GW - 1

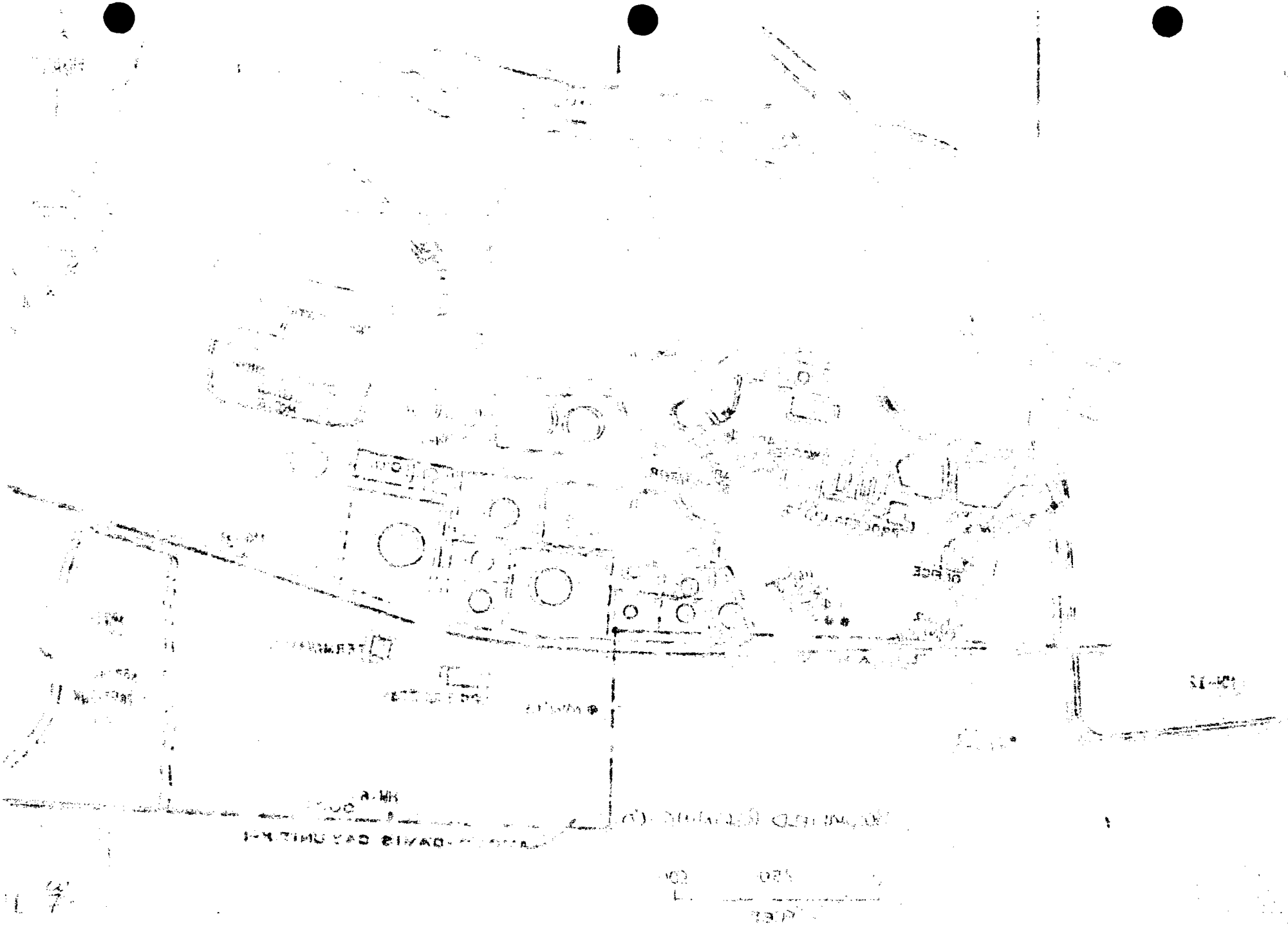
MONITORING REPORTS

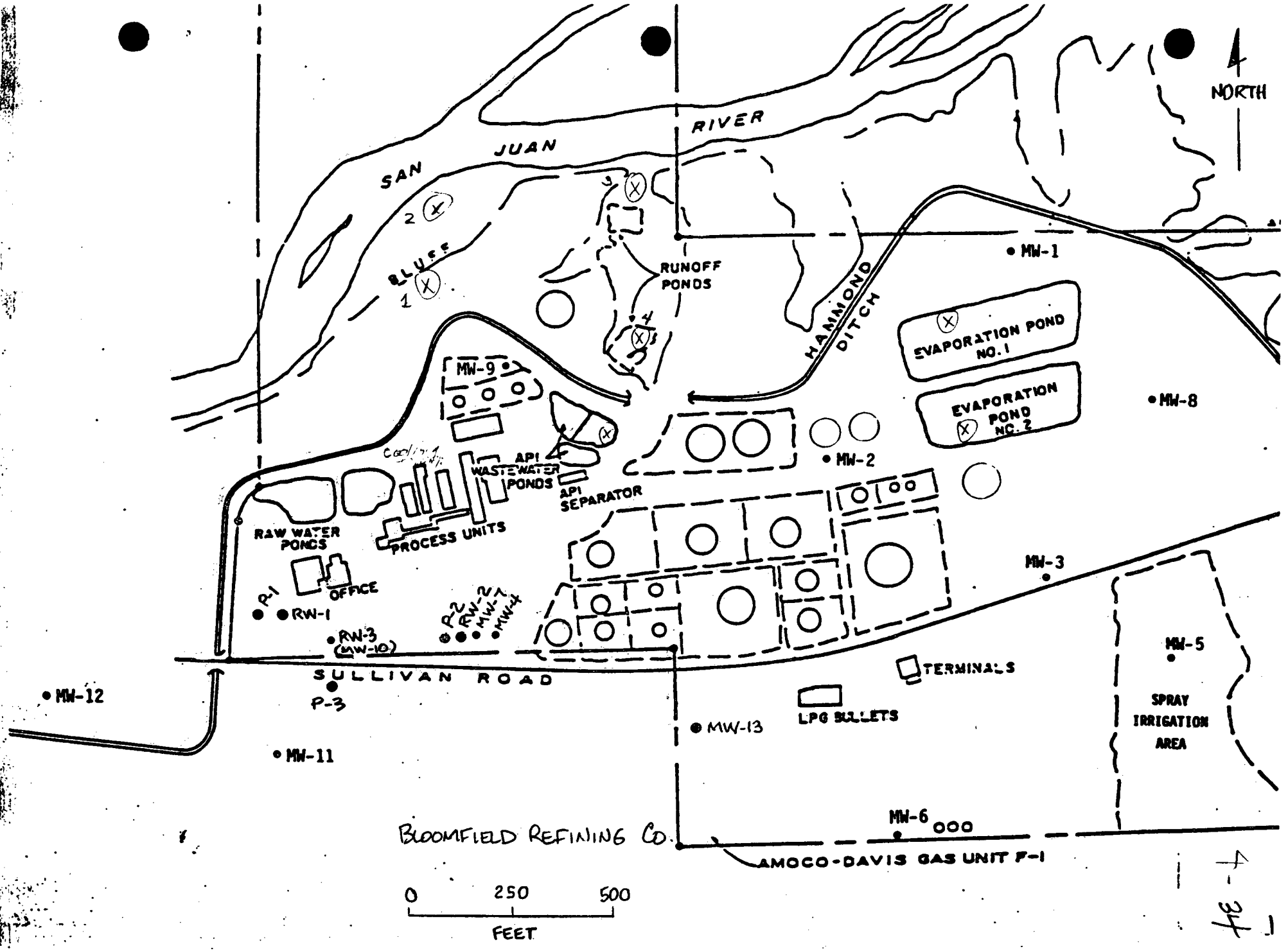
DATE: 1985-1989

Gary Bloomfield

Refinery

Wastewater Quality




NORTH
SAN JUAN RIVER
BLUFF
1
2
3
4
RUNOFF PONDS
HAMMOND DITCH
EVAPORATION POND NO. 1
EVAPORATION POND NO. 2
MW-1
MW-2
MW-3
MW-4
MW-5
MW-6
MW-8
MW-9
MW-10
MW-11
MW-12
MW-13
API WASTEWATER PONDS
API SEPARATOR
RAW WATER PONDS
PROCESS UNITS
OFFICE
P-1
P-2
P-3
RW-1
RW-2
RW-3 (MW-10)
SULLIVAN ROAD
TERMINALS
LPG BULLETS
SPRAY IRRIGATION AREA
BLOOMFIELD REFINING CO.
AMOCO-DAVIS GAS UNIT F-1
0
250
500
FEET

34-1

BLOOMFIELD REFINING COMPANY

SUMMARY OF POND DATA

mg/l

	1	2	3	4	5	6
	← ASSAIGAI →			NALCO		
PARAMETER	SOUR WATER 4/1/87	N. EVAP 7/1/87	N. EVAP 7/12/87	N. EVAP 7/3/87	PTS USED IN AVG	AVERAGE
BOD	204.	159.3	93.75	160.	4	154
COD	234.	107.	146	210.	4	174
TOC	97.	63.	120.	73.	4	88
TSS	50	24.	104.	43	4	55
NH_3 as N	50.	1.5	2.5	39 ppm	4	23
FLOW						
TEMP. WINTER						
TEMP. SUMMER						
pH	8.99	7.79	7.21		3	8.0
BROMIDE				1.3 ppm	1	1.3
CHLORIDE						
COLOR						
FECAL COLIFORM						
FLUORIDE		0.050	0.061	<10 ppm	2	0.056
NITRATE-NITRITE as N	<0.01	<0.01	<0.01	<1	3	<0.01
NITROGEN-TOTAL ORGANIC AS N						
OIL & GREASE	23.7	33.7	22.8		3	26.7
PHOSPHOROUS AS P				1.9	1	1.9
RADIOACTIVITY						
Alpha						
Beta						
Radium						
Radium 226, Tot	2.3±3.7 pCi/l	2.7±2.8 pCi/l	2.0±2.3 pCi/l		3	2.33±2.9 pCi/l
SULFATE as SO_4	545.	345.	345.	410	4	411
SULFIDE as S	<0.1	0	0			ND
SULFITE as SO_3						
SURFACTANTS						
ALUMINUM	0.46*	<0.5	<0.5	<0.1*	2	0.28
BARIUM	1.70	2.5	4.70	0.3	4	2.3
BORON	<0.01	0.34	0.63	0.2	3	0.29
COBOLT				<0.01	1	<0.01
IRON, TOT	0.62	<0.3	0.170	0.13	3	0.3
MAGNESIUM				96	1	96
MOLYBDENUM				<0.1		<0.1
MANGANESE	0.07	0.093	0.089	0.09	4	0.09
TIN				<0.1	1	<0.1
TITANIUM				<0.01	1	<0.01
ANTIMONY				<0.1	1	<0.1
ARSENIC	0.13	<0.05	<0.05	0.025	4	0.06
BERYLLIUM						
CADMIUM	0.03	<0.01	0.06	<0.01	4	0.03

	← ASSAIGAI		→	NALCO		
	SOUR WATER	N. EVAP	N. EVAP	N. EVAP	PTS. USED	
	4/1/87	7/1/87	7/10/87	7/13/89	IN AVG	AVERAGE
CHROMIUM	<0.05	<0.05	<0.05	<0.01	3	<0.05
COPPER	<0.03	<0.01	0.015	<0.01	3	0.01
LEAD	0.14	0.180	0.175	<0.1	4	0.15
MERCURY	<0.002	<0.002	<0.002	0.0006	1	0.0006
NICKEL	0.05	0.262	0.202	<0.1	4	0.15
SELENIUM	0.02	0.070	0.036	0.093	4	0.05
SILVER	<0.05	<0.05	<0.05	<0.01	3	<0.05
THALLIUM				<0.1		<0.01
ZINC	0.17	0.032	0.074	0.02	4	0.07
CYANIDE	<0.01	<0.005	<0.005		2	<0.005
PHENOLS	14	<0.001	0.008		3	4.7

~~SCIENTIFIC LABORATORY DIVISION~~

FB9163

ORGANIC ANALYSIS REQUEST FORM

~~Organic Section Phone: 841-2570~~

#77-521,07-123

REPORT TO: DAVID BOYER

N.M. OIL CONSERVATION DIVISION

P.O. Box 2088

Santa Fe, NM 87504-2088

S.L.D. No. OR-

DATE REC.

PRIORITY

PHONE(S): 827-5812

COLLECTION CITY: Bloomfield ; COUNTY: San Juan

COLLECTION DATE/TIME CODE: (Year-Month-Day-Hour-Minute) |8|9|0|4|2|7|1|1|5|

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

USER CODE: |8|2|2|3|5| SUBMITTER: David Boyer CODE: |2|6|0|

SAMPLE TYPE: WATER |_|, SOIL |_|, FOOD |_|, OTHER:

This form accompanies 3 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-AA Sample Preserved with Ascorbic Acid to remove chlorine residual.
- ☒ P-HCl Sample Preserved with Hydrochloric Acid (2 drops/40 ml)

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 Headspace (1-5 Carbons)
- ☒ (754) Aromatic & Halogenated Purgeables
- ☐ (765) Mass Spectrometer Purgeables
- ☐ (766) Trihalomethanes
- ☐ (774) SDWA VOC's I (8 Regulated +)
- ☐ (775) SDWA VOC's II (EDB & DBCP)

Other Specific Compounds or Classes

- ☐ _____
- ☐ _____

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
- ☐ (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= 3100 umho/cm at 21 °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.)

Gary BRC - East NOWP (North Oily Water Pond)

H/E odor, scum sheen

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

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 ☐ OR Seals Intact: Yes ☐ No ☐

Signatures _____ _____

For OCD use: Date owner notified: 9/11/~~01~~ Phone or (Letter?) Initials DEB

All constituents

~~SCIENTIFIC LABORATORY DIVISION~~
ORGANIC ANALYSIS REQUEST FORM
~~Organic Section Phone: 841-2570~~

FB9163

#77-52, 07-123

REPORT TO: DAVID BOYER
N.M. OIL CONSERVATION DIVISION
P.O. Box 2088
Santa Fe, NM 87504-2088

S.L.D. No. OR-
DATE REC.
PRIORITY
PHONE(S): 827-5812

COLLECTION CITY: Bloomfield ; COUNTY: San Juan

COLLECTION DATE/TIME CODE: (Year-Month-Day-Hour-Minute) |8|9|0|4|2|7|1|7|1|5|

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

USER CODE: |8|2|2|3|5| SUBMITTER: David Boyer CODE: |2|6|0|

SAMPLE TYPE: WATER |_|, SOIL |_|, FOOD |_|, OTHER:

This form accompanies 3 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-AA Sample Preserved with Ascorbic Acid to remove chlorine residual.
- ☒ P-HCl Sample Preserved with Hydrochloric Acid (2 drops/40 ml)

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 Headspace (1-5 Carbons)
- ☒ (754) Aromatic & Halogenated Purgeables
- ☐ (765) Mass Spectrometer Purgeables
- ☐ (766) Trihalomethanes
- ☐ (774) SDWA VOC's I (8 Regulated +)
- ☐ (775) SDWA VOC's II (EDB & DBCP)

Other Specific Compounds or Classes

- ☐ _____
- ☐ _____

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
- ☐ (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= 3100 umho/cm at 21 °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.)

Gary BRC - East NOWP (North Oily Water Pond)
H/E odor, scum sheen

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

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 ☐ OR Seals Intact: Yes ☐ No ☐

Signatures _____ _____

For OCD use: Date owner notified: 9/11/07 Phone or (Letter?) Initials WB

All constituents

ANALYSES PERFORMED LAB. No.: OR-

THIS PAGE FOR LABORATORY RESULTS ONLY

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

PURGEABLE SCREENS

- ☐ (753) Aliphatic Headspace (1-5 Carbons)
- ☐ (754) Aromatic & Halogenated Purgeables
- ☐ (765) Mass Spectrometer Purgeables
- ☐ (766) Trihalomethanes
- ☐ (774) SDWA VOC's I (8 Regulated +)
- ☐ (775) SDWA VOC's II (EDB & DBCP)

Other Specific Compounds or Classes

- ☐ _____
- ☐ _____

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
- ☐ (755) Base/Neutral Extractables
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- ☐ (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]
* 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) Not Sealed ☐ 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: _____

Inter-Mountain Laboratories, Inc.

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

Report Date: 05/15/89

Client:	New Mexico OCD		
Sample ID:	8904271715 *	Date Sampled:	04/27/89
Laboratory Number:	F891630	Date Received:	04/28/89
Analysis Requested:	Purgeable Aromatics	Date Extracted:	NA
Sample Matrix:	Water	Date Analyzed:	05/05/89

Parameter	Concentration	Units
BENZENE	1462 (2.0)	ug/l
TOLUENE	2190 (2.0)	ug/l
ETHYLBENZENE	432 (2.0)	ug/l
m,p-XYLENE	1493 (2.0)	ug/l
o-XYLENE	507 (2.0)	ug/l

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

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

* Gary NOWP

Jack M. Morgan
Senior Organic Chemist

RECEIVED
MAY 23 1989
OIL CONSERVATION DIV.
SANTA FE

Inter-Mountain Laboratories, Inc.

RECEIVED
MAY 22 1989
OIL CONSERVATION DIV.
SANTA FE

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

Report Date: 05/09/89

Client: New Mexico OCD
Sample ID: 8904271715 *
IML Sample No: F891630
Analysis Requested: Purgeable Halocarbons
Sample Matrix: Water

Date Sampled: 04/27/89
Date Received: 04/28/89
Date Extracted: N/A
Date Analyzed: 05/03/89

Parameter	Concentration		Units
CHLOROMETHANE	ND	(10.0)	ug/l
BROMOMETHANE	ND	(10.0)	ug/l
DICHLORODIFLUOROMETHANE	ND	(10.0)	ug/l
VINYL CHLORIDE	ND	(10.0)	ug/l
CHLOROETHANE	ND	(10.0)	ug/l
METHYLENE CHLORIDE	ND	(10.0)	ug/l
TRICHLOROFLUOROMETHANE	ND	(10.0)	ug/l
1,1-DICHLOROETHENE	ND	(1.0)	ug/l
1,1-DICHLOROETHANE	ND	(1.0)	ug/l
TRANS-1,2-DICHLOROETHENE	ND	(1.0)	ug/l
CHLOROFORM	ND	(1.0)	ug/l
1,2-DICHLOROETHANE	ND	(1.0)	ug/l
1,1,1-TRICHLOROETHANE	ND	(1.0)	ug/l
CARBON TETRACHLORIDE	ND	(1.0)	ug/l
BROMODICHLOROMETHANE	ND	(1.0)	ug/l
1,2-DICHLOROPROPANE	ND	(1.0)	ug/l
CIS-1,3-DICHLOROPROPENE	ND	(1.0)	ug/l
TRICHLOROETHENE	ND	(1.0)	ug/l
DIBROMOCHLOROMETHANE	ND	(1.0)	ug/l
1,1,2-TRICHLOROETHANE	ND	(1.0)	ug/l
TRANS-1,3-DICHLOROPROPENE	ND	(1.0)	ug/l
2-CHLOROETHYLVINYL ETHER	ND	(1.0)	ug/l
BROMOFORM	ND	(5.0)	ug/l
1,1,2,2-TETRACHLOROETHANE	ND	(1.0)	ug/l
TETRACHLOROETHENE	ND	(1.0)	ug/l
CHLOROBENZENE	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
CIS-1,2-DICHLOROETHENE	ND	(1.0)	ug/l

Method: 601 Purgeable Halocarbons, 40 CFR Part 136, USEPA (1984).

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

* Gary NOWP

Jack M. Morgan
Senior Organic Chemist

Inter-Mountain Laboratories, Inc.

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

RECEIVED
MAY 22 1989
OIL CONSERVATION DIV.
SANTA FE

** Quality Assurance Report
Spike Analysis

Report Date: 05/09/89

Client: New Mexico OCD
Sample ID: 8904271715 *
IML Sample No: F891630
Analysis Requested: Purgeable Halocarbons
Sample Matrix: Water

Date Sampled: 04/27/89
Date Received: 04/28/89
Date Extracted: N/A
Date Analyzed: 05/03/89

Parameter	Spike Added (ug/l)	Concentration (ug/l)	Recovery (%)
1,2-DICHLOROETHANE	10	8.02 (0.1)	80.2
1,1-DICHLOROETHENE	10	9.22 (0.1)	92.2
TETRACHLOROETHENE	10	9.83 (0.1)	98.3
1,2-DICHLOROBENZENE	10	9.08 (0.1)	90.8

Method: 601 Purgeable Halocarbons, 40 CFR Part 136, USEPA (1984).

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

* Gary NOWP

Jack M. Morgan
Senior Organic Chemist

859
WNN

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 05 02 89 | LAB NO. WC 1341 | USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235

Collection DATE 89 04 27 | Collection TIME 1715 | Collected by — Person/Agency BOYER /OCD

SITE INFORMATION ►

Sample location: GARY BLOOMFIELD

Collection site description: East North Oily Water Pond

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 DIV. SANTA FE

Station/ well code

Owner

SAMPLING CONDITIONS

☐ Bailed ☒ Dipped ☐ Pump ☐ Tap	Water level	Discharge	Sample type: GRAB
pH (00400) —	Conductivity (Uncorrected) 3100 µmho	Water Temp. (00010) 21 °C	Conductivity at 25°C (00094) µmho

Field comments: Taken at sump at NE corner, sheen and scum on surface, odor

SAMPLE FIELD TREATMENT — *Check proper boxes*

No. of samples submitted: 1

☒ NF: Whole sample (Non-filtered) ☐ F: Filtered in field with 0.45 µmembrane filter ☐ A: 2 ml H_2SO_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)	3740	µmho	5/15
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☒ Other: Lab pH	8.44		5/9
☐ Other:			
☐ Other:			

A-H_2SO_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 NE, NA Sample:

			Date Analyzed
☒ Calcium	96	mg/l	5/5
☒ Potassium	18	mg/l	5/4
☒ Magnesium	17.1	mg/l	5/5
☒ Sodium	652	mg/l	5/4
☒ Bicarbonate	409	mg/l	5/9
☒ Chloride	877	mg/l	5/4
☒ Sulfate	437	mg/l	6/9
☒ Total Solids	2195	mg/l	5-3
☐			
☐			
☒ Cation/Anion Balance			

Analyst | Date Reported 6 13 89 | Reviewed by

Laboratory remarks

.12\

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

CATIONS			DET.	ANIONS			DET.
ANALYTE	MEQ.	PPM	LIMIT	ANALYTE	MEQ.	PPM	LIMIT
[illegible]	4.79	96.00	<3.0	HC03	6.70	409.00	<1.0
Mg	1.40	17.10	<0.3	SO4	9.10	437.00	<10.0
Na	28.36	652.00	<10.0	CL	24.74	877.00	<5.0
K	0.46	18.00	<0.3				
Mn	0.00	0.00		NO3	0.00	0.00	< 0.
Fe	0.00	0.00		C03	0.00	0.00	< 1.
				NH3	0.00	0.00	< 0.
				PO4	0.00	0.00	< 0.
SUMS	35.02	783.10			40.55	1723.00	

Total Dissolved Solids= 2195

Ion Balance = 86.36%

WC No. = 8901341

Date out/By 6/20

RECEIVED
JUN 27 1989
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: 05/02/89 | Lab No: ICAP 218 | User Code: ☒ 82235 ☐ Other:

COLLECTION DATE & TIME: yy 89 | mm 04 | dd 27 | hh 17 | mm 15

COLLECTED BY: BOYER

COLLECTION SITE DESCRIPTION: GARY BLOOMFIELD EAST NOWP

TO:

OWNER:

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

ATTN: DAVID BOYER
TELEPHONE: 827-5812

SITE LOCATION:
County: San Juan

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

STATION/ WELL CODE:

LATITUDE, LONGITUDE: -

SAMPLING CONDITIONS:

☐ Bailed ☒ Dipped ☐ Pump ☐ Tap	Water Level:	Discharge:	Sample Type:

pH(00400)	Conductivity(Uncorr.)	Water Temp.(00010)	Conductivity at 25°C (00094)
—	3100 µmho	21 °C	µmho

FIELD COMMENTS: H/C odor, sheen and scum, oily waterpond

SAMPLE FIELD TREATMENT Check proper boxes:		LAB ANALYSIS REQUESTED:
☒ 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.

ANALYTICAL RESULTS (MG/L)

ELEMENT	ICAP VALUE		AA VALUE	ELEMENT	ICAP VALUE		AA VALUE
Aluminum	0.2			Silicon	6.6		
Barium	0.2			Silver	<0.1	☐	
Beryllium	<0.1			Strontium	1.4		
Boron	0.2			Tin	<0.1		
Cadmium	<0.1	☐		Vanadium	<0.1		
Calcium	75.			Zinc	0.3		
Chromium	<0.1	☒	<0.025	Arsenic		☒	0.017
Cobalt	<0.05			Selenium		☐	
Copper	<0.1			Mercury		☐	
Iron	0.8					☐	
Lead	<0.1	☒	0.005			☐	
Magnesium	13.					☐	
Manganese	0.06					☐	
Molybdenum	<0.1					☐	
Nickel	<0.1					☐	

LAB COMMENTS: Digest

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

ICAP Analyst: JM
Date Analyzed: 7/10/89

Reviewer: Jim Ashby
Date Received: 8/21/89

14

ASSAIGAI ANALYTICAL LABORATORIES

SAMPLE FROM PUMP SUMP PRIOR TO EVAPORATION PONDS.

Copy to: Macy, King, Traylor

TO: Bloomfield Refining Company
ATTN: Chris Hawley
PO Box 159
Bloomfield, NM 87413

DATE: 30 April 1987
0533

SAMPLE ID: Sour Water, 4/1/87.

ANALYTE	ANALYTICAL RESULTS	NOMINAL DETECTION LIMITS
NO 3 as N	<0.01 mg/l	0.01 mg/l
NH 3 as N	50 mg/l	0.1 mg/l
COD	234 mg/l	2 mg/l
Cr, Total	<0.05 mg/l	0.05 mg/l
Cr, Hexavalent	<0.05 mg/l	0.05 mg/l
Phenols	14 mg/l	0.01 mg/l
Sulfides	<0.1 mg/l	0.1 mg/l
Oil & Grease	23.7 mg/l	0.01 mg/l
BOD	204 mg/l	0.01 mg/l
TSS	50 mg/l	1 mg/l
TDS	2136 mg/l	1 mg/l
pH	8.99	0.01
Ca	88.5 mg/l	0.1 mg/l
F	0.35 mg/l	0.01 mg/l
Boron	<0.01 mg/l	0.01 mg/l
Cl	952 mg/l	1.0 mg/l
SO 4	545 mg/l	1.0 mg/l
Al, Dissolved	0.46 mg/l	0.05 mg/l
As	0.13 mg/l	0.002 mg/l
Ba	1.70 mg/l	0.05 mg/l
Cd	0.03 mg/l	0.002 mg/l
Cu	<0.03 mg/l	0.03 mg/l
CN	<0.01 mg/l	0.01 mg/l
Fe, Dissolved	0.44 mg/l	0.05 mg/l
Fe, Total	0.62 mg/l	0.05 mg/l
Pb, Total	0.14 mg/l	0.05 mg/l
Mn, Dissolved	0.05 mg/l	0.005 mg/l
Mn, Total	0.07 mg/l	0.005 mg/l
Hg, Total	<0.002 mg/l	0.002 mg/l
Ni	0.05 mg/l	0.01 mg/l
Se	0.02 mg/l	0.002 mg/l
Ag	<0.05 mg/l	0.05 mg/l
Zn	0.17 mg/l	0.004 mg/l
Uranium	<0.07 mg/l	0.07 mg/l
Ra 226 & 228	2.3 ± 3.7 pCi/l	0.1 pCi/l
Phosphates	<0.01 mg/l	0.01 mg/l
TOC	97 mg/l	1 mg/l
TOX	163 ug/l	1 ug/l
Benzene	2.2 mg/l	0.001 mg/l

7300 Jefferson, N.E. • Albuquerque, New Mexico 87109 • (505) 345-8964

Toluene	2.6 mg/l	0.001 mg/l
Ethyl Benzene	0.47 mg/l	0.001 mg/l
Xylenes	2.6 mg/l	0.001 mg/l

REFERENCE:"Test Methods for Evaluating Solid Waste,-Physical/Chemical Methods," USEPA, SW 846, EMSL-Cincinnati, 1982

An invoice for services is enclosed. Thank you for contacting Assaigai Laboratories.

Sincerely,

Jennifer V. Smith, Ph.D.
Laboratory Director

SCIENTIFIC LABORATORY DIVISION

F89153

ORGANIC ANALYSIS REQUEST FORM #77-521.07-123

~~Organic Section - Phone: 841-2570~~

REPORT TO: DAVID BOYER
N.M. OIL CONSERVATION DIVISION
P.O. Box 2088
Santa Fe, NM 87504-2088

S.L.D. No. OR-
DATE REC.
PRIORITY
PHONE(S): 827-5812

COLLECTION CITY: Bloomfield ; COUNTY: San Juan

COLLECTION DATE/TIME CODE: (Year-Month-Day-Hour-Minute) |8|9|0|4|2|7|1|0|7|5|

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

USER CODE: |8|2|2|3|5| SUBMITTER: David Boyer CODE: |2|6|0|

SAMPLE TYPE: WATER [X], SOIL [ ], FOOD [ ], OTHER:

This form accompanies 3 Septum Vials, _____ Glass Jugs, and/or _____ _____

Samples were preserved as follows:

- [ ] NP: No Preservation; Sample stored at room temperature.
- [X] P-Ice Sample stored in an ice bath (Not Frozen).
- [ ] P-AA Sample Preserved with Ascorbic Acid to remove chlorine residual.
- [X] P-HCl Sample Preserved with Hydrochloric Acid (2 drops/40 ml)

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 Headspace (1-5 Carbons)
- [X] (754) Aromatic & Halogenated Purgeables
- [ ] (765) Mass Spectrometer Purgeables
- [ ] (766) Trihalomethanes
- [ ] (774) SDWA VOC's I (8 Regulated +)
- [ ] (775) SDWA VOC's II (EDB & DBCP)

Other Specific Compounds or Classes

- [ ] _____
- [ ] _____

EXTRACTABLE SCREENS

- [ ] (751) Aliphatic Hydrocarbons
- [ ] (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= 8 ; Conductivity= 3650 umho/cm at 17.5 °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.)

Gary BRC, South Evap pond, SW corner, green-black color, odor

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: Hole Car

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 [ ] OR Seals Intact: Yes [ ] No [ ]

Signatures _____ _____

For OCD use: Date owner notified: 9/11/89 Phone or (Letter) Initials AR

All constituents

ANALYSES PERFORMED

LAB. No.: OR-

THIS PAGE FOR LABORATORY RESULTS ONLY

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

PURGEABLE SCREENS

- ☐ (753) Aliphatic Headspace (1-5 Carbons)
- ☐ (754) Aromatic & Halogenated Purgeables
- ☐ (765) Mass Spectrometer Purgeables
- ☐ (766) Trihalomethanes
- ☐ (774) SDWA VOC's I (8 Regulated +)
- ☐ (775) SDWA VOC's II (EDB & DBCP)

Other Specific Compounds or Classes

- ☐ _____
- ☐ _____

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
- ☐ (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]
* 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) Not Sealed ☐ 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: _____

Inter·Mountain
Laboratories, Inc.

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

Report Date: 05/15/89

Client:	New Mexico OCD		
Sample ID:	8904271045	Date Sampled:	04/27/89
Laboratory Number:	F891530	Date Received:	04/28/89
Analysis Requested:	Purgeable Aromatics	Date Extracted:	NA
Sample Matrix:	Water	Date Analyzed:	05/11/89

Parameter	Concentration	Units
BENZENE	210 (2.0)	ug/l
TOLUENE	390 (2.0)	ug/l
ETHYLBENZENE	61 (2.0)	ug/l
m,p-XYLENE	300 (2.0)	ug/l
o-XYLENE	130 (2.0)	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 Organic Chemist

RECEIVED
MAY 23 1989
OIL CONSERVATION DIV.
SANTA FE

Inter-Mountain Laboratories, Inc.

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

RECEIVED
MAY 22 1989
OIL CONSERVATION DIV.
SANTA FE

Report Date: 05/09/89

Client: New Mexico OCD
Sample ID: 8904271045
IML Sample No: F891530
Analysis Requested: Purgeable Halocarbons
Sample Matrix: Water

Date Sampled: 04/27/89
Date Received: 04/28/89
Date Extracted: N/A
Date Analyzed: 04/28/89

Parameter	Concentration		Units
CHLOROMETHANE	ND	(10.0)	ug/l
BROMOMETHANE	ND	(10.0)	ug/l
DICHLORODIFLUOROMETHANE	ND	(10.0)	ug/l
VINYL CHLORIDE	ND	(10.0)	ug/l
CHLOROETHANE	ND	(10.0)	ug/l
METHYLENE CHLORIDE	ND	(1.0)	ug/l
TRICHLOROFLUOROMETHANE	ND	(10.0)	ug/l
1,1-DICHLOROETHENE	ND	(1.0)	ug/l
1,1-DICHLOROETHANE	ND	(1.0)	ug/l
TRANS-1,2-DICHLOROETHENE	ND	(1.0)	ug/l
CHLOROFORM	ND	(1.0)	ug/l
1,2-DICHLOROETHANE	ND	(1.0)	ug/l
1,1,1-TRICHLOROETHANE	ND	(1.0)	ug/l
CARBON TETRACHLORIDE	ND	(1.0)	ug/l
BROMODICHLOROMETHANE	ND	(1.0)	ug/l
1,2-DICHLOROPROPANE	ND	(1.0)	ug/l
CIS-1,3-DICHLOROPROPENE	ND	(1.0)	ug/l
TRICHLOROETHENE	ND	(1.0)	ug/l
DIBROMOCHLOROMETHANE	ND	(1.0)	ug/l
1,1,2-TRICHLOROETHANE	ND	(1.0)	ug/l
TRANS-1,3-DICHLOROPROPENE	ND	(1.0)	ug/l
2-CHLOROETHYLVINYL ETHER	ND	(1.0)	ug/l
BROMOFORM	ND	(5.0)	ug/l
1,1,2,2-TETRACHLOROETHANE	ND	(1.0)	ug/l
TETRACHLOROETHENE	ND	(1.0)	ug/l
CHLOROBENZENE	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
CIS-1,2-DICHLOROETHENE	ND	(1.0)	ug/l

Method: 601 Purgeable Halocarbons, 40 CFR Part 136, USEPA (1984).

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

Jack M. Morgan
Senior Organic Chemist

WMF 859

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 05 02 89 LAB NO. WC 1353

USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235

Collection DATE 89 04 27
Collection TIME 1045
Collected by — Person/Agency BOYER /OCD

SITE INFORMATION ► Sample location GARY BRC SOUTH EVAP POND

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

RECEIVED JUN 27 1989 OIL CONSERVATION DIV. SANTA FE

Station/ well code

Owner

SAMPLING CONDITIONS

☐ Bailed ☐ Pump ☒ Dipped ☐ Tap	Water level	Discharge	Sample type GRAB
pH (00400) 8	Conductivity (Uncorrected) 3650 µmho	Water Temp. (00010) 17.5 °C	Conductivity at 25°C (00094) µmho

Field comments 4' freeboard, Taken at SW corner, greenish-black color, odor

SAMPLE FIELD TREATMENT — *Check proper boxes*

No. of samples submitted 1 | ☐ NF: Whole sample (Non-filtered) | ☒ F: Filtered in field with 0.45 µmembrane filter | ☐ A: 2 ml H_2SO_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)	4791	µmho	5/15
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☒ Other: Lab pH	7.66		5/9
☐ Other:			
☐ Other:			
A-H_2SO_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 NF, NA Sample:

			Date Analyzed
☒ Calcium	168	mg/l	5/10
☒ Potassium	24	mg/l	5/4
☒ Magnesium	36.6	mg/l	5/10
☒ Sodium	786	mg/l	5/4
☒ Bicarbonate	437	mg/l	5/9
☒ Chloride	1095	mg/l	5/4
☒ Sulfate	572	mg/l	6/9
☒ Total Solids	2814	mg/l	5-3
☐			
☐			
☒ Cation/Anion Balance			

Analyst	Date Reported	Reviewed by
	6/14/89	[signature]

Laboratory remarks

1311

FOR OCD USE -- Date Owner Notified________ Phone or Letter?________ Initals________

CATIONS				ANIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT	ANALYTE	MEQ.	PPM	DET. LIMIT
[redacted]	8.38	168.00	<3.0	HC03	7.16	437.00	<1.0
Mg	3.01	36.60	<0.3	SO4	11.92	572.00	<10.0
Na	34.19	786.00	<10.0	CL	30.89	1095.00	<5.0
K	0.61	24.00	<0.3				
Mn	0.00	0.00		NO3	0.00	0.00	< 0.
Fe	0.00	0.00		C03	0.00	0.00	< 1.
				NH3	0.00	0.00	< 0.
				PO4	0.00	0.00	< 0.
SUMS	46.19	1014.60			49.97	2104.00	

Total Dissolved Solids= 2814

Ion Balance = 92.45%

WC No. = 8901353

Date out/By CJ 6/20

RECEIVED
JUN 27 1989
OIL CONSERVATION DIV.
SANTA FE

852 WPF

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 05 02 89	LAB NO. WC 1357	USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235	
Collection DATE 89 04 27	SITE INFORM-ATION ►	Sample location GARY Bloomfield Ref South Evap Pond	
Collection TIME 1045		Collection site description	
Collected by — Person/Agency Boyer /OCD			

SEND FINAL REPORT TO ►

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

RECEIVED
MAY 22 1989
OIL CONSERVATION DIV. SANTA FE

Attn: David Boyer

Phone: 827-5812

Station/ well code

Owner

SAMPLING CONDITIONS

☐ Bailed ☒ Dipped ☐ Pump ☐ Tap	Water level	Discharge	Sample type Grab
pH (00400)	Conductivity (Uncorrected) 3650 µmho	Water Temp. (00010) 17.5 °C	Conductivity at 25°C (00094) µmho

Field comments HC odor, greenish-black color

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_2SO_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:			
☐ Other:			
☐ Other:			

A-H_2SO_4			
☒ Nitrate-N +, Nitrate-N total (00630)	<0.04	mg/l	5/9
☒ Ammonia-N total (00610)	42.4	mg/l	5/8
☒ Total Kjeldahl-N ( )	49.8	mg/l	5/16
☐ Chemical oxygen demand (00340)		mg/l	
☐ Total organic carbon ( )		mg/l	
☐ Other:			
☐ Other:			

From ____, NA Sample:

		Date Analyzed
☐ Calcium	mg/l	5/10
☐ Potassium	mg/l	
☐ Magnesium	mg/l	5/10
☐ Sodium	mg/l	
☐ Bicarbonate	mg/l	
☐ Chloride	mg/l	
☐ Sulfate	mg/l	
☐ Total Solids	mg/l	
☐		
☐		
☐ Cation/Anion Balance		

Analyst	Date Reported	Reviewed by
	5/16/89	

Laboratory remarks

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

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	05/02/89	Lab No.	ICAP 210	User Code	☒ 82235	☐ Other:

COLLECTION DATE & TIME: yy 89 | mm 04 | dd 27 | hh 10 | mm 45

COLLECTED BY: BOYER

COLLECTION SITE DESCRIPTION: GARY BRC SOUTH EVAP POND

TO:

OWNER:

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

ATTN: DAVID BOYER
TELEPHONE: 827-5812

SITE LOCATION:
County: San Juan

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

STATION/ WELL CODE:

LATITUDE, LONGITUDE:

SAMPLING CONDITIONS:

☐ Bailed ☒ Dipped ☐ Pump ☐ Tap	Water Level:	Discharge:	Sample Type: GRAB
pH(00400): 8	Conductivity(Uncorr.): 36.50 µmho	Water Temp.(00010): 17.5 °C	Conductivity at 25°C (00094): µmho

FIELD COMMENTS: Filtered in field

SAMPLE FIELD TREATMENT Check proper boxes:		LAB ANALYSIS REQUESTED:
☐ 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.

ANALYTICAL RESULTS (MG/L)

ELEMENT	ICAP VALUE	AA VALUE	ELEMENT	ICAP VALUE	AA VALUE
Aluminum	<0.1		Silicon	2.2	
Barium	0.2		Silver	<0.1 ☐	
Beryllium	<0.1		Strontium	2.7	
Boron	0.2		Tin	<0.1	
Cadmium	<0.1 ☐		Vanadium	<0.1	
Calcium	160.		Zinc	<0.1	
Chromium	<0.1 ☒	<0.025	Arsenic	☒	0.016
Cobalt	<0.05		Selenium	☐	
Copper	<0.1		Mercury	☐	
Iron	<0.1			☐	
Lead	<0.1 ☒	<0.005		☐	
Magnesium	30.			☐	
Manganese	0.41			☐	
Molybdenum	<0.1			☐	
Nickel	<0.1			☐	

LAB COMMENTS: Dupe of

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

ICAP Analyst JTA
Date Analyzed 7/10/89

Reviewer
Date Received 8/21/89

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	05/02/89	Lab No. ICAP 213	User Code	☒ 82235 ☐ Other:

COLLECTION DATE & TIME: yy 89 mm 04 dd 27 hh 10 mm 45

COLLECTED BY: BOYER

COLLECTION SITE DESCRIPTION: GARY BLOOMFIELD REF SOUTH EVAP POND

TO:

OWNER:

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

ATTN: Boyer
TELEPHONE: 827-5812

SITE LOCATION:
County: San Juan

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

STATION/ WELL CODE:

LATITUDE, LONGITUDE:

SAMPLING CONDITIONS:

☐ Bailed ☒ Dipped ☐ Pump ☐ Tap	Water Level:	Discharge:	Sample Type: GRAB

pH(00400)	Conductivity(Uncorr.)	Water Temp.(00010)	Conductivity at 25°C (00094)
8	3650 µmho	17.5 °C	µmho

FIELD COMMENTS: HC odor, greenish-black color Non-filtered

SAMPLE FIELD TREATMENT Check proper boxes:		LAB ANALYSIS REQUESTED:
☒ 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.

ANALYTICAL RESULTS (MG/L)

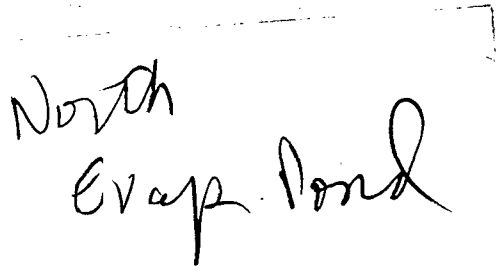
ELEMENT	ICAP VALUE		AA VALUE	ELEMENT	ICAP VALUE		AA VALUE
Aluminum	0.1			Silicon	10.		
Barium	0.2			Silver	<0.1	☐	
Beryllium	<0.1			Strontium	2.6		
Boron	0.2			Tin	<0.1		
Cadmium	<0.1	☐		Vanadium	<0.1		
Calcium	150.			Zinc	<0.1		
Chromium	<0.1	☒	<0.025	Arsenic		☒	0.018
Cobalt	<0.05			Selenium		☐	
Copper	<0.1			Mercury		☐	
Iron	<0.1					☐	
Lead	<0.1	☒	<0.005			☐	
Magnesium	28.					☐	
Manganese	0.42					☐	
Molybdenum	<0.1					☐	
Nickel	<0.1					☐	

LAB COMMENTS: Digest

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

ICAP Analyst JAH Date Analyzed 7/10/89

Reviewer Jim Ashley Date Received 8/2/89


North
Evap Pond

F89154

~~SCIENTIFIC LABORATORY DIVISION~~
ORGANIC ANALYSIS REQUEST FORM #77-521.07-123
~~Organic Section • Phone: 841-2570~~

REPORT TO: DAVID BOYER
N.M. OIL CONSERVATION DIVISION
P.O. Box 2088
Santa Fe, NM 87504-2088

S.L.D. No. OR-
DATE REC.
PRIORITY
PHONE(S): 827-5812

COLLECTION CITY: Bloomfield ; COUNTY: San Juan

COLLECTION DATE/TIME CODE: (Year-Month-Day-Hour-Minute) |8|9|0|4|2|7|1|1|0|5|

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

USER CODE: |8|2|2|3|5| SUBMITTER: David Boyer CODE:|2|6|0|

SAMPLE TYPE: WATER [X], SOIL [ ], FOOD [ ], OTHER:

This form accompanies 3 Septum Vials, ____ Glass Jugs, and/or ____ ____

Samples were preserved as follows:

- [ ] NP: No Preservation; Sample stored at room temperature.
- [X] P-Ice Sample stored in an ice bath (Not Frozen).
- [ ] P-AA Sample Preserved with Ascorbic Acid to remove chlorine residual.
- [X] P-HCl Sample Preserved with Hydrochloric Acid (2 drops/40 ml)

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 Headspace (1-5 Carbons)
- [X] (754) (Aromatic) & (Halogenated) Purgeables
- [ ] (765) Mass Spectrometer Purgeables
- [ ] (766) Trihalomethanes
- [ ] (774) SDWA VOC's I (8 Regulated +)
- [ ] (775) SDWA VOC's II (EDB & DBCP)

Other Specific Compounds or Classes

- [ ] ____
- [ ] ____

EXTRACTABLE SCREENS

- [ ] (751) Aliphatic Hydrocarbons
- [ ] (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= 3750 umho/cm at 16.5 °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.)

Gary BRC - North Evap pond. Sample from middle N. bank, pink-brown color

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

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 [ ] OR Seals Intact: Yes [ ] No [ ]

Signatures' ____ ____

For OCD use: Date owner notified: 9/11/87 Phone or (Letter?) Initials DHB
All constituents.

ANALYSES PERFORMED

LAB. No.: OR-

THIS PAGE FOR LABORATORY RESULTS ONLY

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

PURGEABLE SCREENS

- ☐ (753) Aliphatic Headspace (1-5 Carbons)
- ☐ (754) Aromatic & Halogenated Purgeables
- ☐ (765) Mass Spectrometer Purgeables
- ☐ (766) Trihalomethanes
- ☐ (774) SDWA VOC's I (8 Regulated +)
- ☐ (775) SDWA VOC's II (EDB & DBCP)

Other Specific Compounds or Classes

- ☐ _____
- ☐ _____

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
- ☐ (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]
* 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) Not Sealed ☐ 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: _____

imi
Inter-Mountain
Laboratories, Inc.

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

Report Date: 05/15/89

Client:	New Mexico OCD		
Sample ID:	8904271105	Date Sampled:	04/27/89
Laboratory Number:	F891540	Date Received:	04/28/89
Analysis Requested:	Purgeable Aromatics	Date Extracted:	NA
Sample Matrix:	Water	Date Analyzed:	05/05/89

Parameter	Concentration	Units
BENZENE	30.7 (2.0)	ug/l
TOLUENE	52.5 (2.0)	ug/l
ETHYLBENZENE	10.5 (2.0)	ug/l
m,p-XYLENE	37.2 (2.0)	ug/l
o-XYLENE	14.1 (2.0)	ug/l

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

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

Jack M. Morgan
Senior Organic Chemist

RECEIVED
MAY 23 1989
OIL CONSERVATION DIV.
SANTA FE

Inter-Mountain Laboratories, Inc.

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

RECEIVED
MAY 22 1989
OIL CONSERVATION DIV.
SANTA FE

Report Date: 05/09/89

Client: New Mexico OCD
Sample ID: 8904271105
IML Sample No: F891540
Analysis Requested: Purgeable Halocarbons
Sample Matrix: Water

Date Sampled: 04/27/89
Date Received: 04/28/89
Date Extracted: N/A
Date Analyzed: 05/02/89

Parameter	Concentration	Units
CHLOROMETHANE	ND (1.0)	ug/l
BROMOMETHANE	ND (1.0)	ug/l
DICHLORODIFLUOROMETHANE	ND (1.0)	ug/l
VINYL CHLORIDE	ND (1.0)	ug/l
CHLOROETHANE	ND (1.0)	ug/l
METHYLENE CHLORIDE	ND (0.1)	ug/l
TRICHLOROFLUOROMETHANE	ND (1.0)	ug/l
1,1-DICHLOROETHENE	ND (0.1)	ug/l
1,1-DICHLOROETHANE	ND (0.1)	ug/l
TRANS-1,2-DICHLOROETHENE	ND (0.1)	ug/l
CHLOROFORM	ND (0.1)	ug/l
1,2-DICHLOROETHANE	ND (0.1)	ug/l
1,1,1-TRICHLOROETHANE	ND (0.1)	ug/l
CARBON TETRACHLORIDE	ND (0.1)	ug/l
BROMODICHLOROMETHANE	ND (0.1)	ug/l
1,2-DICHLOROPROPANE	ND (0.1)	ug/l
CIS-1,3-DICHLOROPROPENE	ND (0.1)	ug/l
TRICHLOROETHENE	ND (0.1)	ug/l
DIBROMOCHLOROMETHANE	ND (0.1)	ug/l
1,1,2-TRICHLOROETHANE	ND (0.1)	ug/l
TRANS-1,3-DICHLOROPROPENE	ND (0.1)	ug/l
2-CHLOROETHYLVINYL ETHER	ND (0.1)	ug/l
BROMOFORM	ND (0.5)	ug/l
1,1,2,2-TETRACHLOROETHANE	ND (0.1)	ug/l
TETRACHLOROETHENE	ND (0.1)	ug/l
CHLOROBENZENE	ND (0.1)	ug/l
1,2-DICHLOROBENZENE	ND (0.1)	ug/l
1,3-DICHLOROBENZENE	ND (0.1)	ug/l
1,4-DICHLOROBENZENE	ND (0.1)	ug/l
CIS-1,2-DICHLOROETHENE	ND (0.1)	ug/l

Method: 601 Purgeable Halocarbons, 40 CFR Part 136, USEPA (1984).

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

Jack M. Morgan
Senior Organic Chemist

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

859 WNW

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED 05 02 89	LAB NO. LC 1350	USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235	
Collection DATE 89 04 27	SITE INFORM-ATION ►	Sample location GARY BRC NORTH EVAP POND	
Collection TIME 1105		Collection site description	
Collected by — Person/Agency BOYER /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

RECEIVED
JUN 27 1989
OIL CONSERVATION DIV.
SANTA FE

Station/ well code

Owner

SAMPLING CONDITIONS

☐ Bailed ☒ Dipped ☐ Pump ☐ Tap	Water level	Discharge	Sample type GRAB
pH (00400) 7	Conductivity (Uncorrected) 3250 µmho	Water Temp. (00010) 16.5°C	Conductivity at 25°C (00094) µmho
Field comments	brownish color, sample from north bank 4' from road.		

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_2SO_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)	4539	µmho	5/15
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☒ Other: Lab pH	6.59		5/9
☐ Other:			
☐ Other:			

A-H_2SO_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 NE, NA Sample:

			Date Analyzed
☒ Calcium	176	mg/l	5/10
☒ Potassium	25	mg/l	5/4
☒ Magnesium	37.8	mg/l	5/10
☒ Sodium	797	mg/l	5/4
☒ Bicarbonate	598	mg/l	5/9
☒ Chloride	1238	mg/l	6/1
☒ Sulfate	338	mg/l	6/9
☒ Total Solids	3000	mg/l	5-3
☐			
☐			
☒ Cation/Anion Balance			

Analyst	Date Reported	Reviewed by
	6/13/89	

Laboratory remarks

1341

FOR OCD USE -- Date Owner Notified_____ Phone or Letter?_____ Initals_____

CATIONS				ANIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT	ANALYTE	MEQ.	PPM	DET. LIMIT
Ca	8.78	176.00	<3.0	HC03	9.80	598.00	<1.0
Mg	3.10	37.80	<0.3	SO4	7.04	338.00	<10.0
Na	34.67	797.00	<10.0	CL	34.92	1238.00	<5.0
K	0.64	25.00	<0.3				
Mn	0.00	0.00		NO3	0.00	0.00	< 0.
Fe	0.00	0.00		C03	0.00	0.00	< 1.
				NH3	0.00	0.00	< 0.
				PO4	0.00	0.00	< 0.
SUMS	47.19	1035.80			51.76	2174.00	

Total Dissolved Solids= 3000

Ion Balance = 91.17%

WC No. = 8901350

Date out/By CD 6/20

RECEIVED

JUN 27 1989

OIL CONSERVATION DIV.
SANTA FE

WPF 852

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 05 02 89	LAB NO. WC 1360	USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235	
Collection DATE 89 04 27	SITE INFORMATION ►	Sample location GARY BRC North Evap Pond	
Collection TIME 1105		Collection site description	
Collected by — Person/Agency Boyer /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

RECEIVED
MAY 30 1989
OIL CONSERVATION DIV.
SANTA FE

Station/ well code
Owner

SAMPLING CONDITIONS

☐ Bailed ☒ Dipped ☒ Pump ☐ Tap	Water level	Discharge	Sample type Grab
pH (00400) 7	Conductivity (Uncorrected) 3750 µmho	Water Temp. (00010) 16.5 °C	Conductivity at 25°C (00094) µmho
Field comments brownish color			

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_2SO_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:			
☐ Other:			
☐ Other:			

A-H_2SO_4			
☒ Nitrate-N + , Nitrate-N total (00630)	<0.04	mg/l	5/15
☒ Ammonia-N total (00610)	41.9	mg/l	5/8
☒ Total Kjeldahl-N ( )	50.1	mg/l	5/23
☐ 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
	5/24/89	

Laboratory remarks

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

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	Lab No.	User Code
05/02/89	ICAP 209	☒ 82235 ☐ Other:

COLLECTION DATE & TIME: yy 89 mm 04 dd 27 hh 11 mm 05

COLLECTED BY: BOYER

COLLECTION SITE DESCRIPTION: GARY AIRC NORTH EVAP POND

TO:

OWNER:

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

ATTN: DAVID BOYER
TELEPHONE: 827-5812

SITE LOCATION:
County: San Juan

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

STATION/ WELL CODE:

LATITUDE, LONGITUDE:

SAMPLING CONDITIONS:

☐ Bailed ☐ Pump ☒ Dipped ☐ Tap

Water Level:

Discharge:

Sample Type: GRAB

pH (00400)	Conductivity (Uncorr.)	Water Temp. (00010)	Conductivity at 25°C (00094)
7	3750 µmho	16.5 °C	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
Aluminum	<0.1		
Barium	0.2		
Beryllium	<0.1		
Boron	0.2		
Cadmium	<0.1	☐	
Calcium	160.		
Chromium	<0.1	☒	<0.025
Cobalt	<0.05		
Copper	<0.1		
Iron	<0.1		
Lead	<0.1	☒	<0.005
Magnesium	28.		
Manganese	0.2		
Molybdenum	<0.1		
Nickel	<0.1		

ELEMENT	ICAP VALUE		AA VALUE
Silicon	7.2		
Silver	<0.1	☐	
Strontium	2.4		
Tin	<0.1		
Vanadium	<0.1		
Zinc	<0.1		
Arsenic	0.020 JAA	☒	~~0.010~~ JAA
Selenium		☐	
Mercury		☐	
		☐	
		☐	
		☐	
		☐	
		☐	
		☐	

LAB COMMENTS: Digest

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

ICAP Analyst JAA Reviewer

Date Analyzed 7/10/89 Date Received 8/31/89

NALCO

ANALYTICAL LABORATORY REPORT

From:
Bloomfield Refining Company
Bloomfield, NM.

Sample Marked:
North Evaporation Pond

Analysis No. W 154759
Date Sampled 7/13/87
Date Received 7/24/87
Date Printed 8/13/87
Page 1

<<< WATER ANALYSIS >>>

	PPM
CATIONS:	
Sodium (CaCO3)	1900.
Potassium (K)	16.
Ammonia (CaCO3)	39.
ANIONS:	
Fluoride (F) - Free and Combined	< 10.
Fluoride (F) - Free	< 10.
Chloride (CaCO3)	2100.
Bromide (Br)	1.3
Sulfate (CaCO3)	410.
Nitrate (CaCO3)	< 1.
Nitrite (NO2)	< 0.1
Phosphorus (PO4) - Total	5.5
OTHERS:	
Turbidity-Nephelometric Turbidity Units	18.
Total Dissolved Solids at 180 C	2900.
Total Suspended Solids at 105 C	43.
APHA Color Number (Units)	50.
Barium (Ba) - Soluble and Insoluble	0.3
Boron (B)	0.2
Phosphorus (P) - Soluble and Insoluble	1.9
Total Sulfur (S)	160.
Total Silica (SiO2)	36.
Calcium (CaCO3) - Soluble and Insoluble	370.
Magnesium (CaCO3)-Soluble and Insoluble	96.
Iron (Fe) - Soluble and Insoluble	0.13
Manganese (Mn) - Soluble and Insoluble	0.09
Strontium (Sr) - Soluble and Insoluble	2.4
Zinc (Zn) - Soluble and Insoluble	0.02

NALCO

ANALYTICAL LABORATORY REPORT

From:
Bloomfield Refining Company
Bloomfield, NM.

Sample Marked:
North Evaporation Pond

Analysis No. W 154759
Date Sampled 7/13/87
Date Received 7/24/87
Date Printed 8/13/87
Page 2 Last

Silver (Ag) - Soluble and Insoluble	< 0.01
Arsenic (As) - Soluble and Insoluble	0.025
Mercury (Hg) - Soluble and Insoluble	0.0006
Selenium (Se) - Soluble and Insoluble	0.093
Chemical Oxygen Demand (O2)	210.
Total Organic Carbon (C)	73.
Freon Extractables	2.
Nitrogen (N) - Organic	9.1

The following elements were < 0.1 PPM:
AL MO NI SB SN TL PB

The following elements were < 0.01 PPM:
CD CO CR CU TI V ZR

Lab Comments:
Cyanide, sulfide and phenol were not determined because the sample was not properly preserved.

NALCO

ANALYTICAL LABORATORY REPORT

From:
Bloomfield Refining Company
Bloomfield, MN.

Sample Marked:
North Evaporation Pond

Analysis No. B 154759
Date Sampled 7/13/87
Date Received 7/23/87
Date Printed 7/31/87

>>> BOD EVALUATION <<<

5-DAY BOD (mg/l or ppm)	160.

NALCO CHEMICAL COMPANY
ANALYTICAL LABORATORIES
One Nalco Center
Naperville, IL 60566-1024
Box 87
Sugar Land, TX 77478

NMOCD DATA
NORTH EVAPORATION POND
SAMPLE : JULY 10, 1987

6

ASSAIGAI ANALYTICAL LABORATORIES

TO: Bloomfield Refining
ATTN: Chris Hawley
PO Box 159
Bloomfield, NM 87413

DATE: 10 August 1987
1086

SAMPLE ID: Wastewater Evaluation

ANALYTE	ANALYTICAL RESULTS	NOMINAL DETECTION LIMITS
No 3 as N	<0.01 mg/l	0.01 mg/l
NH 3 as N	2.5 mg/l	0.01 mg/l
COD	146 mg/l	2 mg/l
Cr, T	<0.05 mg/l	0.05 mg/l
Cr, Hex	<0.01 mg/l	0.01 mg/l
Phenols	0.008 mg/l	0.001 mg/l
Sulfides	None Detected	
Oil & Grease	22.8 mg/l	0.01 mg/l
BOD	93.75 mg/l	0.01 mg/l
TSS	104 mg/l	1 mg/l
TDS	2976 mg/l	1 mg/l
pH	7.21	0.01
Alkalinity	198 mg/l	5 mg/l
Fluoride	0.061 mg/l	0.01 mg/l
Nitrite as N	<0.01 mg/l	0.01 mg/l
Boron	0.63 mg/l	0.04 mg/l
Cl	1100 mg/l	1.0 mg/l
SO 4	345 mg/l	1.0 mg/l
Al, Dissolved	<0.5 mg/l	0.5 mg/l
As	<0.05 mg/l	0.05 mg/l
Ba	4.70 mg/l	0.05 mg/l
Cd	0.06 mg/l	0.01 mg/l
Cu	0.015 mg/l	0.01 mg/l
CN	<0.005 mg/l	0.005 mg/l
Fe, D	0.122 mg/l	0.3 mg/l
Fe, T	0.170 mg/l	0.3 mg/l
Pb, T	0.175 mg/l	0.05 mg/l
Mn, D	0.088 mg/l	0.005 mg/l
Mn, T	0.089 mg/l	0.005 mg/l
Hg, T	<0.002 mg/l	0.002 mg/l
Ni, T	0.202 mg/l	0.01 mg/l
Se	0.036 mg/l	0.002 mg/l
Ag	<0.05 mg/l	0.05 mg/l
Zn	0.074 mg/l	0.004 mg/l
Urnaium	<0.02 mg/l	0.02 mg/l
Ra 226/228	2.0 ± 2.3 pCi/l	0.01 pCi/l
Phosphates	1.29 mg/l	0.06 mg/l

7300 Jefferson, N.E. • Albuquerque, New Mexico 87109 • (505) 345-8964

Na	605 mg/l	0.1 mg/l
TOC	120 mg/l	1 mg/l
TOX	178 ug/l	5 ug/l
Benzene	<0.001 mg/l	0.001 mg/l
Toluene	<0.001 mg/l	0.001 mg/l
Ethyl Benzene	<0.001 mg/l	0.001 mg/l
Xylenes	<0.001 mg/l	0.001 mg/l
PCB	<1 ppm	1 ppm

REFERENCE: "Test Methods for Evaluating Solid Waste, Physical/ Chemical Methods", USEPA, SW 846, EMSL-Cincinnati, 1982.

An invoice for services is enclosed. Thank you for contacting Assaigai Laboratories.

Sincerely,

Jennifer V. Smith

Jennifer V. Smith, Ph.D.
Laboratory Director

ASSAIGAI ANALYTICAL LABORATORIES

North Oxidation Pond B

Sample date: 7/10/87

TO: Bloomfield Refinery
Attn: Chris Hawley
PO Box 159
Bloomfield, NM 87413

DATE: 14 October 1987
1086, Updated

ANALYTE	ANALYTICAL RESULTS	NOMINAL DETECTION LIMIT
Acrolein	<0.01 mg/l	0.01 mg/l
Acrylonitrile	<0.01 mg/l	0.01 mg/l
Bis(chloromethyl)Ether	<0.001 mg/l	0.001 mg/l
Dichlorodifluoromethane	<0.001 mg/l	0.001 mg/l
Trichlorofluoromethane	<0.001 mg/l	0.001 mg/l
Aldrin	<0.001 mg/l	0.001 mg/l
α-BHC	<0.001 mg/l	0.001 mg/l
β-BHC	<0.001 mg/l	0.001 mg/l
γ-BHC	<0.001 mg/l	0.001 mg/l
δ-BHC	<0.001 mg/l	0.001 mg/l
Chlordane	<0.001 mg/l	0.001 mg/l
4,4'-DDT	<0.001 mg/l	0.001 mg/l
4,4'-DDE	<0.001 mg/l	0.001 mg/l
4,4'-DDD	<0.001 mg/l	0.001 mg/l
Dieldrin	<0.001 mg/l	0.001 mg/l
α-Endosulfan	<0.001 mg/l	0.001 mg/l
β-Endosulfan	<0.001 mg/l	0.001 mg/l
Endosulfan	<0.001 mg/l	0.001 mg/l
Endrin	<0.001 mg/l	0.001 mg/l
Endrin Aldehyde	<0.001 mg/l	0.001 mg/l
Heptachlor	<0.001 mg/l	0.001 mg/l
Heptachlor Epoxide	<0.001 mg/l	0.001 mg/l
PCB-1242	<0.001 mg/l	0.001 mg/l
PCB-1254	<0.001 mg/l	0.001 mg/l
PCB-1221	<0.001 mg/l	0.001 mg/l
PCB-1232	<0.001 mg/l	0.001 mg/l
PCB-1248	<0.001 mg/l	0.001 mg/l
PCB-1260	<0.001 mg/l	0.001 mg/l
PCB-1016	<0.001 mg/l	0.001 mg/l
Toxaphene	<0.001 mg/l	0.001 mg/l

REFERENCES: Standard Methods for the Examination of Water and Wastewater, 16th Edition, APHA, NY, 1985.

An invoice for services is enclosed. Thank you for contacting Assaigai Laboratories.

Sincerely,

Dean Dupree

Jennifer V. Smith, Ph.D.
Laboratory Director

7300 Jefferson, N.E. • Albuquerque, New Mexico 87109 • (505) 345-8964

NORTH OXIDATION POND

9

ASSAIGAI ANALYTICAL LABORATORIES

TO: Bloomfield Refinery
Attn: Chris Hawley
PO Box 159
Bloomfield, NM 87413

DATE: 8 September 1987
1086

ANALYTE	ANALYTICAL RESULTS
VOLATILES	
Benzene	ND
Bromoform	ND
Carbon Tetrachloride	0.266 mg/l ND bad data point
Chlorobenzene	ND
Chlorodibromomethane	ND
Chloroethane	ND
2-Chloroethylvinyl ether	ND
Chloroform	0.064 mg/l
Dichlorobromomethane	ND
1,1-Dichloroetnane	ND
1,2-Dichloroethane	ND
1,1-Dichloroethylene	ND
1,2-Dichloropropane	ND
1,2-Dichloropropylene	ND
Ethylbenzene	ND
Methyl Bromide	ND
Methyl Chloride	ND
Methylene Chloride	ND
1,1,2,2-Tetrachloroethane	ND
Tetrachloroethylene	ND
Toluene	ND
1,2-Transdichloroethylene	ND
1,1,1-Trichloroethane	ND
1,1,2-Trichloroethane	ND
Trichloroethylene	0.020 mg/l
Vinyl Chloride	ND

NOMINAL DETECTION LIMIT: 0.001 mg/l

Acid Compounds	
2-Chlorophenol	ND
2,4-Dichlorophenol	ND
2,4-Dimethylphenol	ND
4,6-Dinitro-o-cresol	ND
2,4-Dinitrophenol	ND
2-Nitrophenol	ND
4-Nitrophenol	ND

P-chloro-m-cresol	ND
pentachlorophenol	ND
Phenol	ND
2,4,6-Trichlorophenol	ND

NOMINAL DETECTION LIMIT: 0.010 mg/l

Base Neutrals

Acenaphthylene	ND
Anthracene	ND
Benzidine	ND
Benzo(a)anthracene	ND
Benzo(a)pyrene	ND
3,4-Benzofluoranthene	ND
Benzo(g,h,i)perylene	ND
Benzo(k)fluoranthene	ND
Bis(2-chloroethoxy)methane	ND
Bis(2-chloroethyl)ether	ND
Bis(2-chloroisopropyl)ether	ND
Bis(2-ethylhexyl)phthalate	ND
4-Bromophenyl phenyl ether	ND
Butylbenzyl phthalate	ND
2-Chloronapthalene	ND
4-Chlorophenyl phenyl ether	ND
Chrysene	ND
Dibenzo(a,h)anthracene	ND
1,2-Dichlorobenzene	ND
1,3-Dichlorobenzene	ND
1,4-Dichlorobenzene	ND
3,3-Dichlorobenzidine	ND
Diethyl phthalate	ND
Dimethyl phthalate	ND
Din-n-butyl phthalate	ND
2,4-Dinitrotoluene	ND
2,6-Dinitrotoluene	ND
Di-n-octyl phthalate	ND
1,2-Diphenylhydrazine	ND
Fluoranthene	ND
Fluorene	ND
Hexachlorobenzene	ND
Hexachlorobutadiene	ND
Hexachlorocyclopentadiene	ND
Hexachloroethane	ND
Indeno(1,2,3-cd)pyrene	ND
Isophorone	ND
Naphthalene	ND
Nitrobenzene	ND
N-nitrosodimethylamine	ND
N-nitrosodie-n-propylamine	ND

N-nitrosodiphenylamine	ND
Phenanthrene	ND
Pyrene	ND
1,2,4-Trichlorobenzene	ND

NOMINAL DETECTION LIMIT: 0.010 mg/l

REFERENCES: "Test Methods for Evaluating Solid Waste,-Physical/Chemical Methods", USEPA, SW 846, 3rd Edition.

