As our Guaranteed Turnaround Policy states, to compensate for any inconvenience this may have caused your company, please accept the 10% credit that has been deducted on your project invoice.

Enseco's leadership in analytical laboratory services is founded on its dedicated commitment to total customer satisfaction, where service and quality are our highest priority.

Thank you for choosing Enseco as your laboratory. We will continue to work hard to earn your business. If you would like to discuss this further, please call me directly at the number listed below. Again, we apologize for the delay in your results.

Sincerely,


Mark J. Bollinger, Ph.D.
Division Director

MJB/dmh



November 30, 1990

Mr. Zeke Sherman
Navajo Refining
501 East Main Street
Artesia, NM 88210

Dear Mr. Sherman:

Enclosed is the report for two aqueous samples received at Enseco-Rocky Mountain Analytical Laboratory on October 10, 1990.

Included with the report is a quality control summary.

Please call if you have any questions.

Sincerely,

Cindy Ingram
Cindy Ingram
Program Administrator

Reviewed by:

Sue Dalla
Sue Dalla
Manager
Program Administration

CI/SD/dmh
Enclosures

RMAL #011768



November 21, 1990

Mr. Zeke Sherman
Navajo Refining Company
501 East Main Street
Artesia, NM 88210

Dear Mr. Sherman:

Enclosed is the report for one aqueous sample received at Enseco-Rocky Mountain Analytical Laboratory on October 19, 1990.

Included with the report is a quality control summary.

Please call if you have any questions.

Sincerely,

Cindy Ingram
Cindy Ingram
Program Administrator

Reviewed by:

Sue Dalla
Sue Dalla
Manager
Program Administration

CI/SD/dmh
Enclosures

RMAL #011889

ANALYTICAL RESULTS
FOR
NAVAJO REFINING COMPANY
ENSECO-RMAL NO. 011889



NOVEMBER 21, 1990

Reviewed by:

Cindy Ingram
Cindy Ingram

Sue Dalla
Sue Dalla

Introduction

This report presents the analytical results as well as supporting information to aid in the evaluation and interpretation of the data and is arranged in the following order:

- o Sample Description Information
- o Analytical Test Requests
- o Analytical Results
- o Quality Control Report

The pH holding time expired in transit. The TDS holding time was expired.

Sample Description Information

The Sample Description Information lists all of the samples received in this project together with the internal laboratory identification number assigned for each sample. Each project received at Enseco - RMAL is assigned a unique six digit number. Samples within the project are numbered sequentially. The laboratory identification number is a combination of the six digit project code and the sample sequence number.

Also given in the Sample Description Information is the Sample Type (matrix), Date of Sampling (if known) and Date of Receipt at the laboratory.

Analytical Test Requests

The Analytical Test Requests lists the analyses that were performed on each sample. The Custom Test column indicates where tests have been modified to conform to the specific requirements of this project.

SAMPLE DESCRIPTION INFORMATION
for
Navajo Refining Company

Lab ID	Client ID	Matrix	Sampled		Received
			Date	Time	
011889-0001-SA	#1017900845/Treated Effluent	AQUEOUS	17 OCT 90	08:45	19 OCT 90

ANALYTICAL TEST REQUESTS
for
Navajo Refining Company

Lab ID:	Group	Analysis Description	Custom
011889	Code		Test?
0001	A	Alkalinity,	N
		Total/Carbonate/Bicarbonate/Hydroxide	N
		Chloride, Ion Chromatography	N
		Fluoride, Electrode	N
		Ammonia	N
		Nitrate Plus Nitrite	N
		pH	N
		Sulfate, Ion Chromatography	N
		Specific Conductance	N
		Total Dissolved Solids (TDS)	N
		Ion Balance Cations done by ICP	N
		Ion Balance Calculation	N
		Ion Balance Components	N

Analytical Results

The analytical results for this project are presented in the following data tables. Each data table includes sample identification information, and when available and appropriate, dates sampled, received, authorized, prepared and analyzed. The authorization data is the date when the project was defined by the client such that laboratory work could begin.

Data sheets contain a listing of the parameters measured in each test, the analytical results and the Enseco reporting limit. Reporting limits are adjusted to reflect dilution of the sample, when appropriate. Solid and waste samples are reported on an "as received" basis, i.e. no correction is made for moisture content.

Enseco-RMAL is no longer routinely blank-correcting analytical data. Uncorrected analytical results are reported, along with associated blank results, for all organic and metals analyses. Analytical results and blank results are reported for conventional inorganic parameters as specified in the method. This policy is described in detail in the Enseco Incorporated Quality Assurance Program Plan for Environmental Chemical Monitoring, Revision 3.3, May, 1989.

The results from the Standard Enseco QA/QC Program, which generates data which are independent of matrix effects, is provided subsequently.

Metals**Dissolved Metals**

Client Name: Navajo Refining Company

Client ID: #1017900845/Treated Effluent

Lab ID: 011889-0001-SA

Matrix: AQUEOUS

Authorized: 19 OCT 90

Sampled: 17 OCT 90

Prepared: See Below

Received: 19 OCT 90

Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Calcium	52.2	mg/L	0.40	6010	NA	14 NOV 90
Iron	0.46	mg/L	0.20	6010	NA	14 NOV 90
Magnesium	31.4	mg/L	0.40	6010	NA	14 NOV 90
Potassium	38.9	mg/L	10.0	6010	NA	14 NOV 90
Sodium	.832	mg/L	10.0	6010	NA	14 NOV 90

ND = Not detected

NA = Not applicable

Reported By: Leslie Gergurich

Approved By: Will Pratt

General Inorganics

Client Name: Navajo Refining Company
 Client ID: #1017900845/Treated Effluent
 Lab ID: 011889-0001-SA
 Matrix: AQUEOUS
 Authorized: 19 OCT 90

Sampled: 17 OCT 90
 Prepared: See Below

Received: 19 OCT 90
 Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Alkalinity, Total as CaCO ₃ at pH 4.5	292	mg/L	5.0	310.1	NA	22 OCT 90
Alkalinity, Bicarb. as CaCO ₃ at pH 4.5	10.0	mg/L	5.0	310.1	NA	22 OCT 90
Alkalinity, Carb. as CaCO ₃ at pH 8.3	282	mg/L	5.0	310.1	NA	22 OCT 90
Alkalinity, Hydrox. as CaCO ₃	ND	mg/L	5.0	310.1	NA	22 OCT 90
Chloride	775	mg/L	15.0	300.0	NA	24 OCT 90
Fluoride	48.1	mg/L	0.10	340.2	NA	08 NOV 90
Ion Balance Difference	3.7	%	0.1	104C	NA	15 NOV 90
Total Anions	40.5	meq/L	0.30		NA	15 NOV 90
Total Cations	43.6	meq/L	0.10		NA	15 NOV 90
Ammonia as N	16.5	mg/L	1.0	350.1	NA	31 OCT 90
Nitrate plus Nitrite	0.72	mg/L	0.10	353.2	NA	03 NOV 90
pH	9.8	units	--	9040	NA	19 OCT 90
Sulfate	612	mg/L	25.0	300.0	NA	24 OCT 90
Specific Conductance at 25 deg.C	3900	umhos/cm	1.0	120.1	NA	19 OCT 90
Total Dissolved Solids	2750	mg/L	20.0	160.1	NA	30 OCT 90

ND = Not detected
 NA = Not applicable

Reported By: Tammy Bailey

Approved By: John Laferty

Quality Control Results

The Enseco laboratories operate under a vigorous QA/QC program designed to ensure the generation of scientifically valid, legally defensible data by monitoring every aspect of laboratory operations. Routine QA/QC procedures include the use of approved methodologies, independent verification of analytical standards, use of duplicate Laboratory Control Samples to assess the precision and accuracy of the methodology on a routine basis, and a rigorous system of data review.

In addition, the Enseco laboratories maintain a comprehensive set of certifications from both state and federal governmental agencies which require frequent analyses of blind audit samples. Enseco - Rocky Mountain Analytical Laboratory is certified by the EPA under the EPA/CLP program for both Organic and Inorganic analyses, under the USATHAMA (U.S. Army) program, by the Army Corps of Engineers, and the states of Colorado, New Jersey, New York, Utah, and Florida, among others.

The standard laboratory QC package is designed to:

- 1) establish a strong, cost-effective QC program that ensures the generation of scientifically valid, legally defensible data
- 2) assess the laboratory's performance of the analytical method using control limits generated with a well-defined matrix
- 3) establish clear-cut guidelines for acceptability of analytical data so that QC decisions can be made immediately at the bench, and
- 4) provide a standard set of reportables which assures the client of the quality of his data.

The Enseco QC program is based upon monitoring the precision and accuracy of an analytical method by analyzing a set of Duplicate Control Samples (DCS) at frequent, well-defined intervals. Each DCS is a well-characterized matrix which is spiked with target compounds at 5-100 times the reporting limit, depending upon the methodology being monitored. The purpose of the DCS is not to duplicate the sample matrix, but rather to provide an interference-free, homogeneous matrix from which to gather data to establish control limits. These limits are used to determine whether data generated by the laboratory on any given day is in control.

Control limits for accuracy (percent recovery) are based on the average, historical percent recovery ± 3 standard deviation units. Control limits for precision (relative percent difference) range from 0 (identical duplicate DCS results) to the average, historical relative percent difference $+ 3$ standard deviation units. These control limits are fairly narrow based on the consistency of the matrix being monitored and are updated on a quarterly basis.

For each batch of samples analyzed, an additional control measure is taken in the form of a Single Control Sample (SCS). The SCS consists of a control matrix that is spiked with either representative target compounds or surrogate compounds appropriate to the method being used. An SCS is prepared for each sample lot for which the DCS pair are not analyzed.

Accuracy for DCS and SCS is measured by Percent Recovery.

$$\% \text{ Recovery} = \frac{\text{Measured Concentration}}{\text{Actual Concentration}} \times 100$$

Precision for DCS is measured by Relative Percent Difference (RPD).

$$\text{RPD} = \frac{|\text{Measured Concentration DCS1} - \text{Measured Concentration DCS2}|}{(\text{Measured Concentration DCS1} + \text{Measured Concentration DCS2})/2} \times 100$$

All samples analyzed concurrently by the same test are assigned the same QC lot number. Projects which contain numerous samples, analyzed over several days, may have multiple QC lot numbers associated with each test. The QC information which follows includes a listing of the QC lot numbers associated with each of the samples reported, DCS and SCS (where applicable) recoveries from the QC lots associated with the samples, and control limits for these lots. The QC data is reported by test code, in the order that the tests are reported in the analytical results section of this report.

QC LOT ASSIGNMENT REPORT
Metals Analysis and Preparation

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
011889-0001-SA	AQUEOUS	ICP-AD	14 NOV 90-L	-

DUPLICATE CONTROL SAMPLE REPORT
Metals Analysis and Preparation

Analyte	Spiked	Concentration		Measured DCS2	AVG	Accuracy Average(%)		Precision (RPD)	
		DCS1				DCS	Limits	DCS	Limit
Category: ICP-AD									
Matrix: AQUEOUS									
QC Lot: 14 NOV 90-L									
Concentration Units: mg/L									
Aluminum	2.0	1.95		1.95	1.95	98	75-125	0.1	20
Antimony	0.5	0.455		0.467	0.461	92	75-125	2.5	20
Arsenic	0.5	0.421		0.420	0.420	84	75-125	0.4	20
Barium	2.0	1.89		1.88	1.89	94	75-125	0.2	20
Beryllium	0.05	0.0489		0.0482	0.0486	97	75-125	1.4	20
Cadmium	0.05	0.0424		0.0412	0.0418	84	75-125	2.8	20
Calcium	100	100		100	100	100	75-125	0.1	20
Chromium	0.2	0.184		0.184	0.184	92	75-125	0.1	20
Cobalt	0.5	0.413		0.412	0.412	82	75-125	0.4	20
Copper	0.25	0.224		0.222	0.223	89	75-125	1.1	20
Iron	1.0	1.03		1.03	1.03	103	75-125	0.1	20
Lead	0.5	0.423		0.420	0.421	84	75-125	0.6	20
Magnesium	50	50.3		50.3	50.3	101	75-125	0.0	20
Manganese	0.5	0.417		0.419	0.418	84	75-125	0.5	20
Nickel	0.5	0.423		0.420	0.422	84	75-125	0.8	20
Potassium	50	50.8		51.0	50.9	102	75-125	0.4	20
Silver	0.05	0.0467		0.0487	0.0477	95	75-125	4.2	20
Sodium	100	102		102	102	102	75-125	0.2	20
Vanadium	0.5	0.481		0.481	0.481	96	75-125	0.0	20
Zinc	0.5	0.422		0.422	0.422	84	75-125	0.2	20

Calculations are performed before rounding to avoid round-off errors in calculated results.

QC LOT ASSIGNMENT REPORT
Wet Chemistry Analysis and Preparation

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
011889-0001-SA	AQUEOUS	ALK-A	22 OCT 90-F	-
011889-0001-SA	AQUEOUS	CL-IC-A	24 OCT 90-N	-
011889-0001-SA	AQUEOUS	F-A	08 NOV 90-A	-
011889-0001-SA	AQUEOUS	NH3-A	31 OCT 90-D	-
011889-0001-SA	AQUEOUS	NO3-A	03 NOV 90-A	-
011889-0001-SA	AQUEOUS	PH-A	19 OCT 90-C	-
011889-0001-SA	AQUEOUS	SO4-IC-A	24 OCT 90-N	-
011889-0001-SA	AQUEOUS	COND-A	19 OCT 90-F	-
011889-0001-SA	AQUEOUS	TDS-A	30 OCT 90-A	30 OCT 90-A

*DUPLICATE CONTROL SAMPLE REPORT
 Wet Chemistry Analysis and Preparation

Analyte	Spiked	Concentration		Measured DCS2	AVG	Accuracy Average(%)		Precision (RPD)	
		DCS1				DCS	Limits	DCS	Limit
Category: ALK-A Matrix: AQUEOUS QC Lot: 22 OCT 90-F Concentration Units: mg/L									
Alkalinity, Total as CaCO3 at pH 4.5	216	220	220	220	102	90-110	0.0	10	
Category: CL-IC-A Matrix: AQUEOUS QC Lot: 24 OCT 90-N Concentration Units: mg/L									
Chloride	100	99.5	102	101	101	92-108	2.5	20	
Category: F-A Matrix: AQUEOUS QC Lot: 08 NOV 90-A Concentration Units: mg/L									
Fluoride	4.1	3.90	3.93	3.92	95	88-112	0.8	15	
Category: NH3-A Matrix: AQUEOUS QC Lot: 31 OCT 90-D Concentration Units: mg/L									
Ammonia as N	9.1	8.89	8.92	8.90	98	93-107	0.3	10	
Category: NO3-A Matrix: AQUEOUS QC Lot: 03 NOV 90-A Concentration Units: mg/L									
Nitrate as N	3.8	3.60	3.74	3.67	97	91-109	3.8	10	

Calculations are performed before rounding to avoid round-off errors in calculated results.

DUPLICATE CONTROL SAMPLE REPORT
 Wet Chemistry Analysis and Preparation (cont.)

Analyte	Spiked	Concentration		Measured	AVG	Accuracy		Precision	
		DCS1	DCS2			DCS	Average(%) Limits	DCS	(RPD) Limit
Category: PH-A Matrix: AQUEOUS QC Lot: 19 OCT 90-C Concentration Units: units									
pH	9.2	9.24	9.26	9.25	101	98-102	0.2	5	
Category: SO4-IC-A Matrix: AQUEOUS QC Lot: 24 OCT 90-N Concentration Units: mg/L									
Sulfate	200	203	209	206	103	93-107	2.9	20	
Category: COND-A Matrix: AQUEOUS QC Lot: 19 OCT 90-F Concentration Units: umhos/cm									
Specific Conductance at 25 deg.C	1910	1950	1950	1950	102	95-105	0.0	20	
Category: TDS-A Matrix: AQUEOUS QC Lot: 30 OCT 90-A Concentration Units: mg/L									
Total Dissolved Solids	1490	1430	1440	1430	96	90-110	0.7	10	

Calculations are performed before rounding to avoid round-off errors in calculated results.

METHOD BLANK REPORT
Wet Chemistry Analysis and Preparation

Analyte	Result	Units	Reporting Limit
Test: TDS-BAL-A			
Matrix: AQUEOUS			
QC Lot: 30 OCT 90-A	QC Run: 30 OCT 90-A		
Total Dissolved Solids	20.0	mg/L	10.0

ANALYTICAL RESULTS
FOR
NAVAJO REFINING
ENSECO-RMAL NO. 011768



NOVEMBER 30, 1990

Reviewed by:

Cindy Ingram
Cindy Ingram

Sue Dalla
Sue Dalla

Introduction

This report presents the analytical results as well as supporting information to aid in the evaluation and interpretation of the data and is arranged in the following order:

- o Sample Description Information
- o Analytical Test Requests
- o Analytical Results
- o Quality Control Report

The ion balance analysis was not performed since filtered samples are required. These samples were resubmitted and results will be provided under Enseco-Rocky Mountain Analytical Laboratory (RMAL) project #011889.

3,4-benzofluoranthene is the same compound as benzo(b)fluoranthene and is reported as benzo(b)fluoranthene for the GC/MS semivolatile analysis.

All analyses at Enseco are performed so that the maximum concentration of sample consistent with the method is analyzed. Dilutions are at times required to achieve linearity of the specific parameter or to reduce matrix interferences. In this event, reporting limits are adjusted proportionately. Surrogates may not be reportable in samples that have been diluted.

Sample 011768-0001 required a dilution for the GC/MS semivolatile analysis due to the presence of target compounds in the sample. This sample also required a dilution for the GC volatile analysis due to the presence of target compounds.

Sample Description Information

The Sample Description Information lists all of the samples received in this project together with the internal laboratory identification number assigned for each sample. Each project received at Enseco - RMAL is assigned a unique six digit number. Samples within the project are numbered sequentially. The laboratory identification number is a combination of the six digit project code and the sample sequence number.

Also given in the Sample Description Information is the Sample Type (matrix), Date of Sampling (if known) and Date of Receipt at the laboratory.

Analytical Test Requests

The Analytical Test Requests lists the analyses that were performed on each sample. The Custom Test column indicates where tests have been modified to conform to the specific requirements of this project.

SAMPLE DESCRIPTION INFORMATION
for
Navajo Refining Company

Lab ID	Client ID	Matrix	Sampled Date	Time	Received Date
011768-0001-SA	1009901405	Evaporation Pond	09 OCT 90	14:05	10 OCT 90
011768-0002-SA	Trip Blank	AQUEOUS			10 OCT 90

ANALYTICAL TEST REQUESTS
for
Navajo Refining Company

Lab ID: 011768	Group Code	Analysis Description	Custom Test?
0001	A	Benzene, Toluene, Ethyl Benzene and Xylenes (BTEX)	N
		Phenolics (4-AAP)	N
		Cyanide, Total	N
		Semivolatile Organics	N
		Target Compound List (TCL)	
		Prep - Semivolatile Organics by GC/MS	N
		Target Analyte List Metals by ICP, Total	Y
		Prep - Total Metals, ICP	N
		Arsenic by Graphite Furnace AA, Total	N
		Prep - Total Metals, Furnace AA	N
		Lead by Graphite Furnace AA, Total	N
		Selenium by Graphite Furnace AA, Total	N
		Mercury by Cold Vapor AA, Total	N
		Prep - Mercury, Cold Vapor AA (Total)	N
0002	B	Benzene, Toluene, Ethyl Benzene and Xylenes (BTEX)	N

Analytical Results

The analytical results for this project are presented in the following data tables. Each data table includes sample identification information, and when available and appropriate, dates sampled, received, authorized, prepared and analyzed. The authorization data is the date when the project was defined by the client such that laboratory work could begin.

Data sheets contain a listing of the parameters measured in each test, the analytical results and the Enseco reporting limit. Reporting limits are adjusted to reflect dilution of the sample, when appropriate. Solid and waste samples are reported on an "as received" basis, i.e. no correction is made for moisture content.

Enseco-RMAL is no longer routinely blank-correcting analytical data. Uncorrected analytical results are reported, along with associated blank results, for all organic and metals analyses. Analytical results and blank results are reported for conventional inorganic parameters as specified in the method. This policy is described in detail in the Enseco Incorporated Quality Assurance Program Plan for Environmental Chemical Monitoring, Revision 3.3, May, 1989.

The results from the Standard Enseco QA/QC Program, which generates data which are independent of matrix effects, is provided subsequently.

Semivolatile Organics
Target Compound List (TCL)
Method 8270

Client Name: Navajo Refining Company
Client ID: 1009901405 Evaporation Pond
Lab ID: 011768-0001-SA
Matrix: AQUEOUS
Authorized: 10 OCT 90

Sampled: 09 OCT 90
Prepared: 15 OCT 90

Received: 10 OCT 90
Analyzed: 24 OCT 90

Parameter	Result	Units	Reporting Limit
Acenaphthene	ND	ug/L	500
Acenaphthylene	ND	ug/L	500
Anthracene	ND	ug/L	500
Benzo(a)anthracene	ND	ug/L	500
Benzo(b)fluoranthene	ND	ug/L	500
Benzo(k)fluoranthene	ND	ug/L	500
Benzo(g,h,i)perylene	ND	ug/L	500
Benzo(a)pyrene	ND	ug/L	500
Benzoic acid	ND	ug/L	2500
Benzyl alcohol	ND	ug/L	500
4-Bromophenyl phenyl ether	ND	ug/L	500
Butyl benzyl phthalate	ND	ug/L	500
4-Chloroaniline	ND	ug/L	500
bis(2-Chloroethoxy)- methane	ND	ug/L	500
bis(2-Chloroethyl) ether	ND	ug/L	500
bis(2-Chloroisopropyl)- ether	ND	ug/L	500
4-Chloro-3-methylphenol	ND	ug/L	500
2-Chloronaphthalene	ND	ug/L	500
2-Chlorophenol	ND	ug/L	500
4-Chlorophenyl phenyl ether	ND	ug/L	500
Chrysene	ND	ug/L	500
Dibenz(a,h)anthracene	ND	ug/L	500
Dibenzofuran	ND	ug/L	500
Di-n-butyl phthalate	ND	ug/L	500
1,2-Dichlorobenzene	ND	ug/L	500
1,3-Dichlorobenzene	ND	ug/L	500
1,4-Dichlorobenzene	ND	ug/L	500
3,3'-Dichlorobenzidine	ND	ug/L	1000
2,4-Dichlorophenol	ND	ug/L	500
Diethyl phthalate	ND	ug/L	500
2,4-Dimethylphenol	1100	ug/L	500
Dimethyl phthalate	ND	ug/L	500
4,6-Dinitro- 2-methylphenol	ND	ug/L	2500
2,4-Dinitrophenol	ND	ug/L	2500
2,4-Dinitrotoluene	ND	ug/L	500
2,6-Dinitrotoluene	ND	ug/L	500

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Donna Reinwald

Approved By: Jeff Lowry

Semivolatile Organics
Target Compound List (TCL)
Method 8270

Client Name: Navajo Refining Company
Client ID: 1009901405 Evaporation Pond
Lab ID: 011768-0001-SA
Matrix: AQUEOUS
Authorized: 10 OCT 90

Sampled: 09 OCT 90
Prepared: 15 OCT 90

Received: 10 OCT 90
Analyzed: 24 OCT 90

Parameter	Result	Units	Reporting Limit
Di-n-octyl phthalate	ND	ug/L	500
bis(2-Ethylhexyl) phthalate	ND	ug/L	500
Fluoranthene	ND	ug/L	500
Fluorene	ND	ug/L	500
Hexachlorobenzene	ND	ug/L	500
Hexachlorobutadiene	ND	ug/L	500
Hexachlorocyclopentadiene	ND	ug/L	500
Hexachloroethane	ND	ug/L	500
Indeno(1,2,3-cd)pyrene	ND	ug/L	500
Isophorone	ND	ug/L	500
2-Methylnaphthalene	ND	ug/L	500
2-Methylphenol	1800	ug/L	500
4-Methylphenol	2600	ug/L	500
Naphthalene	ND	ug/L	500
2-Nitroaniline	ND	ug/L	2500
3-Nitroaniline	ND	ug/L	2500
4-Nitroaniline	ND	ug/L	2500
Nitrobenzene	ND	ug/L	500
2-Nitrophenol	ND	ug/L	500
4-Nitrophenol	ND	ug/L	2500
N-Nitrosodiphenylamine	ND	ug/L	500
N-Nitroso-di-n-propylamine	ND	ug/L	500
Pentachlorophenol	ND	ug/L	2500
Phenanthrene	ND	ug/L	500
Phenol	6100	ug/L	500
Pyrene	ND	ug/L	500
1,2,4-Trichlorobenzene	ND	ug/L	500
2,4,5-Trichlorophenol	ND	ug/L	2500
2,4,6-Trichlorophenol	ND	ug/L	500
Surrogate	Recovery		
Nitrobenzene-d5	ND	%	--
2-Fluorobiphenyl	ND	%	--
Terphenyl-d14	ND	%	--
Phenol-d5	ND	%	--
2-Fluorophenol	ND	%	--
2,4,6-Tribromophenol	ND	%	--

ND = Not detected
NA = Not applicable

Reported By: Donna Reinwald

Approved By: Jeff Lowry

Benzene, Toluene, Ethyl Benzene and Xylenes (BTEX)

Method 8020

Client Name: Navajo Refining Company
Client ID: 1009901405 Evaporation Pond

Lab ID: 011768-0001-SA

Matrix: AQUEOUS

Authorized: 10 OCT 90

Sampled: 09 OCT 90

Prepared: NA

Received: 10 OCT 90

Analyzed: 13 OCT 90

Parameter	Result	Units	Reporting Limit
Benzene	290	ug/L	25
Toluene	660	ug/L	25
Ethylbenzene	210	ug/L	25
Xylenes (total)	450	ug/L	25
Surrogate	Recovery		
a,a,a-Trifluorotoluene	92	%	

ND = Not detected
NA = Not applicable

Reported By: Garth Atkins

Approved By: Jeff Lowry

Benzene, Toluene, Ethyl Benzene and Xylenes (BTEX)

Method 8020

Client Name: Navajo Refining Company

Client ID: Trip Blank

Lab ID: 011768-0002-SA

Matrix: AQUEOUS

Authorized: 10 OCT 90

Sampled: Unknown

Prepared: NA

Received: 10 OCT 90

Analyzed: 13 OCT 90

Parameter	Result	Units	Reporting Limit
Benzene	ND	ug/L	0.50
Toluene	ND	ug/L	0.50
Ethylbenzene	ND	ug/L	0.50
Xylenes (total)	ND	ug/L	0.50

Surrogate

Recovery

a,a,a-Trifluorotoluene

96

%

ND = Not detected
NA = Not applicable

Reported By: Garth Atkins

Approved By: Jeff Lowry

Total Metals

Client Name: Navajo Refining Company
Client ID: 1009901405 Evaporation Pond
Lab ID: 011768-0001-SA
Matrix: AQUEOUS
Authorized: 10 OCT 90

Sampled: 09 OCT 90
Prepared: See Below

Received: 10 OCT 90
Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Arsenic	0.084	mg/L	0.0050	7060	25 NOV 90	26 NOV 90
Barium	0.040	mg/L	0.010	6010	15 NOV 90	16 NOV 90
Cadmium	ND	mg/L	0.0050	6010	15 NOV 90	16 NOV 90
Chromium	0.50	mg/L	0.010	6010	15 NOV 90	16 NOV 90
Lead	0.011	mg/L	0.0050	7421	25 NOV 90	26 NOV 90
Mercury	ND	mg/L	0.00020	7470	30 OCT 90	31 OCT 90
Selenium	0.038	mg/L	0.0050	7740	25 NOV 90	26 NOV 90
Silver	ND	mg/L	0.010	6010	15 NOV 90	16 NOV 90

ND = Not detected
NA = Not applicable

Reported By: Sandra Jones

Approved By: Mary Grehl

General Inorganics

Client Name: Navajo Refining Company
 Client ID: 1009901405 Evaporation Pond
 Lab ID: 011768-0001-SA
 Matrix: AQUEOUS
 Authorized: 10 OCT 90

Sampled: 09 OCT 90
 Prepared: See Below

Received: 10 OCT 90
 Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Cyanide	0.011	mg/L	0.010	9012	NA	17 OCT 90
Phenolics	10.1	mg/L	1.0	9065	NA	23 OCT 90

ND = Not detected
 NA = Not applicable

Reported By: Tammy Bailey

Approved By: Mary Grehl

Quality Control Results

The Enseco laboratories operate under a vigorous QA/QC program designed to ensure the generation of scientifically valid, legally defensible data by monitoring every aspect of laboratory operations. Routine QA/QC procedures include the use of approved methodologies, independent verification of analytical standards, use of duplicate Laboratory Control Samples to assess the precision and accuracy of the methodology on a routine basis, and a rigorous system of data review.

In addition, the Enseco laboratories maintain a comprehensive set of certifications from both state and federal governmental agencies which require frequent analyses of blind audit samples. Enseco - Rocky Mountain Analytical Laboratory is certified by the EPA under the EPA/CLP program for both Organic and Inorganic analyses, under the USATHAMA (U.S. Army) program, by the Army Corps of Engineers, and the states of Colorado, New Jersey, New York, Utah, and Florida, among others.

The standard laboratory QC package is designed to:

- 1) establish a strong, cost-effective QC program that ensures the generation of scientifically valid, legally defensible data
- 2) assess the laboratory's performance of the analytical method using control limits generated with a well-defined matrix
- 3) establish clear-cut guidelines for acceptability of analytical data so that QC decisions can be made immediately at the bench, and
- 4) provide a standard set of reportables which assures the client of the quality of his data.

The Enseco QC program is based upon monitoring the precision and accuracy of an analytical method by analyzing a set of Duplicate Control Samples (DCS) at frequent, well-defined intervals. Each DCS is a well-characterized matrix which is spiked with target compounds at 5-100 times the reporting limit, depending upon the methodology being monitored. The purpose of the DCS is not to duplicate the sample matrix, but rather to provide an interference-free, homogeneous matrix from which to gather data to establish control limits. These limits are used to determine whether data generated by the laboratory on any given day is in control.

Control limits for accuracy (percent recovery) are based on the average, historical percent recovery +/- 3 standard deviation units. Control limits for precision (relative percent difference) range from 0 (identical duplicate DCS results) to the average, historical relative percent difference + 3 standard deviation units. These control limits are fairly narrow based on the consistency of the matrix being monitored and are updated on a quarterly basis.

For each batch of samples analyzed, an additional control measure is taken in the form of a Single Control Sample (SCS). The SCS consists of a control matrix that is spiked with either representative target compounds or surrogate compounds appropriate to the method being used. An SCS is prepared for each sample lot for which the DCS pair are not analyzed.

Accuracy for DCS and SCS is measured by Percent Recovery.

$$\% \text{ Recovery} = \frac{\text{Measured Concentration}}{\text{Actual Concentration}} \times 100$$

Precision for DCS is measured by Relative Percent Difference (RPD).

$$\text{RPD} = \frac{|\text{Measured Concentration DCS1} - \text{Measured Concentration DCS2}|}{(\text{Measured Concentration DCS1} + \text{Measured Concentration DCS2})/2} \times 100$$

All samples analyzed concurrently by the same test are assigned the same QC lot number. Projects which contain numerous samples, analyzed over several days, may have multiple QC lot numbers associated with each test. The QC information which follows includes a listing of the QC lot numbers associated with each of the samples reported, DCS and SCS (where applicable) recoveries from the QC lots associated with the samples, and control limits for these lots. The QC data is reported by test code, in the order that the tests are reported in the analytical results section of this report.

QC LOT ASSIGNMENT REPORT
Semivolatile Organics by GC/MS

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
011768-0001-SA	AQUEOUS	625-A	14 OCT 90-A	15 OCT 90-A

DUPLICATE CONTROL SAMPLE REPORT
Semivolatile Organics by GC/MS

Analyte	Spiked	Concentration		AVG	Accuracy		Precision	
		DCS1	Measured DCS2		Average(%)	Limits	(RPD)	DCS Limit
Category: 625-A								
Matrix: AQUEOUS								
QC Lot: 14 OCT 90-A								
Concentration Units: ug/L								
Phenol	100	74.3	70.2	72.2	72	12- 89	5.7	42
2-Chlorophenol	100	79.8	74.2	77.0	77	27-123	7.3	40
1,4-Dichlorobenzene	50	32.7	29.8	31.2	63	36- 97	9.3	28
N-Nitroso-di- n-propylamine	50	40.6	39.1	39.8	80	41-116	3.8	38
1,2,4-Trichlorobenzene	50	33.1	31.3	32.2	64	39- 98	5.6	28
4-Chloro-3-methylphenol	100	77.4	75.6	76.5	77	23- 97	2.4	42
Acenaphthene	50	35.5	34.2	34.8	70	46-118	3.7	31
4-Nitrophenol	100	53.5	58.3	55.9	56	10- 80	8.6	50
2,4-Dinitrotoluene	50	39.9	38.9	39.4	79	24- 96	2.5	38
Pentachlorophenol	100	38.1	44.4	41.2	41	9-103	15	50
Pyrene	50	42.2	40.0	41.1	82	26-127	5.4	31

Calculations are performed before rounding to avoid round-off errors in calculated results.

SINGLE CONTROL SAMPLE REPORT
Semivolatile Organics by GC/MS

Analyte	Concentration		Accuracy(%)	
	Spiked	Measured	SCS	Limits

Category: 625-A
Matrix: AQUEOUS
QC Lot: 14 OCT 90-A QC Run: 15 OCT 90-A
Concentration Units: ug/L

Nitrobenzene-d5	100	57.5	58	35-114
2-Fluorobiphenyl	100	52.3	52	43-116
Terphenyl-d14	100	64.5	64	33-141
2-Fluorophenol	200	108	54	21-100
Phenol-d5	200	109	54	10- 94
2,4,6-Tribromophenol	200	120	60	10-123

Calculations are performed before rounding to avoid round-off errors in calculated results.

METHOD BLANK REPORT
Semivolatile Organics by GC/MS

Analyte	Result	Units	Reporting Limit
Test: 8270CP-TCL-A			
Matrix: AQUEOUS			
QC Lot: 14 OCT 90-A QC Run: 15 OCT 90-A			
Acenaphthene	ND	ug/L	10
Acenaphthylene	ND	ug/L	10
Anthracene	ND	ug/L	10
Benzo(a)anthracene	ND	ug/L	10
Benzo(b)fluoranthene	ND	ug/L	10
Benzo(k)fluoranthene	ND	ug/L	10
Benzo(g,h,i)perylene	ND	ug/L	10
Benzo(a)pyrene	ND	ug/L	10
Benzoic acid	ND	ug/L	50
Benzyl alcohol	ND	ug/L	10
4-Bromophenyl phenyl ether	ND	ug/L	10
Butyl benzyl phthalate	ND	ug/L	10
4-Chloroaniline	ND	ug/L	10
bis(2-Chloroethoxy)- methane	ND	ug/L	10
bis(2-Chloroethyl) ether	ND	ug/L	10
bis(2-Chloroisopropyl)- ether	ND	ug/L	10
4-Chloro-3-methylphenol	ND	ug/L	10
2-Chloronaphthalene	ND	ug/L	10
2-Chlorophenol	ND	ug/L	10
4-Chlorophenyl phenyl ether	ND	ug/L	10
Chrysene	ND	ug/L	10
Dibenz(a,h)anthracene	ND	ug/L	10
Dibenzofuran	ND	ug/L	10
Di-n-butyl phthalate	ND	ug/L	10
1,2-Dichlorobenzene	ND	ug/L	10
1,3-Dichlorobenzene	ND	ug/L	10
1,4-Dichlorobenzene	ND	ug/L	10
3,3'-Dichlorobenzidine	ND	ug/L	20
2,4-Dichlorophenol	ND	ug/L	10
Diethyl phthalate	ND	ug/L	10
2,4-Dimethylphenol	ND	ug/L	10
Dimethyl phthalate	ND	ug/L	10
4,6-Dinitro- 2-methylphenol	ND	ug/L	50
2,4-Dinitrophenol	ND	ug/L	50
2,4-Dinitrotoluene	ND	ug/L	10
2,6-Dinitrotoluene	ND	ug/L	10

METHOD BLANK REPORT
Semivolatile Organics by GC/MS (cont.)

Analyte	Result	Units	Reporting Limit
Test: 8270CP-TCL-A			
Matrix: AQUEOUS			
QC Lot: 14 OCT 90-A QC Run: 15 OCT 90-A			
Di-n-octyl phthalate	ND	ug/L	10
bis(2-Ethylhexyl) phthalate	ND	ug/L	10
Fluoranthene	ND	ug/L	10
Fluorene	ND	ug/L	10
Hexachlorobenzene	ND	ug/L	10
Hexachlorobutadiene	ND	ug/L	10
Hexachlorocyclopentadiene	ND	ug/L	10
Hexachloroethane	ND	ug/L	10
Indeno(1,2,3-cd)pyrene	ND	ug/L	10
Isophorone	ND	ug/L	10
2-Methylnaphthalene	ND	ug/L	10
2-Methylphenol	ND	ug/L	10
4-Methylphenol	ND	ug/L	10
Naphthalene	ND	ug/L	10
2-Nitroaniline	ND	ug/L	50
3-Nitroaniline	ND	ug/L	50
4-Nitroaniline	ND	ug/L	50
Nitrobenzene	ND	ug/L	10
2-Nitrophenol	ND	ug/L	10
4-Nitrophenol	ND	ug/L	50
N-Nitrosodiphenylamine	ND	ug/L	10
N-Nitroso-di-n-propylamine	ND	ug/L	10
Pentachlorophenol	ND	ug/L	50
Phenanthrene	ND	ug/L	10
Phenol	ND	ug/L	10
Pyrene	ND	ug/L	10
1,2,4-Trichlorobenzene	ND	ug/L	10
2,4,5-Trichlorophenol	ND	ug/L	50
2,4,6-Trichlorophenol	ND	ug/L	10

QC LOT ASSIGNMENT REPORT
Volatile Organics by GC

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
011768-0001-SA	AQUEOUS	602-A	13 OCT 90-P	13 OCT 90-P
011768-0002-SA	AQUEOUS	602-A	13 OCT 90-P	13 OCT 90-P

DUPLICATE CONTROL SAMPLE REPORT
Volatile Organics by GC

Analyte	Concentration		Measured		AVG	Accuracy		Precision	
	Spiked	DCS1	DCS2	DCS2		Average(%)	Limits	(RPD)	DCS Limit
Category: 602-A									
Matrix: AQUEOUS									
QC Lot: 13 OCT 90-P									
Concentration Units: ug/L									
Benzene	5.0	5.29	5.17	5.23	105	80-120	2.3	15	
Toluene	5.0	5.26	5.04	5.15	103	80-120	4.3	15	
Ethylbenzene	5.0	5.08	4.86	4.97	99	80-120	4.4	15	
Xylenes (total)	5.0	5.20	4.99	5.10	102	80-120	4.1	15	
1,3-Dichlorobenzene	5.0	5.26	4.85	5.06	101	80-120	8.1	15	

Calculations are performed before rounding to avoid round-off errors in calculated results.

SINGLE CONTROL SAMPLE REPORT
Volatile Organics by GC

Analyte	Concentration		Accuracy(%)	
	Spiked	Measured	SCS	Limits
Category: 602-A				
Matrix: AQUEOUS				
QC Lot: 13 OCT 90-P QC Run: 13 OCT 90-P				
Concentration Units: ug/L				
a,a,a-Trifluorotoluene	30.0	29.5	98	20-160

Calculations are performed before rounding to avoid round-off errors in calculated results.

METHOD BLANK REPORT
Volatile Organics by GC

Analyte	Result	Units	Reporting Limit
Test: 602-BTEX-AP			
Matrix: AQUEOUS			
QC Lot: 13 OCT 90-P QC Run: 13 OCT 90-P			
Benzene	ND	ug/L	0.50
Toluene	ND	ug/L	0.50
Ethylbenzene	ND	ug/L	0.50
Xylenes (total)	ND	ug/L	0.50

Test: 602-BTEX-AP			
Matrix: AQUEOUS			
QC Lot: 13 OCT 90-P QC Run: 13 OCT 90-P			
Benzene	ND	ug/L	0.50
Toluene	ND	ug/L	0.50
Ethylbenzene	ND	ug/L	0.50
Xylenes (total)	ND	ug/L	0.50

QC LOT ASSIGNMENT REPORT
Metals Analysis and Preparation

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
011768-0001-SA	AQUEOUS	ICP-AT	15 NOV 90-Z	15 NOV 90-Z
011768-0001-SA	AQUEOUS	AS-FAA-AT	25 NOV 90-R	25 NOV 90-R
011768-0001-SA	AQUEOUS	PB-FAA-AT	25 NOV 90-R	25 NOV 90-R
011768-0001-SA	AQUEOUS	SE-FAA-AT	25 NOV 90-R	25 NOV 90-R
011768-0001-SA	AQUEOUS	HG-CVAA-AT	30 OCT 90-A	30 OCT 90-A

DUPLICATE CONTROL SAMPLE REPORT
Metals Analysis and Preparation

Analyte	Spiked	Concentration		Measured DCS2	AVG	Accuracy Average(%)		Precision (RPD)	
		DCS1				DCS	Limits	DCS	Limit
Category: ICP-AT									
Matrix: AQUEOUS									
QC Lot: 15 NOV 90-Z									
Concentration Units: mg/L									
Aluminum	2.0	1.92		1.96	1.94	97	75-125	1.7	20
Antimony	0.5	0.444		0.449	0.446	89	75-125	1.1	20
Arsenic	0.5	0.462		0.459	0.460	92	75-125	0.8	20
Barium	2.0	1.90		1.89	1.89	95	75-125	0.6	20
Beryllium	0.05	0.0480		0.0462	0.0471	94	75-125	3.8	20
Cadmium	0.05	0.0462		0.0497	0.0480	96	75-125	7.4	20
Calcium	100	98.3		98.8	98.6	99	75-125	0.5	20
Chromium	0.2	0.182		0.188	0.185	93	75-125	3.0	20
Cobalt	0.5	0.459		0.462	0.460	92	75-125	0.6	20
Copper	0.25	0.237		0.233	0.235	94	75-125	2.0	20
Iron	1.0	0.948		0.960	0.954	95	75-125	1.2	20
Lead	0.5	0.468		0.473	0.471	94	75-125	0.9	20
Magnesium	50	49.4		49.7	49.5	99	75-125	0.6	20
Manganese	0.5	0.470		0.473	0.472	94	75-125	0.6	20
Nickel	0.5	0.470		0.474	0.472	94	75-125	0.8	20
Potassium	50	47.5		47.5	47.5	95	75-125	0.1	20
Silver	0.05	0.0482		0.0467	0.0475	95	75-125	3.2	20
Sodium	100	98.8		98.2	98.5	98	75-125	0.6	20
Vanadium	0.5	0.495		0.489	0.492	98	75-125	1.2	20
Zinc	0.5	0.458		0.465	0.462	92	75-125	1.6	20

Category: AS-FAA-AT
Matrix: AQUEOUS
QC Lot: 25 NOV 90-R
Concentration Units: mg/L

Arsenic	0.04	0.0365		0.0376	0.0370	93	75-125	3.0	20
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Category: PB-FAA-AT
Matrix: AQUEOUS
QC Lot: 25 NOV 90-R
Concentration Units: mg/L

Lead	0.02	0.0220		0.0187	0.0204	102	75-125	16	20
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Calculations are performed before rounding to avoid round-off errors in calculated results.

DUPLICATE CONTROL SAMPLE REPORT
Metals Analysis and Preparation (cont.)

Analyte	Spiked	Concentration		Measured	AVG	Accuracy		Precision	
		DCS1	DCS2			DCS	Limits	(RPD)	DCS Limit

Category: SE-FAA-AT
Matrix: AQUEOUS
QC Lot: 25 NOV 90-R
Concentration Units: mg/L

Selenium	0.01	0.0124	0.0121	0.0122	123	75-125	2.4	20
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Category: HG-CVAA-AT
Matrix: AQUEOUS
QC Lot: 30 OCT 90-A
Concentration Units: mg/L

Mercury	0.0010	0.00116	0.00118	0.00117	117	75-125	1.7	20
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Calculations are performed before rounding to avoid round-off errors in calculated results.

METHOD BLANK REPORT
Metals Analysis and Preparation

Analyte	Result	Units	Reporting Limit
Test: ICPOCP-TAL-AT Matrix: AQUEOUS QC Lot: 15 NOV 90-Z QC Run: 15 NOV 90-Z			
Barium	ND	mg/L	0.010
Cadmium	ND	mg/L	0.0050
Chromium	ND	mg/L	0.010
Silver	ND	mg/L	0.010
Test: GF-ASCP-TAL-AT Matrix: AQUEOUS QC Lot: 25 NOV 90-R QC Run: 25 NOV 90-R			
Arsenic	ND	mg/L	0.0050
Test: GF-PBCP-TAL-AT Matrix: AQUEOUS QC Lot: 25 NOV 90-R QC Run: 25 NOV 90-R			
Lead	ND	mg/L	0.0050
Test: GF-SECP-TAL-AT Matrix: AQUEOUS QC Lot: 25 NOV 90-R QC Run: 25 NOV 90-R			
Selenium	ND	mg/L	0.0050
Test: CV-HGCP-TAL-AT Matrix: AQUEOUS QC Lot: 30 OCT 90-A QC Run: 30 OCT 90-A			
Mercury	ND	mg/L	0.00020

QC LOT ASSIGNMENT REPORT
Wet Chemistry Analysis and Preparation

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK)
011768-0001-SA	AQUEOUS	PHEN-A	21 OCT 90-B	21 OCT 90-B
011768-0001-SA	AQUEOUS	CN-A	17 OCT 90-A	17 OCT 90-A

DUPLICATE CONTROL SAMPLE REPORT
Wet Chemistry Analysis and Preparation

Analyte	Spiked	Concentration		Measured	AVG	Accuracy		Precision
		DCS1	DCS2			DCS	Average(%) Limits	(RPD) DCS Limit

Category: PHEN-A
Matrix: AQUEOUS
QC Lot: 21 OCT 90-B
Concentration Units: mg/L

Phenolics	0.20	0.168	0.170	0.169	85	78-122	1.2	20
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Category: CN-A
Matrix: AQUEOUS
QC Lot: 17 OCT 90-A
Concentration Units: mg/L

Cyanide	0.20	0.188	0.186	0.187	94	75-125	1.1	20
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Calculations are performed before rounding to avoid round-off errors in calculated results.

METHOD BLANK REPORT
Wet Chemistry Analysis and Preparation

Analyte	Result	Units	Reporting Limit
Test: PHEN-SPEC-A Matrix: AQUEOUS QC Lot: 21 OCT 90-B QC Run: 21 OCT 90-B			
Phenolics	ND	mg/L	0.010
Test: CNTOT-TEC-A Matrix: AQUEOUS QC Lot: 17 OCT 90-A QC Run: 17 OCT 90-A			
Cyanide	ND	mg/L	0.010



STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

Contract Lab AND-100

Contract No. 78-524,67-013

OCD Sample No. 8907261221

149759

Collection Date	Collection Time	Collected by — Person/Agency	
<u>7/26/89</u>	<u>1221</u>	<u>Boyer, E...</u>	/OCD

SITE INFORMATION

Sample location

NAVATO REFINERY: MW-4

Collection Site Description

Township, Range, Section, Tract:

117S+26E+12+142

SEND
FINAL
REPORT
TO

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted: 3053

- ☒ NF: Whole sample (Non-filtered)
☐ F: Filtered in field with 0.45 μ membrane filter
☐ PF: Pre-filtered w/45 μ membrane filter

- ☒ NA: No acid added
☐ A: HCL
☐ A: 2ml H₂SO₄ added
☐ A: 5ml conc. HNO₃ added
☐ A: 4ml fuming HNO₃ added

FIELD COMMENTS:

SAMPLING CONDITIONS

Water level

11.84

Discharge

7 gallons

Sample type

GRAB

Conductivity (Uncorrected)

6000 mho

Conductivity at 25° C

4 mho

- ☒ Bailed ☐ Pump
☐ Dipped ☐ Tap

pH(00400)

7.04

Water Temp. (00010)

17°C

clear water, very strong He like odor, brown greasy film on pump

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
☐ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	7130
☐ 002	VOA	602	☐ 014	VOC	8240	☐ 027	Pb	7421
☒ 003	VOH	8010	☐ 015	VOC	624	☐ 028	Hg(L)	7470
☐ 004	VOH	601	☐ 016	SVOC	8250	☐ 031	Se	7740
☐ 005	SUITE	8010-8020	☐ 017	SVOC	625	☐ 032	ICAP	6010
☐ 006	SUITE	601-602	☐ 018	VOC	8260	☐ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N SUITE	
☐ 008	PAH	8100	☐ 020	O&G	9070	☐ 035	NITRATE	
☐ 009	PAH	610	☐ 022	AS	7060	☐ 036	NITRITE	
☐ 010	PCB	8080	☐ 023	Ba	7080	☐ 037	AMMONIA	
☐ 011	PCB	608	☐ 024	Cr	7190	☐ 038	TKN	
☐ 012	PHENOL	8040	☐ 025	Cr6	7198	☐	OTHER	



STATE OF NEW MEXICO
ENERGY, MINERAL & NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

Contract Lab

Contract No.

OCD Sample No.

Collection Date	Collection Time	Collected by — Person/Agency
SITE INFORMATION		
Sample location		
Collection Site Description		
Township, Range, Section, Tract:		
11 17 S+26 E+1 2+1 42		

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TO

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted:

- ☐ NF: Whole sample (Non-filtered)
☐ F: Filtered in field with 0.45 μ membrane filter
☐ PF: Pre-filtered w/45 μ membrane filter

- ☐ NA: No acid added
☒ A: HCL
☒ A: 2ml H₂SO₄ added
☐ A: 5ml conc. HNO₃ added
☐ A: 4ml fuming HNO₃ added

FIELD COMMENTS:

SAMPLING CONDITIONS	Water level	11.84
	Discharge	7 gallons
	Sample type	
	Conductivity (Uncorrected)	11 mho
	Conductivity at 25° C	11 mho
☐ Bailed ☐ Pump ☐ Dipped ☐ Tap		
pH(00400)		7.00
Water Temp. (00010)		11.00

clear water, very strong H₂S like odor, brown greasy film
on pump

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
☒ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	7130
☒ 002	VOA	602	☐ 014	VOC	8240	☐ 027	Pb	7421
☐ 003	VOH	8010	☐ 015	VOC	624	☐ 028	Hg(L)	7470
☐ 004	VOH	601	☐ 016	SVOC	8250	☐ 031	Se	7740
☐ 005	SUITE	8010-8020	☐ 017	SVOC	625	☐ 032	ICAP	6010
☐ 006	SUITE	601-602	☐ 018	VOC	8260	☐ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N SUITE	
☐ 008	PAH	8100	☐ 020	O&G	9070	☐ 035	NITRATE	
☐ 009	PAH	610	☐ 022	AS	7060	☐ 036	NITRITE	
☐ 010	PCB	8080	☐ 023	Ea	7080	☐ 037	AMMONIA	
☐ 011	PCB	608	☐ 024	Cr	7190	☐ 038	TKN	
☐ 012	PHENOL	8040	☐ 025	Cr6	7198	☐	OTHER	



STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

Contract Lab ANA-LAB

Contract No. _____

OCD Sample No. 89072222

Collection Date	Collection Time	Collected by — Person/Agency
7/26/89	1221	Boyer; +
SITE INFORMATION		
Sample location <u>NAUR</u>		
Collection Site Description		
		Township, Range, Section, Tract:
		17S+26E+12+142

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SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted: 1

- | | |
|---|---|
| ☐ NF: Whole sample (Non-filtered) | ☐ A: 5ml conc. HNO ₃ added |
| ☐ F: Filtered in field with 0.45 μ m membrane filter | ☐ A: 4ml fuming HNO ₃ added |
| ☐ PF: Pre-filtered w/45 μ m membrane filter | |
| ☐ NA: No acid added | |
| ☐ A: HCL | |
| ☐ A: 2ml H ₂ SO ₄ /L added | |

FIELD COMMENTS:

clear water, very strong odor, brown greasy film
on pump

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
☐ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	7130
☐ 002	VOA	602	☐ 014	VOC	8240	☐ 027	Pb	7421
☐ 003	VOH	8010	☐ 015	VOC	624	☐ 028	Hg(L)	7470
☐ 004	VOH	601	☐ 016	SVOC	8250	☐ 031	Se	7740
☐ 005	SUITE	8010-8020	☐ 017	SVOC	625	☐ 032	ICAP	6010
☐ 006	SUITE	601-602	☐ 018	VOC	8260	☐ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N SUITE	
☒ 008	PAH	8100	☐ 020	Q&G	9070	☐ 035	NITRATE	
☐ 009	PAH	610	☐ 022	AS	7060	☐ 036	NITRITE	
☐ 010	PCB	8080	☐ 023	Ba	7080	☐ 037	AMMONIA	
☐ 011	PCB	608	☐ 024	Cr	7190	☐ 038	TKN	
☐ 012	PHENOL	8040	☐ 025	Cr6	7198	☐	OTHER	



STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

Contract Lab ANA LAB

Contract No. _____

OCD Sample No. 8907261221

Collection Date	Collection Time	Collected by — Person/Agency	
<u>7/26/89</u>	<u>1221</u>	<u>Boye</u>	/OCD
SITE INFORMATION			
Sample location <u>NAVAJO RESERVE Y: MW-4</u>			
Collection Site Description			
			Township, Range, Section, Tract:
			<u>17S+26E+12+1+2</u>

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SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted: 1

- ☒ NF: Whole sample (Non-filtered)
☐ F: Filtered in field with 0.45 μ m membrane filter
☐ PF: Pre-filtered w/45 μ m membrane filter

- ☐ NA: No acid added
☐ A: HCL
☐ A: 2ml H₂SO₄/L added
- ☐ A: 5ml conc. HNO₃ added
☐ A: 4ml fuming HNO₃ added

FIELD COMMENTS:

SAMPLING CONDITIONS	Water level	<u>11.84</u>
	Discharge	<u>7 gallons</u>
	Sample type	<u>GRAB</u>
	Conductivity (Uncorrected)	<u>6000</u> μ mho
	Conductivity at 25° C	<u>4</u> μ mho
☒ Bailed ☐ Dipped	☐ Pump ☐ Tap	
pH(00400)	<u>7.04</u>	
Water Temp. (00010)	<u>17°C</u>	

clear water, very strong H₂S like odor, brown greasy film on pump

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
☐ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	7130
☐ 002	VOA	602	☐ 014	VOC	8240	☐ 027	Pb	7421
☐ 003	VOH	8010	☐ 015	VOC	624	☐ 028	Hg(L)	7470
☐ 004	VOH	601	☐ 016	SVOC	8250	☐ 031	Se	7740
☐ 005	SUITE	8010-8020	☐ 017	SVOC	625	☐ 032	ICAP	6010
☐ 006	SUITE	601-602	☐ 018	VOC	8260	☐ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N SUITE	
☐ 008	PAH	8100	☐ 020	O&G	9070	☐ 035	NITRATE	
☐ 009	PAH	610	☐ 022	AS	7060	☐ 036	NITRITE	
☐ 010	PCB	8080	☐ 023	Ba	7080	☐ 037	AMMONIA	
☐ 011	PCB	608	☐ 024	Cr	7190	☐ 038	TKN	
☒ 012	PHENOL	8040	☐ 025	Cr6	7198	☐	OTHER	



STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

Contract Lab ANA LAB

Contract No. 78-521.07-013

OCD Sample No. 8907261135

149760

Collection Date	Collection Time	Collected by —Person/Agency	
072689	1135	BOYER, ANDER ENGLERT	/OCD
SITE INFORMATION			
Sample location <u>NAVAJO REFINERY: MW-5</u>			
Collection Site Description			
			Township, Range, Section, Tract:
			117 S+2 SE+12+214

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NM OIL CONSERVATION DIVISION
PO Box 2088
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SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted: 2 vials

- ☒ NF: Whole sample (Non-filtered)
☐ F: Filtered in field with 0.45 μ membrane filter
☐ PF: Pre-filtered w/45 μ membrane filter

- ☐ NA: No acid added
☒ A: HCL
☒ A: 2ml H₂SO₄/L added
☐ A: 5ml conc. HNO₃ added
☐ A: 4ml fuming HNO₃ added

FIELD COMMENTS:

SAMPLING CONDITIONS	Water level	8.32
	Discharge	6 gallons
	Sample type	GRAB
	Conductivity (Uncorrected)	12500 μ mho
pH(00400)	7.04	
Water Temp. (00010)	23°C	Conductivity at 25°C μ mho

clear water, very strong Hc like odor

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
☒ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	7130
☐ 002	VOA	602	☐ 014	VOC	8240	☐ 027	Pb	7421
☐ 003	VOH	8010	☐ 015	VOC	624	☐ 028	Hg(L)	7470
☐ 004	VOH	601	☐ 016	SVOC	8250	☐ 031	Se	7740
☐ 005	SUITE	8010-8020	☐ 017	SVOC	625	☐ 032	ICAP	6010
☐ 006	SUITE	601-602	☐ 018	VOC	8260	☐ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N SUITE	
☐ 008	PAH	8100	☐ 020	O&G	9070	☐ 035	NITRATE	
☐ 009	PAH	610	☐ 022	AS	7060	☐ 036	NITRITE	
☐ 010	PCB	8080	☐ 023	Ba	7080	☐ 037	AMMONIA	
☐ 011	PCB	608	☐ 024	Cr	7190	☐ 038	TKN	
☐ 012	PHENOL	8040	☐ 025	Cr6	7198	☐	OTHER	



STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

Contract Lab

Contract No.

