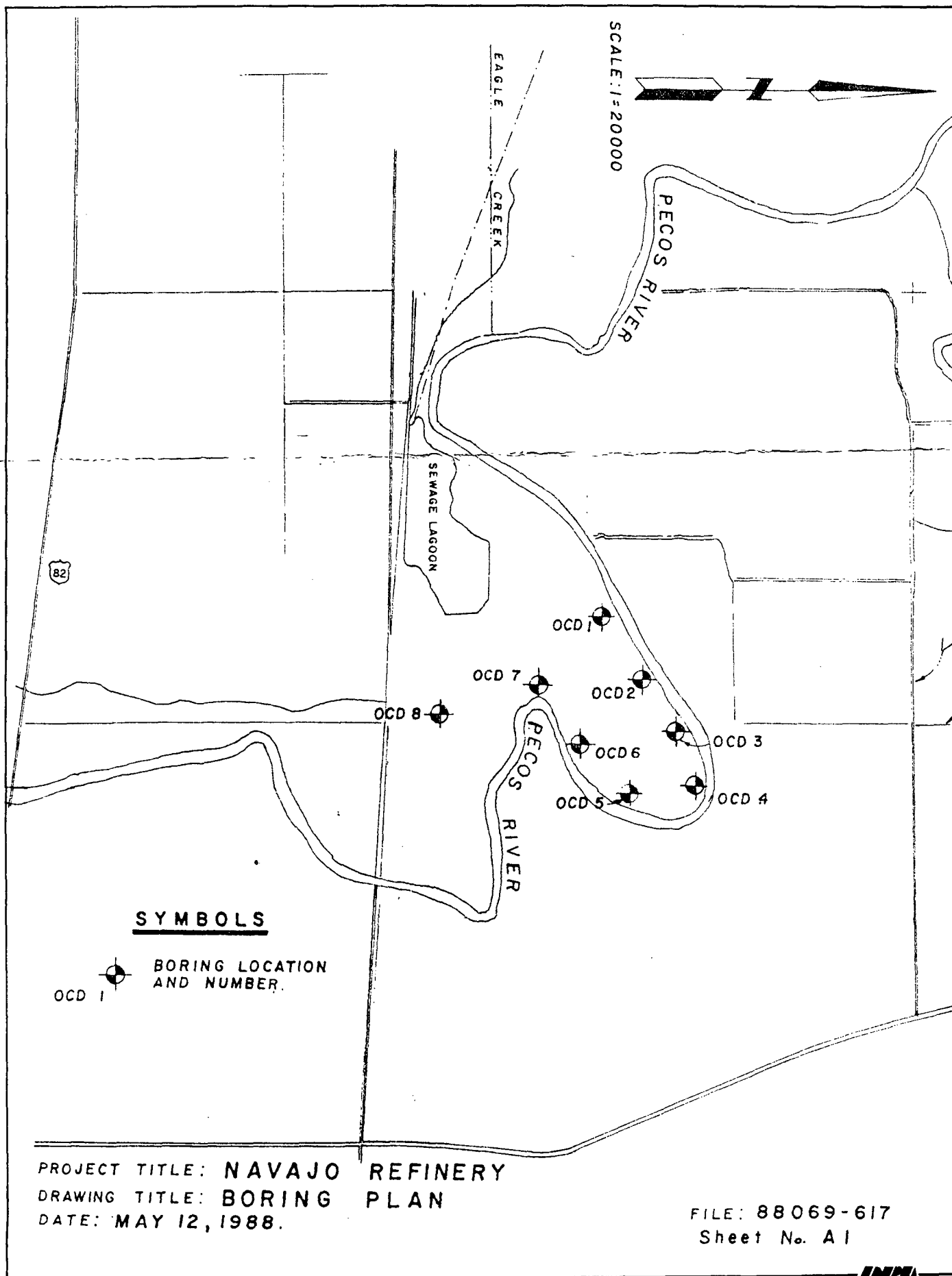


GW - 28

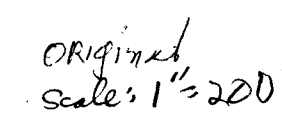
MONITORING REPORTS

DATE:

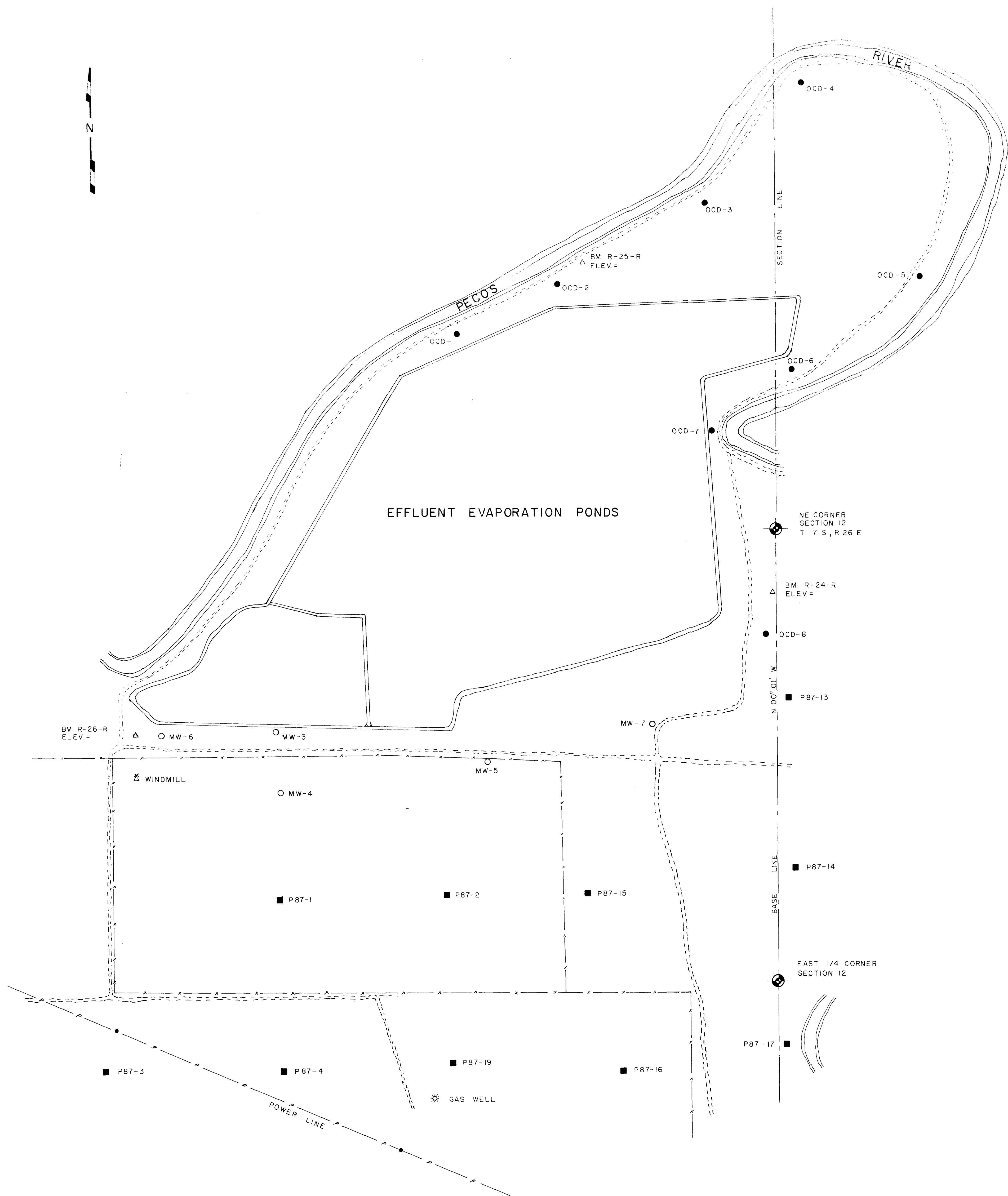
1989



-



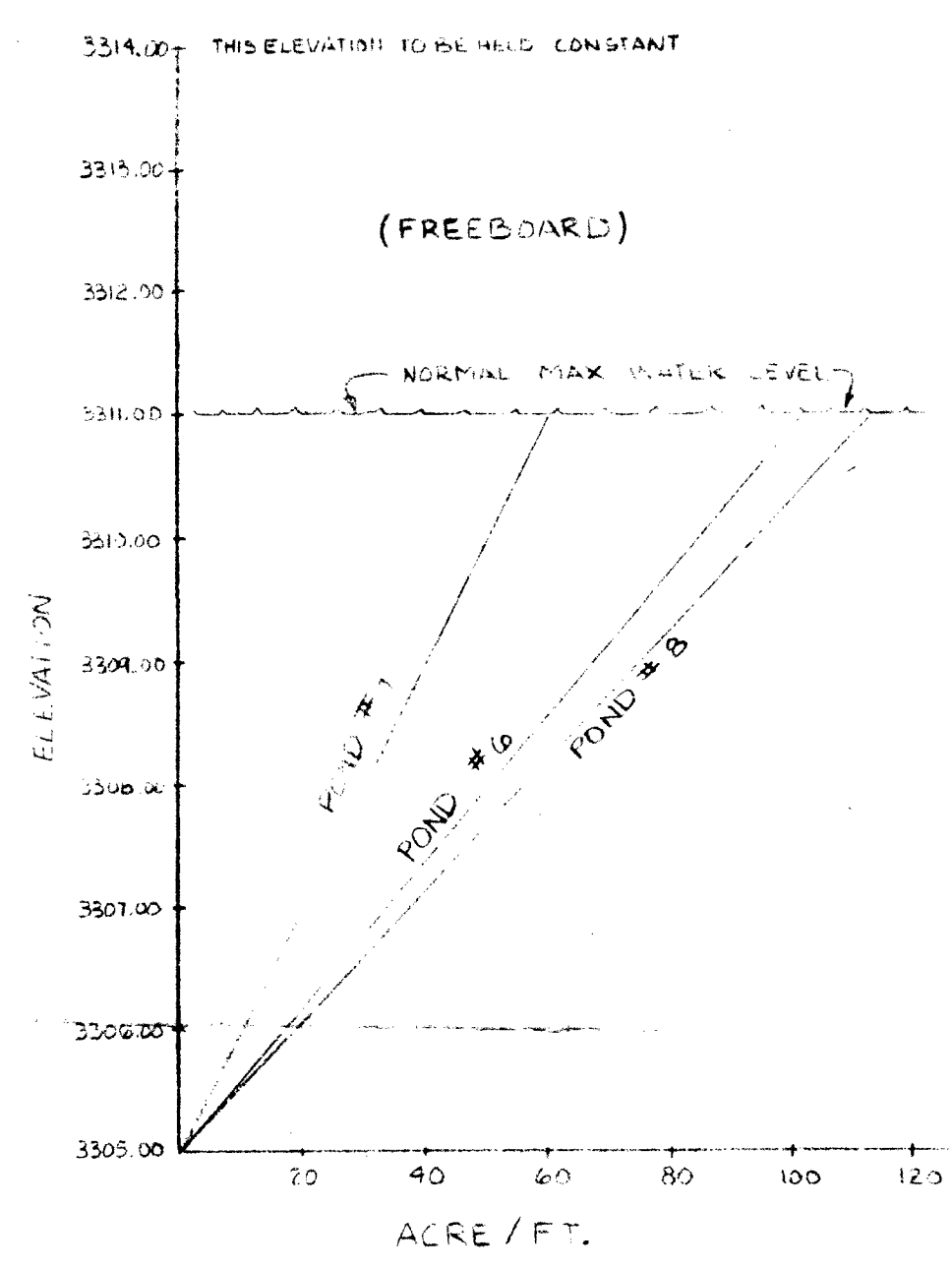
HORBS		CONSULTANTS		NEW MEXICO	
Surveyed By J. Love	Drawn By M. Mitchell	Last Rec. Date	Drawing Number		
Date Begin	Date 7/19/86	File No.			
Date End 7/17/86	Checked By	Sheet Of			



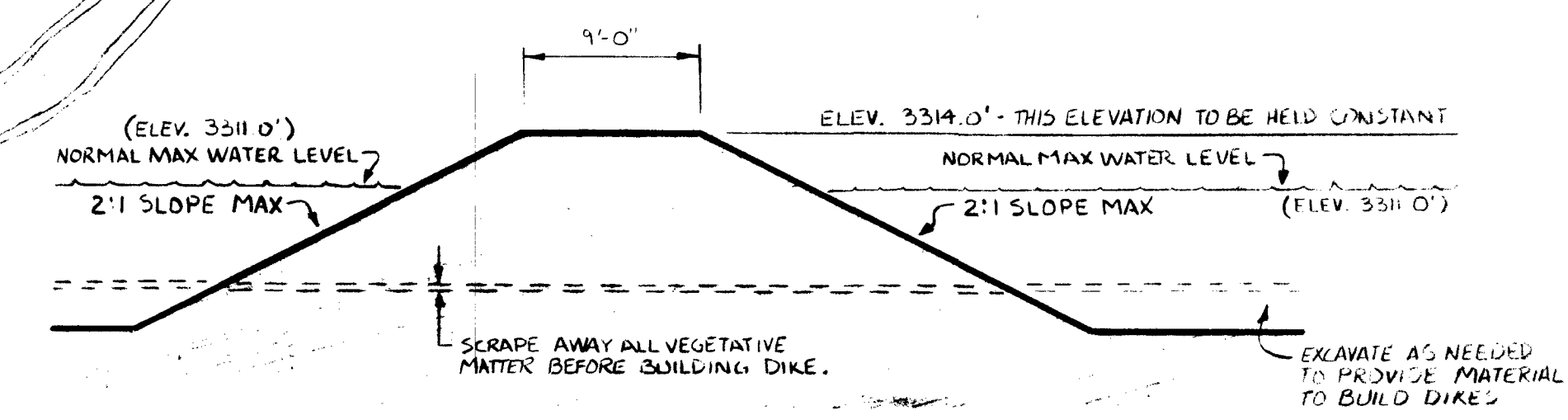
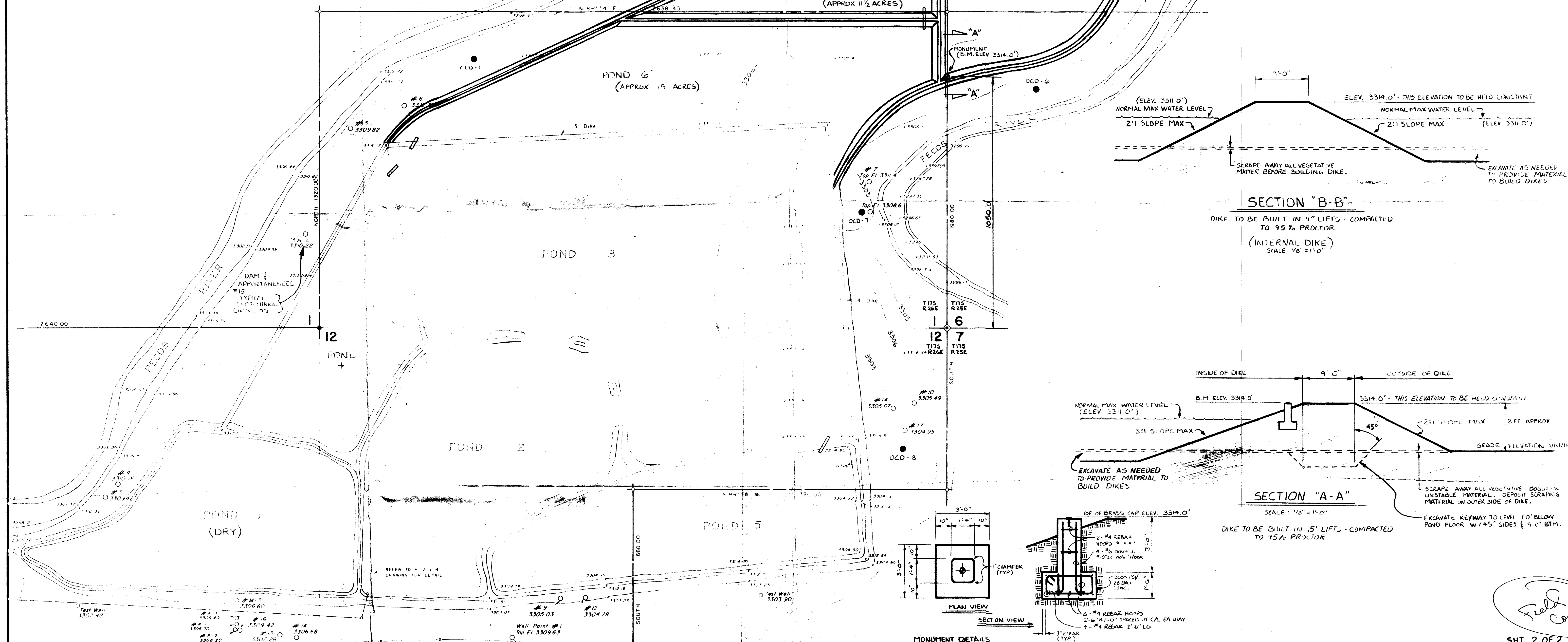
Field Copy

MONITORING WELLS				
EFFLUENT EVAPORATION PONDS				
NAVAJO REFINING COMPANY				
ARTESIA	EDDY COUNTY		NEW MEXICO	
McFARLAND ENGINEERING				
JOB NO 89000	DRAWN BY BMC	SCALE 1"=500'	DATE 8/5/82	SHEET OF

Field Copy

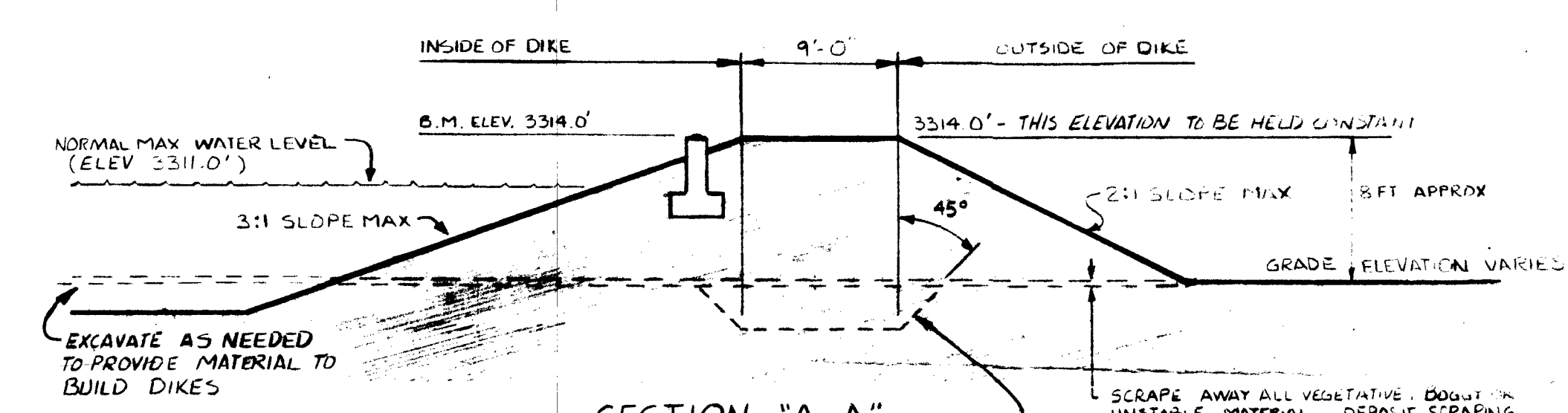


- NOTES:
1. HAZARD CLASSIFICATION - LOW.
 2. NO RIP-RAP REQ'D - EROSION CONTROL BY NATURAL VEGETATION.
 3. MAXIMUM RAINFALL - 4 IN./HR.



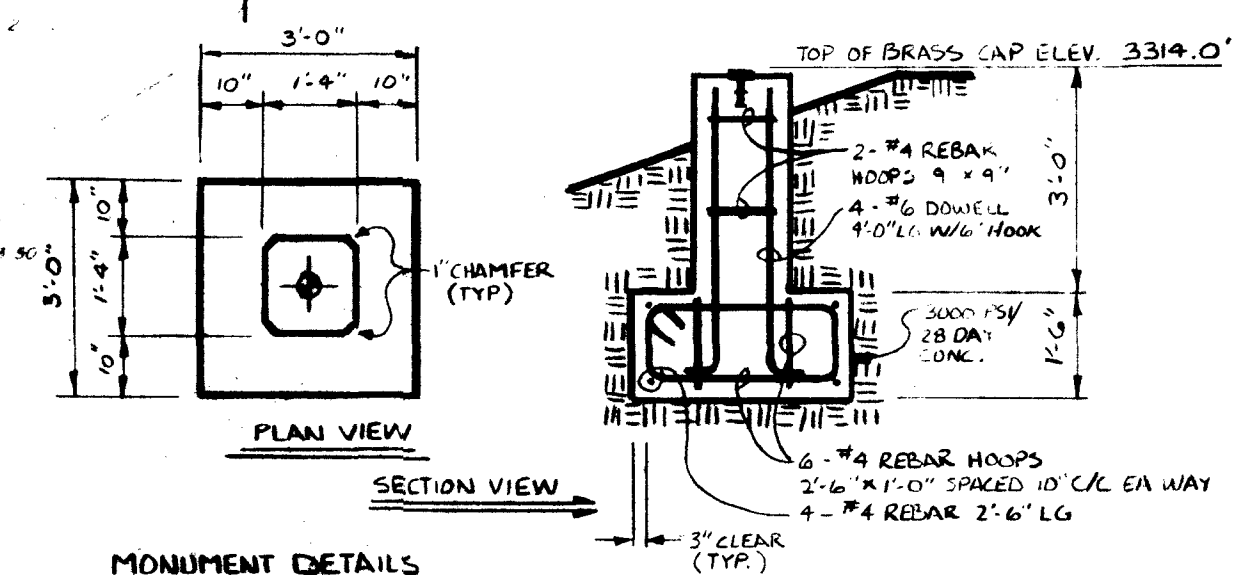
SECTION "B-B"

DIKE TO BE BUILT IN 9" LIFTS - COMPACTED TO 95% PROCTOR.
(INTERNAL DIKE)
SCALE 1/8" = 1'-0"



SECTION "A-A"

DIKE TO BE BUILT IN .5' LIFTS - COMPACTED TO 95% PROCTOR

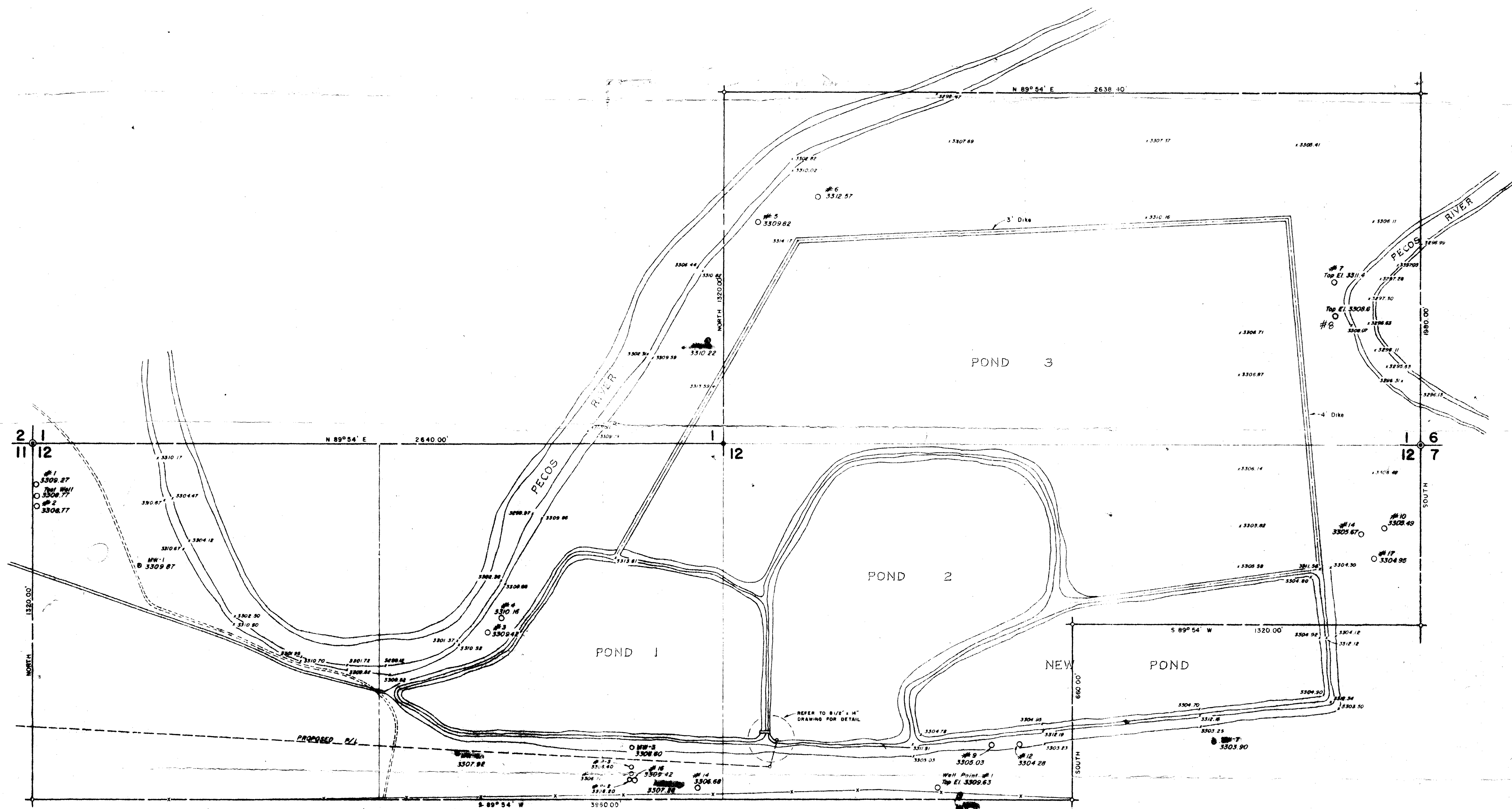


Field Copy

SHT 2 OF 2

NOTES		REFERENCE DRAWINGS		NO.		REVISIONS		BY		CHK.		DATE		APPR.		APPR.		DRAWING TITLE		EFFLUENT	
PROPOSED CONSTRUCTION SHOWN W/DASHED LINES																		EVAPORATION PONDS		(ADDITION OF PONDS 6, 7 & 8)	
● PROPOSED OLD MONITOR WELLS																					
												</									

Well Point #4
El. 3312.69



Windmill
El. 3309.54

ppb

	8	EB	T	Other
#2			6.4	
3				
4	39		140	
5			58	
6	12			Acetone-74
7			7.2	
#13	5			2,4-Dinitrophenol-19
WP#2			70	
#1				

NW-4
3306.90

Well Point #2
Top El. 3305.62
3301.5

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JAN 12 1987
OIL CONSERVATION DIVISION
SANTA FE
Field Copy

NAVAJO REFINING CO., INC.			
PLATE 2			
NAVAJO PONDS			
SITUATE WITHIN			
SECTIONS 1 & 12, T 17 S, R 25 E, N.M.P.M.,			
EDDY COUNTY, NEW MEXICO			
JOHN WEST ENGINEERING CO.			
CONSULTANTS			
Prepared By J. Lowe	Drawn By M. Mitchell	Last Rev. Date	Drawing Number
File Name	Date	File No.	
Rev. Date 7/17/86	Checked By	Drawn By	

GW-28

MW

Series

Wells

MW Series Wells



STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

1832

Contract Lab Inter Mountain Contract No. _____

OCD Sample No. 8907261009

Collection Date	Collection Time	Collected by—Person/Agency	/OCD
7/26/89	1009	Boyer, ENGLERT	
SITE INFORMATION			
Sample location <u>NAVARO REFINERY MW-1</u>			
Collection Site Description			
			Township, Range, Section, Tract:
			17S+26E+12+111

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) | ☐ 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: 2ml H ₂ SO ₄ /L added |
| ☐ A: HCL | |

FIELD COMMENTS:

SAMPLING CONDITIONS

- ☒ Bailed ☐ Pump
☐ Dipped ☐ Tap

pH(00400)

6.92

Water Temp. (00010)

21°C

Water level

11.44

Discharge

7.9 gallons

Sample type

GRAB

Conductivity (Uncorrected)

9800 μ mho

Conductivity at 25° C

4 μ mho

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 <u>Fluoride</u>	



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 214/984-0551

Analytical Chemistry • Waste Treatment & Disposal • Equipment Sales

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AUG 21 1989

OIL CONSERVATION DIV.
SANTA FE

08/17/89

Environmental Bureau NM Oil D.
PO Box 2088
Santa Fe, NM 87504

Sample Identification: MW1 Navajo Ref.

Flow or other on site data: 4 Vials Clear, Slight HC, Scum

Collected by: Boyer, Englert

Date & Time Taken: 07/26/89 1009

Additional Sample Information: 175-26E-12-111 Bailed 7 gal Temp 21 Cond 9800 NF 8020:A 8010:NA pH 6.92 WL 11.4

Lab Sample Number: 149757 Received: 07/29/89

PARAMETER:	RESULTS	QUALITY CONTROL	ANALYZED ON AT	ANALYST
1,1,1-Trichloroethane, ug/l EPA Method 8010	(5)		08/05/89 1420	BP
1,1,2,2-Tetrachloroethane, ug/l EPA Method 8010	(5)		08/05/89 1420	BP
1,1,2-Trichloroethane, ug/l EPA Method 8010	(5)		08/05/89 1420	BP
1,1-Dichloroethane, ug/l EPA Method 8010	(5)		08/05/89 1420	BP
1,1-Dichloroethene, ug/l EPA Method 8010	(1)		08/05/89 1420	BP
1,2-Dichloroethane, ug/l EPA Method 8010	(5)		08/05/89 1420	BP
1,2-Dichloropropane, ug/l EPA Method 8010	(5)		08/05/89 1420	BP
2-Chloroethylvinyl ether, ug/l EPA Method 8010	(10)		08/05/89 1420	BP
Benzene, ug/l EPA Method 8020	(5)		08/05/89 1420	BP
Bromodichloromethane, ug/l EPA Method 8010	(5)		08/05/89 1420	BP

continued



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Analytical Chemistry • Waste Treatment & Disposal • Equipment Sales

AUG 21 1989

OIL CONSERVATION DIV.
SANTA FE

Lab Sample Number: 149757 Continued

Page 2

PARAMETER:	RESULTS	QUALITY CONTROL	ANALYZED ON AT	ANALYST
Bromoform, ug/l EPA Method 8010	<5		08/05/89 1420	BP
Bromomethane, ug/l EPA Method 8010	<10		08/05/89 1420	BP
Carbon Tetrachloride, ug/l EPA Method 8010	<5		08/05/89 1420	BP
Chlorobenzene, ug/l EPA Method 8010	<5		08/05/89 1420	BP
Chloroethane, ug/l EPA Method 8010	<10		08/05/89 1420	BP
Chloroform, ug/l EPA Method 8010	<5		08/05/89 1420	BP
Chloromethane, ug/l EPA Method 8010	<10		08/05/89 1420	BP
Cis-1,3-Dichloropropene, ug/l EPA Method 8010	<5		08/05/89 1420	BP
Dibromochloromethane, ug/l EPA Method 8010	<5		08/05/89 1420	BP
Ethyl benzene, ug/l EPA Method 8020	<5		08/05/89 1420	BP
Freon, ug/l EPA Method 8010	<5		08/05/89 1420	BP
Methylene Chloride, ug/l EPA Method 8010	<5		08/05/89 1420	BP
Tetrachloroethene, ug/l EPA Method 8010	<5		08/05/89 1420	BP
Toluene, ug/l EPA Method 8020	<5		08/05/89 1420	BP

continued



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 214/984-0551

Analytical Chemistry • Waste Treatment & Disposal • Equipment Sales

RECEIVED

AUG 21 1989

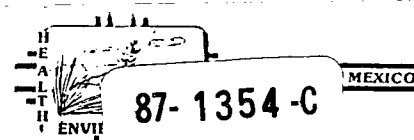
Lab Sample Number: 149757 Continued

OIL CONSERVATION DIV. Page 3
SANTA FE

PARAMETER:	RESULTS	QUALITY CONTROL	ANALYZED ON AT	ANALYST
Trans-1,2-Dichloroethene, ug/l EPA Method 8010	5		08/05/89 1420	BP
Trans-1,3-Dichloropropene, ug/l EPA Method 8010	5		08/05/89 1420	BP
Trichloroethene, ug/l EPA Method 8010	5		08/05/89 1420	BP
Vinyl Chloride, ug/l EPA Method 8010	1		08/05/89 1420	BP
Xylenes, ug/l EPA Method 8020	10		08/05/89 1420	BP

C. H. Whiteside, Ph.D., President

SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud NE
Albuquerque, NM 87106 841-2570

87-1354-C

REPORT TO: David Boyer
N.M. Oil Conservation Division
P. O. Box 2088
Santa Fe, N.M. 87504-2088

S.L.D. No. OR- 1354 A+D
DATE REC. 8-14-87

PHONE(S): 327-5812 USER CODE: 8 2 2 3 5
SUBMITTER: David Boyer CODE: 2 6 0

SAMPLE COLLECTION CODE: (YYMMDDHHMMIII) 8708120950DGB

SAMPLE TYPE: WATER ☒, SOIL ☐, FOOD ☐, OTHER: CODE: ☐☐☐

COUNTY: EDDY; CITY: ARTESIA CODE: ☐☐☐☐☐☐

LOCATION CODE: (Township-Range-Section-Tracts) 175+26E+12+111 (10N06E24342)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
Other Specific Compounds or Classes

☐
☐
☐
☐
☐

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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:

Detection limit 10 or less if possible

FIELD DATA:

pH= ; Conductivity= 12,000 umho/cm at 20.5°C; Chlorine Residual= mg/l

Dissolved Oxygen= mg/l; Alkalinity= mg/l; Flow Rate /

Depth to water 11.2 ft.; Depth of well 22.3 ft.; Perforation Interval - ft.; Casing: 5. STEEL

Sampling Location, Methods and Remarks (i.e. odors, etc.)

MW #1, NAVAJO REFINERY, PURGED 19 liters (2 csg vol) TO DRYNESS, SAMPLE ON RECOVERY

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities. (signature collector): D. Boyer Method of Shipment to the Lab: Static Car

This form accompanies 2 Septum Vials, Glass Jugs, and/or

Samples were preserved as follows:

- ☐ NP: No Preservation; Sample stored at room temperature.
☒ P-Ice Sample stored in an ice bath (Not Frozen).
☐ P-Na₂S₂O₃ Sample Preserved with Sodium Thiosulfate to remove chlorine residual.

CHAIN OF CUSTODY

I certify that this sample was transferred from _____ to _____
at (location) _____ on ____/____/____ - ____:____ and that
the statements in this block are correct. Evidentiary Seals: Not Sealed ☐ Seals Intact: Yes ☐ No ☐
Signatures _____

For OCD Use: Date Owner Notified _____ Phone or Letter? _____ Initials _____

ANALYSES PERFORMED

LAB. No.: OR- 1354

THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical screening method(s) checked below:

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes

Other Specific Compounds or Classes

☐	
☐	
☐	
☐	
☐	

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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

ANALYTICAL RESULTS

COMPOUND(S) DETECTED	CONC. [PPB]	COMPOUND(S) DETECTED	CONC. [PPB]
<i>aromatic purgeables</i>	<i>see summary</i>		
<i>toluene</i>	<i>6</i>		
<i>m-xylene</i>	<i>19</i>		
<i>halogenated purgeables</i>	<i>N.D</i>		
* DETECTION LIMIT *	<i>149/L</i>	+ DETECTION LIMIT +	<i>+</i>

ABBREVIATIONS USED:

N D = NONE DETECTED AT OR ABOVE THE STATED DETECTION LIMIT

T R = DETECTED AT A LEVEL BELOW THE STATED DETECTION LIMIT (NOT CONFIRMED)

[RESULTS IN BRACKETS] ARE UNCONFIRMED AND/OR WITH APPROXIMATE QUANTITATION

LABORATORY REMARKS: *Two compounds in the aromatic screen region at approx 1 ppb detected by the photoionization gas detector but not identified.*

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ☐ No ☒ Seal(s) broken by: *not sealed* date: _____

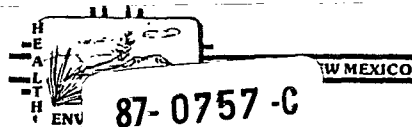
I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: *8/17/82* Analyst's signature: *Mary C. Egan*

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. Meyerheim*

SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud NE
Albuquerque, NM 87106 841-2570

87-0757-C

REPORT TO: David Boyer
N.M. Oil Conservation Division
P. O. Box 2088
Santa Fe, N.M. 87504-2088

S.L.D. No. OR- 757-A-B
DATE REC. 5-5-87

PHONE(S): 827-5812
SUBMITTER: David Boyer

PRIORITY
USER CODE: 8 2 2 3 5
CODE: 2 6 0

SAMPLE COLLECTION CODE: (YYMMDDHHMMIII) 8704300990AAB

SAMPLE TYPE: WATER ☒, SOIL ☐, FOOD ☐, OTHER: CODE: ☐ ☐ ☐

COUNTY: Elly; CITY: Artesia CODE: ☐ ☐ ☐

LOCATION CODE: (Township-Range-Section-Tracts) 1715+261E+12+1111 (10N06E24342)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
Other Specific Compounds or Classes

☐
☐
☐
☐
☐
☐**EXTRACTABLE SCREENS**

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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:

FIELD DATA:

pH= 7; Conductivity= 12,600 umho/cm at 18.2°C; Chlorine Residual= mg/l

Dissolved Oxygen= mg/l; Alkalinity= mg/l; Flow Rate

Depth to water 2' 9" ft.; Depth of well 22' 3" ft.; Perforation Interval - ft.; Casing: 5. Steel

Sampling Location, Methods and Remarks (i.e. odors, etc.)

MW #1, Navajo Refinery. Purged 2 1/2 gallons (9-3 casing vol)
To dryness, sample on recovery, turbid, cloudy brown, some sand

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities.(signature collector): David Boyer Method of Shipment to the Lab: State Car

This form accompanies 2 Septum Vials, 1 Glass Jugs, and/or

Samples were preserved as follows:

- ☐ NP: No Preservation; Sample stored at room temperature.
☒ P-Ice Sample stored in an ice bath (Not Frozen).
☐ P-Na₂S₂O₃ Sample Preserved with Sodium Thiosulfate to remove chlorine residual.

CHAIN OF CUSTODY

I certify that this sample was transferred from to

at (location) on / - and that

the statements in this block are correct. Evidentiary Seals: Not Sealed ☐ Seals Intact: Yes ☐ No ☐

Signatures

For OCD Use: Date Owner Notified Phone or Letter? Initials

ANALYSES PERFORMED

LAB. No.: OR- 757

THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical screening method(s) checked below:

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
 Other Specific Compounds or Classes

☐
☐
☐
☐
☐

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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

ANALYTICAL RESULTS

COMPOUND(S) DETECTED	CONC. [PPB]	COMPOUND(S) DETECTED	CONC. [PPB]
<i>aromatic purgeables</i>	<i>all screens</i>		
<i>halogenated purgeables</i>	<i>N.D.</i>		
* DETECTION LIMIT *	<i>10-49/c</i>	+ DETECTION LIMIT +	<i>+</i>

ABBREVIATIONS USED:

N D = NONE DETECTED AT OR ABOVE THE STATED DETECTION LIMIT

T R = DETECTED AT A LEVEL BELOW THE STATED DETECTION LIMIT (NOT CONFIRMED)

[RESULTS IN BRACKETS] ARE UNCONFIRMED AND/OR WITH APPROXIMATE QUANTITATION

LABORATORY REMARKS: *One compound at less than 10 ppb in the aromatic screen region detected with the photoionization detector but not identified.*

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ☐ No ☒ Seal(s) broken by: *not sealed* date: _____

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: *5/29/87* Analyst's signature: *Mary C. Eden*

I certify that I have reviewed and concur with the analytical results for this sample and with the statements in this block.

Reviewers signature: *K. Sherrell* JUN 11 1987

Narago Refinery

MW 1

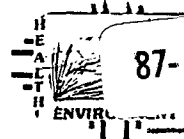
PAH's

SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud NE
Albuquerque, NM 87106 841-2570

87-1364-B

MEXICO



REPORT TO: David Boyer
N.M. Oil Conservation Division
P. O. Box 2088
Santa Fe, N.M. 87504-2088

S.L.D. No. OR- 1364 A
DATE REC. 8-14-87

PHONE(S): 327-5812 USER CODE: 8 2 2 3 5
SUBMITTER: David Boyer CODE: 12 6 0

SAMPLE COLLECTION CODE: (YYMMDDHHMMIII) 8 7 10 8 1 1 2 0 9 5 0 D G B

SAMPLE TYPE: WATER ☒, SOIL ☐, FOOD ☐, OTHER: CODE: ☐ ☐ ☐

COUNTY: EDDY; CITY: ARTESIA CODE: ☐ ☐ ☐

LOCATION CODE: (Township-Range-Section-Tracts) 1 7 5 + 2 6 E + 1 2 + 1 1 1 (10N06E24342)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☐ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
Other Specific Compounds or Classes

☐
☐
☐
☐
☐

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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:

FIELD DATA:

pH= ; Conductivity= 12,000 umho/cm at 20.5°C; Chlorine Residual= mg/l

Dissolved Oxygen= mg/l; Alkalinity= mg/l; Flow Rate /

Depth to water 11.2 ft.; Depth of well 22.3 ft.; Perforation Interval - ft.; Casing: 5. STEEL

Sampling Location, Methods and Remarks (i.e. odors, etc.)

MW #1, NAVAJO REFINERY. PURGED 19 liters (2 csg vol) TO
DRYNESS, SAMPLE ON RECOVERY

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities.(signature collector): David Boyer Method of Shipment to the Lab: State Car

This form accompanies Septum Vials, 1 Glass Jugs, and/or

Samples were preserved as follows:

- ☐ NP: No Preservation; Sample stored at room temperature.
☒ P-Ice Sample stored in an ice bath (Not Frozen).
☐ P-Na₂S₂O₃ Sample Preserved with Sodium Thiosulfate to remove chlorine residual.

CHAIN OF CUSTODY

I certify that this sample was transferred from _____ to _____
at (location) _____ on _____/_____/_____-_____ and that
the statements in this block are correct. Evidentiary Seals: Not Sealed ☐ Seals Intact: Yes ☐ No ☐

Signatures _____

For OCD Use: Date Owner Notified _____ Phone or Letter? _____ Initials _____

ANALYSES PERFORMED

LAB. No.: OR- 1364

THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical screening method(s) checked below:

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☐ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
 Other Specific Compounds or Classes

☐
☐
☐
☐
☐

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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

ANALYTICAL RESULTS

COMPOUND(S) DETECTED	CONC. [PPB]	COMPOUND(S) DETECTED	CONC. [PPB]
PNAP MDL = 5PPB	ND 25		
* DETECTION LIMIT *	*	+ DETECTION LIMIT +	+

ABBREVIATIONS USED:

N D = NONE DETECTED AT OR ABOVE THE STATED DETECTION LIMIT

T R = DETECTED AT A LEVEL BELOW THE STATED DETECTION LIMIT (NOT CONFIRMED)

[RESULTS IN BRACKETS] ARE UNCONFIRMED AND/OR WITH APPROXIMATE QUANTITATION

LABORATORY REMARKS:

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 on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: 5/18/87 Analyst's signature: *ASB...*

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 Meyerhan*



2503 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

CLIENT: OCD
SAMPLE ID: 8907261009
SITE: MW-1
LAB NO: F1832

DATE REPORTED: 08/21/89
DATE RECEIVED: 07/31/89
DATE COLLECTED: 07/26/89

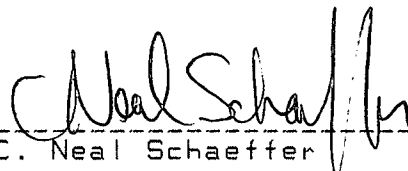
Lab pH.....	8.10
Lab Conductivity, umhos/cm.....	14521
Lab resistivity, ohm-m.....	0.6887
Total Dissolved Solids (180), mg/l..	13148
Total Dissolved Solids (calc), mg/l.	12397
Total Alkalinity as CaCO ₃ , mg/l.....	479.08
Total Acidity as CaCO ₃ , mg/l.....	0.00
Total Hardness as CaCO ₃ , mg/l.....	5154.39
Sodium Absorption Ratio.....	14.65
Fluoride, mg/l.....	1.11

	mg/l	meq/l
Bicarbonate as HCO ₃	584.48	9.58
Carbonate as CO ₃	0.00	0.00
Chloride.....	4679.40	132.00
Sulfate.....	3392.41	70.68
Calcium.....	920.86	45.95
Magnesium.....	694.78	57.14
Potassium.....	4.50	0.12
Sodium.....	2417.80	105.17
Major Cations.....		208.37
Major Anions.....		212.26
Cation/Anion Difference.....		0.92 %

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OIL CONSERVATION DIV.
SANTA FE


C. Neal Schaeffer
Senior Chemist



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	5/5/87	LAB NO.	WC 1665	USER CODE	☐ 59300 ☐ 59600 ☒ OTHER: 82235
Collection DATE	5/10/87	SITE INFORMATION	Sample location		
Collection TIME	0940		MW #1 Narajo Refinery		
Collected by — Person/Agency			Collection site description		
Boyer, Maderson 10CD					

SEND
FINAL
REPORT
TO

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87504-2088

Attn: David Boyer

Phone: 827-5812

Station/
well code MW #1
Owner

SAMPLING CONDITIONS

☐ Bailed ☐ Dipped	☒ Pump ☐ Tap	Water level	Discharge	Sample type
				GRAB
pH (00400)	7	Conductivity (Uncorrected)	Water Temp. (00010)	Conductivity at 25°C (00094)
		12,600 µmho	18.2 °C	µmho
Field comments				
See VOC sheet for 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:		☐ A: 5ml conc. HNO ₃ added ☐ A: 4ml fuming HNO ₃ added

ANALYTICAL RESULTS from SAMPLES

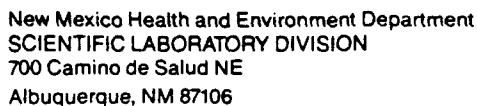
NA	Units	Date analyzed	From F, NA Sample:	Date Analyzed
☒ Conductivity (Corrected) 25°C (00095)	µmho	5/13		
☐ Total non-filterable residue (suspended) (00530)	mg/l			
☒ Other: pH	7.75	5/19		
☐ Other:				
☐ Other:				
A-H₂SO₄				
☐ Nitrate-N +, Nitrate-N total (00630)	mg/l		☒ Calcium	912 mg/l 6/1
☐ Ammonia-N total (00610)	mg/l		☒ Potassium	6.24 mg/l 5/20
☐ Total Kjeldahl-N ()	mg/l		☒ Magnesium	549 mg/l 6/1
☐ Chemical oxygen demand (00340)	mg/l		☒ Sodium	1925 mg/l 5/20
☐ Total organic carbon ()	mg/l		☒ Bicarbonate	482 mg/l 5/19
☐ Other:			☒ Chloride	4753 mg/l 5/26
☐ Other:			☒ Sulfate	3146 mg/l 5/20
			☒ Total Solids	11450 mg/l 6/3
			☒ FLUORIDE	0.88 5/27
			☐	
			☒ Cation/Anion Balance	
Laboratory remarks			Analyst	Date Reported 6/10/87 Reviewed by CG

FOR OCD USE -- Date Owner Notified _____ Phone or Letter? _____ Initials _____

CATIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT
Ca	45.51	912.00	<3.0
Mg	45.09	549.00	<0.3
Na	83.73	1925.00	<10.0
K	0.16	6.24	<0.3
Mn	0.00	0.00	
Fe	0.00	0.00	
SUMS	174.49	3392.24	
Total Dissolved Solids=			11450
Ion Balance =			84.09%

ANIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT
HC03	7.90	482.00	<1.0
SO4	65.54	3146.00	<10.0
CL	134.08	4753.00	<5.0
NO3	0.00	0.00	< 0.
C03	0.00	0.00	< 1.
NH3	0.00	0.00	< 0.
PO4	0.00	0.00	< 0.
	207.52	8381.00	

WC No. = 8701665
Date out/By 6/24/97



Telephone: (505)841-2553

TO:

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg., PO Box 2088
SANTA FE, NM 87504-2088

SITE LOCATION:
County: EDDY

Township, Range, Section, Tract: (10N06E24342)

ATTN: DAVE BOYER
TELEPHONE: 827-5812

STATION/ WELL CODE: | | | | | | | | | |

LATITUDE, LONGITUDE: | | | | | | | | | | - | | |

SAMPLING CONDITIONS:

☒ Bailed ☐ Dipped		☐ Pump ☐ Tap		Water Level: 11.44		Discharge: 7 gallons		Sample Type: GRAB	
pH(00400)		Conductivity(Uncorr.)		Water Temp.(00010)		Conductivity at 25°C			
6.92		9800 umho		21 °C		(00094) umho			

FIELD COMMENTS: clear water, slight Hc odor, scum developed on water surface

SAMPLE FIELD TREATMENT

Check proper boxes:

☐ WPN: Water Preserved w/HNO ₃ Non-Filtered	☒ WPF: Water Preserved w/HNO ₃ Filtered
---	--

LAB ANALYSIS REQUESTED:

☒ ICAP Scan
Mark box next to metal if AA
is required.

ANALYTICAL RESULTS (MG/L)

ELEMENT	ICAP VALUE	AA VALUE	ELEMENT	ICAP VALUE	AA VALUE
Aluminum	<0.1		Silicon	2.2	
Barium	<0.1		Silver	<0.1	☐
Beryllium	<0.1		Strontium	16.	
Boron	0.4		Tin	0.2	
Cadmium	<0.1	☐	Vanadium	0.2	
Calcium	930.		Zinc	<0.1	
Chromium	<0.1	☒ <0.005	Arsenic		☒ 0.006
Cobalt	<0.05		Selenium		☐
Copper	<0.1		Mercury		☐
Iron	2.0				☐
Lead	<0.1	☒ <0.005			☐
Magnesium	640.				☐
Manganese	3.0				☐
Molybdenum	<0.1				☐
Nickel	0.1				☐

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OIL CONSERVATION DIV.

LAB COMMENTS: ~~The~~ real nitrate 7/31/89 w/. Broken by JTH on 8/12/89. Digested.

For OCD Use:

Date Owner Notified:

Phone or Letter?

Initials:

ICAP Analyst

Date Analyzed**Reviewer**

Date Received 10/16/89



New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

Heavy metal
**GENERAL WATER CHEMISTRY
and NITROGEN ANALYSIS**

DATE RECEIVED	5/5/87	LAB NO.	HM-557	USER CODE	☐ 59300 ☐ 59600 ☒ OTHER: 82235
Collection DATE	5/10/87	SITE INFORMATION	Sample location		
Collection TIME	0740		MW #1 Navajo Refinery		
Collected by — Person/Agency		Collection site description			
K. J. Anderson 10CD					

SEND
FINAL
REPORT
TO

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87504-2088

Attn: David Boyer

Phone: 827-5812

Station/
well code MW #1
Owner

SAMPLING CONDITIONS

☐ Bailed ☐ Dipped	☒ Pump ☐ Tap	Water level	Discharge	Sample type
				GRAB
pH (00400)	7	Conductivity (Uncorrected)	Water Temp. (00010)	Conductivity at 25°C (00094)
		12,600 μ mho	18.2 °C	μ mho
Field comments				
See VOC sheet for comments				

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:		☐ A: 5ml conc. HNO ₃ added ☒ A: 4ml fuming HNO ₃ added

ANALYTICAL RESULTS from SAMPLES

NA	Units	Date analyzed	From	NA Sample:	Date Analyzed
☐ Conductivity (Corrected) 25°C (00095)	μ mho				
☐ Total non-filterable residue (suspended) (00530)	mg/l				
Other: Pb by AA	20.01	5/18			
Other: Cu by AA	<0.005	5/26			
☐ Other:					
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:					
			☐ Calcium	mg/l	
			☐ Potassium	mg/l	
			☐ Magnesium	mg/l	
			☐ Sodium	mg/l	
			☐ Bicarbonate	mg/l	
			☐ Chloride	mg/l	
			☐ Sulfate	mg/l	
			☐ Total Solids	mg/l	
			☐ Cation/Anion Balance		
Laboratory remarks			Analyst	Date Reported	Reviewed by
				6/1/87	J. Ashby





STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

1831

Contract Lab Inter Mountain

Contract No. _____

OCD Sample No. 8907260919

Collection Date	Collection Time	Collected by—Person/Agency	
7/26/89	0919	Boyer, ENGLERT	/OCD
SITE INFORMATION			
Sample location <u>NAVASU REFINERY: MW-2</u>			
Collection Site Description			
			Township, Range, Section, Tract:
			117S+26E+01+34T

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	8.64
	Discharge	6 gallons
	Sample type	GRAB
	Conductivity (Uncorrected)	7000 μ mho
pH(00400)	7.06	
Water Temp. (00010)	21°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	VCC	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	Fluoride	



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 214/984-0551

Analytical Chemistry • Waste Treatment & Disposal • Equipment Sales

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08/17/89

AUG 21 1989

Environmental Bureau NM Oil D.
PO Box 2088
Santa Fe, NM 87504

OIL CONSERVATION DIV.
SANTA FE

Sample Identification: MW2 Navajo Ref.

Flow or other on site data: 4 Vials Clear, Strong HC Odor

Collected by: Boyer, Englert

Date & Time Taken: 07/26/89 0919

Additional Sample Information: 175-26E-01-344 Bailed 6 gal Temp 21 Cond 7000 NF 8020: A 8010: NA pH 7.06 HL 8.64

Lab Sample Number: 149756 Received: 07/29/89

=====

PARAMETER:	RESULTS	QUALITY CONTROL	ANALYZED ON AT	ANALYST
1,1,1-Trichloroethane, ug/l EPA Method 8010	<5		08/05/89 1459	BP
1,1,2,2-Tetrachloroethane, ug/l EPA Method 8010	<5		08/05/89 1459	BP
1,1,2-Trichloroethane, ug/l EPA Method 8010	<5		08/05/89 1459	BP
1,1-Dichloroethane, ug/l EPA Method 8010	<5		08/05/89 1459	BP
1,1-Dichloroethene, ug/l EPA Method 8010	<1		08/05/89 1459	BP
1,2-Dichloroethane, ug/l EPA Method 8010	<5		08/05/89 1459	BP
1,2-Dichloropropane, ug/l EPA Method 8010	<5		08/05/89 1459	BP
2-Chloroethylvinyl ether, ug/l EPA Method 8010	<10		08/05/89 1459	BP
Benzene, ug/l EPA Method 8020	<5		08/05/89 1459	BP
Bromodichloromethane, ug/l EPA Method 8010	<5		08/05/89 1459	BP

continued



2600 DUDLEY ROAD — KILGORE, TEXAS 75662-214/984-0551

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OIL CONSERVATION DIV.
SANTA FE

Lab Sample Number: 149756 Continued

Page 2

PARAMETER:	RESULTS	QUALITY CONTROL	ANALYZED ON AT	ANALYST
Bromoform, ug/l EPA Method 8010	(5		08/05/89 1459	BP
Bromomethane, ug/l EPA Method 8010	(10		08/05/89 1459	BP
Carbon Tetrachloride, ug/l EPA Method 8010	(5		08/05/89 1459	BP
Chlorobenzene, ug/l EPA Method 8010	(5		08/05/89 1459	BP
Chloroethane, ug/l EPA Method 8010	(10		08/05/89 1459	BP
Chloroform, ug/l EPA Method 8010	(5		08/05/89 1459	BP
Chloromethane, ug/l EPA Method 8010	(10		08/05/89 1459	BP
Cis-1,3-Dichloropropene, ug/l EPA Method 8010	(5		08/05/89 1459	BP
Dibromochloromethane, ug/l EPA Method 8010	(5		08/05/89 1459	BP
Ethyl benzene, ug/l EPA Method 8020	(5		08/05/89 1459	BP
Freon, ug/l EPA Method 8010	(5		08/05/89 1459	BP
Methylene Chloride, ug/l EPA Method 8010	(5		08/05/89 1459	BP
Tetrachloroethene, ug/l EPA Method 8010	(5		08/05/89 1459	BP
Toluene, ug/l EPA Method 8020	(5		08/05/89 1459	BP

continued



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 214/984-0551

Analytical Chemistry • Waste Treatment & Disposal • Equipment Sales

AUG 21 1989

OIL CONSERVATION DIV.
SANTA FE

Page 3

Lab Sample Number: 149756 Continued

PARAMETER:	RESULTS	QUALITY CONTROL	ANALYZED ON AT	ANALYST
Trans-1,2-Dichloroethene, ug/l EPA Method 8010	(5		08/05/89 1459	BP
Trans-1,3-Dichloropropene, ug/l EPA Method 8010	(5		08/05/89 1459	BP
Trichloroethene, ug/l EPA Method 8010	(5		08/05/89 1459	BP
Vinyl Chloride, ug/l EPA Method 8010	(1		08/05/89 1459	BP
Xylenes, ug/l EPA Method 8020	(10		08/05/89 1459	BP

C. H. Whiteside, Ph.D., President

SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud NE
Albuquerque, NM 87106 841-2570

87-1351-C

EXICO

REPORT TO: David Boyer
N.M. Oil Conservation Division
P. O. Box 2088
Santa Fe, N.M. 87504-2088S.L.D. No. OR- 1351 A+B
DATE REC. 8-14-87

PHONE(S): 327-5812 USER CODE: 8 2 2 3 5

SUBMITTER: David Boyer CODE: 2 6 0

SAMPLE COLLECTION CODE: (YYMMDDHHMMIII) 8 7 0 8 1 2 1 1 1 0 D G B

SAMPLE TYPE: WATER ☒, SOIL ☐, FOOD ☐, OTHER: CODE:

COUNTY: EDDY CITY: ARTESIA CODE:

LOCATION CODE: (Township-Range-Section-Tracts) 1 7 5 + 2 6 E + 0 1 + 3 4 4 (10N06E24342)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.**PURGEABLE SCREENS**

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
Other Specific Compounds or Classes

☐ _____
☐ _____
☐ _____
☐ _____
☐ _____

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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: Detection limit 10 or less if possible

FIELD DATA:

pH= 7; Conductivity= 10,200 umho/cm at 20.4 °C; Chlorine Residual= mg/l

Dissolved Oxygen= mg/l; Alkalinity= mg/l; Flow Rate /

Depth to water 9.1 ft.; Depth of well 17.3 ft.; Perforation Interval - ft.; Casing: 2. STEEL

Sampling Location, Methods and Remarks (i.e. odors, etc.)

MW #2 NAVAJO REFINERY. PURGED 18.72 GOOD RECOVERY

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities. (signature collector): David Boyer

Method of Shipment to the Lab: Hand Carried

This form accompanies 2 Septum Vials, Glass Jugs, and/or

Samples were preserved as follows:

- ☐ NP: No Preservation; Sample stored at room temperature.
☒ P-Ice Sample stored in an ice bath (Not Frozen).
☐ P-Na₂S₂O₃ Sample Preserved with Sodium Thiosulfate to remove chlorine residual.

CHAIN OF CUSTODYI certify that this sample was transferred from _____ to _____
at (location) _____ on _____ - _____ and thatthe statements in this block are correct. Evidentiary Seals: Not Sealed ☐ Seals Intact: Yes ☐ No ☐

Signatures _____

For OCD Use: Date Owner Notified _____ Phone or Letter? _____ Initials _____

ANALYSES PERFORMED

LAB. No.: OR- 1351

THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical screening method(s) checked below:

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
 Other Specific Compounds or Classes

☐
☐
☐
☐
☐

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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

ANALYTICAL RESULTS

COMPOUND(S) DETECTED	CONC. [PPB]	COMPOUND(S) DETECTED	CONC. [PPB]
aromatic purgeables			
toluene	132		
m-xylene	993		
ethyl-p-xylene	T.R.		
ethylbenzene	46		
halogenated purgeables	N.D.		
* DETECTION LIMIT *	* 10 ⁴ g/l *	+ DETECTION LIMIT +	+

ABBREVIATIONS USED:

N D = NONE DETECTED AT OR ABOVE THE STATED DETECTION LIMIT

T R = DETECTED AT A LEVEL BELOW THE STATED DETECTION LIMIT (NOT CONFIRMED)

[RESULTS IN BRACKETS] ARE UNCONFIRMED AND/OR WITH APPROXIMATE QUANTITATION

LABORATORY REMARKS:

Four early eluting unsaturated compound at 10 ppb, six compounds in the aromatic screen region at 10-20 ppb, and eight compounds in the C3 substituted benzene region at 10-50 ppb detected by the photoionization detector but not identified.

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ☐ No ☒ Seal(s) broken by: not sealed date:

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: 8/17/87 Analyst's signature: Gary C. Egan

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. M. Egan

SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud NE
Albuquerque, NM 87106 841-2570

87-0751-C

NEW MEXICO

REPORT TO: David Boyer
N.M. Oil Conservation Division
P. O. Box 2088
Santa Fe, N.M. 87504-2088

S.L.D. No. OR- 751-A-B
DATE REC. 5-5-87

PHONE(S): 827-5812 USER CODE: 8 2 2 3 5
SUBMITTER: David Boyer CODE: 2 6 0

SAMPLE COLLECTION CODE: (YYMMDDHHMMIII) 8 7 1 0 4 3 0 1 0 4 5 1 1 R

SAMPLE TYPE: WATER ☒, SOIL ☐, FOOD ☐, OTHER: CODE: ☐ ☐ ☐

COUNTY: Eddy; CITY: Artesia CODE: ☐ ☐ ☐

LOCATION CODE: (Township-Range-Section-Tracts) 1 7 5 + 2 6 E + 0 1 + 3 4 4 (10N06E24342)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
Other Specific Compounds or Classes

☐
☐
☐
☐
☐
☐**EXTRACTABLE SCREENS**

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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:

FIELD DATA:

pH= 7; Conductivity= 11,000 umho/cm at 16 °C; Chlorine Residual= mg/l

Dissolved Oxygen= mg/l; Alkalinity= mg/l; Flow Rate

Depth to water 6' ft.; Depth of well 17'3" ft.; Perforation Interval - ft.; Casing: 5.5" steel

Sampling Location, Methods and Remarks (i.e. odors, etc.)

MW #2, Navajo Refinery. Purged 2.6 gallons, good recovery. Sample slightly turbid, cloudy brown, foam slightly

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities. (signature collector): D. H. Boyer Method of Shipment to the Lab: state cap

This form accompanies 2 Septum Vials, Glass Jugs, and/or

Samples were preserved as follows:

- ☐ NP: No Preservation; Sample stored at room temperature.
☒ P-Ice Sample stored in an ice bath (Not Frozen).
☐ P-Na₂S₂O₃ Sample Preserved with Sodium Thiosulfate to remove chlorine residual.

CHAIN OF CUSTODY

I certify that this sample was transferred from to
at (location) on - and that
the statements in this block are correct. Evidentiary Seals: Not Sealed ☐ Seals Intact: Yes ☐ No ☐
Signatures

For OCD Use: Date Owner Notified Phone or Letter? Initials

ANALYSES PERFORMED

LAB. No.: OR- 751

THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical screening method(s) checked below:

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
 Other Specific Compounds or Classes

☐
☐
☐
☐
☐

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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

ANALYTICAL RESULTS

COMPOUND(S) DETECTED	CONC. [PPB]	COMPOUND(S) DETECTED	CONC. [PPB]
<i>aromatic purgeables</i>	<i>see remarks</i>		
<i>halogenated purgeables</i>	<i>N.D.</i>		
* DETECTION LIMIT *	* <i>15 µg/L</i>	+ DETECTION LIMIT +	+

ABBREVIATIONS USED:

N D = NONE DETECTED AT OR ABOVE THE STATED DETECTION LIMIT

T R = DETECTED AT A LEVEL BELOW THE STATED DETECTION LIMIT (NOT CONFIRMED)

[RESULTS IN BRACKETS] ARE UNCONFIRMED AND/OR WITH APPROXIMATE QUANTITATION

LABORATORY REMARKS: *Nine compounds in the aromatic screen region at 10-20 ppb detected with the photoionization detector but not identified. Six late eluting compounds in the C3 substituted substituted benzene region at less than 10 ppb detected with the photoionization detector but not identified.*

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ☐ No ☒ Seal(s) broken by: *not sealed* date: _____

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: *5/28/87* Analyst's signature: *Henry C. Eden*

I certify that I have reviewed and concur with the analytical results for this sample and with the statements in this block.

Reviewers signature: *K. Sherrill* JUN 11 1987

Navajo Refinery

MW-2

PAH's

SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud NE
Albuquerque, NM 87106 841-2570



87-1368-B

REPORT TO: David Boyer
N.M. Oil Conservation Division EP 21 1987
P. O. Box 2088
Santa Fe, N.M. 87504-2088
S.L.D. No. OR- 7204
DATE REC. 8-14-87

PHONE(S): 827-5812
SUBMITTER: David Boyer
USER CODE: 8 2 2 3 5
CODE: 2 6 0

SAMPLE COLLECTION CODE: (YYMMDDHHMMIII) 8 7 6 8 1 1 2 1 1 1 0 D G B

SAMPLE TYPE: WATER ☒, SOIL ☐, FOOD ☐, OTHER: ☐ CODE: ☐

COUNTY: EDDY CITY: ARTESIA CODE: ☐

LOCATION CODE: (Township-Range-Section-Tracts) 1 7 5 + 2 6 E + 0 1 + 3 4 4 (10N06E24342)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
- ☐ (754) Aromatic & Halogenated Purgeables
- ☐ (765) Mass Spectrometer Purgeables
- ☐ (766) Trihalomethanes
- Other Specific Compounds or Classes

☐ _____

☐ _____

☐ _____

☐ _____

☐ _____

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
- ☐ (760) Organochlorine Pesticides
- ☐ (755) Base/Neutral Extractables
- ☐ (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: _____

FIELD DATA:

pH= 7; Conductivity= 10,200 umho/cm at 20.4 °C; Chlorine Residual= _____ mg/l

Dissolved Oxygen= _____ mg/l; Alkalinity= _____ mg/l; Flow Rate _____

Depth to water 9.1 ft.; Depth of well 17.3 ft.; Perforation Interval _____ ft.; Casing: 5. STEEL

Sampling Location, Methods and Remarks (i.e. odors, etc.)

MW #2 NAVATO REFINERY. PURGED 18.72 GOOD RECOVERY

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities. (signature collector): *W. H. Boyer* Method of Shipment to the Lab: *State Car*

This form accompanies _____ Septum Vials, _____ Glass Jugs, and/or _____

Samples were preserved as follows:

- ☐ NP: No Preservation; Sample stored at room temperature.
- ☒ P-Ice Sample stored in an ice bath (Not Frozen).
- ☐ P-Na₂S₂O₃ Sample Preserved with Sodium Thiosulfate to remove chlorine residual.