An invoice for services is included. Thank you for contacting Assaigai Laboratories.

Sincerely,

Jennifer V. Smith

Jennifer V. Smith, Ph.D.
Laboratory Director

ASSAIGAI ANALYTICAL LABORATORIES

NPDES DATA
NORTH EVAPORATION POND
SAMPLE: July 1, 1987

TO: Bloomfield Refining
ATTN: Chris Hawley
PO Box 159
Bloomfield, NM 87413

DATE: 10 August 1987
1041

SAMPLE ID: Wastewater Evaluation

ANALYTE	ANALYTICAL RESULTS	NOMINAL DETECTION LIMITS
No 3 as N	<0.01 mg/l	0.01 mg/l
NH 3 as N	1.5 mg/l	0.01 mg/l
COD	107 mg/l	2 mg/l
Cr, T	<0.05 mg/l	0.05 mg/l
Cr, Hex	<0.01 mg/l	0.01 mg/l
Phenols	<0.001 mg/l	0.001 mg/l
Sulfides	None Detected	
Oil & Grease	33.7 mg/l	0.01 mg/l
BOD	159.3 mg/l	0.01 mg/l
TSS	24 mg/l	1 mg/l
TDS	2764 mg/l	1 mg/l
pH	7.79	0.01
Alkalinity	206 mg/l	5 mg/l
Fluoride	0.050 mg/l	0.01 mg/l
Nitrite as N	<0.01 mg/l	0.01 mg/l
Boron	0.34 mg/l	0.04 mg/l
Cl	1072 mg/l	1.0 mg/l
SO 4	345 mg/l	1.0 mg/l
Al, Dissolved	<0.5 mg/l	0.5 mg/l
As	<0.05 mg/l	0.05 mg/l
Ba	2.50 mg/l	0.05 mg/l
Cd	<0.01 mg/l	0.01 mg/l
Cu	<0.01 mg/l	0.01 mg/l
CN	<0.005 mg/l	0.005 mg/l
Fe, D	<0.3 mg/l	0.3 mg/l
Fe, T	<0.3 mg/l	0.3 mg/l
Pb, T	0.180 mg/l	0.05 mg/l
Mn, D	0.085 mg/l	0.005 mg/l
Mn, T	0.093 mg/l	0.005 mg/l
Hg, T	<0.002 mg/l	0.002 mg/l
Ni, T	0.262 mg/l	0.01 mg/l
Se	0.070 mg/l	0.002 mg/l
Ag	<0.05 mg/l	0.05 mg/l
Zn	0.032 mg/l	0.004 mg/l
Urnaium	<0.02 mg/l	0.02 mg/l
Ra 226/228	2.7 ± 2.8 pCi/l	0.01 pCi/l
Phosphates	0.32 mg/l	0.06 mg/l

7300 Jefferson, N.E. • Albuquerque, New Mexico 87109 • (505) 345-8964

Na	1522 mg/l	0.1 mg/l
TOC	63 mg/l	1 mg/l
TOX	363 ug/l	5 ug/l
Benzene	<0.001 mg/l	0.001 mg/l
Toluene	<0.001 mg/l	0.001 mg/l
Ethyl Benzene	<0.001 mg/l	0.001 mg/l
Xylenes	<0.001 mg/l	0.001 mg/l

REFERENCE: "Test Methods for Evaluating Solid Waste, Physical/ Chemical Methods", USEPA, SW 846, EMSL-Cincinnati, 1982.

An invoice for services is enclosed. Thank you for contacting Assaigai Laboratories.

Sincerely,

Jennifer V. Smith, Ph.D.
Laboratory Director

754 WPA

87-0909-C

SCIENTIFIC LABORATORY DIVISION

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

UNIVERSITY OF NEW MEXICO
HEALTH 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- 909 A+B
DATE REC. 6-1-87
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 5 2 8 1 0 5 0 A 7 S

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

COUNTY: San Juan; CITY: Bloomfield CODE: ____

LOCATION CODE: (Township-Range-Section-Tracts) 2 9 N + 1 1 W + 2 7 + 2 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

RECEIVED
AUG - 3 1987
OIL CONSERVATION DIVISION
SANTA FE

Remarks: ____

FIELD DATA:

pH= 7; Conductivity= 3530 umho/cm at 18 °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.)

North Pond, Gary Bloomfield Refinery, Sample Had Multitudes of bug Larvae (Evaporation Pond) No HC Sheen noted

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities.(signature collector): David P 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-$Na_2S_2O_3$ 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- 909

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. see remarks		
aromatic purgeables			
* 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: Three compounds in the aromatic screen at 1-10 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: 6/19/87 Analyst's signature: Mary C. Ellen

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 Meyenberg

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

860 WNF

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED: 6/1/87 LAB NO. WC-1977
USER CODE: ☐ 59300 ☐ 59600 ☒ OTHER: 82235
Collection DATE: 5/05/87
Collection TIME: 1050
Collected by — Person/Agency: Boyer/Anderson/OCD
SITE INFORMATION ►
Sample location: North Evap. Pond; Cory Bloomfield
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

☐ Bailed ☒ Dipped ☐ Pump ☐ Tap	Water level	Discharge	Sample type: GRAB
pH (00400): 7 (Strip)	Conductivity (Uncorrected): 3530 µmho	Water Temp. (00010): 18 °C	Conductivity at 25°C (00094): µmho

Field comments: See VOC Sheet. No H.C. Sheen or odor. Multitudes of bug larvae

SAMPLE FIELD TREATMENT — *Check proper boxes* Pre filter only

No. of samples submitted: 1

☐ NF: Whole sample (Non-filtered) ☐ F: Filtered in field with 0.45 µmembrane filter ☐ A: 2ml H_2SO_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

PF NA		Units	Date analyzed
☒ Conductivity (Corrected) 25°C (00095)	4138	µmho	6/19
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☒ Other: pH	7.27		6/2
☐ Other:			
☐ Other:			

A-H_2SO_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 PF, NA Sample:			Date Analyzed
☒ Calcium	152	mg/l	6/17
☒ Potassium	12.5	mg/l	6/18
☒ Magnesium	17	mg/l	6/17
☒ Sodium	626	mg/l	6/18
☒ Bicarbonate	269	mg/l	6/2
☒ Chloride	1024	mg/l	6/10
☒ Sulfate	492	mg/l	6/12
☒ Total Solids	2500	mg/l	6/14
☐			
☐			
☐ Cation/Anion Balance			

Analyst	Date Reported	Reviewed by
	6/19/87	CJ

Laboratory remarks:

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

CATIONS				ANIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT	ANALYTE	MEQ.	PPM	DET. LIMIT
Ca	7.58	152.00	<3.0	HC03	4.41	269.00	<1.0
Mg	1.40	17.00	<0.3	SO4	10.25	492.00	<10.0
Na	27.23	626.00	<10.0	CL	28.89	1024.00	<5.0
K	0.32	12.50	<0.3				
Mn	0.00	0.00		NO3	0.00	0.00	< 0.
Fe	0.00	0.00		C03	0.00	0.00	< 1.
				NH3	0.00	0.00	< 0.
				PO4	0.00	0.00	< 0.
SUMS	36.53	807.50			43.54	1785.00	

Total Dissolved Solids= 2500

Ion Balance = 83.89%

WC No. = 8701977

Date out/By CE 6/24/87

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

852
WP

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED: 6/1/87 LAB NO. WC-1991
USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235
Collection DATE: 870528
Collection TIME: 1050
SITE INFORMATION ►
Collected by — Person/Agency: Boyer/Anderson /OCD
Sample location: North Evap. Pond, Cary Bloomfield
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

☐ Bailed ☐ Pump ☒ Dipped ☐ Tap	Water level	Discharge	Sample type: GRAB
pH (00400): 7 (Strip)	Conductivity (Uncorrected): 3530 µmho	Water Temp. (00010): 18 °C	Conductivity at 25°C (00094): µmho

Field comments: See VOC Sheet. No H.C. Sheen or odor. Multitudes of bug larvae

SAMPLE FIELD TREATMENT — *Check proper boxes* Pre Filtered only

No. of samples submitted: 1
☐ NF: Whole sample (Non-filtered) ☐ F: Filtered in field with 0.45 µmembrane filter ☒ A: 2ml H_2SO_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:			
☐ Other:			
☐ Other:			
☒ A-H_2SO_4			
☒ Nitrate-N +, Nitrate-N total (00630)	<0.04	mg/l	6/4
☒ Ammonia-N total (00610)	3.05	mg/l	6/11
☒ Total Kjeldahl-N ( )	15.4	mg/l	6/23
☐ 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: 6/23/87
Reviewed by:

Laboratory remarks:

FOR OCD USE -- Date Owner Notified_____ Phone or Letter?_____ Initals_____

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

Heavy Metals
~~GENERAL WATER CHEMISTRY and NITROGEN~~ ANALYSIS

DATE RECEIVED 6 | 1 | 87 LAB NO. ICP-309

USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235

Collection DATE 5/25/26

Collection TIME 1050

SITE INFORMATION ►

Sample location North Evap. Pond, Cary Bloomfield

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

SAMPLING CONDITIONS

☐ Bailed ☐ Pump ☒ Dipped ☐ Tap	Water level	Discharge	Sample type GRAB
pH (00400) 2 (Strip)	Conductivity (Uncorrected) 3532 µmho	Water Temp. (00010) 18 °C	Conductivity at 25°C (00094) µmho

Field comments See VOC Sheet. No H.C. Sheen or odor. Multitudes of bug larvae

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_2SO_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 ☒ A HNO_3	Units	Date analyzed
☐ Conductivity (Corrected) 25°C (00095)	µmho	
☐ Total non-filterable residue (suspended) (00530)	mg/l	
☒ Other: ICAP		
☐ Other:		
☐ Other:		

A-H_2SO_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 6 | 4 | 87 | Reviewed by Jim Ashley

Laboratory remarks

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

ICAP SCAN

SLD Lab No. ICP 309 Reviewed by: Jim Ashby

Analyst QB QK Date Reported: 6/4/87

Date Analyzed 6/1/87

ELEMENT	ICAP VALUE(mg/l)	AA VALUE(mg/l)
Aluminum	<0.1	
Barium	0.3	
Beryllium	<0.1	
Boron	0.2	
Cadmium	<0.1	
Calcium	130.	
Chromium	<0.1	
Cobalt	<0.05	
Copper	<0.1	
Iron	<0.1	
Lead	<0.1	
Magnesium	21.	
Manganese	0.12	
Molybdenum	<0.1	
Nickel	<0.1	
Silicon	12.	
Silver	<0.1	
Strontium	2.1	
Tin	<0.1	
Vanadium	<0.1	
Zinc	<0.1	
Arsenic		
Selenium		
Mercury		

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 3 22 85	LAB NO. WC-1213	USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235	
Collection DATE 3 21 85	SITE INFORM-ATION ►	Sample location Bloomfield Refinery N. Evap Pond (#1)	
Collection TIME 0722		Collection site description	
Collected by — Person/Agency Boyer/OCD			

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 Bloomfield Ref.

SAMPLING CONDITIONS

☐ Bailed ☒ Dipped ☐ Pump ☐ Tap	Water level —	Discharge —	Sample type Grab
pH (00400) —	Conductivity (Uncorrected) 2600 µmho	Water Temp. (00010) 9.5 °C	Conductivity at 25°C (00094) µmho

Field comments Sample from middle of north bank of north pond.

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_2SO_4/L added

☒ **NA:** No acid added ☐ Other-*specify:*

ANALYTICAL RESULTS from SAMPLES

NF, NA		Units	Date analyzed
☒ Conductivity (Corrected) 25°C (00095)	3351	µmho	5/9
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☒ Other: pH	7.28		5/3
☐ Other:			
☐ Other:			

NA		Units	Date analyzed
☒ Calcium (00915)	89.6	mg/l	4/15
☒ Magnesium (00925)	17.5	mg/l	4/15 5.92
☒ Sodium (00930)	543	mg/l	3/28
☒ Potassium (00935)	22.2	mg/l	3/28
☒ Bicarbonate (00440)	300.9	mg/l	5/7
☒ Chloride (00940)	987.6	mg/l	4/15
☒ Sulfate (00945)	471.0	mg/l	4/4
☒ Total filterable residue (dissolved) (70300)	2028	mg/l	6/5
☒ Other: Fluoride CO_3 CO_3	None 0.49		5/7 4/8

~~NF, A-H_2SO_4~~ NA			
☐ 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 ( )	65.9	mg/l	6/13
☐ Other:			
☐ Other:			

F, A-H_2SO_4			
☐ Nitrate-N +, Nitrate-N dissolved (00631)		mg/l	
☐ Ammonia-N dissolved (00608)		mg/l	
☐ Total Kjeldahl-N ( )		mg/l	
☐ Other:			

Analyst | Date Reported 7 3 85 | Reviewed by

Laboratory remarks

SLD 726 (12/84) *DISTRIBUTION:* **WHITE** — EID, GW&HW Bureau **CANARY** — WS System **PINK** — EID Local Office **GOLDENROD** — SLD

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: 3 | 29 | 85 | LAB NO. WC-1981 | USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235

Collection DATE: 3 | 1 | 85 | Collection TIME: 0722 | Collected by — Person/Agency: Boyer/OCD

SITE INFORMATION ►

Sample location: Bloomfield Refinery N. Evap Pond (#1)

Collection site description:

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: B Loomfield Ref.

SAMPLING CONDITIONS

☐ Bailed ☒ Dipped ☐ Pump ☐ Tap	Water level: —	Discharge: —	Sample type: Grab
pH (00400): —	Conductivity (Uncorrected): 2600 µmho	Water Temp. (00010): 9.5 °C	Conductivity at 25°C (00094): µmho

Field comments: Sample from middle of north bank of north pond.

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_2SO_4/L added

☐ **NA:** No acid added ☐ Other-*specify:*

ANALYTICAL RESULTS from SAMPLES

NF, NA		Units	Date analyzed
☐ Conductivity (Corrected) 25°C (00095)		µmho	
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☐ Other:			
☐ Other:			
☐ Other:			

F, NA		Units	Date analyzed
☐ Calcium (00915)		mg/l	
☐ Magnesium (00925)		mg/l	
☐ Sodium (00930)		mg/l	
☐ Potassium (00935)		mg/l	
☐ Bicarbonate (00440)		mg/l	
☐ Chloride (00940)		mg/l	
☐ Sulfate (00945)		mg/l	
☐ Total filterable residue (dissolved) (70300)		mg/l	
☐ Other:			

NF, A-H_2SO_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:			

F, A-H_2SO_4			
☒ Nitrate-N +, Nitrate-N dissolved (00631)	0.02	mg/l	4/5
☒ Ammonia-N dissolved (00608)	72.28	mg/l	4/22
☒ Total Kjeldahl-N ( )	86.5	mg/l	5/6
☐ Other:			

Analyst | Date Reported: 5 | 8 | 85 | Reviewed by:

Laboratory remarks:

SLD 726 (12/84) *DISTRIBUTION:* **WHITE** — EID, GW&HW Bureau **CANARY** — WS System **PINK** — EID Local Office GOLDENROD — SLD

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

HEAVY METALS

~~GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS~~

DATE RECEIVED: 3 22 85	LAB NO. HM-491	USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235	
Collection DATE: 3 21 85	SITE INFORMATION ►	Sample location: Bloomfield Refinery N. Evap Pond (#1)	
Collection TIME: 0722		Collection site description:	
Collected by — Person/Agency: Boyer/OCD			

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: Bloomfield Ref.

SAMPLING CONDITIONS

☐ Bailed ☒ Dipped ☐ Pump ☐ Tap	Water level: —	Discharge: —	Sample type: Grab
pH (00400): —	Conductivity (Uncorrected): 2600 µmho	Water Temp. (00010): 9.5 °C	Conductivity at 25°C (00094): µmho

Field comments: Sample from middle of north bank of north pond.

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_2SO_4/L added~~ 5ml HNO_3

☐ NA: No acid added ☐ Other-*specify:*

ANALYTICAL RESULTS from SAMPLES

NF, NA		Units	Date analyzed
☐ Conductivity (Corrected) 25°C (00095)		µmho	
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☒ Other: ICAP SCAN			
☒ Other: As	.013	mg/l	
☒ Other: Se	.007	mg/l	

F, NA		Units	Date analyzed
☐ Calcium (00915)		mg/l	
☐ Magnesium (00925)		mg/l	
☐ Sodium (00930)		mg/l	
☐ Potassium (00935)		mg/l	
☐ Bicarbonate (00440)		mg/l	
☐ Chloride (00940)		mg/l	
☐ Sulfate (00945)		mg/l	
☐ Total filterable residue (dissolved) (70300)		mg/l	
☐ Other:			

NF, A-H_2SO_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:			

F, A-H_2SO_4			
☐ Nitrate-N + , Nitrate-N dissolved (00631)		mg/l	
☐ Ammonia-N dissolved (00608)		mg/l	
☐ Total Kjeldahl-N ( )		mg/l	
☐ Other:			

Analyst:

Date Reported: 5 31 85

Reviewed by: J. Ashby

Laboratory remarks:

SLD 726 (12/84) *DISTRIBUTION:* **WHITE** — EID, GW&HW Bureau **CANARY** — WS System **PINK** — EID Local Office **GOLDENROD** — SLD

ICAP -SCREEN

Lab Number: HM 491

Date Submitted: 3/22/85

By: Boyer

Sample Code: Bloomfield Ref. N. Evap Pond #1

Date Reported: 5/31/85

By: J. Ashley

Determination	Concentration (µg/ml)
Aluminum	<.10
Barium	.17
Beryllium	<.10
Boron	.14
Cadmium	<.10
Calcium	100.
Chromium	<.10
Cobalt	<.10
Copper	<.10
Iron	.24
Lead	<.10
Magnesium	16.
Manganese	.15
Molybdenum	<.10
Nickel	<.10
Silicon	9.3
Silver	<.10
Strontium	1.4
Tin	<.10
Vanadium	<.10
Yttrium	<.10
Zinc	<.10

ATOMIC ABSORPTION ANALYSES

Arsenic .013 µg/ml

Selenium .007 µg/ml

Mercury _____ µg/ml

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90 MAY 31 AM 8 55

05/25/90

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

Sample Identification: Sample #9004091325
Collected By: Anderson/Olson
Date & Time Taken: 04/09/90 1325
Other: Bloomfield Refinery New Lined Pond

Lab Sample Number: 163715 **Received:** 04/16/90

PARAMETER	RESULTS	UNITS	TIME	DATE	METHOD	BY
Acrolein	(100	ug/l	0322	04/21/90	EPA Method 8240	PM
Acrylonitrile	(100	ug/l	0322	04/21/90	EPA Method 8240	PM
Benzene	(5	ug/l	0322	04/21/90	EPA Method 8240	PM
Bromoform	(5	ug/l	0322	04/21/90	EPA Method 8240	PM
Bromomethane	(10	ug/l	0322	04/21/90	EPA Method 8240	PM
Carbon Tetrachloride	(5	ug/l	0322	04/21/90	EPA Method 8240	PM
Chlorobenzene	(5	ug/l	0322	04/21/90	EPA Method 8240	PM
Chloroethane	(10	ug/l	0322	04/21/90	EPA Method 8240	PM
2-Chloroethylvinyl ether	(10	ug/l	0322	04/21/90	EPA Method 8240	PM
Chloroform	(5	ug/l	0322	04/21/90	EPA Method 8240	PM
Chloromethane	(10	ug/l	0322	04/21/90	EPA Method 8240	PM
Dibromochloromethane	(5	ug/l	0322	04/21/90	EPA Method 8240	PM
Bromodichloromethane	(5	ug/l	0322	04/21/90	EPA Method 8240	PM
1,1-Dichloroethane	(5	ug/l	0322	04/21/90	EPA Method 8240	PM
1,2-Dichloroethane	(5	ug/l	0322	04/21/90	EPA Method 8240	PM
1,1-Dichloroethene	(5	ug/l	0322	04/21/90	EPA Method 8240	PM

continued

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Lab Sample Number: 163715 Continued

PARAMETER	RESULTS	UNITS	TIME	DATE	METHOD	BY
trans-1,2-Dichloroethene	(5	ug/l	0322	04/21/90	EPA Method 8240	PM
1,2-Dichloropropane	(5	ug/l	0322	04/21/90	EPA Method 8240	PM
cis-1,3-Dichloropropene	(5	ug/l	0322	04/21/90	EPA Method 8240	PM
Ethyl benzene	(5	ug/l	0322	04/21/90	EPA Method 8240	PM
Methylene Chloride	(5	ug/l	0322	04/21/90	EPA Method 8240	PM
1,1,2,2-Tetrachloroethane	(5	ug/l	0322	04/21/90	EPA Method 8240	PM
Tetrachloroethene	(5	ug/l	0322	04/21/90	EPA Method 8240	PM
Toluene	(5	ug/l	0322	04/21/90	EPA Method 8240	PM
1,1,1-Trichloroethane	(5	ug/l	0322	04/21/90	EPA Method 8240	PM
1,1,2-Trichloroethane	(5	ug/l	0322	04/21/90	EPA Method 8240	PM
Trichloroethene	(5	ug/l	0322	04/21/90	EPA Method 8240	PM
Vinyl Chloride	(10	ug/l	0322	04/21/90	EPA Method 8240	PM
trans-1,3-Dichloropropene	(5	ug/l	0322	04/21/90	EPA Method 8240	PM
Alkalinity	158	mg/l	1400	04/26/90	EPA Method 310.1	DFK
Boron	1.1	mg/l	2100	05/09/90	EPA Method 212.3	DFK
Cation-Anion Balance	.16	%	1100	05/23/90	ference	NT
Carbonate	62	mg/l	1500	04/26/90	APHA Method 263	DFK
Chloride	1400	mg/l	1110	04/18/90	EPA Method 325.3	SW
Specific Conductance	5195	Micromhos	2200	04/17/90	EPA Method 120.1	KLM
Bicarbonate	96	mg/l	1500	04/26/90	APHA Method 263	DFK
Sulfate	570	mg/l	1500	04/19/90	EPA Method 375.4	DFK

continued

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Lab Sample Number: 163715 Continued

PARAMETER	RESULTS	UNITS	TIME	DATE	METHOD	BY
Total Dissolved Solids	3262	mg/l	0800	05/24/90	EPA Method 160.1	MLR
pH	9.4	SU	1630	04/17/90	EPA Method 150.1	LB
Silver	<.03	mg/l	1700	04/19/90	EPA Method 272.1	GK
Aluminum	<.5	mg/l	1730	04/20/90	EPA Method 202.1	GK
Arsenic	.021	mg/l	2215	04/23/90	EPA Method 206.2	GK
Barium	<.5	mg/l	1845	04/20/90	EPA Method 208.1	GK
Beryllium	<.01	mg/l	2100	05/22/90	EPA Method 210.2	GK
Calcium	150	mg/l	1700	04/26/90	EPA Method 215.1	GK
Cadmium	<.001	mg/l	1845	04/26/90	EPA Method 213.2	GK
Cobalt	<.5	mg/l	1845	04/19/90	EPA Method 219.2	GK
Chromium	<.05	mg/l	1530	04/19/90	EPA Method 218.1	GDG
Copper	<.05	mg/l	0930	04/19/90	EPA Method 220.1	GDG
Iron	.2	mg/l	0815	04/25/90	EPA Method 236.1	GDG
Potassium	24	mg/l	1730	05/22/90	EPA Method 258.1	GK
Magnesium	40	mg/l	1730	04/25/90	EPA Method 242.1	GDG
Manganese	.26	mg/l	1540	04/23/90	EPA Method 243.1	GDG
Molybdenum	<.5	mg/l	1845	04/19/90	EPA Method 246.2	GK
Sodium	1000	mg/l	2130	04/24/90	EPA Method 273.1	GK
Nickel	<.1	mg/l	1610	04/19/90	EPA Method 249.1	GDG
Lead	<.001	mg/l	2200	04/26/90	EPA Method 239.2	GK
Antimony	<.2	mg/l	1815	05/22/90	EPA Method 204.2	GK

continued

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Lab Sample Number: 163715 Continued

PARAMETER	RESULTS	UNITS	TIME	DATE	METHOD	BY
Selenium	(.005	mg/l	2315	04/19/90	EPA Method 270.2	GK
Silicon (as Silica)	12	mg/l	1615	04/20/90	APHA Method 303C	GK
Thallium	(.005	mg/l	1445	05/07/90	EPA Method 279.2	GDG
Vanadium	(2	mg/l	2200	04/19/90	EPA Method 286.2	GK
Zinc	.02	mg/l	0900	04/19/90	EPA Method 289.1	GDG

Quality Assurance for Sample Number 163715

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
				Alkalinity					
	Standard	101	mg/l	100		101	1400	04/26/90	DFK
163802	Duplicate	765	mg/l	765		100	1400	04/26/90	DFK
				Boron					
	Standard	.50	mg/l	.50		100	2100	05/09/90	DFK
163716	Duplicate	1.9	mg/l	1.9		100	2100	05/09/90	DFK
				Chloride					
	Standard	71	mg/l	71		100	1110	04/18/90	SW
163717	Duplicate	107	mg/l	103		104	1110	04/18/90	SW
163717	Spike		mg/l		100	100	1110	04/18/90	SW
				Specific Conductance					
	Standard	1400	Micromhos	1413		101	2200	04/17/90	KLM
163715	Duplicate	5195	Micromhos	5195		100	2200	04/17/90	KLM
				Sulfate					
	Standard	102	mg/l	100		102	1500	04/19/90	DFK
163831	Duplicate	268	mg/l	268		100	1500	04/19/90	DFK
163831	Spike		mg/l		100	97	1500	04/19/90	DFK
				Total Dissolved Solids					
	Blank	.000	mg/l				0800	05/24/90	MLR
	Standard	1006	mg/l	1000		101	0800	05/24/90	MLR
163720	Duplicate	864	mg/l	868		100	0800	05/24/90	MLR
				Silver					
	Blank	(.03	mg/l				1700	04/19/90	GK
	Standard	.20	mg/l	.20		100	1700	04/19/90	GK
163718	Duplicate	(.03	mg/l	(.03		100	1700	04/19/90	GK
163718	Spike		mg/l		.20	95	1700	04/19/90	GK
				Aluminum					
	Blank	(.5	mg/l				1730	04/20/90	GK
	Blank	(.5	mg/l				1730	04/20/90	GK
	Blank	(.5	mg/l				1730	04/20/90	GK

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Quality Assurance for Sample Number 163715

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
	Standard	1.0	mg/l	1.0		100	1730	04/20/90	GK
163715	Duplicate	(.5	mg/l	(.5		100	1730	04/20/90	GK
163766	Duplicate	(.5	mg/l	(.5		100	1730	04/20/90	GK
163715	Spike		mg/l		4.0	95	1730	04/20/90	GK
163766	Spike		mg/l		4.0	100	1730	04/20/90	GK
				Arsenic					
	Blank	(.005	mg/l				2215	04/23/90	GK
	Blank	(.005	mg/l				2215	04/23/90	GK
	Standard	.102	mg/l	.100		102	2215	04/23/90	GK
162814	Duplicate	(.005	mg/l	(.005		100	2215	04/23/90	GK
163717	Duplicate	(.005	mg/l	(.005		100	2215	04/23/90	GK
162814	Spike		mg/l		.100	107	2215	04/23/90	GK
163717	Spike		mg/l		.100	93	2215	04/23/90	GK
				Barium					
	Blank	(.5	mg/l				1845	04/20/90	GK
	Blank	(.5	mg/l				1845	04/20/90	GK
	Standard	1.0	mg/l	1.0		100	1845	04/20/90	GK
161742	Duplicate	79	mg/l	91		114	1845	04/20/90	GK
163715	Duplicate	(.5	mg/l	(.5		100	1845	04/20/90	GK
161742	Spike		mg/l		4.0	109	1845	04/20/90	GK
163715	Spike		mg/l		4.0	102	1845	04/20/90	GK
				Beryllium					
	Blank	(.01	mg/kg				2100	05/22/90	GK
	Blank	(.1	mg/kg				2100	05/22/90	GK
	Standard	.02	mg/kg	.02		100	2100	05/22/90	GK
165595	Duplicate	.4	mg/kg	.3		129	2100	05/22/90	GK
163715	Duplicate	(.01	mg/l	(.01		100	2100	05/22/90	GK
163716	Spike		mg/l		.50	92	2100	05/22/90	GK
				Calcium					
	Blank	.19	mg/l				1700	04/26/90	GK
	Blank	.11	mg/l				1700	04/26/90	GK
	Standard	.47	mg/l	.50		106	1700	04/26/90	GK
162261	Duplicate	230	mg/l	230		100	1700	04/26/90	GK
163802	Duplicate	3.0	mg/l	3.1		103	1700	04/26/90	GK
163715	Duplicate	140	mg/l	160		113	1700	04/26/90	GK
163718	Spike		mg/l		1.00	94	1700	04/26/90	GK
				Cadmium					
	Blank	(.001	mg/l				1845	04/26/90	GK
	Blank	(.001	mg/l				1845	04/26/90	GK
	Standard	.002	mg/l	.002		100	1845	04/26/90	GK
163716	Duplicate	(.001	mg/l	(.001		100	1845	04/26/90	GK
				Cobalt					
	Blank	(.5	mg/l				1845	04/19/90	GK
	Standard	10	mg/l	10		100	1845	04/19/90	GK
163715	Duplicate	(.5	mg/l	(.5		100	1845	04/19/90	GK
163715	Spike		mg/l		10	98	1845	04/19/90	GK
				Chromium					

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Quality Assurance for Sample Number 163715

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
	Blank	(.05	mg/kg				1530	04/19/90	GDG
	Blank	(.05	mg/kg				1530	04/19/90	GDG
	Blank	(.05	mg/kg				1530	04/19/90	GDG
	Blank	(.01	mg/kg				1530	04/19/90	GDG
	Standard	.05	mg/kg	.05		100	1530	04/19/90	GDG
163377	Duplicate	.16	mg/l	.16		100	1530	04/19/90	GDG
163519	Duplicate	(.05	mg/l	(.05		100	1530	04/19/90	GDG
163715	Duplicate	(.05	mg/l	(.05		100	1530	04/19/90	GDG
163766	Duplicate	(.05	mg/l	(.05		100	1530	04/19/90	GDG
163860	Duplicate	.16	mg/l	.14		113	1530	04/19/90	GDG
163377	Spike		mg/l		.40	91	1530	04/19/90	GDG
163519	Spike		mg/l		.80	89	1530	04/19/90	GDG
163715	Spike		mg/l		.80	93	1530	04/19/90	GDG
163766	Spike		mg/l		.40	105	1530	04/19/90	GDG
163860	Spike		mg/l		.80	95	1530	04/19/90	GDG
				Copper					
	Blank	(.05	mg/l				0930	04/19/90	GDG
	Blank	(.05	mg/l				0930	04/19/90	GDG
	Blank	(.01	mg/l				0930	04/19/90	GDG
	Standard	.98	mg/l	1.0		102	0930	04/19/90	GDG
	Standard	.06	mg/l	.05		118	0930	04/19/90	GDG
163256	Duplicate	.21	mg/l	.21		100	0930	04/19/90	GDG
163519	Duplicate	(.05	mg/l	(.05		100	0930	04/19/90	GDG
163715	Duplicate	(.05	mg/l	(.05		100	0930	04/19/90	GDG
163860	Duplicate	.05	mg/l	.05		100	0930	04/19/90	GDG
163256	Spike		mg/l		.40	97	0930	04/19/90	GDG
163519	Spike		mg/l		.80	94	0930	04/19/90	GDG
163715	Spike		mg/l		.80	96	0930	04/19/90	GDG
163850	Spike		mg/l		.80	95	0930	04/19/90	GDG
				Iron					
	Blank	.2	mg/l				0815	04/25/90	GDG
	Blank	.2	mg/l				0815	04/25/90	GDG
	Blank	.1	mg/l				0815	04/25/90	GDG
	Blank	.1	mg/l				0815	04/25/90	GDG
	Standard	1.0	mg/l	1.0		100	0815	04/25/90	GDG
163715	Duplicate	.2	mg/l	.1		167	0815	04/25/90	GDG
163802	Duplicate	.5	mg/l	.5		100	0815	04/25/90	GDG
163802	Spike		mg/l		.80	103	0815	04/25/90	GDG
				Potassium					
	Blank	.05	mg/l				1730	05/22/90	GK
	Standard	.96	mg/l	1.00		104	1730	05/22/90	GK
163715	Duplicate	24	mg/l	24		100	1730	05/22/90	GK
				Magnesium					
	Blank	.008	mg/l				1730	04/25/90	GDG
	Standard	.207	mg/l	.200		103	1730	04/25/90	GDG
163715	Duplicate	40	mg/l	39		103	1730	04/25/90	GDG

ANA-LAB CORP.
THE COMPLETE SERVICE LAB

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

Analytical Chemistry • Waste Treatment & Disposal • Equipment Sales

Quality Assurance for Sample Number 163715

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
162261	Duplicate	20,000	mg/l	20,000		100	1730	04/25/90	GDG
163802	Duplicate	9.1	mg/l	9.1		100	1730	04/25/90	GDG
163802	Spike		mg/l		.400	100	1730	04/25/90	GDG
				Manganese					
	Blank	(.03	mg/l				1540	04/23/90	GDG
	Blank	(.03	mg/l				1540	04/23/90	GDG
	Standard	.53	mg/l	.50		106	1540	04/23/90	GDG
163042	Duplicate	.10	mg/l	.08		122	1540	04/23/90	GDG
163119	Duplicate	.12	mg/l	.10		118	1540	04/23/90	GDG
163432	Duplicate	(.03	mg/l	.03		300	1540	04/23/90	GDG
163715	Duplicate	.27	mg/l	.25		108	1540	04/23/90	GDG
163802	Duplicate	.06	mg/l	.06		100	1540	04/23/90	GDG
163432	Spike		mg/l		.40	96	1540	04/23/90	GDG
163802	Spike		mg/l		.40	100	1540	04/23/90	GDG
				Molybdenum					
	Blank	(.5	mg/l				1845	04/19/90	GK
	Standard	10	mg/l	10		100	1845	04/19/90	GK
163715	Duplicate	(.5	mg/l	(.5		100	1845	04/19/90	GK
163715	Spike		mg/l		10	98	1845	04/19/90	GK
				Sodium					
	Blank	(4	mg/l				2130	04/24/90	GK
	Standard	11	mg/l	10		110	2130	04/24/90	GK
162261	Duplicate	98,000	mg/l	98,000		100	2130	04/24/90	GK
163432	Duplicate	42	mg/l	43		102	2130	04/24/90	GK
163715	Duplicate	1000	mg/l	1000		100	2130	04/24/90	GK
163802	Duplicate	440	mg/l	440		100	2130	04/24/90	GK
163432	Spike		mg/l		40	100	2130	04/24/90	GK
				Nickel					
	Blank	(.1	mg/l				1610	04/19/90	GDG
	Blank	(.1	mg/l				1610	04/19/90	GDG
	Blank	(.02	mg/l				1610	04/19/90	GDG
	Standard	.1	mg/l	.1		100	1610	04/19/90	GDG
163377	Duplicate	7.2	mg/l	7.2		100	1610	04/19/90	GDG
163715	Duplicate	(.1	mg/l	(.1		100	1610	04/19/90	GDG
163860	Duplicate	.03	mg/l	.03		100	1610	04/19/90	GDG
163715	Spike		mg/l		.40	110	1610	04/19/90	GDG
163860	Spike		mg/l		.40	108	1610	04/19/90	GDG
				Lead					
	Blank	.004	mg/l				2200	04/26/90	GK
	Blank	.013	mg/kg				2200	04/26/90	GK
	Blank	.001	mg/kg				2200	04/26/90	GK
	Standard	.027	mg/l	.025		108	2200	04/26/90	GK
	Standard	.024	mg/kg	.025		104	2200	04/26/90	GK
162404	Duplicate	.002	mg/l	(.001		300	2200	04/26/90	GK
163453	Duplicate	.001	mg/l	.001		100	2200	04/26/90	GK
163716	Duplicate	(.001	mg/l	(.001		100	2200	04/26/90	GK

ANA-LAB CORP.
THE COMPLETE SERVICE LAB

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

Analytical Chemistry • Waste Treatment & Disposal • Equipment Sales

Quality Assurance for Sample Number 163715

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
163933	Duplicate	(.001	mg/l	(.001		100	2200	04/26/90	GK
163717	Spike		mg/l		.025	104	2200	04/26/90	GK
				Antimony					
	Blank	(.2	mg/kg				1815	05/22/90	GK
	Standard	1.0	mg/kg	1.0		100	1815	05/22/90	GK
163715	Duplicate	(.2	mg/l	(.2		100	1815	05/22/90	GK
165596	Duplicate	(2	mg/kg	(2		100	1815	05/22/90	GK
165596	Spike		mg/kg		2.5	97	1815	05/22/90	GK
				Selenium					
	Blank	(.005	mg/kg				2315	04/19/90	GK
	Standard	.109	mg/kg	.100		109	2315	04/19/90	GK
163717	Duplicate	(.005	mg/l	(.005		100	2315	04/19/90	GK
				Silicon (as Silica)					
	Blank	(2	mg/kg				1615	04/20/90	GK
	Standard	5.5	mg/kg	5.0		110	1615	04/20/90	GK
163715	Duplicate	13	mg/l	12		108	1615	04/20/90	GK
163715	Spike		mg/l		20	103	1615	04/20/90	GK
				Thallium					
	Blank	(.005	mg/l				1445	05/07/90	GDG
	Standard	.052	mg/l	.050		104	1445	05/07/90	GDG
163716	Duplicate	(.005	mg/l	(.005		100	1445	05/07/90	GDG
163718	Spike		mg/l		.100	90	1445	05/07/90	GDG
				Vanadium					
	Blank	(2	mg/l				2200	04/19/90	GK
	Standard	11	mg/l	10		110	2200	04/19/90	GK
163715	Duplicate	(2	mg/l	(2		100	2200	04/19/90	GK
				Zinc					
	Blank	.05	mg/l				0900	04/19/90	GDG
	Blank	.02	mg/l				0900	04/19/90	GDG
	Blank	.03	mg/l				0900	04/19/90	GDG
	Blank	.020	mg/l				0900	04/19/90	GDG
	Standard	.21	mg/l	.20		105	0900	04/19/90	GDG
163377	Duplicate	.01	mg/l	.03		200	0900	04/19/90	GDG
163530	Duplicate	2.6	mg/l	2.7		104	0900	04/19/90	GDG
163715	Duplicate	.02	mg/l	.01		167	0900	04/19/90	GDG
163860	Duplicate	.025	mg/l	.030		118	0900	04/19/90	GDG
163715	Duplicate	.02	mg/l	.01		167	0900	04/19/90	GDG
163377	Spike		mg/l		.40	100	0900	04/19/90	GDG
163530	Spike		mg/l		.40	100	0900	04/19/90	GDG
163860	Spike		mg/l		.40	97	0900	04/19/90	GDG

Bill Pee

C. M. Whiteside, Ph.D., President

~~SCIENTIFIC LABORATORY DIVISION~~
ORGANIC ANALYSIS REQUEST FORM
~~Organic Section - Phone: 841-2570~~

F89161
#77-521,07-123

REPORT TO: DAVID BOYER
N.M. OIL CONSERVATION DIVISION
P.O. Box 2088
Santa Fe, NM 87504-2088

S.L.D. No. OR-
DATE REC.
PRIORITY
PHONE(S): 827-5812

COLLECTION CITY: Bloomfield ; COUNTY: San Juan

COLLECTION DATE/TIME CODE: (Year-Month-Day-Hour-Minute) |8|9|0|4|2|7|1|6|5|0|

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

USER CODE: |8|2|2|3|5| SUBMITTER: David Boyer CODE: |2|6|0|

SAMPLE TYPE: WATER [X], SOIL [ ], FOOD [ ], OTHER:

This form accompanies 3 Septum Vials, ____ Glass Jugs, and/or ____ ____
Samples were preserved as follows:

- [ ] NP: No Preservation; Sample stored at room temperature.
- [X] P-Ice Sample stored in an ice bath (Not Frozen).
- [ ] P-AA Sample Preserved with Ascorbic Acid to remove chlorine residual.
- [X] P-HCl Sample Preserved with Hydrochloric Acid (2 drops/40 ml)

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 Headspace (1-5 Carbons)
- [X] (754) Aromatics & Halogenated Purgeables
- [ ] (765) Mass Spectrometer Purgeables
- [ ] (766) Trihalomethanes
- [ ] (774) SDWA VOC's I (8 Regulated +)
- [ ] (775) SDWA VOC's II (EDB & DBCP)

Other Specific Compounds or Classes

- [ ] _____
- [ ] _____

EXTRACTABLE SCREENS

- [ ] (751) Aliphatic Hydrocarbons
- [ ] (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= 6.5 ; Conductivity= 1900 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.)
Coors BRC - Main (NE) cooling towers

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: _____

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 [ ] OR Seals Intact: Yes [ ] No [ ]

Signatures _____ _____

For OCD use: Date owner notified: _____ Phone or Letter? Initials _____

ANALYSES PERFORMED

LAB. No.: OR-

THIS PAGE FOR LABORATORY RESULTS ONLY

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

PURGEABLE SCREENS

- ☐ (753) Aliphatic Headspace (1-5 Carbons)
- ☐ (754) Aromatic & Halogenated Purgeables
- ☐ (765) Mass Spectrometer Purgeables
- ☐ (766) Trihalomethanes
- ☐ (774) SDWA VOC's I (8 Regulated +)
- ☐ (775) SDWA VOC's II (EDB & DBCP)

Other Specific Compounds or Classes

- ☐ _____
- ☐ _____

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
- ☐ (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]
* 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) Not Sealed ☐ 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: _____

Inter-Mountain Laboratories, Inc.

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

Report Date: 05/15/89

Client:	New Mexico OCD		
Sample ID:	8904271650	Date Sampled:	04/27/89
Laboratory Number:	F891610	Date Received:	04/28/89
Analysis Requested:	Purgeable Aromatics	Date Extracted:	NA
Sample Matrix:	Water	Date Analyzed:	05/11/89

Parameter	Concentration	Units
BENZENE	ND (0.2)	ug/l
TOLUENE	ND (0.2)	ug/l
ETHYLBENZENE	ND (0.2)	ug/l
m,p-XYLENE	ND (0.2)	ug/l
o-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 Organic Chemist

RECEIVED
MAY 23 1989
OIL CONSERVATION DIV.
SANTA FE

Inter-Mountain Laboratories, Inc.

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

RECEIVED
MAY 22 1989
OIL CONSERVATION DIV.
SANTA FE

Report Date: 05/09/89

Client: New Mexico OCD
Sample ID: 8904271655
IML Sample No: F891610
Analysis Requested: Purgeable Halocarbons
Sample Matrix: Water

Date Sampled: 04/27/89
Date Received: 04/28/89
Date Extracted: N/A
Date Analyzed: 04/28/89

Parameter	Concentration		Units
CHLOROMETHANE	ND	(1.0)	ug/l
BROMOMETHANE	ND	(1.0)	ug/l
DICHLORODIFLUOROMETHANE	ND	(1.0)	ug/l
VINYL CHLORIDE	ND	(1.0)	ug/l
CHLOROETHANE	ND	(1.0)	ug/l
METHYLENE CHLORIDE	ND	(0.1)	ug/l
TRICHLOROFLUOROMETHANE	ND	(1.0)	ug/l
1,1-DICHLOROETHENE	ND	(0.1)	ug/l
1,1-DICHLOROETHANE	ND	(0.1)	ug/l
TRANS-1,2-DICHLOROETHENE	ND	(0.1)	ug/l
CHLOROFORM	0.76	(0.1)	ug/l
1,2-DICHLOROETHANE	ND	(0.1)	ug/l
1,1,1-TRICHLOROETHANE	ND	(0.1)	ug/l
CARBON TETRACHLORIDE	ND	(0.1)	ug/l
BROMODICHLOROMETHANE	ND	(0.1)	ug/l
1,2-DICHLOROPROPANE	ND	(0.1)	ug/l
CIS-1,3-DICHLOROPROPENE	ND	(0.1)	ug/l
TRICHLOROETHENE	ND	(0.1)	ug/l
DIBROMOCHLOROMETHANE	ND	(0.1)	ug/l
1,1,2-TRICHLOROETHANE	ND	(0.1)	ug/l
TRANS-1,3-DICHLOROPROPENE	ND	(0.1)	ug/l
2-CHLOROETHYLVINYL ETHER	ND	(0.1)	ug/l
BROMOFORM	ND	(0.5)	ug/l
1,1,2,2-TETRACHLOROETHANE	ND	(0.1)	ug/l
TETRACHLOROETHENE	ND	(0.1)	ug/l
CHLOROBENZENE	ND	(0.1)	ug/l
1,2-DICHLOROBENZENE	ND	(0.1)	ug/l
1,3-DICHLOROBENZENE	ND	(0.1)	ug/l
1,4-DICHLOROBENZENE	ND	(0.1)	ug/l
CIS-1,2-DICHLOROETHENE	ND	(0.1)	ug/l

Method: 601 Purgeable Halocarbons, 40 CFR Part 136, USEPA (1984).

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

Jack M. Morgan
Senior Organic Chemist

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

859 WNW

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED 05 02 89	LAB NO WC 1343	USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235	
Collection DATE 89 04 27	SITE INFORM-ATION ►	Sample location BLOOM FIELD REFINERY COOLING TOWER	
Collection TIME 1650		Collection site description	
Collected by — Person/Agency BOYER /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

RECEIVED
JUN 27 1989
OIL CONSERVATION DIV.
SANTA FE

Station/ well code

Owner

SAMPLING CONDITIONS

☐ Bailed ☒ Dipped ☐ Pump ☐ Tap	Water level	Discharge	Sample type GRAB
pH (00400) 6.5	Conductivity (Uncorrected) 1900 µmho	Water Temp. (00010) 25 °C	Conductivity at 25°C (00094) µmho

Field comments Sample from valve at recirculation pump main (North) cooling tower

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_2SO_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)	2017	µmho	5/15
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☒ Other: Lab pH	7.00		5/9
☐ Other:			
☐ Other:			

A-H_2SO_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 NF, NA Sample:

			Date Analyzed
☒ Calcium	172	mg/l	5/5
☒ Potassium	11	mg/l	5/4
☒ Magnesium	56.1	mg/l	5/5
☒ Sodium	223	mg/l	5/4
☒ Bicarbonate	56.4	mg/l	5/9
☒ Chloride	105	mg/l	5/
☒ Sulfate	920	mg/l	6/9
☒ Total Solids	1644	mg/l	5-3
☐			
☐			
☒ Cation/Anion Balance			

Analyst	Date Reported	Reviewed by
	6/13/89	

Laboratory remarks

80

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

CATIONS			DET.	ANIONS			DET.
ANALYTE	MEQ.	PPM	LIMIT	ANALYTE	MEQ.	PPM	LIMIT
[redacted]	8.58	172.00	<3.0	HC03	0.92	56.40	<1.0
Mg	4.61	56.10	<0.3	SO4	19.17	920.00	<10.0
Na	9.70	223.00	<10.0	CL	2.96	105.00	<5.0
K	0.28	11.00	<0.3				
Mn	0.00	0.00		NO3	0.00	0.00	< 0.
Fe	0.00	0.00		C03	0.00	0.00	< 1.
				NH3	0.00	0.00	< 0.
				PO4	0.00	0.00	< 0.
SUMS	23.17	462.10			23.05	1081.40	

Total Dissolved Solids= 1644

Ion Balance = 100.52%

WC No. = 8901343

Date out/By CJ 6/20

[redacted]

JUN 27 1989

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	Lab No.	User Code
05/02/89	ICAP 212	☒ 82235 ☐ Other:

COLLECTION DATE & TIME: yy 89 mm 04 dd 27 hh 16 mm 50

COLLECTED BY: BOYER

COLLECTION SITE DESCRIPTION: GARY BLOOMFIELD REF COOLING TOWER

OWNER:

TO:

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

ATTN: DAVID BOYER
TELEPHONE: 827-5812

SITE LOCATION:
County: San Juan

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

STATION/ WELL CODE:

LATITUDE, LONGITUDE:

SAMPLING CONDITIONS:

☐ Bailed ☒ Dipped ☐ Pump ☐ Tap	Water Level:	Discharge:	Sample Type: GRAB
pH(00400): 6.5	Conductivity(Uncorr.): 1900 µmho	Water Temp.(00010): 25 °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

LAB ANALYSIS REQUESTED:

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

ANALYTICAL RESULTS (MG/L)

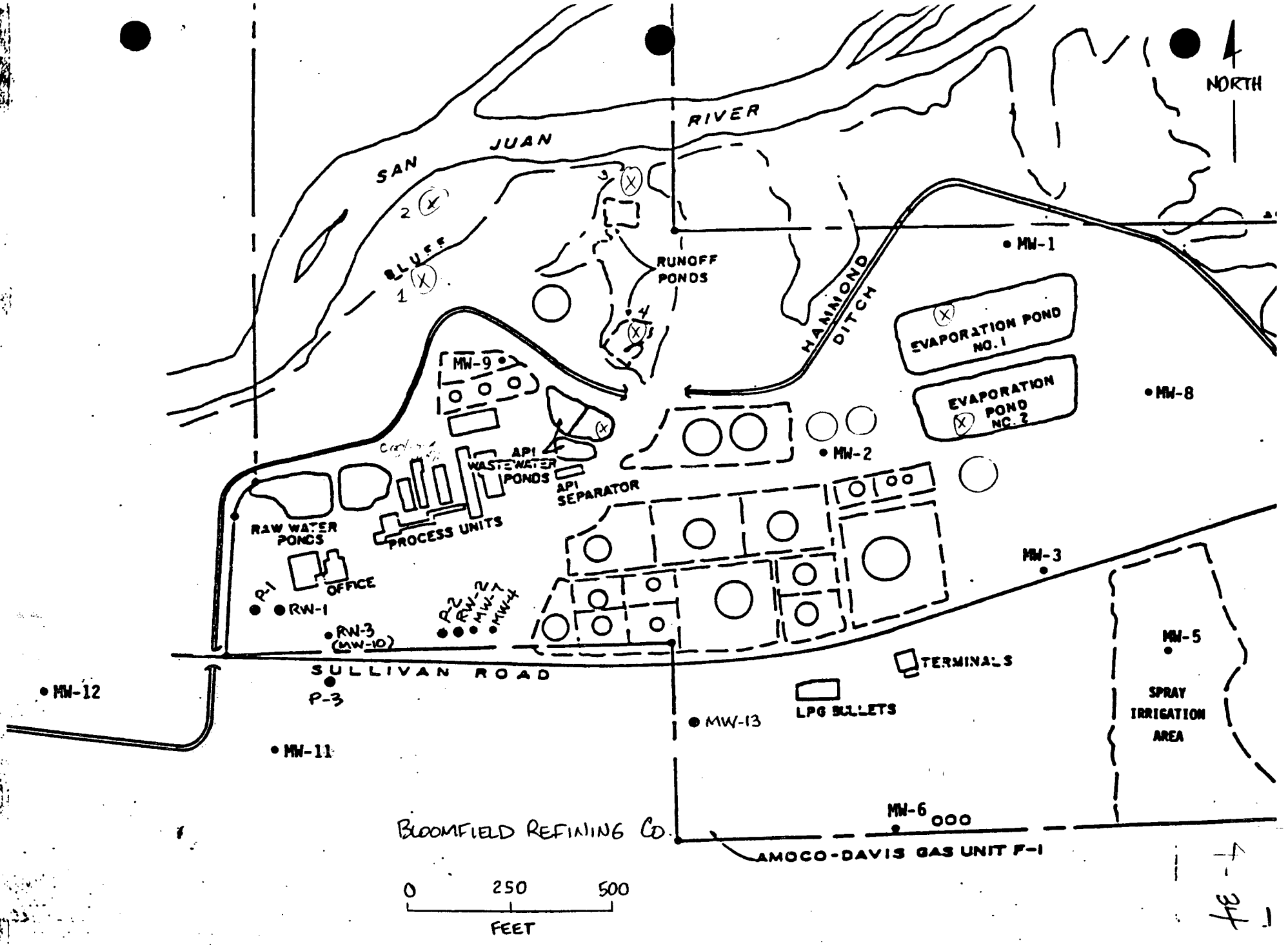
ELEMENT	ICAP VALUE	AA VALUE	ELEMENT	ICAP VALUE	AA VALUE
Aluminum	0.4		Silicon	15.	
Barium	0.2		Silver	<0.1 ☐	
Beryllium	<0.1		Strontium	1.7	
Boron	0.1		Tin	<0.1	
Cadmium	<0.1 ☐		Vanadium	<0.1	
Calcium	170.		Zinc	1.5	
Chromium	<0.1 ☒	<0.025	Arsenic	☒	0.013
Cobalt	<0.05		Selenium	☐	
Copper	<0.1		Mercury	☐	
Iron	3.0			☐	
Lead	<0.1 ☒	<0.005		☐	
Magnesium	32.			☐	
Manganese	0.10			☐	
Molybdenum	<0.1			☐	
Nickel	<0.1			☐	

LAB COMMENTS: Digest

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

ICAP Analyst JAA Reviewer

Date Analyzed 5/10/89 Date Received 8/21/89


NORTH
SAN JUAN RIVER
BLUFF
1
2
3
4
RUNOFF PONDS
HAMMOND DITCH
EVAPORATION POND NO. 1
EVAPORATION POND NO. 2
MW-1
MW-2
MW-3
MW-4
MW-5
MW-6
MW-7
MW-8
MW-9
MW-10
MW-11
MW-12
MW-13
API WASTEWATER PONDS
API SEPARATOR
RAW WATER PONDS
PROCESS UNITS
OFFICE
P-1
P-2
P-3
RW-1
RW-2
RW-3
TERMINALS
LPG BULLETS
SPRAY IRRIGATION AREA
SULLIVAN ROAD
BLOOMFIELD REFINING CO.
AMOCO-DAVIS GAS UNIT F-1
0
250
500
FEET

0066 C
754

SCIENTIFIC LABORATORY DIVISION

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

HEALTH ENVIRONMENT department — STATE 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- 66 A&B
DATE REC. 1-28-88
PRIORITY 3

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

SAMPLE COLLECTION CODE: (YYMMDDHHMMIII) 880126 1455 DGB

SAMPLE TYPE: WATER [X], SOIL [ ], FOOD [ ], OTHER: ______ CODE: ______

COUNTY: San Juan; CITY: Bloomfield CODE: ______

LOCATION CODE: (Township-Range-Section-Tracts) 29N+11W27+144 (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)
- [X] (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: ______

RECEIVED MAR - 7 1988 OIL CONSERVATION DIVISION

FIELD DATA:

pH= ✓; Conductivity= 330 umho/cm at 2 °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.) Broke 6-8" of ice, Hydrocarbon odor, Gary Bloomfield Refinery - Hammond Ditch Approx 100 upstream Sullivan Rd Bridge. Sample from center of ditch several feet down-stream from oil seep.

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities.(signature collector): D G 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.
- [X] P-Ice Sample stored in an ice bath (Not Frozen).
- [ ] P-$Na_2S_2O_3$ Sample Preserved with Sodium Thiosulfate to remove chlorine residual.

CHAIN OF CUSTODY

I certify that this sample was transferred from D. G. BOYER to Mary C. Eden at (location) SLD on 1/28/88 9:45AM and that the statements in this block are correct. Evidentiary Seals: Not Sealed [ ] Seals Intact: Yes [✓] No [ ]

Signatures D G Boyer Mary C. Eden

For OCD Use: Date Owner Notified 9/11/88 Phone or (Letter?) ______ Initials DGB

All constituents

ANALYSES PERFORMED

LAB. No.: OR- 66

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 * ✳	10-49/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: _____

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: 2/5/88 . 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: K Meyerhein

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

85 9 WNM

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED 1/28/88	LAB NO. WC-219	USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235	
Collection DATE 88/01/26	SITE INFORM-ATION ►	Sample location: Gary Bloomfield Refinery-Ditch	
Collection TIME 1455		Collection site description: Hammond ditch approx 100' up from Sullivan Rd at west side refinery	
Collected by — Person/Agency: Boyer/Bailey/OCD		T29N, R11W, 22.144	

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: —	Discharge: —	Sample type: GRAB
pH (00400): —	Conductivity (Uncorrected): 2320 µmho	Water Temp. (00010): 2 °C	Conductivity at 25°C (00094): µmho

Field comments: Probe 6-8" ice in center of ditch opposite oil seep and downstream several feet. Some H'carbon

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_2SO_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 Lab pH	7.79		2/8
☐ Other:			
☐ Other:			

A-H_2SO_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 NF, NA Sample:

			Date Analyzed
☒ Calcium	320	mg/l	2/24
☒ Potassium	11	mg/l	2/22
☒ Magnesium	83	mg/l	2/24
☒ Sodium	589	mg/l	2/22
☒ Bicarbonate	427	mg/l	2/8
☒ Chloride	840	mg/l	2/15
☒ Sulfate	687	mg/l	"
☒ Total Solids	3048	mg/l	2/4
☐			
☐			
☒ Cation/Anion Balance			

Analyst	Date Reported	Reviewed by
	3/3/88	CJ

Laboratory remarks: Dave — sorry missed conductivity on this one

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

CATIONS				ANIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT	ANALYTE	MEQ.	PPM	DET. LIMIT
Ca	15.97	320.00	<3.0	HC03	7.00	427.00	<1.0
Mg	6.82	83.00	<0.3	SO4	14.31	687.00	<10.0
Na	25.62	589.00	<10.0	CL	23.70	840.00	<5.0
K	0.28	11.00	<0.3				
Mn	0.00	0.00		NO3	0.00	0.00	< 0.
Fe	0.00	0.00		C03	0.00	0.00	< 1.
				NH3	0.00	0.00	< 0.
				PO4	0.00	0.00	< 0.
SUMS	48.69	1003.00			45.01	1954.00	

Total Dissolved Solids= 3048

Ion Balance = 108.18%

WC No. = 8800219

Date out/By 4/22

ASSAIGAI ANALYTICAL LABORATORIES

TO: Bloomfield Refinery
Attn: Chris Hawley
P.O. Box 159
Bloomfield NM 87413

DATE: 22 May 1986
0695

SAMPLE DATE: 4/28/86,
HAMMOND DITCH

ANALYTE	SAMPLE ID/ ANALYTICAL RESULTS	
	U4 NEAR API WASTE PONDS	D4 NEAR SULLIVAN ROAD
Phenols	0.003 mg/l	0.002 mg/l
	U6A	D6A
Acrolein	ND	ND
Acrylonitrile	ND	ND
Benzene	ND	ND
Bromoform	ND	ND
Carbon Tetrachloride	ND	ND
Chlorobenzene	ND	ND
Chlorodibromomethane	ND	ND
Chloroethane	ND	ND
2-Chloroethylvinyl Ether	ND	ND
Chloroform	ND	ND
Dichlorogromomethane	ND	ND
1,1-Dichloroethane	ND	ND
1.2-Dichloroethane	ND	ND
1,1-Dichloroethylene	ND	ND
1,2-Dichloropropane	ND	ND
1,2-Dichloropropylene	ND	ND
Ethylbenzene	ND	ND
Methyl Bromide	ND	ND
Methyl Chloride	ND	ND
Methylene Chloride	ND	ND
1,1,2,2-Tetrachloroethane	ND	ND
Tetrachloroethylene	ND	ND
Toluene	ND	ND
1,2-Transdichloroethylene	ND	ND
1,1,1-Trichloroethane	ND	ND
1,1,2-Trichloroethane	ND	ND
Trichloroethylene	ND	ND
Vinly Chloride	ND	ND
Base Neutrals		
Acenapthene	ND	ND
Acenphthylene	ND	ND
Anthracene	ND	ND
Benzidine	ND	ND

TO: Bloomfield Refinery

0695

ANALYTE	SAMPLE ID/ ANALYTICAL RESULTS	
	U6A	D6A
Benzo(a)anthracene	ND	ND
Benzo(a)pyrene	ND	ND
3,4-benzofluoranthene	ND	ND
Benzo(ghi)perylene	ND	ND
Benzo(k)fluoranthene	ND	ND
Bis(2-chloroethoxy)methane	ND	ND
Bis(2-chloroethyl)ether	ND	ND
Bis(2-chloroisopropyl)ether	ND	ND
Bis(2-ethylhexyl)phthalate	ND	ND
4-bromophenyl phenyl ether	ND	ND
Butylbenzyl phthalate	ND	ND
2-chloronaphtalene	ND	ND
4-chlorophenyl phenyl ether	ND	ND
Chrysene	ND	ND
Dibenzo(a,h)anthracene	ND	ND
1,2-Dichlorobenzene	ND	ND
1,3-Dichlorobenzene	ND	ND
1,4-Dichlorobenzene	ND	ND
3,3-Dichlorobenzidine	ND	ND
Diethyl phthalate	ND	ND
Dimethyl phthalate	ND	ND
Din-n-butyl phthalate	ND	ND
2,4-dinitrotoluene	ND	ND
2,6-dinitrotoluene	ND	ND
Di-n-octyl phthalate	ND	ND
1,2-diphenylhydrazine	ND	ND
Fluoranthene	ND	ND
Fluorene	ND	ND
Hexachlorobenzene	ND	ND
Hexachlorobutadiene	ND	ND
Hexachlorocyclopentadiene	ND	ND
Hexachloroethane	ND	ND
Indeno(1,2,3-cd)pyrene	ND	ND
Isophorone	ND	ND
Naphthalene	ND	ND
Nitrobenzene	ND	ND
N-nitrosodimethylamine	ND	ND
N-nitrosodie-n-propylamine	ND	ND
N-nitrosodiphenylamine	ND	ND
Phenanthrene	ND	ND
Pyrene	ND	ND
1,2,4-trichlorobenzene	ND	ND

ND = None Detected

REFERENCE: "Test Methods for Evaluating Solid Waste Chemical/Physical Methods" USEPA SW 846 EMSL-Cincinnati 1982

NOMINAL DETECTION LIMITS

Phenols	0.002 mg/l
Benzene	0.001 mg/l
Toluene	0.001 mg/l

Detection limits for Volatiles, and Base/Neutrals are all 0.001 mg/l.

An invoice for services is enclosed. Thank you for contacting Assaigai Laboratories.

Sincerely,

Jennifer V. Smith, Ph.D.
Laboratory Director

ASSAIGAI ANALYTICAL LABORATORIES

HAMMOND DITCH

TO: Bloomfield Refinery
Attn: Chris Hawley
P.O. Box 159
Bloomfield NM 87413

DATE: 22 May 1986
0660 completed

SAMPLE DATE: 4/22/86

ANALYTE	SAMPLE ID/ ANALYTICAL RESULTS NEAR SULLIVAN ROAD HSRD 5	NEAR API PONDS HAPI 5
CN	<0.01 mg/l	<0.01 mg/l
Phenols	0.002 mg/l	0.002 mg/l
Sb	<0.2 mg/l	<0.2 mg/l
As	<0.050 mg/l	<0.050 mg/l
Be	<0.01 mg/l	<0.01 mg/l
Cd	<0.010 mg/l	<0.010 mg/l
Cr	<0.050 mg/l	<0.050 mg/l
Cu	<0.03 mg/l	<0.03 mg/l
Pb	<0.050 mg/l	<0.050 mg/l
Hg	<0.002 mg/l	<0.002 mg/l
Ni	<0.06 mg/l	<0.06 mg/l
Se	<0.010 mg/l	<0.010 mg/l
Ag	<0.050 mg/l	<0.050 mg/l
Tl	<0.01 mg/l	<0.01 mg/l
Zn	<0.01 mg/l	<0.01 mg/l
Acrolein	ND	ND
Acrylonitrile	ND	ND
Benzene	0.006 mg/l	ND
Bromoform	ND	ND
Carbon Tetrachloride	ND	ND
Chlorobenzene	ND	ND
Chlorodibromomethane	ND	ND
Chloroethane	ND	ND
2-Chloroethylvinyl Ether	ND	ND
Chloroform	ND	ND
Dichlorogromomethane	ND	ND
1,1-Dichloroethane	ND	ND
1.2-Dichloroethane	ND	ND
1,1-Dichloroethylene	ND	ND
1,2-Dichloropropane	ND	ND
1,2-Dichloropropylene	ND	ND
Ethylbenzene	ND	ND

ANALYTE	SAMPLE ID/ ANALYTICAL RESULTS	
	HSRD 5	HAPI 5
Methyl Bromide	ND	ND
Methyl Chloride	ND	ND
Methylene Chloride	ND	ND
1,1,2,2-Tetrachloroethane	ND	ND
Tetrachloroethylene	ND	ND
Toluene	0.003 mg/l	Nd
1,2-Transdichloroethylne	ND	ND
1,1,1-Trichloroethane	ND	ND
1,1,2-Trichloroethane	ND	ND
Trichloroethylene	ND	ND
Vinyl Chloride	ND	ND
Acid Compounds		
2-chlorophenol	ND	ND
2,4-dichlorophenol	ND	ND
2,4-dimethylphenol	ND	ND
4,6-dinitro-o-cresol	ND	ND
2,4-dinitrophenol	ND	ND
2-nitrophenol	ND	ND
4-nitrophenol	ND	ND
p-chloro-m-cresol	ND	ND
pentachlorophenol	ND	ND
Phenol	ND	ND
2,4,6-trichlorophenol	ND	ND
Base Neutrals		
Acenaphthene	ND	ND
Acenaphthylene	ND	ND
Anthracene	0.006 mg/l	ND
Benzidine	ND	ND
Benzo(a)anthracene	0.003 mg/l	ND
Benzo(a)pyrene	ND	ND
3,4-benzofluoranthene	ND	ND
Benzo(ghi)perylene	ND	ND
Benzo(k)fluoranthene	ND	ND
Bis(2-chloroethoxy)methane	ND	ND
Bis(2-chloroethyl)ether	ND	ND
Bis(2-chloroisopropyl)ether	ND	ND
Bis(2-ethylhexyl)phthalate	ND	ND
4-bromophenyl phenyl ether	ND	ND
Butylbenzyl phthalate	ND	ND
2-chloronaphtalene	ND	ND
4-chlorophenyl phenyl ether	ND	ND
Chrysene	0.005 mg/l	ND

TO: Bloomfield Refinery

0660 completed

ANALYTE	SAMPLE ID/ ANALYTICAL RESULTS	
	HSRD 5	HAPI 5
Dibenzo(a,h)anthracene	ND	ND
1,2-Dichlorobenzene	ND	ND
1,3-Dichlorobenzene	ND	ND
1,4-Dichlorobenzene	ND	ND
3,3-Dichlorobenzidine	ND	ND
Diethyl phthalate	ND	ND
Dimethyl phthalate	ND	ND
Din-n-butyl phthalate	ND	ND
2,4-dinitrotoluene	ND	ND
2,6-dinitrotoluene	ND	ND
Di-n-octyl phthalate	ND	ND
1,2-diphenylhydrazine	ND	ND
Fluoranthene	ND	0.001 mg/l
Fluorene	ND	ND
Hexachlorobenzene	ND	ND
Hexachlorobutadiene	ND	ND
Hexachlorocyclopentadiene	ND	ND
Hexachloroethane	ND	ND
Indeno(1,2,3-cd)pyrene	ND	ND
Isophorone	ND	ND
Naphthalene	0.013 mg/l	ND
Nitrobenzene	ND	ND
N-nitrosodimethylamine	ND	ND
N-nitrosodie-n-propylamine	ND	ND
N-nitrosodiphenylamine	ND	ND
Phenanthrene	0.007 mg/l	ND
Pyrene	0.008 mg/l	ND
1,2,4-trichlorobenzene	ND	ND

ND = None Detected

REFERENCE: "Test Methods for Evaluating Solid Waste Chemical/Physical Methods", USEPA, SW 846, EMSL-Cincinnati, 1982.