OCD Sample No.

Collection Date	Collection Time	Collected by—Person/Agency
11/10/00	00	JOHN R. POZAR /OCD
SITE INFORMATION		
Sample location		
Collection Site Description		
		Township, Range, Section, Tract:
		17S+26E+12+214

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PO Box 2088
Santa Fe, NM-87504-2088

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted: 240013

- | | |
|---|---|
| ☐ NF: Whole sample (Non-filtered) | ☐ A: 5ml conc. HNO ₃ added |
| ☐ F: Filtered in field with 0.45 μ membrane filter | ☐ A: 4ml fuming HNO ₃ added |
| ☐ PF: Pre-filtered w/45 μ membrane filter | |
| ☐ NA: No acid added | |
| ☐ A: HCL | |
| ☐ A: 2ml H ₂ SO ₄ /L added | |

FIELD COMMENTS:

SAMPLING CONDITIONS ☐ Bailed ☐ Pump ☐ Dipped ☐ Tap pH(00400) Water Temp. (00010)	Water level	8.32
	Discharge	6 gallons
	Sample type	
	Conductivity (Uncorrected)	11 mho
	Conductivity at 25° C	14 mho

clear water, very strong Hc like odor

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
☐ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	7130
☐ 002	VOA	602	☐ 014	VOC	8240	☐ 027	Pb	7421
☐ 003	VOH	8010	☐ 015	VOC	624	☐ 028	Hg(L)	7470
☐ 004	VOH	601	☐ 016	SVOC	8250	☐ 031	Se	7740
☐ 005	SUITE	8010-8020	☐ 017	SVOC	625	☐ 032	ICAP	6010
☐ 006	SUITE	601-602	☐ 018	VOC	8260	☐ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N SUITE	
☐ 008	PAH	8100	☐ 020	O&G	9070	☐ 035	NITRATE	
☐ 009	PAH	610	☐ 022	AS	7060	☐ 036	NITRITE	
☐ 010	PCB	8080	☐ 023	Ba	7080	☐ 037	AMMONIA	
☐ 011	PCB	608	☐ 024	Cr	7190	☐ 038	TKN	
☐ 012	PHENOL	8040	☐ 025	Cr6	7198	☐	OTHER	



STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

Contract Lab ANA LABS

Contract No. _____

OCD Sample No. 8907261135

Collection Date	Collection Time	Collected by —Person/Agency
<u>7/26/89</u>	<u>1135</u>	<u>Boyer, ENGLERT</u>
/OCD		
SITE INFORMATION		
Sample location <u>NAUATO REFINERY: MW-5</u>		
Collection Site Description		
		Township, Range, Section, Tract:
		<u>17S+26E+12+214</u>

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ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted:

- ☒ NF: Whole sample (Non-filtered)
☐ F: Filtered in field with 0.45 μ membrane filter
☐ PF: Pre-filtered w/45 μ membrane filter
- ☒ NA: No acid added
☐ A: HCL
☐ A: 2ml H₂SO₄/L added
- ☐ A: 5ml conc. HNO₃ added
☐ A: 4ml fuming HNO₃ added

FIELD COMMENTS:

SAMPLING CONDITIONS	Water level	<u>8.32</u>
	Discharge	<u>6 gallons</u>
	Sample type	<u>GRAB</u>
	Conductivity (Uncorrected)	<u>12,500</u> μ mho
	Conductivity at 25°C	<u>12,500</u> μ mho
☒ Bailed ☐ Dipped	☐ Pump ☐ Tap	
pH(00400)	<u>7.04</u>	
Water Temp. (00010)	<u>23°C</u>	

clear water, very strong H₂S like odor

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
☐ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	7130
☐ 002	VOA	602	☐ 014	VOC	8240	☐ 027	Pb	7421
☐ 003	VOH	8010	☐ 015	VOC	624	☐ 028	Hg(L)	7470
☐ 004	VOH	601	☐ 016	SVOC	8250	☐ 031	Se	7740
☐ 005	SUITE	8010-8020	☐ 017	SVOC	625	☐ 032	ICAP	6010
☐ 006	SUITE	601-602	☐ 018	VOC	8260	☐ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N SUITE	
☐ 008	PAH	8100	☐ 020	O&G	9070	☐ 035	NITRATE	
☐ 009	PAH	610	☐ 022	AS	7060	☐ 036	NITRITE	
☐ 010	PCB	8080	☐ 023	Ba	7080	☐ 037	AMMONIA	
☐ 011	PCB	608	☐ 024	Cr	7190	☐ 038	TKN	
☒ 012	PHENOL	8040	☐ 025	Cr6	7198	☐	OTHER	



STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

Contract Lab ANA-LAB

Contract No. 78-54,07-013

OCD Sample No. 8907261424

149761

Collection Date	Collection Time	Collected by —Person/Agency
<u>7/26/89</u>	<u>1424</u>	<u>Boyer, Engler</u>
SITE INFORMATION		
Sample location <u>NAVASO REFINERY: MW-6</u>		
Collection Site Description		
Township, Range, Section, Tract: <u>117S+26E+12+123</u>		

SEND ENVIRONMENTAL BUREAU
FINAL NM OIL CONSERVATION DIVISION
REPORT PO Box 2088
TO Santa Fe, NM 87504-2088

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted: 1

- ☒ NF: Whole sample (Non-filtered)
☐ F: Filtered in field with 0.45 μ membrane filter
☐ PF: Pre-filtered w/45 μ membrane filter
- ☐ NA: No acid added
☐ A: HCL
☐ A: 2ml H₂SO₄/L added
- ☐ A: 5ml conc. HNO₃ added
☐ A: 4ml fuming HNO₃ added

FIELD COMMENTS:

SAMPLING CONDITIONS	Water level <u>12.41</u>
	Discharge <u>7 gallons</u>
	Sample type <u>GRAB</u>
	Conductivity (Uncorrected) <u>4400</u> μ mho
pH(00400) <u>7.02</u>	Conductivity at 25° C <u>4400</u> μ mho
Water Temp. (00010) <u>25.0</u>	

slightly turbid, strong Hc like odor, brown, greasy film on pump

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
☐ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	7130
☐ 002	VOA	602	☐ 014	VOC	8240	☐ 027	Pb	7421
☐ 003	VOH	8010	☐ 015	VOC	624	☐ 028	Hg(L)	7470
☐ 004	VOH	601	☐ 016	SVOC	8250	☐ 031	Se	7740
☐ 005	SUITE	8010-8020	☐ 017	SVOC	625	☐ 032	ICAP	6010
☐ 006	SUITE	601-602	☐ 018	VOC	8260	☐ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N SUITE	
☐ 008	PAH	8100	☐ 020	O&G	9070	☐ 035	NITRATE	
☐ 009	PAH	610	☐ 022	AS	7060	☐ 036	NITRITE	
☐ 010	PCB	8080	☐ 023	Ba	7080	☐ 037	AMMONIA	
☐ 011	PCB	608	☐ 024	Cr	7190	☐ 038	TKN	
☒ 012	PHENOL	8040	☐ 025	Cr6	7198	☐	OTHER	



STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

Contract Lab **ANA LABS**

Contract No. _____

OCD Sample No. **8907261424**

Collection Date	Collection Time	Collected by — Person/Agency
7/26/89	1424	Boyer, Engler

/OCD

SITE INFORMATION

Sample location

NAVATO REFINERY: MW-6

Collection Site Description

Township, Range, Section, Tract:

1175+26E+12+123

SEND
FINAL
REPORT
TO

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted:

2 Vials

- ☒ NF: Whole sample (Non-filtered)
☐ F: Filtered in field with 0.45 μ m membrane filter
☐ PF: Pre-filtered w/45 μ m membrane filter

- ☐ NA: No acid added
☒ A: HCL
☒ A: 2ml H₂SO₄/L added
☐ A: 5ml conc. HNO₃ added
☐ A: 4ml fuming HNO₃ added

FIELD COMMENTS:

SAMPLING CONDITIONS

- ☒ Bailed
☐ Pump
☐ Dipped
☐ Tap

Water level

12.41

Discharge

79 gallons

Sample type

GRAB

pH(00400)

7.02

Conductivity (Uncorrected)

4400

μ mho

Water Temp. (00010)

25°C

Conductivity at 25°C

μ mho

slightly turbid, strong H₂S like odor, brown greasy film on pump

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
☒ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	7130
☐ 002	VOA	602	☐ 014	VOC	8240	☐ 027	Pb	7421
☐ 003	VOH	8010	☐ 015	VOC	624	☐ 028	Hg(L)	7470
☐ 004	VOH	601	☐ 016	SVOC	8250	☐ 031	Se	7740
☐ 005	SUITE	8010-8020	☐ 017	SVOC	625	☐ 032	ICAP	6010
☐ 006	SUITE	601-602	☐ 018	VOC	8260	☐ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N SUITE	
☐ 008	PAH	8100	☐ 020	O&G	9070	☐ 035	NITRATE	
☐ 009	PAH	610	☐ 022	AS	7060	☐ 036	NITRITE	
☐ 010	PCB	8080	☐ 023	Ba	7080	☐ 037	AMMONIA	
☐ 011	PCB	608	☐ 024	Cr	7190	☐ 038	TKN	
☐ 012	PHENOL	8040	☐ 025	Cr6	7198	☐	OTHER	



STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

Contract Lab ANA-LABS

Contract No. _____

OCD Sample No. 8907261424

Collection Date	Collection Time	Collected by — Person/Agency
<u>7/26/89</u>	<u>1424</u>	<u>Boyer, Enjert</u>
SITE INFORMATION		
Sample location <u>NAVARO REFINERY: MW-6</u>		
Collection Site Description		
		Township, Range, Section, Tract:
		<u>17S+26E+12+123</u>

SEND
FINAL
REPORT
TO

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted: 2 vials

- ☒ NF: Whole sample (Non-filtered)
☐ F: Filtered in field with 0.45 μ membrane filter
☐ PF: Pre-filtered w/45 μ membrane filter
- ☒ NA: No acid added
☐ A: HCL
☐ A: 2ml H₂SO₄/L added
- ☐ A: 5ml conc. HNO₃ added
☐ A: 4ml fuming HNO₃ added

SAMPLING CONDITIONS	Water level	<u>12.41</u>
	Discharge	<u>7 gallons</u>
	Sample type	<u>GRAB</u>
	Conductivity (Uncorrected)	<u>4400</u> μ mho
	Conductivity at 25° C	<u>4400</u> μ mho
☒ Bailed ☐ Dipped	☐ Pump ☐ Tap	
pH(00400)	<u>7.02</u>	
Water Temp. (00010)	<u>25°C</u>	

FIELD COMMENTS:

slightly turbid, strong H₂S like odor, brown greasy film on pump

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
☐ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	7130
☐ 002	VOA	602	☐ 014	VOC	8240	☐ 027	Pb	7421
☒ 003	VOH	8010	☐ 015	VOC	624	☐ 028	Hg(L)	7470
☐ 004	VOH	601	☐ 016	SVOC	8250	☐ 031	Se	7740
☐ 005	SUITE	8010-8020	☐ 017	SVOC	625	☐ 032	ICAP	6010
☐ 006	SUITE	601-602	☐ 018	VOC	8260	☐ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N SUITE	
☐ 008	PAH	8100	☐ 020	O&G	9070	☐ 035	NITRATE	
☐ 009	PAH	610	☐ 022	AS	7060	☐ 036	NITRITE	
☐ 010	PCB	8080	☐ 023	Ba	7080	☐ 037	AMMONIA	
☐ 011	PCB	608	☐ 024	Cr	7190	☐ 038	TKN	
☐ 012	PHENOL	8040	☐ 025	Cr6	7198	☐	OTHER	



STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

Contract Lab ANA LABS

Contract No. 78-521.07-013

OCD Sample No. 8907261053

119762

Collection Date	Collection Time	Collected by —Person/Agency	
<u>7/26/89</u>	<u>1053</u>	<u>Boyer, ENGLERT</u>	/OCD
SITE INFORMATION			
Sample location <u>NAVATO REFINERY: MW-7</u>			
Collection Site Description			
			Township, Range, Section, Tract: <u>117S+26E+12+22B</u>

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ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted: 2 vials

- ☒ NF: Whole sample (Non-filtered)
☐ F: Filtered in field with 0.45 μ membrane filter
☐ PF: Pre-filtered w/45 μ membrane filter

- ☐ NA: No acid added
☒ A: HCL
☐ A: 2ml H₂SO₄/L added
☐ A: 5ml conc. HNO₃ added
☐ A: 4ml fuming HNO₃ added

FIELD COMMENTS:

SAMPLING CONDITIONS ☒ Bailed ☐ Pump ☐ Dipped ☐ Tap	Water level <u>7.61</u>
	Discharge <u>6.5+ gallons</u>
	Sample type <u>GRAB</u>
	Conductivity (Uncorrected) <u>8250</u> μ mho
pH(00400) <u>7.05</u>	Conductivity at 25° C <u>4</u> μ mho
Water Temp. (00010) <u>22°C</u>	

clear water, strong He like odor

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
☒ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	7130
☒ 002	VOA	602	☐ 014	VOC	8240	☐ 027	Pb	7421
☐ 003	VOH	8010	☐ 015	VOC	624	☐ 028	Hg(L)	7470
☐ 004	VOH	601	☐ 016	SVOC	8250	☐ 031	Se	7740
☐ 005	SUITE	8010-8020	☐ 017	SVOC	625	☐ 032	ICAP	6010
☐ 006	SUITE	601-602	☐ 018	VOC	8260	☐ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N SUITE	
☐ 008	PAH	8100	☐ 020	O&G	9070	☐ 035	NITRATE	
☐ 009	PAH	610	☐ 022	AS	7060	☐ 036	NITRITE	
☐ 010	PCB	8080	☐ 023	Ba	7080	☐ 037	AMMONIA	
☐ 011	PCB	608	☐ 024	Cr	7190	☐ 038	TKN	
☐ 012	PHENOL	8040	☐ 025	Cr6	7198	☐	OTHER	



STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

Contract Lab **ANA-LAB**

Contract No. **2001-0001**

OCD Sample No. **8907261053#**

Collection Date	Collection Time	Collected by—Person/Agency
7/26/89	1053	Boyer, [unclear]
SITE INFORMATION		
Sample location NAVARO: [unclear] MID-2		
Collection Site Description		
		Township, Range, Section, Tract: 11715+26E+12+2213

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TO ↓

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NM OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088

SAMPLING CONDITIONS		SAMPLE FIELD TREATMENT — Check proper boxes	
☒ Bailed ☐ Pump ☐ Dipped ☐ Tap	Water level 7.61	No. of samples submitted: 5	
	Discharge 6.5 + gallons	☐ NF: Whole sample (Non-filtered) ☐ F: Filtered in field with 0.45 μ membrane filter ☐ PF: Pre-filtered w/45 μ membrane filter	
	Sample type GRAB	☒ NA: No acid added ☐ A: 5ml conc. HNO ₃ added ☐ A: HCL ☐ A: 4ml fuming HNO ₃ added ☐ A: 2ml H ₂ SO ₄ added	
	Conductivity (Uncorrected) 8250 μ mho	FIELD COMMENTS:	
pH(00400) 7.05	Conductivity at 25° C 4 μ mho		
Water Temp. (00010) 22°C	clear water, strong tk like odor		

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
☐ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	7130
☐ 002	VOA	602	☐ 014	VOC	8240	☐ 027	Pb	7421
☒ 003	VOH	8010	☐ 015	VOC	624	☐ 028	Hg(L)	7470
☐ 004	VOH	601	☐ 016	SVOC	8250	☐ 031	Se	7740
☐ 005	SUITE	8010-8020	☐ 017	SVOC	625	☐ 032	ICAP	6010
☐ 006	SUITE	601-602	☐ 018	VOC	8260	☐ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N SUITE	
☐ 008	PAH	8100	☐ 020	O&G	9070	☐ 035	NITRATE	
☐ 009	PAH	610	☐ 022	AS	7060	☐ 036	NITRITE	
☐ 010	PCB	8080	☐ 023	Ba	7080	☐ 037	AMMONIA	
☐ 011	PCB	608	☐ 024	Cr	7190	☐ 038	TKN	
☐ 012	PHENOL	8040	☐ 025	Cr6	7198	☐	OTHER	



STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

Contract Lab _____ Contract No. _____

OCD Sample No. _____

Collection Date	Collection Time	Collected by — Person/Agency
SITE INFORMATION		
Sample location		
Collection Site Description		
Township, Range, Section, Tract:		
17S+26E+12+223		

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TO
ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted: 1

- ☐ NF: Whole sample (Non-filtered)
☐ F: Filtered in field with 0.45 μ membrane filter
☐ PF: Pre-filtered w/45 μ membrane filter

- ☐ NA: No acid added
☐ A: HCL
☐ A: 2ml H₂SO₄/L added
☐ A: 5ml conc. HNO₃ added
☐ A: 4ml fuming HNO₃ added

FIELD COMMENTS:

SAMPLING CONDITIONS	Water level
	7.61
☐ Bailed ☐ Pump ☐ Dipped ☐ Tap	Discharge
	6.5 + gallons
pH(00400)	Sample type
	GRAB
Water Temp. (00010)	Conductivity (Uncorrected)
	8250 μ mho
	Conductivity at 25° C
	μ mho

clear water, strong H₂S like odor

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
☐ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	7130
☐ 002	VOA	602	☐ 014	VOC	8240	☐ 027	Pb	7421
☐ 003	VOH	8010	☐ 015	VOC	624	☐ 028	Hg(L)	7470
☐ 004	VOH	601	☐ 016	SVOC	8250	☐ 031	Se	7740
☐ 005	SUITE	8010-8020	☐ 017	SVOC	625	☐ 032	ICAP	6010
☐ 006	SUITE	601-602	☐ 018	VOC	8260	☐ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N SUITE	
☐ 008	PAH	8100	☐ 020	O&G	9070	☒ 035	NITRATE	
☐ 009	PAH	610	☐ 022	AS	7060	☐ 036	NITRITE	
☐ 010	PCB	8080	☐ 023	Ba	7080	☐ 037	AMMONIA	
☐ 011	PCB	608	☐ 024	Cr	7190	☐ 038	TKN	
☒ 012	PHENOL	8040	☐ 025	Cr6	7198	☐	OTHER	



STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

Contract Lab

ANA LAF

Contract No.

78-521.07-013

OCD Sample No.

890721

149763

Collection Date	Collection Time	Collected by—Person/Agency	
26/15	1545	Boyer	/OCD
SITE INFORMATION			
Sample location			
NAVAJO REFINERY: PIPE Outlet			
Collection Site Description			
Taken from end of grate			
Township, Range, Section, Tract:			
117 5+2 6 E+1 2+2 +1			

SEND
FINAL
REPORT
TOENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted:

1

- ☒ NF: Whole sample (Non-filtered)
☐ F: Filtered in field with 0.45 μ membrane filter
☐ PF: Pre-filtered w/45 μ membrane filter

- ☐ NA: No acid added
☐ A: HCL
☐ A: 2ml H₂SO₄ added
☐ A: 5ml conc. HNO₃ added
☐ A: 4ml fuming HNO₃ added

FIELD COMMENTS:

turbid, no floating product, strong odor

SAMPLING CONDITIONS

- ☐ Bailed ☐ Pump
☒ Dipped ☐ Tap

pH(00400)

9.47

Water Temp. (00010)

45°C

Water level

Discharge

Sample type

GRAB

Conductivity (Uncorrected)

3870 μ mho

Conductivity at 25° C

 μ mho

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
☐ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	7130
☐ 002	VOA	602	☐ 014	VOC	8240	☐ 027	Pb	7421
☐ 003	VOH	8010	☐ 015	VOC	624	☐ 028	Hg(L)	7470
☐ 004	VOH	601	☐ 016	SVOC	8250	☐ 031	Se	7740
☐ 005	SUITE	8010-8020	☐ 017	SVOC	625	☐ 032	ICAP	6010
☐ 006	SUITE	601-602	☐ 018	VOC	8260	☐ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N SUITE	
☐ 008	PAH	8100	☐ 020	O&G	9070	☐ 035	NITRATE	
☐ 009	PAH	610	☐ 022	AS	7060	☐ 036	NITRITE	
☐ 010	PCB	8080	☐ 023	Ba	7080	☐ 037	AMMONIA	
☐ 011	PCB	608	☐ 024	Cr	7190	☐ 038	TKN	
☒ 012	PHENOL	8040	☐ 025	Cr6	7198	☐	OTHER	



STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

Contract Lab

Contract No.

OCD Sample No.

Collection Date

Collection Time

Collected by—Person/Agency

7/26/89

1545

Boggs

/OCD

SITE INFORMATION

Sample location

Collection Site Description

Township, Range, Section, Tract:

17 S+26 E+ 2+21-Y

SEND
FINAL
REPORT
TOENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted:

- ☐ NF: Whole sample (Non-filtered)
☐ F: Filtered in field with 0.45 μ membrane filter
☐ PF: Pre-filtered w/45 μ membrane filter

- ☐ NA: No acid added
☐ A: HCL
☐ A: 2ml H_2SO_4 added
- ☐ A: 5ml conc. HNO_3 added
☐ A: 4ml fuming HNO_3 added

SAMPLING CONDITIONS

- ☐ Bailed ☐ Pump
☐ Dipped ☐ Tap

pH(00400)

Water Temp. (00010)

Water level

Discharge

Sample type

Conductivity (Uncorrected)

Conductivity at 25° C

mho

mho

FIELD COMMENTS:

Turbid, no floating product, strong odor

LAB ANALYSIS REQUESTED:

ITEM

DESC

METHOD

ITEM

DESC

METHOD

ITEM

DESC

METHOD

☒ 001

VOA

8020

☐ 013

PHENOL

604

☐ 026

Cd

7130

☐ 002

VOA

602

☐ 014

VOC

8240

☐ 027

Pb

7421

☐ 003

VOH

8010

☐ 015

VOC

624

☐ 028

Hg(L)

7470

☐ 004

VOH

601

☐ 016

SVOC

8250

☐ 031

Se

7740

☐ 005

SUITE

8010-8020

☐ 017

SVOC

625

☐ 032

ICAP

6010

☐ 006

SUITE

601-602

☐ 018

VOC

8260

☐ 033

CATIONS/ANIONS

☐ 007

HEADSPACE

☐ 019

SVOC

8270

☐ 034

N SUITE

☐ 008

PAH

8100

☐ 020

O&G

9070

☐ 035

NITRATE

☐ 009

PAH

610

☐ 022

AS

7060

☐ 036

NITRITE

☐ 010

PCB

8080

☐ 023

Ba

7080

☐ 037

AMMONIA

☐ 011

PCB

608

☐ 024

Cr

7190

☐ 038

TKN

☐ 012

PHENOL

8040

☐ 025

Cr6

7198

☐

OTHER



STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

Contract Lab _____ Contract No. _____

OCD Sample No. _____

Collection Date	Collection Time	Collected by—Person/Agency
1/17/17	11:30	_____ /OCD

SITE INFORMATION

Sample location _____

Collection Site Description _____

Township, Range, Section, Tract:

17S+26E+12+21-1

SEND ENVIRONMENTAL BUREAU
FINAL NM OIL CONSERVATION DIVISION
REPORT PO Box 2088
TO Santa Fe, NM 87504-2088

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted: _____

- ☐ NF: Whole sample (Non-filtered)
☐ F: Filtered in field with 0.45 μ membrane filter
☐ PF: Pre-filtered w/45 μ membrane filter

- ☒ NA: No acid added
☐ A: HCL
☐ A: 2ml H₂SO₄/L added
☐ A: 5ml conc. HNO₃ added
☐ A: 4ml fuming HNO₃ added

FIELD COMMENTS:

SAMPLING CONDITIONS

Water level _____

- ☐ Bailed ☐ Pump
☐ Dipped ☐ Tap

Discharge _____

Sample type _____

pH(00400)

Conductivity (Uncorrected)

Water Temp. (00010)

Conductivity at 25° C

_____ μ mho

Turbid, no floating product, strong odor

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
☐ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	7130
☐ 002	VOA	602	☐ 014	VOC	8240	☐ 027	Pb	7421
☐ 003	VOH	8010	☐ 015	VOC	624	☐ 028	Hg(L)	7470
☒ 004	VOH	601	☐ 016	SVOC	8250	☐ 031	Se	7740
☐ 005	SUITE	8010-8020	☐ 017	SVOC	625	☐ 032	ICAP	6010
☐ 006	SUITE	601-602	☐ 018	VOC	8260	☐ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N SUITE	
☐ 008	PAH	8100	☐ 020	O&G	9070	☐ 035	NITRATE	
☐ 009	PAH	610	☐ 022	AS	7060	☐ 036	NITRITE	
☐ 010	PCB	8080	☐ 023	Ba	7080	☐ 037	AMMONIA	
☐ 011	PCB	608	☐ 024	Cr	7190	☐ 038	TKN	
☐ 012	PHENOL	8040	☐ 025	Cr6	7198	☐	OTHER	



STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

Contract Lab ANA LAB

Contract No. 78-521,07-013

OCD Sample No. 8707261517

149784

Collection Date	Collection Time	Collected by —Person/Agency
<u>12/10/87</u>	<u>10:00</u>	<u>Boyer, Englebert</u>

SITE INFORMATION

Sample location

Collection Site Description

Township, Range, Section, Tract:

117526E01444

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ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted:

320018

- ☒ NF: Whole sample (Non-filtered)
☐ F: Filtered in field with 0.45 μ membrane filter
☐ PF: Pre-filtered w/45 μ membrane filter

- ☒ NA: No acid added
☐ A: HCL
☐ A: 2ml H₂SO₄/L added
☐ A: 5ml conc. HNO₃ added
☐ A: 4ml fuming HNO₃ added

FIELD COMMENTS:

SAMPLING CONDITIONS

- ☐ Bailed ☐ Pump
☐ Dipped ☐ Tap

pH(00400)

Water Temp. (00010)

Water level

Discharge

Sample type

Conductivity (Uncorrected)

Conductivity at 25° C

GRAS

8200 μ mho

4 μ mho

flowing river water, organic odor
very low flow

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
☐ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	7130
☐ 002	VOA	602	☐ 014	VOC	8240	☐ 027	Pb	7421
☐ 003	VOH	8010	☐ 015	VOC	624	☐ 028	Hg(L)	7470
☐ 004	VOH	601	☐ 016	S/OC	8250	☐ 031	Se	7740
☐ 005	SUITE	8010-8020	☐ 017	SVOC	625	☐ 032	ICAP	6010
☐ 006	SUITE	601-602	☐ 018	VOC	8260	☐ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N SUITE	
☐ 008	PAH	8100	☐ 020	O&G	9070	☐ 035	NITRATE	
☐ 009	PAH	610	☐ 022	As	7060	☐ 036	NITRITE	
☐ 010	PCB	8080	☐ 023	Ba	7080	☐ 037	AMMONIA	
☐ 011	PCB	608	☐ 024	C-	7190	☐ 038	TKN	
☐ 012	PHENOL	8040	☐ 025	C-6	7198	☐	OTHER	



STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

Contract Lab

Ames - 400

Contract No.

10000OCD Sample No. 890725 11.77

Collection Date	Collection Time	Collected by — Person/Agency
12/22/89	1517	Byers, E. J. / JCD
SITE INFORMATION		
Sample location <u>TO - 1st - 2nd - 3rd - 4th - 5th - 6th - 7th - 8th - 9th - 10th - 11th - 12th - 13th - 14th - 15th - 16th - 17th - 18th - 19th - 20th - 21st - 22nd - 23rd - 24th - 25th - 26th - 27th - 28th - 29th - 30th - 31st - 32nd - 33rd - 34th - 35th - 36th - 37th - 38th - 39th - 40th - 41st - 42nd - 43rd - 44th - 45th - 46th - 47th - 48th - 49th - 50th - 51st - 52nd - 53rd - 54th - 55th - 56th - 57th - 58th - 59th - 60th - 61st - 62nd - 63rd - 64th - 65th - 66th - 67th - 68th - 69th - 70th - 71st - 72nd - 73rd - 74th - 75th - 76th - 77th - 78th - 79th - 80th - 81st - 82nd - 83rd - 84th - 85th - 86th - 87th - 88th - 89th - 90th - 91st - 92nd - 93rd - 94th - 95th - 96th - 97th - 98th - 99th - 100th</u>		
Collection Site Description		
		Township, Range, Section, Tract:
		<u>117526E01+444</u>

SEND
FINAL
REPORT
TOENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted: 20/13

- ☐ NF: Whole sample (Non-filtered)
☐ F: Filtered in field with 0.45 μ membrane filter
☐ PF: Pre-filtered w/45 μ membrane filter

- ☐ NA: No acid added
☒ A: HCL
☐ A: 2ml H₂SO₄/L added
☐ A: 5ml conc. HNO₃ added
☐ A: 4ml fuming HNO₃ added

FIELD COMMENTS:

flowing river water, organic odor
very low flow

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
☒ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	7130
☐ 002	VOA	602	☐ 014	VOC	8240	☐ 027	Pb	7421
☐ 003	VOH	8010	☐ 015	VOC	624	☐ 028	Hg(L)	7470
☐ 004	VOH	601	☐ 016	SVOC	8250	☐ 031	Se	7740
☐ 005	SUITE	8010-8020	☐ 017	SVOC	625	☐ 032	ICAP	6010
☐ 006	SUITE	601-602	☐ 018	VOC	8260	☐ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N SUITE	
☐ 008	PAH	8100	☐ 020	O&G	9070	☐ 035	NITRATE	
☐ 009	PAH	610	☐ 022	AS	7060	☐ 036	NITRITE	
☐ 010	PCB	8080	☐ 023	Ba	7080	☐ 037	AMMONIA	
☐ 011	PCB	608	☐ 024	Cr	7190	☐ 038	TKN	
☐ 012	PHENOL	8040	☐ 025	Cr6	7198	☐	OTHER	

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

Contract Lab

Lab ANA-LAB 5

Contract No.

78-54,07-013

OCD Sample No. **B907261503**

002-149765

Collection Date	Collection Time	Collected by —Person/Agency
7/24/59	1503	Boyer, G. L. / OGD
SITE INFORMATION Sample location Collection Site Description ponded area on west bank of Pecos		
		Township, Range, Section, Tract: 17S+26E+01+44

**SEND
FINAL
REPORT
TO**

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088

SAMPLE FIELD TREATMENT — *Check proper boxes*

No. of samples submitted:

2/2/55

SAMPLING CONDITIONS ☐ Bailed ☐ Pump ☒ Dipped ☐ Tap		Water level Discharge Sample type <i>62075</i> Conductivity (Uncorrected) Water Temp. (00010) <i>11</i> mho Conductivity at 25° C <i>11</i> mho	☐ NF: Whole sample (Non-filtered) ☐ F: Filtered in field with 0.45 μ membrane filter ☐ PF: Pre-filtered w/45 μ membrane filter ☒ NA: No acid added ☐ A: 5ml conc. HNO_3 added ☒ A: HCL ☐ A: 4ml fuming HNO_3 added ☐ A: 2ml H_2SO_4 /L added
		FIELD COMMENTS: <i>Organic scum on water, slight H₂S like odor</i>	

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
☐ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	7130
☐ 002	VOA	602	☐ 014	VOC	8240	☐ 027	Pb	7421
☐ 003	VOH	8010	☐ 015	VOC	624	☐ 028	Hg(L)	7470
☐ 004	VOH	601	☐ 016	SVOC	8250	☐ 031	Se	7740
☐ 005	SUITE	8010-8020	☐ 017	SVOC	625	☐ 032	ICAP	6010
☐ 006	SUITE	601-602	☐ 018	VOC	8260	☐ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N SUITE	
☐ 008	PAH	8100	☐ 020	O&G	9070	☐ 035	NITRATE	
☐ 009	PAH	610	☐ 022	AS	7060	☐ 036	NITRITE	
☐ 010	PCB	8080	☐ 023	Ba	7080	☐ 037	AMMONIA	
☐ 011	PCB	608	☐ 024	Cr	7190	☐ 038	TKN	
☐ 012	PHENOL	8040	☐ 025	Cr6	7198	☐	OTHER	



STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

Contract Lab ANA-LABS

Contract No. _____

OCD Sample No. 8907261503

Collection Date	Collection Time	Collected by — Person/Agency	
<u>7/26/89</u>	<u>1503</u>	<u>Boyer, Engler</u>	/OCD
SITE INFORMATION			
Sample location <u>NAVASO REFINERY: RIVER POOL</u>			
Collection Site Description <u>West bank, ponded area on west bank of Pecos</u>			
			Township, Range, Section, Tract: <u>17S+26E+01+444</u>

SEND ENVIRONMENTAL BUREAU
FINAL NM OIL CONSERVATION DIVISION
REPORT PO Box 2088
TO Santa Fe, NM 87504-2088

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted: 2 vials

- | | |
|---|---|
| ☒ NF: Whole sample (Non-filtered) | |
| ☐ F: Filtered in field with 0.45 μ membrane filter | |
| ☐ PF: Pre-filtered w/45 μ membrane filter | |
| ☐ NA: No acid added | ☐ A: 5ml conc. HNO ₃ added |
| ☒ A: HCL | ☐ A: 4ml fuming HNO ₃ added |
| ☐ A: 2ml H ₂ SO ₄ /L added | |

FIELD COMMENTS:

Organic scum on water, slight Hc like odor.

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
☒ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	7130
☐ 002	VOA	602	☐ 014	VOC	8240	☐ 027	Pb	7421
☐ 003	VOH	8010	☐ 015	VOC	624	☐ 028	Hg(L)	7470
☐ 004	VOH	601	☐ 016	SVOC	8250	☐ 031	Se	7740
☐ 005	SUITE	8010-8020	☐ 017	SVOC	625	☐ 032	ICAP	6010
☐ 006	SUITE	601-602	☐ 018	VOC	8260	☐ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N SUITE	
☐ 008	PAH	8100	☐ 020	O&G	9070	☐ 035	NITRATE	
☐ 009	PAH	610	☐ 022	AS	7060	☐ 036	NITRITE	
☐ 010	PCB	8080	☐ 023	Ba	7080	☐ 037	AMMONIA	
☐ 011	PCB	608	☐ 024	Cr	7190	☐ 038	TKN	
☐ 012	PHENOL	8040	☐ 025	Cr6	7198	☐	OTHER	



STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

Contract Lab

ANA-LAB

Contract No.

78-521, 87-013

OCD Sample No. 8907270806

149766

Collection Date	Collection Time	Collected by —Person/Agency	
7/27/89	0806	Anderson	/OCD
SITE INFORMATION			
Sample location D/S WASH WATER			
Collection Site Description			
Sample from valve AT BASE OF waste water tank North of wash pad.			
			Township, Range, Section, Tract: + + +

SEND
FINAL
REPORT
TO ↓ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted:

2 vials

- ☒ NF: Whole sample (Non-filtered)
☐ F: Filtered in field with 0.45 μ membrane filter
☐ PF: Pre-filtered w/45 μ membrane filter

- ☒ NA: No acid added
☐ A: HCL
☐ A: 2ml H₂SO₄/L added
☐ A: 5ml conc. HNO₃ added
☐ A: 4ml fuming HNO₃ added

FIELD COMMENTS:

SAMPLING CONDITIONS	Water level
	Discharge
	Sample type GRAB
	Conductivity (Uncorrected) //mho
☐ Bailed ☐ Pump ☒ Dipped ☐ Tap	Conductivity at 25° C μ mho
pH(00400)	
Water Temp. (00010)	

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
☐ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	7130
☐ 002	VOA	602	☐ 014	VOC	8240	☐ 027	Pb	7421
☒ 003	VOH	8010	☐ 015	VOC	624	☐ 028	Hg(L)	7470
☐ 004	VOH	601	☐ 016	SVOC	8250	☐ 031	Se	7740
☐ 005	SUITE	8010-8020	☐ 017	SVOC	625	☐ 032	ICAP	6010
☐ 006	SUITE	601-602	☐ 018	VOC	8260	☐ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N SUITE	
☐ 008	PAH	8100	☐ 020	O&G	9070	☐ 035	NITRATE	
☐ 009	PAH	610	☐ 022	AS	7060	☐ 036	NITRITE	
☐ 010	PCB	8080	☐ 023	Ba	7080	☐ 037	AMMONIA	
☐ 011	PCB	608	☐ 024	Cr	7190	☐ 038	TKN	
☐ 012	PHENOL	8040	☐ 025	Cr6	7198	☐	OTHER	



STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

Contract Lab

ANA LAB

Contract No.

78-521.07-013

OCD Sample No. 8907271749

149767

Collection Date	Collection Time	Collected by —Person/Agency
7/27/89	1749	Boyer
SITE INFORMATION		
Sample location NAVATO REFINERY: PECOS RIVER @ BRIDGE		
Collection Site Description Sample Stream		
Approx 100 ft upstream from Highway 82 Bridge		
		Township, Range, Section, Tract:
		117S+27E+1B+111

SEND
FINAL
REPORT
TOENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted:

- ☒ NF: Whole sample (Non-filtered)
☐ F: Filtered in field with 0.45 μ membrane filter
☐ PF: Pre-filtered w/45 μ membrane filter

- ☐ NA: No acid added
☒ A: HCL
☐ A: 2ml H₂SO₄/L added
☐ A: 5ml conc. HNO₃ added
☐ A: 4ml fuming HNO₃ added

FIELD COMMENTS:

free flowing river water

SAMPLING CONDITIONS

- ☐ Bailed ☐ Pump
☒ Dipped ☐ Tap

pH(00400)

Water Temp. (00010)

Water level

Discharge

Sample type

Conductivity (Uncorrected)

Conductivity at 25° C

// mho

μ mho

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
☒ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	7130
☐ 002	VOA	602	☐ 014	VOC	8240	☐ 027	Pb	7421
☐ 003	VOH	8010	☐ 015	VOC	624	☐ 028	Hg(L)	7470
☐ 004	VOH	601	☐ 016	SVOC	8250	☐ 031	Se	7740
☐ 005	SUITE	8010-8020	☐ 017	SVOC	625	☐ 032	ICAP	6010
☐ 006	SUITE	601-602	☐ 018	VOC	8260	☐ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N SUITE	
☐ 008	PAH	8100	☐ 020	O&G	9070	☐ 035	NITRATE	
☐ 009	PAH	610	☐ 022	AS	7060	☐ 036	NITRITE	
☐ 010	PCB	8080	☐ 023	Ba	7080	☐ 037	AMMONIA	
☐ 011	PCB	608	☐ 024	Cr	7190	☐ 038	TKN	
☐ 012	PHENOL	8040	☐ 025	Cr6	7198	☐	OTHER	



STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

Contract Lab ANA-LM

Contract No. _____

OCD Sample No. 8907271249

Collection Date	Collection Time	Collected by—Person/Agency
<u>7/27/89</u>	<u>1749</u>	<u>Boyer</u>

SITE INFORMATION

Sample location NAVARO REFINERY: PECOS RIVER @ BRIDGE

Collection Site Description

Sample taken approx 100 ft
upstream from US 82 bridge

Township, Range, Section, Tract:

1 | 7 | S+2 | 7 | E+1 | 8+1 | 1

SEND
FINAL
REPORT
TO

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted: 2 vials

- ☒ NF: Whole sample (Non-filtered)
☐ F: Filtered in field with 0.45 μ m membrane filter
☐ PF: Pre-filtered w/45 μ m membrane filter

- ☒ NA: No acid added
☐ A: HCL
☐ A: 2ml H₂SO₄/L added
☐ A: 5ml conc. HNO₃ added
☐ A: 4ml fuming HNO₃ added

FIELD COMMENTS:

SAMPLING CONDITIONS	Water level
	Discharge
	Sample type <u>GRAB</u>
	Conductivity (Uncorrected) <u>1.1</u> mho
	Conductivity at 25° C <u>1.1</u> mho
☐ Bailed ☐ Pump ☐ Dipped ☐ Tap	
pH(00400)	
Water Temp. (00010)	

free flowing river water

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
☐ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	7130
☐ 002	VOA	602	☐ 014	VOC	8240	☐ 027	Pb	7421
☒ 003	VOH	8010	☐ 015	VOC	624	☐ 028	Hg(L)	7470
☐ 004	VOH	601	☐ 016	SVOC	8250	☐ 031	Se	7740
☐ 005	SUITE	8010-8020	☐ 017	SVOC	625	☐ 032	ICAP	6010
☐ 006	SUITE	601-602	☐ 018	VOC	8260	☐ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N SUITE	
☐ 008	PAH	8100	☐ 020	O&G	9070	☐ 035	NITRATE	
☐ 009	PAH	610	☐ 022	AS	7060	☐ 036	NITRITE	
☐ 010	PCB	8080	☐ 023	Ba	7080	☐ 037	AMMONIA	
☐ 011	PCB	608	☐ 024	Cr	7190	☐ 038	TKN	
☐ 012	PHENOL	8040	☐ 025	Cr6	7198	☐	OTHER	



STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

Contract Lab

Contract No.

78-521.07-013

OCD Sample No.

Collection Date	Collection Time	Collected by—Person/Agency
7/28/03	1825	3/20/03
SITE INFORMATION		
Sample location		
Collection Site Description		
Township, Range, Section, Tract:		

SEND
FINAL
REPORT
TOENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted:

- | | |
|---|---|
| ☐ NF: Whole sample (Non-filtered) | ☐ A: 5ml conc. HNO ₃ added |
| ☐ F: Filtered in field with 0.45 μ m membrane filter | ☐ A: 4ml fuming HNO ₃ added |
| ☐ PF: Pre-filtered w/45 μ m membrane filter | |
| ☐ NA: No acid added | ☐ A: 2ml H ₂ SO ₄ /L added |
| ☐ A: HCL | |

FIELD COMMENTS:

SAMPLING CONDITIONS	Water level
	Discharge
	Sample type
	Conductivity (Uncorrected)
	Conductivity at 25° C

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
☐ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	7130
☐ 002	VOA	602	☐ 014	VOC	8240	☐ 027	Pb	7421
☐ 003	VOH	8010	☐ 015	VOC	624	☐ 028	Hg(L)	7470
☐ 004	VOH	601	☐ 016	SVOC	8250	☐ 031	Se	7740
☐ 005	SUITE	8010-8020	☐ 017	SVOC	625	☐ 032	ICAP	6010
☐ 006	SUITE	601-602	☐ 018	VOC	8260	☐ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N SUITE	
☐ 008	PAH	8100	☐ 020	O&G	9070	☐ 035	NITRATE	
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☐ 010	PCB	8080	☐ 023	Ba	7080	☐ 037	AMMONIA	
☐ 011	PCB	608	☐ 024	Cr	7190	☐ 038	TKN	
☐ 012	PHENOL	8040	☐ 025	Cr6	7198	☐	OTHER	



STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

Contract Lab ANA LAB

Contract No. _____

OCD Sample No. 890725 1B29890725 1B29

Collection Date	Collection Time	Collected by — Person/Agency	
<u>7/25/89</u>	<u>1829</u>	<u>Boyar</u>	<u>22705</u> /OCD
SITE INFORMATION			
Sample location: <u>NAVATO REFINERY + EAST Pond 3</u>			
Collection Site Description: <u>EAST side opposite OCB #7 well</u>			
			Township, Range, Section, Tract: <u>17 5+26 E+0 1+4 -1</u>

SEND
FINAL
REPORT
TO ↓ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted: 2 vials

- ☒ NF: Whole sample (Non-filtered)
☐ F: Filtered in field with 0.45 μ membrane filter
☐ PF: Pre-filtered w/45 μ membrane filter

- ☒ NA: No acid added
☐ A: HCL
☐ A: 2ml H₂SO₄/L added
☐ A: 5ml conc. HNO₃ added
☐ A: 4ml fuming HNO₃ added

FIELD COMMENTS:

SAMPLING CONDITIONS ☐ Bailed ☐ Pump ☒ Dipped ☐ Tap pH(00400) Water Temp. (00010) <u>26.5°C</u>	Water level <u>7.61</u>
	Discharge <u>6.5+ gallons</u>
	Sample type <u>GRAB</u>
	Conductivity (Uncorrected) <u>7100</u> μ mho
	Conductivity at 25° C <u>4</u> μ mho

clear water, strong H₂S like odor

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
☐ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	7130
☐ 002	VOA	602	☐ 014	VOC	8240	☐ 027	Pb	7421
☒ 003	VOH	8010	☐ 015	VOC	624	☐ 028	Hg(L)	7470
☐ 004	VOH	601	☐ 016	SVOC	8250	☐ 031	Se	7740
☐ 005	SUITE	8010-8020	☐ 017	SVOC	625	☐ 032	ICAP	6010
☐ 006	SUITE	601-602	☐ 018	VOC	8260	☐ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N SUITE	
☐ 008	PAH	8100	☐ 020	O&G	9070	☐ 035	NITRATE	
☐ 009	PAH	610	☐ 022	AS	7060	☐ 036	NITRITE	
☐ 010	PCB	8080	☐ 023	Ba	7080	☐ 037	AMMONIA	
☐ 011	PCB	608	☐ 024	Cr	7190	☐ 038	TKN	
☐ 012	PHENOL	8040	☐ 025	Cr6	7198	☐	OTHER	



Extra (Navy)

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

CLIENT: OCD
ID: 8907261257
SITE: MW-3
LAB NO: F1830

DATE REPORTED: 08/22/89
DATE EXTRACTED: 08/07/89
DATE RECEIVED: 08/02/89
DATE COLLECTED: 07/26/89

Analysis Requested: Purgeable halocarbons in water.

Parameter	Concentration	Units
Bromobenzene	ND (1.0)	ug/l
Bromodichloromethane	ND (1.0)	ug/l
Bromoform	ND (1.0)	ug/l
Carbon Tetrachloride	ND (1.0)	ug/l
Chlorobenzene	ND (1.0)	ug/l
Chloroethane	ND (1.0)	ug/l
Chloroform	ND (1.0)	ug/l
Chloromethane	ND (1.0)	ug/l
Dibromochloromethane	ND (1.0)	ug/l
Dibromomethane	ND (1.0)	ug/l
1,2-Dichlorobenzene	ND (1.0)	ug/l
1,3-Dichlorobenzene	ND (1.0)	ug/l
1,4-Dichlorobenzene	ND (1.0)	ug/l
Dichlorodifluoromethane	ND (1.0)	ug/l
1,1-Dichloroethane	ND (1.0)	ug/l
1,2-Dichloroethane	ND (1.0)	ug/l
1,1-Dichloroethene	ND (1.0)	ug/l
trans-1,2-Dichloroethene	ND (1.0)	ug/l
1,2-Dichloropropane	ND (1.0)	ug/l
1,3-Dichloropropylene	ND (1.0)	ug/l
2,2-Dichloropropane	ND (1.0)	ug/l
Dichloromethane	ND (1.0)	ug/l
1,1,1,2-Tetrachloroethane	ND (1.0)	ug/l
1,1,2,2-Tetrachloroethane	ND (1.0)	ug/l
Tetrachloroethene	ND (1.0)	ug/l
1,1,1-Trichloroethane	ND (1.0)	ug/l
1,1,2-Trichloroethane	ND (1.0)	ug/l
Trichloroethene	ND (1.0)	ug/l
Trichlorofluoromethane	ND (1.0)	ug/l
1,2,3-Trichloropropane	ND (1.0)	ug/l

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SANTA FE



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Farmington, New Mexico 87401
Tel. (505) 326-4737

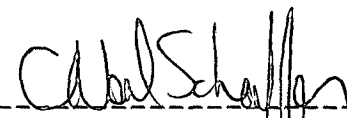
Benzyl Chloride	ND	(1.0)	ug/l
bis(2-chloroethoxy)methane	ND	(1.0)	ug/l
bis(2-Chloroisopropyl)ether	ND	(1.0)	ug/l
Bromomethane	ND	(1.0)	ug/l
Chloroacetaldehyde	ND	(1.0)	ug/l
1-Chlorohexane	ND	(1.0)	ug/l
1-Chloroethyl Vinyl Ether	ND	(1.0)	ug/l
Chloromethyl methyl ether	ND	(1.0)	ug/l
Chlorotoluene	ND	(1.0)	ug/l
1,3-Dichloropropene	ND	(1.0)	ug/l

Method:

8010 Halogenated Volatile Organics, SW-846, USEPA (1982).

(Detection limit in parenthesis.)

ND - Parameter not detected at the stated detection limit.



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2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

CLIENT: OCD
SAMPLE: 8907261257
SITE: MW-3
LAB NO: F1830

DATE REPORTED: 08/21/89
DATE RECEIVED: 07/31/89
DATE COLLECTED: 07/26/89

Lab pH.....	8.05
Lab Conductivity, umhos/cm.....	7877
Lab resistivity, ohm-m.....	1.2695
Total Dissolved Solids (180), mg/l..	7082
Total Dissolved Solids (calc), mg/l.	6776
Total Alkalinity as CaCO ₃ , mg/l.....	316.68
Total Acidity as CaCO ₃ , mg/l.....	0.00
Total Hardness as CaCO ₃ , mg/l.....	2701.65
Sodium Absorption Ratio.....	10.07
Fluoride, mg/l.....	2.75

	mg/l	meq/l
Bicarbonate as HCO ₃	386.35	6.33
Carbonate as CO ₃	0.00	0.00
Chloride.....	1265.57	35.70
Sulfate.....	3218.75	67.06
Calcium.....	605.61	30.22
Magnesium.....	289.57	23.81
Potassium.....	3.70	0.09
Sodium.....	1203.00	52.33
Major Cations.....		106.45
Major Anions.....		109.09
Cation/Anion Difference.....		1.22 %

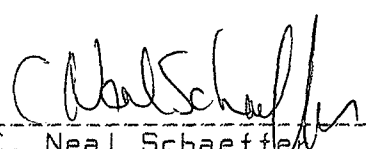
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Trace metals (Dissolved Concentration), mg/l

Aluminum.....	0.10	Lead.....	<0.02
Arsenic.....	0.079	Manganese.....	4.07
Boron.....	1.16	Molybdenum.....	0.05
Barium.....	<0.50	Nickel.....	<0.01
Cadmium.....	<0.002	Selenium.....	<0.005
Chromium.....	0.02	Silicon.....	7.7
Copper.....	0.03	Zinc.....	<0.01
Iron.....	1.70	Uranium.....	<0.10
Silver.....	<0.01	Titanium.....	<0.05
Cobalt.....	<0.01		


C. Neal Schaeffer
Senior Chemist



2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 328-4737

CLIENT: OCD
ID: 8907261221
SITE: MW-4
LAB NO: F1829

DATE REPORTED: 08/22/89
DATE EXTRACTED: 08/07/89
DATE RECEIVED: 08/02/89
DATE COLLECTED: 07/26/89

Analysis Requested: Purgeable halocarbons in water.

Parameter	Concentration	Units
Bromobenzene	ND (1.0)	ug/l
Bromodichloromethane	ND (1.0)	ug/l
Bromoform	ND (1.0)	ug/l
Carbon Tetrachloride	ND (1.0)	ug/l
Chlorobenzene	ND (1.0)	ug/l
Chloroethane	ND (1.0)	ug/l
Chloroform	ND (1.0)	ug/l
Chloromethane	ND (1.0)	ug/l
Dibromochloromethane	ND (1.0)	ug/l
Dibromomethane	ND (1.0)	ug/l
1,2-Dichlorobenzene	ND (1.0)	ug/l
1,3-Dichlorobenzene	ND (1.0)	ug/l
1,4-Dichlorobenzene	ND (1.0)	ug/l
Dichlorodifluoromethane	ND (1.0)	ug/l
1,1-Dichloroethane	ND (1.0)	ug/l
1,2-Dichloroethane	ND (1.0)	ug/l
1,1-Dichloroethene	ND (1.0)	ug/l
trans-1,2-Dichloroethene	ND (1.0)	ug/l
1,2-Dichloropropane	ND (1.0)	ug/l
1,3-Dichloropropylene	ND (1.0)	ug/l
2,2-Dichloropropane	ND (1.0)	ug/l
Dichloromethane	ND (1.0)	ug/l
1,1,1,2-Tetrachloroethane	ND (1.0)	ug/l
1,1,2,2-Tetrachloroethane	ND (1.0)	ug/l
Tetrachloroethene	ND (1.0)	ug/l
1,1,1-Trichloroethane	ND (1.0)	ug/l
1,1,2-Trichloroethane	ND (1.0)	ug/l
Trichloroethene	ND (1.0)	ug/l
Trichlorofluoromethane	ND (1.0)	ug/l
1,2,3-Trichloropropane	ND (1.0)	ug/l

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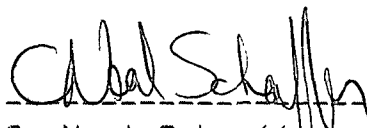
Benzyl Chloride	ND	(1.0)	ug/l
bis(2-chloroethoxy)methane	ND	(1.0)	ug/l
bis(2-Chloroisopropyl)ether	ND	(1.0)	ug/l
Bromomethane	ND	(1.0)	ug/l
Chloracetaldehyde	ND	(1.0)	ug/l
1-Chlorohexane	ND	(1.0)	ug/l
1-Chloroethyl Vinyl Ether	ND	(1.0)	ug/l
Chloromethyl methyl ether	ND	(1.0)	ug/l
Chlorotoluene	ND	(1.0)	ug/l
1,3-Dichloropropene	ND	(1.0)	ug/l

Method:

8010 Halogenated Volatile Organics, SW-846, USEPA (1982).

(Detection limit in parenthesis.)

ND - Parameter not detected at the stated detection limit.



C. Neal Schaeffer
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2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

CLIENT: OCD
ID: 8907261135
SITE: MW-5
LAB NO: F1828
Analysis Requested: Purgeable halocarbons in water.

DATE REPORTED: 08/22/89
DATE EXTRACTED: 08/07/89
DATE RECEIVED: 08/02/89
DATE COLLECTED: 07/26/89

Parameter	Concentration	Units
-----	-----	-----
Bromobenzene	ND (1.0)	ug/l
Bromodichloromethane	ND (1.0)	ug/l
Bromoform	ND (1.0)	ug/l
Carbon Tetrachloride	ND (1.0)	ug/l
Chlorobenzene	ND (1.0)	ug/l
Chloroethane	ND (1.0)	ug/l
Chloroform	ND (1.0)	ug/l
Chloromethane	ND (1.0)	ug/l
Dibromochloromethane	ND (1.0)	ug/l
Dibromomethane	ND (1.0)	ug/l
1,2-Dichlorobenzene	ND (1.0)	ug/l
1,3-Dichlorobenzene	ND (1.0)	ug/l
1,4-Dichlorobenzene	ND (1.0)	ug/l
Dichlorodifluoromethane	ND (1.0)	ug/l
1,1-Dichloroethane	ND (1.0)	ug/l
1,2-Dichloroethane	ND (1.0)	ug/l
1,1-Dichloroethene	ND (1.0)	ug/l
trans-1,2-Dichloroethene	ND (1.0)	ug/l
1,2-Dichloropropane	ND (1.0)	ug/l
1,3-Dichloropropylene	ND (1.0)	ug/l
2,2-Dichloropropane	ND (1.0)	ug/l
Dichloromethane	ND (1.0)	ug/l
1,1,1,2-Tetrachloroethane	ND (1.0)	ug/l
1,1,2,2-Tetrachloroethane	ND (1.0)	ug/l
Tetrachloroethene	ND (1.0)	ug/l
1,1,1-Trichloroethane	ND (1.0)	ug/l
1,1,2-Trichloroethane	ND (1.0)	ug/l
Trichloroethene	ND (1.0)	ug/l
Trichlorofluoromethane	ND (1.0)	ug/l
1,2,3-Trichloropropane	ND (1.0)	ug/l

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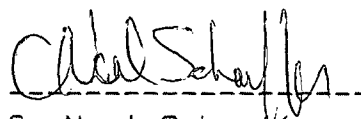
Benzyl Chloride	ND	(1.0)	ug/l
bis(2-chloroethoxy)methane	ND	(1.0)	ug/l
bis(2-Chloroisopropyl)ether	ND	(1.0)	ug/l
Bromomethane	ND	(1.0)	ug/l
Chloroacetaldehyde	ND	(1.0)	ug/l
1-Chlorohexane	ND	(1.0)	ug/l
1-Chloroethyl Vinyl Ether	ND	(1.0)	ug/l
Chloromethyl methyl ether	ND	(1.0)	ug/l
Chlorotoluene	ND	(1.0)	ug/l
1,3-Dichloropropene	ND	(1.0)	ug/l

Method:

8010 Halogenated Volatile Organics, SW-846, USEPA (1982).

(Detection limit in parenthesis.)

ND - Parameter not detected at the stated detection limit.


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2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

CLIENT: OCD
ID: 8907261424
SITE: MW-6
LAB NO: F1827
Analysis Requested: Purgeable halocarbons in water.