CHAIN OF CUSTODY

I certify that this sample was transferred from _____ to _____

at (location) _____ on _____/_____/_____-_____ and that

the statements in this block are correct. Evidentiary Seals: Not Sealed ☐ Seals Intact: Yes ☐ No ☐

Signatures _____

For OCD Use: Date Owner Notified _____ Phone or Letter? _____ Initials _____

ANALYSES PERFORMED

LAB. No.: OR- 1368

THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical screening method(s) checked below:

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☐ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes

Other Specific Compounds or Classes:

☐
☐
☐
☐
☐

EXTRACTABLE SCREENS

- ☒ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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

ANALYTICAL RESULTS

COMPOUND(S) DETECTED	CONC. [PPB]	COMPOUND(S) DETECTED	CONC. [PPB]
ALIPHATIC HYDROCARBONS			
GASOLINE MDL = 100 PPB	1300 PPB		
KEROSENE MDL = 100 PPB	ND < 100		
DIESEL MDL = 100 PPB	ND < 100		
* MINERAL OIL MDL = 1000 PPB	1600 PPB		
PNAO MDL = 5 PPB	ND < 5		
* DETECTION LIMIT *	*	+ DETECTION LIMIT +	+

ABBREVIATIONS USED:

N D = NONE DETECTED AT OR ABOVE THE STATED DETECTION LIMIT

T R = DETECTED AT A LEVEL BELOW THE STATED DETECTION LIMIT (NOT CONFIRMED)

[RESULTS IN BRACKETS] ARE UNCONFIRMED AND/OR WITH APPROXIMATE QUANTITATION

LABORATORY REMARKS:

* Mineral Oil > C₁₃ - C₂₆ with C₁₇ dominant

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ☐ No ☐ Seal(s) broken by: NO SEALS date: _____

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: 8/31/87 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]



2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

CLIENT: OCD
SAMPLE ID: 8907260919
SITE: MW-2
LAB NO: F1831

DATE REPORTED: 08/21/89
DATE RECEIVED: 07/31/89
DATE COLLECTED: 07/26/89

Lab pH.....	8.18
Lab Conductivity, umhos/cm.....	10272
Lab resistivity, ohm-m.....	0.9735
Total Dissolved Solids (180), mg/l..	8518
Total Dissolved Solids (calc), mg/l.	8417
Total Alkalinity as CaCO ₃ , mg/l.....	353.22
Total Acidity as CaCO ₃ , mg/l.....	0.00
Total Hardness as CaCO ₃ , mg/l.....	2281.62
Sodium Absorption Ratio.....	18.06
Fluoride, mg/l.....	4.24

	mg/l	meq/l
Bicarbonate as HCO ₃	430.93	7.06
Carbonate as CO ₃	0.00	0.00
Chloride.....	2329.07	65.70
Sulfate.....	3035.22	63.23
Calcium.....	763.23	38.09
Magnesium.....	91.77	7.55
Potassium.....	2.70	0.07
Sodium.....	1983.00	86.25
Major Cations.....		131.96
Major Anions.....		136.00
Cation/Anion Difference.....		1.51 %

RECEIVED

SEP - 1 1989

OIL CONSERVATION DIV.
SANTA FE


C. Neal Schaeffer
Senior Chemist



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	5/5/87	LAB NO.	WC 1668	USER CODE	☐ 59300 ☐ 59600 ☒ OTHER: 82235
Collection DATE	5/10/87	SITE INFORMATION	Sample location		
Collection TIME	1045		MW #2, Navajo Refinery		
Collected by — Person/Agency		Collection site description			
Boyer/Anderson/OCD					

SEND
FINAL
REPORT
TO

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box. 2088
Santa Fe, NM 87504-2088

Attn: David Boyer

Phone: 827-5812

SAMPLING CONDITIONS

☐ Bailed ☐ Dipped	☒ Pump ☐ Tap	Water level	Discharge	Sample type
				GRAB
pH (00400)	7	Conductivity (Uncorrected)	Water Temp. (00010)	Conductivity at 25°C (00094)
		11,800 µmho	16 °C	µmho
Field comments				
See VOC sheet for 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:	☐ A: 5ml conc. HNO ₃ added	☐ A: 4ml fuming HNO ₃ added

ANALYTICAL RESULTS from SAMPLES

NA	Units	Date analyzed	From	NA Sample:	Date Analyzed
☒ Conductivity (Corrected) 25°C (00095)	µmho	5/13			
☐ Total non-filterable residue (suspended) (00530)	mg/l				
☒ Other: pH		5/19			
☐ Other:					
☐ Other:					
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:					
			☒ Calcium	600 mg/l	6/2
			☒ Potassium	0.24 mg/l	5/20
			☒ Magnesium	278 mg/l	6/2
			☒ Sodium	22.79 mg/l	5/20
			☒ Bicarbonate	537 mg/l	5/19
			☒ Chloride	2842 mg/l	5/26
			☒ Sulfate	3457 mg/l	5/20
			☒ Total Solids	10064 mg/l	5/27
			☒ Chloride	5.48	5/27
			☐		
			☒ Cation/Anion Balance		
Laboratory remarks			Analyst	Date Reported	Reviewed by
				6/4/87	CO

FOR OCD USE -- Date Owner Notified _____ Phone or Letter? _____ Initials _____

CATIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT
Ca	29.94	600.00	<3.0
Mg	22.83	278.00	<0.3
Na	99.13	2279.00	<10.0
K	0.16	6.24	<0.3
Mn	0.00	0.00	
Fe	0.00	0.00	
SUMS	152.06	3163.24	
Total Dissolved Solids=			10064
Ion Balance =			94.45%

ANIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT
HC03	8.80	537.00	<1.0
SO4	72.02	3457.00	<10.0
CL	80.17	2842.00	<5.0
NO3	0.00	0.00	< 0.
C03	0.00	0.00	< 1.
NH3	0.00	0.00	< 0.
PO4	0.00	0.00	< 0.
	160.99	6836.00	

WC No. = 8701668
Date out/By _____



HEAVY METAL ANALYSIS FORM

Telephone: (505)841-2553

Date Received	07/31/89	Lab No	ICAP 449	User Code	82235	Other:		
COLLECTION DATE & TIME:				yy	mm	dd	hh	mm
				89	07	26	09	19
COLLECTED BY:				Boyer, Engler				

COLLECTION SITE DESCRIPTION
NAVAJO REFINERY

MW-2

TO:

OWNER:

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg., PO Box 2088
SANTA FE, NM 87504-2088

SITE LOCATION:
County: **EDDY**

Township, Range, Section, Tract: (10N06E24342)
11715+246E+01+3419

ATTN: **DAVE BOYER**
TELEPHONE: 827-5812

STATION/ WELL CODE:

LATITUDE, LONGITUDE:

SAMPLING CONDITIONS:

☒ Bailed	☐ Pump	Water Level:	Discharge:	Sample Type:
☐ Dipped	☐ Tap	8.64	6 gallons	GRAB
pH(00400)	Conductivity(Uncorr.)	Water Temp.(00010)	Conductivity at 25°C	
7.06	7000 μ mho	21 °C	(00094) μ mho	

FIELD COMMENTS: *clear water, very strong H₂S odor*

SAMPLE FIELD TREATMENT

Check proper boxes:

☐ WPN: Water Preserved w/HNO ₃ Non-Filtered	☒ WPF: Water Preserved w/HNO ₃ Filtered
---	--

LAB ANALYSIS REQUESTED:

☒ ICAP Scan
Mark box next to metal if AA is required.

ANALYTICAL RESULTS (MG/L)

ELEMENT	ICAP VALUE	AA VALUE	ELEMENT	ICAP VALUE	AA VALUE
Aluminum	0.1		Silicon	0.6	
Barium	<0.1		Silver	<0.1	☐
Beryllium	<0.1		Strontium	8.7	
Boron	0.5		Tin	<0.1	
Cadmium	<0.1	☐	Vanadium	<0.1	
Calcium	710.		Zinc	<0.1	
Chromium	<0.1	☒ 0.011	Arsenic		☒ 0.18
Cobalt	<0.05		Selenium		☐
Copper	<0.1		Mercury		☐
Iron	1.9		RECEIVED OCT 19 1989 OIL CONSERVATION DIV. SANTA FE		
Lead	<0.1	☒ <0.005			
Magnesium	170.				
Manganese	1.5				
Molybdenum	<0.1				
Nickel	<0.1				

LAB COMMENTS: *seal intact 7/31/89 w/ff. Broken by JTA on 8/2/89. Digested.*

For OCD Use:

Date Owner Notified:	ICAP Analyst	Reviewer
Phone or Letter?	Date Analyzed	Date Received
Initials:	8/28/89	10/16/89



New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

Heavy metal
**GENERAL WATER CHEMISTRY
and NITROGEN ANALYSIS**

DATE RECEIVED	5 5 87	LAB NO.	AM563	USER CODE	☐ 59300 ☐ 59600 ☒ OTHER: 82235
Collection DATE	07/04/87	SITE INFORMATION	Sample location		
Collection TIME	1045		MLW #2, Navajo Refinery		
Collected by — Person/Agency		Collection site description			
Boyer/Anderson IOCD					

SEND
FINAL
REPORT
TO

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87504-2088

Attn: David Boyer

Phone: 827-5812

SAMPLING CONDITIONS

☐ Bailed ☐ Dipped	☒ Pump ☐ Tap	Water level	Discharge	Sample type
				GRAB
pH (00400)	7	Conductivity (Uncorrected)	Water Temp. (00010)	Conductivity at 25°C (00094)
		11,800 µmho	16 °C	µmho
Field comments				
See VOC Sheet for comments				

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:		☐ A: 5ml conc. HNO ₃ added ☒ A: 4ml fuming HNO ₃ added

ANALYTICAL RESULTS from SAMPLES

NA	Units	Date analyzed	From _____, NA Sample:	Date Analyzed
☐ Conductivity (Corrected) 25°C (00095)	µmho		☐ Calcium	mg/l
☐ Total non-filterable residue (suspended) (00530)	mg/l		☐ Potassium	mg/l
Other: Pb by AA	Pb < 0.01 mg/l	6/2/87	☐ Magnesium	mg/l
Other: Cr by AA	Cr 0.005 mg/l	5/26/87	☐ Sodium	mg/l
☐ Other:			☐ Bicarbonate	mg/l
A-H₂SO₄			☐ Chloride	mg/l
☐ Nitrate-N +, Nitrate-N total (00630)	mg/l		☐ Sulfate	mg/l
☐ Ammonia-N total (00610)	mg/l		☐ Total Solids	mg/l
☐ Total Kjeldahl-N ()	mg/l		☐ _____	
☐ Chemical oxygen demand (00340)	mg/l		☐ _____	
☐ Total organic carbon ()	mg/l		☐ Cation/Anion Balance	
☐ Other:			Analyst	Date Reported
☐ Other:				6/5/87
Laboratory remarks			Reviewed by	Jim Kelly

FOR OCD USE -- Date Owner Notified _____ Phone or Letter? _____ Initials _____





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	
7/26/87	1257	Boyer, Engler	/OCD
SITE INFORMATION			
Sample location <u>NAVASO REFINERY - MW-3</u>			
Collection Site Description			
			Township, Range, Section, Tract:
			117S+26E+12+129

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:

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

- ☒ 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)

5250μmho

Conductivity at 25°C

μmhoslightly turbid, 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	C&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	



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 214/984-0551

Analytical Chemistry • Waste Treatment & Disposal • Equipment Sales

09/21/89

RECEIVED

Environmental Bureau NM Oil D.
PO Box 2088
Santa Fe. NM 87504

SEP 22 1989

OIL CONSERVATION DIV.
SANTA FE

Sample Identification: MW3 Navajo Ref.

Flow or other on site data: 4 Vials +1 Turbid, Strong HC

Collected by: Boyer, Englert

Date & Time Taken: 07/26/89 1257

Additional Sample Information: 175-26E-12-124 Bailed 8 gal Temp 16.5 Cond 5250 NF 8020:A 8010:NA pH 6.96 WL 11

Lab Sample Number: 149758

Received: 07/29/89

PARAMETER:	RESULTS	QUALITY CONTROL	ANALYZED ON AT	ANALYST
1,1,1-Trichloroethane, ug/l EPA Method 8010	(5)		08/05/89 1341	BP
1,1,2,2-Tetrachloroethane, ug/l EPA Method 8010	(5)		08/05/89 1341	BP
1,1,2-Trichloroethane, ug/l EPA Method 8010	(5)		08/05/89 1341	BP
1,1-Dichloroethane, ug/l EPA Method 8010	(5)		08/05/89 1341	BP
1,1-Dichloroethene, ug/l EPA Method 8010	(1)		08/05/89 1341	BP
1,2-Dichloroethane, ug/l EPA Method 8010	(5)		08/05/89 1341	BP
1,2-Dichloropropane, ug/l EPA Method 8010	(5)		08/05/89 1341	BP
2-Chloroethylvinyl ether, ug/l EPA Method 8010	(10)		08/05/89 1341	BP
Benzene, ug/l EPA Method 8020	(5)		08/05/89 1341	BP
Bromodichloromethane, ug/l EPA Method 8010	(5)		08/05/89 1341	BP

continued



Lab Sample Number: 149758 Continued

Page 2

PARAMETER:	RESULTS	QUALITY CONTROL	ANALYZED ON AT	ANALYST
Bromoform, ug/l EPA Method 8010	<5		08/05/89 1341	BP
Bromomethane, ug/l EPA Method 8010	<10		08/05/89 1341	BP
Carbon Tetrachloride, ug/l EPA Method 8010	<5		08/05/89 1341	BP
Chlorobenzene, ug/l EPA Method 8010	<5		08/05/89 1341	BP
Chloroethane, ug/l EPA Method 8010	<10		08/05/89 1341	BP
Chloroform, ug/l EPA Method 8010	<5		08/05/89 1341	BP
Chloromethane, ug/l EPA Method 8010	<10		08/05/89 1341	BP
Cis-1,3-Dichloropropene, ug/l EPA Method 8010	<5		08/05/89 1341	BP
Dibromochloromethane, ug/l EPA Method 8010	<5		08/05/89 1341	BP
Ethyl benzene, ug/l EPA Method 8020	<5		08/05/89 1341	BP
Freon, ug/l EPA Method 8010	<5		08/05/89 1341	BP
Methylene Chloride, ug/l EPA Method 8010	<5		08/05/89 1341	BP
Tetrachloroethene, ug/l EPA Method 8010	<5		08/05/89 1341	BP
Toluene, ug/l EPA Method 8020	<5		08/05/89 1341	BP

continued



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 214/984-0551

Analytical Chemistry • Waste Treatment & Disposal • Equipment Sales

Lab Sample Number: 149758 Continued

Page 3

PARAMETER:	RESULTS	QUALITY CONTROL	ANALYZED ON AT	ANALYST
Trans-1,2-Dichloroethene, ug/l EPA Method 8010	<5		08/05/89 1341	BP
Trans-1,3-Dichloropropene, ug/l EPA Method 8010	<5		08/05/89 1341	BP
Trichloroethene, ug/l EPA Method 8010	<5		08/05/89 1341	BP
Vinyl Chloride, ug/l EPA Method 8010	<1		08/05/89 1341	BP
Xylenes, ug/l EPA Method 8020	<10		08/05/89 1341	BP
2,4,6-Trichlorophenol, ug/l EPA Method 8270	<10		09/13/89 1457	BP
2,4-Dichlorophenol, ug/l EPA Method 8270	<10		09/13/89 1457	BP
2,4-Dimethylphenol, ug/l EPA Method 8270	<10		09/13/89 1457	BP
2,4-Dinitrophenol, ug/l EPA Method 8270	<50		09/13/89 1457	BP
2-Chlorophenol, ug/l EPA Method 8270	<10		09/13/89 1457	BP
2-Methyl-4,6-dinitrophenol, ug/l EPA Method 8270	<50		09/13/89 1457	BP
2-Nitrophenol, ug/l EPA Method 8270	<10		09/13/89 1457	BP
4-Chloro-3-methylphenol, ug/l EPA Method 8270	<20		09/13/89 1457	BP
4-Nitrophenol, ug/l EPA Method 8270	<50		09/13/89 1457	BP

continued



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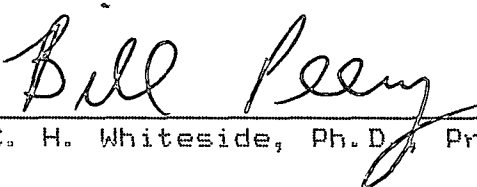
Analytical Chemistry • Waste Treatment & Disposal • Equipment Sales

Lab Sample Number: 149758 Continued

Page 4

PARAMETER:	RESULTS	QUALITY CONTROL	ANALYZED ON AT	ANALYST
Pentachlorophenol, ug/l EPA Method 8270	<50		09/13/89 1457	BP
Phenol, ug/l EPA Method 8270	<10		09/13/89 1457	BP

=====


C. H. Whiteside, Ph.D., President



2503 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

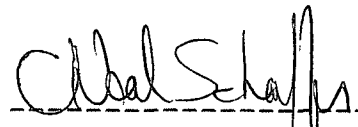
CLIENT: OCD
ID: 8907261257
SITE: MW-3
LAB NO: F1830
Analysis Requested: Purgeable aromatics in water.

DATE REPORTED: 08/22/89
DATE EXTRACTED: 08/07/89
DATE RECEIVED: 08/02/89
DATE COLLECTED: 07/26/89

Parameter	Concentration	Units
Benzene	ND (0.2)	ug/l
Ethylbenzene	ND (0.2)	ug/l
Toluene	21.9 (0.2)	ug/l
1,2-Dichlorobenzene	ND (0.2)	ug/l
1,3-Dichlorobenzene	ND (0.2)	ug/l
1,4-Dichlorobenzene	ND (0.2)	ug/l
Chlorobenzene	ND (0.2)	ug/l
m-Xylene	ND (0.2)	ug/l
o-Xylene	ND (0.2)	ug/l
p-Xylene	ND (0.2)	ug/l

Method:
8020 Aromatic Volatile Organics, SW-846, USEPA (1982)

(Detection limit in parenthesis.)
ND - Parameter not detected at the stated detection limit.


C. Neal Schaeffer
Senior Chemist

RECEIVED

SEP - 1 1989

CONTAMINATION DIV.
SANTA FE

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

RECEIVED

SEP 25 1989

OIL CONSERVATION DIV.
SANTA FE

ID: 8907261257
LAB NO: F1830

DATE REPORTED: 08/22/89

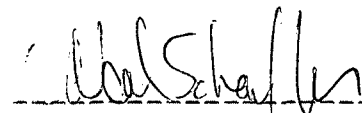
Benzyl Chloride	ND	(1.0)	ug/l
bis(2-chloroethoxy)methane	ND	(1.0)	ug/l
bis(2-Chloroisopropyl)ether	ND	(1.0)	ug/l
Bromomethane	ND	(1.0)	ug/l
Chloracetaldehyde	ND	(1.0)	ug/l
1-Chlorohexane	ND	(1.0)	ug/l
1-Chloroethyl Vinyl Ether	ND	(1.0)	ug/l
Chloromethyl methyl ether	ND	(1.0)	ug/l
Chlorotoluene	ND	(1.0)	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.



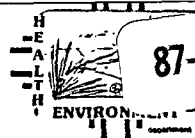
C. Neal Schaeffer
Senior Chemist

RECEIVED

SEP 25 1989

OIL CONSERVATION DIV.
SANTA FE

SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud NE
Albuquerque, NM 87106 841-2570

87-0756-C

EXICO

REPORT TO: David Boyer
N.M. Oil Conservation Division
P. O. Box 2088
Santa Fe, N.M. 87504-2088

S.L.D. No. OR- 756-A-B
DATE REC. 5-5-87

PHONE(S): 827-5812
SUBMITTER: David Boyer

PRIORITY
USER CODE: 8 2 2 3 5
CODE: 12 6 10

SAMPLE COLLECTION CODE: (YYMMDDHHMMIII) 87104281615A98

SAMPLE TYPE: WATER ☒ SOIL ☐ FOOD ☐ OTHER: ☐ CODE: ☐ ☐ ☐

COUNTY: Eddy; CITY: Artesia CODE: ☐ ☐ ☐

LOCATION CODE: (Township-Range-Section-Tracts) 1715+26E+12+124 (10N06E24342)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
Other Specific Compounds or Classes

☐
☐
☐
☐
☐

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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:

FIELD DATA:

pH= 7; Conductivity= 2000 umho/cm at 17 °C; Chlorine Residual= mg/l

Dissolved Oxygen= mg/l; Alkalinity= mg/l; Flow Rate

Depth to water 5' 9 1/2"; Depth of well 20 ft.; Perforation Interval - ft.; Casing: S. 5" steel

Sampling Location, Methods and Remarks (i.e. odors, etc.)

Narajo Refinery MW-3, Pumped 3 casing volumes
H.C. odor (P)

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities. (signature collector): David Boyer Method of Shipment to the Lab: State Car

This form accompanies 2 Septum Vials, Glass Jugs, and/or

Samples were preserved as follows:

- ☐ NP: No Preservation; Sample stored at room temperature.
☒ P-Ice Sample stored in an ice bath (Not Frozen).
☐ P-Na₂S₂O₃ Sample Preserved with Sodium Thiosulfate to remove chlorine residual.

CHAIN OF CUSTODY

I certify that this sample was transferred from to

at (location) on / / - and that

the statements in this block are correct. Evidentiary Seals: Not Sealed ☐ Seals Intact: Yes ☐ No ☐

Signatures

For OCD Use: Date Owner Notified Phone or Letter? Initials

ANALYSES PERFORMED

LAB. No.: OR- 756

THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical screening method(s) checked below:

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
 Other Specific Compounds or Classes

☐
☐
☐
☐
☐

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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

ANALYTICAL RESULTS

COMPOUND(S) DETECTED	CONC. [PPB]	COMPOUND(S) DETECTED	CONC. [PPB]
aromatic purgeables	see remarks		
halogenated purgeables	N.D.		
* DETECTION LIMIT *	100 ug/l	+ DETECTION LIMIT +	+

ABBREVIATIONS USED:

N D = NONE DETECTED AT OR ABOVE THE STATED DETECTION LIMIT

T R = DETECTED AT A LEVEL BELOW THE STATED DETECTION LIMIT (NOT CONFIRMED)

[RESULTS IN BRACKETS] ARE UNCONFIRMED AND/OR WITH APPROXIMATE QUANTITATION

LABORATORY REMARKS:

Ten compounds in the aromatic screen region at less than 100 ppb detected with the photoionization detector but not identified. Three late eluting compounds in the C3 substituted benzene region detected with the photoionization detector but not identified.

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ☐ No ☒ Seal(s) broken by: not sealed date:

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: 5/29/87 Analyst's signature: Gary C. Eden

I certify that I have reviewed and concur with the analytical results for this sample and with the statements in this block.

Reviewers signature: K. Sherrill JUN 11 1987

SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud NE
Albuquerque, NM 87106 841-2570

87-0762-C

NEW MEXICO

REPORT TO: David Boyer
N.M. Oil Conservation Division
P. O. Box 2088
Santa Fe, N.M. 87504-2088

S.L.D. No. OR- 762-A-B
DATE REC. 5-5-87

PHONE(S): 827-5812 USER CODE: 8 2 2 3 5
SUBMITTER: David Boyer CODE: 12 6 10

SAMPLE COLLECTION CODE: (YYMMDDHHMMIII) 87042816752000

SAMPLE TYPE: WATER ☒ SOIL ☐ FOOD ☐ OTHER: CODE: ☐ ☐ ☐

COUNTY: El Paso; CITY: Artesia CODE: ☐ ☐ ☐

LOCATION CODE: (Township-Range-Section-Tracts) 17S+26E+12+124 (10N06E24342)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
Other Specific Compounds or Classes

☐ _____
☐ _____
☐ _____
☐ _____
☐ _____

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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: _____

FIELD DATA:

pH= 7; Conductivity= 7000 umho/cm at 17 °C; Chlorine Residual= _____ mg/l

Dissolved Oxygen= _____ mg/l; Alkalinity= _____ mg/l; Flow Rate _____ / _____

Depth to water _____ ft.; Depth of well _____ ft.; Perforation Interval _____ - _____ ft.; Casing: _____

Sampling Location, Methods and Remarks (i.e. odors, etc.)

Narajo Refinery MW-3 same at 1615 except
bailed instead of pumped

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities. (signature collector): David BoyerMethod of Shipment to the Lab: State CarThis form accompanies 2 Septum Vials, _____ Glass Jugs, and/or _____

Samples were preserved as follows:

- ☐ NP: No Preservation; Sample stored at room temperature.
☒ P-Ice Sample stored in an ice bath (Not Frozen).
☐ P-Na₂S₂O₃ Sample Preserved with Sodium Thiosulfate to remove chlorine residual.

CHAIN OF CUSTODY

I certify that this sample was transferred from _____ to _____

at (location) _____ on _____ / _____ / _____ - _____ and that

the statements in this block are correct. Evidentiary Seals: Not Sealed ☐ Seals Intact: Yes ☐ No ☐

Signatures _____

For OCD Use: Date Owner Notified _____ Phone or Letter? _____ Initials _____

ANALYSES PERFORMED

LAB. No.: OR- 762

THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical screening method(s) checked below:

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
 Other Specific Compounds or Classes

☐
☐
☐
☐
☐

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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

ANALYTICAL RESULTS

COMPOUND(S) DETECTED	CONC. [PPB]	COMPOUND(S) DETECTED	CONC. [PPB]
<i>aromatic purgeables</i>	<i>all samples</i>		
<i>halogenated purgeables</i>	<i>N.D.</i>		
* DETECTION LIMIT *	* <i>10⁻⁹g/l</i>	+ DETECTION LIMIT +	+

ABBREVIATIONS USED:

N D = NONE DETECTED AT OR ABOVE THE STATED DETECTION LIMIT

T R = DETECTED AT A LEVEL BELOW THE STATED DETECTION LIMIT (NOT CONFIRMED)

[RESULTS IN BRACKETS] ARE UNCONFIRMED AND/OR WITH APPROXIMATE QUANTITATION

LABORATORY REMARKS:

Eleven compounds (at 70-100 ppb) and one compound at approx. 800-1000 ppb in the aromatic region detected by the photoionization detector but not identified. Nine compounds in the C3 substituted benzene region at 50-100 ppb detected with the photoionization detector but not identified.

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ☐ No ☒ Seal(s) broken by: *not sealed* date: _____

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: *5/22/87* Analyst's signature: *Henry C. Eden*

I certify that I have reviewed and concur with the analytical results for this sample and with the statements in this block.

Reviewers signature: *E. Sherrill*

JUN 11 1987

Narajo Refinery

MW-3

PAH's

CLIENT: OCD
SAMPLE: 8907261257
SITE: MW-3
LAB NO: F1830
Analysis Requested: Polynuclear aromatic hydrocarbons in water.

DATE REPORTED: 09/11/89
DATE EXTRACTED: 08/02/89
DATE RECEIVED: 07/31/89
DATE COLLECTED: 07/26/89

Parameter	Concentration	Units
Acenaphthene	ND (1.8)	ug/l
Acenaphthylene	ND (2.3)	ug/l
Anthracene	ND (1.0)	ug/l
Benzo(a)Anthracene	33.4 (1.0)	ug/l
Benzo(a)pyrene	ND (1.0)	ug/l
Benzo(k)fluoranthene	ND (1.0)	ug/l
Benzo(g,h,i)perylene	ND (1.0)	ug/l
Dibenzo(a,h)anthracene	ND (1.0)	ug/l
Chrysene	ND (1.0)	ug/l
Fluoranthene	ND (1.0)	ug/l
Fluorene	ND (1.0)	ug/l
Indeno(1,2,3-cd)pyrene	ND (1.0)	ug/l
Naphthalene	ND (1.8)	ug/l
Phenanthrene	ND (1.0)	ug/l
Pyrene	25.4 (1.0)	ug/l
Benzo(b)fluoranthene	ND (1.0)	ug/l
Benzo(a)fluoranthene	ND (1.0)	ug/l
Benzo(j)fluoranthene	ND (1.0)	ug/l
Dibenzo(a,h)acridine	ND (1.0)	ug/l
Dibenzo(a,j)acridine	ND (1.0)	ug/l
Dibenzo(a,h)anthracene	ND (1.0)	ug/l
7H-dibenzo(c,g)carbazole	ND (1.0)	ug/l
Dibenzo(a,e)pyrene	ND (1.0)	ug/l
Dibenzo(a,h)pyrene	ND (1.0)	ug/l
Dibenzo(a,i)pyrene	ND (1.0)	ug/l
3-Methylcholanthrene	ND (1.0)	ug/l

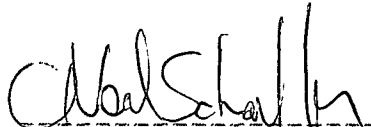
Method:

8100 Polynuclear Aromatic Hydrocarbons, SW-846, USEPA (1982).

610 Polyaromatic Hydrocarbons, 40 CFR Part 136 (1984).

(Detection limit in parenthesis.)

ND - Parameter not detected at the stated detection limit.


C. Neal Schaeffer
Senior Chemist

RECEIVED

SEP 25 1989

OIL CONSERVATION DIV.
SANTA FE

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 CaCO₃, mg/l..... 316.68
Total Acidity as CaCO₃, mg/l..... 0.00
Total Hardness as CaCO₃, 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 %

Trace metals by ICAP (Dissolved Concentration), mg/l

Aluminum.....	0.10	Lead.....	<0.02
Boron.....	1.16	Manganese.....	4.07
Barium.....	<0.50	Molybdenum.....	0.05
Cadmium.....	<0.002	Nickel.....	<0.01
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		

Trace metals by AA (Dissolved Concentration), mg/l

Arsenic.....	0.079	Selenium.....	<0.005
Chromium.....	0.04	Lead.....	<0.02

C. Neal Schaeffer

C. Neal Schaeffer
Senior Chemist

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OIL CONSERVATION DIV.
SANTA FE



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	5/5/87	LAB NO.	WC 1652	USER CODE	☐ 59300 ☐ 59600 ☒ OTHER: 82235
Collection DATE	5/10/87	SITE INFORMATION	Sample location		
Collection TIME	1615		MW-3 Navajo Refinery		
Collected by Person/Agency			Collection site description		
Boyle/Anderson /OCD					

SEND
FINAL
REPORT
TO

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box. 2088
Santa Fe, NM 87504-2088

Attn: David Boyer

Phone: 827-5812

SAMPLING CONDITIONS

☐ Bailed ☐ Dipped	☒ Pump ☐ Tap	Water level	Discharge	Sample type
				GRAB
pH (00400)	7	Conductivity (Uncorrected)	Water Temp. (00010)	Conductivity at 25°C (00094)
		7000 µmho	17 °C	µmho
Field comments				
See Voc sheet for 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:		☐ A: 5ml conc. HNO ₃ added ☐ A: 4ml fuming HNO ₃ added

ANALYTICAL RESULTS from SAMPLES

NA	Units	Date analyzed	From	NA Sample:	Date Analyzed
☒ Conductivity (Corrected) 25°C (00095)	µmho	5/13	F		
☐ Total non-filterable residue (suspended) (00530)	mg/l				
☒ Other: pH		5/12			
☐ Other:					
☐ Other:					
A-H₂SO₄					
☐ Nitrate-N ⁺ , Nitrate-N total (00630)	mg/l		☒ Calcium	560 mg/l	6/1
☐ Ammonia-N total (00610)	mg/l		☒ Potassium	5.07 mg/l	5/19
☐ Total Kjeldahl-N ()	mg/l		☒ Magnesium	317 mg/l	6/1
☐ Chemical oxygen demand (00340)	mg/l		☒ Sodium	1148 mg/l	5/19
☐ Total organic carbon ()	mg/l		☒ Bicarbonate	358 mg/l	5/12
☐ Other:			☒ Chloride	1316 mg/l	5/26
☐ Other:			☒ Sulfate	2654 mg/l	5/20
			☒ Total Solids	6844 mg/l	5/27
			☒ FLUORIDE	2.15	5/27
			☐		
			☐ Cation/Anion Balance		
Laboratory remarks			Analyst	Date Reported	Reviewed by
				6/2/87	

FOR OCD USE -- Date Owner Notified _____ Phone or Letter? _____ Initials _____

CATIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT
Ca	27.94	560.00	<3.0
Mg	26.04	317.00	<0.3
Na	49.93	1148.00	<10.0
K	0.13	5.07	<0.3
Mn	0.00	0.00	
Fe	0.00	0.00	
SUMS	104.05	2030.07	
Total Dissolved Solids=			6844
Ion Balance =			105.86%

ANIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT
HC03	5.87	358.00	<1.0
SO4	55.29	2654.00	<10.0
CL	37.12	1316.00	<5.0
NO3	0.00	0.00	< 0.
C03	0.00	0.00	< 1.
NH3	0.00	0.00	< 0.
PO4	0.00	0.00	< 0.
	98.28	4328.00	

WC No. = 8701652
Date out/By CO 6/2/87

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 CaCO₃, mg/l..... 316.68
 Total Acidity as CaCO₃, mg/l..... 0.00
 Total Hardness as CaCO₃, 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 %

Trace metals by ICAP (Dissolved Concentration), mg/l

Aluminum.....	0.10	Lead.....	<0.02
Boron.....	1.16	Manganese.....	4.07
Barium.....	<0.50	Molybdenum.....	0.05
Cadmium.....	<0.002	Nickel.....	<0.01
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		

Trace metals by AA (Dissolved Concentration), mg/l.

Arsenic.....	0.079	Selenium.....	<0.005
Chromium.....	0.04	Lead.....	<0.02

C. Neal Schaeffer
 C. Neal Schaeffer
 Senior Chemist

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OIL CONSERVATION DIV.
 SANTA FE



New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106

HEAVY METAL ANALYSIS FORM

Telephone: (505)841-2553

Date Received	07/31/89	Lab No.	ICAP 450	User Code	☒ 82235 ☐ Other:	
COLLECTION DATE & TIME:		yy	mm	dd	hh	mm
		89	07	26	12	57
COLLECTED BY:		Boyer, ENALERT				

TO:

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg., PO Box 2088
SANTA FE, NM 87504-2088

ATTN: DAVE BOYER
TELEPHONE: 827-5812

SITE LOCATION:
County:

Township, Range, Section, Tract: (10N06E24S42)
17S+26E+12+124

STATION/ WELL CODE:

LATITUDE, LONGITUDE:

SAMPLING CONDITIONS:

☒ Bailed ☐ Dipped	☐ Pump ☐ Tap	Water Level: 9.22	Discharge: 8 gallons	Sample Type: GRAB
pH(00400) 6.96	Conductivity(Uncorr.) 5250 umho	Water Temp.(00010) 16.5 °C	Conductivity at 25 °C (00094) umho	

FIELD COMMENTS: slightly turbid, strong H₂S like odor

SAMPLE FIELD TREATMENT

Check proper boxes:

☐ WPN: Water Preserved w/HNO ₃ Non-Filtered	☒ WPF: Water Preserved w/HNO ₃ Filtered
--	---

LAB ANALYSIS REQUESTED:

☒ ICAP Scan
Mark box next to metal if AA is required.

ANALYTICAL RESULTS (MG/L)

ELEMENT	ICAP VALUE	AA VALUE	ELEMENT	ICAP VALUE	AA VALUE
Aluminum	0.6		Silicon	1.2	
Barium	<0.1		Silver	<0.1	☐
Beryllium	<0.1		Strontium	7.5	
Boron	1.1		Tin	0.1	
Cadmium	<0.1	☐	Vanadium	0.1	
Calcium	580.		Zinc	<0.1	
Chromium	0.1	☒ 0.006	Arsenic		☒ 0.044
Cobalt	<0.05		Selenium		☐
Copper	<0.1		Mercury		☐
Iron	2.5				☐
Lead	<0.1	☒ <0.005			☐
Magnesium	270.				☐
Manganese	3.7				☐
Molybdenum	<0.1				☐
Nickel	0.2				☐

LAB COMMENTS: seal intact 7/31/89. Broken by JHA on 8/2/89. Digested

For OCD Use:

Date Owner Notified:
Phone or Letter?
Initials:

ICAP Analyst JHA

Date Analyzed 8/28/89

Reviewer Jim Ashby

Date Received 11/7/89



New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

Heavy Metal

GENERAL WATER CHEMISTRY AND NITROGEN ANALYSIS

DATE RECEIVED	5/5/87	LAB NO.	HM 561	USER CODE	☐ 59300 ☐ 59600 ☒ OTHER: 82235
Collection DATE	5/12/87	SITE INFORMATION	Sample location		
Collection TIME	1615		MW-3 Navajo Refinery		
Collected by		Person/Agency			
Boyle/Henderson		IOCD			

SEND
FINAL
REPORT
TO

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87504-2088

Attn: David Boyer

Phone: 827-5812

SAMPLING CONDITIONS

☐ Bailed ☐ Dipped	☒ Pump ☐ Tap	Water level	Discharge	Sample type
				GRAB
pH (00400)	7	Conductivity (Uncorrected)	Water Temp. (00010)	Conductivity at 25°C (00094)
		7000 µmho	17 °C	µmho
Field comments				
See Voc Sheet for 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:		☐ A: 5ml conc. HNO ₃ added ☒ A: 4ml fuming HNO ₃ added

ANALYTICAL RESULTS from SAMPLES

NA	Units	Date analyzed	From	NA Sample:	Date Analyzed
☐ Conductivity (Corrected) 25°C (00095)	µmho			☐ Calcium	mg/l
☐ Total non-filterable residue (suspended) (00530)	mg/l			☐ Potassium	mg/l
☒ Other: Pb by AA	20.01	5/18		☐ Magnesium	mg/l
☒ Other: CR by AA	20.005	5/26		☐ Sodium	mg/l
☐ Other:				☐ Bicarbonate	mg/l
A-H₂SO₄				☐ Chloride	mg/l
☐ Nitrate-N +, Nitrate-N total (00630)	mg/l			☐ Sulfate	mg/l
☐ Ammonia-N total (00610)	mg/l			☐ Total Solids	mg/l
☐ Total Kjeldahl-N ()	mg/l			☐	
☐ Chemical oxygen demand (00340)	mg/l			☐	
☐ Total organic carbon ()	mg/l			☐	
☐ Other:				☐ Cation/Anion Balance	
☐ Other:				Analyst	Date Reported
					6/1/87

Laboratory remarks

Digest

Reviewed by
Jim Bohley

FOR OCD USE -- Date Owner Notified _____ Phone or Letter? _____ Initials _____





ANALYSIS REQUEST FORM

1829

Contract Lab INTER Mountain Contract No. _____OCD Sample No. 8907261221

Collection Date	Collection Time	Collected by — Person/Agency	
7/26/89	1221	BOYER, ENGLERT	/OCD
SITE INFORMATION			
Sample location <u>NAVASO REFINERY: MW.4</u>			
Collection Site Description			
			Township, Range, Section, Tract:
			1175+26E+12+1.42

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) 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	<u>Fluoride</u>	



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 214/984-0551

Analytical Chemistry • Waste Treatment & Disposal • Equipment Sales

09/21/89

Environmental Bureau NM Oil D.
PO Box 2088
Santa Fe, NM 87504

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SEP 22 1989

OIL CONSERVATION DIV.
SANTA FE

Sample Identification: MW4 Navajo Ref.
Flow or other on site data: 4 Vials +2 Clear, Strong HC Od
Collected by: Boyer, Englert
Date & Time Taken: 07/26/89 1221
Additional Sample Information: 175-26E-12-142 Bailed 7 gal pH 7.04 Temp 17 Cond 6000 NF 8020:A 8010:NA WL 11.8
Lab Sample Number: 149759 Received: 07/29/89

PARAMETER:	RESULTS	QUALITY CONTROL	ANALYZED ON AT	ANALYST
1,1,1-Trichloroethane, ug/l EPA Method 8010	(5		08/05/89 1253	BP
1,1,2,2-Tetrachloroethane, ug/l EPA Method 8010	(5		08/05/89 1253	BP
1,1,2-Trichloroethane, ug/l EPA Method 8010	(5		08/05/89 1253	BP
1,1-Dichloroethane, ug/l EPA Method 8010	(5		08/05/89 1253	BP
1,1-Dichloroethene, ug/l EPA Method 8010	(1		08/05/89 1253	BP
1,2-Dichloroethane, ug/l EPA Method 8010	(5		08/05/89 1253	BP
1,2-Dichloropropane, ug/l EPA Method 8010	(5		08/05/89 1253	BP
2-Chloroethylvinyl ether, ug/l EPA Method 8010	(10		08/05/89 1253	BP
Benzene, ug/l EPA Method 8020	(5		08/05/89 1253	BP
Bromodichloromethane, ug/l EPA Method 8010	(5		08/05/89 1253	BP

continued



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 214/984-0551

Analytical Chemistry • Waste Treatment & Disposal • Equipment Sales

Lab Sample Number: 149759 Continued

Page 2

PARAMETER:	RESULTS	QUALITY CONTROL	ANALYZED ON AT	ANALYST
Bromoform, ug/l EPA Method 8010	<5		08/05/89 1253	BP
Bromomethane, ug/l EPA Method 8010	<10		08/05/89 1253	BP
Carbon Tetrachloride, ug/l EPA Method 8010	<5		08/05/89 1253	BP
Chlorobenzene, ug/l EPA Method 8010	<5		08/05/89 1253	BP
Chloroethane, ug/l EPA Method 8010	<10		08/05/89 1253	BP
Chloroform, ug/l EPA Method 8010	<5		08/05/89 1253	BP
Chloromethane, ug/l EPA Method 8010	<10		08/05/89 1253	BP
Cis-1,3-Dichloropropene, ug/l EPA Method 8010	<5		08/05/89 1253	BP
Dibromochloromethane, ug/l EPA Method 8010	<5		08/05/89 1253	BP
Ethyl benzene, ug/l EPA Method 8020	<5		08/05/89 1253	BP
Freon, ug/l EPA Method 8010	<5		08/05/89 1253	BP
Methylene Chloride, ug/l EPA Method 8010	<5		08/05/89 1253	BP
Tetrachloroethene, ug/l EPA Method 8010	<5		08/05/89 1253	BP
Toluene, ug/l EPA Method 8020	<5		08/05/89 1253	BP

continued



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 214/984-0551

Analytical Chemistry • Waste Treatment & Disposal • Equipment Sales

Lab Sample Number: 149759 Continued

Page 3

PARAMETER:	RESULTS	QUALITY CONTROL	ANALYZED ON AT	ANALYST
Trans-1,2-Dichloroethene, ug/l EPA Method 8010	<5		08/05/89 1253	BP
Trans-1,3-Dichloropropene, ug/l EPA Method 8010	<5		08/05/89 1253	BP
Trichloroethene, ug/l EPA Method 8010	<5		08/05/89 1253	BP
Vinyl Chloride, ug/l EPA Method 8010	<1		08/05/89 1253	BP
Xylenes, ug/l EPA Method 8020	<10		08/05/89 1253	BP
2,4,6-Trichlorophenol, ug/l EPA Method 8270	<10		09/20/89 1832	BP
2,4-Dichlorophenol, ug/l EPA Method 8270	<10		09/20/89 1832	BP
2,4-Dimethylphenol, ug/l EPA Method 8270	<10		09/20/89 1832	BP
2,4-Dinitrophenol, ug/l EPA Method 8270	<50		09/20/89 1832	BP
2-Chlorophenol, ug/l EPA Method 8270	<10		09/20/89 1832	BP
2-Methyl-4,6-dinitrophenol, ug/l EPA Method 8270	<50		09/20/89 1832	BP
2-Nitrophenol, ug/l EPA Method 8270	<10		09/20/89 1832	BP
4-Chloro-3-methylphenol, ug/l EPA Method 8270	<20		09/20/89 1832	BP
4-Nitrophenol, ug/l EPA Method 8270	<50		09/20/89 1832	BP

continued



2503 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

CLIENT: OCD
ID: 8907261221
SITE: MW-4
LAB NO: F1829

DATE REPORTED: 08/22/89
DATE EXTRACTED: 08/08/89
DATE RECEIVED: 08/02/89
DATE COLLECTED: 07/26/89

Analysis Requested: Purgeable aromatics in water.

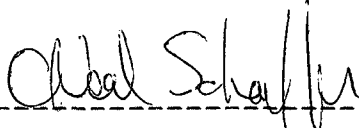
Parameter	Concentration	Units
Benzene	ND (0.2)	ug/l
Ethylbenzene	ND (0.2)	ug/l
Toluene	35.72 (0.2)	ug/l
1,2-Dichlorobenzene	ND (0.2)	ug/l
1,3-Dichlorobenzene	ND (0.2)	ug/l
1,4-Dichlorobenzene	ND (0.2)	ug/l
Chlorobenzene	ND (0.2)	ug/l
m-Xylene	ND (0.2)	ug/l
o-Xylene	ND (0.2)	ug/l
p-Xylene	ND (0.2)	ug/l

Method:

8020 Aromatic Volatile Organics, SW-846, USEPA (1982)

(Detection limit in parenthesis.)

ND - Parameter not detected at the stated detection limit.


C. Neal Schaeffer
Senior Chemist

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SEP - 1 1989

OIL CONSERVATION DIV.
SANTA FE

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

RECEIVED

SEP 25 1989

OIL CONSERVATION DIV.
SANTA FE

ID: 8907261221
LAB NO: F1829

DATE REPORTED: 08/22/89

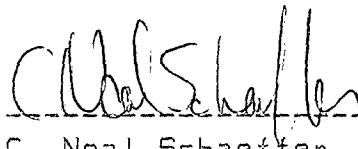
Benzyl Chloride	ND	(1.0)	ug/l
bis(2-chloroethoxy)methane	ND	(1.0)	ug/l
bis(2-Chloroisopropyl)ether	ND	(1.0)	ug/l
Bromomethane	ND	(1.0)	ug/l
Chloroacetaldehyde	ND	(1.0)	ug/l
1-Chlorohexane	ND	(1.0)	ug/l
1-Chloroethyl Vinyl Ether	ND	(1.0)	ug/l
Chloromethyl methyl ether	ND	(1.0)	ug/l
Chlorotoluene	ND	(1.0)	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.


C. Neal Schaeffer
Senior Chemist

RECEIVED

SEP 25 1989

OIL CONSERVATION DIV.
SANTA FE



2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

CLIENT: OCD
SAMPLE: 8907261221
SITE: MW-4
LAB NO: F1829
Analysis Requested: Phenols in water.

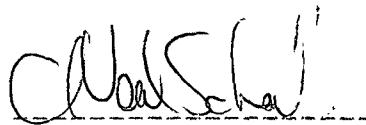
DATE REPORTED: 09/26/89
DATE EXTRACTED: 08/02/89
DATE RECEIVED: 07/31/89
DATE COLLECTED: 07/26/89

Parameter	Concentration	Units
4-Chloro-3-methylphenol	ND (1.0)	ug/l
2-Chlorophenol	3.1 (1.0)	ug/l
2,4-Dichlorophenol	ND (1.0)	ug/l
2,4-Dimethylphenol	59.0 (1.0)	ug/l
2,4-Dinitrophenol	ND (15.0)	ug/l
2-Methyl-4,6-dinitrophenol	ND (15.0)	ug/l
2-Nitrophenol	ND (1.0)	ug/l
4-Nitrophenol	36.0 (3.0)	ug/l
Pentachlorophenol	ND (8.0)	ug/l
Phenol	30.0 (1.0)	ug/l
2,4,6-Trichlorophenol	ND (1.0)	ug/l
2-sec-Butyl-4,6-dinitrophenol	ND (1.0)	ug/l
Cresols (methyl phenols)	ND (1.0)	ug/l
2-Cyclohexyl-4,6-dinitrophenol	ND (1.0)	ug/l
2,6-Dichlorophenol	ND (1.0)	ug/l
Tetrachlorophenols	ND (1.0)	ug/l
Trichlorophenols	ND (1.0)	ug/l

Method:
8040 Phenols, SW-846, USEPA (1982).
604 Phenols, 40 CFR Part 136 (1984).

(Detection limit in parenthesis.)

ND - Parameter not detected at the stated detection limit.


C. Neal Schaeffer
Senior Chemist

RECEIVED

SEP 28 1989
OIL CONSERVATION DIV.
SANTA FE

SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud NE
Albuquerque, NM 87106 841-2570

88-0797-C

NEW MEXICO

REPORT TO:

David Boyer

N.M. Oil Conservation Division

P. O. Box 2088

Santa Fe, N.M. 87504-2088

S.L.D. No. OR-

777 A+B

DATE REC.

6-3-88

PHONE(S):

327-5812

USER CODE:

8 2 2 3 5

SUBMITTER:

David Boyer

CODE:

12 16 10

SAMPLE COLLECTION CODE: (YYMMDDHHMMIII)

881016101118302288

SAMPLE TYPE: WATER ☒ SOIL ☐ FOOD ☐ OTHER: _____

CODE: _____

COUNTY:

Eddy

CITY:

Artesia

CODE: _____

LOCATION CODE: (Township-Range-Section-Tracts)

1715+26E+12+242 (10N06E24342)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes

Other Specific Compounds or Classes

☐
☐
☐
☐
☐

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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:

Not HCl preserved

FIELD DATA:

pH= 7; Conductivity= 5700 umho/cm at 20.5 C; Chlorine Residual= _____ mg/l

Dissolved Oxygen= _____ mg/l; Alkalinity= _____ mg/l; Flow Rate _____

Depth to water 10.1 ft.; Depth of well 22.6 ft.; Perforation Interval _____ ft.; Casing: _____

Sampling Location, Methods and Remarks (i.e. odors, etc.)

Nativity Refinery - MW #4 Monitor Well, Strong
H/C odor, foamy Purged 10 gallons

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities. (signature collector): David Boyer

Method of Shipment to the Lab: state can

This form accompanies 2 Septum Vials, _____ Glass Jugs, and/or _____

Samples were preserved as follows:

- ☐ NP: No Preservation; Sample stored at room temperature.
☒ P-Ice Sample stored in an ice bath (Not Frozen).
☐ P-Na₂S₂O₃ Sample Preserved with Sodium Thiosulfate to remove chlorine residual.

CHAIN OF CUSTODY

I certify that this sample was transferred from _____ to _____

at (location) _____ on _____ - _____ and that

the statements in this block are correct. Evidentiary Seals: Not Sealed ☐ Seals Intact: Yes ☐ No ☐

Signatures _____

For OCD Use: Date Owner Notified 8/9/88 Phone or Letter? _____

Initials

RJB

ANALYSES PERFORMED

LAB. No.: OR- 797

THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical screening method(s) checked below:

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
 Other Specific Compounds or Classes

☐
☐
☐
☐
☐

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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

ANALYTICAL RESULTS

COMPOUND(S) DETECTED	CONC. [PPB]	COMPOUND(S) DETECTED	CONC. [PPB]
<i>aromatic purgeables</i>	<i>see remarks</i>	<i>halogenated purgeables +</i>	<i>N.D.</i>
* DETECTION LIMIT *	* 25 μ g/L	+ DETECTION LIMIT +	+ 25 μ g/L

ABBREVIATIONS USED:

N D = NONE DETECTED AT OR ABOVE THE STATED DETECTION LIMIT

T R = DETECTED AT A LEVEL BELOW THE STATED DETECTION LIMIT (NOT CONFIRMED)

[RESULTS IN BRACKETS] ARE UNCONFIRMED AND/OR WITH APPROXIMATE QUANTITATION

LABORATORY REMARKS:

fifteen compounds ranging from the aromatic screen region to the 1,3 substituted benzene region at less than 25 ppb to 50 ppb detected by the photoionization detector but not identified.

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ☐ No ☒ Seal(s) broken by: *not sealed* date: _____

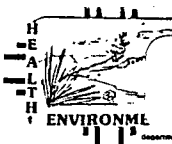
I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: *6/10/88* Analyst's signature: *Nery C. Eden*

I certify that I have reviewed and concur with the analytical results for this sample and with the statements in this block.

Reviewers signature: *H. Meinen*

SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud NE
Albuquerque, NM 87106 841-2570

87-1833-C

REPORT TO: David Boyer
N.M. Oil Conservation Division
P. O. Box 2088
Santa Fe, N.M. 87504-2088

S.L.D. No. OR-1833 A+B
DATE REC. 11-16-87

PHONE(S): 827-5812 USER CODE: 8 2 2 3 5
SUBMITTER: David Boyer CODE: 12 6 0

SAMPLE COLLECTION CODE: (YYMMDDHHMMIII) 8711121250A48

SAMPLE TYPE: WATER ☒ SOIL ☐ FOOD ☐ OTHER: CODE: ☐ ☐ ☐

COUNTY: Eddy; CITY: Artesia CODE: ☐ ☐ ☐

LOCATION CODE: (Township-Range-Section-Tracts) ☐ ☐ ☐ ☐ + ☐ ☐ ☐ ☐ + ☐ ☐ ☐ ☐ (10N06E24342)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
Other Specific Compounds or Classes

☐
☐
☐
☐
☐**EXTRACTABLE SCREENS**

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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:

Detection Limit 10ppb if possible

FIELD DATA:

pH= 7; Conductivity= 5200 umho/cm at 25°C; Chlorine Residual= mg/l

Dissolved Oxygen= mg/l; Alkalinity= mg/l; Flow Rate /

Depth to water ft.; Depth of well ft.; Perforation Interval - ft.; Casing:

Sampling Location, Methods and Remarks (i.e. odors, etc.)

Naraja Refinery - MW 4

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities. (signature collector): David Boyer Method of Shipment to the Lab: car

This form accompanies 2 Septum Vials, Glass Jugs, and/or

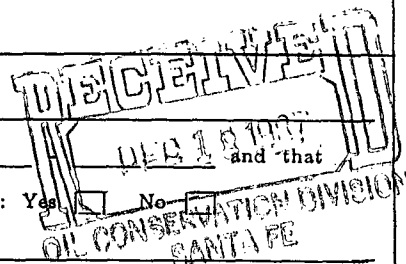
Samples were preserved as follows:

- ☐ NP: No Preservation; Sample stored at room temperature.
☒ P-Ice Sample stored in an ice bath (Not Frozen).
☐ P-Na₂S₂O₃ Sample Preserved with Sodium Thiosulfate to remove chlorine residual.

CHAIN OF CUSTODY

I certify that this sample was transferred from _____ to _____
at (location) _____ on _____ and that
the statements in this block are correct. Evidentiary Seals: Not Sealed ☐ Seals Intact: Yes ☐ No ☐

Signatures _____



For OCD Use: Date Owner Notified _____ Phone or Letter? _____ Initials _____

LAB. No.: OR- 1833

THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical screening method(s) checked below:

PURGABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes

Other Specific Compounds or Classes

EXTRACTABLE SCREENS

- | | | |
|--------------------------|-------|-----------------------------------|
| ☐ | (751) | Aliphatic Hydrocarbons |
| ☐ | (760) | Organochlorine Pesticides |
| ☐ | (755) | Base/Neutral Extractables |
| ☐ | (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 |

ANALYTICAL RESULTS

COMPOUND(S) DETECTED	CONC. [PPB]	COMPOUND(S) DETECTED	CONC. [PPB]
<i>aromatic purgeables</i>	<i>see remarks</i>		
<i>benzene</i>	<i>51</i>		
<i>ethyl benzene</i>	<i>156</i>		
<i>p-xylene</i>	<i>15</i>		
<i>m-xylene</i>	<i>1720</i>		
<i>o-xylene</i>	<i>32</i>		
<i>halogenated purgeables</i>	<i>N.D.</i>		
* DETECTION LIMIT *	<i>10-99%</i>	+ DETECTION LIMIT +	<i>+</i>

ABBREVIATIONS USED:

N D = NONE DETECTED AT OR ABOVE THE STATED DETECTION LIMIT

T R = DETECTED AT A LEVEL BELOW THE STATED DETECTION LIMIT (NOT CONFIRMED)

[RESULTS IN BRACKETS] ARE UNCONFIRMED AND/OR WITH APPROXIMATE QUANTITATION

LABORATORY REMARKS:

LABORATORY REMARKS: Six compounds in the aromatic region at 50-200 ppb and eight late eluting compounds in the C3 substituted benzene region at 50-800 ppb detected by the photoionization detector but not identified.

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ☐ No ☒ Seal(s) broken by: not sealed date:

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: 11/18/83 . Analyst's signature: Mara C. Eden

I certify that I have reviewed and concur with the analytical results for this sample and with the statements in this block.

Reviewers signature: K Messersheim

SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud NE
Albuquerque, NM 87106 841-2570

87-1833-C 10

REPORT TO: David Boyer
N.M. Oil Conservation Division
P. O. Box 2088
Santa Fe, N.M. 87504-2088

S.L.D. No. OR-1833 A+B
DATE REC. 11-16-87

PHONE(S): 327-5812
SUBMITTER: David Boyer

PRIORITY
USER CODE: 8 2 2 3 5
CODE: 2 6 1 0

SAMPLE COLLECTION CODE: (YYMMDDHHMMIII) 8711121250A12

SAMPLE TYPE: WATER ☒ SOIL ☐ FOOD ☐ OTHER: ☐ CODE: ☐ ☐ ☐ ☐

COUNTY: Elly CITY: Artesano CODE: ☐ ☐ ☐ ☐

LOCATION CODE: (Township-Range-Section-Tracts) ☐ ☐ + ☐ ☐ + ☐ ☐ + ☐ ☐ (10N06E24342)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
Other Specific Compounds or Classes

☐ _____
☐ _____
☐ _____
☐ _____
☐ _____

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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:

Detection Limit 10ppb if possible

FIELD DATA:

pH= 2; Conductivity= 520 umho/cm at 25°C; Chlorine Residual= _____ mg/l

Dissolved Oxygen= _____ mg/l; Alkalinity= _____ mg/l; Flow Rate _____

Depth to water _____ ft.; Depth of well _____ ft.; Perforation Interval _____ ft.; Casing: _____

Sampling Location, Methods and Remarks (i.e. odors, etc.)

Naraja Refinery - MW 4

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities. (signature collector): David Boyer Method of Shipment to the Lab: car

This form accompanies 2 Septum Vials, 7 Glass Jugs, and/or _____

Samples were preserved as follows:

- ☐ NP: No Preservation; Sample stored at room temperature.
☒ P-Ice: Sample stored in an ice bath (Not Frozen).
☐ P-Na₂S₂O₃: Sample Preserved with Sodium Thiosulfate to remove chlorine residual.

CHAIN OF CUSTODY

I certify that this sample was transferred from _____ to _____

at (location) _____ on _____ and that

the statements in this block are correct. Evidentiary Seals: Not Sealed ☐ Seals Intact: Yes ☐ No ☐

Signatures _____

For OCD Use: Date Owner Notified _____ Phone or Letter? _____ Initials _____

LAB. No.: OR- 1833

THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical screening method(s) checked below:

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
 Other Specific Compounds or Classes

EXTRACTABLE SCREENS

- | | | |
|--------------------------|-------|-----------------------------------|
| ☐ | (751) | Aliphatic Hydrocarbons |
| ☐ | (760) | Organochlorine Pesticides |
| ☐ | (755) | Base/Neutral Extractables |
| ☐ | (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 |

ANALYTICAL RESULTS

COMPOUND(S) DETECTED	CONC. [PPB]
aromatic paraffins	see remarks
kerosene	51
ethyl benzene	156
p-xylene	15
m-xylene	1720
o-xylene	32
halogenated paraffins	N.D.
* DETECTION LIMIT *	10 ppb

ABBREVIATIONS USED:

N D = NONE DETECTED AT OR ABOVE THE STATED DETECTION LIMIT
T R = DETECTED AT A LEVEL BELOW THE STATED DETECTION LIMIT (NOT CONFIRMED)
[RESULTS IN BRACKETS] ARE UNCONFIRMED AND/OR WITH APPROXIMATE QUANTITATION

LABORATORY REMARKS: Six compounds in the aromatic region at 50-200 ppb and eight late eluting compounds in the C3 substituted benzene region at 501-800 ppb detected by the photoionization detector but not identified.

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ☐ No ☒ Seal(s) broken by: not sealed date: _____
I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: 11/8/82 . Analyst's signature: Nora C. Eden

I certify that I have reviewed and concur with the analytical results for this sample and with the statements in this block.

Reviewers signature: K. Meyer

corrected copy

SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud NE
Albuquerque, NM 87106 841-2570



87-1833-C

REPORT TO: David Boyer S.L.D. No. OR- 1833 A+B
N.M. Oil Conservation Division DATE REC. 11-16-87
P. O. Box 2088
Santa Fe, N.M. 87504-2088 PRIORITY _____
PHONE(S): 327-5812 USER CODE: 8 2 2 3 5
SUBMITTER: David Boyer CODE: 2 6 0
SAMPLE COLLECTION CODE: (YYMMDDHHMMIII) 8711121250A4B
SAMPLE TYPE: WATER ☒ SOIL ☐ FOOD ☐ OTHER: _____ CODE: _____
COUNTY: Elly; CITY: Artero CODE: _____
LOCATION CODE: (Township-Range-Section-Tracts) _____ (10N06E24342)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
Other Specific Compounds or Classes _____

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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: Detection Limit 10ppb if possible

FIELD DATA:

pH= 7; Conductivity= 520 umho/cm at 25°C; Chlorine Residual= _____ mg/l

Dissolved Oxygen= _____ mg/l; Alkalinity= _____ mg/l; Flow Rate _____ / _____

Depth to water _____ ft.; Depth of well _____ ft.; Perforation Interval _____ - _____ ft.; Casing: _____

Sampling Location, Methods and Remarks (i.e. odors, etc.)

Naviga Refinery - MW 4

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities. (signature collector): David Boyer Method of Shipment to the Lab: car

This form accompanies 2 Septum Vials, _____ Glass Jugs, and/or _____

Samples were preserved as follows:

- ☐ NP: No Preservation; Sample stored at room temperature.
☒ P-Ice Sample stored in an ice bath (Not Frozen).
☐ P-Na₂S₂O₃ Sample Preserved with Sodium Thiosulfate to remove chlorine residual.

CHAIN OF CUSTODY

I certify that this sample was transferred from _____ to _____

at (location) _____ on _____ / _____ / _____ - _____ : _____ and that

the statements in this block are correct. Evidentiary Seals: Not Sealed ☐ Seals Intact: Yes ☐ No ☐

Signatures _____

For OCD Use: Date Owner Notified _____ Phone or Letter? _____ Initials _____

LAB. No.: OR- 1833

THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical screening method(s) checked below:

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes

Other Specific Compounds or Classes

EXTRACTABLE SCREENS

- | | | |
|--------------------------|-------|-----------------------------------|
| ☐ | (751) | Aliphatic Hydrocarbons |
| ☐ | (760) | Organochlorine Pesticides |
| ☐ | (755) | Base/Neutral Extractables |
| ☐ | (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 |

ANALYTICAL RESULTS

COMPOUND(S) DETECTED	CONC. [PPB]	COMPOUND(S) DETECTED	CONC. [PPB]
aromatic purgables	see remarks		
[benzene]	[51]		
[ethyl benzene]	[156]		
[p-xylene]	[15]		
* [m-xylene]	+720	(12] N.E.	
[o-xylene]	[32]		
[toluene]	[25]		
halogenated purgables	N.D.		
* • DETECTION LIMIT • *	10 mg/L	+ DETECTION LIMIT +	+

ABBREVIATIONS USED:

N D = NONE DETECTED AT OR ABOVE THE STATED DETECTION LIMIT
T R = DETECTED AT A LEVEL BELOW THE STATED DETECTION LIMIT (NOT CONFIRMED)
[RESULTS IN BRACKETS] ARE UNCONFIRMED AND/OR WITH APPROXIMATE QUANTITATION

LABORATORY REMARKS: Six compounds in the aromatic region at 50-200 ppb and eight late eluting compounds in the C3 substituted benzene region at 50-800 ppb detected by the photoionization detector but not identified.

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ☐ No ☒ Seal(s) broken by: not sealed date: _____

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: 11/15/87 . Analyst's signature: Mara C. Egan

I certify that I have reviewed and concur with the analytical results for this sample and with the statements in this block.

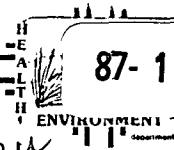
Reviewers signature: K. M. everham

SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud NE
Albuquerque, NM 87106 841-2570

87-1347-C

NEW MEXICO



REPORT TO: David Boyer
N.M. Oil Conservation Division
P. O. Box 2088
Santa Fe, N.M. 87504-2088

S.L.D. No. OR- 1347 740
DATE REC. 8-14-87

PHONE(S): 327-5812 USER CODE: 8 2 2 3 5

SUBMITTER: David Boyer CODE: 2 6 0

SAMPLE COLLECTION CODE: (YYMMDDHHMMIII) 8 7 0 8 1 2 1 2 5 0 0 6 3

SAMPLE TYPE: WATER ☒ SOIL ☐ FOOD ☐ OTHER: CODE: ☐ ☐ ☐

COUNTY: Eddy; CITY: ARTESIA CODE: ☐ ☐ ☐

LOCATION CODE: (Township-Range-Section-Tracts) 1 7 5 + 2 6 E + 1 2 + 1 4 2 (10N06E24342)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
Other Specific Compounds or Classes

☐
☐
☐
☐
☐

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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: Detection limit 10 or less if possible

FIELD DATA:

pH= 7; Conductivity= 9800 umho/cm at 22 °C; Chlorine Residual= mg/l

Dissolved Oxygen= mg/l; Alkalinity= mg/l; Flow Rate

Depth to water 11.47 ft.; Depth of well 20.97 ft.; Perforation Interval - ft.; Casing: 5. STEEL

Sampling Location, Methods and Remarks (i.e. odors, etc.)

MW-4, NAVAJO REFINERY, PURGED 21.6 l, good Recovery
STRONG ODOR, SEEN

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities. (signature collector): D. H. Boyer Method of Shipment to the Lab: State Cap

This form accompanies 2 Septum Vials, 1 Glass Jugs, and/or

Samples were preserved as follows:

- ☐ NP: No Preservation; Sample stored at room temperature.
☒ P-Ice Sample stored in an ice bath (Not Frozen).
☐ P-Na₂S₂O₃ Sample Preserved with Sodium Thiosulfate to remove chlorine residual.

CHAIN OF CUSTODY

I certify that this sample was transferred from to
at (location) on - and that
the statements in this block are correct. Evidentiary Seals: Not Sealed ☐ Seals Intact: Yes ☐ No ☐
Signatures

For OCD Use: Date Owner Notified Phone or Letter? Initials

1347

This sample was tested using the analytical screening method(s) checked below:

EXTRACTABLE SCREENS

- | | | |
|--------------------------|-------|-----------------------------------|
| ☐ | (751) | Aliphatic Hydrocarbons |
| ☐ | (760) | Organochlorine Pesticides |
| ☐ | (755) | Base/Neutral Extractables |
| ☐ | (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 |

CONC.
[PPB]

	[11]	[12]
Aromatic, purgables.		
Benzene	45	
Toluene	280	
Ethylbenzene	120	
p-Xylene	10	
m-Xylene	942	
O-xylene	40	
Halogenated purgables	N.D.	
* DETECTION LIMIT *	178/L	+ DETECTION LIMIT +

[RESULTS IN BRACKETS] ARE UNCONFIRMED AND/OR WITH APPROXIMATE QUANTITATION

LABORATORY REMARKS:

I certify that I have reviewed and concur with the analytical results for this sample and with the statements in this block.

Reviewers signature: *K. M. ...*

SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud NE
Albuquerque, NM 87106 841-2570

87-0742-C

OF NEW MEXICO

REPORT TO: David Boyer
N.M. Oil Conservation Division
P. O. Box 2088
Santa Fe, N.M. 87504-2088

S.L.D. No. OR- 742-A-B
DATE REC. 5/5/87

PHONE(S): 827-5812 USER CODE: 8 2 2 3 5
SUBMITTER: David Boyer CODE: 2 6 0

SAMPLE COLLECTION CODE: (YYMMDDHHMMIII) 8704301150918
SAMPLE TYPE: WATER ☒, SOIL ☐, FOOD ☐, OTHER: CODE: ☐
COUNTY: Eddy; CITY: Artesia CODE: ☐
LOCATION CODE: (Township-Range-Section-Tracts) 1715+216E+12+142 (10N06E24342)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
Other Specific Compounds or Classes

☐
☐
☐
☐
☐**EXTRACTABLE SCREENS**

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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:

FIELD DATA:

pH= 7; Conductivity= 5500 umho/cm at 18.5°C; Chlorine Residual= mg/l

Dissolved Oxygen= mg/l; Alkalinity= mg/l; Flow Rate

Depth to water 8'5" ft.; Depth of well 22'4" ft.; Perforation Interval - ft.; Casing: S. Steel

Sampling Location, Methods and Remarks (i.e. odors, etc.)

Monitor Well #4 - Navajo Refinery. Slightly brown, Turbid
~~Strong hydrocarbon odor, foamy~~

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities. (signature collector): David Boyer Method of Shipment to the Lab: State car

This form accompanies 2 Septum Vials, Glass Jugs, and/or

Samples were preserved as follows:

- ☐ NP: No Preservation; Sample stored at room temperature.
☒ P-Ice Sample stored in an ice bath (Not Frozen).
☐ P-Na₂S₂O₃ Sample Preserved with Sodium Thiosulfate to remove chlorine residual.