TO: Bloomfield Refinery

0660 completed

NOMINAL DETECTION LIMITS

CN	0.01 mg/l
Phenols	0.002 mg/l
Benzene	0.001 mg/l
Toluene	0.001 mg/l
Xylenes	0.001 mg/l
Ethylbenzene	0.001 mg/l
Sb	0.2 mg/l
As	0.050 mg/l
Be	0.010 mg/l
Cd	0.010 mg/l
Cr	0.050 mg/l
Cu	0.03 mg/l
Pb	0.050 mg/l
Hg	0.002 mg/l
Ni	0.06 mg/l
Se	0.010 mg/l
Ag	0.050 mg/l
Tl	0.01 mg/l
Zn	0.01 mg/l

Detection limits for Volatiles, Acid Compounds, and Base/Neutrals are all 0.001 mg/l

An invoice for services is enclosed. Thank you for contacting Assaigai Laboratories.

Sincerely,

Jennifer V. Smith, Ph.D.
Laboratory Director

STATE OF ENVIRONMENT

86- 0505-C

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

REPORT TO: DAVID G. BOYER
PLEASE PRINT
NEW MEXICO OIL CONSERVATION DIV.
P.O. BOX 2088
SANTA FE, NM 87504-2088

PHONE(S): 827-5812

S.L.D. No.: OR- 505-HB
DATE REC. : 4/28/86
SLD PRIORITY #:

USER CODE: 8 2 2 3 5

SUBMITTER: DAVID BOYER

SUBMITTER CODE:

SAMPLE TYPE: WATER ☒, SOIL ☐, OTHER

SAMPLE TYPE CODE:

COLLECTED: 4/21/86 - 10:55 BY DB
DATE TIME INITIALS

CODE: 8 6 0 4 2 1 1 0 5 5
Y Y M M D D H H M M I I I

SOURCE: HAMMOND DITCH

CODE: AQUIFER DEPTH

NEAREST CITY: BLOOMFIELD

CODE:

LOCATION: GARY REFINERY

CODE: TOWNSHIP RANGE SECTION TRACTS

pH=_____; Conductivity=_____umho/cm at _____°C; Chlorine Residual=_____

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

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

Start of seasonal flow

I certify that the statements in this block accurately reflect the results of my field analyses, observations and activities. [signature]

Method of shipment to the Laboratory Hand carried

This form accompanies 2 Septum Vials, ___ Glass Jugs, ___ _____

Containers are marked as follows to indicate preservation:

- ☐ NP: No preservation; sample stored at room temperature.
- ☑ P-Ice Sample stored in an ice bath (not frozen).
- ☐ P-$Na_2S_2O_3$; Sample preserved with $Na_2S_2O_3$ to remove chlorine residual.

I (we) certify that this sample was transferred from [signature] to T.F. at (location) SLD on

__/__/__ - __:__ and that the statements in this block are correct.
DATE AND TIME

Evidentiary Seals: Not Sealed ☐ Seals Intact: Yes ☒ No ☐

Signatures [signature] [signature]

(we) certify that this sample was transferred from _____

to _____ at (location) _____ on

__/__/__ - __:__ and that the statements in this block are correct.
DATE AND TIME

Evidentiary Seals: Not Sealed ☐ Seals Intact: Yes ☐ No ☐

Signatures _____ _____

ANALYSES REQUESTED

LAB. No.: ORG- 505

PLEASE CHECK THE APPROPRIATE BOXES BELOW TO INDICATE THE TYPE OF ANALYTICAL SCREENS REQUIRED. WHENEVER POSSIBLE LIST SPECIFIC COMPOUNDS SUSPECTED OR REQUIRED.

QUALITATIVE	QUANTITATIVE	PURGEABLE SCREENS	QUALITATIVE	QUANTITATIVE	EXTRACTABLE SCREENS
		ALIPHATIC HYDROCARBON SCREEN			ALIPHATIC HYDROCARBONS
X	X	AROMATIC HYDROCARBON SCREEN			CHLORINATED HYDROCARBON PESTICIDES
X	X	HALOGENATED HYDROCARBON SCREEN			CHLOROPHENOXY ACID HERBICIDES
		GAS CHROMATOGRAPH/MASS SPECTROMETER			HYDROCARBON FUEL SCREEN
					ORGANOPHOSPHATE PESTICIDES
					POLYCHLORINATED BIPHENYLS (PCB's)
					POLYNUCLEAR AROMATIC HYDROCARBONS
					TRIAZINE HERBICIDES
		SPECIFIC COMPOUNDS			SPECIFIC COMPOUNDS

REMARKS:

ANALYTICAL RESULTS

COMPOUND	[PPB]	COMPOUND	[PPB]
aromatic hydrocarbons *	none detected	halogenated hydrocarbons * chloroform	none detected 2
		* DETECTION LIMIT	1

REMARKS:

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ✓ NO ___. Seal(s) broken by: Mary C. Eden date: 5/02/86

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: 5/02/86. 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: L Meyerhoff

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

2
859

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED 4 | 28 | 86 LAB NO. WC-1796
USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235
Collection DATE 4 | 21 | 86
Collection TIME 1055
Collected by — Person/Agency BAILEY /OCD
SITE INFORMATION ►
Sample location HAMMOND DITCH
Collection site description FULL FLOW
N. of BRIDGE AT SULLIVAN RD Bloomfield

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 ☐ Pump ☒ Dipped ☐ Tap	Water level	Discharge	Sample type Grab
pH (00400)	Conductivity (Uncorrected) 410 µmho	Water Temp. (00010) 18.5 °C	Conductivity at 25°C (00094) µmho

Field comments Season Start Inflow in Hammond Ditch

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_2SO_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
☒ Conductivity (Corrected) 25°C (00095)	443.0	µmho	5/10
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☐ Other:			
☒ Other: Lab pH	8.05		5/1
☐ Other:			

F, NA		Units	Date analyzed
☒ Calcium (00915)	45.6	mg/l	5/21
☒ Magnesium (00925)	3.9	mg/l	"
☒ Sodium (00930)	43.7	mg/l	5-6
☒ Potassium (00935)	0.39	mg/l	5-6
☒ Bicarbonate (00440)	11.3	mg/l	5/1
☒ Chloride (00940)	45.1	mg/l	5/7
☒ Sulfate (00945)	100	mg/l	5/6/86
☒ Total filterable residue (dissolved) (70300)	345	mg/l	5/5
☒ Other: CO_3	0		5/1

NF, A-H_2SO_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:			

F, A-H_2SO_4			
☐ Nitrate-N + , Nitrate-N dissolved (00631)		mg/l	
☐ Ammonia-N dissolved (00608)		mg/l	
☐ Total Kjeldahl-N ( )		mg/l	
☐ Other:			

Analyst | Date Reported 5 | 23 | 86 | Reviewed by

Laboratory remarks Received 4/25/86 4:38 pm

SLD 726 (12/84)

1 PPN

HEAVY METALS

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 28 86	LAB NO. HM-842	USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235	
Collection DATE 4 21 86	SITE INFORMATION ►	Sample location HAMMOND DITCH	
Collection TIME 1055		Collection site description FULL FLOW N. OF BRIDGE AT SULLIVAN RD	
Collected by — Person/Agency 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

MAY 0 1986
OIL CONSERVATION DIVISION
SANTA FE

Station/ well code

Owner

SAMPLING CONDITIONS

☐ Bailed ☐ Pump ☒ Dipped ☐ Tap	Water level	Discharge	Sample type Grab
pH (00400)	Conductivity (Uncorrected) 410 µmho	Water Temp. (00010) 18.5 °C	Conductivity at 25°C (00094) µmho

Field comments Start of seasonal flow in ditch

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_2SO_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
☐ ~~Conductivity (Corrected) 25°C (00095)~~	µmho	
☐ Total non-filterable residue (suspended) (00530)	mg/l	
☐ Other: ICAP SCAN		
☐ Other:		
☐ Other:		

F, NA	Units	Date analyzed
☐ Calcium (00915)	mg/l	
☐ Magnesium (00925)	mg/l	
☐ Sodium (00930)	mg/l	
☐ Potassium (00935)	mg/l	
☐ Bicarbonate (00440)	mg/l	
☐ Chloride (00940)	mg/l	
☐ Sulfate (00945)	mg/l	
☐ Total filterable residue (dissolved) (70300)	mg/l	
☐ Other:		

NF, A-H_2SO_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:		

F, A-H_2SO_4		
☐ Nitrate-N +, Nitrate-N dissolved (00631)	mg/l	
☐ Ammonia-N dissolved (00608)	mg/l	
☐ Total Kjeldahl-N ( )	mg/l	
☐ Other:		

Analyst	Date Reported	Reviewed by
	5 2 86	JTA Jim Bobby

Laboratory remarks Seals intact Jeanne Barrera 4/25/86
Seal broken by JTA. 4/28/86

SLD 726 (12/84)

Lab Number: #M842 Sample Code: Hammond Ditch

Date Submitted: 4/28/86 Date Analyzed: 4/28/86

By: Boyer Bailey Reviewed By: Jim Ashley

Date Reported: 5/2/86

Element	ICAP VALUE(MG/L)	AA VALUE(MG/L)
Aluminum	<0.1	
Barium	<0.1	
Berylium	<0.1	
Boron	<0.1	
Cadmium	<0.1	
Calcium	47.	
Chromium	<0.1	
Cobalt	<0.1	
Copper	<0.1	
Iron	<0.1	
Lead	<0.1	
Magnesium	10.	
Manganese	0.11	
Molybdenum	<0.1	
Nickel	<0.1	
Silicon	3.1	
Silver	<0.1	
Strontium	0.6	
Tin	<0.1	
Vanadium	<0.1	
Zinc	<0.1	
Arsenic		
Selenium		
Mercury		

STATE OF NEW MEXICO
ENVIRONMENT

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

86-0480-C

REPORT TO: DAVID G. BOYER
PLEASE PRINT
NEW MEXICO OIL CONSERVATION DIV.
P.O. BOX 2088
SANTA FE, NM 87504-2088
PHONE(S): 827-5812

S.L.D. No.: OR-480-H.B
DATE REC. : 4/28/86
SLD PRIORITY #:

USER CODE: 8|2|2|3|5

SUBMITTER: DAVID BOYER
SUBMITTER CODE:

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

COLLECTED: 4/21/86 - 09:30 BY DB
DATE TIME INITIALS
CODE: 8|6|0|4|2|1|0|9|3|0|<PS>
Y Y M M D D H H M M I I I

SOURCE: WEST HAMMOND DITCH
CODE: AQUIFER DEPTH

NEAREST CITY: BLOOMFIELD
CODE:

LOCATION: LOVATO STORE CR Rd 5500
CODE: TOWNSHIP RANGE SECTION TRACTS

pH=_____; Conductivity=_____umho/cm at _____°C; Chlorine Residual=_____
Dissolved Oxygen=_____mg/l; Alkalinity=_____; Flow Rate=_____
Sampling Location, Methods and Remarks (i.e. odors, etc.)

DITCH LEAKY WATER HAD NOT ARRIVED YET

I certify that the statements in this block accurately reflect the results of my field analyses, observations and activities. Jamie Bailey David Boyer
Method of shipment to the Laboratory Hand carried
This form accompanies 2 Septum Vials, ___ Glass Jugs, ___
Containers are marked as follows to indicate preservation:
☐ NP: No preservation; sample stored at room temperature.
☒ P-Ice Sample stored in an ice bath (not frozen).
☐ P-$Na_2S_2O_3$; Sample preserved with $Na_2S_2O_3$ to remove chlorine residual.

I (we) certify that this sample was transferred from David Boyer OCD
to J.F. at (location) SLD on
__/__/__ - __:__ and that the statements in this block are correct.
DATE AND TIME
Evidentiary Seals: Not Sealed ☐ Seals Intact: Yes ☒ No ☐
Signatures J.F. Tinney David Boyer

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

ANALYSES REQUESTED

LAB. No.: ORG- 480

PLEASE CHECK THE APPROPRIATE BOXES BELOW TO INDICATE THE TYPE OF ANALYTICAL SCREENS REQUIRED. WHENEVER POSSIBLE LIST SPECIFIC COMPOUNDS SUSPECTED OR REQUIRED.

QUALITATIVE	QUANTITATIVE	PURGEABLE SCREENS	QUALITATIVE	QUANTITATIVE	EXTRACTABLE SCREENS
		ALIPHATIC HYDROCARBON SCREEN			ALIPHATIC HYDROCARBONS
X	X	AROMATIC HYDROCARBON SCREEN			CHLORINATED HYDROCARBON PESTICIDES
X	X	HALOGENATED HYDROCARBON SCREEN			CHLOROPHENOXY ACID HERBICIDES
		GAS CHROMATOGRAPH/MASS SPECTROMETER			HYDROCARBON FUEL SCREEN
					ORGANOPHOSPHATE PESTICIDES
					POLYCHLORINATED BIPHENYLS (PCB's)
					POLYNUCLEAR AROMATIC HYDROCARBONS
					TRIAZINE HERBICIDES
		SPECIFIC COMPOUNDS			SPECIFIC COMPOUNDS

REMARKS: 40ml Vial

ANALYTICAL RESULTS

COMPOUND	[PPB]	COMPOUND	[PPB]
Aromatic Purgeables	None Detected *		
Halogenated Purgeables	None Detected *		
		* DETECTION LIMIT	1ug/l

REMARKS:

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ✓ NO ___. Seal(s) broken by: K Meyerhen date: 4/30/86

I certify that I followed standard laboratory procedures of 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: 4/30/86. Analyst's signature: K Meyerhen

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 Meyerhen

ENVIRONMENT

STATE OF NEW MEXICO

SCIENTIFIC LABORATORY DIVISION

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

86- 0504-C

REPORT TO: DAVID G. BOYER
PLEASE PRINT
NEW MEXICO OIL CONSERVATION DIV.
P.O. BOX 2088
SANTA FE, NM 87504-2088

S.L.D. No.: OR- 504-AB
DATE REC.: 4/28/86
SLD PRIORITY #: ______

PHONE(S): 827-5812 USER CODE: 8 2 2 3 5

SUBMITTER: DAVID BOYER SUBMITTER CODE: ______

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

COLLECTED: 4/21/86 - 09:00 (DATE, TIME) BY DB (INITIALS) CODE: 8 6 0 4 2 1 0 9 0 0 D B (Y Y M M D D H H M M I I)

SOURCE: HAMMOND DITCH CODE: ______ (AQUIFER, DEPTH)

NEAREST CITY: BLOOMFIELD CODE: ______

LOCATION: GARY ENERGY CODE: ______ (TOWNSHIP, RANGE, SECTION, TRACTS)

pH=______; Conductivity=______umho/cm at ______ °C; Chlorine Residual=______

Dissolved Oxygen=______mg/l; Alkalinity=______; Flow Rate=______

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

ABOVE REFINERY
PRIOR TO FULL DITCH OPENING

I certify that the statements in this block accurately reflect the results of my field analyses, observations and activities. [signature]

Method of shipment to the Laboratory Hand carried

This form accompanies 2 Septum Vials, ___ Glass Jugs, ___ ______

Containers are marked as follows to indicate preservation:

☐ NP: No preservation; sample stored at room temperature.

☒ P-Ice Sample stored in an ice bath (not frozen).

☐ P-$Na_2S_2O_3$: Sample preserved with $Na_2S_2O_3$ to remove chlorine residual.

I (we) certify that this sample was transferred from David Boyer OCD
to J.F. at (location) SLD on
__/__/__ - __:__ (DATE AND TIME) and that the statements in this block are correct.
Evidentiary Seals: Not Sealed ☐ Seals Intact: Yes ☒ No ☐
Signatures [signature] [signature: David Boyer]

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

ANALYSES REQUESTED

LAB. No.: ORG- 504

PLEASE CHECK THE APPROPRIATE BOXES BELOW TO INDICATE THE TYPE OF ANALYTICAL SCREENS REQUIRED. WHENEVER POSSIBLE LIST SPECIFIC COMPOUNDS SUSPECTED OR REQUIRED.

QUALITATIVE	QUANTITATIVE	PURGEABLE SCREENS	QUALITATIVE	QUANTITATIVE	EXTRACTABLE SCREENS
		ALIPHATIC HYDROCARBON SCREEN			ALIPHATIC HYDROCARBONS
X	X	AROMATIC HYDROCARBON SCREEN			CHLORINATED HYDROCARBON PESTICIDES
X	X	HALOGENATED HYDROCARBON SCREEN			CHLOROPHENOXY ACID HERBICIDES
		GAS CHROMATOGRAPH/MASS SPECTROMETER			HYDROCARBON FUEL SCREEN
					ORGANOPHOSPHATE PESTICIDES
					POLYCHLORINATED BIPHENYLS (PCB's)
					POLYNUCLEAR AROMATIC HYDROCARBONS
					TRIAZINE HERBICIDES
		SPECIFIC COMPOUNDS			SPECIFIC COMPOUNDS

REMARKS:

ANALYTICAL RESULTS

COMPOUND	[PPB]	COMPOUND	[PPB]
aromatic hydrocarbons**	none detected	halogenated hydrocarbons	*
		chloroform	2
		** Detection Limit	10
		* DETECTION LIMIT	1

REMARKS:

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ✓ NO ___. Seal(s) broken by: Mary C. Eden date: 5/02/86

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: 5/02/86. 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: R Meyerhoff

STATE OF NEW MEXICO
ENVIRONMENT

SCIENTIFIC LABORATORY DIVISION

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

86-0501-C

REPORT TO: DAVID G. BOYER
PLEASE PRINT
NEW MEXICO OIL CONSERVATION DIV.
P.O. BOX 2088
SANTA FE, NM 87504-2088
PHONE(S): 827-5812

S.L.D. No.: OR-501-H.B
DATE REC. : 4/28/86
SLD PRIORITY #:

USER CODE: 8|2|2|3|5|

SUBMITTER: DAVID BOYER
SUBMITTER CODE: | | | | |

SAMPLE TYPE: WATER [X], SOIL [ ], OTHER _____
SAMPLE TYPE CODE: | | |

COLLECTED: 4/21/86 (DATE) - 08:45 (TIME) BY RA (INITIALS)
CODE: |8|6|0|4|2|1|0|8|4|5|R|A| (Y Y M M D D H H M M I I I)

SOURCE: HAMMOND DITCH
CODE: | | | + | | | + | | | | | (AQUIFER + DEPTH)

NEAREST CITY: BLOOMFIELD
CODE: | | | | | |

LOCATION: GARY ENERGY
CODE: | | | | | | | | | | | (TOWNSHIP RANGE SECTION TRACTS)

pH=_____; Conductivity=_____umho/cm at _____°C; Chlorine Residual=_____
Dissolved Oxygen=_____mg/l; Alkalinity=_____; Flow Rate=_____
Sampling Location, Methods and Remarks (i.e. odors, etc.)

FLOWING - Start of flow

I certify that the statements in this block accurately reflect the results of my field analyses, observations and activities. Joni Bailey, David Boyer
Method of shipment to the Laboratory Hand carried
This form accompanies 2 Septum Vials, ___ Glass Jugs, ___ _____
Containers are marked as follows to indicate preservation:

- [ ] NP: No preservation; sample stored at room temperature.
- [X] P-Ice Sample stored in an ice bath (not frozen).
- [ ] P-$Na_2S_2O_3$; Sample preserved with $Na_2S_2O_3$ to remove chlorine residual.

I (we) certify that this sample was transferred from David Boyer OCD
to J.F. at (location) SLD on
__/__/__ - __:__ (DATE AND TIME) and that the statements in this block are correct.
Evidentiary Seals: Not Sealed [ ] Seals Intact: Yes [X] No [ ]
Signatures J.F. Tinney David G. Boyer

(we) certify that this sample was transferred from _____
to _____ at (location) _____ on
__/__/__ - __:__ (DATE AND TIME) and that the statements in this block are correct.
Evidentiary Seals: Not Sealed [ ] Seals Intact: Yes [ ] No [ ]
Signatures _____ _____

ANALYSES REQUESTED

LAB. No.: ORG- 501

PLEASE CHECK THE APPROPRIATE BOXES BELOW TO INDICATE THE TYPE OF ANALYTICAL SCREENS REQUIRED. WHENEVER POSSIBLE LIST SPECIFIC COMPOUNDS SUSPECTED OR REQUIRED.

QUALITATIVE	QUANTITATIVE	PURGEABLE SCREENS	QUALITATIVE	QUANTITATIVE	EXTRACTABLE SCREENS
		ALIPHATIC HYDROCARBON SCREEN			ALIPHATIC HYDROCARBONS
X	X	AROMATIC HYDROCARBON SCREEN			CHLORINATED HYDROCARBON PESTICIDES
X	X	HALOGENATED HYDROCARBON SCREEN			CHLOROPHENOXY ACID HERBICIDES
		GAS CHROMATOGRAPH/MASS SPECTROMETER			HYDROCARBON FUEL SCREEN
					ORGANOPHOSPHATE PESTICIDES
					POLYCHLORINATED BIPHENYLS (PCB's)
					POLYNUCLEAR AROMATIC HYDROCARBONS
					TRIAZINE HERBICIDES
		SPECIFIC COMPOUNDS			SPECIFIC COMPOUNDS

REMARKS:

ANALYTICAL RESULTS

COMPOUND	[PPB]	COMPOUND	[PPB]
aromatic hydrocarbons *	none detected	halogenated hydrocarbons *	
		chloroform	1
		* DETECTION LIMIT	1

REMARKS:

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ✓ NO ___. Seal(s) broken by: Mary C. Eden date: 5/01/86

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: 5/01/86. 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 Meyerhoefer

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud NE, Albuquerque, New Mexico 87106

(505) 841-2500

85 651 -C

REPORT TO: DAVID G. BOYER

NEW MEXICO OIL CONSERVATION DIV.

P.O. BOX 2088

SANTA FE, NM 87501

S.L.D. No.: OR- 651-H,B

DATE REC. : 7/03/85

PHONE 827-5812

USER CODE: 8 2 2 3 5

CONTAINERS WHICH ACCOMPANY THIS FORM ARE COLLECTIVELY REFERED TO AS SAMPLE.

SUBMITTER: NM OCD CODE

LOCATION: Bloomfield Refinery CODE (TOWNSHIP RANGE SECTION TRACTS)

SOURCE: Hammond Ditch opposite Gloria CODE (AQUIFER DEPTH)

COLLECTED: 6/26/85 BY Boyer/Bailey CODE 8 5 0 6 2 6 1 5 3 0 A M (Y Y M M D D H H M M I Q)

SAMPLE TYPE: (WATER) SOIL OTHER CODE

NEAREST CITY: Bloomfield CODE

pH= 8.3 ; Conductivity= 1102 umho/cm at 14 °C; Chlorine Risidual=_____

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

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

Grab Sample from ditch - No odor or sheen ~~the~~ seen in ditch

I certify that the statements in this block accurately reflect the results of my field analyses, observations and activities. David G Boyer

Method of shipment to the Laboratory Hand carried

This form accompanies 2 Septum Vials, ___Glass Jugs, ___ _____

Containers are marked as follows to indicate preservation (circle):

NP: No preservation; sample stored at room temperature.

(P-Ice) Sample stored in an ice bath (not frozen).

P-$Na_2S_2O_3$: Sample preserved with $Na_2S_2O_3$ to remove chlorine residual.

I (we) certify that this sample was transferred from _____ to _____ at (location) _____ on (date & time) _____ and that the statements in this block are correct

Evidentiary Seals: Not Sealed Intact: Yes No

Signatures _____ _____

(we) certify that this sample was transferred from _____ to _____ at (location) _____ on (date & time) _____ and that the statements in this block are correct

Evidentiary Seals: Not Sealed Intact: Yes No

Signatures _____ _____

ANALYSES REQUESTED

LAB. No.: ORG- 651

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
		ALIPHATIC HYDROCARBON SCREEN
X	X	AROMATIC HYDROCARBON SCREEN
X	X	HALOGENATED HYDROCARBON SCREEN
		GAS CHROMATOGRAPH/MASS SPECTROMETER
		SPECIFIC COMPOUNDS

QUALITATIVE	QUANTITATIVE	EXTRACTABLE SCREENS
		ALIPHATIC HYDROCARBONS
		CHLORINATED HYDROCARBON PESTICIDES
		CHLOROPHENOXY ACID HERBICIDES
		HYDROCARBON FUEL SCREEN
		ORGANOPHOSPHATE PESTICIDES
		POLYCHLORINATED BIPHENYLS (PCB's)
		POLYNUCLEAR AROMATIC HYDROCARBONS
		TRIAZINE HERBICIDES
		SPECIFIC COMPOUNDS

REMARKS:

ANALYTICAL RESULTS

COMPOUND	[PPB]	COMPOUND	[PPB]
halogenated purge	none detected		
Benzene	N.D.		
ethylbenzene	N.D.		
Toluene	N.D.		
p-xylene	N.D.		
m-xylene	N.D.		
o-xylene	N.D.		
		* DETECTION LIMIT	1 ng/g

REMARKS: Two unsaturated hydrocarbons also detected at < 5 ppb.

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ___ NO X. Seal(s) broken by: ___ date: ___

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

Date(s) of analysis: 9 July. 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 07 05 85	LAB NO. WC-3393	USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235	
Collection DATE 06 26	SITE INFORMATION ►	Sample location HAMMOND DITCH OPPOSITE FLARE	
Collection TIME 1530		Collection site description BLOOMFIELD REFINERY	
Collected by — Person/Agency BOYER			

SEND FINAL REPORT TO ►

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87501

Attn: David Boyer

RECEIVED
SEP 06 1985
OIL CONSERVATION DIVISION
SANTA FE

Station/ well code

Owner

SAMPLING CONDITIONS

☐ Bailed ☐ Pump ☒ Dipped ☐ Tap	Water level	Discharge	Sample type
pH (00400) 8.3, 8.0	Conductivity (Uncorrected) 1100 µmho	Water Temp. (00010) 14.0 °C	Conductivity at 25°C (00094) µmho

Field comments IRRIGATION DITCH

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_2SO_4/L added

☒ **NA:** No acid added ☐ Other-*specify:*

ANALYTICAL RESULTS from SAMPLES

NF, NA		Units	Date analyzed
☐ Conductivity (Corrected) 25°C (00095)		µmho	
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☐ Other:			
☐ Other:			
☐ Other:			

F, NA		Units	Date analyzed
☒ Calcium (00915)	16.0	mg/l	8/26
☒ Magnesium (00925)	2.44	mg/l	" "
☒ Sodium (00930)	138	mg/l	8/13
☒ Potassium (00935)	39	mg/l	8/13
☒ Bicarbonate (00440)	96.9	mg/l	8/27
☒ Chloride (00940)	5.2	mg/l	8/27
☒ Sulfate (00945)	52.5	mg/l	8/14
☒ Total filterable residue (dissolved) (70300)	176	mg/l	8/27
☒ Other: F	0.17		7/31
☒ CO_3	None		

NF, A-H_2SO_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:			

F, A-H_2SO_4			
☐ Nitrate-N +, Nitrate-N dissolved (00631)		mg/l	
☐ Ammonia-N dissolved (00608)		mg/l	
☐ Total Kjeldahl-N ( )		mg/l	
☐ Other:			

Analyst	Date Reported	Reviewed by
	8 27 85	

Laboratory remarks

SLD 726 (12/84) *DISTRIBUTION:* **WHITE** — EID, GW&HW Bureau **CANARY** — WS System **PINK** — EID Local Office **GOLDENROD** — SLD

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

GENERAL WATER CHEMISTRY
NITROGEN ANALYSIS

DATE RECEIVED: 7/05/85	LAB NO. WC-3390	USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235	
Collection DATE: 85/06/26	SITE INFORMATION ►	Sample location: HAMMOND DITCH OPPOSITE FLARE	
Collection TIME: 1430		Collection site description: BLOOMFIELD REFINERY	
Collected by — Person/Agency: BOYER			

SEND FINAL REPORT TO ►

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87501

Attn: David Boyer

Station/ well code

Owner

SAMPLING CONDITIONS

☐ Bailed ☒ Dipped ☐ Pump ☐ Tap	Water level	Discharge	Sample type
pH (00400): 8.3, 8.0	Conductivity (Uncorrected): 1100 µmho	Water Temp. (00010): 14.0 °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 µmembrane filter ☒ **A:** 2 ml H_2SO_4/L added

☐ **A:** No acid added ☐ Other-*specify:*

ANALYTICAL RESULTS from SAMPLES

NF, NA		Units	Date analyzed
☐ Conductivity (Corrected) 25°C (00095)		µmho	
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☐ Other:			
☐ Other:			
☐ Other:			

F, NA		Units	Date analyzed
☐ Calcium (00915)		mg/l	
☐ Magnesium (00925)		mg/l	
☐ Sodium (00930)		mg/l	
☐ Potassium (00935)		mg/l	
☐ Bicarbonate (00440)		mg/l	
☐ Chloride (00940)		mg/l	
☐ Sulfate (00945)		mg/l	
☐ Total filterable residue (dissolved) (70300)		mg/l	
☐ Other:			

NF, A-H_2SO_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:			

F, A-H_2SO_4			
☒ Nitrate-N +, Nitrate-N dissolved (00631)	<0.04	mg/l	8/15
☒ Ammonia-N dissolved (00608)	<0.1	mg/l	8/7
☒ Total Kjeldahl-N ( )	<0.1	mg/l	8/21
☐ Other:			

Analyst	Date Reported	Reviewed by
	8/27/85	[signature]

Laboratory remarks

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

pf

HEAVY METALS

~~GENERAL WATER CHEMISTRY~~ and NITROGEN ANALYSIS

DATE RECEIVED 07 05 85	LAB NO. HM-1244	USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235	
Collection DATE 85 06 26	SITE INFORM-ATION ►	Sample location HAMMOND DITCH OPPOSITE FLARE	
Collection TIME 1530		Collection site description BLOOMFIELD REFINERY	
Collected by — Person/Agency BOYER			

SEND FINAL REPORT TO ►

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87501

Attn: David Boyer

Station/ well code

Owner

SAMPLING CONDITIONS

☐ Bailed ☒ Dipped ☐ Pump ☐ Tap	Water level	Discharge	Sample type
pH (00400) 8.3, 8.0	Conductivity (Uncorrected) 1100 µmho	Water Temp. (00010) 14.0 °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 µmembrane filter	☒ A: 5 ml ~~H_2SO_4~~/L added HNO_3

☐ NA: No acid added ☐ Other-*specify:*

ANALYTICAL RESULTS from SAMPLES

~~NF, NA~~ F, HNO_3	Units	Date analyzed	F, NA	Units	Date analyzed
☐ Conductivity (Corrected) 25°C (00095)	µmho		☐ Calcium (00915)	mg/l	
☐ Total non-filterable residue (suspended) (00530)	mg/l		☐ Magnesium (00925)	mg/l	
☒ Other: ICAP SCAN			☐ Sodium (00930)	mg/l	
☒ Other: As 20,005			☐ Potassium (00935)	mg/l	
☒ Other: Cr			☐ Bicarbonate (00440)	mg/l	
			☐ Chloride (00940)	mg/l	
			☐ Sulfate (00945)	mg/l	
			☐ Total filterable residue (dissolved) (70300)	mg/l	
			☐ Other:		

NF, A-H_2SO_4	Units	Date analyzed	F, A-H_2SO_4	Units	Date analyzed
☐ Nitrate-N +, Nitrate-N total (00630)	mg/l		☐ Nitrate-N +, Nitrate-N dissolved (00631)	mg/l	
☐ Ammonia-N total (00610)	mg/l		☐ Ammonia-N dissolved (00608)	mg/l	
☐ Total Kjeldahl-N ( )	mg/l		☐ Total Kjeldahl-N ( )	mg/l	
☐ Chemical oxygen demand (00340)	mg/l		☐ Other:		
☐ Total organic carbon ( )	mg/l				
☐ Other:					
☐ Other:					

Analyst	Date Reported	Reviewed by
	8 26 85	Jim Ashley

Laboratory remarks

ICAP -SCREEN

Lab Number: HM 1244

Date Submitted: 7/5/85

By: Boyer/Baca

Sample Code: Hammond Ditch

Date Reported: 8/26/85

By: Jim Ashley

Date Analyzed: 8/21/85

Determination	Concentration (µg/ml)
Aluminum	<0.1
Barium	<0.1
Beryllium	<0.1
Boron	<0.1
Cadmium	<0.1
Calcium	29.
Chromium	<0.1
Cobalt	<0.1
Copper	<0.1
Iron	<0.1
Lead	<0.1
Magnesium	6.7
Manganese	<0.05
Molybdenum	<0.1
Nickel	<0.1
Silicon	4.8
Silver	<0.1
Strontium	0.3
Tin	<0.1
Vanadium	<0.1
Yttrium	<0.1
Zinc	<0.1

ATOMIC ABSORPTION ANALYSES

Determination	Concentration (µg/ml)
Arsenic	<0.005
Selenium	
Mercury	

REPORT TO: David G. Boy[redacted]
New Mexico Oil Conservation Division
P. O. Box 2088
Santa Fe, NM 87501

85-0269-C

LAB[redacted]TORY ORG 269 AYB

LAB NUMBER 3-22-85

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. Hammond Ditch @ API, Bloomfield Ref-

City & County Bloomfield, San Juan

Collected (date & time) 1050, 3/21/85 By (name) Boyd / Baca

pH= — ; Conductivity= 3450 umho/cm at 15 °C; Chlorine Residual= —

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

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

Sample from Hammond ditch at pumphouse intake opposite API. H/C odor of sample

I certify that the statements in this block accurately reflect the results of my field analyses, observations and activities. Signed Harold E Boyd

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-$Na_2O_3S_2$: Sample preserved with 3 mg $Na_2O_3S_2$/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- 269

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
		ALIPHATIC HYDROCARBON SCREEN
X	X	AROMATIC HYDROCARBON SCREEN
		HALOGENATED HYDROCARBON SCREEN
		GAS CHROMATOGRAPH/MASS SPECTROMETER
		SPECIFIC COMPOUNDS
		Benzene etc.

QUALITATIVE	QUANTITATIVE	EXTRACTABLE SCREENS
		ALIPHATIC HYDROCARBONS
		CHLORINATED HYDROCARBON PESTICIDES
		CHLOROPHENOXY ACID HERBICIDES
		HYDROCARBON FUEL SCREEN
		ORGANOPHOSPHATE PESTICIDES
		POLYCHLORINATED BIPHENYLS (PCB's)
		POLYNUCLEAR AROMATIC HYDROCARBONS
		TRIAZINE HERBICIDES
		SPECIFIC COMPOUNDS

REMARKS:

ANALYTICAL RESULTS

COMPOUND	[PPB]	COMPOUND	[PPB]
1,2-dichloroethane	3 ppb		
ethyl-benzene	7		
p-xylene	3		
m-xylene	2		
Benzene	none detected*		
Toluene	N.D.*		
o-xylene	N.D.*		
		* DETECTION LIMIT	1 ug/l

REMARKS: Twenty other peaks detected on PID; but they were not identified.

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes___ NO X. Seal(s) broken by:_____ date:_____

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

Date(s) of analysis: 26 Mar 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) [redacted]555

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED 3 22 85	LAB NO. WC-1219	USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235	
Collection DATE 3 21 85	SITE INFORM-ATION ►	Sample location Bloomfield Ref- Hammond Ditch @ API	
Collection TIME 1050		Collection site description Ditch opposite API separator, sample taken beside pump back intake	
Collected by — Person/Agency Boyer/OCD			

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 Bloomfield Ref.

SAMPLING CONDITIONS

☐ Bailed ☐ Pump ☒ Dipped ☐ Tap	Water level —	Discharge —	Sample type Grab
pH (00400) —	Conductivity (Uncorrected) 3450 µmho	Water Temp. (00010) 15 °C	Conductivity at 25°C (00094) — µmho

Field comments Ditch blocked for several hundred yards either side of API separator area

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_2SO_4/L added

☒ NA: No acid added ☐ Other-*specify:*

ANALYTICAL RESULTS from SAMPLES

NF, NA		Units	Date analyzed
☒ Conductivity (Corrected) 25°C (00095)	3699	µmho	5/9
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☒ Other: pH	5.58		5/3
☐ Other:			
☐ Other:			

NF, ~~NA~~ NA

☐ 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 ( )	27.5	mg/l	7/11
☐ Other:			
☐ Other:			

F, NA NF		Units	Date analyzed
☒ Calcium (00915)	216	mg/l	4/15
☒ Magnesium (00925)	64.3	mg/l	4/15 16.09
☒ Sodium (00930)	630	mg/l	3/28
☒ Potassium (00935)	7.80	mg/l	3/28
☒ Bicarbonate (00440)	405.0	mg/l	5/7
☒ Chloride (00940)	866.9	mg/l	4/15
☒ Sulfate (00945)	748.6	mg/l	4/4
☒ Total filterable residue (dissolved) (70300)	2713	mg/l	5/10
☒ Other: CO_3	none		5/7
☒ Fluoride	0.41		4/8

F, A-H_2SO_4

☐ Nitrate-N +, Nitrate-N dissolved (00631)		mg/l	
☐ Ammonia-N dissolved (00608)		mg/l	
☐ Total Kjeldahl-N ( )		mg/l	
☐ Other:			

Analyst | Date Reported 7 29 85 | Reviewed by

Laboratory

SLD 726 (12/84) *DISTRIBUTION:* **WHITE** — EID, GW&HW Bureau **CANARY** — WS System **PINK** — EID Local Office **GOLDENROD** — SLD

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: 3 | 22 | 85 — LAB NO. WC-1220 — USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235

Collection DATE: 3 | 21 | 85 — Collection TIME: 1050

Collected by — Person/Agency: Boyer/OCD

SITE INFORMATION ►

Sample location: Bloomfield Ref- Hammond Ditch @ API

Collection site description: Ditch opposite API separator, sample taken beside pump house intake

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: Bloomfield Ref.

SAMPLING CONDITIONS

☐ Bailed ☐ Pump ☒ Dipped ☐ Tap	Water level: —	Discharge: —	Sample type: Grab
pH (00400): —	Conductivity (Uncorrected): 3450 µmho	Water Temp. (00010): 15 °C	Conductivity at 25°C (00094): — µmho

Field comments: Ditch blocked for several hundred yards either side of API separator area

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_2SO_4/L added

☐ **NA:** No acid added ☐ Other-*specify:*

ANALYTICAL RESULTS from SAMPLES

NF, NA		Units	Date analyzed
☐ Conductivity (Corrected) 25°C (00095)		µmho	
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☐ Other:			
☐ Other:			
☐ Other:			

F, NA		Units	Date analyzed
☐ Calcium (00915)		mg/l	
☐ Magnesium (00925)		mg/l	
☐ Sodium (00930)		mg/l	
☐ Potassium (00935)		mg/l	
☐ Bicarbonate (00440)		mg/l	
☐ Chloride (00940)		mg/l	
☐ Sulfate (00945)		mg/l	
☐ Total filterable residue (dissolved) (70300)		mg/l	
☐ Other:			

NF, A-H_2SO_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:			

F, A-H_2SO_4			
☒ Nitrate-N +, Nitrate-N dissolved (00631)	0.40	mg/l	4/5
☒ Ammonia-N dissolved (00608)	8.78	mg/l	4/22
☒ Total Kjeldahl-N ( )	14.7	mg/l	5/6/85
☐ Other:			

Analyst: | Date Reported: 5 | 6 | 85 | Reviewed by:

Laboratory remarks:

SLD 726 (12/84) *DISTRIBUTION:* **WHITE** — EID, GW&HW Bureau **CANARY** — WS System **PINK** — EID Local Office **GOLDENROD** — SLD

RECEIVED
MAY 18 1965
OIL CONSERVATION DIVISION
SANTA FE

New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 8[redacted]555

HEAVY METALS

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED 3 22 85	LAB NO. HM-489	USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235	
Collection DATE 03 21 85	SITE INFORMATION ►	Sample location Bloomfield Ref- Hammond Ditch @ API	
Collection TIME 1050		Collection site description Ditch opposite API separator, sample taken beside pump house intake	
Collected by — Person/Agency Boyer/OCD			

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 Bloomfield Ref.

SAMPLING CONDITIONS

☐ Bailed ☒ Dipped ☐ Pump ☐ Tap	Water level —	Discharge —	Sample type Grab
pH (00400) —	Conductivity (Uncorrected) 3450 µmho	Water Temp. (00010) 15 °C	Conductivity at 25°C (00094) — µmho

Field comments Ditch bored for several hundred yards either side of API separator area

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_2SO_4/L added~~ → 5 ml HNO_3

☐ NA: No acid added ☐ Other-*specify:*

ANALYTICAL RESULTS from SAMPLES

NF, NA		Units	Date analyzed
☐ Conductivity (Corrected) 25°C (00095)		µmho	
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☒ Other: ICAPSCAN			
☒ Other: As	.009	mg/l	
☒ Other: Se	<.005	mg/l	

F, NA		Units	Date analyzed
☐ Calcium (00915)		mg/l	
☐ Magnesium (00925)		mg/l	
☐ Sodium (00930)		mg/l	
☐ Potassium (00935)		mg/l	
☐ Bicarbonate (00440)		mg/l	
☐ Chloride (00940)		mg/l	
☐ Sulfate (00945)		mg/l	
☐ Total filterable residue (dissolved) (70300)		mg/l	
☐ Other:			

NF, A-H_2SO_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:			

F, A-H_2SO_4			
☐ Nitrate-N +, Nitrate-N dissolved (00631)		mg/l	
☐ Ammonia-N dissolved (00608)		mg/l	
☐ Total Kjeldahl-N ( )		mg/l	
☐ Other:			

Analyst	Date Reported	Reviewed by
	5 31 85	J. Ashby

Laboratory remarks

SLD 726 (12/84) *DISTRIBUTION:* **WHITE** — EID, GW&HW Bureau **CANARY** — WS System **PINK** — EID Local Office **GOLDENROD** — SLD

ICAP -SCREEN

Lab Number: HM 489

Date Submitted: 3/22/85

By: Boyer

Sample Code: Blomfield Refinery Hammond Ditch

Date Reported: 5/31/85

By: J. Colby

Determination	Concentration (µg/ml)
Aluminum	<.10
Barium	.18
Beryllium	<.10
Boron	.36
Cadmium	<.10
Calcium	350.
Chromium	<.10
Cobalt	<.10
Copper	<.10
Iron	<.10
Lead	<.10
Magnesium	61.
Manganese	6.6
Molybdenum	<.10
Nickel	<.10
Silicon	12.
Silver	<.10
Strontium	5.8
Tin	<.10
Vanadium	<.10
Yttrium	<.10
Zinc	<.10

ATOMIC ABSORPTION ANALYSES

Arsenic .009 µg/ml

Selenium <.005 µg/ml

Mercury _____ µg/ml

National 45-804 Eye-Ease 45-784 20/20 Buff Made in USA

SAN JUAN RIVER 7-24-87 CNA

SUMMARY OF RESULTS DAM RELEASE: 1070CFS

(mg/L)

	NOMINAL DETECTION LIMIT	HWY 44 BRIDGE NEARSIDE	HWY 44 BRIDGE MIDDLE	HWY 44 BRIDGE FARSIDE	UPSTREAM
CN	0.005	0.066	0.038	0.053	0.044
Phenols	0.001	0.018	<0.001	0.013	0.018
TDS	1	238	228	248	232
Cl	1.0	4.96	4.96	4.96	4.46
SO4	1.0	64.5	75.0	64.9	62.4
TOC	1	5	5	6	5
As	0.05	<0.05	<0.05	<0.05	<0.05
Ba	1.0	<1.0	<1.0	<1.0	<1.0
Cd	0.01	<0.01	<0.01	<0.01	<0.01
Cr	0.05	<0.05	<0.05	<0.05	<0.05
Pb	0.05	0.061	0.054	<0.05	<0.05
Hg	0.002	<0.002	<0.002	<0.002	<0.002
Se	0.01	<0.01	<0.01	<0.01	<0.01
Ag	0.05	<0.05	<0.05	<0.05	<0.05
Volatiles	0.001	ND	ND	ND	ND
Acid Compounds & Base Neutrals	0.01	ND	ND	ND	ND

STATUS OF RESERVOIRS PROCESSED ON: 03 AUG 87

COLORADO RIVER STORAGE PROJECT

NAVAJO RESERVOIR BEHIND NAVAJO DAM

DATE	SURFACE ELEVATION	LIVE STORAGE	BANK STORAGE	RELEASE		DIVERSION TO	EVAP	INFLOW
				POWER	OTHER	NIIP		
JUL 87	FEET	ACRE-FT	ACRE-FT	CFS	CFS	CFS	CFS	CFS
1	6,053.91	1,268,500		0	5,040	580	70	3,930
2	6,053.52	1,263,800		0	5,040	580	70	3,330
3	6,053.13	1,259,100		0	5,040	500	70	3,250
4	6,052.77	1,254,800		0	5,040	330	70	3,270
5	6,052.47	1,251,200		0	5,040	330	70	3,620
6	6,052.06	1,246,300		0	5,040	500	70	3,150
7	6,051.54	1,240,100		0	5,040	550	70	2,540
8	6,050.98	1,233,500		0	5,040	550	70	2,340
9	6,050.45	1,227,300		0	5,040	550	70	2,540
10	6,049.85	1,220,200		0	5,040	550	70	2,090
11	6,049.24	1,213,100		0	5,040	550	70	2,090
12	6,048.63	1,206,000		0	5,040	550	70	2,090
13	6,047.92	1,197,800		0	5,040	600	70	1,580
14	6,047.28	1,190,500		0	5,040	480	70	1,910
15	6,046.56	1,182,300		0	5,040	600	70	1,580
16	6,045.85	1,174,000		0	5,040	600	70	1,580
17	6,045.23	1,167,300		0	5,040	550	70	2,280
18	6,044.68	1,161,100		0	5,040	550	70	2,540
19	6,043.90	1,152,400		0	5,040	550	60	1,270
20	6,043.23	1,145,000		0	5,040	550	60	1,930
21	6,042.83	1,140,500		0	3,180	600	60	1,570
22	6,042.61	1,138,100		0	1,750	600	60	1,200
23	6,042.49	1,136,800		0	1,020	550	60	980
24	6,042.40	1,135,800	SAMPLE DATE	0	1,010	580	60	1,140
25	6,042.32	1,134,900		0	1,010	580	60	1,190
26	6,042.24	1,134,100		0	1,010	580	60	1,240
27	6,042.19	1,133,500		0	1,010	580	60	1,340
28	6,042.09	1,132,400		0	1,010	590	60	1,100
29	6,042.05	1,132,000		0	760	580	60	1,200
30	6,042.05	1,132,000		0	760	550	60	1,380
31	6,042.01	1,131,500		0	710	280	60	790
TOTALS				ACRE-FT	ACRE-FT 226,230	ACRE-FT 33,240	ACRE-FT 3,980	ACRE-FT 122,960
MEANS				CFS	CFS 3,679	CFS 540	CFS	CFS 1,999

NOTES: ADD DEAD STORAGE OF 12,612 ACRE-FT TO GET TOTAL STORAGE
SUBTRACT INACTIVE STORAGE OF 659,900 ACRE-FT TO GET ACTIVE STORAGE
LIVE STORAGE VALUES MAY DIFFER SLIGHTLY FROM PUBLISHED TABLES
NWS ELEV = 6085 FT, CONTENT = 1695900 ACFT

CHAPTER 7

SURFACE WATER SAMPLING

BACKGROUND

Surface water sampling of Hammond Ditch and the San Juan River was required by the approved work plan. This sampling was specified to be accomplished during worst-case, low-flow conditions.

Low-flow conditions were determined in the work plan to be at the beginning of the irrigation season for Hammond Ditch (generally mid-April). During this period, the potential for flushing hydrocarbons downstream is the greatest. BRC installs berms in Hammond Ditch at the end of the irrigation season to retain and remove hydrocarbons that may seep into the ditch. Just before resumption of irrigation, the berms are removed. The potential for downstream contamination is therefore greatest when upstream irrigation flows are released and flush the ditch.

Low-flow conditions in the San Juan River generally occur during winter months. Precipitation is generally low during winter. Throughout 1986, flows in the river were unusually high, and low-flow conditions did not occur. Maintenance activities for Navajo Dam (controlling San Juan River flows) in April and May 1987 required lowering the upstream reservoir approximately 31 feet from normal operating level. The lowering of the reservoir has resulted in unseasonably high discharge rates from the dam, which precluded low-flow sampling efforts. Therefore, an extension for sampling of the San Juan River has been requested to permit future sampling during representative low-flow conditions.

SAMPLING PROTOCOL

The Hammond Ditch was sampled by BRC staff on April 22, 1986 within 24 hours after initiation of irrigation flows in the ditch. Flows were observed to be intermittent during this period, so a second sampling effort was conducted on April 28, 1986 to assure acquisition of a representative data set.

All samples were collected consistent with the protocol stated in the approved work plan. As specified, depth-integrated samples were collected from a location just downstream of the refinery property south of Sullivan Road, and just downstream of the API wastewater ponds.

FINDINGS

Results from both Hammond Ditch sampling efforts are contained in Appendix B to this report. Tables 7.1 and 7.2 are summaries of compounds detected during the April 22, 1986 and April 28, 1986 sampling efforts, respectively. Table 7.1 shows that very low levels of pollutants were found during worst-case conditions. Table 7.2 shows that no priority pollutants were detected during the second survey, conducted after irrigation flows had been reestablished.

The results of the April 28, 1986 survey are consistent with the finding in Chapter 5 showing that Hammond Ditch irrigation flows create a hydraulic gradient directed towards the BRC site that minimizes the potential for groundwater transport into the ditch.

TABLE 7.1

SUMMARY OF DETECTED ORGANIC COMPOUNDS
FROM HAMMOND DITCH ON 4/22/86

Laboratory Parameter	Hammond Ditch Near Sullivan Road Results (Downstream) (mg/l)	Hammond Ditch Near API Ponds Results (Upstream) (mg/l)	Detection Limits (mg/l)
Phenols	0.002	0.002	0.001
Benzene	0.006		0.001
Toluene	0.003		0.001
Anthracene	0.006		0.001
Benzo(a)anthracene	0.003		0.001
Chrysene	0.005		0.001
Fluoranthene		0.001	0.001
Naphthalene	0.13		0.001
Phenanthrene	0.008		0.001
Pyrene	0.008		0.001

TABLE 7.2

SUMMARY OF DETECTED ORGANIC COMPOUNDS
FROM HAMMOND DITCH ON 4/28/86

Laboratory Parameter	Hammond Ditch Near Sullivan Road Results (Downstream) (mg/l)	Hammond Ditch Near API Ponds Results (Upstream) (mg/l)	Detection Limits (mg/l)
NONE DETECTED			

SAMPLE DATE: 7-24-87 10:00 AM 99
HIGHWAY 44 BRIDGE
20 FEET FROM REFINERY SIDE OF RIVER

ASSAIGAI ANALYTICAL LABORATORIES

TO: Bloomfield Refining
ATTN: Chris Hawley
PO Box 159
Bloomfield, NM 87413

DATE: 28 August 1987
1174

SAMPLE ID: Plant 1

ANALYTE	ANALYTICAL RESULTS	NOMINAL DETECTION LIMITS
CN	0.066 mg/l	0.005 mg/l
Phenols	0.018 mg/l	0.001 mg/l
TDS	238 mg/l	1 mg/l
Cl	4.96 mg/l	1.0 mg/l
SO 4	64.5 mg/l	1.0 mg/l
TOC	5 mg/l	1 mg/l
As	<0.05 mg/l	0.05 mg/l
Ba	<1.0 mg/l	1.0 mg/l
Cd	<0.01 mg/l	0.01 mg/l
Cr	<0.05 mg/l	0.05 mg/l
Pb	0.061 mg/l	0.05 mg/l
Hg	<0.002 mg/l	0.002 mg/l
Se	<0.01 mg/l	0.01 mg/l
Ag	<0.05 mg/l	0.05 mg/l

REFERENCE: "Test Methods for Evaluating Solid Waste, Physical/ Chemical Methods", USEPA, SW 846, EMSL-Cincinnati, 1982.

An invoice for services is enclosed. Thank you for contacting Assaigai Laboratories.

Sincerely,

Jennifer V. Smith

Jennifer V. Smith, Ph.D.
Laboratory Director

7300 Jefferson, N.E. • Albuquerque, New Mexico 87109 • (505) 345-8964

ASSAIGAI ANALYTICAL LABORATORIES

Highway 44 Bridge - South Side

TO: Bloomfield Refinery
Attn: Chris Hawley
PO Box 159
Bloomfield, NM 87413

DATE: 28 August 1987
1174

SAMPLE ID: Plant 1

ANALYTE	ANALYTICAL RESULTS
VOLATILES	
Acrolein	ND
Acrylonitrile	ND
Benzene	ND
Bromoform	ND
Carbon Tetrachloride	ND
Chlorobenzene	ND
Chlorodibromomethane	ND
Chloroethane	ND
2-Chloroethylvinyl ether	ND
Chloroform	ND
Dichlorobromomethane	ND
1,1-Dichloroethane	ND
1,2-Dichloroethane	ND
1,1-Dichloroethylene	ND
1,2-Dichloropropane	ND
1,2-Dichloropropylene	ND
Ethylbenzene	ND
Methyl Bromide	ND
Methyl Chloride	ND
Methylene Chloride	ND
1,1,2,2-Tetrachloroethane	ND
Tetrachloroethylene	ND
Toluene	ND
1,2-Transdichloroethylene	ND
1,1,1-Trichloroethane	ND
1,1,2-Trichloroethane	ND
Trichloroethylene	ND
Vinyl Chloride	ND

NOMINAL DETECTION LIMIT: 0.001 mg/l

ACID COMPOUNDS & BASE NEUTRALS	
2-Chlorophenol	ND
2,4-Dichlorophenol	ND
2,4-Dimethylphenol	ND
4,6-Dinitro-o-cresol	ND
2,4-Dinitrophenol	ND
2-Nitrophenol	ND
4-Nitrophenol	ND
P-chloro-m-cresol	ND

pentachlorophenol	ND
Phenol	ND
2,4,6-Trichlorophenol	ND
Acenaphthylene	ND
Anthracene	ND
Benzidine	ND
Benzo(a)anthracene	ND
Benzo(a)pyrene	ND
3,4-Benzofluoranthene	ND
Benzo(g,h,i)perylene	ND
Benzo(k)fluoranthene	ND
Bis(2-chloroethoxy)methane	ND
Bis(2-chloroethyl)ether	ND
Bis(2-chloroisopropyl)ether	ND
Bis(2-ethylhexyl)phthalate	ND
4-Bromophenyl phenyl ether	ND
Butylbenzyl phthalate	ND
2-Chloronapthalene	ND
4-Chlorophenyl phenyl ether	ND
Chrysene	ND
Dibenzo(a,h)anthracene	ND
1,2-Dichlorobenzene	ND
1,3-Dichlorobenzene	ND
1,4-Dichlorobenzene	ND
3,3-Dichlorobenzidine	ND
Diethyl phthalate	ND
Dimethyl phthalate	ND
Din-n-butyl phthalate	ND
2,4-Dinitrotoluene	ND
2,6-Dinitrotoluene	ND
Di-n-octyl phthalate	ND
1,2-Diphenylhydrazine	ND
Fluoranthene	ND
Fluorene	ND
Hexachlorobenzene	ND
Hexachlorobutadiene	ND
Hexachlorocyclopentadiene	ND
Hexachloroethane	ND
Indeno(1,2,3-cd)pyrene	ND
Isophorone	ND
Naphthalene	ND
Nitrobenzene	ND
N-nitrosodimethylamine	ND
N-nitrosodie-n-propylamine	ND
N-nitrosodiphenylamine	ND
Phenanthrene	ND
Pyrene	ND
1,2,4-Trichlorobenzene	ND

NOMINAL DETECTION LIMIT: 0.01 mg/l

REFERENCES: "Test Methods for Evaluating Solid Waste.-Physical/Chemical Methods", USEPA, SW 846, 3rd Edition.

An invoice for services is included. Thank you for contacting Assaigai Laboratories.

Sincerely,

Jennifer V. Smith

Jennifer V. Smith, Ph.D.
Laboratory Director

ASSAIGAI ANALYTICAL LABORATORIES

SAMPLE DATE: 7-24-87 9A.M.
HIGHWAY 44 BRIDGE
MIDDLE OF RIVER (TOTAL WIDTH: 280')

TO: Bloomfield Refining
ATTN: Chris Hawley
PO Box 159
Bloomfield, NM 87413

DATE: 28 August 1987
1174

SAMPLE ID: Plant 2

ANALYTE	ANALYTICAL RESULTS	NOMINAL DETECTION LIMITS
CN	0.038 mg/l	0.005 mg/l
Phenols	<0.001 mg/l	0.001 mg/l
TDS	228 mg/l	1 mg/l
Cl	4.96 mg/l	1.0 mg/l
SO 4	75.0 mg/l	1.0 mg/l
TOC	5 mg/l	1 mg/l
As	<0.05 mg/l	0.05 mg/l
Ba	<1.0 mg/l	1.0 mg/l
Cd	<0.01 mg/l	0.01 mg/l
Cr	<0.05 mg/l	0.05 mg/l
Pb	0.054 mg/l	0.05 mg/l
Hg	<0.002 mg/l	0.002 mg/l
Se	<0.01 mg/l	0.01 mg/l
Ag	<0.05 mg/l	0.05 mg/l

REFERENCE: "Test Methods for Evaluating Solid Waste, Physical/ Chemical Methods", USEPA, SW 846, EMSL-Cincinnati, 1982.

An invoice for services is enclosed. Thank you for contacting Assaigai Laboratories.

Sincerely,

Jennifer V. Smith

Jennifer V. Smith, Ph.D.
Laboratory Director

7300 Jefferson, N.E. • Albuquerque, New Mexico 87109 • (505) 345-8964

ASSAIGAI ANALYTICAL LABORATORIES

TO: Bloomfield Refinery
ATTN: Chris Hawley
PO Box 159
Bloomfield, NM 87413

DATE: August 28. 1987
1174

SAMPLE ID: Plant 2

ACID COMPOUNDS & BASE NEUTRALS	
2-Chlorophenol	ND
2,4-Dichlorophenol	ND
2,4-Dimethylphenol	ND
4,6-Dinitro-o-cresol	ND
2,4-Dinitrophenol	ND
2-Nitrophenol	ND
4-Nitrophenol	ND
P-chloro-m-cresol	ND
pentachlorophenol	ND
Phenol	ND
2,4,6-Trichlorophenol	ND
Acenaphthylene	ND
Anthracene	ND
Benzidine	ND
Benzo(a)anthracene	ND
Benzo(a)pyrene	ND
3,4-Benzofluoranthene	ND
Benzo(g,h,i)perylene	ND
Benzo(k)fluoranthene	ND
Bis(2-chloroethoxy)methane	ND
Bis(2-chiroroethyl)ether	ND
Bis(2-chloroisopropyl)ether	ND
Bis(2-ethylhexyl)phthalate	ND
4-Bromophenyl phenyl ether	ND
Butylbenzyl phthalate	ND
2-Chloronapthalene	ND
4-Chlorophenyl phenyl ether	ND
Chrysene	ND
Dibenzo(a,h)anthracene	ND
1,2-Dichlorobenzene	ND
1,3-Dichlorobenzene	ND
1,4-Dichlorobenzene	ND
3,3-Dichlorobenzidine	ND
Diethyl phthalate	ND
Dimethyl phthalate	ND
Din-n-butyl phthalate	ND
2,4-Dinitrotoluene	ND
2,6-Dinitrotoluene	ND
Di-n-octyl phthalate	ND
1,2-Diphenylhydrazine	ND
Fluoranthene	ND
Fluorene	ND

Hexachlorobenzene	ND
Hexachlorobutadiene	ND
Hexachlorocyclopentadiene	ND
Hexachloroethane	ND
Indeno(1,2,3-cd)pyrene	ND
Isophorone	ND
Naphthalene	ND
Nitrobenzene	ND
N-nitrosodimethylamine	ND
N-nitrosodie-n-propylamine	ND
N-nitrosodiphenylamine	ND
Phenanthrene	ND
Pyrene	ND
1,2,4-Trichlorobenzene	ND

NOMINAL DETECTION LIMIT: 0.01 mg/l

REFERENCES: "Test Methods for Evaluating Solid Waste,-Physical/Chemical Methods", USEPA, SW 846, 3rd Edition.

An invoice for services is included. Thank you for contacting Assaigai Laboratories.

Sincerely,

Jennifer V. Smith

Jennifer V. Smith, Ph.D.
Laboratory Director

ASSAIGAI ANALYTICAL LABORATORIES

SAMPLE DATE 7-24-87 9:30 AM
HIGHWAY 44 BRIDGE
20 FEET FROM BLOOMFIELD SIDE OF RIVER

TO: Bloomfield Refining
ATTN: Chris Hawley
PO Box 159
Bloomfield, NM 87413

DATE: 28 August 1987
1174

SAMPLE ID: Plant 3

ANALYTE	ANALYTICAL RESULTS	NOMINAL DETECTION LIMITS
CN	0.053 mg/l	0.005 mg/l
Phenols	0.013 mg/l	0.001 mg/l
TDS	248 mg/l	1 mg/l
Cl	4.96 mg/l	1.0 mg/l
SO 4	64.9 mg/l	1.0 mg/l
TOC	6 mg/l	1 mg/l
As	<0.05 mg/l	0.05 mg/l
Ba	<1.0 mg/l	1.0 mg/l
Cd	<0.01 mg/l	0.01 mg/l
Cr	<0.05 mg/l	0.05 mg/l
Pb	<0.05 mg/l	0.05 mg/l
Hg	<0.002 mg/l	0.002 mg/l
Se	<0.01 mg/l	0.01 mg/l
Ag	<0.05 mg/l	0.05 mg/l

REFERENCE: "Test Methods for Evaluating Solid Waste, Physical/ Chemical Methods", USEPA, SW 846, EMSL-Cincinnati, 1982.

An invoice for services is enclosed. Thank you for contacting Assaigai Laboratories.

Sincerely,

Jennifer V. Smith

Jennifer V. Smith, Ph.D.
Laboratory Director

7300 Jefferson, N.E. • Albuquerque, New Mexico 87109 • (505) 345-8964

ASSAIGAI ANALYTICAL LABORATORIES

TO: Bloomfield Refinery
ATTN: Chris Hawley
PO Box 159
Bloomfield, NM 87413

DATE: August 28. 1987
1174

SAMPLE ID: Plant 3

ACID COMPOUNDS & BASE NEUTRALS	
2-Chlorophenol	ND
2,4-Dichlorophenol	ND
2,4-Dimethylphenol	ND
4,6-Dinitro-o-cresol	ND
2,4-Dinitrophenol	ND
2-Nitrophenol	ND
4-Nitrophenol	ND
P-chloro-m-cresol	ND
pentachlorophenol	ND
Phenol	ND
2,4,6-Trichlorophenol	ND
Acenaphthylene	ND
Anthracene	ND
Benzidine	ND
Benzo(a)anthracene	ND
Benzo(a)pyrene	ND
3,4-Benzofluoranthene	ND
Benzo(g,h,i)perylene	ND
Benzo(k)fluoranthene	ND
Bis(2-chloroethoxy)methane	ND
Bis(2-chlroroethyl)ether	ND
Bis(2-chloroisopropyl)ether	ND
Bis(2-ethylhexyl)phthalate	ND
4-Bromophenyl phenyl ether	ND
Butylbenzyl phthalate	ND
2-Chloronapthalene	ND
4-Chlorophenyl phenyl ether	ND
Chrysene	ND
Dibenzo(a,h)anthracene	ND
1,2-Dichlorobenzene	ND
1,3-Dichlorobenzene	ND
1,4-Dichlorobenzene	ND
3,3-Dichlorobenzidine	ND
Diethyl phthalate	ND
Dimethyl phthalate	ND
Din-n-butyl phthalate	ND
2,4-Dinitrotoluene	ND
2,6-Dinitrotoluene	ND
Di-n-octyl phthalate	ND
1,2-Diphenylhydrazine	ND
Fluoranthene	ND
Fluorene	ND

Hexachlorobenzene	ND
Hexachlorobutadiene	ND
Hexachlorocyclopentadiene	ND
Hexachloroethane	ND
Indeno(1,2,3-cd)pyrene	ND
Isophorone	ND
Naphthalene	ND
Nitrobenzene	ND
N-nitrosodimethylamine	ND
N-nitrosodi-n-propylamine	ND
N-nitrosodiphenylamine	ND
Phenanthrene	ND
Pyrene	ND
1,2,4-Trichlorobenzene	ND

NOMINAL DETECTION LIMIT: 0.01 mg/l

REFERENCES: "Test Methods for Evaluating Solid Waste,-Physical/Chemical Methods", USEPA, SW 846, 3rd Edition.

An invoice for services is included. Thank you for contacting Assaigai Laboratories.