DATE REPORTED: 08/22/89
DATE EXTRACTED: 08/07/89
DATE RECEIVED: 08/02/89
DATE COLLECTED: 07/26/89

Parameter	Concentration	Units
Bromobenzene	ND (1.0)	ug/l
Bromodichloromethane	ND (1.0)	ug/l
Bromoform	ND (1.0)	ug/l
Carbon Tetrachloride	ND (1.0)	ug/l
Chlorobenzene	ND (1.0)	ug/l
Chloroethane	ND (1.0)	ug/l
Chloroform	ND (1.0)	ug/l
Chloromethane	ND (1.0)	ug/l
Dibromochloromethane	ND (1.0)	ug/l
Dibromomethane	ND (1.0)	ug/l
1,2-Dichlorobenzene	ND (1.0)	ug/l
1,3-Dichlorobenzene	ND (1.0)	ug/l
1,4-Dichlorobenzene	ND (1.0)	ug/l
Dichlorodifluoromethane	ND (1.0)	ug/l
1,1-Dichloroethane	ND (1.0)	ug/l
1,2-Dichloroethane	ND (1.0)	ug/l
1,1-Dichloroethene	ND (1.0)	ug/l
trans-1,2-Dichloroethene	ND (1.0)	ug/l
1,2-Dichloropropane	ND (1.0)	ug/l
1,3-Dichloropropylene	ND (1.0)	ug/l
2,2-Dichloropropane	ND (1.0)	ug/l
Dichloromethane	ND (1.0)	ug/l
1,1,1,2-Tetrachloroethane	ND (1.0)	ug/l
1,1,2,2-Tetrachloroethane	ND (1.0)	ug/l
Tetrachloroethene	ND (1.0)	ug/l
1,1,1-Trichloroethane	ND (1.0)	ug/l
1,1,2-Trichloroethane	ND (1.0)	ug/l
Trichloroethene	ND (1.0)	ug/l
Trichlorofluoromethane	ND (1.0)	ug/l
1,2,3-Trichloropropane	ND (1.0)	ug/l

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Benzyl Chloride	ND	(1.0)	ug/l
bis(2-chloroethoxy)methane	ND	(1.0)	ug/l
bis(2-Chloroisopropyl)ether	ND	(1.0)	ug/l
Bromomethane	ND	(1.0)	ug/l
Chloracetaldehyde	ND	(1.0)	ug/l
1-Chlorohexane	ND	(1.0)	ug/l
1-Chloroethyl Vinyl Ether	ND	(1.0)	ug/l
Chloromethyl methyl ether	ND	(1.0)	ug/l
Chlorotoluene	ND	(1.0)	ug/l
1,3-Dichloropropene	ND	(1.0)	ug/l

Method:

8010 Halogenated Volatile Organics, SW-846, USEPA (1982).

(Detection limit in parenthesis.)

ND - Parameter not detected at the stated detection limit.

A handwritten signature in dark ink, appearing to read "C. Neal Schaeffer", is written over a horizontal dashed line.

C. Neal Schaeffer
Senior Chemist

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2506 West Main Street
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Tel. (505) 326-4737

CLIENT: OCD
ID: 8907251553
SITE: OCD-8
LAB NO: F1825
Analysis Requested: Purgeable halocarbons in water.

DATE REPORTED: 08/22/89
DATE EXTRACTED: 08/07/89
DATE RECEIVED: 08/02/89
DATE COLLECTED: 07/25/89

Parameter	Concentration	Units
Bromobenzene	ND (1.0)	ug/l
Bromodichloromethane	ND (1.0)	ug/l
Bromoform	ND (1.0)	ug/l
Carbon Tetrachloride	ND (1.0)	ug/l
Chlorobenzene	ND (1.0)	ug/l
Chloroethane	ND (1.0)	ug/l
Chloroform	ND (1.0)	ug/l
Chloromethane	ND (1.0)	ug/l
Dibromochloromethane	ND (1.0)	ug/l
Dibromomethane	ND (1.0)	ug/l
1,2-Dichlorobenzene	ND (1.0)	ug/l
1,3-Dichlorobenzene	ND (1.0)	ug/l
1,4-Dichlorobenzene	ND (1.0)	ug/l
Dichlorodifluoromethane	ND (1.0)	ug/l
1,1-Dichloroethane	ND (1.0)	ug/l
1,2-Dichloroethane	ND (1.0)	ug/l
1,1-Dichloroethene	ND (1.0)	ug/l
trans-1,2-Dichloroethene	ND (1.0)	ug/l
1,2-Dichloropropane	ND (1.0)	ug/l
1,3-Dichloropropylene	ND (1.0)	ug/l
2,2-Dichloropropane	ND (1.0)	ug/l
Dichloromethane	ND (1.0)	ug/l
1,1,1,2-Tetrachloroethane	ND (1.0)	ug/l
1,1,2,2-Tetrachloroethane	ND (1.0)	ug/l
Tetrachloroethene	ND (1.0)	ug/l
1,1,1-Trichloroethane	ND (1.0)	ug/l
1,1,2-Trichloroethane	ND (1.0)	ug/l
Trichloroethene	ND (1.0)	ug/l
Trichlorofluoromethane	ND (1.0)	ug/l
1,2,3-Trichloropropane	ND (1.0)	ug/l

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Tel. (505) 326-4737

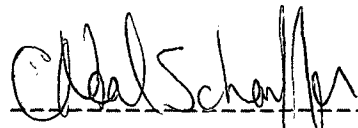
Benzyl Chloride	ND	(1.0)	ug/l
bis(2-chloroethoxy)methane	ND	(1.0)	ug/l
bis(2-Chloroisopropyl)ether	ND	(1.0)	ug/l
Bromomethane	ND	(1.0)	ug/l
Chloroacetaldehyde	ND	(1.0)	ug/l
1-Chlorohexane	ND	(1.0)	ug/l
1-Chloroethyl Vinyl Ether	ND	(1.0)	ug/l
Chloromethyl methyl ether	ND	(1.0)	ug/l
Chlorotoluene	ND	(1.0)	ug/l
1,3-Dichloropropene	ND	(1.0)	ug/l

Method:

8010 Halogenated Volatile Organics, SW-846, USEPA (1982).

(Detection limit in parenthesis.)

ND - Parameter not detected at the stated detection limit.



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Senior Chemist

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STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

Contract Lab DA-69BContract No. 78-521, 07-013OCD Sample No. 5702512-7149748

Collection Date	Collection Time	Collected by —Person/Agency
<u>07/25/89</u>	<u>12:04</u>	<u>BOYER, F. J.</u>
SITE INFORMATION		
Sample location <u>DAVATA REFINERY</u>		
Collection Site Description		
		Township, Range, Section, Tract:
		<u>17S+26E+06B</u>

SEND
FINAL
REPORT
TO: ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted: 2 wells

- ☒ NF: Whole sample (Non-filtered)
☐ F: Filtered in field with 0.45 μ membrane filter
☐ PF: Pre-filtered w/45 μ membrane filter
- ☐ NA: No acid added
☐ A: HCL
☐ A: 2ml H₂SO₄/L added
- ☐ A: 5ml conc. HNO₃ added
☐ A: 4ml fuming HNO₃ added

FIELD COMMENTS: clear water, no odor

SAMPLING CONDITIONS	Water level
	<u>12.64</u>
☐ Bailed ☐ Pump ☐ Dipped ☐ Tap	Discharge
	<u>6 gallons</u>
pH(00400)	Sample type
	<u>10.900</u> mho
Water Temp. (00010)	Conductivity (Uncorrected)
	<u>10.900</u> mho
	Conductivity at 25° C

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
☒ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	7130
☐ 002	VOA	602	☐ 014	VOC	8240	☐ 027	Pb	7421
☐ 003	VOH	8010	☐ 015	VOC	624	☐ 028	Hg(L)	7470
☐ 004	VOH	601	☐ 016	SVOC	8250	☐ 031	Se	7740
☐ 005	SUITE	8010-8020	☐ 017	SVOC	625	☐ 032	ICAP	6010
☐ 006	SUITE	601-602	☐ 018	VOC	8260	☐ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N SUITE	
☐ 008	PAH	8100	☐ 020	C&G	9070	☐ 035	NITRATE	
☐ 009	PAH	610	☐ 022	AS	7060	☐ 036	NITRITE	
☐ 010	PCB	8080	☐ 023	Ba	7080	☐ 037	AMMONIA	
☐ 011	PCB	608	☐ 024	Cr	7190	☐ 038	TKN	
☐ 012	PHENOL	8040	☐ 025	Cr6	7198	☐	OTHER	



STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

Contract Lab ANA-1-AO Contract No. 300-1-100

OCD Sample No. 8907251204

Collection Date	Collection Time	Collected by —Person/Agency
07/25/89	1204	Boyer, P.
SITE INFORMATION		
Sample location <u>NAVAJO REFINERY</u>		
Collection Site Description		
		Township, Range, Section, Tract:
		<u>117S+26E+06+31</u>

SEND ENVIRONMENTAL BUREAU
FINAL NM OIL CONSERVATION DIVISION
REPORT PO Box 2088
TO Santa Fe, NM 87504-2088

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted: 2 Vials

- ☐ NF: Whole sample (Non-filtered)
☐ F: Filtered in field with 0.45 μ membrane filter
☐ PF: Pre-filtered w/45 μ membrane filter
- ☐ NA: No acid added
☐ A: HCL
☐ A: 2ml H₂SO₄/L added
- ☐ A: 5ml conc. HNO₃ added
☐ A: 4ml fuming HNO₃ added

FIELD COMMENTS:

SAMPLING CONDITIONS	Water level
	Discharge
	Sample type
	Conductivity (Uncorrected)
	Conductivity at 25° C
☒ Bailed ☐ Pump ☐ Dipped ☐ Tap	<u>12.64</u> <u>6 gallons</u> <u>G.R.A.</u> <u>12.9</u> mho <u>4</u> mho
pH(00400)	<u>7.05</u>
Water Temp. (00010)	<u>21°C</u>
<u>clear water, no odors</u>	

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
☐ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	7130
☐ 002	VOA	602	☐ 014	VOC	8240	☐ 027	Pb	7421
☒ 003	VOH	8010	☐ 015	VOC	624	☐ 028	Hg(L)	7470
☐ 004	VOH	601	☐ 016	SVOC	8250	☐ 031	Se	7740
☐ 005	SUITE	8010-8020	☐ 017	SVOC	625	☐ 032	ICAP	6010
☐ 006	SUITE	601-602	☐ 018	VOC	8260	☐ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N SUITE	
☐ 008	PAH	8100	☐ 020	O&G	9070	☐ 035	NITRATE	
☐ 009	PAH	610	☐ 022	AS	7060	☐ 036	NITRITE	
☐ 010	PCB	8080	☐ 023	Ba	7080	☐ 037	AMMONIA	
☐ 011	PCB	608	☐ 024	Cr	7190	☐ 038	TKN	
☐ 012	PHENOL	8040	☐ 025	Cr6	7198	☐	OTHER	



STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

Contract Lab ANA-LABS

Contract No. 78-521.07-013

OCD Sample No. 8907251126

149747

Collection Date	Collection Time	Collected by—Person/Agency	
<u>07/25/89</u>	<u>1126</u>	<u>Boyer, Engiert</u>	/OCD
SITE INFORMATION			
Sample location		<u>NAVAGO REFINERY</u> <u>OCD-3</u>	
Collection Site Description			
			Township, Range, Section, Tract:
			<u>17S+27E+06+3</u>

SEND
FINAL
REPORT
TO ↓
ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088

SAMPLE FIELD TREATMENT— Check proper boxes

No. of samples submitted: 2 vials

- ☒ NF: Whole sample (Non-filtered)
☐ F: Filtered in field with 0.45 μ membrane filter
☐ PF: Pre-filtered w/45 μ membrane filter
- ☐ NA: No acid added
☒ A: HCL
☐ A: 2ml H₂SO₄/L added
- ☐ A: 5ml conc. HNO₃ added
☐ A: 4ml fuming HNO₃ added

FIELD COMMENTS:

SAMPLING CONDITIONS	Water level	<u>12.90</u>
	Discharge	<u>6 gallons</u>
	Sample type	<u>GRAB</u>
	Conductivity (Uncorrected)	<u>8900</u> μ mho
	Conductivity at 25° C	<u>4</u> μ mho
☒ Bailed ☐ Pump ☐ Dipped ☐ Tap	pH(00400)	<u>7.04</u>
	Water Temp. (00010)	<u>22° C</u>

turbid water, no odor

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
☒ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	7130
☐ 002	VOA	602	☐ 014	VOC	8240	☐ 027	Pb	7421
☐ 003	VOH	8010	☐ 015	VOC	624	☐ 028	Hg(L)	7470
☐ 004	VOH	601	☐ 016	SVOC	8250	☐ 031	Se	7740
☐ 005	SUITE	8010-8020	☐ 017	SVOC	625	☐ 032	ICAP	6010
☐ 006	SUITE	601-602	☐ 018	VOC	8260	☐ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N SUITE	
☐ 008	PAH	8100	☐ 020	O&G	9070	☐ 035	NITRATE	
☐ 009	PAH	610	☐ 022	AS	7060	☐ 036	NITRITE	
☐ 010	PCB	8080	☐ 023	Ba	7080	☐ 037	AMMONIA	
☐ 011	PCB	608	☐ 024	Cr	7190	☐ 038	TKN	
☐ 012	PHENOL	8040	☐ 025	Cr6	7198	☐	OTHER	



STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

Contract Lab ANA - LABS

Contract No. 78-521-07-013

OCD Sample No. 8907251126

149747

Collection Date	Collection Time	Collected by —Person/Agency	
<u>07/25/89</u>	<u>1126</u>	<u>BOXER, ENGLERT</u>	/OCD
SITE INFORMATION			
Sample location		<u>NAVATO REFINERY</u> <u>OCD-3</u>	
Collection Site Description			
			Township, Range, Section, Tract:
			<u>17</u> <u>S+2</u> <u>7</u> <u>E+0</u> <u>6+3</u>

SEND ENVIRONMENTAL BUREAU
FINAL NM OIL CONSERVATION DIVISION
REPORT PO Box 2088
TO Santa Fe, NM 87504-2088

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted: 2 vials

- ☒ **NF:** Whole sample (Non-filtered)
☐ **F:** Filtered in field with 0.45 μ membrane filter
☐ **PF:** Pre-filtered w/45 μ membrane filter
- ☒ **NA:** No acid added
☐ **A:** HCL
☐ **A:** 2ml H₂SO₄/L added
- ☐ **A:** 5ml conc. HNO₃ added
☐ **A:** 4ml fuming HNO₃ added

FIELD COMMENTS:

SAMPLING CONDITIONS	Water level	<u>12.90</u>
	Discharge	<u>6 gallons</u>
	Sample type	<u>GRAB</u>
	Conductivity (Uncorrected)	<u>8700</u> μ mho
pH(00400)	<u>7.04</u>	
Water Temp. (00010)	<u>22°C</u>	Conductivity at 25° C <u>4</u> mho

turbid water, no odor

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
☐ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	7130
☐ 002	VOA	602	☐ 014	VOC	8240	☐ 027	Pb	7421
☒ 003	VOH	8010	☐ 015	VOC	624	☐ 028	Hg(L)	7470
☐ 004	VOH	601	☐ 016	SVOC	8250	☐ 031	Se	7740
☐ 005	SUITE	8010-8020	☐ 017	SVOC	625	☐ 032	ICAP	6010
☐ 006	SUITE	601-602	☐ 018	VOC	8260	☐ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N SUITE	
☐ 008	PAH	8100	☐ 020	O&G	9070	☐ 035	NITRATE	
☐ 009	PAH	610	☐ 022	AS	7060	☐ 036	NITRITE	
☐ 010	PCB	8080	☐ 023	Ba	7080	☐ 037	AMMONIA	
☐ 011	PCB	608	☐ 024	Cr	7190	☐ 038	TKN	
☐ 012	PHENOL	8040	☐ 025	CrS	7198	☐	OTHER	



STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

Contract Lab ANA-LAB

Contract No. 78-521.67-013

OCD Sample No. 8907891333

149750

Collection Date	Collection Time	Collected by —Person/Agency
<u>07/25/89</u>	<u>1333</u>	<u>Boyer, Englert</u>
SITE INFORMATION		
Sample location <u>NAVARO Refinery - OCD-5</u>		
Collection Site Description		
		Township, Range, Section, Tract:
		<u>17</u> <u>5+27</u> <u>E+06+3</u> <u>1</u>

SEND ENVIRONMENTAL BUREAU
FINAL NM OIL CONSERVATION DIVISION
REPORT PO Box 2088
TO Santa Fe, NM 87504-2088

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted: 2 Vials

- ☒ NF: Whole sample (Non-filtered)
☐ F: Filtered in field with 0.45 μ membrane filter
☐ PF: Pre-filtered w/45 μ membrane filter

- ☐ NA: No acid added
☒ A: HCL
☐ A: 2ml H₂SO₄/L added
☐ A: 5ml conc. HNO₃ added
☐ A: 4ml fuming HNO₃ added

FIELD COMMENTS:

SAMPLING CONDITIONS	Water level
	<u>11.01</u>
☒ Bailed ☐ Pump ☐ Dipped ☐ Tap	Discharge
	<u>6+ gallons</u>
pH(00400)	Sample type
<u>7.01</u>	<u>GRAB</u>
Water Temp. (00010)	Conductivity (Uncorrected)
	<u>9250</u> μ mho
	Conductivity at 25° C
	<u>19°C</u> μ mho

clear water, slight H₂S odor

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
☒ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	7130
☐ 002	VOA	602	☐ 014	VOC	8240	☐ 027	Pb	7421
☐ 003	VOH	8010	☐ 015	VOC	624	☐ 028	Hg(L)	7470
☐ 004	VOH	601	☐ 016	SVOC	8250	☐ 031	Se	7740
☐ 005	SUITE	8010-8020	☐ 017	SVOC	625	☐ 032	ICAP	6010
☐ 006	SUITE	601-602	☐ 018	VOC	8260	☐ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N SUITE	
☐ 008	PAH	8100	☐ 020	O&G	9070	☐ 035	NITRATE	
☐ 009	PAH	610	☐ 022	AS	7060	☐ 036	NITRITE	
☐ 010	PCB	8080	☐ 023	Ba	7080	☐ 037	AMMONIA	
☐ 011	PCB	608	☐ 024	Cr	7190	☐ 038	TKN	
☐ 012	PHENOL	8040	☐ 025	Cr6	7198	☐	OTHER	



STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

Contract Lab ANA-LAB Contract No. _____

OCD Sample No. 8907251333

Collection Date	Collection Time	Collected by—Person/Agency
07/25/89	1333	Boyer, Englert
SITE INFORMATION		
Sample location <u>NAVATO REFINERY - OCD-5</u>		
Collection Site Description		
		Township, Range, Section, Tract:
		<u>1175+27E+06+3</u>

SEND ENVIRONMENTAL BUREAU
FINAL NM OIL CONSERVATION DIVISION
REPORT PO Box 2088
TO Santa Fe, NM 87504-2088

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted: 2 vials

- | | |
|---|---|
| ☒ NF: Whole sample (Non-filtered) | ☐ A: 5ml conc. HNO ₃ added |
| ☐ F: Filtered in field with 0.45 μ membrane filter | ☐ A: 4ml fuming HNO ₃ added |
| ☐ PF: Pre-filtered w/45 μ membrane filter | |
| ☒ NA: No acid added | |
| ☐ A: HCL | |
| ☐ A: 2ml H ₂ SO ₄ /L added | |

FIELD COMMENTS:

SAMPLING CONDITIONS	Water level	<u>11.01</u>
	Discharge	<u>6+ gallons</u>
	Sample type	<u>GRAB</u>
	Conductivity (Uncorrected)	<u>9250 μmho</u>
	Conductivity at 25° C	<u>4 μmho</u>
☒ Bailed ☐ Pump		
☐ Dipped ☐ Tap		
pH(00400)	<u>7.01</u>	
Water Temp. (00010)	<u>19°C</u>	

clear water, slight H₂S odor

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
☐ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	7130
☐ 002	VOA	602	☐ 014	VOC	8240	☐ 027	Pb	7421
☒ 003	VOH	8010	☐ 015	VOC	624	☐ 028	Hg(L)	7470
☐ 004	VOH	601	☐ 016	SVOC	8250	☐ 031	Se	7740
☐ 005	SUITE	8010-8020	☐ 017	SVOC	625	☐ 032	ICAP	6010
☐ 006	SUITE	601-602	☐ 018	VOC	8260	☐ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N SUITE	
☐ 008	PAH	8100	☐ 020	O&G	9070	☐ 035	NITRATE	
☐ 009	PAH	610	☐ 022	AS	7060	☐ 036	NITRITE	
☐ 010	PCB	8080	☐ 023	Ba	7080	☐ 037	AMMONIA	
☐ 011	PCB	608	☐ 024	Cr	7190	☐ 038	TKN	
☐ 012	PHENOL	8040	☐ 025	Cr6	7198	☐	OTHER	



STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

Contract Lab ANA-LAB

Contract No. 78-521.07-013

OCD Sample No. 8907251354

149751

Collection Date	Collection Time	Collected by—Person/Agency	
<u>07/25/89</u>	<u>1354</u>	<u>Boyer, Engler</u>	
SITE INFORMATION			
Sample location <u>NAVATO Refinery: OCD-6</u>			
Collection Site Description			
			Township, Range, Section, Tract:
			<u>17S+27E+06+3-1-</u>

SEND ENVIRONMENTAL BUREAU
FINAL NM OIL CONSERVATION DIVISION
REPORT PO Box 2088
TO Santa Fe, NM 87504-2088

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted: 2 Vials

- | | |
|---|---|
| ☒ NF: Whole sample (Non-filtered) | |
| ☐ F: Filtered in field with 0.45 μ membrane filter | |
| ☐ PF: Pre-filtered w/45 μ membrane filter | |
| ☒ NA: No acid added | ☐ A: 5ml conc. HNO ₃ added |
| ☐ A: HCL | ☐ A: 4ml fuming HNO ₃ added |
| ☐ A: 2ml H ₂ SO ₄ /L added | |

FIELD COMMENTS:

SAMPLING CONDITIONS	Water level	<u>11.36</u>
	Discharge	<u>8 gallons</u>
	Sample type	<u>GRAB</u>
	Conductivity (Uncorrected)	<u>8500</u> μ mho
	Conductivity at 25° C	<u>4</u> μ mho
☒ Bailed ☐ Pump		
☐ Dipped ☐ Tap		
pH(00400)	<u>6.95</u>	
Water Temp. (00010)	<u>18°C</u>	

turbid water, H₂S like odor

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
☐ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	7130
☐ 002	VOA	602	☐ 014	VOC	8240	☐ 027	Pb	7421
☒ 003	VOH	8010	☐ 015	VOC	624	☐ 028	Hg(L)	7470
☐ 004	VOH	601	☐ 016	SVOC	8250	☐ 031	Se	7740
☐ 005	SUITE	8010-8020	☐ 017	SVOC	625	☐ 032	ICAP	6010
☐ 006	SUITE	601-602	☐ 018	VOC	8260	☐ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N SUITE	
☐ 008	PAH	8100	☐ 020	O&G	9070	☐ 035	NITRATE	
☐ 009	PAH	610	☐ 022	AS	7060	☐ 036	NITRITE	
☐ 010	PCB	8080	☐ 023	Ba	7080	☐ 037	AMMONIA	
☐ 011	PCB	608	☐ 024	Cr	7190	☐ 038	TKN	
☐ 012	PHENOL	8040	☐ 025	Cr6	7198	☐	OTHER	



STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

Contract Lab 1000185

Contract No. 00000000

OCD Sample No. 00000000

Collection Date	Collection Time	Collected by — Person/Agency
SITE INFORMATION		
Sample location		
Collection Site Description		
Township, Range, Section, Tract:		
17S+27E+D6+3		

SEND
FINAL
REPORT
TO

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted: 1

- ☐ NF: Whole sample (Non-filtered)
☐ F: Filtered in field with 0.45 μ membrane filter
☐ PF: Pre-filtered w/45 μ membrane filter

- ☐ NA: No acid added
☐ A: 5ml conc. HNO₃ added
☐ A: HCL
☐ A: 4ml fuming HNO₃ added
☐ A: 2ml H₂SO₄/L added

FIELD COMMENTS:

SAMPLING CONDITIONS	Water level
	Discharge
	Sample type
	Conductivity (Uncorrected)
pH(00400)	Conductivity at 25° C
Water Temp. (00010)	

turbid water, H₂S like odor

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
☐ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	7130
☐ 002	VOA	602	☐ 014	VOC	8240	☐ 027	Pb	7421
☐ 003	VOH	8010	☐ 015	VOC	624	☐ 028	Hg(L)	7470
☐ 004	VOH	601	☐ 016	SVOC	8250	☐ 031	Se	7740
☐ 005	SUITE	8010-8020	☐ 017	SVOC	625	☐ 032	ICAP	6010
☐ 006	SUITE	601-602	☐ 018	VOC	8260	☐ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N SUITE	
☐ 008	PAH	8100	☐ 020	O&G	9070	☐ 035	NITRATE	
☐ 009	PAH	610	☐ 022	AS	7060	☐ 036	NITRITE	
☐ 010	PCB	8080	☐ 023	Ba	7080	☐ 037	AMMONIA	
☐ 011	PCB	608	☐ 024	Cr	7190	☐ 038	TKN	
☐ 012	PHENOL	8040	☐ 025	Cr6	7198	☐	OTHER	



STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

Contract Lab ANA-LAB

Contract No. 78-521.07-013

OCD Sample No. 8907251613

149752

Collection Date	Collection Time	Collected by—Person/Agency	
<u>07/25/89</u>	<u>1613</u>	<u>Boyer, Englert</u>	/OCD

SITE INFORMATION

Sample location

NAVATO Refinery + OCD-7

Collection Site Description

Township, Range, Section, Tract:

17 S+26 E+01+4

SEND
FINAL
REPORT
TO ↓

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted:

2 Vials

- ☒ NF: Whole sample (Non-filtered)
☐ F: Filtered in field with 0.45 μ membrane filter
☐ PF: Pre-filtered w/45 μ membrane filter

- ☒ NA: No acid added
☐ A: HCL
☐ A: 2ml H₂SO₄/L added
☐ A: 5ml conc. HNO₃ added
☐ A: 4ml fuming HNO₃ added

FIELD COMMENTS:

SAMPLING CONDITIONS

Water level

7.56

- ☒ Bailed ☐ Pump
☐ Dipped ☐ Tap

Discharge

8 gallons 5

Sample type

GRAB

pH(00400)

7

Conductivity (Uncorrected)

6000 μ mho

Water Temp. (00010)

19°C

Conductivity at 25° C

4 μ mho

turbid, H₂ like odor.

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
☐ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	7130
☐ 002	VOA	602	☐ 014	VOC	8240	☐ 027	Pb	7421
☒ 003	VOH	8010	☐ 015	VOC	624	☐ 028	Hg(L)	7470
☐ 004	VOH	601	☐ 016	SVOC	8250	☐ 031	Se	7740
☐ 005	SUITE	8010-8020	☐ 017	SVOC	625	☐ 032	ICAP	6010
☐ 006	SUITE	601-602	☐ 018	VOC	8260	☐ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N SUITE	
☐ 008	PAH	8100	☐ 020	O&G	9070	☐ 035	NITRATE	
☐ 009	PAH	610	☐ 022	AS	7060	☐ 036	NITRITE	
☐ 010	PCB	8080	☐ 023	Ba	7080	☐ 037	AMMONIA	
☐ 011	PCB	608	☐ 024	Cr	7190	☐ 038	TKN	
☐ 012	PHENOL	8040	☐ 025	Cr6	7198	☐	OTHER	



STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

Contract Lab ANA-LAB

Contract No. _____

OCD Sample No. 8907251613

Collection Date	Collection Time	Collected by —Person/Agency	
<u>07/25/89</u>	<u>1613</u>	<u>Boyer, Englert</u>	/OCD
SITE INFORMATION			
Sample location <u>NAVARO Refinery - OCD-7</u>			
Collection Site Description			
			Township, Range, Section, Tract:
			<u>17S+26E+01+4</u>

SEND
FINAL
REPORT
TO ↓

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted: 2 Vials

- ☒ **NF:** Whole sample (Non-filtered)
☐ **F:** Filtered in field with 0.45 μ membrane filter
☐ **PF:** Pre-filtered w/45 μ membrane filter

- ☐ **NA:** No acid added
☒ **A:** HCL
☐ **A:** 2ml H₂SO₄/L added
☐ **A:** 5ml conc. HNO₃ added
☐ **A:** 4ml fuming HNO₃ added

FIELD COMMENTS:

SAMPLING CONDITIONS	Water level
	<u>7.56</u>
☒ Bailed ☐ Pump ☐ Dipped ☐ Tap	Discharge
	<u>5 gallons</u>
pH(00400) <u>7</u>	Sample type
	<u>GRAB</u>
Water Temp. (00010) <u>19°C</u>	Conductivity (Uncorrected)
	<u>6000</u> μ mho
	Conductivity at 25° C
	<u>4</u> μ mho

Turbid, H₂S like odor.

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
☒ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	7130
☐ 002	VOA	602	☐ 014	VOC	8240	☐ 027	Pb	7421
☐ 003	VOH	8010	☐ 015	VOC	624	☐ 028	Hg(L)	7470
☐ 004	VOH	601	☐ 016	SVOC	8250	☐ 031	Se	7740
☐ 005	SUITE	8010-8020	☐ 017	SVOC	625	☐ 032	ICAP	6010
☐ 006	SUITE	601-602	☐ 018	VOC	8260	☐ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N SUITE	
☐ 008	PAH	8100	☐ 020	O&G	9070	☐ 035	NITRATE	
☐ 009	PAH	610	☐ 022	AS	7060	☐ 036	NITRITE	
☐ 010	PCB	8080	☐ 023	Ba	7080	☐ 037	AMMONIA	
☐ 011	PCB	608	☐ 024	Cr	7190	☐ 038	TKN	
☐ 012	PHENOL	8040	☐ 025	Cr6	7198	☐	OTHER	



STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

Contract Lab ANA-LABS

Contract No. 78-521.07-013

OCD Sample No. 8907251553

149783

Collection Date	Collection Time	Collected by —Person/Agency	
<u>07/25/89</u>	<u>1553</u>	<u>Boyer, Englert</u>	/OCD
SITE INFORMATION			
Sample location <u>NAVAJO Refinery: OCD-8</u>			
Collection Site Description			
			Township, Range, Section, Tract:
			<u>17S+26E+12+2-1-</u>

SEND
FINAL
REPORT
TO ↓
ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted: 2 Vials

- ☒ NF: Whole sample (Non-filtered)
☐ F: Filtered in field with 0.45 μ membrane filter
☐ PF: Pre-filtered w/45 μ membrane filter

- ☐ NA: No acid added
☒ A: HCL
☐ A: 2ml H₂SO₄/L added
☐ A: 5ml conc. HNO₃ added
☐ A: 4ml fuming HNO₃ added

FIELD COMMENTS:

SAMPLING CONDITIONS	Water level
	<u>8.22</u>
☒ Sailed ☐ Pump ☐ Dipped ☐ Tap	Discharge
	<u>7.9 gallons</u>
pH(00400) <u>6.91</u>	Sample type
	<u>GRAB</u>
Water Temp. (00010) <u>21°C</u>	Conductivity (Uncorrected)
	<u>6800</u> μ mho
	Conductivity at 25° C
	<u>4</u> μ mho

slightly turbid, H₂S like odor

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
☒ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	7130
☐ 002	VOA	602	☐ 014	VOC	8240	☐ 027	Pb	7421
☐ 003	VOH	8010	☐ 015	VOC	624	☐ 028	Hg(L)	7470
☐ 004	VOH	601	☐ 016	SVOC	8250	☐ 031	Se	7740
☐ 005	SUITE	8010-8020	☐ 017	SVOC	625	☐ 032	ICAP	6010
☐ 006	SUITE	601-602	☐ 018	VOC	8260	☐ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N SUITE	
☐ 008	PAH	8100	☐ 020	O&G	9070	☐ 035	NITRATE	
☐ 009	PAH	610	☐ 022	AS	7060	☐ 036	NITRITE	
☐ 010	PCB	8080	☐ 023	Ba	7080	☐ 037	AMMONIA	
☐ 011	PCB	608	☐ 024	Cr	7190	☐ 038	TKN	
☐ 012	PHENOL	8040	☐ 025	Cr6	7198	☐	OTHER	



STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

Contract Lab

Contract No.

OCD Sample No. 89012F1953

Collection Date	Collection Time	Collected by — Person/Agency
10/23/89	12:53	Deer, Craig
SITE INFORMATION		
Sample location NAVATO Refinery: OCD-8		
Collection Site Description		
		Township, Range, Section, Tract:
		117 S+26 E+12+2 -1-

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ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted: 2

- ☐ NF: Whole sample (Non-filtered)
☐ F: Filtered in field with 0.45 μ m membrane filter
☐ PF: Pre-filtered w/45 μ m membrane filter
- ☒ NA: No acid added
☐ A: HCL
☐ A: 2ml H₂SO₄/L added
- ☐ A: 5ml conc. HNO₃ added
☐ A: 4ml fuming HNO₃ added

FIELD COMMENTS:

slightly turbid, H₂ like odor

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
☐ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	7130
☐ 002	VOA	602	☐ 014	VOC	8240	☐ 027	Pb	7421
☒ 003	VOH	8010	☐ 015	VOC	624	☐ 028	Hg(L)	7470
☐ 004	VOH	601	☐ 016	SVOC	8250	☐ 031	Se	7740
☐ 005	SUITE	8010-8020	☐ 017	SVOC	625	☐ 032	ICAP	6010
☐ 006	SUITE	601-602	☐ 018	VOC	8260	☐ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N SUITE	
☐ 008	PAH	8100	☐ 020	O&G	9070	☐ 035	NITRATE	
☐ 009	PAH	610	☐ 022	AS	7060	☐ 036	NITRITE	
☐ 010	PCB	8080	☐ 023	Ba	7080	☐ 037	AMMONIA	
☐ 011	PCB	608	☐ 024	Cr	7190	☐ 038	TKN	
☐ 012	PHENOL	8040	☐ 025	Cr6	7198	☐	OTHER	



STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

Contract Lab ANA-LAB

Contract No. 78-521.07-013

OCD Sample No. 8907251736

149754

Collection Date	Collection Time	Collected by—Person/Agency	
<u>07/25/89</u>	<u>1736</u>	<u>Boyer, Englert</u>	/OCD

SITE INFORMATION

Sample location

NAVAJO REFINERY : OCD-1

Collection Site Description

Township, Range, Section, Tract:

17526E+01+4

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ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted:

2 Vials

- ☒ NF: Whole sample (Non-filtered)
☐ F: Filtered in field with 0.45 μ membrane filter
☐ PF: Pre-filtered w/45 μ membrane filter

- ☐ NA: No acid added
☒ A: HCL
☐ A: 2ml H₂SO₄/L added
☐ A: 5ml conc. HNO₃ added
☐ A: 4ml fuming HNO₃ added

FIELD COMMENTS:

SAMPLING CONDITIONS

Water level

10.49

- ☒ Bailed ☐ Pump
☐ Dipped ☐ Tap

Discharge

8 gallons

Sample type

GRAB

pH(00400)

7.07

Conductivity (Uncorrected)

8000 μ mho

Water Temp. (00010)

21°C

Conductivity at 25° C

4 μ mho

foamy, turbid water, strong H₂S like odor

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
☒ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	7130
☐ 002	VOA	602	☐ 014	VOC	8240	☐ 027	Pb	7421
☐ 003	VOH	8010	☐ 015	VOC	624	☐ 028	Hg(L)	7470
☐ 004	VOH	601	☐ 016	SVOC	8250	☐ 031	Se	7740
☐ 005	SUITE	8010-8020	☐ 017	SVOC	625	☐ 032	ICAP	6010
☐ 006	SUITE	601-602	☐ 018	VOC	8260	☐ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N SUITE	
☐ 008	PAH	8100	☐ 020	O&G	9070	☐ 035	NITRATE	
☐ 009	PAH	610	☐ 022	AS	7060	☐ 036	NITRITE	
☐ 010	PCB	8080	☐ 023	Ba	7080	☐ 037	AMMONIA	
☐ 011	PCB	608	☐ 024	Cr	7190	☐ 038	TKN	
☐ 012	PHENOL	8040	☐ 025	Cr6	7198	☐	OTHER	



STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

Contract Lab ANA-LAB

Contract No. 022-02W

OCD Sample No. 8907251736

022-02W

Collection Date	Collection Time	Collected by — Person/Agency
<u>07/25/89</u>	<u>1736</u>	<u>Boyer, Engle-t</u>
SITE INFORMATION		
Sample location <u>Refinery - road - 1</u>		
Collection Site Description		
		Township, Range, Section, Tract:
		<u>17S+26E+D1+4</u>

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NM OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted: 2 vials

- ☒ NF: Whole sample (Non-filtered)
☐ F: Filtered in field with 0.45 μ membrane filter
☐ PF: Pre-filtered w/45 μ membrane filter
- ☒ NA: No acid added
☐ A: HCL
☐ A: 2ml H_2SO_4 added
- ☐ A: 5ml conc. HNO_3 added
☐ A: 4ml fuming HNO_3 added

FIELD COMMENTS:

foamy, turbid water, strong H₂S like odor

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
☐ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	7130
☐ 002	VOA	602	☐ 014	VOC	8240	☐ 027	Pb	7421
☒ 003	VOH	8010	☐ 015	VOC	624	☐ 028	Hg(L)	7470
☐ 004	VOH	601	☐ 016	SVOC	8250	☐ 031	Se	7740
☐ 005	SUITE	8010-8020	☐ 017	SVOC	625	☐ 032	ICAP	6010
☐ 006	SUITE	601-602	☐ 018	VOC	8260	☐ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N SUITE	
☐ 008	PAH	8100	☐ 020	O&G	9070	☐ 035	NITRATE	
☐ 009	PAH	610	☐ 022	AS	7060	☐ 036	NITRITE	
☐ 010	PCB	8080	☐ 023	Ba	7080	☐ 037	AMMONIA	
☐ 011	PCB	608	☐ 024	Cr	7190	☐ 038	TKN	
☐ 012	PHENOL	8040	☐ 025	Cr6	7198	☐	OTHER	



STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

Contract Lab **ANA-LAB**

Contract No. **78-521-07-013**

OCD Sample No. **8907251728**

149755

Collection Date	Collection Time	Collected by — Person/Agency	
07/25/89	1728	Boyer, Englert	/OCD
SITE INFORMATION			
Sample location NAVATO REFINERY : OCD-2			
Collection Site Description			
Township, Range, Section, Tract: 17 5+2 6 E+0 1+4 			

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NM OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted: **2 vials**

- ☒ **NF:** Whole sample (Non-filtered)
☐ **F:** Filtered in field with 0.45 μ membrane filter
☐ **PF:** Pre-filtered w/45 μ membrane filter

- ☐ **NA:** No acid added
☒ **A:** HCL
☒ **A:** 2ml H₂SO₄/L added
☐ **A:** .5ml conc. HNO₃ added
☐ **A:** 4ml fuming HNO₃ added

FIELD COMMENTS:

SAMPLING CONDITIONS ☐ Bailed ☐ Pump ☐ Dipped ☐ Tap	Water level	12.14
	Discharge	7 gallons
	Sample type	GRAB
	Conductivity (Uncorrected)	9250 μ mho
	Conductivity at 25° C	4 μ mho
pH(00400)	6.97	
Water Temp. (00010)	17°C	

Turbid water, slight H₂S like odor

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
☒ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	7130
☐ 002	VOA	602	☐ 014	VOC	8240	☐ 027	Pb	7421
☐ 003	VOH	8010	☐ 015	VOC	624	☐ 028	Hg(L)	7470
☐ 004	VOH	601	☐ 016	SVOC	8250	☐ 031	Se	7740
☐ 005	SUITE	8010-8020	☐ 017	SVOC	625	☐ 032	ICAP	6010
☐ 006	SUITE	601-602	☐ 018	VOC	8260	☐ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N SUITE	
☐ 008	PAH	8100	☐ 020	O&G	9070	☐ 035	NITRATE	
☐ 009	PAH	610	☐ 022	AS	7060	☐ 036	NITRITE	
☐ 010	PCB	8080	☐ 023	Ba	7080	☐ 037	AMMONIA	
☐ 011	PCB	608	☐ 024	Cr	7190	☐ 038	TKN	
☐ 012	PHENOL	8040	☐ 025	Cr6	7198	☐	OTHER	



STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

Contract Lab ANA-LAB Contract No. _____

OCD Sample No. 8907251728

Collection Date	Collection Time	Collected by —Person/Agency	
<u>07/25/89</u>	<u>1728</u>	<u>Boyer, E. J.</u>	/OCD
SITE INFORMATION			
Sample location <u>NAVAJO Refiner : 000-2</u>			
Collection Site Description			
			Township, Range, Section, Tract:
			<u>17S+26E+01+4--</u>

SEND ENVIRONMENTAL BUREAU
FINAL NM OIL CONSERVATION DIVISION
REPORT PO Box 2088
TO Santa Fe, NM 87504-2088

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted: 2 vials

- ☒ NF: Whole sample (Non-filtered)
☐ F: Filtered in field with 0.45 μ membrane filter
☐ PF: Pre-filtered w/45 μ membrane filter
- ☒ NA: No acid added
☐ A: HCL
☐ A: 2ml H₂SO₄/L added
- ☐ A: 5ml conc. HNO₃ added
☐ A: 4ml fuming HNO₃ added

FIELD COMMENTS:

SAMPLING CONDITIONS	Water level	<u>12.16</u>
	Discharge	<u>7 gallons</u>
☒ Bailed ☐ Pump ☐ Dipped ☐ Tap	Sample type	<u>GRAB</u>
pH(00400)	Conductivity (Uncorrected)	<u>9250</u> μ mho
Water Temp. (00010)	Conductivity at 25° C	<u>19°C</u> μ mho

turbid water, slight H₂S like odor

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
☐ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	7130
☐ 002	VOA	602	☐ 014	VOC	8240	☐ 027	Pb	7421
☒ 003	VOH	8010	☐ 015	VOC	624	☐ 028	Hg(L)	7470
☐ 004	VOH	601	☐ 016	SVOC	8250	☐ 031	Se	7740
☐ 005	SUITE	8010-8020	☐ 017	SVOC	625	☐ 032	ICAP	6010
☐ 006	SUITE	601-602	☐ 018	VOC	8260	☐ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N SUITE	
☐ 008	PAH	8100	☐ 020	O&G	9070	☐ 035	NITRATE	
☐ 009	PAH	610	☐ 022	AS	7060	☐ 036	NITRITE	
☐ 010	PCB	8080	☐ 023	Ba	7080	☐ 037	AMMONIA	
☐ 011	PCB	608	☐ 024	Cr	7190	☐ 038	TKN	
☐ 012	PHENOL	8040	☐ 025	Cr6	7198	☐	OTHER	



STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

Contract Lab ANA-LAB

Contract No. 78-521.87-413

OCD Sample No. 8907260919

149756

Collection Date	Collection Time	Collected by—Person/Agency	
<u>7/26/89</u>	<u>0919</u>	<u>Boyer; Englert</u>	/OCD

SITE INFORMATION

Sample location

NAVAJO REFINERY: MW-2

Collection Site Description

Township, Range, Section, Tract:

17S+26E+01+344

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TO ↓

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted:

2 vials

- ☒ NF: Whole sample (Non-filtered)
☐ F: Filtered in field with 0.45 μ membrane filter
☐ PF: Pre-filtered w/45 μ membrane filter

- ☒ NA: No acid added
☐ A: HCL
☐ A: 2ml H₂SO₄/L added
☐ A: 5ml conc. HNO₃ added
☐ A: 4ml fuming HNO₃ added

FIELD COMMENTS:

clear water, very strong H₂S like odor

SAMPLING CONDITIONS

- ☒ Bailed ☐ Pump
☐ Dipped ☐ Tap

pH(00400)

7.06

Water Temp. (00010)

21°C

Water level

8.64

Discharge

6 gallons

Sample type

GRAB

Conductivity (Uncorrected)

7000 μ mho

Conductivity at 25°C

4 μ mho

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
☐ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	7130
☐ 002	VOA	602	☐ 014	VOC	8240	☐ 027	Pb	7421
☒ 003	VOH	8010	☐ 015	VOC	624	☐ 028	Hg(L)	7470
☒ 004	VOH	601	☐ 016	SVOC	8250	☐ 031	Se	7740
☐ 005	SUITE	8010-8020	☐ 017	SVOC	625	☐ 032	ICAP	6010
☐ 006	SUITE	601-602	☐ 018	VOC	8260	☐ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N SUITE	
☐ 008	PAH	8100	☐ 020	O&G	9070	☐ 035	NITRATE	
☐ 009	PAH	610	☐ 022	AS	7060	☐ 036	NITRITE	
☐ 010	PCB	8080	☐ 023	Ba	7080	☐ 037	AMMONIA	
☐ 011	PCB	608	☐ 024	Cr	7190	☐ 038	TKN	
☐ 012	PHENOL	8040	☐ 025	Cr6	7198	☐	OTHER	



STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

Contract Lab Ann-Lab

Contract No. 890726-0919

OCD Sample No. 890726 0919

Collection Date	Collection Time	Collected by—Person/Agency	
<u>7/26/89</u>	<u>0919</u>	<u>BOYER, ENGEL</u>	/OCD

SITE INFORMATION

Sample location

NAVATO REFINERY: MW-2

Collection Site Description

Township, Range, Section, Tract:

1175+26E+01+344

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ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted: 2 vials

- ☒ NF: Whole sample (Non-filtered)
☐ F: Filtered in field with 0.45 μ membrane filter
☐ PF: Pre-filtered w/45 μ membrane filter

- ☐ NA: No acid added
☒ A: HCL
☐ A: 2ml H₂SO₄/L added
☐ A: 5ml conc. HNO₃ added
☐ A: 4ml fuming HNO₃ added

FIELD COMMENTS:

clear water, very strong H₂S like odor

SAMPLING CONDITIONS

- ☒ Bailed ☐ Pump
☐ Dipped ☐ Tap

pH(00400)

Water Temp. (00010)

7.2
21°C

Water level

8.64

Discharge

6 gallons

Sample type

Conductivity (Uncorrected)

Conductivity at 25° C

245
11 mho
4 mho

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
☒ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	7130
☐ 002	VOA	602	☐ 014	VOC	8240	☐ 027	Pb	7421
☐ 003	VOH	8010	☐ 015	VOC	624	☐ 028	Hg(L)	7470
☐ 004	VOH	601	☐ 016	SVOC	8250	☐ 031	Se	7740
☐ 005	SUITE	8010-8020	☐ 017	SVOC	625	☐ 032	ICAP	6010
☐ 006	SUITE	601-602	☐ 018	VOC	8260	☐ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N SUITE	
☐ 008	PAH	8100	☐ 020	O&G	9070	☐ 035	NITRATE	
☐ 009	PAH	610	☐ 022	AS	7060	☐ 036	NITRITE	
☐ 010	PCB	8080	☐ 023	Ba	7080	☐ 037	AMMONIA	
☐ 011	PCB	608	☐ 024	Cr	7190	☐ 038	TKN	
☐ 012	PHENOL	8040	☐ 025	Cr6	7198	☐	OTHER	



STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

Contract Lab ANA - LAB

Contract No. 98-521.87-013

OCD Sample No. 8907261009

149757

Collection Date	Collection Time	Collected by—Person/Agency	
<u>7/26/89</u>	<u>1009</u>	<u>Boyer, Englert</u>	OCD

SITE INFORMATION

Sample location NAVAJO REFINERY: MW-1

Collection Site Description

Township, Range, Section, Tract:

17S+26E+12N+11

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NM OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088

SAMPLE FIELD TREATMENT— Check proper boxes

No. of samples submitted: 2 vials

- ☒ NF: Whole sample (Non-filtered)
☐ F: Filtered in field with 0.45 μ membrane filter
☐ PF: Pre-filtered w/45 μ membrane filter

- ☒ NA: No acid added
☐ A: HCL
☐ A: 2ml H₂SO₄/L added
☐ A: 5ml conc. HNO₃ added
☐ A: 4ml fuming HNO₃ added

FIELD COMMENTS:

SAMPLING CONDITIONS	Water level	<u>8' 11.44'</u>
	Discharge	<u>7 gallons</u>
☒ Bailed ☐ Pump ☐ Dipped ☐ Tap	Sample type	<u>GRAB</u>
pH(00400)	Conductivity (Uncorrected)	<u>9800 μmho</u>
Water Temp. (00010)	Conductivity at 25° C	<u>21°C</u> <u>μmho</u>

clear, clear water, slight H₂S like odor, scum
developed on water surface

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
☐ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	7130
☐ 002	VOA	602	☐ 014	VOC	8240	☐ 027	Pb	7421
☒ 003	VOH	8010	☐ 015	VOC	624	☐ 028	Hg(L)	7470
☐ 004	VOH	601	☐ 016	SVOC	8250	☐ 031	Se	7740
☐ 005	SUITE	8010-8020	☐ 017	SVOC	625	☐ 032	ICAP	6010
☐ 006	SUITE	601-602	☐ 018	VOC	8260	☐ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N SUITE	
☐ 008	PAH	8100	☐ 020	O&G	9070	☐ 035	NITRATE	
☐ 009	PAH	610	☐ 022	AS	7060	☐ 036	NITRITE	
☐ 010	PCB	8080	☐ 023	Ba	7080	☐ 037	AMMONIA	
☐ 011	PCB	608	☐ 024	Cr	7190	☐ 038	TKN	
☐ 012	PHENOL	8040	☐ 025	Cr6	7198	☐	OTHER	



STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

Contract Lab **ANA-LAB**

Contract No. **2001-2009**

OCD Sample No. **8907261009**

Collection Date	Collection Time	Collected by—Person/Agency
7/26/89	1009	Boyer, Engler
/OCD		
SITE INFORMATION		
Sample location NAVAJO REFINERY MW-1		
Collection Site Description		
		Township, Range, Section, Tract:
		17S+26E+12+111

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ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted: **2012/5**

- ☒ NF: Whole sample (Non-filtered)
☐ F: Filtered in field with 0.45 μ membrane filter
☐ PF: Pre-filtered w/45 μ membrane filter

- ☐ NA: No acid added
☒ A: HCL
☐ A: 2ml H₂SO₄ added
☐ A: 5ml conc. HNO₃ added
☐ A: 4ml fuming HNO₃ added

FIELD COMMENTS:

clear water, slight H₂S odor, scum developed on water surface

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
☒ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	7130
☐ 002	VOA	602	☐ 014	VOC	8240	☐ 027	Pb	7421
☐ 003	VOH	8010	☐ 015	VOC	624	☐ 028	Hg(L)	7470
☐ 004	VOH	601	☐ 016	SVOC	8250	☐ 031	Se	7740
☐ 005	SUITE	8010-8020	☐ 017	SVOC	625	☐ 032	ICAP	6010
☐ 006	SUITE	601-602	☐ 018	VOC	8260	☐ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N SUITE	
☐ 008	PAH	8100	☐ 020	O&G	9070	☐ 035	NITRATE	
☐ 009	PAH	610	☐ 022	AS	7060	☐ 036	NITRITE	
☐ 010	PCB	8080	☐ 023	Ba	7080	☐ 037	AMMONIA	
☐ 011	PCB	608	☐ 024	Cr	7190	☐ 038	TKN	
☐ 012	PHENOL	8040	☐ 025	Cr6	7198	☐	OTHER	



STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

Contract Lab ANA LAB Contract No. 78-521,07-013

OCD Sample No. 8907261257

Collection Date	Collection Time	Collected by — Person/Agency
<u>7/26/89</u>	<u>1257</u>	<u>Boyer, EMMETT</u>
SITE INFORMATION		
Sample location <u>NAVARO REFINERY: MW3</u>		
Collection Site Description		
		Township, Range, Section, Tract:
		<u>17S+26E+12+124</u>

SEND ENVIRONMENTAL BUREAU
FINAL NM OIL CONSERVATION DIVISION
REPORT PO Box 2088
TO Santa Fe, NM 87504-2088

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted: 2 vials

- ☒ NF: Whole sample (Non-filtered)
☐ F: Filtered in field with 0.45 μ membrane filter
☐ PF: Pre-filtered w/45 μ membrane filter

- ☐ NA: No acid added
☒ A: HCL
☐ A: 2ml H₂SO₄/L added
☐ A: 5ml conc. HNO₃ added
☐ A: 4ml fuming HNO₃ added

FIELD COMMENTS:

SAMPLING CONDITIONS	Water level
	Discharge
	Sample type
	Conductivity (Uncorrected)
☒ Bailed ☐ Pump ☐ Dipped ☐ Tap	<u>9.22</u> <u>8 gallons</u> <u>GRAB</u> <u>5250</u> "mho
pH(00400) <u>6.94</u>	Conductivity at 25° C
Water Temp. (00010) <u>16.5°C</u>	

slightly turbid, strong H₂S like odor

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
☒ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	7130
☐ 002	VOA	602	☐ 014	VOC	8240	☐ 027	Pb	7421
☐ 003	VOH	8010	☐ 015	VOC	624	☐ 028	Hg(L)	7470
☐ 004	VOH	601	☐ 016	SVOC	8250	☐ 031	Se	7740
☐ 005	SUITE	8010-8020	☐ 017	SVOC	625	☐ 032	ICAP	6010
☐ 006	SUITE	601-602	☐ 018	VOC	8260	☐ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N SUITE	
☐ 008	PAH	8100	☐ 020	O&G	9070	☐ 035	NITRATE	
☐ 009	PAH	610	☐ 022	AS	7060	☐ 036	NITRITE	
☐ 010	PCB	8080	☐ 023	Ba	7080	☐ 037	AMMONIA	
☐ 011	PCB	608	☐ 024	Cr	7190	☐ 038	TKN	
☐ 012	PHENOL	8040	☐ 025	Cr6	7198	☐	OTHER	



STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

Contract Lab ANA 143

Contract No. 890726 1257

OCD Sample No. 890726 1257

Collection Date	Collection Time	Collected by —Person/Agency	
7/26/89	12.57	Boyer, English	/OCD
SITE INFORMATION			
Sample location <u>NAVASO REFINERY</u>			
Collection Site Description			
			Township, Range, Section, Tract:
			17 S+2 6E+1 2+1 24

SEND
FINAL
REPORT
TO ↓
ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted: 2

- ☒ **NF:** Whole sample (Non-filtered)
☐ **F:** Filtered in field with 0.45 μ membrane filter
☐ **PF:** Pre-filtered w/45 μ membrane filter
- ☒ **NA:** No acid added
☐ **A:** HCL
☐ **A:** 2ml H₂SO₄/L added
- ☐ **A:** 5ml conc. HNO₃ added
☐ **A:** 4ml fuming HNO₃ added

FIELD COMMENTS:

slightly turbid, strong H₂S like odor

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
☐ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	7130
☐ 002	VOA	602	☐ 014	VOC	8240	☐ 027	Pb	7421
☐ 003	VOH	8010	☐ 015	VOC	624	☐ 028	Hg(L)	7470
☒ 004	VOH	601	☐ 016	SVOC	8250	☐ 031	Se	7740
☐ 005	SUITE	8010-8020	☐ 017	SVOC	625	☐ 032	ICAP	6010
☐ 006	SUITE	601-602	☐ 018	VOC	8260	☐ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N SUITE	
☐ 008	PAH	8100	☐ 020	O&G	9070	☐ 035	NITRATE	
☐ 009	PAH	610	☐ 022	AS	7060	☐ 036	NITRITE	
☐ 010	PCB	8080	☐ 023	Ba	7080	☐ 037	AMMONIA	
☐ 011	PCB	608	☐ 024	Cr	7190	☐ 038	TKN	
☐ 012	PHENOL	8040	☐ 025	Cr6	7198	☐	OTHER	



STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

Contract Lab ANA - LAB

Contract No. _____

OCD Sample No. 8907261257

Collection Date	Collection Time	Collected by—Person/Agency	
7/26/89	1257	Boyer, Ernest	/OCD

SITE INFORMATION

Sample location

NAVAJO REFINERY: MW-3

Collection Site Description

Township, Range, Section, Tract:

117S+26E+12+124

SEND
FINAL
REPORT
TO ↓

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted: 1

- ☒ NF: Whole sample (Non-filtered)
☐ F: Filtered in field with 0.45 μ membrane filter
☐ PF: Pre-filtered w/45 μ membrane filter

- ☐ NA: No acid added
☐ A: HCL
☐ A: 2ml H₂SO₄/L added
☐ A: 5ml conc. HNO₃ added
☐ A: 4ml fuming HNO₃ added

FIELD COMMENTS:

slightly turbid, strong H₂S like odor

SAMPLING CONDITIONS

- ☒ Bailed ☐ Pump
☐ Dipped ☐ Tap

pH(00400)

6.96

Water Temp. (00010)

16.5°C

Water level

9.22

Discharge

8 gallons

Sample type

GRAB

Conductivity (Uncorrected)

5250 μ mho

Conductivity at 25° C

4 μ mho

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
☐ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	7130
☐ 002	VOA	602	☐ 014	VOC	8240	☐ 027	Pb	7421
☐ 003	VOH	8010	☐ 015	VOC	624	☐ 028	Hg(L)	7470
☐ 004	VOH	601	☐ 016	SVOC	8250	☐ 031	Se	7740
☐ 005	SUITE	8010-8020	☐ 017	SVOC	625	☐ 032	ICAP	6010
☐ 006	SUITE	601-602	☐ 018	VOC	8260	☐ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N SUITE	
☐ 008	PAH	8100	☐ 020	O&G	9070	☐ 035	NITRATE	
☐ 009	PAH	610	☐ 022	AS	7060	☐ 036	NITRITE	
☐ 010	PCB	8080	☐ 023	Ba	7080	☐ 037	AMMONIA	
☐ 011	PCB	608	☐ 024	Cr	7190	☐ 038	TKN	
☒ 012	PHENOL	8040	☐ 025	Cr6	7198	☐	OTHER	



ANALYSIS REQUEST FORM

Contract Lab ANA-LAB Contract No. _____OCD Sample No. 900801111720

Collection Date	Collection Time	Collected by—Person/Agency	
8/1/90	1720	ANDERSON/OLSON	OCD

SITE INFORMATION

Sample location

NAVAJO REFINERY

Collection Site Description

WINDMILL SOUTH OF WEST END
OF EVAP POND

Township, Range, Section, Tract:

SEND
FINAL
REPORT
TOENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted:

2 VIALS + 1 QT

- ☒ NF: Whole sample (Non-filtered)
☐ F: Filtered in field with 0.45 μ membrane filter
☐ PF: Pre-filtered w/45 μ membrane filter

- ☒ NA: No acid added
☐ A: 5ml conc. HNO₃ added
☒ A: HCL
☐ A: 4ml fuming HNO₃ added
☐ A: 2ml H₂SO₄/L added

FIELD COMMENTS:

CLEAN STOCK WATER - LOW DETECTION LIMITS

SAMPLING CONDITIONS

- ☐ Bailed ☐ Pump
☒ Dipped ☐ Tap

pH(00400)

Water Temp. (00010)

Water level

Discharge

Sample type

Conductivity (Uncorrected)

Conductivity at 25° C

 μ mho μ mho

LAB ANALYSIS REQUESTED:

ITEM DESC METHOD

☐	001	VOA	8020
☐	002	VOA	602
☐	003	VOH	8010
☐	004	VOH	601
☒	005	SUITE	8010-8020
☐	006	SUITE	601-602
☐	007	HEADSPACE	
☐	008	PAH	8100
☐	009	PAH	610
☐	010	PCB	8080
☐	011	PCB	608
☐	012	PHENOL	8040

ITEM DESC METHOD

☐	013	PHENOL	604
☐	014	VOC	8240
☐	015	VOC	624
☐	016	SVOC	8250
☐	017	SVOC	625
☐	018	VOC	8260
☐	019	SVOC	8270
☐	020	O&G	9070
☐	022	AS	7060
☐	023	Ba	7080
☐	024	Cr	7190
☐	025	Cr6	7198

ITEM DESC METHOD

☐	026	Cd	7130
☐	027	Pb	7421
☐	028	Hg(L)	7470
☐	031	Se	7740
☐	032	ICAP	6010
☒	033	CATIONS/ANIONS	
☐	034	N SUITE	
☐	035	NITRATE	
☐	036	NITRITE	
☐	037	AMMONIA	
☐	038	TKN	
☐		OTHER	



ANALYSIS REQUEST FORM

Contract Lab ANA-LAB

Contract No. _____

OCD Sample No. 9007311045

Collection Date	Collection Time	Collected by —Person/Agency	
7/31/90	1045	ANDERSON/OLSON	OCD
SITE INFORMATION			
Sample location <u>PARABO DISPOSAL</u>			
Collection Site Description <u>LIQUID SLUDGE FROM BOTTOM OF TREATING TANK No 210</u>			
			Township, Range, Section, Tract: + + + +

SEND
FINAL
REPORT
TOENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted: 1 MASON-TAR

- ☒ NF: Whole sample (Non-filtered)
☐ F: Filtered in field with 0.45 μ membrane filter
☐ PF: Pre-filtered w/45 μ membrane filter

- ☒ NA: No acid added
☐ A: HCL
☐ A: 2ml H₂SO₄/L added
☐ A: 5ml conc. HNO₃ added
☐ A: 4ml fuming HNO₃ added

FIELD COMMENTS:

OILY SLUDGE

SAMPLING CONDITIONS ☐ Bailed ☐ Pump ☒ Dipped ☐ Tap	Water level	—
	Discharge	—
pH(00400)	Sample type	<u>GRAIB</u>
	Conductivity (Uncorrected)	— μ mho
Water Temp. (00010)	Conductivity at 25° C	— μ mho

TCLP FOR BENZENE AND METALS

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
☐ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	7130
☐ 002	VOA	602	☐ 014	VOC	8240	☐ 027	Pb	7421
☐ 003	VOH	8010	☐ 015	VOC	624	☐ 028	Hg(L)	7470
☐ 004	VOH	601	☐ 016	SVOC	8250	☐ 031	Se	7740
☐ 005	SUITE	8010-8020	☐ 017	SVOC	625	☐ 032	ICAP	6010
☐ 006	SUITE	601-602	☐ 018	VOC	8260	☐ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N SUITE	
☐ 008	PAH	8100	☐ 020	O&G	9070	☐ 035	NITRATE	
☐ 009	PAH	610	☐ 022	AS	7060	☐ 036	NITRITE	
☐ 010	PCB	8080	☐ 023	Ba	7080	☐ 037	AMMONIA	
☐ 011	PCB	608	☐ 024	Cr	7190	☐ 038	TKN	
☐ 012	PHENOL	8040	☐ 025	Cr6	7198	☒	OTHER <u>TCLP</u>	

BENZENE & METALS



ANALYSIS REQUEST FORM

Contract Lab ANA-LAB

Contract No. _____

OCD Sample No. 9007301445

Collection Date	Collection Time	Collected by —Person/Agency	
7/30/90	1445	ANDERSON/OLSON	/OCD
SITE INFORMATION			
Sample location <u>AM-BETT TREATING PLANT</u>			
Collection Site Description <u>THIEF SAMPLE OF SLUDGE FROM BOTTOM OF THIRD TANK OF 4 TANK BATTERY (3rd FROM NORTH)</u>			
<u>NO WATER AVAILABLE</u>			Township, Range, Section, Tract: + + +

SEND
FINAL
REPORT
TO ↓ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted: 1 MASON JAR

- ☒ NF: Whole sample (Non-filtered)
☐ F: Filtered in field with 0.45 μ membrane filter
☐ PF: Pre-filtered w/45 μ membrane filter

- ☒ NA: No acid added
☐ A: HCL
☐ A: 2ml H₂SO₄/L added
☐ A: 5ml conc. HNO₃ added
☐ A: 4ml fuming HNO₃ added

FIELD COMMENTS:

OILY SLUDGE

SAMPLING CONDITIONS ☐ Bailed ☐ Pump ☒ Dipped ☐ Tap	Water level	—
	Discharge	—
	Sample type	<u>GRAB</u>
	Conductivity (Uncorrected)	— μ mho
pH(00400)	—	
Water Temp. (00010)	—	— μ mho

TCLP FOR BENZENE AND METALS

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
☐ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	7130
☐ 002	VOA	602	☐ 014	VOC	8240	☐ 027	Pb	7421
☐ 003	VOH	8010	☐ 015	VOC	624	☐ 028	Hg(L)	7470
☐ 004	VOH	601	☐ 016	SVOC	8250	☐ 031	Se	7740
☐ 005	SUITE	8010-8020	☐ 017	SVOC	625	☐ 032	ICAP	6010
☐ 006	SUITE	601-602	☐ 018	VOC	8260	☐ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N SUITE	
☐ 008	PAH	8100	☐ 020	O&G	9070	☐ 035	NITRATE	
☐ 009	PAH	610	☐ 022	AS	7060	☐ 036	NITRITE	
☐ 010	PCB	8080	☐ 023	Ba	7080	☐ 037	AMMONIA	
☐ 011	PCB	608	☐ 024	Cr	7190	☒ 038	TKN	
☐ 012	PHENOL	8040	☐ 025	Cr6	7198		OTHER <u>TCLP</u>	

BENZENE AND METALS



STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

Contract Lab ANA-LAB Contract No. _____

OCD Sample No. 9007301600

Collection Date	Collection Time	Collected by—Person/Agency
<u>7/30/90</u>	<u>1600</u>	<u>ANDERSON/OLSON</u>

SITE INFORMATION

Sample location PARABO DISPOSAL -

Collection Site Description WATER PHASE FROM TREATING TANK 211

Township, Range, Section, Tract:

SEND
FINAL
REPORT
TO ↓

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted: 2 VIALS

- ☒ NF: Whole sample (Non-filtered)
☐ F: Filtered in field with 0.45 μ membrane filter
☐ PF: Pre-filtered w/45 μ membrane filter

- ☒ NA: No acid added
☐ A: HCL
☐ A: 2ml H_2SO_4 /L added
☐ A: 5ml conc. HNO_3 added
☐ A: 4ml fuming HNO_3 added

FIELD COMMENTS:

SAMPLING CONDITIONS

- ☐ Bailed ☐ Pump
☒ Dipped ☐ Tap

pH(00400) _____

Water Temp. (00010) _____

Water level _____

Discharge _____

Sample type GRAB

Conductivity (Uncorrected) _____

Conductivity at 25° C _____

μ mho

μ mho

WATER PHASE WILL SEPARATE FROM IRON SULFIDES. ANALYSIS OF WATER PHASE ONLY

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
☐ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	7130
☐ 002	VOA	602	☐ 014	VOC	8240	☐ 027	Pb	7421
☐ 003	VOH	8010	☐ 015	VOC	624	☐ 028	Hg(L)	7470
☐ 004	VOH	601	☐ 016	SVOC	8250	☐ 031	Se	7740
☒ 005	SUITE	8010-8020	☐ 017	SVOC	625	☐ 032	ICAP	6010
☐ 006	SUITE	601-602	☐ 018	VOC	8260	☐ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N SUITE	
☐ 008	PAH	8100	☐ 020	O&G	9070	☐ 035	NITRATE	
☐ 009	PAH	610	☐ 022	AS	7060	☐ 036	NITRITE	
☐ 010	PCB	8080	☐ 023	Ba	7080	☐ 037	AMMONIA	
☐ 011	PCB	608	☐ 024	Cr	7190	☐ 038	TKN	
☐ 012	PHENOL	8040	☐ 025	Cr6	7198	☐	OTHER	



STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

Contract Lab ANA LABS Contract No. _____

OCD Sample No. 9007310800

Collection Date	Collection Time	Collected by —Person/Agency	
7/31/90	0800	ANDERSON/OLSON	OCD

SITE INFORMATION

Sample location AA TREATING PLANT

Collection Site Description WATER PHASE FROM N.E. LOW 500 BBL TANK

Township, Range, Section, Tract:

SEND
FINAL
REPORT
TO

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted: 2 - VIALS

- ☒ NF: Whole sample (Non-filtered)
☐ F: Filtered in field with 0.45 μ membrane filter
☐ PF: Pre-filtered w/45 μ membrane filter

- ☒ NA: No acid added
☐ A: HCL
☐ A: 2ml H_2SO_4 added
☐ A: 5ml conc. HNO_3 added
☐ A: 4ml fuming HNO_3 added

FIELD COMMENTS:

SAMPLING CONDITIONS

- ☐ Bailed ☐ Pump
☒ Dipped ☐ Tap

pH(00400)

Water Temp. (00010)

Water level

Discharge

Sample type

Conductivity (Uncorrected)

Conductivity at 25° C

1 mho

1 mho

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
☐ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	7130
☐ 002	VOA	602	☐ 014	VOC	8240	☐ 027	Pb	7421
☐ 003	VOH	8010	☐ 015	VOC	624	☐ 028	Hg(L)	7470
☐ 004	VOH	601	☐ 016	SVOC	8250	☐ 031	Se	7740
☒ 005	SUITE	8010-8020	☐ 017	SVOC	625	☐ 032	ICAP	6010
☐ 006	SUITE	601-602	☐ 018	VOC	8260	☐ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N SUITE	
☐ 008	PAH	8100	☐ 020	O&G	9070	☐ 035	NITRATE	
☐ 009	PAH	610	☐ 022	AS	7060	☐ 036	NITRITE	
☐ 010	PCB	8080	☐ 023	Ba	7080	☐ 037	AMMONIA	
☐ 011	PCB	608	☐ 024	Cr	7190	☐ 038	TKN	
☐ 012	PHENOL	8040	☐ 025	Cr6	7198	☐	OTHER	



OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

Contract Lab ANA-LAB

Contract No. _____

OCD Sample No. 900801125

Collection Date	Collection Time	Collected by — Person/Agency	
8/1/90	1125	ANDERSON/OLSON	OCD
SITE INFORMATION			
Sample location <u>LOCO HILLS DISPOSAL</u>			
Collection Site Description <u>WATER FROM MONITOR WELL MH-12</u>			
			Township, Range, Section, Tract:
			+ + + +

SEND
FINAL
REPORT
TO ↓ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088**SAMPLE FIELD TREATMENT — Check proper boxes**No. of samples submitted: 2 VIALS + 1 QT

- ☒ NF: Whole sample (Non-filtered)
☐ F: Filtered in field with 0.45 μ membrane filter
☐ PF: Pre-filtered w/45 μ membrane filter

- ☒ NA: No acid added
☐ A: HCL
☐ A: 2ml H₂SO₄/L added
☐ A: 5ml conc. HNO₃ added
☐ A: 4ml fuming HNO₃ added

FIELD COMMENTS:APP 6 ft H₂O IN HOLEBALLED 6 GAL BEFORE SAMPLING - WELL WENT DRY - DID NOT RECOVER - CLEAN WATER**LAB ANALYSIS REQUESTED:**

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
☐ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	7130
☐ 002	VOA	602	☐ 014	VOC	8240	☐ 027	Pb	7421
☐ 003	VOH	8010	☐ 015	VOC	624	☐ 028	Hg(L)	7470
☐ 004	VOH	601	☐ 016	SVOC	8250	☐ 031	Se	7740
☒ 005	SUITE	8010-8020	☐ 017	SVOC	625	☒ 032	ICAP	6010
☐ 006	SUITE	801-802	☐ 018	VOC	8260	☐ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N-SUITE	
☐ 008	PAH	8100	☐ 020	O&G	9070	☐ 035	NITRATE	
☐ 009	PAH	610	☐ 022	AS	7060	☐ 036	NITRITE	
☐ 010	PCB	8080	☐ 023	Ba	7080	☐ 037	AMMONIA	
☐ 011	PCB	608	☐ 024	Cr	7190	☐ 038	TKN	
☐ 012	PHENOL	8040	☐ 025	Cr6	7198	☐	OTHER	

CLEAN WATER - LOW DETECTION LIMITS PLEASE



ANALYSIS REQUEST FORM

Contract Lab ANA LAB

Contract No. _____

OCD Sample No. 9007311400

Collection Date	Collection Time	Collected by —Person/Agency
<u>7/31/90</u>	<u>1400</u>	<u>ANDERSON/OLSON</u>
SITE INFORMATION		
Sample location <u>LOCO HILLS TREATING PLANT</u>		
Collection Site Description <u>SLUDGE SAMPLE FROM NORTH SEPARATOR</u>		
<u>PIT</u>		
		Township, Range, Section, Tract:
		<u> + + + </u>

SEND
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NM OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted: 1 TAR

- ☒ NF: Whole sample (Non-filtered)
☐ F: Filtered in field with 0.45 μ membrane filter
☐ PF: Pre-filtered w/45 μ membrane filter

- ☒ NA: No acid added
☐ A: HCL
☐ A: 2ml H₂SO₄/L added
☐ A: 5ml conc. HNO₃ added
☐ A: 4ml fuming HNO₃ added

FIELD COMMENTS:

CILY SLUDGE (PARAFINS)TCLP FOR BENZENE & METALS

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
☐ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	7130
☐ 002	VOA	602	☐ 014	VOC	8240	☐ 027	Pb	7421
☐ 003	VOH	8010	☐ 015	VOC	624	☐ 028	Hg(L)	7470
☐ 004	VOH	801	☐ 016	SVOC	8250	☐ 031	Se	7740
☐ 005	SUITE	8010-8020	☐ 017	SVOC	625	☐ 032	ICAP	6010
☐ 006	SUITE	601-602	☐ 018	VOC	8260	☐ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N SUITE	
☐ 008	PAH	8100	☐ 020	O&G	9070	☐ 035	NITRATE	
☐ 009	PAH	610	☐ 022	AS	7060	☐ 036	NITRITE	
☐ 010	PCB	8080	☐ 023	Ba	7080	☐ 037	AMMONIA	
☐ 011	PCB	608	☐ 024	Cr	7190	☐ 038	TKN	
☐ 012	PHENOL	8040	☐ 025	Cr6	7198	☒	OTHER <u>TCLP</u>	

BENZENE & METALS



ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

Contract Lab ANA-LAB

Contract No. _____

OCD Sample No. 9008011640

Collection Date	Collection Time	Collected by —Person/Agency	OCD
8/1/90	1640	ANDERSON/OLSON	

SITE INFORMATION

Sample location

NAVAJO REFINERY

Collection Site Description

DISCHARGE PIPE AT OUTFALL INTO
EVAP POND

Township, Range, Section, Tract:

| | | + | | + | | + | |

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NM OIL CONSERVATION DIVISION
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SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted:

2-VIALS

- ☒ NF: Whole sample (Non-filtered)
☐ F: Filtered in field with 0.45 μ membrane filter
☐ PF: Pre-filtered w/45 μ membrane filter

- ☐ NA: No acid added
☒ A: HCL
☐ A: 2ml H₂SO₄/L added
☐ A: 5ml conc. HNO₃ added
☐ A: 4ml fuming HNO₃ added

FIELD COMMENTS:

SAMPLING CONDITIONS

Water level

- ☐ Bailed ☐ Pump
☒ Dipped ☐ Tap

Discharge

Sample type

GRAB

pH(00400)

Conductivity (Uncorrected)

μmho

Water Temp. (00010)

Conductivity at 25° C

μmho

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
☒ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	7130
☒ 002	VOA	602	☐ 014	VOC	8240	☐ 027	Pb	7421
☐ 003	VOH	8010	☐ 015	VOC	624	☐ 028	Hg(L)	7470
☐ 004	VOH	601	☐ 016	SVOC	8250	☐ 031	Se	7740
☐ 005	SUITE	8010-8020	☐ 017	SVOC	625	☐ 032	ICAP	6010
☐ 006	SUITE	601-602	☐ 018	VOC	8260	☐ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N SUITE	
☐ 008	PAH	8100	☐ 020	O&G	9070	☐ 035	NITRATE	
☐ 009	PAH	610	☐ 022	AS	7060	☐ 036	NITRITE	
☐ 010	PCB	8080	☐ 023	Ba	7080	☐ 037	AMMONIA	
☐ 011	PCB	608	☐ 024	Cr	7190	☐ 038	TKN	
☐ 012	PHENOL	8040	☐ 025	Cr6	7198	☐	OTHER	



STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

1818

Contract Lab Inter-Mountain

Contract No. _____

OCD Sample No. 8907 251736

Collection Date	Collection Time	Collected by — Person/Agency	
<u>07/25/89</u>	<u>1736</u>	<u>Boyer, Englert</u>	/OCD

SITE INFORMATION

Sample location

NAVATO REFINERY : OCD-1

Collection Site Description

Township, Range, Section, Tract:

17 | 5+26 | E+01+4 | 1

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NM OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted: 1

- ☐ NF: Whole sample (Non-filtered)
☒ F: Filtered in field with 0.45 μ m membrane filter
☐ PF: Pre-filtered w/45 μ m membrane filter

- ☐ NA: No acid added
☐ A: HCL
☐ A: 2ml H₂SO₄/L added
☐ A: 5ml conc. HNO₃ added
☐ A: 4ml fuming HNO₃ added

FIELD COMMENTS:

foamy, turbid water, strong H₂S like odor

SAMPLING CONDITIONS

- ☒ Bailed ☐ Pump
☐ Dipped ☐ Tap

pH(00400)

7.07

Water Temp. (00010)

21°C

Water level

10.49

Discharge

8 gallons

Sample type

GRAB

Conductivity (Uncorrected)

8000 μ mho

Conductivity at 25° C

4 μ mho

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
☐ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	7130
☐ 002	VOA	602	☐ 014	VOC	8240	☒ 027	Pb	7421
☐ 003	VOH	8010	☐ 015	VOC	624	☐ 028	Hg(L)	7470
☐ 004	VOH	601	☐ 016	SVOC	8250	☐ 031	Se	7740
☐ 005	SUITE	8010-8020	☐ 017	SVOC	625	☐ 032	ICAP	6010
☐ 006	SUITE	601-602	☐ 018	VOC	8260	☐ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N SUITE	
☐ 008	PAH	8100	☐ 020	O&G	9070	☐ 035	NITRATE	
☐ 009	PAH	610	☒ 022	AS	7060	☐ 036	NITRITE	
☐ 010	PCB	8080	☐ 023	Ba	7080	☐ 037	AMMONIA	
☐ 011	PCB	608	☒ 024	Cr	7190	☐ 038	TKN	
☐ 012	PHENOL	8040	☐ 025	Cr6	7198	☐	OTHER	



STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

1819

Contract Lab Inter Mountain

Contract No. _____

OCD Sample No. 890725-1728

Collection Date	Collection Time	Collected by—Person/Agency	
07/25/89	1728	Boyer, Englert	/OCD

SITE INFORMATION

Sample location

NAVATO Refinery: OCD-2

Collection Site Description

Township, Range, Section, Tract:

117S+26E+01+4

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NM OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted: 1

- ☐ NF: Whole sample (Non-filtered)
☒ F: Filtered in field with 0.45 μ membrane filter
☐ PF: Pre-filtered w/45 μ membrane filter

- ☐ NA: No acid added
☐ A: HCL
☐ A: 2ml H₂SO₄/L added
☐ A: 5ml conc. HNO₃ added
☒ A: 4ml fuming HNO₃ added

FIELD COMMENTS:

SAMPLING CONDITIONS

- ☒ Bailed ☐ Pump
☐ Dipped ☐ Tap

pH(00400)

6.97

Water Temp. (00010)

19°C

Water level

12.16

Discharge

7 gallons

Sample type

GRAB

Conductivity (Uncorrected)

9250 μ mho

Conductivity at 25° C

4 μ mho

turbid water, slight H₂S like odor

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
☐ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	7130
☐ 002	VOA	602	☐ 014	VOC	8240	☒ 027	Pb	7421
☐ 003	VOH	8010	☐ 015	VOC	624	☐ 028	Hg(L)	7470
☐ 004	VOH	601	☐ 016	SVOC	8250	☐ 031	Se	7740
☐ 005	SUITE	8010-8020	☐ 017	SVOC	625	☐ 032	ICAP	6010
☐ 006	SUITE	601-602	☐ 018	VOC	8260	☐ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N SUITE	
☐ 008	PAH	8100	☐ 020	O&G	9070	☐ 035	NITRATE	
☐ 009	PAH	610	☒ 022	AS	7060	☐ 036	NITRITE	
☐ 010	PCB	8080	☐ 023	Ba	7080	☐ 037	AMMONIA	
☐ 011	PCB	608	☒ 024	Cr	7190	☐ 038	TKN	
☐ 012	PHENOL	8040	☐ 025	Cr6	7198	☐	OTHER	



STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

1820

Contract Lab Inter Mountain Labs

Contract No. _____

OCD Sample No. 8907251126

Collection Date	Collection Time	Collected by —Person/Agency	
07/25/89	1126	Boyer, Englert	/OCD
SITE INFORMATION			
Sample location <u>NAVATO REFINERY</u> <u>OCD-23</u>			
Collection Site Description			
			Township, Range, Section, Tract:
			17S+27E+06+3-1

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Santa Fe, NM 87504-2088

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted: 1

- | | |
|--|---|
| ☐ NF: Whole sample (Non-filtered) | |
| ☒ F: Filtered in field with 0.45 μ membrane filter | |
| ☐ PF: Pre-filtered w/45 μ membrane filter | |
| ☒ NA: No acid added | ☐ A: 5ml conc. HNO ₃ added |
| ☐ A: HCL | ☐ A: 4ml fuming HNO ₃ added |
| ☐ A: 2ml H ₂ SO ₄ /L added | |

FIELD COMMENTS:

SAMPLING CONDITIONS ☒ Bailed ☐ Pump ☐ Dipped ☐ Tap	Water level	<u>12.90</u>
	Discharge	<u>6 gallons</u>
	Sample type	<u>GRAB</u>
	Conductivity (Uncorrected)	<u>8900</u> μ mho
pH(00400)	<u>7.04</u>	
Water Temp. (00010)	<u>22°C</u>	Conductivity at 25°C <u> </u> μ mho

turbid water, no odor

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
☐ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	7130
☐ 002	VOA	602	☐ 014	VOC	8240	☐ 027	Pb	7421
☐ 003	VOH	8010	☐ 015	VOC	624	☐ 028	Hg(L)	7470
☐ 004	VOH	601	☐ 016	SVOC	8250	☐ 031	Se	7740
☐ 005	SUITE	8010-8020	☐ 017	SVOC	625	☐ 032	ICAP	6010
☐ 006	SUITE	601-602	☐ 018	VOC	8260	☒ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N SUITE	
☐ 008	PAH	8100	☐ 020	O&G	9070	☐ 035	NITRATE	
☐ 009	PAH	610	☐ 022	AS	7060	☐ 036	NITRITE	
☐ 010	PCB	8080	☐ 023	Ba	7080	☐ 037	AMMONIA	
☐ 011	PCB	608	☐ 024	Cr	7190	☐ 038	TKN	
☐ 012	PHENOL	8040	☐ 025	Cr6	7198	☒ OTHER	<u>Fluoride</u>	



STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

1821

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

Contract Lab Inter-Mountain

Contract No. _____

OCD Sample No. 8907251204

Collection Date	Collection Time	Collected by —Person/Agency	
07/25/89	1204	Boyer, Englert	/OCD

SITE INFORMATION

Sample location NAVAJO REFINERY: OCD-4

Collection Site Description

Township, Range, Section, Tract:

1175+27E+06+3

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TO ↓

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NM OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted: 1

- ☐ NF: Whole sample (Non-filtered)
☒ F: Filtered in field with 0.45 μ membrane filter
☐ PF: Pre-filtered w/45 μ membrane filter

- ☒ NA: No acid added
☐ A: HCL
☐ A: 2ml H₂SO₄/L added
☐ A: 5ml conc. HNO₃ added
☐ A: 4ml fuming HNO₃ added

FIELD COMMENTS:

SAMPLING CONDITIONS	Water level	<u>12.64</u>
	Discharge	<u>6 gallons</u>
	Sample type	<u>GRAB</u>
	Conductivity (Uncorrected)	<u>10,900</u> μ mho
	Conductivity at 25° C	<u>4</u> μ mho
☒ Bailed ☐ Pump ☐ Dipped ☐ Tap		
pH(00400)	<u>7.05</u>	
Water Temp. (00010)	<u>21°C</u>	

clear water, no odor

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
☐ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	7130
☐ 002	VOA	602	☐ 014	VOC	8240	☐ 027	Pb	7421
☐ 003	VOH	8010	☐ 015	VOC	624	☐ 028	Hg(L)	7470
☐ 004	VOH	601	☐ 016	SVOC	8250	☐ 031	Se	7740
☐ 005	SUITE	8010-8020	☐ 017	SVOC	625	☐ 032	ICAP	6010
☐ 006	SUITE	601-602	☐ 018	VOC	8260	☒ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N SUITE	
☐ 008	PAH	8100	☐ 020	O&G	9070	☐ 035	NITRATE	
☐ 009	PAH	610	☐ 022	AS	7060	☐ 036	NITRITE	
☐ 010	PCB	8080	☐ 023	Ba	7080	☐ 037	AMMONIA	
☐ 011	PCB	608	☐ 024	Cr	7190	☐ 038	TKN	
☐ 012	PHENOL	8040	☐ 025	Cr6	7198	☒	OTHER <u>Fluoride</u>	



STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

1822

Contract Lab Inter-Mountain

Contract No. _____

OCD Sample No. 890725 1333

Collection Date	Collection Time	Collected by — Person/Agency	
07/25/89	1333	Boyer, Englert	/OCD

SITE INFORMATION

Sample location NAVAJO Refinery: OCD-5

Collection Site Description

Township, Range, Section, Tract:

1 | 7 | 5 + 2 | 7 | E + 06 + 3 | 1

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NM OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted: 1

- ☐ NF: Whole sample (Non-filtered)
☒ F: Filtered in field with 0.45 μ membrane filter
☐ PF: Pre-filtered w/45 μ membrane filter

- ☒ NA: No acid added
☐ A: HCL
☐ A: 2ml H₂SO₄/L added
☐ A: 5ml conc. HNO₃ added
☐ A: 4ml fuming HNO₃ added

FIELD COMMENTS:

SAMPLING CONDITIONS	Water level	<u>11.01</u>
	Discharge	<u>6+ gallons</u>
	Sample type	<u>GRAB</u>
	Conductivity (Uncorrected)	<u>9250</u> μ mho
pH(00400)	<u>7.01</u>	
Water Temp. (00010)	<u>19°C</u>	Conductivity at 25°C <u>4</u> mho

clear water, slight H₂O color

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
☐ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	7130
☐ 002	VOA	602	☐ 014	VOC	8240	☐ 027	Pb	7421
☐ 003	VOH	8010	☐ 015	VOC	624	☐ 028	Hg(L)	7470
☐ 004	VOH	601	☐ 016	SVOC	8250	☐ 031	Se	7740
☐ 005	SUITE	8010-8020	☐ 017	SVOC	625	☐ 032	ICAP	6010
☐ 006	SUITE	601-602	☐ 018	VOC	8260	☒ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N SUITE	
☐ 008	PAH	8100	☐ 020	O&G	9070	☐ 035	NITRATE	
☐ 009	PAH	610	☐ 022	AS	7060	☐ 036	NITRITE	
☐ 010	PCB	8080	☐ 023	Ba	7080	☐ 037	AMMONIA	
☐ 011	PCB	608	☐ 024	Cr	7190	☐ 038	TKN	
☐ 012	PHENOL	8040	☐ 025	Cr6	7198	☐	OTHER	<u>Fluoride</u>



STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

1823

Contract Lab Inter Mountain

Contract No. _____

OCD Sample No. 8907251354

Collection Date	Collection Time	Collected by — Person/Agency	
<u>07/25/89</u>	<u>1354</u>	<u>Boyer, ANDERSON</u>	/OCD
SITE INFORMATION			
Sample location <u>NAVATO REFINERY: OCD-6</u>			
Collection Site Description			
			Township, Range, Section, Tract:
			<u>1 7 S+27 E+0 6+3 - -</u>

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NM OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted: 1

- ☐ NF: Whole sample (Non-filtered)
☒ F: Filtered in field with 0.45 μ membrane filter
☐ PF: Pre-filtered w/45 μ membrane filter

- ☐ NA: No acid added
☐ A: HCL
☐ A: 2ml H₂SO₄/L added
☐ A: 5ml conc. HNO₃ added
☒ A: 4ml fuming HNO₃ added

FIELD COMMENTS:

SAMPLING CONDITIONS	Water level	<u>11.36</u>
	Discharge	<u>8 gallons</u>
	Sample type	<u>GRAB</u>
	Conductivity (Uncorrected)	<u>8500</u> μ mho
	Conductivity at 25° C	<u>4</u> μ mho
☒ Bailed ☐ Pump ☐ Dipped ☐ Tap	pH(00400)	<u>6.95</u>
	Water Temp. (00010)	<u>18°C</u>

turbid water, Hc like odor

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
☐ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	7130
☐ 002	VOA	602	☐ 014	VOC	8240	☒ 027	Pb	7421
☐ 003	VOH	8010	☐ 015	VOC	624	☐ 028	Hg(L)	7470
☐ 004	VOH	601	☐ 016	SVOC	8250	☐ 031	Se	7740
☐ 005	SUITE	8010-8020	☐ 017	SVOC	625	☐ 032	ICAP	6010
☐ 006	SUITE	601-602	☐ 018	VOC	8260	☐ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N SUITE	
☐ 008	PAH	8100	☐ 020	O&G	9070	☐ 035	NITRATE	
☐ 009	PAH	610	☒ 022	AS	7060	☐ 036	NITRITE	
☐ 010	PCB	8080	☐ 023	Ba	7080	☐ 037	AMMONIA	
☐ 011	PCB	608	☒ 024	Cr	7190	☐ 038	TKN	
☐ 012	PHENOL	8040	☐ 025	Cr6	7198	☐	OTHER	



STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

1829

Contract Lab Inter Med Contract No. _____

OCD Sample No. 890725

Collection Date	Collection Time	Collected by—Person/Agency
02/25/88	1613	Co. Engler
SITE INFORMATION		
Sample location <u>Inter Med</u>		
Collection Site Description		
		Township, Range, Section, Tract: <u>17S+26E+01+9</u>

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NM OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted: 1

- | | |
|--|---|
| ☐ NF: Whole sample (Non-filtered) | ☐ A: 5ml conc. HNO ₃ added |
| ☒ F: Filtered in field with 0.45 μ membrane filter | ☐ A: 4ml fuming HNO ₃ added |
| ☐ PF: Pre-filtered w/45 μ membrane filter | |
| ☒ NA: No acid added | |
| ☐ A: HCL | |
| ☐ A: 2ml H ₂ SO ₄ /L added | |

FIELD COMMENTS:

SAMPLING CONDITIONS	Water level
	Discharge
	Sample type
	Conductivity (Uncorrected)
pH(00400)	Conductivity at 25° C

- ☒ Bailed ☐ Pump
☐ Dipped ☐ Tap

Water Temp. (00010)

19°

Turbid, H₂S like odor

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
☐ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	7130
☐ 002	VOA	602	☐ 014	VOC	8240	☐ 027	Pb	7421
☐ 003	VOH	8010	☐ 015	VOC	624	☐ 028	Hg(L)	7470
☐ 004	VOH	601	☐ 016	SVOC	8250	☐ 031	Se	7740
☐ 005	SUITE	8010-8020	☐ 017	SVOC	625	☐ 032	ICAP	6010
☐ 006	SUITE	601-602	☐ 018	VOC	8260	☒ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N SUITE	
☐ 008	PAH	8100	☐ 020	C&G	9070	☐ 035	NITRATE	
☐ 009	PAH	610	☐ 022	AS	7060	☐ 036	NITRITE	
☐ 010	PCB	8080	☐ 023	Ba	7080	☐ 037	AMMONIA	
☐ 011	PCB	608	☐ 024	Cr	7190	☐ 038	TKN	
☐ 012	PHENOL	8040	☐ 025	Cr6	7198	☒ OTHER	Fluoride	



STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

Contract Lab Inter Mountain

Contract No. _____

OCD Sample No. 8907251553

Collection Date	Collection Time	Collected by—Person/Agency	
<u>07/25/89</u>	<u>1553</u>	<u>Boyer, Englert</u>	OCD
SITE INFORMATION			
Sample location <u>NAVATE Refinery : OCD-8</u>			
Collection Site Description			
			Township, Range, Section, Tract:
			<u>17S+26E+12+2--</u>

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ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted:

3 vials

- ☒ NF: Whole sample (Non-filtered)
☐ F: Filtered in field with 0.45 μ membrane filter
☐ PF: Pre-filtered w/45 μ membrane filter

- ☒ NA: No acid added
☒ A: HCL
☐ A: 2ml H₂SO₄/L added
☐ A: 5ml conc. HNO₃ added
☐ A: 4ml fuming HNO₃ added

FIELD COMMENTS:

SAMPLING CONDITIONS	Water level	<u>8.22</u>
	Discharge	<u>7 gallons</u>
	Sample type	<u>GRAB</u>
	Conductivity (Uncorrected)	<u>6800</u> μ mho
	Conductivity at 25° C	<u>4</u> μ mho
☒ Bailed ☐ Pump ☐ Dipped ☐ Tap		
pH(00400)	<u>6.91</u>	
Water Temp. (00010)	<u>21°C</u>	

slightly turbid, He like odor

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
☐ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	7130
☐ 002	VOA	602	☐ 014	VOC	8240	☐ 027	Pb	7421
☐ 003	VOH	8010	☐ 015	VOC	624	☐ 028	Hg(L)	7470
☐ 004	VOH	601	☐ 016	SVOC	8250	☐ 031	Se	7740
☒ 005	SUITE	8010-8020	☐ 017	SVOC	625	☐ 032	ICAP	6010
☐ 006	SUITE	601-602	☐ 018	VOC	8260	☐ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N SUITE	
☐ 008	PAH	8100	☐ 020	O&G	9070	☐ 035	NITRATE	
☐ 009	PAH	610	☐ 022	AS	7060	☐ 036	NITRITE	
☐ 010	PCB	8080	☐ 023	Ba	7080	☐ 037	AMMONIA	
☐ 011	PCB	608	☐ 024	Cr	7190	☐ 038	TKN	
☐ 012	PHENOL	8040	☐ 025	Cr6	7198	☐	OTHER	



STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

1825

Contract Lab INTER Mountain Contract No. _____

OCD Sample No. 896725 1553

Collection Date	Collection Time	Collected by —Person/Agency	
7/25/89	1553	Boyer, ENGLERT	/OCD
SITE INFORMATION			
Sample location <u>NAVAJO REFINERY: OCD-8</u>			
Collection Site Description			
			Township, Range, Section, Tract:
			117 S+26 E+1 2+2 1

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FINAL NM OIL CONSERVATION DIVISION
REPORT PO Box 2088
TO Santa Fe, NM 87504-2088

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted:

- ☐ NF: Whole sample (Non-filtered)
☒ F: Filtered in field with 0.45 μ membrane filter
☐ PF: Pre-filtered w/45 μ membrane filter
- ☒ NA: No acid added
☐ A: HCL
☐ A: 2ml H₂SO₄/L added
- ☐ A: 5ml conc. HNO₃ added
☐ A: 4ml fuming HNO₃ added

SAMPLING CONDITIONS

- ☒ Bailed ☐ Pump
☐ Dipped ☐ Tap

Water level 8.22
Discharge 7 gallons
Sample type GRAB
Conductivity (Uncorrected) 6800 μ mho
Conductivity at 25°C μ mho

pH(00400)

6.91

Water Temp. (00010)

21°C

FIELD COMMENTS:

slightly turbid, He like odor

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
☐ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	7130
☐ 002	VOA	602	☐ 014	VOC	8240	☐ 027	Pb	7421
☐ 003	VOH	8010	☐ 015	VOC	624	☐ 028	Hg(L)	7470
☐ 004	VOH	601	☐ 016	SVOC	8250	☐ 031	Se	7740
☐ 005	SUITE	8010-8020	☐ 017	SVOC	625	☐ 032	ICAP	6010
☐ 006	SUITE	601-602	☐ 018	VOC	8260	☒ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N SUITE	
☐ 008	PAH	8100	☐ 020	O&G	9070	☐ 035	NITRATE	
☐ 009	PAH	610	☐ 022	AS	7060	☐ 036	NITRITE	
☐ 010	PCB	8080	☐ 023	Ba	7080	☐ 037	AMMONIA	
☐ 011	PCB	608	☐ 024	Cr	7190	☐ 038	TKN	
☐ 012	PHENOL	8040	☐ 025	Cr6	7198	☒	OTHER <u>Fluoride</u>	



STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

Contract Lab Inter Mountain

Contract No. _____

OCD Sample No. B907261257

Collection Date	Collection Time	Collected by — Person/Agency	/OCD
7/26/89	1257	Boyer, Engler	
SITE INFORMATION			
Sample location <u>NAVAJO Refinery: MW-3</u>			
Collection Site Description			
			Township, Range, Section, Tract:
			112 S+26 E+12+124

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NM OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted: 1

- | | |
|---|---|
| ☒ NF: Whole sample (Non-filtered) | ☐ A: 5ml conc. HNO ₃ added |
| ☐ F: Filtered in field with 0.45 μ membrane filter | ☐ A: 4ml fuming HNO ₃ added |
| ☐ PF: Pre-filtered w/45 μ membrane filter | |
| ☒ NA: No acid added | |
| ☐ A: HCL | |
| ☐ A: 2ml H ₂ SO ₄ /L added | |

FIELD COMMENTS:

SAMPLING CONDITIONS	Water level	9.22
	Discharge	8 gallons
	Sample type	GRAB
	Conductivity (Uncorrected)	5250 μ mho
	Conductivity at 25° C	μ mho
☒ Bailed ☐ Pump ☐ Dipped ☐ Tap		
pH(00400)	6.96	
Water Temp. (00010)	16.5°C	

slightly turbid, strong H₂S like odor

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
☐ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	7130
☐ 002	VMA	602	☐ 014	VOC	8240	☐ 027	Pb	7421
☐ 003	VOH	8010	☐ 015	VOC	624	☐ 028	Hg(L)	7470
☐ 004	VOH	601	☐ 016	SVOC	8250	☐ 031	Se	7740
☐ 005	SUE	8010-8020	☐ 017	SVOC	625	☐ 032	ICAP	6010
☐ 006	SUE	801-602	☐ 018	VOC	8260	☐ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N SUITE	
☒ 008	PAH	8100	☐ 020	O&G	9070	☐ 035	NITRATE	
☐ 009	PAH	610	☐ 022	AS	7060	☐ 036	NITRITE	
☐ 010	PCB	8080	☐ 023	Ba	7080	☐ 037	AMMONIA	
☐ 011	PCB	608	☐ 024	Cr	7190	☐ 038	TKN	
☐ 012	PHENOL	8040	☐ 025	Cr6	7198	☐	OTHER	



STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

1830

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

Contract Lab Inter Mountain

Contract No. _____

OCD Sample No. 8907261257

Collection Date	Collection Time	Collected by—Person/Agency	
7/26/89	1257	Boyer, Engler	IOCD

SITE INFORMATION

Sample location

NAVAJO REFINERY: MW3

Collection Site Description

Township, Range, Section, Tract:

17S+26E+12+124

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PO Box 2088
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SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted: 1

- ☐ NF: Whole sample (Non-filtered)
☒ F: Filtered in field with 0.45 μ membrane filter
☐ PF: Pre-filtered w/45 μ membrane filter

- ☒ NA: No acid added
☐ A: HCL
☐ A: 2ml H₂SO₄/L added
☐ A: 5ml conc. HNO₃ added
☐ A: 4ml fuming HNO₃ added

FIELD COMMENTS:

slightly turbid, strong H₂S like odor

SAMPLING CONDITIONS

- ☒ Bailed ☐ Pump
☐ Dipped ☐ Tap

pH(00400)

6.96

Water Temp. (00010)

16.5°C

Water level

9.22

Discharge

8 gallons

Sample type

GRAB

Conductivity (Uncorrected)

5250 μ mho

Conductivity at 25° C

μ mho

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
☐ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	7130
☐ 002	VOA	602	☐ 014	VOC	8240	☐ 027	Pb	7421
☐ 003	VOH	8010	☐ 015	VOC	624	☐ 028	Hg(L)	7470
☐ 004	VOH	601	☐ 016	SVOC	8250	☐ 031	Se	7740
☐ 005	SUITE	8010-8020	☐ 017	SVOC	625	☐ 032	ICAP	6010
☐ 006	SUITE	601-602	☐ 018	VOC	8260	☒ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N SUITE	
☐ 008	PAH	8100	☐ 020	O&G	9070	☐ 035	NITRATE	
☐ 009	PAH	610	☐ 022	AS	7060	☐ 036	NITRITE	
☐ 010	PCB	8080	☐ 023	Ba	7080	☐ 037	AMMONIA	
☐ 011	PCB	608	☐ 024	Cr	7190	☐ 038	TKN	
☐ 012	PHENOL	8040	☐ 025	Cr6	7198	☒ OTHER	<u>Fluoride</u>	



STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

Contract Lab Inter Mountain Contract No. _____

OCD Sample No. 8907261257

Collection Date	Collection Time	Collected by — Person/Agency	
<u>7/26/89</u>	<u>1257</u>	<u>Boyer, Engler</u>	/OCD
SITE INFORMATION			
Sample location <u>NAVAJO REFINERY: MW3</u>			
Collection Site Description			
			Township, Range, Section, Tract:
			<u>17</u> <u>5+26</u> <u>E+12+124</u>

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NM OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted: 1

- | | |
|--|--|
| ☐ NF: Whole sample (Non-filtered) | |
| ☒ F: Filtered in field with 0.45 μ membrane filter | |
| ☐ PF: Pre-filtered w/45 μ membrane filter | |
| ☐ NA: No acid added | ☐ A: 5ml conc. HNO ₃ added |
| ☐ A: HCL | ☒ A: 4ml fuming HNO ₃ added |
| ☐ A: 2ml H ₂ SO ₄ /L added | |

FIELD COMMENTS:

slightly turbid, strong H₂S like odor

SAMPLING CONDITIONS	Water level <u>8 9.22</u>
	Discharge <u>8 gallons</u>
	Sample type <u>GRAB</u>
	Conductivity (Uncorrected) <u>3250</u> μ mho
☒ Bailed ☐ Pump ☐ Dipped ☐ Tap	Conductivity at 25° C <u>4</u> μ mho
pH(00400) <u>6.96</u>	
Water Temp. (00010) <u>16.5°C</u>	

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
☐ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	7130
☐ 002	VOA	602	☐ 014	VOC	8240	☒ 027	Pb	7421
☐ 003	VOH	8010	☐ 015	VOC	624	☐ 028	Hg(L)	7470
☐ 004	VOH	601	☐ 016	SVOC	8250	☐ 031	Se	7740
☐ 005	SUITE	8010-8020	☐ 017	SVOC	625	☒ 032	ICAP	6010
☐ 006	SUITE	601-602	☐ 018	VOC	8260	☐ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N SUITE	
☐ 008	PAH	8100	☐ 020	O&G	9070	☐ 035	NITRATE	
☐ 009	PAH	610	☒ 022	AS	7060	☐ 036	NITRITE	
☐ 010	PCB	8080	☐ 023	Ba	7080	☐ 037	AMMONIA	
☐ 011	PCB	608	☒ 024	Cr	7190	☐ 038	TKN	
☐ 012	PHENOL	8040	☐ 025	Cr6	7198	☐	OTHER	



STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

1829

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

Contract Lab Inter Mountain

Contract No. _____

OCD Sample No. 8907261221

Collection Date	Collection Time	Collected by —Person/Agency	
7/26/89	1221	Boyer, Engler	/OCD
SITE INFORMATION			
Sample location <u>NAVAJO REFINERY MW-4</u>			
Collection Site Description			
			Township, Range, Section, Tract:
			117S+26E+12+1.42

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NM OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted: 3 vials

- ☒ NF: Whole sample (Non-filtered)
☐ F: Filtered in field with 0.45 μ membrane filter
☐ PF: Pre-filtered w/45 μ membrane filter

- ☒ NA: No acid added
☒ A: HCL
☐ A: 2ml H₂SO₄/L added
☐ A: 5ml conc. HNO₃ added
☐ A: 4ml fuming HNO₃ added

FIELD COMMENTS:

clear water, very strong Hc like odor, brown greasy film on pump

SAMPLING CONDITIONS	Water level	<u>11.84</u>
	Discharge	<u>7 gallons</u>
	Sample type	<u>GRAB</u>
	Conductivity (Uncorrected)	<u>6000</u> μ mho
	Conductivity at 25° C	<u>4</u> μ mho
☒ Bailed ☐ Pump ☐ Dipped ☐ Tap		
pH(00400)	<u>7.04</u>	
Water Temp. (00010)	<u>17°C</u>	

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
☐ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	7130
☐ 002	VOA	602	☐ 014	VOC	8240	☐ 027	Pb	7421
☐ 003	VOH	8010	☐ 015	VJC	624	☐ 028	Hg(L)	7470
☐ 004	VOH	601	☐ 016	SVOC	8250	☐ 031	Se	7740
☒ 005	SUITE	8010-8020	☐ 017	SVOC	625	☐ 032	ICAP	6010
☐ 006	SUITE	601-602	☐ 018	VOC	8260	☐ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N SUITE	
☐ 008	PAH	8100	☐ 020	O&G	9070	☐ 035	NITRATE	
☐ 009	PAH	610	☐ 022	AS	7060	☐ 036	NITRITE	
☐ 010	PCB	8080	☐ 023		7080	☐ 037	AMMONIA	
☐ 011	PCB	608	☐ 024		7190	☐ 038	TKN	
☐ 012	PHENOL	8040	☐ 025		7198	☐	OTHER	



STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

1827

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

Contract Lab INTER Mountain

Contract No. _____

OCD Sample No. 8907261221

Collection Date	Collection Time	Collected by —Person/Agency	
7/26/89	1221	BOYER, ENGLERT	IOCD

SITE INFORMATION

Sample location

NAVATO REFINERY: MW-4

Collection Site Description

Township, Range, Section, Tract:

17 S+26 E+12+7 42

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NM OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted: 1

- ☐ NF: Whole sample (Non-filtered)
☒ F: Filtered in field with 0.45 μ membrane filter
☐ PF: Pre-filtered w/45 μ membrane filter

- ☐ NA: No acid added
☐ A: HCL
☐ A: 2ml H₂SO₄/L added
☐ A: 5ml conc. HNO₃ added
☒ A: 4ml fuming HNO₃ added

FIELD COMMENTS:

SAMPLING CONDITIONS

- ☒ Bailed
☐ Pump
☐ Dipped
☐ Tap

pH(00400)

7.04

Water Temp. (00010)

17°C

Water level

11.84

Discharge

7 gallons

Sample type

GRAB

Conductivity (Uncorrected)

6000 μ mho

Conductivity at 25° C

4 μ mho

clear water, very strong H₂S like odor, brown greasy film on pump

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
☐ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	7130
☐ 002	VOA	602	☐ 014	VOC	8240	☒ 027	Pb	7421
☐ 003	VOH	8010	☐ 015	VOC	624	☐ 028	Hg(L)	7470
☐ 004	VOH	601	☐ 016	SVOC	8250	☐ 031	Se	7740
☐ 005	SUITE	8010-8020	☐ 017	SVOC	625	☐ 032	ICAP	6010
☐ 006	SUITE	601-602	☐ 018	VOC	8260	☐ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N SUITE	
☐ 008	PAH	8100	☐ 020	O&G	9070	☐ 035	NITRATE	
☐ 009	PAH	610	☐ 022	AS	7060	☐ 036	NITRITE	
☐ 010	PCB	8080	☐ 023	Ba	7080	☐ 037	AMMONIA	
☐ 011	PCB	608	☒ 024	Cr	7190	☐ 038	TKN	
☐ 012	PHENOL	8040	☐ 025	Cr6	7198	☐	OTHER	



STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

1828

Contract Lab INTER Mountain

Contract No. _____

OCD Sample No. 8907261135

Collection Date	Collection Time	Collected by — Person/Agency	
7/26/89	1135	BOYER, ENGLERT	/OCD
SITE INFORMATION			
Sample location <u>NAVARO REFINERY: MW-5</u>			
Collection Site Description <u>NAVARO REFINERY</u>			
			Township, Range, Section, Tract:
			17 5+2 6 E+1 2+2 1 4

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NM OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted: 3 vials

- ☒ NF: Whole sample (Non-filtered)
☐ F: Filtered in field with 0.45 μ membrane filter
☐ PF: Pre-filtered w/45 μ membrane filter

- ☒ NA: No acid added
☒ A: HCL
☐ A: 2ml H₂SO₄/L added
☐ A: 5ml conc. HNO₃ added
☐ A: 4ml fuming HNO₃ added

FIELD COMMENTS:

SAMPLING CONDITIONS	Water level	<u>8.32</u>
	Discharge	<u>6 gallons</u>
	Sample type	<u>GRAB</u>
	Conductivity (Uncorrected)	<u>12500</u> mho
pH(00400)	<u>7.04</u>	
Water Temp. (00010)		
	Conductivity at 25° C	<u>14</u> mho

Clear water, very strong H₂S like odor

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
☐ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	7130
☐ 002	VOA	602	☐ 014	VOC	8240	☐ 027	Pb	7421
☐ 003	VOH	8010	☐ 015	VCC	624	☐ 028	Hg(L)	7470
☐ 004	VOH	601	☐ 016	SVOC	8250	☐ 031	Se	7740
☒ 005	SUITE	8010-8020	☐ 017	SVOC	625	☐ 032	ICAP	6010
☐ 006	SUITE	601-602	☐ 018	VOC	8260	☐ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N SUITE	
☐ 008	PAH	8100	☐ 020	O&G	9070	☐ 035	NITRATE	
☐ 009	PAH	610	☐ 022	AS	7060	☐ 036	NITRITE	
☐ 010	PCB	8080	☐ 023	Ba	7080	☐ 037	AMMONIA	
☐ 011	PCB	608	☐ 024	Cr	7190	☐ 038	TKN	
☐ 012	PHENOL	8040	☐ 025	Cr6	7198	☐	OTHER	



STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

1828

Contract Lab Inter Mountain

Contract No. _____

OCD Sample No. 890726 1135

Collection Date	Collection Time	Collected by — Person/Agency
<u>7/26/89</u>	<u>1135</u>	<u>Boyer, Engert</u>
SITE INFORMATION		
Sample location <u>NAVATC REFINERY MW-5</u>		
Collection Site Description		
		Township, Range, Section, Tract:
		<u>117 S + 26 E + 12 + 2 - 14</u>

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NM OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted: 1

- ☐ NF: Whole sample (Non-filtered)
☒ F: Filtered in field with 0.45 μ membrane filter
☐ PF: Pre-filtered w/45 μ membrane filter

- ☒ NA: No acid added
☐ A: HCL
☐ A: 2ml H₂SO₄/L added
☐ A: 5ml conc. HNO₃ added
☐ A: 4ml fuming HNO₃ added

FIELD COMMENTS:

SAMPLING CONDITIONS	Water level
	<u>8.32</u>
☒ Bailed ☐ Pump ☐ Dipped ☐ Tap	Discharge
	<u>6 gallons</u>
pH(00400) <u>7.04</u>	Sample type
	<u>GRAB</u>
Water Temp. (00010) <u>23°C</u>	Conductivity (Uncorrected)
	<u>12,500</u> μ mho
	Conductivity at 25° C
	<u>4</u> μ mho

clear water, very strong H₂S like odor

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
☐ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	7130
☐ 002	VOA	602	☐ 014	VOC	8240	☐ 027	Pb	7421
☐ 003	VOH	8010	☐ 015	VOC	624	☐ 028	Hg(L)	7470
☐ 004	VOH	601	☐ 016	SVOC	8250	☐ 031	Se	7740
☐ 005	SUITE	8010-8020	☐ 017	SVOC	625	☐ 032	ICAP	6010
☐ 006	SUITE	601-602	☐ 018	VOC	8260	☒ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N SUITE	
☐ 008	PAH	8100	☐ 020	O&G	9070	☐ 035	NITRATE	
☐ 009	PAH	610	☐ 022	AS	7060	☐ 036	NITRITE	
☐ 010	PCB	8080	☐ 023	Ba	7080	☐ 037	AMMONIA	
☐ 011	PCB	608	☐ 024	Cr	7190	☐ 038	TKN	
☐ 012	PHENOL	8040	☐ 025	Cr6	7198	☒ X	OTHER <u>Fluoride</u>	



STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

1828

Contract Lab Inter Mountain

Contract No. _____

OCD Sample No. 8907261135

Collection Date	Collection Time	Collected by — Person/Agency	
7/26/89	1135	Boyer, ENGLERT	/OCD
SITE INFORMATION			
Sample location <u>NAVATO REFINERY : MW-5</u>			
Collection Site Description			
Township, Range, Section, Tract:			
17 S+26 E+12+214			

SEND
FINAL
REPORT
TO ↓

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted: 1

- ☐ NF: Whole sample (Non-filtered)
☒ F: Filtered in field with 0.45 μ membrane filter
☐ PF: Pre-filtered w/45 μ membrane filter

- ☐ NA: No acid added
☐ A: HCL
☐ A: 2ml H₂SO₄/L added
☐ A: 5ml conc. HNO₃ added
☒ A: 4ml fuming HNO₃ added

FIELD COMMENTS:

SAMPLING CONDITIONS	Water level	8.32
	Discharge	6 gallons
	Sample type	GRAB
	Conductivity (Uncorrected)	12,500 μ mho
pH(00400)	7.04	
Water Temp. (00010)	23°C	
	Conductivity at 25°C	μ mho

clear water, very strong H₂S like odor

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
☐ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	7130
☐ 002	VOA	602	☐ 014	VOC	8240	☒ 027	Pb	7421
☐ 003	VOH	8010	☐ 015	VOC	624	☐ 028	Hg(L)	7470
☐ 004	VOH	601	☐ 016	SVOC	8250	☐ 031	Se	7740
☐ 005	SUITE	8010-8020	☐ 017	SVOC	625	☐ 032	ICAP	6010
☐ 006	SUITE	601-602	☐ 018	VOC	8260	☐ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N SUITE	
☐ 008	PAH	8100	☐ 020	O&G	9070	☐ 035	NITRATE	
☐ 009	PAH	610	☒ 022	AS	7060	☐ 036	NITRITE	
☐ 010	PCB	8080	☐ 023	Ba	7080	☐ 037	AMMONIA	
☐ 011	PCB	608	☒ 024	Cr	7190	☐ 038	TKN	
☐ 012	PHENOL	8040	☐ 025	Cr6	7198	☐	OTHER	



STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

1827

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

Contract Lab Inter Mountain

Contract No. _____

OCD Sample No. 890726 1424

Collection Date	Collection Time	Collected by — Person/Agency	
7/26/89	1424	Boyer, Engler	/OCD
SITE INFORMATION			
Sample location <u>NAVARO REFINERY: MW-6</u>			
Collection Site Description			
			Township, Range, Section, Tract:
			<u>17S+26E+12+123</u>

SEND ENVIRONMENTAL BUREAU
FINAL NM OIL CONSERVATION DIVISION
REPORT PO Box 2088
TO Santa Fe, NM 87504-2088

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted: 1

- ☒ **NF:** Whole sample (Non-filtered)
☐ **F:** Filtered in field with 0.45 μ membrane filter
☐ **PF:** Pre-filtered w/45 μ membrane filter

- ☒ **NA:** No acid added
☐ **A:** HCL
☐ **A:** 2ml H₂SO₄/L added
☐ **A:** 5ml conc. HNO₃ added
☐ **A:** 4ml fuming HNO₃ added

FIELD COMMENTS:

SAMPLING CONDITIONS ☒ Bailed ☐ Pump ☐ Dipped ☐ Tap	Water level	<u>12.41</u>
	Discharge	<u>7 gallons</u>
	Sample type	<u>GRAB</u>
	Conductivity (Uncorrected)	<u>4400</u> μ mho
pH(00400)	<u>7.02</u>	
Water Temp. (00010)	<u>25°C</u>	Conductivity at 25° C <u>4400</u> μ mho

slightly turbid, strong H₂S like odor, brown, greasy film on pump

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
☐ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	7130
☐ 002	VOA	602	☐ 014	VOC	8240	☐ 027	Pb	7421
☐ 003	VOH	8010	☐ 015	VOC	624	☐ 028	Hg(L)	7470
☐ 004	VOH	601	☐ 016	SVOC	8250	☐ 031	Se	7740
☐ 005	SUITE	8010-8020	☐ 017	SVOC	625	☐ 032	ICAP	6010
☐ 006	SUITE	601-602	☐ 018	VOC	8260	☐ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N SUITE	
☒ 008	PAH	8100	☐ 020	O&G	9070	☐ 035	NITRATE	
☐ 009	PAH	610	☐ 022	AS	7060	☐ 036	NITRITE	
☐ 010	PCB	8080	☐ 023	Ba	7080	☐ 037	AMMONIA	
☐ 011	PCB	608	☐ 024	Cr	7190	☐ 038	TKN	
☐ 012	PHENOL	8040	☐ 025	Cr6	7198	☐	OTHER	



STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

1827

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

Contract Lab Inter Mountain Contract No. _____

OCD Sample No. 890726 1424

Collection Date	Collection Time	Collected by —Person/Agency	
7/26/89	1424	Boyer Engler	/OCD
SITE INFORMATION			
Sample location <u>NAVAJO REFINERY: MW-6</u>			
Collection Site Description			
			Township, Range, Section, Tract:
			117S+26E+12+123

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FINAL
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ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted: 1

- ☐ NF: Whole sample (Non-filtered)
☒ F: Filtered in field with 0.45 μ membrane filter
☐ PF: Pre-filtered w/45 μ membrane filter

- ☒ NA: No acid added
☐ A: HCL
☐ A: 2ml H₂SO₄/L added
☐ A: 5ml conc. HNO₃ added
☐ A: 4ml fuming HNO₃ added

FIELD COMMENTS:

SAMPLING CONDITIONS	Water level	<u>12.41</u>
	Discharge	<u>7 gallons</u>
☒ Bailed ☐ Pump ☐ Dipped ☐ Tap	Sample type	<u>GR</u>
pH(00400)	Conductivity (Uncorrected)	<u>6</u> mho
Water Temp. (00010)	Conductivity at 25° C	<u>25°C</u> mho

slightly turbid, strong H₂S like odor, brown greasy film on pump

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
☐ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	7130
☐ 002	VOA	602	☐ 014	VOC	8240	☐ 027	Pb	7421
☐ 003	VOH	8010	☐ 015	VOC	624	☐ 028	Hg(L)	7470
☐ 004	VOH	601	☐ 016	SVOC	8250	☐ 031	Se	7740
☐ 005	SUITE	8010-8020	☐ 017	SVOC	625	☐ 032	ICAP	6010
☐ 006	SUITE	601-602	☐ 018	VOC	8260	☒ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N SUITE	
☐ 008	PAH	8100	☐ 020	O&G	9070	☐ 035	NITRATE	
☐ 009	PAH	610	☐ 022	AS	7060	☐ 036	NITRITE	
☐ 010	PCB	8080	☐ 023	Ba	7080	☐ 037	AMMONIA	
☐ 011	PCB	608	☐ 024	Cr	7190	☐ 038	TKN	
☐ 012	PHENOL	8040	☐ 025	Cr6	7198	☒	OTHER <u>Flouride</u>	



STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

1827

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

Contract Lab Inter Mountain

Contract No. _____

OCD Sample No. 8907261424

Collection Date	Collection Time	Collected by —Person/Agency	
7/26/89	1424	Boyer, Engler	/OCD
SITE INFORMATION			
Sample location <u>NAVARO REFINERY : MW6</u>			
Collection Site Description			
			Township, Range, Section, Tract:
			117 5+2 6E+1 2+1 23

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NM OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted: 1

- ☐ NF: Whole sample (Non-filtered)
☒ F: Filtered in field with 0.45 μ membrane filter
☐ PF: Pre-filtered w/45 μ membrane filter

- ☐ NA: No acid added
☐ A: HCL
☐ A: 2ml H₂SO₄/L added
☐ A: 5ml conc. HNO₃ added
☒ A: 4ml fuming HNO₃ added

FIELD COMMENTS:

SAMPLING CONDITIONS	Water level	<u>12.41</u>
	Discharge	<u>7 gallons</u>
	Sample type	<u>GRAB</u>
	Conductivity (Uncorrected)	<u>4400</u> μ mho
	Conductivity at 25° C	<u>4400</u> μ mho
☒ Bailed ☐ Pump ☐ Dipped ☐ Tap	pH(00400)	<u>7.02</u>
	Water Temp. (00010)	<u>25°C</u>

slightly turbid, strong H₂S like odor, brown greasy film on pump

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
☐ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	7130
☐ 002	VOA	602	☐ 014	VOC	8240	☒ 027	Pb	7421
☐ 003	VOH	8010	☐ 015	VOC	624	☐ 028	Hg(L)	7470
☐ 004	VOH	601	☐ 016	SVOC	8250	☐ 031	Se	7740
☐ 005	SUITE	8010-8020	☐ 017	SVOC	625	☐ 032	ICAP	6010
☐ 006	SUITE	601-602	☐ 018	VOC	8260	☐ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N SUITE	
☐ 008	PAH	8100	☐ 020	O&G	9070	☐ 035	NITRATE	
☐ 009	PAH	610	☒ 022	AS	7060	☐ 036	NITRITE	
☐ 010	PCB	8080	☒ 023	Ba	7080	☐ 037	AMMONIA	
☐ 011	PCB	608	☒ 024	Cr	7190	☐ 038	TKN	
☐ 012	PHENOL	8040	☐ 025	Cr6	7198	☐	OTHER	



STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

1826

Contract Lab Inter Mountain

Contract No. _____

OCD Sample No. 8907261053

Collection Date	Collection Time	Collected by—Person/Agency	
7/26/89	1053	Boyer Engler	/OCD
SITE INFORMATION			
Sample location <u>NAVAJO REFINER</u>			
Collection Site Description <u>East side opposite OCD #7 well</u>			
			Township, Range, Section, Tract: <u>117 S+26 E+1 2+2 23</u>

SEND
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TO ↓

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted: 1

- ☒ NF: Whole sample (Non-filtered)
☐ F: Filtered in field with 0.45 μ membrane filter
☐ PF: Pre-filtered w/45 μ membrane filter

- ☒ NA: No acid added
☐ A: HCL
☐ A: 2ml H₂SO₄/L added
☐ A: 5ml conc. HNO₃ added
☐ A: 4ml fuming HNO₃ added

FIELD COMMENTS:

SAMPLING CONDITIONS ☒ Bailed ☐ Pump ☐ Dipped ☐ Tap	Water level	<u>7.61</u>
	Discharge	<u>6.5 + gallons</u>
	Sample type	<u>GRA</u>
	Conductivity (Uncorrected)	<u>82.5 mho</u>
	Conductivity at 25° C	<u>44 mho</u>

clear water strong H₂S like odor

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
☐ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	7130
☐ 002	VOA	602	☐ 014	VOC	8240	☐ 027	Pb	7421
☐ 003	VOH	8010	☐ 015	VOC	624	☐ 028	Hg(L)	7470
☐ 004	VOH	601	☐ 016	SVOC	8250	☐ 031	Se	7740
☐ 005	SUITE	8010-8020	☐ 017	SVOC	625	☐ 032	ICAP	6010
☐ 006	SUITE	601-602	☐ 018	VOC	8260	☐ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N SUITE	
☒ 008	PAH	8100	☐ 020	O&G	9070	☐ 035	NITRATE	
☐ 009	PAH	610	☐ 022	AS	7060	☐ 036	NITRITE	
☐ 010	PCB	8080	☐ 023	Ca	7080	☐ 037	AMMONIA	
☐ 011	PCB	603	☐ 024	Cr	7190	☐ 038	TKN	
☐ 012	PHENOL	8040	☐ 025	Cr6	7198	☐	OTHER	



STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

1826

Contract Lab Inter Mountain

Contract No. _____

OCD Sample No. 8907261053

Collection Date	Collection Time	Collected by —Person/Agency	
7/26/89	1053	Boyer, ENGLERT	/OCD
SITE INFORMATION			
Sample location <u>NAVATO REFINERY: MW-7</u>			
Collection Site Description <u>East side opposite ocd #7 well RVR</u>			
			Township, Range, Section, Tract: <u>1175+26E+12+223</u>

SEND ENVIRONMENTAL BUREAU
FINAL NM OIL CONSERVATION DIVISION
REPORT PO Box 2088
TO Santa Fe, NM 87504-2088

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted: 1

- ☐ NF: Whole sample (Non-filtered)
☒ F: Filtered in field with 0.45 μ membrane filter
☐ PF: Pre-filtered w/45 μ membrane filter

- ☐ NA: No acid added
☐ A: HCL
☐ A: 2ml H₂SO₄/L added
☐ A: 5ml conc. HNO₃ added
☒ A: 4ml fuming HNO₃ added

FIELD COMMENTS:

SAMPLING CONDITIONS	Water level <u>7.61</u>
	Discharge <u>6.57 gallons</u>
	Sample type <u>GRAB</u>
	Conductivity (Uncorrected) <u>8250</u> μ mho
	Conductivity at 25° C <u>4</u> mho
☒ Bailed ☐ Pump ☐ Dipped ☐ Tap	
pH(00400) <u>7.05</u>	
Water Temp. (00010) <u>22°C</u>	

clear water, strong H₂S like odor

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
☐ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	7130
☐ 002	VOA	602	☐ 014	VOC	8240	☒ 027	Pb	7421
☐ 003	VOH	8010	☐ 015	VOC	624	☐ 028	Hg(L)	7470
☐ 004	VOH	601	☐ 016	SVOC	8250	☐ 031	Se	7740
☐ 005	SUITE	8010-8020	☐ 017	SVOC	625	☐ 032	ICAP	6010
☐ 006	SUITE	601-602	☐ 018	VOC	8260	☐ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N SUITE	
☐ 008	PAH	8100	☐ 020	O&G	9070	☐ 035	NITRATE	
☐ 009	PAH	610	☒ 022	AS	7060	☐ 036	NITRITE	
☐ 010	PCB	8080	☐ 023	Ba	7080	☐ 037	AMMONIA	
☐ 011	PCB	608	☒ 024	Cr	7190	☐ 038	TKN	
☐ 012	PHENOL	8040	☐ 025	Cr6	7198	☐	OTHER	



OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

Contract Lab Inter-Mountain

Contract No. _____

OCD Sample No. 8907251224

Collection Date	Collection Time	Collected by—Person/Agency	
07/25/89	1224	Boyer, Engler	/OCD
SITE INFORMATION			
Sample location <u>NAVARO REFINERY: Windmill</u>			
Collection Site Description <u>Pond Windmill</u>			
			Township, Range, Section, Tract: <u>1175+26E+12+141</u>

SEND
FINAL
REPORT
TO ↓ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088**SAMPLE FIELD TREATMENT — Check proper boxes**No. of samples submitted: 1

- ☐ NF: Whole sample (Non-filtered)
☐ F: Filtered in field with 0.45 μ membrane filter
☐ PF: Pre-filtered w/45 μ membrane filter

- ☐ NA: No acid added
☐ A: HCL
☐ A: 2ml H₂SO₄ added
☐ A: 5ml conc. HNO₃ added
☐ A: 4ml fuming HNO₃ added

FIELD COMMENTS:

SAMPLING CONDITIONS ☐ Bailed ☒ Pump ☐ Dipped ☐ Tap	Water level <u>Pumping</u>
	Discharge
pH(00400) <u>7</u>	Sample type <u>GRAB</u>
Water Temp. (00010) <u>20°C</u>	Conductivity (Uncorrected) <u>4350</u> μ mho
	Conductivity at 25°C <u>4</u> μ mho

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
☐ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	7130
☐ 002	VOA	602	☐ 014	VOC	8240	☐ 027	Pb	7421
☐ 003	VOH	8010	☐ 015	VOC	624	☐ 028	Hg(L)	7470
☐ 004	VOH	601	☐ 016	SVOC	8250	☐ 031	Se	7740
☐ 005	SUITE	8010-8020	☐ 017	SVOC	625	☐ 032	ICAP	6010
☐ 006	SUITE	601-602	☐ 018	VOC	8260	☒ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N SUITE	
☐ 008	PAH	8100	☐ 020	O&G	9070	☐ 035	NITRATE	
☐ 009	PAH	610	☐ 022	AS	7060	☐ 036	NITRITE	
☐ 010	PCB	8080	☐ 023	Ba	7080	☐ 037	AMMONIA	
☐ 011	PCB	608	☐ 024	Cr	7190	☐ 038	TKN	
☐ 012	PHENOL	8040	☐ 025	Cr6	7198	☒ OTHER	<u>Fluoride</u>	



STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

1816

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

Contract Lab Inter Mountain Contract No. _____

OCD Sample No. 8907261517

Collection Date	Collection Time	Collected by—Person/Agency	
7/26/89	1517	Boyer, Englert	/OCD
SITE INFORMATION			
Sample location <u>NAVARO REFINERY: PECOS RIVER</u>			
Collection Site Description			
			Township, Range, Section, Tract:
			117526E01444

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TO ↓

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted:

- ☐ NF: Whole sample (Non-filtered)
☒ F: Filtered in field with 0.45 μ m membrane filter
☐ PF: Pre-filtered w/45 μ m membrane filter
- ☒ NA: No acid added
☐ A: HCL
☐ A: 2ml H₂SO₄/L added
- ☐ A: 5ml conc. HNO₃ added
☐ A: 4ml fuming HNO₃ added

FIELD COMMENTS:

SAMPLING CONDITIONS ☐ Bailed ☐ Pump ☒ Dipped ☐ Tap pH(00400) <u>7.61</u> Water Temp. (00010) <u>30°C</u>	Water level	_____
	Discharge	_____
	Sample type	<u>GRAB</u>
	Conductivity (Uncorrected)	<u>8200</u> μ mho
	Conductivity at 25° C	<u>4</u> μ mho

flowing river water, organic odor
very low flow

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
☐ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	7130
☐ 002	VOA	602	☐ 014	VOC	8240	☐ 027	Pb	7421
☐ 003	VOH	8010	☐ 015	VOC	624	☐ 028	Hg(L)	7470
☐ 004	VOH	601	☐ 016	SVOC	8250	☐ 031	Se	7740
☐ 005	SUITE	8010-8020	☐ 017	SVOC	625	☐ 032	ICAP	6010
☐ 006	SUITE	601-602	☐ 018	VOC	8260	☒ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N SUITE	
☐ 008	PAH	8100	☐ 020	O&G	9070	☐ 035	NITRATE	
☐ 009	PAH	610	☐ 022	AS	7060	☐ 036	NITRITE	
☐ 010	PCB	8080	☐ 023	Ba	7080	☐ 037	AMMONIA	
☐ 011	PCB	608	☐ 024	Cr	7190	☐ 038	TKN	
☐ 012	PHENOL	8040	☐ 025	Cr6	7198	☐	OTHER <u>Fluoride</u>	



STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

18 17

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

Contract Lab Inter Mountain Contract No. _____

OCD Sample No. 8907261545

Collection Date	Collection Time	Collected by — Person/Agency	
7/26/89	1545	Boyer	/OCD

SITE INFORMATION

Sample location NAVATO REFINERY: PIPE Outlet

Collection Site Description

taken from end of grate

Township, Range, Section, Tract:

17 | S+2 | 6E+1 | 2+2 | -1

SEND
FINAL
REPORT
TO

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted: 1

- ☒ NF: Whole sample (Non-filtered)
☐ F: Filtered in field with 0.45 μ membrane filter
☐ PF: Pre-filtered w/45 μ membrane filter

- ☒ NA: No acid added
☐ A: HCL
☐ A: 2ml H₂SO₄/L added
☐ A: 5ml conc. HNO₃ added
☐ A: 4ml fuming HNO₃ added

FIELD COMMENTS:

Turbid, no floating product, strong odor

SAMPLING CONDITIONS

- ☐ Bailed ☐ Pump
☒ Dipped ☐ Tap

pH(00400)

7.47

Water Temp. (00010)

15°C

Water level

Discharge

Sample type

GRA

Conductivity (Uncorrected)

3 mho

Conductivity at 25° C

4 mho

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
☐ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	7130
☐ 002	VOA	602	☐ 014	VOC	8240	☐ 027	Pb	7421
☐ 003	VOH	8010	☐ 015	VOC	624	☐ 028	Hg(L)	7470
☐ 004	VOH	601	☐ 016	SVOC	8250	☐ 031	Se	7740
☐ 005	SUITE	8010-8020	☐ 017	SVOC	625	☐ 032	ICAP	6010
☐ 006	SUITE	601-602	☐ 018	VOC	8260	☐ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N SUITE	
☐ 008	PAH	8100	☐ 020	O&G	9070	☐ 035	NITRATE	
☐ 009	PAH	610	☐ 022	AS	7060	☐ 036	NITRITE	
☐ 010	PCB	8080	☐ 023	Ba	7080	☐ 037	AMMONIA	
☐ 011	PCB	608	☐ 024	Cr	7190	☐ 038	TKN	
☐ 012	PHENOL	8040	☐ 025	Cr	7198	☐	OTHER	



STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

1817

Contract Lab Inter Mountain Contract No. _____

OCD Sample No. 8907261545

Collection Date	Collection Time	Collected by — Person/Agency
<u>7/26/89</u>	<u>1545</u>	<u>Boyer</u>

SITE INFORMATION

Sample location

NAVASO REFINERY: Pipe Outlet

Collection Site Description

taken from end of grate

Township, Range, Section, Tract:

117 | S+2 | 6E+1 | 2+2 | -1

SEND
FINAL
REPORT
TO

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted: 1

- ☐ NF: Whole sample (Non-filtered)
☒ F: Filtered in field with 0.45 μ membrane filter
☐ PF: Pre-filtered w/45 μ membrane filter

- ☒ NA: No acid added
☐ A: HCL
☐ A: 2ml H₂SO₄/L added
☐ A: 5ml conc. HNO₃ added
☐ A: 4ml fuming HNO₃ added

FIELD COMMENTS:

SAMPLING CONDITIONS

- ☐ Bailed ☐ Pump
☒ Dipped ☐ Tap

pH(00400)

9.47

Water Temp. (00010)

45°C

Water level

Discharge

Sample type

GRAI

Conductivity (Uncorrected)

3870 μ mho

Conductivity at 25° C

4 μ mho

turbid, no floating product, strong odor,

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
☐ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	7130
☐ 002	VOA	602	☐ 014	VOC	8240	☐ 027	Pb	7421
☐ 003	VOH	8010	☐ 015	VOC	624	☐ 028	Hg(L)	7470
☐ 004	VOH	601	☐ 016	SVOC	8250	☐ 031	Se	7740
☐ 005	SUITE	8010-8020	☐ 017	SVOC	625	☐ 032	ICAP	6010
☐ 006	SUITE	601-602	☐ 018	VOC	8260	☒ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N SUITE	
☐ 008	PAH	8100	☐ 020	O&G	9070	☐ 035	NITRATE	
☐ 009	PAH	610	☐ 022	AS	7060	☐ 036	NITRITE	
☐ 010	PCB	8080	☐ 023	Ba	7080	☐ 037	AMMONIA	
☐ 011	PCB	608	☐ 024	Cr	7190	☐ 038	TKN	
☐ 012	PHENOL	8040	☐ 025	Cr6	7198	☒ OTHER	<u>Fluoride</u>	



STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

Contract Lab ANA LAB

Contract No. 78-521.07-013

OCD Sample No. 8907251224

149749

Collection Date	Collection Time	Collected by—Person/Agency	
<u>07/25/89</u>	<u>1224</u>	<u>Boyer, Engler +</u>	/OCD

SITE INFORMATION

Sample location NAVASO REFINERY: Windmill

Collection Site Description Pond windmill

Township, Range, Section, Tract:

1175+26E+12+141

SEND
FINAL
REPORT
TO

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted: 2 vials

- ☒ NF: Whole sample (Non-filtered)
☐ F: Filtered in field with 0.45 μ membrane filter
☐ PF: Pre-filtered w/45 μ membrane filter

- ☒ NA: No acid added
☐ A: HCL
☐ A: 2ml H₂SO₄/L added
☐ A: 5ml conc. HNO₃ added
☐ A: 4ml fuming HNO₃ added

FIELD COMMENTS:

SAMPLING CONDITIONS	Water level	<u>Pumping</u>
	Discharge	
	Sample type	<u>GRAB</u>
	Conductivity (Uncorrected)	<u>4350</u> μ mho
☐ Bailed ☒ Pump ☐ Dipped ☐ Tap		
pH(00400)	<u>7</u>	
Water Temp. (00010)	<u>20°C</u>	Conductivity at 25°C <u>4</u> μ mho

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
☐ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	7130
☐ 002	VOA	602	☐ 014	VOC	8240	☐ 027	Pb	7421
☒ 003	VOH	8010	☐ 015	VOC	624	☐ 028	Hg(L)	7470
☐ 004	VOH	601	☐ 016	SVOC	8250	☐ 031	Se	7740
☐ 005	SUITE	8010-8020	☐ 017	SVOC	625	☐ 032	ICAP	6010
☐ 006	SUITE	601-602	☐ 018	VOC	8260	☐ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N SUITE	
☐ 008	PAH	8100	☐ 020	O&G	9070	☐ 035	NITRATE	
☐ 009	PAH	610	☐ 022	AS	7060	☐ 036	NITRITE	
☐ 010	PCB	8080	☐ 023	Ba	7080	☐ 037	AMMONIA	
☐ 011	PCB	608	☐ 024	Cr	7190	☐ 038	TKN	
☐ 012	PHENOL	8040	☐ 025	Cr6	7198	☐	OTHER	



STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

Contract Lab ANA-LAB5

Contract No. _____

OCD Sample No. 8907251224

Collection Date	Collection Time	Collected by —Person/Agency	
<u>07/25/89</u>	<u>1224</u>	<u>Boyer, Anne Englert</u>	/OCD
SITE INFORMATION			
Sample location <u>NAVATO REFINERY: Windmill</u>			
Collection Site Description <u>Pond Windmill</u>			
			Township, Range, Section, Tract: <u>117S+26E+12+141</u>

SEND
FINAL
REPORT
TO ↓

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted: 2 Vials

- | | |
|---|---|
| ☒ NF: Whole sample (Non-filtered) | ☐ A: 5ml conc. HNO ₃ added |
| ☐ F: Filtered in field with 0.45 μ membrane filter | ☐ A: 4ml fuming HNO ₃ added |
| ☐ PF: Pre-filtered w/45 μ membrane filter | |
| ☐ NA: No acid added | |
| ☒ A: HCL | |
| ☐ A: 2ml H ₂ SO ₄ /L added | |

FIELD COMMENTS:

SAMPLING CONDITIONS ☐ Bailed ☒ Pump ☐ Dipped ☐ Tap	Water level <u>Pumping</u>
	Discharge
	Sample type <u>GRAB</u>
	Conductivity (Uncorrected) <u>4350</u> μ mho
pH(00400) <u>7</u>	Conductivity at 25° C <u>4</u> μ mho
Water Temp. (00010) <u>20°C</u>	

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
☒ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	7130
☐ 002	VOA	602	☐ 014	VOC	8240	☐ 027	Pb	7421
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☐ 006	SUITE	601-602	☐ 018	VOC	8260	☐ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N SUITE	
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☐ 010	PCB	8080	☐ 023	Ba	7080	☐ 037	AMMONIA	
☐ 011	PCB	608	☐ 024	Cr	7190	☐ 038	TKN	
☐ 012	PHENOL	8040	☐ 025	Cr6	7198	☐	OTHER	

SCIENTIFIC LABORATORY DIVISION

P.O. Box 4700
Albuquerque, NM 87196-4700700 Camino de Salud, NE
[505]-841-2500

ORGANIC CHEMISTRY SECTION [505]-841-2570

June 16, 1993

Request
ID No. 022258**ANALYTICAL REPORT**
SLD Accession No. OR-93-1092Distribution☐ User 70320
☒ Submitter 260
☒ SLD FilesTo: David Boyer
NM Oil Conserv. Div.
State Land Office Bldg.
P.O. Box 2088
Santa Fe, NM 87504-2088From: Organic Chemistry Section
Scientific Laboratory Div.
700 Camino de Salud, NE
Albuquerque, NM 87106

Re: A water, purgeable sample submitted to this laboratory on May 14, 1993

DEMOGRAPHIC DATA

COLLECTION		LOCATION
On: 13-May-93	By: Bro . . .	Pond Effluent
At: 9:00 hrs.	In/Near: Artesia	

ANALYTICAL RESULTS: Aromatic & Halogenated Purgeable [EPA-601/2] Screen (754)

Parameter	Value	Note	MDL	Units
Halogenated Volatiles (42)	0.00	N	200.00	ppb

See Laboratory Remarks for Additional Information

Notations & Comments:

MDL = Minimal Detectable Level.

A = Approximate Value; N = None Detected above Detection Limit; P = Compound Present, but not quantified;
T = Trace (<Detection Limit); U = Compound Identity Not Confirmed.Evidentiary Seals: Not Sealed ☒; Intact: No ☐, Yes ☐ & Broken By: _____ Date: _____Laboratory Remarks:

Two compounds eluting from near toluene through o-xylene at approximately 200-500 ppb were detected by the photoionization detector but not identified.

VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: NM SCIENTIFIC LABORATORY DIVISION	Contract: N/A
Lab Code: N/A Case No.: N/A	SAS No.: N/A SDG No.: N/A
Matrix: (soil/water) Water	Lab Sample ID: OR-93-1092
Sample wt/vol: 5.0 (g/mL) mL	SLD Batch No: 162
Level: (low/med) Low	Date Received: 05/14/93
% Moisture: not dec. N/A dec. N/A	Date Extracted: N/A
Extraction: (SepF/Cont/Sonc) N/A	Date Analyzed: 05/28/93
GPC Cleanup: (Y/N) No pH: _____	Dilution Factor: 1/200
	CONCENTRATION UNITS:

(Continued on page 2.)

ANALYTICAL REPORT
 SLD Accession No. OR-93-1092
 Continuation, Page 2 of 4

(ug/L or ug/Kg): _____ ug/L

This sample was analyzed for the following compounds
 using EPA Methods 601 & 602

CAS NO.	COMPOUND	CONC.	Q	PQL
67-64-1	Acetone		U	1000.0
71-43-2	Benzene		U	200.0
108-86-1	Bromobenzene		U	200.0
74-97-5	Bromochloromethane		U	200.0
75-27-4	Bromodichloromethane		U	200.0
75-25-2	Bromoform		U	200.0
78-93-3	2-Butanone (MEK)		U	1000.0
104-51-8	n-Butylbenzene		U	200.0
135-98-8	sec-Butylbenzene		U	200.0
98-06-6	tert-Butylbenzene		U	200.0
1634-04-4	tert-Butyl methyl ether (MTBE)		U	1000.0
56-23-5	Carbon tetrachloride		U	200.0
108-90-7	Chlorobenzene		U	200.0
67-66-3	Chloroform		U	200.0
95-49-8	2-Chlorotoluene		U	200.0
106-43-4	4-Chlorotoluene		U	200.0
96-12-8	1,2-Dibromo-3-chloropropane		U	200.0
124-48-1	Dibromochloromethane		U	200.0
106-93-4	1,2-Dibromoethane		U	200.0
74-95-3	Dibromomethane		U	200.0
95-50-1	1,2-Dichlorobenzene		U	200.0
541-73-1	1,3-Dichlorobenzene		U	200.0
106-46-7	1,4-Dichlorobenzene		U	200.0
75-71-8	Dichlorodifluoromethane		U	200.0
75-34-3	1,1-Dichloroethane		U	200.0
107-06-2	1,2-Dichloroethane		U	200.0
75-35-4	1,1-Dichloroethene		U	200.0
156-59-4	cis-1,2-Dichloroethene		U	200.0
156-60-5	trans-1,2-Dichloroethene		U	200.0
78-87-5	1,2-Dichloropropane		U	200.0
142-28-9	1,3-Dichloropropane		U	200.0
590-20-7	2,2-Dichloropropane		U	200.0
563-58-6	1,1-Dichloropropene		U	200.0
1006-01-5	cis-1,3-Dichloropropene		U	200.0
1006-02-6	trans-1,3-Dichloropropene		U	200.0
100-41-4	Ethylbenzene		U	200.0
87-68-3	Hexachlorobutadiene		U	200.0

(Continued on page 3.)

ANALYTICAL REPORT
SLD Accession No. OR-93-1092
Continuation, Page 3 of 4

98-82-8	Isopropylbenzene		U	200.0
99-87-6	4-Isopropyltoluene		U	200.0
75-09-2	Methylene chloride		U	200.0
90-12-0	1-Methylnaphthalene		U	200.0
91-57-6	2-Methylnaphthalene		U	200.0
91-20-3	Naphthalene		U	200.0
103-65-1	n-Propylbenzene		U	200.0
100-42-5	Styrene		U	200.0
630-20-6	1,1,1,2-Tetrachloroethane		U	200.0
79-34-5	1,1,2,2-Tetrachloroethane		U	200.0
127-18-4	Tetrachloroethene		U	200.0
109-99-9	Tetrahydrofuran (THF)		U	1000.0
108-88-3	Toluene		U	200.0
87-61-5	1,2,3-Trichlorobenzene		U	200.0
120-82-1	1,2,4-Trichlorobenzene		U	200.0
71-55-6	1,1,1-Trichloroethane		U	200.0
79-00-5	1,1,2-Trichloroethane		U	200.0
79-01-6	Trichloroethene		U	200.0
75-69-4	Trichlorofluoromethane		U	200.0
96-18-4	1,2,3-Trichloropropane		U	200.0
95-63-6	1,2,4-Trimethylbenzene		U	200.0
108-67-8	1,3,5-Trimethylbenzene		U	200.0
75-01-4	Vinyl chloride		U	200.0
95-47-6	o-Xylene		U	200.0
N/A	p- & m-Xylene		U	200.0

* CONC = CONCENTRATION DETERMINED

PQL = Practical Quantitation Limit (Approximately 10 times MDL)

* Q = Qualifier Definitions:

B - Indicates compound was detected in the Lab Blank as well as in the sample.

D - Indicates value taken from a secondary (diluted) sample analysis.

E - Indicates compound concentration exceeded the range of the standard curve.

J - Indicates an estimated value for tentatively identified compounds, or for compounds detected and identified but present at a concentration less than the quantitation limit.

N - Indicates that more than one peak was used for quantitation.

U - Indicates compound was analyzed for, but not detected above the concentration listed (Quantitation Limit).

(Continued on page 4.)

QUALITY CONTROL SUMMARY FOR VOLATILES SCREEN

METHOD BLANK: A laboratory method blank was analyzed along with this sample to assure the absence of interfering contaminants from lab reagents, instruments, or the general laboratory environment. Unless listed below, no contaminants were detected in this blank above the reported detection limit.

COMPOUND DETECTED	CONCENTRATION (PPB)
1,1-dichloroethene	0.2
methylene chloride	0.4

SURROGATE RECOVERIES:

SURROGATE	CONCENTRATION	% RECOVERY
Bromofluorobenzene	25.0 ppb	114.7
2-Bromo-1-chloropropane	25.0 ppb	101.2

SPIKE RECOVERY: The % recoveries for compounds in the batch spike were from 80% to 120% with the exception of the compounds listed below:

COMPOUND	CONCENTRATION	% RECOVERY
trichloroethene	25.0 ppb	138.4
1,1,2,2-tetrachloroethane	25.3 ppb	71.1

Analyst: _____

Gary C. Eden
Analyst, Organic Chemistry

Reviewed By: _____

Richard F. Meyerhein 06/16/93
Supervisor, Organic Chemistry Section

ORGANIC CHEMISTRY ANALYTICAL REQUEST FORM

SCIENTIFIC LABORATORY DIVISION

700 CAMINO DE SALUD N.E., ALBUQUERQUE, NM 87106

Organic Chemistry Section - Telephone: (505) 841-2570

SLD No. **OR93 1092 C**

Date Received: **5/14/93**

Request ID No. **022258-C**

2 User Code #: **703210** 3 Request ID No.:

5 Facility Name: **Navajo Refinery** 6 County: **Eddy** 7 City: **Artesia** 8 State: **NM**

9 Sample Location: **Pond Effluent**

10 Collected By: **Kathy Birpwn** On: **93 05/13** At: **0900** hrs.
First Last Date: (YY/MM/DD) Time: 24 hr. clock 3:00 pm = 1500 hrs.

11 Codes: Submitter WSS # Organization 12 Latitude (DDMMSS) Longitude (DDMMSS) 2 Digit ID (if needed)

13 Report To: **David G. Boyer** 14 Phone #: **(505) 827-5812**

Address: **New Mexico Oil Conservation Division**
P. O. Box 2088
City, State Zip: **Santa Fe, New Mexico 87504-2088**

16 Field Data: pH: , Conductivity: **9500** umhos @ °C, Temperature: **28.5** °C, Chlorine Residual: mg/l, Flow:

17 Sample Source: ☐ Stream ☐ Lake ☐ Drain ☐ Pool ☐ WWTP ☐ Well; Depth: ☐ Spring ☐ Distribution ☒ Point-of-Entry ☐ Other: **Pond**

19 Sample Type: ☐ Water, ☐ Soil, ☐ Food, ☒ Wastewater, ☐ Other
This form accompanies a **single sample** consisting of:
2 - septum vial(s) (volume = **40 ml each**)
- glass jugs (volume =)
(volume =)

20 Preservation: ☐ NP No Preservation; Sample stored at room temperature
☐ P-ice Sample stored in an ice bath (Not Frozen)
☐ P-TS Sample Preserved with Sodium Thiosulfate to remove chlorine residual
☐ P-HCl Sample Preserved with Hydrochloric Acid (2 drops/40 ml)
☒ Other: **H₂SO₄**

21 Analyses Requested: Please check the appropriate box(es) below to indicate the type of analytical screen(s) required. Whenever possible, list specific compounds suspected or required.

Volatile Screens:

- ☐ - (753) Aliphatic Headspace (1-5 Carbons)
- ☒ - (754) Aromatic & Halogenated Purgeables (EPA 601 & 602)
- ☐ - (765) Mass Spectrometer Purgeables (EPA 624)
- ☐ - (766) SDWA Total Trihalomethanes (EPA 501.1)
- ☐ - (774) SDWA VOC's I [8 Regulated +] (EPA 502.2)
- ☐ - (775) SDWA VOC's II [EDB & DBCP] (EPA 504)

Other Specific Compounds or Classes:

- ☐ - ()
- ☐ - ()
- ☐ - ()

Semivolatile Screens:

- ☐ - (763) Acid Extractables
- ☐ - (751) Aliphatic Hydrocarbons
- ☐ - (755) Base/Neutral Extractables (EPA 625)
- ☐ - (756) Base/Neutral/Acid Extractables (EPA 8270)
- ☐ - (758) Herbicides, Chlorophenoxy Acid
- ☐ - (759) Herbicides, Triazines
- ☐ - (760) Organochlorine Pesticides
- ☐ - (761) Organophosphate Pesticides
- ☐ - (767) Polychlorinated Biphenyls (PCB's)
- ☐ - (764) Polynuclear Aromatic Hydrocarbons
- ☐ - (762) SDWA Pesticides & Herbicides

Remarks:

SCIENTIFIC LABORATORY DIVISION

P.O. Box 4700
Albuquerque, NM 87196-4700700 Camino de Salud, NE
[505]-841-2500

ORGANIC CHEMISTRY SECTION [505]-841-2570

June 16, 1993

Request
ID No. 022261**ANALYTICAL REPORT**
SLD Accession No. OR-93-1091Distribution☐ User 70320
☒ Submitter 260
☒ SLD FilesTo: David Boyer
NM Oil Conserv. Div.
State Land Office Bldg.
P.O. Box 2088
Santa Fe, NM 87504-2088From: Organic Chemistry Section
Scientific Laboratory Div.
700 Camino de Salud, NE
Albuquerque, NM 87106

Re: A water, purgeable sample submitted to this laboratory on May 14, 1993

DEMOGRAPHIC DATA

COLLECTION		LOCATION
On: 13-May-93	By: Bro . . .	NE Pond Effluent
At: 9:30 hrs.	In/Near: Artesia	

ANALYTICAL RESULTS: Aromatic & Halogenated Purgeable [EPA-601/2] Screen (754)

Parameter	Value	Note	MDL	Units
Halogenated Volatiles (42)	0.00	N	25.00	ppb

See Laboratory Remarks for Additional Information

Notations & Comments:

MDL = Minimal Detectable Level.

A = Approximate Value; N = None Detected above Detection Limit; P = Compound Present, but not quantified;
T = Trace (<Detection Limit); U = Compound Identity Not Confirmed.Evidentiary Seals: Not Sealed ☒; Intact: No ☐, Yes ☐ & Broken By: _____ Date: _____Laboratory Remarks:

One compound eluting near o-xylene at 25-50 ppb was detected by the photoionization detector but not identified.

Foamy sample; unable to achieve a lower detection limit.

VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: NM SCIENTIFIC LABORATORY DIVISION	Contract: N/A
Lab Code: N/A Case No.: N/A	SAS No.: N/A SDG No.: N/A
Matrix: (soil/water) Water	Lab Sample ID: OR-93-1091
Sample wt/vol: 5.0 (g/mL) mL	SLD Batch No: 162
Level: (low/med) Low	Date Received: 05/14/93
% Moisture: not dec. N/A dec. N/A	Date Extracted: N/A
Extraction: (SepF/Cont/Sonc) N/A	Date Analyzed: 05/28/93
GPC Cleanup: (Y/N) No pH: _____	Dilution Factor: X 25

(Continued on page 2.)

ANALYTICAL REPORT
SLD Accession No. OR-93-1091
Continuation, Page 2 of 4

CONCENTRATION UNITS:
(ug/L or ug/Kg): _____ ug/L

This sample was analyzed for the following compounds
using EPA Methods 601 & 602

CAS NO.	COMPOUND	CONC.	Q	PQL
67-64-1	Acetone		U	125.0
71-43-2	Benzene		U	25.0
108-86-1	Bromobenzene		U	25.0
74-97-5	Bromochloromethane		U	25.0
75-27-4	Bromodichloromethane		U	25.0
75-25-2	Bromoform		U	25.0
78-93-3	2-Butanone (MEK)		U	125.0
104-51-8	n-Butylbenzene		U	25.0
135-98-8	sec-Butylbenzene		U	25.0
98-06-6	tert-Butylbenzene		U	25.0
1634-04-4	tert-Butyl methyl ether (MTBE)		U	125.0
56-23-5	Carbon tetrachloride		U	25.0
108-90-7	Chlorobenzene		U	25.0
67-66-3	Chloroform		U	25.0
95-49-8	2-Chlorotoluene		U	25.0
106-43-4	4-Chlorotoluene		U	25.0
96-12-8	1,2-Dibromo-3-chloropropane		U	25.0
124-48-1	Dibromochloromethane		U	25.0
106-93-4	1,2-Dibromoethane		U	25.0
74-95-3	Dibromomethane		U	25.0
95-50-1	1,2-Dichlorobenzene		U	25.0
541-73-1	1,3-Dichlorobenzene		U	25.0
106-46-7	1,4-Dichlorobenzene		U	25.0
75-71-8	Dichlorodifluoromethane		U	25.0
75-34-3	1,1-Dichloroethane		U	25.0
107-06-2	1,2-Dichloroethane		U	25.0
75-35-4	1,1-Dichloroethene		U	25.0
156-59-4	cis-1,2-Dichloroethene		U	25.0
156-60-5	trans-1,2-Dichloroethene		U	25.0
78-87-5	1,2-Dichloropropane		U	25.0
142-28-9	1,3-Dichloropropane		U	25.0
590-20-7	2,2-Dichloropropane		U	25.0
563-58-6	1,1-Dichloropropene		U	25.0
1006-01-5	cis-1,3-Dichloropropene		U	25.0
1006-02-6	trans-1,3-Dichloropropene		U	25.0
100-41-4	Ethylbenzene		U	25.0

(Continued on page 3.)

ANALYTICAL REPORT
 SLD Accession No. OR-93-1091
 Continuation, Page 3 of 4

87-68-3	Hexachlorobutadiene		U	25.0
98-82-8	Isopropylbenzene		U	25.0
99-87-6	4-Isopropyltoluene		U	25.0
75-09-2	Methylene chloride		U	25.0
90-12-0	1-Methylnaphthalene		U	25.0
91-57-6	2-Methylnaphthalene		U	25.0
91-20-3	Naphthalene		U	25.0
103-65-1	n-Propylbenzene		U	25.0
100-42-5	Styrene		U	25.0
630-20-6	1,1,1,2-Tetrachloroethane		U	25.0
79-34-5	1,1,2,2-Tetrachloroethane		U	25.0
127-18-4	Tetrachloroethene		U	25.0
109-99-9	Tetrahydrofuran (THF)		U	125.0
108-88-3	Toluene		U	25.0
87-61-5	1,2,3-Trichlorobenzene		U	25.0
120-82-1	1,2,4-Trichlorobenzene		U	25.0
71-55-6	1,1,1-Trichloroethane		U	25.0
79-00-5	1,1,2-Trichloroethane		U	25.0
79-01-6	Trichloroethene		U	25.0
75-69-4	Trichlorofluoromethane		U	25.0
96-18-4	1,2,3-Trichloropropane		U	25.0
95-63-6	1,2,4-Trimethylbenzene		U	25.0
108-67-8	1,3,5-Trimethylbenzene		U	25.0
75-01-4	Vinyl chloride		U	25.0
95-47-6	o-Xylene		U	25.0
N/A	p- & m-Xylene		U	25.0

- * CONC = CONCENTRATION DETERMINED
 PQL = Practical Quantitation Limit (Approximately 10 times MDL)
 * Q = Qualifier Definitions:
 B - Indicates compound was detected in the Lab Blank as well as in the sample.
 D - Indicates value taken from a secondary (diluted) sample analysis.
 E - Indicates compound concentration exceeded the range of the standard curve.
 J - Indicates an estimated value for tentatively identified compounds, or for compounds detected and identified but present at a concentration less than the quantitation limit.
 N - Indicates that more than one peak was used for quantitation.
 U - Indicates compound was analyzed for, but not detected above the concentration listed (Quantitation Limit).

(Continued on page 4.)

QUALITY CONTROL SUMMARY FOR VOLATILES SCREEN

METHOD BLANK: A laboratory method blank was analyzed along with this sample to assure the absence of interfering contaminants from lab reagents, instruments, or the general laboratory environment. Unless listed below, no contaminants were detected in this blank above the reported detection limit.

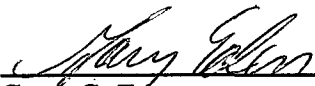
COMPOUND DETECTED	CONCENTRATION (PPB)
1,1-dichloroethene	0.2
methylene chloride	0.4

SURROGATE RECOVERIES:

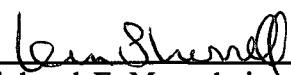
SURROGATE	CONCENTRATION	% RECOVERY
Bromofluorobenzene	25.0 ppb	100.1
2-Bromo-1-chloropropane	25.0 ppb	102.6

SPIKE RECOVERY: The % recoveries for compounds in the batch spike were from 80% to 120% with the exception of the compounds listed below:

COMPOUND	CONCENTRATION	% RECOVERY
trichloroethene	25.0 ppb	138.4
1,1,2,2-tetrachloroethane	25.3 ppb	71.1

Analyst: 

Gary C. Eden
Analyst, Organic Chemistry

Reviewed By: 

Richard F. Meyerhein 06/16/93
Supervisor, Organic Chemistry Section

ORGANIC CHEMISTRY ANALYTICAL REQUEST FORM

SCIENTIFIC LABORATORY DIVISION

700 CAMINO DE SALUD N.E., ALBUQUERQUE, NM 87106

Organic Chemistry Section - Telephone: (505) 841-2570

SLD No. **OR93 1091 C**Date Received: **5/14/93**Request ID No. **022261-C**

2 User Code #: **7 0 3 2 0** 3 Request ID No.: **022261-C** 4 Priority Code #: **1** (If "1" or "2", call EIO-SLD Coordinator)

5 Facility Name: **Navajo Refinery** 6 County: **Eddy** 7 City: **Artesia** 8 State: **NM**

9 Sample Location: **N.E. POND EFFLUENT**

10 Collected By: **Kathy Brown** On: **93 05 13** At: **0930** hrs. First Last Date: (YY/MM/DD) Time: 24 hr. clock 3:00 pm = 1500 hrs.

11 Codes: Submitter WSS # Organization 12 Latitude (DDMMSS) Longitude (DDMMSS) 2 Digit ID (if needed)

13 Report To: **David G. Boyer** 14 Phone #: **(505) 827-5812**

Address: **New Mexico Oil Conservation Division** P. O. Box 2088 City, State Zip: **Santa Fe, New Mexico 87504-2088** 15 Sampling Information: Sample Purpose: ☒ Compliance ☒ Check ☒ Monitoring ☐ Special ☐ Grab ☐ Composite (Composite Time Period) ☐ Flow Proportioned ☐ Equal Aliquot ☐ Sample Split w/Permittee ☐ Chain of Custody

16 Field Data: pH: _____, Conductivity: **10900** umhos @ _____ °C, Temperature: **23** °C, Chlorine Residual: _____ mg/l, Flow: _____

17 Sample Source: ☐ Stream ☐ Lake ☐ Drain ☐ Pool ☐ WWTP ☐ Well; Depth: _____ ☐ Spring ☐ Distribution ☒ Point-of-Entry ☒ Other: **Pond** 18 Field Notes/Sample #:

19 Sample Type: ☐ Water, ☐ Soil, ☐ Food, ☒ Wastewater, ☐ Other _____ This form accompanies a single sample consisting of: **2** - septum vial(s) (volume = **40 ml each**) _____ - glass jugs (volume = _____) (volume = _____) 20 Preservation: ☐ NP No Preservation; Sample stored at room temperature ☐ P-ice Sample stored in an ice bath (Not Frozen) ☐ P-TS Sample Preserved with Sodium Thiosulfate to remove chlorine residual ☐ P-HCl Sample Preserved with Hydrochloric Acid (2 drops/40 ml) ☒ Other **Hg Cl2**

21 Analyses Requested: Please check the appropriate box(es) below to indicate the type of analytical screen(s) required. Whenever possible, list specific compounds suspected or required.

Volatile Screens:

- ☐ - (753) Aliphatic Headspace (1-5 Carbons)
☒ - (754) Aromatic & Halogenated Purgeables (EPA 601 & 602)
☐ - (765) Mass Spectrometer Purgeables (EPA 624)
☐ - (766) SDWA Total Trihalomethanes (EPA 501.1)
☐ - (774) SDWA VOC's I [8 Regulated +] (EPA 502.2)
☐ - (775) SDWA VOC's II [EDB & DBCP] (EPA 504)

Other Specific Compounds or Classes:

- ☐ - { }
☐ - { }
☐ - { }

Semivolatile Screens:

- ☐ - (763) Acid Extractables
☐ - (751) Aliphatic Hydrocarbons
☐ - (755) Base/Neutral Extractables (EPA 625)
☐ - (756) Base/Neutral/Acid Extractables (EPA 8270)
☐ - (758) Herbicides, Chlorophenoxy Acid
☐ - (759) Herbicides, Triazines
☐ - (760) Organochlorine Pesticides
☐ - (761) Organophosphate Pesticides
☐ - (767) Polychlorinated Biphenyls (PCB's)
☐ - (764) Polynuclear Aromatic Hydrocarbons
☐ - (762) SDWA Pesticides & Herbicides

Remarks:

SCIENTIFIC LABORATORY DIVISION

P.O. Box 4700
Albuquerque, NM 87196-4700700 Camino de Salud, NE
[505]-841-2500

ORGANIC CHEMISTRY SECTION [505]-841-2570

June 16, 1993

Request
ID No. 022263**ANALYTICAL REPORT**
SLD Accession No. OR-93-1089Distribution☐ User 70320
☒ Submitter 260
☒ SLD FilesTo: David Boyer
NM Oil Conserv. Div.
State Land Office Bldg.
P.O. Box 2088
Santa Fe, NM 87504-2088From: Organic Chemistry Section
Scientific Laboratory Div.
700 Camino de Salud, NE
Albuquerque, NM 87106

Re: A water, purgeable sample submitted to this laboratory on May 14, 1993

DEMOGRAPHIC DATA

COLLECTION		LOCATION
On: 13-May-93	By: Bro . . .	Monitor Well No 18
At: 13:45 hrs.	In/Near: Artesia	

ANALYTICAL RESULTS: Aromatic & Halogenated Purgeable [EPA-601/2] Screen {754}

Parameter	Value	Note	MDL	Units
EPA 601/2 Volatiles (60)	0.00	N	1.00	ppb

See Laboratory Remarks for Additional Information

Notations & Comments:

MDL = Minimal Detectable Level.

A = Approximate Value; N = None Detected above Detection Limit; P = Compound Present, but not quantified;
T = Trace (<Detection Limit); U = Compound Identity Not Confirmed.Evidentiary Seals: Not Sealed ☒; Intact: No ☐, Yes ☐ & Broken By: _____ Date: _____Laboratory Remarks:

VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: NM SCIENTIFIC LABORATORY DIVISION	Contract: N/A
Lab Code: N/A Case No.: N/A	SAS No.: N/A SDG No.: N/A
Matrix: (soil/water) Water	Lab Sample ID: OR-93-1089
Sample wt/vol: 5.0 (g/mL) mL	SLD Batch No: 162
Level: (low/med) Low	Date Received: 05/14/93
% Moisture: not dec. N/A dec. N/A	Date Extracted: N/A
Extraction: (SepF/Cont/Sonc) N/A	Date Analyzed: 05/27/93
GPC Cleanup: (Y/N) No pH: _____	Dilution Factor: 1
	CONCENTRATION UNITS:
	(ug/L or ug/Kg): _____ ug/L

This sample was analyzed for the following compounds
using EPA Methods 601 & 602

CAS NO.	COMPOUND	CONC.	Q	POL
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(Continued on page 2.)

ANALYTICAL REPORT
 SLD Accession No. OR-93-1089
 Continuation, Page 2 of 4

67-64-1	Acetone	U	5.0
71-43-2	Benzene	U	1.0
108-86-1	Bromobenzene	U	1.0
74-97-5	Bromochloromethane	U	1.0
75-27-4	Bromodichloromethane	U	1.0
75-25-2	Bromoform	U	1.0
78-93-3	2-Butanone (MEK)	U	5.0
104-51-8	n-Butylbenzene	U	1.0
135-98-8	sec-Butylbenzene	U	1.0
98-06-6	tert-Butylbenzene	U	1.0
1634-04-4	tert-Butyl methyl ether (MTBE)	U	5.0
56-23-5	Carbon tetrachloride	U	1.0
108-90-7	Chlorobenzene	U	1.0
67-66-3	Chloroform	U	1.0
95-49-8	2-Chlorotoluene	U	1.0
106-43-4	4-Chlorotoluene	U	1.0
96-12-8	1,2-Dibromo-3-chloropropane	U	1.0
124-48-1	Dibromochloromethane	U	1.0
106-93-4	1,2-Dibromoethane	U	1.0
74-95-3	Dibromomethane	U	1.0
95-50-1	1,2-Dichlorobenzene	U	1.0
541-73-1	1,3-Dichlorobenzene	U	1.0
106-46-7	1,4-Dichlorobenzene	U	1.0
75-71-8	Dichlorodifluoromethane	U	1.0
75-34-3	1,1-Dichloroethane	U	1.0
107-06-2	1,2-Dichloroethane	U	1.0
75-35-4	1,1-Dichloroethene	U	1.0
156-59-4	cis-1,2-Dichloroethene	U	1.0
156-60-5	trans-1,2-Dichloroethene	U	1.0
78-87-5	1,2-Dichloropropane	U	1.0
142-28-9	1,3-Dichloropropane	U	1.0
590-20-7	2,2-Dichloropropane	U	1.0
563-58-6	1,1-Dichloropropene	U	1.0
1006-01-5	cis-1,3-Dichloropropene	U	1.0
1006-02-6	trans-1,3-Dichloropropene	U	1.0
100-41-4	Ethylbenzene	U	1.0
87-68-3	Hexachlorobutadiene	U	1.0
98-82-8	Isopropylbenzene	U	1.0
99-87-6	4-Isopropyltoluene	U	1.0
75-09-2	Methylene chloride	U	1.0
90-12-0	1-Methylnaphthalene	U	1.0
91-57-6	2-Methylnaphthalene	U	1.0

(Continued on page 3.)

ANALYTICAL REPORT
 SLD Accession No. OR-93-1089
 Continuation, Page 3 of 4

91-20-3	Naphthalene		U	1.0
103-65-1	n-Propylbenzene		U	1.0
100-42-5	Styrene		U	1.0
630-20-6	1,1,1,2-Tetrachloroethane		U	1.0
79-34-5	1,1,2,2-Tetrachloroethane		U	1.0
127-18-4	Tetrachloroethene		U	1.0
109-99-9	Tetrahydrofuran (THF)		U	5.0
108-88-3	Toluene		U	1.0
87-61-5	1,2,3-Trichlorobenzene		U	1.0
120-82-1	1,2,4-Trichlorobenzene		U	1.0
71-55-6	1,1,1-Trichloroethane		U	1.0
79-00-5	1,1,2-Trichloroethane		U	1.0
79-01-6	Trichloroethene		U	1.0
75-69-4	Trichlorofluoromethane		U	1.0
96-18-4	1,2,3-Trichloropropane		U	1.0
95-63-6	1,2,4-Trimethylbenzene		U	1.0
108-67-8	1,3,5-Trimethylbenzene		U	1.0
75-01-4	Vinyl chloride		U	1.0
95-47-6	o-Xylene		U	1.0
N/A	p- & m-Xylene		U	1.0

* CONC = CONCENTRATION DETERMINED

PQL = Practical Quantitation Limit (Approximately 10 times MDL)

* Q = Qualifier Definitions:

B - Indicates compound was detected in the Lab Blank as well as in the sample.

D - Indicates value taken from a secondary (diluted) sample analysis.

E - Indicates compound concentration exceeded the range of the standard curve.

J - Indicates an estimated value for tentatively identified compounds, or for compounds detected and identified but present at a concentration less than the quantitation limit.

N - Indicates that more than one peak was used for quantitation.

U - Indicates compound was analyzed for, but not detected above the concentration listed (Quantitation Limit).

QUALITY CONTROL SUMMARY FOR VOLATILES SCREEN

METHOD BLANK: A laboratory method blank was analyzed along with this sample to assure the absence of interfering contaminants from lab reagents, instruments, or the general laboratory

(Continued on page 4.)

ANALYTICAL REPORT
SLD Accession No. OR-93-1089
Continuation, Page 4 of 4

environment. Unless listed below, no contaminants were detected in this blank above the reported detection limit.