CHAIN OF CUSTODY

I certify that this sample was transferred from to

at (location) on / - and that

the statements in this block are correct. Evidentiary Seals: Not Sealed ☐ Seals Intact: Yes ☐ No ☐

Signatures

For OCD Use: Date Owner Notified Phone or Letter? Initials

ANALYSES PERFORMED

LAB. No.: OR- 742

THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical screening method(s) checked below:

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
 Other Specific Compounds or Classes

☐
☐
☐
☐
☐

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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

ANALYTICAL RESULTS

COMPOUND(S) DETECTED	CONC. [PPB]	COMPOUND(S) DETECTED	CONC. [PPB]
<i>aromatic purgeables</i>	<i>all</i>		
<i>halogenated purgeables</i>	<i>Remarks</i>		
	<i>N.D.</i>		
* DETECTION LIMIT *	* 50 ppb *	+ DETECTION LIMIT +	+

ABBREVIATIONS USED:

N D = NONE DETECTED AT OR ABOVE THE STATED DETECTION LIMIT

T R = DETECTED AT A LEVEL BELOW THE STATED DETECTION LIMIT (NOT CONFIRMED)

[RESULTS IN BRACKETS] ARE UNCONFIRMED AND/OR WITH APPROXIMATE QUANTITATION

LABORATORY REMARKS: *Twelve compounds in the aromatic screen region at 50-100 ppb detected with the photoionization detector but not identified. Also, five late eluting unsaturated aliphatics at 50-100 ppb detected with the photoionization detector but not identified.*

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ☐ No ☒ Seal(s) broken by: *not sealed* date: _____

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: *5/28/87* Analyst's signature: *Greg C. Eden*

I certify that I have reviewed and concur with the analytical results for this sample and with the statements in this block.

Reviewers signature: *K. Sherrill* JUN 11 1987

Narajo Refinery
MW - 4
PAH'S



Lab Sample Number: 149759 Continued

Page 4

PARAMETER:	RESULTS	QUALITY CONTROL	ANALYZED ON AT	ANALYST
Pentachlorophenol, ug/l EPA Method 8270	<10		09/20/89 1832	BP
Phenol, ug/l EPA Method 8270	<10		09/20/89 1832	BP
2-Chloronaphthalene, ug/l EPA Method 8270	<10		09/20/89 1832	BP
Acenaphthene, ppb EPA Method 610	<10		09/20/89 1832	BP
Acenaphthylene, ug/l EPA Method 8270	<10		09/20/89 1832	BP
Benzo(a)anthracene, ug/l EPA Method 8270	<10		09/20/89 1832	BP
Benzo(a)pyrene, ug/l EPA Method 8270	<10		09/20/89 1832	BP
Benzo(b)fluoranthene, ug/l EPA Method 8270	<10		09/20/89 1832	BP
Benzo(ghi)perylene, ug/l EPA Method 8270	<10		09/20/89 1832	BP
Benzo(k)fluoranthene, ug/l EPA Method 8270	<10		09/20/89 1832	BP
Chrysene, ug/l EPA Method 8270	<10		09/20/89 1832	BP
Dibenzo(a,h)anthracene, ug/l EPA Method 8270	<10		09/20/89 1832	BP
Fluoranthene, ug/l EPA Method 8270	<10		09/20/89 1832	BP
Fluorene, ug/l EPA Method 8270	<10		09/20/89 1832	BP

continued



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 214/984-0551

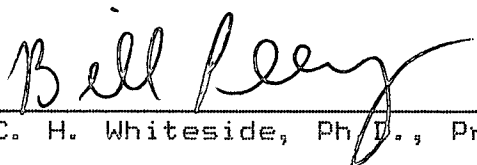
Analytical Chemistry • Waste Treatment & Disposal • Equipment Sales

Lab Sample Number: 149759 Continued

Page 5

PARAMETER:	RESULTS	QUALITY CONTROL	ANALYZED ON AT	ANALYST
Indeno(1,2,3-cd)pyrene, ug/l EPA Method 8270	<10		09/20/89 1832	BP
Naphthalene, ug/l EPA Method 8270	<10		09/20/89 1832	BP
Phenanthrene, ug/l EPA Method 8270	<10		09/20/89 1832	BP
Pyrene, ug/l EPA Method 8270	<10		09/20/89 1832	BP

=====


C. H. Whiteside, Ph.D., President

CLIENT: OCD
SAMPLE: 8907261221
SITE: MW-4
LAB NO: F1829
Analysis Requested: Polynuclear aromatic hydrocarbons in water.

DATE REPORTED: 09/11/89
DATE EXTRACTED: 08/01/89
DATE RECEIVED: 07/31/89
DATE COLLECTED: 07/26/89

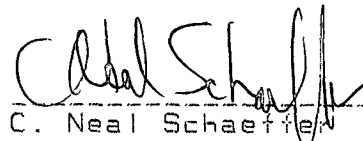
Parameter	Concentration	Units
Acenaphthene	ND (1.8)	ug/l
Acenaphthylene	ND (2.3)	ug/l
Anthracene	ND (1.0)	ug/l
Benzo(a)Anthracene	ND (1.0)	ug/l
Benzo(a)pyrene	ND (1.0)	ug/l
Benzo(k)fluoranthene	ND (1.0)	ug/l
Benzo(g,h,i)perylene	ND (1.0)	ug/l
Dibenzo(a,h)anthracene	ND (1.0)	ug/l
Chrysene	ND (1.0)	ug/l
Fluoranthene	ND (1.0)	ug/l
Fluorene	ND (1.0)	ug/l
Indeno(1,2,3-cd)pyrene	ND (1.0)	ug/l
Naphthalene	ND (1.8)	ug/l
Phenanthrene	ND (1.0)	ug/l
Pyrene	ND (1.0)	ug/l
Benzo(b)fluoranthene	ND (1.0)	ug/l
Benzo(a)fluoranthene	ND (1.0)	ug/l
Benzo(j)fluoranthene	ND (1.0)	ug/l
Dibenzo(a,h)acridine	ND (1.0)	ug/l
Dibenzo(a,j)acridine	ND (1.0)	ug/l
Dibenzo(a,h)anthracene	ND (1.0)	ug/l
7H-dibenzo(c,g)carbazole	ND (1.0)	ug/l
Dibenzo(a,e)pyrene	ND (1.0)	ug/l
Dibenzo(a,h)pyrene	ND (1.0)	ug/l
Dibenzo(a,i)pyrene	ND (1.0)	ug/l
3-Methylcholanthrene	ND (1.0)	ug/l

Method:

8100 Polynuclear Aromatic Hydrocarbons, SW-846, USEPA (1982).
610 Polyaromatic Hydrocarbons, 40 CFR Part 136 (1984).

(Detection limit in parenthesis.)

ND - Parameter not detected at the stated detection limit.

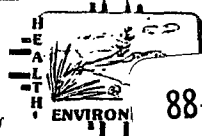

C. Neal Schaeffer
Senior Chemist

RECEIVED

SEP 25 1989

WILSON CONSERVATION DIV.
SANTA FE

SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud NE
Albuquerque, NM 87106 841-2570

88-0807-B

KCO

REPORT TO: David Boyer S.L.D. No. OR- 807 A
N.M. Oil Conservation Division DATE REC. 6-3-88
P. O. Box 2088
Santa Fe, N.M. 87504-2088 PRIORITY 3

PHONE(S): 327-5812 USER CODE: 8 2 2 3 5
SUBMITTER: David Boyer CODE: 12 6 10

SAMPLE COLLECTION CODE: (YYMMDDHHMMIII) 881060111830A
SAMPLE TYPE: WATER ☒ SOIL ☐ FOOD ☐ OTHER: ☐ CODE: ☐
COUNTY: Eddy; CITY: Artesia CODE: ☐
LOCATION CODE: (Township-Range-Section-Tracts) 1715+2161E+12+2142 (10N06E24342)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☐ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
Other Specific Compounds or Classes

☐
☐
☐
☐
☐

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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: _____

FIELD DATA:pH= 7; Conductivity= 5700 umho/cm at 20.5 °C; Chlorine Residual= _____ mg/l

Dissolved Oxygen= _____ mg/l; Alkalinity= _____ mg/l; Flow Rate _____

Depth to water 10.1 ft.; Depth of well 226 ft.; Perforation Interval _____ ft.; Casing: _____

Sampling Location, Methods and Remarks (i.e. odors, etc.)

Naraja Refinery - MW #4 Monitor Well
Strong H₂S odor Purged 10 gallons

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities. (signature collector): David Boyer Method of Shipment to the Lab: State Car

This form accompanies _____ Septum Vials, _____ Glass Jugs, and/or _____

Samples were preserved as follows:

- ☐ NP: No Preservation; Sample stored at room temperature.
☒ P-Ice Sample stored in an ice bath (Not Frozen).
☐ P-Na₂S₂O₃ Sample Preserved with Sodium Thiosulfate to remove chlorine residual.

CHAIN OF CUSTODY

I certify that this sample was transferred from _____ to _____

at (location) _____ on _____ - _____ and that

the statements in this block are correct. Evidentiary Seals: Not Sealed ☐ Seals Intact: Yes ☐ No ☐

Signatures _____

For OCD Use: Date Owner Notified 8/9/88 Phone on Letter Initials DB

ANALYSES PERFORMED

LAB. No.: OR- 807

THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical screening method(s) checked below:

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☐ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
 Other Specific Compounds or Classes

☐
☐
☐
☐
☐
☐

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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

ANALYTICAL RESULTS

COMPOUND(S) DETECTED	CONC. [PPB]	COMPOUND(S) DETECTED	CONC. [PPB]
lost extract due to interruption of cooling, water during extraction, PLEASE resample			
* DETECTION LIMIT *	*	+ DETECTION LIMIT +	+

ABBREVIATIONS USED:

N D = NONE DETECTED AT OR ABOVE THE STATED DETECTION LIMIT

T R = DETECTED AT A LEVEL BELOW THE STATED DETECTION LIMIT (NOT CONFIRMED)

[RESULTS IN BRACKETS] ARE UNCONFIRMED AND/OR WITH APPROXIMATE QUANTITATION

LABORATORY REMARKS:

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 on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: _____ Analyst's 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: _____

SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud NE
Albuquerque, NM 87106 841-2570

87-1367-B

NEW MEXICO

REPORT TO: David Boyer
N.M. Oil Conservation Division
P. O. Box 2088
Santa Fe, N.M. 87504-2088

S.L.D. No. OR- 1367 A
DATE REC. 8-14-87

PHONE(S): 327-5812 USER CODE: 8 2 2 3 5
SUBMITTER: David Boyer CODE: 2 6 0

SAMPLE COLLECTION CODE: (YYMMDDHHMMIII) 8 7 0 8 1 2 1 2 5 0 0 6 B

SAMPLE TYPE: WATER ☒ SOIL ☐ FOOD ☐ OTHER: CODE: ☐ ☐ ☐

COUNTY: Eddy CITY: ARTESIA CODE: ☐ ☐ ☐

LOCATION CODE: (Township-Range-Section-Tracts) 1 7 5 + 2 6 E + 1 2 + 1 4 2 (10N06E24342)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☐ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
Other Specific Compounds or Classes

☐
☐
☐
☐
☐

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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:

FIELD DATA:

pH= 7; Conductivity= 9800 umho/cm at 22 °C; Chlorine Residual= mg/l

Dissolved Oxygen= mg/l; Alkalinity= mg/l; Flow Rate

Depth to water 11.47 ft.; Depth of well 20.97 ft.; Perforation Interval - ft.; Casing: 2. STEEL

Sampling Location, Methods and Remarks (i.e. odors, etc.)

MW-4, NAVAJO REFINERY, PURGED 21.6 l, good RECOVERY
STRONG ODOR, GREEN

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities. (signature collector): David Boyer Method of Shipment to the Lab: State Car

This form accompanies Septum Vials, Glass Jugs, and/or

Samples were preserved as follows:

- ☐ NP: No Preservation; Sample stored at room temperature.
☒ P-Ice: Sample stored in an ice bath (Not Frozen).
☐ P-Na₂S₂O₃: Sample Preserved with Sodium Thiosulfate to remove chlorine residual.

CHAIN OF CUSTODY

I certify that this sample was transferred from _____ to _____
at (location) _____ on _____ - _____ and that

the statements in this block are correct. Evidentiary Seals: Not Sealed ☐ Seals Intact: Yes ☐ No ☐

Signatures _____

For OCD Use: Date Owner Notified _____ Phone or Letter? _____ Initials _____

ANALYSES PERFORMED

LAB. No.: OR- 1367

THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical screening method(s) checked below:

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☐ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
 Other Specific Compounds or Classes

☐
☐
☐
☐
☐

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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

ANALYTICAL RESULTS

COMPOUND(S) DETECTED	CONC. [PPB]	COMPOUND(S) DETECTED	CONC. [PPB]
NAPHTHALENE MDL = 10 PPB	TR < 10	UNKNOWN (see remarks)	9700 PPB
2-METHYLNAPHTHALENE MDL = 10 PPB	TR < 10		
1-METHYLNAPHTHALENE MDL = 10 PPB	98 PPB		
ACENAPHTHENE MDL = 10 PPB	31 PPB		
ACENAPHTHENE MDL = 10 PPB	TR < 10		
FLUORENE MDL = 10 PPB	ND < 10		
OTHERS MDL = 10 PPB	ND < 10		
* DETECTION LIMIT *	*	+ DETECTION LIMIT +	+

ABBREVIATIONS USED:

N D = NONE DETECTED AT OR ABOVE THE STATED DETECTION LIMIT

T R = DETECTED AT A LEVEL BELOW THE STATED DETECTION LIMIT (NOT CONFIRMED)

[RESULTS IN BRACKETS] ARE UNCONFIRMED AND/OR WITH APPROXIMATE QUANTITATION

Sample 800ml

LABORATORY REMARKS: unknown calculated against chloroform standard. Unknown is a complex blend whose chromatographic fingerprint is similar to chloroform and another 1248 but is not a good match. Beside the PNA's approximately 90 compounds are present ranging in concentration from traces to 250 PPB whose origin may have been gas alone.

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ☐ No ☐ Seal(s) broken by: no seals date: _____

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: 9/1/87 Analyst's signature: R. B. Burrell

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. Meyerhan

CLIENT: OCD
SAMPLE: 8907261221
SITE: MW-4
LAB NO: F1829

DATE REPORTED: 08/21/89
DATE RECEIVED: 07/31/89
DATE COLLECTED: 07/26/89

Lab pH.....	8.08
Lab Conductivity, umhos/cm.....	8288
Lab resistivity, ohm-m.....	1.2066
Total Dissolved Solids (180), mg/l..	6830
Total Dissolved Solids (calc), mg/l..	6639
Total Alkalinity as CaCO ₃ , mg/l.....	255.78
Total Acidity as CaCO ₃ , mg/l.....	0.00
Total Hardness as CaCO ₃ , mg/l.....	2105.31
Sodium Absorption Ratio.....	13.28
Fluoride, mg/l.....	1.57

	mg/l	meq/l
Bicarbonate as HCO ₃	312.05	5.12
Carbonate as CO ₃	0.00	0.00
Chloride.....	1744.14	49.20
Sulfate.....	2612.20	54.42
Calcium.....	547.54	27.32
Magnesium.....	179.77	14.78
Potassium.....	1.00	0.03
Sodium.....	1400.70	60.93
Major Cations.....		103.06
Major Anions.....		108.74
Cation/Anion Difference.....		2.68 % **

Trace metals (Dissolved Concentration), mg/l

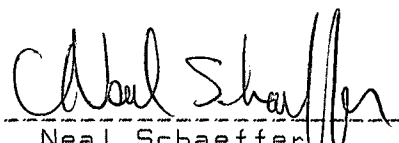
Arsenic.....	0.087
Lead.....	<0.02
Chromium.....	0.038

** This large ion % difference is most likely due to an abundance of metal cations which were not analyzed. All major ions were reanalyzed without significant changes.

RECEIVED

SEP - 1 1989

OIL CONSERVATION DIV.
SANTA FE


C. Neal Schaeffer
Senior Chemist



New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

564c
W n

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

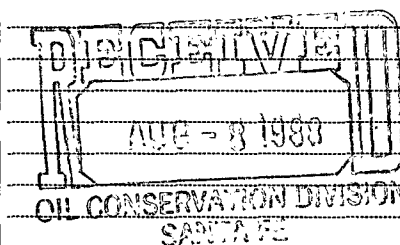
DATE RECEIVED	6/3/88	LAB NO.	WC-1971	USER CODE	☐ 59300 ☐ 59600 ☒ OTHER: 82235
Collection DATE	8/16/01	SITE INFORMATION	Sample location		
Collection TIME	1830		Narajo Refinery - MW 4 Monitor well		
Collected by — Person/Agency		Collection site description			
Boyer/Anderson 10CD					

SEND
FINAL
REPORT
TO

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87504-2088

Attn: David Boyer

Phone: 827-5812



Station/
well code
Owner

SAMPLING CONDITIONS

☒ Bailed ☐ Dipped	☒ Pump ☐ Tap	Water level	10.1	Discharge	—	Sample type	GRAB
pH (00400)	7	Conductivity (Uncorrected)	5700 µmho	Water Temp. (00010)	20.5 °C	Conductivity at 25°C (00094)	µmho
Field comments							
Foamy, Hydrocarbon 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: 5ml conc. HNO ₃ added	☐ A: 4ml fuming HNO ₃ added

ANALYTICAL RESULTS from SAMPLES

NA	Units	Date analyzed	From F, NA Sample:	Date Analyzed
☒ Conductivity (Corrected) 25°C (00095)	µmho	6/30	Calcium	340 mg/l 7/15
☐ Total non-filterable residue (suspended) (00530)	mg/l		Potassium	2 mg/l 7/5
☒ Other: Lab pH		7/14	Magnesium	109.8 mg/l 7/15
☐ Other:			Sodium	1166 mg/l 7/5
☐ Other:			Bicarbonate	271 mg/l 7/14
A-H₂SO₄			Chloride	1065 mg/l 6/23
☐ Nitrate-N ⁺ , Nitrate-N total (00630)	mg/l		Sulfate	1540 mg/l 6/23
☐ Ammonia-N total (00610)	mg/l		Total Solids	4732 mg/l 6/28
☐ Total Kjeldahl-N ()	mg/l		Fluoride	1.55 7/22
☐ Chemical oxygen demand (00340)	mg/l		☐	
☐ Total organic carbon ()	mg/l		☒ Cation/Anion Balance	
☐ Other:			Analyst	Date Reported
☐ Other:				7/27/88

Laboratory remarks

1134

FOR OCD USE -- Date Owner Notified 8/10/88 Phone or Letter?

Initials

QJB

CATIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT
Ca	16.97	340.00	<3.0
Mg	9.03	110.00	<0.3
Na	50.72	1166.00	<10.0
K	0.05	2.00	<0.3
Mn	0.00	0.00	
Fe	0.00	0.00	
SUMS	76.77	1618.00	
Total Dissolved Solids=			4732
Ion Balance =			114.36%

ANIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT
HC03	4.44	271.00	<1.0
SO4	32.08	1540.00	<10.0
CL	30.61	1085.00	<5.0
NO3	0.00	0.00	< 0.
C03	0.00	0.00	< 1.
NH3	0.00	0.00	< 0.
PO4	0.00	0.00	< 0.
	67.13	2896.00	

WC No. = 8801971
Date out/By CS 7/29/88



New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

WNN
864

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED	11/16/87	LAB NO.	WC-5088	USER CODE	☐ 59300 ☐ 59600 ☒ OTHER: 82235
Collection DATE	11/17	SITE INFORMATION	Sample location		
Collection TIME	1230		Naraja Refinery MW: 4		
Collected by	Person/Agency: Boyer/Bailey /OCD				
Collection site description					

SEND
FINAL
REPORT
TO

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box. 2088
Santa Fe, NM 87504-2088

Attn: David Boyer

Phone: 827-5812

SAMPLING CONDITIONS

☒ Bailed ☐ Dipped	☐ Pump ☐ Tap	Water level	Discharge	Sample type
				GRAB
pH (00400)	7.1 (M) 7 Strip	Conductivity (Uncorrected)	µmho	Water Temp. (00010) °C
				Conductivity at 25°C (00094) µmho
				5200
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:	☐ A: 5ml conc. HNO ₃ added	☐ A: 4ml fuming HNO ₃ added

ANALYTICAL RESULTS from SAMPLES

NA	Units	Date analyzed	From NF, NA Sample:	Date Analyzed
☒ Conductivity (Corrected) 25°C (00095)	6213 µmho	1/5	☒ Calcium	392 mg/l 12/29
☐ Total non-filterable residue (suspended) (00530)			☒ Potassium	1.56 mg/l 12/21
☒ Other: Lab pH	7.84	12/16	☒ Magnesium	95 mg/l 12/29
☐ Other:			☒ Sodium	1116 mg/l 12/21
☐ Other:			☒ Bicarbonate	361 mg/l 12/16
A-H₂SO₄			☒ Chloride	1100 mg/l 1/11
☐ Nitrate-N ⁺ , Nitrate-N total (00630)	mg/l		☒ Sulfate	1770 mg/l 1/11
☐ Ammonia-N total (00610)	mg/l		☒ Total Solids	4756 mg/l 1/11
☐ Total Kjeldahl-N ()	mg/l		☒ Fluoride	1.94 12/31
☐ Chemical oxygen demand (00340)	mg/l		☐	
☐ Total organic carbon ()	mg/l		☐ Cation/Anion Balance	
☐ Other:			Analyst	Date Reported
☐ Other:				1/11/89
Laboratory remarks			Reviewed by	CS

FOR OCD USE -- Date Owner Notified _____ Phone or Letter? _____ Initials _____

CATIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT
Ca	19.56	392.00	<3.0
Mg	7.80	95.00	<0.3
Na	48.54	1116.00	<10.0
K	0.04	1.56	<0.3
Mn	0.00	0.00	
Fe	0.00	0.00	
SUMS	75.95	1604.56	
Total Dissolved Solids=			4756
Ion Balance =			102.88%

ANIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT
HC03	5.92	361.00	<1.0
SO4	36.88	1770.00	<10.0
CL	31.03	1100.00	<5.0
NO3	0.00	0.00	< 0.
C03	0.00	0.00	< 1.
NH3	0.00	0.00	< 0.
PO4	0.00	0.00	< 0.
	73.82	3231.00	

WC No. = 8705044
Date out/By 09 1/11/88



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	5/5/87	LAB NO	WC 1657	USER CODE	☐ 59300 ☐ 59600 ☒ OTHER: 82235
Collection DATE	5/10/87	SITE INFORMATION	Sample location		
Collection TIME	11:50		MW #4 Navajo Refinery		
Collected by — Person/Agency		Collection site description			
Boyer/Anderson		10CD			

SEND
FINAL
REPORT
TO

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87504-2088

Attn: David Boyer

Phone: 827-5812

SAMPLING CONDITIONS

☐ Bailed ☐ Dipped	☒ Pump ☐ Tap	Water level	Discharge	Sample type
				GRAB
pH (00400)	7	Conductivity (Uncorrected)	Water Temp. (00010)	Conductivity at 25°C (00094)
		5500 µmho	18.5 °C	µmho
Field comments				
MW #4, Navajo Refinery - see VOC sheet for 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		☐ A: 5ml conc. HNO ₃ added ☐ A: 4ml fuming HNO ₃ added		
☐ Other-specify:				

ANALYTICAL RESULTS from SAMPLES

NA	Units	Date analyzed	From	NA Sample:	Date Analyzed
☒ Conductivity (Corrected) 25°C (00095)	µmho	5/13	F		
☐ Total non-filterable residue (suspended) (00530)	mg/l				
☒ Other: pH		5/12			
☐ Other:					
☐ Other:					
A-H₂SO₄					
☐ Nitrate-N +, Nitrate-N total (00630)	mg/l			☒ Calcium	352 mg/l 6/1
☐ Ammonia-N total (00610)	mg/l			☒ Potassium	0.78 mg/l 5/20
☐ Total Kjeldahl-N ()	mg/l			☒ Magnesium	93 mg/l 6/1
☐ Chemical oxygen demand (00340)	mg/l			☒ Sodium	1097 mg/l 5/20
☐ Total organic carbon ()	mg/l			☒ Bicarbonate	294 mg/l 5/12
☐ Other:				☒ Chloride	1225 mg/l 5/26
☐ Other:				☒ Sulfate	1520 mg/l 5/20
				☒ Total Solids	4730 mg/l 5/27
				☒ FLUORIDE	1.63 5/27
				☐	
				☒ Cation/Anion Balance	
Laboratory remarks			Analyst	Date Reported	Reviewed by
				6/2/87	CD

FOR OCD USE -- Date Owner Notified _____ Phone or Letter? _____ Initials _____

CATIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT
Ca	17.56	352.00	<3.0
Mg	7.64	93.00	<0.3
Na	47.72	1097.00	<10.0
K	0.02	0.78	<0.3
Mn	0.00	0.00	
Fe	0.00	0.00	
SUMS	72.94	1542.78	
Total Dissolved Solids=			4730
Ion Balance =			102.67%

ANIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT
HC03	4.82	294.00	<1.0
SO4	31.67	1520.00	<10.0
CL	34.56	1225.00	<5.0
NO3	0.00	0.00	< 0.
C03	0.00	0.00	< 1.
NH3	0.00	0.00	< 0.
PO4	0.00	0.00	< 0.
	71.04	3039.00	

WC No. = 8701657
Date out/By Q 6/2/67

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Wed Jun 3 15:25:14 1987



New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106

HEAVY METAL ANALYSIS FORM

Telephone: (505)841-2553

Date Received	6/13/88	Lab No.	ICP-238	User Code	☒ 82235 ☐ Other:	
COLLECTION DATE & TIME:		yy	mm	dd	hh	mm
		88	06	01	18	30

COLLECTED BY: Boyer/Anderson DCB

TO:

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg., PO Box 2088
SANTA FE, NM 87504-2088
OIL CONSERVATION DIVISION
SANTA FE

ATTN: D. Boyer
TELEPHONE: 827-5812



COLLECTION SITE DESCRIPTION
MW #4 Monitor Well

OWNER: Nasajo Refinery

SITE LOCATION:
County: Eddy

Township, Range, Section, Tract: (10N06E24342)
11715+216E+12+2412

STATION/ WELL CODE:

LATITUDE, LONGITUDE:

SAMPLING CONDITIONS:

☒ Bailed ☐ Dipped	☒ Pump ☐ Tap	Water Level: <u>10.1</u>	Discharge: <u>-</u>	Sample Type: <u>6.06</u>
pH(00400) <u>7</u>	Conductivity(Uncorr.) <u>5,500</u> μ mho	Water Temp.(00010) <u>20.5</u> °C	Conductivity at 25°C (00094) <u> </u> μ mho	

FIELD COMMENTS:

SAMPLE FIELD TREATMENT

Check proper boxes:

☐ WPN: Water Preserved w/HNO ₃ Non-Filtered	☒ WPF: Water Preserved w/HNO ₃ Filtered
--	---

LAB ANALYSIS REQUESTED:

☒ ICAP Scan
Mark box next to metal if AA is required.

ANALYTICAL RESULTS (MG/L)

ELEMENT	ICAP VALUE	AA VALUE	ELEMENT	ICAP VALUE	AA VALUE
Aluminum	40.1		Silicon	17.	
Barium	40.1		Silver	40.1	☐
Beryllium	40.1		Strontium	5.3	
Boron	0.7		Tin	40.1	
Cadmium	40.1	☐	Vanadium	40.1	
Calcium	340.		Zinc	40.1	
Chromium	40.1	☒ 40.005	Arsenic		☒ 0.21
Cobalt	40.05		Selenium		☐
Copper	40.1		Mercury		☐
Iron	1.5				☐
Lead	40.1	☒ 40.01			☐
Magnesium	92.				☐
Manganese	2.4				☐
Molybdenum	40.1				☐
Nickel	40.1				☐

LAB COMMENTS:

For OCD Use:

Date Owner Notified: <u>8/19/88</u>	ICAP Analyst: <u>JA</u>	Reviewer: <u>Jim Oakley</u>
Phone or Letter? <u> </u>	Date Analyzed: <u>6/17/88</u>	Date Received: <u>8/10/88</u>
Initials: <u>258</u>		



New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

Heavy metal
**GENERAL WATER CHEMISTRY
and NITROGEN ANALYSIS**

DATE RECEIVED	5/5/87	LAB NO.	ICAP-24	USER CODE	☐ 59300 ☐ 59600 ☒ OTHER: 82235
Collection DATE	5/10/87	SITE INFORMATION	Sample location		
Collection TIME	11:50		MW #4 Navajo Refinery		
Collected by		Person/Agency			
Boyer/Anderson		/OCD			
		Collection site description			

SEND
FINAL
REPORT
TO

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 1088
Santa Fe, NM 87504-2088



Attn: David Boyer

Phone: 827-5812

SAMPLING CONDITIONS

☐ Bailed ☐ Dipped	☒ Pump ☐ Tap	Water level	Discharge	Sample type
				GRAB
pH (00400)	7	Conductivity (Uncorrected)	5.580 μ mho	Water Temp. (00010)
			18.5 °C	Conductivity at 25°C (00094)
				μ mho
Field comments				
MW #4 Navajo Refinery - See VOC sheet For comments				

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:		☐ A: 5ml conc. HNO ₃ added
				☒ A: 4ml fuming HNO ₃ added

ANALYTICAL RESULTS from SAMPLES

NA	Units	Date analyzed	From	NA Sample:	Date Analyzed
☐ Conductivity (Corrected) 25°C (00095)	μ mho			☐ Calcium	mg/l
☐ Total non-filterable residue (suspended) (00530)	mg/l			☐ Potassium	mg/l
☒ Other: Pb WAA	<0.01			☐ Magnesium	mg/l
☒ Other: Cu WAA	<0.005			☐ Sodium	mg/l
☒ Other: ICAP				☐ Bicarbonate	mg/l
A-H ₂ SO ₄				☐ Chloride	mg/l
☐ Nitrate-N + Nitrate-N total (00630)	mg/l			☐ Sulfate	mg/l
☐ Ammonia-N total (00610)	mg/l			☐ Total Solids	mg/l
☐ Total Kjeldahl-N	mg/l			☐	
☐ Chemical oxygen demand (00340)	mg/l			☐	
☐ Total organic carbon	mg/l			☐	
☐ Other:				☐ Cation/Anion Balance	
☐ Other:				Analyst	Date Reported
					7/9/87

Laboratory remarks

FOR OCD USE -- Date Owner Notified _____ Phone or Letter? _____ Initials _____

ICAP SCAN

SLD Lab No. ICP 244

Analyst VB

Date Analyzed 5/7/87

Reviewed by:

Date Reported:

<u>ELEMENT</u>	<u>ICAP VALUE (mg/l)</u>	<u>AA VALUE (mg/l)</u>
Aluminum	<u><0.1</u>	<u> </u>
Barium	<u><0.1</u>	<u> </u>
Beryllium	<u><0.1</u>	<u> </u>
Boron	<u>0.7</u>	<u> </u>
Cadmium	<u><0.1</u>	<u> </u>
Calcium	<u>350.</u>	<u> </u>
Chromium	<u><0.1</u>	<u><0.005</u>
Cobalt	<u>10.05</u>	<u> </u>
Copper	<u><0.1</u>	<u> </u>
Iron	<u><0.1</u>	<u> </u>
Lead	<u><0.1</u>	<u><0.01</u>
Magnesium	<u>87.</u>	<u> </u>
Manganese	<u>2.3</u>	<u> </u>
Molybdenum	<u><0.1</u>	<u> </u>
Nickel	<u><0.1</u>	<u> </u>
Silicon	<u>25.</u>	<u> </u>
Silver	<u><0.1</u>	<u> </u>
Strontium	<u>6.3</u>	<u> </u>
Tin	<u>0.1</u>	<u> </u>
Vanadium	<u><0.1</u>	<u> </u>
Zinc	<u><0.1</u>	<u> </u>
Arsenic	<u> </u>	<u> </u>
Selenium	<u> </u>	<u> </u>
Mercury	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>
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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. 890726 1135

Collection Date	Collection Time	Collected by —Person/Agency	
7/26/89	1135	BOYER, ENALERT	/OCD
SITE INFORMATION			
Sample location <u>NAVAJO REFINERY MW-5</u>			
Collection Site Description			
Township, Range, Section, Tract:			
<u>117S+26E+12+214</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: 5ml conc. HNO₃ added
☐ A: HCL
☐ A: 4ml fuming HNO₃ added
☐ A: 2ml H₂SO₄/L 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
pH(00400)	<u>7.04</u>	
Water Temp. (00010)	<u>23°C</u>	Conductivity at 25°C <u>14</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	☐	OTHER	



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 214/984-0551

Analytical Chemistry • Waste Treatment & Disposal • Equipment Sales

09/21/89

RECEIVED

Environmental Bureau NM Oil D.
PO Box 2088
Santa Fe, NM 87504

SEP 22 1989

OIL CONSERVATION DIV.
SANTA FE

Sample Identification: MW5 Navajo Ref.

Flow or other on site data: 4 Vials +1

Collected by: Boyer, Englert

Date & Time Taken: 07/26/89 1135

Additional Sample Information: 175-26E-12-214 Bailed 6 gal pH 7.04 Temp 23 Cond 12500 NF 8020:A 8010:NA WL 8.3

Lab Sample Number: 149760

Received: 07/29/89

PARAMETER:	RESULTS	QUALITY CONTROL	ANALYZED ON AT	ANALYST
1,1,1-Trichloroethane, ug/l EPA Method 8010	<5		08/03/89 2224	BP
1,1,2,2-Tetrachloroethane, ug/l EPA Method 8010	<5		08/03/89 2224	BP
1,1,2-Trichloroethane, ug/l EPA Method 8010	<5		08/03/89 2224	BP
1,1-Dichloroethane, ug/l EPA Method 8010	<5		08/03/89 2224	BP
1,1-Dichloroethene, ug/l EPA Method 8010	<1		08/03/89 2224	BP
1,2-Dichloroethane, ug/l EPA Method 8010	<5		08/03/89 2224	BP
1,2-Dichloropropane, ug/l EPA Method 8010	<5		08/03/89 2224	BP
2-Chloroethylvinyl ether, ug/l EPA Method 8010	<10		08/03/89 2224	BP
Benzene, ug/l EPA Method 8020	<5		08/03/89 2224	BP
Bromodichloromethane, ug/l EPA Method 8010	<5		08/03/89 2224	BP

continued



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Analytical Chemistry • Waste Treatment & Disposal • Equipment Sales

Lab Sample Number: 149760 Continued

Page 2

PARAMETER:	RESULTS	QUALITY CONTROL	ANALYZED ON AT	ANALYST
Bromoform, ug/l EPA Method 8010	<5		08/03/89 2224	BP
Bromomethane, ug/l EPA Method 8010	<10		08/03/89 2224	BP
Carbon Tetrachloride, ug/l EPA Method 8010	<5		08/03/89 2224	BP
Chlorobenzene, ug/l EPA Method 8010	<5		08/03/89 2224	BP
Chloroethane, ug/l EPA Method 8010	<10		08/03/89 2224	BP
Chloroform, ug/l EPA Method 8010	<5		08/03/89 2224	BP
Chloromethane, ug/l EPA Method 8010	<10		08/03/89 2224	BP
Cis-1,3-Dichloropropene, ug/l EPA Method 8010	<5		08/03/89 2224	BP
Dibromochloromethane, ug/l EPA Method 8010	<5		08/03/89 2224	BP
Ethyl benzene, ug/l EPA Method 8020	<5		08/03/89 2224	BP
Freon, ug/l EPA Method 8010	<5		08/03/89 2224	BP
Methylene Chloride, ug/l EPA Method 8010	<5		08/03/89 2224	BP
Tetrachloroethene, ug/l EPA Method 8010	<5		08/03/89 2224	BP
Toluene, ug/l EPA Method 8020	<5		08/03/89 2224	BP

continued



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 214/984-0551

Analytical Chemistry • Waste Treatment & Disposal • Equipment Sales

Lab Sample Number: 149760 Continued

Page 3

PARAMETER:	RESULTS	QUALITY CONTROL	ANALYZED ON AT	ANALYST
Trans-1,2-Dichloroethene, ug/l EPA Method 8010	(5		08/03/89 2224	BP
Trans-1,3-Dichloropropene, ug/l EPA Method 8010	(5		08/03/89 2224	BP
Trichloroethene, ug/l EPA Method 8010	(5		08/03/89 2224	BP
Vinyl Chloride, ug/l EPA Method 8010	(1		08/03/89 2224	BP
Xylenes, ug/l EPA Method 8020	(10		08/03/89 2224	BP
2,4,6-Trichlorophenol, ug/l EPA Method 8270	(10		09/20/89 1929	BP
2,4-Dichlorophenol, ug/l EPA Method 8270	(10		09/20/89 1929	BP
2,4-Dimethylphenol, ug/l EPA Method 8270	(10		09/20/89 1929	BP
2,4-Dinitrophenol, ug/l EPA Method 8270	(50		09/20/89 1929	BP
2-Chlorophenol, ug/l EPA Method 8270	(10		09/20/89 1929	BP
2-Methyl-4,6-dinitrophenol, ug/l EPA Method 8270	80		09/20/89 1929	BP
2-Nitrophenol, ug/l EPA Method 8270	(10		09/20/89 1929	BP
4-Chloro-3-methylphenol, ug/l EPA Method 8270	(20		09/20/89 1929	BP
4-Nitrophenol, ug/l EPA Method 8270	(50		09/20/89 1929	BP

continued



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 214/984-0551

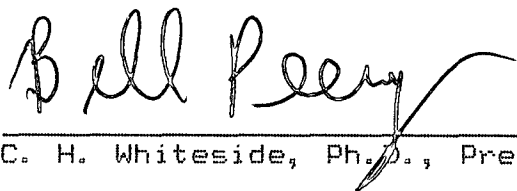
Analytical Chemistry • Waste Treatment & Disposal • Equipment Sales

Lab Sample Number: 149760 Continued

Page 4

PARAMETER:	RESULTS	QUALITY CONTROL	ANALYZED ON AT	ANALYST
Pentachlorophenol, ug/l EPA Method 8270	(50		09/20/89 1929	BP
Phenol, ug/l EPA Method 8270	(10		09/20/89 1929	BP

=====



C. H. Whiteside, Ph.D., President



2508 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

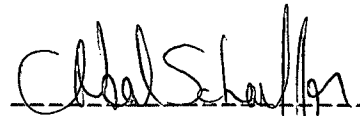
CLIENT: OCD
ID: 8907261135
SITE: MW-5
LAB NO: F1828
Analysis Requested: Purgeable aromatics in water.

DATE REPORTED: 08/22/89
DATE EXTRACTED: 08/08/89
DATE RECEIVED: 08/02/89
DATE COLLECTED: 07/26/89

Parameter	Concentration	Units
Benzene	ND (0.2)	ug/l
Ethylbenzene	ND (0.2)	ug/l
Toluene	27.58 (0.2)	ug/l
1,2-Dichlorobenzene	ND (0.2)	ug/l
1,3-Dichlorobenzene	ND (0.2)	ug/l
1,4-Dichlorobenzene	ND (0.2)	ug/l
Chlorobenzene	ND (0.2)	ug/l
m-Xylene	ND (0.2)	ug/l
o-Xylene	ND (0.2)	ug/l
p-Xylene	ND (0.2)	ug/l

Method:
8020 Aromatic Volatile Organics, SW-846, USEPA (1982)

(Detection limit in parenthesis.)
ND - Parameter not detected at the stated detection limit.


C. Neal Schaeffer
Senior Chemist

RECEIVED

SEP - 1 1989

OIL CONSERVATION DIV.
SANTA FE

CLIENT: OCD
ID: 8907261135
SITE: MW-5
LAB NO: F1828

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

RECEIVED

SEP 25 1989

OIL CONSERVATION DIV.
SANTA FE

ID: 8907261135
LAB NO: F1828

DATE REPORTED: 08/22/89

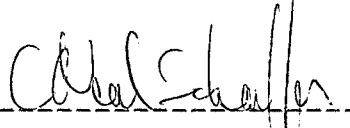
Benzyl Chloride	ND	(1.0)	ug/l
bis(2-chloroethoxy)methane	ND	(1.0)	ug/l
bis(2-Chloroisopropyl)ether	ND	(1.0)	ug/l
Bromomethane	ND	(1.0)	ug/l
Chloroacetaldehyde	ND	(1.0)	ug/l
1-Chlorohexane	ND	(1.0)	ug/l
1-Chloroethyl Vinyl Ether	ND	(1.0)	ug/l
Chloromethyl methyl ether	ND	(1.0)	ug/l
Chlorotoluene	ND	(1.0)	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.


C. Neal Schaeffer
Senior Chemist

RECEIVED

SEP 25 1989

OIL CONSERVATION DIV.
SANTA FE

SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud NE
Albuquerque, NM 87106 841-2570

88-0794-C

NEW MEXICO

REPORT TO: David Boyer
N.M. Oil Conservation Division
P. O. Box 2088
Santa Fe, N.M. 87504-2088
PHONE(S): 327-5812
SUBMITTER: David Boyer
SAMPLE COLLECTION CODE: (YYMMDDHHMMIII) 8806011700A
SAMPLE TYPE: WATER ☒, SOIL ☐, FOOD ☐, OTHER: ☐ CODE: ☐
COUNTY: Eddy; CITY: Artesia CODE: ☐
LOCATION CODE: (Township-Range-Section-Tracts) 11715+216E+112+2114 (10N06E24342)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
Other Specific Compounds or Classes

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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:

FIELD DATA:

pH= 7; Conductivity= 19,500 umho/cm at 20 °C; Chlorine Residual= mg/l

Dissolved Oxygen= mg/l; Alkalinity= mg/l; Flow Rate

Depth to water 17.6 ft.; Depth of well 17.6 ft.; Perforation Interval - ft.; Casing:

Sampling Location, Methods and Remarks (i.e. odors, etc.)

Nativity Refinery MW #5 Monitor well
Foamy, H/C odor

Purged 10 gallons

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities. (signature collector):

Method of Shipment to the Lab:

This form accompanies 2 Septum Vials, Glass Jugs, and/or

Samples were preserved as follows:

- ☐ NP: No Preservation; Sample stored at room temperature.
☒ P-Ice Sample stored in an ice bath (Not Frozen).
☐ P-Na₂S₂O₃ Sample Preserved with Sodium Thiosulfate to remove chlorine residual.

CHAIN OF CUSTODY

I certify that this sample was transferred from to

at (location) on - and that

the statements in this block are correct. Evidentiary Seals: Not Sealed ☐ Seals Intact: Yes ☐ No ☐

Signatures

For OCD Use: Date Owner Notified 8/19/88 Phone or Letter:

Initials

ANALYSES PERFORMED

LAB. No.: OR- 794

THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical screening method(s) checked below:

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☐ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes

Other Specific Compounds or Classes

- ☐
☐
☐
☐
☐

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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

ANALYTICAL RESULTS

COMPOUND(S) DETECTED	CONC. [PPB]	COMPOUND(S) DETECTED	CONC. [PPB]
<i>halogenated purgeables</i>	<i>N.D.</i>		
<i>aromatic purgeables</i>	<i>see remarks</i>		
* DETECTION LIMIT *	* 5 ppb *	+ DETECTION LIMIT +	+

ABBREVIATIONS USED:

N D = NONE DETECTED AT OR ABOVE THE STATED DETECTION LIMIT

T R = DETECTED AT A LEVEL BELOW THE STATED DETECTION LIMIT (NOT CONFIRMED)

[RESULTS IN BRACKETS] ARE UNCONFIRMED AND/OR WITH APPROXIMATE QUANTITATION

LABORATORY REMARKS:

fifteen compounds ranging from the aromatic screen region to the C3 substituted benzene region at 5-10 ppb detected by the photoionization detector but not identified.

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ☐ No ☒ Seal(s) broken by: *not sealed* date: _____

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: *6/10/88* Analyst's signature: *K. 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: *K. Meyer*

SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud NE
Albuquerque, NM 87106 841-2570

87-1832-C

EXICO

REPORT TO: David Boyer
N.M. Oil Conservation Division
P. O. Box 2088
Santa Fe, N.M. 87504-2088

S.L.D. No. OR- 1832 A+B
DATE REC. 11-16-87

PHONE(S): 827-5812 USER CODE: 8 2 2 3 5
SUBMITTER: David Boyer CODE: 2 6 0

SAMPLE COLLECTION CODE: (YYMMDDHHMMIII) 8711121215A+B
SAMPLE TYPE: WATER ☒ SOIL ☐ FOOD ☐ OTHER: CODE:
COUNTY: Eddy; CITY: Artesia CODE:
LOCATION CODE: (Township-Range-Section-Tracts) + + + (10N06E24342)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
Other Specific Compounds or Classes

☐
☐
☐
☐
☐

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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:

Detection limit 1Dppb if possible

FIELD DATA:pH= 7; Conductivity= 12700 μ mho/cm at 25 °C; Chlorine Residual= mg/l

Dissolved Oxygen= mg/l; Alkalinity= mg/l; Flow Rate /

Depth to water ft.; Depth of well ft.; Perforation Interval - ft.; Casing:

Sampling Location, Methods and Remarks (i.e. odors, etc.)

Navajo Refinery - MW-5

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities. (signature collector): David Boyer Method of Shipment to the Lab: Car

This form accompanies 2 Septum Vials, Glass Jugs, and/or

Samples were preserved as follows:

- ☐ NP: No Preservation; Sample stored at room temperature.
☒ P-Ice Sample stored in an ice bath (Not Frozen).
☐ P-Na₂S₂O₃ Sample Preserved with Sodium Thiosulfate to remove chlorine residual.

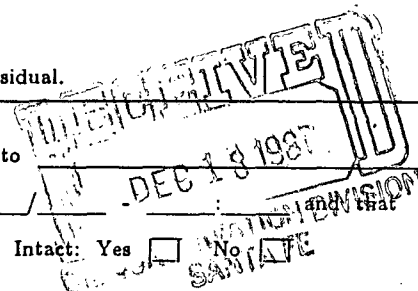
CHAIN OF CUSTODY

I certify that this sample was transferred from to

at (location) on

the statements in this block are correct. Evidentiary Seals: Not Sealed ☐ Seals Intact: Yes ☐ No ☐

Signatures



For OCD Use: Date Owner Notified Phone or Letter? Initials

SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud NE
Albuquerque, NM 87106 841-2570



87-1832-C

EXICO

REPORT TO: David Boyer
N.M. Oil Conservation Division.
P. O. Box 2088
Santa Fe, N.M. 87504-2088

S.L.D. No. OR- 1832 A+B

DATE REC. 11-16-87

PHONE(S): 327-5812 USER CODE: 8 2 2 3 5

SUBMITTER: David Boyer CODE: 2 6 0

SAMPLE COLLECTION CODE: (YYMMDDHHMMIII) 871111211215A+B

SAMPLE TYPE: WATER ☒ SOIL ☐ FOOD ☐ OTHER: CODE:

COUNTY: Eddy CITY: Artesia CODE:

LOCATION CODE: (Township-Range-Section-Tracts) + + + (10N06E24342)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
Other Specific Compounds or Classes

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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: Detection Limit 1Dppb if possible

FIELD DATA:

pH= 7; Conductivity= 1770 μ mho/cm at 25°C; Chlorine Residual= mg/l

Dissolved Oxygen= mg/l; Alkalinity= mg/l; Flow Rate

Depth to water ft.; Depth of well ft.; Perforation Interval - ft.; Casing:

Sampling Location, Methods and Remarks (i.e. odors, etc.)

Narajo Refinery - MW-5

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities. (signature collector): David Boyer Method of Shipment to the Lab: car

This form accompanies 2 Septum Vials, Glass Jugs, and/or

Samples were preserved as follows:

- ☐ NP: No Preservation; Sample stored at room temperature.
☒ P-Ice Sample stored in an ice bath (Not Frozen).
☐ P-Na₂S₂O₃ Sample Preserved with Sodium Thiosulfate to remove chlorine residual.

CHAIN OF CUSTODY

I certify that this sample was transferred from to

at (location) on and that

the statements in this block are correct. Evidentiary Seals: Not Sealed ☐ Seals Intact: Yes ☐ No ☐

Signatures

For OCD Use: Date Owner Notified Phone or Letter? Initials

ANALYSES PERFORMED

LAB. No.: OR- 1832

THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical screening method(s) checked below:

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons).
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes.
- Other Specific Compounds or Classes

Other Specific Compounds or Classes

□ □ □ □

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
- ☐ (780) Organochlorine Pesticides
- ☐ (755) Base/Neutral Extractables
- ☐ (758) Herbicides, Chlorophenoxy acid
- ☐ (759) Herbicides, Triazines
- ☐ (760) Organochlorine Pesticides
- ☐ (761) Organophosphate Pesticides
- ☐ (787) Polychlorinated Biphenyls (PCB's)
- ☐ (784) Polynuclear Aromatic Hydrocarbons
- ☐ (782) SDWA Pesticides & Herbicides

ANALYTICAL RESULTS

COMPOUND(S) DETECTED	CONC. [PPB]	COMPOUND(S) DETECTED	CONC. [PPB]
aromatic surgeables	all removals		
ethylbenzene	52		
p-xylene	T.R.		
m-xylene	755		
halogenated surgeables	N.D.		
* DETECTION LIMIT *	10 + 8%		

COMPOUND(S) DETECTED

CONC.
[PPB]

Value unconfirmed
by Mass Spec Spectrometry
Analyzed by GLC,
12/22/87 ASR

+ DETECTION LIMIT +

ABBREVIATIONS USED:

N D = NONE DETECTED AT OR ABOVE THE STATED DETECTION LIMIT

T R = DETECTED AT A LEVEL BELOW THE STATED DETECTION LIMIT (NOT CONFIRMED)

[RESULTS IN BRACKETS] ARE UNCONFIRMED AND/OR WITH APPROXIMATE QUANTITATION

LABORATORY REMARKS: Seven compounds in the aromatic region
rt. 10-30 ppb and ten late eluting compounds in the C3
substituted benzene region at 10-30 ppb detected by the
photoionization detector but not identified.

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ☐ No ☒ Seal(s) broken by: not sealed date:

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: 11/18/87 . Analyst's signature: Hernandez

I certify that I have reviewed and concur with the analytical results for this sample and with the statements in this block.

Reviewers signature: K M everman

SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud NE
Albuquerque, NM 87106 841-2570

87-1357-C
NEW MEXICO
ENVIRONMENT

REPORT TO: David Boyer
N.M. Oil Conservation Division
P. O. Box 2088
Santa Fe, N.M. 87504-2088

S.L.D. No. OR- 1357 AB
DATE REC. 8-14-87

PRIORITY

PHONE(S): 827-5812 USER CODE: 8 2 2 3 5

SUBMITTER: David Boyer CODE: 2 6 0

SAMPLE COLLECTION CODE: (YYMMDDHHMMIII) 8 7 0 8 1 2 1 2 1 5 D 6 B

SAMPLE TYPE: WATER ☒, SOIL ☐, FOOD ☐, OTHER: CODE:

COUNTY: EDDY; CITY: ARTESIA CODE:

LOCATION CODE: (Township-Range-Section-Tracts) 1 7 5 + 2 6 E + 1 2 + 2 4 4 (10N06E24342)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
Other Specific Compounds or Classes

☐
☐
☐
☐
☐

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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: Detection limit 10 or less if possible

FIELD DATA:

pH= 7; Conductivity= 21,400 umho/cm at 22 °C; Chlorine Residual= mg/l

Dissolved Oxygen= mg/l; Alkalinity= mg/l; Flow Rate /

Depth to water ft.; Depth of well ft.; Perforation Interval - ft.; Casing:

Sampling Location, Methods and Remarks (i.e. odors, etc.)

MW-5, NAVAJO REFINERY, HC ODOR

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities.(signature collector): *David Boyer* Method of Shipment to the Lab: *State Car*

This form accompanies 2 Septum Vials, Glass Jugs, and/or

Samples were preserved as follows:

- ☐ NP: No Preservation; Sample stored at room temperature.
☒ P-Ice Sample stored in an ice bath (Not Frozen).
☐ P-Na₂S₂O₃ Sample Preserved with Sodium Thiosulfate to remove chlorine residual.

CHAIN OF CUSTODY

I certify that this sample was transferred from to

at (location) on / - and that

the statements in this block are correct. Evidentiary Seals: Not Sealed ☐ Seals Intact: Yes ☐ No ☐

Signatures

For OCD Use: Date Owner Notified Phone or Letter? Initials

ANALYSES PERFORMED

LAB. No.: OR- 1357

THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical screening method(s) checked below:

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
 Other Specific Compounds or Classes

☐
☐
☐
☐
☐
☐

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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

ANALYTICAL RESULTS

COMPOUND(S) DETECTED	CONC. [PPB]	COMPOUND(S) DETECTED	CONC. [PPB]
<i>aromatic purgeables *</i>	<i>see remarks</i>		
<i>benzene</i>	<i>T.R.</i>		
<i>toluene</i>	<i>T.R.</i>		
<i>ethylbenzene</i>	<i>456</i>		
<i>m-xylene</i>	<i>830</i>		
<i>halogenated purgeables +</i>	<i>N.D.</i>		
* DETECTION LIMIT *	<i>10⁻²g/l</i>	+ DETECTION LIMIT +	<i>1⁻⁴g/l</i>

ABBREVIATIONS USED:

N D = NONE DETECTED AT OR ABOVE THE STATED DETECTION LIMIT

T R = DETECTED AT A LEVEL BELOW THE STATED DETECTION LIMIT (NOT CONFIRMED)

[RESULTS IN BRACKETS] ARE UNCONFIRMED AND/OR WITH APPROXIMATE QUANTITATION

LABORATORY REMARKS: *few compounds in the aromatic screen region at 10-30 ppb and five late eluting compounds in the C3 substituted benzene region at 10-30 ppb detected by the photoionization detector but not identified.*

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ☐ No ☒ Seal(s) broken by: *not sealed* date: _____

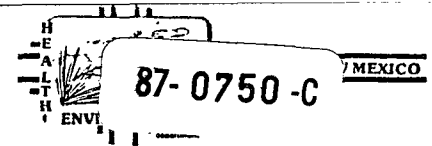
I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: *9/14/87* Analyst's signature: *Gary C. Allen*

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 Meyerheim*

SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud NE
Albuquerque, NM 87106 841-2570

87-0750-C

MEXICO

REPORT TO: David Boyer S.L.D. No. OR- 750-A-B
N.M. Oil Conservation Division DATE REC. 5/5/87
P. O. Box 2088
Santa Fe, N.M. 87504-2088 PRIORITY _____
PHONE(S): 827-5812 USER CODE: 8 2 2 3 5
SUBMITTER: David Boyer CODE: 2 6 0
SAMPLE COLLECTION CODE: (YYMMDDHHMMIII) 87 04 29 10 10 24 8
SAMPLE TYPE: WATER ☒, SOIL ☐, FOOD ☐, OTHER: _____ CODE: _____
COUNTY: Eddy; CITY: Artesia CODE: _____
LOCATION CODE: (Township-Range-Section-Tracts) 17 5 + 2 6 E + 1 2 + 2 1 4 (10N06E24342)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
Other Specific Compounds or Classes

☐ _____
☐ _____
☐ _____
☐ _____
☐ _____

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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: _____

FIELD DATA:pH= 7; Conductivity= 24,800 umho/cm at 17 °C; Chlorine Residual= _____ mg/l

Dissolved Oxygen= _____ mg/l; Alkalinity= _____ mg/l; Flow Rate _____ / _____

Depth to water 5 1/2 ft.; Depth of well 17 ft.; Perforation Interval _____ - _____ ft.; Casing: 5. Steel

Sampling Location, Methods and Remarks (i.e. odors, etc.)

MW #5 Navajo Refinery - Purged approx 5 casing vols.
strong odor, brown turbid

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities. (signature collector): David Boyer Method of Shipment to the Lab: State CarThis form accompanies 2 Septum Vials, _____ Glass Jugs, and/or _____

Samples were preserved as follows:

- ☐ NP: No Preservation; Sample stored at room temperature.
☒ P-Ice Sample stored in an ice bath (Not Frozen).
☐ P-Na S O Sample Preserved with Sodium Thiosulfate to remove chlorine residual.

CHAIN OF CUSTODY

I certify that this sample was transferred from _____ to _____

at (location) _____ on _____ / _____ / _____ - _____ : _____ and that

the statements in this block are correct. Evidentiary Seals: Not Sealed ☐ Seals Intact: Yes ☐ No ☐

Signatures _____

For OCD Use: Date Owner Notified _____ Phone or Letter? _____ Initials _____

ANALYSES PERFORMED

LAB. No.: OR- 750

THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical screening method(s) checked below:

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes

Other Specific Compounds or Classes

☐ _____
☐ _____
☐ _____
☐ _____
☐ _____

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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

ANALYTICAL RESULTS

COMPOUND(S) DETECTED	CONC. [PPB]	COMPOUND(S) DETECTED	CONC. [PPB]
<i>aromatic purgeables</i>	<i>see remarks</i>		
<i>halogenated purgeables</i>	<i>N.D.</i>		
* DETECTION LIMIT *	* <i>15-20 ppb</i>	+ DETECTION LIMIT +	+

ABBREVIATIONS USED:

N D = NONE DETECTED AT OR ABOVE THE STATED DETECTION LIMIT

T R = DETECTED AT A LEVEL BELOW THE STATED DETECTION LIMIT (NOT CONFIRMED)

[RESULTS IN BRACKETS] ARE UNCONFIRMED AND/OR WITH APPROXIMATE QUANTITATION

LABORATORY REMARKS:

Thirteen compounds in the aromatic screen region at 10-20 ppb (one at about 80-90 ppb) detected with the photoionization detector but not identified. Seven compounds in the C3 substituted benzene region at 10-20 ppb detected with the photoionization detector but not identified.

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ☐ No ☒ Seal(s) broken by: *not sealed* date: _____

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: *5/28/87* Analyst's signature: *Mary C. Eden*

I certify that I have reviewed and concur with the analytical results for this sample and with the statements in this block.

Reviewers signature: *K. Shorro*

Norajo Refinery

MW - 5

PAH's

CLIENT: OCD
SAMPLE ID: 8907261135
SITE: MW-5
LAB NO: F1828

DATE REPORTED: 09/11/89
DATE EXTRACTED: 08/01/89
DATE RECEIVED: 07/31/89
DATE COLLECTED: 07/26/89

Analysis Requested: Polynuclear aromatic hydrocarbons in water.

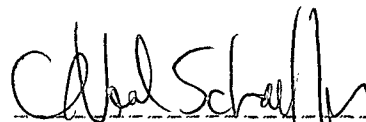
Parameter	Concentration	Units
Acenaphthene	ND (1.8)	ug/l
Acenaphthylene	ND (2.3)	ug/l
Anthracene	ND (1.0)	ug/l
Benzo(a)Anthracene	ND (1.0)	ug/l
Benzo(a)pyrene	ND (1.0)	ug/l
Benzo(k)fluoranthene	ND (1.0)	ug/l
Benzo(g,h,i)perylene	ND (1.0)	ug/l
Dibenzo(a,h)anthracene	ND (1.0)	ug/l
Chrysene	ND (1.0)	ug/l
Fluoranthene	ND (1.0)	ug/l
Fluorene	ND (1.0)	ug/l
Indeno(1,2,3-cd)pyrene	ND (1.0)	ug/l
Naphthalene	ND (1.8)	ug/l
Phenanthrene	ND (1.0)	ug/l
Pyrene	ND (1.0)	ug/l
Benzo(b)fluoranthene	ND (1.0)	ug/l
Benzo(a)fluoranthene	ND (1.0)	ug/l
Benzo(j)fluoranthene	ND (1.0)	ug/l
Dibenzo(a,h)acridine	ND (1.0)	ug/l
Dibenzo(a,j)acridine	ND (1.0)	ug/l
Dibenzo(a,h)anthracene	ND (1.0)	ug/l
7H-dibenzo(c,g)carbazole	ND (1.0)	ug/l
Dibenzo(a,e)pyrene	ND (1.0)	ug/l
Dibenzo(a,h)pyrene	ND (1.0)	ug/l
Dibenzo(a,i)pyrene	ND (1.0)	ug/l
3-Methylcholanthrene	ND (1.0)	ug/l

Method:

8100 Polynuclear Aromatic Hydrocarbons, SW-846, USEPA (1982).
610 Polyaromatic Hydrocarbons, 40 CFR Part 136 (1984).

(Detection limit in parenthesis.)

ND - Parameter not detected at the stated detection limit.



C. Neal Schaeffer
Senior Chemist

RECEIVED

SEP 25 1989

OIL CONSERVATION DIV.
SANTA FE

SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud NE
Albuquerque, NM 87106 841-2570

88-0806-B

NEW MEXICO

REPORT TO: David Boyer
N.M. Oil Conservation Division
P. O. Box 2088
Santa Fe, N.M. 87504-2088

PHONE(S): 327-5812
SUBMITTER: David Boyer

SAMPLE COLLECTION CODE: (YYMMDDHHMMIII) 8810601117008888

SAMPLE TYPE: WATER ☒ SOIL ☐ FOOD ☐ OTHER: _____ CODE: _____

COUNTY: Eddy; CITY: Artesia CODE: _____

LOCATION CODE: (Township-Range-Section-Tracts) 117S+26E+112+2114 (10N06E24342)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☐ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes

Other Specific Compounds or Classes

☐
☐
☐
☐
☐**EXTRACTABLE SCREENS**

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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:

Foamy, Hydrocarbon odor

FIELD DATA:

pH= 7; Conductivity= 19,500 umho/cm at 20°C; Chlorine Residual= _____ mg/l

Dissolved Oxygen= _____ mg/l; Alkalinity= _____ mg/l; Flow Rate _____ / _____

Depth to water 6.5 ft.; Depth of well 12.6 ft.; Perforation Interval _____ - _____ ft.; Casing: _____

Sampling Location, Methods and Remarks (i.e. odors, etc.)

Nasaja Refinery, MW #5 Monitor Well

Purged 10 gallons

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities. (signature collector): David BoyerMethod of Shipment to the Lab: State Co.This form accompanies 11 Septum Vials, 11 Glass Jugs, and/or _____

Samples were preserved as follows:

- ☐ NP: No Preservation; Sample stored at room temperature.
☒ P-Ice Sample stored in an ice bath (Not Frozen).
☐ P-Na₂S₂O₃ Sample Preserved with Sodium Thiosulfate to remove chlorine residual.

CHAIN OF CUSTODY

I certify that this sample was transferred from _____ to _____

at (location) _____ on _____ - _____ and that

the statements in this block are correct. Evidentiary Seals: Not Sealed ☐ Seals Intact: Yes ☐ No ☐

Signatures _____

For OCD Use: Date Owner Notified 9/19/88 Phone or Letter? _____ Initials DB

ANALYSES PERFORMED

LAB. No.: OR- 806

THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical screening method(s) checked below:

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☐ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
Other Specific Compounds or Classes

☐
☐
☐
☐
☐

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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

ANALYTICAL RESULTS

COMPOUND(S) DETECTED	CONC. [PPB]	COMPOUND(S) DETECTED	CONC. [PPB]
lost extract due to interruption of cooling, water during extraction PLEASE Resample.			
* DETECTION LIMIT *	*	+ DETECTION LIMIT +	+

ABBREVIATIONS USED:

N D = NONE DETECTED AT OR ABOVE THE STATED DETECTION LIMIT

T R = DETECTED AT A LEVEL BELOW THE STATED DETECTION LIMIT (NOT CONFIRMED)

[RESULTS IN BRACKETS] ARE UNCONFIRMED AND/OR WITH APPROXIMATE QUANTITATION

LABORATORY REMARKS:

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ☐ No ☐ Seal(s) broken by: NO SEALS date:

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: 6/14/88 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: _____

SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud NE
Albuquerque, NM 87106 841-2570



87-1362-B

REPORT TO: David Boyer S.L.D. No. OR- 1362 A
N.M. Oil Conservation Division DATE REC. 8-14-87
P. O. Box 2088
Santa Fe, N.M. 87504-2088 PRIORITY

PHONE(S): 827-5812 USER CODE: 8 2 2 3 5
SUBMITTER: David Boyer CODE: 2 6 0

SAMPLE COLLECTION CODE: (YYMMDDHHMMIII) 8 7 0 8 1 2 1 2 1 5 D 6 B

SAMPLE TYPE: WATER ☒, SOIL ☐, FOOD ☐, OTHER: _____ CODE: _____

COUNTY: EDDY; CITY: ARTESIA CODE: _____

LOCATION CODE: (Township-Range-Section-Tracts) 1 7 5 + 2 6 E + 1 2 + 2 4 4 (10N06E24342)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☐ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
Other Specific Compounds or Classes

☐ _____
☐ _____
☐ _____
☐ _____
☐ _____

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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: _____

FIELD DATA:

pH= 7; Conductivity= 21200 umho/cm at 22 °C; Chlorine Residual= _____ mg/l

Dissolved Oxygen= _____ mg/l; Alkalinity= _____ mg/l; Flow Rate _____ / _____

Depth to water _____ ft.; Depth of well _____ ft.; Perforation Interval _____ - _____ ft.; Casing: _____

Sampling Location, Methods and Remarks (i.e. odors, etc.)

MW-5, NAVAJO REEFERY, HC ODOR

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities. (signature collector): David Boyer Method of Shipment to the Lab: State Car

This form accompanies _____ Septum Vials, _____ Glass Jugs, and/or _____

Samples were preserved as follows:

- ☐ NP: No Preservation; Sample stored at room temperature.
☒ P-Ice Sample stored in an ice bath (Not Frozen).
☐ P-Na₂S₂O₃ Sample Preserved with Sodium Thiosulfate to remove chlorine residual.

CHAIN OF CUSTODY

I certify that this sample was transferred from _____ to _____

at (location) _____ on _____ / _____ / _____ - _____: _____ and that

the statements in this block are correct. Evidentiary Seals: Not Sealed ☐ Seals Intact: Yes ☐ No ☐

Signatures _____

For OCD Use: Date Owner Notified _____ Phone or Letter? _____ Initials _____

ANALYSES PERFORMED

LAB. No.: OR- 1362

THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical screening method(s) checked below:

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☐ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes

Other Specific Compounds or Classes

- ☐
☐
☐
☐
☐

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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

ANALYTICAL RESULTS

COMPOUND(S) DETECTED	CONC. [PPB]	COMPOUND(S) DETECTED	CONC. [PPB]
PNA's MDL 5ppB	ND < 5		
NO PNA's detected above 5ppB			
However sample does appear			
to be contaminated with			
1.6 ppm of material whose			
chromatographic fingerprint			
is consistent with that of			
gasoline.			
* DETECTION LIMIT *	*	+ DETECTION LIMIT +	+

ABBREVIATIONS USED:

N D = NONE DETECTED AT OR ABOVE THE STATED DETECTION LIMIT

T R = DETECTED AT A LEVEL BELOW THE STATED DETECTION LIMIT (NOT CONFIRMED)

[RESULTS IN BRACKETS] ARE UNCONFIRMED AND/OR WITH APPROXIMATE QUANTITATION

Sample 800 ml

LABORATORY REMARKS:

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ☐ No ☐ Seal(s) broken by: no seals date: _____

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: 8/28/87 Analyst's signature: OS Bunnay

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 Meyerlein



2505 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

CLIENT: OCD
SAMPLE: 8907261135
SITE: MW-5
LAB NO: F1828

DATE REPORTED: 08/21/89
DATE RECEIVED: 07/31/89
DATE COLLECTED: 07/26/89

Lab pH.....	8.11
Lab Conductivity, umhos/cm.....	19030
Lab resistivity, ohm-m.....	0.5255
Total Dissolved Solids (180), mg/l..	20238 *
Total Dissolved Solids (calc), mg/l.	13463 *
Total Alkalinity as CaCO ₃ , mg/l.....	381.64
Total Acidity as CaCO ₃ , mg/l.....	<0.10
Total Hardness as CaCO ₃ , mg/l.....	5517.37
Sodium Absorption Ratio.....	26.70
Fluoride, mg/l.....	2.75
Nitrate, mg/l.....	0.17 *

	mg/l	meq/l
Bicarbonate as HCO ₃	465.60	7.63
Carbonate as CO ₃	<0.10	<0.01
Chloride.....	4679.40	132.00
Sulfate.....	2386.70	49.72
Calcium.....	663.68	33.12
Magnesium.....	939.11	77.23
Potassium.....	5.40	0.14
Sodium.....	4560.00	198.35
Major Cations.....		308.83
Major Anions.....		189.37
Cation/Anion Difference.....		23.98 % *

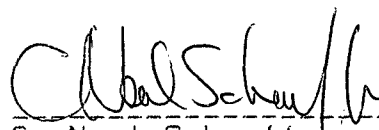
* This sample presented analytical difficulties. The high TDS (180) and Conductivity and the low total anions suggest a high concentration of an unidentified anion. Nitrates were analyzed from an unpreserved sample; the results were less than expected. All major ions were reanalyzed without significant changes.