Sincerely,

Jennifer V. Smith

Jennifer V. Smith, Ph.D.
Laboratory Director

ASSAIGAI ANALYTICAL LABORATORIES

SAMPLE DATE: 7-24-87 10:30 A.M.
~1/2 MILE UPSTREAM FROM REFINERY FROM BANK ON REFINERY SIDE.

TO: Bloomfield Refining
ATTN: Chris Hawley
PO Box 159
Bloomfield, NM 87413

DATE: 28 August 1987
1174

SAMPLE ID: Plant 4

ANALYTE	ANALYTICAL RESULTS	NOMINAL DETECTION LIMITS
CN	0.044 mg/l	0.005 mg/l
Phenols	0.018 mg/l	0.001 mg/l
TDS	232 mg/l	1 mg/l
Cl	4.46 mg/l	1.0 mg/l
SO 4	62.6 mg/l	1.0 mg/l
TOC	5 mg/l	1 mg/l
As	<0.05 mg/l	0.05 mg/l
Ba	<1.0 mg/l	1.0 mg/l
Cd	<0.01 mg/l	0.01 mg/l
Cr	<0.05 mg/l	0.05 mg/l
Pb	<0.05 mg/l	0.05 mg/l
Hg	<0.002 mg/l	0.002 mg/l
Se	<0.01 mg/l	0.01 mg/l
Ag	<0.05 mg/l	0.05 mg/l

REFERENCE: "Test Methods for Evaluating Solid Waste, Physical/ Chemical Methods", USEPA, SW 846, EMSL-Cincinnati, 1982.

An invoice for services is enclosed. Thank you for contacting Assaigai Laboratories.

Sincerely,

Jennifer V. Smith

Jennifer V. Smith, Ph.D.
Laboratory Director

7300 Jefferson, N.E. • Albuquerque, New Mexico 87109 • (505) 345-8964

ASSAIGAI ANALYTICAL LABORATORIES

TO: Bloomfield Refinery
Attn: Chris Hawley
PO Box 159
Bloomfield, NM 87413

DATE: 25 August 1987
1174

SAMPLE ID: Plant 4

ANALYTE	ANALYTICAL RESULTS
VOLATILES	
Acrolein	ND
Acrylonitrile	ND
Benzene	ND
Bromoform	ND
Carbon Tetrachloride	ND
Chlorobenzene	ND
Chlorodibromomethane	ND
Chloroethane	ND
2-Chloroethylvinyl ether	ND
Chloroform	ND
Dichlorobromomethane	ND
1,1-Dichloroethane	ND
1,2-Dichloroethane	ND
1,1-Dichloroethylene	ND
1,2-Dichloropropane	ND
1,2-Dichloropropylene	ND
Ethylbenzene	ND
Methyl Bromide	ND
Methyl Chloride	ND
Methylene Chloride	ND
1,1,2,2-Tetrachloroethane	ND
Tetrachloroethylene	ND
Toluene	ND
1,2-Transdichloroethylene	ND
1,1,1-Trichloroethane	ND
1,1,2-Trichloroethane	ND
Trichloroethylene	ND
Vinyl Chloride	ND

NOMINAL DETECTION LIMIT: 0.001 mg/l

ACID COMPOUNDS & BASE NEUTRALS	
2-Chlorophenol	ND
2,4-Dichlorophenol	ND
2,4-Dimethylphenol	ND
4,6-Dinitro-o-cresol	ND
2,4-Dinitrophenol	ND
2-Nitrophenol	ND
4-Nitrophenol	ND
P-chloro-m-cresol	ND

pentachlorophenol	ND
Phenol	ND
2,4,6-Trichlorophenol	ND
Acenaphthylene	ND
Anthracene	ND
Benzidine	ND
Benzo(a)anthracene	ND
Benzo(a)pyrene	ND
3,4-Benzofluoranthene	ND
Benzo(g,h,i)perylene	ND
Benzo(k)fluoranthene	ND
Bis(2-chloroethoxy)methane	ND
Bis(2-chloroethyl)ether	ND
Bis(2-chloroisopropyl)ether	ND
Bis(2-ethylhexyl)phthalate	ND
4-Bromophenyl phenyl ether	ND
Butylbenzyl phthalate	ND
2-Chloronapthalene	ND
4-Chlorophenyl phenyl ether	ND
Chrysene	ND
Dibenzo(a,h)anthracene	ND
1,2-Dichlorobenzene	ND
1,3-Dichlorobenzene	ND
1,4-Dichlorobenzene	ND
3,3-Dichlorobenzidine	ND
Diethyl phthalate	ND
Dimethyl phthalate	ND
Di-n-butyl phthalate	ND
2,4-Dinitrotoluene	ND
2,6-Dinitrotoluene	ND
Di-n-octyl phthalate	ND
1,2-Diphenylhydrazine	ND
Fluoranthene	ND
Fluorene	ND
Hexachlorobenzene	ND
Hexachlorobutadiene	ND
Hexachlorocyclopentadiene	ND
Hexachloroethane	ND
Indeno(1,2,3-cd)pyrene	ND
Isophorone	ND
Naphthalene	ND
Nitrobenzene	ND
N-nitrosodimethylamine	ND
N-nitrosodie-n-propylamine	ND
N-nitrosodiphenylamine	ND
Phenanthrene	ND
Pyrene	ND
1,2,4-Trichlorobenzene	ND

NOMINAL DETECTION LIMIT: 0.01 mg/l

REFERENCES: "Test Methods for Evaluating Solid Waste,-Physical/Chemical Methods", USEPA, SW 846, 3rd Edition.

An invoice for services is included. Thank you for contacting Assaigai Laboratories.

Sincerely,

Jennifer V. Smith

Jennifer V. Smith, Ph.D.
Laboratory Director

Flare Seep

Lab No. 77-521, 07-123

ORGANIC ANALYSIS REQUEST FORM

F89149

REPORT TO: DAVID BOYER
N.M. OIL CONSERVATION DIVISION
P.O. Box 2088
Santa Fe, NM 87504-2088

Sample No. _____
DATE REC. _____
PRIORITY _____
PHONE(S): 827-5812

COLLECTION CITY: Bloomfield ; COUNTY: San Juan

COLLECTION DATE/TIME CODE: (Year-Month-Day-Hour-Minute) 8 9 0 4 2 7 0 9 3 5

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

SUBMITTER: David Boyer

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

This form accompanies 3 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-AA Sample Preserved with Ascorbic Acid to remove chlorine residual.
- ☒ P-HCl Sample Preserved with Hydrochloric Acid (2 drops/40 ml)

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 Headspace (1-5 Carbons)
- ☒ (754) Aromatic & Halogenated Purgeables
- ☐ (765) Mass Spectrometer Purgeables
- ☐ (766) Trihalomethanes
- ☐ (774) SDWA VOC's I (8 Regulated +)
- ☐ (775) SDWA VOC's II (EDB & DBCP)

Other Specific Compounds or Classes

- ☐ _____
- ☐ _____

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
- ☐ (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= 1525 umho/cm at 9 °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.)

Conoco Bloomfield Refinery - west seep at cliff below flare. H odor and sheen

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: Hand Carry

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 ☐ OR Seals Intact: Yes ☐ No ☐

Signatures: _____ _____

For OCD use: Date owner notified: 9/11/89 Phone or (Letter?) Initials RP

All constituents

Inter·Mountain
Laboratories, Inc.

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

Report Date: 05/15/89

Client:	New Mexico OCD		
Sample ID:	8904270935	Date Sampled:	04/27/89
Laboratory Number:	F891490	Date Received:	04/28/89
Analysis Requested:	Purgeable Aromatics	Date Extracted:	NA
Sample Matrix:	Water	Date Analyzed:	05/08/89

Parameter	Concentration	Units
BENZENE	1280 (2.0)	ug/l
TOLUENE	1470 (2.0)	ug/l
ETHYLBENZENE	ND (2.0)	ug/l
m,p-XYLENE	2120 (2.0)	ug/l
o-XYLENE	910 (2.0)	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 Organic Chemist

RECEIVED
MAY 23 1989
OIL CONSERVATION DIV.
SANTA FE

Inter-Mountain Laboratories, Inc.

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

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MAY 22 1989
OIL CONSERVATION DIV.
SANTA FE

Report Date: 05/09/89

Client: New Mexico OCD
Sample ID: 8904270935
IML Sample No: F891490
Analysis Requested: Purgeable Halocarbons
Sample Matrix: Water

Date Sampled: 04/27/89
Date Received: 04/28/89
Date Extracted: N/A
Date Analyzed: 05/01/89

Parameter	Concentration		Units
CHLOROMETHANE	ND	(10.0)	ug/l
BROMOMETHANE	ND	(10.0)	ug/l
DICHLORODIFLUOROMETHANE	ND	(10.0)	ug/l
VINYL CHLORIDE	ND	(10.0)	ug/l
CHLOROETHANE	ND	(10.0)	ug/l
METHYLENE CHLORIDE	ND	(1.0)	ug/l
TRICHLOROFLUOROMETHANE	ND	(10.0)	ug/l
1,1-DICHLOROETHENE	ND	(1.0)	ug/l
1,1-DICHLOROETHANE	ND	(1.0)	ug/l
TRANS-1,2-DICHLOROETHENE	ND	(1.0)	ug/l
CHLOROFORM	ND	(1.0)	ug/l
1,2-DICHLOROETHANE	ND	(1.0)	ug/l
1,1,1-TRICHLOROETHANE	ND	(1.0)	ug/l
CARBON TETRACHLORIDE	ND	(1.0)	ug/l
BROMODICHLOROMETHANE	ND	(1.0)	ug/l
1,2-DICHLOROPROPANE	ND	(1.0)	ug/l
CIS-1,3-DICHLOROPROPENE	ND	(1.0)	ug/l
TRICHLOROETHENE	ND	(1.0)	ug/l
DIBROMOCHLOROMETHANE	ND	(1.0)	ug/l
1,1,2-TRICHLOROETHANE	ND	(1.0)	ug/l
TRANS-1,3-DICHLOROPROPENE	ND	(1.0)	ug/l
2-CHLOROETHYLVINYL ETHER	ND	(1.0)	ug/l
BROMOFORM	ND	(5.0)	ug/l
1,1,2,2-TETRACHLOROETHANE	ND	(1.0)	ug/l
TETRACHLOROETHENE	ND	(1.0)	ug/l
CHLOROBENZENE	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
CIS-1,2-DICHLOROETHENE	ND	(1.0)	ug/l

Method: 601 Purgeable Halocarbons, 40 CFR Part 136, USEPA (1984).

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

Jack M. Morgan
Senior Organic Chemist

859 WNW

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 05 02 89 | LAB NO. WC 1347 | USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235

Collection DATE 890427 | Collection TIME 0935 | Collected by — Person/Agency BOYER /OCD

SITE INFORMATION ► Sample location GARY BLOOMFIELD REF

Collection site description WEST SKIM

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	Discharge 1 gpm	Sample type GRAB
pH (00400) 7	Conductivity (Uncorrected) 1525 µmho	Water Temp. (00010) 9 °C	Conductivity at 25°C (00094) µmho

Field comments Sample from 25' below seep on cliff face hydrocarbon odor and sheen

SAMPLE FIELD TREATMENT — *Check proper boxes*

No. of samples submitted

☒ NF: Whole sample (Non-filtered) ☐ F: Filtered in field with 0.45 µmembrane filter ☐ A: 2 ml H_2SO_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)	2192	µmho	5/15
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☒ Other: Lab pH	7.47		5/9
☐ Other:			
☐ Other:			

A-H_2SO_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:			

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SANTA FE

From NE, NA Sample:

			Date Analyzed
☒ Calcium	96	mg/l	5/10
☒ Potassium	8	mg/l	5/4
☒ Magnesium	56.1	mg/l	5/10
☒ Sodium	366	mg/l	5/4
☒ Bicarbonate	1111	mg/l	5/9
☒ Chloride	766	mg/l	5/4
☒ Sulfate	26.3	mg/l	6/9
☒ Total Solids	1454	mg/l	5-3
☐			
☐			
☒ Cation/Anion Balance	97%		

Analyst | Date Reported 6 13 89 | Reviewed By

Laboratory remarks

2006

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

CATIONS				ANIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT	ANALYTE	MEQ.	PPM	DET. LIMIT
[redacted]	4.79	96.00	<3.0	HC03	18.21	1111.00	<1.0
Mg	4.61	56.10	<0.3	SO4	0.55	26.30	<10.0
Na	15.92	366.00	<10.0	CL	7.50	266.00	<5.0
K	0.20	8.00	<0.3				
Mn	0.00	0.00		NO3	0.00	0.00	< 0.
Fe	0.00	0.00		C03	0.00	0.00	< 1.
				NH3	0.00	0.00	< 0.
				PO4	0.00	0.00	< 0.
SUMS	25.52	526.10			26.26	1403.30	

Total Dissolved Solids= 1454

Ion Balance = 97.20%

WC No. = 8901347

Date out/By 6/13/89

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JUN 16 1989

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: 05/02/89 | Lab No.: ICAP 211 | User Code: ☒ 82235 ☐ Other:

COLLECTION DATE & TIME: yy 89 | mm 04 | dd 27 | hh 09 | mm 35

COLLECTED BY: BOYER

COLLECTION SITE DESCRIPTION: GARY BLOOMFIELD R&F WEST PIT

OWNER:

TO:

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

ATTN: DAVID BOYER
TELEPHONE: 827-5812

SITE LOCATION:
County: San Juan
Township, Range, Section, Tract: (10N06E24342)

STATION/ WELL CODE:

LATITUDE, LONGITUDE:

SAMPLING CONDITIONS:

☐ Bailed ☒ Dipped ☐ Pump ☐ Tap | Water Level: | Discharge: 1 gpm | Sample Type: GRAB

pH(00400)	Conductivity(Uncorr.)	Water Temp.(00010)	Conductivity at 25°C (00094)
7	1525 µmho	9 °C	µmho

FIELD COMMENTS: hydrocarbon odor and sheen

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	2.6		Silicon	18.	
Barium	0.8		Silver	<0.1 ☐	
Beryllium	<0.1		Strontium	3.5	
Boron	0.5		Tin	<0.1	
Cadmium	<0.1 ☐		Vanadium	<0.1	
Calcium	170.		Zinc	<0.1	
Chromium	<0.1 ☒	< 0.025	Arsenic	☒	0.031
Cobalt	<0.05		Selenium	☐	
Copper	<0.1		Mercury	☐	
Iron	2.2			☐	
Lead	<0.1 ☒	0.012		☐	
Magnesium	49.			☐	
Manganese	6.4			☐	
Molybdenum	<0.1			☐	
Nickel	<0.1			☐	

LAB COMMENTS: Digest

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

ICAP Analyst: JAA | Date Analyzed: 7/10/89

Reviewer: [illegible] | Date Received: 8/22/89

STATE OF NEW MEXICO

0658 -B

ENVIRONMENT

RECEIVED
AUG 19 1985
OIL CONSERVATION DIVISION
SANTA FE

SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE, Albuquerque, New Mexico 87106
(505) 841-2500

REPORT TO: DAVID G. BOYER
NEW MEXICO OIL CONSERVATION DIV.
P.O. BOX 2088
SANTA FE, NM 87501

S.L.D. No.: OR- 658-A
DATE REC. : 7/03/85
PHONE 827-5812
USER CODE: 8 2 2 3 5

CONTAINERS WHICH ACCOMPANY THIS FORM ARE COLLECTIVELY REFERED TO AS SAMPLE.

SUBMITTER: NM OIL CONSERVATION DIV CODE

LOCATION: BLOOMFIELD REFINERY CODE (TOWNSHIP RANGE SECTION TRACTS)

SOURCE: FLARE SEEP CODE (AQUIFER DEPTH)

COLLECTED: 6/26/85 BY BOYER/BAILEY CODE 8 5 0 6 2 6 1 5 4 5 (YY MM DD HH MM II)

SAMPLE TYPE: (WATER) SOIL OTHER CODE

NEAREST CITY: BLOOMFIELD CODE

pH=_____; Conductivity= 2260 umho/cm at 23 °C; Chlorine Risidual=_____

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

Sampling Location, Methods and Remarks (i.e. odors, etc.)
COLLECTED ON BLUFF OVER SAN JUAN RIVER. SEEPING AT CONTACT OF ALLUVIUM + SILTY SANDSTONE BELOW FLARE, HYDROCARBON ODOR

I certify that the statements in this block accurately reflect the results of my field analyses, observations and activities. D. Bailey

Method of shipment to the Laboratory Hand carried

This form accompanies / Septum Vials, ___ Glass Jugs, ___ _____

Containers are marked as follows to indicate preservation (circle):

NP: No preservation; sample stored at room temperature.

(P-Ice) Sample stored in an ice bath (not frozen).

P-$Na_2S_2O_3$: Sample preserved with $Na_2S_2O_3$ to remove chlorine residual.

I (we) certify that this sample was transferred from _____ to _____ at (location) _____ on (date & time) _____ and that the statements in this block are correct

Evidentiary Seals: Not Sealed Intact: Yes No

Signatures _____ _____

(we) certify that this sample was transferred from _____ to _____ at (location) _____ on (date & time) _____ and that the statements in this block are correct

Evidentiary Seals: Not Sealed Intact: Yes No

Signatures _____ _____

ANALYSES REQUESTED

LAB. No.: ORG- 658

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
		ALIPHATIC HYDROCARBON SCREEN
X	X	AROMATIC HYDROCARBON SCREEN
X	X	HALOGENATED HYDROCARBON SCREEN
		GAS CHROMATOGRAPH/MASS SPECTROMETER
		SPECIFIC COMPOUNDS

QUALITATIVE	QUANTITATIVE	EXTRACTABLE SCREENS
		ALIPHATIC HYDROCARBONS
		CHLORINATED HYDROCARBON PESTICIDES
		CHLOROPHENOXY ACID HERBICIDES
		HYDROCARBON FUEL SCREEN
		ORGANOPHOSPHATE PESTICIDES
		POLYCHLORINATED BIPHENYLS (PCB's)
		POLYNUCLEAR AROMATIC HYDROCARBONS
		TRIAZINE HERBICIDES
		SPECIFIC COMPOUNDS

REMARKS:

ANALYTICAL RESULTS

COMPOUND	[PPB]	COMPOUND	[PPB]
1,2-dichloroethane	4		
benzene	3200		
Toluene	4000		
ethylbenzene	57		
p-xylene	900		
m-xylene	2300		
o-xylene	1300		
		* DETECTION LIMIT	5 ug/l

REMARKS: All samples should be submitted in duplicate. Thirty two other compounds also detected by aromatic screen, including several major peaks.

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ___ NO X. Seal(s) broken by: _____ date: _____

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

Date(s) of analysis: 9 July 85. Analyst's signature: J C Sweeney

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 M Eyerdam

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 10/05/85	LAB NO. WC-3392	USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235	
Collection DATE 9/26/85	SITE INFORMATION ►	Sample location BLOOMFIELD REFINERY	
Collection TIME 1545		Collection site description FLARE SEEP ON BLUFF OVERLOOKING SAN JUAN RIVER	
Collected by — Person/Agency ROYER			

SEND FINAL REPORT TO ►

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87501

Attn: David Boyer

SEP 30 1985
OIL CONSERVATION DIVISION
SANTA FE

Station/ well code

Owner

SAMPLING CONDITIONS

☐ Bailed ☐ Pump ☒ Dipped ☐ Tap	Water level	Discharge	Sample type
pH (00400)	Conductivity (Uncorrected) 2260 µmho	Water Temp. (00010) 23 °C	Conductivity at 25°C (00094) µmho

Field comments: Hydrocarbon Seep, Very Strong 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 µmembrane filter ☐ **A:** 2 ml H_2SO_4/L added

☒ **NA:** No acid added ☐ Other-*specify:*

ANALYTICAL RESULTS from SAMPLES

NF, NA		Units	Date analyzed
☐ Conductivity (Corrected) 25°C (00095)		µmho	
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☐ Other:			
☐ Other:			
☐ Other:			

F, NA	7.44	Units	Date analyzed
☒ Calcium (00915)	100	mg/l	8/21
☒ Magnesium (00925)	29.7	mg/l	" "
☒ Sodium (00930)	473.8	mg/l	8/13
☒ Potassium (00935)	6.63	mg/l	8/13
☒ Bicarbonate (00440)	854.4	mg/l	8/27
☒ Chloride (00940)	149.6	mg/l	8/27
☒ Sulfate (00945)	455.9	mg/l	8/14
☒ Total filterable residue (dissolved) (70300)	1,770	mg/l	8/27
☒ Other: SiO_2	0.48	mg/l	7/31

NF, A-H_2SO_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:			

F, A-H_2SO_4			
☐ Nitrate-N +, Nitrate-N dissolved (00631)		mg/l	
☐ Ammonia-N dissolved (00608)		mg/l	
☐ Total Kjeldahl-N ( )		mg/l	
☐ Other:			

Analyst	Date Reported	Reviewed by
	8/27/85	

Laboratory remarks

SLD 726 (12/84) *DISTRIBUTION:* **WHITE** — EID, GW&HW Bureau **CANARY** — WS System **PINK** — EID Local Office **GOLDENROD** — SLD

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

pm

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED 07 05 85	LAB NO. WC-3394	USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235	
Collection DATE 06 26 85	SITE INFORMATION ►	Sample location BLOOMFIELD REFINERY	
Collection TIME 1545		Collection site description FLARE SEEP ON BLUFF OVERLOOKING SAN JUAN RIVER	
Collected by — Person/Agency BOYER			

SEND FINAL REPORT TO ►

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87501

Attn: David Boyer

RECEIVED
SEP 06 1985
OIL CONSERVATION DIVISION
SANTA FE

Station/well code

Owner

SAMPLING CONDITIONS

☐ Bailed ☐ Pump ☒ Dipped ☐ Tap	Water level	Discharge	Sample type
pH (00400)	Conductivity (Uncorrected) 2260 µmho	Water Temp. (00010) 23 °C	Conductivity at 25°C (00094) µmho

Field comments: Hydrocarbon seep, very strong 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 µmembrane filter ☒ **A:** 2 ml H_2SO_4/L added

☐ **NA:** No acid added ☐ Other-*specify:*

ANALYTICAL RESULTS from SAMPLES

NF, NA		Units	Date analyzed
☐ Conductivity (Corrected) 25°C (00095)		µmho	
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☐ Other:			
☐ Other:			
☐ Other:			

F, NA		Units	Date analyzed
☐ Calcium (00915)		mg/l	
☐ Magnesium (00925)		mg/l	
☐ Sodium (00930)		mg/l	
☐ Potassium (00935)		mg/l	
☐ Bicarbonate (00440)		mg/l	
☐ Chloride (00940)		mg/l	
☐ Sulfate (00945)		mg/l	
☐ Total filterable residue (dissolved) (70300)		mg/l	
☐ Other:			

NF, A-H_2SO_4		Units	Date analyzed
☒ Nitrate-N +, Nitrate-N total (00630)	<0.04	mg/l	8/15
☒ Ammonia-N total (00610)	0.29	mg/l	8/7
☒ Total Kjeldahl-N ( )	3.7	mg/l	8/8
☒ Chemical oxygen demand (00340)	448	mg/l	7/18
☒ Total organic carbon ( )	237	mg/l	8/26
☐ Other:			
☐ Other:			

F, A-H_2SO_4		Units	Date analyzed
☐ Nitrate-N +, Nitrate-N dissolved (00631)		mg/l	
☐ Ammonia-N dissolved (00608)		mg/l	
☐ Total Kjeldahl-N ( )		mg/l	
☐ Other:			

Analyst	Date Reported	Reviewed by
	8 27 85	

Laboratory remarks:

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

Heavy Metals
~~GENERAL WATER CHEMISTRY~~
and ~~NITROGEN ANALYSIS~~

DATE RECEIVED 07 05 85	LAB NO. HM-1246	USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235	
Collection DATE 07 26 85	SITE INFORM-ATION ►	Sample location BLOOMFIELD REFINERY	
Collection TIME 1545		Collection site description FLARE SEEP ON BLUFF OVERLOOKING SAN JUAN RIVER	
Collected by — Person/Agency BOYER			

SEND FINAL REPORT TO ►
ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87501
Attn: David Boyer

Station/ well code

Owner

SAMPLING CONDITIONS

☐ Bailed ☐ Pump ☒ Dipped ☐ Tap	Water level	Discharge	Sample type
pH (00400)	Conductivity (Uncorrected) 2260 µmho	Water Temp. (00010) 23 °C	Conductivity at 25°C (00094) µmho

Field comments: Hydrocarbon seep, Very strong 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 µmembrane filter ☒ **A:** 5 ml ~~H_2SO_4~~/L added HNO_3

☐ **NA:** No acid added ☐ Other-*specify:*

ANALYTICAL RESULTS from SAMPLES

~~NF, NA~~ F, HNO_3

		Units	Date analyzed
☐ Conductivity (Corrected) 25°C (00095)		µmho	
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☒ Other: ICAP SCAN			
☒ Other: As	0.06		
☒ Other: Cr			

F, NA

		Units	Date analyzed
☐ Calcium (00915)		mg/l	
☐ Magnesium (00925)		mg/l	
☐ Sodium (00930)		mg/l	
☐ Potassium (00935)		mg/l	
☐ Bicarbonate (00440)		mg/l	
☐ Chloride (00940)		mg/l	
☐ Sulfate (00945)		mg/l	
☐ Total filterable residue (dissolved) (70300)		mg/l	
☐ Other:			

NF, A-H_2SO_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:			

F, A-H_2SO_4

☐ Nitrate-N +, Nitrate-N dissolved (00631)		mg/l	
☐ Ammonia-N dissolved (00608)		mg/l	
☐ Total Kjeldahl-N ( )		mg/l	
☐ Other:			

Analyst	Date Reported	Reviewed by
	8 26 85	Jim Ashley

Laboratory remarks

SLD 726 (12/84) *DISTRIBUTION:* **WHITE** — EID, GW&HW Bureau **CANARY** — WS System **PINK** — EID Local Office **GOLDENROD** — SLD

ICAP -SCREEN

Lab Number: HM1246
Date Submitted: 7/5/85
By: Boyer/Baca

Sample Code: Bloomfield Refinery
Date Reported: 8/26/85
By: Jim Ashley
Date Analyzed: 8/21/85

Determination	Concentration (µg/ml)
Aluminum	<0.1
Barium	0.3
Beryllium	<0.1
Boron	0.9
Cadmium	<0.1
Calcium	120.
Chromium	<0.1
Cobalt	<0.1
Copper	<0.1
Iron	0.3
Lead	<0.1
Magnesium	45.
Manganese	0.67
Molybdenum	<0.1
Nickel	<0.1
Silicon	19.
Silver	<0.1
Strontium	4.7
Tin	<0.1
Vanadium	<0.1
Yttrium	<0.1
Zinc	<0.1

ATOMIC ABSORPTION ANALYSES

Determination	Concentration (µg/ml)
Arsenic	0.06
Selenium	
Mercury	

Lab No. 77-521.07-123

ORGANIC ANALYSIS REQUEST FORM

F89150

REPORT TO: DAVID BOYER
N.M. OIL CONSERVATION DIVISION
P.O. Box 2088
Santa Fe, NM 87504-2088

Sample No. _____
DATE REC. _____
PRIORITY _____
PHONE(S): 827-5812

COLLECTION CITY: Bloomfield ; COUNTY: San Juan

COLLECTION DATE/TIME CODE: (Year-Month-Day-Hour-Minute) 8 9 0 4 2 7 1 0 9 4 5

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

SUBMITTER: David Boyer

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

This form accompanies 3 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-AA Sample Preserved with Ascorbic Acid to remove chlorine residual.
- ☒ P-HCl Sample Preserved with Hydrochloric Acid (2 drops/40 ml)

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 Headspace (1-5 Carbons)
- ☒ (754) Aromatic & Halogenated Purgeables
- ☐ (765) Mass Spectrometer Purgeables
- ☐ (766) Trihalomethanes
- ☐ (774) SDWA VOC's I (8 Regulated +)
- ☐ (775) SDWA VOC's II (EDB & DBCP)

Other Specific Compounds or Classes

- ☐ _____
- ☐ _____

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
- ☐ (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= 1950 umho/cm at 15 °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.) (River Dock) Gary BRC, Sedimentation pond newly constructed for water intake at base of cliff, HCl preserved on

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: 5 bank Data Corp

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 ☐ OR Seals Intact: Yes ☐ No ☐

Signatures: _____ _____

For OCD use: Date owner notified: 9/11/89 Phone or (Letter)? Initials

All constituents

Inter-Mountain
Laboratories, Inc.

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

Report Date: 05/15/89

Client:	New Mexico OCD		
Sample ID:	8904270945	Date Sampled:	04/27/89
Laboratory Number:	F891500	Date Received:	04/28/89
Analysis Requested:	Purgeable Aromatics	Date Extracted:	NA
Sample Matrix:	Water	Date Analyzed:	05/11/89

Parameter	Concentration	Units
BENZENE	5.1 (0.2)	ug/l
TOLUENE	9.9 (0.2)	ug/l
ETHYLBENZENE	8.6 (0.2)	ug/l
m,p-XYLENE	54 (0.2)	ug/l
o-XYLENE	18 (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 Organic Chemist

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Inter-Mountain Laboratories, Inc.

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MAY 22 1989
OIL CONSERVATION DIV.
SANTA FE

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

Report Date: 05/09/89

Client: New Mexico OCD
Sample ID: 8904270945
IML Sample No: F891500
Analysis Requested: Purgeable Halocarbons
Sample Matrix: Water

Date Sampled: 04/27/89
Date Received: 04/28/89
Date Extracted: N/A
Date Analyzed: 05/01/89

Parameter	Concentration	Units
CHLOROMETHANE	ND (1.0)	ug/l
BROMOMETHANE	ND (1.0)	ug/l
DICHLORODIFLUOROMETHANE	ND (1.0)	ug/l
VINYL CHLORIDE	ND (1.0)	ug/l
CHLOROETHANE	ND (1.0)	ug/l
METHYLENE CHLORIDE	ND (0.1)	ug/l
TRICHLOROFLUOROMETHANE	ND (1.0)	ug/l
1,1-DICHLOROETHENE	ND (0.1)	ug/l
1,1-DICHLOROETHANE	ND (0.1)	ug/l
TRANS-1,2-DICHLOROETHENE	ND (0.1)	ug/l
CHLOROFORM	ND (0.1)	ug/l
1,2-DICHLOROETHANE	ND (0.1)	ug/l
1,1,1-TRICHLOROETHANE	ND (0.1)	ug/l
CARBON TETRACHLORIDE	ND (0.1)	ug/l
BROMODICHLOROMETHANE	ND (0.1)	ug/l
1,2-DICHLOROPROPANE	ND (0.1)	ug/l
CIS-1,3-DICHLOROPROPENE	ND (0.1)	ug/l
TRICHLOROETHENE	ND (0.1)	ug/l
DIBROMOCHLOROMETHANE	ND (0.1)	ug/l
1,1,2-TRICHLOROETHANE	ND (0.1)	ug/l
TRANS-1,3-DICHLOROPROPENE	ND (0.1)	ug/l
2-CHLOROETHYLVINYL ETHER	ND (0.1)	ug/l
BROMOFORM	ND (0.5)	ug/l
1,1,2,2-TETRACHLOROETHANE	ND (0.1)	ug/l
TETRACHLOROETHENE	ND (0.1)	ug/l
CHLOROBENZENE	ND (0.1)	ug/l
1,2-DICHLOROBENZENE	ND (0.1)	ug/l
1,3-DICHLOROBENZENE	ND (0.1)	ug/l
1,4-DICHLOROBENZENE	ND (0.1)	ug/l
CIS-1,2-DICHLOROETHENE	ND (0.1)	ug/l

Method: 601 Purgeable Halocarbons, 40 CFR Part 136, USEPA (1984).

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

Jack M. Morgan
Senior Organic Chemist

859
WNM

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: 05/02/89 | LAB NO. WL 1349 | USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235

Collection DATE: 04/27/89 | Collection TIME: 0945 | Collected by — Person/Agency: BOYER /OCD

SITE INFORMATION ► Sample location: GARY BLOOMFIELD REF

Collection site description: RIVER POND

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 ☐ Pump ☒ Dipped ☐ Tap | Water level | Discharge | Sample type: GRAB

pH (00400): 7 | Conductivity (Uncorrected): 1950 µmho | Water Temp. (00010): 15 °C | Conductivity at 25°C (00094): µmho

Field comments: South bank near black sand, brown water color

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_2SO_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)	2579	µmho	5/15
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☒ Other: Lab pH	8.06		5/9
☐ Other:			
☐ Other:			

A-H_2SO_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:			

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From NF, NA Sample:

			Date Analyzed
☒ Calcium	220	mg/l	5/10
☒ Potassium	7	mg/l	5/4
☒ Magnesium	39.0	mg/l	5/10
☒ Sodium	315	mg/l	5/4
☒ Bicarbonate	380	mg/l	5/9
☒ Chloride	323	mg/l	5/4
☒ Sulfate	606	mg/l	6/9
☒ Total Solids	1830	mg/l	5-3
☐			
☐			
☒ Cation/Anion Balance			

Analyst | Date Reported: 6/13/89 | Reviewed by

Laboratory remarks:
323

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

CATIONS				ANIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT	ANALYTE	MEQ.	PPM	DET. LIMIT
Ca	10.98	220.00	<3.0	HC03	6.23	380.00	<1.0
Mg	3.20	39.00	<0.3	SO4	12.63	606.00	<10.0
Na	13.70	315.00	<10.0	CL	9.11	323.00	<5.0
K	0.18	7.00	<0.3				
Mn	0.00	0.00		NO3	0.00	0.00	< 0.
Fe	0.00	0.00		C03	0.00	0.00	< 1.
				NH3	0.00	0.00	< 0.
				PO4	0.00	0.00	< 0.
SUMS	28.06	581.00			27.96	1309.00	

Total Dissolved Solids= 1830
Ion Balance = 100.35%

WC No. = 8901349
Date out/By 6/13

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SANTA FE

Lab No. 77-521.07-123

ORGANIC ANALYSIS REQUEST FORM

F 89151

REPORT TO: DAVID BOYER
N.M. OIL CONSERVATION DIVISION
P.O. Box 2088
Santa Fe, NM 87504-2088

Sample No. _____
DATE REC. _____
PRIORITY _____
PHONE(S): 827-5812

COLLECTION CITY: Bloomfield ; COUNTY: San Juan

COLLECTION DATE/TIME CODE: (Year-Month-Day-Hour-Minute) 8191942171 1000

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

SUBMITTER: David Boyer

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

This form accompanies 3 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-AA: Sample Preserved with Ascorbic Acid to remove chlorine residual.
- ☒ P-HCl: Sample Preserved with Hydrochloric Acid (2 drops/40 ml)

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 Headspace (1-5 Carbons)
- ☒ (754) Aromatic & Halogenated Purgeables
- ☐ (765) Mass Spectrometer Purgeables
- ☐ (766) Trihalomethanes
- ☐ (774) SDWA VOC's I (8 Regulated +)
- ☐ (775) SDWA VOC's II (EDB & DBCP)

Other Specific Compounds or Classes

- ☐ _____
- ☐ _____

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
- ☐ (755) Base/Neutral Extractables
- ☐ (758) Herbicides, Chlorophenoxy acid
- ☐ (759) Herbicides, Triasines
- ☐ (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= 3050 umho/cm at 10 °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.)

"Waterfall" (seep) beneath SPCC ponds, NO odor
Conoco Bloomfield Refinery

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

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 ☐ OR Seals Intact: Yes ☐ No ☐

Signatures: _____ _____

For OCD use: Date owner notified: 9/11/89 Phone or (Letter?) Initials DR

All constituents

Inter-Mountain Laboratories, Inc.

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

Report Date: 05/15/89

Client:	New Mexico OCD		
Sample ID:	8904271000	Date Sampled:	04/27/89
Laboratory Number:	F891510	Date Received:	04/28/89
Analysis Requested:	Purgeable Aromatics	Date Extracted:	NA
Sample Matrix:	Water	Date Analyzed:	05/10/89

Parameter	Concentration	Units
BENZENE	ND (0.2)	ug/l
TOLUENE	ND (0.2)	ug/l
ETHYLBENZENE	ND (0.2)	ug/l
m,p-XYLENE	ND (0.2)	ug/l
o-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 Organic Chemist

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OIL CONSERVATION DIV.
SANTA FE

imi
Inter-Mountain
Laboratories, Inc.

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

** Quality Assurance Report
Matrix spike duplicate (10ug/l)

Report Date: 05/15/89

Client:	New Mexico OCD		
Sample ID:	8904271000	Date Sampled:	04/27/89
Laboratory Number:	F891510	Date Received:	04/28/89
Analysis Requested:	Purgeable Aromatics	Date Extracted:	NA
Sample Matrix:	Water	Date Analyzed:	05/10/89

Parameter	Concentration	Units
BENZENE	11.3 (0.2)	ug/l
TOLUENE	11.4 (0.2)	ug/l
ETHYLBENZENE	11.5 (0.2)	ug/l
m,p-XYLENE	11.5 (0.2)	ug/l
o-XYLENE	11.6 (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 Organic Chemist

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OIL CONSERVATION DIV.
SANTA FE

Inter·Mountain
Laboratories, Inc.

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

** Quality Assurance Report
Matrix Spike (10ug/l)

Report Date: 05/15/89

Client:	New Mexico OCD		
Sample ID:	8904271000	Date Sampled:	04/27/89
Laboratory Number:	F891510	Date Received:	04/28/89
Analysis Requested:	Purgeable Aromatics	Date Extracted:	NA
Sample Matrix:	Water	Date Analyzed:	05/10/89

Parameter	Concentration	Units
BENZENE	10.4 (0.2)	ug/l
TOLUENE	10.4 (0.2)	ug/l
ETHYLBENZENE	10.4 (0.2)	ug/l
m,p-XYLENE	10.4 (0.2)	ug/l
o-XYLENE	10.2 (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 Organic Chemist

RECEIVED
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Inter-Mountain Laboratories, Inc.

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

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MAY 22 1989
OIL CONSERVATION DIV.
SANTA FE

Report Date: 05/09/89

Client: New Mexico OCD
Sample ID: 8904271000
IML Sample No: F891510
Analysis Requested: Purgeable Halocarbons
Sample Matrix: Water

Date Sampled: 04/27/89
Date Received: 04/28/89
Date Extracted: N/A
Date Analyzed: 05/01/89

Parameter	Concentration		Units
CHLOROMETHANE	ND	(1.0)	ug/l
BROMOMETHANE	ND	(1.0)	ug/l
DICHLORODIFLUOROMETHANE	ND	(1.0)	ug/l
VINYL CHLORIDE	ND	(1.0)	ug/l
CHLOROETHANE	ND	(1.0)	ug/l
METHYLENE CHLORIDE	ND	(0.1)	ug/l
TRICHLOROFLUOROMETHANE	ND	(1.0)	ug/l
1,1-DICHLOROETHENE	ND	(0.1)	ug/l
1,1-DICHLOROETHANE	ND	(0.1)	ug/l
TRANS-1,2-DICHLOROETHENE	ND	(0.1)	ug/l
CHLOROFORM	ND	(0.1)	ug/l
1,2-DICHLOROETHANE	ND	(0.1)	ug/l
1,1,1-TRICHLOROETHANE	ND	(0.1)	ug/l
CARBON TETRACHLORIDE	ND	(0.1)	ug/l
BROMODICHLOROMETHANE	ND	(0.1)	ug/l
1,2-DICHLOROPROPANE	ND	(0.1)	ug/l
CIS-1,3-DICHLOROPROPENE	ND	(0.1)	ug/l
TRICHLOROETHENE	ND	(0.1)	ug/l
DIBROMOCHLOROMETHANE	ND	(0.1)	ug/l
1,1,2-TRICHLOROETHANE	ND	(0.1)	ug/l
TRANS-1,3-DICHLOROPROPENE	ND	(0.1)	ug/l
2-CHLOROETHYLVINYL ETHER	ND	(0.1)	ug/l
BROMOFORM	ND	(0.5)	ug/l
1,1,2,2-TETRACHLOROETHANE	ND	(0.1)	ug/l
TETRACHLOROETHENE	ND	(0.1)	ug/l
CHLOROBENZENE	ND	(0.1)	ug/l
1,2-DICHLOROBENZENE	ND	(0.1)	ug/l
1,3-DICHLOROBENZENE	ND	(0.1)	ug/l
1,4-DICHLOROBENZENE	ND	(0.1)	ug/l
CIS-1,2-DICHLOROETHENE	ND	(0.1)	ug/l

Method: 601 Purgeable Halocarbons, 40 CFR Part 136, USEPA (1984).

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

Jack M. Morgan
Senior Organic Chemist

859 WNW

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 05 02 89 | LAB NO. WC 1345 | USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235

Collection DATE 89 04 27 | Collection TIME 1000 | Collected by — Person/Agency BOYER /OCD

SITE INFORMATION ► Sample location GARY BLOOMFIELD WATER FALL

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

☒ Dipped ☐ Bailed ☐ Pump ☐ Tap	Water level	Discharge	Sample type GRAB
pH (00400) 7	Conductivity (Uncorrected) 3050 µmho	Water Temp. (00010) 10 °C	Conductivity at 25°C (00094) µmho

Field comments Seepage over rock outcrop beneath SPCC ponds in arroyo

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_2SO_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)	4477	µmho	5/15
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☒ Other: Lab pH	7.77		5/9
☐ Other:			
☐ Other:			

A-H_2SO_4			
☐ Nitrate-N +, Nitrate-N total (00630)		mg/l	
☐ Ammonia-N total (00610)		mg/l	
☐ Total Kjeldahl-N ( )			
☐ Chemical oxygen demand (00340)		mg/l	
☐ Total organic carbon ( )		mg/l	
☐ Other:			
☐ Other:			

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From WF, NA Sample:

			Date Analyzed
☒ Calcium	352	mg/l	5/10
☒ Potassium	11	mg/l	5/4
☒ Magnesium	75.6	mg/l	5/10
☒ Sodium	676	mg/l	5/4
☒ Bicarbonate	374	mg/l	5/9
☒ Chloride	675	mg/l	5/4
☒ Sulfate	1513	mg/l	6/9
☒ Total Solids	3450	mg/l	5-3
☐			
☐			
☒ Cation/Anion Balance	94%		

Analyst | Date Reported 6 15 89 | Reviewed by

Laboratory remarks

675

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

CATIONS				ANIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT	ANALYTE	MEQ.	PPM	DET. LIMIT
Ca	17.56	352.00	<3.0	HC03	6.13	374.00	<1.0
Mg	6.21	75.60	<0.3	SO4	31.52	1513.00	<10.0
Na	29.40	676.00	<10.0	CL	19.04	675.00	<5.0
K	0.28	11.00	<0.3				
Mn	0.00	0.00		NO3	0.00	0.00	< 0.
Fe	0.00	0.00		C03	0.00	0.00	< 1.
				NH3	0.00	0.00	< 0.
				PO4	0.00	0.00	< 0.
SUMS	53.46	1114.60			56.69	2562.00	

Total Dissolved Solids= 3450

Ion Balance = 94.30%

WC No. = 8901345

Date out/By CD 6/13

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SANTA FE

WPN 852

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 05 02 89 | LAB NO. UC 1365 | USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235

Collection DATE 89 04 27 | Collection TIME 1715 | Collected by — Person/Agency Boyer /OCD

SITE INFORMATION ► Sample location: Gary Bloomfield Water Fall

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

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SANTA FE

Station/well code:

Owner:

SAMPLING CONDITIONS

☐ Bailed ☒ Dipped ☐ Pump ☐ Tap	Water level	Discharge	Sample type: Grab
pH (00400): 7	Conductivity (Uncorrected): 3050 µmho	Water Temp. (00010): 10 °C	Conductivity at 25°C (00094): µmho

Field comments: (Same Location as 8904271000)

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_2SO_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:			
☐ Other:			
☐ Other:			

A-H_2SO_4			
☒ Nitrate-N +, Nitrate-N total (00630)	0.23	mg/l	5/9
☒ Ammonia-N total (00610)	0.11	mg/l	5/8
☒ Total Kjeldahl-N ( )	0.66	mg/l	5/23
☐ 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: 5 24 89 | Reviewed by

Laboratory remarks:

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

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	05/02/89	Lab No. ICAP 215	User Code	☒ 82235	☐ Other:

COLLECTION DATE & TIME: yy 89 mm 04 dd 27 hh 10 mm 00

COLLECTED BY: BOYER

COLLECTION SITE DESCRIPTION: GARY BLOOMFIELD REF
WATER FALL

OWNER:

TO:

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

ATTN: DAVID BOYER
TELEPHONE: 827-5812

SITE LOCATION:
County: San Juan

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

STATION/ WELL CODE:

LATITUDE, LONGITUDE:

SAMPLING CONDITIONS:

☐ Bailed ☒ Dipped	☐ Pump ☐ Tap	Water Level:	Discharge:	Sample Type: GRAB

pH(00400)	Conductivity(Uncorr.)	Water Temp.(00010)	Conductivity at 25°C (00094)
7	3050 µmho	10 °C	µmho

FIELD COMMENTS:

SAMPLE FIELD TREATMENT Check proper boxes:		LAB ANALYSIS REQUESTED:
☒ 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.

ANALYTICAL RESULTS (MG/L)

ELEMENT	ICAP VALUE		AA VALUE
Aluminum	<0.1		
Barium	<0.1		
Beryllium	<0.1		
Boron	0.3		
Cadmium	<0.1	☐	
Calcium	360.		
Chromium	<0.1	☒	<0.025
Cobalt	<0.05		
Copper	<0.1		
Iron	<0.1		
Lead	<0.1	☒	<0.005
Magnesium	66.		
Manganese	0.33		
Molybdenum	<0.1		
Nickel	<0.1		

ELEMENT	ICAP VALUE		AA VALUE
Silicon	4.3		
Silver	<0.1	☐	
Strontium	5.3		
Tin	<0.1		
Vanadium	<0.1		
Zinc	<0.1		
Arsenic		☒	<0.005
Selenium		☐	
Mercury		☐	

LAB COMMENTS: Digest

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

ICAP Analyst: [signature] Date Analyzed: 7/10/89

Reviewer: [signature] Date Received: 8/21/89

~~SCIENTIFIC LABORATORY DIVISION~~

ORGANIC ANALYSIS REQUEST FORM

~~Organic Section — Phone: 841-2570~~

F89152

77-521.07-123

REPORT TO: DAVID BOYER
N.M. OIL CONSERVATION DIVISION
P.O. Box 2088
Santa Fe, NM 87504-2088

S.L.D. No. OR-
DATE REC.
PRIORITY
PHONE(S): 827-5812

COLLECTION CITY: Bloomfield ; COUNTY: San Juan

COLLECTION DATE/TIME CODE: (Year-Month-Day-Hour-Minute) |8|9|0|4|2|7|1|0|1|5|

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

USER CODE: |8|2|2|3|5| SUBMITTER: David Boyer CODE: |2|6|0|

SAMPLE TYPE: WATER |X|, SOIL |_|, FOOD |_|, OTHER:

This form accompanies 3 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-AA Sample Preserved with Ascorbic Acid to remove chlorine residual.
- ☒ P-HCl Sample Preserved with Hydrochloric Acid (2 drops/40 ml)

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 Headspace (1-5 Carbons)
- ☒ (754) (Aromatic) & (Halogenated) Purgeables
- ☐ (765) Mass Spectrometer Purgeables
- ☐ (766) Trihalomethanes
- ☐ (774) SDWA VOC's I (8 Regulated +)
- ☐ (775) SDWA VOC's II (EDB & DBCP)

Other Specific Compounds or Classes

- ☐ _____
- ☐ _____

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
- ☐ (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= 2750 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.)

Conoco Bloomfield Refinery, Upper SPCC pond, much Aquatic life, birds. scum on banks

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 Car

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 ☐ OR Seals Intact: Yes ☐ No ☐

Signatures _____ _____

For OCD use: Date owner notified: 9/11/85 Phone or (Letter?) Initials WB

All constituents -

ANALYSES PERFORMED

LAB. No.: OR-

THIS PAGE FOR LABORATORY RESULTS ONLY

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

PURGEABLE SCREENS

- ☐ (753) Aliphatic Headspace (1-5 Carbons)
- ☐ (754) Aromatic & Halogenated Purgeables
- ☐ (765) Mass Spectrometer Purgeables
- ☐ (766) Trihalomethanes
- ☐ (774) SDWA VOC's I (8 Regulated +)
- ☐ (775) SDWA VOC's II (EDB & DBCP)

Other Specific Compounds or Classes

- ☐ _____
- ☐ _____

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
- ☐ (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]
* 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) Not Sealed ☐ 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: _____

Inter-Mountain
Laboratories, Inc.

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

Report Date: 05/15/89

Client:	New Mexico OCD		
Sample ID:	8904271015	Date Sampled:	04/27/89
Laboratory Number:	F891520	Date Received:	04/28/89
Analysis Requested:	Purgeable Aromatics	Date Extracted:	NA
Sample Matrix:	Water	Date Analyzed:	05/05/89

Parameter	Concentration	Units
BENZENE	0.68 (0.2)	ug/l
TOLUENE	0.26 (0.2)	ug/l
ETHYLBENZENE	ND (0.2)	ug/l
m,p-XYLENE	0.23 (0.2)	ug/l
o-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.

Jack M. Morgan
Senior Organic Chemist

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MAY 23 1989
OIL CONSERVATION DIV.
SANTA FE

Inter-Mountain Laboratories, Inc.

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

RECEIVED
MAY 22 1989
OIL CONSERVATION DIV.
SANTA FE

Report Date: 05/09/89

Client: New Mexico OCD
Sample ID: 8904271015
IML Sample No: F891520
Analysis Requested: Purgeable Halocarbons
Sample Matrix: Water

Date Sampled: 04/27/89
Date Received: 04/28/89
Date Extracted: N/A
Date Analyzed: 05/02/89

Parameter	Concentration	Units
CHLOROMETHANE	ND (1.0)	ug/l
BROMOMETHANE	ND (1.0)	ug/l
DICHLORODIFLUOROMETHANE	ND (1.0)	ug/l
VINYL CHLORIDE	ND (1.0)	ug/l
CHLOROETHANE	ND (1.0)	ug/l
METHYLENE CHLORIDE	ND (0.1)	ug/l
TRICHLOROFLUOROMETHANE	ND (1.0)	ug/l
1,1-DICHLOROETHENE	ND (0.1)	ug/l
1,1-DICHLOROETHANE	ND (0.1)	ug/l
TRANS-1,2-DICHLOROETHENE	ND (0.1)	ug/l
CHLOROFORM	ND (0.1)	ug/l
1,2-DICHLOROETHANE	ND (0.1)	ug/l
1,1,1-TRICHLOROETHANE	ND (0.1)	ug/l
CARBON TETRACHLORIDE	ND (0.1)	ug/l
BROMODICHLOROMETHANE	ND (0.1)	ug/l
1,2-DICHLOROPROPANE	ND (0.1)	ug/l
CIS-1,3-DICHLOROPROPENE	ND (0.1)	ug/l
TRICHLOROETHENE	ND (0.1)	ug/l
DIBROMOCHLOROMETHANE	ND (0.1)	ug/l
1,1,2-TRICHLOROETHANE	ND (0.1)	ug/l
TRANS-1,3-DICHLOROPROPENE	ND (0.1)	ug/l
2-CHLOROETHYLVINYL ETHER	ND (0.1)	ug/l
BROMOFORM	ND (0.5)	ug/l
1,1,2,2-TETRACHLOROETHANE	ND (0.1)	ug/l
TETRACHLOROETHENE	ND (0.1)	ug/l
CHLOROBENZENE	ND (0.1)	ug/l
1,2-DICHLOROBENZENE	ND (0.1)	ug/l
1,3-DICHLOROBENZENE	ND (0.1)	ug/l
1,4-DICHLOROBENZENE	ND (0.1)	ug/l
CIS-1,2-DICHLOROETHENE	ND (0.1)	ug/l

Method: 601 Purgeable Halocarbons, 40 CFR Part 136, USEPA (1984).

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

Jack M. Morgan
Senior Organic Chemist

REPORT TO: David G. Boyer
New Mexico Oil Conservation Division
P. O. Box 2088
Santa Fe, NM 87501

85-0274-B

LABORATORY ORG 274 A
LAB NUMBER 3-22-85
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. Soil Sample from Bank of Hammond Ditch

City & County Bloomfield, San Juan

Collected (date & time) 1255, 3/21/85 By (name) Boyer / Boyd

pH= — ; Conductivity= — umho/cm at — °C; Chlorine Residual= —

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

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

Only soil sample from bank of Hammond ditch, ~~from~~ product seen in water sample

I certify that the statements in this block accurately reflect the results of my field analyses, observations and activities. Signed Herb Boyer

I certify that I witnessed these field analyses, observations and activities and concur with the statements in this block. Signed Philip L. Boyd

Method of Shipment to Laboratory Hand carried.

THIS FORM ACCOMPANIES ___ septum vials with teflon-lined discs identified as:
specimen _____; duplicate _____; triplicate _____; blank(s) _____,
and ___ amber glass jug(s) with teflon-lined cap(s) identified as _____,
and 1 other container(s) (describe) Mason Jar 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. Mason Jar w/ Foil
P-$Na_2O_3S_2$: Sample preserved with 3 mg $Na_2O_3S_2$/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- 274

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
		ALIPHATIC HYDROCARBON SCREEN
X	X	AROMATIC HYDROCARBON SCREEN
		HALOGENATED HYDROCARBON SCREEN
		GAS CHROMATOGRAPH/MASS SPECTROMETER
		SPECIFIC COMPOUNDS

QUALITATIVE	QUANTITATIVE	EXTRACTABLE SCREENS (See Remarks)
X	X	ALIPHATIC HYDROCARBONS
		CHLORINATED HYDROCARBON PESTICIDES
		CHLOROPHENOXY ACID HERBICIDES
X	X	HYDROCARBON FUEL SCREEN
		ORGANOPHOSPHATE PESTICIDES
		POLYCHLORINATED BIPHENYLS (PCB's)
		POLYNUCLEAR AROMATIC HYDROCARBONS
		TRIAZINE HERBICIDES
		SPECIFIC COMPOUNDS
		Benzene etc

REMARKS: It is possible to determine if sample is refined or crude product.

ANALYTICAL RESULTS

COMPOUND	[PPB]	COMPOUND	[PPB]
		* DETECTION LIMIT	

REMARKS: Aliphatic extractable at less than C10 to greater than C40 detected.

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes___ NO___. Seal(s) broken by:_____ date:_____

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

Date(s) of analysis: 4/18/85. Analyst's signature: J. Gabby

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 Meyerhen

REPORT TO: David G. Boyer
New Mexico Oil Conservation Division
P. O. Box 2088
Santa Fe, NM 875

85-0270-C

LABORATORY ORG 270 AVB

LAB NUMBER 3-22-85

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. Water Sample from Lido/Hammond Lateral

City & County 4250, ~~[illegible]~~ Bloomfield, San Juan

Collected (date & time) 12:50, 3/21/85 By (name) Boyer/Baca

pH= – ; Conductivity= – umho/cm at – °C; Chlorine Residual= –

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

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

Sample taken in mason jar, transferred to organic vial in Aztec OCD office 30 min. later. Product noted on water

I certify that the statements in this block accurately reflect the results of my field analyses, observations and activities. Signed David G. Boyer

I certify that I witnessed these field analyses, observations and activities and concur with the statements in this block. Signed Philip L. Baca

Method of Shipment to Laboratory Hand carried

THIS FORM ACCOMPANIES 2 septum vials with teflon-lined discs identified as:
specimen ✓ ; 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-$Na_2O_3S_2$: Sample preserved with 3 mg $Na_2O_3S_2$/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- 270

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
		ALIPHATIC HYDROCARBON SCREEN
X	X	AROMATIC HYDROCARBON SCREEN
		HALOGENATED HYDROCARBON SCREEN
		GAS CHROMATOGRAPH/MASS SPECTROMETER
		SPECIFIC COMPOUNDS
		Benzene Etc

QUALITATIVE	QUANTITATIVE	EXTRACTABLE SCREENS
		ALIPHATIC HYDROCARBONS
		CHLORINATED HYDROCARBON PESTICIDES
		CHLOROPHENOXY ACID HERBICIDES
		HYDROCARBON FUEL SCREEN
		ORGANOPHOSPHATE PESTICIDES
		POLYCHLORINATED BIPHENYLS (PCB's)
		POLYNUCLEAR AROMATIC HYDROCARBONS
		TRIAZINE HERBICIDES
		SPECIFIC COMPOUNDS

REMARKS:

ANALYTICAL RESULTS

COMPOUND	[PPB]	COMPOUND	[PPB]
halogenated purgeables	none detected		
benzene	10200		
toluene	7200		
ethyl-benzene	300		
p-xylene	920		
m-xylene	2300		
o-xylene	730		
		* DETECTION LIMIT	100 ug/l

REMARKS: Two other peaks also detected on PID; but they were not identified.

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ___ NO X. Seal(s) broken by: _____ date: _____

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

Date(s) of analysis: 26 Mar 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]

Samples from
drill holes

SCIENTIFIC LABORATORY DIVISION
ORGANIC ANALYSIS REQUEST FORM
Organic Section - Phone: 841-2570

754 wpll

OR89-0939-C

REPORT TO: DAVID BOYER
N.M. OIL CONSERVATION DIVISION
P.O. Box 2088
Santa Fe, NM 87504-2088

S.L.D. No. OR-
DATE REC. 6-28-89
PRIORITY 3
PHONE(S): 827-5812

COLLECTION CITY: Bloomfield ; COUNTY: San Juan

COLLECTION DATE/TIME CODE: (Year-Month-Day-Hour-Minute) | 8 | 9 | 0 | 6 | 2 | 8 | 0 | 9 | 3 | 6 |

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

USER CODE: | 8 | 2 | 2 | 3 | 5 | SUBMITTER: David Boyer CODE: | 2 | 6 | 0 |

SAMPLE TYPE: WATER [X], SOIL [ ], FOOD [ ], OTHER:

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

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OCT - 3 1989
OIL CONSERVATION DIV.
SANTA FE

Samples were preserved as follows:

- [ ] NP: No Preservation; Sample stored at room temperature.
- [X] P-Ice Sample stored in an ice bath (Not Frozen).
- [ ] P-AA Sample Preserved with Ascorbic Acid to remove chlorine residual.
- [X] P-HCl Sample Preserved with Hydrochloric Acid (2 drops/40 ml)

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 Headspace (1-5 Carbons)
- [X] (754) Aromatic & Halogenated Purgeables
- [ ] (765) Mass Spectrometer Purgeables
- [ ] (766) Trihalomethanes
- [ ] (774) SDWA VOC's I (8 Regulated +)
- [ ] (775) SDWA VOC's II (EDB & DBCP)

Other Specific Compounds or Classes

- [ ] _____
- [ ] _____

EXTRACTABLE SCREENS

- [ ] (751) Aliphatic Hydrocarbons
- [ ] (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=_____umho/cm at _____°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.)
Terry BRC - Backhoe hole, West Sullivan Road. Bright sheen on water when disturbed; slight odor

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

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 [ ] OR Seals Intact: Yes [ ] No [ ]

Signatures _____ _____

For OCD use: Date owner notified:_____ Phone or Letter? Initials_____

ANALYSES PERFORMED

LAB. No.: OR-_____

THIS PAGE FOR LABORATORY RESULTS ONLY

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

PURGEABLE SCREENS

- ☐ (753) Aliphatic Headspace (1-5 Carbons)
- ☐ (754) Aromatic & Halogenated Purgeables
- ☐ (765) Mass Spectrometer Purgeables
- ☐ (766) Trihalomethanes
- ☐ (774) SDWA VOC's I (8 Regulated +)
- ☐ (775) SDWA VOC's II (EDB & DBCP)

Other Specific Compounds or Classes

- ☐ _____
- ☐ _____

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
- ☐ (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]
* 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) Not Sealed ☐ 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: _____

STATE OF NEW MEXICO HEALTH AND ENVIRONMENT DEPARTMENT
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud, NE
Albuquerque, NM 87106 [505]-841-2500
ORGANIC CHEMISTRY SECTION [505]-841-2570

August 15, 1989

ANALYTICAL REPORT
SLD Accession No. OR-89-0939

Distribution
(■) Submitter
(▩) SLD Files

To: NM Oil Consv. Div.
State Land Office Bldg.
P. O. Box 2088
Santa Fe, NM 87504-2088

From: Organic Chemistry Section
Scientific Laboratory Div.
700 Camino de Salud, NE
Albuquerque, NM 87106

Re: **A purgeable water sample submitted to this laboratory on June 28, 1989**

User:
OIL CONSERVATION DIV
State Land Office Bldg.
P. O. Box 2088
Santa Fe, NM 87504-2088

DEMOGRAPHIC DATA

COLLECTION

On: 28-Jun-89 *By:* Boy . . .
At: 9:26 hrs. *In/Near:* Bloomfield

LOCATION

ANALYTICAL RESULTS: Aromatic & Halogenated Purgeable Screen

Parameter	Value	Note	MDL	Units
Halogenated Purgeables (33)	0.00	N	0.50	ppb
Benzene	5.00		1.00	ppb

See Laboratory Remarks for Additional Information

Notations & Comments:

MDL = Minimal Detectable Level.

A = Approximate Value; N = None Detected above Detection Limit; P = Compound Present, but not quantified; T = Trace (<Detection Limit); U = Compound Identity Not Confirmed.

Evidentiary Seals: Not Sealed [X]; Intact: No [ ], Yes [ ] & Broken By: _____ Date: _____

Laboratory Remarks: West Sullivan Road
8-10 unidentified unsaturated compounds at trace to 20ppb.

Analyst: Michael J. Owen, *Analyst, Organic Chemistry* — 8-1-89 Analysis Date

Reviewed By: Richard F. Meyerhein, *Supervisor, Organic Chemistry Section* 08/15/89

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OCT - 3 1989
OIL CONSERVATION DIV.
SANTA FE

859
WNN

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 06 | 28 | 89 LAB NO. WC 2394 USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235

Collection DATE 89/06/28
Collection TIME 0926
Collected by — Person/Agency Boyd Englert /OCD

SITE INFORMATION ►
Sample location: Gary BRC, West Sullivan Road Canyon
Collection site description: Sample from backhoe hole dug by BRC, Approx 75 feet North of Sullivan Road, 100 feet west of dirt road to Gary pump inlets. Approx 250 feet west of Hammond Ditch

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: ~2' below surface	Discharge: —	Sample type: Grab
pH (00400): —	Conductivity (Uncorrected): — µmho	Water Temp. (00010): — °C	Conductivity at 25°C (00094): — µmho

Field comments: Sheen on water when stirred; slight odor.

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted: 1
☒ NF: Whole sample (Non-filtered) ☐ F: Filtered in field with 0.45 µmembrane filter ☐ A: 2 ml H_2SO_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)	5302	µmho	7/10
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☒ Other: Lab pH	7.58		7/10
☐ Other:			
☐ Other:			

A-H_2SO_4		Units	Date analyzed
☐ 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 NF, NA Sample:

			Date Analyzed
☒ Calcium	72	mg/l	8/04
☒ Potassium	5	mg/l	7/10
☒ Magnesium	90.3	mg/l	8/04
☒ Sodium	1036	mg/l	7/10
☒ Bicarbonate	820	mg/l	7/10
☒ Chloride	1710	mg/l	7/10
☒ Sulfate	41.4	mg/l	7/21
☒ Total Solids	3310	mg/l	7/19
☒ CO_3	Ø		7/10
☒ Br	1.62		7/31
☒ Cation/Anion Balance			

Analyst: | Date Reported: 8 | 7 | 89 | Reviewed by: [signature]

Laboratory remarks

FOR OCD USE -- Date Owner Notified________ Phone or Letter?________ Initals________

CATIONS				ANIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT	ANALYTE	MEQ.	PPM	DET. LIMIT
[redacted]	3.59	72.00	<3.0	HCO3	13.44	820.00	<1.0
Mg	7.42	90.30	<0.3	SO4	0.86	41.40	<10.0
Na	45.06	1036.00	<10.0	CL	48.24	1710.00	<5.0
K	0.13	5.00	<0.3				
Mn	0.00	0.00		NO3	0.00	0.00	< 0.
Fe	0.00	0.00		CO3	0.00	0.00	< 1.
				NH3	0.00	0.00	< 0.
				PO4	0.00	0.00	< 0.
SUMS	56.20	1203.30			62.54	2571.40	

Total Dissolved Solids= 3310

Ion Balance = 89.87%

WC No. = 8902394

Date out/By CJ 8/7/89

imi
Inter-Mountain
Laboratories, Inc.

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

31 May 1989

Bloomfield Refining Company
POB 159
Bloomfield, NM 87413

Chris Hawley,

This letter is to document the lost samples I reported to you by telephone. Due to failure of our laboratory equipment (a refrigerator) the following samples were lost: Salmon, MW-1, MW-4, and MW-5. These were received at the lab on 24 May 1989 for 601 analysis (purgeable halocarbons). Please accept my apology for this inconvenience.

Sincerely,

C. Neal Schaeffer
Senior Organic Chemist

iml
Inter-Mountain
Laboratories, Inc.

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

Date: 05/31/89

Client: Bloomfield Refinery
Sample Site: Salmon
IML Sample No: F89180 O
Analysis Requested: Purgeable Aromatics
Sample Matrix: Water

Date Sampled: 05/24/89
Date Received: 05/24/89
Date Extracted: N/A
Date Analyzed: 05/26/89

Parameter	Concentration	Units
BENZENE	1400 (10)	ug/l
TOLUENE	13 (10)	ug/l
ETHYLBENZENE	130 (10)	ug/l
m,p-XYLENE	1400 (10)	ug/l
o-XYLENE	ND (10)	ug/l

Method: 8020 Aromatic Volatile Organics, SW-846, USEPA (1982)
602 Purgeable Aromatics, 40 CFR, Part 136

Note: Method Detection Limit (MDL) is given in parenthesis.
ND means analyte was not detected.