COMPOUND DETECTED	CONCENTRATION (PPB)
1,1-dichloroethene	0.2
methylene chloride	0.4

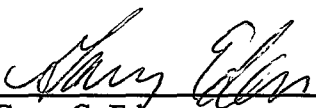
SURROGATE RECOVERIES:

SURROGATE	CONCENTRATION	% RECOVERY
Bromofluorobenzene	25.0 ppb	105.0
2-Bromo-1-chloropropane	25.0 ppb	104.8

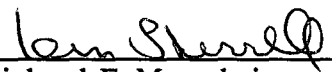
SPIKE RECOVERY: The % recoveries for compounds in the batch spike were from 80% to 120% with the exception of the compounds listed below:

COMPOUND	CONCENTRATION	% RECOVERY
trichloroethene	25.0 ppb	138.4
1,1,2,2-tetrachloroethane	25.3 ppb	71.1

Analyst:


Gary C. Eden
Analyst, Organic Chemistry

Reviewed By:


Richard F. Meyerhein 06/16/93
Supervisor, Organic Chemistry Section

ORGANIC CHEMISTRY ANALYTICAL REQUEST FORM

SCIENTIFIC LABORATORY DIVISION

700 CAMINO DE SALUD N.E., ALBUQUERQUE, NM 87106

Organic Chemistry Section - Telephone: (505) 841-2570

SLD No **OR93 1089 C**Date Received: **5/14/93**Request ID No. **022263-C**

2 User Code #: <u>7103210</u>		3 Request ID No.: <u>022263-C</u>		4 Priority Code #: <u> </u>		8 State: <u>NM</u>	
5 Facility Name: <u>Navajo Refinery</u>				6 County: <u>Eddy</u>		7 City: <u>Artesia</u>	
9 Sample Location: <u>Maintenance Well No. 118</u>							
10 Collected By: <u>Kathy Birbawn</u>				On: <u>93/05/13</u>		At: <u>113415</u> hrs.	
11 Codes: Submitter: <u> </u> WSS #: <u> </u> Organization: <u> </u>				12 Latitude (DDMMSS): <u> </u> Longitude (DDMMSS): <u> </u>			
13 Report To: <u>David G. Boyer</u> Address: <u>New Mexico Oil Conservation Division</u> <u>P. O. Box 2088</u> City, State Zip: <u>Santa Fe, New Mexico 87504-2088</u>				14 Phone #: <u>(505) 827-5812</u>			
15 Sampling Information: Sample Purpose: ☒ Compliance ☐ Grab ☐ Check ☐ Composite ☒ Monitoring ☐ Flow Proportioned ☐ Special ☐ Equal Aliquot ☐ Chain of Custody ☐ Sample Split w/Permittee				16 Field Data: pH: <u> </u> , Conductivity: <u> </u> umhos @ <u> </u> °C, Temperature: <u> </u> °C, Chlorine Residual: <u> </u> mg/l, Flow: <u> </u>			
17 Sample Source: ☐ Stream ☒ Well; Depth: <u>70 22.07' DTW 16.55'</u> ☐ Lake ☐ Spring ☐ Drain ☐ Distribution ☐ Pool ☐ Point-of-Entry ☐ WWTP ☐ Other: <u> </u>				18 Field Notes/Sample #: <u> </u> <u> </u> <u> </u>			
19 Sample Type: ☐ Water, ☐ Soil, ☐ Food, ☐ Wastewater, ☐ Other This form accompanies a <u>single sample</u> consisting of: <u>2</u> - septum vial(s) (volume = <u>40 ml each</u>) <u> </u> - glass jugs (volume = <u> </u>) <u> </u> - (volume = <u> </u>)				20 Preservation: ☐ NP No Preservation; Sample stored at room temperature ☐ P-ice Sample stored in an ice bath (Not Frozen) ☐ P-TS Sample Preserved with Sodium Thiosulfate to remove chlorine residual ☐ P-HCl Sample Preserved with Hydrochloric Acid (2 drops/40 ml) ☒ Other <u>15 C</u>			
21 Analyses Requested: Please check the appropriate box(es) below to indicate the type of analytical screen(s) required. Whenever possible, list specific compounds suspected or required.							
Volatile Screens: ☐ (753) Aliphatic Headspace (1-5 Carbons) ☒ (754) Aromatic & Halogenated Purgeables (EPA 601 & 602) ☐ (765) Mass Spectrometer Purgeables (EPA 624) ☐ (766) SDWA Total Trihalomethanes (EPA 501.1) ☐ (774) SDWA VOC's I [8 Regulated +] (EPA 502.2) ☐ (775) SDWA VOC's II [EDB & DBCP] (EPA 504) Other Specific Compounds or Classes: ☐ - () <u> </u> ☐ - () <u> </u> ☐ - () <u> </u>				Semivolatile Screens: ☐ (763) Acid Extractables ☐ (751) Aliphatic Hydrocarbons ☐ (755) Base/Neutral Extractables (EPA 625) ☐ (756) Base/Neutral/Acid Extractables (EPA 8270) ☐ (758) Herbicides, Chlorophenoxy Acid ☐ (759) Herbicides, Triazines ☐ (760) Organochlorine Pesticides ☐ (761) Organophosphate Pesticides ☐ (767) Polychlorinated Biphenyls (PCB's) ☐ (764) Polynuclear Aromatic Hydrocarbons ☐ (762) SDWA Pesticides & Herbicides			
Remarks: <u> </u> <u> </u> <u> </u> <u> </u>							

SCIENTIFIC LABORATORY DIVISION

P.O. Box 4700
Albuquerque, NM 87196-4700700 Camino de Salud, NE
[505]-841-2500

ORGANIC CHEMISTRY SECTION [505]-841-2570

June 16, 1993

Request
ID No. 022262**ANALYTICAL REPORT**
SLD Accession No. OR-93-1090Distribution☐ User 70320
☒ Submitter 260
☒ SLD FilesTo: David Boyer
NM Oil Conserv. Div.
State Land Office Bldg.
P.O. Box 2088
Santa Fe, NM 87504-2088From: Organic Chemistry Section
Scientific Laboratory Div.
700 Camino de Salud, NE
Albuquerque, NM 87106

Re: A water, purgeable sample submitted to this laboratory on May 14, 1993

DEMOGRAPHIC DATA

COLLECTION		LOCATION
On: 13-May-93	By: Bro . . .	Monitor Well No. 46
At: 11:40 hrs.	In/Near: Artesia	

ANALYTICAL RESULTS: Aromatic & Halogenated Purgeable [EPA-601/2] Screen (754)

Parameter	Value	Note	MDL	Units
Halogenated Volatiles (42)	0.00	N	25.00	ppb

See Laboratory Remarks for Additional Information

Notations & Comments:

MDL = Minimal Detectable Level.

A = Approximate Value; N = None Detected above Detection Limit; P = Compound Present, but not quantified;
T = Trace (<Detection Limit); U = Compound Identity Not Confirmed.Evidentiary Seals: Not Sealed ☒; Intact: No ☐, Yes ☐ & Broken By: _____ Date: _____Laboratory Remarks:

One compound eluting near o-xylene at 25-50 ppb was detected by the photoionization detector but not identified.

Foamy sample; unable to achieve a lower detection limit.

VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: NM SCIENTIFIC LABORATORY DIVISION	Contract: N/A
Lab Code: N/A Case No.: N/A	SAS No.: N/A SDG No.: N/A
Matrix: (soil/water) Water	Lab Sample ID: OR-93-1090
Sample wt/vol: 5.0 (g/mL) mL	SLD Batch No: 162
Level: (low/med) Low	Date Received: 05/14/93
% Moisture: not dec. N/A dec. N/A	Date Extracted: N/A
Extraction: (SepF/Cont/Sonc) N/A	Date Analyzed: 05/28/93
GPC Cleanup: (Y/N) No pH: _____	Dilution Factor: 1/25

(Continued on page 2.)

ANALYTICAL REPORT
 SLD Accession No. OR-93-1090
 Continuation, Page 2 of 4

CONCENTRATION UNITS:

(ug/L or ug/Kg): ug/L

This sample was analyzed for the following compounds
 using EPA Methods 601 & 602

CAS NO.	COMPOUND	CONC.	Q	PQL
67-64-1	Acetone		U	125.0
71-43-2	Benzene		U	25.0
108-86-1	Bromobenzene		U	25.0
74-97-5	Bromochloromethane		U	25.0
75-27-4	Bromodichloromethane		U	25.0
75-25-2	Bromoform		U	25.0
78-93-3	2-Butanone (MEK)		U	125.0
104-51-8	n-Butylbenzene		U	25.0
135-98-8	sec-Butylbenzene		U	25.0
98-06-6	tert-Butylbenzene		U	25.0
1634-04-4	tert-Butyl methyl ether (MTBE)		U	125.0
56-23-5	Carbon tetrachloride		U	25.0
108-90-7	Chlorobenzene		U	25.0
67-66-3	Chloroform		U	25.0
95-49-8	2-Chlorotoluene		U	25.0
106-43-4	4-Chlorotoluene		U	25.0
96-12-8	1,2-Dibromo-3-chloropropane		U	25.0
124-48-1	Dibromochloromethane		U	25.0
106-93-4	1,2-Dibromoethane		U	25.0
74-95-3	Dibromomethane		U	25.0
95-50-1	1,2-Dichlorobenzene		U	25.0
541-73-1	1,3-Dichlorobenzene		U	25.0
106-46-7	1,4-Dichlorobenzene		U	25.0
75-71-8	Dichlorodifluoromethane		U	25.0
75-34-3	1,1-Dichloroethane		U	25.0
107-06-2	1,2-Dichloroethane		U	25.0
75-35-4	1,1-Dichloroethene		U	25.0
156-59-4	cis-1,2-Dichloroethene		U	25.0
156-60-5	trans-1,2-Dichloroethene		U	25.0
78-87-5	1,2-Dichloropropane		U	25.0
142-28-9	1,3-Dichloropropane		U	25.0
590-20-7	2,2-Dichloropropane		U	25.0
563-58-6	1,1-Dichloropropene		U	25.0
1006-01-5	cis-1,3-Dichloropropene		U	25.0
1006-02-6	trans-1,3-Dichloropropene		U	25.0
100-41-4	Ethylbenzene		U	25.0

(Continued on page 3.)

ANALYTICAL REPORT
 SLD Accession No. OR-93-1090
 Continuation, Page 3 of 4

87-68-3	Hexachlorobutadiene		U	25.0
98-82-8	Isopropylbenzene		U	25.0
99-87-6	4-Isopropyltoluene		U	25.0
75-09-2	Methylene chloride		U	25.0
90-12-0	1-Methylnaphthalene		U	25.0
91-57-6	2-Methylnaphthalene		U	25.0
91-20-3	Naphthalene		U	25.0
103-65-1	n-Propylbenzene		U	25.0
100-42-5	Styrene		U	25.0
630-20-6	1,1,1,2-Tetrachloroethane		U	25.0
79-34-5	1,1,2,2-Tetrachloroethane		U	25.0
127-18-4	Tetrachloroethene		U	25.0
109-99-9	Tetrahydrofuran (THF)		U	125.0
108-88-3	Toluene		U	25.0
87-61-5	1,2,3-Trichlorobenzene		U	25.0
120-82-1	1,2,4-Trichlorobenzene		U	25.0
71-55-6	1,1,1-Trichloroethane		U	25.0
79-00-5	1,1,2-Trichloroethane		U	25.0
79-01-6	Trichloroethene		U	25.0
75-69-4	Trichlorofluoromethane		U	25.0
96-18-4	1,2,3-Trichloropropane		U	25.0
95-63-6	1,2,4-Trimethylbenzene		U	25.0
108-67-8	1,3,5-Trimethylbenzene		U	25.0
75-01-4	Vinyl chloride		U	25.0
95-47-6	o-Xylene		U	25.0
N/A	p- & m-Xylene		U	25.0

* CONC = CONCENTRATION DETERMINED

PQL = Practical Quantitation Limit (Approximately 10 times MDL)

* Q = Qualifier Definitions:

B - Indicates compound was detected in the Lab Blank as well as in the sample.

D - Indicates value taken from a secondary (diluted) sample analysis.

E - Indicates compound concentration exceeded the range of the standard curve.

J - Indicates an estimated value for tentatively identified compounds, or for compounds detected and identified but present at a concentration less than the quantitation limit.

N - Indicates that more than one peak was used for quantitation.

U - Indicates compound was analyzed for, but not detected above the concentration listed (Quantitation Limit).

(Continued on page 4.)

QUALITY CONTROL SUMMARY FOR VOLATILES SCREEN

METHOD BLANK: A laboratory method blank was analyzed along with this sample to assure the absence of interfering contaminants from lab reagents, instruments, or the general laboratory environment. Unless listed below, no contaminants were detected in this blank above the reported detection limit.

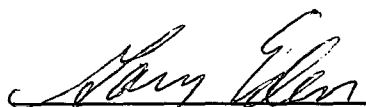
COMPOUND DETECTED	CONCENTRATION (PPB)
1,1-dichloroethene	0.2
methylene chloride	0.4

SURROGATE RECOVERIES:

SURROGATE	CONCENTRATION	% RECOVERY
Bromofluorobenzene	25.0 ppb	105.2
2-Bromo-1-chloropropane	25.0 ppb	106.1

SPIKE RECOVERY: The % recoveries for compounds in the batch spike were from 80% to 120% with the exception of the compounds listed below:

COMPOUND	CONCENTRATION	% RECOVERY
trichloroethene	25.0 ppb	138.4
1,1,2,2-tetrachloroethane	25.3 ppb	71.1

Analyst: 

Gary C. Eden
Analyst, Organic Chemistry

Reviewed By: 

Richard F. Meyerhein 06/16/93
Supervisor, Organic Chemistry Section

ORGANIC CHEMISTRY ANALYTICAL REQUEST FORM

SCIENTIFIC LABORATORY DIVISION
700 CAMINO DE SALUD N.E., ALBUQUERQUE, NM 87106
Organic Chemistry Section - Telephone: (505) 841-2570

SLD No 0R93 1090 C

Date Received: 5/14/93

2 User Code #: 70320	3 Request ID No.:	Request ID No. 022262-C	4 Priority Code #:	7 City: Artesia	8 State: NM
5 Facility Name: Navajo Refinery		6 County: Eddy			

9 Sample Location: MONITOR WELL NO. 46	10 Collected By: Kathy Brown	On: 93/05/13	At: 1140 hrs.
First Last		Date: (YY/MM/DD)	Time: 24 hr. clock 3:00 pm = 1500 hrs.

11 Codes:	12 Latitude (DDMMSS)
Submitter WSS # Organization	Longitude (DDMMSS) 2 Digit ID (if needed)
13 Report To: David G. Boyer	14 Phone #: (505) 827-5812
Address: New Mexico Oil Conservation Division	
P. O. Box 2088	
City, State Zip: Santa Fe, New Mexico 87504-2088	

16 Field Data: pH: , Conductivity: 4600 umhos @ °C, Temperature: 19 °C, Chlorine Residual: mg/l, Flow:
--

17 Sample Source:	18 Field Notes/ Sample #:
☐ Stream ☒ Well; Depth: TD 19.77' DTW 10.52' ☐ Lake ☐ Spring ☐ Drain ☐ Distribution ☐ Pool ☐ Point-of-Entry ☐ WWTP ☐ Other:	

19 Sample Type: ☒ Water, ☐ Soil, ☐ Food, ☐ Wastewater, ☐ Other	20 Preservation:
This form accompanies a single sample consisting of:	☐ NP No Preservation; Sample stored at room temperature ☐ P-ice Sample stored in an ice bath (Not Frozen) ☐ P-TS Sample Preserved with Sodium Thiosulfate to remove chlorine residual ☐ P-HCl Sample Preserved with Hydrochloric Acid (2 drops/40 ml) ☒ Other HgCl2
2 - septum vial(s) (volume = 40 ml each)	
- glass jugs (volume =)	
- (volume =)	

21 Analyses Requested: Please check the appropriate box(es) below to indicate the type of analytical screen(s) required. Whenever possible, list specific compounds suspected or required.

Volatile Screens:

- ☐ - (753) Aliphatic Headspace (1-5 Carbons)
- ☒ - (754) Aromatic & Halogenated Purgeables (EPA 601 & 602)
- ☐ - (765) Mass Spectrometer Purgeables (EPA 624)
- ☐ - (766) SDWA Total Trihalomethanes (EPA 501.1)
- ☐ - (774) SDWA VOC's I [8 Regulated +] (EPA 502.2)
- ☐ - (775) SDWA VOC's II [EDB & DBCP] (EPA 504)

Other Specific Compounds or Classes:

- ☐ - ()
- ☐ - ()
- ☐ - ()

Semivolatile Screens:

- ☐ - (763) Acid Extractables
- ☐ - (751) Aliphatic Hydrocarbons
- ☐ - (755) Base/Neutral Extractables (EPA 625)
- ☐ - (756) Base/Neutral/Acid Extractables (EPA 8270)
- ☐ - (758) Herbicides, Chlorophenoxy Acid
- ☐ - (759) Herbicides, Triazines
- ☐ - (760) Organochlorine Pesticides
- ☐ - (761) Organophosphate Pesticides
- ☐ - (767) Polychlorinated Biphenyls (PCB's)
- ☐ - (764) Polynuclear Aromatic Hydrocarbons
- ☐ - (762) SDWA Pesticides & Herbicides

Remarks:



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 214/984-0551

Analytical Chemistry • Waste Treatment & Disposal • Equipment Sales

10/09/90

Environmental Bureau NM Oil D.
PO Box 2088
Santa Fe, NM 87504

Sample Identification: #9008011640 Navajo Refinery
Collected By: Anderson/Olson
Date & Time Taken: 08/01/90 1640
Other:

Discharge pipe at outfall into evap Pond.

Lab Sample Number: 170087

Received: 08/03/90

Client: SNM1

PARAMETER	RESULTS	UNITS	TIME	DATE	METHOD	BY
Acrolein	<200	ug/l	1544	09/26/90	EPA Method 8240	PM
Acrylonitrile	<200	ug/l	1544	09/26/90	EPA Method 8240	PM
Benzene	1740	ug/l	1544	09/26/90	EPA Method 8240	PM
Bromoform	<10	ug/l	1544	09/26/90	EPA Method 8240	PM
Bromomethane	<20	ug/l	1544	09/26/90	EPA Method 8240	PM
Carbon Tetrachloride	<10	ug/l	1544	09/26/90	EPA Method 8240	PM
Chlorobenzene	<10	ug/l	1544	09/26/90	EPA Method 8240	PM
Chloroethane	<20	ug/l	1544	09/26/90	EPA Method 8240	PM
2-Chloroethylvinyl ether	<20	ug/l	1544	09/26/90	EPA Method 8240	PM
Chloroform	<10	ug/l	1544	09/26/90	EPA Method 8240	PM
Chloromethane	<20	ug/l	1544	09/26/90	EPA Method 8240	PM
Dibromochloromethane	<10	ug/l	1544	09/26/90	EPA Method 8240	PM
Bromodichloromethane	<10	ug/l	1544	09/26/90	EPA Method 8240	PM
1,1-Dichloroethane	<10	ug/l	1544	09/26/90	EPA Method 8240	PM
1,2-Dichloroethane	<10	ug/l	1544	09/26/90	EPA Method 8240	PM
1,1-Dichloroethene	<10	ug/l	1544	09/26/90	EPA Method 8240	PM

Continued



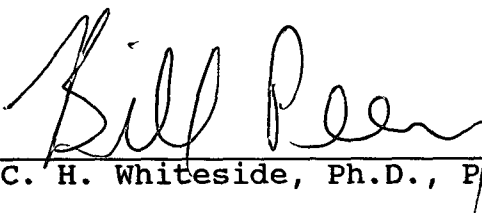
2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 214/984-0551

Analytical Chemistry • Waste Treatment & Disposal • Equipment Sales

170087 Continued

Page 2

PARAMETER	RESULTS	UNITS	TIME	DATE	METHOD	BY
trans-1,2-Dichloroethene	<10	ug/l	1544	09/26/90	EPA Method 8240	PM
1,2-Dichloropropane	<10	ug/l	1544	09/26/90	EPA Method 8240	PM
cis-1,3-Dichloropropene	<10	ug/l	1544	09/26/90	EPA Method 8240	PM
Ethyl benzene	194	ug/l	1544	09/26/90	EPA Method 8240	PM
Methylene Chloride	<10	ug/l	1544	09/26/90	EPA Method 8240	PM
1,1,2,2-Tetrachloroethane	<10	ug/l	1544	09/26/90	EPA Method 8240	PM
Tetrachloroethene	<10	ug/l	1544	09/26/90	EPA Method 8240	PM
Toluene	2232	ug/l	1544	09/26/90	EPA Method 8240	PM
1,1,1-Trichloroethane	<10	ug/l	1544	09/26/90	EPA Method 8240	PM
1,1,2-Trichloroethane	<10	ug/l	1544	09/26/90	EPA Method 8240	PM
Trichloroethene	<10	ug/l	1544	09/26/90	EPA Method 8240	PM
Vinyl Chloride	<20	ug/l	1544	09/26/90	EPA Method 8240	PM
trans-1,3-Dichloropropene	<10	ug/l	1544	09/26/90	EPA Method 8240	PM
Xylenes	850	ug/l	1544	09/26/90	EPA Method 8240	PM


C. H. Whiteside, Ph.D., President



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 214/984-0551

Analytical Chemistry • Waste Treatment & Disposal • Equipment Sales

10/09/90

Environmental Bureau NM Oil D.
PO Box 2088
Santa Fe, NM 87504

Sample Identification: #9008011720 Navajo Refinery
Collected By: Anderson/Olson
Date & Time Taken: 08/01/90 1720
Other:

Windmill South of West end of evap. Pond. Clean stock water. Low detection limits.

Lab Sample Number: 170088

Received: 08/03/90

Client: SNM1

PARAMETER	RESULTS	UNITS	TIME	DATE	METHOD	BY
Alkalinity	170	mg/l	0930	08/14/90	EPA Method 310.1	DG
Cation-Anion Balance	78.74/ 77.96	meq/meq	1600	08/21/90		NT
Carbonate	1.4	mg/l	1200	08/20/90	APHA Method 263	DG
Chloride	900	mg/l	1030	08/14/90	EPA Method 325.3	SW
Specific Conductance	6,000	Micromhos	1600	08/07/90	EPA Method 120.1	GS
Bicarbonate	160	mg/l	1200	08/20/90	APHA Method 263	DG
Sulfate	2000	mg/l	1100	08/16/90	EPA Method 375.4	DG
Total Dissolved Solids	4600 ***	mg/l	1100	10/09/90	EPA Method 160.1	WJP
pH	7.8	SU	1407	08/10/90	EPA Method 150.1	LW
Dissolved Calcium	390	mg/l	1815	08/13/90	EPA Method 215.1	GK
Dissolved Iron	<.05	mg/l	2145	08/09/90	EPA Method 236.1	GK
Dissolved Potassium	6.2	mg/l	1500	08/13/90	EPA Method 258.1	CD
Dissolved Magnesium	190	mg/l	1700	08/13/90	EPA Method 242.1	GK
Dissolved Sodium	1000	mg/l	2245	08/09/90	EPA Method 273.1	GK
Acrolein	<100	ug/l	1434	09/25/90	EPA Method 8240	PM
Acrylonitrile	<100	ug/l	1434	09/25/90	EPA Method 8240	PM

Continued



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 214/984-0551

Analytical Chemistry • Waste Treatment & Disposal • Equipment Sales

170088 Continued

Page 2

PARAMETER	RESULTS	UNITS	TIME	DATE	METHOD	BY
Benzene	<5	ug/l	1434	09/25/90	EPA Method 8240	PM
Bromoform	<5	ug/l	1434	09/25/90	EPA Method 8240	PM
Bromomethane	<10	ug/l	1434	09/25/90	EPA Method 8240	PM
Carbon Tetrachloride	<5	ug/l	1434	09/25/90	EPA Method 8240	PM
Chlorobenzene	<5	ug/l	1434	09/25/90	EPA Method 8240	PM
Chloroethane	<10	ug/l	1434	09/25/90	EPA Method 8240	PM
2-Chloroethylvinyl ether	<10	ug/l	1434	09/25/90	EPA Method 8240	PM
Chloroform	<5	ug/l	1434	09/25/90	EPA Method 8240	PM
Chloromethane	<10	ug/l	1434	09/25/90	EPA Method 8240	PM
Dibromochloromethane	<5	ug/l	1434	09/25/90	EPA Method 8240	PM
Bromodichloromethane	<5	ug/l	1434	09/25/90	EPA Method 8240	PM
1,1-Dichloroethane	<5	ug/l	1434	09/25/90	EPA Method 8240	PM
1,2-Dichloroethane	<5	ug/l	1434	09/25/90	EPA Method 8240	PM
1,1-Dichloroethene	<5	ug/l	1434	09/25/90	EPA Method 8240	PM
trans-1,2-Dichloroethene	<5	ug/l	1434	09/25/90	EPA Method 8240	PM
1,2-Dichloropropane	<5	ug/l	1434	09/25/90	EPA Method 8240	PM
cis-1,3-Dichloropropene	<5	ug/l	1434	09/25/90	EPA Method 8240	PM
Ethyl benzene	<5	ug/l	1434	09/25/90	EPA Method 8240	PM
Methylene Chloride	<5	ug/l	1434	09/25/90	EPA Method 8240	PM
1,1,2,2-Tetrachloroethane	<5	ug/l	1434	09/25/90	EPA Method 8240	PM
Tetrachloroethene	<5	ug/l	1434	09/25/90	EPA Method 8240	PM

Continued



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 214/984-0551

Analytical Chemistry • Waste Treatment & Disposal • Equipment Sales

170088 Continued

Page 3

PARAMETER	RESULTS	UNITS	TIME	DATE	METHOD	BY
Toluene	<5	ug/l	1434	09/25/90	EPA Method 8240	PM
1,1,1-Trichloroethane	<5	ug/l	1434	09/25/90	EPA Method 8240	PM
1,1,2-Trichloroethane	<5	ug/l	1434	09/25/90	EPA Method 8240	PM
Trichloroethene	<5	ug/l	1434	09/25/90	EPA Method 8240	PM
Vinyl Chloride	<10	ug/l	1434	09/25/90	EPA Method 8240	PM
trans-1,3-Dichloropropene	<5	ug/l	1434	09/25/90	EPA Method 8240	PM
Xylenes	<5	ug/l	1434	09/25/90	EPA Method 8240	PM

*** Calculated Value


C. H. Whiteside, Ph.D., President



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 214/984-0551

Analytical Chemistry • Waste Treatment & Disposal • Equipment Sales

Ana-Lab Corporation Laboratory

Balance for Sample 170088 #9008011720 Navajo Refinery

Test Name	Result (mg/l)	Cation (meq/l)	Anion (meq/l)
Cl- Chloride	900		25.38100
HCO3 Bicarbonate	160		2.62300
SO4 Sulfate	2000		49.96300
*CaD Dissolved Calcium	390	19.46100	
*FeD Dissolved Iron	<.05	.00000	
*KD Dissolved Potassium	6.2	.15900	
*MgD Dissolved Magnesium	190	15.62500	
*NaD Dissolved Sodium	1000	43.49700	
		78.742	77.966

Cation/Anion % Difference is 0.49

Calculated TDS is 4646.20

Analyzed TDS is 11000.00

% Difference is 40.61



New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

Harry Metelt
GENERAL WATER CHEMISTRY
and NITROGEN ANALYSIS

DATE RECEIVED	4/12/85	LAB NO	HM-0692	USER CODE	☐ 59300 ☐ 59600 ☒ OTHER: 82235
Collection DATE	04/10/85	SITE INFORMATION	Sample location: Recovery System #4, Navajo Refinery		
Collection TIME	0955	Collection site description	Water Pipe from water pump prior to discharge to ditch		
Collected by — Person/Agency	Boyer/Beck O&B				

SEND
FINAL
REPORT
TO

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87501

Attn: David Boyer

SAMPLING CONDITIONS

☐ Bailed ☐ Dipped	☒ Pump ☐ Tap	Water level	Discharge	Sample type
				Grab
pH (00400)	6.75	Conductivity (Uncorrected) μ mho	Water Temp. (00010) 19 °C	Conductivity at 25°C (00094) 2610 μ mho
Field comments: Aromatic odor (could be from ditch also)				

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted	1	☐ NF: Whole sample (Non-filtered)	☒ F: Filtered in field with 0.45 μ m membrane filter	☐ A: 2 ml H ₂ SO ₄ /L added
☐ NA: No acid added ☒ Other-specify: AHNO ₃				

ANALYTICAL RESULTS from SAMPLES

AF, NA AHNO ₃	Units	Date analyzed	F, NA	Units	Date analyzed
☐ Conductivity (Corrected) 25°C (00095)	μ mho		☐ Calcium (00915)	mg/l	
☐ Total non-filterable residue (suspended) (00530)	mg/l		☐ Magnesium (00925)	mg/l	
☒ Other: ICAP SCAN			☐ Sodium (00930)	mg/l	
☒ Other: AS	0.03	4-12-85	☐ Potassium (00935)	mg/l	
☐ Other:			☐ Bicarbonate (00440)	mg/l	
			☐ Chloride (00940)	mg/l	
			☐ Sulfate (00945)	mg/l	
			☐ Total filterable residue (dissolved) (70300)	ma/l	
			☐ Other:		
NF, A-H ₂ SO ₄			F, A-H ₂ SO ₄		
☐ Nitrate-N +, Nitrate-N total (00630)	mg/l		☐ Nitrate-N +, Nitrate-N dissolved (00631)	mg/l	
☐ Ammonia-N total (00610)	mg/l		☐ Ammonia-N dissolved (00608)	mg/l	
☐ Total Kjeldahl-N ()	mg/l		☐ Total Kjeldahl-N ()	mg/l	
☐ Chemical oxygen demand (00340)	mg/l		☐ Other:		
☐ Total organic carbon ()	mg/l				
☐ Other:					
☐ Other:					
Laboratory remarks			Analyst	Date Reported	Reviewed by
				6/12/85	Jim Rieley

ICAP SCREEN

Lab Number: # M692

Date Submitted: 4/12/85

By: Bayer/Baca

Sample Code: Recovery Sep #4

Date Reported: 6/13/85

By: Jim Kelly

Determination

Concentration (µg/ml)

Aluminum

<.10

Barium

.13

Beryllium

<.10

Boron

.20

Cadmium

<.10

Calcium

260.

Chromium

<.10

Cobalt

<.10

Copper

<.10

Iron

<.10

Lead

<.10

Magnesium

140.

Manganese

.42

Molybdenum

<.10

Nickel

<.10

Silicon

43.

Silver

<.10

Strontium

4.8

Tin

<.10

Vanadium

<.10

Yttrium

<.10

Zinc

<.10

ATOMIC ABSORPTION ANALYSES

Arsenic .03 $\mu\text{g/ml}$

Selenium _____ $\mu\text{g/ml}$

Mercury _____ $\mu\text{g/ml}$

REPORT TO:

David G. ~~yer~~

LABORATORY

New Mexico Oil Conservation Division

LAB NUMBER OR 6-334-17-B
4/12/85

P. O. Box 2088

85-0334 C

SLD Priority 3

Santa Fe, NM 87501

SLD Users Code No. 82235

ALL CONTAINERS WHICH THIS FORM ACCOMPANIES ARE COLLECTIVELY REFERRED TO AS "SAMPLE".



CERTIFICATE OF FIELD PERSONNEL

Sample Type: Water ☒ Soil ☐ Other ☐Water Supply and/or Code No. Pond 3, N.E. cornerCity & County Navajo Reservoir, Artesia Eddy CityCollected (date & time) 850410/1135 By (name) Boye, RacepH= 7.6; Conductivity= 6900 umho/cm at 19 °C; Chlorine Residual=

Dissolved Oxygen= mg/l; Alkalinity=; Flow Rate=

Sampling Location, Methods & Remarks (i.e. odors etc.)

Sample opposite MW #7 at NE corner
Aromatic odorI certify that the statements in this block accurately reflect the results of my field analyses, observations and activities. Signed David G. BoyeI certify that I witnessed these field analyses, observations and activities and concur with the statements in this block. Signed Philip L. RaceMethod of Shipment to Laboratory Hand CarriedTHIS FORM ACCOMPANIES 2 septum vials with teflon-lined discs identified as:specimen x; duplicate x; triplicate; blank(s)and 1 amber glass jug(s) with teflon-lined cap(s) identified as

and other container(s) (describe) identified as

Containers are marked as follows to indicate preservation (circle):

NP: No preservation; sample stored at room temperature (~20°C).

P-ICE: Sample stored in an ice bath.

P-Na₂O₃S₂: Sample preserved with 3 mg Na₂O₃S₂/40 ml and stored at room temperature.

CERTIFICATE(S) OF SAMPLE RECEIPT

I (we) certify that this sample was transferred from to

at (location) on

(date & time) and that the statements in this block are correct.

Disposition of Sample. Seal(s) Intact: Yes ☐ No ☐

Signature(s)

I (we) certify that this sample was transferred from to

at (location) on

(date & time) and that the statements in this block are correct.

Disposition of Sample. Seal(s) Intact: Yes ☐ No ☐

Signature(s)

ANALYSES REQUESTED

LAB. No.: ORG- 334

PLEASE CHECK THE APPROPRIATE BOXES BELOW TO INDICATE THE TYPE OF ANALYTICAL SCREENS REQUIRED. WHENEVER POSSIBLE LIST SPECIFIC COMPOUNDS SUSPECTED OR REQUIRED.

QUALITATIVE	QUANTITATIVE	PURGEABLE SCREENS	QUALITATIVE	QUANTITATIVE	EXTRACTABLE SCREENS
		ALIPHATIC HYDROCARBON SCREEN			ALIPHATIC HYDROCARBONS
		AROMATIC HYDROCARBON SCREEN			CHLORINATED HYDROCARBON PESTICIDES
		HALOGENATED HYDROCARBON SCREEN			CHLOROPHENOXY ACID HERBICIDES
		GAS CHROMATOGRAPH/MASS SPECTROMETER			HYDROCARBON FUEL SCREEN
					ORGANOPHOSPHATE PESTICIDES
					POLYCHLORINATED BIPHENYLS (PCB's)
					POLYNUCLEAR AROMATIC HYDROCARBONS
					TRIAZINE HERBICIDES
		SPECIFIC COMPOUNDS			SPECIFIC COMPOUNDS

REMARKS:

ANALYTICAL RESULTS

COMPOUND	[PPB]	COMPOUND	[PPB]
halogenated purgeables	none detected		
Benzene	none detected		
Toluene	none detected		
ethylbenzene	none detected		
p-xylene	200		
m-xylene	190		
o-xylene	none detected		
		* DETECTION LIMIT	1 ug/ml

REMARKS: Twenty-seven aromatic type compounds were also detected that were not identified.

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes NO X. Seal(s) broken by: _____ date: _____

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements in this block and the analytical data on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: 25 April 83 Analyst's signature: [Signature]

I certify that I have reviewed and concur with the analytical results for this sample and with the statements in this block. Reviewers signature: [Signature]



New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

GENERAL WATER CHEMISTRY
and NITROGEN ANALYSIS

DATE RECEIVED	4/12/85	LAB NO.	NC-1706	USER CODE	☐ 59300 ☐ 59600 ☒ OTHER: 82235
Collection DATE	04/10	SITE INFORMATION	Sample location		
Collection TIME	1135		NE corner Pond #3 Navajo Refinery		
Collected by — Person/Agency		Collection site description			
Boyer, Boca OCB		Corner near MW #7			

SEND
FINAL
REPORT
TO

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87501

Attn: David Boyer

Station/
well code

Owner

SAMPLING CONDITIONS

☐ Bailed ☒ Dipped	☐ Pump ☐ Tap	Water level	Discharge	Sample type
		-	-	GRAB
pH (00400)	7.6	Conductivity (Uncorrected)	Water Temp. (00010)	Conductivity at 25°C (00094)
		6900 µmho	19 °C	7840 µmho
Field comments				
Strong odor				

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted	☐ NF: Whole sample (Non-filtered)	☐ F: Filtered in field with 0.45 µm membrane filter	☐ A: 2 ml H ₂ SO ₄ /L added
1			
☒ NA: No acid added ☐ Other-specify:			

ANALYTICAL RESULTS from SAMPLES

NA	Units	Date analyzed	F, NA	Units	Date analyzed
☐ Conductivity (Corrected) 25°C (00095)	µmho		☒ Calcium (00915)	mg/l	5/2
			☒ Magnesium (00925)	mg/l	5/2
☐ Total non-filterable residue (suspended) (00530)	mg/l		☒ Sodium (00930)	mg/l	4/16
☒ Other: pH	4.18	6/10	☒ Potassium (00935)	mg/l	4/16
☐ Other:			☒ Bicarbonate (00440)	mg/l	6/5
☐ Other:			☒ Chloride (00940)	mg/l	6/5
			☒ Sulfate (00945)	mg/l	5/8
			☒ Total filterable residue (dissolved) (70300)	mg/l	5/29
			☒ Other: F O ₃	mg/l	6/5
				31.0	5/3
NF, A-H ₂ SO ₄			F, A-H ₂ SO ₄		
☐ Nitrate-N +, Nitrate-N total (00630)	mg/l		☐ Nitrate-N +, Nitrate-N dissolved (00631)	mg/l	
☐ Ammonia-N total (00610)	mg/l		☐ Ammonia-N dissolved (00608)	mg/l	
☐ Total Kjeldahl-N ()	mg/l		☐ Total Kjeldahl-N ()	mg/l	
☐ Chemical oxygen demand (00340)	mg/l		☐ Other:		
☐ Total organic carbon ()	mg/l				
☐ Other:					
☐ Other:					
Laboratory remarks			Analyst	Date Reported	Reviewed by
				6/11/85	CD



New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

GENERAL WATER CHEMISTRY
and NITROGEN ANALYSIS

DATE RECEIVED	4/12/85	LAB NO.	WC-1699	USER CODE	☐ 59300 ☐ 59600 ☒ OTHER: 82235
Collection DATE	8510410	SITE INFORMATION	Sample location		
Collection TIME	1135		NE corner Pond #3 Navajo Refund		
Collected by — Person/Agency		Collection site description			
Boyer, Raca Oct		corner near MW #7			

SEND
FINAL
REPORT
TO

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87501

Attn: David Boyer

SAMPLING CONDITIONS

☐ Bailed	☐ Pump	Water level	Discharge	Sample type
☒ Dipped	☐ Tap	-	-	GRAB
pH (00400)	7.6	Conductivity (Uncorrected)	Water Temp. (00010)	Conductivity at 25°C (00094)
		6900 µmho	19 °C	µmho
Field comments				
Strong odor				

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted	1	☐ NF: Whole sample (Non-filtered)	☐ F: Filtered in field with 0.45 µm membrane filter	☒ A: 2 ml H ₂ SO ₄ /L added
☐ NA: No acid added ☐ Other-specify:				

ANALYTICAL RESULTS from SAMPLES

NF, NA	Units	Date analyzed	F, NA	Units	Date analyzed
☐ Conductivity (Corrected) 25°C (00095)	µmho		☐ Calcium (00915)	mg/l	
☐ Total non-filterable residue (suspended) (00530)	mg/l		☐ Magnesium (00925)	mg/l	
☐ Other:			☐ Sodium (00930)	mg/l	
☐ Other:			☐ Potassium (00935)	mg/l	
☐ Other:			☐ Bicarbonate (00440)	mg/l	
			☐ Chloride (00940)	mg/l	
			☐ Sulfate (00945)	mg/l	
			☐ Total filterable residue (dissolved) (70300)	mg/l	
			☐ Other:		
F, A-H ₂ SO ₄					
☒ Nitrate-N +, Nitrate-N total (00630)	0.08	mg/l	4/23	F, A-H ₂ SO ₄	
☒ Ammonia-N total (00610)	7.53	mg/l	5/14	☐ Nitrate-N +, Nitrate-N dissolved (00631)	mg/l
☒ Total Kjeldahl-N	10.6	mg/l	5/14	☐ Ammonia-N dissolved (00608)	mg/l
☒ Chemical oxygen demand (00340)	300	mg/l	5/17	☐ Total Kjeldahl-N	mg/l
☒ Total organic carbon	12.5	mg/l	6/12	☐ Other:	
☐ Other:					
☐ Other:					
Analyst			Date Reported		Reviewed by
			6/25/85		CDem

Laboratory remarks



New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

ENVY Metals
GENERAL WATER CHEMISTRY
and METAL ANALYSIS

DATE RECEIVED	4/12/85	LAB NO.	HM-0694	USER CODE	59300	59600	XX OTHER	82235
Collection DATE	85/04/10	SITE INFORMATION	Sample location					
Collection TIME	1135		NE corner Pond #3 Navajo Refinery					
Collected by — Person/Agency			Collection site description					
Boyer, BACA orb			corner near MW #7					

SEND
FINAL
REPORT
TO

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87501

Attn: David Boyer

SAMPLING CONDITIONS

☐ Bailed	☐ Pump	Water level	-	Discharge	-	Sample type	GAR
☒ Dipped	☐ Tap						
pH (00400)	7.6	Conductivity (Uncorrected)	6900 μ mho	Water Temp. (00010)	19 °C	Conductivity at 25 °C (00094)	- μ mho
Field comments							
Strong odor							

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted	1	☐ NF: Whole sample (Non-filtered)	☒ F: Filtered in field with 0.45 μ m membrane filter	☐ A: 2 ml H ₂ SO ₄ /L added
☐ NA: No acid added ☒ Other-specify: A HNO ₃				

ANALYTICAL RESULTS from SAMPLES

Units	Date analyzed	F, NA	Units	Date analyzed
GF, A HNO₃				
☐ Conductivity (Corrected) 25 °C (00095)	μ mho	☐ Calcium (00915)	mg/l	
☐ Total non-filterable residue (suspended) (00530)	mg/l	☐ Magnesium (00925)	mg/l	
☒ Other: ICAD SCAN		☐ Sodium (00930)	mg/l	
☒ Other: AS	0.02 mg/l	☐ Potassium (00935)	mg/l	
☐ Other:		☐ Bicarbonate (00440)	mg/l	
		☐ Chloride (00940)	mg/l	
		☐ Sulfate (00945)	mg/l	
		☐ Total filterable residue (dissolved) (70300)	mg/l	
		☐ Other:		
NF, A-H₂SO₄				
☐ Nitrate-N +, Nitrate-N total (00630)	mg/l	F, A-H₂SO₄		
☐ Ammonia-N total (00610)	mg/l	☐ Nitrate-N +, Nitrate-N dissolved (00631)	mg/l	
☐ Total Kjeldahl-N ()	mg/l	☐ Ammonia-N dissolved (00608)	mg/l	
☐ Chemical oxygen demand (00340)	mg/l	☐ Total Kjeldahl-N ()	mg/l	
☐ Total organic carbon ()	mg/l	☐ Other:		
☐ Other:				
☐ Other:				
Analyst		Date Reported	Reviewed by	
		6/12/85	Jim Belding	

Laboratory remarks

ICAP SCREEN

Lab Number: HM 694Date Submitted: 4/12/85By: Boyer/BacaSample Code: NE Corner of PondDate Reported: 6/18/85By: Jim ReddyDeterminationConcentration (µg/ml)

Aluminum	<u><.10</u>
Barium	<u>.11</u>
Beryllium	<u><.10</u>
Boron	<u>.34</u>
Cadmium	<u><.10</u>
Calcium	<u>87.</u>
Chromium	<u><.10</u>
Cobalt	<u><.10</u>
Copper	<u><.10</u>
Iron	<u>.11</u>
Lead	<u><.10</u>
Magnesium	<u>62.</u>
Manganese	<u>.13</u>
Molybdenum	<u><.10</u>
Nickel	<u><.10</u>
Silicon	<u>8.6</u>
Silver	<u><.10</u>
Strontium	<u>2.6</u>
Tin	<u><.10</u>
Vanadium	<u><.10</u>
Yttrium	<u><.10</u>
Zinc	<u><.10</u>

ATOMIC ABSORPTION ANALYSES

Arsenic .611 $\mu\text{g/ml}$

Selenium _____ $\mu\text{g/ml}$

Mercury _____ $\mu\text{g/ml}$

REPORT TO:



David G. Meyer

New Mexico Oil Conservation Division

P. O. Box 2088

Santa Fe, NM 87501

LABORATORY

LAB NUMBER

 ORG-331-1A.D
 4/12/85
 SLD Priority 3

85-0331-C

SLD Users Code No. 82235

ALL CONTAINERS WHICH THIS FORM ACCOMPANIES ARE COLLECTIVELY REFERRED TO AS "SAMPLE".

CERTIFICATE OF FIELD PERSONNEL

Sample Type: Water ☒ Soil ☐ Other ☐Water Supply and/or Code No. Pond #4 (New Pond) Narejo PineryCity & County Artesia, Eddy CoCollected (date & time) 850410/1201 By (name) Boyer/BocapH= 7.7; Conductivity= 8200 umho/cm at 19 °C; Chlorine Residual=

Dissolved Oxygen= mg/l; Alkalinity=; Flow Rate=

Sampling Location, Methods & Remarks (i.e. odors etc.)

Sample from Nend of new pondI certify that the statements in this block accurately reflect the results of my field analyses, observations and activities. Signed David G. MeyerI certify that I witnessed these field analyses, observations and activities and concur with the statements in this block. Signed Philip L. BocaMethod of Shipment to Laboratory Hand carriedTHIS FORM ACCOMPANIES 2 septum vials with teflon-lined discs identified as:specimen X; duplicate X; triplicate; blank(s)

and amber glass jug(s) with teflon-lined cap(s) identified as

and other container(s) (describe) identified as

Containers are marked as follows to indicate preservation (circle):

NP: No preservation; sample stored at room temperature (~20°C).

P-ICE: Sample stored in an ice bath.P-Na₂O₃S₂: Sample preserved with 3 mg Na₂O₃S₂/40 ml and stored at room temperature.

CERTIFICATE(S) OF SAMPLE RECEIPT

I (we) certify that this sample was transferred from to

at (location) on

(date & time) and that the statements in this block are correct.

Disposition of Sample. Seal(s) Intact: Yes ☐ No ☐

Signature(s)

I (we) certify that this sample was transferred from to

at (location) on

(date & time) and that the statements in this block are correct.

Disposition of Sample. Seal(s) Intact: Yes ☐ No ☐

Signature(s)

ANALYSES REQUESTED

LAB. No.: ORG-331

PLEASE CHECK THE APPROPRIATE BOXES BELOW TO INDICATE THE TYPE OF ANALYTICAL SCREENS REQUIRED. WHENEVER POSSIBLE LIST SPECIFIC COMPOUNDS SUSPECTED OR REQUIRED.

QUALITATIVE	QUANTITATIVE	PURGEABLE SCREENS	QUALITATIVE	QUANTITATIVE	EXTRACTABLE SCREENS
		ALIPHATIC HYDROCARBON SCREEN			ALIPHATIC HYDROCARBONS
		AROMATIC HYDROCARBON SCREEN			CHLORINATED HYDROCARBON PESTICIDES
		HALOGENATED HYDROCARBON SCREEN			CHLOROPHENOXY ACID HERBICIDES
		GAS CHROMATOGRAPH/MASS SPECTROMETER			HYDROCARBON FUEL SCREEN
					ORGANOPHOSPHATE PESTICIDES
					POLYCHLORINATED BIPHENYLS (PCB's)
					POLYNUCLEAR AROMATIC HYDROCARBONS
					TRIAZINE HERBICIDES
		SPECIFIC COMPOUNDS			SPECIFIC COMPOUNDS

REMARKS:

ANALYTICAL RESULTS

COMPOUND	[PPB]	COMPOUND	[PPB]
halogenated Aroclor 1248	none detected		
benzene	none detected		
toluene	none detected		
ethyl benzene	none detected		
o-xylene	none detected		
m-xylene	40		
p-xylene	none detected		
		* DETECTION LIMIT	1 ppm

REMARKS: Eleven aromatic type compounds were also detected but were not identified.

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes NO. Seal(s) broken by: _____ date: _____

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements in this block and the analytical data on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: 25 Aug 85. Analyst's signature: [Signature]I certify that I have reviewed and concur with the analytical results for this sample and with the statements in this block. Reviewers signature: [Signature]

REPORT TO:

David G. ~~yer~~

85-0338 -C

LABORATORY

New Mexico Oil Conservation Division

LAB NUMBER

P. O. Box 2088

Santa Fe, NM 87501

SLD Priority 3

SLD Users Code No. 82235

ALL CONTAINERS WHICH THIS FORM ACCOMPANIES ARE COLLECTIVELY REFERRED TO AS "SAMPLE".

CERTIFICATE OF FIELD PERSONNEL

Sample Type: Water ☒ Soil ☐ Other ☐

Water Supply and/or Code No. MW #49, Navajo Refinery

City & County Alameda, Eddy Co

Collected (date & time) 850411/0730 By (name) Boys / Baca

pH= -; Conductivity= 8200 umho/cm at 15 °C; Chlorine Residual= -

Dissolved Oxygen= - mg/l; Alkalinity= -; Flow Rate= -

Sampling Location, Methods & Remarks (i.e. odors etc.)
Sample from well drilled 4/9, well drilled at NW corner of propert between #1 & #2

I certify that the statements in this block accurately reflect the results of my field analyses, observations and activities. Signed James H. Boys

I certify that I witnessed these field analyses, observations and activities and concur with the statements in this block. Signed Philip L. Baca

Method of Shipment to Laboratory Hand carried

THIS FORM ACCOMPANIES 2 septum vials with teflon-lined discs identified as:
specimen X; duplicate X; triplicate -; blank(s) -,
and - amber glass jug(s) with teflon-lined cap(s) identified as -,
and - other container(s) (describe) - identified as -.

Containers are marked as follows to indicate preservation (circle):
NP: - No preservation; sample stored at room temperature (~20°C).
P-ICE: - Sample stored in an ice bath.
P-Na₂O₃S₂: - Sample preserved with 3 mg Na₂O₃S₂/40 ml and stored at room temperature.

CERTIFICATE(S) OF SAMPLE RECEIPT

I (we) certify that this sample was transferred from _____ to _____
at (location) _____ on _____
(date & time) _____ and that the statements in this block are correct.

Disposition of Sample _____. Seal(s) Intact: Yes ☐ No ☐ .
Signature(s) _____

I (we) certify that this sample was transferred from _____ to _____
at (location) _____ on _____
(date & time) _____ and that the statements in this block are correct.

Disposition of Sample _____. Seal(s) Intact: Yes ☐ No ☐ .
Signature(s) _____

ANALYSES REQUESTED

LAB. No.: ORG- 338

PLEASE CHECK THE APPROPRIATE BOXES BELOW TO INDICATE THE TYPE OF ANALYTICAL SCREENS REQUIRED. WHENEVER POSSIBLE LIST SPECIFIC COMPOUNDS SUSPECTED OR REQUIRED.

QUALITATIVE	QUANTITATIVE	PURGEABLE SCREENS	QUALITATIVE	QUANTITATIVE	EXTRACTABLE SCREENS
		ALIPHATIC HYDROCARBON SCREEN			ALIPHATIC HYDROCARBONS
		AROMATIC HYDROCARBON SCREEN			CHLORINATED HYDROCARBON PESTICIDES
		HALOGENATED HYDROCARBON SCREEN			CHLOROPHENOXY ACID HERBICIDES
		GAS CHROMATOGRAPH/MASS SPECTROMETER			HYDROCARBON FUEL SCREEN
					ORGANOPHOSPHATE PESTICIDES
					POLYCHLORINATED BIPHENYLS (PCB's)
					POLYNUCLEAR AROMATIC HYDROCARBONS
					TRIAZINE HERBICIDES
		SPECIFIC COMPOUNDS			SPECIFIC COMPOUNDS

REMARKS:

ANALYTICAL RESULTS

COMPOUND	[PPB]	COMPOUND	[PPB]
halogenated purgables	none detected		
benzene	none detected		
toluene	none detected		
ethyl-benzene	none detected		
p-xylene	none detected		
m-xylene	20		
o-xylene	none detected		
		* DETECTION LIMIT	1.0 µg/ml

REMARKS: Five aromatic type compounds were also detected that were not identified.

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ☒ NO ☒ Seal(s) broken by: _____ date: _____

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements in this block and the analytical data on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: 25 Aug 85 Analyst's signature: *[Signature]*

I certify that I have reviewed and concur with the analytical results for this sample and with the statements in this block. Reviewers signature: *[Signature]*



New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

NEURAL WATER CHEMISTRY
and NITROGEN ANALYSIS

DATE RECEIVED	4/12/85	LAB NO.	WC-1705	USER CODE	☐ 59300 ☐ 59600 ☒ OTHER: 82235
Collection DATE	8510411	SITE INFORMATION	Sample location		
Collection TIME	0730		MW #49, NW corner of Pond Area		
Collected by — Person/Agency		Collection site description			
Boyer/Boce		from nearby new MW drilled 4/9			

SEND
FINAL
REPORT
TO

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87501

Attn: David Boyer

SAMPLING CONDITIONS

☒ Bailed ☐ Dipped	☐ Pump ☐ Tap	Water level	11' 10" Rebar Steel Pipe	Discharge		Sample type	Grab
pH (00400)	—	Conductivity (Uncorrected)	8200 µmho	Water Temp. (00010)	15 °C	Conductivity at 25°C (00094)	10225 µmho
Field comments							

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted	1	☒ NF: Whole sample (Non-filtered)	☐ F: Filtered in field with 0.45 µm membrane filter	☐ A: 2 ml H ₂ SO ₄ /L added
☒ NA: No acid added		☐ Other-specify: Small sample - do TFR, Cl, SO ₄ first		

ANALYTICAL RESULTS from SAMPLES

NF, NA	Units	Date analyzed	NA	Units	Date analyzed
☐ Conductivity (Corrected) 25°C (00095)	µmho		☒ Calcium (00915)	734 mg/l	5/2
☐ Total non-filterable residue (suspended) (00530)	mg/l		☒ Magnesium (00925)	226 mg/l	5/2
☒ Other: pH 7.3			☒ Sodium (00930)	1757 mg/l	4/16
☐ Other:			☒ Potassium (00935)	16.8 mg/l	4/16
☐ Other:			☒ Bicarbonate (00440)	190.3 mg/l	6/5
			☒ Chloride (00940)	1909.1 mg/l	6/5
			☒ Sulfate (00945)	4166 mg/l	5/8
			☒ Total filterable residue (dissolved) (70300)	7605 mg/l	5/29
			☒ Other: CO ₃	None	6/5
			☒ F	0.94	5/3
NF, A-H ₂ SO ₄			F, A-H ₂ SO ₄		
☐ Nitrate-N +, Nitrate-N total (00630)	mg/l		☐ Nitrate-N +, Nitrate-N dissolved (00631)	mg/l	
☐ Ammonia-N total (00610)	mg/l		☐ Ammonia-N dissolved (00608)	mg/l	
☐ Total Kjeldahl-N ()	mg/l		☐ Total Kjeldahl-N ()	mg/l	
☐ Chemical oxygen demand (00340)	mg/l		☐ Other:		
☐ Total organic carbon ()	mg/l				
☐ Other:					
☐ Other:					
Laboratory remarks			Analyst	Date Reported	Reviewed by
				6/10/85	

REPORT TO:

David G. ~~_____~~ver

New Mexico Oil Conservation Division

P. O. Box 2088

Santa Fe, NM 87501

LABORATORY

LAB NUMBER

ORG-329-A-B
4/12/85

85-0329-C

SLD PRIORITY 3

SLD Users Code No. 82235

ALL CONTAINERS WHICH THIS FORM ACCOMPANIES ARE COLLECTIVELY REFERRED TO AS "SAMPLE".

CERTIFICATE OF FIELD PERSONNEL

Sample Type: Water ☒ Soil ☐ Other ☐Water Supply and/or Code No. Pecos River @ MW #7, Norija RefineryCity & County Artesia, Eddy CityCollected (date & time) 830410/1142 By (name) Boys/RacapH= 8.3; Conductivity= 8900 umho/cm at 21 °C; Chlorine Residual= Dissolved Oxygen= mg/l; Alkalinity= ; Flow Rate=

Sampling Location, Methods & Remarks (i.e. odors etc.)

Sample obtained from W. Bank at well #7. No aromatic odorI certify that the statements in this block accurately reflect the results of my field analyses, observations and activities. Signed David G. BoysI certify that I witnessed these field analyses, observations and activities and concur with the statements in this block. Signed Philip L. RacaMethod of Shipment to Laboratory Hand carriedTHIS FORM ACCOMPANIES 2 septum vials with teflon-lined discs identified as:specimen X; duplicate X; triplicate ; blank(s) ,and amber glass jug(s) with teflon-lined cap(s) identified as ,and other container(s) (describe) identified as .

Containers are marked as follows to indicate preservation (circle):

NP: No preservation; sample stored at room temperature (~20°C).

P-ICE Sample stored in an ice bath.P-Na₂O₃S₂: Sample preserved with 3 mg Na₂O₃S₂/40 ml and stored at room temperature.

CERTIFICATE(S) OF SAMPLE RECEIPT

I (we) certify that this sample was transferred from to at (location) on(date & time) and that the statements in this block are correct.Disposition of Sample . Seal(s) Intact: Yes ☐ No ☐.Signature(s) I (we) certify that this sample was transferred from to at (location) on(date & time) and that the statements in this block are correct.Disposition of Sample . Seal(s) Intact: Yes ☐ No ☐.Signature(s)

ANALYSES REQUESTED

LAB. No.: ORG- 329

PLEASE CHECK THE APPROPRIATE BOXES BELOW TO INDICATE THE TYPE OF ANALYTICAL SCREENS REQUIRED. WHENEVER POSSIBLE LIST SPECIFIC COMPOUNDS SUSPECTED OR REQUIRED.