Trace metals (Dissolved Concentration), mg/l
Arsenic..... <0.005
Lead..... <0.02
Chromium..... <0.02

RECEIVED

SEP - 1 1989

OIL CONSERVATION DIV.
SANTA FE


C. Neal Schaeffer
Senior Chemist



New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

864 WNF

**GENERAL WATER CHEMISTRY
and NITROGEN ANALYSIS**

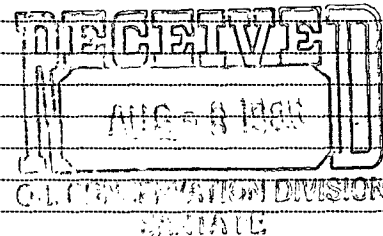
DATE RECEIVED	6/3/88	LAB NO.	WC-1974	USER CODE	☐ 59300 ☐ 59600 ☒ OTHER: 82235
Collection DATE	8/26/88	SITE INFORMATION	Sample location		
Collection TIME	1700		Narajo Refinery, MW #5 Monitor Well		
Collected by — Person/Agency			Collection site description		
Boyer/Anderson/OCD					

SEND
FINAL
REPORT
TO

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87504-2088

Attn: David Boyer

Phone: 827-5812



Station/
well code
Owner

SAMPLING CONDITIONS

☒ Bailed ☐ Dipped	☒ Pump ☐ Tap	Water level	6.5	Discharge	—	Sample type	GRAB
pH (00400)	7	Conductivity (Uncorrected)	19500 µmho	Water Temp. (00010)	20 °C	Conductivity at 25°C (00094)	µmho
Field comments							
Foamy, H/K 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: 5ml conc. HNO ₃ added	☐ A: 4ml fuming HNO ₃ added

ANALYTICAL RESULTS from SAMPLES

NA	Units	Date analyzed	From F, NA Sample:	Date Analyzed
☒ Conductivity (Corrected) 25°C (00095)	24009 µmho	7/5	☒ Calcium	536 mg/l 7/15
☐ Total non-filterable residue (suspended) (00530)			☒ Potassium	10 mg/l 7/5
☒ Other: Lab (pH)	8.10	7/14	☒ Magnesium	1084 mg/l 7/15
☐ Other:			☒ Sodium	4675 mg/l 7/5
☐ Other:			☒ Bicarbonate	415 mg/l 7/14
A-H₂SO₄			☒ Chloride	5350 mg/l 7/26
☐ Nitrate-N +, Nitrate-N total (00630)	mg/l		☒ Sulfate	8850 mg/l 7/26
☐ Ammonia-N total (00610)	mg/l		☒ Total Solids	21390 mg/l 6/28
☐ Total Kjeldahl-N ()	mg/l		☒ Fluoride	308 7/22
☐ Chemical oxygen demand (00340)	mg/l		☐	
☐ Total organic carbon ()	mg/l		☒ Cation/Anion Balance	
☐ Other:			Analyst	Date Reported
☐ Other:				7/27/88

Laboratory remarks

FOR OCD USE -- Date Owner Notified 8/19/88 Phone or (Letter?)

Initials

CATIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT
Ca	26.75	536.00	<3.0
Mg	89.03	1084.00	<0.3
Na	203.35	4675.00	<10.0
K	0.26	10.00	<0.3
Mn	0.00	0.00	
Fe	0.00	0.00	
SUMS	319.39	6305.00	
Total Dissolved Solids=			21390
Ion Balance =			93.36%

ANIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT
HC03	6.80	415.00	<1.0
SO4	184.38	8850.00	<10.0
CL	150.92	5350.00	<5.0
NO3	0.00	0.00	< 0.
C03	0.00	0.00	< 1.
NH3	0.00	0.00	< 0.
PO4	0.00	0.00	< 0.
	342.09	14615.00	

WC No. = 8801974
Date out/By 6/29/88



New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

WNN
864

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED	11/16/87	LAB NO.	WC-5090	USER CODE	☐ 59300 ☐ 59600 ☒ OTHER: 82235
Collection DATE	11/12/87	SITE INFORMATION	Narajo Refinery - MW-5		
Collection TIME	12:15	Collection site description			
Collected by	Person/Agency: Boyer/Bailey /OCD				

SEND
FINAL
REPORT
TO

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box. 2088
Santa Fe, NM 87504-2088

Attn: David Boyer

Phone: 827-5812

SAMPLING CONDITIONS

☒ Bailed ☐ Dipped	☐ Pump ☐ Tap	Water level	Discharge	Sample type	GRAB
pH (00400) 7.55		Conductivity (Uncorrected) μmho	Water Temp. (00010) °C	Conductivity at 25°C (00094) 17,780 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 μmembrane filter	☐ A: 2 ml H ₂ SO ₄ /L added
☒ NA: No acid added		☐ Other-specify:	☐ A: 5ml conc. HNO ₃ added	☐ A: 4ml fuming HNO ₃ added

ANALYTICAL RESULTS from SAMPLES

NA	Units	Date analyzed	From <u>NA</u> , NA Sample:	Date Analyzed
☒ Conductivity (Corrected) 25°C (00095)	μmho	11/15	☒ Calcium	560 mg/l 12/29
☐ Total non-filterable residue (suspended) (00530)	mg/l		☒ Potassium	10.1 mg/l 12/21
☒ Other: Lab pH		12/16	☒ Magnesium	1256 mg/l 12/29
☐ Other:			☒ Sodium	5635 mg/l 12/21
☐ Other:			☒ Bicarbonate	455 mg/l 12/16
A-H₂SO₄			☒ Chloride	5300 mg/l 11/1
☐ Nitrate-N +, Nitrate-N total (00630)	mg/l		☒ Sulfate	9150 mg/l 11
☐ Ammonia-N total (00610)	mg/l		☒ Total Solids	24104 mg/l 11/1
☐ Total Kjeldahl-N ()	mg/l		☒ Fluoride	3.48 12/31
☐ Chemical oxygen demand (00340)	mg/l		☐ Cation/Anion Balance	11/1
☐ Total organic carbon ()	mg/l		Analyst	Date Reported
☐ Other:				11/11/88
☐ Other:				Reviewed by
Laboratory remarks				

FOR OCD USE -- Date Owner Notified _____ Phone or Letter? _____ Initials _____

CATIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT
Ca	27.94	560.00	<3.0
Mg	103.16	1256.00	<0.3
Na	245.11	5635.00	<10.0
K	0.26	10.10	<0.3
Mn	0.00	0.00	
Fe	0.00	0.00	
SUMS	376.47	7461.10	
Total Dissolved Solids=			24104
Ion Balance =			108.31%

ANIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT
HCO3	7.46	455.00	<1.0
SO4	190.63	9150.00	<10.0
CL	149.51	5300.00	<5.0
NO3	0.00	0.00	< 0.
CO3	0.00	0.00	< 1.
NH3	0.00	0.00	< 0.
PO4	0.00	0.00	< 0.
	347.59	14905.00	

WC No. = 8705090
 Date out/By Q 1/11/85



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	5/5/87	LAB NO.	WC 1650	USER CODE	☐ 59300 ☐ 59600 ☒ OTHER: 82235
Collection DATE	5/10/87	SITE INFORMATION	Sample location		
Collection TIME	1010		MW #5 Narajo Refinery		
Collected by — Person/Agency		Collection site description			
Boyer/Anderson /OCD					

SEND
FINAL
REPORT
TO

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box. 2088
Santa Fe, NM 87504-2088

Attn: David Boyer

Phone: 827-5812

Station/
well code
Owner

MW #5

SAMPLING CONDITIONS

☐ Bailed ☐ Dipped	☒ Pump ☐ Tap	Water level	Discharge	Sample type
pH (00400)	7	Conductivity (Uncorrected)	Water Temp. (00010)	Conductivity at 25°C (00094)
		24,800 µmho	17 °C	µmho
Field comments				
See VOC sheet for 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:		☐ A: 5ml conc. HNO ₃ added ☐ A: 4ml fuming HNO ₃ added

ANALYTICAL RESULTS from SAMPLES

NA	Units	Date analyzed	From F, NA Sample:	Date Analyzed
☒ Conductivity (Corrected) 25°C (00095)	µmho	5/13	☒ Calcium	600 mg/l 6/1
☐ Total non-filterable residue (suspended) (00530)	mg/l		☒ Potassium	7.80 mg/l 5/19
☒ Other: pH		5/12	☒ Magnesium	1488 mg/l 6/1
☐ Other:			☒ Sodium	5796 mg/l 5/19
☐ Other:			☒ Bicarbonate	555 mg/l 5/12
A-H₂SO₄			☒ Chloride	6939 mg/l 5/26
☐ Nitrate-N +, Nitrate-N total (00630)	mg/l		☒ Sulfate	10610 mg/l 5/20
☐ Ammonia-N total (00610)	mg/l		☒ Total Solids	27428 mg/l 5/27
☐ Total Kjeldahl-N ()	mg/l		☒ FLUORIDE	2.62 5/27
☐ Chemical oxygen demand (00340)	mg/l		☐	
☐ Total organic carbon ()	mg/l		☒ Cation/Anion Balance	
☐ Other:			Analyst	Date Reported
☐ Other:				6/2/87

Laboratory remarks

FOR OCD USE -- Date Owner Notified Phone or Letter? Initials

CATIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT
Ca	29.94	600.00	<3.0
Mg	122.22	1488.00	<0.3
Na	252.11	5796.00	<10.0
K	0.20	7.80	<0.3
Mn	0.00	0.00	
Fe	0.00	0.00	
SUMS	404.47	7891.80	
Total Dissolved Solids=			27428
Ion Balance =			94.97%

ANIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT
HC03	9.10	555.00	<1.0
SO4	221.04	10610.00	<10.0
CL	195.74	6939.00	<5.0
NO3	0.00	0.00	< 0.
C03	0.00	0.00	< 1.
NH3	0.00	0.00	< 0.
PO4	0.00	0.00	< 0.
	425.88	18104.00	

WC No. = 8701650
Date out/By 6/2/67



New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106

HEAVY METAL ANALYSIS FORM

Telephone: (505)841-2553

Date Received 10/3/88 Lab No. ICP-241 User Code ☒ 82235 ☐ Other:

COLLECTION DATE & TIME: yy mm dd hh mm
88 06 01 17 00

COLLECTION SITE DESCRIPTION

COLLECTED BY: Boys/Anderson/CD

MW #5 Monitor Well

TO:

OWNER: Nasajo Refinery

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg., Do Box 2088
SANTA FE, NM 87504-2088



SITE LOCATION:
County: Elddy

Township, Range, Section, Tract: (10N06E24342)

1715+2161E+12+21

ATTN: D. Boyer
TELEPHONE: 827-5812

STATION/ WELL CODE:

LATITUDE, LONGITUDE:

SAMPLING CONDITIONS:

☒ Bailed ☒ Pump Water Level: 6.5 Discharge: - Sample Type: GRAB
☐ Dipped ☐ Tap
pH(00400) > Conductivity(Uncorr.) 19,500 μ mho Water Temp.(00010) 20 $^{\circ}$ C
Conductivity at 25 $^{\circ}$ C (00094) μ mho

FIELD COMMENTS: foamy, H/C odor

SAMPLE FIELD TREATMENT

Check proper boxes:

☐ WPN: Water Preserved w/HNO₃ Non-Filtered
☒ WPF: Water Preserved w/HNO₃ Filtered

LAB ANALYSIS REQUESTED:

☒ ICAP Scan
Mark box next to metal if AA is required.

ANALYTICAL RESULTS (MG/L)

ELEMENT	ICAP VALUE	AA VALUE	ELEMENT	ICAP VALUE	AA VALUE
Aluminum	<0.1		Silicon	13.	
Barium	<0.1		Silver	<0.1	☐
Beryllium	<0.1		Strontium	8.8	
Boron	1.5		Tin	<0.1	
Cadmium	<0.1	☐	Vanadium	<0.1	
Calcium	490.		Zinc	<0.1	
Chromium	<0.1	☒ 0.007	Arsenic		☒ 0.13
Cobalt	<0.05		Selenium		☐
Copper	<0.1		Mercury		☐
Iron	3.0				☐
Lead	<0.1	☒ <0.01			☐
Magnesium	98.430. 1050.				☐
Manganese	1.6				☐
Molybdenum	<0.1				☐
Nickel	<0.1				☐

LAB COMMENTS: Digest.

For OCD Use:

Date Owner Notified: 8/19/88
Phone or Letter?
Initials: DRB

ICAP Analyst JA
Date Analyzed 6/7/88

Reviewer J. Bailey
Date Received 8/10/88



New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

Heavy metal

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED	5/5/87	LAB NO.	HM 507	USER CODE	☐ 59300 ☐ 59600 ☒ OTHER: 82235
Collection DATE	5/10/87	SITE INFORMATION	Sample location		
Collection TIME	1010		MW #5 Navajo Refinery		
Collected by — Person/Agency		Collection site description			
Boyer/Anderson 10CD					

SEND
FINAL
REPORT
TO

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87504-2088

Attn: David Boyer

Phone: 827-5812

Station/
well code MW #5
Owner

SAMPLING CONDITIONS

☐ Bailed ☐ Dipped	☒ Pump ☐ Tap	Water level	Discharge	Sample type
pH (00400)	7	Conductivity (Uncorrected)	Water Temp. (00010)	Conductivity at 25°C (00094)
		24,000 µmho	17 °C	µmho
Field comments				
See VOC sheet for 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:		☐ A: 5ml conc. HNO ₃ added ☒ A: 4ml fuming HNO ₃ added

ANALYTICAL RESULTS from SAMPLES

NA	Units	Date analyzed	From	NA Sample:	Date Analyzed
☐ Conductivity (Corrected) 25°C (00095)	µmho			☐ Calcium	mg/l
☐ Total non-filterable residue (suspended) (00530)	mg/l			☐ Potassium	mg/l
Other: Pb by AA	<0.01	5/18		☐ Magnesium	mg/l
Other: Cu by AA	<0.005	5/26		☐ Sodium	mg/l
☐ Other:				☐ Bicarbonate	mg/l
A-H₂SO₄				☐ Chloride	mg/l
☐ Nitrate-N +, Nitrate-N total (00630)	mg/l			☐ Sulfate	mg/l
☐ Ammonia-N total (00610)	mg/l			☐ Total Solids	mg/l
☐ Total Kjeldahl-N ()	mg/l			☐	
☐ Chemical oxygen demand (00340)	mg/l			☐	
☐ Total organic carbon ()	mg/l			☐	
☐ Other:				☐ Cation/Anion Balance	
☐ Other:				Analyst	Date Reported
Laboratory remarks				6/1/87	Reviewed by
					J. Bahly

FOR OCD USE — Date Owner Notified _____ Phone or Letter? _____ Initials _____





ANALYSIS REQUEST FORM

1877

Contract

Lab

Inter Mountain

Contract No.

OCD Sample No. 8907261424

Collection Date	Collection Time	Collected by — Person/Agency	
7/26/89	1424	Boyer, Englert	/OCD
SITE INFORMATION			
Sample location NAVAJO, REFINERY: MW-6			
Collection Site Description			
			Township, Range, Section, Tract:
			17 5+26 E+1 2+1 23

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:

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:

slightly turbid, strong H₂S like odor, brown greasy film on pump.

SAMPLING CONDITIONS

- ☒ Bailed ☐ Pump
☐ Dipped ☐ Tap

pH(00400)

7.02

Water Temp. (00010)

25°C

Water level

12.41

Discharge

7 gallons

Sample type

GRAB

Conductivity (Uncorrected)

4400 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	



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 214/984-0551

Analytical Chemistry • Waste Treatment & Disposal • Equipment Sales

09/21/89

RECEIVED

Environmental Bureau NM Oil D.
PO Box 2088
Santa Fe, NM 87504

SEP 22 1989

OIL CONSERVATION DIV.
SANTA FE

Sample Identification: MW6 Navajo Ref.

Flow or other on site data: 4 Vials +1 Strong HC Odor

Collected by: Boyer, Englert

Date & Time Taken: 07/25/89 1424

Additional Sample Information: 175-26E-12-123 Bailed 7 gal pH 7.02 Temp 25 Cond 4400 NF 8020:A 8010:NA ML 12.4

Lab Sample Number: 149761

Received: 07/29/89

PARAMETER:	RESULTS	QUALITY CONTROL	ANALYZED ON AT	ANALYST
1,1,1-Trichloroethane, ug/l EPA Method 8010	<5		08/04/89 0021	BP
1,1,2,2-Tetrachloroethane, ug/l EPA Method 8010	<5		08/04/89 0021	BP
1,1,2-Trichloroethane, ug/l EPA Method 8010	<5		08/04/89 0021	BP
1,1-Dichloroethane, ug/l EPA Method 8010	<5		08/04/89 0021	BP
1,1-Dichloroethene, ug/l EPA Method 8010	<1		08/04/89 0021	BP
1,2-Dichloroethane, ug/l EPA Method 8010	<5		08/04/89 0021	BP
1,2-Dichloropropane, ug/l EPA Method 8010	<5		08/04/89 0021	BP
2-Chloroethylvinyl ether, ug/l EPA Method 8010	<10		08/04/89 0021	BP
Benzene, ug/l EPA Method 8020	26		08/04/89 0021	BP
Bromodichloromethane, ug/l EPA Method 8010	<5		08/04/89 0021	BP

continued



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 214/984-0551

Analytical Chemistry • Waste Treatment & Disposal • Equipment Sales

Lab Sample Number: 149761 Continued

Page 2

PARAMETER:	RESULTS	QUALITY CONTROL	ANALYZED ON AT	ANALYST
Bromoform, ug/l EPA Method 8010	<5		08/04/89 0021	BP
Bromomethane, ug/l EPA Method 8010	<10		08/04/89 0021	BP
Carbon Tetrachloride, ug/l EPA Method 8010	<5		08/04/89 0021	BP
Chlorobenzene, ug/l EPA Method 8010	<5		08/04/89 0021	BP
Chloroethane, ug/l EPA Method 8010	<10		08/04/89 0021	BP
Chloroform, ug/l EPA Method 8010	<5		08/04/89 0021	BP
Chloromethane, ug/l EPA Method 8010	<10		08/04/89 0021	BP
Cis-1,3-Dichloropropene, ug/l EPA Method 8010	<5		08/04/89 0021	BP
Dibromochloromethane, ug/l EPA Method 8010	<5		08/04/89 0021	BP
Ethyl benzene, ug/l EPA Method 8020	<5		08/04/89 0021	BP
Freon, ug/l EPA Method 8010	<5		08/04/89 0021	BP
Methylene Chloride, ug/l EPA Method 8010	<5		08/04/89 0021	BP
Tetrachloroethene, ug/l EPA Method 8010	<5		08/04/89 0021	BP
Toluene, ug/l EPA Method 8020	20		08/04/89 0021	BP

continued



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 214/984-0551

Analytical Chemistry • Waste Treatment & Disposal • Equipment Sales

Lab Sample Number: 149761 Continued

Page 3

PARAMETER:	RESULTS	QUALITY CONTROL	ANALYZED ON AT	ANALYST
Trans-1,2-Dichloroethene, ug/l EPA Method 8010	(5		08/04/89 0021	BP
Trans-1,3-Dichloropropene, ug/l EPA Method 8010	(5		08/04/89 0021	BP
Trichloroethene, ug/l EPA Method 8010	(5		08/04/89 0021	BP
Vinyl Chloride, ug/l EPA Method 8010	(1		08/04/89 0021	BP
Xylenes, ug/l EPA Method 8020	20		08/04/89 0021	BP
2,4,6-Trichlorophenol, ug/l EPA Method 8270	(10		09/20/89 2207	BP
2,4-Dichlorophenol, ug/l EPA Method 8270	(10		09/20/89 2207	BP
2,4-Dimethylphenol, ug/l EPA Method 8270	(10		09/20/89 2207	BP
2,4-Dinitrophenol, ug/l EPA Method 8270	(50		09/20/89 2207	BP
2-Chlorophenol, ug/l EPA Method 8270	(10		09/20/89 2207	BP
2-Methyl-4,6-dinitrophenol, ug/l EPA Method 8270	(50		09/20/89 2207	BP
2-Nitrophenol, ug/l EPA Method 8270	(10		09/20/89 2207	BP
4-Chloro-3-methylphenol, ug/l EPA Method 8270	(20		09/20/89 2207	BP
4-Nitrophenol, ug/l EPA Method 8270	(50		09/20/89 2207	BP

continued



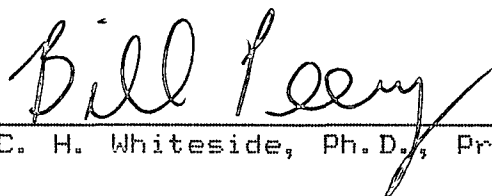
2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 214/984-0551

Analytical Chemistry ◦ Waste Treatment & Disposal ◦ Equipment Sales

Lab Sample Number: 149761 Continued

Page 4

PARAMETER:	RESULTS	QUALITY CONTROL	ANALYZED ON AT	ANALYST
Pentachlorophenol, ug/l EPA Method 8270	(50		09/20/89 2207	BP
Phenol, ug/l EPA Method 8270	(10		09/20/89 2207	BP



C. H. Whiteside, Ph.D., President



2503 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

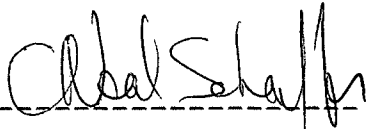
CLIENT: OCD
ID: 8907261424
SITE: MW-6
LAB NO: F1827
Analysis Requested: Purgeable aromatics in water.

DATE REPORTED: 08/22/89
DATE EXTRACTED: 08/08/89
DATE RECEIVED: 08/02/89
DATE COLLECTED: 07/26/89

Parameter	Concentration	Units
Benzene	ND (0.2)	ug/l
Ethylbenzene	ND (0.2)	ug/l
Toluene	27.01 (0.2)	ug/l
1,2-Dichlorobenzene	ND (0.2)	ug/l
1,3-Dichlorobenzene	ND (0.2)	ug/l
1,4-Dichlorobenzene	ND (0.2)	ug/l
Chlorobenzene	ND (0.2)	ug/l
m-Xylene	ND (0.2)	ug/l
o-Xylene	ND (0.2)	ug/l
p-Xylene	ND (0.2)	ug/l

Method:
8020 Aromatic Volatile Organics, SW-846, USEPA (1982)

(Detection limit in parenthesis.)
ND - Parameter not detected at the stated detection limit.


C. Neal Schaeffer
Senior Chemist

RECEIVED

SEP - 1 1989
OIL CONSERVATION DIV.
SANTA FE

CLIENT: OCD
ID: 8907261424
SITE: MW-6
LAB NO: F1827

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

RECEIVED

SEP 25 1989

OIL CONSERVATION DIV.
SANTA FE

ID: 8907261424
LAB NO: F1827

DATE REPORTED: 08/22/89

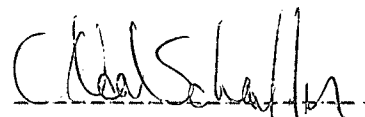
Benzyl Chloride	ND	(1.0)	ug/l
bis(2-chloroethoxy)methane	ND	(1.0)	ug/l
bis(2-Chloroisopropyl)ether	ND	(1.0)	ug/l
Bromomethane	ND	(1.0)	ug/l
Chloracetaldehyde	ND	(1.0)	ug/l
1-Chlorohexane	ND	(1.0)	ug/l
1-Chloroethyl Vinyl Ether	ND	(1.0)	ug/l
Chloromethyl methyl ether	ND	(1.0)	ug/l
Chlorotoluene	ND	(1.0)	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
Senior Chemist

RECEIVED

SEP 25 1989

OIL CONSERVATION DIV.
SANTA FE

SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud NE

Albuquerque, NM 87106 841-2570

88-0798-C

NEW MEXICO

REPORT TO: David Boyer

N.M. Oil Conservation Division

P. O. Box 2088

Santa Fe, N.M. 87504-2088

S.L.D. No. OR- 798 A+B

DATE REC. 6-3-88

PRIORITY 3

PHONE(S): 827-5812

USER CODE: 8 2 2 3 5

SUBMITTER: David Boyer

CODE: 12 6 0

SAMPLE COLLECTION CODE: (YYMMDDHHMMIII)

8806011910A+B

SAMPLE TYPE: WATER ☒ SOIL ☐ FOOD ☐ OTHER: ☐CODE: ☐ ☐ ☐

COUNTY: Eddy

CITY: Hobbs

CODE: ☐ ☐ ☐

LOCATION CODE: (Township-Range-Section-Tracts)

17S+26E+12+12 (10N06E24342)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
Other Specific Compounds or Classes

☐
☐
☐
☐
☐**EXTRACTABLE SCREENS**

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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: No HCl preservative

FIELD DATA:

pH= 7; Conductivity= 4200 umho/cm at 22°C; Chlorine Residual= mg/l

Dissolved Oxygen= mg/l; Alkalinity= mg/l; Flow Rate

Depth to water 10.75 ft.; Depth of well 22.2 ft.; Perforation Interval - ft.; Casing:

Sampling Location, Methods and Remarks (i.e. odors, etc.)

Nurajo Refinery MW #6 monitoring well
Strong H/C odor grease/oil film on pump, barrel

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities. (signature collector): [Signature]

Method of Shipment to the Lab: State Car

This form accompanies 2 Septum Vials, Glass Jugs, and/or

Samples were preserved as follows:

- ☐ NP: No Preservation; Sample stored at room temperature.
☒ P-Ice Sample stored in an ice bath (Not Frozen).
☐ P-Na₂S₂O₃ Sample Preserved with Sodium Thiosulfate to remove chlorine residual.

CHAIN OF CUSTODY

I certify that this sample was transferred from to

at (location) on - and that

the statements in this block are correct. Evidentiary Seals: Not Sealed ☐ Seals Intact: Yes ☐ No ☐

Signatures

For OCD Use: Date Owner Notified Phone or Letter? Initials

ANALYSES PERFORMED

LAB. No.: OR- 798

THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical screening method(s) checked below:

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
 Other Specific Compounds or Classes

☐
☐
☐
☐
☐

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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

ANALYTICAL RESULTS

COMPOUND(S) DETECTED	CONC. [PPB]	COMPOUND(S) DETECTED	CONC. [PPB]
halogenated purgeables	N.D.		
aromatic purgeables	see remarks		
* DETECTION LIMIT *	* 25 ppb	+ DETECTION LIMIT +	+

ABBREVIATIONS USED:

N D = NONE DETECTED AT OR ABOVE THE STATED DETECTION LIMIT

T R = DETECTED AT A LEVEL BELOW THE STATED DETECTION LIMIT (NOT CONFIRMED)

[RESULTS IN BRACKETS] ARE UNCONFIRMED AND/OR WITH APPROXIMATE QUANTITATION

LABORATORY REMARKS:

fifteen compounds ranging from the aromatic screen region to the C3 substituted benzene at the less than 25 ppb to 100 ppb level detected by the photoionization detector but not identified.

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ☐ No ☒ Seal(s) broken by: not sealed date: _____

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: 6/10/88 Analyst's signature: Gary C. Allen

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

SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud NE
Albuquerque, NM 87106 841-2570

87-1349-C

NEW MEXICO

REPORT TO: David Boyer
N.M. Oil Conservation Division
P. O. Box 2088
Santa Fe, N.M. 87504-2088S.L.D. No. OR- 1349 A+B
DATE REC. 8-1487PHONE(S): 827-5812 USER CODE: 8 2 2 3 5
SUBMITTER: David Boyer CODE: 12 6 0

SAMPLE COLLECTION CODE: (YYMMDDHHMMIII) 8 7 0 8 1 2 1 3 1 5 D 6 B

SAMPLE TYPE: WATER ☒, SOIL ☐, FOOD ☐, OTHER: CODE:

COUNTY: BDDY; CITY: ARTESIA CODE:

LOCATION CODE: (Township-Range-Section-Tracts) 1 1 7 5 + 2 6 E + 1 2 + 1 2 3 (10N06E24342)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.**PURGEABLE SCREENS**

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
Other Specific Compounds or Classes

☐
☐
☐
☐
☐

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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:

Detection limit 10 or less if possible

FIELD DATA:

pH= 7; Conductivity= 9000 umho/cm at 23 °C; Chlorine Residual= mg/l

Dissolved Oxygen= mg/l; Alkalinity= mg/l; Flow Rate /

Depth to water 12.11 ft.; Depth of well 12.03 ft.; Perforation Interval - ft.; Casing: 3.5 STEEL

Sampling Location, Methods and Remarks (i.e. odors, etc.)

MW = ~~NAVAJO~~ NAVAJO REFINERY, HC ODOR, SHEEN, OIL
IN WELL MW-6

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities. (signature collector): David Boyer Method of Shipment to the Lab: To Lab

This form accompanies 2 Septum Vials, Glass Jugs, and/or

Samples were preserved as follows:

- ☐ NP: No Preservation; Sample stored at room temperature.
☒ P-Ice Sample stored in an ice bath (Not Frozen).
☐ P-Na₂S₂O₃ Sample Preserved with Sodium Thiosulfate to remove chlorine residual.

CHAIN OF CUSTODY

I certify that this sample was transferred from _____ to _____
at (location) _____ on ____/____/____ - ____:____ and that
the statements in this block are correct. Evidentiary Seals: Not Sealed ☐ Seals Intact: Yes ☐ No ☐

Signatures _____

For OCD Use: Date Owner Notified _____ Phone or Letter? _____ Initials _____

ANALYSES PERFORMED

LAB. No.: OR- 1349

THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical screening method(s) checked below:

PURGABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
 Other Specific Compounds or Classes

Other Specific Compounds or Classes

1111

EXTRACTABLE SCREENS

- | | | |
|--------------------------|-------|-----------------------------------|
| ☐ | (751) | Aliphatic Hydrocarbons |
| ☐ | (760) | Organochlorine Pesticides |
| ☐ | (755) | Base/Neutral Extractables |
| ☐ | (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 |

ANALYTICAL RESULTS

COMPOUND(S) DETECTED	CONC. [PPB]	COMPOUND(S) DETECTED	CONC. [PPB]
Aromatic purgables	+ all removed		
Toluene	135		
Ethylbenzene	61		
m-xylene	570		
Halogenated purgables	N.D.		
* DETECTION LIMIT *	10 ug/l	+ DETECTION LIMIT +	+

ABBREVIATIONS USED:

N D = NONE DETECTED AT OR ABOVE THE STATED DETECTION LIMIT

T R = DETECTED AT A LEVEL BELOW THE STATED DETECTION LIMIT (NOT CONFIRMED)

[RESULTS IN BRACKETS] ARE UNCONFIRMED AND/OR WITH APPROXIMATE QUANTITATION

LABORATORY REMARKS:

LABORATORY REMARKS: Eight early eluting compounds at 10-50 ppb, and two late ~~early~~ eluting compounds in the C3 substituted benzene region detected by the photoionization.

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ☐ No ☒ Seal(s) broken by: not sealed date: _____

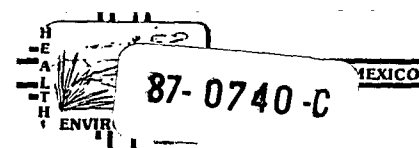
I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: 8/17/87. Analyst's signature: Gary C. Pelen

I certify that I have reviewed and concur with the analytical results for this sample and with the statements in this block.

Reviewers signature: K Meyer

SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud NE
Albuquerque, NM 87106 841-2570

87-0740-C

REPORT TO: David Boyer
N.M. Oil Conservation Division
P. O. Box 2088
Santa Fe, N.M. 87504-2088

S.L.D. No. OR- 740-A-B
DATE REC. 5/5/87

PHONE(S): 827-5812 USER CODE: 8 2 2 3 5

SUBMITTER: David Boyer CODE: 12 6 10

SAMPLE COLLECTION CODE: (YYMMDDHHMMIII) 87104128153504B

SAMPLE TYPE: WATER ☒ SOIL ☐, FOOD ☐, OTHER: CODE: ☐ ☐ ☐

COUNTY: Eddy; CITY: Artesia CODE: ☐ ☐ ☐

LOCATION CODE: (Township-Range-Section-Tracts) 17S+26E+12+123 (10N06E24342)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
Other Specific Compounds or Classes

☐ _____
☐ _____
☐ _____
☐ _____
☐ _____

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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: _____

FIELD DATA:

pH= 7; Conductivity= 5000 umho/cm at 19 °C; Chlorine Residual= _____ mg/l

Dissolved Oxygen= _____ mg/l; Alkalinity= _____ mg/l; Flow Rate _____

Depth to water 9' 5 1/2" ft.; Depth of well 22' 1" ft.; Perforation Interval _____ ft.; Casing: S. Steel

Sampling Location, Methods and Remarks (i.e. odors, etc.)

MW-6 Navajo Refinery - Pumped 3-5 well volumes
Hydrocarbon odor

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities. (signature collector): D. F. Boyer Method of Shipment to the Lab: State Car

This form accompanies 2 Septum Vials, 1 Glass Jugs, and/or _____

Samples were preserved as follows:

- ☐ NP: No Preservation; Sample stored at room temperature.
☒ P-Ice Sample stored in an ice bath (Not Frozen).
☐ P-Na₂S₂O₃ Sample Preserved with Sodium Thiosulfate to remove chlorine residual.

CHAIN OF CUSTODY

I certify that this sample was transferred from _____ to _____

at (location) _____ on _____/_____/_____-_____:_____ and that

the statements in this block are correct. Evidentiary Seals: Not Sealed ☐ Seals Intact: Yes ☐ No ☐

Signatures _____

For OCD Use: Date Owner Notified _____ Phone or Letter? _____ Initials _____

ANALYSES PERFORMED

LAB. No.: OR- 740

THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical screening method(s) checked below:

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
 Other Specific Compounds or Classes

☐
☐
☐
☐
☐

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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

ANALYTICAL RESULTS

COMPOUND(S) DETECTED	CONC. [PPB]	COMPOUND(S) DETECTED	CONC. [PPB]
<i>aromatic purgeables</i>	<i>see remarks</i>		
<i>halogenated purgeables</i>	<i>N.D.</i>		
* DETECTION LIMIT *	* 10 ⁴⁸ /2 *	+ DETECTION LIMIT +	+

ABBREVIATIONS USED:

N D = NONE DETECTED AT OR ABOVE THE STATED DETECTION LIMIT

T R = DETECTED AT A LEVEL BELOW THE STATED DETECTION LIMIT (NOT CONFIRMED)

[RESULTS IN BRACKETS] ARE UNCONFIRMED AND/OR WITH APPROXIMATE QUANTITATION

LABORATORY REMARKS: *Eight compounds in the aromatic screen region at 10-30 ppb levels detected with the photoionization detector but not identified.*

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ☐ No ☒ Seal(s) broken by: *not sealed* date: _____

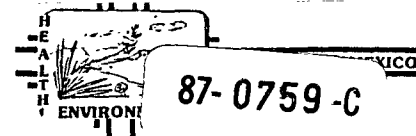
I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: *5/28/87* Analyst's signature: *Mary C. Eden*

I certify that I have reviewed and concur with the analytical results for this sample and with the statements in this block.

Reviewers signature: *E. Sherrell* JUN 11 1987

SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud NE
Albuquerque, NM 87106 841-2570

87-0759-C

REPORT TO: David Boyer
N.M. Oil Conservation Division
P. O. Box 2088
Santa Fe, N.M. 87504-2088

S.L.D. No. OR- 759-A-B
DATE REC. 5-5-87

PHONE(S): 827-5812 USER CODE: 8 2 2 3 5
SUBMITTER: David Boyer CODE: 2 6 0

SAMPLE COLLECTION CODE: (YYMMDDHHMMIII) 8704281545A9R
SAMPLE TYPE: WATER ☒, SOIL ☐, FOOD ☐, OTHER: CODE: ☐ ☐ ☐
COUNTY: Eddy; CITY: Artesia CODE: ☐ ☐ ☐
LOCATION CODE: (Township-Range-Section-Tracts) 17S+26E+12+123 (10N06E24342)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
Other Specific Compounds or Classes

☐ _____
☐ _____
☐ _____
☐ _____
☐ _____

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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: _____

FIELD DATA:

pH= 7; Conductivity= 5000 umho/cm at 19°C; Chlorine Residual= _____ mg/l

Dissolved Oxygen= _____ mg/l; Alkalinity= _____ mg/l; Flow Rate _____

Depth to water 15 ft.; Depth of well 25 ft.; Perforation Interval _____ ft.; Casing: S. Steel

Sampling Location, Methods and Remarks (i.e. odors, etc.)

MW #6, Navajo Refinery. ~~slightly brown, turbid~~ **DW**
~~slightly brown, turbid~~
~~slightly brown, turbid~~ H.C. odor

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities. (signature collector): W. J. BoyerMethod of Shipment to the Lab: State Car

This form accompanies 2 Septum Vials, _____ Glass Jugs, and/or _____

Samples were preserved as follows:

- ☐ NP: No Preservation; Sample stored at room temperature.
☒ P-Ice Sample stored in an ice bath (Not Frozen).
☐ P-Na₂S₂O₃ Sample Preserved with Sodium Thiosulfate to remove chlorine residual.

CHAIN OF CUSTODY

I certify that this sample was transferred from _____ to _____

at (location) _____ on _____/_____/_____-_____:_____ and that

the statements in this block are correct. Evidentiary Seals: Not Sealed ☐ Seals Intact: Yes ☐ No ☐

Signatures _____

For OCD Use: Date Owner Notified _____ Phone or Letter? _____ Initials _____

ANALYSES PERFORMED

LAB. No.: OR- 759

THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical screening method(s) checked below:

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
 Other Specific Compounds or Classes

☐
☐
☐
☐
☐

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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

ANALYTICAL RESULTS

COMPOUND(S) DETECTED	CONC. [PPB]	COMPOUND(S) DETECTED	CONC. [PPB]
<i>aromatic purgeables</i>	<i>see remarks</i>		
<i>halogenated purgeables</i>	<i>N.D.</i>		
* DETECTION LIMIT *	* 10 ⁴⁹ / ₁₀	+ DETECTION LIMIT +	+

ABBREVIATIONS USED:

N D = NONE DETECTED AT OR ABOVE THE STATED DETECTION LIMIT

T R = DETECTED AT A LEVEL BELOW THE STATED DETECTION LIMIT (NOT CONFIRMED)

[RESULTS IN BRACKETS] ARE UNCONFIRMED AND/OR WITH APPROXIMATE QUANTITATION

LABORATORY REMARKS: *Thirteen compounds at 10-30 ppb in the aromatic screen region detected with the photoionization detector but not identified. Five data eluting, common compounds at 10-20 ppb in the C3 substituted benzene region detected with the photoionization detector but not identified.*

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ☐ No ☒ Seal(s) broken by: *not sealed* date: _____

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: *5/29/87* Analyst's signature: *Harry C. Eden*

I certify that I have reviewed and concur with the analytical results for this sample and with the statements in this block.

Reviewers signature: *Er. Sherrill* JUN 11 1987

Narago Refinery

MW - 6

PAH '8

CLIENT: OCD
SAMPLE ID: 8907261424
SITE: MW-6
LAB NO: F1827
Analysis Requested: Polynuclear aromatic hydrocarbons in water.

DATE REPORTED: 09/11/89
DATE EXTRACTED: 08/01/89
DATE RECEIVED: 07/31/89
DATE COLLECTED: 07/26/89

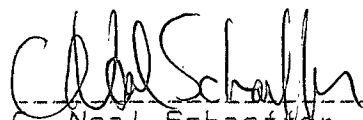
Parameter	Concentration	Units
Acenaphthene	14.3 (1.8)	ug/l
Acenaphthylene	12.9 (2.3)	ug/l
Anthracene	ND (1.0)	ug/l
Benzo(a)Anthracene	ND (1.0)	ug/l
Benzo(a)pyrene	ND (1.0)	ug/l
Benzo(k)fluoranthene	ND (1.0)	ug/l
Benzo(g,h,i)perylene	ND (1.0)	ug/l
Dibenzo(a,h)anthracene	ND (1.0)	ug/l
Chrysene	ND (1.0)	ug/l
Fluoranthene	94.1 (1.0)	ug/l
Fluorene	ND (1.0)	ug/l
Indeno(1,2,3-cd)pyrene	ND (1.0)	ug/l
Naphthalene	114.0 (1.8)	ug/l
Phenanthrene	206.0 (1.0)	ug/l
Pyrene	ND (1.0)	ug/l
Benzo(b)fluoranthene	ND (1.0)	ug/l
Benzo(a)fluoranthene	ND (1.0)	ug/l
Benzo(j)fluoranthene	ND (1.0)	ug/l
Dibenzo(a,h)acridine	ND (1.0)	ug/l
Dibenzo(a,j)acridine	ND (1.0)	ug/l
Dibenzo(a,h)anthracene	ND (1.0)	ug/l
7H-dibenzo(c,g)carbazole	ND (1.0)	ug/l
Dibenzo(a,e)pyrene	ND (1.0)	ug/l
Dibenzo(a,h)pyrene	ND (1.0)	ug/l
Dibenzo(a,i)pyrene	ND (1.0)	ug/l
3-Methylcholanthrene	ND (1.0)	ug/l

Method:

8100 Polynuclear Aromatic Hydrocarbons, SW-846, USEPA (1982).
610 Polyaromatic Hydrocarbons, 40 CFR Part 136 (1984).

(Detection limit in parenthesis.)

ND - Parameter not detected at the stated detection limit.


C. Neal Schaeffer
Senior Chemist

RECEIVED

SEP 25 1989

OIL CONSERVATION DIV.
SANTA FE

SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud NE
Albuquerque, NM 87106 841-2570

87-1366-B

EXICO

REPORT TO: David Boyer
N.M. Oil Conservation Division
P. O. Box 2088
Santa Fe, N.M. 87504-2088

S.L.D. No. OR- 1366 A

DATE REC. 8-14-87

PHONE(S): 327-5812 USER CODE: 8 2 2 3 5

SUBMITTER: David Boyer CODE: 2 6 0

SAMPLE COLLECTION CODE: (YYMMDDHHMMII) 8 7 0 8 1 2 1 3 1 5 D G B

SAMPLE TYPE: WATER ☒ SOIL ☐ FOOD ☐ OTHER: CODE:

COUNTY: EDDY CITY: ARTESIA CODE:

LOCATION CODE: (Township-Range-Section-Tracts) 1 1 7 5 + 2 6 E + 1 2 + 1 2 3 (10N06E24342)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☐ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
Other Specific Compounds or Classes

☐ _____
☐ _____
☐ _____
☐ _____
☐ _____

EXTRACTABLE SCREENS

- ☒ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☒ (755) Base/Neutral Extractables
☐ (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:

FIELD DATA:

pH= 7 ; Conductivity= 9000 umho/cm at 23 °C; Chlorine Residual= mg/l

Dissolved Oxygen= mg/l; Alkalinity= mg/l; Flow Rate /

Depth to water 12.11 ft.; Depth of well 22.03 ft.; Perforation Interval - ft.; Casing: 5.5 STEEL

Sampling Location, Methods and Remarks (i.e. odors, etc.)

MW - ~~NAVATO~~ NAVATO REFINERY, HC ODOR, SHEEN, OIL
IN WELL MW - 6 SWB

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities. (signature collector): David Boyer Method of Shipment to the Lab: State Car

This form accompanies Septum Vials, Glass Jugs, and/or

Samples were preserved as follows:

- ☐ NP: No Preservation; Sample stored at room temperature.
☒ P-Ice Sample stored in an ice bath (Not Frozen).
☐ P-Na₂S₂O₃ Sample Preserved with Sodium Thiosulfate to remove chlorine residual.

CHAIN OF CUSTODY

I certify that this sample was transferred from _____ to _____
at (location) _____ on _____ - _____ and that

the statements in this block are correct. Evidentiary Seals: Not Sealed ☐ Seals Intact: Yes ☐ No ☐

Signatures _____

For OCD Use: Date Owner Notified _____ Phone or Letter? _____ Initials _____

ANALYSES PERFORMED

LAB. No.: OR-1366

THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical screening method(s) checked below:

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☐ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
 Other Specific Compounds or Classes

☐
☐
☐
☐
☐

EXTRACTABLE SCREENS

- ☒ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☒ (755) Base/Neutral Extractables
☐ (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

ANALYTICAL RESULTS

COMPOUND(S) DETECTED	CONC. [PPB]	COMPOUND(S) DETECTED	CONC. [PPB]
PPA's		unknown (see remarks)	14200ppb
Naphthalene MDL = 10ppb	ND < 10		
2-methylnaphthalene MDL = 10ppb	TR < 10		
1-methylnaphthalene MDL = 10ppb	TR < 10		
Acenaphthylene MDL = 10ppb	TR < 10		
Acenaphthene MDL = 10ppb	TR < 10		
Fluorene MDL = 10ppb	TR < 10		
Remaining PPA's MDL = 10ppb	ND < 10		
* DETECTION LIMIT *		+ DETECTION LIMIT +	

ABBREVIATIONS USED:

N D = NONE DETECTED AT OR ABOVE THE STATED DETECTION LIMIT

T R = DETECTED AT A LEVEL BELOW THE STATED DETECTION LIMIT (NOT CONFIRMED)

[RESULTS IN BRACKETS] ARE UNCONFIRMED AND/OR WITH APPROXIMATE QUANTITATION

Sample 800 ml

LABORATORY REMARKS: In addition to the PPA's approximately 60 other compounds were detected at or below the MDL of 10ppb whose source may have been diesel fuel. Present also is mixture whose chromatographic fingerprint is close to but not an exact match for chlordane or PCB 1248. Concentration was calculated against a chlordane standard.

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ☐ No ☐ Seal(s) broken by: no seals date: _____

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: 9/1/87 Analyst's signature: AS Burrey

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



2503 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

CLIENT: OCD
SAMPLE ID: 8907261424
SITE: MW-6
LAB NO: F1827

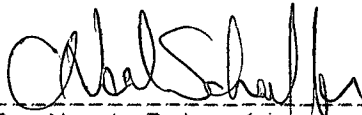
DATE REPORTED: 08/21/89
DATE RECEIVED: 07/31/89
DATE COLLECTED: 07/26/89

Lab pH.....	8.09
Lab Conductivity, umhos/cm.....	5953
Lab resistivity, ohm-m.....	1.6798
Total Dissolved Solids (180), mg/l..	5240
Total Dissolved Solids (calc), mg/l.	5125
Total Alkalinity as CaCO ₃ , mg/l.....	170.52
Total Acidity as CaCO ₃ , mg/l.....	0.00
Total Hardness as CaCO ₃ , mg/l.....	2162.35
Sodium Absorption Ratio.....	7.86
Fluoride, mg/l.....	3.14

	mg/l	meq/l
Bicarbonate as HCO ₃	208.03	3.41
Carbonate as CO ₃	0.00	0.00
Chloride.....	978.42	27.60
Sulfate.....	2393.28	49.86
Calcium.....	721.75	36.02
Magnesium.....	87.94	7.23
Potassium.....	1.40	0.04
Sodium.....	840.00	36.54
Major Cations.....		79.82
Major Anions.....		80.87
Cation/Anion Difference.....		0.65 %

Trace metals (Dissolved Concentration), mg/l

Arsenic.....	0.012
Lead.....	<0.02
Chromium.....	0.03


C. Neal Schaeffer
Senior Chemist



New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

864
WAF

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

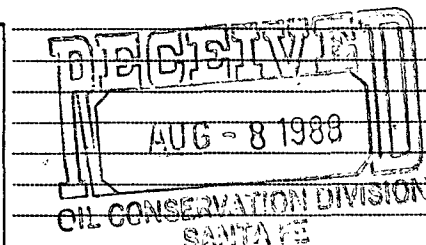
DATE RECEIVED	6/3/88	LAB NO.	WC-1976	USER CODE	☐ 59300 ☐ 59600 ☒ OTHER: 82235
Collection DATE	6/10/88	SITE INFORMATION	Sample location		
Collection TIME	1917		Navajo Refinery - MW #6 Monitor Well		
Collected by		Person/Agency			
Roy Anderson		10CD			

SEND
FINAL
REPORT
TO

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87504-2088

Attn: David Boyer

Phone: 827-5812



Station/
well code
Owner

SAMPLING CONDITIONS

☒ Bailed ☐ Dipped	☒ Pump ☐ Tap	Water level	10.75'	Discharge	-	Sample type	6046
pH (00400)	7	Conductivity (Uncorrected)	4200 µmho	Water Temp. (00010)	22 °C	Conductivity at 25°C (00094)	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:	☐ A: 5ml conc. HNO ₃ added	☐ A: 4ml fuming HNO ₃ added

ANALYTICAL RESULTS from SAMPLES

NF, NA	Units	Date analyzed	F, NA	Units	Date analyzed
☒ Conductivity (Corrected) 25°C (00095)	4706 µmho	7/5	☒ Calcium (00915)	320 mg/l	7/15
☐ Total non-filterable residue (suspended) (00530)			☒ Magnesium (00925)	112.2 mg/l	7/15
☒ Other: Lab pH	7.33	7/14	☒ Sodium (00930)	724 mg/l	7/5
☐ Other:			☒ Potassium (00935)	2 mg/l	7/5
☐ Other:			☒ Bicarbonate (00440)	149 mg/l	7/14
			☒ Chloride (00940)	836 mg/l	6/14
			☒ Sulfate (00945)	460 mg/l	6/12
			☒ Total filterable residue (dissolved) (70300)	3614 mg/l	6/28
			☒ Other: FLUORIDE	3.1	7/22
			☒ Cation/Anion Balance		
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
769				7/27/88	CS

SLD 726 (12/84)

FOR OCD USE -- Date Owner Notified 8/13/88 Phone or letter?

Initials

APB

CATIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT
Ca	15.97	320.00	<3.0
Mg	9.20	112.00	<0.3
Na	31.49	724.00	<10.0
K	0.05	2.00	<0.3
Mn	0.00	0.00	
Fe	0.00	0.00	
SUMS	56.71	1158.00	
Total Dissolved Solids=			3614
Ion Balance =			100.48%

ANIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT
HC03	2.44	149.00	<1.0
SO4	30.42	1460.00	<10.0
CL	23.58	836.00	<5.0
NO3	0.00	0.00	< 0.
CO3	0.00	0.00	< 1.
NH3	0.00	0.00	< 0.
PO4	0.00	0.00	< 0.
	56.44	2445.00	

WC No. = 8801976
Date out/By Q 7/29/88



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	5/5/87	LAB NO.	WC-1658	USER CODE	☐ 59300 ☐ 59600 ☒ OTHER: 82235
Collection DATE	8/10/88	SITE INFORMATION	Sample location		
Collection TIME	1535		MW-6 Navajo Refinery		
Collected by — Person/Agency		Collection site description			
Boyer/Anderson/OCD					

SEND
FINAL
REPORT
TO

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg., PO Box 2088
Santa Fe, NM 87504-2088

Attn: David Boyer

Phone: 827-5812

Station/
well code
Owner

MW-6

SAMPLING CONDITIONS

☐ Bailed ☐ Dipped	☒ Pump ☐ Tap	Water level	Discharge	Sample type
pH (00400)	7	Conductivity (Uncorrected)	Water Temp. (00010)	Conductivity at 25°C (00094)
		5000 µmho	19 °C	µmho
Field comments				
See VOC sheet for comments				

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:		☐ A: 5ml conc. HNO ₃ added ☐ A: 4ml fuming HNO ₃ added

ANALYTICAL RESULTS from SAMPLES

NA	Units	Date analyzed	From F, NA Sample:	Date Analyzed
☒ Conductivity (Corrected) 25°C (00095)	µmho	5/13	☒ Calcium	356 mg/l 6/1
☐ Total non-filterable residue (suspended) (00530)	mg/l		☒ Potassium	195 mg/l 5/20
☒ Other: pH		5/12	☒ Magnesium	93 mg/l 6/1
☐ Other:			☒ Sodium	950 mg/l 5/20
☐ Other:			☒ Bicarbonate	206 mg/l 5/12
A-H₂SO₄			☒ Chloride	1044 mg/l 5/26
☐ Nitrate-N +, Nitrate-N total (00630)	mg/l		☒ Sulfate	1466 mg/l 5/20
☐ Ammonia-N total (00610)	mg/l		☒ Total Solids	4324 mg/l 5/27
☐ Total Kjeldahl-N ()	mg/l		☒ Fluoride	4.04 5/27
☐ Chemical oxygen demand (00340)	mg/l		☐	
☐ Total organic carbon ()	mg/l		☒ Cation/Anion Balance	
☐ Other:			Analyst	Date Reported
☐ Other:				6/2/87
Laboratory remarks				

FOR OCD USE -- Date Owner Notified _____ Phone or Letter? _____ Initials _____

CATIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT
Ca	17.76	356.00	<3.0
Mg	7.64	93.00	<0.3
Na	41.32	950.00	<10.0
K	0.05	1.95	<0.3
Mn	0.00	0.00	
Fe	0.00	0.00	
SUMS	66.78	1400.95	
Total Dissolved Solids=			4324
Ion Balance =			105.38%

ANIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT
HC03	3.38	206.00	<1.0
SO4	30.54	1466.00	<10.0
CL	29.45	1044.00	<5.0
NO3	0.00	0.00	< 0.
C03	0.00	0.00	< 1.
NH3	0.00	0.00	< 0.
PO4	0.00	0.00	< 0.
	63.37	2716.00	

WC No. = 8701658
Date out/By CD 6/2/82



New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106

HEAVY METAL ANALYSIS FORM

Telephone: (505)841-2553

Date Received 6/3/88 Lab No. ICP-237 User Code ☒ 82235 ☐ Other:

COLLECTION DATE & TIME: yy mm dd hh mm
88 06 01 17 10

COLLECTION SITE DESCRIPTION

COLLECTED BY:

TO:

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg. PO Box 2088
SANTA FE, NM 87504-2088
AUG 17 1988
CONSERVATION DIVISION
SANTA FE

Nasip Refinery
MW #6 Monitor Well

OWNER:

SITE LOCATION:

County: Eddy

Township, Range, Section, Tract: (10N06E24342)

17N15+216E+12+112

ATTN: D. Boyer

TELEPHONE: 827-5812

STATION/ WELL CODE:

LATITUDE, LONGITUDE:

SAMPLING CONDITIONS:

☒ Bailed ☒ Pump ☐ Dipped ☐ Tap Water Level: 10.75 Discharge: Sample Type: GRAB

pH(00400) 7 Conductivity(Uncorr.) 4200 μ mho Water Temp.(00010) 22 $^{\circ}$ C Conductivity at 25 $^{\circ}$ C (00094) μ mho

FIELD COMMENTS:

SAMPLE FIELD TREATMENT

Check proper boxes:

☐ WPN: Water Preserved w/HNO₃ Non-Filtered ☒ WPF: Water Preserved w/HNO₃ Filtered

LAB ANALYSIS REQUESTED:

☒ ICAP Scan
Mark box next to metal if AA is required.

ANALYTICAL RESULTS (MG/L)

ELEMENT	ICAP VALUE	AA VALUE	ELEMENT	ICAP VALUE	AA VALUE
Aluminum	<u><0.1</u>		Silicon	<u>24.</u>	
Barium	<u><0.1</u>		Silver	<u><0.1</u>	☐
Beryllium	<u><0.1</u>		Strontium	<u>4.2</u>	
Boron	<u>0.5</u>		Tin	<u><0.1</u>	
Cadmium	<u><0.1</u>	☐	Vanadium	<u><0.1</u>	
Calcium	<u>300.</u>		Zinc	<u><0.1</u>	
Chromium	<u><0.1</u>	☒ <u>0.005</u>	Arsenic		☒ <u>0.070</u>
Cobalt	<u><0.05</u>		Selenium		☐
Copper	<u><0.1</u>		Mercury		☐
Iron	<u>0.4</u>				☐
Lead	<u><0.1</u>	☒ <u><0.01</u>			☐
Magnesium	<u>98.</u>				☐
Manganese	<u>0.65</u>				☐
Molybdenum	<u><0.1</u>				☐
Nickel	<u><0.1</u>				☐

LAB COMMENTS: digest.

For OCD Use:

Date Owner Notified: 8/17/88

Phone or Letter?

Initials:

ICAP Analyst JA

Date Analyzed 6/7/88

Reviewer Jim Kelly

Date Received 8/10/88



New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

Heavy Metal

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED	5/5/87	LAB NO.	H4562	USER CODE	☐ 59300 ☐ 59600 ☒ OTHER: 82235
Collection DATE	5/10/87	SITE INFORMATION	Sample location		
Collection TIME	1535		MW-6 Navajo Refinery		
Collected by — Person/Agency		Collection site description			
Boyer/Anderson 10CD					

SEND
FINAL
REPORT
TO

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87504-2088

Attn: David Boyer

Phone: 827-5812

Station/
well code
Owner

MW-6

SAMPLING CONDITIONS

☐ Bailed ☐ Dipped	☒ Pump ☐ Tap	Water level	Discharge	Sample type
				GRAB
pH (00400)	7	Conductivity (Uncorrected)	Water Temp. (00010)	Conductivity at 25°C (00094)
		5000 µmho	19 °C	µmho
Field comments				
See VOC sheet for 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:		☐ A: 5ml conc. HNO ₃ added ☒ A: 4ml fuming HNO ₃ added

ANALYTICAL RESULTS from SAMPLES

NA	Units	Date analyzed
☐ Conductivity (Corrected) 25°C (00095)	µmho	
☐ Total non-filterable residue (suspended) (00530)	mg/l	
☒ Other: Pb by AA	Pb = <0.01 mg/l	6/2/87
☒ Other: Cr by AA	Cr = <0.005 mg/l	5/26/87
☐ Other:		
A-H ₂ SO ₄		
☐ 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:		

From	NA Sample:	Date Analyzed
☐ Calcium	mg/l	
☐ Potassium	mg/l	
☐ Magnesium	mg/l	
☐ Sodium	mg/l	
☐ Bicarbonate	mg/l	
☐ Chloride	mg/l	
☐ Sulfate	mg/l	
☐ Total Solids	mg/l	
☐		
☐		
☐ Cation/Anion Balance		

Analyst	Date Reported	Reviewed by
	6/5/87	J. Ashby

Laboratory remarks





STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

1826

Contract Lab InterMountain

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-3</u>			
Collection Site Description			
			Township, Range, Section, Tract:
			117S+26E+12+223

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)

7.05

Water Temp. (00010)

22°C

Water level

7.61

Discharge

6.5 + gallons

Sample type

GRAB

Conductivity (Uncorrected)

8250 μ mho

Conductivity at 25° C

 μ mhoclear 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	Fluoride	



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 214/984-0551

Analytical Chemistry • Waste Treatment & Disposal • Equipment Sales

RECEIVED

09/21/89

SEP 22 1989

Environmental Bureau NM Oil D.
PO Box 2088
Santa Fe, NM 87504

OIL CONSERVATION DIV.
SANTA FE

Sample Identification: MW7 Navajo Ref.
Flow or other on site data: 4 Vials +1 Clear, HC odor
Collected by: Boyer, Englert
Date & Time Taken: 07/26/89 1053
Additional Sample Information: 175-26E-12-223 Bailed 6.5+ gal pH 7.05 Temp 22 Cond 8250 NF 8020:A 8010:NA WL 7
Lab Sample Number: 149762 Received: 07/29/89

PARAMETER:	RESULTS	QUALITY CONTROL	ANALYZED ON AT	ANALYST
1,1,1-Trichloroethane, ug/l EPA Method 8010	(5		08/04/89 0100	BP
1,1,2,2-Tetrachloroethane, ug/l EPA Method 8010	(5		08/04/89 0100	BP
1,1,2-Trichloroethane, ug/l EPA Method 8010	(5		08/04/89 0100	BP
1,1-Dichloroethane, ug/l EPA Method 8010	(5		08/04/89 0100	BP
1,1-Dichloroethene, ug/l EPA Method 8010	(1		08/04/89 0100	BP
1,2-Dichloroethane, ug/l EPA Method 8010	(5		08/04/89 0100	BP
1,2-Dichloropropane, ug/l EPA Method 8010	(5		08/04/89 0100	BP
2-Chloroethylvinyl ether, ug/l EPA Method 8010	(10		08/04/89 0100	BP
Benzene, ug/l EPA Method 8020	(5		08/04/89 0100	BP
Bromodichloromethane, ug/l EPA Method 8010	(5		08/04/89 0100	BP

continued



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 214/984-0551

Analytical Chemistry • Waste Treatment & Disposal • Equipment Sales

Lab Sample Number: 149762 Continued

Page 2

PARAMETER:	RESULTS	QUALITY CONTROL	ANALYZED ON AT	ANALYST
Bromoform, ug/l EPA Method 8010	<5		08/04/89 0100	BP
Bromomethane, ug/l EPA Method 8010	<10		08/04/89 0100	BP
Carbon Tetrachloride, ug/l EPA Method 8010	<5		08/04/89 0100	BP
Chlorobenzene, ug/l EPA Method 8010	<5		08/04/89 0100	BP
Chloroethane, ug/l EPA Method 8010	<10		08/04/89 0100	BP
Chloroform, ug/l EPA Method 8010	<5		08/04/89 0100	BP
Chloromethane, ug/l EPA Method 8010	<10		08/04/89 0100	BP
Cis-1,3-Dichloropropene, ug/l EPA Method 8010	<5		08/04/89 0100	BP
Dibromochloromethane, ug/l EPA Method 8010	<5		08/04/89 0100	BP
Ethyl benzene, ug/l EPA Method 8020	<5		08/04/89 0100	BP
Freon, ug/l EPA Method 8010	<5		08/04/89 0100	BP
Methylene Chloride, ug/l EPA Method 8010	<5		08/04/89 0100	BP
Tetrachloroethene, ug/l EPA Method 8010	<5		08/04/89 0100	BP
Toluene, ug/l EPA Method 8020	<5		08/04/89 0100	BP

continued



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 214/984-0551

Analytical Chemistry • Waste Treatment & Disposal • Equipment Sales

Lab Sample Number: 149762 Continued

Page 3

PARAMETER:	RESULTS	QUALITY CONTROL	ANALYZED ON AT	ANALYST
Trans-1,2-Dichloroethene, ug/l EPA Method 8010	<5		08/04/89 0100	BP
Trans-1,3-Dichloropropene, ug/l EPA Method 8010	<5		08/04/89 0100	BP
Trichloroethene, ug/l EPA Method 8010	<5		08/04/89 0100	BP
Vinyl Chloride, ug/l EPA Method 8010	<1		08/04/89 0100	BP
Xylenes, ug/l EPA Method 8020	<10		08/04/89 0100	BP
2,4,6-Trichlorophenol, ug/l EPA Method 8270	<10		09/13/89 1642	BP
2,4-Dichlorophenol, ug/l EPA Method 8270	<10		09/13/89 1642	BP
2,4-Dimethylphenol, ug/l EPA Method 8270	<10		09/13/89 1642	BP
2,4-Dinitrophenol, ug/l EPA Method 8270	<50		09/13/89 1642	BP
2-Chlorophenol, ug/l EPA Method 8270	<10		09/13/89 1642	BP
2-Methyl-4,6-dinitrophenol, ug/l EPA Method 8270	<50		09/13/89 1642	BP
2-Nitrophenol, ug/l EPA Method 8270	<10		09/13/89 1642	BP
4-Chloro-3-methylphenol, ug/l EPA Method 8270	<20		09/13/89 1642	BP
4-Nitrophenol, ug/l EPA Method 8270	<50		09/13/89 1642	BP

continued



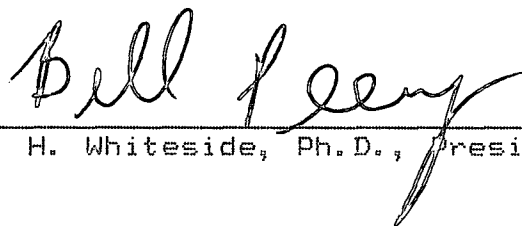
2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 214/984-0551

Analytical Chemistry • Waste Treatment & Disposal • Equipment Sales

Lab Sample Number: 149762 Continued

Page 4

PARAMETER:	RESULTS	QUALITY CONTROL	ANALYZED ON AT	ANALYST
Pentachlorophenol, ug/l EPA Method 8270	<50		09/13/89 1642	BP
Phenol, ug/l EPA Method 8270	<10		09/13/89 1642	BP



C. H. Whiteside, Ph.D., President

SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud NE
Albuquerque, NM 87106 841-2570754
wpa
88-0100-C
EXICO
ENVIRO

REPORT TO: David Boyer
N.M. Oil Conservation Division
P. O. Box 2088
Santa Fe, N.M. 87504-2088

S.L.D. No. OR- 800 A+B
DATE REC. 6-3-88
PRIORITY 3

PHONE(S): 327-5812
SUBMITTER: David Boyer

USER CODE: 8 2 2 3 5
CODE: 2 6 0

SAMPLE COLLECTION CODE: (YYMMDDHHMMIII) 8806011635A+B
SAMPLE TYPE: WATER ☒, SOIL ☐, FOOD ☐, OTHER: ☐ CODE: ☐
COUNTY: Eddy; CITY: Artesia CODE: ☐
LOCATION CODE: (Township-Range-Section-Tracts) 11715+2161E+112+21213 (10N06E24342)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.

PURGEABLE SCREENS

- ☒ (753) Aliphatic Purgeables (1-3 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
Other Specific Compounds or Classes

☐
☐
☐
☐
☐

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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:

Not HCl preserved

FIELD DATA:

pH= 7; Conductivity= 14,000 umho/cm at 21.5°C; Chlorine Residual= mg/l

Dissolved Oxygen= mg/l; Alkalinity= mg/l; Flow Rate

Depth to water 5.5 ft.; Depth of well 17.4 ft.; Perforation Interval - ft.; Casing:

Sampling Location, Methods and Remarks (i.e. odors, etc.)

Nawajo Refinery MW #7 Monitor well
Strong Hydrocarbon odor Purged 10 gallons

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities. (signature collector):

Method of Shipment to the Lab: State Car

This form accompanies 2 Septum Vials, Glass Jugs, and/or

Samples were preserved as follows:

- ☐ NP: No Preservation; Sample stored at room temperature.
☒ P-Ice Sample stored in an ice bath (Not Frozen).
☐ P-Na₂S₂O₃ Sample Preserved with Sodium Thiosulfate to remove chlorine residual.

CHAIN OF CUSTODY

I certify that this sample was transferred from to

at (location) on / / - : and that

the statements in this block are correct. Evidentiary Seals: Not Sealed ☐ Seals Intact: Yes ☐ No ☐

Signatures

For OCD Use: Date Owner Notified Phone or Letter? Initials

ANALYSES PERFORMED

LAB. No.: OR- 800

THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical screening method(s) checked below:

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
 Other Specific Compounds or Classes

☐
☐
☐
☐
☐
☐

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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

ANALYTICAL RESULTS

COMPOUND(S) DETECTED	CONC. [PPB]	COMPOUND(S) DETECTED	CONC. [PPB]
halogenated purgeables	N.D.		
aromatic purgeables	see remarks		
* DETECTION LIMIT *	5 ppb	+ DETECTION LIMIT +	+

ABBREVIATIONS USED:

N D = NONE DETECTED AT OR ABOVE THE STATED DETECTION LIMIT

T R = DETECTED AT A LEVEL BELOW THE STATED DETECTION LIMIT (NOT CONFIRMED)

[RESULTS IN BRACKETS] ARE UNCONFIRMED AND/OR WITH APPROXIMATE QUANTITATION

LABORATORY REMARKS:

thirteen compounds ranging from the aromatic screen region to the C3 substituted benzene region at 5-10 ppb detected by the photoionization detector but not identified.

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ☐ No ☒ Seal(s) broken by: not sealed date:

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements on this page accurately reflect the analytical results for this sample.