C. Neal Schaeffer
Senior Organic Chemist

Inter-Mountain Laboratories, Inc.
2506 West Main Street | Farmington, New Mexico 87401 | Tel. (505) 326-4737

Bloomfield Refining Company
P.O. Box 159, Bloomfield, NM 87413

Trace Metal Analysis
Dissolved Concentrations, mg/l

June 20, 1989

Lab Number	Sample Identification	Arsenic	Barium	Boron	Cadmium	Chromium	Iron	Lead	Manganese
1432	Salmon	<0.005	<0.5	0.32	<0.002	<0.02	0.11	0.05	0.09
1432A	Duplicate Analysis	<0.005	<0.5	0.40	<0.002	<0.02	0.10	0.06	0.08
Detection Limit:		0.005	0.5	0.01	0.002	0.02	0.05	0.02	0.02

Reviewed by: April V. Gil

April V. Gil
Senior Geologist
Laboratory Director

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

Bloomfield Refining Company
P.O. Box 159, Bloomfield, NM 87413

Water Analysis

June 20, 1989

Lab Number	Sample Identification	Ammonia (mg/l)	Nitrate (mg/l)	Nitrite (mg/l)	TKN (mg/l)	Phenol (mg/l)	Cyanide (mg/l)	TDS (mg/l)	Sulfate mg/l	Sulfate meq/l
1432	Salmon	0.109	<0.1	0.044	<1.0	0.579	<0.005	2668	16.46	0.343
1432A	Duplicate Analysis	0.109	<0.1	0.037	<1.0	0.240	<0.005	2660	12.35	0.257

Reviewed by: April V. Gil

April V. Gil
Senior Geologist
Laboratory Director

wpu

SCIENTIFIC LABORATORY DIVISION

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

ENVIR ... MEXICO

86- 0870-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- Org- 870

DATE REC. 7-31-86

86- 0910-B

PRIORITY

PHONE(S): 827-5812 USER CODE: 8 2 2 3 5

SUBMITTER: David Boyer CODE: 2 6 0

SAMPLE COLLECTION CODE: (YYMMDDHHMMIII) 8 6 0 7 2 8 1 4 0 0 DGB

SAMPLE TYPE: WATER [X], SOIL [ ], FOOD [ ], OTHER: ______ CODE: | | | |

COUNTY: San Juan ; CITY: Bloomfield CODE: | | | | | |

LOCATION CODE: (Township-Range-Section-Tracts) 29N+11E+27+31 (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

- [X] (753) Aliphatic Purgeables (1-3 Carbons)
- [X] (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: Sample foamy when taken
Black oil stained sand, hydrocarbon (diesel) odor

FIELD DATA:

pH=______; Conductivity=______umho/cm at ______°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.)

Sample from dug hole on South side of Arroyo. Hole 7-12" deep. Location ~40' up from culvert at Hwy 44 & Sullivan Rd

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities.(signature collector): DG Boyer / R Anderson 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.
- [X] P-Ice Sample stored in an ice bath (Not Frozen).
- [ ] P-$Na_2S_2O_3$ Sample Preserved with Sodium Thiosulfate to remove chlorine residual.

RECEIVED
SEP - 5 1986
OIL CONSERVATION DIVISION
SANTA FE

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 10/20/86 Phone or Letter? ______ Initials AB

ANALYSES PERFORMED

LAB. No.: OR- 870

THIS PAGE FOR LABORATORY RESULTS ONLY

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

PURGEABLE SCREENS

- [x] (753) Aliphatic Purgeables (1-3 Carbons)
- [x] (754) Aromatic & Halogenated Purgeables
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- [ ] (766) Trihalomethanes

Other Specific Compounds or Classes

- [ ] _____
- [ ] _____
- [ ] _____
- [ ] _____
- [ ] _____

EXTRACTABLE SCREENS

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- [ ] (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]
Methane in Head space	17ppm	benzene +	ND
Hydrocarbon Fuel *	75ppm	toluene +	ND
		ethylbenzene +	41
halogenated purgeables +	ND	p-xylene +	100
		m-xylene +	190
		o-xylene +	ND
* DETECTION LIMIT *	2ppm	+ DETECTION LIMIT +	10ppb

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:

Back up data + Charts in Dry - 869

* Chromatographic fingerprint consistent with that of gasoline. Ten other compounds were detected by the aromatic screen 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 on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: 8/7/86 8-8-86. Analyst's signature: CS Burney JM Tinney

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 Meyerhen

WPU

SCIENTIFIC LABORATORY DIVISION

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

HEALTH NEW MEXICO

86-0871-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- Cls. 871
DATE REC. 7-31-86
PRIORITY 86-0911-B

PHONE(S): 827-5812
USER CODE: 82235
SUBMITTER: David Boyer
CODE: 260
SAMPLE COLLECTION CODE: (YYMMDDHHMMIII) 860728141505
SAMPLE TYPE: WATER ☒, SOIL ☐, FOOD ☐, OTHER: _____ CODE: _____
COUNTY: San Juan; CITY: Bloomfield CODE: _____
LOCATION CODE: (Township-Range-Section-Tracts) 29N+11E+27+311 (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
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- ☐ (767) Polychlorinated Biphenyls (PCB's)
- ☐ (764) Polynuclear Aromatic Hydrocarbons
- ☐ (762) SDWA Pesticides & Herbicides

Remarks: Sample Greasy when taken
Black oil stained hand, hydrocarbon (diesel?) odor

FIELD DATA:

pH=_____; Conductivity=_____umho/cm at _____°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.)

Sample from dug 7-12" hole on North side of Arroyo up ~50' from culvert at Hwy 44 & Sullivan Rd, (East side Hwy 44)

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities.(signature collector): D V Boyer & Sullivan 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-$Na_2S_2O_3$: 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 10/30/86 Phone or (Letter)? _____ Initials DLB

ANALYSES PERFORMED

LAB. No.: OR- 871

THIS PAGE FOR LABORATORY RESULTS ONLY

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

PURGEABLE SCREENS

- [x] (753) Aliphatic Purgeables (1-3 Carbons)
- [x] (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
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- [ ] (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]
Methane in headspace	31 ppmv		
Hydrocarbon Fuel *	35 ppmv		
Halogenated purgeables +	ND		
benzene +	ND		
Toluene +	ND		
Ethylbenzene +	33		
p-xylene +	120		
m-xylene +	250		
o-xylene +	ND		
* DETECTION LIMIT *	* 2 ppmv	+ 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:

Back up data in Org - 869.
Chromatographic fingerprint is consistent with that of gasoline.
Ten other compounds were detected by the aromatic screen 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 on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: 8/7/86 8-8-86. Analyst's signature: A Sweeney M Tinney

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 Meyerhen

STATE OF NEW MEXICO

ENVIRONMENT

SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE, Albuquerque, New Mexico
(505) 841-2500

85-0731-C

S.L.D. Priority:

REPORT TO: DAVID G. BOYER
NEW MEXICO OIL CONSERVATION DIV.
P.O. BOX 2088
SANTA FE, NM 87501

SEP 06 1985
OIL CONSERVATION DIVISION

S.L.D. No.: OR-731-AB
DATE REC.: 7/29/85
PHONE 827-5812
USER CODE: 8 2 2 3 5

CONTAINERS WHICH ACCOMPANY THIS FORM ARE COLLECTIVELY REFERED TO AS SAMPLE.

SUBMITTER: DAVID BOYER/NMOCD CODE

LOCATION: HWY 44 + BLOOMFIELD REFINERY CODE
TOWNSHIP RANGE SECTION TRACTS

SOURCE: DITCH BETWEEN HAMMOND DITCH + HWY 44; ~~LOCATION BE~~ CODE
AQUIFER DEPTH

COLLECTED: 7/24/85 BY BAILEY/CARPENTER CODE
Y Y M M D D H H M M I I I
8 5 0 7 2 4 1 3 2 5

SAMPLE TYPE: (WATER) SOIL OTHER CODE

NEAREST CITY: BLOOMFIELD, NM CODE

pH=_____; Conductivity= 3150 umho/cm at 25 °C; Chlorine Risidual=_____

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

Sampling Location, Methods and Remarks (i.e. odors, etc.)
JUNCTION OF E. SIDE HWY 44 + BLOOMFIELD REFINERY DITCH. HOLE DUG BESIDE DITCH + ALLOWED TO FILL WITH GROUND WATER. DUPLICATE of JUNE '85 SAMPLE.

I certify that the statements in this block accurately reflect the results of my field analyses, observations and activities. Jamie Bailey

Method of shipment to the Laboratory Hand carried

This form accompanies 2 Septum Vials, ___ Glass Jugs, ___ _____

Containers are marked as follows to indicate preservation (circle):

NP: No preservation; sample stored at room temperature.

(P-Ice) Sample stored in an ice bath (not frozen).

P-$Na_2S_2O_3$: Sample preserved with $Na_2S_2O_3$ to remove chlorine residual.

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

(we) certify that this sample was transferred from _____
to _____ at (location) _____ on
(date & time) _____ and that the statements in this block are correct
Evidentiary Seals: Not Sealed Intact: Yes No
Signatures _____ _____

ANALYSES REQUESTED

LAB. No.: ORG- 731

PLEASE CHECK THE APPROPRIATE BOXES BELOW TO INDICATE THE TYPE OF ANALYTICAL SCREENS REQUIRED. WHENEVER POSSIBLE LIST SPECIFIC COMPOUNDS SUSPECTED OR REQUIRED.

QUALITATIVE	QUANTITATIVE	PURGEABLE SCREENS	QUALITATIVE	QUANTITATIVE	EXTRACTABLE SCREENS
		ALIPHATIC HYDROCARBON SCREEN			ALIPHATIC HYDROCARBONS
X	X	AROMATIC HYDROCARBON SCREEN			CHLORINATED HYDROCARBON PESTICIDES
X	X	HALOGENATED HYDROCARBON SCREEN			CHLOROPHENOXY ACID HERBICIDES
		GAS CHROMATOGRAPH/MASS SPECTROMETER			HYDROCARBON FUEL SCREEN
					ORGANOPHOSPHATE PESTICIDES
					POLYCHLORINATED BIPHENYLS (PCB's)
					POLYNUCLEAR AROMATIC HYDROCARBONS
					TRIAZINE HERBICIDES
		SPECIFIC COMPOUNDS			SPECIFIC COMPOUNDS

REMARKS:

ANALYTICAL RESULTS

COMPOUND	[PPB]	COMPOUND	[PPB]
halo. purg. screen	N.D.*		
benzene	N.D.		
toluene	N.D.		
ethyl-benzene	N.D.		
p-xylene	N.D.		
m-xylene	N.D.		
o-xylene	N.D.	halogenated	
		* DETECTION LIMIT	5 ugm/l

REMARKS: Detection limit for aromatic screen is 10 ppb. Several poly-substituted benzene compounds were detected by aromatic screen that were not identified in the range of 20-100 ppb.

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ___ NO X. Seal(s) broken by: _____ date: _____

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

Date(s) of analysis: 30 July 85. Analyst's signature: J. Tinney

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 Meyerhen

STATE OF NEW MEXICO

SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE, Albuquerque, New Mexico 871
(505) 841-2500

85-0732-C

S.L.D. Priority:

REPORT TO: DAVID G. BOYER
NEW MEXICO OIL CONSERVATION DIV.
P.O. BOX 2088
SANTA FE, NM 87501

S.L.D. No.: OR- 732 F.B
DATE REC. : 7/29/85
PHONE 827-5812
USER CODE: 8 2 2 3 5

CONTAINERS WHICH ACCOMPANY THIS FORM ARE COLLECTIVELY REFERED TO AS SAMPLE.

SUBMITTER: DAVID BOYER/NMOCD CODE

LOCATION: GAS LINE SWAMP CODE (TOWNSHIP RANGE SECTION TRACTS)

SOURCE: BLOOMFIELD REFINERY CODE (AQUIFER DEPTH)

COLLECTED: 7/24/85 BY BAILEY/CARPENTER CODE 8 5 0 7 2 4 1 3 0 3 < 1 3 (YY MM DD HH MM II)

SAMPLE TYPE: (WATER) SOIL OTHER CODE

NEAREST CITY: BLOOMFIELD, NM CODE

pH=_____; Conductivity= 780 umho/cm at 25 °C; Chlorine Risidual=_____

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

Sampling Location, Methods and Remarks (i.e. odors, etc.)
SOUTH OF ROAD TO REFINERY FROM HWY 44. HOLE DUG IN SWAMP BY GAS LINE SIGN. ALLOWED TO FILL WITH GROUND WATER. DUPLICATE OF JUNE '85 SAMPLE.

I certify that the statements in this block accurately reflect the results of my field analyses, observations and activities. Jamie Bailey

Method of shipment to the Laboratory Hand carried

This form accompanies 2 Septum Vials, ___Glass Jugs, ___ _____

Containers are marked as follows to indicate preservation (circle):

NP: No preservation; sample stored at room temperature.

(P-Ice) Sample stored in an ice bath (not frozen).

P-$Na_2S_2O_3$: Sample preserved with $Na_2S_2O_3$ to remove chlorine residual.

I (we) certify that this sample was transferred from _____ to _____ at (location) _____ on (date & time) _____ and that the statements in this block are correct

Evidentiary Seals: Not Sealed Intact: Yes No

Signatures _____ _____

(we) certify that this sample was transferred from _____ to _____ at (location) _____ on (date & time) _____ and that the statements in this block are correct

Evidentiary Seals: Not Sealed Intact: Yes No

Signatures _____ _____

ANALYSES REQUESTED

LAB. No.: ORG- 732

PLEASE CHECK THE APPROPRIATE BOXES BELOW TO INDICATE THE TYPE OF ANALYTICAL SCREENS REQUIRED. WHENEVER POSSIBLE LIST SPECIFIC COMPOUNDS SUSPECTED OR REQUIRED.

QUALITATIVE	QUANTITATIVE	PURGEABLE SCREENS	QUALITATIVE	QUANTITATIVE	EXTRACTABLE SCREENS
		ALIPHATIC HYDROCARBON SCREEN			ALIPHATIC HYDROCARBONS
X	X	AROMATIC HYDROCARBON SCREEN			CHLORINATED HYDROCARBON PESTICIDES
X	X	HALOGENATED HYDROCARBON SCREEN			CHLOROPHENOXY ACID HERBICIDES
		GAS CHROMATOGRAPH/MASS SPECTROMETER			HYDROCARBON FUEL SCREEN
					ORGANOPHOSPHATE PESTICIDES
					POLYCHLORINATED BIPHENYLS (PCB's)
					POLYNUCLEAR AROMATIC HYDROCARBONS
					TRIAZINE HERBICIDES
		SPECIFIC COMPOUNDS			SPECIFIC COMPOUNDS

REMARKS:

ANALYTICAL RESULTS

COMPOUND	[PPB]	COMPOUND	[PPB]
halo. purg. screen	N.D.*		
arom. purg. screen	N.D.		
		halogenated	
		* DETECTION LIMIT	5 ugm/l

REMARKS: Detection limit for aromatic screen is 10ppb. Trace amounts of three compounds were detected by aromatic screen that appear to be lab contamination (trace <10ppb).

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ___ NO X. Seal(s) broken by: _____ date: _____

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

Date(s) of analysis: 30 July 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]

STATE OF NEW MEXICO

85-0645-C

SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud NE, Albuquerque, New Mexico 87106
(505) 841-2500

SLD Priority II

REPORT TO: DAVID G. BOYER
NEW MEXICO OIL CONSERVATION DIV.
P.O. BOX 2088
SANTA FE, NM 87501

S.L.D. No. : OR- 645-17B
DATE REC. : 7/05/85
PHONE 827-5812
USER CODE: 8 2 2 3 5

CONTAINERS WHICH ACCOMPANY THIS FORM ARE COLLECTIVELY REFERED TO AS SAMPLE.

SUBMITTER: NMOCD CODE

LOCATION: Bloomfield Refinery CODE (TOWNSHIP RANGE SECTION TRACTS)

SOURCE: South Side Sullivan Arroyo, Sample Hole #2, near pipeline CODE (AQUIFER DEPTH)

COLLECTED: 6/26/85 BY Boyer/Bailey CODE 850626174000 (YYMMDDHHMMII)

SAMPLE TYPE: (WATER) SOIL OTHER CODE

NEAREST CITY: Bloomfield CODE

pH=_____; Conductivity=_____umho/cm at _____°C; Chlorine Risidual=_____

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

Sampling Location, Methods and Remarks (i.e. odors, etc.)
S. Side Sullivan Arroyo immediately downstream of N.G. pipeline. Water at surface. Hole 12-15" deep, black and oily sand. Sample from filled up hole

I certify that the statements in this block accurately reflect the results of my field analyses, observations and activities. _____

Method of shipment to the Laboratory _____

This form accompanies 2 Septum Vials, ___ Glass Jugs, ___ _____

Containers are marked as follows to indicate preservation (circle):

NP: No preservation; sample stored at room temperature.

(P-Ice) Sample stored in an ice bath (not frozen).

P-$Na_2S_2O_3$: Sample preserved with $Na_2S_2O_3$ to remove chlorine residual.

I (we) certify that this sample was transferred from _____ to _____ at (location) _____ on (date & time) _____ and that the statements in this block are correct

Evidentiary Seals: Not Sealed Intact: Yes No

Signatures _____ _____

(we) certify that this sample was transferred from _____ to _____ at (location) _____ on (date & time) _____ and that the statements in this block are correct

Evidentiary Seals: Not Sealed Intact: Yes No

Signatures _____ _____

ANALYSES REQUESTED

LAB. No.: ORG- 645

PLEASE CHECK THE APPROPRIATE BOXES BELOW TO INDICATE THE TYPE OF ANALYTICAL SCREENS REQUIRED. WHENEVER POSSIBLE LIST SPECIFIC COMPOUNDS SUSPECTED OR REQUIRED.

QUALITATIVE	QUANTITATIVE	PURGEABLE SCREENS	QUALITATIVE	QUANTITATIVE	EXTRACTABLE SCREENS
		ALIPHATIC HYDROCARBON SCREEN			ALIPHATIC HYDROCARBONS
X	X	AROMATIC HYDROCARBON SCREEN			CHLORINATED HYDROCARBON PESTICIDES
X	X	HALOGENATED HYDROCARBON SCREEN			CHLOROPHENOXY ACID HERBICIDES
		GAS CHROMATOGRAPH/MASS SPECTROMETER			HYDROCARBON FUEL SCREEN
					ORGANOPHOSPHATE PESTICIDES
					POLYCHLORINATED BIPHENYLS (PCB's)
					POLYNUCLEAR AROMATIC HYDROCARBONS
					TRIAZINE HERBICIDES
		SPECIFIC COMPOUNDS			SPECIFIC COMPOUNDS

REMARKS:

ANALYTICAL RESULTS

COMPOUND	[PPB]	COMPOUND	[PPB]
halogenated purgeables	none detected		
benzene	N.D.*		
toluene	N.D.		
ethylbenzene	N.D.		
p-xylene	N.D.		
m-xylene	N.D.		
o-xylene	N.D.		
		* DETECTION LIMIT	10 ug/l

REMARKS: Twenty three other unsaturated hydrocarbons also detected by aromatic screen at < 5ppb.

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ___ NO X. Seal(s) broken by: _____ date: _____

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

Date(s) of analysis: 8 July 85. Analyst's signature: J. P. Toomey

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. Meyerhen

STATE OF NEW MEXICO

85-0644-B

SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE, Albuquerque, New Mexico 87106
(505) 841-2500

SLD Priority #

REPORT TO: DAVID G. BOYER
NEW MEXICO OIL CONSERVATION DIV.
P.O. BOX 2088
SANTA FE, NM 87501

S.L.D. NO.: OR- 644-A
DATE REC. : 7/05/85
PHONE 827-5812
USER CODE: 8 2 2 3 5

CONTAINERS WHICH ACCOMPANY THIS FORM ARE COLLECTIVELY REFERED TO AS SAMPLE.

SUBMITTER: NM OCD CODE

LOCATION: Bloomfield Refinery CODE
TOWNSHIP RANGE SECTION TRACTS

SOURCE: S. Side Sullivan Arroyo, ~~Holes~~ Sample Hole #3 CODE
AQUIFER DEPTH

COLLECTED: 6/26/85 BY Boyer/Bailey CODE 8 5 0 6 2 6 1 7 5 0 ~~0~~ ~~0~~ 8 ~~8~~
Y Y M M D D H H M M I I F

SAMPLE TYPE: WATER SOIL OTHER CODE

NEAREST CITY: Bloomfield CODE

pH=_____; Conductivity=_____umho/cm at _____°C; Chlorine Risidual=_____

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

Sampling Location, Methods and Remarks (i.e. odors, etc.)
Arroyo, S Side Sullivan Road at Hwy 44 Culvert. Dug Hole 12-15" deep, Sand Black and Gray, Strong Hydrocarbon odor, Water at surface, Sample from Filled Hole

I certify that the statements in this block accurately reflect the results of my field analyses, observations and activities. David G Boyer

Method of shipment to the Laboratory Hand Carried

This form accompanies /Septum Vials, ___Glass Jugs, ___ _____

Containers are marked as follows to indicate preservation (circle):

NP: No preservation; sample stored at room temperature.

P-Ice Sample stored in an ice bath (not frozen).

P-$Na_2S_2O_3$: Sample preserved with $Na_2S_2O_3$ to remove chlorine residual.

I (we) certify that this sample was transferred from _____ to _____ at (location)_____ on (date & time)_____ and that the statements in this block are correct

Evidentiary Seals: Not Sealed Intact: Yes No

Signatures _____ _____

(we) certify that this sample was transferred from _____ to _____ at (location)_____ on (date & time)_____ and that the statements in this block are correct

Evidentiary Seals: Not Sealed Intact: Yes No

Signatures _____ _____

ANALYSES REQUESTED

LAB. No.: ORG- 644

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
		ALIPHATIC HYDROCARBON SCREEN
X	X	AROMATIC HYDROCARBON SCREEN
X	X	HALOGENATED HYDROCARBON SCREEN
		GAS CHROMATOGRAPH/MASS SPECTROMETER
		SPECIFIC COMPOUNDS

QUALITATIVE	QUANTITATIVE	EXTRACTABLE SCREENS
		ALIPHATIC HYDROCARBONS
		CHLORINATED HYDROCARBON PESTICIDES
		CHLOROPHENOXY ACID HERBICIDES
		HYDROCARBON FUEL SCREEN
		ORGANOPHOSPHATE PESTICIDES
		POLYCHLORINATED BIPHENYLS (PCB's)
		POLYNUCLEAR AROMATIC HYDROCARBONS
		TRIAZINE HERBICIDES
		SPECIFIC COMPOUNDS

REMARKS:

ANALYTICAL RESULTS

COMPOUND	[PPB]	COMPOUND	[PPB]
benzene (by GC/ms)	2		
ethylbenzene	430		
p-xylene	1100		
m-xylene	3000		
halogenated purgeables	none detected		
		* DETECTION LIMIT	5 ug/L

REMARKS: ~~Quantitations are questionable, all samples~~ Quantitations are questionable, all samples should be submitted in duplicate. Seventeen other compounds also detected by aromatic screen.

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes __ NO X. Seal(s) broken by: _____ date: _____

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

Date(s) of analysis: 7-31-85. 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]

STATE OF NEW MEXICO

85-0646-C

ENVIRONMENT

SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud NE, Albuquerque, New Mexico 87106
(505) 841-2500

SLD Priority II

REPORT TO: DAVID G. BOYER
NEW MEXICO OIL CONSERVATION DIV.
P.O. BOX 2088
SANTA FE, NM 87501

S.L.D. No.: OR- 646-A,B
DATE REC. : 7/05/85
PHONE 827-5812
USER CODE: 8 2 2 3 5

CONTAINERS WHICH ACCOMPANY THIS FORM ARE COLLECTIVELY REFERED TO AS SAMPLE.

SUBMITTER: NM OCD CODE

LOCATION: Bloomfield Refinery CODE
TOWNSHIP RANGE SECTION TRACTS

SOURCE: N Side Gillian Arroyo, Sample Hole #1 CODE
AQUIFER DEPTH

COLLECTED: 6/26/85 BY Boyer/Bailey CODE
Y Y M M D D H H M M I I I

SAMPLE TYPE: (WATER) SOIL OTHER CODE

NEAREST CITY: Bloomfield CODE

pH=_____; Conductivity=_____umho/cm at _____°C; Chlorine Risidual=_____

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

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

Sample from Dug Hole West of Hammond Dit 4 - Hole 18-24" deep. Sand black and oily. Strong Hydrocarbon smell. Water 6-8" down

I certify that the statements in this block accurately reflect the results of my field analyses, observations and activities. David G Boyer

Method of shipment to the Laboratory Hand carried

This form accompanies 2 Septum Vials, ___ Glass Jugs, ___ _____

Containers are marked as follows to indicate preservation (circle):

NP: No preservation; sample stored at room temperature.

(P-Ice) Sample stored in an ice bath (not frozen).

P-$Na_2S_2O_3$: Sample preserved with $Na_2S_2O_3$ to remove chlorine residual.

I (we) certify that this sample was transferred from _____ to _____ at (location) _____ on (date & time) _____ and that the statements in this block are correct

Evidentiary Seals: Not Sealed Intact: Yes No

Signatures _____ _____

(we) certify that this sample was transferred from _____ to _____ at (location) _____ on (date & time) _____ and that the statements in this block are correct

Evidentiary Seals: Not Sealed Intact: Yes No

Signatures _____ _____

ANALYSES REQUESTED LAB. No.: ORG- 646

PLEASE CHECK THE APPROPRIATE BOXES BELOW TO INDICATE THE TYPE OF ANALYTICAL SCREENS REQUIRED. WHENEVER POSSIBLE LIST SPECIFIC COMPOUNDS SUSPECTED OR REQUIRED.

QUALITATIVE	QUANTITATIVE	PURGEABLE SCREENS	QUALITATIVE	QUANTITATIVE	EXTRACTABLE SCREENS
		ALIPHATIC HYDROCARBON SCREEN			ALIPHATIC HYDROCARBONS
X	X	AROMATIC HYDROCARBON SCREEN			CHLORINATED HYDROCARBON PESTICIDES
X	X	HALOGENATED HYDROCARBON SCREEN			CHLOROPHENOXY ACID HERBICIDES
		GAS CHROMATOGRAPH/MASS SPECTROMETER			HYDROCARBON FUEL SCREEN
					ORGANOPHOSPHATE PESTICIDES
					POLYCHLORINATED BIPHENYLS (PCB's)
					POLYNUCLEAR AROMATIC HYDROCARBONS
					TRIAZINE HERBICIDES
		SPECIFIC COMPOUNDS			SPECIFIC COMPOUNDS

REMARKS:

ANALYTICAL RESULTS

COMPOUND	[PPB]	COMPOUND	[PPB]
benzene	5		
toluene	45		
Ethylbenzene	960		
p-xylene	2500		
m-xylene	6700		
o-Xylene	2400		
		* DETECTION LIMIT 10 ~~ug/g~~	

REMARKS: ~~Quantitations are questionable. Duplicates should be submitted in triplicate.~~ Seventeen other compounds also detected by aromatic screen; ~~MS identification of them as unsaturated heptanes, tetra substituted~~

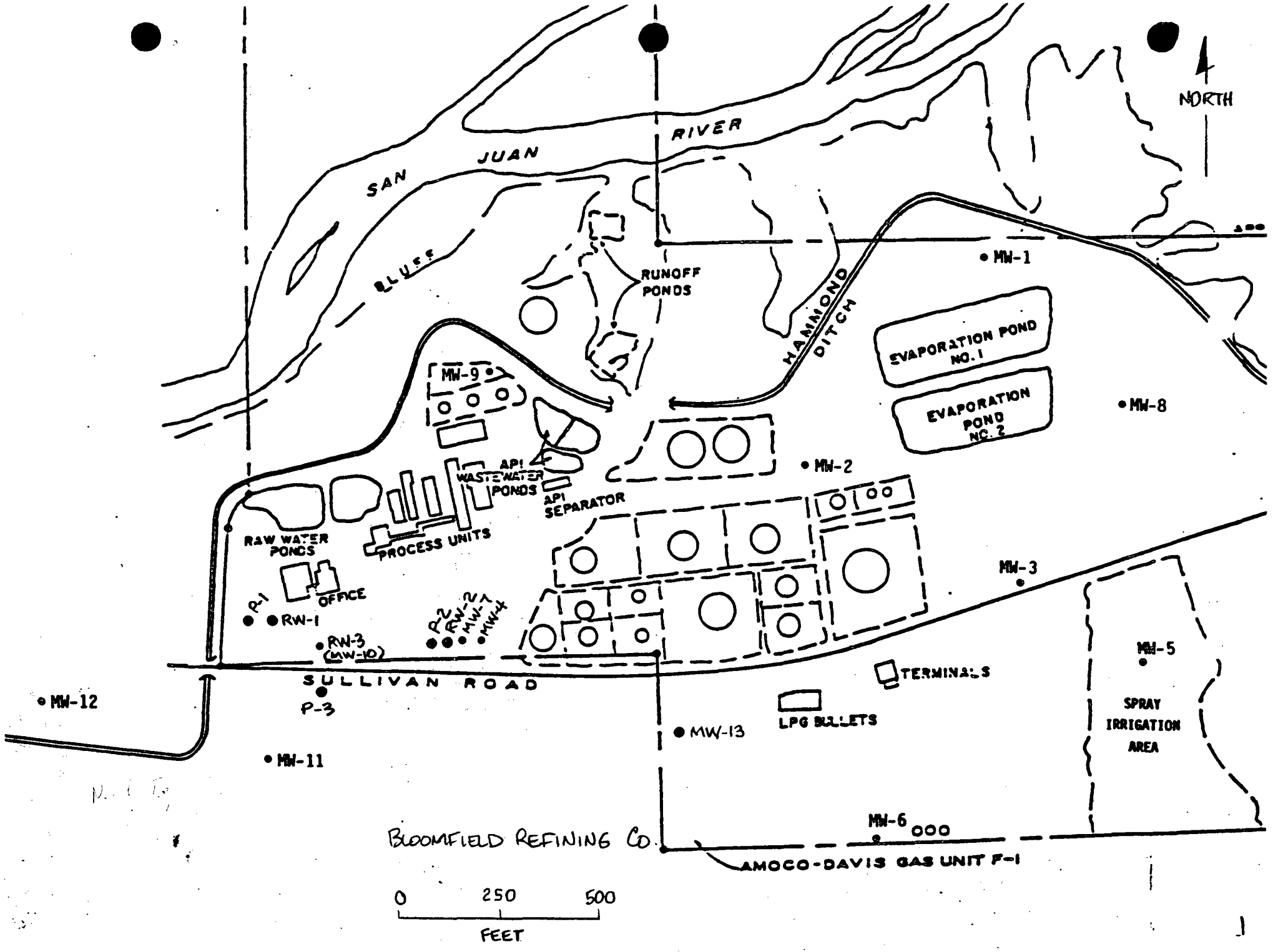
CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ___ NO X. Seal(s) broken by: ___ date: ___

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

Date(s) of analysis: 8 July 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]


NORTH
SAN JUAN RIVER
BLUFF
RUNOFF PONDS
HAMMOND DITCH
EVAPORATION POND NO. 1
EVAPORATION POND NO. 2
MW-1
MW-2
MW-3
MW-4
MW-5
MW-6
MW-7
MW-8
MW-9
MW-10
MW-11
MW-12
MW-13
RW-1
RW-2
RW-3 (MW-10)
P-1
P-2
P-3
API WASTEWATER PONDS
API SEPARATOR
RAW WATER PONDS
PROCESS UNITS
OFFICE
SULLIVAN ROAD
TERMINALS
LPG BULLETS
SPRAY IRRIGATION AREA
AMOCO-DAVIS GAS UNIT F-1
BLOOMFIELD REFINING CO.
0
250
500
FEET

BLOOMFIELD REFINING COMPANY
SAMPLE DATE: MAY 25, 1999

PARAMETER	UNITS	NOMINAL DETECTION LIMITS	NMWQ STANDARD	MONITORING WELL 1	MONITORING WELL 4	MONITORING WELL 5
Arsenic	mg/l	0.005	0.1	<0.005	<0.005	<0.005
Barium	"	0.5	1.0	<0.5	1.4	<0.5
Boron	"	0.01	0.75	0.03	0.50	0.41
Cadmium	"	0.002	0.01	<0.002	<0.002	<0.002
Chromium	"	0.02	0.05	<0.02	<0.02	<0.02
Iron	"	0.05	1.0	0.68	0.92	<0.05
Lead	"	0.02	0.05	0.05	<0.03	0.06
Manganese	"	0.02	0.2	<0.02	3.59	<0.02
Ammonia	"	0.1	—	0.14	<0.1	0.1
Nitrate	"	0.1	10.	0.561	<0.1	21.04
Nitrite	"	0.01	—	0.02	0.058	0.049
T. Kjeldahl Nitrogen	"	0.1	—	1.59	1.52	1.24
Phenol	"	0.001	0.005	0.214	0.250	0.362
Cyanide	"	0.005	0.2	<0.005	<0.005	<0.005
TDS	"	1.	1000.	3308.	1454.	4196.
Sulfate	"	1.	600.	653.46	7.41	781.03
Benzene	µg/l	0.2	10.	ND	9200.	ND
Toluene	µg/l	0.2	750.	ND	9300.	ND
Ethylbenzene	µg/l	0.2	750.	ND	1100.	ND
m,p-Xylene	µg/l	0.2	620.	ND	8500.	ND
o-Xylene	µg/l	0.2		ND	2200.	ND
Purgeable Halocarbons				NOT TESTED		
pH	S.U.	0.1	6 TO 9	7.2	7.1	7.4
Depth to Water	Ft	0.01	—	15.56	24.44	42.07

© WILSON JONES COMPANY G7206 GREEN 7206 BUFF MADE IN U.S.A.

National Brand 45-606 Eye-Ease® 45-706 20/20 Bulb Made in USA

BLOOMFIELD REFI. NG COMPANY

SAMPLE DATE: NOVEMBER 18, 1988

	PARAMETER	UNITS	2 NOMINAL DETECTION LIMITS	3 NMWQ STANDARD	4 MONITORING WELL P1	5 MONITORING WELL P4	6 MONITORING WELL P5
2	Arsenic	mg/l	0.005	0.1	<0.005	<0.005	<0.005
3	Barium	"	0.5	1.0	<0.5	1.8	<0.5
4	Cadmium	"	0.002	0.01	<0.002	<0.002	<0.002
5	Chromium	"	0.02	0.05	<0.02	<0.02	<0.02
6	Lead	"	0.02	0.05	<0.02	<0.02	0.07
7	Mercury	"	0.001	0.002	<0.001	<0.001	<0.001
8	Selenium	"	0.005	0.05	<0.005	<0.005	<0.005
9	Silver	"	0.01	0.05	<0.01	<0.01	<0.01
10	Copper	"	0.01	1.0	<0.01	<0.01	<0.01
11	Iron	"	0.05	1.0	<0.05	5.95	<0.05
12	Manganese	"	0.02	0.2	2.11	3.73	<0.02
13	Zinc	"	0.01	10.0	<0.01	<0.01	<0.01
14	Uranium	"	—	5.0	—	—	—
15	Chloride	"	1	250.	1140.	490.	1480.
16	Sulfate	"	1	600.	665.	<1.	777.
17	PCB	"	—	0.001	—	—	—
18	Phenols	"	0.001	0.005	0.05	0.101	0.16
19	Cyanide	"	0.01	0.2	<0.01	<0.01	<0.01
20	Nitrate as N	"	0.02	10.	4.03	0.09	27.8
21	Aluminum	"	0.1	5.	<0.1	<0.1	<0.1
22	Boron	"	0.01	0.75	0.32	0.57	0.45
23	Cobalt	"	0.02	0.05	<0.02	<0.02	<0.01
24	Molybdenum	"	0.02	1.0	<0.02	<0.02	<0.02
25	Nickel	"	0.01	0.2	<0.01	<0.01	<0.01
26	Fluoride	"	0.01	1.6	0.92	0.30	0.35
27	TDS	"	1	1000.	3490.	1830.	4080.
28	Benzene	"	0.0002	0.01	0.00075	11.130	ND
29	Toluene	"	0.0002	0.75	0.00268	8.916	0.00186
30	Carbon Tetrachloride	"	0.0005	0.01	ND	ND	ND
31	1,2-Dichloroethane	"	0.0005	0.01	ND	ND	ND
32	1,1-Dichloroethylene	"	0.0005	0.005	ND	ND	ND
33	1,1,2,2-Tetrachloroethylene	"	0.0005	0.02	ND	ND	ND
34	1,1,2-Trichloroethylene	"	0.0005	0.01	ND	ND	ND
35	pH	S.U.	0.1	6 TO 9	7.0	6.7	6.9

ND = NOT DETECTED

BLOOMFIELD REFINING COMPANY
SAMPLE DATE: JUNE 3, 1988

	PARAMETER	UNITS	NOMINAL DETECTION LIMITS	NMWQ STANDARD	MONITORING WELL P1	MONITORING WELL P4	MONITORING WELL P5
2	Arsenic	mg/l	0.005	0.1	<0.005	<0.005	<0.005
3	Barium	"	0.5	1.0	<0.5	1.4	<0.5
4	Cadmium	"	0.002	0.01	<0.002	<0.002	<0.002
5	Chromium	"	0.02	0.05	<0.02	<0.02	<0.02
6	Lead	"	0.02	0.05	<0.02	<0.02	<0.02
7	Mercury	"	0.001	0.002	<0.001	<0.001	<0.001
8	Selenium	"	0.005	0.05	<0.005	<0.005	<0.005
9	Silver	"	0.01	0.05	<0.01	<0.01	<0.01
10	Copper	"	0.01	1.0	0.02	<0.01	<0.01
11	Iron	"	0.05	1.0	<0.05	6.44	<0.05
12	Manganese	"	0.05	0.2	0.85	3.51	1.45
13	Zinc	"	0.01	10.0	0.03	0.01	<0.01
14	Uranium	"	—	5.0	—	—	—
15	Chloride	"	1	250.	1040.	401.	1300.
16	Sulfate	"	1	600.	951.	3.	1000.
17	PCB	"	—	0.001	—	—	—
18	Phenols	"	0.001	0.005	0.021	0.069	0.064
19	Cyanide	"	0.005	0.2	0.022	<0.005	0.030
20	Nitrate as N	"	0.02	10.	3.22	0.14	32.9
21	Aluminum	"	0.1	5.	<0.1	<0.1	<0.1
22	Boron	"	0.01	0.75	0.25	0.47	0.48
23	Cobalt	"	0.02	0.05	<0.02	<0.02	<0.02
24	Molybdenum	"	0.02	1.0	0.21	<0.02	<0.02
25	Nickel	"	0.02	0.2	0.03	0.02	0.04
26	Fluoride	"	0.01	1.6	0.60	0.28	0.22
27	TDS	"	1	1000.	3500.	1820.	4200.
28	Benzene		0.001	0.01	ND	8.9	ND
29	Toluene		0.001	0.75	ND	0.93	ND
30	Carbon Tetrachloride		0.001	0.01	ND	ND	ND
31	1,2-Dichloroethane		0.001	0.01	ND	ND	ND
32	1,1-Dichloroethylene		0.001	0.005	ND	ND	ND
33	1,1,2,2-Tetrachloroethylene		0.001	0.02	ND	ND	ND
34	1,1,2-Trichloroethylene		0.001	0.01	ND	ND	ND
35	pH	S.U.	0.1	6 TO 9	7.3	6.8	7.

© WILSON JONES COMPANY 07206 GREEN 7206 BUFF MADE IN U.S.A.

BLOOMFIELD REFINING COMPANY
SAMPLE DATE: NOV. 17, 1987

	PARAMETER	UNITS	NOMINAL DETECTION LIMITS	NMWQ STANDARD	MONITORING WELL P1	MONITORING WELL P4	MONITORING WELL P5
2	Arsenic	mg/l	0.005	0.1	<0.005	<0.005	<0.005
3	Barium	"	0.5	1.0	<0.5	1.8	<0.5
4	Cadmium	"	0.002	0.01	<0.002	<0.002	<0.002
5	Chromium	"	0.02	0.05	<0.02	<0.02	<0.02
6	Lead	"	0.02	0.05	<0.02	<0.02	<0.02
7	Mercury	"	0.001	0.002	<0.001	<0.001	<0.001
8	Selenium	"	0.005	0.05	<0.005	<0.005	<0.005
9	Silver	"	0.01	0.05	<0.01	<0.01	<0.01
10	Copper	"	0.01	1.0	<0.01	<0.01	0.01
11	Iron	"	0.05	1.0	<0.05	4.59	<0.05
12	Manganese	"	0.02	0.2	1.45	4.77	<0.02
13	Zinc	"	0.01	10.0	<0.01	<0.01	<0.01
14	Uranium	"	—	5.0	—	—	—
15	Chloride	"	1	250.	910.	588.	1310.
16	Sulfate	"	1	600.	655.	<1	1060.
17	PCB	"	—	0.001	—	—	—
18	Phenols	"	0.005	0.005	0.02	0.73	<0.005
19	Cyanide	"	0.005	0.2	<0.005	0.005	0.016
20	Nitrate as N	"	0.01	10.	5.66	0.03	36.4
21	Aluminum	"	0.1	5.	<0.1	<0.1	<0.1
22	Boron	"	0.1	0.75	0.32	0.59	0.54
23	Cobalt	"	0.02	0.05	<0.02	<0.02	<0.02
24	Molybdenum	"	0.02	1.0	<0.02	0.03	<0.02
25	Nickel	"	0.01	0.2	<0.01	<0.01	<0.01
26	Fluoride	"	0.1	1.6	0.76	0.19	0.24
27	TDS	"	1	1000.	3050.	2050.	4300.
28	Benzene	"	0.001	0.01	ND	8.5	ND
29	Toluene	"	0.001	0.75	ND	0.023	ND
30	Carbon Tetrachloride	"	0.001	0.01	ND	ND	ND
31	1,2-Dichloroethane	"	0.001	0.01	ND	ND	ND
32	1,1-Dichloroethylene	"	0.001	0.005	ND	ND	ND
33	1,1,2,2-Tetrachloroethylene	"	0.001	0.02	ND	ND	ND
34	1,1,2-Trichloroethylene	"	0.001	0.01	ND	ND	ND
35	pH	S.U.	0.1	6 TO 9	7.0	6.5	6.9

WILSON JONES COMPANY G7206 GREEN 7206 BUFF MADE IN U.S.A.

National 45-606 Eye-Ease 45-706 20 20 Buff Made in USA

BLOOMFIELD REFINING COMPANY

SAMPLE DATE: May 28, 1987

	PARAMETER	UNITS	2 NOMINAL DETECTION LIMITS	3 NMWQ STANDARD	4 MONITORING WELL P1	5 MONITORING WELL P4	6 MONITORING WELL P5
2	Arsenic	mg/l	0.05	0.1	<0.05	<0.05	<0.05
3	Barium	"	1.0	1.0	<1.0	9.88	<1.0
4	Cadmium	"	0.01	0.01	0.023	0.018	0.026
5	Chromium	"	0.05	0.05	<0.05	<0.05	<0.05
6	Lead	"	0.05	0.05	0.20	0.14	0.20
7	Mercury	"	0.002	0.002	<0.002	<0.002	<0.002
8	Seknium	"	0.01	0.05	0.10	0.08	0.14
9	Silver	"	0.05	0.05	<0.05	<0.05	<0.05
10	Copper	"	0.01	1.0	0.013	0.010	<0.01
11	Iron	"	0.04	1.0	0.14	0.17	0.19
12	Mangnese	"	0.01	0.2	1.51	5.29	0.09
13	Zinc	"	0.004	10.0	0.024	0.022	0.024
14	Uranium	"	—	5.0	—	—	—
15	Chloride	"	0.1	250.	794	635.	1112.
16	Sulfate	"	1.0	600.	827.6	4.8	772.4
17	PCB	"	—	0.001	—	—	—
18	Phenols	"	0.01	0.005	0.123	0.278	0.334
19	Cyanide	"	0.005	0.2	0.0056	<0.005	<0.005
20	Nitrate as N	"	0.01	10.	12.9	0.035	27.01
21	Aluminum	"	0.1	5.	<0.1	<0.1	<0.1
22	Boron	"	0.1	0.75	0.70	0.97	0.24
23	Cobolt	"	0.01	0.05	0.07	0.04	0.06
24	Molybdenum	"	0.05	1.0	0.79	0.13	<0.05
25	Nickel	"	0.06	0.2	0.12	0.12	0.25
26	Fluoride	"	0.01	1.6	0.0353	<0.01	0.0156
27	TDS	"	1	1000.	3272.	2038.	3902.
28	Benzene	"	0.001	0.01	<0.001	10.7	<0.001
29	Toluene	"	0.001	0.75	<0.001	0.71	<0.001
30	Carbon Tetrachloride	"	0.08	0.01	<0.08	<0.08	<0.08
31	1,2-Dichloroethane	"	0.001	0.01	<0.001	<0.001	0.72
32	1,1-Dichloroethylene	"	0.001	0.005	<0.001	<0.001	<0.001
33	1,1,2,2-Tetrachloroethylene	"	0.001	0.02	<0.001	<0.001	<0.001
34	1,1,2-Trichloroethylene	"	0.001	0.01	<0.001	<0.001	<0.001
35	pH	S.U.	0.1	6 TO 9	—	—	—
36							
37							
38							
39							
40							

National 45-606 Eye-Ease 45-706 20 20 Built Made in USA

BLOOMFIELD REFINING COMPANY
SAMPLE DATE: DEC. 16, 1986

	PARAMETER	UNITS	2 NOMINAL DETECTION LIMITS	3 NMWQ STANDARD	4 MONITORING WELL P1	5 MONITORING WELL P4	6 MONITORING WELL P5
2	Arsenic	mg/l	0.05	0.1	<0.05	<0.05	<0.05
3	Barium	"	0.005	1.0	0.055	2.3	0.010
4	Cadmium	"	0.01	0.01	<0.01	<0.01	0.01
5	Chromium	"	0.05	0.05	<0.05	<0.05	<0.05
6	Lead	"	0.05	0.05	<0.05	<0.05	<0.05
7	Mercury	"	0.002	0.002	<0.002	<0.002	<0.002
8	Selenium	"	0.002	0.05	0.03	0.03	0.03
9	Silver	"	0.05	0.05	<0.05	<0.05	<0.05
10	Copper	"	0.03	1.0	<0.03	<0.03	<0.03
11	Iron	"	0.3	1.0	<0.3	18.6	<0.3
12	Manganese	"	0.005	0.2	1.11	5.70	<0.005
13	Zinc	"	0.001	10.0	0.012	0.040	0.016
14	Uranium	"	—	5.0	—	—	—
15	Chloride	"	1	250.	774.	675.	1118.
16	Sulfate	"	1	600.	579.	<0.01	1132.
17	PCB	"	—	0.001	—	—	—
18	Phenols	"	0.001	0.005	0.012	0.096	0.021
19	Cyanide	"	0.01	0.2	<0.01	<0.01	<0.01
20	Nitrate as N	"	0.1	10.	2.9	<0.01	36.
21	Aluminum	"	0.05	5.	4.54	3.8	4.34
22	Boron	"	0.004	0.75	0.27	0.7	0.24
23	Cobalt	"	0.05	0.05	<0.05	<0.05	<0.05
24	Molybdenum	"	0.01	1.0	0.17	<0.01	0.08
25	Nickel	"	0.06	0.2	0.06	<0.06	0.07
26	Fluoride	"	0.01	1.6	0.960	0.410	0.580
27	TDS	"	1	1000.	2498.	2128.	3788.
28	Benzene	"	0.001	0.01	<0.001	1.91	<0.001
29	Toluene	"	0.001	0.75	<0.001	1.78	<0.001
30	Carbon Tetrachloride	"	0.001	0.01	<0.001	<0.001	<0.001
31	1,2-Dichloroethane	"	0.001	0.01	0.002	<0.001	<0.001
32	1,1-Dichloroethylene	"	0.001	0.005	<0.001	<0.001	<0.001
33	1,1,2,2-Tetrachloroethylene	"	0.001	0.02	<0.001	<0.001	<0.001
34	1,1,2-Trichloroethylene	"	0.001	0.01	<0.001	<0.001	<0.001
35	pH	S.U.	0.01	6 TO 9	7.19	6.73	7.28
36							
37	O & G						
38							
39							
40							

National Brand 45-606 Eye-Ease® 45-706 20/20 Buff Made in USA

BLOOMFIELD REFINING COMPANY

SAMPLE DATE: SEP. 18, 1986

	1	2	3	4	5	6
PARAMETER	UNITS	NOMINAL DETECTION LIMITS	NM WQ STANDARD	MONITORING WELL P1	MONITORING WELL P4	MONITORING WELL P5
Arsenic	mg/l	0.002	0.1	0.05	0.08	0.07
Barium	"	–	1.0	–	–	–
Cadmium	"	0.01	0.01	<0.01	<0.01	<0.01
Chromium	"	0.05	0.05	<0.05	<0.05	<0.05
Lead	"	0.05	0.05	0.15	<0.05	<0.05
Mercury	"	0.002	0.002	<0.002	<0.002	<0.002
Selenium	"	0.01	0.05	0.033	0.063	0.030
Silver	"	0.05	0.05	<0.05	<0.05	<0.05
Copper	"	0.03	1.0	<0.03	<0.03	<0.03
Iron	"	–	1.0	–	–	–
Mangnese	"	–	0.2	–	–	–
Zinc	"	0.008	10.0	0.04	<0.008	0.02
Uranium	"	–	5.0	–	–	–
Chloride	"	1	250.	814	754	1151.
Sulfate	"	0.01	600.	673	<0.01	1237.
PCB	"	–	0.001	–	–	–
Phenols	"	0.001	0.005	0.19	0.085	0.034
Cyanide	"	0.01	0.2	0.07	<0.01	0.24
Nitrate as N	"	–	10.	–	–	–
Aluminum	"	–	5.	–	–	–
Boron	"	–	0.75	–	–	–
Cobalt	"	–	0.05	–	–	–
Molybdenum	"	–	1.0	–	–	–
Nickel	"	0.01	0.2	0.07	0.12	0.09
Fluoride	"	–	1.6	–	–	–
TDS	"	1	1000.	2866.	2308.	3184.
Benzene	"	0.001	0.01	ND	6.65	ND
Toluene	"	0.001	0.75	ND	0.407	ND
Carbon Tetrachloride	"	0.001	0.01	–	ND	–
1,2-Dichloroethane	"	0.001	0.01	–	ND	–
1,1-Dichloroethylene	"	0.001	0.005	–	ND	–
1,1,2,2-Tetrachloroethylene	"	0.001	0.02	–	ND	–
1,1,2-Trichloroethylene	"	0.001	0.01	–	ND	–
pH	S.U.	0.01	6 TO 9	7.27	6.70	7.19

Bloomfiel Refining Company
Sample Date: June 23-24, 1986 ; Laboratory: Assaigai

	1	2	3	4	5	6
Prameter	Units	Nominal Detection Limits	NMWQ Standard	Monitoring Well P1	Monitoring Well P4	Monitoring Well P5
Arsenic	mg/L	0.05	0.1	0.077	0.070	0.087
Barium	"	0.01	1.0	BDL	3.54	BDL
Cadium	"	0.010	0.01	BDL	BDL	BDL
Chromium	"	0.050	0.05	BDL	BDL	BDL
Lead	"	0.050	0.05	0.065	0.066	0.055
Mercury	"	0.002	0.002	BDL	BDL	BDL
Selenium	"	0.010	0.05	0.035	0.080	0.071
Silver	"	0.050	0.05	BDL	BDL	BDL
Copper	"	0.03	1.0	BDL	BDL	BDL
Iron	"	0.04	1.0	BDL	12.0	0.05
Manganese	"	0.005	0.2	0.25	3.5	0.025
Zinc	"	0.01	10.0	0.020	0.019	0.02
Uranium	"	—	5.0	—	—	—
Chloride	"	1.0	250.	994.7	989.7	1339.6
Sulfate	"	1.0	600.	630.	12.5	1800.
PCB	"	0.001	0.001	—	—	—
Phenols	"	0.002	0.005	0.017	0.430	0.007
Cyanide	"	0.01	0.2	0.1	0.5	0.2
Nitrate as N	"	0.01	10.0	0.1	BDL	12.5
Aluminum	"	0.05	5.0	2.07	1.93	2.75
Boron	"	0.01	0.75	BDL	BDL	BDL
Cobolt	"	0.05	0.05	BDL	BDL	BDL
Molybdenum	"	0.01	1.0	BDL	BDL	BDL
Nickel	"	0.06	0.2	BDL	BDL	BDL
Fluoride	"	0.1	1.6	0.54	0.21	0.30
TDS	"	1	1000.	2960.	2266.	3778.
Benzene	"	0.001	0.01	ND	3.1	ND
Toluene	"	0.001	0.75	ND	0.290	ND
Carbon Tetrachloride	"	0.001	0.01	—	ND	—
1,2-Dichloroethane	"	0.001	0.01	ND	ND	ND
1,1-Dichloroethylene	"	0.001	0.005	ND	ND	ND
1,1,2,2-Tetrachloroethylene	"	0.001	0.02	ND	ND	ND
1,1,2-Trichloroethylene	"	0.001	0.01	ND	ND	ND
pH	S.U.	0.01	6 TO 9	7.25	6.85	7.18

BDL = Below Detection Limit
ND = Not Detected

Bloomfie . Refining Company

SAMPLE DATE: 3/26/86 ; LABORATORY - ASSAIGAI

Parameter	Units	NMWQ standard	Nominal Detection Limits	Monitoring Well P1	Monitoring Well P4	Monitoring Well P5
Arsenic	mg/l	0.1	0.050	<0.050	<0.050	<0.050
Barium	"	1.0	—	—	—	—
Cadmium	"	0.01	0.002	0.050	0.060	0.10
Chromium	"	0.05	0.050	<0.050	<0.050	<0.050
Lead	"	0.05	0.001	0.085	0.074	0.16
Mercury	"	0.002	0.002	<0.002	0.002	<0.002
Selenium	"	0.05	0.010	<0.010	<0.010	<0.010
Silver	"	0.05	0.050	<0.050	<0.050	<0.050
Copper	"	1.0	0.03	<0.03	<0.03	<0.03
Iron	"	1.0	—	—	—	—
Manganese	"	0.2	—	—	—	—
Zinc	"	10.0	0.01	<0.01	0.012	0.012
Uranium	"	5.0	—	—	—	—
Chloride	"	250.	1	750.	500.	1100.
Sulfate	"	600.	1	7.5	0.3	14.
PCB	"	0.001	—	—	—	—
Phenols	"	0.005	0.001	0.009	0.633	0.006
Cyanide	"	0.2	0.01	<0.01	<0.01	<0.01
Nitrate as N	"	10.0	—	—	—	—
Aluminum	"	5.0	—	—	—	—
Boron	"	0.75	—	—	—	—
Cobalt	"	0.05	—	—	—	—
Molybdenum	"	1.0	—	—	—	—
Nickel	"	0.2	0.01	0.08	0.08	0.10
Fluoride	"	1.6	—	—	—	—
TDS	"	1000.	1	2936.	1868.	3840.
Benzene	"	0.01	0.001	ND	11.8	ND
Toluene	"	0.75	0.001	ND	7.5	ND
Carbon Tetrachloride	"	0.01	0.001	—	ND	—
1,2-Dichloroethane	"	0.01	0.001	—	ND	—
1,1-Dichloroethylene	"	0.005	0.001	—	ND	—
1,1,2,2-Tetrachloroethylene	"	0.02	0.001	—	ND	—
1,1,2-Trichloroethylene	"	0.1	0.001	—	ND	—
pH	S.U.	6 TO 9	±0.01	7.30	6.84	7.23

WILSON JONES COMPANY G7506 GREEN MADE IN U.S.A.

MW-1

	STD	PARAMETER	UNITS	1ST Qtr September 1984	2nd Qtr December 1984	3rd Qtr March 1985	4th Qtr June 1985	
				1	2	3	4	5
1	0.1	Arsenic	mg/l	ND	0.054	0.010	ND	1
2	1.0	Barium		1.0	ND	ND	ND	2
3	0.01	Cadmium		0.014	ND	0.027	ND	3
4	0.05	Chromium		ND	0.070	ND	ND	4
5	0.05	Lead		0.125	0.18	0.040	ND	5
6	0.002	Mercury		ND	ND	ND	ND	6
7	0.05	Selenium		0.35	0.120	0.022	0.026	7
8	0.05	Silver		ND	ND	0.024	ND	8
*	1.0	Copper		0.10	0.11	ND	ND	9
*	1.0	Iron		57.0	128.0	0.07	ND	10
*	0.2	Manganese		1.70	1.05	0.50	0.52	11
*	10.0	Zinc		0.30	0.36	0.08	ND	12
13	5.0	Uranium		ND	ND	ND	ND	13
14	30.0	Radium 226 & 228	pCi/l	ND	ND	-	-	14
*	250.0	Chloride	mg/l	1059.0	1135.0	1135.0	953.0	15
*	600.0	Sulfate	mg/l	825.0	700.0	855.0	882.0	16
17	0.001	PCB	ppm	ND	ND	ND	ND	17
*	6-9	pH	s.u.	7.2	7.2	7.35	7.5	18
*	0.005	Phenols	mg/l	0.024	0.065	0.13	ND	19
20	0.2	Cyanide		ND	ND	ND	ND	20
21	10.0	Nitrate as N		7.2	ND	0.3	15.4	21
*	5.0	Aluminum		2.0	3.68	ND	ND	22
*	0.75	Boron		ND	0.25	0.69	0.13	23
*	0.05	Cobalt		0.08	0.20	0.32	ND	24
*	1.0	Molybdenum		ND	ND	0.41	0.28	25
*	0.2	Nickel		0.3	ND	0.13	ND	26
27	1.6	Fluoride		0.284	0.56	0.657	0.65	27
*	1000.0	TDS		3582.0	3512.0	3726.0	3246.0	28
29	0.01	Benzene		ND	0.015	ND	ND	29
30	15.0	Toluene		ND	ND	ND	ND	30
31	0.01	Carbon Tetrachloride		ND	ND	ND	ND	31
32	0.02	1,2-Dichloroethane		ND	ND	ND	ND	32
33	0.005	1,1-Dichloroethylene		ND	ND	ND	ND	33
34	0.02	1,1,2,2-Tetrachloroethylene		ND	ND	ND	ND	34
35	0.1	1,1,2-Trichloroethylene		ND	ND	ND	ND	35
36		DEPTH TO STATIC WATER (Rim)	FT	-	17' 7"	16.63'	15.57'	36
37		DEPTH OF WELL From Rim	FT	-	24' 5"			37
38		STICKUP	FT	-	1' 10"			38
39		ND = < NOMINAL DETECTION LIMITS						39
40								40

DEC 13, 1984 MARCH 21, 1985 JULY 10, 1985

MW-4

				DEC 13, 1984	MARCH 21, 1985	JULY 10, 1985	
	1		2	3	4	5	
STD	PARAMETER	UNITS	1ST Qtr September 1984	2nd Qtr December 1984	3rd Qtr March 1985	4th Qtr June 1985	
0.1	Arsenic	mg/l	ND	0.118	0.005	ND	1
1.0	Barium		4.0	7.0	2.5	ND	2
0.01	Cadmium		ND	ND	ND	ND	3
0.05	Chromium		0.10	0.28	ND	ND	4
0.05	Lead		0.088	0.22	0.015	ND	5
0.002	Mercury		ND	ND	ND	ND	6
0.05	Selenium		0.40	0.42	0.008	0.026	7
0.05	Silver		ND	ND	0.004	ND	8
* 1.0	Copper		0.03	0.35	ND	ND	9
* 1.0	Iron		43.7	132.0	6.8	12.0	10
* 0.2	Manganese		7.8	25.4	5.2	5.0	11
* 10.0	Zinc		0.18	0.38	0.03	ND	12
5.0	Uranium		ND	ND	ND	ND	13
30.0	Radium 226 & 228	pCi/l	ND	ND	—	—	14
* 250.0	Chloride	mg/l	410.0	481.0	466.0	556.0	15
600.0	Sulfate	mg/l	10.0	4.0	9.0	3.0	16
0.001	PCB	ppm	ND	ND	ND	ND	17
* 6-9	pH	s.u.	7.1	6.9	7.01	7.4	18
* 0.005	Phenols	mg/l	0.55	0.120	0.005	0.08	19
0.2	Cyanide		ND	ND	ND	ND	20
10.0	Nitrate as N		0.02	ND	ND	ND	21
** 5.0	Aluminum		ND	4.49	ND	ND	22
** 0.75	Boron		ND	0.32	0.89	0.05	23
** 0.05	Cobolt		ND	0.15	0.14	ND	24
** 1.0	Molybdenum		ND	ND	0.18	ND	25
** 0.2	Nickel		0.2	ND	0.16	ND	26
1.6	Fluoride		0.597	0.29	0.254	0.23	27
* 1000.0	TDS		1860.0	2408.0	1860.0	2004.0	28
0.01	Benzene		0.419	3.64	14.81	8.64	29
15.0	Toluene		0.296	4.47	1.92	1.74	30
0.01	Carbon Tetrachloride		ND	ND	ND	ND	31
0.02	1,2-Dichloroethene		ND	ND	ND	ND	32
0.005	1,1-Dichloroethylene		ND	ND	ND	ND	33
0.02	1,1,2,2-Tetrachloroethylene		ND	ND	ND	ND	34
0.1	1,1,2-Trichloroethylene		ND	ND	ND	ND	35
	DEPTH TO STATIC WATER FROM RIM	FT	—	24'5"	24.98'	24.50	36
	DEPTH OF WELL FROM RIM	FT	—	31'2"			37
	STICKUP			19"			38
	ND = < NOMINAL DETECTION LIMITS						39
							40

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MW-5

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	STD	PARAMETER	UNITS	1st Qtr September 1984	2nd Qtr December 1984	3rd Qtr March 1985	4th Qtr June 1985
				1	2	3	4 MAR 21 1985 / 5 JUN 10 1985
1	0.1	Arsenic	mg/l			0.011	ND
2	1.0	Barium				ND	ND
3	0.01	Cadmium				0.046	ND
4	0.05	Chromium				ND	ND
5	0.05	Lead				0.046	ND
6	0.002	Mercury				ND	ND
7	0.05	Selenium				0.022	0.026
8	0.05	Silver				0.037	ND
9	1.0	Copper				ND	ND
10	1.0	Iron				0.095	ND
11	0.2	Manganese				0.098	0.24
12	10.0	Zinc				0.060	ND
13	5.0	Uranium				ND	ND
14	30.0	Radium 226 & 228	pCi/l			—	—
15	250.0	Chloride	mg/l			1257.0	1360.0
16	600.0	Sulfate	mg/l			1158.0	1200.0
17	0.001	PCB	ppm			ND	ND
18	6 to 9	pH	s.u.			7.22	7.6
19	0.005	Phenols	mg/l			0.004	ND
20	0.2	Cyanide				ND	ND
21	10.0	Nitrate as N				29.0	35.0
22	5.0	Aluminum				ND	0.78
23	0.75	Boron				1.29	0.15
24	0.05	Cobolt				0.15	0.04
25	1.0	Molybdenum				ND	ND
26	0.2	Nickel				0.19	ND
27	1.6	Fluoride				0.391	0.37
28	1000.0	TDS				4758.0	4746.0
29	0.01	Benzene				ND	ND
30	15.0	Toluene				ND	ND
31	0.01	Carbon Tetrachloride				ND	ND
32	0.02	1,2-Dichloroethane				ND	ND
33	0.005	1,1-Dichloroethylene				ND	ND
34	0.02	1,1,2,2-Tetrachloroethylene				ND	ND
35	0.1	1,1,2-Trichloroethylene				ND	ND
36		DEPTH TO STATIC WATER				41.60	41.80
37							
38							
39							
40							

BLOOMFIELD REFINING COMPANY
GROUNDWATER MONITORING SUMMARY OF DETECTED PARAMETERS

PARAMETER	UNITS	DETECTION LIMIT	NEW MEXICO STANDARDS 3-103 (A)	63-88 MW-4	9-9-88 RW-2	9-9-88 P-2
Benzene	mg/L	0.0002	0.01	8.9	11.000	4.800
Ethylbenzene	mg/L	0.0002	0.75	–	2.900	0.900
Toluene	mg/L	0.0002	0.75	0.93	10.200	1.430
M-Xylene	mg/L	0.0002	0.62	–	17.700	4.500
O-Xylene	mg/L	0.0002		–	4.900	1.400
P-Xylene	mg/L	0.0002		–	6.200	1.570
1,2 Dichloroethane	mg/L	0.001	0.01	–	0.0016	ND
Trans 1,2 Dichloroethene	mg/L	0.001	–	–	ND	ND
Nitrate as N	mg/L	0.01	10.0	0.14	<0.01	–
Phenol	mg/L	0.001	0.005	0.069	0.13	–
Sulfate	mg/L	1	600.	3	<1	–
TDS	mg/L	10	1000	1820	1980	–

OTHERS NOT DETECTED

1,2-Dichlorobenzene, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, Chlorobenzene, Chloromethane, Bromomethane, Vinyl chloride, Chloroethane, Methylene chloride, Trichlorofluoromethane, 1,1 Dichloroethene, Bromochloromethane, 1,1-Dichloroethane, Chloroform, 1,1,1-Trichloroethane, Carbontetrachloride, 1,2 Dichloropropane, Trichloroethene, 2 chloroethyl vinyl ether, Trans 1,3 Dichloropropene, Cis 1,3 Dichloropropene, Dibromo chloromethane, Bromoform, 1,1,2 Trichloroethane, 1,1,2,2 Tetrachloroethane, Tetrachloroethene

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BLOOMFIELD REFINING COMPANY

GROUNDWATER MONITORING SUMMARY OF DETECTED PARAMETERS

PARAMETER	UNITS	DETECTION LIMIT	NEW MEXICO STANDARDS 3-103 (A)	6-3-88 MW-4	9-9-88 RW-2	9-9-88 P-2
Benzene	mg/L	0.0002	0.01	8.9	11.000	4.800
Ethylbenzene	mg/L	0.0002	0.75	–	2.900	0.900
Toluene	mg/L	0.0002	0.75	0.93	10.200	1.430
m-Xylene	mg/L	0.0002		–	17.700	4.500
O-Xylene	mg/L	0.0002	0.62	–	4.900	1.460
P-Xylene	mg/L	0.0002		–	6.200	1.570
1,2 Dichloroethane	mg/L	0.001	0.01	–	0.0016	ND
Trans 1,2 Dichloroethene	mg/L	0.001	–	–	ND	ND
Nitrate as N	mg/L	0.01	10.0	0.14	<0.01	–
Phenol	mg/L	0.001	0.005	0.069	0.13	–
Sulfate	mg/L	1	600.	3	<1	–
TDS	mg/L	10	1000	1820	1980	–

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PARAMETER	RW-3	P-3	RW-1	P-1	MW-11	MW-13
Benzene	12.000	19.400	6.400	102.200	44.4aa	0.00023
Ethylbenzene	0.00286	ND	0.540	0.00143	0.063	0.00029
Toluene	0.062	0.00435	0.070	0.034	0.840	0.00024
m-Xylene	3.500	22.800	4.800	0.483	2.600	0.00065
O-Xylene	0.103	3.600	8.300	0.061	0.061	0.00056
P-Xylene	1.800	8.700	1.700	0.322	0.745	0.00035
1,2 Dichloroethane	ND	ND	ND	ND	0.0022	0.0156
Trans1,2 Dichloroethene	ND	ND	ND	0.0015	ND	ND
Nitrate as N	<0.01	–	<0.01	–	0.06	13.1
Phenol	0.05	–	0.34	–	0.06	0.03
Sulfate	9.5	–	4.5	–	30.	728.
TDS	3250	–	3130	–	1900	3220

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CHAPTER 4

GROUNDWATER MONITORING WELL SAMPLING

BACKGROUND

Based on the requirements of the approved work plan, each of the groundwater monitoring wells at the Bloomfield refinery has been sampled by Bloomfield staff quarterly over a period of 12 months. Water samples from wells 1 through 3 and 5 were analyzed for priority pollutant heavy metals, cyanide, phenols, TOC, TDS, chloride, sulfate, and volatile organics including benzene, toluene, xylene, and ethylbenzene. In addition, at monitoring well 1, selected organic priority pollutants (see Appendix A) were analyzed during the second and fourth quarters. Water samples from monitoring wells 4 and 7 through 10 were analyzed for base/neutral priority pollutants in addition to the constituents already listed. Monitoring well 6 has been dry and therefore has never yielded any water for analyses.