QUALITATIVE	QUANTITATIVE	PURGEABLE SCREENS	QUALITATIVE	QUANTITATIVE	EXTRACTABLE SCREENS
		ALIPHATIC HYDROCARBON SCREEN			ALIPHATIC HYDROCARBONS
		AROMATIC HYDROCARBON SCREEN			CHLORINATED HYDROCARBON PESTICIDES
		HALOGENATED HYDROCARBON SCREEN			CHLOROPHENOXY ACID HERBICIDES
		GAS CHROMATOGRAPH/MASS SPECTROMETER			HYDROCARBON FUEL SCREEN
					ORGANOPHOSPHATE PESTICIDES
					POLYCHLORINATED BIPHENYLS (PCB's)
					POLYNUCLEAR AROMATIC HYDROCARBONS
					TRIAZINE HERBICIDES
		SPECIFIC COMPOUNDS			SPECIFIC COMPOUNDS

REMARKS:

ANALYTICAL RESULTS

COMPOUND	[PPB]	COMPOUND	[PPB]
Halogenated Purgeables	none detected		
Aromatic Purgeables	none detected		
		* DETECTION LIMIT	1 ug/m ³

REMARKS: No purgeables detected.*

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ☐ NO ☒ Seal(s) broken by: _____ date: _____

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements in this block and the analytical data on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: 28 May 85 . Analyst's signature: *[Signature]*I certify that I have reviewed and concur with the analytical results for this sample and with the statements in this block. Reviewers signature: *[Signature]*



New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

GENERAL WATER CHEMISTRY
and NITROGEN ANALYSIS

DATE RECEIVED	4/12/85	LAB NO.	WC-1715	USER CODE	☐ 59300 ☐ 59600 ☒ OTHER: 82235
Collection DATE	850410	SITE INFORMATION	Sample location		
Collection TIME	1147		Pecos River at MW #17		
Collected by — Person/Agency		Collection site description			
Boyer/Roca		Site opposite NE corner Navajo Pond #3 & MW #7, Navajo Refinery			

SEND
FINAL
REPORT
TO

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87501

Attn: David Boyer

SAMPLING CONDITIONS

☒ Bailed ☒ Dipped	☐ Pump ☐ Tap	Water level	Discharge	Sample type
pH (00400)	8.3	Conductivity (Uncorrected)	8700 μ mho	21 $^{\circ}$ C
Field comments		Conductivity at 25 $^{\circ}$ C (00094)		
No odor of aromatics		9625 μ mho		

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted	1	☐ NF: Whole sample (Non-filtered)	☒ F: Filtered in field with 0.45 μ m membrane filter	☐ A: 2 ml H ₂ SO ₄ /L added
☒ NA: No acid added ☐ Other-specify:				

ANALYTICAL RESULTS from SAMPLES

MF, NA	Units	Date analyzed	F, NA	Units	Date analyzed
☐ Conductivity (Corrected) 25 $^{\circ}$ C (00095)	μ mho		☒ Calcium (00915)	650 mg/l	5/2
☐ Total non-filterable residue (suspended) (00530)	mg/l		☒ Magnesium (00925)	281 mg/l	5/2
☒ Other: pH 7.0			☒ Sodium (00930)	1329 mg/l	4/16
☐ Other:			☒ Potassium (00935)	14.0 mg/l	4/16
☐ Other:			☒ Bicarbonate (00440)	105.0 mg/l	6/5
			☒ Chloride (00940)	2413.6 mg/l	6/5
			☒ Sulfate (00945)	2913 mg/l	5/8
			☒ Total filterable residue (dissolved) (70300)	7383 mg/l	5/29
NF, A-H ₂ SO ₄			☒ Other: CO ₃	0.81	6/5
☐ Nitrate-N +, Nitrate-N total (00630)	mg/l				
☐ Ammonia-N total (00610)	mg/l				
☐ Total Kjeldahl-N ()	mg/l				
☐ Chemical oxygen demand (00340)	mg/l				
☐ Total organic carbon ()	mg/l				
☐ Other:					
☐ Other:					
Laboratory remarks			Analyst		
			Date Reported		
			Reviewed by		
			6/10/85		
			C. Lee		



New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

GENERAL WATER CHEMISTRY
and NITROGEN ANALYSIS

DATE RECEIVED	4/12/85	LAB NO.	WC-1696	USER CODE	☐ 59300 ☐ 59600 ☒ OTHER: 82235
Collection DATE	8/24/10	SITE INFORMATION	Sample location		
Collection TIME	1147		Pecos River at MW #17		
Collected by — Person/Agency		Collection site description			
Boyer/Boyer		Site opposite NE corner Navajo Pond #3 & MW #7, Navajo Refinery			

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87501

SEND
FINAL
REPORT
TO

Attn: David Boyer

Station/
well code
Owner

SAMPLING CONDITIONS

☒ Bailed ☒ Dipped	☐ Pump ☐ Tap	Water level	Discharge	Sample type
pH (00400)	8.3	Conductivity (Uncorrected)	8500 μ mho	21 $^{\circ}$ C
Field comments		NO odor of aromatics		

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted	1	☐ NF: Whole sample (Non-filtered)	☒ F: Filtered in field with 0.45 μ membrane filter	☐ A: 2 ml H ₂ SO ₄ /L added
☐ NA: No acid added ☐ Other-specify:				

ANALYTICAL RESULTS from SAMPLES

NF, NA	Units	Date analyzed	F, NA	Units	Date analyzed
☐ Conductivity (Corrected) 25 $^{\circ}$ C (00095)	μ mho		☐ Calcium (00915)	mg/l	
☐ Total non-filterable residue (suspended) (00530)	mg/l		☐ Magnesium (00925)	mg/l	
☐ Other:			☐ Sodium (00930)	mg/l	
☐ Other:			☐ Potassium (00935)	mg/l	
☐ Other:			☐ Bicarbonate (00440)	mg/l	
☐ Other:			☐ Chloride (00940)	mg/l	
☐ Other:			☐ Sulfate (00945)	mg/l	
☒ F, A-H ₂ SO ₄			☐ Total filterable residue (dissolved) (70300)	mg/l	
☐ Nitrate-N +, Nitrate-N total (00630)	mg/l		☐ Other:		
☐ Ammonia-N total (00610)	mg/l		☒ F, A-H ₂ SO ₄		
☐ Total Kjeldahl-N ()	mg/l		☒ Nitrate-N +, Nitrate-N dissolved (00631)	0.05 mg/l	4/23
☒ Chemical oxygen demand (00340)	249 mg/l	5/17	☒ Ammonia-N dissolved (00608)	0.24 mg/l	5/14
☒ Total organic carbon ()	21.3 mg/l	6/13	☒ Total Kjeldahl-N ()	0.77 mg/l	5/29
☐ Other:			☐ Other:		
☐ Other:			Analyst	Date Reported	Reviewed by
				6/5/85	Chen

Laboratory remarks



New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

Mary Metals
GENERAL WATER CHEMISTRY
and NITROGEN ANALYSIS

DATE RECEIVED 4/12/95	LAB NO. HM-1693	USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235
Collection DATE 03/04/10	SITE INFORMATION	Sample location Pecos River at MW #17
Collection TIME 1147		Collection site description Site opposite NE corner Navajo Pond #3 & MW #7, Navajo Refinery
Collected by — Person/Agency Boyer/Roca ocb		

SEND
FINAL
REPORT
TO

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87501

Attn: David Boyer

SAMPLING CONDITIONS

☐ Bailed ☒ Dipped	☐ Pump ☐ Tap	Water level	Discharge	Sample type Grab
pH (00400) 8.3	Conductivity (Uncorrected) 8900 μ mho	Water Temp. (00010) 21 °C	Conductivity at 25 °C (00094) μ mho	
Field comments NO odor of aromatics				

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted 1	☐ NF: Whole sample (Non-filtered)	☒ F: Filtered in field with 0.45 μ m membrane filter	☐ A: 2 ml H ₂ SO ₄ /L added
☐ NA: No acid added ☒ Other-specify: A HNO₃			

ANALYTICAL RESULTS from SAMPLES

Units	Date analyzed	F, NA	Units	Date analyzed
☐ Conductivity (Corrected) 25 °C (00095) μ mho		☐ Calcium (00915) mg/l		
☐ Total non-filterable residue (suspended) (00530) mg/l		☐ Magnesium (00925) mg/l		
☒ Other: ICAP SCAN		☐ Sodium (00930) mg/l		
☐ Other:		☐ Potassium (00935) mg/l		
☐ Other:		☐ Bicarbonate (00440) mg/l		
		☐ Chloride (00940) mg/l		
		☐ Sulfate (00945) mg/l		
		☐ Total filterable residue (dissolved) (70300) mg/l		
		☐ Other:		
NF, A-H₂SO₄				
☐ Nitrate-N +, Nitrate-N total (00630) mg/l		F, A-H₂SO₄		
☐ Ammonia-N total (00610) mg/l		☐ Nitrate-N +, Nitrate-N dissolved (00631) mg/l		
☐ Total Kjeldahl-N () mg/l		☐ Ammonia-N dissolved (00608) mg/l		
☐ Chemical oxygen demand (00340) mg/l		☐ Total Kjeldahl-N () mg/l		
☐ Total organic carbon () mg/l		☐ Other:		
☐ Other:		Analyst		
☐ Other:		Date Reported 6/18/95		
Laboratory remarks See attached list		Reviewed by <i>[Signature]</i>		

ICAP SCREEN

Lab Number: HM693Date Submitted: 4/12/85By: Boyer/BacaSample Code: Pecos River at N10 #Date Reported: 6/12/85By: J. L. H. J.DeterminationConcentration (µg/ml)

Aluminum	<u><.10</u>
Barium	<u><.10</u>
Beryllium	<u><.10</u>
Boron	<u>.59</u>
Cadmium	<u><.10</u>
Calcium	<u>740.</u>
Chromium	<u><.10</u>
Cobalt	<u><.10</u>
Copper	<u><.10</u>
Iron	<u><.10</u>
Lead	<u><.10</u>
Magnesium	<u>250.</u>
Manganese	<u>.15</u>
Molybdenum	<u><.10</u>
Nickel	<u><.10</u>
Silicon	<u>2.3</u>
Silver	<u><.10</u>
Strontium	<u>11.</u>
Tin	<u><.10</u>
Vanadium	<u><.10</u>
Yttrium	<u><.10</u>
Zinc	<u><.10</u>

ATOMIC ABSORPTION ANALYSES

Arsenic _____ $\mu\text{g/ml}$

Selenium _____ $\mu\text{g/ml}$

Mercury _____ $\mu\text{g/ml}$

REPORT TO:

David G. Boyer

LABORATORY



New Mexico Oil Conservation Division

LAB NUMBER ORG-332-H-B
4/12/85

P. O. Box 2088

85-0332-C SLD PRIORITY 3

Santa Fe, NM 87501

...ers Code No. 82235

ALL CONTAINERS WHICH THIS FORM ACCOMPANIES ARE COLLECTIVELY REFERRED TO AS "SAMPLE".

CERTIFICATE OF FIELD PERSONNEL

Sample Type: Water ☒ Soil ☐ Other ☐Water Supply and/or Code No. Bore Hole HT, Navajo RefineryCity & County Artesia, Eddy CityCollected (date & time) 850412/0915V By (name) Boyer/BacapH= -; Conductivity= 6900 umho/cm at 17 °C; Chlorine Residual= -Dissolved Oxygen= - mg/l; Alkalinity= -; Flow Rate= -

Sampling Location, Methods & Remarks (i.e. odors etc.)

18 ft borehole drilled on 4/9. On 4/10 had 2 feet H₂O,
4 ft products. Hole on N. Side of tank 439

I certify that the statements in this block accurately reflect the results of my field analyses, observations and activities. Signed David G. BoyerI certify that I witnessed these field analyses, observations and activities and concur with the statements in this block. Signed Philip F. BacaMethod of Shipment to Laboratory Hand carriedTHIS FORM ACCOMPANIES 2 septum vials with teflon-lined discs identified as:specimen X; duplicate X; triplicate -; blank(s) -and - amber glass jug(s) with teflon-lined cap(s) identified as -and - other container(s) (describe) - identified as -

Containers are marked as follows to indicate preservation (circle):

NP: No preservation; sample stored at room temperature (~20°C).

P-ICE: Sample stored in an ice bath.P-Na₂O₃S₂: Sample preserved with 3 mg Na₂O₃S₂/40 ml and stored at room temperature.

CERTIFICATE(S) OF SAMPLE RECEIPT

I (we) certify that this sample was transferred from _____ to _____

_____ at (location) _____ on _____

(date & time) _____ and that the statements in this block are correct.

Disposition of Sample _____. Seal(s) Intact: Yes ☐ No ☐.

Signature(s) _____

I (we) certify that this sample was transferred from _____ to _____

_____ at (location) _____ on _____

(date & time) _____ and that the statements in this block are correct.

Disposition of Sample _____. Seal(s) Intact: Yes ☐ No ☐.

Signature(s) _____

ANALYSES REQUESTED

LAB. No.: ORG- 332

PLEASE CHECK THE APPROPRIATE BOXES BELOW TO INDICATE THE TYPE OF ANALYTICAL SCREENS REQUIRED. WHENEVER POSSIBLE LIST SPECIFIC COMPOUNDS SUSPECTED OR REQUIRED.

QUALITATIVE	QUANTITATIVE	PURGEABLE SCREENS	QUALITATIVE	QUANTITATIVE	EXTRACTABLE SCREENS
		ALIPHATIC HYDROCARBON SCREEN			ALIPHATIC HYDROCARBONS
		AROMATIC HYDROCARBON SCREEN			CHLORINATED HYDROCARBON PESTICIDES
		HALOGENATED HYDROCARBON SCREEN			CHLOROPHENOXY ACID HERBICIDES
		GAS CHROMATOGRAPH/MASS SPECTROMETER			HYDROCARBON FUEL SCREEN
					ORGANOPHOSPHATE PESTICIDES
					POLYCHLORINATED BIPHENYLS (PCB's)
					POLYNUCLEAR AROMATIC HYDROCARBONS
					TRIAZINE HERBICIDES
		SPECIFIC COMPOUNDS			SPECIFIC COMPOUNDS

REMARKS:

ANALYTICAL RESULTS

COMPOUND	[PPB]	COMPOUND	[PPB]
Halogenated purgables	none detected		
Benzene	6236.5		
Toluene	18450		
o-Xylene	1440		
m-Xylene	400		
p-Xylene	830		
o-Xylene	465		
		* DETECTION LIMIT	100 µg/l

REMARKS: Eight aromatic type compounds were also detected that were not identified.

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ___ NO X. Seal(s) broken by: _____ date: _____

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements in this block and the analytical data on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: 25 Apr & 3 May 85 Analyst's signature: [Signature]

I certify that I have reviewed and concur with the analytical results for this sample and with the statements in this block. Reviewers signature: [Signature]



New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

GENERAL WATER CHEMISTRY
and NITROGEN ANALYSIS

DATE RECEIVED	4/12/85	LAB NO.	WC-1704	USER CODE	☐ 59300 ☐ 59600 ☒ OTHER: 82235
Collection DATE	850410	SITE INFORMATION	Sample location	Box Hole A.J., Navajo Refinery	
Collection TIME	0915		Collection site description	Hole Located N of Tank 439	
Collected by — Person/Agency	Boyer/Baker OCB				

SEND
FINAL
REPORT
TO

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87501

Attn: David Boyer

SAMPLING CONDITIONS

☒ Bailed ☐ Dipped	☐ Pump ☐ Tap	Water level	-	Discharge	-	Sample type	GRAB
pH (00400)	-	Conductivity (Uncorrected)	6900 μ mho	Water Temp. (00010)	17 °C	Conductivity at 25°C (00094)	8200 μ mho
Field comments Product in hole							

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted	1	☒ NF: Whole sample (Non-filtered)	☐ F: Filtered in field with 0.45 μ membrane filter	☐ A: 2 ml H ₂ SO ₄ /L added
☒ NA: No acid added ☐ Other-specify:				

ANALYTICAL RESULTS from SAMPLES

NF, NA	Units	Date analyzed	NA	Units	Date analyzed
☐ Conductivity (Corrected) 25°C (00095)	μ mho		☒ Calcium (00915)	464 mg/l	5/2
☐ Total non-filterable residue (suspended) (00530)	mg/l		☒ Magnesium (00925)	589 mg/l	5/2 71.6
☒ Other: pH	7.0		☒ Sodium (00930)	651 mg/l	4/16
☐ Other:			☒ Potassium (00935)	0.78 mg/l	4/16
☐ Other:			☒ Bicarbonate (00440)	442.2 mg/l	6/5
			☒ Chloride (00940)	2156.8 mg/l	6/5
			☒ Sulfate (00945)	1699 mg/l	5/8
			☒ Total filterable residue (dissolved) (70300)	5420 mg/l	5/29
			☒ Other: CO ₃	1.58	6/5
			☒ F		5/3
NF, A-H ₂ SO ₄			F, A-H ₂ SO ₄		
☐ Nitrate-N +, Nitrate-N total (00630)	mg/l		☐ Nitrate-N +, Nitrate-N dissolved (00631)	mg/l	
☐ Ammonia-N total (00610)	mg/l		☐ Ammonia-N dissolved (00608)	mg/l	
☐ Total Kjeldahl-N ()	mg/l		☐ Total Kjeldahl-N ()	mg/l	
☐ Chemical oxygen demand (00340)	mg/l		☐ Other:		
☐ Total organic carbon ()	mg/l				
☐ Other:			Analyst	Date Reported	Reviewed by
☐ Other:				6/10/85	CD
Laboratory remarks					

REPORT TO:

David G. Boyer

85-0336

LABORATORY



New Mexico Oil Conservation Division

P. O. Box 2088

Santa Fe, NM 87501

LAB NUMBER

ORG-336-H.B.

4/12/85

SLD Priority 3

SLD Users Code No.

85535

ALL CONTAINERS WHICH THIS FORM ACCOMPANIES ARE COLLECTIVELY REFERRED TO AS "SAMPLE".

CERTIFICATE OF FIELD PERSONNEL

Sample Type: Water ☒ Soil ☐ Other

Water Supply and/or Code No.

Fire Pond, Narsijo Refinery

City & County

Artesia, Narsijo Refinery

Collected (date & time)

850410/0937

By (name)

Boyer/Baca

pH= 11.8; Conductivity= 6000 umho/cm at 16.5 °C; Chlorine Residual=

Dissolved Oxygen= mg/l; Alkalinity= ; Flow Rate=

Sampling Location, Methods & Remarks (i.e. odors etc.)

Sample from pond ramp, N. end of pond, Little odor

I certify that the statements in this block accurately reflect the results of my field analyses, observations and activities. Signed

David G. Boyer

I certify that I witnessed these field analyses, observations and activities and concur with the statements in this block. Signed

Philip S. Baca

Method of Shipment to Laboratory

Hand Carried

THIS FORM ACCOMPANIES 2 septum vials with teflon-lined discs identified as:

specimen x; duplicate x; triplicate; blank(s)

and amber glass jug(s) with teflon-lined cap(s) identified as

and other container(s) (describe) identified as

Containers are marked as follows to indicate preservation (circle):

NP: No preservation; sample stored at room temperature (~20°C).

P-ICE: Sample stored in an ice bath.

P-Na₂O₃S₂: Sample preserved with 3 mg Na₂O₃S₂/40 ml and stored at room temperature.

CERTIFICATE(S) OF SAMPLE RECEIPT

I (we) certify that this sample was transferred from to

at (location) on

(date & time) and that the statements in this block are correct.

Disposition of Sample. Seal(s) Intact: Yes ☐ No ☐

Signature(s)

I (we) certify that this sample was transferred from to

at (location) on

(date & time) and that the statements in this block are correct.

Disposition of Sample. Seal(s) Intact: Yes ☐ No ☐

Signature(s)

ANALYSES REQUESTED

LAB. No.: ORG- 336

PLEASE CHECK THE APPROPRIATE BOXES BELOW TO INDICATE THE TYPE OF ANALYTICAL SCREENS REQUIRED. WHENEVER POSSIBLE LIST SPECIFIC COMPOUNDS SUSPECTED OR REQUIRED.

QUALITATIVE	QUANTITATIVE	PURGEABLE SCREENS	QUALITATIVE	QUANTITATIVE	EXTRACTABLE SCREENS
		ALIPHATIC HYDROCARBON SCREEN			ALIPHATIC HYDROCARBONS
		AROMATIC HYDROCARBON SCREEN			CHLORINATED HYDROCARBON PESTICIDES
		HALOGENATED HYDROCARBON SCREEN			CHLOROPHENOXY ACID HERBICIDES
		GAS CHROMATOGRAPH/MASS SPECTROMETER			HYDROCARBON FUEL SCREEN
					ORGANOPHOSPHATE PESTICIDES
					POLYCHLORINATED BIPHENYLS (PCB's)
					POLYNUCLEAR AROMATIC HYDROCARBONS
					TRIAZINE HERBICIDES
		SPECIFIC COMPOUNDS			SPECIFIC COMPOUNDS

REMARKS:

ANALYTICAL RESULTS

COMPOUND	[PPB]	COMPOUND	[PPB]
<i>halogenated purpols</i>	<i>none detected</i>		
<i>benzene</i>	<i>none detected</i>		
<i>toluene</i>	<i>none detected</i>		
<i>ethylbenzene</i>	<i>none detected</i>		
<i>p-xylene</i>	<i>none detected</i>		
<i>m-xylene</i>	<i>none detected</i>		
<i>o-xylene</i>	<i>none detected</i>		
		* DETECTION LIMIT	<i>1.00 g/l</i>

REMARKS: *One aromatic type compound was also detected that was not identified.*

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ☒ NO ☒ . Seal(s) broken by: _____ date: _____
 I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements in this block and the analytical data on this page accurately reflect the analytical results for this sample.
 Date(s) of analysis: *28/11/85* . Analyst's signature: *J. Finney*
 I certify that I have reviewed and concur with the analytical results for this sample and with the statements in this block. Reviewers signature: *R. Meyers*



New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

GENERAL WATER CHEMISTRY
and NITROGEN ANALYSIS

DATE RECEIVED	4/12/85	LAB NO	40-1714	USER CODE	☐ 59300 ☐ 59600 ☒ OTHER: 82235
Collection DATE	850410	SITE INFORMATION	Sample location		
Collection TIME	0937		Naraja Refinery Fire Pond		
Collected by — Person/Agency		Collection site description			
Boyer / Boca CCB		From Pump at N. end of pond			

SEND
FINAL
REPORT
TO

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87501

Attn: David Boyer

SAMPLING CONDITIONS

☐ Bailed ☒ Dipped	☐ Pump ☐ Tap	Water level	Discharge	Sample type
				GRAB
pH (00400)	11.8	Conductivity (Uncorrected)	Water Temp. (00010)	Conductivity at 25°C (00094)
		6000 µmho	16.5 °C	7220 µmho
Field comments				
Slight or no odor				

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted	☐ NF: Whole sample (Non-filtered)	☒ F: Filtered in field with 0.45 µmembrane filter	☐ A: 2 ml H ₂ SO ₄ /L added
1			
☒ NA: No acid added ☐ Other-specify:			

ANALYTICAL RESULTS from SAMPLES

NA, F	Units	Date analyzed	F, NA	Units	Date analyzed
☐ Conductivity (Corrected) 25°C (00095)	µmho		☒ Calcium (00915)	mg/l	5/2
			☒ Magnesium (00925) *	mg/l	5/2
☐ Total non-filterable residue (suspended) (00530)	mg/l		☒ Sodium (00930)	mg/l	4/16
☒ Other: pH 11.0			☒ Potassium (00935)	mg/l	4/16
☐ Other:			☒ Bicarbonate (00440)	mg/l	6/5
☐ Other:			☒ Chloride (00940)	mg/l	6/5
			☒ Sulfate (00945)	mg/l	5/8
			☒ Total filterable residue (dissolved) (70300)	mg/l	
			☒ Other: CO ₃		
NF, A-H ₂ SO ₄					5/3/85
☐ Nitrate-N +, Nitrate-N total (00630)	mg/l		F, A-H ₂ SO ₄		
☐ Ammonia-N total (00610)	mg/l		☐ Nitrate-N +, Nitrate-N dissolved (00631)	mg/l	
☐ Total Kjeldahl-N ()	mg/l		☐ Ammonia-N dissolved (00608)	mg/l	
☐ Chemical oxygen demand (00340)	mg/l		☐ Total Kjeldahl-N ()	mg/l	
☐ Total organic carbon ()	mg/l		☐ Other:		
☐ Other:			Analyst	Date Reported	Reviewed by
☐ Other:				6/10/85	CB
Laboratory remarks					
possible interference					



New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

Heavy Metals
**GENERAL WATER CHEMISTRY
AND NITROGEN ANALYSIS**

DATE RECEIVED	4/12/85	LAB NO.	HM-0698	USER CODE	☐ 59300 ☐ 59600 ☒ OTHER: 82235
Collection DATE	85/04/10	SITE INFORMATION	Sample location		
Collecting TIME	0937		Narajo Refinery Fire Pond		
Collected by — Person/Agency		Collection site description			
Boyer / Boca OCB		From ramp at N. end of pond			

SEND
FINAL
REPORT
TO

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87501

Attn: David Boyer

SAMPLING CONDITIONS

☒ Bailed ☒ Dipped	☐ Pump ☐ Tap	Water level	Discharge	Sample type
pH (00400)	11.8	Conductivity (Uncorrected)	Water Temp. (00010)	Conductivity at 25°C (00094)
		6000 μ mho	16.5 °C	μ mho
Field comments				
Slight or no odor				

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted	☐ NF: Whole sample (Non-filtered)	☒ XF: Filtered in field with 0.45 μ m membrane filter	☐ A: 2 ml H ₂ SO ₄ /L added
	☐ NA: No acid added ☒ Other-specify: <i>AAHNO₃</i>		

ANALYTICAL RESULTS from SAMPLES

Units	Date analyzed	F, NA	Units	Date analyzed
XF, AA HNO₃				
☐ Conductivity (Corrected) 25°C (00095)	μ mho	☐ Calcium (00915)	mg/l	
☐ Total non-filterable residue (suspended) (00530)	mg/l	☐ Magnesium (00925)	mg/l	
☒ Other: <i>ICAP SCAN</i>		☐ Sodium (00930)	mg/l	
☒ Other: <i>AS</i>	<i>Ca 2 mg/l</i>	☐ Potassium (00935)	mg/l	
☐ Other:		☐ Bicarbonate (00440)	mg/l	
		☐ Chloride (00940)	mg/l	
		☐ Sulfate (00945)	mg/l	
		☐ Total filterable residue (dissolved) (70300)	mg/l	
		☐ Other:		
NF, A-H₂SO₄				
☐ Nitrate-N +, Nitrate-N total (00630)	mg/l	F, A-H₂SO₄		
☐ Ammonia-N total (00610)	mg/l	☐ Nitrate-N +, Nitrate-N dissolved (00631)	mg/l	
☐ Total Kjeldahl-N ()	mg/l	☐ Ammonia-N dissolved (00608)	mg/l	
☐ Chemical oxygen demand (00340)	mg/l	☐ Total Kjeldahl-N ()	mg/l	
☐ Total organic carbon ()	mg/l	☐ Other:		
☐ Other:		Analyst	Date Reported	Reviewed by
☐ Other:			6/17/85	<i>Jim Walsh</i>

Laboratory remarks

See attached sheet

ICAP SCREEN

Lab Number: #M 698Sample Code: Navajo Refinery Fire PondDate Submitted: 4/12/85Date Reported: 6/17/85By: Boyer/BacaBy: Jim AshbyDate Analyzed: 6/12/85DeterminationConcentration (µg/ml)

Aluminum

< 0.10

Barium

< 0.10

Beryllium

< 0.10

Boron

0.19

Cadmium

< 0.10

Calcium

3.4

Chromium

< 0.10

Cobalt

< 0.10

Copper

< 0.10

Iron

0.10

Lead

< 0.10

Magnesium

0.35

Manganese

< 0.05

Molybdenum

< 0.10

Nickel

< 0.10

Silicon

30.

Silver

< 0.10

Strontium

< 0.10

Tin

< 0.10

Vanadium

< 0.10

Yttrium

< 0.10

Zinc

< 0.10

ATOMIC ABSORPTION ANALYSES

DeterminationConcentration (µg/ml)

Arsenic

0.02

Selenium

Mercury

* High Sodium Level > 1000



New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

GENERAL WATER CHEMISTRY
and NITROGEN ANALYSIS

DATE RECEIVED	4/12/85	LAB NO.	WC-7695	USER CODE	☐ 59300 ☐ 59600 ☒ OTHER: 82235
Collection DATE	8/10/84	SITE INFORMATION	Sample location		
Collecting TIME	0937		Narajo Refinery Fire Pond		
Collected by — Person/Agency		Collection site description			
Boyer/Baca OCB		From Ramp at N. end of pond			

SEND
FINAL
REPORT
TO

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87501

Attn: David Boyer

Station/
well code

Owner

SAMPLING CONDITIONS

☐ Bailed ☒ Dipped	☐ Pump ☐ Tap	Water level	Discharge	Sample type
pH (00400)	11.8	Conductivity (Uncorrected)	Water Temp. (00010)	Conductivity at 25°C (00094)
		6000 μ mho	16.5 °C	
Field comments				
Slight or no odor				

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted	☐ NF: Whole sample (Non-filtered)	☒ F: Filtered in field with 0.45 μ m membrane filter	☒ A: 2 ml H ₂ SO ₄ /L added
☐ NA: No acid added ☐ Other-specify:			

ANALYTICAL RESULTS from SAMPLES

NF, NA	Units	Date analyzed	F, NA	Units	Date analyzed
☐ Conductivity (Corrected) 25°C (00095)	μ mho		☐ Calcium (00915)	mg/l	
☐ Total non-filterable residue (suspended) (00530)	mg/l		☐ Magnesium (00925)	mg/l	
☐ Other:			☐ Sodium (00930)	mg/l	
☐ Other:			☐ Potassium (00935)	mg/l	
☐ Other:			☐ Bicarbonate (00440)	mg/l	
			☐ Chloride (00940)	mg/l	
			☐ Sulfate (00945)	mg/l	
			☐ Total filterable residue (dissolved) (70300)	mg/l	
			☐ Other:		
☒ F, A-H ₂ SO ₄			☐ F, A-H ₂ SO ₄		
☒ Nitrate-N ⁺ , Nitrate-N total (00630)	mg/l	4/23	☐ Nitrate-N ⁺ , Nitrate-N dissolved (00631)	mg/l	
☒ Ammonia-N total (00610)	mg/l	11/5/14	☐ Ammonia-N dissolved (00608)	mg/l	
☒ Total Kjeldahl-N ()	mg/l	5/17	☐ Total Kjeldahl-N ()	mg/l	
☒ Chemical oxygen demand (00340)	mg/l	6/10	☐ Other:		
☒ Total organic carbon ()	mg/l				
☐ Other:					
☐ Other:					

Laboratory remarks

ICAP SCREEN

Lab Number: HM 697Date Submitted: 4/12/85By: Bayer/BacaSample Code: N Siv. APIeffluDate Reported: 6/18/85By: Jim KellyDeterminationConcentration (µg/ml)

Aluminum	<u>2.10</u>
Barium	<u><.10</u>
Beryllium	<u><.10</u>
Boron	<u><.10</u>
Cadmium	<u><.10</u>
Calcium	<u>130.</u>
Chromium	<u><.10</u>
Cobalt	<u><.10</u>
Copper	<u><.10</u>
Iron	<u><.10</u>
Lead	<u><.10</u>
Magnesium	<u>37.</u>
Manganese	<u><.05</u>
Molybdenum	<u><.10</u>
Nickel	<u><.10</u>
Silicon	<u>7.4</u>
Silver	<u><.10</u>
Strontium	<u>1.5</u>
Tin	<u><.10</u>
Vanadium	<u><.10</u>
Yttrium	<u><.10</u>
Zinc	<u><.10</u>

ATOMIC ABSORPTION ANALYSES

Arsenic .009 $\mu\text{g/ml}$

Selenium _____ $\mu\text{g/ml}$

Mercury _____ $\mu\text{g/ml}$

REPORT TO:



David G. Boyer

New Mexico Oil Conservation Division

P. O. Box 2088

Santa Fe, NM 87501

-85-0328 -C

LABORATORY

LAB NUMBER ORG-328-A-B

4-12

SLD PRIORITY 3

SLD Users Code No. 85235

ALL CONTAINERS WHICH THIS FORM ACCOMPANIES ARE COLLECTIVELY REFERRED TO AS "SAMPLE".

CERTIFICATE OF FIELD PERSONNEL

Sample Type: Water ☒ Soil ☐ Other

Water Supply and/or Code No. Refinery Ditch at N. Div. Property boundary

City & County Navajo Refinery, Artesia

Collected (date & time) 8504100855 By (name) Boyer/Baca

pH= 8.6; Conductivity= 7000 umho/cm at 28 °C; Chlorine Residual=

Dissolved Oxygen= mg/l; Alkalinity=; Flow Rate= 300 gpm

Sampling Location, Methods & Remarks (i.e. odors etc.)

Sample from weir on N. side of road crossing. Weir
trapped oil, some lighter fractions moved over weir
strong odor

I certify that the statements in this block accurately reflect the results of my field analyses, observations and activities. Signed David G. BoyerI certify that I witnessed these field analyses, observations and activities and concur with the statements in this block. Signed Philip P. Baca

Method of Shipment to Laboratory Hand-carried

THIS FORM ACCOMPANIES 2 septum vials with teflon-lined discs identified as:

specimen ✓; duplicate ✓; triplicate ✓; blank(s) ✓and ✓ amber glass jug(s) with teflon-lined cap(s) identified as ✓and ✓ other container(s) (describe) ✓ identified as ✓

Containers are marked as follows to indicate preservation (circle):

NP: No preservation; sample stored at room temperature (~20°C).

P-ICE: Sample stored in an ice bath.

P-Na₂O₃S₂: Sample preserved with 3 mg Na₂O₃S₂/40 ml and stored at room temperature.

CERTIFICATE(S) OF SAMPLE RECEIPT

I (we) certify that this sample was transferred from _____ to _____

_____ at (location) _____ on _____

(date & time) _____ and that the statements in this block are correct.

Disposition of Sample _____. Seal(s) Intact: Yes ☐ No ☐.

Signature(s) _____

I (we) certify that this sample was transferred from _____ to _____

_____ at (location) _____ on _____

(date & time) _____ and that the statements in this block are correct.

Disposition of Sample _____. Seal(s) Intact: Yes ☐ No ☐.

Signature(s) _____

ANALYSES REQUESTED

LAB. No.: ORG-32E

PLEASE CHECK THE APPROPRIATE BOXES BELOW TO INDICATE THE TYPE OF ANALYTICAL SCREENS REQUIRED. WHENEVER POSSIBLE LIST SPECIFIC COMPOUNDS SUSPECTED OR REQUIRED.

QUALITATIVE	QUANTITATIVE	PURGEABLE SCREENS	QUALITATIVE	QUANTITATIVE	EXTRACTABLE SCREENS
		ALIPHATIC HYDROCARBON SCREEN			ALIPHATIC HYDROCARBONS
		AROMATIC HYDROCARBON SCREEN			CHLORINATED HYDROCARBON PESTICIDES
		HALOGENATED HYDROCARBON SCREEN			CHLOROPHENOXY ACID HERBICIDES
		GAS CHROMATOGRAPH/MASS SPECTROMETER			HYDROCARBON FUEL SCREEN
					ORGANOPHOSPHATE PESTICIDES
					POLYCHLORINATED BIPHENYLS (PCB's)
					POLYNUCLEAR AROMATIC HYDROCARBONS
					TRIAZINE HERBICIDES
		SPECIFIC COMPOUNDS			SPECIFIC COMPOUNDS

REMARKS:

ANALYTICAL RESULTS

COMPOUND	[PPB]	COMPOUND	[PPB]
<i>16 log. vol. purgables</i>	<i>none detected</i>		
<i>benzene</i>	<i>2700</i>		
<i>toluene</i>	<i>4510</i>		
<i>ethylbenzene</i>	<i>1110</i>		
<i>p-xylene</i>	<i>none detected</i>		
<i>m-xylene</i>	<i>1050</i>		
<i>o-xylene</i>	<i>530</i>		
		* DETECTION LIMIT	<i>2.5 ug/l</i>

REMARKS: *Sixteen aromatic type compounds were also detected but were not identified.*

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes NO X. Seal(s) broken by: _____ date: _____

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements in this block and the analytical data on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: *28 Apr, 3 May 85* Analyst's signature: *[Signature]*

I certify that I have reviewed and concur with the analytical results for this sample and with the statements in this block. Reviewers signature: *[Signature]*



New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

GENERAL WATER CHEMISTRY
and NITROGEN ANALYSIS

DATE RECEIVED	4/12/85	LAB NO.	WC-1709	USER CODE	☐ 59300 ☐ 59600 ☒ OTHER: 82235
Collection DATE	85/04/10	SITE INFORMATION	Sample location		
Collection TIME	0855		Wastewater Ditch, N. end of refinery		
Collected by — Person/Agency		Boyer/Baca			
		Collection site description			
		From Weir at Ditch at N END of Navajo refinery property on N. side of road crossing (near old sewer plant)			
		Station/well code			
		Owner			

SEND
FINAL
REPORT
TO

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87501

Attn: David Boyer

SAMPLING CONDITIONS

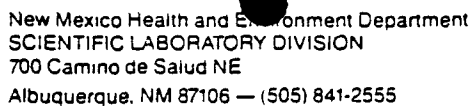
☐ Bailed ☒ Dipped	☐ Pump ☐ Tap	Water level	Discharge	Sample type
			~ 300 gpm	Grab
pH (00400)	8.6	Conductivity (Uncorrected)	7000 μ mho	Water Temp. (00010)
			28 $^{\circ}$ C	Conductivity at 25 $^{\circ}$ C (00094)
				6601 μ mho
Field comments				
Strong aromatic odor				

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted	1	☐ NF: Whole sample (Non-filtered)	☒ F: Filtered in field with 0.45 μ m membrane filter	☐ A: 2 ml H ₂ SO ₄ /L added
☒ NA: No acid added ☐ Other-specify:				

ANALYTICAL RESULTS from SAMPLES

BF, NA	Units	Date analyzed	F, NA	Units	Date analyzed
☐ Conductivity (Corrected) 25 $^{\circ}$ C (00095)	μ mho		☒ Calcium (00915)	20.8 mg/l	5/2
☐ Total non-filterable residue (suspended) (00530)	mg/l		☒ Magnesium (00925)	53.5 mg/l	5/2
☒ Other: pH	6.23		☒ Sodium (00930)	117.5 mg/l	4/16
☐ Other:			☒ Potassium (00935)	8.47 mg/l	4/16
☐ Other:			☒ Bicarbonate (00440)	1.0 mg/l	6/5
			☒ Chloride (00940)	1789.6 mg/l	6/5
			☒ Sulfate (00945)	116.2 mg/l	5/3
			☒ Total filterable residue (dissolved) (70300)	441.3 mg/l	6/5
			☒ Other: F	23.5	5/20
NF, A-H ₂ SO ₄			F, A-H ₂ SO ₄		
☐ Nitrate-N ⁺ , Nitrate-N total (00630)	mg/l		☐ Nitrate-N ⁺ , Nitrate-N dissolved (00631)	mg/l	
☐ Ammonia-N total (00610)	mg/l		☐ Ammonia-N dissolved (00608)	mg/l	
☐ Total Kjeldahl-N ()	mg/l		☐ Total Kjeldahl-N ()	mg/l	
☐ Chemical oxygen demand (00340)	mg/l		☐ Other:		
☐ Total organic carbon ()	mg/l				
☐ Other:					
☐ Other:					
Laboratory remarks			Analyst	Date Reported	Reviewed by
				6/10/85	CJ



Heavy Metals
GENERAL WATER CHEMISTRY
AND NITROGEN ANALYSIS

SEND
FINAL
REPORT
TO

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87501

Attn: David Boyer

☐ Bailed ☒ Dipped	☐ Pump ☐ Tap	Water level	Discharge <i>~ 300 gpm</i>	Sample type <i>Grab</i>
pH (00400) <i>8.6</i>	Conductivity (Uncorrected) <i>7000</i> μmho	Water Temp. (00010) <i>28</i> $^{\circ}\text{C}$	Conductivity at 25 $^{\circ}\text{C}$ (00094) μmho	
Field comments <i>Strong aromatic odor</i>				

No. of samples submitted	1	☐ NF: Whole sample (Non-filtered)	☒ F: Filtered in field with 0.45 μ m membrane filter	☐ A: 2 ml H ₂ SO ₄ /L added
☐ NA: No acid added ☒ Other-specify: A HNO ₃				

F. 1A. <u>IND₃</u>		Units	Date analyzed
☐ Conductivity (Corrected) 25°C (00095)	_____ μ mho _____		
☐ Total non-filterable residue (suspended) (00530)	_____ mg/l _____		
☒ Other: <u>ICAPSCAN</u>			
☒ Other: <u>AS</u>	<u>0.392</u> mg/l <u>3/17</u>		
☐ Other:	_____		
NF. A-H₂SO₄			
☐ Nitrate-N +, Nitrate-N total (00630)	_____ mg/l _____		
☐ Ammonia-N total (00610)	_____ mg/l _____		
☐ Total Kjeldahl-N ()	_____ mg/l _____		
☐ Chemical oxygen demand (00340)	_____ mg/l _____		
☐ Total organic carbon ()	_____ mg/l _____		
☐ Other:	_____		
☐ Other:	_____		
F. NA			
☐ Calcium (00915)	_____ mg/l _____		
☐ Magnesium (00925)	_____ mg/l _____		
☐ Sodium (00930)	_____ mg/l _____		
☐ Potassium (00935)	_____ mg/l _____		
☐ Bicarbonate (00440)	_____ mg/l _____		
☐ Chloride (00940)	_____ mg/l _____		
☐ Sulfate (00945)	_____ mg/l _____		
☐ Total filterable residue (dissolved) (70300)	_____ mg/l _____		
☐ Other:	_____		
F. A-H₂SO₄			
☐ Nitrate-N +, Nitrate-N dissolved (00631)	_____ mg/l _____		
☐ Ammonia-N dissolved (00608)	_____ mg/l _____		
☐ Total Kjeldahl-N ()	_____ mg/l _____		
☐ Other:	_____		
Analyst		Date Reported	Reviewed by
		<u>6/13/85</u>	<u>Tim [Signature]</u>

Laboratory remarks

ICAP SCREEN

Lab Number: HM 691Date Submitted: 4/12/85By: Boyer/BacaSample Code: Waste Water ditchDate Reported: 6/12/85By: Jim LibbyDeterminationConcentration (µg/ml)

Aluminum	<u><.10</u>
Barium	<u><.10</u>
Beryllium	<u><.10</u>
Boron	<u>.20</u>
Cadmium	<u><.10</u>
Calcium	<u>150.</u>
Chromium	<u><.10</u>
Cobalt	<u><.10</u>
Copper	<u><.10</u>
Iron	<u><.10</u>
Lead	<u><.10</u>
Magnesium	<u>56.</u>
Manganese	<u>.07</u>
Molybdenum	<u><.10</u>
Nickel	<u><.10</u>
Silicon	<u>6.6</u>
Silver	<u><.10</u>
Strontium	<u>2.2</u>
Tin	<u><.10</u>
Vanadium	<u><.10</u>
Yttrium	<u><.10</u>
Zinc	<u><.10</u>

ATOMIC ABSORPTION ANALYSES

Arsenic .392 $\mu\text{g/ml}$

Selenium _____ $\mu\text{g/ml}$

Mercury _____ $\mu\text{g/ml}$

85-0337 -C

REPORT TO:

David G. Boyer

New Mexico Oil Conservation Division

P. O. Box 2088

Santa Fe, NM 87501

LABORATORY

LAB NUMBER DRG-337-17-B
4/12/85

SLD PRIORITY 3

SLD Users Code No. 82235

ALL CONTAINERS WHICH THIS FORM ACCOMPANIES ARE COLLECTIVELY REFERRED TO AS "SAMPLE".

CERTIFICATE OF FIELD PERSONNEL

Sample Type: Water ☒ Soil ☐ Other ☐

Water Supply and/or Code No. 8504101055 Pond #1 Inlet

City & County Nazajin, Rabinovich, Artesia, Eddy Co

Collected (date & time) 850410/1055 By (name) Boyer/Baca

pH= 8.5; Conductivity= 40.55 umho/cm at 17.5 °C; Chlorine Residual=

Dissolved Oxygen= _____ mg/l; Alkalinity= _____; Flow Rate= 300 gpm

Sampling Location, Methods & Remarks (i.e. odors etc.)
Culvert downstream of road culvert at ditch, Very strong aromatic odor.

I certify that the statements in this block accurately reflect the results of my field analyses, observations and activities. Signed David G. Boyer

I certify that I witnessed these field analyses, observations and activities and concur with the statements in this block. Signed Philip J. Baca

Method of Shipment to Laboratory Handcarried

THIS FORM ACCOMPANIES 2 septum vials with teflon-lined discs identified as:
specimen X; duplicate X; triplicate _____; blank(s) _____
and _____ amber glass jug(s) with teflon-lined cap(s) identified as _____
and _____ other container(s) (describe) _____ identified as _____

Containers are marked as follows to indicate preservation (circle):
NP: No preservation; sample stored at room temperature (~20°C).
P-ICE: Sample stored in an ice bath.
P-Na₂O₃S₂: Sample preserved with 3 mg Na₂O₃S₂/40 ml and stored at room temperature.

CERTIFICATE(S) OF SAMPLE RECEIPT

I (we) certify that this sample was transferred from _____ to _____
at (location) _____ on _____
(date & time) _____ and that the statements in this block are correct.

Disposition of Sample _____. Seal(s) Intact: Yes ☐ No ☐ .
Signature(s) _____

I (we) certify that this sample was transferred from _____ to _____
at (location) _____ on _____
(date & time) _____ and that the statements in this block are correct.

Disposition of Sample _____. Seal(s) Intact: Yes ☐ No ☐ .
Signature(s) _____

ANALYSES REQUESTED

LAB. No.: ORG- 337

PLEASE CHECK THE APPROPRIATE BOXES BELOW TO INDICATE THE TYPE OF ANALYTICAL SCREENS REQUIRED. WHENEVER POSSIBLE LIST SPECIFIC COMPOUNDS SUSPECTED OR REQUIRED.

QUALITATIVE	QUANTITATIVE	PURGEABLE SCREENS	QUALITATIVE	QUANTITATIVE	EXTRACTABLE SCREENS
		ALIPHATIC HYDROCARBON SCREEN			ALIPHATIC HYDROCARBONS
		AROMATIC HYDROCARBON SCREEN			CHLORINATED HYDROCARBON PESTICIDES
		HALOGENATED HYDROCARBON SCREEN			CHLOROPHENOXY ACID HERBICIDES
		GAS CHROMATOGRAPH/MASS SPECTROMETER			HYDROCARBON FUEL SCREEN
					ORGANOPHOSPHATE PESTICIDES
					POLYCHLORINATED BIPHENYLS (PCB's)
					POLYNUCLEAR AROMATIC HYDROCARBONS
					TRIAZINE HERBICIDES
		SPECIFIC COMPOUNDS			SPECIFIC COMPOUNDS

REMARKS:

ANALYTICAL RESULTS

COMPOUND	[PPB]	COMPOUND	[PPB]
<i>halogenated purgables</i>	<i>none detected</i>		
<i>Benzene</i>	<i>100</i>		
<i>Toluene</i>	<i>470</i>		
<i>ethylbenzene</i>	<i>70</i>		
<i>p-Xylene</i>	<i>5</i>		
<i>m-Xylene</i>	<i>120</i>		
<i>o-Xylene</i>	<i>50</i>		
		* DETECTION LIMIT	<i>2 µg/ml</i>

REMARKS: *Twenty-four aromatic type compounds were also detected that were not identified including trihalogenated, poly-substituted aromatic compounds.*

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ___ NO X. Seal(s) broken by: _____ date: _____
 I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements in this block and the analytical data on this page accurately reflect the analytical results for this sample.
 Date(s) of analysis: *26 Apr + 3 May 85*. Analyst's signature: *Di Turner*
 I certify that I have reviewed and concur with the analytical results for this sample and with the statements in this block. Reviewers signature: *R. Meyerhen*



New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED	4/12/85	LAB NO.	NC-1712	USER CODE	☐ 59300 ☐ 59600 ☒ OTHER: 82235
Collection DATE	04/10/85	SITE INFORMATION	Sample location	Pond #1 Inlet, Navajo Refinery	
Collection TIME	10:55		Collection site description	Culvert (down stream side) at ditch inlet to pond #1	
Collected by — Person/Agency					

SEND
FINAL
REPORT
TO

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87501

Attn: David Boyer

SAMPLING CONDITIONS

☐ Bailed ☐ Pump ☒ Dipped ☐ Tap	Water level	Discharge	Sample type
		~ 300 gpm	Grab
pH (00400)	Conductivity (Uncorrected)	Water Temp. (00010)	Conductivity at 25°C (00094)
8.5	4050 µmho	17.3 °C	4700 µmho
Field comments			
Strong aromatic odor			

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted	☐ NF: Whole sample (Non-filtered)	☒ F: Filtered in field with 0.45 µmembrane filter	☐ A: 2 ml H ₂ SO ₄ /L added
1			
☒ NA: No acid added ☐ Other-specify:			

ANALYTICAL RESULTS from SAMPLES

NF, NA	Units	Date analyzed	F, NA	Units	Date analyzed
☐ Conductivity (Corrected) 25°C (00095)	µmho		☒ Calcium (00915)	mg/l	5/2
☐ Total non-filterable residue (suspended) (00530)	mg/l		☒ Magnesium (00925)	mg/l	5/2
☒ Other: pH	7.12	6/13	☒ Sodium (00930)	mg/l	4/16
☐ Other:			☒ Potassium (00935)	mg/l	4/16
☐ Other:			☒ Bicarbonate (00440)	mg/l	4/16
			☒ Chloride (00940)	mg/l	6/12
			☒ Sulfate (00945)	mg/l	5/18
			☒ Total filterable residue (dissolved) (70300)	mg/l	5/29
NF, A-H ₂ SO ₄			☒ Other: CO ₃ F	mg/l	6/6
☐ Nitrate-N +, Nitrate-N total (00630)	mg/l			63.7	5/13
☐ Ammonia-N total (00610)	mg/l		F, A-H ₂ SO ₄		
☐ Total Kjeldahl-N ()	mg/l		☐ Nitrate-N +, Nitrate-N dissolved (00631)	mg/l	
☐ Chemical oxygen demand (00340)	mg/l		☐ Ammonia-N dissolved (00608)	mg/l	
☐ Total organic carbon ()	mg/l		☐ Total Kjeldahl-N ()	mg/l	
☐ Other:			☐ Other:		
☐ Other:			Analyst	Date Reported	Reviewed by
				6/18/85	Q. Dean
Laboratory remarks					



New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

GENERAL WATER CHEMISTRY
and NITROGEN ANALYSIS

DATE RECEIVED	4/12/85	LAB NO.	WC 7698	USER CODE	☐ 59300 ☐ 59600 ☒ OTHER: 82235
Collection DATE	04/10/85	SITE INFORMATION	Sample location		
Collection TIME	10:55		Pond #1 Inlet, Navajo Refinery		
Collected by — Person/Agency		Culvert (down stream side) at ditch inlet to pond #1			

SEND
FINAL
REPORT
TO

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87501

Attn: David Boyer

Station/
well code
Owner

SAMPLING CONDITIONS

☐ Bailed ☒ Dipped	☐ Pump ☐ Tap	Water level	Discharge	Sample type
			~ 300 gpm	Grab
pH (00400)	8.5	Conductivity (Uncorrected)	Water Temp. (00010)	Conductivity at 25°C (00094)
		4050 µmho	17.3 °C	µmho
Field comments				
Strong aromatic odor				

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted	1	☐ NF: Whole sample (Non-filtered)	☒ F: Filtered in field with 0.45 µmembrane filter	☒ A: 2 ml H ₂ SO ₄ /L added
☐ NA: No acid added ☐ Other-specify:				

ANALYTICAL RESULTS from SAMPLES

NF, NA	Units	Date analyzed	F, NA	Units	Date analyzed
☐ Conductivity (Corrected) 25°C (00095)	µmho		☐ Calcium (00915)	mg/l	
☐ Total non-filterable residue (suspended) (00530)	mg/l		☐ Magnesium (00925)	mg/l	
☐ Other:			☐ Sodium (00930)	mg/l	
☐ Other:			☐ Potassium (00935)	mg/l	
☐ Other:			☐ Bicarbonate (00440)	mg/l	
			☐ Chloride (00940)	mg/l	
			☐ Sulfate (00945)	mg/l	
			☐ Total filterable residue (dissolved) (70300)	mg/l	
			☐ Other:		
☒ NF, A-H ₂ SO ₄					
☐ Nitrate-N +, Nitrate-N total (00630)	mg/l		☒ F, A-H ₂ SO ₄		
☐ Ammonia-N total (00610)	mg/l		☒ Nitrate-N +, Nitrate-N dissolved (00631)	mg/l	4/23
☐ Total Kjeldahl-N ()	mg/l		☒ Ammonia-N dissolved (00608)	mg/l	6/28
☒ Chemical oxygen demand (00340)	443	5/17	☒ Total Kjeldahl-N ()	mg/l	5/29
☒ Total organic carbon ()	85	7/25	☐ Other:		
☐ Other:			Analyst		
☐ Other:			Date Reported		
			7/29/85		
			Reviewed by		
			[Signature]		

Laboratory remarks



New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

Heavy Metals
~~GENERAL WATER CHEMISTRY~~
~~AND NITROGEN ANALYSIS~~

DATE RECEIVED	4/12/85	LAB NO.	HM-1695	USER CODE	☐ 59300 ☐ 59600 ☒ OTHER: 82235
Collection DATE	04/10/85	SITE INFORMATION	Sample location		
Collection TIME	1055		Pond #1 Inlet, Navajo Refinery		
Collected by — Person/Agency		Boyer/Baker		Collection site description	
				Culvert (downstream side) at ditch inlet to pond #1	

SEND FINAL REPORT TO

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87501

Attn: David Boyer

SAMPLING CONDITIONS

☐ Bailed ☒ Dipped	☐ Pump ☐ Tap	Water level	Discharge	Sample type
			~ 300 gpm	Grab
pH (00400)	8.5	Conductivity (Uncorrected)	Water Temp. (00010)	Conductivity at 25°C (00094)
		4050 µmho	17.3 °C	µmho
Field comments				
Strong aromatic odor				

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted	1	☐ NF: Whole sample (Non-filtered)	☒ F: Filtered in field with 0.45 µm membrane filter	☐ A: 2 ml H ₂ SO ₄ /L added
☐ NA: No acid added ☒ Other-specify: A HNO ₃				

ANALYTICAL RESULTS from SAMPLES

Units	Date analyzed	F, NA	Units	Date analyzed
GF, A-HNO₃				
☐ Conductivity (Corrected) 25°C (00095)	µmho	☐ Calcium (00915)	mg/l	
☐ Total non-filterable residue (suspended) (00530)	mg/l	☐ Magnesium (00925)	mg/l	
☒ Other: ICAP SCAN		☐ Sodium (00930)	mg/l	
☒ Other: AS	0.397 mg/l	☐ Potassium (00935)	mg/l	
☐ Other:		☐ Bicarbonate (00440)	mg/l	
		☐ Chloride (00940)	mg/l	
		☐ Sulfate (00945)	mg/l	
		☐ Total filterable residue (dissolved) (70300)	mg/l	
		☐ Other:		
NF, A-H₂SO₄				
☐ Nitrate-N +, Nitrate-N total (00630)	mg/l	F, A-H₂SO₄		
☐ Ammonia-N total (00610)	mg/l	☐ Nitrate-N +, Nitrate-N dissolved (00631)	mg/l	
☐ Total Kjeldahl-N ()	mg/l	☐ Ammonia-N dissolved (00608)	mg/l	
☐ Chemical oxygen demand (00340)	mg/l	☐ Total Kjeldahl-N ()	mg/l	
☐ Total organic carbon ()	mg/l	☐ Other:		
☐ Other:		Analyst	Date Reported	Reviewed by
☐ Other:			6/12/85	Jim Kelly
Laboratory remarks				

ICAP SCREEN

Lab Number: HM 695Date Submitted: 4/12/85By: Boyer/BacaSample Code: Pond #1 InletDate Reported: 6/18/85By: Jim ReddyDeterminationConcentration (µg/ml)

Aluminum	<u><.10</u>
Barium	<u><.10</u>
Beryllium	<u><.10</u>
Boron	<u>.23</u>
Cadmium	<u><.10</u>
Calcium	<u>133.</u>
Chromium	<u><.10</u>
Cobalt	<u><.10</u>
Copper	<u><.10</u>
Iron	<u>.15</u>
Lead	<u><.10</u>
Magnesium	<u>56.</u>
Manganese	<u>.10</u>
Molybdenum	<u><.10</u>
Nickel	<u><.10</u>
Silicon	<u>15.</u>
Silver	<u><.10</u>
Strontium	<u>2.2</u>
Tin	<u><.10</u>
Vanadium	<u><.10</u>
Yttrium	<u><.10</u>
Zinc	<u><.10</u>

ATOMIC ABSORPTION ANALYSES

Arsenic .399 $\mu\text{g/ml}$

Selenium _____ $\mu\text{g/ml}$

Mercury _____ $\mu\text{g/ml}$

REPORT TO:



David G. Boyer

New Mexico Oil Conservation Division

P. O. Box 2088

Santa Fe, NM 87501

LABORATORY

LAB NUMBER ORC 333-17.B

4/12/85

SLD PRIORITY 3

85-0333

-C Users Code No. 82235

ALL CONTAINERS WHICH THIS FORM ACCOMPANIES ARE COLLECTED... REFERRED TO AS "SAMPLE".

CERTIFICATE OF FIELD PERSONNEL

Sample Type: Water ☒ Soil ☐ Other _____Water Supply and/or Code No. Pond 1 outletCity & County Naraja Refinery - Artesia, Eddy CityCollected (date & time) 850410/1114 By (name) Boyer / BocapH= 9.7; Conductivity= 5900 umho/cm at 19 °C; Chlorine Residual= _____

Dissolved Oxygen= _____ mg/l; Alkalinity= _____; Flow Rate= _____

Sampling Location, Methods & Remarks (i.e. odors etc.)

Sample from pond 1 outlet pipe downstream of pond 1
Heavy aromatic odor

I certify that the statements in this block accurately reflect the results of my field analyses, observations and activities. Signed David G. BoyerI certify that I witnessed these field analyses, observations and activities and concur with the statements in this block. Signed Philip L. BocaMethod of Shipment to Laboratory Hand carriedTHIS FORM ACCOMPANIES 2 septum vials with teflon-lined discs identified as:specimen X; duplicate X; triplicate _____; blank(s) _____,

and _____ amber glass jug(s) with teflon-lined cap(s) identified as _____,

and _____ other container(s) (describe) _____ identified as _____.

Containers are marked as follows to indicate preservation (circle):

NP: No preservation; sample stored at room temperature (~20°C).

P-ICE: Sample stored in an ice bath.P-Na₂O₃S₂: Sample preserved with 3 mg Na₂O₃S₂/40 ml and stored at room temperature.

CERTIFICATE(S) OF SAMPLE RECEIPT

I (we) certify that this sample was transferred from _____ to _____

_____ at (location) _____ on _____

(date & time) _____ and that the statements in this block are correct.

Disposition of Sample _____. Seal(s) Intact: Yes ☐ No ☐.

Signature(s) _____

I (we) certify that this sample was transferred from _____ to _____

_____ at (location) _____ on _____

(date & time) _____ and that the statements in this block are correct.

Disposition of Sample _____. Seal(s) Intact: Yes ☐ No ☐.