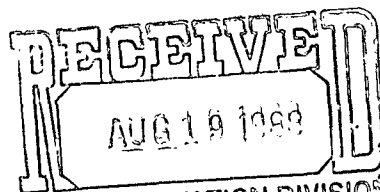
Date(s) of analysis: 6/10/88 Analyst's signature: Gary C. Allen

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

Original Sample Form
is missing at Laboratory
RM

SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud, NE
Albuquerque, NM 87106 [505]-841-2500



Organic Chemistry Section

To: NM Oil Conserv. Div.

ANALYTICAL REPORT
SLD Accession #: OR-88-0800

A Water, Purgeable sample.
Submitted: June 3, 1988

Submitter:

User:

NM Oil Conserv. Div.

82235

DEMOGRAPHIC DATA:

Collected On: 1-Jun-88
At: 1635 hrs.
By: Boy
In/Near: Artesia

Location Township: 17^S
Range: 26E
Section: 12
Tracts: 2

ANALYTICAL RESULTS for Aromatic/Halo. Purg. Screen:

Analysis	Value	Note	D. Lmt	Units
Halogenated Purgeables (33)	0.00	N	5.00	ppb
PID compounds not identified	13.00		5.00	ppb

LABORATORY REMARKS: Navajo Refinery-#7 Well

A=Approximate Value; N=None Detected above Detection Limit; P=Compound Present but not quantified; T=Trace (<Detection Limit); U=Compound Identity Not Confirmed

Analyst: Greg C. Eden Analysis Date: 6/20/88 Reviewed: R Meyerhein Supervisor Date: AUG 3 1988

Navajo Refinery MW #7
Foamy, Strong hydrocarbon odor
pH = 5, Sp. Cond. 14,000 @ 21.5

SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud NE
Albuquerque, NM 87106 841-2570

87-1355-C

EXICO

7547
wpa

ENVIRONMENT

REPORT TO: David Boyer S.L.D. No. OR- 1355 A4B
N.M. Oil Conservation Division DATE REC. 8-14-87
P. O. Box 2088
Santa Fe, N.M. 87504-2088

PHONE(S): 827-5812 USER CODE: 8 2 2 3 5

SUBMITTER: David Boyer CODE: 2 6 0

SAMPLE COLLECTION CODE: (YYMMDDHHMMIII) 8 7 0 8 1 2 1 1 4 5 0 6 B

SAMPLE TYPE: WATER ☒, SOIL ☐, FOOD ☐, OTHER: _____ CODE:

COUNTY: EDDY; CITY: ARTESIA CODE:

LOCATION CODE: (Township-Range-Section-Tracts) 1 7 5 + 2 6 E + 1 2 + 2 2 3 (10N06E24342)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
Other Specific Compounds or Classes

☐
☐
☐
☐
☐

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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: Detection limit 10 or less if possible

FIELD DATA:

pH= _____; Conductivity= 9500 umho/cm at 20.5 °C; Chlorine Residual= _____ mg/l

Dissolved Oxygen= _____ mg/l; Alkalinity= _____ mg/l; Flow Rate _____ / _____

Depth to water 6.6 ft.; Depth of well 17.11 ft.; Perforation Interval _____ - _____ ft.; Casing: S. STEEL

Sampling Location, Methods and Remarks (i.e. odors, etc.)

MW-7, NAVAJO REFINERY. PURGED 23.9 L good Recovery

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities. (signature collector): David Boyer Method of Shipment to the Lab: Hand carried

This form accompanies 2 Septum Vials, _____ Glass Jugs, and/or _____ State Cap

Samples were preserved as follows:

- ☐ NP: No Preservation; Sample stored at room temperature.
☒ P-Ice Sample stored in an ice bath (Not Frozen).
☐ P-Na₂S₂O₃ Sample Preserved with Sodium Thiosulfate to remove chlorine residual.

CHAIN OF CUSTODY

I certify that this sample was transferred from _____ to _____

at (location) _____ on _____ / _____ - _____ : _____ and that

the statements in this block are correct. Evidentiary Seals: Not Sealed ☐ Seals Intact: Yes ☐ No ☐

Signatures _____

For OCD Use: Date Owner Notified _____ Phone or Letter? _____ Initials _____

ANALYSES PERFORMED

LAB. No.: OR- 1355

THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical screening method(s) checked below:

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
 Other Specific Compounds or Classes

☐
☐
☐
☐
☐

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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

ANALYTICAL RESULTS

COMPOUND(S) DETECTED	CONC. [PPB]	COMPOUND(S) DETECTED	CONC. [PPB]
<i>aromatic purgeables</i>	<i>N.D.</i>		
<i>halogenated purgeables</i>	<i>N.D.</i>		
* DETECTION LIMIT *	* <i>1072/L</i>	+ DETECTION LIMIT +	+

ABBREVIATIONS USED:

N D = NONE DETECTED AT OR ABOVE THE STATED DETECTION LIMIT

T R = DETECTED AT A LEVEL BELOW THE STATED DETECTION LIMIT (NOT CONFIRMED)

[RESULTS IN BRACKETS] ARE UNCONFIRMED AND/OR WITH APPROXIMATE QUANTITATION

LABORATORY REMARKS:

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ☐ No ☒ Seal(s) broken by: *not sealed* date: _____

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: *9/11/87* Analyst's signature: *Gary C. Eden*

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 Meyerheim*

SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud NE
Albuquerque, NM 87106 841-2570



87-0767-C

REPORT TO: David Boyer S.L.D. No. OR- 767-A-B
N.M. Oil Conservation Division DATE REC. 5-5-87
P. O. Box 2088
Santa Fe, N.M. 87504-2088 PRIORITY _____

PHONE(S): 827-5812 USER CODE: 8 2 2 3 5
SUBMITTER: David Boyer CODE: 2 6 0

SAMPLE COLLECTION CODE: (YYMMDDHHMMIII) 1371042911130

SAMPLE TYPE: WATER ☒ SOIL ☐ FOOD ☐ OTHER: _____ CODE: _____

COUNTY: Eddy; CITY: Mesa CODE: _____

LOCATION CODE: (Township-Range-Section-Tracts) 11715+216E+12+2213 (10N06E24342)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes

Other Specific Compounds or Classes

☐ _____
☐ _____
☐ _____
☐ _____
☐ _____

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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: _____

FIELD DATA:

pH= 7; Conductivity= 9100 umho/cm at 17 °C; Chlorine Residual= _____ mg/l

Dissolved Oxygen= _____ mg/l; Alkalinity= _____ mg/l; Flow Rate _____

Depth to water 4 ft.; Depth of well 17 ft.; Perforation Interval _____ ft.; Casing: ST. Steel

Sampling Location, Methods and Remarks (i.e. odors, etc.)

MW-7, Navajo Refinery. Water brown, turbid, no
sheen, slight odor, slightly foamy. Purged 10 gallons.

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities. (signature collector): W. Boyer Method of Shipment to the Lab: State Car

This form accompanies 2 Septum Vials, 1 Glass Jugs, and/or _____

Samples were preserved as follows:

- ☐ NP: No Preservation; Sample stored at room temperature.
☒ P-Ice: Sample stored in an ice bath (Not Frozen).
☐ P-Na₂S₂O₃: Sample Preserved with Sodium Thiosulfate to remove chlorine residual.

CHAIN OF CUSTODY

I certify that this sample was transferred from _____ to _____

at (location) _____ on _____/_____/_____-_____:_____ and that

the statements in this block are correct. Evidentiary Seals: Not Sealed ☐ Seals Intact: Yes ☐ No ☐

Signatures _____

For OCD Use: Date Owner Notified _____ Phone or Letter? _____ Initials _____

ANALYSES PERFORMED

LAB. No.: OR- 767

THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical screening method(s) checked below:

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes

Other Specific Compounds or Classes

EXTRACTABLE SCREENS

- | | | |
|--------------------------|-------|-----------------------------------|
| ☐ | (751) | Aliphatic Hydrocarbons |
| ☐ | (760) | Organochlorine Pesticides |
| ☐ | (755) | Base/Neutral Extractables |
| ☐ | (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 |

ANALYTICAL RESULTS

COMPOUND(S) DETECTED	CONC. [PPB]	COMPOUND(S) DETECTED	CONC. [PPB]
<i>aromatic paraffins</i>	<i>see</i>		
<i>halogenated paraffins</i>	<i>Remarks</i>		
	<i>N.D.</i>		
* DETECTION LIMIT *	<i>10-40%</i>	+ DETECTION LIMIT +	<i>+</i>

ABBREVIATIONS USED:

N D = NONE DETECTED AT OR ABOVE THE STATED DETECTION LIMIT

T R = DETECTED AT A LEVEL BELOW THE STATED DETECTION LIMIT (NOT CONFIRMED)

[RESULTS IN BRACKETS] ARE UNCONFIRMED AND/OR WITH APPROXIMATE QUANTITATION

LABORATORY REMARKS: Nine compounds at approx 10 ppb and one ~~at~~ compound at approx. 80-100 ppb detected by the photoionization detector but not identified.

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ☐ No ☒ Seal(s) broken by: Heat - not sealed date: _____

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: 5/29/87 . Analyst's signature: Gary C. Edwards

I certify that I have reviewed and concur with the analytical results for this sample and with the statements in this block.

Reviewers signature: Ed Sherrill BN 11 1987

Navajo Refinery

PAH'S

MW-7

CLIENT: OCD
SAMPLE ID: 8907261053
SITE: MW-7
LAB NO: F1826
Analysis Requested: Polynuclear aromatic hydrocarbons in water.

DATE REPORTED: 09/11/89
DATE EXTRACTED: 08/01/89
DATE RECEIVED: 07/31/89
DATE COLLECTED: 07/26/89

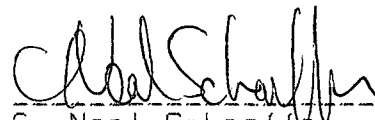
Parameter	Concentration	Units
Acenaphthene	ND (1.8)	ug/l
Acenaphthylene	ND (2.3)	ug/l
Anthracene	ND (1.0)	ug/l
Benzo(a)Anthracene	ND (1.0)	ug/l
Benzo(a)pyrene	ND (1.0)	ug/l
Benzo(k)fluoranthene	ND (1.0)	ug/l
Benzo(g,h,i)perylene	ND (1.0)	ug/l
Dibenzo(a,h)anthracene	ND (1.0)	ug/l
Chrysene	ND (1.0)	ug/l
Fluoranthene	ND (1.0)	ug/l
Fluorene	ND (1.0)	ug/l
Indeno(1,2,3-cd)pyrene	ND (1.0)	ug/l
Naphthalene	ND (1.8)	ug/l
Phenanthrene	ND (1.0)	ug/l
Pyrene	12.5 (1.0)	ug/l
Benzo(b)fluoranthene	ND (1.0)	ug/l
Benzo(a)fluoranthene	ND (1.0)	ug/l
Benzo(j)fluoranthene	ND (1.0)	ug/l
Dibenzo(a,h)acridine	ND (1.0)	ug/l
Dibenzo(a,j)acridine	ND (1.0)	ug/l
Dibenzo(a,h)anthracene	ND (1.0)	ug/l
7H-dibenzo(c,g)carbazole	ND (1.0)	ug/l
Dibenzo(a,e)pyrene	ND (1.0)	ug/l
Dibenzo(a,h)pyrene	ND (1.0)	ug/l
Dibenzo(a,i)pyrene	ND (1.0)	ug/l
3-Methylcholanthrene	ND (1.0)	ug/l

Method:

8100 Polynuclear Aromatic Hydrocarbons, SW-846, USEPA (1982).
610 Polyaromatic Hydrocarbons, 40 CFR Part 136 (1984).

(Detection limit in parenthesis.)

ND - Parameter not detected at the stated detection limit.


C. Neal Schaeffer
Senior Chemist

RECEIVED

SEP 25 1989

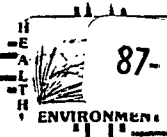
OIL CONSERVATION DIV.
SANTA FE

SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud NE
Albuquerque, NM 87106 841-2570

87-1363-B

MEXICO



REPORT TO: David Boyer
N.M. Oil Conservation Division
P. O. Box 2088
Santa Fe, N.M. 87504-2088

S.L.D. No. OR- 1363 A
DATE REC. 8-14-87

PHONE(S): 827-5812 USER CODE: 8 2 2 3 5
SUBMITTER: David Boyer CODE: 2 6 0

SAMPLE COLLECTION CODE: (YYMMDDHHMMIII) 8 7 0 8 1 2 1 1 4 5 0 6 B

SAMPLE TYPE: WATER ☒, SOIL ☐, FOOD ☐, OTHER: CODE: ☐ ☐ ☐

COUNTY: EDDY CITY: ARTESIA CODE: ☐ ☐ ☐

LOCATION CODE: (Township-Range-Section-Tracts) 1 1 7 5 + 2 6 E + 1 2 + 2 2 3 (10N06E24342)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☐ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
Other Specific Compounds or Classes

☐ _____
☐ _____
☐ _____
☐ _____
☐ _____

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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: _____

FIELD DATA:

pH= _____; Conductivity= 9500 umho/cm at 20.5 °C; Chlorine Residual= _____ mg/l

Dissolved Oxygen= _____ mg/l; Alkalinity= _____ mg/l; Flow Rate _____ / _____

Depth to water 6.6 ft.; Depth of well 17.1 ft.; Perforation Interval _____ - _____ ft.; Casing: S. STEEL

Sampling Location, Methods and Remarks (i.e. odors, etc.)

MW-7, NAVAJO REFINERY. PURGED 23.9 l good Recovery

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities. (signature collector): David Boyer Method of Shipment to the Lab: State Cap

This form accompanies _____ Septum Vials, 17 Glass Jugs, and/or _____

Samples were preserved as follows:

- ☐ NP: No Preservation; Sample stored at room temperature.
☒ P-Ice Sample stored in an ice bath (Not Frozen).
☐ P-Na₂S₂O₃ Sample Preserved with Sodium Thiosulfate to remove chlorine residual.

CHAIN OF CUSTODY

I certify that this sample was transferred from _____ to _____
at (location) _____ on _____ / _____ / _____ - _____ and that
the statements in this block are correct. Evidentiary Seals: Not Sealed ☐ Seals Intact: Yes ☐ No ☐

Signatures _____

For OCD Use: Date Owner Notified _____ Phone or Letter? _____ Initials _____

ANALYSES PERFORMED

LAB. No.: OR- 1363

THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical screening method(s) checked below:

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☐ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes

Other Specific Compounds or Classes

- ☐
☐
☐
☐
☐

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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

ANALYTICAL RESULTS

COMPOUND(S) DETECTED	CONC. [PPB]	COMPOUND(S) DETECTED	CONC. [PPB]
PAHs MDL = 5ppb	ND < 5		
Sample is contaminated with			
1.6 ppm of what appears to			
be a mixture of gasoline and			
diesel. However its chromatographic			
finger print matches none of			
our standards and the above			
conclusion is based only on where			
the individual species elute from			
the gas chromatographic column.			
* DETECTION LIMIT *	*	+ DETECTION LIMIT +	+

ABBREVIATIONS USED:

N D = NONE DETECTED AT OR ABOVE THE STATED DETECTION LIMIT

T R = DETECTED AT A LEVEL BELOW THE STATED DETECTION LIMIT (NOT CONFIRMED)

[RESULTS IN BRACKETS] ARE UNCONFIRMED AND/OR WITH APPROXIMATE QUANTITATION

Sample - road

LABORATORY REMARKS:

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ☐ No ☐ Seal(s) broken by: no seals

date: _____

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: 8/28/87 Analyst's signature: OS Burrey

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 Meyerheim



2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

CLIENT: OCD
SAMPLE ID: 8907261053
SITE: MW-7
LAB NO: F1826

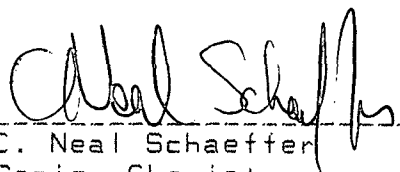
DATE REPORTED: 08/21/89
DATE RECEIVED: 07/31/89
DATE COLLECTED: 07/26/89

Lab pH.....	8.08
Lab Conductivity, umhos/cm.....	12196
Lab resistivity, ohm-m.....	0.8199
Total Dissolved Solids (180), mg/l..	11326
Total Dissolved Solids (calc), mg/l..	11229
Total Alkalinity as CaCO ₃ , mg/l.....	341.04
Total Acidity as CaCO ₃ , mg/l.....	0.00
Total Hardness as CaCO ₃ , mg/l.....	4049.88
Sodium Absorption Ratio.....	16.84
Fluoride, mg/l.....	1.16

	mg/l	meq/l
Bicarbonate as HCO ₃	416.07	6.82
Carbonate as CO ₃	0.00	0.00
Chloride.....	3179.87	89.70
Sulfate.....	4094.43	85.30
Calcium.....	754.94	37.67
Magnesium.....	526.84	43.33
Potassium.....	4.20	0.11
Sodium.....	2464.50	107.20
Major Cations.....		188.30
Major Anions.....		181.82
Cation/Anion Difference.....		1.75 %

Trace metals (Dissolved Concentration), mg/l

Arsenic.....	0.009
Lead.....	<0.02
Chromium.....	0.026


C. Neal Schaeffer
Senior Chemist

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OIL CONSERVATION DIV.
SANTA FE



2503 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

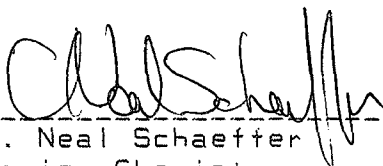
CLIENT: OCD
SAMPLE ID: 8907261053
SITE: MW-7
LAB NO: F1826 Dup.

DATE REPORTED: 08/21/89
DATE RECEIVED: 07/31/89
DATE COLLECTED: 07/26/89

Lab pH.....	8.04
Lab Conductivity, umhos/cm.....	12196
Lab resistivity, ohm-m.....	0.8199
Total Dissolved Solids (180), mg/l..	11322
Total Dissolved Solids (calc), mg/l..	11174
Total Alkalinity as CaCO ₃ , mg/l.....	336.98
Total Acidity as CaCO ₃ , mg/l.....	0.00
Total Hardness as CaCO ₃ , mg/l.....	3909.87
Sodium Absorption Ratio.....	17.14
Fluoride, mg/l.....	1.16

	mg/l	meq/l
Bicarbonate as HCO ₃	411.12	6.74
Carbonate as CO ₃	0.00	0.00
Chloride.....	3163.91	89.25
Sulfate.....	4094.42	85.30
Calcium.....	746.64	37.26
Magnesium.....	497.83	40.94
Potassium.....	4.30	0.11
Sodium.....	2464.50	107.20
Major Cations.....		185.51
Major Anions.....		181.29
Cation/Anion Difference.....		1.15 %

Trace metals (Dissolved Concentration), mg/l
Arsenic..... 0.009
Lead..... <0.02
Chromium..... 0.027


C. Neal Schaeffer
Senior Chemist

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OIL CONSERVATION DIV.
SANTA FE



New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

8645
WHS

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

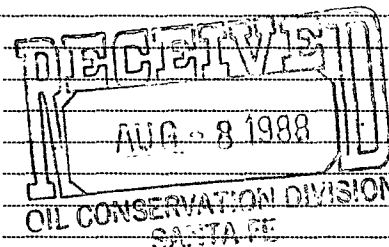
DATE RECEIVED	6/3/88	LAB NO.	WC-1925	USER CODE	☐ 59300 ☐ 59600 ☒ OTHER: 82235
Collection DATE	6/6/88	SITE INFORMATION	Sample location		
Collection TIME	1635		Narajo Refinery MW #7 Monitor well		
Collected by — Person/Agency			Collection site description		
B. J. Anderson / OCD					

SEND
FINAL
REPORT
TO

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87504-2088

Attn: David Boyer

Phone: 827-5812



Station/
well code
Owner

SAMPLING CONDITIONS

☒ Bailed ☐ Dipped	☒ Pump ☐ Tap	Water level	5.5	Discharge	—	Sample type	Grab
pH (00400)	7	Conductivity (Uncorrected)	14,000 μ mho	Water Temp. (00010)	21.5 °C	Conductivity at 25°C (00094)	μ mho
Field comments: Foamy, strong hydrocarbon 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: 5ml conc. HNO ₃ added	☐ A: 4ml fuming HNO ₃ added

ANALYTICAL RESULTS from SAMPLES

NA	Units	Date analyzed	From F, NA Sample:	Date Analyzed
☒ Conductivity (Corrected) 25°C (00095)	μ mho	7/5	Calcium	572 mg/l 7/15
☐ Total non-filterable residue (suspended) (00530)	mg/l		Potassium	5 mg/l 7/5
☒ Other: Lab pH		7/14	Magnesium	622.2 mg/l 7/15
☐ Other:			Sodium	2265 mg/l 7/5
☐ Other:			Bicarbonate	387 mg/l 7/14
A-H₂SO₄			Chloride	3730 mg/l 7/26
☐ Nitrate-N ⁺ , Nitrate-N total (00630)	mg/l		Sulfate	4120 mg/l 7/26
☐ Ammonia-N total (00610)	mg/l		Total Solids	11928 mg/l 6/28
☐ Total Kjeldahl-N ()	mg/l		☒ FLUORIDE 1.51	7/22
☐ Chemical oxygen demand (00340)	mg/l		☐	
☐ Total organic carbon ()	mg/l		☒ Cation/Anion Balance	
☐ Other:			Analyst	Date Reported
☐ Other:				7/27/88

Laboratory remarks

3050

FOR OCD USE -- Date Owner Notified 8/12/88 Phone or Letter

Initials

AKB

CATIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT
Ca	28.54	572.00	<3.0
Mg	51.09	622.00	<0.3
Na	98.52	2265.00	<10.0
K	0.13	5.00	<0.3
Mn	0.00	0.00	
Fe	0.00	0.00	
SUMS	178.28	3464.00	
Total Dissolved Solids=			11928
Ion Balance =			90.32%

ANIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT
HC03	6.34	387.00	<1.0
SO4	85.83	4120.00	<10.0
CL	105.22	3730.00	<5.0
NO3	0.00	0.00	< 0.
CO3	0.00	0.00	< 1.
NH3	0.00	0.00	< 0.
PO4	0.00	0.00	< 0.
	197.39	8237.00	

WC No. = 7701975
Date out/By RT 7/29/88



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	5/5/87	LAB NO.	WOC 1646	USER CODE	☐ 59300 ☐ 59600 ☒ OTHER: 82235
Collection DATE	5/10/87	SITE INFORMATION	Sample location		
Collection TIME	1130		MW-7, Navajo Refinery		
Collected by — Person/Agency		Collection site description			
Boyer/Anderson/OCD					

SEND
FINAL
REPORT
TO

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87504-2088

Attn: David Boyer

Phone: 827-5812

Station/
well code
Owner

MW-7

SAMPLING CONDITIONS

☐ Bailed ☐ Dipped	☒ Pump ☐ Tap	Water level	Discharge	Sample type
				GRAB
pH (00400)	7	Conductivity (Uncorrected)	Water Temp. (00010)	Conductivity at 25°C (00094)
		9100 µmho	17 °C	µmho
Field comments				
See VOC Sheet for 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:	☐ A: 5ml conc. HNO ₃ added	☐ A: 4ml fuming HNO ₃ added

ANALYTICAL RESULTS from SAMPLES

NA	Units	Date analyzed	From	NA Sample:	Date Analyzed
☒ Conductivity (Corrected) 25°C (00095)	µmho	5/13			
		10300			
☐ Total non-filterable residue (suspended) (00530)	mg/l				
☒ Other: pH		7.71			
☐ Other:					
☐ Other:					
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:					
			☒ Calcium	520 mg/l	6/1
			☒ Potassium	4.68 mg/l	5/19
			☒ Magnesium	327 mg/l	6/1
			☒ Sodium	1567 mg/l	5/19
			☒ Bicarbonate	384 mg/l	5/12
			☒ Chloride	2294 mg/l	5/26
			☒ Sulfate	2366 mg/l	5/20
			☒ Total Solids	8220 mg/l	5/27
			☒ Fluoride	1.15	5/27
			☐		
			☒ Cation/Anion Balance		
Laboratory remarks			Analyst	Date Reported	Reviewed by
				6/2/87	

FOR OCD USE -- Date Owner Notified _____ Phone or Letter? _____ Initials _____

CATIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT
Ca	25.95	520.00	<3.0
Mg	26.86	327.00	<0.3
Na	68.16	1567.00	<10.0
K	0.12	4.68	<0.3
Mn	0.00	0.00	
Fe	0.00	0.00	
SUMS	121.09	2418.68	
Total Dissolved Solids=			8220
Ion Balance =			100.66%

ANIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT
HC03	6.29	384.00	<1.0
SO4	49.29	2366.00	<10.0
CL	64.71	2294.00	<5.0
NO3	0.00	0.00	< 0.
CO3	0.00	0.00	< 1.
NH3	0.00	0.00	< 0.
PO4	0.00	0.00	< 0.
	120.30	5044.00	

WC No. = 8701646
Date out/By Q 6/2/87



New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106

HEAVY METAL ANALYSIS FORM

Telephone: (505)841-2553

Date Received	6/3/88	Lab No.	ICP-245	User Code	☒ 82235 ☐ Other:
COLLECTION DATE & TIME:				yy mm dd hh mm	COLLECTION SITE DESCRIPTION
				88 06 01 16 35	MW #7 Monitor well

COLLECTED BY: Boyer/Anderson/DCB

TO:

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg., PO Box 2088
SANTA FE, NM 87504-2088

OWNER: Nasajo Refinery

SITE LOCATION:
County: Sandoval

Township, Range, Section, Tract: (10N06E24342)
17S+26E+12+21

ATTN: D. Boyer
TELEPHONE: 827-5812

STATION/ WELL CODE:

LATITUDE, LONGITUDE:

SAMPLING CONDITIONS:

☒ Bailed ☐ Dipped	☒ Pump ☐ Tap	Water Level: <u>5.5</u>	Discharge: <u>-</u>	Sample Type: <u>GRAB</u>
pH(00400) <u>7</u>	Conductivity(Uncorr.) <u>14,000</u> μ mho	Water Temp.(00010) <u>21.5</u> $^{\circ}$ C	Conductivity at 25 $^{\circ}$ C (00094) <u> </u> μ mho	

FIELD COMMENTS: Foamy, Hydrocarbon odor

SAMPLE FIELD TREATMENT

Check proper boxes:

☐ WPN: Water Preserved w/HNO ₃ Non-Filtered	☒ WPF: Water Preserved w/HNO ₃ Filtered
--	---

LAB ANALYSIS REQUESTED:

☒ ICAP Scan
Mark box next to metal if AA is required.

ANALYTICAL RESULTS (MG/L)

ELEMENT	ICAP VALUE	AA VALUE	ELEMENT	ICAP VALUE	AA VALUE
Aluminum	20.1		Silicon	5.3	
Barium	20.1		Silver	20.1	☐
Beryllium	20.1		Strontium	7.9	
Boron	0.5		Tin	20.1	
Cadmium	20.1	☐	Vanadium	20.1	
Calcium	510.		Zinc	20.1	
Chromium	20.1	☒ 20.005	Arsenic		☒ 0.051
Cobalt	20.05		Selenium		☐
Copper	20.1		Mercury		☐
Iron	3.1				☐
Lead	20.1	☒ 20.01			☐
Magnesium	550.				☐
Manganese	1.3				☐
Molybdenum	20.1				☐
Nickel	20.1				☐

LAB COMMENTS:

For OCD Use:

Date Owner Notified: 5/18/88
Phone or letter?
Initials:

ICAP Analyst OB
Date Analyzed 7/13/88

Reviewer J. Ashley
Date Received 8/10/88



New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

Heavy Metal
**GENERAL WATER CHEMISTRY
and NITROGEN ANALYSIS**

DATE RECEIVED	5/5/87	LAB NO.	HM-058	USER CODE	☐ 59300 ☐ 59600 ☒ OTHER: 82235
Collection DATE	5/10/87	SITE INFORMATION	Sample location		
Collection TIME	1130		MW-7, Navajo Refinery		
Collected by — Person/Agency	Boyer/Anderson/OCD		Collection site description		

SEND
FINAL
REPORT
TO

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box. 2088
Santa Fe, NM 87504-2088

Attn: David Boyer

Phone: 827-5812

SAMPLING CONDITIONS

☐ Bailed ☐ Dipped	☒ Pump ☐ Tap	Water level	Discharge	Sample type
pH (00400)	7	Conductivity (Uncorrected)	9100 μ mho	17 °C
Field comments		See VOC Sheet for comments		

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: 5ml conc. HNO ₃ added ☒ A: 4ml fuming HNO ₃ added

ANALYTICAL RESULTS from SAMPLES

NA	Units	Date analyzed	From	NA Sample:	Date Analyzed
☐ Conductivity (Corrected) 25°C (00095)	μ mho			☐ Calcium	mg/l
☐ Total non-filterable residue (suspended) (00530)	mg/l			☐ Potassium	mg/l
☒ Other: Pb by AA	40.01	5/18		☐ Magnesium	mg/l
☒ Other: Cr by AA	40.005	5/26		☐ Sodium	mg/l
☐ Other:				☐ Bicarbonate	mg/l
A-H₂SO₄				☐ Chloride	mg/l
☐ Nitrate-N +, Nitrate-N total (00630)	mg/l			☐ Sulfate	mg/l
☐ Ammonia-N total (00610)	mg/l			☐ Total Solids	mg/l
☐ Total Kjeldahl-N ()	mg/l			☐ Cation/Anion Balance	
☐ Chemical oxygen demand (00340)	mg/l			Analyst	Date Reported
☐ Total organic carbon ()	mg/l				6/1/87
☐ Other:				Reviewed by	Jim Ashby
☐ Other:				Laboratory remarks	

FOR OCD USE -- Date Owner Notified _____ Phone or Letter? _____ Initials _____

GW-28

OCD

Series

Wells

/ OCD Series wells



ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

1818

Contract Lab Inter-Mountain

Contract No. _____

OCD Sample No. 8907251736

Collection Date	Collection Time	Collected by — Person/Agency	
07/25/89	1736	Boyer, Englert	/OCD

SITE INFORMATION

Sample location

NAVAJO REFINERY: OCD-1

Collection Site Description

Township, Range, Section, Tract:

1175+26E+01+4SEND
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:

foamy, turbid water, strong H₂S like odor

SAMPLING CONDITIONS

Water level

10.49

Discharge

8 gallons

Sample type

GRAB

Conductivity (Uncorrected)

8000 μ mho

Conductivity at 25° C

4 μ mho

- ☒ Bailed ☐ Pump
☐ Dipped ☐ Tap

pH(00400)

7.07

Water Temp. (00010)

21°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	
☐ 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>	



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 214/984-0551

Analytical Chemistry • Waste Treatment & Disposal • Equipment Sales

RECEIVED

08/17/89

AUG 21 1989

Environmental Bureau NM Oil D.
PO Box 2088
Santa Fe, NM 87504

OIL CONSERVATION DIV.
SANTA FE

Sample Identification: OCD-1 Navajo Ref.

Flow or other on site data: 4 Vials Foamy, Turbid, HC Odor

Collected by: Boyer, Englert

Date & Time Taken: 07/25/89 1736

Additional Sample Information: 175-26E-01-4 Bailed 8 gal Temp 21 Cond 8000 NF 8020:A 8010:NA pH 7.07 ML 10.49

Lab Sample Number: 149754 Received: 07/29/89

PARAMETER:	RESULTS	QUALITY CONTROL	ANALYZED ON AT	ANALYST
1,1,1-Trichloroethane, ug/l EPA Method 8010	(5		08/05/89 1659	BP
1,1,2,2-Tetrachloroethane, ug/l EPA Method 8010	(5		08/05/89 1659	BP
1,1,2-Trichloroethane, ug/l EPA Method 8010	(5		08/05/89 1659	BP
1,1-Dichloroethane, ug/l EPA Method 8010	(5		08/05/89 1659	BP
1,1-Dichloroethene, ug/l EPA Method 8010	(1		08/05/89 1659	BP
1,2-Dichloroethane, ug/l EPA Method 8010	(5		08/05/89 1659	BP
1,2-Dichloropropane, ug/l EPA Method 8010	(5		08/05/89 1659	BP
2-Chloroethylvinyl ether, ug/l EPA Method 8010	(10		08/05/89 1659	BP
Benzene, ug/l EPA Method 8020	(5		08/05/89 1659	BP
Bromodichloromethane, ug/l EPA Method 8010	(5		08/05/89 1659	BP

continued



2600 DUDLEY ROAD — KILGORE, TEXAS 75662-2740

Analytical Chemistry • Waste Treatment & Disposal • Equipment Sales

AUG 21 1989

OIL CONSERVATION DIV.
SANTA FE

Lab Sample Number: 149754 Continued

Page 2

PARAMETER:	RESULTS	QUALITY CONTROL	ANALYZED ON AT	ANALYST
Bromoform, ug/l EPA Method 8010	(5		08/05/89 1659	BP
Bromomethane, ug/l EPA Method 8010	(10		08/05/89 1659	BP
Carbon Tetrachloride, ug/l EPA Method 8010	(5		08/05/89 1659	BP
Chlorobenzene, ug/l EPA Method 8010	(5		08/05/89 1659	BP
Chloroethane, ug/l EPA Method 8010	(10		08/05/89 1659	BP
Chloroform, ug/l EPA Method 8010	(5		08/05/89 1659	BP
Chloromethane, ug/l EPA Method 8010	(10		08/05/89 1659	BP
Cis-1,3-Dichloropropene, ug/l EPA Method 8010	(5		08/05/89 1659	BP
Dibromochloromethane, ug/l EPA Method 8010	(5		08/05/89 1659	BP
Ethyl benzene, ug/l EPA Method 8020	(5		08/05/89 1659	BP
Freon, ug/l EPA Method 8010	(5		08/05/89 1659	BP
Methylene Chloride, ug/l EPA Method 8010	(5		08/05/89 1659	BP
Tetrachloroethene, ug/l EPA Method 8010	(5		08/05/89 1659	BP
Toluene, ug/l EPA Method 8020	(5		08/05/89 1659	BP

continued



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 214/984-0551

Analytical Chemistry • Waste Treatment & Disposal • Equipment Sales

AUG 21 1989

OIL CONSERVATION DIV.
SANTA FE

Page 3

Lab Sample Number: 149754 Continued

PARAMETER:	RESULTS	QUALITY CONTROL	ANALYZED ON AT	ANALYST
Trans-1,2-Dichloroethene, ug/l EPA Method 8010	(5		08/05/89 1659	BP
Trans-1,3-Dichloropropene, ug/l EPA Method 8010	(5		08/05/89 1659	BP
Trichloroethene, ug/l EPA Method 8010	(5		08/05/89 1659	BP
Vinyl Chloride, ug/l EPA Method 8010	(1		08/05/89 1659	BP
Xylenes, ug/l EPA Method 8020	(10		08/05/89 1659	BP


C. H. Whiteside, Ph.D., President

SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud NE
Albuquerque, NM 87106 841-2570

88-0793-C

NEW MEXICO

REPORT TO: David Boyer

N.M. Oil Conservation Division

P. O. Box 2088

Santa Fe, N.M. 87504-2088

S.L.D. No. OR- 793 A+B

DATE REC. 6-3-88

PHONE(S):

327-5812

USER CODE:

8 2 2 3 5

SUBMITTER:

David Boyer

CODE:

2 6 0

SAMPLE COLLECTION CODE: (YYMMDDHHMMIII)

8806011545 A+B

SAMPLE TYPE: WATER ☒ SOIL ☐ FOOD ☐ OTHER:

CODE:

1 1 1

COUNTY:

Elly

CITY:

Montez

CODE:

1 1 1

LOCATION CODE: (Township-Range-Section-Tracts)

17S+26E+01+4 (10N06E24342)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
Other Specific Compounds or Classes

☐
☐
☐
☐
☐

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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:

NOT HCl preserved

FIELD DATA:

pH= 7; Conductivity= 12,500 umho/cm at 21.5°C; Chlorine Residual= mg/l

Dissolved Oxygen= mg/l; Alkalinity= mg/l; Flow Rate

Depth to water 9.5 ft.; Depth of well 24.6 ft.; Perforation Interval - ft.; Casing:

Sampling Location, Methods and Remarks (i.e. odors, etc.)

Narajore Refinery - OCS #1 Monitor Well
Strong H/C odor, foamy

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities. (signature collector): W. J. Boyer

Method of Shipment to the Lab: State Car

This form accompanies 2 Septum Vials, Glass Jugs, and/or

Samples were preserved as follows:

- ☐ NP: No Preservation; Sample stored at room temperature.
☒ P-Ice Sample stored in an ice bath (Not Frozen).
☐ P-Na₂S₂O₃ Sample Preserved with Sodium Thiosulfate to remove chlorine residual.

CHAIN OF CUSTODY

I certify that this sample was transferred from to

at (location) on - and that

the statements in this block are correct. Evidentiary Seals: Not Sealed ☐ Seals Intact: Yes ☐ No ☐

Signatures

For OCD Use: Date Owner Notified 9/18/88 Phone or Letter

Initials

WJB

LAB. No.: OR- 793

THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical screening method(s) checked below:

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
- Other Specific Compounds or Classes

□ □ □ □ □

EXTRACTABLE SCREENS

- | | |
|--------------------------|---|
| ☐ | (751) Aliphatic Hydrocarbons |
| ☐ | (760) Organochlorine Pesticides |
| ☐ | (755) Base/Neutral Extractables |
| ☐ | (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 |

ANALYTICAL RESULTS

COMPOUND(S) DETECTED	CONC. [PPB]	COMPOUND(S) DETECTED	CONC. [PPB]
halogenated paraffins	N.D.		
aromatic paraffins	see remarks		
* DETECTION LIMIT *	5-10%	+ DETECTION LIMIT +	+

ABBREVIATIONS USED:

N D = NONE DETECTED AT OR ABOVE THE STATED DETECTION LIMIT
T R = DETECTED AT A LEVEL BELOW THE STATED DETECTION LIMIT (NOT CONFIRMED)
[RESULTS IN BRACKETS] ARE UNCONFIRMED AND/OR WITH APPROXIMATE QUANTITATION

LABORATORY REMARKS:

LABORATORY REMARKS: Twelve compounds ranging from the aromatic screen region (at approx 5-10 ppb) to the C3 substituted benzene region (at approx 5 ppb) detected by the photoionization detector but not identified.

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ☐ No ☒ Seal(s) broken by: not sealed date:

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: 6/10/88. Analyst's signature: Harry C. Eden

I certify that I have reviewed and concur with the analytical results for this sample and with the statements in this block.

Reviewers signature: *K M Lush*



2503 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

CLIENT: OCD
SAMPLE ID: 8907251736
SITE: OCD-1
LAB NO: F1818

DATE REPORTED: 08/21/89
DATE RECEIVED: 07/31/89
DATE COLLECTED: 07/25/89

Lab pH.....	8.19
Lab Conductivity, umhos/cm.....	13368
Lab resistivity, ohm-m.....	0.7481
Total Dissolved Solids (180), mg/l..	10900
Total Dissolved Solids (calc), mg/l..	10503
Total Alkalinity as CaCO ₃ , mg/l.....	501.41
Total Acidity as CaCO ₃ , mg/l.....	0.00
Total Hardness as CaCO ₃ , mg/l.....	2587.56
Sodium Absorption Ratio.....	22.56
Fluoride, mg/l.....	3.00

	mg/l	meq/l
Bicarbonate as HCO ₃	611.72	10.03
Carbonate as CO ₃	0.00	0.00
Chloride.....	2871.45	81.00
Sulfate.....	4032.70	84.01
Calcium.....	63.05	3.15
Magnesium.....	591.04	48.61
Potassium.....	5.00	0.13
Sodium.....	2638.50	114.77
Major Cations.....		166.65
Major Anions.....		175.04
Cation/Anion Difference.....		2.46 % **

Trace metals (Dissolved Concentration), mg/l
Arsenic..... 0.027
Lead..... <0.02
Chromium..... 0.076

** This large ion % difference is most likely due to an abundance of metal cations which were not analyzed. All major ions were reanalyzed without significant changes.

RECEIVED

SEP - 1 1989

OIL CONSERVATION DIV.
SANTA FE

C. Neal Schaeffer
Senior Chemist



New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

864
Wnt

GENERAL WATER CHEMISTRY
and NITROGEN ANALYSIS

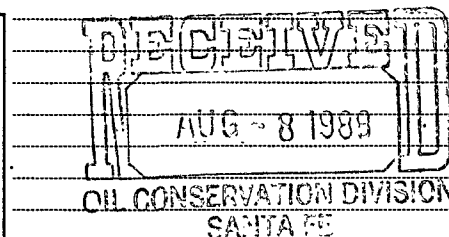
DATE RECEIVED	6/3/88	LAB NO.	WC-1977	USER CODE	☐ 59300 ☐ 59600 ☒ OTHER: 82235
Collection Date	8/10/88	SITE INFORMATION	Sample location		
Collection Time	1545		Narajo Refinery - OCS #1 Monitor Well		
Collected by - Person/Agency			Collection site description		
Boyer/Anderson /OCD					

SEND
FINAL
REPORT
TO

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87504-2088

Attn: David Boyer

Phone: 827-5812



Station/
well code
Owner

SAMPLING CONDITIONS

☒ Bailed ☐ Dipped	☒ Pump ☐ Tap	Water level	9.5	Discharge	-	Sample type	Grab
pH (00400)	7	Conductivity (Uncorrected)	12,500 μ mho	Water Temp. (00010)	21.5 $^{\circ}$ C	Conductivity at 25 $^{\circ}$ C (00094)	μ mho
Field comments							
Strong Hydrocarbon odor, Foamy							

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: 5ml conc. HNO ₃ added	☐ A: 4ml fuming HNO ₃ added

ANALYTICAL RESULTS from SAMPLES

NA	Units	Date analyzed	From	NA Sample:	Date Analyzed
☒ Conductivity (Corrected) 25 $^{\circ}$ C (00095)	μ mho	7/5			
		14715			
☐ Total non-filterable residue (suspended) (00530)	mg/l				
☒ Other: Lab pH		7/14			
		7.98			
☐ Other:					
☐ Other:					
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:					
			☒ Calcium 616 mg/l 7/15		
			☒ Potassium 10 mg/l 7/5		
			☒ Magnesium 285.5 mg/l 7/15		
			☒ Sodium 2605 mg/l 7/5		
			☒ Bicarbonate 448 mg/l 7/14		
			☒ Chloride 3325 1165 mg/l 6/23		
			☒ Sulfate 4150 mg/l 7/26		
			☒ Total Solids 11514 mg/l 6/28		
			☒ Fluoride 1.38 7/22		
			☐		
			☒ Cation/Anion Balance		
			Analyst	Date Reported	Reviewed by
				7/27/88	CS

Laboratory remarks
2865 Chloride run by different methods. Final value determined 2865 mg/l (from Chris Dean 8/8/88 2:45)

FOR OCD USE -- Date Owner Notified 8/13/88 Phone or Letter Initials

CATIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT
Ca	30.74	616.00	<3.0
Mg	23.49	286.00	<0.3
Na	113.31	2605.00	<10.0
K	0.26	10.00	<0.3
Mn	0.00	0.00	
Fe	0.00	0.00	
SUMS	167.80	3517.00	
Total Dissolved Solids=			11514
Ion Balance =			96.09%

ANIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT
HCO3	7.34	448.00	<1.0
SO4	86.46	4150.00	<10.0
CL	80.82	2865.00	<5.0
NO3	0.00	0.00	< 0.
CO3	0.00	0.00	< 1.
NH3	0.00	0.00	< 0.
PO4	0.00	0.00	< 0.
	174.62	7463.00	

WC No. = 8801977
Date out/By 7/29/88

HEAVY METAL ANALYSIS FORM

Telephone: (505)841-2553

Date Received	613188	Lab No.	ICP-246	User Code	☒ 82235	☐ Other:
COLLECTION DATE & TIME:		yy	mm	dd	hh	mm
		88	06	01	15	45
COLLECTION SITE DESCRIPTION						
CSD #1 Monitor Well						

COLLECTED BY:

TO:

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg., P.O. Box 2088
SANTA FE, NM 87504-2088

SITE LOCATION:

County: Eddy

Township, Range, Section, Tract: (10N06E24342)

1	7	5+2	6	E+0	1+4	1
---	---	-----	---	-----	-----	---

ATTN: D. Boyer
TELEPHONE: 827-5812

STATION/ WELL CODE: | | | | | | | | | |

LATITUDE, LONGITUDE: | | | | | | | | | | - | | |

SAMPLING CONDITIONS:

☒ Bailed ☒ Pump ☐ Dipped ☐ Tap		Water Level: 9.5'	Discharge: ✓	Sample Type: 6006
pH(00400) 7	Conductivity(Uncorr.) 12,500 µmho	Water Temp.(00010) 21.5 °C	Conductivity at 25 °C (00094) µmho	

FIELD COMMENTS:

SAMPLE FIELD TREATMENT

Check proper boxes:

☐ WPN: Water Preserved w/HNO ₃ Non-Filtered	☒ WPF: Water Preserved w/HNO ₃ Filtered	☒ ICAP Scan Mark box next to metal if AA is required.
---	--	--

LAB ANALYSIS REQUESTED:

ANALYTICAL RESULTS (MG/L)

ELEMENT	ICAP VALUE	AA VALUE	ELEMENT	ICAP VALUE	AA VALUE
Aluminum	40.1		Silicon	11.	
Barium	40.1		Silver	40.1	☐
Beryllium	40.1		Strontium	9.9	
Boron	0.7		Tin	40.1	
Cadmium	40.1	☐	Vanadium	40.1	
Calcium	590.		Zinc	40.1	
Chromium	40.1	☒ 40.005	Arsenic		☒ 0.27
Cobalt	40.05		Selenium		☐
Copper	40.1		Mercury		☐
Iron	1.7				☐
Lead	40.1	☒ 40.01			☐
Magnesium	280.				☐
Manganese	2.1				☐
Molybdenum	40.1				☐
Nickel	40.1				☐

LAB COMMENTS:

For OCD Use:

Date Owner Notified: 9/19/88

Phone or Letter?

Initials:

ICAP Analyst *B*

Date Analyzed 7/13/88

Reviewer *HH*

Date Received 1/8/10/88





ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

187

Contract Lab Inter Mountain

Contract No. _____

OCD Sample No. 8907251728

Collection Date	Collection Time	Collected by — Person/Agency	
07/25/89	1728	Beyer, Englert	/OCD

SITE INFORMATION

Sample location

Navajo Refinery: OCD-2

Collection Site Description

Township, Range, Section, Tract:

117S26E01+4SEND
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 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)

6.97

Water Temp. (00010)

19°C

Water level

12.16

Discharge

7 gallons

Sample type

GRAB

Conductivity (Uncorrected)

9250

μmho

Conductivity at 25° C

μmho

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	<u>Fluoride</u>	



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 214/984-0551

Analytical Chemistry • Waste Treatment & Disposal • Equipment Sales

08/17/89

RECEIVED

Environmental Bureau NM Oil D.
PO Box 2088
Santa Fe, NM 87504

AUG 21 1989

OIL CONSERVATION DIV.
SANTA FE

Sample Identification: OCD-2 Navajo Ref.
Flow or other on site data: 4 Vials Turbid, HC Odor
Collected by: Boyer, Englert
Date & Time Taken: 07/25/89 1728
Additional Sample Information: 175-26E-01-4 Bailed 7 gal Temp 19 Cond 9250 NF 8020:A 8010:NA pH 6.97 WL 12.16
Lab Sample Number: 149755 Received: 07/29/89

PARAMETER:	RESULTS	QUALITY CONTROL	ANALYZED ON AT	ANALYST
1,1,1-Trichloroethane, ug/l EPA Method 8010	(5)		08/05/89 1538	BP
1,1,2,2-Tetrachloroethane, ug/l EPA Method 8010	(5)		08/05/89 1538	BP
1,1,2-Trichloroethane, ug/l EPA Method 8010	(5)		08/05/89 1538	BP
1,1-Dichloroethane, ug/l EPA Method 8010	(5)		08/05/89 1538	BP
1,1-Dichloroethene, ug/l EPA Method 8010	(1)		08/05/89 1538	BP
1,2-Dichloroethane, ug/l EPA Method 8010	(5)		08/05/89 1538	BP
1,2-Dichloropropane, ug/l EPA Method 8010	(5)		08/05/89 1538	BP
2-Chloroethylvinyl ether, ug/l EPA Method 8010	(10)		08/05/89 1538	BP
Benzene, ug/l EPA Method 8020	(5)		08/05/89 1538	BP
Bromodichloromethane, ug/l EPA Method 8010	(5)		08/05/89 1538	BP

continued



2600 DUDLEY ROAD — KILGORE, TEXAS 75662-214/984-0551

Analytical Chemistry • Waste Treatment • Disposal • Equipment Sales

AUG 21 1989

OIL CONSERVATION DIV.
SANTA FE

Lab Sample Number: 149755 Continued

Page 2

PARAMETER:	RESULTS	QUALITY CONTROL	ANALYZED ON AT	ANALYST
Bromoform, ug/l EPA Method 8010	(5		08/05/89 1538	BP
Bromomethane, ug/l EPA Method 8010	(10		08/05/89 1538	BP
Carbon Tetrachloride, ug/l EPA Method 8010	(5		08/05/89 1538	BP
Chlorobenzene, ug/l EPA Method 8010	(5		08/05/89 1538	BP
Chloroethane, ug/l EPA Method 8010	(10		08/05/89 1538	BP
Chloroform, ug/l EPA Method 8010	(5		08/05/89 1538	BP
Chloromethane, ug/l EPA Method 8010	(10		08/05/89 1538	BP
Cis-1,3-Dichloropropene, ug/l EPA Method 8010	(5		08/05/89 1538	BP
Dibromochloromethane, ug/l EPA Method 8010	(5		08/05/89 1538	BP
Ethyl benzene, ug/l EPA Method 8020	(5		08/05/89 1538	BP
Freon, ug/l EPA Method 8010	(5		08/05/89 1538	BP
Methylene Chloride, ug/l EPA Method 8010	(5		08/05/89 1538	BP
Tetrachloroethene, ug/l EPA Method 8010	(5		08/05/89 1538	BP
Toluene, ug/l EPA Method 8020	(5		08/05/89 1538	BP

continued



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 214/984-0551

Analytical Chemistry • Waste Treatment & Disposal • Equipment Sales

RECEIVED

AUG 21 1989

OIL CONSERVATION DIV.
SANTA FE

Page 3

Lab Sample Number: 149755 Continued

PARAMETER:	RESULTS	QUALITY CONTROL	ANALYZED ON AT	ANALYST
Trans-1,2-Dichloroethene, ug/l EPA Method 8010	(5		08/05/89 1538	BP
Trans-1,3-Dichloropropene, ug/l EPA Method 8010	(5		08/05/89 1538	BP
Trichloroethene, ug/l EPA Method 8010	(5		08/05/89 1538	BP
Vinyl Chloride, ug/l EPA Method 8010	(1		08/05/89 1538	BP
Xylenes, ug/l EPA Method 8020	(10		08/05/89 1538	BP

C. H. Whiteside, Ph.D., President

SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud NE
Albuquerque, NM 87106 841-2570

88-0792-C

REPORT TO: David Boyer

N.M. Oil Conservation Division

P. O. Box 2088

Santa Fe, N.M. 87504-2088

S.L.D. No. OR- 792 A+B

DATE REC. 6-3-88

PHONE(S):

327-5812

SANTA FE

USER CODE:

8 2 2 3 5

SUBMITTER:

David Boyer

CODE:

12 6 0

SAMPLE COLLECTION CODE: (YYMMDDHHMMIII)

8806011500A+B

SAMPLE TYPE: WATER ☒ SOIL ☐ FOOD ☐ OTHER: ☐

CODE: ☐ ☐ ☐

COUNTY:

Eddy

CITY:

Artesia

CODE:

☐ ☐ ☐

LOCATION CODE: (Township-Range-Section-Tracts)

11718+2161E+011+41

(10N06E24342)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes

Other Specific Compounds or Classes

- ☐
☐
☐
☐
☐

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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:

NOT HCl preserved

FIELD DATA:

pH= 7; Conductivity= 15,000 umho/cm at 20 °C; Chlorine Residual= mg/l

Dissolved Oxygen= mg/l; Alkalinity= mg/l; Flow Rate 9.2

Depth to water 25.6 ft.; Depth of well 25.6 ft.; Perforation Interval - ft.; Casing:

Sampling Location, Methods and Remarks (i.e. odors, etc.)

Navajo Refinery OCS #2 Monitor Well

Hydrocarbon odor, Foamy

purged 10 gallons

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities.(signature collector): David Boyer

Method of Shipment to the Lab: state car

This form accompanies 2 Septum Vials, Glass Jugs, and/or

Samples were preserved as follows:

- ☐ NP: No Preservation; Sample stored at room temperature.
☒ P-Ice Sample stored in an ice bath (Not Frozen).
☐ P-Na S O Sample Preserved with Sodium Thiosulfate to remove chlorine residual.

CHAIN OF CUSTODY

I certify that this sample was transferred from

to

at (location)

on

:

and that

the statements in this block are correct. Evidentiary Seals: Not Sealed ☐

Seals Intact: Yes ☐

No ☐

Signatures

For OCD Use: Date Owner Notified 8/12/88 Phone or Letter?

Initials

ANALYSES PERFORMED

LAB. No.: OR- 792

THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical screening method(s) checked below:

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
 Other Specific Compounds or Classes

☐
☐
☐
☐
☐
☐

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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

ANALYTICAL RESULTS

COMPOUND(S) DETECTED	CONC. [PPB]	COMPOUND(S) DETECTED	CONC. [PPB]
halogenated purgeables	N.D.		
aromatic purgeables	see remarks		
* DETECTION LIMIT *	599M	+ DETECTION LIMIT +	+

ABBREVIATIONS USED:

N D = NONE DETECTED AT OR ABOVE THE STATED DETECTION LIMIT

T R = DETECTED AT A LEVEL BELOW THE STATED DETECTION LIMIT (NOT CONFIRMED)

[RESULTS IN BRACKETS] ARE UNCONFIRMED AND/OR WITH APPROXIMATE QUANTITATION

LABORATORY REMARKS:

Six compounds in the aromatic screen region at 5-10 ppb and six late eluting compounds in the C3 substituted benzene region at approx 5 ppb detected by the photoionization detector.

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ☐ No ☒ Seal(s) broken by: not sealed date: _____

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: 6/10/88 Analyst's signature: Mary C. Eden

I certify that I have reviewed and concur with the analytical results for this sample and with the statements in this block.

Reviewers signature: H. Meyerheim



2503 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

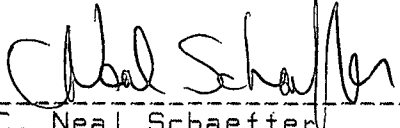
CLIENT: OCD
SAMPLE ID: 8907251728
SITE: OCD-2
LAB NO: F1819

DATE REPORTED: 08/21/89
DATE RECEIVED: 07/31/89
DATE COLLECTED: 07/25/89

Lab pH..... 7.45
Lab Conductivity, umhos/cm..... 16485
Lab resistivity, ohm-m..... 0.6066
Total Dissolved Solids (180), mg/l.. 14108
Total Dissolved Solids (calc), mg/l.. 13242
Total Alkalinity as CaCO₃, mg/l..... 562.31
Total Acidity as CaCO₃, mg/l..... 0.00
Total Hardness as CaCO₃, mg/l..... 3863.20
Sodium Absorption Ratio..... 22.54
Fluoride, mg/l..... 1.16

	mg/l	meq/l
Bicarbonate as HCO ₃	686.02	11.25
Carbonate as CO ₃	0.00	0.00
Chloride.....	3637.17	102.60
Sulfate.....	4829.36	100.61
Calcium.....	688.57	34.36
Magnesium.....	521.72	42.90
Potassium.....	7.00	0.18
Sodium.....	3220.50	140.08
Major Cations.....		217.53
Major Anions.....		214.46
Cation/Anion Difference.....		0.71 %

Trace metals (Dissolved Concentration), mg/l
Arsenic..... 0.007
Lead..... <0.02
Chromium..... 0.061


C. Neal Schaeffer
Senior Chemist

RECEIVED

SEP - 1 1989
OIL CONSERVATION DIV.
SANTA FE



New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

864
WTF

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

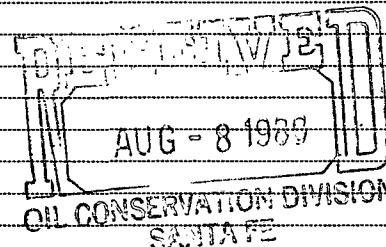
DATE RECEIVED	6/3/88	LAB NO.	WC-1984	USER CODE	☐ 59300 ☐ 59600 ☒ OTHER: 82235
Collection DATE	6/10/88	SITE INFORMATION	Sample location		
Collection TIME	1500		Narajo Refinery, O&B #2 Monitor Well		
Collected by: Person/Agency			Collection site description		
Boyer/Anderson /OCD					

SEND
FINAL
REPORT
TO

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87504-2088

Attn: David Boyer

Phone: 827-5812



Station/
well code
Owner

SAMPLING CONDITIONS

☒ Bailed ☐ Dipped	☒ Pump ☐ Tap	Water level	9.2'	Discharge	-	Sample type	Grab
pH (00400)		Conductivity (Uncorrected)		Water Temp. (00010)		Conductivity at 25°C (00094)	
7		15,800 µmho		20 °C		µmho	
Field comments							
Hydrocarbon odor, foamy							

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: 5ml conc. HNO ₃ added	☐ A: 4ml fuming HNO ₃ added

ANALYTICAL RESULTS from SAMPLES

NA	Units	Date analyzed	From F, NA Sample:	Date Analyzed
☒ Conductivity (Corrected) 25°C (00095)	µmho	7/5	☒ Calcium	716 mg/l 7/18
☐ Total non-filterable residue (suspended) (00530)	mg/l		☒ Potassium	10 mg/l 7/5
☒ Other: Lab pH		7/15	☒ Magnesium	565 mg/l 7/18
☐ Other:			☒ Sodium	3245 mg/l 7/5
☐ Other:			☒ Bicarbonate	471 mg/l 7/15
A-H₂SO₄			☒ Chloride	4375 mg/l 7/26
☐ Nitrate-N ⁺ , Nitrate-N total (00630)	mg/l		☒ Sulfate	4575 mg/l 7/26
☐ Ammonia-N total (00610)	mg/l		☒ Total Solids	14510 mg/l 6/30
☐ Total Kjeldahl-N ()	mg/l		☒ Fluoride	0.73 7/22
☐ Chemical oxygen demand (00340)	mg/l		☐	
☐ Total organic carbon ()	mg/l		☒ Cation/Anion Balance	
☐ Other:			Analyst	Date Reported
☐ Other:				7/27/88

Laboratory remarks

4335

FOR OCD USE -- Date Owner Notified 8/13/88 Phone or Letter?

Initials

WTF

CATIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT
Ca	35.73	716.00	<3.0
Mg	46.41	565.00	<0.3
Na	141.15	3245.00	<10.0
K	0.26	10.00	<0.3
Mn	0.00	0.00	
Fe	0.00	0.00	
SUMS	223.54	4536.00	
Total Dissolved Solids=			14510
Ion Balance =			98.72%

ANIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT
HC03	7.72	471.00	<1.0
SO4	95.31	4575.00	<10.0
CL	123.41	4375.00	<5.0
NO3	0.00	0.00	< 0.
C03	0.00	0.00	< 1.
NH3	0.00	0.00	< 0.
PO4	0.00	0.00	< 0.
	226.44	9421.00	

WC No. = 8801984
 Date out/By C 2/24/88



HEAVY METAL ANALYSIS FORM

Telephone: (505)841-2553

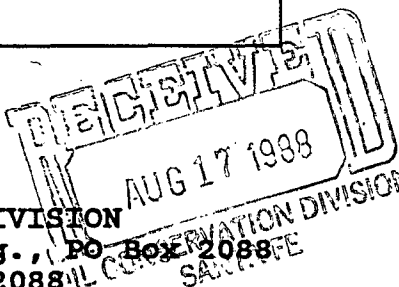
Date Received	6/3/88	Lab No.	ICP-249	User Code	☒ 82235 ☐ Other:	
COLLECTION DATE & TIME:		yy	mm	dd	hh	mm
		88	06	01	15	00

COLLECTED BY:

TO:

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg., PO Box 2088
SANTA FE, NM 87504-2088

ATTN: D. Boyer
TELEPHONE: 827-5812



COLLECTION SITE DESCRIPTION

OCB #2 Monitor Well

OWNER: Norco Refinery

SITE LOCATION:
County: Eddy

Township, Range, Section, Tract: (10N06E24342)

11715+216E+011+41

STATION/ WELL CODE:

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

LATITUDE, LONGITUDE:

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

SAMPLING CONDITIONS:

☒ Bailed ☐ Dipped	☒ Pump ☐ Tap	Water Level: <u>9.2'</u>	Discharge: <u>---</u>	Sample Type: <u>Grab</u>
pH(00400) <u>7</u>	Conductivity(Uncorr.) <u>15,000</u> μ mho	Water Temp.(00010) <u>20</u> $^{\circ}$ C	Conductivity at 25 $^{\circ}$ C (00094) <u>---</u> μ mho	

FIELD COMMENTS: Hydrocarbon odor, foamy

SAMPLE FIELD TREATMENT

Check proper boxes:

☐ WPN: Water Preserved w/HNO ₃ Non-Filtered	☒ WPF: Water Preserved w/HNO ₃ Filtered
--	---

LAB ANALYSIS REQUESTED:

☒ ICAP Scan Mark box next to metal if AA is required.
--

ANALYTICAL RESULTS (MG/L)

ELEMENT	ICAP VALUE	AA VALUE	ELEMENT	ICAP VALUE	AA VALUE
Aluminum	40.1		Silicon	12.	
Barium	40.1		Silver	40.1	☐
Beryllium	40.1		Strontium	13.	
Boron	0.7		Tin	40.1	
Cadmium	40.1	☐	Vanadium	40.1	
Calcium	660.		Zinc	40.1	
Chromium	40.1	☒ <0.005	Arsenic		☒ 0.083
Cobalt	40.05		Selenium		☐
Copper	0.1		Mercury		☐
Iron	6.2				☐
Lead	40.1	☒ <0.01			☐
Magnesium	500.				☐
Manganese	2.2				☐
Molybdenum	40.1				☐
Nickel	40.1				☐

LAB COMMENTS:

For OCD Use:

Date Owner Notified: 8/17/88
Phone or Letter? ---
Initials: ---

ICAP Analyst JB
Date Analyzed 7/13/88

Reviewer J. Ashby
Date Received 8/10/88





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. 8907251126

Collection Date	Collection Time	Collected by—Person/Agency	
07/25/89	1126	Boyer, Englert	/OCD

SITE INFORMATION

Sample location NAVAGO REFINERY OCD-3

Collection Site Description

Township, Range, Section, Tract:

17 S+27 E+06+3 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 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)
22° C

Water level 12.90
Discharge 6 gallons
Sample type GRAB
Conductivity (Uncorrected) 8900 μ mho
Conductivity at 25° C 4 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	774C
☐ 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	



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 214/984-0551

Analytical Chemistry • Waste Treatment & Disposal • Equipment Sales

RECEIVED

AUG 21 1989

08/17/89

OIL CONSERVATION DIV.
SANTA FE

Environmental Bureau NM Oil D.
PO Box 2088
Santa Fe, NM 87504

Sample Identification: OCD-3 Navajo Ref.
Flow or other on site data: 4 Vials Turbid Water, No Odor
Collected by: Boyer, Englert
Date & Time Taken: 07/25/89 1126
Additional Sample Information: 175-27E-06-3 Bailed 6 gal Temp 22 Cond 8900 NF 8020:A 8010:NA pH 7.04 HL 12.90
Lab Sample Number: 149747 Received: 07/29/89

PARAMETER:	RESULTS	QUALITY CONTROL	ANALYZED ON AT	ANALYST
1,1,1-Trichloroethane, ug/l EPA Method 8010	(5		08/09/89 2325	BP
1,1,2,2-Tetrachloroethane, ug/l EPA Method 8010	(5		08/09/89 2325	BP
1,1,2-Trichloroethane, ug/l EPA Method 8010	(5		08/09/89 2325	BP
1,1-Dichloroethane, ug/l EPA Method 8010	(5		08/09/89 2325	BP
1,1-Dichloroethene, ug/l EPA Method 8010	(1		08/09/89 2325	BP
1,2-Dichloroethane, ug/l EPA Method 8010	(5		08/09/89 2325	BP
1,2-Dichloropropane, ug/l EPA Method 8010	(5		08/09/89 2325	BP
2-Chloroethylvinyl ether, ug/l EPA Method 8010	(10		08/09/89 2325	BP
Benzene, ug/l EPA Method 8020	(5		08/09/89 2325	BP
Bromodichloromethane, ug/l EPA Method 8010	(5		08/09/89 2325	BP

continued



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 214/984-0551

Analytical Chemistry • Waste Treatment & Disposal • Equipment Sales

RECEIVED

AUG 21 1989

Lab Sample Number: 149747 Continued

OIL CONSERVATION DIV.
SANTA FE

Page 2

PARAMETER:	RESULTS	QUALITY CONTROL	ANALYZED ON AT	ANALYST
Bromoform, ug/l EPA Method 8010	(5		08/09/89 2325	BP
Bromomethane, ug/l EPA Method 8010	(10		08/09/89 2325	BP
Carbon Tetrachloride, ug/l EPA Method 8010	(5		08/09/89 2325	BP
Chlorobenzene, ug/l EPA Method 8010	(5		08/09/89 2325	BP
Chloroethane, ug/l EPA Method 8010	(10		08/09/89 2325	BP
Chloroform, ug/l EPA Method 8010	(5		08/09/89 2325	BP
Chloromethane, ug/l EPA Method 8010	(10		08/09/89 2325	BP
Cis-1,3-Dichloropropene, ug/l EPA Method 8010	(5		08/09/89 2325	BP
Dibromochloromethane, ug/l EPA Method 8010	(5		08/09/89 2325	BP
Ethyl benzene, ug/l EPA Method 8020	(5		08/09/89 2325	BP
Freon, ug/l EPA Method 8010	(5		08/09/89 2325	BP
Methylene Chloride, ug/l EPA Method 8010	(5		08/09/89 2325	BP
Tetrachloroethene, ug/l EPA Method 8010	(5		08/09/89 2325	BP
Toluene, ug/l EPA Method 8020	(5		08/09/89 2325	BP

continued



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 214/984-0551

Analytical Chemistry • Waste Treatment & Disposal • Equipment Sales

RECEIVED

AUG 21 1989

Lab Sample Number: 149747 Continued

OIL CONSERVATION DIV.
SANTA FE

Page 3

PARAMETER:	RESULTS	QUALITY CONTROL	ANALYZED ON AT	ANALYST
Trans-1,2-Dichloroethene, ug/l EPA Method 8010	(5		08/09/89 2325	BP
Trans-1,3-Dichloropropene, ug/l EPA Method 8010	(5		08/09/89 2325	BP
Trichloroethene, ug/l EPA Method 8010	(5		08/09/89 2325	BP
Vinyl Chloride, ug/l EPA Method 8010	(1		08/09/89 2325	BP
Xylenes, ug/l EPA Method 8020	(10		08/09/89 2325	BP


C. H. Whiteside, Ph.D., President

SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud NE
Albuquerque, NM 87106 841-2570

88-0801-C

NEW MEXICO

REPORT TO: David Boyer

N.M. Oil Conservation Division

P. O. Box 2088

Santa Fe, N.M. 87504-2088

S.L.D. No. OR-

801 AYB

DATE REC.

6-3-88

PHONE(S):

327-5812

USER CODE:

8 2 2 3 5

SUBMITTER:

David Boyer

CODE:

12 6 0

SAMPLE COLLECTION CODE: (YYMMDDHHMMIII)

8 8 10 6 0 1 1 4 1 5 AYB

SAMPLE TYPE: WATER ☐ SOIL ☐ FOOD ☐ OTHER: ☐

CODE:

1 1 1 1

COUNTY:

Eddy

CITY:

Artesia

CODE:

1 1 1 1

LOCATION CODE: (Township-Range-Section-Tracts)

17 N 5 + 27 E + 06 + 3

(10N06E24342)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.**PURGEABLE SCREENS**

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
Other Specific Compounds or Classes

☐
☐
☐
☐
☐**EXTRACTABLE SCREENS**

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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:

Not HCl preserved

FIELD DATA:

pH= 7; Conductivity= 13,800 umho/cm at 21 °C; Chlorine Residual= mg/l

Dissolved Oxygen= mg/l; Alkalinity= mg/l; Flow Rate

Depth to water 11.6 ft.; Depth of well 22.9 ft.; Perforation Interval - ft.; Casing:

Sampling Location, Methods and Remarks (i.e. odors, etc.)