FINDINGS

The laboratory results corresponding to each of the quarterly sampling efforts are presented in Appendix A to this report. In addition, sampling results for Hammond Ditch (covered in chapter 7) are presented in Appendix B to this report. Summaries of these data provide concentrations of detectable substances and laboratory detection limits. Field measurements of pH, conductivity, and water levels are also included. These summaries give a concise picture of each well's performance through the sampling period in Tables 4.1 through 4.9. As a reference, Appendix C presents EPA ambient standards and criteria for superfund remedial sites.

DISCUSSION

A review of the summaries shows that monitoring wells 1, 4, 7, 8, and 10 all show appearance of low levels of priority pollutants in only a single quarter's sampling effort. The lack of consistency in appearance

TABLE 4.1

RCRA 3013
GROUNDWATER RESULTS SUMMARY*
MW-1

Parameter	3/26/86	6/23/86	9/18/86	12/16/86	Nominal Detection Limits
Laboratory Analysis (mg/l)					
Cyanide		0.1	0.07		0.01
Total phenols	0.009	0.017	0.19	0.012	0.001
TOC	18	24	24	18	0.1
TDS	2,936	2,960	2,866	2,498	1
Chloride	750**	994.7	814	774	1
Sulfate	7.5**	630	673	579	1
Antimony				0.25	0.01
Arsenic		0.077	0.05		0.05
Beryllium				0.02	0.01
Cadmium	0.050				0.01
Lead	0.085	0.065	0.15		0.05
Nickel	0.08		0.07	0.06	0.06
Selenium		0.035	0.033	0.03	0.01
Zinc		0.20	0.04	0.012	0.01
Barium				0.055	0.005
Manganese		0.25		1.11	0.005
Aluminum		2.07		4.54	0.05
Boron				0.27	0.01
Molybdenum				0.17	0.01
Nitrate-nitrogen		0.54		2.9	0.1
1,2-dichloroethane				0.002	0.001
Physical Measurements					
pH, field, s.u.	7.30	7.25	7.27	7.19	
Conductivity		4600	4600	4400	
T.O.C. elevation, ft	5515.77	5515.77	5515.77	5515.77	

DTG.33

TABLE 4.1 (Continued)

RCRA 3013
GROUNDWATER RESULTS SUMMARY[1]
MW-1

Parameter	3/26/86	6/23/86	9/18/86	12/16/86	Nominal Detection Limits
Depth to groundwater, ft	16.70	14.56	15.74	16.32	
Elevation of groundwater, ft	5499.07	5501.21	5500.03	5499.45	

*Summary includes only pollutants determined to be present at concentrations greater than detection limits.

**Laboratory technique error detected.

TABLE 4.2

RCRA 3013
GROUNDWATER RESULTS SUMMARY*
MW-2

Parameter	3/26/86	6/23/86	9/18/86	12/16/86	Nominal Detection Limits
Laboratory Analysis (mg/l)					
Cyanide		0.1	0.18		0.01
Total phenols	0.063	0.023	0.17	0.110	0.001
TOC	18	27	23	15	0.1
TDS	2,796	3,650	3,598	3,664	1
Chloride	200**	1,204.6	993	1,012	1
Sulfate	11.0**	1,750	1,104	1,372	1
Antimony				0.48	0.01
Arsenic		0.094	0.08		0.05
Lead	0.12		0.08		0.05
Nickel	0.07		0.12	0.08	0.06
Selenium		0.070	0.104	0.04	0.01
Silver	0.003				0.002
Zinc		0.020	0.02	0.009	0.01
Physical Measurements					
pH, field, s.u.	7.23	7.17	6.78	7.22	
Conductivity		5400	5500	5800	
T.O.C. elevation, ft	5519.45	5519.45	5519.45	5519.45	
Depth to groundwater, ft	18.80	18.27	18.23	18.4	
Elevation of groundwater, ft	5500.76	5501.18	5501.22	5501.05	

*Summary includes only pollutants determined to be present at concentrations greater than detection limits.

**Laboratory technique error detected.

TABLE 4.3

RCRA 3013
GROUNDWATER RESULTS SUMMARY*
MW-3

Parameter	3/26/86	6/23/86	9/18/86	12/16/86	Nominal Detection Limits
Laboratory Analysis (mg/l)					
Cyanide		0.25	0.17	0.07	0.1
Total phenols	0.006	0.006	0.082	0.012	0.001
TOC	29	17	16	12	0.1
TDS	4,836	5,362	5,514	4,860	1
Chloride	1,500**	1,584	1,290	1,290	1
Sulfate	29.5**	1,950	2,056	2,204	1
Toluene		0.003			0.001
Xylene		0.030			0.001
Antimony				0.67	0.01
Arsenic		0.15	0.21		0.05
Cadmium	0.12	0.015		0.11	0.01
Lead	0.14	0.070	0.18		0.05
Mercury	0.004				0.002
Nickel	0.08	0.08	0.14	0.10	0.06
Selenium		0.010	0.100	0.05	0.01
Zinc		0.018	0.018	0.01	0.01
Physical Measurements					
pH, field, s.u.	7.08	7.10	7.06	7.12	
Conductivity		6900	7200	6900	
T.O.C. elevation, ft	5535.85	5535.85	5535.85	5535.85	
Depth to groundwater, ft	32.94	32.80	33.08	33.05	
Elevation of groundwater, ft	5502.91	5503.05	5502.77	5502.8	

*Summary includes only pollutants determined to be present at concentrations greater than detection limits.

**Laboratory technique error detected.

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TABLE 4.4

RCRA 3013
GROUNDWATER RESULTS SUMMARY*
MW-4

Parameter	3/26/86	6/23/86	9/18/86	12/16/86	Nominal Detection Limits
Laboratory Analysis (mg/l)					
Cyanide		0.5			0.01
Total phenols	0.633	0.430	0.085	0.096	0.001
TOC	110	130	63	170	0.1
TDS	1,868	2,266	2,398	2,128	1
Chloride	500**	989.7	754	675	1
Sulfate		12.5			1
Benzene	11.8	3.1	6.65	1.91	0.001
Toluene	7.5	0.290	0.407	1.78	0.001
Ethylbenzene	0.107	0.070	0.140	4.48	0.001
Antimony				0.40	0.01
Arsenic		0.070	0.08		0.05
Cadmium	0.060				0.01
Lead	0.074	0.066			0.05
Nickel	0.08		0.12		0.06
Selenium		0.080	0.063	0.03	0.01
Zinc		0.019	0.008	0.04	0.01
Barium		3.54		2.3	0.005
Iron		12.0		18.6	0.3
Manganese		3.5		5.7	0.005
Aluminum		1.93		3.8	0.05
Boron				0.7	0.01
Fluoride		0.21			0.01
Nitrate-nitrogen				0.41	0.1
2,4-Dichloro-phenol	0.200				0.001
2,4-Dimethyl-phenol		0.058			0.001
4,6-Dinitro-o-cresol	0.100				0.001
2,4-Dinitro-phenol	0.050				0.001
2-Nitrophenol		0.108	0.026		0.001
4-Nitrophenol	0.090	0.302	0.331		0.001

TABLE 4.4 (Continued)

RCRA 3013
GROUNDWATER RESULTS SUMMARY*
MW-4

Parameter	3/26/86	6/23/86	9/18/86	12/16/86	Nominal Detection Limits
Phenol	0.202				0.001
Benzo(a)anthracene		0.016	0.010		0.001
Chrysene		0.012			0.001
Fluorene	0.150			0.023	0.001
Naphthalene	0.036	0.019	0.015	0.036	0.001
Pyrene	0.166		0.005		0.001
2-Chlorophenol			0.001		0.001
P-chloro-m-cresol			0.045		0.001
Acenaphthene	0.044			0.049	0.001
Physical Measurements					
pH, field, s.u.	6.84	6.85	6.70	6.73	
Conductivity		3800	3900	3800	
T.O.C. elevation, ft	5524.30	5524.30	5524.30	5524.30	
Depth to groundwater, ft	24.9	24.85	24.32	24.02	
Elevation of groundwater, ft	5499.31	5499.45	5499.98	5500.28	

*Summary includes only pollutants determined to be present at concentrations greater than detection limits.

**Laboratory technique error detected.

TABLE 4.5

RCRA 3013
GROUNDWATER RESULTS SUMMARY*
MW-5

Parameter	3/26/86	6/23/86	9/18/86	12/16/86	Nominal Detection Limits
Laboratory Analysis (mg/l)					
Cyanide		0.2	0.24		0.01
Total phenols	0.006	0.007	0.034	0.021	0.001
TOC	14	21	20	9	0.1
TDS	3,840	3,778	3,184	3,788	1
Chloride	1,100**	1,339.6	1,151	1,118	1
Sulfate	14**	1,800	1,237	1,132	1
Antimony				0.5	0.01
Arsenic		0.087	0.07		0.05
Cadmium	0.10				0.01
Lead	0.16	0.055			0.05
Nickel	0.10		0.09	0.07	0.06
Selenium		0.071	0.03	0.03	0.01
Zinc	0.012	0.02	0.02	0.016	0.01
Barium				0.01	0.005
Manganese		0.025			0.005
Aluminum		2.75		4.34	0.05
Boron				0.24	0.01
Molybdenum				0.08	0.01
Fluoride		0.3		0.580	0.01
Nitrate-nitrogen		12.5		36	0.1
Physical Measurements					
pH, field, s.u.	7.23	7.18	7.19	7.28	
Conductivity		5400	6000	5700	
T.O.C. elevation, ft	5545.10	5545.10	5545.10	5545.10	
Depth to groundwater, ft	40.86	40.97	41.58	44.69	

TABLE 4.5 (Continued)

RCRA 3013
GROUNDWATER RESULTS SUMMARY*
MW-5

Parameter	3/26/86	6/23/86	9/18/86	12/16/86	Nominal Detection Limits
Elevation of groundwater, ft	5404.24	5504.13	5503.52	5500.41	

*Summary includes only pollutants determined to be present at concentrations greater than detection limits.

**Laboratory technique error detected.

TABLE 4.6

RCRA 3013
GROUNDWATER RESULTS SUMMARY*
MW-7

Parameter	3/26/86	6/23/86	9/18/86	12/16/86	Nominal Detection Limits
Laboratory Analysis (mg/l)					
Cyanide		0.25	0.10		0.01
Total phenols		0.006	0.036	0.025	0.001
TOC	11	4	4	2	0.1
TDS	6,076	6,406	6,348	6,940	1
Chloride	30**	79.9	20	29	1
Sulfate	5.5**	2,400	5,802	3,630	1
Benzene	0.015		0.058	0.009	0.001
Toluene	0.053		0.006		0.001
Ethylbenzene	0.007		0.004		0.001
Antimony				0.83	0.01
Arsenic		0.36	0.22		0.05
Cadmium	0.050	0.030		0.02	0.01
Chromium		0.052		0.08	0.05
Lead		0.24	0.05	0.26	0.05
Nickel	0.08	0.07	0.08	0.07	0.06
Selenium		0.65	0.36	0.09	0.01
Silver		0.060			0.05
Zinc	0.018	0.016	0.02	0.017	0.001
4,6-Dinitro-o-cresol	0.013				0.001
Benzo(a)anthracene		0.001			0.001
Chyrsene				0.002	0.001
4-Nitrophenol			0.007		0.001
P-chloro-m-cresol			0.001		0.001
Benzo(k)fluoranthene				0.001	0.001

TABLE 4.6 (Continued)

RCRA 3013
GROUNDWATER RESULTS SUMMARY*
MW-7

Parameter	3/26/86	6/23/86	9/18/86	12/16/86	Nominal Detection Limits
Physical Measurements					
pH, field, s.u.	12.15	11.08	11.35	10.58	
Conductivity		8100	8600	8000	
T.O.C. elevation, ft	5524.09	5524.09	5524.09	5524.09	
Depth to groundwater, ft	26.07	51.00	31.30	24.68	
Elevation of groundwater, ft	5498.02	5473.09	5492.79	5499.41	

*Summary includes only pollutants determined to be present at concentrations greater than detection limits.

**Laboratory technique error detected.

TABLE 4.7

RCRA 3013
GROUNDWATER RESULTS SUMMARY*
MW-8

Parameter	3/26/86	6/23/86	9/18/86	12/16/86	Nominal Detection Limits
Laboratory Analysis (mg/l)					
Cyanide				0.1	0.01
Total phenols		0.005	0.097	0.042	0.001
TOC	5	13	8	8	0.1
TDS	806	2,910	2,284	3,450	1
Chloride	160**	839.7	576	913	1
Sulfate	4.0**	1,500	586	1,270	1
Ethylbenzene	0.107				0.01
Antimony				0.67	0.01
Arsenic		0.072	0.03		0.05
Lead		0.055			0.05
Nickel		0.86	0.21	0.43	0.06
Selenium		0.21		0.04	0.01
Zinc		0.020	0.02	0.016	0.01
4-Nitrophenol			0.008		0.01
Physical Measurements					
pH, field, s.u.	7.86	7.26	7.47	7.44	
Conductivity		4400	4000	5000	
T.O.C. elevation, ft	5531.12	5531.12	5531.12	5531.12	
Depth to groundwater, ft	29.15	29.08	29.00	29.02	
Elevation of groundwater, ft	5501.97	5502.04	5502.12	5502.1	

*Summary includes only pollutants determined to be present at concentrations greater than detection limits.

**Laboratory technique error detected.

TABLE 4.8

RCRA 3013
GROUNDWATER RESULTS SUMMARY*
MW-9

Parameter	3/26/86	6/23/86	9/18/86	12/16/86	Nominal Detection Limits
Laboratory Analysis (mg/l)					
Cyanide		0.4			0.01
Total phenols	0.304	0.372	0.17	0.16	0.001
TOC	143	1,809	240	275	0.1
TDS	2,360	1,718	1,428	1,684	1
Chloride	149**	1,009.7	89	109	1
Sulfate	13.0**	114		20	1
Benzene	7.4	4	17.7	1.49	0.001
Toluene	6.3	1.7	10.6	0.754	0.001
Ethylbenzene	3.2	0.71	0.015	0.504	0.001
Antimony				0.4	0.01
Arsenic			0.02		0.05
Lead		0.059			0.05
Nickel	0.30	0.25	0.13	0.16	0.06
Selenium		0.040		0.03	0.01
Zinc	0.012	0.015	0.05	0.011	0.01
2,4-Dimethyl-phenol	0.160	0.150			0.001
Phenol	0.149	0.170	0.013	0.133	0.001
Fluorene	0.012				0.001
4-Nitrophenol			1.10		0.001
Acenaphthalene			0.028		0.001
Benzo(a)anthra-cene			0.007		0.001
Pyrene			0.010		0.001
Naphthalene				0.029	0.001

TABLE 4.8 (Continued)

RCRA 3013
GROUNDWATER RESULTS SUMMARY*
MW-9

Parameter	3/26/86	6/23/86	9/18/86	12/16/86	Nominal Detection Limits
Physical Measurements					
pH, field, s.u.	7.01	6.98	6.89	6.91	
Conductivity		2500	2200	2600	
T.O.C. elevation, ft	5519.70	5519.70	5519.70	5519.70	
Depth to groundwater, ft	21.50	20.23	20.13	20.55	
Elevation of groundwater, ft	5498.20	5499.47	5499.57	5499.15	

*Summary includes only pollutants determined to be present at concentrations greater than detection limits.

**Laboratory technique error detected.

TABLE 4.9

RCRA 3013
GROUNDWATER RESULTS SUMMARY*
MW-10

Parameter	3/26/86	6/23/86	9/18/86	12/16/86	Nominal Detection Limits
Laboratory Analysis (mg/l)					
Cyanide			0.050		0.01
Total phenols	0.147	0.186	0.065	0.055	0.001
TOC	34	76	125	114	0.1
TDS	1,546	2,820	2,408	3,272	1
Chloride	245**	569.8	587	457	1
Sulfate	5.3**	165		10	1
Benzene	0.093		0.041	14.1	0.002
Toluene			0.054	7.4	0.001
Ethylbenzene				0.03	0.001
Antimony				0.56	0.01
Arsenic		0.053			0.05
Beryllium				0.04	0.01
Cadmium	0.020				0.01
Lead		0.059	0.05		0.05
Nickel	0.08	0.25	0.18	0.08	0.06
Selenium		0.040	0.071	0.03	0.01
Zinc		0.015	0.16	0.01	0.01
2,4-Dimethyl-phenol	0.025				0.001
4,6-Dinitro-o-cresol	0.020				0.001
Phenol	0.090				0.001
Anthracene	0.039				0.001
Fluoranthene	0.034				0.001
Fluorene	0.033				0.001
Pyrene	0.030				0.001
2-Nitrophenol			0.002		0.001
4-Nitrophenol			0.016		0.001
Naphthalene				0.004	0.001

TABLE 4.9 (Continued)

RCRA 3013
GROUNDWATER RESULTS SUMMARY*
MW-10

Parameter	3/26/86	6/23/86	9/18/86	12/16/86	Nominal Detection Limits
Physical Measurements					
pH, field, s.u.	7.07	7.08	6.93	7.05	
Conductivity		4400	4800	5100	
T.O.C. elevation, ft	5516.86	5516.86	5516.86	5516.86	
Depth to groundwater, ft	19.20	18.75	18.11	17.56	
Elevation of groundwater, ft	5497.66	5498.11	5498.75	5499.3	

*Summary includes only pollutants determined to be present at concentrations greater than detection limits.

**Laboratory technique error detected.

of these compounds is believed to suggest the possibility of laboratory error – particularly when the reported concentration of the substance is very near detection limits.

A good example of the singularity of results is seen in Table 4.6, which reports a summary of monitoring well 7 results. Every hydrocarbon substance detected was at low levels close to the detection limit. Laboratory error may be responsible for detection of these substances.

The monitoring well sampling method is also important in assessing the significance of sample results. Basically, the technique involved BRC staff collection of a sample of water such that the air/liquid interface was acquired in the sample. This process maximized the possibility of acquiring any free-phase hydrocarbons and thus the highest concentrations in the sample. Therefore, sample concentrations for each sampling effort constitute a worst-case assessment of the well water when floating separate-phase contaminants are present.

The significance of concentrations measured at the BRC monitoring wells should be judged from two different standpoints: (1) water use, and (2) subsurface hydrocarbon contamination. From a water use standpoint, the concentrations of pollutants under the BRC site are insignificant. Groundwater is not currently used, and there are no plans for its use in the future.

The monitoring well sampling results include an indicator parameter in total organic carbon (TOC). This parameter can be useful in identifying suspected locations of significant concentrations of subsurface hydrocarbon since TOC values are generally higher in samples having free product.

A review of Tables 4.1 through 4.10 show that TOC values measured in monitoring well 4 were higher than all wells except 9 and 10. Well 9 has exhibited an indication of films of hydrocarbon material at the surface (reported by BRC staff on January 27, 1987). The fact that the TOC results from this well are the highest is consistent with an indication of films in this well. Films have also been indicated in monitoring well 10 during the third and fourth quarter sampling efforts recorded by

BRC staff January 27, 1987. This evidence is consistent with the highest TOC values recorded for these two sampling efforts. The proximity of well 10 to well 4 and the similarity of their respective TOC values during periods of indications of floating hydrocarbon evidence suggest they may be influenced by the same source of hydrocarbon material.

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GROUNDWATER ELEVATIONS
9-9-1988

WELL DESIGNATION	T.O.P. ELEVATION (FT)	TOTAL DEPTH OF WELL FROM T.O.P. (FT)	DEPTH TO WATER FROM T.O.P. (FT)	ELEVATION OF TOP OF WATER (FT)
MW-1	5515.77	22.84	15.52	5500.25
MW-2	5519.45	26.67	18.31	5501.14
MW-3	5535.85	36.90	33.44	5502.41
MW-5	5545.10	44.40	42.17	5502.93
MW-6	5551.23	49.60	DRY	DRY
MW-7	5524.09	62.10	24.87	5499.22
MW-8	5531.12	34.94	29.33	5501.79
MW-9	5519.70	33.90	19.89	5499.81
MW-13	5538.42	53.00	37.91	5500.51
MW-4	5524.30	31.44	24.10	5500.20
RW-2	5523.48	38.03	23.37	5500.11
P-2	5523.73	38.33	23.67	5500.06
RW-3 (MW-10)	5516.86	33.92	17.80	5499.06
P-3	5507.20	22.80	8.31	5498.89
RW-1	5525.92	40.98	26.69	5499.23
P-1	5524.62	39.17	25.53	5499.09
MW-11	5506.83	24.73	9.24	5497.59
MW-12	5498.36	14.22	8.18	5490.18
HAMMOND AT SULLIVAN RD.	5504.82	–	6.62	5498.20
HAMMOND NEAR MW-9	5522.95	–	22.99	5499.96

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GROUNDWATER ELEVATIONS

DATE	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7
T.O.P. →	5515.77	5519.45	5535.85	5524.30	5545.10	5551.23	5524.09
1/27/87	5499.44	5500.92	5502.60	5500.22	5503.10	DRY	5499.29
						AT 5501.63	
4/2/87	5499.76	5501.20	5502.86	5500.37	5503.77	"	5499.59
-	DIMES REMOVED 4/3/87			IRRIGATION	STARTED	4/13/87	
4/23/87	5499.33	5500.71	5502.94	5500.32	5504.01	DRY	5499.55
5/27/87	5499.71	5500.83	5502.94	5500.22	5503.95	"	5499.62
10/8/87	5499.63	5500.82	5502.63	5500.03	5503.54	"	5499.20
11/17/87	5498.46			5499.94	5503.17	-	-
6/3/88	5499.85		5502.52	5499.74	5503.03	"	5499.34
11/18/88	5498.27			5499.95	5502.90		
5/25/89	5500.21			5499.86	5503.03		

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BLOOMFIELD REFINING COMPANY
GROUNDWATER ELEVATIONS

MW-8	MW-9	MW-10	MW-11	MW-12	HAMMOND AT SULLIVAN	HAMMOND NEAR MW-9	DATE
5531.12	5519.70	5516.86	5506.83	5498.36	5504.82	5522.95	← T.O.P.
5501.85	5498.98	5499.09	–	–	5498.59	5498.60	1/27/87
5502.12	5498.92	5499.33	–	–	5498.55	5498.55	4/2/87
	DIKES REMOVED 4/3/87, IRRIGATION STARTED 4/13/87						
5502.03	5498.29	5499.07	-	–	5497.55	5497.92	4/23/87
5501.95	5498.73	5499.04	–	–	5498.09	5498.61	5/27/87
			INSTALLED 8/1/87 *				
5501.65	5499.16	5498.66	5497.10	5489.03	5497.75	5499.13	10/8/87
			DITCH WATER OFF 10/16/87, DIKED 10/26/87				
–	–	5498.46	5496.95	5488.94	5497.45	–	10/27/87
–	–	–	–	–	–	–	11/17/87
-	-	–	5497.43	5490.57	–	–	6/3/88

GROUNDWATER ELEVATIONS

	DATE	T.O.P. →	MW-1 5515.77	MW-2 5519.45	MW-3 5535.85	MW-4 5524.30	MW-5 5545.10	MW-6 5551.23
	2/24/84		5498.91	5500.44	5501.74	5499.46	5502.26	DRY
	2/23/85		5499.07	5500.55	5502.15	5499.30	5502.75	DRY
	3/13/85		5499.14	5500.82	5502.55	5499.32	5503.50	?
WATER ON	4/11/85		5498.99	5500.62	5502.73	5499.30	5503.67	
	5/31/85		5499.67	5500.97	5502.74	5499.80	5503.64	
	6/14/85		5499.80	5500.99	5502.63	5499.80	5503.40	
	6/28/85		5499.94	5500.98	5502.49	5499.73	5503.24	
	7/12/85		5500.20	5500.99	5502.43	5499.30	5503.30	
	8/ 2/85		5501.00	5501.05	5502.43	5499.78	5503.37	
	9/17/85		5500.34	5501.05	5502.25	5499.60	5503.00	
	10/ 3/85		5500.05	5500.87	5502.42	5499.70	5503.30	
WATER OFF	10/24/85		5499.23	5500.43	5502.28	5499.54	5503.10	
	11/ 3/85		5498.72	5500.05	5502.20	5499.60	5503.?	
	12/17/85		5498.95	5499.85	5501.85	5499.40	5502.30	
	1/ 8/86		5498.59	5500.08	5501.85	5499.35	5502.77	DRY
	1/24/86		5498.75	5500.22	5502.04	5499.36	5502.76	"
	2/20/86		5498.93	5500.62	5502.43	5499.35	5503.30	"
	3/21/86		5499.10	5500.65	5502.89	5499.80	5504.23	"
SAMPLE	3/26/86		5499.07	5500.65	5502.91	5499.31	5504.24	"
	4/ 4/86		5499.07	5500.57	5502.98	5499.21	5504.57	"
DIKE REMOVED 4/15 WATER ON 4/21	4/18/86		5498.85	5500.43	5502.98	5499.42	5504.42	"
	5/ 5/86		5499.43	5500.57	5502.92	5499.32	5504.27	"
	5/21/86		5500.05	5500.82	5502.85	5499.40	5504.35	"
	6/ 4/86		5500.41	5500.93	5502.95	5499.40	5504.17	"
SAMPLE	6/23/86		5501.21	5501.18	5503.05	5499.45	5504.13	"
	7/ 8/86		5501.34	5501.27	5502.96	5499.44	5503.87	"
	8/ 4/86		5500.25	5501.13	5502.92	5499.67	5503.77	"
	9/ 2/86		5500.23	5501.32	5502.94	5499.78	5503.58	"
SAMPLE	9/18/86		5500.03	5501.22	5502.77	5499.98	5503.52	"
	10/ 8/86		5499.83	5501.07	5502.68	5500.13	5503.46	"
WATER OFF 10/15	11/ 7/86		5499.45	5500.82	5502.72	5500.19	5503.48	"
DIKED	12/ 8/86		5499.45	5501.01	5502.78	5500.28	5503.43	"
SAMPLE	12/16/86		5499.45	5501.05	5502.80	5500.28	5503.41	"
	1/27/87		5499.44	5500.92	5502.60	5500.22	5503.10	DRY AT 5501.63
REMOVE DIKES 4/3/87	4/ 2/87		5499.76	5501.20	5502.86	5500.37	5503.77	"
	4/23/87		5499.33	5500.71	5502.94	5500.32	5504.01	"
IRRIGATION 4/13/87	5/27/87		5499.71	5500.83	5502.94	5500.22	5503.95	"

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GROUNDWATER ELEVATIONS

	DATE	T.O.P. →	MW-7 5524.09	MW-8 5531.12	MW-9 5519.70	MW-10 5516.86	HAMMOND AT SULLIVAN 5504.32	HAMMOND AT WALKWAY 5522.95
			–	–	–	–	–	–
	3/21/86		5498.02	5501.95	5498.15	5497.65	–	–
SAMPLE	3/26/86		5498.02	5501.97	5498.20	5497.66	–	–
DIKE REMOVED 4/E	4/4/86		5498.77	5501.86	5498.22	5497.60	5496.50	5498.24
	4/18/86		5497.92	5501.82	5497.90	5497.69	–	5496.85
WATER ON 4/21	5/5/86		5497.28	5501.79	5498.62	5497.83	5498.08	5499.03
	5/21/86		5498.86	5501.83	5499.00	5498.05	5498.25	5499.42
	6/4/86		5498.85	5501.89	5499.17	5498.15	5498.23	5499.63
SAMPLE	6/23/86		–	5502.04	5499.47	5498.11	–	–
	7/8/86		5497.87	5502.22	5499.50	5498.17	5497.89	5499.95
	8/4/86		5498.77	5502.12	5499.40	5498.37	5497.84	5499.67
	9/2/86		5498.95	5502.21	5499.55	5498.53	5498.24	5500.15
SAMPLE	9/18/86		–	5502.12	5499.57	5498.75	–	–
	10/8/86		5498.96	5501.97	5499.42	5498.69	5497.00	5498.93
WATER OFF 10/15	11/7/86		5499.26	5501.90	5499.56	5499.05	5497.00	5498.83
DIKED	12/8/86		5499.40	5502.10	5499.14	5499.28	5498.72	5498.73
SAMPLE	12/16/86		5499.41	5502.10	5499.15	5499.30	–	–
	1/27/87		5499.29	5501.85	5498.98	5499.09	5498.59	5498.60
REMOVE DIKES 4/3/87	4/2/87		5499.59	5502.12	5498.92	5499.33	5498.55	5498.55
IRRIGATION 4/13/87	4/23/87		5499.55	5502.03	5498.29	5499.07	5497.55	5497.92
	5/27/87		5499.62	5501.95	5498.73	5499.04	5498.09	5498.61

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GROUNDWATER ELEVATIONS

	DATE	MW-1 5515.77	MW-2 5519.45	MW-3 5535.85	MW-4 5524.30	MW-5 5545.10	MW-6 5551.23
	2/24/84	5498.91	5500.44	5501.74	5499.46	5502.26	DRY
	2/28/85	5499.07	5500.55	5502.15	5499.30	5502.75	DRY
	3/18/85	5499.14	5500.82	5502.55	5499.32	5503.50	
WATER ON	4/11/85	5498.99	5500.62	5502.73	5499.30	5503.67	
	5/31/85	5499.67	5500.97	5502.74	5499.80	5503.64	
	6/14/85	5499.80	5500.99	5502.63	5499.80	5503.40	
	6/26/85	5499.94	5500.98	5502.49	5499.73	5503.24	
	7/10/85	5500.20	5500.99	5502.48	5499.80	5503.30	
	8/ 2/85	5501.00	5501.25	5502.48	5499.78	5503.37	
	9/17/85	5500.34	5501.05	5502.25	5499.80	5503.00	
	10/ 9/85	5500.08	5500.87	5502.42	5499.70	5503.30	
WATER OFF	10/24/85	5499.23	5500.43	5502.28	5499.54	5503.10	
	11/ 8/85	5498.72	5500.05	5502.20	5499.60	5503.09	
	12/17/85	5498.35	5499.85	5501.85	5499.40	5502.90	▽
	1/ 8/86	5498.59	5500.08	5501.85	5499.35	5502.77	DRY
	1/24/86	5498.75	5500.22	5502.04	5499.36	5502.76	"
	2/20/86	5498.93	5500.62	5502.43	5499.35	5503.30	"
	3/21/86	5499.10	5500.65	5502.89	5499.30	5504.23	"
SAMPLE	3/26/86	5499.07	5500.65	5502.91	5499.31	5504.24	"
	4/ 4/86	5499.07	5500.57	5502.98	5499.21	5504.57	"
DIKE REMOVED 4/15	4/18/86	5498.85	5500.43	5502.98	5499.42	5504.42	"
WATER ON 4/21	5/ 5/86	5499.43	5500.57	5502.92	5499.32	5504.27	"
	5/21/86	5500.05	5500.82	5502.85	5499.40	5504.35	"
	6/ 4/86	5500.41	5500.93	5502.95	5499.40	5504.17	"
SAMPLE	6/23/86	5501.21	5501.18	5503.05	5499.45	5504.13	"
	7/ 8/86	5501.34	5501.27	5502.96	5499.44	5503.87	"
	8/ 4/86	5500.25	5501.13	5502.92	5499.67	5503.77	"
	9/ 2/86	5500.23	5501.32	5502.94	5499.78	5503.58	"
SAMPLE	9/18/86	5500.03	5501.22	5502.77	5499.98	5503.52	"
	10/ 8/86	5499.83	5501.07	5502.68	5500.13	5503.46	"
WATER OFF 10/15	11/ 7/86	5499.45	5500.82	5502.72	5500.19	5503.48	"

WILSON JONES COMPANY G7506 GREEN MADE IN U.S.A.

GK GROUNDWATER ELEVATIONS

	DATE	MW-7	MW-8	MW-9	MW-10	HAMMOND AT SULLIVAN	HAMMOND AT WALKWAY
		5524.09	5531.12	5519.70	5516.86	5504.82	5522.95
		–	–	–	–	–	–
	3/21/86	5498.02	5501.95	5498.15	5497.65	–	–
	3/26/86	5498.02	5501.97	5498.20	5497.66	–	–
DIKE REMOVED 4/15	4/4/86	5498.77	5501.86	5498.22	5497.60	5496.50	5498.24
	4/18/86	5497.92	5501.82	5497.90	5497.69	–	5496.85

WILSON JONES COMPANY G7506 GREEN MADE IN U.S.A.

GROUNDWATER SAMPLING

DATE	TIME	MW NO	WATER LEVEL	TOTAL DEPTH	FT. OF H2O	GALS. H2O	BAILS R'Q'D	ACT. BAILS
5/27/87	9:00a	3	32.91	37.08	4.17	4.3	9	15
"	10:00a	2	18.62	27.07	8.45	8.8	18	20
"	11:00a	1	16.06	23.35	7.29	7.6	16	20
"	12:30p	5	41.15	45.08	3.93	4.1	9	12
"	1:00p	10	17.82	33.77	15.95	23.4	47	50
"	2:00p	9	20.97	33.78	12.81	18.8	38	40
"	3:00p	4	24.08	33.22	9.14	9.5	19	25

radius of wells 3, 2, 1, 5, & 4 = 0.21'; 1.036 x h = gal
radius of wells 10 & 9 = 0.25'; 1.468 x h = gal

5/27/87		8	29.17	34.87	NOT BAILED
"		7	24.47	-	"

STATION NAME: Plateau Mon. Well #1 (FIT Station #29)

LOCATION: North of Solar Evap Ponds

Parameter/Date-Time	3/22/84 FIT & E&E Inc	2/9/84	2/15/84	5/84 Hauser	5/84 CEP	9/84 ASSAGAI	12/84 ASSAGAI
Water Level from MP Ft							
Water Level Elevation Ft	Static 16.8'	16.56	17.01				
Staff Gage Ft							
pH						7.2	7.2
Temp °C							
Uncorrected N. Field Cond. ~~Umhos~~				1.2	0.05	7.2	<0.01
Phenols				<0.015	0.13	0.074	0.065
As .100 mg/l	—					<0.002	0.054
Ba 1.000 mg/l	0.2					1.0	<1.0
Cd .010 mg/l	0.003					0.014	<0.01
Cr .050 mg/l	0.01					<0.005	0.07
Pb .050 mg/l	—					0.125	0.18
Se .050 mg/l	0.003					~~<0.002~~ 0.35	<0.002 0.12
Ag .050 mg/l	—					<0.003	<0.03
Zn 10.000 mg/l	0.06					0.30	0.36
Al 5.000 mg/l	11.6					2.0	3.68
B .750 mg/l	—					<0.004	0.25
Co .050 mg/l	0.1					0.08	0.2
Cu 1.000 mg/l	—					0.10	0.11
Fe 1.000 mg/l	20.9					57	128
Mn .200 mg/l	1.38					1.7	1.05
Mo 1.000 mg/l	—			<0.5	0.24	<0.005	<0.005
Ni .200 mg/l	0.08					0.3	<0.06
Ca — mg/l	Unfiltered metals were not detected above background concentrations						
K — mg/l							
Na — mg/l							
HCO_3 — mg/l							
Cl 250 mg/l				1040	1000	1059	1135
SO_4 600 mg/l				240	520	825	700
TFR 1000 mg/l				3038	3050	3582	3512
~~Lab Cond. 25°C~~				0.62	0.54	0.284	0.56
Benzene 0.01 mg/l	ND					<0.01	0.015
Toluene 15.0 mg/l	ND					<0.01	<0.01

National 45-606 Eye-Ease 45-706 20/20 Buff Made in USA

BLOOMFIELD REFINING CO ANY
SAMPLE DATE: 12/1/89, CLEAR 45°F.

	PARAMETER	UNITS	NOMINAL DETECTION LIMITS	NM WQ STANDARD	MONITORING WELL 1	MONITORING WELL 5
1	Arsenic	mg/l	0.005	0.1	0.0005	0.0006
2	Barium	"	0.5	1.0	ND	ND
3	Cadmium	"	0.002	0.01	0.0073	0.0039
4	Chromium	"	0.02	0.05	ND	ND
5	Lead	"	0.02	0.05	ND	0.044
6	Boron	"	0.01	0.75	0.28	0.58
7	Iron	"	0.05	1.0	ND	ND
8	Manganese	"	0.02	0.2	1.17	ND
9	TDS	"	1.	1000.	3120.	4594.
10	Chloride	"	1.	250.	1142.85	1715.62
11	Sulfate	"	1.	600.	515.61	946.45
12	Phenols	"	0.001	0.005	0.151	0.006
13	Cyanide	"	0.005	0.2	<0.005	<0.005
14	Nitrate as N	"	0.1	10.	2.04	24.85
15	Nitrite as N	"	0.1	–	<0.10	<0.10
16	Ammonia	"	0.1	–	<0.10	0.165
17	Total Keldahl Nitrogen	"	0.1	–	1.48	3.39
18	Benzene	ug/l	0.2	10.	ND	10.8
19	Toluene	ug/l	0.2	750.	3.75	92.
20	Ethyl Benzene	ug/l	0.2	750.	ND	9.8
21	Xylenes (Total)	ug/l	0.2	620.	ND	22.3
22						
23						
24	1,1,1 Trichloroethane	ug/l	1.0	60.	ND	ND
25	1,2 Dichloroethane	ug/l	1.0	0.01	ND	ND
26	trans-1,2 Dichloroethene	ug/l	1.0	–	ND	169.8
27						
28						
29	pH	S.U.	0.01	6 TO 9	7.22	7.24
30	Depth to water	Ft	0.01	–	18.53	42.57
31						
32						
33						
34						
35						
36						
37						
38						
39						
40						

Inter·Mountain
Laboratories, Inc.

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

CLIENT:	Bloomfield Refinery	DATE REPORTED:	07/02/90
ID:	MW-1	DATE ANALYZED:	06/26/90
SITE:	N/A	DATE RECEIVED:	06/19/90
LAB NO:	F4468	DATE COLLECTED:	06/19/90

Analysis Requested: Purgeable aromatics in water.

Parameter	Concentration	Units
Benzene	ND (0.2)	ug/l
Toluene	ND (0.2)	ug/l
Ethylbenzene	ND (0.2)	ug/l
m/p-Xylene	ND (0.2)	ug/l
o-Xylene	ND (0.2)	ug/l
1,4-Dichlorobenzene	ND (0.3)	ug/l
1,3-Dichlorobenzene	ND (0.4)	ug/l
1,2-Dichlorobenzene	ND (0.4)	ug/l
Chlorobenzene	ND (0.2)	ug/l

Method:
8020 Aromatic Volatile Organics, SW-846, USEPA (1982).
602 Purgeable Aromatics, 40 CFR, Part 136.

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

C. Neal Schaeffer
Senior Chemist

Inter·Mountain
Laboratories, Inc.

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

CLIENT: Bloomfield Refinery
ID: MW-1
SITE: N/A
LAB NO: F4468

DATE REPORTED: 07/02/90
DATE ANALYZED: 06/26/90
DATE RECEIVED: 06/19/90
DATE COLLECTED: 06/19/90

Analysis Requested: Purgeable halocarbons in water.

Parameter	Concentration
Chloromethane, ug/l	ND (10.0)
Bromomethane, ug/l	ND (10.0)
Dichlorodifluoromethane, ug/l	ND (10.0)
Vinyl chloride, ug/l	ND (10.0)
Chloroethane, ug/l	ND (1.0)
Dichloromethane, ug/l	ND (1.0)
Trichlorofluoromethane, ug/l	ND (1.0)
1,1-dichloroethene, ug/l	ND (1.0)
1,1-dichloroethane, ug/l	ND (1.0)
trans-1,2-dichloroethene, ug/l	ND (1.0)
Chloroform, ug/l	ND (1.0)
1,2-dichloroethane, ug/l	ND (1.0)
1,1,1-trichloroethane, ug/l	ND (1.0)
Carbon tetrachloride, ug/l	ND (1.0)
Bromodichloromethane, ug/l	ND (1.0)
1,2-dichloropropane, ug/l	ND (1.0)
Trichloroethene, ug/l	ND (1.0)
Dibromochloromethane, ug/l	ND (1.0)
1,1,2-trichloroethane, ug/l	ND (1.0)
2-chloroethyl vinyl ether, ug/l	ND (10.0)
Bromoform, ug/l	ND (1.0)
1,1,2,2-tetrachloroethane, ug/l	ND (1.0)
Tetrachloroethene, ug/l	ND (1.0)
Chlorobenzene, ug/l	ND (1.0)
1,3-dichlorobenzene, ug/l	ND (1.0)
1,2-dichlorobenzene, ug/l	ND (1.0)
1,4-dichlorobenzene, ug/l	ND (1.0)
Bromobenzene, ug/l	ND (1.0)
2-chlorotoluene, ug/l	ND (1.0)
Dibromomethane, ug/l	ND (1.0)
1,1,1,2-tetrachloroethane, ug/l	ND (1.0)
1,2,3-trichloropropane, ug/l	ND (1.0)
Bromochloromethane, ug/l	ND (1.0)
cis-1,2-dichloroethene, ug/l	ND (1.0)
1,1-dichloropropene, ug/l	ND (1.0)
1,3-dichloropropane, ug/l	ND (1.0)
1,2-dibromoethane, ug/l	ND (1.0)
1,2-dibromo-3-chloropropane, ug/l	ND (1.0)

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

Inter-Mountain Laboratories, Inc.

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

CLIENT: Bloomfield Refinery
ID: MW-1
SITE: N/A
LAB NO: F4468

DATE REPORTED: 07/11/90
DATE RECEIVED: 06/19/90
DATE COLLECTED: 06/19/90

Lab pH (s.u.)	7.57
Lab conductivity, umhos/cm	5121
Lab resistivity, ohm-m	1.9527
Total dissolved solids (180), mg/l	2952
Total nitrate and nitrite, mg/l	6.47
Total Keldahl nitrogen, mg/l	1.17
Ammonia, mg/l	0.17
Cyanide, mg/l	<0.005
Phenols, mg/l	0.231
Total organic carbon, mg/l	11.30

	mg/l	meq/l
Chloride	1269.1	35.80
Sulfate	491.3	10.24

Trace metals by AA (total concentration), mg/l

	Analytical Result:	Detection Limit:
Arsenic (As)	0.0092	<0.0003
Cadmium (Cd)	ND	<0.0002
Lead (Pb)	0.007	<0.004

Trace metals by ICAP (total concentration), mg/l

	Analytical Result:	Detection Limit:
Boron (B)	0.31	<0.01
Barium (Ba)	ND	<0.5
Chromium (Cr)	ND	<0.02
Iron (Fe)	14.38	<0.05
Manganese (Mn)	0.59	<0.02

C. Neal Schaeffer
Lab Director

Inter·Mountain
Laboratories, Inc.

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

CLIENT: Bloomfield Refinery
SITE: MW-1
LAB NO: F3587
Analysis Requested: Purgeable aromatics in water.

DATE REPORTED: 01/29/90
DATE ANALYZED: 12/08/90
DATE RECEIVED: 12/01/90
DATE COLLECTED: 12/01/90

Parameter	Concentration	Units
Benzene	ND (0.2)	ug/l
Toluene	3.75 (0.2)	ug/l
Ethylbenzene	ND (0.2)	ug/l
m/p-Xylene	ND (0.2)	ug/l
o-Xylene	ND (0.2)	ug/l
1,4-Dichlorobenzene	ND (0.2)	ug/l
1,3-Dichlorobenzene	ND (0.2)	ug/l
1,2-Dichlorobenzene	ND (0.2)	ug/l
Chlorobenzene	ND (0.2)	ug/l

Method:
8020 Aromatic Volatile Organics, SW-846, USEPA (1982).
602 Purgeable Aromatics, 40 CFR, Part 136.

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

C. Neal Schaefer
Senior Chemist

Inter·Mountain
Laboratories, Inc.

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

CLIENT: Bloomfield Refinery
SITE: MW-1
LAB NO: F3587
Analysis Requested: Purgeable halocarbons in water.

DATE REPORTED: 01/29/90
DATE ANALYZED: 12/08/90
DATE RECEIVED: 12/01/90
DATE COLLECTED: 12/01/90

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

* Low level present but also present in reagent water.

Method:
601 Purgeable Halocarbons, 40 CFR Part 136, USEPA (1984).
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

Inter-Mountain
Laboratories, Inc.

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

CLIENT: Bloomfield Refinery — DATE REPORTED: 12/27/89

SITE: MW-1 — DATE RECEIVED: 12/01/89
LAB NO: F3587 — DATE COLLECTED: 12/01/89

Lab pH (s.u.)	7.22
Total Dissolved Solids (180), mg/l	3120
Nitrate, mg/l	2.04
Nitrite, mg/l	<0.10
Total Keldahl Nitrogen	1.48
Ammonia, mg/l	<0.10
Cyanide, mg/l	<0.005
Phenols, mg/l	0.151

	mg/l	meq/l
Chloride	1142.85	32.24
Sulfate	515.61	10.74

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

	Analytical Result:	Detection Limit:
Arsenic (As)	0.0005	<0.005
Cadmium (Cd)	0.0073	<0.002
Lead (Pb)	ND	<0.02
Selenium (Se)	0.0011	<0.005

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

	Analytical Result:	Detection Limit:
Boron (B)	0.28	<0.01
Barium (Ba)	ND	<0.5
Chromium (Cr)	ND	<0.02
Iron (Fe)	ND	<0.05
Manganese (Mn)	1.17	<0.02

C. Neal Schaeffer
Senior Chemist

SCIENTIFIC LABORATORY DIVISION
ORGANIC ANALYSIS REQUEST FORM
Organic Section - Phone: 841-2570

754 wpll

OR89-1401-C

REPORT TO: David G. Boyer
NM Oil Conservation Division
P.O. Box 2088 Santa Fe 87504

S.L.D. No. OR-
DATE REC. 9-5-89
PRIORITY 3
PHONE(S): 827-5812

COLLECTION CITY: Bloomfield ; COUNTY: San Juan

COLLECTION DATE/TIME CODE: (Year-Month-Day-Hour-Minute) 8 9 0 9 0 5 1 1 2 0 5

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

USER CODE: 8 2 2 3 5 SUBMITTER: D. Boyer CODE:

SAMPLE TYPE: WATER [X], SOIL [ ], FOOD [ ], OTHER:

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

RECEIVED
OCT 10 1989
OIL CONSERVATION DIV.
SANTA FE

Samples were preserved as follows:

- [ ] NP: No Preservation; Sample stored at room temperature.
- [X] P-Ice Sample stored in an ice bath (Not Frozen).
- [ ] P-AA Sample Preserved with Ascorbic Acid to remove chlorine residual.
- [X] P-HCl Sample Preserved with Hydrochloric Acid (2 drops/40 ml)

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 Headspace (1-5 Carbons)
- [X] (754) Aromatic & Halogenated Purgeables
- [ ] (765) Mass Spectrometer Purgeables
- [ ] (766) Trihalomethanes
- [ ] (774) SDWA VOC's I (8 Regulated +)
- [ ] (775) SDWA VOC's II (EDB & DBCP)

Other Specific Compounds or Classes

- [ ] _____
- [ ] _____

EXTRACTABLE SCREENS

- [ ] (751) Aliphatic Hydrocarbons
- [ ] (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: 1 PPB detection limit Please

FIELD DATA:

pH=____; Conductivity=____umho/cm at ____°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 (ice, odors, etc.)

Gary Bloomfield Refinery MW-1
Foamy, Slight odor

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

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 [ ] OR Seals Intact: Yes [ ] No [ ]

Signatures ____ ____

STATE OF NEW MEXICO HEALTH AND ENVIRONMENT DEPARTMENT

SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud, NE
Albuquerque, NM 87106 [505]-841-2500
ORGANIC CHEMISTRY SECTION [505]-841-2570

October 5, 1989

ANALYTICAL REPORT
SLD Accession No. OR-89-1401

Distribution
(■) Submitter
(▩) SLD Files

To: NM Oil Consv. Div.
State Land Office Bldg.
P. O. Box 2088
Santa Fe, NM 87504-2088

From: Organic Chemistry Section
Scientific Laboratory Div.
700 Camino de Salud, NE
Albuquerque, NM 87106

Re: **A purgeable water sample submitted to this laboratory on September 5, 1989**

User:
OIL CONSERVATION DIV
State Land Office Bldg.
P. O. Box 2088
Santa Fe, NM 87504-2088

RECEIVED
OCT 10 1989
OIL CONSERVATION DIV.
SANTA FE

DEMOGRAPHIC DATA

COLLECTION

On: 1-Sep-89 *By:* Boy . . .
At: 12:05 hrs. *In/Near:* Bloomfield

LOCATION

ANALYTICAL RESULTS: Aromatic & Halogenated Purgeable Screen

Parameter	Value	Note	MDL	Units
Halogenated Purgeables (33)	0.00	N	0.50	ppb
Benzene	0.60		0.50	ppb

See Laboratory Remarks for Additional Information

Notations & Comments:

MDL = Minimal Detectable Level.

A = Approximate Value; N = None Detected above Detection Limit; P = Compound Present, but not quantified;
T = Trace (<Detection Limit); U = Compound Identity Not Confirmed.

Evidentiary Seals: Not Sealed [✓]; Intact: No [ ], Yes [ ] & Broken By: _____ Date: _____

Laboratory Remarks: Refinery MW-1
1 late eluting compound in the C3 substituted benzene region at 1-2ppb detected with the photoionization detector.

Analyst: Gary C. Eden — *Analyst, Organic Chemistry* — 9/14/89 Analysis Date

Reviewed By: Richard F. Meyerhein for RM — *Supervisor, Organic Chemistry Section* — 10/05/89

Inter-Mountain
Laboratories, Inc.

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

CLIENT: OCD
ID: 8909011205
SITE: Gary MW-1
LAB NO: F3039
DATE REPORTED: 09/27/89
DATE EXTRACTED: 09/14/89
DATE RECEIVED: 09/05/89
DATE COLLECTED: 09/01/89

Analysis Requested: Purgeable aromatics in water.

Parameter	Concentration	Units
Benzene	0.6 (0.2)	ug/l
Toluene	0.51 (0.2)	ug/l
Ethylbenzene	ND (0.2)	ug/l
p-Xylene	0.8 (0.2)	ug/l
m-Xylene	ND (0.2)	ug/l
o-Xylene	ND (0.2)	ug/l
1,4-Dichlorobenzene	ND (0.2)	ug/l
1,3-Dichlorobenzene	ND (0.2)	ug/l
1,2-Dichlorobenzene	ND (0.2)	ug/l
Chlorobenzene	ND (0.2)	ug/l

Method:
8020 Aromatic Volatile Organics, SW-846, USEPA (1982)
602 Purgeable Aromatics, 40 CFR, Part 136

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

C. Neal Schaeffer
Senior Chemist

Cory Bloomfield Refinery

890901205-MW-1

Bailed 20 bails (20 gallons). Approx 6 FT water in well.

Samples brown, foamy slight H/C odor

2 Samples for VOC only; 1 for TML, 1 for SLS.

iml
Inter-Mountain
Laboratories, Inc.

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

31 May 1989

Bloomfield Refining Company
POB 159
Bloomfield, NM 87413

Chris Hawley,

This letter is to document the lost samples I reported to you by telephone. Due to failure of our laboratory equipment (a refrigerator) the following samples were lost: Salmon, MW-1, MW-4, and MW-5. These were received at the lab on 24 May 1989 for 601 analysis (purgeable halocarbons). Please accept my apology for this inconvenience.

Sincerely,

C. Neal Schaeffer
Senior Organic Chemist

iml
Inter-Mountain
Laboratories, Inc.

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

Date: 05/31/89

Client: Bloomfield Refinery
Sample Site: MW-1
IML Sample No: F89182 O
Analysis Requested: Purgeable Aromatics
Sample Matrix: Water

Date Sampled: 05/24/89
Date Received: 05/24/89
Date Extracted: N/A
Date Analyzed: 05/26/89

Parameter	Concentration	Units
BENZENE	ND (0.2)	ug/l
TOLUENE	ND (0.2)	ug/l
ETHYLBENZENE	ND (0.2)	ug/l
m,p-XYLENE	ND (0.2)	ug/l
o-XYLENE	ND (0.2)	ug/l

Method: 8020 Aromatic Volatile Organics, SW-846, USEPA (1982)
602 Purgeable Aromatics, 40 CFR, Part 136

Note: Method Detection Limit (MDL) is given in parenthesis.
ND means analyte was not detected.

C. Neal Schaeffer
Senior Organic Chemist

Inter-Mountain
Laboratories, Inc.

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

CLIENT: OCD
ID: 8909011205
SITE: Gary MW-1
LAB NO: F3039
DATE REPORTED: 09/27/89
DATE EXTRACTED: 09/14/89
DATE RECEIVED: 09/05/89
DATE COLLECTED: 09/01/89

Analysis Requested: Purgeable aromatics in water.

Parameter	Concentration	Units
Benzene	0.6 (0.2)	ug/l
Toluene	0.51 (0.2)	ug/l
Ethylbenzene	ND (0.2)	ug/l
p-Xylene	0.8 (0.2)	ug/l
m-Xylene	ND (0.2)	ug/l
o-Xylene	ND (0.2)	ug/l
1,4-Dichlorobenzene	ND (0.2)	ug/l
1,3-Dichlorobenzene	ND (0.2)	ug/l
1,2-Dichlorobenzene	ND (0.2)	ug/l
Chlorobenzene	ND (0.2)	ug/l

Method:
8020 Aromatic Volatile Organics, SW-846, USEPA (1982)
602 Purgeable Aromatics, 40 CFR, Part 136

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

C. Neal Schaeffer
Senior Chemist

Inter-Mountain Laboratories, Inc.
2506 West Main Street | Farmington, New Mexico 87401 | Tel. (505) 326-4737

Bloomfield Refining Company
P.O. Box 159, Bloomfield, NM 87413

Trace Metal Analysis
Dissolved Concentrations, mg/l

June 20, 1989

Lab Number	Sample Identification	Arsenic	Barium	Boron	Cadmium	Chromium	Iron	Lead	Manganese
1431	MW-1	<0.005	<0.5	0.03	<0.002	<0.02	0.68	0.05	<0.02
1433	MW-5	<0.005	<0.5	0.41	<0.002	<0.02	<0.05	0.06	<0.02
1434	MW-4	<0.005	1.4	0.50	<0.002	<0.02	0.92	0.03	3.59
Detection Limit:		0.005	0.5	0.01	0.002	0.02	0.05	0.02	0.02

Reviewed by: April V. Gil

April V. Gil
Senior Geologist
Laboratory Director

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

Bloomfield Refining Company
P.O. Box 159, Bloomfield, NM 87413

Water Analysis

June 20, 1989

Lab Number	Sample Identification	Ammonia (mg/l)	Nitrate (mg/l)	Nitrite (mg/l)	TKN (mg/l)	Phenol (mg/l)	Cyanide (mg/l)	TDS (mg/l)	Sulfate mg/l	Sulfate meq/l
1431	MW-1	0.14	0.561	0.02	1.59	0.214	<0.005	3308	653.46	13.61
1433	MW-5	0.1	21.04	0.049	1.24	0.362	<0.005	4196	781.03	16.27
1434	MW-4	<0.1	<0.1	0.058	1.52	0.250	<0.005	1454	7.41	0.154

Reviewed by: April V. Gil

April V. Gil
Senior Geologist
Laboratory Director

~~SCIENTIFIC LABORATORY DIVISION~~

F89155

ORGANIC ANALYSIS REQUEST FORM

AA-521.07-123

~~Organic Section — Phone: 841-2570~~

REPORT TO: DAVID BOYER

N.M. OIL CONSERVATION DIVISION

P.O. Box 2088

Santa Fe, NM 87504-2088

S.L.D. No. OR-

DATE REC.

PRIORITY

PHONE(S): 827-5812

COLLECTION CITY: Bloomfield ; COUNTY: San Juan

COLLECTION DATE/TIME CODE: (Year-Month-Day-Hour-Minute) | 8 | 9 | 0 | 4 | 2 | 7 | 1 | 1 | 4 | 0 |

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

USER CODE: | 8 | 2 | 2 | 3 | 5 | SUBMITTER: David Boyer CODE: | 2 | 6 | 0 |

SAMPLE TYPE: WATER [X], SOIL [ ], FOOD [ ], OTHER:

This form accompanies 3 Septum Vials, ____ Glass Jugs, and/or ____ ____

Samples were preserved as follows:

- [ ] NP: No Preservation; Sample stored at room temperature.
- [X] P-Ice Sample stored in an ice bath (Not Frozen).
- [ ] P-AA Sample Preserved with Ascorbic Acid to remove chlorine residual.
- [X] P-HCl Sample Preserved with Hydrochloric Acid (2 drops/40 ml)

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 Headspace (1-5 Carbons)
- [X] (754) Aromatic & Halogenated Purgeables
- [ ] (765) Mass Spectrometer Purgeables
- [ ] (766) Trihalomethanes
- [ ] (774) SDWA VOC's I (8 Regulated +)
- [ ] (775) SDWA VOC's II (EDB & DBCP)

Other Specific Compounds or Classes

- [ ] _____
- [ ] _____

EXTRACTABLE SCREENS

- [ ] (751) Aliphatic Hydrocarbons
- [ ] (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= 3600 umho/cm at 14 °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.)

Gary BRC - MW #1, No odor

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

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 [ ] OR Seals Intact: Yes [ ] No [ ]

Signatures' _____ _____

For OCD use: Date owner notified: 9/12/89 Phone or Letter? Initials MB

ANALYSES PERFORMED — LAB. No.: OR-

THIS PAGE FOR LABORATORY RESULTS ONLY

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

PURGEABLE SCREENS

- ☐ (753) Aliphatic Headspace (1-5 Carbons)
- ☐ (754) Aromatic & Halogenated Purgeables
- ☐ (765) Mass Spectrometer Purgeables
- ☐ (766) Trihalomethanes
- ☐ (774) SDWA VOC's I (8 Regulated +)
- ☐ (775) SDWA VOC's II (EDB & DBCP)

Other Specific Compounds or Classes

- ☐ _____
- ☐ _____

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
- ☐ (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]
* 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) Not Sealed ☐ 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: _____

Inter·Mountain
Laboratories, Inc.

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

Report Date: 05/15/89

Client:	New Mexico OCD		
Sample ID:	8904271140	Date Sampled:	04/27/89
Laboratory Number:	F891550	Date Received:	04/28/89
Analysis Requested:	Purgeable Aromatics	Date Extracted:	NA
Sample Matrix:	Water	Date Analyzed:	05/05/89

Parameter	Concentration	Units
BENZENE	28.1 (0.2)	ug/l
TOLUENE	1.1 (0.2)	ug/l
ETHYLBENZENE	ND (0.2)	ug/l
m,p-XYLENE	0.25 (0.2)	ug/l
o-XYLENE	1.3 (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.

Jack M. Morgan
Senior Organic Chemist

RECEIVED
MAY 23 1989
OIL CONSERVATION DIV.
SANTA FE

Inter·Mountain
Laboratories, Inc.

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

** Quality Assurance Report
Spike Analysis

Report Date: 05/15/89

Client: New Mexico OCD

Sample ID:	8904271140	Date Sampled:	04/27/89
Laboratory Number:	F891550	Date Received:	04/28/89
Analysis Requested:	Purgeable Aromatic	Date Extracted:	NA
Sample Matrix:	Water	Date Analyzed:	05/05/89

Parameter	Spike Added(ug/l)	Recovered (ug/l)	Percent Recovery
BENZENE	20	46.12	90.1

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

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

Jack M. Morgan
Senior Organic Chemist

RECEIVED
MAY 23 1989
OIL CONSERVATION DIV.
SANTA FE

Inter·Mountain
Laboratories, Inc.

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

** Quality Assurance Report
Spike Analysis

Report Date: 05/15/89

Client: New Mexico OCD

Sample ID: 8904271140
Laboratory Number: F891550
Analysis Requested: Purgeable Aromatic
Sample Matrix: Water

Date Sampled: 04/27/89
Date Received: 04/28/89
Date Extracted: NA
Date Analyzed: 05/05/89

Parameter	Analyte in sample	Spike Added	Concentration Measured (ug/l)	Spike Recovered	Percent Recovery
BENZENE	28.1	20	46.12	18.02	90.1

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 for Jack Morgan
C. Neal Schaeffer
Senior Organic Chemist

RECEIVED
JUN - 5 1989
OIL CONSERVATION DIV.
SANTA FE

Inter-Mountain Laboratories, Inc.

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

RECEIVED
MAY 22 1989
OIL CONSERVATION DIV.
SANTA FE

Report Date: 05/09/89

Client: New Mexico OCD
Sample ID: 8904271145
IML Sample No: F891550
Analysis Requested: Purgeable Halocarbons
Sample Matrix: Water

Date Sampled: 04/27/89
Date Received: 04/28/89
Date Extracted: N/A
Date Analyzed: 05/03/89

Parameter	Concentration	Units
CHLOROMETHANE	ND (1.0)	ug/l
BROMOMETHANE	ND (1.0)	ug/l
DICHLORODIFLUOROMETHANE	ND (1.0)	ug/l
VINYL CHLORIDE	ND (1.0)	ug/l
CHLOROETHANE	ND (1.0)	ug/l
METHYLENE CHLORIDE	ND (10.0) *	ug/l
TRICHLOROFLUOROMETHANE	ND (1.0)	ug/l
1,1-DICHLOROETHENE	ND (0.1)	ug/l
1,1-DICHLOROETHANE	ND (0.1)	ug/l
TRANS-1,2-DICHLOROETHENE	ND (0.1)	ug/l
CHLOROFORM	ND (0.1)	ug/l
1,2-DICHLOROETHANE	ND (0.1)	ug/l
1,1,1-TRICHLOROETHANE	ND (0.1)	ug/l
CARBON TETRACHLORIDE	ND (0.1)	ug/l
BROMODICHLOROMETHANE	ND (0.1)	ug/l
1,2-DICHLOROPROPANE	ND (0.1)	ug/l
CIS-1,3-DICHLOROPROPENE	ND (0.1)	ug/l
TRICHLOROETHENE	ND (0.1)	ug/l
DIBROMOCHLOROMETHANE	ND (0.1)	ug/l
1,1,2-TRICHLOROETHANE	ND (0.1)	ug/l
TRANS-1,3-DICHLOROPROPENE	ND (0.1)	ug/l
2-CHLOROETHYLVINYL ETHER	ND (0.1)	ug/l
BROMOFORM	ND (0.5)	ug/l
1,1,2,2-TETRACHLOROETHANE	ND (0.1)	ug/l
TETRACHLOROETHENE	ND (0.1)	ug/l
CHLOROBENZENE	ND (0.1)	ug/l
1,2-DICHLOROBENZENE	ND (0.1)	ug/l
1,3-DICHLOROBENZENE	ND (0.1)	ug/l
1,4-DICHLOROBENZENE	ND (0.1)	ug/l
CIS-1,2-DICHLOROETHENE	ND (0.1)	ug/l

Method: 601 Purgeable Halocarbons, 40 CFR Part 136, USEPA (1984).

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

* High background in laboratory on this day.

Jack M. Morgan
Senior Organic Chemist

WNF 859

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 05 02 89 | LAB NO. WC 1356 | USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235

Collection DATE 89 04 27 | Collection TIME 1140 | Collected by — Person/Agency Boyer /OCD

SITE INFORMATION ► Sample location GARY BRC MW-1

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

RECEIVED JUN 27 1989 OIL CONSERVATION DIV. SANTA FE

Station/ well code

Owner

SAMPLING CONDITIONS

☒ Bailed ☐ Dipped ☐ Pump ☐ Tap	Water level TD 22.82'	Discharge	Sample type GRAB
pH (00400) 7	Conductivity (Uncorrected) 3600 µmho	Water Temp. (00010) 14 °C	Conductivity at 25°C (00094) µmho

Field comments No odor SWL-16.36', purged 20 gallons

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_2SO_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)	4981	µmho	5/15
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☒ Other: Lab pH	7.58		5/9
☐ Other:			
☐ Other:			

A-H_2SO_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 WNF, NA Sample:

			Date Analyzed
☒ Calcium	264	mg/l	5/10
☒ Potassium	7	mg/l	5/4
☒ Magnesium	246	mg/l	5/10
☒ Sodium	796	mg/l	5/4
☒ Bicarbonate	509	mg/l	5/9
☒ Chloride	1111	mg/l	
☒ Sulfate	1323	mg/l	6/9
☒ Total Solids	3436	mg/l	5-3
☐			
☐			
☒ Cation/Anion Balance			

Analyst | Date Reported 6 13 89 | Reviewed by

Laboratory remarks

FOR OCD USE -- Date Owner Notified 9/12/89 Phone or Letter? ____ Initals

CATIONS				ANIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT	ANALYTE	MEQ.	PPM	DET. LIMIT
Ca	13.17	264.00	<3.0	HC03	8.34	509.00	<1.0
Mg	20.21	246.00	<0.3	SO4	27.56	1323.00	<10.0
Na	34.62	796.00	<10.0	CL	31.34	1111.00	<5.0
K	0.18	7.00	<0.3				
Mn	0.00	0.00		NO3	0.00	0.00	< 0.
Fe	0.00	0.00		C03	0.00	0.00	< 1.
				NH3	0.00	0.00	< 0.
				PO4	0.00	0.00	< 0.
SUMS	68.18	1313.00			67.24	2943.00	

Total Dissolved Solids= 3436

Ion Balance = 101.39%

WC No. = 8901356

Date out/By CO 6/20

RECEIVED

JUN 27 1989

OIL CONSERVATION DIV.
SANTA FE

WPF 852

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 05 02 89 | LAB NO. WC 1362 | USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235

Collection DATE 89 04 27
Collection TIME 1140
Collected by — Person/Agency Boyer /OCD

SITE INFORMATION ►
Sample location Gary BRC MW-1
Collection site description

RECEIVED
MAY 30 1989
OIL CONSERVATION DIV. SANTA FE

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 16.36	Discharge	Sample type Grab
pH (00400) 7	Conductivity (Uncorrected) 3600 µmho	Water Temp. (00010) 14 °C	Conductivity at 25°C (00094) µmho

Field comments No odor

SAMPLE FIELD TREATMENT — *Check proper boxes*

No. of samples submitted 1

☐ NF: Whole sample (Non-filtered) ☒ F: Filtered in field with 0.45 µmembrane filter ☒ A: 2 ml H_2SO_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:			
☐ Other:			
☐ Other:			

A-H_2SO_4			
☒ Nitrate-N +, Nitrate-N total (00630)	0.70	mg/l	5/15
☒ Ammonia-N total (00610)	<0.1	mg/l	5/8
☒ Total Kjeldahl-N ( )	1.15	mg/l	5/23
☐ 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 5/24/89 | Reviewed by

Laboratory remarks

FOR OCD USE -- Date Owner Notified 9/17/89 Phone or (Letter)? Initals

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	05/02/89	Lab No. ICAP 207	User Code	☒ 82235 ☐ Other:

COLLECTION DATE & TIME: yy 89 | mm 04 | dd 27 | hh 11 | mm 40

COLLECTED BY: BOYER

COLLECTION SITE DESCRIPTION: GARY BRC MW-1

TO:

OWNER:

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

ATTN: DAVID BOYER
TELEPHONE: 827-5812

SITE LOCATION:
County: San Juan

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

STATION/ WELL CODE:

LATITUDE, LONGITUDE:

SAMPLING CONDITIONS:

☒ Bailed ☐ Dipped	☐ Pump ☐ Tap	Water Level: 16.36	Discharge:	Sample Type: GRAB

pH(00400)	Conductivity(Uncorr.)	Water Temp.(00010)	Conductivity at 25°C (00094)
7	3600 µmho	14 °C	µmho

FIELD COMMENTS: NO odor

SAMPLE FIELD TREATMENT Check proper boxes:		LAB ANALYSIS REQUESTED:
☐ 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.