Signature(s) _____

ANALYSES REQUESTED

LAB. No.: ORG- 333

PLEASE CHECK THE APPROPRIATE BOXES BELOW TO INDICATE THE TYPE OF ANALYTICAL SCREENS REQUIRED. WHENEVER POSSIBLE LIST SPECIFIC COMPOUNDS SUSPECTED OR REQUIRED.

QUALITATIVE	QUANTITATIVE	PURGEABLE SCREENS	QUALITATIVE	QUANTITATIVE	EXTRACTABLE SCREENS
		ALIPHATIC HYDROCARBON SCREEN			ALIPHATIC HYDROCARBONS
		AROMATIC HYDROCARBON SCREEN			CHLORINATED HYDROCARBON PESTICIDES
		HALOGENATED HYDROCARBON SCREEN			CHLOROPHENOXY ACID HERBICIDES
		GAS CHROMATOGRAPH/MASS SPECTROMETER			HYDROCARBON FUEL SCREEN
					ORGANOPHOSPHATE PESTICIDES
					POLYCHLORINATED BIPHENYLS (PCB's)
					POLYNUCLEAR AROMATIC HYDROCARBONS
					TRIAZINE HERBICIDES
		SPECIFIC COMPOUNDS			SPECIFIC COMPOUNDS

REMARKS:

ANALYTICAL RESULTS

COMPOUND	[PPB]	COMPOUND	[PPB]
<i>halogenated purgables</i>	<i>none detected</i>		
<i>Benzene</i>	<i>50</i>		
<i>toluene</i>	<i>290</i>		
<i>styrene</i>	<i>none detected</i>		
<i>p-xylene</i>	<i>6</i>		
<i>m-xylene</i>	<i>70</i>		
<i>o-xylene</i>	<i>9</i>		
		* DETECTION LIMIT	<i>1-100 µg/l</i>

REMARKS:

Twenty-six aromatic type compounds were also detected that were not identified.

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ☒ NO ☒ Seal(s) broken by: _____ date: _____

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements in this block and the analytical data on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: *28 Apr 83* Analyst's signature: *R. Meyer*

I certify that I have reviewed and concur with the analytical results for this sample and with the statements in this block. Reviewers signature: *R. Meyer*



New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

GENERAL WATER CHEMISTRY
and NITROGEN ANALYSIS

DATE RECEIVED	4/12/85	LAB NO.	WC-171	USER CODE	☐ 59300 ☐ 59600 ☒ OTHER: 82235
Collection DATE	850410	SITE INFORMATION	Sample location		
Collection TIME	1114		Pond #1 Outlet, Navajo Reservoir		
Collected by — Person/Agency	Bayer/Beco		Collection site description		
			Downstream of outlet valve/p.p.		

SEND
FINAL
REPORT
TO

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87501

Attn: David Boyer

SAMPLING CONDITIONS

☐ Bailed ☐ Pump	Water level	Discharge	Sample type
☒ Dipped ☐ Tap	—	~ 350 gpm	6225
pH (00400)	Conductivity (Uncorrected)	Water Temp. (00010)	Conductivity at 25°C (00094)
9.7	5500 µmho	19 °C	6700 µmho
Field comments			
Strong aromatic odor			

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted	☐ NF: Whole sample (Non-filtered)	☒ F: Filtered in field with 0.45 µmembrane filter	☐ A: 2 ml H ₂ SO ₄ /L added
1			
☒ NA: No acid added ☐ Other-specify:			

ANALYTICAL RESULTS from SAMPLES

UF, NA	Units	Date analyzed	F, NA	Units	Date analyzed
☐ Conductivity (Corrected) 25°C (00095)	µmho		☒ Calcium (00915)	mg/l	5/2
			☒ Magnesium (00925)	mg/l	5/2
☐ Total non-filterable residue (suspended) (00530)	mg/l		☒ Sodium (00930)	mg/l	4/16
☒ Other: pH 6.5			☒ Potassium (00935)	mg/l	4/16
☐ Other:			☒ Bicarbonate (00440)	mg/l	6/5
☐ Other:			☒ Chloride (00940)	mg/l	6/5
			☒ Sulfate (00945)	mg/l	5/8
			☒ Total filterable residue (dissolved) (70300)	mg/l	5/29
			☒ Other: F CO ₃		6/5
					5/13
NF, A-H ₂ SO ₄			F, A-H ₂ SO ₄		
☐ Nitrate-N ⁺ , Nitrate-N total (00630)	mg/l		☐ Nitrate-N ⁺ , Nitrate-N dissolved (00631)	mg/l	
☐ Ammonia-N total (00610)	mg/l		☐ Ammonia-N dissolved (00608)	mg/l	
☐ Total Kjeldahl-N ()	mg/l		☐ Total Kjeldahl-N ()	mg/l	
☐ Chemical oxygen demand (00340)	mg/l		☐ Other:		
☐ Total organic carbon ()	mg/l				
☐ Other:					
☐ Other:					
Laboratory remarks			Analyst	Date Reported	Reviewed by
				6/10/85	



New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED 4/12/85	LAB NO. W-1697	USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235
Collection DATE 8/24/10	SITE INFORMATION	Sample location Pond #1 Outlet, Navajo Reservoir
Collection TIME 1114		Collection site description Downstream of outlet valve/pipe
Collected by — Person/Agency Boxy/Beco		

SEND
FINAL
REPORT
TO

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87501

Attn: David Boyer

SAMPLING CONDITIONS

☐ Bailed ☒ Dipped	☐ Pump ☐ Tap	Water level —	Discharge ~ 350 gpm	Sample type 6A26
pH (00400) 9.7	Conductivity (Uncorrected) 5500 µmho	Water Temp. (00010) 19 °C	Conductivity at 25 °C (00094) — µmho	
Field comments Strong aromatic odor				

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted 1	☐ NF: Whole sample (Non-filtered)	☒ F: Filtered in field with 0.45 µmembrane filter	☒ A: 2 ml H ₂ SO ₄ /L added
☐ NA: No acid added ☐ Other-specify:			

ANALYTICAL RESULTS from SAMPLES

NF, NA	Units	Date analyzed	F, NA	Units	Date analyzed
☐ Conductivity (Corrected) 25 °C (00095)	µmho		☐ Calcium (00915)	mg/l	
☐ Total non-filterable residue (suspended) (00530)	mg/l		☐ Magnesium (00925)	mg/l	
☐ Other:			☐ Sodium (00930)	mg/l	
☐ Other:			☐ Potassium (00935)	mg/l	
☐ Other:			☐ Bicarbonate (00440)	mg/l	
☐ Other:			☐ Chloride (00940)	mg/l	
			☐ Sulfate (00945)	mg/l	
			☐ Total filterable residue (dissolved) (70300)	mg/l	
			☐ Other:		
NF, A-H₂SO₄			F, A-H₂SO₄		
☒ Nitrate-N +, Nitrate-N total (00630)	0.21 mg/l	4/23	☐ Nitrate-N +, Nitrate-N dissolved (00631)	mg/l	
☒ Ammonia-N total (00610)	10.66 mg/l	5/14	☐ Ammonia-N dissolved (00608)	mg/l	
☒ Total Kjeldahl-N ()	11.9 mg/l	5/17	☐ Total Kjeldahl-N ()	mg/l	
☒ Chemical oxygen demand (00340)	554 mg/l	7/25	☐ Other:		
☒ Total organic carbon ()	119 mg/l				
☐ Other:					
☐ Other:					

Laboratory remarks



New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

Henry McTeal's
GENERAL WATER CHEMISTRY
AND HYDROGEN ANALYSIS

DATE RECEIVED	1/12/85	LAB NO.	HM-0696	USER CODE	☐ 59300 ☐ 59600 ☒ OTHER: 82235
Collection DATE	8/10/84	SITE INFORMATION	Sample location		
Collection TIME	1114		Pond #1 Outlet, Navajo Reservoir		
Collected by — Person/Agency		Downstream of outlet valve/p, etc			
Boyer/Bece					

SEND
FINAL
REPORT
TO

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87501

Attn: David Boyer

Station/
well code
Owner

SAMPLING CONDITIONS

☐ Bailed ☐ Pump	Water level	Discharge	Sample type
☒ Dipped ☐ Tap	—	~ 300 gpm	Grab
pH (00400)	Conductivity (Uncorrected)	Water Temp. (00010)	Conductivity at 25°C (00094)
9.7	5900 μ mho	19 °C	— μ mho

Field comments

Strong aromatic odor

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted	☐ NF: Whole sample (Non-filtered)	☒ F: Filtered in field with 0.45 μ membrane filter	☐ A: 2 ml H ₂ SO ₄ /L added
1	☐ NA: No acid added ☒ Other-specify: AHND ₃		

ANALYTICAL RESULTS from SAMPLES

NF, AHND ₃		Units	Date analyzed	F, NA		Units	Date analyzed
☐ Conductivity (Corrected) 25°C (00095)	_____	μ mho	_____	☐ Calcium (00915)	_____	mg/l	_____
☐ Total non-filterable residue (suspended) (00530)	_____	mg/l	_____	☐ Magnesium (00925)	_____	mg/l	_____
☒ Other: ICAP SCAN	_____	_____	_____	☐ Sodium (00930)	_____	mg/l	_____
☒ Other: AS	0.49	_____	7/19/85	☐ Potassium (00935)	_____	mg/l	_____
☐ Other: _____	_____	_____	_____	☐ Bicarbonate (00440)	_____	mg/l	_____
				☐ Chloride (00940)	_____	mg/l	_____
				☐ Sulfate (00945)	_____	mg/l	_____
				☐ Total filterable residue (dissolved) (70300)	_____	mg/l	_____
				☐ Other: _____	_____	_____	_____
NF, A-H ₂ SO ₄				F, A-H ₂ SO ₄			
☐ Nitrate-N + Nitrate-N total (00630)	_____	mg/l	_____	☐ Nitrate-N + Nitrate-N dissolved (00631)	_____	mg/l	_____
☐ Ammonia-N total (00610)	_____	mg/l	_____	☐ Ammonia-N dissolved (00608)	_____	mg/l	_____
☐ Total Kjeldahl-N ()	_____	mg/l	_____	☐ Total Kjeldahl-N ()	_____	mg/l	_____
☐ Chemical oxygen demand (00340)	_____	mg/l	_____	☐ Other: _____	_____	_____	_____
☐ Total organic carbon ()	_____	mg/l	_____				
☐ Other: _____	_____	_____	_____				
☐ Other: _____	_____	_____	_____				
Laboratory remarks				Analyst _____ Date Reported 6/18/85 Reviewed by Jim Kelly			

ICAP SCREEN

Lab Number: HM # 696Date Submitted: 4/12/85By: Boyer/BacaSample Code: Pond #1 OutletDate Reported: 6/13/85By: Jim KellyDeterminationConcentration (µg/ml)

Aluminum	<u><.10</u>
Barium	<u><.10</u>
Beryllium	<u><.10</u>
Boron	<u>.27</u>
Cadmium	<u><.10</u>
Calcium	<u>60.</u>
Chromium	<u><.10</u>
Cobalt	<u><.10</u>
Copper	<u><.10</u>
Iron	<u><.10</u>
Lead	<u><.10</u>
Magnesium	<u>73.</u>
Manganese	<u>.05</u>
Molybdenum	<u><.10</u>
Nickel	<u><.10</u>
Silicon	<u>8.0</u>
Silver	<u><.10</u>
Strontium	<u>2.2</u>
Tin	<u><.10</u>
Vanadium	<u><.10</u>
Yttrium	<u><.10</u>
Zinc	<u><.10</u>

ATOMIC ABSORPTION ANALYSES

Arsenic 0.49 $\mu\text{g/ml}$

Selenium _____ $\mu\text{g/ml}$

Mercury _____ $\mu\text{g/ml}$

REPORT TO:

David G. Boyer

85- 0335 -C

LABORATORY



New Mexico Oil Conservation Division

P. O. Box 2088

Santa Fe, NM 87501

LAB NUMBER

ORG - 335-A-B
4/12/85
SLD PRIORITY 3

SLD Users Code No. 82235

ALL CONTAINERS WHICH THIS FORM ACCOMPANIES ARE COLLECTIVELY REFERRED TO AS "SAMPLE".

CERTIFICATE OF FIELD PERSONNEL

Sample Type: Water ☒ Soil ☐ Other ☐

Water Supply and/or Code No. Recovery Well #4

City & County Navajo Refinery, Artesia, Eddy Co.

Collected (date & time) 8/504/10/09.55 By (name) Boyer, J. Boca

pH=6.8; Conductivity=2300 umho/cm at 19 °C; Chlorine Residual=

Dissolved Oxygen= mg/l; Alkalinity= ; Flow Rate=

Sampling Location, Methods & Remarks (i.e. odors etc.)

Well at products localing area, sample from pipe
at S. Wastewater ditch, aromatic odor

I certify that the statements in this block accurately reflect the results of my field analyses, observations and activities. Signed David G. Boyer

I certify that I witnessed these field analyses, observations and activities and concur with the statements in this block. Signed Philip D. Boca

Method of Shipment to Laboratory Hand Carried

THIS FORM ACCOMPANIES 2 septum vials with teflon-lined discs identified as:

specimen ☒ ; duplicate ☒ ; triplicate ☐ ; blank(s) ☐ ,and ☐ amber glass jug(s) with teflon-lined cap(s) identified as ☐ ,and ☐ other container(s) (describe) ☐ identified as ☐ .

Containers are marked as follows to indicate preservation (circle):

NP: No preservation; sample stored at room temperature (~20°C).

☒ P-ICE: Sample stored in an ice bath.P-Na₂O₃S₂: Sample preserved with 3 mg Na₂O₃S₂/40 ml and stored at room temperature.

CERTIFICATE(S) OF SAMPLE RECEIPT

I (we) certify that this sample was transferred from _____ to _____

_____ at (location) _____ on _____

(date & time) _____ and that the statements in this block are correct.

Disposition of Sample _____. Seal(s) Intact: Yes ☐ No ☐ .

Signature(s) _____

I (we) certify that this sample was transferred from _____ to _____

_____ at (location) _____ on _____

(date & time) _____ and that the statements in this block are correct.

Disposition of Sample _____. Seal(s) Intact: Yes ☐ No ☐ .

Signature(s) _____

ANALYSES REQUESTED

LAB. No.: ORG- 335

PLEASE CHECK THE APPROPRIATE BOXES BELOW TO INDICATE THE TYPE OF ANALYTICAL SCREENS REQUIRED. WHENEVER POSSIBLE LIST SPECIFIC COMPOUNDS SUSPECTED OR REQUIRED.

QUALITATIVE	QUANTITATIVE	PURGEABLE SCREENS	QUALITATIVE	QUANTITATIVE	EXTRACTABLE SCREENS
		ALIPHATIC HYDROCARBON SCREEN			ALIPHATIC HYDROCARBONS
		AROMATIC HYDROCARBON SCREEN			CHLORINATED HYDROCARBON PESTICIDES
		HALOGENATED HYDROCARBON SCREEN			CHLOROPHENOXY ACID HERBICIDES
		GAS CHROMATOGRAPH/MASS SPECTROMETER			HYDROCARBON FUEL SCREEN
					ORGANOPHOSPHATE PESTICIDES
					POLYCHLORINATED BIPHENYLS (PCB's)
					POLYNUCLEAR AROMATIC HYDROCARBONS
					TRIAZINE HERBICIDES
		SPECIFIC COMPOUNDS			SPECIFIC COMPOUNDS

REMARKS:

ANALYTICAL RESULTS

COMPOUND	[PPB]	COMPOUND	[PPB]
1,2-dichloroethane	20		
Benzene	3285		
Toluene	2845		
ethylbenzene	390		
p-xylene	200		
m-xylene	120		
o-xylene	90		
		* DETECTION LIMIT	10 µg/ml

REMARKS:

Fourteen aromatic type compounds were also detected that were not identified.

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ☐ NO ☒ . Seal(s) broken by: _____ date: _____

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements in this block and the analytical data on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: 26 April 3 May 65 Analyst's signature: J. J. J. J.

I certify that I have reviewed and concur with the analytical results for this sample and with the statements in this block. Reviewers signature: L. Meyerhem



New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

GENERAL WATER CHEMISTRY
and NITROGEN ANALYSIS

DATE RECEIVED	9/12/85	LAB NO.	WC-1710	USER CODE	☐ 59300 ☐ 59600 ☒ OTHER: 82235
Collection DATE	04/10/85	SITE INFORMATION	Recovery System #4, Warapa Refinery		
Collection TIME	09:55	Collection site description	Water Pipe from water pump prior to discharge to ditch		
Collected by — Person/Agency	Boyer/Beck OCB				

SEND
FINAL
REPORT
TO

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87501

Attn: David Boyer

Station/
well code
Owner

SAMPLING CONDITIONS

☐ Bailed ☐ Dipped	☒ Pump ☐ Tap	Water level	Discharge	Sample type
				Grab
pH (00400)	6.75	Conductivity (Uncorrected)	2300 μ mho	Water Temp. (00010)
			19 °C	Conductivity at 25°C (00094)
				μ mho
Field comments				
Aromatic odor (could be from ditch also)				

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted	1	☐ NF: Whole sample (Non-filtered)	☒ F: Filtered in field with 0.45 μ m membrane filter	☐ A: 2 ml H ₂ SO ₄ /L added
☒ NA: No acid added ☐ Other-specify:				

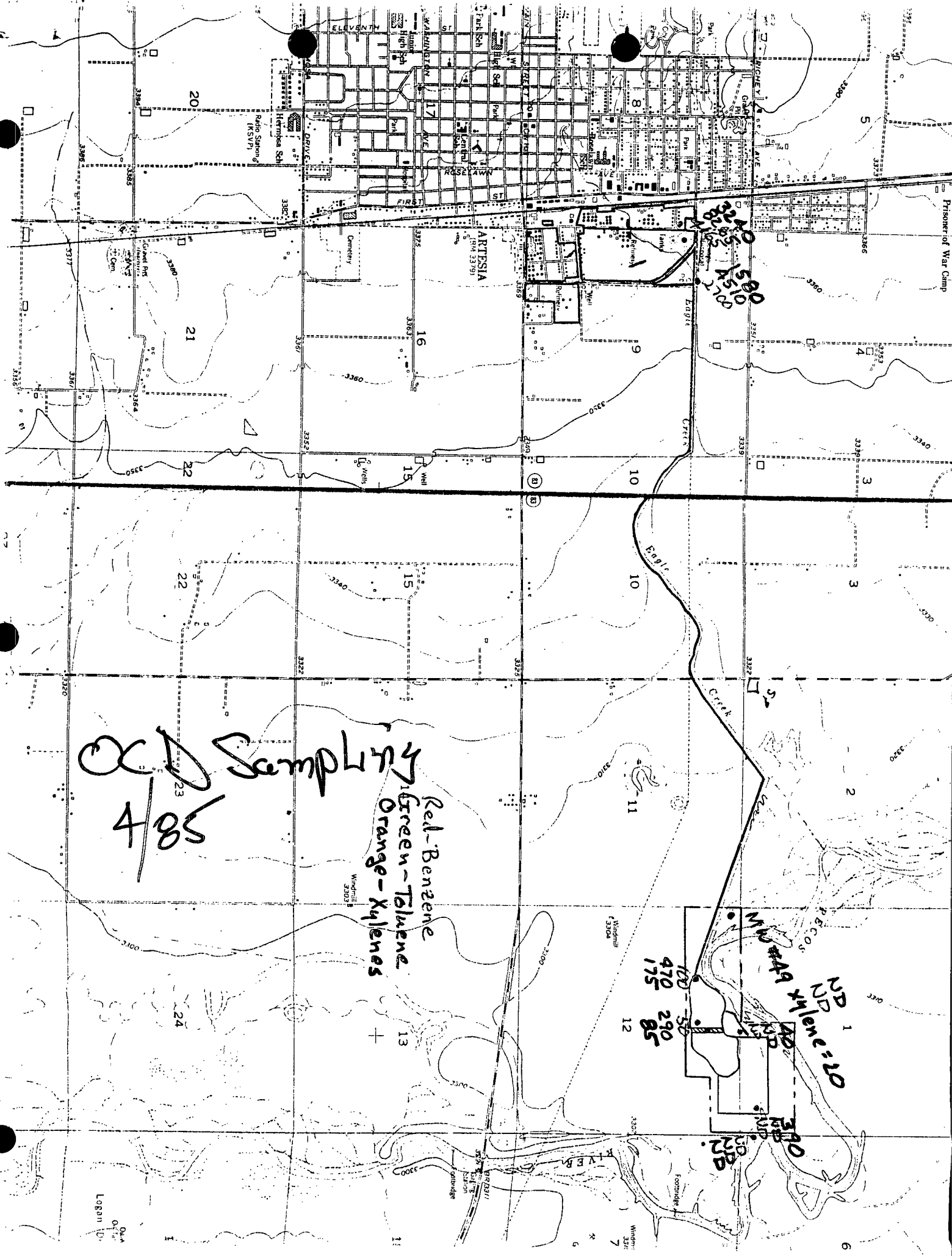
ANALYTICAL RESULTS from SAMPLES

IF, NA	Units	Date analyzed	F, NA	Units	Date analyzed
☐ Conductivity (Corrected) 25°C (00095)	μ mho		☒ Calcium (00915)	241 mg/l	5/2
☐ Total non-filterable residue (suspended) (00530)	mg/l		☒ Magnesium (00925)	148 mg/l	5/2
☒ Other: pH	6.14	5/1	☒ Sodium (00930)	189 mg/l	4/16
☐ Other:			☒ Potassium (00935)	117 mg/l	4/16
☐ Other:			☒ Bicarbonate (00440)	243.0 mg/l	8/1
			☒ Chloride (00940) *	663 mg/l	6/5
			☒ Sulfate (00945)	663 mg/l	5/8
			☒ Total filterable residue (dissolved) (70300) **	26700 mg/l	
			☒ Other: CO ₃	0	8/1
				0.59	5/3
NF, A-H ₂ SO ₄			F, A-H ₂ SO ₄		
☐ Nitrate-N +, Nitrate-N total (00630)	mg/l		☐ Nitrate-N +, Nitrate-N dissolved (00631)	mg/l	
☐ Ammonia-N total (00610)	mg/l		☐ Ammonia-N dissolved (00608)	mg/l	
☐ Total Kjeldahl-N ()	mg/l		☐ Total Kjeldahl-N ()	mg/l	
☐ Chemical oxygen demand (00340)	mg/l		☐ Other:		
☐ Total organic carbon ()	mg/l				
☐ Other:					
☐ Other:					
Analyst			Date Reported	Reviewed by	
			6/1/85	Caden	

Laboratory remarks

From Chris Bean SLA:

* NOT analyzed ** 2670.0 on 6/5 ATR 8/17/85



OC Sampling
4/85
Rel-Benzene
Green-Toluene
Orange-Xylenes

ND #1
ND #2
ND #3
ND #4
ND #5
ND #6
ND #7
ND #8
ND #9
ND #10
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ND #99
ND #100

REPORT TO:

David G. Boyer

85-0330 -C

LABORATORY



New Mexico Oil Conservation Division

P. O. Box 2088

Santa Fe, NM 87501

LAB NUMBER URG-330-A.B
4/12/85
SLD Priority 3SLD Users Code No. 82235

ALL CONTAINERS WHICH THIS FORM ACCOMPANIES ARE COLLECTIVELY REFERRED TO AS "SAMPLE".

CERTIFICATE OF FIELD PERSONNEL

Sample Type: Water ☒ Soil ☐ OtherWater Supply and/or Code No. Narajo North Division API@WeirCity & County Narajo Delinery, Arterio, Eddy Cty.Collected (date & time) 850410/0835 By (name) Boyer & BacapH= 8.5; Conductivity= 3270 umho/cm at 45 °C; Chlorine Residual=

Dissolved Oxygen= mg/l; Alkalinity=; Flow Rate=

Sampling Location, Methods & Remarks (i.e. odors etc.)

Sample from weir prior to confluence of S. Div. Waterway
Very aromatic odor, light volatiles, little oil

I certify that the statements in this block accurately reflect the results of my field analyses, observations and activities. Signed David G. BoyerI certify that I witnessed these field analyses, observations and activities and concur with the statements in this block. Signed Philip G. BacaMethod of Shipment to Laboratory Hand CarriedTHIS FORM ACCOMPANIES 2 septum vials with teflon-lined discs identified as:specimen X; duplicate X; triplicate; blank(s)

and amber glass jug(s) with teflon-lined cap(s) identified as

and other container(s) (describe) identified as

Containers are marked as follows to indicate preservation (circle):

NP: No preservation; sample stored at room temperature (~20°C).

P-ICE: Sample stored in an ice bath.

P-Na₂O₃S₂: Sample preserved with 3 mg Na₂O₃S₂/40 ml and stored at room temperature.

CERTIFICATE(S) OF SAMPLE RECEIPT

I (we) certify that this sample was transferred from to

at (location) on

(date & time) and that the statements in this block are correct.

Disposition of Sample. Seal(s) Intact: Yes ☐ No ☐

Signature(s)

I (we) certify that this sample was transferred from to

at (location) on

(date & time) and that the statements in this block are correct.

Disposition of Sample. Seal(s) Intact: Yes ☐ No ☐

Signature(s)

ANALYSES REQUESTED

LAB. No.: ORG- 330

PLEASE CHECK THE APPROPRIATE BOXES BELOW TO INDICATE THE TYPE OF ANALYTICAL SCREENS REQUIRED. WHENEVER POSSIBLE LIST SPECIFIC COMPOUNDS SUSPECTED OR REQUIRED.

QUALITATIVE	QUANTITATIVE	PURGEABLE SCREENS	QUALITATIVE	QUANTITATIVE	EXTRACTABLE SCREENS
		ALIPHATIC HYDROCARBON SCREEN			ALIPHATIC HYDROCARBONS
X	X	AROMATIC HYDROCARBON SCREEN			CHLORINATED HYDROCARBON PESTICIDES
X	X	HALOGENATED HYDROCARBON SCREEN			CHLOROPHENOXY ACID HERBICIDES
		GAS CHROMATOGRAPH/MASS SPECTROMETER			HYDROCARBON FUEL SCREEN
					ORGANOPHOSPHATE PESTICIDES
					POLYCHLORINATED BIPHENYLS (PCB's)
					POLYNUCLEAR AROMATIC HYDROCARBONS
					TRIAZINE HERBICIDES
		SPECIFIC COMPOUNDS			SPECIFIC COMPOUNDS
		<i>Benzene etc.</i>			

REMARKS:

ANALYTICAL RESULTS

COMPOUND	[PPB]	COMPOUND	[PPB]
<i>Benzene</i>	<i>4165</i>		
<i>Toluene</i>	<i>8265</i>		
<i>o-thyl-benzene</i>	<i>1505</i>		
<i>p-xylene</i>	<i>475</i>		
<i>m-xylene</i>	<i>1730</i>		
<i>o-xylene</i>	<i>1035</i>		
<i>halogenated purgables</i>	<i>none detected</i>		
		* DETECTION LIMIT	<i>50 ug/g</i>

REMARKS: *Some aromatic type compounds were also detected that were not identified.*

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes NO X. Seal(s) broken by: _____ date: _____
 I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements in this block and the analytical data on this page accurately reflect the analytical results for this sample.
 Date(s) of analysis: *28 Apr 85* Analyst's signature: *[Signature]*
 I certify that I have reviewed and concur with the analytical results for this sample and with the statements in this block. Reviewers signature: *[Signature]*



New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

GENERAL WATER CHEMISTRY
and NITROGEN ANALYSIS

DATE RECEIVED	4/12/85	LAB NO.	NE-1713	USER CODE	☐ 59300 ☐ 59600 ☒ OTHER: 82235
Collection DATE	850410	SITE INFORMATION	Sample location		
Collection TIME	0835		N. Div. API Effluent		
Collected by — Person/Agency		Collection site description			
Boyer/Boyer		AT weir at start of ditch at			

SEND
FINAL
REPORT
TO

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87501

Attn: David Boyer

Narciso Refinery
prior to confluence

Station/
well code
Owner

SAMPLING CONDITIONS

☐ Bailed ☒ Dipped	☐ Pump ☐ Tap	Water level	Discharge	Sample type
				GRAB
pH (00400)	8.5	Conductivity (Uncorrected)	3270 μ mho	Water Temp. (00010)
				45 °C
				Conductivity at 25°C (00094)
				2305 μ mho
Field comments				
Strong odor!				

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted	1	☐ NF: Whole sample (Non-filtered)	☒ F: Filtered in field with 0.45 μ membrane filter	☐ A: 2 ml H ₂ SO ₄ /L added
☒ NA: No acid added ☐ Other-specify:				

ANALYTICAL RESULTS from SAMPLES

F, NA	Units	Date analyzed	F, NA	Units	Date analyzed
☐ Conductivity (Corrected) 25°C (00095)	μ mho		☒ Calcium (00915)	114 mg/l	5/2
☐ Total non-filterable residue (suspended) (00530)	mg/l		☒ Magnesium (00925)	38.4 mg/l	5/2 8.85
☒ Other: pH 5.5			☒ Sodium (00930)	315 mg/l	4/16
☐ Other:			☒ Potassium (00935)	3.12 mg/l	4/16
☐ Other:			☒ Bicarbonate (00440)	1.9 mg/l	6/5
			☒ Chloride (00940)	148.5 mg/l	6/5
			☒ Sulfate (00945)	814 mg/l	5/8
			☒ Total filterable residue (dissolved) (70300)	1703 mg/l	5/29
			☒ Other: CO ₂	1.35 mg/l	6/5
				1.35	5/3
NF, A-H ₂ SO ₄			F, A-H ₂ SO ₄		
☐ Nitrate-N +, Nitrate-N total (00630)	mg/l		☐ Nitrate-N +, Nitrate-N dissolved (00631)	mg/l	
☐ Ammonia-N total (00610)	mg/l		☐ Ammonia-N dissolved (00608)	mg/l	
☐ Total Kjeldahl-N ()	mg/l		☐ Total Kjeldahl-N ()	mg/l	
☐ Chemical oxygen demand (00340)	mg/l		☐ Other:		
☐ Total organic carbon ()	mg/l				
☐ Other:					
☐ Other:					
Laboratory remarks			Analyst	Date Reported	Reviewed by
				6/10/85	



New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

Heavy metals
GENERAL WATER CHEMISTRY
AND NITROGEN ANALYSIS

DATE RECEIVED	4/12/85	LAB NO.	H110697	USER CODE	☐ 59300 ☐ 59600 ☒ OTHER: 82235
Collection DATE	850410	SITE INFORMATION	Sample location		
Collection TIME	0835		N. Div. API Effluent		
Collected by — Person/Agency		Collection site description			
Boyer/Baker		AT weir at start of ditch at			

Narciso Refinery
prior to confluence

Station/
well code

Owner

SEND FINAL REPORT TO

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87501

Attn: David Boyer

SAMPLING CONDITIONS

☐ Bailed	☐ Pump	Water level	Discharge	Sample type
☒ Dipped	☐ Tap			GRAB
pH (00400)	8.5	Conductivity (Uncorrected)	3270 μ mho	Water Temp. (00010)
				45 $^{\circ}$ C
				Conductivity at 25 $^{\circ}$ C (00094)
				μ mho
Field comments				
Strong odor!				

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted	1	☐ NF: Whole sample (Non-filtered)	☒ F: Filtered in field with 0.45 μ m membrane filter	☐ A: 2 ml H ₂ SO ₄ /L added
☐ NA: No acid added ☒ Other-specify: A HNO ₃				

ANALYTICAL RESULTS from SAMPLES

Units	Date analyzed	F, NA	Units	Date analyzed
NF, A-HNO₃				
☐ Conductivity (Corrected) 25 $^{\circ}$ C (00095)	μ mho	☐ Calcium (00915)	mg/l	
☐ Total non-filterable residue (suspended) (00530)	mg/l	☐ Magnesium (00925)	mg/l	
☒ Other: ICAP SAN		☐ Sodium (00930)	mg/l	
☒ Other: AS	0.019 mg/L	☐ Potassium (00935)	mg/l	
☐ Other:		☐ Bicarbonate (00440)	mg/l	
		☐ Chloride (00940)	mg/l	
		☐ Sulfate (00945)	mg/l	
		☐ Total filterable residue (dissolved) (70300)	mg/l	
		☐ Other:		
NF, A-H₂SO₄				
☐ Nitrate-N +, Nitrate-N total (00630)	mg/l	F, A-H₂SO₄		
☐ Ammonia-N total (00610)	mg/l	☐ Nitrate-N +, Nitrate-N dissolved (00631)	mg/l	
☐ Total Kjeldahl-N ()	mg/l	☐ Ammonia-N dissolved (00608)	mg/l	
☐ Chemical oxygen demand (00340)	mg/l	☐ Total Kjeldahl-N ()	mg/l	
☐ Total organic carbon ()	mg/l	☐ Other:		
☐ Other:		Analyst	Date Reported	Reviewed by
☐ Other:			6/18/85	Jim Bandy

Laboratory remarks

REPORT TO: Hazardous Waste Section
Environmental Improvement Division
P.O. Box 968
Santa Fe, New Mexico 87504

Attn: ANN CLAASSEN
SLD USER CODE NUMBER 53300

METALS ANALYSIS REQUEST

LAB NUMBER HM 154
DATE RECEIVED 1/25/85
DATE REPORTED 4/2/85 inp

Sample Number: #1 Location: NANASO EVAP POND NR INFLUENT, NORTH SIDE
Sample Type: ☐ water ☐ soil ☐ sediment ☒ sludge ☐ other
Collected (date & time) 1/24/85 9:00 AM by: ANN CLAASSEN
Temperature: _____ celcius conductivity: _____ umhos/cm pH: _____
Sample container: ☐ 1-liter cubitainer(s) ☒ 1-quart glass jar(s) ☐ other
Treatment: ☐ Filtered ☐ 2 ml HNO3 ☐ ice ☐ other NONE

RECEIVED

APR 05 1985

HAZARDOUS WASTE SECTION

☐ ICAP SCAN UG/ML OR UG/G DATE ANALYZED _____

Aluminum	_____	Copper	_____	Silicon	_____
Barium	_____	Iron	_____	Silver	_____
Beryllium	_____	Lead	_____	Strontium	_____
Boron	_____	Magnesium	_____	Tin	_____
Cadmium	_____	Manganese	_____	Vanadium	_____
Calcium	_____	Molybdenum	_____	Yttrium	_____
Chromium	_____	Nickel	_____	Zinc	_____
Cobalt	_____				

☐ ATOMIC ABSORPTION UG/ML OR UG/G DATE ANALYZED _____

Arsenic	_____	Selenium	_____	Mercury	_____
_____	_____	_____	_____	_____	_____

☒ EP TOXICITY (MG/L) DATE ANALYZED _____

Arsenic	<u>0.058</u>	Chromium	<u>* 13.5</u>	Selenium	<u><0.005</u>
Barium	<u>0.38</u>	Lead	<u>0.017</u>	Silver	<u><0.001</u>
Cadmium	<u><0.001</u>	Mercury	<u><0.001</u>		

ANALYST

mk, JB, md

REVIEWER

inp

COMMENTS:

* > 5.0 ppm. Therefore requires speciation for Cr⁺⁶
Cr⁺⁶ < 0.5 ppm (Method 3060/7196)

REPORT TO: Hazardous Waste Section
Environmental Improvement Division
P.O. Box 968
Santa Fe, New Mexico 87504

Attn: ANN CLAASSEN
SLD USER CODE NUMBER 53300

METALS ANALYSIS REQUEST

LAB NUMBER HM 155
DATE RECEIVED 1/25/85
DATE REPORTED 4/2/85

Sample Number: # 2 Location: NAMJO EVAP POND, N SIDE, DREDGED MATERIAL

Sample Type: ☐ water ☐ soil ☐ sediment ☒ sludge ☐ other

Collected (date & time) 1/24/85 9:00 AM by: ANN CLAASSEN

Temperature: _____ celcius conductivity: _____ umhos/cm pH: _____

Sample container: ☐ 1-liter cubitainer(s) ☒ 1-quart glass jar(s) ☐ other

Treatment: ☐ Filtered ☐ 2 ml HNO3 ☐ ice ☐ other NONE

RECEIVED

APR 05 1985

HAZARDOUS WASTE SECTION

☐ WATER ANALYSIS FOR ☐ dissolved ☐ suspended ☐ total

☒ SOIL ANALYSIS FOR ☐ supernatant ☐ total digestion ☒ EP Toxicity

☐ ICAP SCAN UG/ML OR UG/G DATE ANALYZED _____

Aluminum	_____	Copper	_____	Silicon	_____
Barium	_____	Iron	_____	Silver	_____
Beryllium	_____	Lead	_____	Strontium	_____
Boron	_____	Magnesium	_____	Tin	_____
Cadmium	_____	Manganese	_____	Vanadium	_____
Calcium	_____	Molybdenum	_____	Yttrium	_____
Chromium	_____	Nickel	_____	Zinc	_____
Cobalt	_____				

☐ ATOMIC ABSORPTION UG/ML OR UG/G DATE ANALYZED _____

Arsenic	_____	Selenium	_____	Mercury	_____
_____	_____	_____	_____	_____	_____

☒ EP TOXICITY (MG/L) DATE ANALYZED _____

Arsenic	<u>0.096</u>	Chromium	<u>2.66</u>	Selenium	<u><0.005</u>
Barium	<u>0.48</u>	Lead	<u>0.41</u>	Silver	<u><0.001</u>
Cadmium	<u>0.001</u>	Mercury	<u><0.001</u>		

ANALYST mtc, jpb, mo REVIEWER mtc

COMMENTS:

REPORT TO: Hazardous Waste Section
Environmental Improvement Division
P.O. Box 968
Santa Fe, New Mexico 87504

Attn: Ann Claassen
SLD USER CODE NUMBER 53300

METALS ANALYSIS REQUEST

LAB NUMBER HM 156

DATE RECEIVED 1/25/85

DATE REPORTED 4/2/85

Sample Number: # 3 Location: NAVASO EVAP POND NR INFLUENT, SOUTH SIDE

Sample Type: ☐ water ☐ soil ☐ sediment ☒ sludge ☐ other

Collected (date & time) 1/24/85 9:30 AM by: _____

Temperature: _____ celcius conductivity: _____ umhos/cm pH: _____

Sample container: ☐ 1-liter cubitainer(s) ☒ 1-quart glass jar(s) ☐ other

Treatment: ☐ Filtered ☐ 2 ml HNO₃ ☐ ice ☐ other NONE

☐ WATER ANALYSIS FOR ☐ dissolved ☐ suspended ☐ total

☒ SOIL ANALYSIS FOR ☐ supernatant ☐ total digestion ☒ EP Toxicity

RECEIVED

APR 05 1985

☐ ICAP SCAN UG/ML OR UG/G DATE ANALYZED _____

Aluminum	_____	Copper	_____	Silicon	_____
Barium	_____	Iron	_____	Silver	_____
Beryllium	_____	Lead	_____	Strontium	_____
Boron	_____	Magnesium	_____	Tin	_____
Cadmium	_____	Manganese	_____	Vanadium	_____
Calcium	_____	Molybdenum	_____	Yttrium	_____
Chromium	_____	Nickel	_____	Zinc	_____
Cobalt	_____				

☐ ATOMIC ABSORPTION UG/ML OR UG/G DATE ANALYZED _____

Arsenic	_____	Selenium	_____	Mercury	_____
_____	_____	_____	_____	_____	_____

☒ EP TOXICITY (MG/L) DATE ANALYZED _____

Arsenic	<u>0.138</u>	Chromium	<u>* 7.40</u>	Selenium	<u>< 0.005</u>
Barium	<u>0.530</u>	Lead	<u>0.010</u>	Silver	<u>< 0.001</u>
Cadmium	<u>< 0.001</u>	Mercury	<u>< 0.001</u>		

ANALYST: mk, JB, md

REVIEWER: mf

COMMENTS:

* > 5.00 ppm. Therefore, requires speciation for Cr⁺⁶.

Cr⁺⁶ < 0.5 ppm (Method 3060/7196)

REPORT TO: Hazardous Waste Section
Environmental Improvement Division
P.O. Box 968
Santa Fe, New Mexico 87504

Attn: ANN CLAASSEN
SLD USER CODE NUMBER 53300

METALS ANALYSIS REQUEST

LAB NUMBER HM 157
DATE RECEIVED 1/25/85
DATE REPORTED 4/2/85

Sample Number: # 4 Location: NAVAJO API PITCH AT HWY 82 BY PASS
Sample Type: ☐ water ☐ soil ☐ sediment ☒ sludge ☐ other _____
Collected (date & time) 1/24/85 10:00 AM by: ANN CLAASSEN
Temperature: _____ celcius conductivity: _____ umhos/cm pH: _____
Sample container: ☐ 1-liter cubitainer(s) ☒ 1-quart glass jar(s) ☐ other _____
Treatment: ☐ Filtered ☐ 2 ml HNO3 ☐ ice ☐ other _____

☐ WATER ANALYSIS FOR ☐ dissolved ☐ suspended ☐ total
☒ SOIL ANALYSIS FOR ☐ supernatant ☐ total digestion ☒ EP Toxicity

RECEIVED

APR 05 1985

☐ ICAP SCAN UG/ML OR UG/G DATE ANALYZED _____ HAZARDOUS WASTE SECTION

Aluminum	_____	Copper	_____	Silicon	_____
Barium	_____	Iron	_____	Silver	_____
Beryllium	_____	Lead	_____	Strontium	_____
Boron	_____	Magnesium	_____	Tin	_____
Cadmium	_____	Manganese	_____	Vanadium	_____
Calcium	_____	Molybdenum	_____	Yttrium	_____
Chromium	_____	Nickel	_____	Zinc	_____
Cobalt	_____				

☐ ATOMIC ABSORPTION UG/ML OR UG/G DATE ANALYZED _____

Arsenic	_____	Selenium	_____	Mercury	_____
_____	_____	_____	_____	_____	_____

☒ EP TOXICITY MG/L DATE ANALYZED _____

Arsenic	<u>0.044</u>	Chromium	<u>3.86</u>	Selenium	<u><0.005</u>
Barium	<u>0.53</u>	Lead	<u>0.22</u>	Silver	<u><0.001</u>
Cadmium	<u><0.001</u>	Mercury	<u><0.001</u>		

ANALYST

mk, mc, go

REVIEWER

mf

COMMENTS:

REPORT TO: Hazardous Waste Section
Environmental Improvement Division
P.O. Box 968
Santa Fe, New Mexico 87504

Attn: ANN CLAASSEN
SLD USER CODE NUMBER 53300

METALS ANALYSIS REQUEST

LAB NUMBER

HM 158

DATE RECEIVED

1/25/85

DATE REPORTED

4/2/85

Sample Number: #5 Location: NAVAJO API DITCHES ~100' BLW CONFLUENCE

Sample Type: ☐ water ☐ soil ☐ sediment ☒ sludge ☐ other

Collected (date & time) 1/24/85 10:20 AM by: ANN CLAASSEN

Temperature: _____ celcius conductivity: _____ umhos/cm pH: _____

Sample container: ☐ 1-liter cubitainer(s) ☒ 1-quart glass jar(s) ☐ other

Treatment: ☐ Filtered ☐ 2 ml HNO₃ ☐ ice ☐ other

☐ WATER ANALYSIS FOR ☐ dissolved ☐ suspended ☐ total

☒ SOIL ANALYSIS FOR ☐ supernatant ☐ total digestion ☒ EP Toxicity

RECEIVED

APR 05 1985

☐ ICAP SCAN UG/ML OR UG/G DATE ANALYZED _____

HAZARDOUS WASTE SECTION

Aluminum	_____	Copper	_____	Silicon	_____
Barium	_____	Iron	_____	Silver	_____
Beryllium	_____	Lead	_____	Strontium	_____
Boron	_____	Magnesium	_____	Tin	_____
Cadmium	_____	Manganese	_____	Vanadium	_____
Calcium	_____	Molybdenum	_____	Tttrium	_____
Chromium	_____	Nickel	_____	Zinc	_____
Cobalt	_____				

☐ ATOMIC ABSORPTION UG/ML OR UG/G DATE ANALYZED _____

Arsenic	_____	Selenium	_____	Mercury	_____
_____	_____	_____	_____	_____	_____

☒ EP TOXICITY (MG/L) DATE ANALYZED _____

Arsenic	<u>0.124</u>	Chromium	<u>* 7.60</u>	Selenium	<u><0.005</u>
Barium	<u>0.830</u>	Lead	<u>0.13</u>	Silver	<u><0.001</u>
Cadmium	<u><0.001</u>	Mercury	<u><0.001</u>		

ANALYST

mk, JB, mo

REVIEWER

mf

COMMENTS:

* > 5.00 ppm. Therefore requires speciation for Cr⁺⁶

Cr⁺⁶ <0.5 ppm (Method 3060/7196)



New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED	LAB NO.	USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 59000
Collection DATE	SITE INFORMATION	Sample location
Collection TIME		Collection site description
Collected by — Person/Agency		

SEND
FINAL
REPORT
TO

GROUND WATER & HAZARDOUS WASTE BUREAU
NM ENVIRONMENT IMPROVEMENT DIVISION/HED
Crown Building, PO Box 968
Santa Fe, NM 87504-0968

Attn: _____

Station/
well code
Owner

SAMPLING CONDITIONS

☐ Bailed ☐ Dipped	☐ Pump ☒ Tap	Water level	Discharge	Sample type
pH (00400)	Conductivity (Uncorrected) μmho	Water Temp. (00010) $^{\circ}\text{C}$	Conductivity at 25 $^{\circ}\text{C}$ (00094) μmho	
Field comments				

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted	☒ NF: Whole sample (Non-filtered)	☐ F: Filtered in field with 0.45 μm membrane filter	☒ A: 2 ml H_2SO_4 /L added
☐ NA: No acid added ☐ Other-specify: _____			

ANALYTICAL RESULTS from SAMPLES

NF, NA	Units	Date analyzed	F, NA	Units	Date analyzed
☐ Conductivity (Corrected) 25 $^{\circ}\text{C}$ (00095)	μmho		☐ Calcium (00915)	mg/l	
☐ Total non-filterable residue (suspended) (00530)	mg/l		☐ Magnesium (00925)	mg/l	
☐ Other:			☐ Sodium (00930)	mg/l	
☐ Other:			☐ Potassium (00935)	mg/l	
☐ Other:			☐ Bicarbonate (00440)	mg/l	
			☐ Chloride (00940)	mg/l	
			☐ Sulfate (00945)	mg/l	
			☐ Total filterable residue (dissolved) (70300)	mg/l	
			☐ Other:		
NF, A- H_2SO_4			F, A- H_2SO_4		
☐ Nitrate-N ⁺ , Nitrate-N total (00630)	mg/l		☐ Nitrate-N ⁺ , Nitrate-N dissolved (00631)	mg/l	
☒ Ammonia-N total (00610)	mg/l		☐ Ammonia-N dissolved (00608)	mg/l	
☐ Total Kjeldahl-N ()	mg/l		☐ Total Kjeldahl-N ()	mg/l	
☐ Chemical oxygen demand (00340)	mg/l		☐ Other:		
☐ Total organic carbon ()	mg/l				
☐ Other:					
☐ Other:					
Analyst			Date Reported	Reviewed by	

Laboratory remarks

GEOLOGY
VALUATION

205 AMERICAN HOME
SECURITY LIFE BLDG.

NEW MEXICO REGISTERED PROFESSIONAL ENGINEER
AND LAND SURVEYOR
CERTIFIED PROFESSIONAL GEOLOGIST

EDWARD E. KINNEY

CONSULTANT
MINING - OIL - WATER
Box 526
ARTESIA, NEW MEXICO 88210

JUN 02 1981
OIL CONSERVATION DIVISION
SANTA FE
LEASES
TAXATION
PHONE 746-3171

June 1, 1981

Oil & Gas Division
Box 2088
Santa Fe, N M 87501

Attention: Oscar Simpson

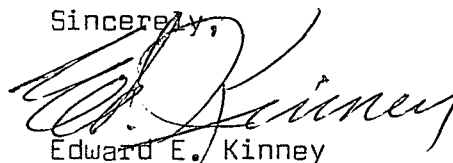
Gentlemen:

Apropos your concern over whether or not the water samples from Navajo's observation wells are representative, I submit the following table showing analysis of Chloride and Total Dissolved Solids as reported by Controls for Environmental Pollution, Inc., over a span of 3½ years:

Well #	C h l o r i d e			Total Dissolved Solids		
	Sep '77	Nov '80	Apr '81	Sep '77	Nov '80	Apr '81
1		5800 ppm	8313 ppm		15 800ppm	19 700 ppm
3	1180 ppm	2200	2652	6 777ppm	7 640	7 730
5	4565	8600	7089	7 367	21 100	16 800
7	8075	3400	3570	28 050	21 500	14 200
9		2200	2703		9 820	10 400
12	7300	6700	8058	29 840	29 000	28 900
13	123	380	357	2 531	3 060	3 200

These data demonstrate that water is freely moving through the casing slots and the well bore otherwise the water in the observation wells would be stagnate and the analysis virtually the same.

Sincerely,


Edward E. Kinney

from

PATRICK G. JUAREZ

May 30, 1980

TO DGG

Subject: Water Samples From Test Holes near
Ponds.

Sample	pH	ppm F ⁻	ppm Phenol	TDS
#3.	7.050	4.825 ppm	0 ppm	4,286 ppm
#5	7.045	1.525 ppm	0 ppm	12,242 ppm
#7	7.599	1.877 ppm	0 ppm	8,537 ppm
#9	7.313	3.070 ppm	0 ppm	8,477 ppm
#12	7.424	3.050 ppm	0 ppm	15,824 ppm
#13	7.184	4.150 ppm	0 ppm	2,511 ppm



Patrick G. Juarez

from

JAMES L. BROWN

April 2, 1980

To

Water Samples Sampled 4-1-80

	P Alk.	SM Alk.	Acidity	pH	Hardness	Chlorides	F	S	Phenal
Pecos River above Ponds	0	118	0	8.125	2940	3530	0.3	0	0
Pecos River at Bridge	0	122	0	8.125	2880	2820	0.1	0	0
Water Well	not available								
West Pond	0	144	0	7.350	700	1240	83	0	12+
Middle Pond	0	102	0	6.981	870	1200	81	0	1
East Pond	0	86	0	7.024	950	1410	79	0	0
Hotel Effluent	108	514	0	9.030	400	500	80	160	12+
APS Separator	0	352	0	8.328	680	430	83	128	12+
N. R. Trap	0	234	0	8.348	510	300	1	54	10
S. R. Trap	0	178	0	7.782	420	510	0.8	0	0
City Water	0	180	0	7.044	630	28	0.4	0	0

45

Jim B.

from

PATRICK G. JUAREZ

April 2, 1980

TO

Water Samples

Sampled 4-1-80

	Fe	Cu	Ni	Zn	Pb	Cr	Cd
PECOS RIVER ABOVE PONDS	0.08	0.04	0.07	0.19	0.25	0.00	0.03
PECOS RIVER AT BRIDGE	0.12	0.05	0.10	0.05	0.40	0.00	0.03
WEST POND	0.23	0.02	0.04	0.04	0.19	0.15	0.007
MIDDLE POND	0.23	0.02	0.04	0.05	0.25	0.13	0.005
EAST POND	0.23	0.04	0.07	0.19	0.16	0.05	0.001
TOTAL EFFLUENT	0.06	0.02	0.05	0.04	0.06	0.06	0.01
A.F.I. SEPARATOR	0.01	0.003	0.04	0.04	0.04	0.14	0.007
NORTH DIVISION TRAP	0.07	0.02	0.06	0.04	0.31	0.33	0.001
SOUTH DIVISION TRAP	0.03	0.005	0.005	0.04	0.30	0.18	0.000
CITY WATER	0.03	0.01	0.01	0.53	0.00	0.01	0.000

Water well - not available

Patrick G. Juarez

from

JAMES L. BROWN

3-12, 1980

To B.C.B.

Sampled 3-11-80

	P alk.	M. alk.	Alkalinity	pH	Hardness	Chlorides	Sulfates	Sulfides	Residual
Pecos River above Ponds	0	138	0	8.034	3520	2600	0.74	0	0
Pecos River at Bridge	0	140	0	7.993	3550	2590	0.69	0	0
Water Well									
West Pond	0	100	0	7.485	1230	1170	46	0	12+
Middle Pond	0	104	0	7.044	1100	1150	39	0	7
East Pond	0	80	0	7.135	1150	1210	33	0	0
Total Effluent	1760	3230	0	11.331	180	350	300	806	0
APG Separator	102	482	0	9.064	640	230	70	138	12+
N.O. Trap	44	236	0	8.867	1650	1690	1.10	22	6
S.O. Trap	0	154	0	8.121	1970	900	2.18	0	0
City Water	0	176	0	7.173	686	26	0.69	0	0

Jim Brown

from

PATRICK G. JUAREZ

3-12, 19 80

TO B.C.G.

Sampled 3-11-80

ELEMENTS IN PPM	Cu	Fe	Ni	Pb	Zn	Cd	Cr
Pecos River Above Ponds	0.010	0.215	0.045	0.200	0.00	0.030	0.037
Pecos River At Bridge	0.010	0.200	0.061	0.200	0.000	0.022	0.037
N.D.	0.000	0.092	0.045	0.066	0.003	0.011	0.000
TRAPS							
West Pond	0.000	0.308	0.045	0.066	0.021	0.019	0.037
Middle Pond	0.000	0.446	0.045	0.066	0.026	0.034	0.074
East Pond	0.000	0.231	0.015	0.066	0.036	0.007	0.037
Total Effluent	0.010	0.092	0.061	0.066	0.096	0.007	0.037
API Separator	0.000	0.108	0.028	0.000	0.023	0.007	6.103
S D TRAPS	0.000	0.092	0.030	0.066	0.049	0.015	0.000
City Water	0.010	0.123	0.061	0.066	0.473	0.000	0.000

Patrick G. Juarez

from

JAMES L. BROWN

2-12, 19 80

To B.C. Co. - A. Co.

Sampled 2-11-80

	P alk.	M alk.	Acidity	pH	Chlorides	Sulfates	Sulfides	Phosph
Pecos River above Ponds	0	166	0	8.159	2310	1830	1.80	0
Pecos River at Bridge	0	166	0	8.162	2280	1850	1.70	0
Water Well (Windmill)	not available							
West Pond	0	12	0	7.575	820	1040	82	50
Middle Pond	0	90	0	6.785	710	960	92	20
East Pond	0	144	0	7.053	770	1090	74	2
Total Effluent	0	42	0	5.921	3200	360	87	1.6
A.P.G. Separator	0	0	80	3.417	11200	380	150	2
N. Div. Trap	0	180	0	8.404	550	120	4.20	6
S. Div. Trap	0	178	0	7.728	930	260	3.85	0
City Water	0	174	0	7.023	668	32	2.45	0

from

PATRICK G. JUAREZ

2-12, 1980

TO

BCA - D.G.G.

Sampled 24-80

ppm	Fe	Cu	Ni	Cd	Zn	Pb	Cr
Pecos River above Ponds	0.07	0.06	0.00	0.02	0.01	0.22	0.00
Pecos River At Bridge	0.03	0.07	0.25	0.03	0.04	0.11	0.00
water well (windmill)	NOT AVAILABLE						
West Pond	9.51	0.06	0.33	0.01	0.36	0.22	0.14
Middle Pond	0.44	0.06	0.25	0.12	0.05	0.00	0.07
East Pond	0.12	0.06	0.00	0.02	0.03	0.22	0.07
Total Effluent	0.71	0.07	0.17	0.02	0.01	0.00	0.55
API Separator	1.20	0.06	0.00	0.01	0.15	0.00	0.51
N. D. TRAP	0.24	0.07	0.17	0.01	0.01	0.11	0.07
S. Div. TRAP	0.17	0.07	0.08	0.01	0.01	0.11	0.17
City Water	0.22	0.08	0.25	0.00	0.42	0.11	0.17

from

JAMES L. BROWN

1-9, 1980

To BCB-DBR

sampled 1-7-80

	P alk	SM alk	Acidity	pH	Hardness	Chlorides	F ⁻	S ⁻	Dissol
Pecos River above ponds	0	162	0	8.276	2300	1840	1.42	0	0
Pecos River at bridge	0	162	0	8.234	2330	1860	1.46	0	0
Water Well	not available								
West Pond	0	54	0	7.388	680	810	50.5	0	25+
Middle Pond	0	196	0	7.483	690	950	35.0	0	25
East Pond	0	222	0	7.442	840	1160	44.0	0	4
Total Effluent	10	238	0	8.473	1940	1780	34.8	205	20
APG Separator	16	312	0	8.671	680	80	40.0	230	24
M.D. Trap	0	192	0	8.185	850	1400	1.98	230	1
S.D. Trap	0	158	0	7.264	10400	13200	1.90	170	0
City Water	0	184	0	7.178	716	28	1.95	0	0

Jim Brown

from

JAMES L. BROWN

1-7, 1980

To

Results in ppm - by AA

	Iron	Copper	Nickel	Zinc	Lead	Chromium	Manganese
Pecos River above ponds	.065	.028	.076	.000	.071	.000	—
Pecos River at bridge	.049	.047	.076	.000	.071	.062	
Water Well							
West Pond	.098	.000	.030	.0079	.071	.000	—
Middle Pond	.065	.009	.030	.000	.071	.000	—
East Pond	.147	.009	.030	.000	.071	.000	—
Total Effluent	.065	.000	.106	.000	.142	.000	—
A/P Separator	.033	.000	.015	.000	.000	.000	—
N. R. Trap	.033	.000	.030	.000	.000	.000	—
S. R. Trap	.180	.028	.287	.1597	.356	.000	—
City Water	.000	.009	.000	.3968	.071	.000	—