Navajo Refinery O&D #3 monitor well
musty odor - No distinct H/C odor purged 10 gallons

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities. (signature collector):

Method of Shipment to the Lab:

This form accompanies 2 Septum Vials, Glass Jugs, and/or

Samples were preserved as follows:

- ☐ NP: No Preservation; Sample stored at room temperature.
☒ P-Ice Sample stored in an ice bath (Not Frozen).
☐ P-Na₂S₂O₃ Sample Preserved with Sodium Thiosulfate to remove chlorine residual.

CHAIN OF CUSTODY

I certify that this sample was transferred from to

at (location) on - and that

the statements in this block are correct. Evidentiary Seals: Not Sealed ☐ Seals Intact: Yes ☐ No ☐

Signatures

For OCD Use: Date Owner Notified 8/18/88 Phone or Letter:

Initials

AYB

ANALYSES PERFORMED

LAB. No.: OR- 801

THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical screening method(s) checked below:

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
 Other Specific Compounds or Classes

☐
☐
☐
☐
☐
☐

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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

ANALYTICAL RESULTS

COMPOUND(S) DETECTED	CONC. [PPB]	COMPOUND(S) DETECTED	CONC. [PPB]
halogenated purgeables	N.D.		
aromatic purgeables	N.D.		
* DETECTION LIMIT *	2.5	+ DETECTION LIMIT +	+

ABBREVIATIONS USED:

N D = NONE DETECTED AT OR ABOVE THE STATED DETECTION LIMIT

T R = DETECTED AT A LEVEL BELOW THE STATED DETECTION LIMIT (NOT CONFIRMED)

[RESULTS IN BRACKETS] ARE UNCONFIRMED AND/OR WITH APPROXIMATE QUANTITATION

LABORATORY REMARKS:

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ☐ No ☒ Seal(s) broken by: not sealed date: _____

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: 6/1/88 Analyst's signature: Harry C. Elder

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. Meyerhan



2503 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

CLIENT: OCD
SAMPLE ID: 8907251126
SITE: OCD-3
LAB NO: F1820

DATE REPORTED: 08/21/89
DATE RECEIVED: 07/31/89
DATE COLLECTED: 07/25/89

Lab pH.....	8.02
Lab Conductivity, umhos/cm.....	14952
Lab resistivity, ohm-m.....	0.6688
Total Dissolved Solids (180), mg/l..	11724
Total Dissolved Solids (calc), mg/l.	11277
Total Alkalinity as CaCO ₃ , mg/l.....	231.42
Total Acidity as CaCO ₃ , mg/l.....	0.00
Total Hardness as CaCO ₃ , mg/l.....	3718.00
Sodium Absorption Ratio.....	18.00
Fluoride, mg/l.....	0.98

	mg/l	meq/l
Bicarbonate as HCO ₃	282.33	4.63
Carbonate as CO ₃	0.00	0.00
Chloride.....	4562.42	128.70
Sulfate.....	2726.60	56.80
Calcium.....	1020.41	50.92
Magnesium.....	285.05	23.44
Potassium.....	20.30	0.52
Sodium.....	2523.00	109.74
Major Cations.....		184.62
Major Anions.....		190.13
Cation/Anion Difference.....		1.47 %


C. Neal Schaeffer
Senior Chemist

RECEIVED

SEP - 1 1989
OIL CONSERVATION DIV.
SANTA FE



New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

864
wnf

**GENERAL WATER CHEMISTRY
and NITROGEN ANALYSIS**

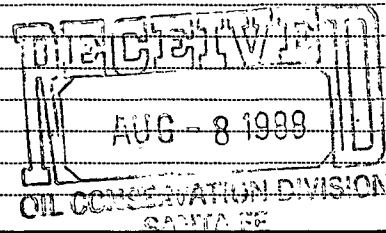
DATE RECEIVED <u>6/3/88</u>	LAB NO. <u>WC-1978</u>	USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: <u>82235</u>
Collection DATE <u>6/26/01</u>	SITE INFORMATION	Sample location <u>Norajo Refinery OCS #3 monitor well</u>
Collection TIME <u>1415</u>		Collection site description
Collected by — Person/Agency <u>Boyer/Anderson /OCD</u>		

SEND
FINAL
REPORT
TO

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87504-2088

Attn: David Boyer

Phone: 827-5812



Station/
well code
Owner

SAMPLING CONDITIONS

☒ Bailed ☐ Dipped	☒ Pump ☐ Tap	Water level <u>11.6'</u>	Discharge <u>—</u>	Sample type <u>Grab</u>
pH (00400) <u>7</u>	Conductivity (Uncorrected) <u>13,000 µmho</u>	Water Temp. (00010) <u>21 °C</u>	Conductivity at 25°C (00094) <u>µmho</u>	
Field comments <u>No distinct Hydrocarbon odor</u>				

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted <u>1</u>	☐ 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: 5ml conc. HNO ₃ added ☐ A: 4ml fuming HNO ₃ added

ANALYTICAL RESULTS from SAMPLES

NA	Units	Date analyzed	From <u>F</u> , NA Sample:	Date Analyzed
☒ Conductivity (Corrected) 25°C (00095)	<u>15558</u> µmho	<u>7/5</u>	☒ Calcium <u>992</u> mg/l	<u>7/15</u>
☐ Total non-filterable residue (suspended) (00530)	mg/l		☒ Potassium <u>30</u> mg/l	<u>7/5</u>
☒ Other: <u>Lab pH</u>	<u>7.98</u>	<u>7/14</u>	☒ Magnesium <u>337</u> mg/l	<u>7/15</u>
☐ Other:			☒ Sodium <u>2370</u> mg/l	<u>7/5</u>
☐ Other:			☒ Bicarbonate <u>225</u> mg/l	<u>7/14</u>
A-H₂SO₄			☒ Chloride <u>4175</u> mg/l	<u>7/26</u>
☐ Nitrate-N +, Nitrate-N total (00630)	mg/l		☒ Sulfate <u>2445</u> mg/l	<u>7/26</u>
☐ Ammonia-N total (00610)	mg/l		☒ Total Solids <u>11754</u> mg/l	<u>6/28</u>
☐ Total Kjeldahl-N ()	mg/l		☒ Fluoride <u>0.82</u>	<u>7/22</u>
☐ Chemical oxygen demand (00340)	mg/l		☐	
☐ Total organic carbon ()	mg/l		☒ Cation/Anion Balance	
☐ Other:			Analyst	Date Reported <u>7/27/88</u>
☐ Other:				Reviewed by <u>[Signature]</u>

Laboratory remarks
4230

FOR OCD USE -- Date Owner Notified 8/18/88 Phone or Letter? ()

Initials [Signature]

CATIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT
Ca	49.50	992.00	<3.0
Mg	27.68	337.00	<0.3
Na	103.09	2370.00	<10.0
K	0.26	10.00	<0.3
Mn	0.00	0.00	
Fe	0.00	0.00	
SUMS	180.52	3709.00	
Total Dissolved Solids=			11514
Ion Balance =			104.71%

ANIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT
HC03	3.69	225.00	<1.0
SO4	50.94	2445.00	<10.0
CL	117.77	4175.00	<5.0
NO3	0.00	0.00	< 0.
C03	0.00	0.00	< 1.
NH3	0.00	0.00	< 0.
PO4	0.00	0.00	< 0.
	172.40	6845.00	

WC No. = 8801978
Date out/By Q7/21/88

HEAVY METAL ANALYSIS FORM

Telephone: (505)841-2553

Date Received	07/31/89	Lab No.	CAP 451	User Code	☒ 82235	☐ other:
COLLECTION DATE & TIME:		yy	mm	dd	hh	mm
		89	07	25	11	26
COLLECTED BY:				COLLECTION SITE DESCRIPTION		
Boyer, Englert				NAVATO REFINERY		
				OCD-3		

TO:

OWNER:

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg., PO Box 2088
SANTA FE, NM 87504-2088

SITE LOCATION:

County: Eddy

Township, Range, Section, Tract: (10N06E24342)

ATTN: DAVE BOYER
TELEPHONE: 827-5812

STATION/ WELL CODE: | | | | | | | | | |

LATITUDE, LONGITUDE: | | | | | | | | | | - | | |

SAMPLING CONDITIONS:

☒ Bailed	☐ Pump	Water Level:	Discharge:	Sample Type:
☐ Dipped	☐ Tap	12.90	6 gallons	GRAB
pH(00400)	Conductivity(Uncorr.)	Water Temp.(00010)	Conductivity at 25°C	
7.04	8900 µmho	22 °C	(00094) µmho	

FIELD COMMENTS: turbid water, no odor

SAMPLE FIELD TREATMENT

Check proper boxes:

☐ WPN: Water Preserved w/HNO ₃ Non-Filtered	☒ WPF: Water Preserved w/HNO ₃ Filtered
---	--

LAB ANALYSIS REQUESTED:

☒ ICAP Scan
Mark box next to metal if AA
is required.

ANALYTICAL RESULTS (MG/L)

ELEMENT	ICAP VALUE	AA VALUE	ELEMENT	ICAP VALUE	AA VALUE
Aluminum	<0.1		Silicon	1.0	
Barium	<0.1		Silver	<0.1	☐
Beryllium	<0.1		Strontium	12.	
Boron	0.8		Tin	0.1	
Cadmium	<0.1	☐	Vanadium	<0.1	
Calcium	930.		Zinc	<0.1	
Chromium	<0.1	☒ <0.005	Arsenic		☒ 0.008
Cobalt	<0.05		Selenium		☐
Copper	<0.1		Mercury		☐
Iron	<0.1				☐
Lead	<0.1	☒ <0.005			☐
Magnesium	270.				☐
Manganese	1.1				☐
Molybdenum	<0.1				☐
Nickel	<0.1				☐

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OIL CONSERVATION DIV.

LAB COMMENTS: Wet infert 7/3/89 m.p. Broken by 8/2/89, Digested

For OCD Use:

Date Owner Notified:

Phone or Letter?

Initials:

ICAP Analyst

Date Analyzed

Reviewer

Date Received



New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106

HEAVY METAL ANALYSIS FORM

Telephone: (505)841-2553

Date Received	6/3/88	Lab No.	ICP-25	User Code	☒ 82235 ☐ Other:
COLLECTION DATE & TIME:				yy mm dd hh mm	COLLECTION SITE DESCRIPTION
				88 06 01 14 15	OCD #3 Monitor Well

COLLECTED BY: Boyer/Anderson/act

TO:

OWNER: Norco Refinery

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg., PO Box 2088
SANTA FE, NM 87504-2088

SITE LOCATION:
County: Eddy

Township, Range, Section, Tract: (10N08E24342)
17S+27E+06+3

ATTN: D. Boyer
TELEPHONE: 827-5812

STATION/ WELL CODE:

LATITUDE, LONGITUDE: -

SAMPLING CONDITIONS:

☒ Bailed ☐ Dipped	☒ Pump ☐ Tap	Water Level: <u>11.6</u>	Discharge: <u> </u>	Sample Type: <u>6265</u>
pH(00400)	Conductivity(Uncorr.)	Water Temp.(00010)	Conductivity at 25°C (00094)	
<u>7</u>	<u>13,000</u> µmho	<u>21</u> °C	<u> </u> µmho	

FIELD COMMENTS:

SAMPLE FIELD TREATMENT

Check proper boxes:

☐ WPN: Water Preserved w/HNO ₃ Non-Filtered	☒ WPF: Water Preserved w/HNO ₃ Filtered
--	---

LAB ANALYSIS REQUESTED:

☒ ICAP Scan
Mark box next to metal if AA is required.

ANALYTICAL RESULTS (MG/L)

ELEMENT	ICAP VALUE	AA VALUE	ELEMENT	ICAP VALUE	AA VALUE
Aluminum	20.1		Silicon	4.5	
Barium	20.1		Silver	20.1	☐
Beryllium	20.1		Strontium	12.	
Boron	0.8		Tin	20.1	
Cadmium	20.1	☐	Vanadium	20.1	
Calcium	910.		Zinc	20.1	
Chromium	20.1	☒ 20.005	Arsenic		☒ 0.012
Cobalt	20.05		Selenium		☐
Copper	20.1		Mercury		☐
Iron	0.8				☐
Lead	20.1	☒ 20.01			☐
Magnesium	260.				☐
Manganese	0.72				☐
Molybdenum	20.1				☐
Nickel	20.1				☐

LAB COMMENTS: digest

For OCD Use:

Date Owner Notified: 6/15/88
Phone or Letter?
Initials: DBB

ICAP Analyst JB
Date Analyzed 7/13/88

Reviewer J. Kelly
Date Received 7/15/88





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. 8907251204

Collection Date	Collection Time	Collected by —Person/Agency	
07/25/89	1204	Boyer, Angert	/OCD
SITE INFORMATION			
Sample location <u>NAVATO REFINERY: OCD-4</u>			
Collection Site Description/			
			Township, Range, Section, Tract:
			1175+26E+06+31

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)

7.05

Water Temp. (00010)

21°C

Water level

12.64

Discharge

6 gallons

Sample type

GRAB

Conductivity (Uncorrected)

10,900

Conductivity at 25°C

11 mhoclear 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	C&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	



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Analytical Chemistry • Waste Treatment & Disposal • Equipment Sales

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08/17/89

OIL CONSERVATION DIV.
SANTA FE

Environmental Bureau NM Oil D.
PO Box 2088
Santa Fe, NM 87504

Sample Identification: OCD-4 Navajo Ref.

Flow or other on site data: 4 Vials Clear Water, No Odor

Collected by: Boyer, Englert

Date & Time Taken: 07/25/89 1204

Additional Sample Information: 175-26E-06-3 Bailed 6 gal Temp 21 Cond 10900 NF 8020:A 8010:NA pH 7.04 WL 12.64

Lab Sample Number: 149748 Received: 07/29/89

PARAMETER:	RESULTS	QUALITY CONTROL	ANALYZED ON AT	ANALYST
1,1,1-Trichloroethane, ug/l EPA Method 8010	(5		08/09/89 2246	BP
1,1,2,2-Tetrachloroethane, ug/l EPA Method 8010	(5		08/09/89 2246	BP
1,1,2-Trichloroethane, ug/l EPA Method 8010	(5		08/09/89 2246	BP
1,1-Dichloroethane, ug/l EPA Method 8010	(5		08/09/89 2246	BP
1,1-Dichloroethene, ug/l EPA Method 8010	(1		08/09/89 2246	BP
1,2-Dichloroethane, ug/l EPA Method 8010	(5		08/09/89 2246	BP
1,2-Dichloropropane, ug/l EPA Method 8010	(5		08/09/89 2246	BP
2-Chloroethylvinyl ether, ug/l EPA Method 8010	(10		08/09/89 2246	BP
Benzene, ug/l EPA Method 8020	(5		08/09/89 2246	BP
Bromodichloromethane, ug/l EPA Method 8010	(5		08/09/89 2246	BP

continued



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OIL CONSERVATION DIV.
SANTA FE

Page 2

Lab Sample Number: 149748 Continued

PARAMETER:	RESULTS	QUALITY CONTROL	ANALYZED ON AT	ANALYST
Bromoform, ug/l EPA Method 8010	(5		08/09/89 2246	BP
Bromomethane, ug/l EPA Method 8010	(10		08/09/89 2246	BP
Carbon Tetrachloride, ug/l EPA Method 8010	(5		08/09/89 2246	BP
Chlorobenzene, ug/l EPA Method 8010	(5		08/09/89 2246	BP
Chloroethane, ug/l EPA Method 8010	(10		08/09/89 2246	BP
Chloroform, ug/l EPA Method 8010	(5		08/09/89 2246	BP
Chloromethane, ug/l EPA Method 8010	(10		08/09/89 2246	BP
Cis-1,3-Dichloropropene, ug/l EPA Method 8010	(5		08/09/89 2246	BP
Dibromochloromethane, ug/l EPA Method 8010	(5		08/09/89 2246	BP
Ethyl benzene, ug/l EPA Method 8020	(5		08/09/89 2246	BP
Freon, ug/l EPA Method 8010	(5		08/09/89 2246	BP
Methylene Chloride, ug/l EPA Method 8010	(5		08/09/89 2246	BP
Tetrachloroethene, ug/l EPA Method 8010	(5		08/09/89 2246	BP
Toluene, ug/l EPA Method 8020	(5		08/09/89 2246	BP

continued



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OIL CONSERVATION DIV.
SANTA FE

Page 3

Lab Sample Number: 149748 Continued

PARAMETER:	RESULTS	QUALITY CONTROL	ANALYZED ON AT	ANALYST
Trans-1,2-Dichloroethene, ug/l EPA Method 8010	(5		08/09/89 2246	BP
Trans-1,3-Dichloropropene, ug/l EPA Method 8010	(5		08/09/89 2246	BP
Trichloroethene, ug/l EPA Method 8010	(5		08/09/89 2246	BP
Vinyl Chloride, ug/l EPA Method 8010	(1		08/09/89 2246	BP
Xylenes, ug/l EPA Method 8020	(10		08/09/89 2246	BP

C. H. Whiteside, Ph.D., President

SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud NE
Albuquerque, NM 87106 841-2570

88-0803-C

NEW MEXICO

REPORT TO: David Boyer

S.L.D. No. OR-

803 A+B

N.M. Oil Conservation Division

DATE REC.

6-3-88

P. O. Box 2088

Santa Fe, N.M. 87504-2088

PRIORITY

3

PHONE(S):

327-5812

OIL CONSERVATION

USER CODE:

8 2 2 3 5

SUBMITTER:

David Boyer

SANTA FE

CODE:

12 6 0

SAMPLE COLLECTION CODE: (YYMMDDHHMMIII)

88 06 01 13 13 A+B

SAMPLE TYPE: WATER ☒ SOIL ☐ FOOD ☐ OTHER: _____

CODE:

1 1 1

COUNTY:

Eddy

CITY:

Artesia

CODE:

1 1 1

LOCATION CODE: (Township-Range-Section-Tracts)

17S+27E+06+3

(10N06E24342)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.**PURGEABLE SCREENS**

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
Other Specific Compounds or Classes

- ☐
☐
☐
☐
☐

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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:

Not HCl preserved

FIELD DATA:

pH= 7; Conductivity= 14,500 umho/cm at 21.5°C; Chlorine Residual= _____ mg/l

Dissolved Oxygen= _____ mg/l; Alkalinity= _____ mg/l; Flow Rate _____

Depth to water 11.0 ft.; Depth of well 24.0 ft.; Perforation Interval _____ ft.; Casing: _____

Sampling Location, Methods and Remarks (i.e. odors, etc.):

Narajo Refinery - OCD #4 Monitor Well

musty odor - no hydrocarbon odor noted, purged 10 gallons

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities. (signature collector):

David Boyer

Method of Shipment to the Lab:

State Car

This form accompanies 2 Septum Vials, _____ Glass Jugs, and/or _____

Samples were preserved as follows:

- ☐ NP: No Preservation; Sample stored at room temperature.
☒ P-Ice Sample stored in an ice bath (Not Frozen).
☐ P-Na S O₂ Sample Preserved with Sodium Thiosulfate to remove chlorine residual.

CHAIN OF CUSTODY

I certify that this sample was transferred from _____ to _____

at (location) _____ on _____ - _____ and that

the statements in this block are correct. Evidentiary Seals: Not Sealed ☐ Seals Intact: Yes ☐ No ☐

Signatures _____

For OCD Use: Date Owner Notified 8/18/88 Phone or Letter _____

Initials

DVB

ANALYSES PERFORMED

LAB. No.: OR- 803

THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical screening method(s) checked below:

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
 Other Specific Compounds or Classes

☐
☐
☐
☐
☐

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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

ANALYTICAL RESULTS

COMPOUND(S) DETECTED	CONC. [PPB]	COMPOUND(S) DETECTED	CONC. [PPB]
aromatic purgeables	N.D.		
halogenated purgeables	N.D.		
* DETECTION LIMIT *	* 5 PPB *	+ DETECTION LIMIT +	+

ABBREVIATIONS USED:

N D = NONE DETECTED AT OR ABOVE THE STATED DETECTION LIMIT

T R = DETECTED AT A LEVEL BELOW THE STATED DETECTION LIMIT (NOT CONFIRMED)

[RESULTS IN BRACKETS] ARE UNCONFIRMED AND/OR WITH APPROXIMATE QUANTITATION

LABORATORY REMARKS:

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ☐ No ☒ Seal(s) broken by: not sealed date: _____

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: 2/11/88 Analyst's signature: Ray C. Allen

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. M. ...



2505 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

CLIENT: OCD
SAMPLE ID: 8907251204
SITE: OCD-4
LAB NO: F1821

DATE REPORTED: 08/21/89
DATE RECEIVED: 07/31/89
DATE COLLECTED: 07/25/89

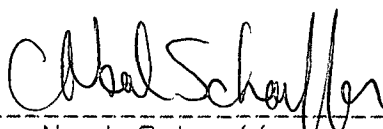
Lab pH.....	8.06
Lab Conductivity, umhos/cm.....	17517
Lab resistivity, ohm-m.....	0.5709
Total Dissolved Solids (180), mg/l..	13856
Total Dissolved Solids (calc), mg/l.	13364
Total Alkalinity as CaCO ₃ , mg/l.....	259.84
Total Acidity as CaCO ₃ , mg/l.....	0.00
Total Hardness as CaCO ₃ , mg/l.....	3510.58
Sodium Absorption Ratio.....	23.79
Fluoride, mg/l.....	0.86

	mg/l	meq/l
Bicarbonate as HCO ₃	317.00	5.20
Carbonate as CO ₃	0.00	0.00
Chloride.....	5636.55	159.00
Sulfate.....	3059.91	63.75
Calcium.....	920.86	45.95
Magnesium.....	295.01	24.26
Potassium.....	55.60	1.42
Sodium.....	3240.00	140.93
Major Cations.....		212.56
Major Anions.....		227.95
Cation/Anion Difference.....		3.49 % **

Trace metals (Dissolved Concentration), mg/l

Arsenic..... <0.005
Lead..... <0.02
Chromium..... 0.043

** This large ion % difference is most likely due to an abundance of metal cations which were not analyzed. All major ions were reanalyzed without significant changes.


C. Neal Schaeffer
Senior Chemist

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OIL CONSERVATION DIV.
SANTA FE



New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

864
Wnf

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

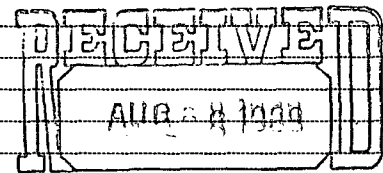
DATE RECEIVED	6/3/88	LAB NO.	WC-1980	USER CODE	☐ 59300 ☐ 59600 ☒ OTHER: 82235
Collection DATE	6/3/88	SITE INFORMATION	Sample location		
Collection TIME	1313		Narajo Refinery - OCS #4 Monitor Well		
Collected by — Person/Agency		Collection site description			
Boyer/Anderson/OCD					

SEND
FINAL
REPORT
TO

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87504-2088

Attn: David Boyer

Phone: 827-5812



OIL CONSERVATION DIVISION
SANTA FE

Station/
well code
Owner

SAMPLING CONDITIONS

☒ Bailed ☐ Dipped	☒ Pump ☐ Tap	Water level	11 Feet	Discharge	—	Sample type	Grab
pH (00400)	7	Conductivity (Uncorrected)	14,500 µmho	Water Temp. (00010)	21.5 °C	Conductivity at 25°C (00094)	µmho
Field comments							
No Hydrocarbon odor noted							

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: 5ml conc. HNO ₃ added ☐ A: 4ml fuming HNO ₃ added

ANALYTICAL RESULTS from SAMPLES

NA	Units	Date analyzed	From	NA Sample:	Date Analyzed
☒ Conductivity (Corrected) 25°C (00095)	µmho	7/5	F		7/15
☐ Total non-filterable residue (suspended) (00530)	mg/l			Calcium	912 mg/l 7/15
☒ Other: Lab pH		7/15		Potassium	10 mg/l 7/5
☐ Other:				Magnesium	300.1 mg/l 7/15
☐ Other:				Sodium	3035 mg/l 7/5
A-H₂SO₄				Bicarbonate	194 mg/l 7/15
☐ Nitrate-N +, Nitrate-N total (00630)	mg/l			Chloride	4675 mg/l 7/21
☐ Ammonia-N total (00610)	mg/l			Sulfate	2850 mg/l 7/21
☐ Total Kjeldahl-N ()	mg/l			Total Solids	13088 mg/l 6/30
☐ Chemical oxygen demand (00340)	mg/l			Fluoride	0.81 7/22
☐ Total organic carbon ()	mg/l			☐	
☐ Other:				☒ Cation/Anion Balance	
☐ Other:				Analyst	Date Reported
Laboratory remarks				7/21/88	Reviewed by
4795					

FOR OCD USE -- Date Owner Notified 8/18/88 Phone or Letter?

Initials

CATIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT
Ca	45.51	912.00	<3.0
Mg	24.64	300.00	<0.3
Na	132.01	3035.00	<10.0
K	0.26	10.00	<0.3
Mn	0.00	0.00	
Fe	0.00	0.00	
SUMS	202.42	4257.00	
Total Dissolved Solids=			13088
Ion Balance =			104.11%

ANIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT
HC03	3.18	194.00	<1.0
SO4	59.38	2850.00	<10.0
CL	131.88	4675.00	<5.0
NO3	0.00	0.00	< 0.
C03	0.00	0.00	< 1.
NH3	0.00	0.00	< 0.
PO4	0.00	0.00	< 0.
	194.43	7719.00	

WC No. = 8801980
Date out/By CD 7/29/88



New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106

HEAVY METAL ANALYSIS FORM

Telephone: (505)841-2553

Date Received 6/3/88 Lab No. ICP-250 User Code 82235 ☒ 82235 ☐ Other:

COLLECTION DATE & TIME: yy mm dd hh mm
88 06 01 13 13

COLLECTION SITE DESCRIPTION

COLLECTED BY: Boyer/Anderson OCB

OCB #4 Monitor Well

TO:

OWNER: Nasayo Refinery

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg., PO Box 2088
SANTA FE, NM 87504-2088

SITE LOCATION:
County: Eddy

ATTN: D. Boyer
TELEPHONE: 827-5812

Township, Range, Section, Tract: (10N06E24342)
1175+217E+06+31

STATION/ WELL CODE:

LATITUDE, LONGITUDE: -

SAMPLING CONDITIONS:

☒ Bailed ☒ Pump Water Level: 11 Feet Discharge: Sample Type: Grab
☐ Dipped ☐ Tap
pH(00400) 7 Conductivity(Uncorr.) 14,500 μ mho Water Temp.(00010) 21.5 $^{\circ}$ C Conductivity at 25 $^{\circ}$ C (00094) μ mho

FIELD COMMENTS:

SAMPLE FIELD TREATMENT

Check proper boxes:

☐ WPN: Water Preserved w/HNO₃ Non-Filtered
☒ WPF: Water Preserved w/HNO₃ Filtered

LAB ANALYSIS REQUESTED:

☒ ICAP Scan
Mark box next to metal if AA is required.

ANALYTICAL RESULTS (MG/L)

ELEMENT	ICAP VALUE	AA VALUE	ELEMENT	ICAP VALUE	AA VALUE
Aluminum	<u><0.1</u>		Silicon	<u>9.2</u>	
Barium	<u><0.1</u>		Silver	<u><0.1</u>	☐
Beryllium	<u><0.1</u>		Strontium	<u>12.</u>	
Boron	<u>1.4</u>		Tin	<u><0.1</u>	
Cadmium	<u><0.1</u>	☐	Vanadium	<u><0.1</u>	
Calcium	<u>810</u>		Zinc	<u><0.1</u>	
Chromium	<u><0.1</u>	☒ <u><0.005</u>	Arsenic		☒ <u>0.020</u>
Cobalt	<u><0.05</u>		Selenium		☐
Copper	<u><0.1</u>		Mercury		☐
Iron	<u>0.7</u>				☐
Lead	<u><0.1</u>	☒ <u>0.01</u>			☐
Magnesium	<u>270.</u>				☐
Manganese	<u>0.67</u>				☐
Molybdenum	<u><0.1</u>				☐
Nickel	<u><0.1</u>				☐

LAB COMMENTS: signed

For OCD Use:

Date Owner Notified: 8/18/88 ICAP Analyst JB Reviewer J. Kahly
Phone or Letter? Date Analyzed 7/13/88 Date Reveived 7/15/88
Initials:





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. 8907891333

Collection Date	Collection Time	Collected by —Person/Agency	
07/25/89	1333	Boyer, Engler	/OCD
SITE INFORMATION			
Sample location <u>NAVATO Refinery - OCD-5</u>			
Collection Site Description			
			Township, Range, Section, Tract:
			17 5+27 E+06+3 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 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>11.01</u>
	<u>6+ gallons</u>
	<u>GRAB</u>
pH(00400)	<u>7.01</u>
Water Temp. (00010)	<u>9250</u> μ mho
	<u>19°C</u>
	<u>4</u> 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	713C
☐ 002	VOA	602	☐ 014	VOC	8240	☐ 027	Pb	7421
☐ 003	VOH	8010	☐ 015	VOC	624	☐ 028	Hg(L)	747C
☐ 004	VOH	601	☐ 016	SVOC	8250	☐ 031	Se	774C
☐ 005	SUITE	8010-8020	☐ 017	SVOC	625	☐ 032	ICAP	601C
☐ 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	



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 214/984-0551

Analytical Chemistry • Waste Treatment & Disposal • Equipment Sales

RECEIVED

08/17/89

AUG 21 1989

Environmental Bureau NM Oil D.
PO Box 2088
Santa Fe, NM 87504

OIL CONSERVATION DIV.
SANTA FE

Sample Identification: OCD-5 Navajo Ref.

Flow or other on site data: 4 Vials Clear Water, Slight HC

Collected by: Boyer, Englert

Date & Time Taken: 07/25/89 1333

Additional Sample Information: 175-27E-06-3 Bailed 6+ gal Temp 19 Cond 9250 NF 8020:A 8010:NA pH 7.01 ML 11.01

Lab Sample Number: 149750

Received: 07/29/89

PARAMETER:	RESULTS	QUALITY CONTROL	ANALYZED ON AT	ANALYST
1,1,1-Trichloroethane, ug/l EPA Method 8010	(5		08/05/89 2233	BP
1,1,2,2-Tetrachloroethane, ug/l EPA Method 8010	(5		08/05/89 2233	BP
1,1,2-Trichloroethane, ug/l EPA Method 8010	(5		08/05/89 2233	BP
1,1-Dichloroethane, ug/l EPA Method 8010	(5		08/05/89 2233	BP
1,1-Dichloroethene, ug/l EPA Method 8010	(1		08/05/89 2233	BP
1,2-Dichloroethane, ug/l EPA Method 8010	(5		08/05/89 2233	BP
1,2-Dichloropropane, ug/l EPA Method 8010	(5		08/05/89 2233	BP
2-Chloroethylvinyl ether, ug/l EPA Method 8010	(10		08/05/89 2233	BP
Benzene, ug/l EPA Method 8020	6		08/05/89 2233	BP
Bromodichloromethane, ug/l EPA Method 8010	(5		08/05/89 2233	BP

continued



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AUG 21 1989

OIL CONSERVATION DIV.
SANTA FE

Lab Sample Number: 149750 Continued

Page 2

PARAMETER:	RESULTS	QUALITY CONTROL	ANALYZED ON AT	ANALYST
Bromoform, ug/l EPA Method 8010	(5		08/05/89 2233	BP
Bromomethane, ug/l EPA Method 8010	(10		08/05/89 2233	BP
Carbon Tetrachloride, ug/l EPA Method 8010	(5		08/05/89 2233	BP
Chlorobenzene, ug/l EPA Method 8010	(5		08/05/89 2233	BP
Chloroethane, ug/l EPA Method 8010	(10		08/05/89 2233	BP
Chloroform, ug/l EPA Method 8010	(5		08/05/89 2233	BP
Chloromethane, ug/l EPA Method 8010	(10		08/05/89 2233	BP
Cis-1,3-Dichloropropene, ug/l EPA Method 8010	(5		08/05/89 2233	BP
Dibromochloromethane, ug/l EPA Method 8010	(5		08/05/89 2233	BP
Ethyl benzene, ug/l EPA Method 8020	(5		08/05/89 2233	BP
Freon, ug/l EPA Method 8010	(5		08/05/89 2233	BP
Methylene Chloride, ug/l EPA Method 8010	(5		08/05/89 2233	BP
Tetrachloroethene, ug/l EPA Method 8010	(5		08/05/89 2233	BP
Toluene, ug/l EPA Method 8020	6		08/05/89 2233	BP

continued



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 214/984-0551

Analytical Chemistry • Waste Treatment & Disposal • Equipment Sales

RECEIVED

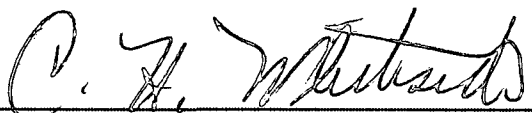
AUG 21 1989

Lab Sample Number: 149750 Continued

OIL CONSERVATION DIV.
SANTA FE

Page 3

PARAMETER:	RESULTS	QUALITY CONTROL	ANALYZED ON AT	ANALYST
Trans-1,2-Dichloroethene, ug/l EPA Method 8010	(5		08/05/89 2233	BP
Trans-1,3-Dichloropropene, ug/l EPA Method 8010	(5		08/05/89 2233	BP
Trichloroethene, ug/l EPA Method 8010	(5		08/05/89 2233	BP
Vinyl Chloride, ug/l EPA Method 8010	(1		08/05/89 2233	BP
Xylenes, ug/l EPA Method 8020	(10		08/05/89 2233	BP


C. H. Whiteside, Ph.D., President

SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud NE
Albuquerque, NM 87106 841-2570

NEW MEXICO

88-0791-C

REPORT TO: David Boyer

N.M. Oil Conservation Division

P. O. Box 2088

Santa Fe, N.M. 87504-2088

S.L.D. No. OR- 791 A+B

DATE REC. 6-3-88

PHONE(S): 327-5812

SUBMITTER: David Boyer

OIL CONSERVATION DIVISION
SANTA FE

PRIORITY 3

USER CODE: 8 2 2 3 5

CODE: 12 6 0

SAMPLE COLLECTION CODE: (YYMMDDHHMMIII) 0806011205A+B

SAMPLE TYPE: WATER ☒, SOIL ☐, FOOD ☐, OTHER: CODE: ☐ ☐ ☐COUNTY: Eddy; CITY: Artesia CODE: ☐ ☐ ☐

LOCATION CODE: (Township-Range-Section-Tracts) 17S+27E+06+3 (10N06E24342)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.**PURGEABLE SCREENS**

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
Other Specific Compounds or Classes

☐
☐
☐
☐
☐**EXTRACTABLE SCREENS**

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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: NO HCl preservative

FIELD DATA:

pH= 7; Conductivity= 10420 umho/cm at 21.5°C; Chlorine Residual= mg/l

Dissolved Oxygen= mg/l; Alkalinity= mg/l; Flow Rate

Depth to water 9.3 ft.; Depth of well 21.7 ft.; Perforation Interval - ft.; Casing:

Sampling Location, Methods and Remarks (i.e. odors, etc.)

Narajo Refinery - OCB #5 Monitor well
Slight Hydrocarbon odor Purged 10 gallons

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities. (signature collector): David Boyer

Method of Shipment to the Lab: Flat Cap

This form accompanies 2 Septum Vials, Glass Jugs, and/or

Samples were preserved as follows:

- ☐ NP: No Preservation; Sample stored at room temperature.
☒ P-Ice Sample stored in an ice bath (Not Frozen).
☐ P-Na S O₂ Sample Preserved with Sodium Thiosulfate to remove chlorine residual.

CHAIN OF CUSTODY

I certify that this sample was transferred from to

at (location) on - and that

the statements in this block are correct. Evidentiary Seals: Not Sealed ☐ Seals Intact: Yes ☐ No ☐

Signatures

For OCD Use: Date Owner Notified 8/18/88 Phone or Letter? Initials DSB

ANALYSES PERFORMED

LAB. No.: OR- 78 791THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical screening method(s) checked below:

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
 Other Specific Compounds or Classes

☐
☐
☐
☐
☐

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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

ANALYTICAL RESULTS

COMPOUND(S) DETECTED

CONC.
[PPB]

COMPOUND(S) DETECTED

CONC.
[PPB]

<i>halogenated purgeables</i>	<i>N.D.</i>		
<i>aromatic purgeables</i>	<i>all</i>		
	<i>remains</i>		
* DETECTION LIMIT *	* <i>5-10</i>	+ DETECTION LIMIT +	+

ABBREVIATIONS USED:

N D = NONE DETECTED AT OR ABOVE THE STATED DETECTION LIMIT

T R = DETECTED AT A LEVEL BELOW THE STATED DETECTION LIMIT (NOT CONFIRMED)

[RESULTS IN BRACKETS] ARE UNCONFIRMED AND/OR WITH APPROXIMATE QUANTITATION

LABORATORY REMARKS:

one compound in the aromatic screen region at 5-10ppb detected by the photoionization detector but not identified.

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ☐ No ☒ Seal(s) broken by: *not sealed* date: _____

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: *6/10/88* Analyst's signature: *Kary C. Den*

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 Meyerheim*



2503 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

CLIENT: OCD
SAMPLE: 8907251333
SITE: OCD-5
LAB NO: F1822

DATE REPORTED: 08/21/89
DATE RECEIVED: 07/31/89
DATE COLLECTED: 07/25/89

Lab pH.....	8.34
Lab Conductivity, umhos/cm.....	14150
Lab resistivity, ohm-m.....	0.7067
Total Dissolved Solids (180), mg/l..	11724
Total Dissolved Solids (calc), mg/l.	11195
Total Alkalinity as CaCO ₃ , mg/l.....	198.94
Total Acidity as CaCO ₃ , mg/l.....	0.00
Total Hardness as CaCO ₃ , mg/l.....	3256.49
Sodium Absorption Ratio.....	20.19
Fluoride, mg/l.....	0.79

	mg/l	meq/l
Bicarbonate as HCO ₃	242.71	3.98
Carbonate as CO ₃	0.00	0.00
Chloride.....	4254.00	120.00
Sulfate.....	2994.07	62.38
Calcium.....	887.67	44.30
Magnesium.....	253.35	20.83
Potassium.....	37.80	0.97
Sodium.....	2649.00	115.22
Major Cations.....		181.32
Major Anions.....		186.36
Cation/Anion Difference.....		1.37 %


C. Neal Schaeffer
Senior Chemist

RECEIVED

SEP - 1 1989

OIL CONSERVATION DIV.
SANTA FE



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

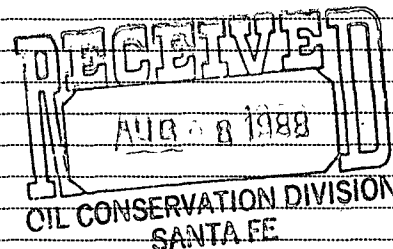
DATE RECEIVED 6/3/88 LAB NO. WC-1979 USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235
Collection DATE 6/10/88 Collection TIME 1205 SITE INFORMATION Sample location Narajo Refinery OCD #5 Monitor Well
Collection site description U
Collected by — Person/Agency Bayley/Anderson/OCD

SEND
FINAL
REPORT
TO

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87504-2088

Attn: David Boyer

Phone: 827-5812



Station/
well code
Owner

SAMPLING CONDITIONS

☒ Bailed ☐ Dipped	☒ Pump ☐ Tap	Water level 9.3'	Discharge —	Sample type Grab
pH (00400) 7	Conductivity (Uncorrected) 10,420 µmho	Water Temp. (00010) 21.5°C	Conductivity at 25°C (00094) µmho	
Field comments Slight Hydrocarbon 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: 5ml conc. HNO ₃ added	☐ A: 4ml fuming HNO ₃ added

ANALYTICAL RESULTS from SAMPLES

NA	Units	Date analyzed	From F, NA Sample:	Date Analyzed
☒ Conductivity (Corrected) 25°C (00095)	17073 µmho	7/5	☒ Calcium 880 mg/l	7/15
☐ Total non-filterable residue (suspended) (00530)	mg/l		☒ Potassium 35 mg/l	7/5
☒ Other: Lab pH	7.85	7/15	☒ Magnesium 290.4 mg/l	7/15
☐ Other:			☒ Sodium 2910 mg/l	7/5
☐ Other:			☒ Bicarbonate 209 mg/l	7/15
A-H₂SO₄			☒ Chloride 4475 mg/l	7/21
☐ Nitrate-N +, Nitrate-N total (00630)	mg/l		☒ Sulfate 2800 mg/l	7/21
☐ Ammonia-N total (00610)	mg/l		☒ Total Solids 12688 mg/l	6/28
☐ Total Kjeldahl-N ()	mg/l		☒ Fluoride 0.68	7/22
☐ Chemical oxygen demand (00340)	mg/l		☐	
☐ Total organic carbon ()	mg/l		☒ Cation/Anion Balance	
☐ Other:			Analyst	Date Reported 7/21/88
☐ Other:				Reviewed by

Laboratory remarks

FOR OCD USE -- Date Owner Notified 8/13/88 Phone or Letter

Initials

CATIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT
Ca	43.91	880.00	<3.0
Mg	23.82	290.00	<0.3
Na	126.58	2910.00	<10.0
K	0.90	35.00	<0.3
Mn	0.00	0.00	
Fe	0.00	0.00	
SUMS	195.20	4115.00	
Total Dissolved Solids=			12688
Ion Balance =			103.84%

ANIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT
HC03	3.43	209.00	<1.0
SO4	58.33	2800.00	<10.0
CL	126.23	4475.00	<5.0
NO3	0.00	0.00	< 0.
C03	0.00	0.00	< 1.
NH3	0.00	0.00	< 0.
PO4	0.00	0.00	< 0.
	187.99	7484.00	

WC No. = 8801979
Date out/By CO 7/29/88



New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106

HEAVY METAL ANALYSIS FORM

Telephone: (505)841-2553

Date Received 07/31/89 Lab No. CAP 452 User Code X 82235 ☐ Other:

COLLECTION DATE & TIME: yy mm dd hh mm 89 07 25 13 33 COLLECTION SITE DESCRIPTION NAVAGO Refinery

COLLECTED BY: Boyer, Englert

TO: OWNER: _____

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg., PO Box 2088
SANTA FE, NM 87504-2088

SITE LOCATION:
County: Eddy

ATTN: Dave Boyer
TELEPHONE: 827-5812

Township, Range, Section, Tract: (10N06E24S42)
11D13+27E+06+31

STATION/ WELL CODE: _____

LATITUDE, LONGITUDE: _____

SAMPLING CONDITIONS:

☒ Bailed ☐ Pump Water Level: 11.01 Discharge: 67 gallons Sample Type: GRAB
☐ Dipped ☐ Tap
pH(00400) 7.01 Conductivity(Uncorr.) 9250 μmho Water Temp.(00010) 19 $^{\circ}\text{C}$ Conductivity at 25 $^{\circ}\text{C}$ (00094) μmho

FIELD COMMENTS: clear water, slight H₂S odor

SAMPLE FIELD TREATMENT

Check proper boxes:

☐ WPN: Water Preserved w/HNO₃ Non-Filtered
☒ WPF: Water Preserved w/HNO₃ Filtered

LAB ANALYSIS REQUESTED:

☒ ICAP Scan
Mark box next to metal if AA is required.

ANALYTICAL RESULTS (MG/L)

ELEMENT	ICAP VALUE	AA VALUE	ELEMENT	ICAP VALUE	AA VALUE
Aluminum	<0.1		Silicon	1.2	
Barium	<0.1		Silver	<0.1	☐
Beryllium	<0.1		Strontium	12.	
Boron	1.1		Tin	0.1	
Cadmium	<0.1	☐	Vanadium	<0.1	
Calcium	880.		Zinc	<0.1	
Chromium	<0.1	☒ <0.005	Arsenic		☒ 0.017
Cobalt	<0.05		Selenium		☐
Copper	<0.1		Mercury		☐
Iron	1.8				☐
Lead	<0.1	☒ <0.005			☐
Magnesium	260.				☐
Manganese	0.32				☐
Molybdenum	<0.1				☐
Nickel	<0.1				☐

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OCT 19 1989

OIL CONSERVATION DIV.
SANTA FE

LAB COMMENTS: seal intact 7/31/89 w/ broken by JFA on 8/2/89, Digested.

For OCD Use:

Date Owner Notified: _____
Phone or Letter? _____
Initials: _____

ICAP Analyst JFA Reviewer Jim Ashby
Date Analyzed 8/28/89 Date Received 10/16/89



New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106

HEAVY METAL ANALYSIS FORM

Telephone: (505)841-2553

Date Received 6/3/88 Lab No. ICP-248 User Code ☒ 82235 ☐ Other:

COLLECTION DATE & TIME: yy/mm/dd hh/mm
06/06/01 12:05

COLLECTION SITE DESCRIPTION

COLLECTED BY: Boyer/Anderson

Narajon Refinery
CD #5 Monitor well

TO:

OWNER:

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg., PO Box 2088
SANTA FE, NM 87504-2088

SITE LOCATION:
County: Eddy

Township, Range, Section, Tract: (10N06E24342)

117S+27E+06+3

ATTN: D. Boyer
TELEPHONE: 827-5812

STATION/ WELL CODE:

LATITUDE, LONGITUDE: -

SAMPLING CONDITIONS:

☒ Bailed ☐ Dipped	☒ Pump ☐ Tap	Water Level: <u>9.3'</u>	Discharge: <u> </u>	Sample Type: <u>Grab</u>
pH(00400) <u>7</u>	Conductivity(Uncorr.) <u>10,420</u> μ mho	Water Temp.(00010) <u>21.5</u> $^{\circ}$ C	Conductivity at 25 $^{\circ}$ C (00094) <u> </u> μ mho	

FIELD COMMENTS:

SAMPLE FIELD TREATMENT

Check proper boxes:

☐ WPN: Water Preserved w/HNO ₃ Non-Filtered	☒ WPF: Water Preserved w/HNO ₃ Filtered
--	---

LAB ANALYSIS REQUESTED:

☒ ICAP Scan
Mark box next to metal if AA is required.

ANALYTICAL RESULTS (MG/L)

ELEMENT	ICAP VALUE	AA VALUE	ELEMENT	ICAP VALUE	AA VALUE
Aluminum	<0.1		Silicon	10.	
Barium	<0.1		Silver	<0.1	☐
Beryllium	<0.1		Strontium	11.	
Boron	1.1		Tin	<0.1	
Cadmium	<0.1	☐	Vanadium	<0.1	
Calcium	770.		Zinc	<0.1	
Chromium	<0.1	☒ <0.005	Arsenic		☒ 0.025
Cobalt	<0.05		Selenium		☐
Copper	<0.1		Mercury		☐
Iron	2.1				☐
Lead	<0.1	☒ <0.01			☐
Magnesium	250.				☐
Manganese	0.81				☐
Molybdenum	<0.1				☐
Nickel	<0.1				☐

LAB COMMENTS:

For OCD Use:

Date Owner Notified: 6/18/88 ICAP Analyst JB Reviewer J. Ashley
Phone or Letter? Date Analyzed 7/13/88 Date Received 7/15/88
Initials: 2713





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, Engler</u>
SITE INFORMATION		
Sample location <u>NAVAPCO Refinery: OCD-6</u>		
Collection Site Description		
		Township, Range, Section, Tract:
		<u>17 5+2 7 E+0 6+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: 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
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	<u>Fluoride</u>	



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 214/984-0551

Analytical Chemistry • Waste Treatment & Disposal • Equipment Sales

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08/17/89

AUG 21 1989

Environmental Bureau NM Oil D.
PO Box 2088
Santa Fe, NM 87504

OIL CONSERVATION DIV.
SANTA FE

Sample Identification: OCD-6 Navajo Ref.

Flow or other on site data: 4 Vials Turbid Water, HC Odor

Collected by: Boyer, Englert

Date & Time Taken: 07/25/89 1354

Additional Sample Information: 175-27E-06-3 Bailed 8 gal Temp 18 Cond 8500 NF 8020:A 8010:NA pH 6.95 HL 11.36

Lab Sample Number: 149751 Received: 07/29/89

PARAMETER:	RESULTS	QUALITY CONTROL	ANALYZED ON AT	ANALYST
1,1,1-Trichloroethane, ug/l EPA Method 8010	(5		08/05/89 2155	BP
1,1,2,2-Tetrachloroethane, ug/l EPA Method 8010	(5		08/05/89 2155	BP
1,1,2-Trichloroethane, ug/l EPA Method 8010	(5		08/05/89 2155	BP
1,1-Dichloroethane, ug/l EPA Method 8010	(5		08/05/89 2155	BP
1,1-Dichloroethene, ug/l EPA Method 8010	(1		08/05/89 2155	BP
1,2-Dichloroethane, ug/l EPA Method 8010	(5		08/05/89 2155	BP
1,2-Dichloropropane, ug/l EPA Method 8010	(5		08/05/89 2155	BP
2-Chloroethylvinyl ether, ug/l EPA Method 8010	(10		08/05/89 2155	BP
Benzene, ug/l EPA Method 8020	(5		08/05/89 2155	BP
Bromodichloromethane, ug/l EPA Method 8010	(5		08/05/89 2155	BP

continued



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OIL CONSERVATION DIV.
SANTA FE

Page 2

Lab Sample Number: 149751 Continued

PARAMETER:	RESULTS	QUALITY CONTROL	ANALYZED ON AT	ANALYST
Bromoform, ug/l EPA Method 8010	<5		08/05/89 2155	BP
Bromomethane, ug/l EPA Method 8010	<10		08/05/89 2155	BP
Carbon Tetrachloride, ug/l EPA Method 8010	<5		08/05/89 2155	BP
Chlorobenzene, ug/l EPA Method 8010	<5		08/05/89 2155	BP
Chloroethane, ug/l EPA Method 8010	<10		08/05/89 2155	BP
Chloroform, ug/l EPA Method 8010	<5		08/05/89 2155	BP
Chloromethane, ug/l EPA Method 8010	<10		08/05/89 2155	BP
Cis-1,3-Dichloropropene, ug/l EPA Method 8010	<5		08/05/89 2155	BP
Dibromochloromethane, ug/l EPA Method 8010	<5		08/05/89 2155	BP
Ethyl benzene, ug/l EPA Method 8020	<5		08/05/89 2155	BP
Freon, ug/l EPA Method 8010	<5		08/05/89 2155	BP
Methylene Chloride, ug/l EPA Method 8010	<5		08/05/89 2155	BP
Tetrachloroethene, ug/l EPA Method 8010	<5		08/05/89 2155	BP
Toluene, ug/l EPA Method 8020	<5		08/05/89 2155	BP

continued



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AUG 21 1989

Lab Sample Number: 149751 Continued

OIL CONSERVATION DIV. Page 3
SANTA FE

PARAMETER:	RESULTS	QUALITY CONTROL	ANALYZED ON AT	ANALYST
Trans-1,2-Dichloroethene, ug/l EPA Method 8010	(5		08/05/89 2155	BP
Trans-1,3-Dichloropropene, ug/l EPA Method 8010	(5		08/05/89 2155	BP
Trichloroethene, ug/l EPA Method 8010	(5		08/05/89 2155	BP
Vinyl Chloride, ug/l EPA Method 8010	(1		08/05/89 2155	BP
Xylenes, ug/l EPA Method 8020	(10		08/05/89 2155	BP

C. H. Whiteside, Ph.D., President

SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud NE
Albuquerque, NM 87106 841-2570

88-0790-C

MEXICO

REPORT TO: David Boyer

N.M. Oil Conservation Division

P. O. Box 2088

Santa Fe, N.M. 87504-2088

S.L.D. No. OR-

DATE REC.

PRIORITY

PHONE(S):

327-5812

SUBMITTER:

David Boyer

OIL CONSERVATION DIVISION
SANTA FE

CODE:

SAMPLE COLLECTION CODE: (YYMMDDHHMMII)

SAMPLE TYPE: WATER ☒ SOIL ☐ FOOD ☐ OTHER:

COUNTY:

CITY:

LOCATION CODE: (Township-Range-Section-Tracts)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes

Other Specific Compounds or Classes

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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:

FIELD DATA:

pH= 7; Conductivity= 11,500 umho/cm at 19 °C; Chlorine Residual= mg/l

Dissolved Oxygen= mg/l; Alkalinity= mg/l; Flow Rate

Depth to water 9.8 ft.; Depth of well 26.1 ft.; Perforation Interval - ft.; Casing:

Sampling Location, Methods and Remarks (i.e. odors, etc.)

Narajo Refinery - OCS #6 Monitor Well
Slight HC odors Purged 10 gallons

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities.(signature collector):

This form accompanies 2 Septum Vials, 1 Glass Jugs, and/or

Samples were preserved as follows:

- ☐ NP: No Preservation; Sample stored at room temperature.
☒ P-Ice Sample stored in an ice bath (Not Frozen).
☐ P-Na₂S₂O₃ Sample Preserved with Sodium Thiosulfate to remove chlorine residual.

CHAIN OF CUSTODY

I certify that this sample was transferred from to

at (location) on - and that

the statements in this block are correct. Evidentiary Seals: Not Sealed ☐ Seals Intact: Yes ☐ No ☐

Signatures

For OCD Use: Date Owner Notified 8/18/88 Phone or Letter?

Initials

ANALYSES PERFORMED

LAB. No.: OR- 790

THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical screening method(s) checked below:

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes

Other Specific Compounds or Classes

☐ _____
☐ _____
☐ _____
☐ _____
☐ _____

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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

ANALYTICAL RESULTS

COMPOUND(S) DETECTED	CONC. [PPB]	COMPOUND(S) DETECTED	CONC. [PPB]
halogenated purgeables	N.D.		
aromatic purgeables	see remarks		
* DETECTION LIMIT *	5 ppb	+ DETECTION LIMIT +	+

ABBREVIATIONS USED:

N D = NONE DETECTED AT OR ABOVE THE STATED DETECTION LIMIT

T R = DETECTED AT A LEVEL BELOW THE STATED DETECTION LIMIT (NOT CONFIRMED)

[RESULTS IN BRACKETS] ARE UNCONFIRMED AND/OR WITH APPROXIMATE QUANTITATION

LABORATORY REMARKS: eight compounds in the aromatic screen region at less than 5 ppb and one at approx 5-10 ppb detected by the photoionization detector but not identified.

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ☐ No ☒ Seal(s) broken by: not sealed date: _____

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: 6/10/88 Analyst's signature: Mary C. Egan

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



2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

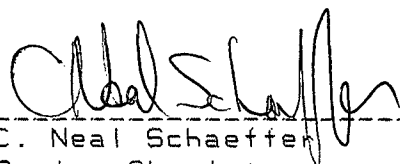
CLIENT: OCD
SAMPLE ID: 8907251354
SITE: OCD-6
LAB NO: F1823

DATE REPORTED: 08/21/89
DATE RECEIVED: 07/31/89
DATE COLLECTED: 07/25/89

Lab pH..... 8.12
Lab Conductivity, umhos/cm..... 13228
Lab resistivity, ohm-m..... 0.7560
Total Dissolved Solids (180), mg/l.. 11414
Total Dissolved Solids (calc), mg/l. 10854
Total Alkalinity as CaCO₃, mg/l..... 300.44
Total Acidity as CaCO₃, mg/l..... 0.00
Total Hardness as CaCO₃, mg/l..... 3754.30
Sodium Absorption Ratio..... 17.27
Fluoride, mg/l..... 0.76

	mg/l	meq/l
Bicarbonate as HCO ₃	366.54	6.01
Carbonate as CO ₃	0.00	0.00
Chloride.....	4604.96	129.90
Sulfate.....	2346.37	48.88
Calcium.....	929.15	46.36
Magnesium.....	349.25	28.72
Potassium.....	11.10	0.28
Sodium.....	2433.00	105.83
Major Cations.....		181.20
Major Anions.....		184.79
Cation/Anion Difference.....		0.98 %

Trace metals (Dissolved Concentration), mg/l
Arsenic..... <0.005
Lead..... <0.02
Chromium..... 0.023


C. Neal Schaeffer
Senior Chemist

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SEP - 1 1989

OIL CONSERVATION DIV.
SANTA FE



New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

864
W n f

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

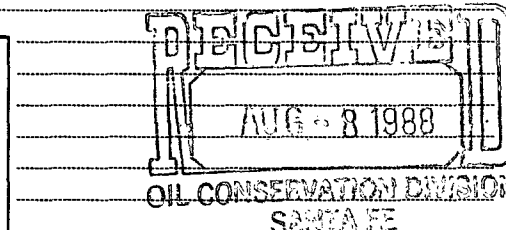
DATE RECEIVED	6/3/88	LAB NO.	WC-1973	USER CODE	☐ 59300 ☐ 59600 ☒ OTHER: 82235
Collection DATE	8/10/88	SITE INFORMATION	Sample location	Naraja Refinery OCS #6 Monitor Well	
Collection TIME	1110		Collection site description		
Collected by	Boyer/Anderson /OCD				

SEND
FINAL
REPORT
TO

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87504-2088

Attn: David Boyer

Phone: 827-5312



Station/
well code
Owner

SAMPLING CONDITIONS

☒ Bailed ☐ Dipped	☒ Pump ☐ Tap	Water level	9.8 FT	Discharge		Sample type	GRAB
pH (00400)	7	Conductivity (Uncorrected)	11,500 μ mho	Water Temp. (00010)	19 °C	Conductivity at 25°C (00094)	μ mho
Field comments: slight HC 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: 5ml conc. HNO ₃ added	☐ A: 4ml fuming HNO ₃ added

ANALYTICAL RESULTS from SAMPLES

NA	Units	Date analyzed	From F, NA Sample:	Date Analyzed
☒ Conductivity (Corrected) 25°C (00095)	14033 μ mho	6/30	☒ Calcium	864 mg/l 7/15
☐ Total non-filterable residue (suspended) (00530)			☒ Potassium	15 mg/l 7/5
☒ Other: pH (Lab)	7.81	7/14	☒ Magnesium	300.1 mg/l 7/15
☐ Other:			☒ Sodium	1640 mg/l 7/5
☐ Other:			☒ Bicarbonate	252 mg/l 7/14
A-H₂SO₄			☒ Chloride	3850 mg/l 7/26
☐ Nitrate-N +, Nitrate-N total (00630)			☒ Sulfate	2485 mg/l 7/26
☐ Ammonia-N total (00610)			☒ Total Solids	10536 mg/l 6/28
☐ Total Kjeldahl-N ()			☒ Fluoride	0.84 7/22
☐ Chemical oxygen demand (00340)			☐	
☐ Total organic carbon ()			☒ Cation/Anion Balance	
☐ Other:			Analyst	Date Reported
☐ Other:				7/27/88

Laboratory remarks

2900

FOR OCD USE -- Date Owner Notified 8/19/88 Phone or Letter?

Initials

W n f

CATIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT
Ca	43.11	864.00	<3.0
Mg	24.64	300.00	<0.3
Na	71.34	1640.00	<10.0
K	0.38	15.00	<0.3
Mn	0.00	0.00	
Fe	0.00	0.00	
SUMS	139.47	2819.00	
Total Dissolved Solids=			10536
Ion Balance =			84.78%

ANIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT
HCO3	4.13	252.00	<1.0
SO4	51.77	2485.00	<10.0
CL	108.60	3850.00	<5.0
NO3	0.00	0.00	< 0.
CO3	0.00	0.00	< 1.
NH3	0.00	0.00	< 0.
PO4	0.00	0.00	< 0.
	164.50	6587.00	

WC No. = 8801973
Date out/By D 7/29/88



New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106

HEAVY METAL ANALYSIS FORM

Telephone: (505)841-2553

Date Received	6/3/88	Lab No.	FCP-244	User Code	☒ 82235	☐ Other:
COLLECTION DATE & TIME:		yy	mm	dd	hh	mm
		88	06	01	11	10

COLLECTED BY: Boyer/Anderson

COLLECTION SITE DESCRIPTION

Norway Refinery
OCS #6 Monitor Well

TO:

OWNER:

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg., PO Box 2088
SANTA FE, NM 87504-2088

SITE LOCATION:

County: Eddy

Township, Range, Section, Tract: (10N08E24342)

1715+217E+06+31

ATTN: D. Boyer
TELEPHONE: 827-5812

STATION/ WELL CODE:

LATITUDE, LONGITUDE:

SAMPLING CONDITIONS:

☒ Bailed	☒ Pump	Water Level:	Discharge:	Sample Type:
☐ Dipped	☐ Tap	<u>9.8 ft</u>		<u>Grab</u>
pH(00400)	Conductivity(Uncorr.)	Water Temp.(00010)	Conductivity at 25°C	
<u>7</u>	<u>11,500</u> μ mho	<u>19</u> °C	<u> </u> μ mho	

FIELD COMMENTS:

SAMPLE FIELD TREATMENT

Check proper boxes:

☐ WPN: Water Preserved w/HNO ₃ Non-Filtered	☒ WPF: Water Preserved w/HNO ₃ Filtered
--	---

LAB ANALYSIS REQUESTED:

☒ ICAP Scan Mark box next to metal if AA is required.
--

ANALYTICAL RESULTS (MG/L)

ELEMENT	ICAP VALUE	AA VALUE	ELEMENT	ICAP VALUE	AA VALUE
Aluminum	<u>20.1</u>		Silicon	<u>9.4</u>	
Barium	<u>20.1</u>		Silver	<u>20.1</u>	☐
Beryllium	<u>20.1</u>		Strontium	<u>13.</u>	
Boron	<u>0.7</u>		Tin	<u>20.1</u>	
Cadmium	<u>20.1</u>	☐	Vanadium	<u>20.1</u>	
Calcium	<u>790.</u>		Zinc	<u>20.1</u>	
Chromium	<u>20.1</u>	☒ <u>20.005</u>	Arsenic		☒ <u>0.010</u>
Cobalt	<u>20.05</u>		Selenium		☐
Copper	<u>20.1</u>		Mercury		☐
Iron	<u>2.5</u>				☐
Lead	<u>20.1</u>	☒ <u>20.01</u>			☐
Magnesium	<u>280.</u>				☐
Manganese	<u>1.7</u>				☐
Molybdenum	<u>20.1</u>				☐
Nickel	<u>20.1</u>				☐

LAB COMMENTS:

For OCD Use:

Date Owner Notified: 8/18

Phone or Letter?

Initials:

ICAP Analyst JB

Reviewer J. Oakley

Date Analyzed 7/13/88

Date Received 8/10/88





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	/OCD
<u>07/25/89</u>	<u>1613</u>	<u>Boyer, Englert</u>	
SITE INFORMATION			
Sample location <u>NAVATO 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

- ☒ Bailed ☐ Pump
☐ Dipped ☐ Tap

pH(00400)

7

Water Temp. (00010)

19°C

Water level

7.56

Discharge

5 gallons

Sample type

GRAB

Conductivity (Uncorrected)

6000 μ mho

Conductivity at 25° C

4 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)	747C
☐ 004	VOH	601	☐ 016	SVOC	8250	☐ 031	Se	774C
☐ 005	SUITE	8010-8020	☐ 017	SVOC	625	☐ 032	ICAP	601C
☐ 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	



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 214/984-0551

Analytical Chemistry • Waste Treatment & Disposal • Equipment Sales

RECEIVED

AUG 21 1989

OIL CONSERVATION DIV.
SANTA FE

08/17/89

Environmental Bureau NM Oil D.
PO Box 2088
Santa Fe, NM 87504

Sample Identification: OCD-7 Navajo Ref.
Flow or other on site data: 4 Vials Turbid, HC Odor
Collected by: Boyer, Englert
Date & Time Taken: 07/25/89 1613
Additional Sample Information: 175-27E-01-4 Bailed 5 gal Temp 19 Cond 6000 NF 8020:A 8010:NA pH 7 HL 7.56
Lab Sample Number: 149752 Received: 07/29/89

PARAMETER:	RESULTS	QUALITY CONTROL	ANALYZED ON AT	ANALYST
1,1,1-Trichloroethane, ug/l EPA Method 8010	(5		08/05/89 2116	BP
1,1,2,2-Tetrachloroethane, ug/l EPA Method 8010	(5		08/05/89 2116	BP
1,1,2-Trichloroethane, ug/l EPA Method 8010	(5		08/05/89 2116	BP
1,1-Dichloroethane, ug/l EPA Method 8010	(5		08/05/89 2116	BP
1,1-Dichloroethene, ug/l EPA Method 8010	(1		08/05/89 2116	BP
1,2-Dichloroethane, ug/l EPA Method 8010	(5		08/05/89 2116	BP
1,2-Dichloropropane, ug/l EPA Method 8010	(5		08/05/89 2116	BP
2-Chloroethylvinyl ether, ug/l EPA Method 8010	(10		08/05/89 2116	BP
Benzene, ug/l EPA Method 8020	(5		08/05/89 2116	BP
Bromodichloromethane, ug/l EPA Method 8010	(5		08/05/89 2116	BP

continued



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Analytical Chemistry • Waste Treatment & Disposal • Equipment

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OIL CONSERVATION DIV.
SANTA FE Page 2

Lab Sample Number: 149752 Continued

PARAMETER:	RESULTS	QUALITY CONTROL	ANALYZED ON AT	ANALYST
Bromoform, ug/l EPA Method 8010	(5		08/05/89 2116	BP
Bromomethane, ug/l EPA Method 8010	(10		08/05/89 2116	BP
Carbon Tetrachloride, ug/l EPA Method 8010	(5		08/05/89 2116	BP
Chlorobenzene, ug/l EPA Method 8010	(5		08/05/89 2116	BP
Chloroethane, ug/l EPA Method 8010	(10		08/05/89 2116	BP
Chloroform, ug/l EPA Method 8010	(5		08/05/89 2116	BP
Chloromethane, ug/l EPA Method 8010	(10		08/05/89 2116	BP
Cis-1,3-Dichloropropene, ug/l EPA Method 8010	(5		08/05/89 2116	BP
Dibromochloromethane, ug/l EPA Method 8010	(5		08/05/89 2116	BP
Ethyl benzene, ug/l EPA Method 8020	(5		08/05/89 2116	BP
Freon, ug/l EPA Method 8010	(5		08/05/89 2116	BP
Methylene Chloride, ug/l EPA Method 8010	(5		08/05/89 2116	BP
Tetrachloroethene, ug/l EPA Method 8010	(5		08/05/89 2116	BP
Toluene, ug/l EPA Method 8020	(5		08/05/89 2116	BP

continued



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 214/984-0551

Analytical Chemistry • Waste Treatment & Disposal • Equipment Sales

RECEIVED

AUG 21 1989

Lab Sample Number: 149752 Continued

OIL CONSERVATION DIV. Page 3
SANTA FE

PARAMETER:	RESULTS	QUALITY CONTROL	ANALYZED ON AT	ANALYST
Trans-1,2-Dichloroethene, ug/l EPA Method 8010	(5		08/05/89 2116	BP
Trans-1,3-Dichloropropene, ug/l EPA Method 8010	(5		08/05/89 2116	BP
Trichloroethene, ug/l EPA Method 8010	(5		08/05/89 2116	BP
Vinyl Chloride, ug/l EPA Method 8010	(1		08/05/89 2116	BP
Xylenes, ug/l EPA Method 8020	(10		08/05/89 2116	BP

C. H. Whiteside, Ph.D., President

SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud NE

Albuquerque, NM 87106 841-2570

88-0802-C

NEW MEXICO

REPORT TO: David Boyer

N.M. Oil Conservation Division

P. O. Box 2088

Santa Fe, N.M. 87504-2088

S.L.D. No. OR- 802 A40

DATE REC. 6-3-88

PRIORITY 3

PHONE(S):

327-5812

USER CODE:

8 2 2 3 5

SUBMITTER:

David Boyer

CODE:

2 6 0

SAMPLE COLLECTION CODE: (YYMMDDHHMMIII)

880601109451413

SAMPLE TYPE: WATER ☒ SOIL ☐ FOOD ☐ OTHER: ☐

CODE:

1 1 1

COUNTY: Eddy

CITY: Artesia

CODE:

1 1 1

LOCATION CODE: (Township-Range-Section-Tracts)

26S+26E+01+41 (10N06E24342)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
Other Specific Compounds or Classes

☐
☐
☐
☐
☐**EXTRACTABLE SCREENS**

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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:

NOT HCl preserved

FIELD DATA:

pH= 7.5; Conductivity= 7600 umho/cm at 19.5°C; Chlorine Residual= mg/l

Dissolved Oxygen= mg/l; Alkalinity= mg/l; Flow Rate

Depth to water 6.9 ft.; Depth of well 21.9 ft.; Perforation Interval - ft.; Casing:

Sampling Location, Methods and Remarks (i.e. odors, etc.)