ANALYTICAL RESULTS (MG/L)

ELEMENT	ICAP VALUE		AA VALUE	ELEMENT	ICAP VALUE		AA VALUE
Aluminum	<0.1			Silicon	11.		
Barium	<0.1			Silver	<0.1	☐	
Beryllium	<0.1			Strontium	5.5		
Boron	0.2			Tin	<0.1		
Cadmium	<0.1	☐		Vanadium	<0.1		
Calcium	270.			Zinc	<0.1		
Chromium	<0.1	☒	<0.025	Arsenic		☒	<0.005
Cobalt	<0.05			Selenium		☐	
Copper	<0.1			Mercury		☐	
Iron	<0.1					☐	
Lead	<0.1	☒	<0.005			☐	
Magnesium	80.					☐	
Manganese	1.7					☐	
Molybdenum	0.1					☐	
Nickel	<0.1					☐	

LAB COMMENTS: DIGEST

For OCD Use:
Date Owner Notified: 9/12/89
Phone or Letter?
Initials: DJB

ICAP Analyst JJA
Date Analyzed 7/10/89

Reviewer JJA
Date Reveived 8/21/89

Inter-Mountain Laboratories, Inc.

BLOOMFIELD REFINING COMPANY
Attn: Chris Hawley
P.O. Box 159
Bloomfield, NM 87413

December 15, 1988

Re: Water Analysis:

Sample Site: MW-1
Lab No: F2141
Date Sampled: 11/18/88 @ 1000
Date Received:11/18/88

Parameter	
pH, (s.u.)	7.0
Chloride, mg/l	1140
Fluoride, mg/l	0.92
Nitrate + Nitrite as "N", mg/l	4.03
Sulfate, mg/l	665
Total Dissolved Solids @ (180C), mg/l	3430
Phenol, mg/l	0.05
Cyanide, mg/l	<0.01

Trace Metals (Dissolved Concentrations), mg/l

Aluminum	<0.1	Iron	<0.05
Arsenic	<0.005	Lead	<0.02
Barium	<0.5	Manganese	2.11
Boron	0.32	Mercury	<0.001
Cadmium	<0.002	Molybdenum	<0.02
Chromium	<0.02	Nickel	<0.01
Cobalt	<0.02	Selenium	<0.005
Copper	<0.01	Silver	<0.01
		Zinc	<0.01

Inter-Mountain Laboratories, Inc.

Client: Bloomfield Refining Company

Sample ID: MW-1
Laboratory Number: F2141
Analysis Requested: Method 602, 8010
Sample Matrix: Water
Date Sampled: 11/18/88
Date Received: 11/18/88

Parameter	Method	Concentration		Units
BENZENE	602	0.75	(0.2)	ug/l
TOLUENE	602	2.68	(0.2)	ug/l
CARBONTETRACHLORIDE	8010	ND	(0.5)	ug/l
1,2-DICHLOROETHANE	8010	ND	(0.5)	ug/l
1,1-DICHLOROETHYLENE	8010	ND	(0.5)	ug/l
1,1,2,2-TETRACHLOROETHYLENE	8010	ND	(0.5)	ug/l
1,1,2-TRICHLOROETHYLENE	8010	ND	(0.5)	ug/l

Method: 602, Purgeable Aromatics, Methods for Organic Chemical Analysis of of Muicipal and Industrial Wastewater, USEPA (1984).

Method: 8010, Halogenated Volatile Organics, SW-846, USEPA (1982).

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

Ron R. Richardson
Laboratory Director

Inter-Mountain Laboratories, Inc.

Client: Bloomfield Refining Company

Sample ID: MW-1 field split
Laboratory Number: F2141
Analysis Requested: Method 602, 8010
Sample Matrix: Water
Date Sampled: 11/18/88
Date Received: 11/18/88

Parameter	Method	Concentration		Units
BENZENE	602	0.55	(0.2)	ug/l
TOLUENE	602	1.15	(0.2)	ug/l
CARBONTETRACHLORIDE	8010	ND	(0.5)	ug/l
1,2-DICHLOROETHENE	8010	ND	(0.5)	ug/l
1,1-DICHLOROETHYLENE	8010	ND	(0.5)	ug/l
1,1,2,2-TETRACHLOROETHYLENE	8010	ND	(0.5)	ug/l
1,1,2-TRICHLOROETHYLENE	8010	ND	(0.5)	ug/l

Method: 602, Purgeable Aromatics, Methods for Organic Chemical Analysis of of Muicipal and Industrial Wastewater, USEPA (1984).

Method: 8010, Halogenated Volatile Organics, SW-846, USEPA (1982).

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

Ron R. Richardson
Laboratory Director

Inter·Mountain
Laboratories, Inc.

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

Bloomfield Refining Company
Attn: Chris Hawley
Environmental Engineer
PO Box 159
Bloomfield, NM 87413

22 June, 1988

Re: Water Analysis

Sample Site: MW1
IML Lab No: F1448
Date Sampled: 06/03/88
Date Received: 06/06/88

---

pH, (s.u.)	7.3
Chloride, mg/l	1040
Fluoride, mg/l	0.60
Nitrate + Nitrite as "N", mg/l	3.22
Sulfate, mg/l	851
Total Dissolved Solids (180), mg/l	3500
Phenol, mg/l	0.021
Cyanide, mg/l	0.022

Trace Metals (Dissolved Concentrations), mg/l

Aluminum	-0.1	Iron	-0.05
Arsenic	-0.005	Lead	-0.02
Barium	-0.5	Manganese	0.85
Boron	0.25	Mercury	-0.001
Cadimum	-0.002	Molybdenum	0.21
Chromium	-0.02	Nickel	0.03
Cobalt	-0.02	Selenium	-0.005
Copper	0.02	Silver	-0.01
		Zinc	0.03

Inter-Mountain Laboratories, Inc.

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

Client: Bloomfield Refining Company

Sample ID: MW1
Laboratory Number: F1448
Analysis Requested: Method 602, 8010
Sample Matrix: Water
Date Sampled: 06/03/88
Date Received: 06/06/88

Parameter	Method	Concentration		Units
BENZENE	602	ND	(0.001)	mg/l
TOLUENE	602	ND	(0.001)	mg/l
CARBONTETRACHLORIDE	8010	ND	(0.001)	mg/l
1,2-DICHLOROETHENE	8010	ND	(0.001)	mg/l
1,1-DICHLOROETHYLENE	8010	ND	(0.001)	mg/l
1,1,2,2-TETRACHLOROETHYLENE	8010	ND	(0.001)	mg/l
1,1,2-TRICHLOROETHYLENE	8010	ND	(0.001)	mg/l

Method: 602, Purgeable Aromatics, Methods for Organic Chemical Analysis of of Muicipal and Industrial Wasrewater, USEPA (1984).

Method: 8010, Halogenated Volatile Organics, SW-846, USEPA (1982).

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

Ron R. Richardson
Lab. Director

iml
Inter-Mountain
Laboratories, Inc.

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

Bloomfield Refining Company
Attn: Chris Hawley
Environmental Engineer
PO Box 159
Bloomfield, NM 87413

08 December, 1987

Re: Water Analysis

Sample Site: MW1
IML Lab No: F5744
Date Sampled: 11/17/87
Date Received: 11/17/87

---

pH, (s.u.)	7.0
Chloride, mg/l	910
Fluoride, mg/l	0.76
Nitrate + Nitrite as "N", mg/l	5.66
Sulfate, mg/l	655
Total Dissolved Solids (180), mg/l	3050
Phenol, mg/l	0.02
Cyanide, mg/l	-0.005

Trace Metals (Dissolved Concentrations, mg/l)

Aluminum	-0.1	Iron	-0.05
Arsenic	-0.005	Lead	-0.02
Barium	-0.5	Manganese	1.45
Boron	0.32	Mercury	-0.001
Cadimum	-0.002	Molybdenum	-0.02
Chromium	-0.02	Nickel	-0.01
Cobalt	-0.02	Selenium	-0.005
Copper	-0.01	Silver	-0.01
		Zinc	-0.01

Inter-Mountain
Laboratories, Inc.

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

Client: Bloomfield Refining Company

Sample ID: MW1
Laboratory Number: F5744
Analysis Requested: Method 602, 8010
Sample Matrix: Water
Date Sampled: 11/17/87
Date Received: 11/17/87

Parameter	Method	Concentration		Units
BENZENE	602	ND	(0.001)	mg/l
TOLUENE	602	ND	(0.001)	mg/l
CARBONTETRACHLORIDE	8010	ND	(0.001)	mg/l
1,2-DICHLOROETHENE	8010	ND	(0.001)	mg/l
1,1-DICHLOROETHYLENE	8010	ND	(0.001)	mg/l
1,1,2,2-TETRACHLOROETHYLENE	8010	ND	(0.001)	mg/l
1,1,2-TRICHLOROETHYLENE	8010	ND	(0.001)	mg/l

Method: 602, Purgeable Aromatics, Methods for Organic Chemical Analysis of of Muicipal and Industrial Wasrewater, USEPA (1984).

Method: 8010, Halogenated Volatile Organics, SW-846, USEPA (1982).

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

Ron R. Richardson
Lab. Director

ASSAIGAI ANALYTICAL LABORATORIES

TO: Bloomfield Refining
ATTN: Chris Hawley
PO Box 156
Bloomfield, NM 87413

DATE: 22 June 1987
0856

SAMPLE ID: MW-1

ANALYTE	ANALYTICAL RESULTS	NOMINAL DETECTION LIMITS
As	<0.05 mg/l	0.05 mg/l
Cd	0.023 mg/l	0.01 mg/l
Cr	<0.05 mg/l	0.05 mg/l
Pb	0.20 mg/l	0.05 mg/l
Hg	<0.002 mg/l	0.002 mg/l
Se	0.10 mg/l	0.01 mg/l
Ag	<0.05 mg/l	0.05 mg/l
Ba	<1.0 mg/l	1.0 mg/l
Cu	0.013 mg/l	0.01 mg/l
Fe	0.14 mg/l	0.04 mg/l
Mn	1.51 mg/l	0.01 mg/l
Zn	0.024 mg/l	0.004 mg/l
Cl	794 mg/l	0.1 mg/l
SO4	827.6 mg/l	1.0 mg/l
Phenols	0.123 mg/l	0.01 mg/l
CN	0.0056 mg/l	0.005 mg/l
NO 3 as N	12.9 mg/l	0.01 mg/l
Al	<0.1 mg/l	0.1 mg/l
B	0.70 mg/l	0.1 mg/l
Co	0.07 mg/l	0.01 mg/l
Mo	0.79 mg/l	0.05 mg/l
Ni	0.12 mg/l	0.06 mg/l
F	0.0353 mg/l	0.01 mg/l
TDS	3272 mg/l	1 mg/l
Benzene	<0.001 mg/l	0.001 mg/l
Toluene	<0.001 mg/l	0.001 mg/l
CCl4	<0.08 mg/l	0.08 mg/l
1,2-Dichloroethane	<0.001 mg/l	0.001 mg/l
1,1-Dichloroethylene	<0.001 mg/l	0.001 mg/l
Trichloroethylene	<0.001 mg/l	0.001 mg/l
Tetrachloroethylene	<0.001 mg/l	0.001 mg/l

7300 Jefferson, N.E. • Albuquerque, New Mexico 87109 • (505) 345-8964

.754 WPW

SCIENTIFIC LABORATORY DIVISION

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

HEALTH ENVIRONMENT — NEW MEXICO

87-0904-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- 904 A&B
DATE REC. 6-1-87
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 5 2 8 1 0 5 5 A & B

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

COUNTY: San Juan ; CITY: Bloomfield CODE: _____

LOCATION CODE: (Township-Range-Section-Tracts) 2 9 N + 1 1 W + 2 7 + 2 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

RECEIVED
AUG - 3 1987
OIL CONSERVATION DIVISION
SANTA FE

Remarks: _____

FIELD DATA:

pH= 7 ; Conductivity= 310 umho/cm at 14 °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-1, Gary Bloomfield Refinery. Purged 5/27. VOC from 2nd bail 5/28 No Odor

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 Fed Ex

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-$Na_2S_2O_3$: 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- 904

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 *	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: _____

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: 6/19/87 Analyst's signature: Mary E. 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 Meyerhen

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

860 Wnf

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED: 6 | 1 | 87 | LAB NO. WC-1912 | USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235

Collection DATE: 5/20/87
Collection TIME: 1055
Collected by — Person/Agency: Boyer / Anderson / OCD

SITE INFORMATION ►
Sample location: MW-1, Gary Bloomfield Refinery
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

☒ Bailed ☐ Dipped ☐ Pump ☐ Tap	Water level: —	Discharge: —	Sample type: GRAB
pH (00400): 7 (Strip)	Conductivity (Uncorrected): 3710 µmho	Water Temp. (00010): 14 °C	Conductivity at 25°C (00094): µmho

Field comments: See VOC sheet for comments. No HC sheen, odor

SAMPLE FIELD TREATMENT — *Check proper boxes*

No. of samples submitted: 1

☐ NF: Whole sample (Non-filtered) ☒ F: Filtered in field with 0.45 µmembrane filter ☐ A: 2 ml H_2SO_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

F NA		Units	Date analyzed
☒ Conductivity (Corrected) 25°C (00095)	4913	µmho	6/9
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☒ Other: pH	7.51		6/2
☐ Other:			
☐ Other:			

A-H_2SO_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	272	mg/l	6/16
☒ Potassium	12.5	mg/l	6/18
☒ Magnesium	49	mg/l	6/16
☒ Sodium	738	mg/l	6/18
☒ Bicarbonate	538	mg/l	6/2
☒ Chloride	809	mg/l	6/10
☒ Sulfate	841	mg/l	6/12
☒ Total Solids	3362	mg/l	6/14
☐			
☐			
☒ Cation/Anion Balance			

Analyst | Date Reported: 6 | 19 | 87 | Reviewed by: (D)

Laboratory remarks:

FOR OCD USE -- Date Owner Notified_____ Phone or Letter?_____ Initals_____

CATIONS				ANIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT	ANALYTE	MEQ.	PPM	DET. LIMIT
Ca	13.57	272.00	<3.0	HC03	8.82	538.00	<1.0
Mg	4.02	49.00	<0.3	SO4	17.52	841.00	<10.0
Na	32.10	738.00	<10.0	CL	22.82	809.00	<5.0
K	0.32	12.50	<0.3				
Mn	0.00	0.00		NO3	0.00	0.00	< 0.
Fe	0.00	0.00		C03	0.00	0.00	< 1.
				NH3	0.00	0.00	< 0.
				PO4	0.00	0.00	< 0.
SUMS	50.02	1071.50			49.16	2188.00	

Total Dissolved Solids= 3362

Ion Balance = 101.75%

WC No. = 8701972

Date out/By 10 7/16/87

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

852
WP f

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED: 6/1/87	LAB NO.: WC-1969	USER CODE: ☐ 59300 ☐ 59600 ☒ OTHER: 82235	
Collection DATE: 5/25/87	SITE INFORMATION ►	Sample location: MW-1, Gary Bloomfield Refinery	
Collection TIME: 1055		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:

SAMPLING CONDITIONS

☒ Bailed ☐ Dipped ☐ Pump ☐ Tap	Water level: —	Discharge: —	Sample type: GRAB
pH (00400): 7 (Strip)	Conductivity (Uncorrected): 3710 µmho	Water Temp. (00010): 14 °C	Conductivity at 25°C (00094): µmho
Field comments: See TOC sheet for comments. No HC sheen odor			

SAMPLE FIELD TREATMENT — *Check proper boxes*

No. of samples submitted: 1

☐ NF: Whole sample (Non-filtered) ☒ F: Filtered in field with 0.45 µmembrane filter ☒ A: 2 ml H_2SO_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:			
☐ Other:			
☐ Other:			
☒ A-H_2SO_4			
☒ Nitrate-N +, Nitrate-N total (00630)	9.60	mg/l	6/4
☒ Ammonia-N total (00610)	40.1	mg/l	6/1
☒ Total Kjeldahl-N ( )	1.66	mg/l	6/23
☐ 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
	6/23/87	

Laboratory remarks:

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

National 45-606 Eye-Ease
45-706 ...

BLOOMFIELD REFINING COMPANY
SAMPLE DATE: DEC. ..., 1986

MW-1

	PARAMETER	UNITS	NOMINAL DETECTION LIMITS	NMWQ STANDARD	MONITORING WELL ~~P1~~	MONITORING WELL P4	MONITORING WELL P5
1							
2	Arsenic	mg/l	0.05	0.1	<0.05	<0.05	<0.05
3	Barium	"	0.005	1.0	0.055	2.3	0.010
4	Cadmium	"	0.01	0.01	<0.01	<0.01	0.01
5	Chromium	"	0.05	0.05	<0.05	<0.05	<0.05
6	Lead	"	0.05	0.05	<0.05	<0.05	<0.05
7	Mercury	"	0.002	0.002	<0.002	<0.002	<0.002
8	Selenium	"	0.002	0.05	0.03	0.03	0.03
9	Silver	"	0.05	0.05	<0.05	<0.05	<0.05
10	Copper	"	0.03	1.0	<0.03	<0.03	<0.03
11	Iron	"	0.3	1.0	<0.3	18.6	<0.3
12	Manganese	"	0.005	0.2	1.11	5.70	<0.005
13	Zinc	"	0.001	10.0	0.012	0.040	0.016
14	Uranium	"	—	5.0	—	—	—
15	Chloride	"	1	250.	774.	675.	1118.
16	Sulfate	"	1	600.	579.	<0.01	1132.
17	PCB	"	—	0.001	—	—	—
18	Phenols	"	0.001	0.005	0.012	0.096	0.021
19	Cyanide	"	0.01	0.2	<0.01	<0.01	<0.01
20	Nitrate as N	"	0.1	10.	2.9	<0.01	36.
21	Aluminum	"	0.05	5.	4.54	3.8	4.34
22	Boron	"	0.004	0.75	0.27	0.7	0.24
23	Cobalt	"	0.05	0.05	<0.05	<0.05	<0.05
24	Molybdenum	"	0.01	1.0	0.17	<0.01	0.08
25	Nickel	"	0.06	0.2	0.06	<0.06	0.07
26	Fluoride	"	0.01	1.6	0.960	0.410	0.580
27	TDS	"	1	1000.	2498.	2128.	3788.
28	Benzene	"	0.001	0.01	<0.001	1.91	<0.001
29	Toluene	"	0.001	0.75	<0.001	1.78	<0.001
30	Carbon Tetrachloride	"	0.001	0.01	<0.001	<0.001	<0.001
31	1,2-Dichloroethane	"	0.001	0.01	0.002	<0.001	<0.001
32	1,1-Dichloroethylene	"	0.001	0.005	<0.001	<0.001	<0.001
33	1,1,2,2-Tetrachloroethylene	"	0.001	0.02	<0.001	<0.001	<0.001
34	1,1,2-Trichloroethylene	"	0.001	0.01	<0.001	<0.001	<0.001
35	pH	S.U.	0.01	6 TO 9	7.19	6.73	7.28
36							
37							
38							
39							
40							

National Brand 45-606 Eye-Ease® 45-706 20/20 Buff Made in USA

BLOOMFIELD REFINING COMPANY

SAMPLE DATE: SEP. 18, 1986

MW-1

	PARAMETER	UNITS	2 NOMINAL DETECTION LIMITS	3 NM WQ STANDARD	4 MONITORING WELL P1	5 MONITORING WELL P4	6 MONITORING WELL P5
2	Arsenic	mg/l	0.002	0.1	0.05	0.08	0.07
3	Barium	"	—	1.0	—	—	—
4	Cadmium	"	0.01	0.01	<0.01	<0.01	<0.01
5	Chromium	"	0.05	0.05	<0.05	<0.05	<0.05
6	Lead	"	0.05	0.05	0.15	<0.05	<0.05
7	Mercury	"	0.002	0.002	<0.002	<0.002	<0.002
8	Selenium	"	0.01	0.05	0.033	0.063	0.030
9	Silver	"	0.05	0.05	<0.05	<0.05	<0.05
10	Copper	"	0.03	1.0	<0.03	<0.03	<0.03
11	Iron	"	—	1.0	—	—	—
12	Manganese	"	—	0.2	—	—	—
13	Zinc	"	0.008	10.0	0.04	<0.008	0.02
14	Uranium	"	—	5.0	—	—	—
15	Chloride	"	1	250.	814	754	1151.
16	Sulfate	"	0.01	600.	673	<0.01	1237.
17	PCB	"	—	0.001	—	—	—
18	Phenols	"	0.001	0.005	0.19	0.085	0.034
19	Cyanide	"	0.01	0.2	0.07	<0.01	0.24
20	Nitrate as N	"	—	10.	—	—	—
21	Aluminum	"	—	5.	—	—	—
22	Boron	"	—	0.75	—	—	—
23	Cobalt	"	—	0.05	—	—	—
24	Molybdenum	"	—	1.0	—	—	—
25	Nickel	"	0.01	0.2	0.07	0.12	0.09
26	Fluoride	"	—	1.6	—	—	—
27	TDS	"	1	1000.	2866.	2308.	3184.
28	Benzene	"	0.001	0.01	ND	6.65	ND
29	Toluene	"	0.001	0.75	ND	0.407	ND
30	Carbon Tetrachloride	"	0.001	0.01	—	ND	—
31	1,2-Dichloroethane	"	0.001	0.01	—	ND	—
32	1,1-Dichloroethylene	"	0.001	0.005	—	ND	—
33	1,1,2,2-Tetrachloroethylene	"	0.001	0.02	—	ND	—
34	1,1,2-Trichloroethylene	"	0.001	0.01	—	ND	—
35	pH	S.U.	0.01	6 TO 9	7.27	6.70	7.19

ASSAIGAI ANALYTICAL LABORATORIES

TO: Bloomfield Refinery
Attn: Chris Hawley
PO Box 159
Bloomfield, NM 87413

DATE: 23 July 1986
1030

SAMPLE ID: MW - 1

ANALYTE	ANALYTICAL RESULTS	
CN	0.1	mg/l
TDS	2960	mg/l
Cl	994.7	mg/l
SO 4	630	mg/l
Phenols	0.017	mg/l
TOC	24	mg/l
Sb	<0.01	mg/l
As	0.077	mg/l
Be	<0.01	mg/l
Cd	<0.010	mg/l
Cr	<0.050	mg/l
	<0.050	mg/l duplicate
Cu	<0.03	mg/l
Pb	0.065	mg/l
Hg	<0.002	mg/l
Ni	<0.06	mg/l
Se	0.035	mg/l
Ag	<0.050	mg/l
Tl	<0.01	mg/l
Zn	0.020	mg/l
Benzene	ND	
Toluene	ND	
Xylenes	ND	
Ethylbenzene	ND	
Ba	<0.01	mg/l
Fe	<0.04	mg/l
Mn	0.25	mg/l
Al	2.07	mg/l
B	<0.01	mg/l
Co	<0.05	mg/l
Mo	<0.01	mg/l
F	0.54	mg/l
No 3 as N	0.1	mg/l
1,2-DCE	ND	
1,1-DCE	ND	
1,1,2,2-TCE	ND	
1,1,2-TCE	ND	

Field by CH 6/23/86
pH 7.25
Conductivity 4600

7300 Jefferson, N.E. • Albuquerque, New Mexico 87109 • (505) 345-8964

ASSAIGAI ANALYTICAL LABORATORIES

TO: Bloomfield Refinery
Attn: Chris Hawley
P.O. Box 159
Bloomfield, NM 87413

DATE: 14 May 1986
0502

Sample date : 3/26/86

ANALYTE	SAMPLE ID/ ANALYTICAL RESULTS		
	MW 1	MW 2	MW 3
CN	<0.01 mg/l	<0.01 mg/l	<0.10 mg/l
Phenols	0.009 mg/l	0.063 mg/l	0.006 mg/l
TOC	18 mg/l	18 mg/l	29 mg/l
TDS	2936 mg/l	2796 mg/l	4836 mg/l
Cl	750 mg/l	200 mg/l	1500 mg/l
SO 4	7.5 mg/l	11.0 mg/l	29.5 mg/l
Benzene	ND	ND	ND
Toluene	ND	ND	ND
Xylenes	ND	ND	ND
Ethylbenzene	ND	ND	ND
Sb	<0.01 mg/l	<0.01 mg/l	<0.01 mg/l
As	<0.050 mg/l	<0.050 mg/l	<0.050 mg/l
Be	<0.01 mg/l	<0.01 mg/l	<0.01 mg/l
Cd	0.050 mg/l	0.060 mg/l	0.12 mg/l
Cr	<0.050 mg/l	<0.050 mg/l	<0.050 mg/l
Cu	<0.03 mg/l	<0.03 mg/l	<0.03 mg/l
Pb	0.085 mg/l	0.12 mg/l	0.14 mg/l
Hg	<0.002 mg/l	0.003 mg/l	0.004 mg/l
Ni	0.08 mg/l	0.07 mg/l	0.08 mg/l
Se	<0.010 mg/l	<0.010 mg/l	<0.010 mg/l
Ag	<0.050 mg/l	<0.050 mg/l	<0.050 mg/l
Tl	<0.01 mg/l	<0.01 mg/l	<0.01 mg/l
Zn	<0.01 mg/l	<0.01 mg/l	<0.01 mg/l

NOMINAL DETECTION LIMITS

CN	0.01 mg/l
Phenols	0.001 mg/l
TOC	0.1 mg/l
TDS	1 mg/l
Cl	1.0 mg/l
SO 4	1.0 mg/l
Benzene	5 mg/l
Toluene	5 mg/l
Xylenes	5 mg/l
Ethylbenzene	5 mg/l
Sb	0.01 mg/l
As	0.050 mg/l
Be	0.01 mg/l
Cd	0.002 mg/l
Cr	0.050 mg/l
Cu	0.03 mg/l
Pb	0.001 mg/l
Hg	0.002 mg/l
Ni	0.01 mg/l
Se	0.010 mg/l
Ag	0.050 mg/l
Tl	0.01 mg/l
Zn	0.01 mg/l

Detection limits for Volatiles, Acid Compounds, and Base/Neutrals are all 0.001 mg/l

An invoice for services is enclosed. Thank you for contacting Assaigai Laboratories.

Sincerely,

Jennifer V. Smith

Jennifer V. Smith, Ph.D.
Laboratory Director

ASSAIGAI ANALYTICAL LABORATORIES

SAMPLE DATE: 8 NOV 85

TO: Bloomfield Refinery Co.
P.O. Box 159
Bloomfield, NM 87413

DATE: 6 December 1985
1641

SAMPLE ID: MW-1

ANALYTE	ANALYTICAL RESULTS	NOMINAL DETECTION LIMITS
As	<0.050 mg/l	0.050 mg/l
Ba	<1.0 mg/l	1.0 mg/l
Cd	<0.010 mg/l	0.010 mg/l
Cr	<0.050 mg/l	0.050 mg/l
Pb	<0.050 mg/l	0.050 mg/l
Hg	<0.002 mg/l	0.002 mg/l
Se	0.010 mg/l	0.002 mg/l
Ag	<0.050 mg/l	0.050 mg/l
Cu	0.032 mg/l	0.002 mg/l
Fe	0.080 mg/l	0.05 mg/l
Mn	0.33 mg/l	0.005 mg/l
Zn	0.030 mg/l	0.004 mg/l
U	<1.0 mg/l	1.0 mg/l
Cl	973.0 mg/l	1.0 mg/l
SO 4	920.0 mg/l	1.0 mg/l
PCB	<0.001 ppm	0.001 ppm
pH	7.9	0.01
CN	0.04 mg/l	0.01 mg/l
NO 3 as N	2.0 mg/l	0.01 mg/l
Al	<0.05 mg/l	0.05 mg/l
B	0.10 mg/l	0.004 mg/l
Co	0.065 mg/l	0.01 mg/l
Mo	<0.005 mg/l	0.005 mg/l
Ni	0.25 mg/l	0.01 mg/l
F	0.890 mg/l	0.1 mg/l
TDS	3120.0 mg/l	1 mg/l
Phenols	0.096 mg/l	0.01 mg/l
Benzene	<0.001 mg/l	0.001 mg/l
Toluene	<0.001 mg/l	0.001 mg/l
Carbon Tetrachloride	<0.01 mg/l	0.01 mg/l
1,2-Dichloroethane	<0.02 mg/l	0.02 mg/l
1,1-Dichloroethylene	<0.005 mg/l	0.005 mg/l
Tetrachloroethylene	<0.02 mg/l	0.02 mg/l
Trichloroethylene	<0.1 mg/l	<0.1 mg/l

ASSAIGAI ANALYTICAL LABORATORIES

TO:Bloomfield Refinery Co.
P.O. Box 159
Bloomfield, NM 87413

DATE: 31 July 1985
0955

SAMPLE ID: MW-1

ANALYTE	ANALYTICAL RESULTS	NOMINAL DETECTION LIMITS
As	<0.050 mg/l	0.050 mg/l
Ba	<1.0 mg/l	1.0 mg/l
Cd	<0.01 mg/l	0.01 mg/l
Cr	<0.05 mg/l	0.05 mg/l
Pb	<0.05 mg/l	0.05 mg/l
Hg	<0.002 mg/l	0.002 mg/l
Se	0.026 mg/l	0.010 mg/l
Ag	<0.050 mg/l	0.050 mg/l
Cu	<0.002 mg/l	0.002 mg/l
Fe	<0.3 mg/l	0.3 mg/l
Mn	0.52 mg/l	0.005 mg/l
Zn	<0.01 mg/l	0.01 mg/l
U	<0.1 mg/l	0.1 mg/l
Cl	953.0 mg/l	1.0 mg/l
SO4	882.0 mg/l	1.0 mg/l
PCB	<0.001 ppm	0.001 ppm
pH	7.5	0.01
CN	<0.01 mg/l	0.01 mg/l
NO3 as N	15.4 mg/l	0.01 mg/l
Al	<0.05 mg/l	0.05 mg/l
B	0.13 mg/l	0.004 mg/l
Co	<0.01 mg/l	0.01 mg/l
Mo	0.28 mg/l	0.005 mg/l
Ni	<0.06 mg/l	0.06 mg/l
F	0.65 mg/l	0.1 mg/l
TDS	3246.0 mg/l	1 mg/l
Phenols	<0.01 mg/l	0.01 mg/l
Benzene	<0.001 mg/l	0.001 mg/l
Toluene	<0.001 mg/l	0.001 mg/l
Carbon Tetrachloride	<0.01 mg/l	0.01 mg/l
1,2-Dichloroethane	<0.02 mg/l	0.02 mg/l
1,1-Dichloroethylene	<0.005 mg/l	0.005 mg/l
Tetrachloroethylene	<0.02 mg/l	0.02 mg/l
Trichloroethylene	<0.1 mg/l	<0.1 mg/l

ASSAIGAI ANALYTICAL LABORATORIES

RECEIVED

cc: C. Hawley

P.W. LISCOM

TO: Bloomfield Refinery Co.
Attn: Chris Hawley
P.O. BOX 159
Bllomfield NM 87413

DATE: 3 April 1985
0331

ANALYTE	SAMPLE ID/ANALYTICAL RESULTS MW-1	MW-4
As	0.010 mg/l	0.005 mg/l
Ba	<1.0 mg/l	2.5 mg/l
Cd	0.027 mg/l	<0.010 mg/l
Cr	<0.05 mg/l	<0.05 mg/l
Pb	0.040 mg/l	0.015 mg/l
Hg	<0.002 mg/l	<0.002 mg/l
Se	0.022 mg/l	0.008 mg/l
Ag	0.024 mg/l	0.004 mg/l
Cu	<0.02 mg/l	<0.02 mg/l
Fe	0.07 mg/l	6.8 mg/l
Mn	0.50 mg/l	5.2 mg/l
Zn	0.08 mg/l	0.03 mg/l
U	<0.1 mg/l	<0.1 mg/l
Cl	1135.0 mg/l	426.0 mg/l
		506.0 mg/l duplicate
SO_4	855.0 mg/l	9.0 mg/l
PCB	<0.001 mg/l	<0.001 mg/l
pH	7.35	7.01
CN	<0.02 mg/l	<0.02 mg/l
NO_3 as N	0.3 mg/l	<0.01 mg/l
Al	<0.05 mg/l	<0.05 mg/l
B	0.69 mg/l	0.89 mg/l
Co	0.32 mg/l	0.14 mg/l
Mo	0.41 mg/l	0.18 mg/l
Ni	0.13 mg/l	0.16 mg/l
F	0.657 mg/l	0.254 mg/l
TDS	3726.0 mg/l	1860.0 mg/l
Phenols	0.13 mg/l	0.005 mg/l
Benzene	<0.001 mg/l	14.81 mg/l
Toluene	<0.01 mg/l	1.92 mg/l
Carbon Tetrachloride	<0.01 mg/l	<0.01 mg/l
1,2-Dichloroethane	<0.02 mg/l	<0.02 mg/l
1,1-Dichloroethylene	<0.005 mg/l	<0.005 mg/l
1,1,2,2-Tetrachloroethylene	<0.02 mg/l	<0.02 mg/l
1,1,2-Trichloroethylene	<0.1 mg/l	<0.1 mg/l

REPORT. TO: David G. Boye[redacted]

New Mexico Oil Conservation Division

P. O. Box 2088

Santa Fe, NM 87501

85-0260-C

LABO[redacted]RY ORG 260 AYB

LAB NUMBER

3-22-85

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. Monitor Well #1, Bloomfield Refinery

City & County Bloomfield, San Juan

Collected (date & time) 0840, 3/21/85 By (name) Boyd/Baca

pH= ~; Conductivity= 4150 umho/cm at 12 °C; Chlorine Residual= ~

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

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

Sample bailed from well, 2 casing volumes.

I certify that the statements in this block accurately reflect the results of my field analyses, observations and activities. Signed David G Boyd

I certify that I witnessed these field analyses, observations and activities and concur with the statements in this block. Signed 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-$Na_2O_3S_2$: Sample preserved with 3 mg $Na_2O_3S_2$/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- 260

PLEASE CHECK THE APPROPRIATE BOXES BELOW TO INDICATE THE TYPE OF ANALYTICAL SCREENS REQUIRED. WHENEVER POSSIBLE LIST SPECIFIC COMPOUNDS SUSPECTED OR REQUIRED.

QUALITATIVE	QUANTITATIVE	PURGEABLE SCREENS	QUALITATIVE	QUANTITATIVE	EXTRACTABLE SCREENS
		ALIPHATIC HYDROCARBON SCREEN			ALIPHATIC HYDROCARBONS
X	X	AROMATIC HYDROCARBON SCREEN			CHLORINATED HYDROCARBON PESTICIDES
		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
		Benzene etc			

REMARKS:

ANALYTICAL RESULTS

COMPOUND	[PPB]	COMPOUND	[PPB]
halogenated purgeables	none detected*		
aromatic purgeables	N.D.*		
		* DETECTION LIMIT	1 ug/l

REMARKS: No purgeables detected.*

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ___ NO X. Seal(s) broken by: _____ date: _____

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

Date(s) of analysis: 26 Mar 85. Analyst's signature: J. Finney

I certify that I have reviewed and concur with the analytical results for this sample and with the statements in this block. Reviewers signature: K Meyerhofer

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

GENERAL WATER CHEMISTRY and [illegible]ROGEN ANALYSIS

DATE RECEIVED 3 | 22 | 85 | LAB NO. WC-1214 | USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235

Collection DATE [illegible] 21 85 | Collection TIME 0840 | SITE INFORMATION ►

Collected by — Person/Agency Boyer/OCD

Sample location Bloomfield Refinery Mon Well #1

Collection site description Location N. of N. Evap Pond

SEND FINAL REPORT TO ►

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87501

Attn: David Boyer

Station/ well code

Owner Bloomfield Refin.

SAMPLING CONDITIONS

☒ Bailed ☐ Dipped ☐ Pump ☐ Tap	Water level 3/18 16.63FT	Discharge —	Sample type Grab
pH (00400) —	Conductivity (Uncorrected) 4150 µmho	Water Temp. (00010) 12 °C	Conductivity at 25°C (00094) µmho

Field comments Bailed 2 casing volumes prior to sampling (rusty -colored water)

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_2SO_4/L added

☒ NA: No acid added ☐ Other-*specify:*

ANALYTICAL RESULTS from SAMPLES

NF, NA		Units	Date analyzed
☒ Conductivity (Corrected) 25°C (00095)	4691	µmho	7/9
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☒ Other: pH	7.54		
☐ Other:			
☐ Other:			

NF, ~~A-H_2SO_4~~ NA

☐ 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 ( )	24.3	mg/l	6/13
☐ Other:			
☐ Other:			

F, NA NF		Units	Date analyzed
☒ Calcium (00915)	289	mg/l	4/15
☒ Magnesium (00925)	473	mg/l	4/15 - 22.4
☒ Sodium (00930)	798	mg/l	3/28
☒ Potassium (00935)	6.63	mg/l	3/28
☒ Bicarbonate (00440)	203.8	mg/l	5/7
☒ Chloride (00940)	1253.4	mg/l	4/15
☒ Sulfate (00945)	966.9	mg/l	4/4
☒ Total filterable residue (dissolved) (70300)	3593	mg/l	6/5
☒ Other: Flouride CO_3	none 0.46		5/7 4/8

F, A-H_2SO_4

☐ Nitrate-N +, Nitrate-N dissolved (00631)		mg/l	
☐ Ammonia-N dissolved (00608)		mg/l	
☐ Total Kjeldahl-N ( )		mg/l	
☐ Other:			

Analyst | Date Reported 7 | 3 | 85 | Reviewed by

Laboratory remarks

SLD 726 (12/84) *DISTRIBUTION:* **WHITE** — EID, GW&HW Bureau **CANARY** — WS System **PINK** — EID Local Office **GOLDENROD** — SLD

New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 84[redacted]

GENERAL WATER CHEMISTRY and [redacted]ROGEN ANALYSIS

DATE RECEIVED 3 22 85	LAB NO. WC-1222	USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235	
Collection DATE 3 21 85	SITE INFORM-ATION ►	Sample location Bloomfield Refinery Mon Well #1	
Coll[redacted] TIME 0940		Collection site description Location N. of N. Evap Pond	
Collected by — Person/Agency Boyer/OCD			

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 Bloomfield Refin.

SAMPLING CONDITIONS

☒ Bailed ☐ Dipped ☐ Pump ☐ Tap	Water level 3/19 16.63FT	Discharge —	Sample type Grab
pH (00400) —	Conductivity (Uncorrected) 4150 µmho	Water Temp. (00010) 12 °C	Conductivity at 25°C (00094) µmho

Field comments Bailed 2 casing volumes prior to sampling (rusty-colored water)

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_2SO_4/L added

☐ [redacted]A: No acid added ☐ Other-*specify:*

ANALYTICAL RESULTS from SAMPLES

NF, NA		Units	Date analyzed
☐ Conductivity (Corrected) 25°C (00095)		µmho	
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☐ Other:			
☐ Other:			
☐ Other:			

F, NA		Units	Date analyzed
☐ Calcium (00915)		mg/l	
☐ Magnesium (00925)		mg/l	
☐ Sodium (00930)		mg/l	
☐ Potassium (00935)		mg/l	
☐ Bicarbonate (00440)		mg/l	
☐ Chloride (00940)		mg/l	
☐ Sulfate (00945)		mg/l	
☐ Total filterable residue (dissolved) (70300)		mg/l	
☐ Other:			

NF, A-H_2SO_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:			

F, A-H_2SO_4			
☒ Nitrate-N +, Nitrate-N dissolved (00631)	4.74	mg/l	4/5
☒ Ammonia-N dissolved (00608)	0.44	mg/l	4/22
☒ Total Kjeldahl-N ( )	1.05	mg/l	5/6
☐ Other:			

Analyst | Date Reported 5 8 85 | Reviewed by

Lab[redacted]ory remarks

SLD 726 (12/84) *DISTRIBUTION:* **WHITE** — EID, GW&HW Bureau **CANARY** — WS System **PINK** — EID Local Office **GOLDENROD** — SLD

New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 84[redacted]

HEAVY METALS ~~GENERAL WATER CHEMISTRY and [redacted]ROGEN ANALYSIS~~

DATE RECEIVED 3 22 85	LAB NO. HM-488	USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235	
Collection DATE 3 21 85	SITE INFORMATION ►	Sample location: Bloomfield Refinery Mon Well #1	
Coll[redacted]TIME 1540		Collection site description: Location N. of N. Evap Pond	
Collected by — Person/Agency: Boyer / OCD			

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: Bloomfield Refin-

SAMPLING CONDITIONS

☒ Bailed ☐ Pump ☐ Dipped ☐ Tap	Water level 3/18 16.63 FT	Discharge —	Sample type Grab
pH (00400) —	Conductivity (Uncorrected) 4150 µmho	Water Temp. (00010) 12 °C	Conductivity at 25°C (00094) µmho

Field comments: Bailed 2 casing volume prior to sampling (rusty-colored water)

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_2SO_4/L~~ added 5ml HNO_3

[redacted]: No acid added ☐ Other-*specify*:

ANALYTICAL RESULTS from SAMPLES

NF, NA		Units	Date analyzed
☐ Conductivity (Corrected) 25°C (00095)		µmho	
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☒ Other: ICAP SCAN			
☒ Other: As	.006	mg/l	
☒ Other: Se	<.005	mg/l	

F, NA		Units	Date analyzed
☐ Calcium (00915)		mg/l	
☐ Magnesium (00925)		mg/l	
☐ Sodium (00930)		mg/l	
☐ Potassium (00935)		mg/l	
☐ Bicarbonate (00440)		mg/l	
☐ Chloride (00940)		mg/l	
☐ Sulfate (00945)		mg/l	
☐ Total filterable residue (dissolved) (70300)		mg/l	
☐ Other:			

NF, A-H_2SO_4		Units	Date analyzed
☐ Nitrate-N +, Nitrate-N total (00630)		mg/l	
☐ Ammonia-N total (00610)		mg/l	
☐ Total Kjeldahl-N ( )		mg/l	
☐ Chemical oxygen demand (00340)		mg/l	
☐ Total organic carbon ( )		mg/l	
☐ Other:			
☐ Other:			

F, A-H_2SO_4		Units	Date analyzed
☐ Nitrate-N +, Nitrate-N dissolved (00631)		mg/l	
☐ Ammonia-N dissolved (00608)		mg/l	
☐ Total Kjeldahl-N ( )		mg/l	
☐ Other:			

Analyst	Date Reported	Reviewed by
	5 31 85	J. Ashley

Lab[redacted]ry remarks

SLD 726 (12/84) *DISTRIBUTION:* WHITE — EID, GW&HW Bureau CANARY — WS System PINK — EID Local Office GOLDENROD — SLD

ICAP -SCREEN

Lab Number: HM 488

Date Submitted: 3/22/85

By: Boyer

Sample Code: Bloomfield Refinery Mont. Well #10

Date Reported: 5/31/85

By: J. Ashby

Determination	Concentration (µg/ml)
Aluminum	<.10
Barium	<.10
Beryllium	<.10
Boron	.25
Cadmium	<.10
Calcium	470.
Chromium	<.10
Cobalt	<.10
Copper	<.10
Iron	<.10
Lead	<.10
Magnesium	95.
Manganese	.83
Molybdenum	<.10
Nickel	<.10
Silicon	13.
Silver	<.10
Strontium	7.9
Tin	<.10
Vanadium	<.10
Yttrium	<.10
Zinc	<.10

ATOMIC ABSORPTION ANALYSES

Arsenic .006 µg/ml

Selenium <.005 µg/ml

Mercury _____ µg/ml

ASSAIGAI ANALYTICAL LABORATORIES

2nd Qtr - December, 1984

TO: Bloomfield Refinery
Attn: Chris Hawley
P.O. Box 159
Bloomfield,NM 87413

DATE: 9 January 1985
1203

ANALYTE	SAMPLE ID/ANALYTICAL RESULTS	
	MW-1 12/13/84	MW-4 12/13/84
As	0.054 mg/l	0.118 mg/l
Ba	<1.0 mg/l	7.0 mg/l
Cd	<0.01 mg/l	<0.01 mg/l
Cr	0.070 mg/l	0.28 mg/l
Pb	0.18 mg/l	0.22 mg/l
Hg	<0.002 mg/l	<0.002 mg/l
Se	0.120 mg/l	0.42 mg/l
Ag	<0.03 mg/l	<0.03 mg/l
Cu	0.11 mg/l	0.35 mg/l
Fe	128.0 mg/l	132.0 mg/l
Mn	1.05 mg/l	25.4 mg/l
Zn	0.36 mg/l	0.38 mg/l
U	<0.1 mg/l	<0.1 mg/l
Ra 226 & 228	<5.0 pCi/l	<5.0 pCi/l
Cl	1135.0 mg/l	481.0 mg/l
SO_4	700.0 mg/l	4.0 mg/l
PCB	<0.01 ppm	<0.01 ppm
pH	7.2	6.9
Phenols	0.065 mg/l	0.120 mg/l
CN	<0.01 mg/l	<0.01 mg/l
NO_3 as N	<0.01 mg/l	<0.01 mg/l
Al	3.68 mg/l	4.49 mg/l
B	0.25 mg/l	0.32 mg/l
Co	0.20 mg/l	0.15 mg/l
Mo	<0.005 mg/l	<0.005 mg/l
Ni	<0.06 mg/l	<0.06 mg/l
F	0.56 mg/l	0.29 mg/l
TDS	3512.0 mg/l	2408.0 mg/l
Benzene	0.015 mg/l	3.64 mg/l
Toluene	<0.01 mg/l	4.47 mg/l
Carbon Tetrchloride	<0.01 mg/l	<0.01 mg/l
1,2-Dichloroehtane	<0.02 mg/l	<0.02 mg/l
1,1-Dichloroethylene	<0.005 mg/l	<0.005 mg/l
1,1,2,2-Tetrachloroethylene	<0.02 mg/l	<0.02 mg/l
1,1,2-Trichloroethylene	<0.1 mg/l	<0.1 mg/l

7300 Jefferson, N.E. • Albuquerque, New Mexico 87109 • (505) 345-8964

TO: Bloomfield Refinery

1203

NOMINAL DETECTION LIMIT:

As	0.002 mg/l
Ba	1.0 mg/l
Cd	0.01 mg/l
Cr	0.005 mg/l
Pb	0.001 mg/l
Hg	0.002 mg/l
Se	0.002 mg/l
Ag	0.03 mg/l
Cu	0.002 mg/l
Fe	0.05 mg/l
Mn	0.005 mg/l
Zn	0.004 mg/l
U	0.1 mg/l
Ra 226 & 228	5.0 pCi/l
Cl	0.1 mg/l
SO_4	1.0 mg/l
PCB	0.01 ppm
pH	0.01
Phenols	0.01 mg/l
CN	0.01 mg/l
NO_3 as N	0.01 mg/l
Al	0.05 mg/l
B	0.004 mg/l
Co	0.003 mg/l
Mo	0.005 mg/l
Ni	0.06 mg/l
F	0.01 mg/l
TDS	1.0 mg/l
Benzene	0.01 mg/l
Toluene	0.01 mg/l
Carbon Tetrchloride	0.01 mg/l
1,2-Dichloroehtane	0.02 mg/l
1,1-Dichloroethylene	0.005 mg/l
1,1,2,2-Tetrachloroethylene	0.02 mg/l
1,1,2-Trichloroethylene	0.1 mg/l

REFERENCES: 1."Standard Methods for the Examination of Water and Wastewater", 15th Edition, APHA, N.Y., 1980.
2. EPA Method 604

ASSAIGAI
ANALYTICAL LABORATORIES, INC.

OCT 1 6 1984

TO: Plateau Inc.
Attn; Dwight Stockham
P.O. Box 159
Bloomfield, NM 87413

DATE: 15 October 1984
0952
Page 1 of 2

ANALYTE	SAMPLE ID/ANALYTICAL RESULTS	
	MW 1	MW 4
As	<0.002 mg/l	<0.002 mg/l
Ba	1.0 mg/l	4.0 mg/l
Cd	0.014 mg/l	<0.002 mg/l
Cr	<0.005 mg/l	0.10 mg/l
Pb	0.125 mg/l	0.088 mg/l
Hg	<0.002 mg/l	<0.002 mg/l
Se	0.35 mg/l	0.40 mg/l
Ag	<0.003 mg/l	<0.003 mg/l
Cu	0.10 mg/l	0.03 mg/l
Fe	57.0 mg/l	43.7 mg/l
Mn	1.70 mg/l	7.8 mg/l
Zn	0.30 mg/l	0.18 mg/l
U	<0.1 mg/l	<0.1 mg/l
Ra 226 & 228	<5 pCi/l	<5 pCi/l
Cl	1059.0 mg/l	410.0 mg/l
SO_4	825.0 mg/l	10.0 mg/l
PCB	<0.01 mg/l	<0.01 mg/l
pH	7.2	7.1
Phenols	24.0 mg/l	552.0 mg/l
CN	<0.01 mg/l	<0.01 mg/l
NO_3 as N	7.2 mg/l	0.02 mg/l
Al	2.0 mg/l	<0.05 mg/l
B	<0.004 mg/l	<0.004 mg/l
Co	0.08 mg/l	<0.003 mg/l
Mo	<0.005 mg/l	<0.005 mg/l
Ni	0.3 mg/l	0.2 mg/l
F	0.284 mg/l	0.597 mg/l
TDS	3582.0 mg/l	1860.0 mg/l
Benzene	<0.01 mg/l	0.419 mg/l
Toluene	<0.01 mg/l	0.296 mg/l
Carbon Tetrachloride	<0.01 mg/l	<0.01 mg/l
1,2 Dichloroethane	<0.02 mg/l	<0.02 mg/l
1,1 Dichloroethylene	<0.005 mg/l	<0.005 mg/l
1,1,2,2-Tetrachloroehtylene	<0.02 mg/l	<0.02 mg/l
1,1,2-Trichloroethylene	<0.1 mg/l	<0.1 mg/l

Incorrect units (Mg/l correct)

7300 Jefferson, N.E. → Albuquerque, New Mexico 87109

ASSAIGAI ANALYTICAL LABORATORIES

1ST Qtr - September, 1984

TO: Bloomfield Refinery
Attn: Chris Hawley
P.O. Box 159
Bloomfield,NM 87413

DATE: 9 January 1985
0952 Revised

ANALYTE	SAMPLE ID/ANALYTICAL RESULTS	
	MW-1	MW-4
As	<0.002 mg/l	<0.002 mg/l
Ba	1.0 mg/l	4.0 mg/l
Cd	0.014 mg/l	<0.002 mg/l
Cr	<0.005 mg/l	0.10 mg/l
Pb	0.125 mg/l	0.088 mg/l
Hg	<0.002 mg/l	<0.002 mg/l
Se	0.35 mg/l	0.40 mg/l
Ag	<0.003 mg/l	<0.003 mg/l
Cu	0.10 mg/l	0.03 mg/l
Fe	57.0 mg/l	43.7 mg/l
Mn	1.70 mg/l	7.8 mg/l
Zn	0.30 mg/l	0.18 mg/l
U	<0.1 mg/l	<0.1 mg/l
Ra 226 & 228	<5.0 pCi/l	<5.0 pCi/l
Cl	1059.0 mg/l	410.0 mg/l
SO_4	825.0 mg/l	10.0 mg/l
PCB	<0.01 ppm	<0.01 ppm
pH	7.2	7.1
Phenols	0.024 mg/l	0.55 mg/l
CN	<0.01 mg/l	<0.01 mg/l
NO_3 as N	7.2 mg/l	0.02 mg/l
Al	2.0 mg/l	<0.05 mg/l
B	<0.004 mg/l	<0.004 mg/l
Co	0.08 mg/l	<0.003 mg/l
Mo	<0.005 mg/l	<0.005 mg/l
Ni	0.3 mg/l	0.2 mg/l
F	0.284 mg/l	0.597 mg/l
TDS	3582.0 mg/l	1860.0 mg/l
Benzene	<0.01 mg/l	0.419 mg/l
Toluene	<0.01 mg/l	0.296 mg/l
Carbon Tetrchloride	<0.01 mg/l	<0.01 mg/l
1,2-Dichloroehtane	<0.02 mg/l	<0.02 mg/l
1,1-Dichloroethylene	<0.005 mg/l	<0.005 mg/l
1,1,2,2-Tetrachloroethylene	<0.02 mg/l	<0.02 mg/l
1,1,2-Trichloroethylene	<0.1 mg/l	<0.1 mg/l

7300 Jefferson, N.E. • Albuquerque, New Mexico 87109 • (505) 345-8964

TO: Plateau Inc. 0952

NOMINAL DETECTION LIMIT:

As	0.002 mg/l
Ba	0.005 mg/l
Cd	0.002 mg/l
Cr	0.005 mg/l
Pb	0.001 mg/l
Hg	0.002 mg/l
Se	0.002 mg/l
Ag	0.003 mg/l
Cu	0.002 mg/l
Fe	0.05 mg/l
Mn	0.005 mg/l
Zn	0.004 mg/l
U	<0.1 mg/l
Ra 226 & 228	5 pCi/l
Cl	0.1 mg/l
SO_4	1.0 mg/l
PCB	0.01 mg/l
pH	0.01
Phenols	0.01 mg/l
CN	0.01 mg/l
NO_3 as N	0.1 mg/l
Al	0.05 mg/l
B	0.004 mg/l
Co	0.003 mg/l
Mo	0.005 mg/l
Ni	0.01 mg/l
F	0.01 mg/l
TDS	1.0 mg/l
Benzene	0.01 mg/l
Toluene	0.01 mg/l
Carbon Tetrachloride	0.01 mg/l
1,2 Dichloroethane	0.02 mg/l
1,1 Dichloroethylene	0.005 mg/l
1,1,2,2-Tetrachloroehtylene	0.02 mg/l
1,1,2-Trichloroethylene	0.1 mg/l

REFERENCES: 1."Standard Methods for the Examination of the Water and Wastewater", 15th Edition, APHA, N.Y., 1980.
2.EPA Method 604

An invoice for services is enclosed. Thank you for contacting Assaigai Laboratories.

BRUCE S. GARBER
ATTORNEY AT LAW

200 WEST MARCY, SUITE 129
SANTA FE, NEW MEXICO 87504

P.O. BOX 8933
(505) 983-3233

May 24, 1984

Mr. Joe D. Ramey
Director of Energy and Minerals
Department
Oil Conservation Division
P.O. Box 2088
State Land Office Building
Santa Fe, New Mexico 87501

Dear Mr. Ramey:

Sampling results for Plateau wells #1 and #4 for the constituents you requested are set forth below. For the most part, the results of Hauser Laboratory and CEP laboratory for these constituents are fairly consistent. All concentrations are in mg/l.

	WELL #1		WELL #4	
	Hauser	CEP	Hauser	CEP
Chloride	1,040	1,000	1,600	1,780
Fluoride	0.62	0.54	0.32	0.33
Molybdenum	<0.5	0.24	0.05	0.005
Nitrate	1.2	0.05	1.3	0.02
Phenols	<0.015	0.13	0.19	0.05
Sulfate	240	520	<10.0	< 1.0
TDS	3038	3050	1600	1780

These analysis results should serve to establish the existing concentrations of those constituents for Wells #1 and #4. Any further existing concentration information which might be required to implement the discharge will become available upon the first ground water sampling and analysis by Plateau under the proposed plan.

Thank you for your continuing assistance.

Sincerely,

Bruce S. Garber

Bruce S. Garber

38
2 | 76 0
6
16

BSG/dm
cc: Gregory S. Smith
Dwight S. Stockham
Paul W. Liscom

RECEIVED
MAY 29 1984
OIL CONSERVATION DIVISION
SANTA FE

BRUCE S. GARBER
ATTORNEY AT LAW

200 WEST MARCY, SUITE 129
SANTA FE, NEW MEXICO 87504

P.O. BOX 8933
(505) 983-3233

May 15, 1984

Mr. Joe D. Ramey
Director, Energy & Minerals Department
Oil Conservation Division
State Land Office Building
Santa Fe, New Mexico 87501

HAND DELIVERED

Re: Plateau, Inc.

Dear Mr. Ramey:

Enclosed are the U. S. Environmental Protection Agency's analytical results for samples taken the week of March 19, 1984 from monitoring wells 1, 4, and 5 at Plateau, Inc.'s Bloomfield, New Mexico refinery. The location of these wells is indicated on Plate 1 of the March, 1984, Discharge Plan. The wells are designated on that Plate as P 1, P 4 and P 5. As stated in previous correspondence and at meetings between O.C.D. and Plateau representatives, these analytical results should serve to establish existing water quality in the refinery area for purposes of Plateau's Discharge Plan.

Also enclosed is an April 26, 1982 report from Hauser Laboratories. This report contains analytical results for water samples from the North Solar Evaporation Pond. The water discharged to the land application area is taken from the North Solar Evaporation Pond.

Additionally, you have indicated a concern about the frequency of ground water monitoring under the Discharge Plan. Plateau will monitor ground water quarterly for the first year of operations under the plan and semiannually thereafter. I trust that this information is responsive to O.C.D.'s remaining questions on Plateau's Discharge Plan.

Finally, Plateau hereby requests an extension of time to discharge without an approved discharge plan until July 1, 1984. This extension should allow the O.C.D. sufficient time to complete its review of the Discharge Plan.

Thank you for your continuing assistance.

Sincerely yours,

Bruce S. Garber

Bruce S. Garber

BSG/mp
cc: G. S. Smith
D. S. Stockham
P. W. Liscom

EPA ANALYSIS OF [illegible]U'S BLOOMFIELD REFINERY MO[illegible]NG WELLS
SAMPLED THE WEEK OF MARCH 19, 1984

	WQCC STANDARDS		WELL #1	WELL #4	WELL #5
INORGANICS (ppm)					
Aluminum	5.0	(C)	11.6	31.8	76.0
Altimony	---		< 0.02	< 0.02	< 0.02
Arsenic	0.1	(A)	[illegible]	[illegible]	< 0.01
Barium	1.0	(A)	[illegible]	[illegible]	0.3
Beryllium	---		< .005	< .005	< .005
Cadmium	0.01	(A)	[illegible]	[illegible]	< 0.001
Calcium	---		NR	NR	NR
Chromium	0.05	(A)	[illegible]	[illegible]	0.04
Colbalt	0.05	(C)	[illegible]	[illegible]	< 0.05
Copper	1.0	(B)	[illegible]	[illegible]	0.1
Iron	1.0	(B)	[illegible]	[illegible]	70.6
Lead	0.05	(A)	[illegible]	[illegible]	.02
Cyanide	0.2	(A)	NR	NR	NR
Magnesium	---		NR	NR	NR
Maganese	0.2	(B)	[illegible]	[illegible]	.915
Mercury	0.002	(A)	[illegible]	[illegible]	< 0.002
Nickel	0.2	(C)	[illegible]	[illegible]	0.04
Potassium	---		NR	NR	NR
Selenium	0.05	(A)	[illegible]	[illegible]	0.002
Silver	0.05	(A)	[illegible]	[illegible]	< 0.01
Sodium	---		NR	NR	NR
Thallium	---		< 0.01	< 0.01	< 0.01
Tin	---		ND	ND	ND
Vanadium	---		< 0.20	< 0.20	< 0.20
Zinc	10	(B)	[illegible]	[illegible]	0.12

NR - Present but below quantification limits
ND - No detection

No
Flouride
Nitrate
Uranium
Chloride
Molybdenum
Sulfates
TDS
Phenols

Note:
Hauser Report in
Anal. Files.
D. Boyer 11/84

	WELL #1	WELL #2	WELL #3
Unknown		0.20	
Alkane		0.28	
Alkane or Benzene Derivative		0.25	
Alkane or Benzene Derivative		0.57	
Butyl Cyclo Hexane		0.086	
Unknown		0.180	
Alkane or Benzene Derivative		0.120	
Unknown		0.240	
Methylpropyl Benzene		0.150	
Unknown		0.340	
Unknown		0.069	
Unknown		0.120	
Undecane		0.420	
Unknown		0.088	
Dodecane		0.160	
Dimethylbenzoicacid		0.200	
Dimethylbenzoicacid		0.120	
Volatile Organic			
Dimethyl Cyclohexane		12.0	

LT - Present but below quantification limits

	WELL #1	WELL #4	WELL #5
ORGANICS			
Acid, Base Neutral			
Benzenedimethyl		98.0	
2-Methyl Napthalene		0.07	
Volatile Organics			
[illegible]		[illegible]	
Ethyl Benzene		LT	
Xylene		10.0	
Cyclohexane Methyl		23.0	
Cyclo Hexane Dimethyl		20.0	
Acid, Base, Neutral			
Napthalene		0.20	
Volatile Organics			
2-Methyl Hexane		10.0	
2-Methyl Heptane		22.0	
Octane		45.0	
Unknown		25.0	
Acid, Base, Neutral			
Pentachlorophenol		LT	
Volatile Organics			
2-Methyl Butane		14.0	
Pentane		12.0	
Cyclohexane		18.0	
Methyl Cyclo Pentane		7.1	
Dimethyl Octanol		18.0	
Ethylmethycyclo Pentane		31.0	
Acid, Base, Neutral			
Cycloheptatriene		0.110	
Octane		0.06	
2-Methyloctane		0.92	
Dimethyl Benzene		0.61	
Unknown		0.22	
Nonane		0.22	
Propylcyclohexane		0.10	
Dimethyl Octane		0.14	
Methylnonane		0.17	
Unknown		0.27	
Trimethyl Benzene		0.15	
Unknown		0.13	
Unknown		0.078	

754
WPW

SCIENTIFIC LABORATORY DIVISION

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

87-0903-C

NEW MEXICO HEALTH 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- 903 A+B
DATE REC. 6-1-87
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 5 2 8 1 1 1 5 A N B

SAMPLE TYPE: WATER [X], SOIL [ ], FOOD [ ], OTHER: _____ CODE: _____

COUNTY: San Juan; CITY: Bloomfield CODE: _____

LOCATION CODE: (Township-Range-Section-Tracts) 2 9 N + 1 1 W + 2 7 + 2 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)
- [X] (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

OIL CONSERVATION DIVISION RECEIVED AUG - 3 1987 SANTA FE

Remarks: _____

FIELD DATA:

pH= 7; Conductivity= 3400 umho/cm at 15.5 °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.)