Wasp Refinery - old #7 Monitor Well
Slight Hydrocarbon odor, Purged 4 gallons dry

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities. (signature collector):

Method of Shipment to the Lab:

This form accompanies 2 Septum Vials, Glass Jugs, and/or

Samples were preserved as follows:

- ☐ NP: No Preservation; Sample stored at room temperature.
☒ P-Ice Sample stored in an ice bath (Not Frozen).
☐ P-Na₂S₂O₃ Sample Preserved with Sodium Thiosulfate to remove chlorine residual.

CHAIN OF CUSTODY

I certify that this sample was transferred from

to

at (location)

on

/ / -

and that

the statements in this block are correct. Evidentiary Seals: Not Sealed ☐Seals Intact: Yes ☐No ☐

Signatures

For OCD Use: Date Owner Notified 8/18/88 Phone or (Letter)

Initials

JLB

ANALYSES PERFORMED

LAB. No.: OR- 802

THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical screening method(s) checked below:

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
 Other Specific Compounds or Classes

☐
☐
☐
☐
☐
☐

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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

ANALYTICAL RESULTS

COMPOUND(S) DETECTED	CONC. [PPB]	COMPOUND(S) DETECTED	CONC. [PPB]
halogenated purgeables	N.D.		
aromatic purgeables	see remarks		
* DETECTION LIMIT *	5.49 ppb	+ DETECTION LIMIT +	+

ABBREVIATIONS USED:

N D = NONE DETECTED AT OR ABOVE THE STATED DETECTION LIMIT

T R = DETECTED AT A LEVEL BELOW THE STATED DETECTION LIMIT (NOT CONFIRMED)

[RESULTS IN BRACKETS] ARE UNCONFIRMED AND/OR WITH APPROXIMATE QUANTITATION

LABORATORY REMARKS:

fifteen compounds ranging from the aromatic screen region to the C3 substituted benzene region at 5-ppb detected by the photoionization detector but not identified.

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ☐ No ☒ Seal(s) broken by: not sealed date: _____

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: 6/11/88 Analyst's signature: Ray C. Chen

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



2503 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

CLIENT: OCD
SAMPLE: 8907251613
SITE: OCD-7
LAB NO: F1824

DATE REPORTED: 08/21/89
DATE RECEIVED: 07/31/89
DATE COLLECTED: 07/25/89

Lab pH.....	8.21
Lab Conductivity, umhos/cm.....	10111
Lab resistivity, ohm-m.....	0.9890
Total Dissolved Solids (180), mg/l..	9198
Total Dissolved Solids (calc), mg/l.	9016
Total Alkalinity as CaCO ₃ , mg/l.....	503.44
Total Acidity as CaCO ₃ , mg/l.....	0.00
Total Hardness as CaCO ₃ , mg/l.....	2603.12
Sodium Absorption Ratio.....	17.81
Fluoride, mg/l.....	5.04

	mg/l	meq/l
Bicarbonate as HCO ₃	614.20	10.07
Carbonate as CO ₃	0.00	0.00
Chloride.....	1999.38	56.40
Sulfate.....	3738.07	77.88
Calcium.....	638.79	31.88
Magnesium.....	245.47	20.19
Potassium.....	3.60	0.09
Sodium.....	2089.00	90.87
Major Cations.....		143.02
Major Anions.....		144.35
Cation/Anion Difference.....		0.46 %


C. Neal Schaeffer
Senior Chemist

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OIL CONSERVATION DIV.
SANTA FE



2503 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

CLIENT: OCD
SAMPLE: 8907251613
SITE: OCD-7
LAB NO: F1824 Dup

DATE REPORTED: 08/21/89
DATE RECEIVED: 07/31/89
DATE COLLECTED: 07/25/89

Lab pH.....	8.19
Lab Conductivity, umhos/cm.....	10111
Lab resistivity, ohm-m.....	0.9890
Total Dissolved Solids (180), mg/l..	9192
Total Dissolved Solids (calc), mg/l.	9063
Total Alkalinity as CaCO ₃ , mg/l.....	507.50
Total Acidity as CaCO ₃ , mg/l.....	0.00
Total Hardness as CaCO ₃ , mg/l.....	2732.76
Sodium Absorption Ratio.....	17.38
Fluoride, mg/l.....	5.04

	mg/l	meq/l
Bicarbonate as HCO ₃	619.15	10.15
Carbonate as CO ₃	0.00	0.00
Chloride.....	1999.38	56.40
Sulfate.....	3741.36	77.94
Calcium.....	663.68	33.12
Magnesium.....	261.89	21.54
Potassium.....	3.60	0.09
Sodium.....	2089.00	90.87
Major Cations.....		145.61
Major Anions.....		144.49
Cation/Anion Difference.....		0.39 %


C. Neal Schaeffer
Senior Chemist

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OIL CONSERVATION DIV.
SANTA FE



New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

86H
wnf

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

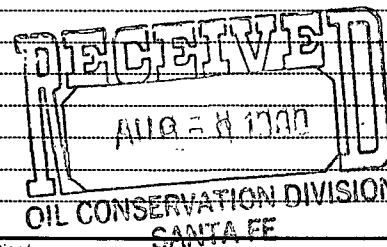
DATE RECEIVED	6/3/88	LAB NO.	WC-1981	USER CODE	☐ 59300 ☐ 59600 ☒ OTHER: 82235
Collection DATE	6/10/88	SITE INFORMATION	Sample location		
Collection TIME	0945		Nanjo Refinery O&D #7 Monitor Well		
Collected by — Person/Agency		Collection site description			
Boyer/Anderson/OCD					

SEND
FINAL
REPORT
TO

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87504-2088

Attn: David Boyer

Phone: 827-5812



Station/
well code
Owner

SAMPLING CONDITIONS

☒ Bailed ☐ Dipped	☒ Pump ☐ Tap	Water level	6.95 ft	Discharge		Sample type	Grab
pH (00400)		7.5		Conductivity (Uncorrected)		7600 µmho	
				Water Temp. (00010)		19.5 °C	
				Conductivity at 25°C (00094)		µmho	
Field comments							
Slight Hydrocarbon 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: 5ml conc. HNO ₃ added	☐ A: 4ml fuming HNO ₃ added

ANALYTICAL RESULTS from SAMPLES

NA	Units	Date analyzed	From	NA Sample:	Date Analyzed
☒ Conductivity (Corrected) 25°C (00095)	µmho	7/5	F	Calcium	624 mg/l 7/15
☐ Total non-filterable residue (suspended) (00530)	mg/l			Potassium	10 mg/l 7/5
☒ Other: pH (Lab)		7.74		Magnesium	231.8 mg/l 7/15
☐ Other:				Sodium	1705 mg/l 7/5
☐ Other:				Bicarbonate	388 mg/l 7/15
A-H₂SO₄				Chloride	1665 mg/l 6/29
☐ Nitrate-N +, Nitrate-N total (00630)	mg/l			Sulfate	3475 mg/l 7/21
☐ Ammonia-N total (00610)	mg/l			Total Solids	8422 mg/l 6/30
☐ Total Kjeldahl-N ()	mg/l			Fluoride	2.52 7/12
☐ Chemical oxygen demand (00340)	mg/l				
☐ Total organic carbon ()	mg/l				
☐ Other:				☒ Cation/Anion Balance	
☐ Other:				Analyst	Date Reported
Laboratory remarks				7/27/88	Reviewed by
1705					

FOR OCD USE -- Date Owner Notified 8/18/88 Phone or Letter

Initials RCB

CATIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT
Ca	31.14	624.00	<3.0
Mg	19.06	232.00	<0.3
Na	77.64	1785.00	<10.0
K	0.26	10.00	<0.3
Mn	0.00	0.00	
Fe	0.00	0.00	
SUMS	128.09	2651.00	
Total Dissolved Solids=			8422
Ion Balance =			97.06%

ANIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT
HC03	6.36	388.00	<1.0
SO4	78.65	3775.00	<10.0
CL	46.97	1665.00	<5.0
NO3	0.00	0.00	< 0.
C03	0.00	0.00	< 1.
NH3	0.00	0.00	< 0.
PO4	0.00	0.00	< 0.
	131.97	5828.00	

WC No. = 8801981
Date out/By CD 7/29/88



New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106

HEAVY METAL ANALYSIS FORM

Telephone: (505)841-2553

Date Received	07/31/89	Lab No.	ICAP 445	User Code	☒ 82235 ☐ Other:
COLLECTION DATE & TIME: yy mm dd hh mm				COLLECTION SITE DESCRIPTION	
89 07 25 16 13				NAVATE Refinery	
COLLECTED BY: Boyer, Englert				OCD-7	

TO:

OWNER:

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg., PO Box 2088
SANTA FE, NM 87504-2088

SITE LOCATION:

County: Eddy

Township, Range, Section, Tract: (10N06E24342)

1175+26E+011+A

ATTN: Dave Boyer
TELEPHONE: 827-5812

STATION/ WELL CODE:

LATITUDE, LONGITUDE:

SAMPLING CONDITIONS:

☒ Bailed ☐ Dipped	☐ Pump ☐ Tap	Water Level: 7.56	Discharge: 5 gallons	Sample Type: GRAB
pH(00400): 7	Conductivity(Uncorr.): 6000 μ mho	Water Temp.(00010): 19 °C	Conductivity at 25°C (00094): μ mho	

FIELD COMMENTS: Turbid, Hc like odor

SAMPLE FIELD TREATMENT

Check proper boxes:

☐ WPN: Water Preserved w/HNO ₃ Non-Filtered	☒ WPF: Water Preserved w/HNO ₃ Filtered
--	---

LAB ANALYSIS REQUESTED:

☒ ICAP Scan
Mark box next to metal if AA is required.

ANALYTICAL RESULTS (MG/L)

ELEMENT	ICAP VALUE	AA VALUE	ELEMENT	ICAP VALUE	AA VALUE
Aluminum	0.2 μ A <0.1		Silicon	3.5	
Barium	<0.1		Silver	<0.1	☐
Beryllium	<0.1		Strontium	8.4	
Boron	0.9		Tin	0.1	
Cadmium	<0.1	☐	Vanadium	<0.1	
Calcium	690		Zinc	<0.1	
Chromium	<0.1	☒ 0.008	Arsenic		☒ 0.078
Cobalt	<0.05		Selenium		☐
Copper	<0.1		Mercury		☐
Iron	<0.1		RECEIVED OCT 19 1989 OIL CONSERVATION DIV. SANTA FE		
Lead	<0.1	☒ <0.005			
Magnesium	250				
Manganese	3.7				
Molybdenum	<0.1				☐
Nickel	<0.1				☐

LAB COMMENTS: seal intact 7/31/89 wpl. Broken by JAH on 8/2/89. Digested

For OCD Use:

Date Owner Notified:
Phone or Letter?
Initials:

ICAP Analyst JAH

Date Analyzed 8/28/89

Reviewer Jim Ashby

Date Received 10/16/89



New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106

HEAVY METAL ANALYSIS FORM

Telephone: (505)841-2553

Date Received	6/3/88	Lab No.	ICP-242	User Code	☒ 82235 ☐ Other:			
COLLECTION DATE & TIME:				yy	mm	dd	hh	mm
				88	06	01	09	45

COLLECTED BY: Boyer/Anderson

TO:

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg., PO Box 2088
SANTA FE, NM 87504-2088

ATTN: D. Boyer
TELEPHONE: 827-5812

STATION/ WELL CODE:

LATITUDE, LONGITUDE: -

SAMPLING CONDITIONS:

☒ Bailed	☒ Pump	Water Level:	Discharge:	Sample Type:
☐ Dipped	☐ Tap	<u>6.7</u>	<u>-</u>	<u>Grab</u>
pH(00400)	Conductivity(Uncorr.)	Water Temp.(00010)	Conductivity at 25°C	
<u>7.5</u>	<u>7600</u> μ mho	<u>19.5</u> °C	<u>(00094)</u> μ mho	

FIELD COMMENTS:

Slight hydrocarbon odor

SAMPLE FIELD TREATMENT

Check proper boxes:

☐ WPN: Water Preserved w/HNO ₃ Non-Filtered	☒ WPF: Water Preserved w/HNO ₃ Filtered
---	--

LAB ANALYSIS REQUESTED:

☒ ICAP Scan
Mark box next to metal if AA is required.

ANALYTICAL RESULTS (MG/L)

ELEMENT	ICAP VALUE	AA VALUE	ELEMENT	ICAP VALUE	AA VALUE
Aluminum	<0.1		Silicon	7.1	
Barium	<0.1		Silver	<0.1	☐
Beryllium	<0.1		Strontium	8.2	
Boron	0.6		Tin	<0.1	
Cadmium	<0.1	☐	Vanadium	<0.1	
Calcium	620.		Zinc	<0.1	
Chromium	<0.1	☒ <0.005	Arsenic		☒ 0.11
Cobalt	<0.05		Selenium		☐
Copper	<0.1		Mercury		☐
Iron	0.3				☐
Lead	<0.1	☒ <0.01			☐
Magnesium	230.				☐
Manganese	3.7				☐
Molybdenum	<0.1				☐
Nickel	<0.1				☐

LAB COMMENTS:

For OCD Use:

Date Owner Notified: 8/15/88
Phone or Letter?
Initials: DVB

ICAP Analyst JA
Date Analyzed 6/7/88

Reviewer Jim Ashby
Date Received 8/10/88





ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

1825

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, Engler</u>	/OCD
SITE INFORMATION			
Sample location <u>NAVATO 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: 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. Hc like odor**SAMPLING CONDITIONS**

Water level

8.22

- ☒ Bailed ☐ Pump
☐ Dipped ☐ Tap

Discharge

7 gallons

Sample type

GRAB

pH(00400)

6.91

Conductivity (Uncorrected)

6800 μ mho

Water Temp. (00010)

21°C

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	



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 214/984-0551

Analytical Chemistry • Waste Treatment & Disposal • Equipment Sales

08/17/89

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Environmental Bureau NM Oil D.
PO Box 2088
Santa Fe, NM 87504

AUG 21 1989
OIL CONSERVATION DIV.
SANTA FE

Sample Identification: OCD-8 Navajo Ref.
Flow or other on site data: 4 Vials Slight Turbid, HC Odor
Collected by: Boyer, Englert
Date & Time Taken: 07/25/89 1553
Additional Sample Information: 175-26E-12-2 Bailed 7 gal Temp 21 Cond 6800 NF 8020:A 8010:NA pH 6.91 ML 8.22
Lab Sample Number: 149753 Received: 07/29/89

PARAMETER:	RESULTS	QUALITY CONTROL	ANALYZED ON AT	ANALYST
1,1,1-Trichloroethane, ug/l EPA Method 8010	(5)		08/05/89 1751	BP
1,1,2,2-Tetrachloroethane, ug/l EPA Method 8010	(5)		08/05/89 1751	BP
1,1,2-Trichloroethane, ug/l EPA Method 8010	(5)		08/05/89 1751	BP
1,1-Dichloroethane, ug/l EPA Method 8010	(5)		08/05/89 1751	BP
1,1-Dichloroethene, ug/l EPA Method 8010	(1)		08/05/89 1751	BP
1,2-Dichloroethane, ug/l EPA Method 8010	(5)		08/05/89 1751	BP
1,2-Dichloropropane, ug/l EPA Method 8010	(5)		08/05/89 1751	BP
2-Chloroethylvinyl ether, ug/l EPA Method 8010	(10)		08/05/89 1751	BP
Benzene, ug/l EPA Method 8020	(5)		08/05/89 1751	BP
Bromodichloromethane, ug/l EPA Method 8010	(5)		08/05/89 1751	BP

continued



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OIL CONSERVATION DIV.
SANTA FE

Page 2

Lab Sample Number: 149753 Continued

PARAMETER:	RESULTS	QUALITY CONTROL	ANALYZED ON AT	ANALYST
Bromoform, ug/l EPA Method 8010	(5		08/05/89 1751	BP
Bromomethane, ug/l EPA Method 8010	(10		08/05/89 1751	BP
Carbon Tetrachloride, ug/l EPA Method 8010	(5		08/05/89 1751	BP
Chlorobenzene, ug/l EPA Method 8010	(5		08/05/89 1751	BP
Chloroethane, ug/l EPA Method 8010	(10		08/05/89 1751	BP
Chloroform, ug/l EPA Method 8010	(5		08/05/89 1751	BP
Chloromethane, ug/l EPA Method 8010	(10		08/05/89 1751	BP
Cis-1,3-Dichloropropene, ug/l EPA Method 8010	(5		08/05/89 1751	BP
Dibromochloromethane, ug/l EPA Method 8010	(5		08/05/89 1751	BP
Ethyl benzene, ug/l EPA Method 8020	(5		08/05/89 1751	BP
Freon, ug/l EPA Method 8010	(5		08/05/89 1751	BP
Methylene Chloride, ug/l EPA Method 8010	(5		08/05/89 1751	BP
Tetrachloroethene, ug/l EPA Method 8010	(5		08/05/89 1751	BP
Toluene, ug/l EPA Method 8020	(5		08/05/89 1751	BP

continued



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OIL CONSERVATION DIV.
SANTA FE

Lab Sample Number: 149753 Continued

Page 3

PARAMETER:	RESULTS	QUALITY CONTROL	ANALYZED ON AT	ANALYST
Trans-1,2-Dichloroethene, ug/l EPA Method 8010	<5		08/05/89 1751	BP
Trans-1,3-Dichloropropene, ug/l EPA Method 8010	<5		08/05/89 1751	BP
Trichloroethene, ug/l EPA Method 8010	<5		08/05/89 1751	BP
Vinyl Chloride, ug/l EPA Method 8010	<1		08/05/89 1751	BP
Xylenes, ug/l EPA Method 8020	<10		08/05/89 1751	BP

C. H. Whiteside, Ph.D., President



2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

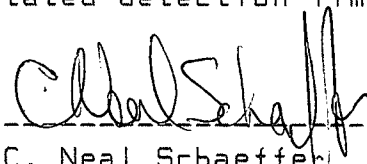
CLIENT: OCD
ID: 8907251553
SITE: OCD-8
LAB NO: F1825
Analysis Requested: Purgeable aromatics in water.

DATE REPORTED: 08/22/89
DATE EXTRACTED: 08/08/89
DATE RECEIVED: 08/02/89
DATE COLLECTED: 07/25/89

Parameter	Concentration	Units
Benzene	ND (0.2)	ug/l
Ethylbenzene	ND (0.2)	ug/l
Toluene	18.38 (0.2)	ug/l
1,2-Dichlorobenzene	ND (0.2)	ug/l
1,3-Dichlorobenzene	ND (0.2)	ug/l
1,4-Dichlorobenzene	ND (0.2)	ug/l
Chlorobenzene	ND (0.2)	ug/l
m-Xylene	ND (0.2)	ug/l
o-Xylene	ND (0.2)	ug/l
p-Xylene	ND (0.2)	ug/l

Method:
8020 Aromatic Volatile Organics, SW-846, USEPA (1982)

(Detection limit in parenthesis.)
ND - Parameter not detected at the stated detection limit.


C. Neal Schaeffer
Senior Chemist

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OIL CONSERVATION DIV.
SANTA FE

CLIENT: OCD
ID: 8907251553
SITE: OCD-8
LAB NO: F1825

DATE REPORTED: 08/22/89
DATE EXTRACTED: 08/07/89
DATE RECEIVED: 08/02/89
DATE COLLECTED: 07/25/89

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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OIL CONSERVATION DIV.
SANTA FE

ID: 8907251553
LAB NO: F1825

DATE REPORTED: 08/22/89

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.



C. Neal Schaeffer
Senior Chemist

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OIL CONSERVATION DIV.
SANTA FE

SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud NE
Albuquerque, NM 87106 841-2570

88-0804-C

OF NEW MEXICO

REPORT TO: David Boyer

N.M. Oil Conservation Division

P. O. Box 2088

Santa Fe, N.M. 87504-2088

PHONE(S):

327-5812

SUBMITTER:

David Boyer

S.L.D. No. OR-

804 A45

DATE REC.

6-3-88

PRIORITY

USER CODE:

8 2 2 3 5

CODE:

2 6 0

SAMPLE COLLECTION CODE: (YYMMDDHHMMIII)

88060108500DGB

SAMPLE TYPE: WATER ☒ SOIL ☐ FOOD ☐ OTHER: _____

CODE: _____

COUNTY: EDDY

CITY: ARTESIA

CODE: _____

LOCATION CODE: (Township-Range-Section-Tracts)

T17N + 26E + 12 + 2 (10N06E24342)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.**PURGEABLE SCREENS**

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
Other Specific Compounds or Classes

☐
☐
☐
☐
☐**EXTRACTABLE SCREENS**

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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:

No HCl preservative

FIELD DATA:

pH= 7 ; Conductivity= 9000 umho/cm at 18° C; Chlorine Residual= _____ mg/l

Dissolved Oxygen= _____ mg/l; Alkalinity= _____ mg/l; Flow Rate _____

Depth to water 6.5 ft.; Depth of well 20.9 ft.; Perforation Interval _____ ft.; Casing: 2" SS & PUC

Sampling Location, Methods and Remarks (i.e. odors, etc.)

NAVATO REFINERY OCD-8 MONITOR WELL

Hydrocarbon odor Purged 10 gallons

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities. (signature collector):

Method of Shipment to the Lab: HAND

This form accompanies 2 Septum Vials, _____ Glass Jugs, and/or _____

Samples were preserved as follows:

- ☐ NP: No Preservation; Sample stored at room temperature.
☒ P-Ice Sample stored in an ice bath (Not Frozen).
☐ P-Na₂S₂O₃ Sample Preserved with Sodium Thiosulfate to remove chlorine residual.

CHAIN OF CUSTODY

I certify that this sample was transferred from _____ to _____

at (location) _____ on _____ and that

the statements in this block are correct. Evidentiary Seals: Not Sealed ☐ Seals Intact: Yes ☐ No ☐

Signatures _____

For OCD Use: Date Owner Notified 8/14/88

Phone or (Letter) _____

Initials

JJB

ANALYSES PERFORMED

LAB. No.: OR- 804

THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical screening method(s) checked below:

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
 Other Specific Compounds or Classes

☐
☐
☐
☐
☐

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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

ANALYTICAL RESULTS

COMPOUND(S) DETECTED	CONC. [PPB]	COMPOUND(S) DETECTED	CONC. [PPB]
<i>aromatic purgeables</i>	<i>see remarks</i>		
<i>benzene</i>	<i>1.4</i>	<i>70</i>	
<i>toluene</i>	<i>2.3</i>	<i>115</i>	
<i>ethylbenzene</i>	<i>T.R.</i>	<i>T.R.</i>	
<i>p & m xylene</i>	<i>27</i>	<i>35</i>	
<i>o-xylene</i>	<i>5</i>	<i>25</i>	
<i>halogenated purgeables</i>	<i>N.D.</i>		
* DETECTION LIMIT *	* <i>25 ppb</i> *	+ DETECTION LIMIT +	+

ABBREVIATIONS USED:

N D = NONE DETECTED AT OR ABOVE THE STATED DETECTION LIMIT

T R = DETECTED AT A LEVEL BELOW THE STATED DETECTION LIMIT (NOT CONFIRMED)

[RESULTS IN BRACKETS] ARE UNCONFIRMED AND/OR WITH APPROXIMATE QUANTITATION

LABORATORY REMARKS:

Eight late eluting unsaturated compounds at 25-50 ppb five compounds in the aromatic screen region at 25-50 ppb (one at approx 200-300 ppb) detected but they the photoionization detected but not identified.

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ☐ No ☒ Seal(s) broken by: *not sealed* date: _____

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: *6/4/88* Analyst's signature: *Way C. Eden*

I certify that I have reviewed and concur with the analytical results for this sample and with the statements in this block.

Reviewers signature: *K. Meyer*



2503 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

CLIENT: OCD
SAMPLE ID: 8907251553
SITE: OCD-8
LAB NO: F1825

DATE REPORTED: 08/21/89
DATE RECEIVED: 07/31/89
DATE COLLECTED: 07/25/89

Lab pH..... 8.07
Lab Conductivity, umhos/cm..... 10542
Lab resistivity, ohm-m..... 0.9486
Total Dissolved Solids (180), mg/l.. 9618
Total Dissolved Solids (calc), mg/l. 9263
Total Alkalinity as CaCO₃, mg/l..... 458.78
Total Acidity as CaCO₃, mg/l..... 0.00
Total Hardness as CaCO₃, mg/l..... 3246.12
Sodium Absorption Ratio..... 14.73
Fluoride, mg/l..... 2.22

	mg/l	meq/l
Bicarbonate as HCO ₃	559.71	9.18
Carbonate as CO ₃	0.00	0.00
Chloride.....	2467.32	69.60
Sulfate.....	3520.79	73.35
Calcium.....	696.86	34.77
Magnesium.....	366.61	30.15
Potassium.....	6.40	0.16
Sodium.....	1930.00	83.95
Major Cations.....		149.04
Major Anions.....		152.13
Cation/Anion Difference.....		1.03 %

Trace metals (Dissolved Concentration), mg/l
Arsenic..... 0.016
Lead..... <0.02
Chromium..... 0.022


C. Neal Schaeffer
Senior Chemist

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SANTA FE



New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

864
WTF

**GENERAL WATER CHEMISTRY
and NITROGEN ANALYSIS**

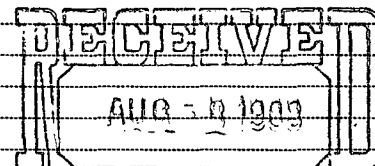
DATE RECEIVED	6/3/88	LAB NO.	WC-1982	USER CODE	☐ 59300 ☐ 59600 ☒ OTHER: 82235
Collection DATE	06/06/01	SITE INFORMATION	Sample location		
Collection TIME	0850		Naciso Refinery OCA #8 monitoring well		
Collected by	Person/Agency	Collection site description			
Boyer/Anderson		OCD			

SEND
FINAL
REPORT
TO

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87504-2088

Attn: David Boyer

Phone: 827-5812



OIL CONSERVATION DIVISION
SANTA FE

Station/
well code
Owner

SAMPLING CONDITIONS

☒ Bailed ☐ Dipped	☒ Pump ☐ Tap	Water level	Discharge	Sample type
				GRAB
pH (00400)	7	Conductivity (Uncorrected)	Water Temp. (00010)	Conductivity at 25°C (00094)
		4000 µmho	18 °C	µmho
Field comments				
See VOC sheet for comments - Hydrocarbon 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: 5ml conc. HNO ₃ added	☐ A: 4ml fuming HNO ₃ added

ANALYTICAL RESULTS from SAMPLES

NA	Units	Date analyzed	From	NA Sample:	Date Analyzed
☒ Conductivity (Corrected) 25°C (00095)	µmho	7/5	F	Calcium	500 mg/l 7/15
☐ Total non-filterable residue (suspended) (00530)	mg/l			Potassium	10 mg/l 7/5
☒ Other: pH		7.81		Magnesium	436.8 mg/l 7/15
☐ Other:				Sodium	1700 mg/l 7/5
☐ Other:				Bicarbonate	412 mg/l 7/15
A-H₂SO₄				Chloride	2180 mg/l
☐ Nitrate-N +, Nitrate-N total (00630)	mg/l			Sulfate	3476 mg/l
☐ Ammonia-N total (00610)	mg/l			Total Solids	9010 mg/l 6/30
☐ Total Kjeldahl-N ()	mg/l			Fluoride	40.05 7/12
☐ Chemical oxygen demand (00340)	mg/l				
☐ Total organic carbon ()	mg/l				
☐ Other:					
☐ Other:					
Laboratory remarks			Analyst	Date Reported	Reviewed by
2180				7/27/88	

FOR OCD USE -- Date Owner Notified 8/18/88 Phone or Letter

Initials

WTF

CATIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT
Ca	24.95	500.00	<3.0
Mg	35.89	437.00	<0.3
Na	73.95	1700.00	<10.0
K	0.26	10.00	<0.3
Mn	0.00	0.00	
Fe	0.00	0.00	
SUMS	135.04	2647.00	
Total Dissolved Solids=			9010
Ion Balance =			96.02%

ANIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT
HC03	6.75	412.00	<1.0
SO4	72.40	3475.00	<10.0
CL	61.50	2180.00	<5.0
NO3	0.00	0.00	< 0.
C03	0.00	0.00	< 1.
NH3	0.00	0.00	< 0.
PO4	0.00	0.00	< 0.
	140.64	6067.00	

WC No. = 8801982
Date out/By CD 7/29/88



New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106

HEAVY METAL ANALYSIS FORM

Telephone: (505)841-2553

Date Received	6/3/88	Lab No.	ICP-243	User Code	☒ 82235 ☐ Other:	
COLLECTION DATE & TIME:		yy	mm	dd	hh	mm
		08	06	01	08	50

COLLECTED BY: Boyer/Anderson

COLLECTION SITE DESCRIPTION

Narajo Refinery
OCD #3 Monitor Well

OWNER: _____

SITE LOCATION:
County: Edley

Township, Range, Section, Tract: (10N06E24342)
17S+26E+12+21

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg.
SANTA FE, NM 87504-2088

ATTN: D. Boyer
TELEPHONE: 827-5812

STATION/ WELL CODE: _____

LATITUDE, LONGITUDE: _____

SAMPLING CONDITIONS:

☒ Bailed	☒ Pump	Water Level:	Discharge:	Sample Type:
☐ Dipped	☐ Tap			<u>Grab</u>
pH(00400)	Conductivity(Uncorr.)	Water Temp.(00010)	Conductivity at 25°C	
<u>7</u>	<u>9000</u> μ mho	<u>18</u> °C	(00094)	μ mho

FIELD COMMENTS: Hydrocarbon odor

SAMPLE FIELD TREATMENT

Check proper boxes:

☐ WPN: Water Preserved w/HNO ₃ Non-Filtered	☒ WPF: Water Preserved w/HNO ₃ Filtered
---	--

LAB ANALYSIS REQUESTED:

☒ ICAP Scan
Mark box next to metal if AA is required.

ANALYTICAL RESULTS (MG/L)

ELEMENT	ICAP VALUE	AA VALUE	ELEMENT	ICAP VALUE	AA VALUE
Aluminum	20.1		Silicon	9.2	
Barium	20.1		Silver	20.1	☐
Beryllium	20.1		Strontium	8.9	
Boron	0.9		Tin	20.1	
Cadmium	20.1	☐	Vanadium	20.1	
Calcium	620.		Zinc	20.1	
Chromium	20.1	☒ 20.005	Arsenic		☒ 0.11
Cobalt	20.05		Selenium		☐
Copper	20.1		Mercury		☐
Iron	0.6				☐
Lead	20.1	☒ 20.01			☐
Magnesium	350.				☐
Manganese	2.9				☐
Molybdenum	20.1				☐
Nickel	20.1				☐

LAB COMMENTS:

For OCD Use:

Date Owner Notified: 8/18/88
Phone or Letter? Letter
Initials: DVB

ICAP Analyst JB
Date Analyzed 7/13/88

Reviewer Jim Ashby
Date Received 8/10/88



AW-28
Early Wells,
Pond
Windmill

Early Wells

Early Wells, Pond Wind

SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud NE
Albuquerque, NM 87106 841-2570

NEW MEXICO

87-0744-C

REPORT TO: David Boyer
N.M. Oil Conservation Division
P. O. Box 2088
Santa Fe, N.M. 87504-2088

S.L.D. No. OR- 744-A-B
DATE REC. 5/5/87

PHONE(S): 827-5812 USER CODE: 8 2 2 3 5
SUBMITTER: David Boyer CODE: 2 6 0

SAMPLE COLLECTION CODE: (YYMMDDHHMMIII) 8 7 9 4 3 0 1 0 2 5 2 4 8

SAMPLE TYPE: WATER ☒, SOIL ☐, FOOD ☐, OTHER: CODE: ☐ ☐ ☐

COUNTY: Eddy; CITY: Artesia CODE: ☐ ☐ ☐

LOCATION CODE: (Township-Range-Section-Tracts) 1 1 7 1 S + 2 6 1 E + 1 2 + 1 2 3 (10N06E24342)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
Other Specific Compounds or Classes

☐
☐
☐
☐
☐

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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:

FIELD DATA:

pH= 7.5; Conductivity= 5800 umho/cm at 18.2°C; Chlorine Residual= mg/l

Dissolved Oxygen= mg/l; Alkalinity= mg/l; Flow Rate

Depth to water 6' 10"; Depth of well 21' 2"; Perforation Interval - ft.; Casing: Fiberglass 8 1/4"

Sampling Location, Methods and Remarks (i.e. odors, etc.)

Well #3, Narijo Refinery, water black, foamy (no sheen),
(3) light odor (washed by ditch, pond #1) - Distance to River ~ 70'
to Pond ~ 120'

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities. (signature collector): [Signature] Method of Shipment to the Lab: State Car

This form accompanies 2 Septum Vials, Glass Jugs, and/or

Samples were preserved as follows:

- ☐ NP: No Preservation; Sample stored at room temperature.
☒ P-Ice Sample stored in an ice bath (Not Frozen).
☐ P-Na₂S₂O₃ Sample Preserved with Sodium Thiosulfate to remove chlorine residual.

CHAIN OF CUSTODY

I certify that this sample was transferred from to

at (location) on - and that

the statements in this block are correct. Evidentiary Seals: Not Sealed ☐ Seals Intact: Yes ☐ No ☐

Signatures

For OCD Use: Date Owner Notified Phone or Letter? Initials

ANALYSES PERFORMED

LAB. No.: OR- 8744

THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical screening method(s) checked below:

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
 Other Specific Compounds or Classes

☐
☐
☐
☐
☐

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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

ANALYTICAL RESULTS

COMPOUND(S) DETECTED	CONC. [PPB]	COMPOUND(S) DETECTED	CONC. [PPB]
aromatic purgeables	see remarks		
halogenated purgeables	N.D.		
* DETECTION LIMIT *	* 10 ⁻⁹ g/L *	+ DETECTION LIMIT +	+

ABBREVIATIONS USED:

N D = NONE DETECTED AT OR ABOVE THE STATED DETECTION LIMIT

T R = DETECTED AT A LEVEL BELOW THE STATED DETECTION LIMIT (NOT CONFIRMED)

[RESULTS IN BRACKETS] ARE UNCONFIRMED AND/OR WITH APPROXIMATE QUANTITATION

LABORATORY REMARKS: Eight compounds in the aromatic mass region at 10-20 ppb detected with the photoionization detector but not identified.

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ☐ No ☒ Seal(s) broken by: not sealed date:

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: 5/25/87 Analyst's signature: Mary C. Eden

I certify that I have reviewed and concur with the analytical results for this sample and with the statements in this block.

Reviewers signature: K. Sherrell

JUN 11 1987



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	5/5/87	LAB NO.	WC1653	USER CODE	☐ 59300 ☐ 59600 ☒ OTHER: 82235
Collection DATE	5/10/87	SITE INFORMATION	Sample location		
Collection TIME	1025		Well #3, Narejo Refinery		
Collected by — Person/Agency			Collection site description		
Boyer/Anderson/OCD					

SEND
FINAL
REPORT
TO

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87504-2088

Attn: David Boyer

Phone: 827-5812

SAMPLING CONDITIONS

☐ Bailed ☐ Dipped	☒ Pump ☐ Tap	Water level	Discharge	Sample type
				GRAB
pH (00400)	7 strip	Conductivity (Uncorrected)	Water Temp. (00010)	Conductivity at 25°C (00094)
		5800 µmho	18.2 °C	µmho
Field comments				
See VOC sheet for 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:	☐ A: 5ml conc. HNO ₃ added	☐ A: 4ml fuming HNO ₃ added

ANALYTICAL RESULTS from SAMPLES

NA	Units	Date analyzed	From	NA Sample:	Date Analyzed
☒ Conductivity (Corrected) 25°C (00095)	µmho	5/13			
☐ Total non-filterable residue (suspended) (00530)	mg/l				
☒ Other: pH		5/12			
☐ Other:					
☐ Other:					
A-H₂SO₄					
☐ Nitrate-N +, Nitrate-N total (00630)	mg/l		☒ Calcium	460 mg/l	6/1
☐ Ammonia-N total (00610)	mg/l		☒ Potassium	4.29 mg/l	5/17
☐ Total Kjeldahl-N ()	mg/l		☒ Magnesium	156 mg/l	6/1
☐ Chemical oxygen demand (00340)	mg/l		☒ Sodium	1026 mg/l	5/19
☐ Total organic carbon ()	mg/l		☒ Bicarbonate	283 mg/l	5/12
☐ Other:			☒ Chloride	1285 mg/l	5/26
☐ Other:			☒ Sulfate	1795 mg/l	5/20
			☒ Total Solids	5288 mg/l	5/27
			☒ Fluoride	2.35	5/27
			☐		
			☒ Cation/Anion Balance		
Laboratory remarks			Analyst	Date Reported	Reviewed by
				6/2/87	

FOR OCD USE -- Date Owner Notified _____ Phone or Letter? _____ Initials _____

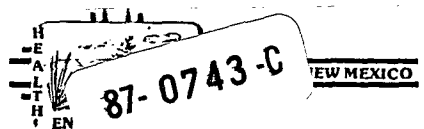
CATIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT
Ca	22.95	460.00	<3.0
Mg	12.81	156.00	<0.3
Na	44.63	1026.00	<10.0
K	0.11	4.29	<0.3
Mn	0.00	0.00	
Fe	0.00	0.00	
SUMS	80.51	1646.29	
Total Dissolved Solids=			5288
Ion Balance =			102.84%

ANIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT
HCO3	4.64	283.00	<1.0
SO4	37.40	1795.00	<10.0
CL	36.25	1285.00	<5.0
NO3	0.00	0.00	< 0.
CO3	0.00	0.00	< 1.
NH3	0.00	0.00	< 0.
PO4	0.00	0.00	< 0.
	78.28	3363.00	

WC No. = 8701653
Date out/By CD 6/2/87



SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud NE
Albuquerque, NM 87106 841-2570

REPORT TO: David Boyer
N.M. Oil Conservation Division
P. O. Box 2088
Santa Fe, N.M. 87504-2088

S.L.D. No. OR- 743-A-B
DATE REC. 5/5/87

PHONE(S): 827-5812 USER CODE: 8 2 2 3 5

SUBMITTER: David Boyer CODE: 2 6 1 0

SAMPLE COLLECTION CODE: (YYMMDDHHMMIII) 871043101115212

SAMPLE TYPE: WATER ☒, SOIL ☐, FOOD ☐, OTHER: CODE:

COUNTY: El Paso; CITY: Artesia CODE:

LOCATION CODE: (Township-Range-Section-Tracts) 11715+2161E+01+4311 (10N06E24342)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes

Other Specific Compounds or Classes

☐
☐
☐
☐
☐
☐**EXTRACTABLE SCREENS**

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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:

FIELD DATA:

pH= 7; Conductivity= 10,900 umho/cm at 10 °C; Chlorine Residual= mg/l

Dissolved Oxygen= mg/l; Alkalinity= mg/l; Flow Rate

Depth to water 7'6" ft.; Depth of well 12'2" ft.; Perforation Interval - ft.; Casing: Fiberglass 8 1/4"

Sampling Location, Methods and Remarks (i.e. odors, etc.)

Well #5, Nacayo Refinery. Saw water at 18 gallons (39 = 3 casing vol)
Sample recovery, dark, mud & sand.

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities. (signature collector): David Boyer Method of Shipment to the Lab: State Car

This form accompanies 2 Septum Vials, Glass Jugs, and/or

Samples were preserved as follows:

- ☐ NP: No Preservation; Sample stored at room temperature.
☒ P-Ice Sample stored in an ice bath (Not Frozen).
☐ P-Na₂S₂O₃ Sample Preserved with Sodium Thiosulfate to remove chlorine residual.

CHAIN OF CUSTODY

I certify that this sample was transferred from to

at (location) on / - and that

the statements in this block are correct. Evidentiary Seals: Not Sealed ☐ Seals Intact: Yes ☐ No ☐

Signatures

For OCD Use: Date Owner Notified Phone or Letter? Initials

ANALYSES PERFORMED

LAB. No.: OR- 743

THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical screening method(s) checked below:

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
 Other Specific Compounds or Classes

☐
☐
☐
☐
☐

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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

ANALYTICAL RESULTS

COMPOUND(S) DETECTED	CONC. [PPB]	COMPOUND(S) DETECTED	CONC. [PPB]
<i>aromatic purgeables</i>	<i>see remarks</i>		
<i>halogenated purgeables</i>	<i>N.D.</i>		
* DETECTION LIMIT *	* 10 ⁹³ /L	+ DETECTION LIMIT +	+

ABBREVIATIONS USED:

N D = NONE DETECTED AT OR ABOVE THE STATED DETECTION LIMIT

T R = DETECTED AT A LEVEL BELOW THE STATED DETECTION LIMIT (NOT CONFIRMED)

[RESULTS IN BRACKETS] ARE UNCONFIRMED AND/OR WITH APPROXIMATE QUANTITATION

LABORATORY REMARKS: *Ten late eluting compounds in the C3 substituted benzene region detected with the photoionization detector but not identified (concentrations at less than 10 ppb). Nine compounds in the aromatic screen region at 10-50 ppb detected with the photoionization detector but not identified.*

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ☐ No ☒ Seal(s) broken by: *not sealed* date: _____

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: *5/28/87* Analyst's signature: *Henry C. Galen*

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. Sherrell*

JUN 11 1987



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	5/5/87	LAB NO.	WC 1051	USER CODE	☐ 59300 ☐ 59600 ☒ OTHER: 82235
Collection DATE	5/12/87	SITE INFORMATION	Sample location		
Collection TIME	1115		Well #5 Navajo Refinery		
Collected by — Person/Agency			Collection site description		
Boyer / Anderson / OCD					

SEND
FINAL
REPORT
TO

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87504-2088

Attn: David Boyer

Phone: 827-5812

SAMPLING CONDITIONS

☐ Bailed ☐ Dipped	☒ Pump ☐ Tap	Water level	Discharge	Sample type
				GRAV
pH (00400)	7 (strip)	Conductivity (Uncorrected)	Water Temp. (00010)	Conductivity at 25°C (00094)
		10,900 µmho	10 °C	µmho
Field comments				
See VOC sheet for 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:		
		☐ A: 5ml conc. HNO ₃ added	☐ A: 4ml fuming HNO ₃ added	

ANALYTICAL RESULTS from SAMPLES

NA	Units	Date analyzed	From	NA Sample:	Date Analyzed
☒ Conductivity (Corrected) 25°C (00095)	µmho	5/13	F		
☐ Total non-filterable residue (suspended) (00530)	mg/l				
☒ Other: pH		5/12			
☐ Other:					
☐ Other:					
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:					
Laboratory remarks					

☒ Calcium	544	mg/l	6/1
☒ Potassium	6.24	mg/l	5/19
☒ Magnesium	242	mg/l	6/1
☒ Sodium	2123	mg/l	5/19
☒ Bicarbonate	530	mg/l	5/12
☒ Chloride	2676	mg/l	5/26
☒ Sulfate	2246	mg/l	5/20
☒ Total Solids	9274	mg/l	5/27
☒ Fluoride	7.89		5/27
☐			
☒ Cation/Anion Balance			
Analyst	Date Reported	Reviewed by	
	6/2/87	CS	

FOR OCD USE — Date Owner Notified _____ Phone or Letter? _____ Initials _____

CATIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT
Ca	27.15	544.00	<3.0
Mg	19.88	242.00	<0.3
Na	92.34	2123.00	<10.0
K	0.16	6.24	<0.3
Mn	0.00	0.00	
Fe	0.00	0.00	
SUMS	139.53	2915.24	
Total Dissolved Solids=			9274
Ion Balance =			106.54%

ANIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT
HC03	8.69	530.00	<1.0
SO4	46.79	2246.00	<10.0
CL	75.49	2676.00	<5.0
NO3	0.00	0.00	< 0.
C03	0.00	0.00	< 1.
NH3	0.00	0.00	< 0.
PO4	0.00	0.00	< 0.
	130.96	5452.00	

WC No. = 8701651
Date out/By 6/2/87



SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud NE

Albuquerque, NM 87106 841-2570

87-0758-C

NEW MEXICO

REPORT TO: David Boyer
N.M. Oil Conservation Division
P. O. Box 2088
Santa Fe, N.M. 87504-2088

S.L.D. No. OR- 758-A-B
DATE REC. 5-5-87

PHONE(S): 827-5812 USER CODE: 8 2 2 3 5
SUBMITTER: David Boyer CODE: 2 6 0

SAMPLE COLLECTION CODE: (YYMMDDHHMMIII) B 2 0 4 2 9 1 6 3 5 A 8 8

SAMPLE TYPE: WATER ☒, SOIL ☐, FOOD ☐, OTHER: CODE: ☐ ☐ ☐

COUNTY: Eddy; CITY: Artesia CODE: ☐ ☐ ☐

LOCATION CODE: (Township-Range-Section-Tracts) 1 7 5 + 2 6 E + 0 1 + 4 4 4 (10N06E24342)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
Other Specific Compounds or Classes

☐
☐
☐
☐
☐

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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:

FIELD DATA:

pH= 7; Conductivity= 9500 umho/cm at 14.7°C; Chlorine Residual= mg/l

Dissolved Oxygen= mg/l; Alkalinity= mg/l; Flow Rate

Depth to water 5' 2" ft.; Depth of well 12' 7" ft.; Perforation Interval ft.; Casing: Fiberglass

Sampling Location, Methods and Remarks (i.e. odors, etc.)

W1 # 7, Navajo Refinery. Pumped to dry (1 casing volume, 23 gallons)
Sampled during recovery, now.

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities. (signature collector): D. H. Boyer Method of Shipment to the Lab: State Lab

This form accompanies 2 Septum Vials, Glass Jugs, and/or

Samples were preserved as follows:

- ☐ NP: No Preservation; Sample stored at room temperature.
☒ P-Ice Sample stored in an ice bath (Not Frozen).
☐ P-Na₂S₂O₃ Sample Preserved with Sodium Thiosulfate to remove chlorine residual.

CHAIN OF CUSTODY

I certify that this sample was transferred from to

at (location) on / / and that

the statements in this block are correct. Evidentiary Seals: Not Sealed ☐ Seals Intact: Yes ☐ No ☐

Signatures

For OCD Use: Date Owner Notified Phone or Letter? Initials

ANALYSES PERFORMED

LAB. No.: OR- 758

THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical screening method(s) checked below:

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
 Other Specific Compounds or Classes

☐
☐
☐
☐
☐

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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

ANALYTICAL RESULTS

COMPOUND(S) DETECTED	CONC. [PPB]	COMPOUND(S) DETECTED	CONC. [PPB]
aromatic purgeables	all aromatic		
halogenated purgeables	N.D.		
* DETECTION LIMIT *	10 ⁻⁴ g/L	+ DETECTION LIMIT +	+

ABBREVIATIONS USED:

N D = NONE DETECTED AT OR ABOVE THE STATED DETECTION LIMIT

T R = DETECTED AT A LEVEL BELOW THE STATED DETECTION LIMIT (NOT CONFIRMED)

[RESULTS IN BRACKETS] ARE UNCONFIRMED AND/OR WITH APPROXIMATE QUANTITATION

LABORATORY REMARKS: Nine compounds at 10-20 ppb in the aromatic screen region detected by the photoionization detector but not identified. Six late eluting compounds at about 10 ppb in the CB substituted benzene region detected by the photoionization detector but not identified.

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ☐ No ☒ Seal(s) broken by: not sealed date:

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: 5/29/87 Analyst's signature: Mary C. Edlin

I certify that I have reviewed and concur with the analytical results for this sample and with the statements in this block.

Reviewers signature: K. Sherrill JUN 11 1987



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	5/5/87	LAB NO	WC 1659	USER CODE	☐ 59300 ☐ 59600 ☒ OTHER: 82235
Collection DATE	5/10/87	SITE INFORMATION	Sample location		
Collection TIME	1633		Well #7 Narajo Refinery		
Collected by — Person/Agency			Collection site description		
B. P. Anderson / OCD					

SEND
FINAL
REPORT
TO

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box. 2088
Santa Fe, NM 87504-2088

Attn: David Boyer

Phone: 827-5812

SAMPLING CONDITIONS

☒ Bailed ☐ Dipped	☒ Pump ☐ Tap	Water level	Discharge	Sample type
pH (00400)	7 (strip)	Conductivity (Uncorrected)	Water Temp. (00010)	Conductivity at 25°C (00094)
		9500 µmho	14.7 °C	µmho
Field comments				
see VOC Sheet for 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 ₂ SO ₄ /L added
☒ NA: No acid added		☐ Other-specify:	☐ A: 5ml conc. HNO ₃ added	☐ A: 4ml fuming HNO ₃ added

ANALYTICAL RESULTS from SAMPLES

NA	Units	Date analyzed	From F, NA Sample:	Date Analyzed
☒ Conductivity (Corrected) 25°C (00095)	µmho	5/13	☒ Calcium	600 mg/l 6/1
☐ Total non-filterable residue (suspended) (00530)	mg/l		☒ Potassium	3.90 mg/l 5/20
☒ Other: pH	7.24		☒ Magnesium	220 mg/l 6/1
☐ Other:			☒ Sodium	1964 mg/l 5/20
☐ Other:			☒ Bicarbonate	561 mg/l 5/12
A-H₂SO₄			☒ Chloride	2521 mg/l 5/26
☐ Nitrate-N +, Nitrate-N total (00630)	mg/l		☒ Sulfate	2775 mg/l 5/20
☐ Ammonia-N total (00610)	mg/l		☒ Total Solids	8912 mg/l 5/27
☐ Total Kjeldahl-N ()	mg/l		☒ Fluoride	2.38 5/27
☐ Chemical oxygen demand (00340)	mg/l		☐	
☐ Total organic carbon ()	mg/l		☒ Cation/Anion Balance	
☐ Other:			Analyst	Date Reported
☐ Other:				6/2/87
Reviewed by				
Laboratory remarks				

FOR OCD USE -- Date Owner Notified Phone or Letter? Initials

CATIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT
Ca	29.94	600.00	<3.0
Mg	18.07	220.00	<0.3
Na	85.43	1964.00	<10.0
K	0.10	3.90	<0.3
Mn	0.00	0.00	
Fe	0.00	0.00	
SUMS	133.54	2787.90	
Total Dissolved Solids=			8912
Ion Balance =			96.68%

ANIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT
HC03	9.19	561.00	<1.0
SO4	57.81	2775.00	<10.0
CL	71.11	2521.00	<5.0
NO3	0.00	0.00	< 0.
C03	0.00	0.00	< 1.
NH3	0.00	0.00	< 0.
PO4	0.00	0.00	< 0.
	138.12	5857.00	

WC No. = 8701659
 Date out/By CS 6/2/82



SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud NE
Albuquerque, NM 87106 841-2570

87-0772-C

MEXICO

REPORT TO: David Boyer
N.M. Oil Conservation Division
P. O. Box 2088
Santa Fe, N.M. 87504-2088

S.L.D. No. OR- 772-A-B
DATE REC. 5/5/87

PHONE(S): 827-5812 USER CODE: 8 2 2 3 5
SUBMITTER: David Boyer CODE: 2 6 1 0

SAMPLE COLLECTION CODE: (YYMMDDHHMMIII) 8 7 0 4 2 9 1 1 1 1 5 2 1 8 7 8

SAMPLE TYPE: WATER ☒, SOIL ☐, FOOD ☐, OTHER: CODE: ☐ ☐ ☐

COUNTY: Eddy; CITY: Artesia CODE: ☐ ☐ ☐ ☐ ☐ ☐

LOCATION CODE: (Township-Range-Section-Tracts) 1 1 7 5 + 2 6 E + 1 2 + 2 1 7 (10N06E24342)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
Other Specific Compounds or Classes

☐
☐
☐
☐
☐
☐**EXTRACTABLE SCREENS**

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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:

FIELD DATA:

pH= 7; Conductivity= 16,500 umho/cm at 16.5°C; Chlorine Residual= mg/l

Dissolved Oxygen= mg/l; Alkalinity= mg/l; Flow Rate

Depth to water 3 ft.; Depth of well 17 ft.; Perforation Interval - ft.; Casing: fiberglass

Sampling Location, Methods and Remarks (i.e. odors, etc.)

Well #12 Navajo Refinery, purged 17 gallons
Well flowing at surface up ~~shiny~~ around cement pad.

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities. (signature collector): D. Boyer Method of Shipment to the Lab: State Car

This form accompanies 2 Septum Vials, Glass Jugs, and/or

Samples were preserved as follows:

- ☐ NP: No Preservation; Sample stored at room temperature.
☒ P-Ice Sample stored in an ice bath (Not Frozen).
☐ P-Na₂S₂O₃ Sample Preserved with Sodium Thiosulfate to remove chlorine residual.

CHAIN OF CUSTODY

I certify that this sample was transferred from to
at (location) on - and that
the statements in this block are correct. Evidentiary Seals: Not Sealed ☐ Seals Intact: Yes ☐ No ☐
Signatures

For OCD Use: Date Owner Notified Phone or Letter? Initials

ANALYSES PERFORMED

LAB. No.: OR- 772

THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical screening method(s) checked below:

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
 Other Specific Compounds or Classes

☐
☐
☐
☐
☐

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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

ANALYTICAL RESULTS

COMPOUND(S) DETECTED	CONC. [PPB]	COMPOUND(S) DETECTED	CONC. [PPB]
<i>aromatic purgeables</i>	<i>see remarks</i>		
<i>halogenated purgeables</i>	<i>N.D.</i>		
* DETECTION LIMIT *	<i>148/2</i>	+ DETECTION LIMIT +	<i>+</i>

ABBREVIATIONS USED:

N D = NONE DETECTED AT OR ABOVE THE STATED DETECTION LIMIT

T R = DETECTED AT A LEVEL BELOW THE STATED DETECTION LIMIT (NOT CONFIRMED)

[RESULTS IN BRACKETS] ARE UNCONFIRMED AND/OR WITH APPROXIMATE QUANTITATION

LABORATORY REMARKS:

Seven compounds (at 2-5 ppb) and two compounds (at 10-30 ppb) in the aromatic screen region detected with the photoionization detector but not identified. Seven compounds (at 1-3 ppb) in the C3 substituted benzene region detected by the photoionization detector but not identified.

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ☐ No ☒ Seal(s) broken by:*not sealed*

date:

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: *6/1/87*

Analyst's signature:

Mary C. Edlin

I certify that I have reviewed and concur with the analytical results for this sample and with the statements in this block.

Reviewers signature:

Kenneth R. Sherrill for R.M.

JUN 5 1987



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	5/5/87	LAB NO.	WC 1644	USER CODE	☐ 59300 ☐ 59600 ☒ OTHER: 82235
Collection DATE	5/10/87	SITE INFORMATION	Sample location		
Collection TIME	11:15		Well #12, Navajo Refinery		
Collected by	Person/Agency		Collection site description		
Boyer/Anderson/OCD					

SEND
FINAL
REPORT
TO

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box. 2088
Santa Fe, NM 87504-2088

Attn: David Boyer

Phone: 827-5812

Station/
well code

Well #12

Owner

SAMPLING CONDITIONS

☐ Bailed ☐ Dipped	☒ Pump ☐ Tap	Water level	Discharge	Sample type
				GRAB
pH (00400)	7	Conductivity (Uncorrected)	Water Temp. (00010)	Conductivity at 25°C (00094)
		16,500 µmho	16.5 °C	µmho
Field comments				
See VOC Sheet for 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:	☐ A: 5ml conc. HNO ₃ added	☐ A: 4ml fuming HNO ₃ added

ANALYTICAL RESULTS from SAMPLES

NA	Units	Date analyzed	From F, NA Sample:	Date Analyzed
☒ Conductivity (Corrected) 25°C (00095)	µmho	5/13	☒ Calcium	540 mg/l 6/1
☐ Total non-filterable residue (suspended) (00530)	mg/l		☒ Potassium	9.75 mg/l 5/22
☒ Other: pH		5/12	☒ Magnesium	759 mg/l 6/1
☐ Other:			☒ Sodium	3229 mg/l 5/22
☐ Other:			☒ Bicarbonate	315 mg/l 5/12
A-H₂SO₄			☒ Chloride	4375 mg/l 5/26
☐ Nitrate-N +, Nitrate-N total (00630)	mg/l		☒ Sulfate	7399 mg/l 5/20
☐ Ammonia-N total (00610)	mg/l		☒ Total Solids	17382 mg/l 5/27
☐ Total Kjeldahl-N ()	mg/l		☒ Fluoride	3.73 5/27
☐ Chemical oxygen demand (00340)	mg/l		☐	
☐ Total organic carbon ()	mg/l		☒ Cation/Anion Balance	
☐ Other:			Analyst	Date Reported
☐ Other:				6/2/87
Laboratory remarks			Reviewed by	

FOR OCD USE -- Date Owner Notified Phone or Letter? Initials

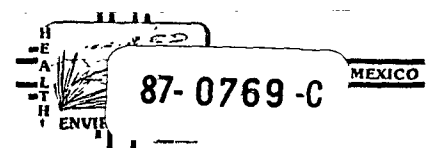
CATIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT
Ca	26.95	540.00	<3.0
Mg	62.34	759.00	<0.3
Na	140.45	3229.00	<10.0
K	0.25	9.75	<0.3
Mn	0.00	0.00	
Fe	0.00	0.00	
SUMS	229.99	4537.75	
Total Dissolved Solids=			17382
Ion Balance =			81.35%

ANIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT
HC03	5.16	315.00	<1.0
SO4	154.15	7399.00	<10.0
CL	123.41	4375.00	<5.0
NO3	0.00	0.00	< 0.
C03	0.00	0.00	< 1.
NH3	0.00	0.00	< 0.
PO4	0.00	0.00	< 0.
	282.72	12089.00	

WC No. = 8701644
Date out/By CD 6/2/87



SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud NE
Albuquerque, NM 87106 841-2570

REPORT TO: David Boyer
N.M. Oil Conservation Division
P. O. Box 2088
Santa Fe, N.M. 87504-2088

S.L.D. No. OR- 769-A-B
DATE REC. 5/5/87

PHONE(S): 827-5812 USER CODE: 8 2 2 3 5

SUBMITTER: David Boyer CODE: 2 6 0

SAMPLE COLLECTION CODE: (YYMMDDHHMMIII) 8 7 0 4 2 9 0 9 2 5 0 8 1 2

SAMPLE TYPE: WATER ☒, SOIL ☐, FOOD ☐, OTHER: CODE:

COUNTY: Eddy; CITY: Artesia CODE:

LOCATION CODE: (Township-Range-Section-Tracts) 1 7 1 5 + 2 6 1 E + 1 2 + 1 2 9 (10N06E24342)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
Other Specific Compounds or Classes

☐ _____
☐ _____
☐ _____
☐ _____
☐ _____

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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: _____

FIELD DATA:

pH= 7; Conductivity= 5200 umho/cm at 17 °C; Chlorine Residual= _____ mg/l

Dissolved Oxygen= _____ mg/l; Alkalinity= _____ mg/l; Flow Rate _____

Depth to water 5' ft.; Depth of well 13'10" ft.; Perforation Interval _____ - _____ ft.; Casing: _____

Sampling Location, Methods and Remarks (i.e. odors, etc.)

Well #13, Navajo Refinery, Silvergrass, sample block
turbid, foamy, strong H.C odor

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities. (signature collector): David Boyer Method of Shipment to the Lab: State car

This form accompanies 2 Septum Vials, _____ Glass Jugs, and/or _____

Samples were preserved as follows:

- ☐ NP: No Preservation; Sample stored at room temperature.
☒ P-Ice: Sample stored in an ice bath (Not Frozen).
☐ P-Na₂S₂O₃: Sample Preserved with Sodium Thiosulfate to remove chlorine residual.

CHAIN OF CUSTODY

I certify that this sample was transferred from _____ to _____

at (location) _____ on _____/_____/_____-_____:_____ and that

the statements in this block are correct. Evidentiary Seals: Not Sealed ☐ Seals Intact: Yes ☐ No ☐

Signatures _____

For OCD Use: Date Owner Notified _____ Phone or Letter? _____ Initials _____

ANALYSES PERFORMED

LAB. No.: OR- 769

THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical screening method(s) checked below:

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
 Other Specific Compounds or Classes

☐
☐
☐
☐
☐

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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

ANALYTICAL RESULTS

COMPOUND(S) DETECTED	CONC. [PPB]	COMPOUND(S) DETECTED	CONC. [PPB]
<i>aromatic purgeables</i>	<i>all remarks</i>		
<i>halogenated purgeables</i>	<i>N.D.</i>		
* DETECTION LIMIT *	* <i>25-40/L</i>	+ DETECTION LIMIT +	+

ABBREVIATIONS USED:

N D = NONE DETECTED AT OR ABOVE THE STATED DETECTION LIMIT

T R = DETECTED AT A LEVEL BELOW THE STATED DETECTION LIMIT (NOT CONFIRMED)

[RESULTS IN BRACKETS] ARE UNCONFIRMED AND/OR WITH APPROXIMATE QUANTITATION

LABORATORY REMARKS:

Ten compounds at 20-40 ppb and one compound at 100-150 ppb in the aromatic screen region detected by the photoionization detector but not identified. Five compounds at 20-40 ppb in the C3 substituted benzene region detected by the photoionization detector but not identified.

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ☐ No ☒ Seal(s) broken by: *not sealed* date: _____

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: *5/30/87* Analyst's signature: *Harry C. Eilers*

I certify that I have reviewed and concur with the analytical results for this sample and with the statements in this block.

Reviewers signature: *K. Sherrill* JUN 11 1987



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	5/5/87	LAB NO.	WC 1654	USER CODE	☐ 59300 ☐ 59600 ☒ OTHER: 82235
Collection DATE	5/12/87	SITE INFORMATION	Sample location		
Collection TIME	0925		Well #13, Navajo Refinery		
Collected by — Person/Agency			Collection site description		
Boyer / Anderson / OCD					

SEND
FINAL
REPORT
TO

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box. 2088
Santa Fe, NM 87504-2088

Attn: David Boyer

Phone: 827-5812

SAMPLING CONDITIONS

☐ Bailed ☐ Dipped	☒ Pump ☐ Tap	Water level	Discharge	Sample type
				GRAB
pH (00400)	7	Conductivity (Uncorrected)	Water Temp. (00010)	Conductivity at 25°C (00094)
		5200 µmho	17 °C	µmho
Field comments				
See VOC sheet for 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:	☐ A: 5ml conc. HNO ₃ added	☐ A: 4ml fuming HNO ₃ added

ANALYTICAL RESULTS from SAMPLES

NA	Units	Date analyzed	From	NA Sample:	Date Analyzed
☒ Conductivity (Corrected) 25°C (00095)	µmho	5/13	F	Calcium	6/1
☐ Total non-filterable residue (suspended) (00530)	mg/l			Potassium	5/20
☒ Other: pH		5/12		Magnesium	6/1
☐ Other:				Sodium	5/20
☐ Other:				Bicarbonate	5/12
A-H₂SO₄				Chloride	5/26
☐ Nitrate-N +, Nitrate-N total (00630)	mg/l			Sulfate	5/20
☐ Ammonia-N total (00610)	mg/l			Total Solids	5/27
☐ Total Kjeldahl-N ()	mg/l			Fluoride	5/27
☐ Chemical oxygen demand (00340)	mg/l				
☐ Total organic carbon ()	mg/l				
☐ Other:					
☐ Other:					
				Cation/Anion Balance	
Laboratory remarks			Analyst	Date Reported	Reviewed by
				6/2/87	CO

FOR OCD USE -- Date Owner Notified _____ Phone or Letter? _____ Initials _____

CATIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT
Ca	22.75	456.00	<3.0
Mg	9.20	112.00	<0.3
Na	41.32	950.00	<10.0
K	0.28	10.90	<0.3
Mn	0.00	0.00	
Fe	0.00	0.00	
SUMS	73.55	1528.90	
Total Dissolved Solids=			4986
Ion Balance =			108.99%

ANIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT
HC03	6.24	381.00	<1.0
SO4	31.40	1507.00	<10.0
CL	29.84	1058.00	<5.0
NO3	0.00	0.00	< 0.
C03	0.00	0.00	< 1.
NH3	0.00	0.00	< 0.
PO4	0.00	0.00	< 0.
	67.48	2946.00	

WC No. = 8701654
Date out/By _____



SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud NE
Albuquerque, NM 87106 841-2570

87-0747-C

NEW MEXICO

REPORT TO: David Boyer
N.M. Oil Conservation Division
P. O. Box 2088
Santa Fe, N.M. 87504-2088

S.L.D. No. OR- 747-A-B

DATE REC. 5-5-87

PHONE(S): 827-5812 USER CODE: 8 2 2 3 5

SUBMITTER: David Boyer CODE: 2 6 0

SAMPLE COLLECTION CODE: (YYMMDDHHMMIII) 87042911255AAB

SAMPLE TYPE: WATER ☒ SOIL ☐ FOOD ☐ OTHER: CODE:

COUNTY: Eddy; CITY: Artesia CODE:

LOCATION CODE: (Township-Range-Section-Tracts) 117N5+216E+112+222 (10N06E24342)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
Other Specific Compounds or Classes

☐
☐
☐
☐
☐

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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:

FIELD DATA:

pH= 10.02; Conductivity= 16.2 umho/cm at C; Chlorine Residual= mg/l

Dissolved Oxygen= mg/l; Alkalinity= mg/l; Flow Rate

Depth to water 6 ft.; Depth of well 17 ft.; Perforation Interval - ft.; Casing: Fiberglass

Sampling Location, Methods and Remarks (i.e. odors, etc.)

Well #14E Norajo Refinery (E of Pond 3, SW W. of #12). Pumped
67 of 82 gallons needed for 3 casing volumes

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities. (signature collector): D. L. Boyer

Method of Shipment to the Lab: State Car

This form accompanies 2 Septum Vials, Glass Jugs, and/or

Samples were preserved as follows:

- ☐ NP: No Preservation; Sample stored at room temperature.
☒ P-Ice Sample stored in an ice bath (Not Frozen).
☐ P-Na S O Sample Preserved with Sodium Thiosulfate to remove chlorine residual.

CHAIN OF CUSTODY

I certify that this sample was transferred from to
at (location) on - and that

the statements in this block are correct. Evidentiary Seals: Not Sealed ☐ Seals Intact: Yes ☐ No ☐

Signatures

For OCD Use: Date Owner Notified Phone or Letter? Initials

ANALYSES PERFORMED

LAB. No.: OR- 747

THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical screening method(s) checked below:

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
 Other Specific Compounds or Classes

☐
☐
☐
☐
☐

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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

ANALYTICAL RESULTS

COMPOUND(S) DETECTED	CONC. [PPB]	COMPOUND(S) DETECTED	CONC. [PPB]
<i>aromatic purgeables</i>	<i>see remarks</i>		
<i>halogenated purgeables</i>	<i>N.D.</i>		
* DETECTION LIMIT *	* <i>10⁻⁴g/L</i>	+ DETECTION LIMIT +	+

ABBREVIATIONS USED:

N D = NONE DETECTED AT OR ABOVE THE STATED DETECTION LIMIT

T R = DETECTED AT A LEVEL BELOW THE STATED DETECTION LIMIT (NOT CONFIRMED)

[RESULTS IN BRACKETS] ARE UNCONFIRMED AND/OR WITH APPROXIMATE QUANTITATION

LABORATORY REMARKS: *Ten compounds in the aromatic screen region at 10-30 ppb detected with the photomultiplier but not identified. Eleven late eluting compounds in the C3 substituted benzene region at about 10 ppb detected with the photomultiplier detector but not identified.*

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ☐ No ☒ Seal(s) broken by: *not sealed* date:

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: *6/28/87* Analyst's signature: *Harry C. Edens*

I certify that I have reviewed and concur with the analytical results for this sample and with the statements in this block.

Reviewers signature: *K. Sherrill* JUN 11 1987



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	5/5/87	LAB NO.	WC1655	USER CODE	☐ 59300 ☐ 59600 ☒ OTHER: 82235
Collection DATE	5/10/87	SITE INFORMATION	Sample location		
Collection TIME	1255		Well # 14E, Navajo Refinery		
Collected by — Person/Agency		Collection site description			
Boyer, Anderson 10CD					

SEND
FINAL
REPORT
TO

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87504-2088

Attn: David Boyer

Phone: 827-5812

Station/
well code Well # 14
Owner

SAMPLING CONDITIONS

☐ Bailed ☐ Dipped	☒ Pump ☐ Tap	Water level	Discharge	Sample type
				GRAB
pH (00400)	—	Conductivity (Uncorrected)	Water Temp. (00010)	Conductivity at 25°C (00094)
		10,220 µmho	16.2 °C	µmho
Field comments				
See VOC sheet for 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:		☐ A: 5ml conc. HNO ₃ added ☐ A: 4ml fuming HNO ₃ added

ANALYTICAL RESULTS from SAMPLES

NA	Units	Date analyzed	From	NA Sample:	Date Analyzed
☒ Conductivity (Corrected) 25°C (00095)	µmho	5/13	5	Calcium	580 mg/l 6/1
☐ Total non-filterable residue (suspended) (00530)	mg/l			Potassium	663 mg/l 5/20
☒ Other: pH		5/12		Magnesium	354 mg/l 6/1
☐ Other:				Sodium	1962 mg/l 5/20
☐ Other:				Bicarbonate	429 mg/l 5/12
A-H₂SO₄				Chloride	2424 mg/l 5/26
☐ Nitrate-N ⁺ , Nitrate-N total (00630)	mg/l			Sulfate	3492 mg/l 5/20
☐ Ammonia-N total (00610)	mg/l			Total Solids	9768 mg/l 5/27
☐ Total Kjeldahl-N ()	mg/l			Fluoride	2.39 5/27
☐ Chemical oxygen demand (00340)	mg/l			☐	
☐ Total organic carbon ()	mg/l			☒ Cation/Anion Balance	
☐ Other:			Analyst	Date Reported	Reviewed by
☐ Other:				6/2/87	
Laboratory remarks					

CATIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT
Ca	28.94	580.00	<3.0
Mg	29.08	354.00	<0.3
Na	85.34	1962.00	<10.0
K	0.17	6.63	<0.3
Mn	0.00	0.00	
Fe	0.00	0.00	
SUMS	143.53	2902.63	
Total Dissolved Solids=			9768
Ion Balance =			96.88%

ANIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT
HC03	7.03	429.00	<1.0
SO4	72.75	3492.00	<10.0
CL	68.38	2424.00	<5.0
NO3	0.00	0.00	< 0.
C03	0.00	0.00	< 1.
NH3	0.00	0.00	< 0.
PO4	0.00	0.00	< 0.
	148.16	6345.00	

WC No. = 8701655
Date out/By Q 6/2/87



SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud NE
Albuquerque, NM 87106 841-2570



87-0765-C

REPORT TO: David Boyer S.L.D. No. OR- 765-A-B
N.M. Oil Conservation Division DATE REC. 5-5-87
P. O. Box 2088
Santa Fe, N.M. 87504-2088 PRIORITY _____

PHONE(S): 827-5812 USER CODE: 8 2 2 3 5
SUBMITTER: David Boyer CODE: 2 6 0

SAMPLE COLLECTION CODE: (YYMMDDHHMMIII) 8710428118002118

SAMPLE TYPE: WATER ☒ SOIL ☐ FOOD ☐ OTHER: _____ CODE: 1 1 1

COUNTY: Eddy; CITY: Artesia CODE: 1 1 1

LOCATION CODE: (Township-Range-Section-Tracts) 1715+26E+12+124 (10N06E24342)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
Other Specific Compounds or Classes _____

☐ _____
☐ _____
☐ _____
☐ _____
☐ _____

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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: _____

FIELD DATA:

pH= 7; Conductivity= 4750 umho/cm at 18.2°C; Chlorine Residual= _____ mg/l

Dissolved Oxygen= _____ mg/l; Alkalinity= _____ mg/l; Flow Rate _____

Depth to water 7'2" ft.; Depth of well 37 ft.; Perforation Interval _____ ft.; Casing: _____

Sampling Location, Methods and Remarks (i.e. odors, etc.)

Well #16 Navajo Refinery - Steel Casing, H.C. odor, sheen, gray-black color, Pumped only 2 casing volumes till dry

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities. (signature collector): David Boyer Method of Shipment to the Lab: State Car

This form accompanies 2 Septum Vials, _____ Glass Jugs, and/or _____

Samples were preserved as follows:

- ☐ NP: No Preservation; Sample stored at room temperature.
☒ P-Ice Sample stored in an ice bath (Not Frozen).
☐ P-Na₂S₂O₃ Sample Preserved with Sodium Thiosulfate to remove chlorine residual.

CHAIN OF CUSTODY

I certify that this sample was transferred from _____ to _____

at (location) _____ on _____/_____/_____-_____:_____ and that

the statements in this block are correct. Evidentiary Seals: Not Sealed ☐ Seals Intact: Yes ☐ No ☐

Signatures _____

For OCD Use: Date Owner Notified _____ Phone or Letter? _____ Initials _____

ANALYSES PERFORMED

LAB. No.: OR-

765

THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical screening method(s) checked below:

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
 Other Specific Compounds or Classes

☐
☐
☐
☐
☐

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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

ANALYTICAL RESULTS

COMPOUND(S) DETECTED	CONC. [PPB]	COMPOUND(S) DETECTED	CONC. [PPB]
<i>aromatic purgeables</i>	<i>see remarks</i>		
<i>halogenated purgeables</i>	<i>N.D.</i>		
* DETECTION LIMIT *	* <i>10-49/L</i>	+ DETECTION LIMIT +	+

ABBREVIATIONS USED:

N D = NONE DETECTED AT OR ABOVE THE STATED DETECTION LIMIT

T R = DETECTED AT A LEVEL BELOW THE STATED DETECTION LIMIT (NOT CONFIRMED)

[RESULTS IN BRACKETS] ARE UNCONFIRMED AND/OR WITH APPROXIMATE QUANTITATION

LABORATORY REMARKS:

Seven compounds at approx 10 ppb and one at approx 100 ppb - 150 ppb in the aromatic region detected by the photomultiplier detector but not identified.

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ☐ No ☒Seal(s) broken by: *not sealed*

date: _____

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: *7/29/87*Analyst's signature: *Henry C. Egan*

I certify that I have reviewed and concur with the analytical results for this sample and with the statements in this block.

Reviewers signature: *Dr. Sherrill*

11/11/1027



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 5/5/89	LAB NO. WC 1648	USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235
Collection DATE 5/12/89	SITE INFORMATION Well # 16, Navajo Refinery	Sample location
Collection TIME 1800		Collection site description
Collected by — Person/Agency Boyer/Anderson /OCD		

SEND
FINAL
REPORT
TO

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87504-2088

Attn: David Boyer

Phone: 827-5812

Station/
well code
Owner

Well # 16

SAMPLING CONDITIONS

☐ Bailed ☐ Dipped	☒ Pump ☐ Tap	Water level	Discharge	Sample type GRAB
pH (00400) 7	Conductivity (Uncorrected) 4750 μ mho	Water Temp. (00010) 18.2 $^{\circ}$ C	Conductivity at 25 $^{\circ}$ C (00094) μ mho	
Field comments See VOC sheet for comments				

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: 5ml conc. HNO ₃ added ☐ A: 4ml fuming HNO ₃ added

ANALYTICAL RESULTS from SAMPLES

NA	Units	Date analyzed	From F, NA Sample:	Date Analyzed
☒ Conductivity (Corrected) 25 $^{\circ}$ C (00095)	μ mho	5/13	☒ Calcium	124 mg/l 6/1
☐ Total non-filterable residue (suspended) (00530)	mg/l		☒ Potassium	2.73 mg/l 5/19
☒ Other: pH		5/12	☒ Magnesium	88 mg/l 6/1
☐ Other:			☒ Sodium	978 mg/l 5/19
☐ Other:			☒ Bicarbonate	45 mg/l 5/12
A-H ₂ SO ₄			☒ Chloride	1150 mg/l 5/26
☐ Nitrate-N +, Nitrate-N total (00630)	mg/l		☒ Sulfate	975 mg/l 5/20
☐ Ammonia-N total (00610)	mg/l		☒ Total Solids	3626 mg/l 5/27
☐ Total Kjeldahl-N ()	mg/l		☒ FLUORIDE	0.63 5/27
☐ Chemical oxygen demand (00340)	mg/l		☐	
☐ Total organic carbon ()	mg/l		☒ Cation/Anion Balance	
☐ Other:			Analyst	Date Reported
☐ Other:				6/2/89
Laboratory remarks				

FOR OCD USE -- Date Owner Notified Phone or Letter? Initials

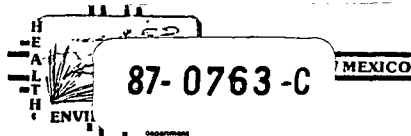
CATIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT
Ca	6.19	124.00	<3.0
Mg	7.23	88.00	<0.3
Na	42.54	978.00	<10.0
K	0.07	2.73	<0.3
Mn	0.00	0.00	
Fe	0.00	0.00	
SUMS	56.03	1192.73	
Total Dissolved Solids=			3626
Ion Balance =			104.74%

ANIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT
HC03	0.74	45.00	<1.0
SO4	20.31	975.00	<10.0
CL	32.44	1150.00	<5.0
NO3	0.00	0.00	< 0.
C03	0.00	0.00	< 1.
NH3	0.00	0.00	< 0.
PO4	0.00	0.00	< 0.
	53.49	2170.00	

WC No. = 8701648
Date out/By Q 6/12/87



SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud NE
Albuquerque, NM 87106 841-2570

87-0763-C

MEXICO

REPORT TO: David Boyer S.L.D. No. OR- 763-A-B
N.M. Oil Conservation Division DATE REC. 5/5/87
P. O. Box 2088
Santa Fe, N.M. 87504-2088 PRIORITY _____
PHONE(S): 827-5812 USER CODE: 8 2 2 3 5
SUBMITTER: David Boyer CODE: 2 6 0
SAMPLE COLLECTION CODE: (YYMMDDHHMMIII) 87104291220AB18
SAMPLE TYPE: WATER ☒ SOIL ☐ FOOD ☐ OTHER: _____ CODE: _____
COUNTY: Eddy; CITY: Artis CODE: _____
LOCATION CODE: (Township-Range-Section-Tracts) 11715+2161E+112+21212 (10N06E24342)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
Other Specific Compounds or Classes _____

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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: _____

FIELD DATA:pH= 7; Conductivity= 12,200 umho/cm at 17°C; Chlorine Residual= _____ mg/l

Dissolved Oxygen= _____ mg/l; Alkalinity= _____ mg/l; Flow Rate _____ / _____

Depth to water 5'6" ft.; Depth of well 28'9" ft.; Perforation Interval _____ - _____ ft.; Casing: Steel Production

Sampling Location, Methods and Remarks (i.e. odors, etc.)

Well #17, Navajo Refinery. Unable to purge more than one casing volume. H₂O black, turbid, slightly foamy

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities. (signature collector): David Boyer Method of Shipment to the Lab: State CarThis form accompanies 2 Septum Vials, _____ Glass Jugs, and/or _____

Samples were preserved as follows:

- ☐ NP: No Preservation; Sample stored at room temperature.
☒ P-Ice Sample stored in an ice bath (Not Frozen).
☐ P-Na₂S₂O₃ Sample Preserved with Sodium Thiosulfate to remove chlorine residual.

CHAIN OF CUSTODY

I certify that this sample was transferred from _____ to _____

at (location) _____ on _____ / _____ / _____ - _____ and that

the statements in this block are correct. Evidentiary Seals: Not Sealed ☐ Seals Intact: Yes ☐ No ☐

Signatures _____

For OCD Use: Date Owner Notified _____ Phone or Letter? _____ Initials _____

ANALYSES PERFORMED

LAB. No.: OR- 763

THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical screening method(s) checked below:

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
 Other Specific Compounds or Classes

☐
☐
☐
☐
☐

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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

ANALYTICAL RESULTS

COMPOUND(S) DETECTED	CONC. [PPB]	COMPOUND(S) DETECTED	CONC. [PPB]
<i>aromatic purgeables</i>	<i>see</i>		
<i>halogenated purgeables</i>	<i>remarks</i>		
	<i>N.D.</i>		
* DETECTION LIMIT *	* <i>1 ppb</i>	+ DETECTION LIMIT +	+

ABBREVIATIONS USED:

N D = NONE DETECTED AT OR ABOVE THE STATED DETECTION LIMIT

T R = DETECTED AT A LEVEL BELOW THE STATED DETECTION LIMIT (NOT CONFIRMED)

[RESULTS IN BRACKETS] ARE UNCONFIRMED AND/OR WITH APPROXIMATE QUANTITATION

LABORATORY REMARKS: *Four compounds at 1 to 3 ppb in the aromatic screen region detected with the photoionization detector but not identified. Nine compounds at 1 to 3 ppb in the C3 substituted benzene region detected by the photoionization detector but not identified.*

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ☐ No ☒ Seal(s) broken by: *not sealed* date: _____

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: *5/29/87* Analyst's signature: *Harry C. Edens*

I certify that I have reviewed and concur with the analytical results for this sample and with the statements in this block.

Reviewers signature: *K. Sherrell* JUN 11 1987



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	5/5/87	LAB NO	WC1645	USER CODE	☐ 59300 ☐ 59600 ☒ OTHER: 82235
Collection DATE	5/10/87	SITE INFORMATION	Sample location		
Collection TIME	1220		Well #17, Navajo Refinery		
Collected by			Person/Agency		
Boyer/Anderson			10CD		
Collection site description					

SEND
FINAL
REPORT
TO

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box. 2088
Santa Fe, NM 87504-2088

Attn: David Boyer

Phone: 827-5812

Station/
well code

Well #17

Owner

SAMPLING CONDITIONS

☐ Bailed ☐ Dipped	☒ Pump ☐ Tap	Water level	Discharge	Sample type
pH (00400)	7	Conductivity (Uncorrected)	12,200 μ mho	17 $^{\circ}$ C
Field comments		see VOC sheet for comments		

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: 5ml conc. HNO ₃ added		☐ A: 4ml fuming HNO ₃ added		

ANALYTICAL RESULTS from SAMPLES

NA	Units	Date analyzed	From	NA Sample:	Date Analyzed
☒ Conductivity (Corrected) 25 $^{\circ}$ C (00095)	μ mho	5/13	5	Calcium	920 mg/l 5/1
☐ Total non-filterable residue (suspended) (00530)	mg/l			Potassium	16.8 mg/l 5/19
☒ Other: pH		5.90		Magnesium	434 mg/l 6/1
☐ Other:				Sodium	1797 mg/l 5/19
☐ Other:				Bicarbonate	5 mg/l 5/12
A-H₂SO₄				Chloride	4658 mg/l 5/26
☐ Nitrate-N +, Nitrate-N total (00630)	mg/l			Sulfate	2571 mg/l 5/20
☐ Ammonia-N total (00610)	mg/l			Total Solids	8249 mg/l 5/27
☐ Total Kjeldahl-N ()	mg/l			Chloride	0.57 5/27
☐ Chemical oxygen demand (00340)	mg/l			☐	
☐ Total organic carbon ()	mg/l			☒ Cation/Anion Balance	
☐ Other:				Analyst	Date Reported
☐ Other:					6/2/87
Laboratory remarks					

FOR OCD USE -- Date Owner Notified _____ Phone or Letter? _____ Initials _____

CATIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT
Ca	45.91	920.00	<3.0
Mg	35.65	434.00	<0.3
Na	78.16	1797.00	<10.0
K	0.43	16.80	<0.3
Mn	0.00	0.00	
Fe	0.00	0.00	
SUMS	160.15	3167.80	
Total Dissolved Solids=			8249
Ion Balance =			86.55%

ANIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT
HC03	0.08	5.00	<1.0
SO4	53.56	2571.00	<10.0
CL	131.40	4658.00	<5.0
NO3	0.00	0.00	< 0.
C03	0.00	0.00	< 1.
NH3	0.00	0.00	< 0.
PO4	0.00	0.00	< 0.
	185.04	7234.00	

WC No. = 8701645
Date out/By Q 6/2/87



SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud NE
Albuquerque, NM 87106 841-2570

87-0752-C

NEW MEXICO

REPORT TO: David Boyer
N.M. Oil Conservation Division
P. O. Box 2088
Santa Fe, N.M. 87504-2088

S.L.D. No. OR- 752-A-B
DATE REC. 5-5-87

PHONE(S): 827-5812 USER CODE: 8 2 2 3 5
SUBMITTER: David Boyer CODE: 2 6 0

SAMPLE COLLECTION CODE: (YYMMDDHHMMIII) 8 7 1 0 4 2 8 1 7 1 5 2 1 8
SAMPLE TYPE: WATER ☒, SOIL ☐, FOOD ☐, OTHER: CODE: ☐ ☐ ☐
COUNTY: Eddy; CITY: Artesia CODE: ☐ ☐ ☐
LOCATION CODE: (Township-Range-Section-Tracts) 1 1 7 1 5 + 2 6 E + 1 1 2 + 1 1 2 A (10N06E24342)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes

Other Specific Compounds or Classes

☐
☐
☐
☐
☐**EXTRACTABLE SCREENS**

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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:

FIELD DATA:

pH= 7; Conductivity= 8100 umho/cm at 17 °C; Chlorine Residual= mg/l

Dissolved Oxygen= mg/l; Alkalinity= mg/l; Flow Rate

Depth to water 6'6" ft.; Depth of well 30' ft.; Perforation Interval - ft.; Casing:

Sampling Location, Methods and Remarks (i.e. odors, etc.)

PVC Test Well - Navajo Refinery (Well at #P-2 on map)
4" PVC, Pumped 35 gallons, sample from 1' depth, HC odor, turbid

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities. (signature collector): David Boyer Method of Shipment to the Lab: State CarThis form accompanies 2 Septum Vials, 2 Glass Jugs, and/or

Samples were preserved as follows:

- ☐ NP: No Preservation; Sample stored at room temperature.
☒ P-Ice: Sample stored in an ice bath (Not Frozen).
☐ P-Na₂S₂O₃: Sample Preserved with Sodium Thiosulfate to remove chlorine residual.

CHAIN OF CUSTODY

I certify that this sample was transferred from to

at (location) on - and that

the statements in this block are correct. Evidentiary Seals: Not Sealed ☐ Seals Intact: Yes ☐ No ☐

Signatures

For OCD Use: Date Owner Notified Phone or Letter? Initials

ANALYSES PERFORMED

LAB. No.: OR- 752

THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical screening method(s) checked below:

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
 Other Specific Compounds or Classes

☐
☐
☐
☐
☐

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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

ANALYTICAL RESULTS

COMPOUND(S) DETECTED	CONC. [PPB]	COMPOUND(S) DETECTED	CONC. [PPB]
<i>aromatic purgeables</i>	<i>see remarks</i>		
<i>halogenated purgeables</i>			
<i>1,2 Dichloroethane</i>	<i>T.R.</i>		
<i>1,2 Dibromoethane</i>	<i>T.R.</i>		
* DETECTION LIMIT *	* 100 ^{ug} /L	+ DETECTION LIMIT +	+

ABBREVIATIONS USED:

N D = NONE DETECTED AT OR ABOVE THE STATED DETECTION LIMIT

T R = DETECTED AT A LEVEL BELOW THE STATED DETECTION LIMIT (NOT CONFIRMED)

[RESULTS IN BRACKETS] ARE UNCONFIRMED AND/OR WITH APPROXIMATE QUANTITATION

LABORATORY REMARKS: *Nine compounds in the aromatic screen region at 100-200 ppb detected with the photoionization detector but not identified. Four late eluting compounds in the c3 substituted benzene region at less than 100 to 100 ppb detected with the photoionization detector but not identified.*

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ☐ No ☒ Seal(s) broken by: *not sealed* date: _____

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: *5/29/87* Analyst's signature: *Mary C. Eden*

I certify that I have reviewed and concur with the analytical results for this sample and with the statements in this block.

Reviewers signature: *K. Sherrill* JUN 11 1987



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	5/5/87	LAB NO.	00C/661	USER CODE	☐ 59300 ☐ 59600 ☒ OTHER: 82235
Collection DATE	5/10/87	SITE INFORMATION	Sample location		
Collection TIME	1715		PVC Test Well - Narajo Refinery		
Collected by — Person/Agency		Collection site description			
Boyer/Anderson/OCD		(Located at #P-2 on disposal pond map)			

SEND FINAL REPORT TO

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box. 2088
Santa Fe, NM 87504-2088

Attn: David Boyer

Phone: 827-5812

Station/well code
PVC Test Well

SAMPLING CONDITIONS

☐ Bailed ☐ Dipped	☒ Pump ☐ Tap	Water level	Discharge	Sample type
				GRAB
pH (00400)	7	Conductivity (Uncorrected)	Water Temp. (00010)	Conductivity at 25°C (00094)
		8100 µmho	17 °C	µmho
Field comments				
See VOC sheet for 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:	☐ A: 5ml conc. HNO ₃ added	☐ A: 4ml fuming HNO ₃ added

ANALYTICAL RESULTS from SAMPLES

NA	Units	Date analyzed	From F, NA Sample:	Date Analyzed
☒ Conductivity (Corrected) 25°C (00095)	µmho	5/13	☒ Calcium	600 mg/l 6/1
☐ Total non-filterable residue (suspended) (00530)	mg/l		☒ Potassium	6.63 mg/l 5/20
☒ Other: pH		7.79	☒ Magnesium	98 mg/l 6/1
☐ Other:			☒ Sodium	1649 mg/l 5/20
☐ Other:			☒ Bicarbonate	291 mg/l 5/12
A-H₂SO₄			☒ Chloride	2062 mg/l 5/26
☐ Nitrate-N +, Nitrate-N total (00630)	mg/l		☒ Sulfate	2366 mg/l 5/20
☐ Ammonia-N total (00610)	mg/l		☒ Total Solids	7460 mg/l 5/27
☐ Total Kjeldahl-N ()	mg/l		☒ Fluoride	3.60 5/27
☐ Chemical oxygen demand (00340)	mg/l		☐	
☐ Total organic carbon ()	mg/l		☒ Cation/Anion Balance	
☐ Other:			Analyst	Date Reported
☐ Other:				6/2/87

Laboratory remarks

FOR OCD USE -- Date Owner Notified _____ Phone or Letter? _____ Initials _____

CATIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT
Ca	29.94	600.00	<3.0
Mg	8.05	98.00	<0.3
Na	71.73	1649.00	<10.0
K	0.17	6.63	<0.3
Mn	0.00	0.00	
Fe	0.00	0.00	
SUMS	109.89	2353.63	
Total Dissolved Solids=			7460
Ion Balance =			97.91%

ANIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT
HC03	4.77	291.00	<1.0
SO4	49.29	2366.00	<10.0
CL	58.17	2062.00	<5.0
NO3	0.00	0.00	< 0.
CO3	0.00	0.00	< 1.
NH3	0.00	0.00	< 0.
PO4	0.00	0.00	< 0.
	112.23	4719.00	

WC No. = 8701661
Date out/By CD 6/2/87



SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud NE
Albuquerque, NM 87106 841-2570

87-0745-C

NEW MEXICO

REPORT TO: David Boyer
N.M. Oil Conservation Division
P. O. Box 2088
Santa Fe, N.M. 87504-2088

S.L.D. No. OR- 745-A-B
DATE REC. 5/5/87

PHONE(S): 827-5812 USER CODE: 8 2 2 3 5
SUBMITTER: David Boyer CODE: 2 6 0

SAMPLE COLLECTION CODE: (YYMMDDHHMMIII) 8 7 0 4 3 0 0 8 3 5 4 4 8

SAMPLE TYPE: WATER ☒, SOIL ☐, FOOD ☐, OTHER: CODE: ☐ ☐ ☐

COUNTY: Eddy; CITY: Artesia CODE: ☐ ☐ ☐

LOCATION CODE: (Township-Range-Section-Tracts) 1 7 5 + 2 6 E + 1 2 + 1 1 1 (10N06E24342)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
Other Specific Compounds or Classes

☐
☐
☐
☐
☐**EXTRACTABLE SCREENS**

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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:

(Note: Same as MW 49 Q7B)

FIELD DATA:

pH= 7; Conductivity= 22,000 umho/cm at 17 °C; Chlorine Residual= mg/l

Dissolved Oxygen= mg/l; Alkalinity= mg/l; Flow Rate

Depth to water 9' 1" ft.; Depth of well 15' 2" ft.; Perforation Interval - ft.; Casing: 2 1/4" S. Steel

Sampling Location, Methods and Remarks (i.e. odors, etc.)

North Test Well, Navajo Refinery. Purged 1 gallon to empty
(3 gallons - 3 casing volumes) Sample on recovery. Water very black.

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities. (signature collector): D.H. Boyer

Method of Shipment to the Lab: State Car

This form accompanies 2 Septum Vials, Glass Jugs, and/or

Samples were preserved as follows:

- ☐ NP: No Preservation; Sample stored at room temperature.
☒ P-Ice Sample stored in an ice bath (Not Frozen).
☐ P-Na₂S₂O₃ Sample Preserved with Sodium Thiosulfate to remove chlorine residual.

CHAIN OF CUSTODY

I certify that this sample was transferred from to

at (location) on / / and that

the statements in this block are correct. Evidentiary Seals: Not Sealed ☐ Seals Intact: Yes ☐ No ☐

Signatures

For OCD Use: Date Owner Notified Phone or Letter? Initials

LAB. No.: OR- 745

THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical screening method(s) checked below:

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes

Other Specific Compounds or Classes

EXTRACTABLE SCREENS

- | | | |
|--------------------------|-------|-----------------------------------|
| ☐ | (751) | Aliphatic Hydrocarbons |
| ☐ | (760) | Organochlorine Pesticides |
| ☐ | (755) | Base/Neutral Extractables |
| ☐ | (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 |

ANALYTICAL RESULTS

COMPOUND(S) DETECTED	CONC. [PPB]	COMPOUND(S) DETECTED	CONC. [PPB]
<i>aromatic surfactants</i>	<i>N.D.</i>		
<i>halogenated surfactants</i>	<i>N.D.</i>		
* DETECTION LIMIT *	<i>10⁻³g/L</i>	+ DETECTION LIMIT +	+

ABBREVIATIONS USED:

N D = NONE DETECTED AT OR ABOVE THE STATED DETECTION LIMIT
T R = DETECTED AT A LEVEL BELOW THE STATED DETECTION LIMIT (NOT CONFIRMED)
[RESULTS IN BRACKETS] ARE UNCONFIRMED AND/OR WITH APPROXIMATE QUANTITATION

LABORATORY REMARKS:

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ☐ No ☒ Seal(s) broken by: not sealed date: _____

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: 5/28/87. Analyst's signature: Karen C. Elder

I certify that I have reviewed and concur with the analytical results for this sample and with the statements in this block.

Reviewers signature: *K. Sherrell*

JUN 1 1987

REPORT TO:

David G. Boy

85-0338-C

LABORATORY

LAB NUMBER



New Mexico Oil Conservation Division

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 Atesia, Eddy City

Collected (date & time) 850411/0730 By (name) Boyz / 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 property between #1 & #2 (Same as "Test Well" AYS)

I certify that the statements in this block accurately reflect the results of my field analyses, observations and activities. Signed David G. Boyz

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 purgeables	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 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: 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	5/5/87	LAB NO.	WC1656	USER CODE	☐ 59300 ☐ 59600 ☒ OTHER: 82235
Collection DATE	5/10/87	SITE INFORMATION	Sample location	North Test Well, Navajo Refinery	
Collection TIME	0835		Collection site description	2 1/4" S. Steel well located between	
Collected by — Person/Agency	Boyer / Anderson / OCD		Fiberglass wells #1 & #2 at north end of property up gradient from tanks.		

SEND FINAL REPORT TO

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87504-2088

Attn: David Boyer

Phone: 827-5812

SAMPLING CONDITIONS

☐ Bailed ☐ Dipped	☒ Pump ☐ Tap	Water level	Discharge	Sample type	GRAB
pH (00400)	7 (strip)	Conductivity (Uncorrected)	22,000 µmho	Water Temp. (00010)	17 °C
		Conductivity at 25°C (00094)	µmho		
Field comments See VOC sheet for comments (Note - Same as MW 49 GRAB)					

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: 5ml conc. HNO ₃ added	☐ A: 4ml fuming HNO ₃ added

ANALYTICAL RESULTS from SAMPLES

NA	Units	Date analyzed	From	NA Sample:	Date Analyzed
☒ Conductivity (Corrected) 25°C (00095)	µmho	5/13	F		
☐ Total non-filterable residue (suspended) (00530)	mg/l			☒ Calcium 600	6/1
☒ Other: pH		5/12		☒ Potassium 390	5/20
☐ Other:				☒ Magnesium 893	6/1
☐ Other:				☒ Sodium 5106	5/20
A-H₂SO₄				☒ Bicarbonate 945	5/12
☐ Nitrate-N +, Nitrate-N total (00630)	mg/l			☒ Chloride 7415	5/26
☐ Ammonia-N total (00610)	mg/l			☒ Sulfate 4799	5/20
☐ Total Kjeldahl-N ()	mg/l			☒ Total Solids 2032	5/27
☐ Chemical oxygen demand (00340)	mg/l			☒ FLUORIDE 1.18	5/27
☐ Total organic carbon ()	mg/l			☐	
☐ Other:				☒ Cation/Anion Balance	
☐ Other:				Analyst	Date Reported
Laboratory remarks				6/2/87	Reviewed by

FOR OCD USE -- Date Owner Notified _____ Phone or Letter? _____ Initials _____

CATIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT
Ca	29.94	600.00	<3.0
Mg	73.35	893.00	<0.3
Na	222.10	5106.00	<10.0
K	0.10	3.90	<0.3
Mn	0.00	0.00	
Fe	0.00	0.00	
SUMS	325.48	6602.90	
Total Dissolved Solids=			20356
Ion Balance =			100.26%

ANIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT
HC03	15.49	945.00	<1.0
SO4	99.98	4799.00	<10.0
CL	209.17	7415.00	<5.0
NO3	0.00	0.00	< 0.
C03	0.00	0.00	< 1.
NH3	0.00	0.00	< 0.
PO4	0.00	0.00	< 0.
	324.63	13159.00	

WC No. = 8701656
Date out/By CD 6/2/82



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-1705	USER CODE	☐ 59300 ☐ 59600 ☒ OTHER: 82235
Collection DATE	4/11	SITE INFORMATION	Sample location	MW #49, NW corner of Pond Area	
Collection TIME	0730			Collection site description	
Collected by — Person/Agency			from Murray New MW drilled		

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	11' 10" Below Steel Pipe	Discharge		Sample type	Grab
pH (00400)	—	Conductivity (Uncorrected)	8200 μ mho	Water Temp. (00010)	15 °C	Conductivity at 25°C (00094)	10225 μ mho
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 μ m 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 NP	Units	Date analyzed
☐ Conductivity (Corrected) 25°C (00095)	μ mho		☒ 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	





STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

Contract Lab ANA - LAB 5 Contract No. _____

OCD Sample No. 8907251224

Collection Date	Collection Time	Collected by — Person/Agency	OCD
07/25/89	1224	Boyer, Ames Engler	

SITE INFORMATION

Sample location NAVATO REFINERY: Windmill

Collection Site Description Pond Windmill

Township, Range, Section, Tract:

117S+26E+12+1411

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: 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

pH(00400) 7
Water Temp. (00010) 20 °C

Water level Pumping
Discharge
Sample type GRAB
Conductivity (Uncorrected) 4350 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	



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 214/984-0551

Analytical Chemistry • Waste Treatment & Disposal • Equipment Sales

08/17/89

Environmental Bureau NM Oil D.
PO Box 2088
Santa Fe, NM 87504

RECEIVED

AUG 21 1989

OIL CONSERVATION DIV.
SANTA FE

Sample Identification: Windmill Navajo Ref.
Flow or other on site data: 4 Vials Pond Windmill
Collected by: Boyer, Englert
Date & Time Taken: 07/25/89 1224
Additional Sample Information: 175-26E-12-141 Pumping Temp 20 Cond 4350 NF 8020:A 8010:NA pH 7
Lab Sample Number: 149749 Received: 07/29/89

PARAMETER:	RESULTS	QUALITY CONTROL	ANALYZED ON AT	ANALYST
1,1,1-Trichloroethane, ug/l EPA Method 8010	(5		08/09/89 2128	BP
1,1,2,2-Tetrachloroethane, ug/l EPA Method 8010	(5		08/09/89 2128	BP
1,1,2-Trichloroethane, ug/l EPA Method 8010	(5		08/09/89 2128	BP
1,1-Dichloroethane, ug/l EPA Method 8010	(5		08/09/89 2128	BP
1,1-Dichloroethene, ug/l EPA Method 8010	(1		08/09/89 2128	BP
1,2-Dichloroethane, ug/l EPA Method 8010	(5		08/09/89 2128	BP
1,2-Dichloropropane, ug/l EPA Method 8010	(5		08/09/89 2128	BP
2-Chloroethylvinyl ether, ug/l EPA Method 8010	(10		08/09/89 2128	BP
Benzene, ug/l EPA Method 8020	(5		08/09/89 2128	BP
Bromodichloromethane, ug/l EPA Method 8010	(5		08/09/89 2128	BP

continued



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 214/984-0551

Analytical Chemistry • Waste Treatment & Disposal • Equipment Sales

RECEIVED

AUG 21 1989

Lab Sample Number: 149749 Continued

OIL CONSERVATION DIV.
SANTA FE

Page 2

PARAMETER:	RESULTS	QUALITY CONTROL	ANALYZED ON AT	ANALYST
Bromoform, ug/l EPA Method 8010	(5		08/09/89 2128	BP
Bromomethane, ug/l EPA Method 8010	(10		08/09/89 2128	BP
Carbon Tetrachloride, ug/l EPA Method 8010	(5		08/09/89 2128	BP
Chlorobenzene, ug/l EPA Method 8010	(5		08/09/89 2128	BP
Chloroethane, ug/l EPA Method 8010	(10		08/09/89 2128	BP
Chloroform, ug/l EPA Method 8010	(5		08/09/89 2128	BP
Chloromethane, ug/l EPA Method 8010	(10		08/09/89 2128	BP
Cis-1,3-Dichloropropene, ug/l EPA Method 8010	(5		08/09/89 2128	BP
Dibromochloromethane, ug/l EPA Method 8010	(5		08/09/89 2128	BP
Ethyl benzene, ug/l EPA Method 8020	(5		08/09/89 2128	BP
Freon, ug/l EPA Method 8010	(5		08/09/89 2128	BP
Methylene Chloride, ug/l EPA Method 8010	(5		08/09/89 2128	BP
Tetrachloroethene, ug/l EPA Method 8010	(5		08/09/89 2128	BP
Toluene, ug/l EPA Method 8020	(5		08/09/89 2128	BP

continued



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 214/984-0551

Analytical Chemistry • Waste Treatment & Disposal • Equipment Sales

AUG 21 1989

OIL CONSERVATION DIV.
SANTA FE

Lab Sample Number: 149749 Continued

Page 3

PARAMETER:	RESULTS	QUALITY CONTROL	ANALYZED ON AT	ANALYST
Trans-1,2-Dichloroethene, ug/l EPA Method 8010	(5		08/09/89 2128	BP
Trans-1,3-Dichloropropene, ug/l EPA Method 8010	(5		08/09/89 2128	BP
Trichloroethene, ug/l EPA Method 8010	(5		08/09/89 2128	BP
Vinyl Chloride, ug/l EPA Method 8010	(1		08/09/89 2128	BP
Xylenes, ug/l EPA Method 8020	(10		08/09/89 2128	BP


C. H. Whiteside, Ph.D., President

SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud NE
Albuquerque, NM 87106 841-2570

88-0795-C

MEXICO

REPORT TO: David Boyer

N.M. Oil Conservation Division

P. O. Box 2088

Santa Fe, N.M. 87504-2088

S.L.D. No. OR- 795 AVB

DATE REC. 6-3-88

PHONE(S):

327-5812

USER CODE:

8 2 2 3 5

SUBMITTER:

David Boyer

CODE:

2 6 0

SAMPLE COLLECTION CODE: (YYMMDDHHMMIII)

8810601117381818

SAMPLE TYPE: WATER ☒ SOIL ☐ FOOD ☐ OTHER: ☐CODE: ☐ ☐ ☐

COUNTY:

Eddy

CITY:

Hosena

CODE:

☐ ☐ ☐

LOCATION CODE: (Township-Range-Section-Tracts)

1715+261E+12+141

(10N06E24342)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.

PURGEABLE SCREENS☐ (753) Aliphatic Purgeables (1-3 Carbons)☒ (754) Aromatic & Halogenated Purgeables☐ (765) Mass Spectrometer Purgeables☐ (766) Trihalomethanes

Other Specific Compounds or Classes

☐☐☐☐☐☐

Remarks:

NOT HCl preserved

EXTRACTABLE SCREENS☐ (751) Aliphatic Hydrocarbons☐ (760) Organochlorine Pesticides☐ (755) Base/Neutral Extractables☐ (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**FIELD DATA:**

pH= 7; Conductivity= 7100 umho/cm at 21.5°C; Chlorine Residual= mg/l

Dissolved Oxygen= mg/l; Alkalinity= mg/l; Flow Rate /

Depth to water ft.; Depth of well ft.; Perforation Interval - ft.; Casing:

Sampling Location, Methods and Remarks (i.e. odors, etc.)

Navajo Refinery - Pond windmill, pumping
No odor

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities.(signature collector):

Method of Shipment to the Lab:

This form accompanies Septum Vials, Glass Jugs, and/or

Samples were preserved as follows:

☐ NP: No Preservation; Sample stored at room temperature.☐ P-Ice Sample stored in an ice bath (Not Frozen).☐ P-Na₂S₂O₃ Sample Preserved with Sodium Thiosulfate to remove chlorine residual.**CHAIN OF CUSTODY**

I certify that this sample was transferred from to

at (location) on / / - and that

the statements in this block are correct. Evidentiary Seals: Not Sealed ☐ Seals Intact: Yes ☐ No ☐

Signatures

For OCD Use: Date Owner Notified 8/19/88 Phone or Letter?

Initials

DJB

ANALYSES PERFORMED

LAB. No.: OR-

795

THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical screening method(s) checked below:

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
 Other Specific Compounds or Classes

☐
☐
☐
☐
☐
☐

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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

ANALYTICAL RESULTS

COMPOUND(S) DETECTED	CONC. [PPB]	COMPOUND(S) DETECTED	CONC. [PPB]
halogenated purgeables	N.D.		
aromatic purgeables	see remarks		
* DETECTION LIMIT *	* 0.5 0.5 ppb + DETECTION LIMIT +		

ABBREVIATIONS USED:

N D = NONE DETECTED AT OR ABOVE THE STATED DETECTION LIMIT

T R = DETECTED AT A LEVEL BELOW THE STATED DETECTION LIMIT (NOT CONFIRMED)

[RESULTS IN BRACKETS] ARE UNCONFIRMED AND/OR WITH APPROXIMATE QUANTITATION

LABORATORY REMARKS:

three compounds in the aromatic screen region at trace levels to 15 ppb detected by the photo ionization detector but not identified.

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ☐ No ☒ Seal(s) broken by: not sealed date: _____

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: 6/14/88 Analyst's signature: Harry C. Eden

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

SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud NE
Albuquerque, NM 87106 841-2570

87-1831-C

MEXICO

ENVIRONMENT

REPORT TO: David Boyer
N.M. Oil Conservation Division
P. O. Box 2088
Santa Fe, N.M. 87504-2088

PHONE(S): 827-5812

SUBMITTER: David Boyer

SAMPLE COLLECTION CODE: (YYMMDDHHMMIII) 8711121130AAB8

SAMPLE TYPE: WATER ☒ SOIL ☐ FOOD ☐ OTHER: CODE: ☐ ☐ ☐

COUNTY: Eddy; CITY: Artesia CODE: ☐ ☐ ☐

LOCATION CODE: (Township-Range-Section-Tracts) ☐ ☐ + ☐ ☐ + ☐ ☐ + ☐ ☐ (10N06E24342)

S.L.D. No. OR- 87-1831 A+B

DATE REC. 11-16-87

PRIORITY

USER CODE: 8 2 2 3 5

CODE: 12 6 10

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
Other Specific Compounds or Classes

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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:

Detection limit 10ppb if possible

FIELD DATA:

pH= 7.3; Conductivity= 6300 umho/cm at 25 °C; Chlorine Residual= mg/l

Dissolved Oxygen= mg/l; Alkalinity= mg/l; Flow Rate /

Depth to water ft.; Depth of well ft.; Perforation Interval - ft.; Casing:

Sampling Location, Methods and Remarks (i.e. odors, etc.)

Navajo Refinery Pond 10 windmill

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities. (signature collector): AS Boyer

Method of Shipment to the Lab: car

This form accompanies 2 Septum Vials, Glass Jugs, and/or

Samples were preserved as follows:

- ☐ NP: No Preservation; Sample stored at room temperature.
☒ P-Ice Sample stored in an ice bath (Not Frozen).
☐ P-Na₂S₂O₃ Sample Preserved with Sodium Thiosulfate to remove chlorine residual.

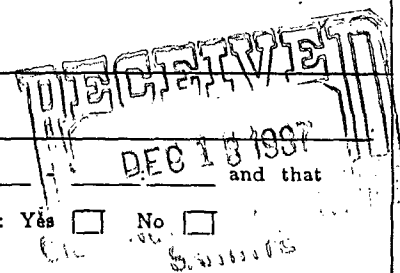
CHAIN OF CUSTODY

I certify that this sample was transferred from to

at (location) on / /

the statements in this block are correct. Evidentiary Seals: Not Sealed ☐ Seals Intact: Yes ☐ No ☐

Signatures



For OCD Use: Date Owner Notified Phone or Letter? Initials

ANALYSES PERFORMED

LAB. No.: OR- 1831

THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical screening method(s) checked below:

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
 Other Specific Compounds or Classes

☐
☐
☐
☐
☐

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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

ANALYTICAL RESULTS

COMPOUND(S) DETECTED	CONC. [PPB]	COMPOUND(S) DETECTED	CONC. [PPB]
<i>aromatic purgeables</i>	<i>see remarks</i>		
<i>benzene</i>	<i>2</i>		
<i>m-xylene</i>	<i>T.R.</i>		
<i>halogenated purgeables</i>	<i>N.D.</i>		
* DETECTION LIMIT *	<i>179/L</i>	+ DETECTION LIMIT +	<i>+</i>

ABBREVIATIONS USED:

N D = NONE DETECTED AT OR ABOVE THE STATED DETECTION LIMIT

T R = DETECTED AT A LEVEL BELOW THE STATED DETECTION LIMIT (NOT CONFIRMED)

[RESULTS IN BRACKETS] ARE UNCONFIRMED AND/OR WITH APPROXIMATE QUANTITATION

LABORATORY REMARKS:

One peak compound in the aromatic screen region at 1-3 ppb and two late eluting compounds in the substituted benzene region at 50-150 ppb detected by the photoionization detector but not identified.

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ☒ No ☐ Seal(s) broken by: *not sealed* date: *11/18/87*

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: *11/18/87* Analyst's signature: *Harry C. Eden*

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 Meyerheim*

SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud NE
Albuquerque, NM 87106 841-2570

87-1348-C

MEXICO

REPORT TO: David Boyer
N.M. Oil Conservation Division
P. O. Box 2088
Santa Fe, N.M. 87504-2088

S.L.D. No. OR- 1348 A+B
DATE REC. 8-1487

PHONE(S): 327-5812 USER CODE: 8 2 2 3 5

SUBMITTER: David Boyer CODE: 2 6 0

SAMPLE COLLECTION CODE: (YYMMDDHHMMIII) 8 7 1 0 8 1 1 2 1 3 3 5 D 6 B

SAMPLE TYPE: WATER ☒ SOIL ☐ FOOD ☐ OTHER: CODE:

COUNTY: Eddy; CITY: ARTESIA CODE:

LOCATION CODE: (Township-Range-Section-Tracts) 1 1 7 5 + 2 6 E + 1 2 + 1 4 1 (10N06E24342)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes

Other Specific Compounds or Classes

☐
☐
☐
☐
☐

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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:

Detection limit 10 or less if possible

FIELD DATA:

pH= 7; Conductivity= 7000 umho/cm at 25°C; Chlorine Residual= mg/l

Dissolved Oxygen= mg/l; Alkalinity= mg/l; Flow Rate /

Depth to water ft.; Depth of well ft.; Perforation Interval - ft.; Casing:

Sampling Location, Methods and Remarks (i.e. odors, etc.)

POND WINDMILL SOUTH OF POND 1 - NAVAJO REFINERY
PUMPING WINDMILL

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities. (signature collector): D. A. Boyer Method of Shipment to the Lab: State Co.

This form accompanies 2 Septum Vials, Glass Jugs, and/or

Samples were preserved as follows:

- ☐ NP: No Preservation; Sample stored at room temperature.
☒ P-Ice Sample stored in an ice bath (Not Frozen).
☐ P-Na₂S₂O₃ Sample Preserved with Sodium Thiosulfate to remove chlorine residual.

CHAIN OF CUSTODY

I certify that this sample was transferred from to

at (location) on / - and that

the statements in this block are correct. Evidentiary Seals: Not Sealed ☐ Seals Intact: Yes ☐ No ☐

Signatures

For OCD Use: Date Owner Notified Phone or Letter? Initials

ANALYSES PERFORMED

LAB. No.: OR- 1348

THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical screening method(s) checked below:

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
 Other Specific Compounds or Classes

☐
☐
☐
☐
☐

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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

ANALYTICAL RESULTS

COMPOUND(S) DETECTED	CONC. [PPB]	COMPOUND(S) DETECTED	CONC. [PPB]
<i>aromatic purgeables</i>	<i>N.D.</i>		
<i>halogenated purgeables</i>	<i>N.D.</i>		
* DETECTION LIMIT *	<i>1.48/2</i>	+ DETECTION LIMIT +	

ABBREVIATIONS USED:

N D = NONE DETECTED AT OR ABOVE THE STATED DETECTION LIMIT

T R = DETECTED AT A LEVEL BELOW THE STATED DETECTION LIMIT (NOT CONFIRMED)

[RESULTS IN BRACKETS] ARE UNCONFIRMED AND/OR WITH APPROXIMATE QUANTITATION

LABORATORY REMARKS:

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ☐ No ☒ Seal(s) broken by: *not sealed* date: _____

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: *8/17/87* Analyst's signature: *Harry C. Edess*

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. Meyerheim*

SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud NE
Albuquerque, NM 87106 841-2570

87-0753-C

REPORT TO: David Boyer
N.M. Oil Conservation Division
P. O. Box 2088
Santa Fe, N.M. 87504-2088

S.L.D. No. OR- 753-A-B
DATE REC. 5-5-87

PHONE(S): 827-5812 USER CODE: 8 2 2 3 5
SUBMITTER: David Boyer CODE: 2 6 1 0

SAMPLE COLLECTION CODE: (YYMMDDHHMMIII) 8 7 1 0 4 2 8 1 5 1 5 2 8 8

SAMPLE TYPE: WATER ☒ SOIL ☐ FOOD ☐ OTHER: CODE: ☐ ☐ ☐

COUNTY: Eddy; CITY: Artesia CODE: ☐ ☐ ☐

LOCATION CODE: (Township-Range-Section-Tracts) 1 7 5 + 2 6 E + 1 2 + 1 4 1 (10N06E24342)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
Other Specific Compounds or Classes

☐
☐
☐
☐
☐
☐

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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:

FIELD DATA:

pH= 7; Conductivity= 6900 umho/cm at 17.5°C; Chlorine Residual= mg/l

Dissolved Oxygen= mg/l; Alkalinity= mg/l; Flow Rate /

Depth to water 7 ft.; Depth of well 13' 9" ft.; Perforation Interval - ft.; Casing:

Sampling Location, Methods and Remarks (i.e. odors, etc.)

Pond Windmill - S of Pond 1 Marajo Refinery
Some H.C. odor (?), Pumping Windmill

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities. (signature collector): David Boyer Method of Shipment to the Lab: State Car

This form accompanies 2 Septum Vials, Glass Jugs, and/or

Samples were preserved as follows:

- ☐ NP: No Preservation; Sample stored at room temperature.
☒ P-Ice Sample stored in an ice bath (Not Frozen).
☐ P-Na₂S₂O₃ Sample Preserved with Sodium Thiosulfate to remove chlorine residual.

CHAIN OF CUSTODY

I certify that this sample was transferred from to

at (location) on / / - and that

the statements in this block are correct. Evidentiary Seals: Not Sealed ☐ Seals Intact: Yes ☐ No ☐

Signatures

For OCD Use: Date Owner Notified Phone or Letter? Initials

ANALYSES PERFORMED

LAB. No.: OR- 753

THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical screening method(s) checked below:

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☒ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes

Other Specific Compounds or Classes

☐ _____
☐ _____
☐ _____
☐ _____
☐ _____

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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

ANALYTICAL RESULTS

COMPOUND(S) DETECTED	CONC. [PPB]	COMPOUND(S) DETECTED	CONC. [PPB]
<i>aromatic purgeables</i>	<i>N.D.</i>		
<i>halogenated purgeables</i>	<i>N.D.</i>		
* DETECTION LIMIT *	<i>1.49/L</i>	+ DETECTION LIMIT +	

ABBREVIATIONS USED:

N D = NONE DETECTED AT OR ABOVE THE STATED DETECTION LIMIT

T R = DETECTED AT A LEVEL BELOW THE STATED DETECTION LIMIT (NOT CONFIRMED)

[RESULTS IN BRACKETS] ARE UNCONFIRMED AND/OR WITH APPROXIMATE QUANTITATION

LABORATORY REMARKS:

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ☐ No ☒ Seal(s) broken by: *not sealed* date: _____

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: *5/29/87* Analyst's signature: *Harry C. Eden*

I certify that I have reviewed and concur with the analytical results for this sample and with the statements in this block.

Reviewers signature: *K. Sherrill*

JUN 11 1987

SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud NE
Albuquerque, NM 87106 841-2570



W MEXICO

87-1369-B

REPORT TO: David Boyer
N.M. Oil Conservation Division
P. O. Box 2088
Santa Fe, N.M. 87504-2088

S.L.D. No. OR- 1369A
DATE REC. 8-14-87

PHONE(S): 827-5812 USER CODE: 8 2 2 3 5
SUBMITTER: David Boyer CODE: 2 6 0

SAMPLE COLLECTION CODE: (YYMMDDHHMMII) 8 7 0 8 1 2 1 3 3 5 0 6 1 3

SAMPLE TYPE: WATER ☒ SOIL ☐ FOOD ☐ OTHER: ☐ CODE: ☐ ☐ ☐

COUNTY: EDDY CITY: ARTESIA CODE: ☐ ☐ ☐

LOCATION CODE: (Township-Range-Section-Tracts) 1 7 5 + 2 6 E + 1 2 + 1 4 1 (10N06E24342)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☐ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes
Other Specific Compounds or Classes

☐ _____
☐ _____
☐ _____
☐ _____
☐ _____

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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: _____

FIELD DATA:

pH= 7; Conductivity= 7000 umho/cm at 25°C; Chlorine Residual= _____ mg/l

Dissolved Oxygen= _____ mg/l; Alkalinity= _____ mg/l; Flow Rate _____

Depth to water _____ ft.; Depth of well _____ ft.; Perforation Interval _____ - _____ ft.; Casing: _____

Sampling Location, Methods and Remarks (i.e. odors, etc.)

POND WINDMILL SOUTH OF POND 1 - NAVAJO REFINERY
PUMPING WINDMILL

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities. (signature collector): David Boyer Method of Shipment to the Lab: State Co

This form accompanies _____ Septum Vials, _____ Glass Jugs, and/or _____

Samples were preserved as follows:

- ☐ NP: No Preservation; Sample stored at room temperature.
☒ P-Ice Sample stored in an ice bath (Not Frozen).
☐ P-Na₂S₂O₃ Sample Preserved with Sodium Thiosulfate to remove chlorine residual.

CHAIN OF CUSTODY

I certify that this sample was transferred from _____ to _____
at (location) _____ on _____ - _____ and that

the statements in this block are correct. Evidentiary Seals: Not Sealed ☐ Seals Intact: Yes ☐ No ☐

Signatures _____

For OCD Use: Date Owner Notified _____ Phone or Letter? _____ Initials _____

ANALYSES PERFORMED

LAB. No.: OR- 1369

THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical screening method(s) checked below:

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
☐ (754) Aromatic & Halogenated Purgeables
☐ (765) Mass Spectrometer Purgeables
☐ (766) Trihalomethanes

Other Specific Compounds or Classes:

☐
☐
☐
☐
☐

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
☐ (760) Organochlorine Pesticides
☐ (755) Base/Neutral Extractables
☐ (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

ANALYTICAL RESULTS

COMPOUND(S) DETECTED	CONC. [PPB]	COMPOUND(S) DETECTED	CONC. [PPB]
PNA's MDL = 5ppb	ND < 5		
ALIPHATICS			
Gasoline MDL = 100ppb	ND < 100		
Kerosene MDL = 100ppb	ND < 100		
Diesel MDL = 100ppb	ND < 100		
+ Mineral Oil = 1000ppb	ND < 1000		
* DETECTION LIMIT *	*	+ DETECTION LIMIT +	+

ABBREVIATIONS USED:

N D = NONE DETECTED AT OR ABOVE THE STATED DETECTION LIMIT

T R = DETECTED AT A LEVEL BELOW THE STATED DETECTION LIMIT (NOT CONFIRMED)

[RESULTS IN BRACKETS] ARE UNCONFIRMED AND/OR WITH APPROXIMATE QUANTITATION

LABORATORY REMARKS:

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ☐ No ☐ Seal(s) broken by: No seals date: _____

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: 8/19/87 Analyst's signature: CS Security

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 Meyerhein



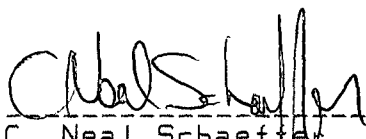
2503 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

CLIENT: OCD
SAMPLE ID: 8907251224
SITE: Navajo Refinery Windmill
LAB NO: F1815

DATE REPORTED: 08/21/89
DATE RECEIVED: 07/31/89
DATE COLLECTED: 07/25/89

Lab pH.....	7.61
Lab Conductivity, umhos/cm.....	7025
Lab resistivity, ohm-m.....	1.4235
Total Dissolved Solids (180), mg/l..	5364
Total Dissolved Solids (calc), mg/l..	5201
Total Alkalinity as CaCO ₃ , mg/l.....	174.58
Total Acidity as CaCO ₃ , mg/l.....	0.00
Total Hardness as CaCO ₃ , mg/l.....	2057.61
Sodium Absorption Ratio.....	9.22
Fluoride, mg/l.....	0.86

	mg/l	meq/l
Bicarbonate as HCO ₃	212.99	3.49
Carbonate as CO ₃	0.00	0.00
Chloride.....	1361.28	38.40
Sulfate.....	2087.13	43.48
Calcium.....	464.58	23.18
Magnesium.....	218.51	17.97
Potassium.....	3.80	0.10
Sodium.....	961.00	41.80
Major Cations.....		83.05
Major Anions.....		85.37
Cation/Anion Difference.....		1.38 %


C. Neal Schaeffer
Senior Chemist

RECEIVED

SEP - 1 1989

OIL CONSERVATION DIV.
SANTA FE



New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

864
WNN

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

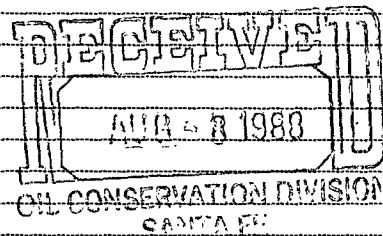
DATE RECEIVED	6/3/88	LAB NO.	WC-1985	USER CODE	☐ 59300 ☐ 59600 ☒ OTHER: 82235
Collection DATE	6/10/88	SITE INFORMATION	Sample location	Narajo Refinery Pond Winkmill	
Collection TIME	1738				
Collected by — Person/Agency		Bayer/Anderson OCD			
Collection site description					

SEND
FINAL
REPORT
TO

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87504-2088

Attn: David Boyer

Phone: 827-5812



Station/
well code
Owner

SAMPLING CONDITIONS

☒ Boiled ☐ Dipped	☒ Pump ☐ Tap	Water level	Discharge	Sample type
		<i>Pumping</i>		<i>Grab</i>
pH (00400)	7	Conductivity (Uncorrected)	Water Temp. (00010)	Conductivity at 25°C (00094)
		7100 μ mho	21.5 °C	μ mho
Field comments				
<i>No odor</i>				

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: 5ml conc. HNO ₃ added	☐ A: 4ml fuming HNO ₃ added

ANALYTICAL RESULTS from SAMPLES

NA	Units	Date analyzed	From <i>NE</i> , NA Sample:	Date Analyzed
☒ Conductivity (Corrected) 25°C (00095)	8243 μ mho	7/5	☒ Calcium	484 mg/l 7/18
☐ Total non-filterable residue (suspended) (00530)			☒ Potassium	5 mg/l 7/5
☒ Other: <i>help pH</i>	8.09	7/15	☒ Magnesium	327 mg/l 7/18
☐ Other:			☒ Sodium	1160 mg/l 7/5
☐ Other:			☒ Bicarbonate	227 mg/l 7/15
A-H₂SO₄			☒ Chloride	1500 mg/l 6/29
☐ Nitrate-N +, Nitrate-N total (00630)	mg/l		☒ Sulfate	1475 mg/l 6/29
☐ Ammonia-N total (00610)	mg/l		☒ Total Solids	6476 mg/l 6/30
☐ Total Kjeldahl-N ()	mg/l		☒ Fluoride	1.18 7/22
☐ Chemical oxygen demand (00340)	mg/l		☐	
☐ Total organic carbon ()	mg/l		☒ Cation/Anion Balance	
☐ Other:			Analyst	Date Reported
☐ Other:				7/27/88

Laboratory remarks
1500

FOR OCD USE -- Date Owner Notified *8/19/88* Phone or Letter?

Initials *ACB*

CATIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT
Ca	24.15	484.00	<3.0
Mg	26.86	327.00	<0.3
Na	50.46	1160.00	<10.0
K	0.13	5.00	<0.3
Mn	0.00	0.00	
Fe	0.00	0.00	
SUMS	101.59	1976.00	
Total Dissolved Solids=			6476
Ion Balance =			132.35%

ANIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT
HC03	3.72	227.00	<1.0
SO4	30.73	1475.00	<10.0
CL	42.31	1500.00	<5.0
NO3	0.00	0.00	< 0.
C03	0.00	0.00	< 1.
NH3	0.00	0.00	< 0.
PO4	0.00	0.00	< 0.
	76.76	3202.00	

WC No. = 8801985
Date out/By CS 7/29/88



New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

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864

GENERAL WATER CHEMISTRY
and NITROGEN ANALYSIS

DATE RECEIVED 11/16/87	LAB NO. WC-5084	USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235
Collection DATE 11/12/87	SITE INFORMATION	Sample location Pond Windmill - Navajo Refinery
Collection TIME 1130		Collection site description Sample from hose at pump exit
Collected by Person/Agency Boyer/Bailey /OCD		

SEND
FINAL
REPORT
TO

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87504-2088

Attn: David Boyer

Phone: 827-5812

SAMPLING CONDITIONS

☐ Bailed ☐ Dipped	☒ Pump ☐ Tap	Water level 10', 14' TD	Discharge -	Sample type Grab
pH (00400) 7.3 meter, 7.0 strip	Conductivity (Uncorrected) - μ mho	Water Temp. (00010) - °C	Conductivity at 25°C (00094) 6300 μ mho	
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 μ m membrane filter	☐ A: 2 ml H ₂ SO ₄ /L added
☒ NA: No acid added	☐ Other-specify:	☐ A: 5ml conc. HNO ₃ added	☐ A: 4ml fuming HNO ₃ added

ANALYTICAL RESULTS from SAMPLES

NA	Units	Date analyzed	From NF, NA Sample:	Date Analyzed
☒ Conductivity (Corrected) 25°C (00095)	7647 μ mho	1/5	☒ Calcium 500 mg/l	12/29
☐ Total non-filterable residue (suspended) (00530)			☒ Potassium 3.12 mg/l	12/21
Other: Lab pH 7.89	mg/l	12/16	☒ Magnesium 268 mg/l	12/29
☐ Other:			☒ Sodium 1159 mg/l	12/21
☐ Other:			☒ Bicarbonate 219 mg/l	12/16
A-H₂SO₄			☒ Chloride 1475 mg/l	1/11
☐ Nitrate-N +, Nitrate-N total (00630)	mg/l		☒ Sulfate 2230 mg/l	1/11
☐ Ammonia-N total (00610)	mg/l		☒ Total Solids 6054 mg/l	1/11
☐ Total Kjeldahl-N ()	mg/l		☒ Fluoride 1.4	12/31
☐ Chemical oxygen demand (00340)	mg/l		☐	
☐ Total organic carbon ()	mg/l		☐ Cation/Anion Balance	
☐ Other:			Analyst	Date Reported 1/11/88
☐ Other:				Reviewed by

Laboratory remarks

CATIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT
Ca	24.95	500.00	<3.0
Mg	22.01	268.00	<0.3
Na	50.41	1159.00	<10.0
K	0.08	3.12	<0.3
Mn	0.00	0.00	
Fe	0.00	0.00	
SUMS	97.46	1930.12	
Total Dissolved Solids=			6054
Ion Balance =			106.33%

ANIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT
HCO3	3.59	219.00	<1.0
SO4	46.46	2230.00	<10.0
CL	41.61	1475.00	<5.0
NO3	0.00	0.00	< 0.
CO3	0.00	0.00	< 1.
NH3	0.00	0.00	< 0.
PO4	0.00	0.00	< 0.
	91.66	3924.00	

WC No. = 8705089
 Date out/By Q 11/1/85



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	5-5-87	LAB NO.	WC-1640	USER CODE	☐ 59300 ☐ 59600 ☒ OTHER: 82235
Collection DATE	5/10/87	SITE INFORMATION	Sample location		
Collection TIME	1515		Pond Windmill - Soft Pond 1		
Collected by — Person/Agency		Collection site description			
Boyer/Anderson 10CD		Narajo Refinery			

SEND
FINAL
REPORT
TO

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87504-2088

Attn: David Boyer

Phone: 827-5812

SAMPLING CONDITIONS

☐ Bailed ☐ Dipped	☒ Pump ☐ Tap	Water level	Discharge	Sample type
				Grab
pH (00400)	7	Conductivity (Uncorrected)	Water Temp. (00010)	Conductivity at 25°C (00094)
		6900 µmho	17.5°C	µmho
Field comments				
See VOC sheet for 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:		
		☐ A: 5ml conc. HNO ₃ added ☐ A: 4ml fuming HNO ₃ added		

ANALYTICAL RESULTS from SAMPLES

NA	Units	Date analyzed
☒ Conductivity (Corrected) 25°C (00095)	7725 µmho	5/13
☐ Total non-filterable residue (suspended) (00530)		
☒ Other: pH	7.88	5/12
☐ Other:		
☐ Other:		
A-H ₂ SO ₄		
☐ 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:		

From F, NA Sample:	Date Analyzed
☒ Calcium 520 mg/l	5/29
☒ Potassium 9.75 mg/l	5/19
☒ Magnesium 244 mg/l	5/29
☒ Sodium 1054 mg/l	5/19
☒ Bicarbonate 194 mg/l	5/12
☒ Chloride 1707 mg/l	5/26
☒ Sulfate 1734 mg/l	5/20
☒ Total Solids 6036 mg/l	5/27
☒ Fluoride 1.06	5/26
☐	
☒ Cation/Anion Balance	

Analyst	Date Reported	Reviewed by
	6/2/87	CO

Laboratory remarks

FOR OCD USE -- Date Owner Notified _____ Phone or Letter? _____ Initials _____

CATIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT
Ca	25.95	520.00	<3.0
Mg	20.04	244.00	<0.3
Na	46.02	1058.00	<10.0
K	0.25	9.75	<0.3
Mn	0.00	0.00	
Fe	0.00	0.00	
SUMS	92.26	1831.75	
Total Dissolved Solids= 6036			
Ion Balance = 105.49%			

ANIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT
HC03	3.18	194.00	<1.0
SO4	36.13	1734.00	<10.0
CL	48.15	1707.00	<5.0
NO3	0.00	0.00	< 0.
CO3	0.00	0.00	< 1.
NH3	0.00	0.00	< 0.
PO4	0.00	0.00	< 0.
	87.46	3635.00	

WC No. = 8701640
Date out/By CD 6/2/67



New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106

HEAVY METAL ANALYSIS FORM

Telephone: (505)841-2553

Date Received 6/3/88 Lab No. ICP-240 User Code ☒ 82235 ☐ Other:

COLLECTION DATE & TIME: yy mm dd hh mm 88 06 01 17 38 COLLECTION SITE DESCRIPTION Pond Windmill

COLLECTED BY: Boyer/Anderson/OCD

TO:

OWNER: Hart Aluminum Refinery

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg., PO Box 2088
SANTA FE, NM 87504-2088

SITE LOCATION:
County: Eddy

Township, Range, Section, Tract: (10N06E24342)
1715+246E+12+1411

ATTN: D. Boyer
TELEPHONE: 827-5812

STATION/ WELL CODE:

LATITUDE, LONGITUDE:

SAMPLING CONDITIONS:

☐ Bailed ☒ Pump Water Level: Discharge: Sample Type:
☐ Dipped ☐ Tap Pumping Coal
pH(00400) 7 Conductivity(Uncorr.) 7,000 μ mho Water Temp.(00010) 21.5 $^{\circ}$ C Conductivity at 25 $^{\circ}$ C (00094) μ mho

FIELD COMMENTS:

SAMPLE FIELD TREATMENT

Check proper boxes:

☒ WPN: Water Preserved w/HNO₃ Non-Filtered ☐ WPF: Water Preserved w/HNO₃ Filtered

LAB ANALYSIS REQUESTED:

☒ ICAP Scan
Mark box next to metal if AA is required.

ANALYTICAL RESULTS (MG/L)

ELEMENT	ICAP VALUE	AA VALUE	ELEMENT	ICAP VALUE	AA VALUE
Aluminum	<u><0.1</u>		Silicon	<u>6.6</u>	
Barium	<u><0.1</u>		Silver	<u><0.1</u>	☐
Beryllium	<u><0.1</u>		Strontium	<u>4.8</u>	
Boron	<u>0.5</u> <0.1		Tin	<u><0.1</u>	
Cadmium	<u><0.1</u>	☐	Vanadium	<u><0.1</u>	
Calcium	<u>350.</u>		Zinc	<u><0.1</u>	
Chromium	<u><0.1</u>	☒ <u><0.005</u>	Arsenic		☒ <u>0.015</u>
Cobalt	<u><0.05</u>		Selenium		☐
Copper	<u><0.1</u>		Mercury		☐
Iron	<u>0.4</u>				☐
Lead	<u><0.1</u>	☒ <u><0.01</u>			☐
Magnesium	<u>220.</u>				☐
Manganese	<u>0.43</u>				☐
Molybdenum	<u><0.1</u>				☐
Nickel	<u><0.1</u>				☐

LAB COMMENTS: 2.5 ml 16M HNO₃ added in Lab. 6/6/88 LMK Digest

For OCD Use:

Date Owner Notified: 8/17/88 ICAP Analyst QA Reviewer J. P. Kelly
Phone or Letter? Date Analyzed 6/7/88 Date Received 7/15/88
Initials: DRB