MW-2, Gary Bloomfield Refinery. VOC second bail, no odor

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities.(signature collector): Harold Bourg 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.
- [X] P-Ice Sample stored in an ice bath (Not Frozen).
- [ ] P-$Na_2S_2O_3$ 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- 903

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 * ✳	10-79/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: _____

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: 6/19/87 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 Meyerhen

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

860 WNF

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED: 6/1/87	LAB NO.: WC-1973	USER CODE: ☐ 59300 ☐ 59600 ☒ OTHER: 82235	
Collection DATE: 5/28/87	SITE INFORMATION ►	Sample location: MW-2, Gary Bloomfield Refinery	
Collection TIME: ~~1115~~		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:

SAMPLING CONDITIONS

☒ Bailed ☐ Pump ☐ Dipped ☐ Tap	Water level: —	Discharge: —	Sample type: Grab
pH (00400): 7 (strip)	Conductivity (Uncorrected): 3400 µmho	Water Temp. (00010): 15.5 °C	Conductivity at 25°C (00094): µmho
Field comments: NO odor per H.C. Sheen			

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_2SO_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)	4367	µmho	6/9
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☒ Other: pH	7.43		6/2
☐ Other:			
☐ Other:			

A-H_2SO_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	320	mg/l	6/16
☒ Potassium	7.02	mg/l	6/16
☒ Magnesium	54	mg/l	6/16
☒ Sodium	531	mg/l	6/16
☒ Bicarbonate	422	mg/l	6/2
☒ Chloride	858	mg/l	6/10
☒ Sulfate	621	mg/l	6/12
☒ Total Solids	2792	mg/l	6/14
☐			
☐			
☒ Cation/Anion Balance			

Analyst	Date Reported	Reviewed by
	6/17/87	

Laboratory remarks:

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

CATIONS				ANIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT	ANALYTE	MEQ.	PPM	DET. LIMIT
Ca	15.97	320.00	<3.0	HC03	6.92	422.00	<1.0
Mg	4.44	54.00	<0.3	SO4	12.94	621.00	<10.0
Na	23.10	531.00	<10.0	CL	24.20	858.00	<5.0
K	0.18	7.02	<0.3				
Mn	0.00	0.00		NO3	0.00	0.00	< 0.
Fe	0.00	0.00		C03	0.00	0.00	< 1.
				NH3	0.00	0.00	< 0.
				PO4	0.00	0.00	< 0.
SUMS	43.68	912.02			44.06	1901.00	

Total Dissolved Solids= 2992

Ion Balance = 99.15%

WC No. = 8701973

Date out/By CO 6/24/87

852
wpf

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: 6/1/87 LAB NO. WC-1965 USER CODE: ☐ 59300 ☐ 59600 ☒ OTHER: 82235

Collection DATE: 87/05/28
Collection TIME: 1115
Collected by — Person/Agency: Boyer/Anderson/OCD

SITE INFORMATION
Sample location: MW-2, Gary Bloomfield Refinery
Collection site description:

Station/well code:
Owner:

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 ☐ Pump ☐ Dipped ☐ Tap
Water level: —
Discharge: —
Sample type: Grab
pH (00400): 7 (strip)
Conductivity (Uncorrected): 3400 µmho
Water Temp. (00010): 15.5 °C
Conductivity at 25°C (00094): µmho
Field comments: No odor or H.C. Sheen

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_2SO_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:			
☐ Other:			
☐ Other:			
☒ A-H_2SO_4			
☒ Nitrate-N + , Nitrate-N total (00630)	11.4	mg/l	6/4
☒ Ammonia-N total (00610)	6.1	mg/l	6/1
☒ Total Kjeldahl-N ( )	6.74	mg/l	6/23
☐ 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: 6/23/87
Reviewed by: [signature]

Laboratory remarks

FOR OCD USE -- Date Owner Notified ________ Phone or Letter? ________ Initals ________

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: 6/1/87	LAB NO.: ICP-311	USER CODE: ☐ 59300 ☐ 59600 ☒ OTHER: 82235	
Collection DATE: 5/05/87	SITE INFORMATION ►	Sample location: MW-2, Conoco Bloomfield Refinery	
Collection TIME: ~~15~~ 1115		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:

SAMPLING CONDITIONS

☒ Bailed ☐ Pump ☐ Dipped ☐ Tap	Water level: —	Discharge: —	Sample type: Grab
pH (00400): 7 (strip)	Conductivity (Uncorrected): 3400 µmho	Water Temp. (00010): 15.5 °C	Conductivity at 25°C (00094): µmho

Field comments: No odor pr H.C. Sheen

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_2SO_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~~ ~~E~~ A

		Units	Date analyzed
☐ Conductivity (Corrected) 25°C (00095)		µmho	
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☒ Other: ICAP			
☐ Other:			
☐ Other:			

A-H_2SO_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: 6/4/87 | Reviewed by: Jim Ashby

Laboratory remarks:

FOR OCD USE -- Date Owner Notified_____ Phone or Letter?_____ Initals_____

ICAP SCAN

SLD Lab No. ICP 311 Reviewed by: Jim Ashby

Analyst JB JK Date Reported: 6/4/87

Date Analyzed 6/1/87

ELEMENT	ICAP VALUE(mg/l)	AA VALUE(mg/l)
Aluminum	<0.1	
Barium	<0.1	
Beryllium	<0.1	
Boron	0.4	
Cadmium	<0.1	
Calcium	320.	
Chromium	<0.1	
Cobalt	<0.05	
Copper	<0.1	
Iron	<0.1	
Lead	<0.1	
Magnesium	64.	
Manganese	4.3	
Molybdenum	<0.1	
Nickel	<0.1	
Silicon	8.8	
Silver	<0.1	
Strontium	7.2	
Tin	<0.1	
Vanadium	<0.1	
Zinc	<0.1	
Arsenic		
Selenium		
Mercury		

ASSAIGAI ANALYTICAL LABORATORIES

TO: Bloomfield Refinery
Attn: Chris Hawley
PO Box 159
Bloomfield, NM 87413

DATE: 23 July 1986
1030

SAMPLE ID: MW - 2

ANALYTE	ANALYTICAL RESULTS
CN	0.1 mg/l
TDS	3650 mg/l
Cl	1204.6 mg/l
SO 4	1750 mg/l
Phenols	0.023 mg/l
TOC	27 mg/l
Sb	<0.01 mg/l
As	0.094 mg/l
Be	<0.01 mg/l
Cd	<0.010 mg/l
Cr	<0.050 mg/l
Cu	<0.03 mg/l
Pb	<0.05 mg/l
Hg	<0.002 mg/l
Ni	<0.06 mg/l
Se	0.070 mg/l
Ag	<0.050 mg/l
Tl	<0.01 mg/l
Zn	0.020 mg/l
Benzene	ND
Toluene	ND
Xylenes	ND
Ethylbenzene	ND

Field by CA 6/23/86

pH 7.17

Conductivity 5400

7300 Jefferson, N.E. • Albuquerque, New Mexico 87109 • (505) 345-8964

ASSAIGAI ANALYTICAL LABORATORIES

TO: Bloomfield Refinery
Attn: Chris Hawley
P.O. Box 159
Bloomfield, NM 87413

DATE: 14 May 1986
0502

Sample Date: 3/26/86

ANALYTE	SAMPLE ID/ ANALYTICAL RESULTS		
	MW 1	MW 2	MW 3
CN	<0.01 mg/l	<0.01 mg/l	<0.10 mg/l
Phenols	0.009 mg/l	0.063 mg/l	0.006 mg/l
TOC	18 mg/l	18 mg/l	29 mg/l
TDS	2936 mg/l	2796 mg/l	4836 mg/l
Cl	750 mg/l	200 mg/l	1500 mg/l
SO 4	7.5 mg/l	11.0 mg/l	29.5 mg/l
Benzene	ND	ND	ND
Toluene	ND	ND	ND
Xylenes	ND	ND	ND
Ethylbenzene	ND	ND	ND
Sb	<0.01 mg/l	<0.01 mg/l	<0.01 mg/l
As	<0.050 mg/l	<0.050 mg/l	<0.050 mg/l
Be	<0.01 mg/l	<0.01 mg/l	<0.01 mg/l
Cd	0.050 mg/l	0.060 mg/l	0.12 mg/l
Cr	<0.050 mg/l	<0.050 mg/l	<0.050 mg/l
Cu	<0.03 mg/l	<0.03 mg/l	<0.03 mg/l
Pb	0.085 mg/l	0.12 mg/l	0.14 mg/l
Hg	<0.002 mg/l	0.003 mg/l	0.004 mg/l
Ni	0.08 mg/l	0.07 mg/l	0.08 mg/l
Se	<0.010 mg/l	<0.010 mg/l	<0.010 mg/l
Ag	<0.050 mg/l	<0.050 mg/l	<0.050 mg/l
Tl	<0.01 mg/l	<0.01 mg/l	<0.01 mg/l
Zn	<0.01 mg/l	<0.01 mg/l	<0.01 mg/l

NOMINAL DETECTION LIMITS

CN	0.01 mg/l
Phenols	0.001 mg/l
TOC	0.1 mg/l
TDS	1 mg/l
Cl	1.0 mg/l
SO 4	1.0 mg/l
Benzene	5 mg/l
Toluene	5 mg/l
Xylenes	5 mg/l
Ethylbenzene	5 mg/l
Sb	0.01 mg/l
As	0.050 mg/l
Be	0.01 mg/l
Cd	0.002 mg/l
Cr	0.050 mg/l
Cu	0.03 mg/l
Pb	0.001 mg/l
Hg	0.002 mg/l
Ni	0.01 mg/l
Se	0.010 mg/l
Ag	0.050 mg/l
Tl	0.01 mg/l
Zn	0.01 mg/l

Detection limits for Volatiles, Acid Compounds, and Base/Neutrals are all 0.001 mg/l

An invoice for services is enclosed. Thank you for contacting Assaigai Laboratories.

Sincerely,

Jennifer V. Smith

Jennifer V. Smith, Ph.D.
Laboratory Director

F89157

~~SCIENTIFIC LABORATORY DIVISION~~

ORGANIC ANALYSIS REQUEST FORM

~~Organic Section - Phone: 841-2570~~ #77-521.07-123

REPORT TO: DAVID BOYER
N.M. OIL CONSERVATION DIVISION
P.O. Box 2088
Santa Fe, NM 87504-2088

S.L.D. No. OR-
DATE REC.
PRIORITY
PHONE(S): 827-5812

COLLECTION CITY: Bloomfield ; COUNTY: San Juan

COLLECTION DATE/TIME CODE: (Year-Month-Day-Hour-Minute) |8|9|0|4|2|7|1|3|0|5|

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

USER CODE: |8|2|2|3|5| SUBMITTER: David Boyer CODE:|2|6|0|

SAMPLE TYPE: WATER |X|, SOIL | |, FOOD | |, OTHER:

This form accompanies 3 Septum Vials, ____ Glass Jugs, and/or ____ ____

Samples were preserved as follows:

- [ ] NP: No Preservation; Sample stored at room temperature.
- [X] P-Ice Sample stored in an ice bath (Not Frozen).
- [ ] P-AA Sample Preserved with Ascorbic Acid to remove chlorine residual.
- [X] P-HCl Sample Preserved with Hydrochloric Acid (2 drops/40 ml)

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 Headspace (1-5 Carbons)
- [X] (754) (Aromatic) & (Halogenated) Purgeables
- [ ] (765) Mass Spectrometer Purgeables
- [ ] (766) Trihalomethanes
- [ ] (774) SDWA VOC's I (8 Regulated +)
- [ ] (775) SDWA VOC's II (EDB & DBCP)

Other Specific Compounds or Classes

- [ ] _____
- [ ] _____

EXTRACTABLE SCREENS

- [ ] (751) Aliphatic Hydrocarbons
- [ ] (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= 4950 umho/cm at 15.5 °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.)

Gary BRC - MW 3, No odor

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

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 [ ] OR Seals Intact: Yes [ ] No [ ]

Signatures _____ _____

For OCD use: Date owner notified: 9/12/89 Phone or (Letter)? Initials WR

All Samples

ANALYSES PERFORMED

LAB. No.: OR-

THIS PAGE FOR LABORATORY RESULTS ONLY

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

PURGEABLE SCREENS

- ☐ (753) Aliphatic Headspace (1-5 Carbons)
- ☐ (754) Aromatic & Halogenated Purgeables
- ☐ (765) Mass Spectrometer Purgeables
- ☐ (766) Trihalomethanes
- ☐ (774) SDWA VOC's I (8 Regulated +)
- ☐ (775) SDWA VOC's II (EDB & DBCP)

Other Specific Compounds or Classes

- ☐ _____
- ☐ _____

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
- ☐ (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]
* 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) Not Sealed ☐ 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: _____

Inter·Mountain
Laboratories, Inc.

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

Report Date: 05/15/89

Client:	New Mexico OCD		
Sample ID:	8904271305	Date Sampled:	04/27/89
Laboratory Number:	F891570	Date Received:	04/28/89
Analysis Requested:	Purgeable Aromatics	Date Extracted:	NA
Sample Matrix:	Water	Date Analyzed:	05/08/89

Parameter	Concentration	Units
BENZENE	ND (0.2)	ug/l
TOLUENE	ND (0.2)	ug/l
ETHYLBENZENE	ND (0.2)	ug/l
m,p-XYLENE	ND (0.2)	ug/l
o-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.

Jack M. Morgan
Senior Organic Chemist

RECEIVED
MAY 23 1989
OIL CONSERVATION DIV.
SANTA FE

iml
Inter-Mountain
Laboratories, Inc.

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

RECEIVED
MAY 22 1989
OIL CONSERVATION DIV.
SANTA FE

Report Date: 05/09/89

Client: New Mexico OCD
Sample ID: 8904271305
IML Sample No: F891570
Analysis Requested: Purgeable Halocarbons
Sample Matrix: Water

Date Sampled: 04/27/89
Date Received: 04/28/89
Date Extracted: N/A
Date Analyzed: 05/01/89

Parameter	Concentration		Units
CHLOROMETHANE	ND	(1.0)	ug/l
BROMOMETHANE	ND	(1.0)	ug/l
DICHLORODIFLUOROMETHANE	ND	(1.0)	ug/l
VINYL CHLORIDE	ND	(1.0)	ug/l
CHLOROETHANE	ND	(1.0)	ug/l
METHYLENE CHLORIDE	ND	(0.1)	ug/l
TRICHLOROFLUOROMETHANE	ND	(1.0)	ug/l
1,1-DICHLOROETHENE	ND	(0.1)	ug/l
1,1-DICHLOROETHANE	ND	(0.1)	ug/l
TRANS-1,2-DICHLOROETHENE	ND	(0.1)	ug/l
CHLOROFORM	ND	(0.1)	ug/l
1,2-DICHLOROETHANE	ND	(0.1)	ug/l
1,1,1-TRICHLOROETHANE	ND	(0.1)	ug/l
CARBON TETRACHLORIDE	ND	(0.1)	ug/l
BROMODICHLOROMETHANE	ND	(0.1)	ug/l
1,2-DICHLOROPROPANE	ND	(0.1)	ug/l
CIS-1,3-DICHLOROPROPENE	ND	(0.1)	ug/l
TRICHLOROETHENE	ND	(0.1)	ug/l
DIBROMOCHLOROMETHANE	ND	(0.1)	ug/l
1,1,2-TRICHLOROETHANE	ND	(0.1)	ug/l
TRANS-1,3-DICHLOROPROPENE	ND	(0.1)	ug/l
2-CHLOROETHYLVINYL ETHER	ND	(0.1)	ug/l
BROMOFORM	ND	(0.5)	ug/l
1,1,2,2-TETRACHLOROETHANE	ND	(0.1)	ug/l
TETRACHLOROETHENE	ND	(0.1)	ug/l
CHLOROBENZENE	ND	(0.1)	ug/l
1,2-DICHLOROBENZENE	ND	(0.1)	ug/l
1,3-DICHLOROBENZENE	ND	(0.1)	ug/l
1,4-DICHLOROBENZENE	ND	(0.1)	ug/l
CIS-1,2-DICHLOROETHENE	ND	(0.1)	ug/l

Method: 601 Purgeable Halocarbons, 40 CFR Part 136, USEPA (1984).

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

Jack M. Morgan
Senior Organic Chemist

WPF 852

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 05 02 89 | LAB NO. WC 1361 | USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235

Collection DATE 89 04 27
Collection TIME 1305
Collected by — Person/Agency Boyer /OCD

SITE INFORMATION ►
Sample location Gary BRC MW3
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

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MAY 30 1989
OIL CONSERVATION DIV.
SANTA FE

Station/ well code
Owner

SAMPLING CONDITIONS

☒ Bailed ☐ Pump ☐ Dipped ☐ Tap	Water level	Discharge	Sample type: Grab
pH (00400): 7	Conductivity (Uncorrected): 4950 µmho	Water Temp. (00010): 15 °C	Conductivity at 25°C (00094): µmho

Field comments: No odor

SAMPLE FIELD TREATMENT — *Check proper boxes*

No. of samples submitted: 1

☐ NF: Whole sample (Non-filtered) ☒ F: Filtered in field with 0.45 µmembrane filter ☒ A: 2 ml H_2SO_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:			
☐ Other:			
☐ Other:			

A-H_2SO_4			
☒ Nitrate-N + , Nitrate-N total (00630)	23.4	mg/l	5/15
☒ Ammonia-N total (00610)	<0.1	mg/l	5/8
☒ Total Kjeldahl-N ( )	1.01	mg/l	5/23
☐ 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: 5/24/89 | Reviewed by: C Leem

Laboratory remarks

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

WNF 859

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 05 02 89 | LAB NO WC/1354 | USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235

Collection DATE 89 04 27
Collection TIME 1305
Collected by — Person/Agency Boyer / OCD

SITE INFORMATION ► Sample location GARY 3RC MW-3
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

☒ Bailed ☐ Dipped ☐ Pump ☐ Tap	Water level 33.5	Discharge	Sample type GRAB
pH (00400) 7	Conductivity (Uncorrected) 4950 µmho	Water Temp. (00010) 15 °C	Conductivity at 25°C (00094) µmho
Field comments: No odor TD 36.94 purged 11 gallons			

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_2SO_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)	* 7130	µmho	5/15
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☒ Other: Lab pH	7.90		5/9
☐ Other:			
☐ Other:			

A-H_2SO_4			
☐ Nitrate-N +, Nitrate-N total (00630)		mg/l	
☐ Ammonia-N total (00610)		mg/l	
☐ Total Kjeldahl-N ( )			
☐ Chemical oxygen demand (00340)		mg/l	
☐ Total organic carbon ( )		mg/l	
☐ Other:			
☐ Other:			

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SANTA FE

From 5, NA Sample:

			Date Analyzed
☒ Calcium	548	mg/l	5/10
☒ Potassium	16	mg/l	5/4
☒ Magnesium	154	mg/l	5/10
☒ Sodium	899	mg/l	5/4
☒ Bicarbonate	385	mg/l	5/9
☒ Chloride	1582	mg/l	5/16
☒ Sulfate	1864	mg/l	6/9
☒ Total Solids	5114	mg/l	5-3
☐			
☐			
☒ Cation/Anion Balance			

Analyst | Date Reported 6/13/89 | Reviewed by

Laboratory remarks
1582

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

CATIONS			DET.	ANIONS			DET.
ANALYTE	MEQ.	PPM	LIMIT	ANALYTE	MEQ.	PPM	LIMIT
Ca	27.35	548.00	<3.0	HCO3	6.31	385.00	<1.0
Mg	12.65	154.00	<0.3	SO4	38.83	1864.00	<10.0
Na	39.10	899.00	<10.0	CL	44.63	1582.00	<5.0
K	0.41	16.00	<0.3				
Mn	0.00	0.00		NO3	0.00	0.00	< 0.
Fe	0.00	0.00		CO3	0.00	0.00	< 1.
				NH3	0.00	0.00	< 0.
				PO4	0.00	0.00	< 0.
SUMS	79.51	1617.00			89.77	3831.00	

Total Dissolved Solids= 5114

Ion Balance = 88.57%

WC No. = 8901354

Date out/By CW 6/13

RECEIVED

JUN 16 1989

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	05/02/89	Lab No. ICAP 214	User Code	☒ 82235	☐ Other:

COLLECTION DATE & TIME: yy 89 | mm 04 | dd 27 | hh 13 | mm 05

COLLECTED BY: BOYER

COLLECTION SITE DESCRIPTION: GARY BRC

MW-3

TO:

OWNER:

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

ATTN: DAVID BOYER
TELEPHONE: 827-5812

SITE LOCATION:
County: San Juan

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

STATION/ WELL CODE:

LATITUDE, LONGITUDE:

SAMPLING CONDITIONS:

☒ Bailed ☐ Pump ☐ Dipped ☐ Tap

Water Level:

Discharge:

Sample Type: GRAB

pH(00400)	Conductivity(Uncorr.)	Water Temp.(00010)	Conductivity at 25°C (00094)
7	4950 µmho	15 °C	µmho

FIELD COMMENTS: Wooden

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	12.	
Barium	<0.1		Silver	<0.1 ☐	
Beryllium	<0.1		Strontium	10.	
Boron	0.5		Tin	<0.1	
Cadmium	<0.1 ☐		Vanadium	<0.1	
Calcium	520.		Zinc	<0.1	
Chromium	<0.1	☒ <0.025	Arsenic		☒ <0.005
Cobalt	<0.05		Selenium		☐
Copper	<0.1		Mercury		☐
Iron	<0.1				☐
Lead	<0.1	☒ <0.005			☐
Magnesium	140.				☐
Manganese	0.09				☐
Molybdenum	<0.1				☐
Nickel	<0.1				☐

LAB COMMENTS: Digest

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

ICAP Analyst JAA Reviewer Jim Ashley

Date Analyzed 7/10/89 Date Received 5/2/89

SCIENTIFIC LABORATORY DIVISION

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

NEW MEXICO

87-0902-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- 902 A+B

DATE REC. 6-1-87

PRIORITY

PHONE(S): 827-5812

USER CODE: 8 2 2 3 5

SUBMITTER: David Boyer

CODE: 2 6 0

SAMPLE COLLECTION CODE: (YYMMDDHHMMIII) 870528113 0 A+B

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

COUNTY: San Juan ; CITY: Bloomfield CODE: _____

LOCATION CODE: (Township-Range-Section-Tracts) 29N+11W+27+24 (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

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SANTA FE

Remarks: _____

FIELD DATA:

pH= 7 ; Conductivity= 4810 umho/cm at 16.5 °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.)

MW-3, Gary Bloomfield Refinery, VOC Samples
Sand bail, no odor

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities.(signature collector): W.F. 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-$Na_2S_2O_3$ 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- 902

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 *	1 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: _____

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: 6/19/87 Analyst's signature: Mary C. Gelen

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 Meyerhen

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

860 WTF

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED 6/1/87	LAB NO. WC-1976	USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235	
Collection DATE 5/28/87	SITE INFORMATION ►	Sample location MW-3, Gary Bloomfield Refinery	
Collection TIME 1130		Collection site description No HC odor or sheen	
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

SAMPLING CONDITIONS

☒ Bailed ☐ Pump ☐ Dipped ☐ Tap	Water level —	Discharge —	Sample type Grab
pH (00400) 7 (Strip)	Conductivity (Uncorrected) 4310 µmho	Water Temp. (00010) — °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 µmembrane filter ☐ A: 2 ml H_2SO_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)	6005	µmho	6/9
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☒ Other: pH	7.33		6/2
☐ Other:			
☐ Other:			

A-H_2SO_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	544	mg/l	6/17
☒ Potassium	5.46	mg/l	6/
☒ Magnesium	132	mg/l	6/17
☒ Sodium	631	mg/l	
☒ Bicarbonate	379	mg/l	6/2
☒ Chloride	1298	mg/l	6/10
☒ Sulfate	1000	mg/l	6/12
☒ Total Solids	4476	mg/l	6/14
☐			
☐			
☒ Cation/Anion Balance			

Analyst	Date Reported	Reviewed by
	6/19/87	CG

Laboratory remarks

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

CATIONS				ANIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT	ANALYTE	MEQ.	PPM	DET. LIMIT
Ca	27.15	544.00	<3.0	HC03	6.21	379.00	<1.0
Mg	10.84	132.00	<0.3	SO4	20.83	1000.00	<10.0
Na	27.01	621.00	<10.0	CL	36.61	1298.00	<5.0
K	0.14	5.46	<0.3				
Mn	0.00	0.00		NO3	0.00	0.00	< 0.
Fe	0.00	0.00		C03	0.00	0.00	< 1.
				NH3	0.00	0.00	< 0.
				PO4	0.00	0.00	< 0.
SUMS	65.14	1302.46			63.66	2677.00	

Total Dissolved Solids= 4476

Ion Balance = 102.32%

WC No. = 8701976

Date out/By CD 6/14/87

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

852 wp f

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED 6/18/87	LAB NO. WC-1964	USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235	
Collection DATE 87/05/28	SITE INFORMATION ►	Sample location MW-3, Gary Bloomfield Refinery	
Collection TIME 1130		Collection site description No HC odor or sheen	
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

SAMPLING CONDITIONS

☒ Bailed ☐ Pump ☐ Dipped ☐ Tap	Water level —	Discharge —	Sample type Grab
pH (00400) 7 (Strip)	Conductivity (Uncorrected) 4310 µmho	Water Temp. (00010) — °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 µmembrane filter ☒ A: 2 ml H_2SO_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:			
☐ Other:			
☐ Other:			
☒ A-H_2SO_4			
☒ Nitrate-N +, Nitrate-N total (00630)	31.8	mg/l	6/4
☒ Ammonia-N total (00610)	20.1	mg/l	6/1
☒ Total Kjeldahl-N ( )	1.13	mg/l	6/23
☐ 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
	6/23/87	

Laboratory remarks

FOR OCD USE -- Date Owner Notified_____ Phone or Letter?_____ Initals_____

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 6 1 87	LAB NO. ICP-310	USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235	
Collection DATE 5 28 87	SITE INFORMATION ►	Sample location MW-3, Gary Bloomfield Refinery	
Collection TIME 1730		Collection site description No HC odor or sheen	
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

SAMPLING CONDITIONS

☒ Bailed ☐ Dipped ☐ Pump ☐ Tap	Water level —	Discharge —	Sample type Grab
pH (00400) 7 (Strip)	Conductivity (Uncorrected) 4310 µmho	Water Temp. (00010) — °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 µmembrane filter ☐ A: 2 ml H_2SO_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~~ ~~N~~ Units Date analyzed

☐ Conductivity (Corrected) 25°C (00095)		µmho	
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☒ Other: ICAP			
☐ Other:			
☐ Other:			

A-H_2SO_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 4 87	Jim Ashby

Laboratory remarks —

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

ICAP SCAN

SLD Lab No. ICP 310 Reviewed by: Jim Ashby

Analyst JB JK Date Reported: 6/4/87

Date Analyzed 6/1/87

ELEMENT	ICAP VALUE(mg/l)	AA VALUE(mg/l)
Aluminum	<0.1	
Barium	<0.1	
Beryllium	<0.1	
Boron	0.7	
Cadmium	<0.1	
Calcium	560.	
Chromium	<0.1	
Cobalt	<0.05	
Copper	<0.1	
Iron	<0.1	
Lead	<0.1	
Magnesium	140.	
Manganese	0.07	
Molybdenum	<0.1	
Nickel	<0.1	
Silicon	13.	
Silver	<0.1	
Strontium	12.	
Tin	<0.1	
Vanadium	<0.1	
Zinc	<0.1	
Arsenic		
Selenium		
Mercury		

ASSAIGAI
ANALYTICAL
LABORATORIES

TO: Bloomfield Refinery
Attn: Chris Hawley
PO Box 159
Bloomfield, NM 87413

DATE: 23 July 1986
1030

SAMPLE ID: MW - 3

ANALYTE	ANALYTICAL RESULTS
CN	0.25 mg/l
TDS	5362 mg/l
Cl	1584 mg/l
SO 4	1950 mg/l
Phenols	0.006 mg/l
TOC	17 mg/l
Sb	<0.01 mg/l
As	0.15 mg/l
Be	<0.01 mg/l
Cd	0.015 mg/l
Cr	<0.050 mg/l
Cu	<0.03 mg/l
Pb	0.070 mg/l
Hg	<0.002 mg/l
Ni	0.08 mg/l
Se	0.10 mg/l
Ag	<0.050 mg/l
Tl	<0.01 mg/l
Zn	0.018 mg/l
Benzene	ND
Toluene	0.003 mg/l
Xylenes	0.030 mg/l
Ethylbenzene	ND

Field: by Cli 6/23/86

pH 7.10

Conductivity 6900

7300 Jefferson, N.E. • Albuquerque, New Mexico 87109 • (505) 345-8964

ASSAIGAI ANALYTICAL LABORATORIES

TO: Bloomfield Refinery
Attn: Chris Hawley
P.O. Box 159
Bloomfield, NM 87413

DATE: 14 May 1986
0502

Sample date: 3/26/86

ANALYTE	SAMPLE ID/ ANALYTICAL RESULTS		
	MW 1	MW 2	MW 3
CN	<0.01 mg/l	<0.01 mg/l	<0.10 mg/l
Phenols	0.009 mg/l	0.063 mg/l	0.006 mg/l
TOC	18 mg/l	18 mg/l	29 mg/l
TDS	2936 mg/l	2796 mg/l	4836 mg/l
Cl	750 mg/l	200 mg/l	1500 mg/l
SO 4	7.5 mg/l	11.0 mg/l	29.5 mg/l
Benzene	ND	ND	ND
Toluene	ND	ND	ND
Xylenes	ND	ND	ND
Ethylbenzene	ND	ND	ND
Sb	<0.01 mg/l	<0.01 mg/l	<0.01 mg/l
As	<0.050 mg/l	<0.050 mg/l	<0.050 mg/l
Be	<0.01 mg/l	<0.01 mg/l	<0.01 mg/l
Cd	0.050 mg/l	0.060 mg/l	0.12 mg/l
Cr	<0.050 mg/l	<0.050 mg/l	<0.050 mg/l
Cu	<0.03 mg/l	<0.03 mg/l	<0.03 mg/l
Pb	0.085 mg/l	0.12 mg/l	0.14 mg/l
Hg	<0.002 mg/l	0.003 mg/l	0.004 mg/l
Ni	0.08 mg/l	0.07 mg/l	0.08 mg/l
Se	<0.010 mg/l	<0.010 mg/l	<0.010 mg/l
Ag	<0.050 mg/l	<0.050 mg/l	<0.050 mg/l
Tl	<0.01 mg/l	<0.01 mg/l	<0.01 mg/l
Zn	<0.01 mg/l	<0.01 mg/l	<0.01 mg/l

NOMINAL DETECTION LIMITS

CN	0.01 mg/l
Phenols	0.001 mg/l
TOC	0.1 mg/l
TDS	1 mg/l
Cl	1.0 mg/l
SO 4	1.0 mg/l
Benzene	5 mg/l
Toluene	5 mg/l
Xylenes	5 mg/l
Ethylbenzene	5 mg/l
Sb	0.01 mg/l
As	0.050 mg/l
Be	0.01 mg/l
Cd	0.002 mg/l
Cr	0.050 mg/l
Cu	0.03 mg/l
Pb	0.001 mg/l
Hg	0.002 mg/l
Ni	0.01 mg/l
Se	0.010 mg/l
Ag	0.050 mg/l
Tl	0.01 mg/l
Zn	0.01 mg/l

Detection limits for Volatiles, Acid Compounds, and Base/Neutrals are all 0.001 mg/l

An invoice for services is enclosed. Thank you for contacting Assaigai Laboratories.

Sincerely,

Jennifer V. Smith

Jennifer V. Smith, Ph.D.
Laboratory Director

STATION NAME: Pk taxi Mon well #4 (FIT Station 27)

LOCATION: In gravel parking area near main entrance

Parameter/Date-Time Water Level from MP Ft	3/22/84 FIT of E&E Inc	2/9/84	2/15/84	5/84 Hauser	5/84 CEP	9/84 ASSAGAI	12/84 ASSAGAI
Water Level Elevation Ft	Static 24.91'	24.54	24.97				
Staff Gage Ft							
pH						7.1	6.9
Temp °C							
~~Uncorrected~~ N	~~Hg 0.0004~~			1.3	0.002	0.02	<0.01
Phenols ~~Field Cond. mhos~~				0.19	0.05	0.55	0.12
As .100 mg/l	0.018					<0.002	0.118
Ba 1.000 mg/l	1.8					4.	7.0
Cd .010 mg/l	0.003					<0.002	<0.01
Cr .050 mg/l	0.04					0.1	0.28
Pb .050 mg/l	0.042					0.088	0.22
Se .050 mg/l	~~Hg 0.0004~~					~~Hg <.002~~ 0.4	<0.002 0.42
Ag .050 mg/l	—					<0.003	<0.03
Zn 10.000 mg/l	0.18					0.18	0.38
Al 5.000 mg/l	31.8					<0.05	4.49
B .750 mg/l	—					<0.004	0.32
Co .050 mg/l	—					<0.003	0.15
Cu 1.000 mg/l	0.05					0.03	0.35
Fe 1.000 mg/l	57.7					43.7	132
Mn .200 mg/l	7.62					7.8	25.4
Mo 1.000 mg/l	—			0.05	0.005	<0.005	<0.005
Ni .200 mg/l	Unlisted metal not elevated above levels in comparison samples					0.2	<0.06
Ca — mg/l							
K — mg/l							
Na — mg/l							
HCO_3 — mg/l							
Cl 250 mg/l				1600	1780	410	481
SO_4 600 mg/l				<10	<1	10	4.0
TFR 1000 mg/l				1600	1780	1860	2408
F ~~Lab Cond. 25°C mhos~~				0.32	0.33	0.597	0.29
Benzene 0.01 mg/l	9.000					0.419	3.64
Toluene 15.0 mg/l	—					0.296	4.47
Ethyl Benzene	LT						
Total Xylenes	10.000						

iml
Inter-Mountain
Laboratories, Inc.

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

31 May 1989

Bloomfield Refining Company
POB 159
Bloomfield, NM 87413

Chris Hawley,

This letter is to document the lost samples I reported to you by telephone. Due to failure of our laboratory equipment (a refrigerator) the following samples were lost: Salmon, MW-1, MW-4, and MW-5. These were received at the lab on 24 May 1989 for 601 analysis (purgeable halocarbons). Please accept my apology for this inconvenience.

Sincerely,

C. Neal Schaeffer
Senior Organic Chemist

Inter·Mountain
Laboratories, Inc.

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

Date: 05/31/89

Client: Bloomfield Refinery
Sample Site: MW-4
IML Sample No: F89181 O
Analysis Requested: Purgeable Aromatics
Sample Matrix: Water

Date Sampled: 05/24/89
Date Received: 05/24/89
Date Extracted: N/A
Date Analyzed: 05/26/89

Parameter	Concentration	Units
BENZENE	9200 (10)	ug/l
TOLUENE	9800 (10)	ug/l
ETHYLBENZENE	1100 (10)	ug/l
m,p-XYLENE	8500 (10)	ug/l
o-XYLENE	2200 (10)	ug/l

Method: 8020 Aromatic Volatile Organics, SW-846, USEPA (1982)
602 Purgeable Aromatics, 40 CFR, Part 136

Note: Method Detection Limit (MDL) is given in parenthesis.
ND means analyte was not detected.

C. Neal Schaeffer
Senior Organic Chemist

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

Bloomfield Refining Company
P.O. Box 159, Bloomfield, NM 87413

Trace Metal Analysis
Dissolved Concentrations, mg/l

June 20, 1989

Lab Number	Sample Identification	Arsenic	Barium	Boron	Cadmium	Chromium	Iron	Lead	Manganese
1431	MW-1	<0.005	<0.5	0.03	<0.002	<0.02	0.68	0.05	<0.02
1433	MW-5	<0.005	<0.5	0.41	<0.002	<0.02	<0.05	0.06	<0.02
1434	MW-4	<0.005	1.4	0.50	<0.002	<0.02	0.92	0.03	3.59
Detection Limit:		0.005	0.5	0.01	0.002	0.02	0.05	0.02	0.02

Reviewed by: April V. Gil

April V. Gil
Senior Geologist
Laboratory Director

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

Bloomfield Refining Company
P.O. Box 159, Bloomfield, NM 87413

Water Analysis

June 20, 1989

Lab Number	Sample Identification	Ammonia (mg/l)	Nitrate (mg/l)	Nitrite (mg/l)	TKN (mg/l)	Phenol (mg/l)	Cyanide (mg/l)	TDS (mg/l)	Sulfate mg/l	Sulfate meq/l
1431	MW-1	0.14	0.561	0.02	1.59	0.214	<0.005	3308	653.46	13.61
1433	MW-5	0.1	21.04	0.049	1.24	0.362	<0.005	4196	781.03	16.27
1434	MW-4	<0.1	<0.1	0.058	1.52	0.250	<0.005	1454	7.41	0.154

Reviewed by: April V. Gil

April V. Gil
Senior Geologist
Laboratory Director

Inter-Mountain Laboratories, Inc.

BLOOMFIELD REFINING COMPANY
Attn: Chris Hawley
P.O. Box 159
Bloomfield, NM 87413

December 15, 1988

Re: Water Analysis:

Sample Site: MW-4
Lab No: F2142
Date Sampled: 11/18/88 @ 1200
Date Received:11/18/88

Parameter	
pH, (s.u.)	6.7
Chloride, mg/l	490
Fluoride, mg/l	0.30
Nitrate + Nitrite as "N", mg/l	0.09
Sulfate, mg/l	<1
Total Dissolved Solids @ (180C), mg/l	1830
Phenol, mg/l	0.101
Cyanide, mg/l	<0.01

Trace Metals (Dissolved Concentrations), mg/l

Aluminum	<0.1	Iron	5.95
Arsenic	<0.005	Lead	<0.02
Barium	1.8	Manganese	3.73
Boron	0.57	Mercury	<0.001
Cadmium	<0.002	Molybdenum	<0.02
Chromium	<0.02	Nickel	<0.01
Cobalt	<0.02	Selenium	<0.005
Copper	<0.01	Silver	<0.01
		Zinc	<0.01

Client: Bloomfield Refining Company

Sample ID: MW-4
Laboratory Number: F2142
Analysis Requested: Method 602, 8010
Sample Matrix: Water
Date Sampled: 11/18/88
Date Received: 11/18/88

Parameter	Method	Concentration		Units
BENZENE	602	11130	(0.2)	ug/l
TOLUENE	602	8916	(0.2)	ug/l
CARBONTETRACHLORIDE	8010	ND	(0.5)	ug/l
1,2-DICHLOROETHENE	8010	ND	(0.5)	ug/l
1,1-DICHLOROETHYLENE	8010	ND	(0.5)	ug/l
1,1,2,2-TETRACHLOROETHYLENE	8010	ND	(0.5)	ug/l
1,1,2-TRICHLOROETHYLENE	8010	ND	(0.5)	ug/l

Method: 602, Purgeable Aromatics, Methods for Organic Chemical Analysis of of Muicipal and Industrial Wastewater, USEPA (1984).

Method: 8010, Halogenated Volatile Organics, SW-846, USEPA (1982).

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

Ron R. Richardson
Laboratory Director

iml
Inter-Mountain
Laboratories, Inc.

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

Bloomfield Refining Company
Attn: Chris Hawley
Environmental Engineer
PO Box 159
Bloomfield, NM 87413

22 June, 1988

Re: Water Analysis

Sample Site: MW4
IML Lab No: F1449
Date Sampled: 06/03/88
Date Received: 06/06/88

---

pH, (s.u.)	6.8
Chloride, mg/l	401
Fluoride, mg/l	0.28
Nitrate + Nitrite as "N", mg/l	0.14
Sulfate, mg/l	3
Total Dissolved Solids (180), mg/l	1820
Phenol, mg/l	0.069
Cyanide, mg/l	-0.005

Trace Metals (Dissolved Concentrations, mg/l)

Aluminum	-0.1	Iron	6.44
Arsenic	-0.005	Lead	-0.02
Barium	1.4	Manganese	3.51
Boron	0.47	Mercury	-0.001
Cadimum	-0.002	Molybdenum	-0.02
Chromium	-0.02	Nickel	0.02
Cobalt	-0.02	Selenium	-0.005
Copper	-0.01	Silver	-0.01
		Zinc	0.01

Inter·Mountain
Laboratories, Inc.

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

Client: Bloomfield Refining Company

Sample ID: MW4
Laboratory Number: F1449
Analysis Requested: Method 602, 8010
Sample Matrix: Water
Date Sampled: 06/03/88
Date Received: 06/06/88

Parameter	Method	Concentration		Units
BENZENE	602	8.9	(0.001)	mg/l
TOLUENE	602	0.93	(0.001)	mg/l
CARBONTETRACHLORIDE	8010	ND	(0.001)	mg/l
1,2-DICHLOROETHENE	8010	ND	(0.001)	mg/l
1,1-DICHLOROETHYLENE	8010	ND	(0.001)	mg/l
1,1,2,2-TETRACHLOROETHYLENE	8010	ND	(0.001)	mg/l
1,1,2-TRICHLOROETHYLENE	8010	ND	(0.001)	mg/l

Method: 602, Purgeable Aromatics, Methods for Organic Chemical Analysis of of Muicipal and Industrial Wasrewater, USEPA (1984).

Method: 8010, Halogenated Volatile Organics, SW-846, USEPA (1982).

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

Ron R. Richardson
Lab. Director

iml
Inter-Mountain
Laboratories, Inc.

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

Bloomfield Refining Company
Attn: Chris Hawley
Environmental Engineer
PO Box 159
Bloomfield, NM 87413

08 December, 1987

Re: Water Analysis

Sample Site: MW4
IML Lab No: F5745
Date Sampled: 11/17/87
Date Received: 11/17/87

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pH, (s.u.)	6.5
Chloride, mg/l	588
Fluoride, mg/l	0.19
Nitrate + Nitrite as "N", mg/l	0.03
Sulfate, mg/l	-1
Total Dissolved Solids (180), mg/l	2050
Phenol, mg/l	0.73
Cyanide, mg/l	0.005

Trace Metals (Dissolved Concentrations, mg/l)

Aluminum	-0.1	Iron	4.59
Arsenic	-0.005	Lead	-0.02
Barium	1.8	Manganese	4.77
Boron	0.59	Mercury	-0.001
Cadimum	-0.002	Molybdenum	0.03
Chromium	-0.02	Nickel	-0.01
Cobalt	-0.02	Selenium	-0.005
Copper	-0.01	Silver	-0.01
		Zinc	-0.01

Inter-Mountain Laboratories, Inc.

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

Client: Bloomfield Refining Company

Sample ID: MW4
Laboratory Number: F5745
Analysis Requested: Method 602, 8010
Sample Matrix: Water
Date Sampled: 11/17/87
Date Received: 11/17/87

Parameter	Method	Concentration		Units
BENZENE	602	8.5	(0.001)	mg/l
TOLUENE	602	0.023	(0.001)	mg/l
CARBONTETRACHLORIDE	8010	ND	(0.001)	mg/l
1,2-DICHLOROETHENE	8010	ND	(0.001)	mg/l
1,1-DICHLOROETHYLENE	8010	ND	(0.001)	mg/l
1,1,2,2-TETRACHLOROETHYLENE	8010	ND	(0.001)	mg/l
1,1,2-TRICHLOROETHYLENE	8010	ND	(0.001)	mg/l

Method: 602, Purgeable Aromatics, Methods for Organic Chemical Analysis of of Muicipal and Industrial Wasrewater, USEPA (1984).

Method: 8010, Halogenated Volatile Organics, SW-846, USEPA (1982).

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

Ron R. Richardson
Lab. Director

ASSAIGAI ANALYTICAL LABORATORIES

TO: Bloomfield Refining
ATTN: Chris Hawley
PO Box 156
Bloomfield, NM 87413

DATE: 22 June 1987
0856

SAMPLE ID: MW-4

ANALYTE	ANALYTICAL RESULTS	NOMINAL DETECTION LIMITS
As	<0.05 mg/l	0.05 mg/l
Cd	0.018 mg/l	0.01 mg/l
Cr	<0.05 mg/l	0.05 mg/l
Pb	0.14 mg/l	0.05 mg/l
Hg	<0.002 mg/l	0.002 mg/l
Se	0.08 mg/l	0.01 mg/l
Ag	<0.05 mg/l	0.05 mg/l
Ba	9.88 mg/l	1.0 mg/l
Cu	0.010 mg/l	0.01 mg/l
Fe	0.17 mg/l	0.04 mg/l
Mn	5.29 mg/l	0.01 mg/l
Zn	0.022 mg/l	0.004 mg/l
Cl	635 mg/l	0.1 mg/l
SO4	4.8 mg/l	1.0 mg/l
Phenols	0.278 mg/l	0.01 mg/l
CN	<0.005 mg/l	0.005 mg/l
NO 3 as N	0.035 mg/l	0.01 mg/l
Al	<0.1 mg/l	0.1 mg/l
B	0.97 mg/l	0.1 mg/l
Co	0.04 mg/l	0.01 mg/l
Mo	0.13 mg/l	0.05 mg/l
Ni	0.12 mg/l	0.06 mg/l
F	<0.01 mg/l	0.01 mg/l
TDS	2038 mg/l	1 mg/l
Benzene	10.7 mg/l	0.001 mg/l
Toluene	0.71 mg/l	0.001 mg/l
CCl4	<0.08 mg/l	0.08 mg/l
1,2-Dichloroethane	<0.001 mg/l	0.001 mg/l
1,1-Dichloroethylene	<0.001 mg/l	0.001 mg/l
Trichloroethylene	<0.001 mg/l	0.001 mg/l
Tetrachloroethylene	<0.001 mg/l	0.001 mg/l

754 wpw

SCIENTIFIC LABORATORY DIVISION

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

87-0913-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- 913 #4B
DATE REC. 6-1-87
PRIORITY

PHONE(S): 827-5812
USER CODE: 8 2 2 3 5

SUBMITTER: David Boyer
CODE: 2 6 0

SAMPLE COLLECTION CODE: (YYMMDDHHMMIII) 870528140545 A&B

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

COUNTY: San Juan; CITY: Bloomfield CODE: _____

LOCATION CODE: (Township-Range-Section-Tracts) 29N+11W+27+23 (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: _____

RECEIVED
AUG - 3 1987
OIL CONSERVATION DIVISION
SANTA FE

FIELD DATA:

pH= 7; Conductivity= 2800 umho/cm at 18.5 °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.)

MW-4, Gary Bloomfield Refinery; VOC From 2nd bail Large H.C. sheen, greasy bailer, strong odor (well had product previously)

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-$Na_2S_2O_3$: 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- 913

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		
benzene	6800		
ethylbenzene	113		
p+ xylene	3250		
m- xylene	3000		
o- xylene	83		
halogenated purgeables	N.D		
* 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: Nine compounds in the aromatic screen region at 25-50 ppb and eight late eluting compounds at 25-50 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: 6/19/87 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 Meyerhein

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

860 WR&

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED 10/1/87	LAB NO. WC-1975	USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235	
Collection DATE 87/05/28	SITE INFORM-ATION ►	Sample location MW #4, Gary Kleanfield Refinery	
Collection TIME 1405		Collection site description	
Collected by — Person/Agency Roy 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	Discharge	Sample type GRAB
pH (00400) 7	Conductivity (Uncorrected) 2900 µmho	Water Temp. (00010) 18.5 °C	Conductivity at 25°C (00094) µmho

Field comments See VOC sheet Large H.C. sheen, odor

SAMPLE FIELD TREATMENT — *Check proper boxes*

No. of samples submitted 1

☐ NF: Whole sample (Non-filtered) ☒ F: Filtered in field with 0.45 µmembrane filter ☐ A: 2 ml H_2SO_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

F NA		Units	Date analyzed
☒ Conductivity (Corrected) 25°C (00095)	3385	µmho	6/9
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☒ Other: pH	7.08		6/2
☐ Other:			
☐ Other:			

A-H_2SO_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	52	mg/l	6/16
☒ Potassium	3.17	mg/l	6/16
☒ Magnesium	17	mg/l	6/16
☒ Sodium	499	mg/l	6/16
☒ Bicarbonate	725	mg/l	6/2
☒ Chloride	600	mg/l	6/10
☒ Sulfate	24	mg/l	6/12
☒ Total Solids	1866	mg/l	6/14
☐			
☐			
☒ Cation/Anion Balance			

Analyst	Date Reported	Reviewed by
	6/17/87	

Laboratory remarks

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

CATIONS				ANIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT	ANALYTE	MEQ.	PPM	DET. LIMIT
Ca	2.59	52.00	<3.0	HC03	11.88	725.00	<1.0
Mg	1.40	17.00	<0.3	SO4	0.50	24.00	<10.0
Na	21.71	499.00	<10.0	CL	16.93	600.00	<5.0
K	0.08	3.12	<0.3				
Mn	0.00	0.00		NO3	0.00	0.00	< 0.
Fe	0.00	0.00		C03	0.00	0.00	< 1.
				NH3	0.00	0.00	< 0.
				PO4	0.00	0.00	< 0.
SUMS	25.78	571.12			29.31	1349.00	

Total Dissolved Solids= 1866

Ion Balance = 87.95%

WC No. = 8701975

Date out/By CO 7/13/87

852 f
WP

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 6/1/87 | LAB NO. WC-1963 | USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235

Collection DATE 87/05/28 | Collection TIME 1405 | Collected by — Person/Agency Kayla Anderson/OCD

SITE INFORMATION ►

Sample location: MW #4, Gary Largo Field Refinery

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

☒ Bailed ☐ Dipped ☐ Pump ☐ Tap	Water level	Discharge	Sample type: GRAB
pH (00400): 7	Conductivity (Uncorrected): 2700 µmho	Water Temp. (00010): 18.5 °C	Conductivity at 25°C (00094): µmho

Field comments: See VOC sheet Large H.C. sheen, odor

SAMPLE FIELD TREATMENT — *Check proper boxes*

No. of samples submitted: 1

☐ NF: Whole sample (Non-filtered) ☒ F: Filtered in field with 0.45 µmembrane filter ☒ A: 2 ml H_2SO_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:			
☐ Other:			
☐ Other:			
☒ A-H_2SO_4			
☒ Nitrate-N +, Nitrate-N total (00630)	<0.04	mg/l	6/4
☒ Ammonia-N total (00610)	0.1	mg/l	6/1
☒ Total Kjeldahl-N ( )	1.47	mg/l	6/23
☐ 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: 6/23/87 | Reviewed by: CO

Laboratory remarks:

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

National 45-606 Eye-Ease
45-706

BLOOMFIELD REFINING COMPANY
SAMPLE DATE: DEC. 10, 1986

mw.4

PARAMETER	UNITS	NOMINAL DETECTION LIMITS	NMWQ STANDARD	MONITORING WELL P1	MONITORING WELL ~~P4~~	MONITORING WELL P5
Arsenic	mg/l	0.05	0.1	<0.05	<0.05	<0.05
Barium	"	0.005	1.0	0.055	2.3	0.010
Cadmium	"	0.01	0.01	<0.01	<0.01	0.01
Chromium	"	0.05	0.05	<0.05	<0.05	<0.05
Lead	"	0.05	0.05	<0.05	<0.05	<0.05
Mercury	"	0.002	0.002	<0.002	<0.002	<0.002
Selenium	"	0.002	0.05	0.03	0.03	0.03
Silver	"	0.05	0.05	<0.05	<0.05	<0.05
Copper	"	0.03	1.0	<0.03	<0.03	<0.03
Iron	"	0.3	1.0	<0.3	18.6	<0.3
Manganese	"	0.005	0.2	1.11	5.70	<0.005
Zinc	"	0.001	10.0	0.012	0.040	0.016
Uranium	"	—	5.0	—	—	—
Chloride	"	1	250.	774.	675.	1118.
Sulfate	"	1	600.	579.	<0.01	1132.
PCB	"	—	0.001	—	—	—
Phenols	"	0.001	0.005	0.012	0.096	0.021
Cyanide	"	0.01	0.2	<0.01	<0.01	<0.01
Nitrate as N	"	0.1	10.	2.9	<0.01	36.
Aluminum	"	0.05	5.	4.54	3.8	4.34
Boron	"	0.004	0.75	0.27	0.7	0.24
Cobalt	"	0.05	0.05	<0.05	<0.05	<0.05
Molybdenum	"	0.01	1.0	0.17	<0.01	0.08
Nickel	"	0.06	0.2	0.06	<0.06	0.07
Fluoride	"	0.01	1.6	0.960	0.410	0.580
TDS	"	1	1000.	2498.	2128.	3788.
Benzene	"	0.001	0.01	<0.001	1.91	<0.001
Toluene	"	0.001	0.75	<0.001	1.78	<0.001
Carbon Tetrachloride	"	0.001	0.01	<0.001	<0.001	<0.001
1,2-Dichloroethane	"	0.001	0.01	0.002	<0.001	<0.001
1,1-Dichloroethylene	"	0.001	0.005	<0.001	<0.001	<0.001
1,1,2,2-Tetrachloroethylene	"	0.001	0.02	<0.001	<0.001	<0.001
1,1,2-Trichloroethylene	"	0.001	0.01	<0.001	<0.001	<0.001
pH	S.U.	0.01	6 TO 9	7.19	6.73	7.28

National Brand 45-606 Eye-Ease® 45-706 20/20 Buff Made in USA

BLOOMFIELD REFINING COMPANY

SAMPLE DATE: SEP. 18, 1986

MW-4

	PARAMETER	UNITS	NOMINAL DETECTION LIMITS	NM WQ STANDARD	MONITORING WELL P1	MONITORING WELL P4	MONITORING WELL P5
1							
2	Arsenic	mg/l	0.002	0.1	0.05	0.08	0.07
3	Barium	"	–	1.0	–	–	–
4	Cadmium	"	0.01	0.01	<0.01	<0.01	<0.01
5	Chromium	"	0.05	0.05	<0.05	<0.05	<0.05
6	Lead	"	0.05	0.05	0.15	<0.05	<0.05
7	Mercury	"	0.002	0.002	<0.002	<0.002	<0.002
8	Selenium	"	0.01	0.05	0.033	0.063	0.030
9	Silver	"	0.05	0.05	<0.05	<0.05	<0.05
10	Copper	"	0.03	1.0	<0.03	<0.03	<0.03
11	Iron	"	–	1.0	–	–	–
12	Mongmese	"	–	0.2	–	–	–
13	Zinc	"	0.008	10.0	0.04	<0.008	0.02
14	Uranium	"	–	5.0	–	–	–
15	Chloride	"	1	250.	814	754	1151.
16	Sulfate	"	0.01	600.	673	<0.01	1237.
17	PCB	"	–	0.001	–	–	–
18	Phenols	"	0.001	0.005	0.19	0.085	0.034
19	Cyanide	"	0.01	0.2	0.07	<0.01	0.24
20	Nitrate as N	"	–	10.	–	–	–
21	Aluminum	"	–	5.	–	–	–
22	Boron	"	–	0.75	–	–	–
23	Cobalt	"	–	0.05	–	–	–
24	Molybdenum	"	–	1.0	–	–	–
25	Nickel	"	0.01	0.2	0.07	0.12	0.09
26	Fluoride	"	–	1.6	–	–	–
27	TDS	"	1	1000.	2866.	2308.	3184.
28	Benzene	"	0.001	0.01	ND	6.65	ND
29	Toluene	"	0.001	0.75	ND	0.407	ND
30	Carbon Tetrachloride	"	0.001	0.01	–	ND	–
31	1,2-Dichloroethane	"	0.001	0.01	–	ND	–
32	1,1-Dichloroethylene	"	0.001	0.005	–	ND	–
33	1,1,2,2-Tetrachloroethylene	"	0.001	0.02	–	ND	–
34	1,1,2-Trichloroethylene	"	0.001	0.01	–	ND	–
35	pH	S.U.	0.01	6 TO 9	7.27	6.70	7.19
36							
37							
38							
39							
40							

ASSAIGAI ANALYTICAL LABORATORIES

TO: Bloomfield Refinery
Attn: Chris Hawley
PO Box 159
Bloomfield, NM 87413

DATE: 23 July 1986
1030

SAMPLE ID: MW - 4

ANALYTE	ANALYTICAL RESULTS
CN	0.5 mg/l
TDS	2266 mg/l
Cl	989.7 mg/l
SO 4	12.5 mg/l
Phenols	0.430 mg/l
TOC	130 mg/l
Sb	<0.10 mg/l
As	0.070 mg/l
Be	<0.1 mg/l
Cd	<0.010 mg/l
Cr	<0.050 mg/l
Cu	<0.03 mg/l
Pb	0.066 mg/l
Hg	<0.002 mg/l
Ni	<0.06 mg/l
Se	0.080 mg/l
Ag	<0.050 mg/l
Tl	<0.1 mg/l
Zn	0.019 mg/l
Volatiles	
Acrolein	ND
Acrylonitrile	ND
Benzene	3.1 mg/l
Bromoform	ND
Carbon Tetrachloride	ND
Chlorobenzene	ND
Chlorodibromomethane	ND
Chloroethane	ND
2-Chloroethylvinyl ether	ND
Chloroform	ND
Dichlorobromomethane	ND
1,1-Dichloroethane	ND
1,2-Dichloroethane	ND
1,1-Dichloroethylene	ND
1,2-Dichloropropane	ND
1,2-Dichloropropylene	ND
Ethylbenzene	0.070 mg/l

Field by CH 6/24/86

pH 6.85

Conductivity 3800

7300 Jefferson, N.E. • Albuquerque, New Mexico 87109 • (505) 345-8964

SAMPLE ID: MW - 4

ANALYTE	ANALYTICAL RESULTS
Methyl Bromide	ND
Methyl Chloride	ND
Methylene Chloride	ND
1,1,2,2-Tetrachloroethane	ND
Tetrachloroethylene	ND
Toluene	0.290 mg/l
1,2-Transdichloroethylene	ND
1,1,1-Trichloroethane	ND
1,1,2-Trichloroethane	ND
Trichloroethylene	ND
Vinyl Chloride	ND
Acid Compounds	
2-Chlorophenol	ND
2,4-Dichlorophenol	ND
2,4-Dimethylphenol	0.058 mg/l
4,6-Dinitro-o-cresol	ND
2,4-Dinitrophenol	ND
2-Nitrophenol	0.108 mg/l
4-Nitrophenol	0.302 mg/l
P-chloro-m-cresol	ND
pentachlorophenol	ND
Phenol	ND
2,4,6-Trichlorophenol	ND
Base Neutrals	
Acenaphthene	ND
Acenaphthylene	ND
Anthracene	ND
Benzidine	ND
Benzo(a)anthracene	0.016 mg/l
Benzo(a)pyrene	ND
3,4-Benzofluoranthene	ND
Benzo(g,h,i)perylene	ND
Benzo(k)fluoranthene	ND
Bis(2-chloroethoxy)methane	ND
Bis(2-chlroroethyl)ether	ND
Bis(2-chloroisopropyl)ether	ND
Bis(2-ethylhexyl)phthalate	ND
4-Bromophenyl phenyl ether	ND
Butylbenzyl phthalate	ND
2-Chloronapthalene	ND
4-Chlorophenyl phenyl ether	ND
Chrysene	0.023 mg/l

SAMPLE ID: MW - 4

ANALYTE	ANALYTICAL RESULTS
Dibenzo(a,h)anthracene	ND
1,2-Dichlorobenzene	ND
1,3-Dichlorobenzene	ND
1,4-Dichlorobenzene	ND
3,3-Dichlorobenzidine	ND
Diethyl phthalate	ND
Dimethyl phthalate	ND
Din-n-butyl phthalate	ND
2,4-Dinitrotoluene	ND
2,6-Dinitrotoluene	ND
Di-n-octyl phthalate	ND
1,2-Diphenylhydrazine	ND
Fluoranthene	ND
Fluorene	ND
Hexachlorobenzene	ND
Hexachlorobutadiene	ND
Hexachlorocyclopentadiene	ND
Hexachloroethane	ND
Indeno(1,2,3-cd)pyrene	ND
Isophorone	ND
Naphthalene	0.019 mg/l
Nitrobenzene	ND
N-nitrosodimethylamine	ND
N-nitrosodie-n-propylamine	ND
N-nitrosodiphenylamine	ND
Phenanthrene	ND
Pyrene	ND
1,2,4-Trichlorobenzene	ND
Ba	3.54 mg/l
Fe	12.0 mg/l
Mn	3.5 mg/l
Al	1.93 mg/l
B	<0.01 mg/l
Co	<0.05 mg/l
Mo	<0.01 mg/l
F	0.21 mg/l
NO 3 as N	<0.01 mg/l

ND = None Detected

TO: Bloomfield Refinery

0502

Analysis Report
14 May 86

Sample Date: 3/26/86

ANALYTE	SAMPLE ID/ ANALYTICAL RESULTS		
	MW 4	MW 5	MW 7
CN	<0.01 mg/l	<0.01 mg/l	<0.10 mg/l
Phenols	0.633 mg/l	0.006 mg/l	<0.001 mg/l
TOC	110 mg/l	14 mg/l	11 mg/l
TDS	1868 mg/l	3840 mg/l	6076 mg/l
Cl	500 mg/l	1100 mg/l	30 mg/l
SO 4	0.3 mg/l	14.0 mg/l	5.5 mg/l
Benzene	11.8 mg/l	ND	0.015 mg/l
Toluene	7.5 mg/l	ND	0.053 mg/l
Xylenes	ND	ND	ND
Ethylbenzene	0.107 mg/l	ND	0.007 mg/l
Sb	<0.01 mg/l	<0.01 mg/l	<0.01 mg/l
As	<0.050 mg/l	<0.050 mg/l	<0.050 mg/l
Be	<0.01 mg/l	<0.01 mg/l	<0.01 mg/l
Cd	0.060 mg/l	0.10 mg/l	0.050 mg/l
Cr	<0.050 mg/l	<0.050 mg/l	0.050 mg/l
Cu	<0.03 mg/l	<0.03 mg/l	<0.03 mg/l
Pb	0.074 mg/l	0.16 mg/l	<0.050 mg/l
Hg	0.002 mg/l	<0.002 mg/l	<0.002 mg/l
Ni	0.08 mg/l	0.10 mg/l	0.08 mg/l
Se	<0.010 mg/l	<0.010 mg/l	<0.010 mg/l
Ag	<0.050 mg/l	<0.050 mg/l	<0.050 mg/l
Tl	<0.01 mg/l	<0.01 mg/l	<0.01 mg/l
Zn	0.012 mg/l	0.012 mg/l	0.018 mg/l
Acrolein	ND		ND
Acrylonitrile	ND		ND
Bromoform	ND		ND
Carbon Tetrachloride	ND		ND
Chlorobenzene	ND		ND
Chlorodibromomethane	ND		ND
Chloroethane	ND		ND
2-Chloroethylvinyl Ether	ND		ND
Chloroform	ND		ND
Dichlorogromomethane	ND		ND
1,1-Dichloroethane	ND		ND
1.2-Dichloroethane	ND		ND
1,1-Dichloroethylene	ND		ND
1,2-Dichloropropane	ND		ND
1,3-Dichloropropylene	ND		ND

TO: Bloomfield Refinery

0502
Page 3 of 8

ANALYTE	SAMPLE ID/ ANALYTICAL RESULTS		
	MW 4	MW 5	MW 7
Methyl Bromide	ND		ND
Methyl Chloride	ND		ND
Methylene Chloride	ND		ND
1,1,2,2-Tetrachloroethane	ND		ND
Tetrachloroethylene	ND		ND
1,2-Transdichloroethylne	ND		ND
1,1,1-Trichloroethane	ND		ND
1,1,2-Trichloroethane	ND		ND
Trichloroethylene	ND		ND
Vinyl Chloride	ND		ND
Acid Compounds			
2-chlorophenol	ND		ND
2,4-dichlorophenol	0.200 mg/l		ND
2,4-dimethylphenol	ND		ND
4,6-dinitro-o-cresol	0.100 mg/l		0.013 mg/l
2,4-dinitrophenol	0.050 mg/l		ND
2-nitrophenol	ND		ND
4-nitrophenol	0.090 mg/l		ND
p-chloro-m-cresol	ND		ND
pentachlorophenol	ND		ND
Phenol	0.202 mg/l		ND
2,4,6-trichlorophenol	ND		ND
Base Neutrals			
Acenaphthene	0.044 mg/l		ND
Acenaphthylene	ND		ND
Anthracene	ND		ND
Benzidine	ND		ND
Benzo(a)anthracene	ND		ND
Benzo(a)pyrene	ND		ND
3,4-benzofluoranthene	ND		ND
Benzo(ghi)perylene	ND		ND
Benzo(k)fluoranthene	ND		ND
Bis(2-chloroethoxy)methane	ND		ND
Bis(2-chloroethyl)ether	ND		ND
Bis(2-chloroisopropyl)ether	ND		ND
Bis(2-ethylhexyl)phthalate	ND		ND
4-bromophenyl phenyl ether	ND		ND
Butylbenzyl phthalate	ND		ND
2-chloronaphtalene	ND		ND
4-chlorophenyl phenyl ether	ND		ND
Chrysene	ND		ND

TO: Bloomfield Refinery

0502
Page 4 of 8

ANALYTE	SAMPLE ID/ ANALYTICAL RESULTS			
	MW 4		MW 5	MW 7
Dibenzo(a,h)anthracene	ND			ND
1,2-Dichlorobenzene	ND			ND
1,3-Dichlorobenzene	ND			ND
1,4-Dichlorobenzene	ND			ND
3,3-Dichlorobenzidine	ND			ND
Diethyl phthalate	ND			ND
Dimethyl phthalate	ND			ND
Din-n-butyl phthalate	ND			ND
2,4-dinitrotoluene	ND			ND
2,6-dinitrotoluene	ND			ND
Di-n-octyl phthalate	ND			ND
1,2-diphenylhydrazine	ND			ND
Fluoranthene	ND			ND
Fluorene	0.150	mg/l		ND
Hexachlorobenzene	ND			ND
Hexachlorobutadiene	ND			ND
Hexachlorocyclopentadiene	ND			ND
Hexachloroethane	ND			ND
Indeno(1,2,3-cd)pyrene	ND			ND
Isophorone	ND			ND
Naphthalene	0.036	mg/l		ND
Nitrobenzene	ND			ND
N-nitrosodimethylamine	ND			ND
N-nitrosodie-n-propylamine	ND			ND
N-nitrosodiphenylamine	ND			ND
Phenanthrene	ND			ND
Pyrene	0.166	mg/l		ND
1,2,4-trichlorobenzene	ND			ND

NOMINAL DETECTION LIMITS

CN	0.01 mg/l
Phenols	0.001 mg/l
TOC	0.1 mg/l
TDS	1 mg/l
Cl	1.0 mg/l
SO 4	1.0 mg/l
Benzene	5 mg/l
Toluene	5 mg/l
Xylenes	5 mg/l
Ethylbenzene	5 mg/l
Sb	0.01 mg/l
As	0.050 mg/l
Be	0.01 mg/l
Cd	0.002 mg/l
Cr	0.050 mg/l
Cu	0.03 mg/l
Pb	0.001 mg/l
Hg	0.002 mg/l
Ni	0.01 mg/l
Se	0.010 mg/l
Ag	0.050 mg/l
Tl	0.01 mg/l
Zn	0.01 mg/l

Detection limits for Volatiles, Acid Compounds, and Base/Neutrals are all 0.001 mg/l

An invoice for services is enclosed. Thank you for contacting Assaigai Laboratories.

Sincerely,

Jennifer V. Smith

Jennifer V. Smith, Ph.D.
Laboratory Director

SAMPLE DATE: 8/20/85

TO:Bloomfield Refinery Co.

1641

SAMPLE ID: MW-4

ANALYTE	ANALYTICAL RESULTS	NOMINAL DETECTION LIMITS
As	<0.050 mg/l	0.050 mg/l
Ba	1.5 mg/l	1.0 mg/l
Cd	<0.010 mg/l	0.010 mg/l
Cr	<0.050 mg/l	0.050 mg/l
Pb	<0.050 mg/l	0.050 mg/l
Hg	<0.002 mg/l	0.002 mg/l
Se	<0.010 mg/l	0.010 mg/l
Ag	<0.050 mg/l	0.050 mg/l
Cu	0.008 mg/l	0.002 mg/l
Fe	0.34 mg/l	0.05 mg/l
Mn	2.8 mg/l	0.005 mg/l
Zn	0.024 mg/l	0.004 mg/l
U	<1.0 mg/l	1.0 mg/l
Cl	675.0 mg/l	1.0 mg/l
SO 4	3.0 mg/l	1.0 mg/l
PCB	<0.001 ppm	0.001 ppm
pH	7.7	0.01
CN	0.03 mg/l	0.01 mg/l
NO 3 as N	<0.01 mg/l	0.01 mg/l
Al	1.72 mg/l	0.05 mg/l
B	<0.01 mg/l	0.01 mg/l
Co	0.047 mg/l	0.01 mg/l
Mo	<0.005 mg/l	0.005 mg/l
Ni	0.21 mg/l	0.01 mg/l
F	0.559 mg/l	0.1 mg/l
TDS	2060.0 mg/l	1 mg/l
Phenols	0.037 mg/l	0.01 mg/l
Benzene	7.46 mg/l	0.001 mg/l
Toluene	2.00 mg/l	0.001 mg/l
Carbon Tetrachloride	<0.01 mg/l	0.01 mg/l
1,2-Dichloroethane	<0.02 mg/l	0.02 mg/l
1,1-Dichloroethylene	<0.005 mg/l	0.005 mg/l
Tetrachloroethylene	<0.02 mg/l	0.02 mg/l
Trichloroethylene	<0.1 mg/l	<0.1 mg/l

TO:Bloomfield Refinery Co.
P.O. Box 159
Bloomfield, NM 87413

DATE: 31 July 1985
0955

SAMPLE ID: MW-4

ANALYTE	ANALYTICAL RESULTS	NOMINAL DETECTION LIMITS
As	<0.050 mg/l	0.050 mg/l
Ba	<1.0 mg/l	1.0 mg/l
Cd	<0.01 mg/l	0.01 mg/l
Cr	<0.05 mg/l	0.05 mg/l
Pb	<0.05 mg/l	0.05 mg/l
Hg	<0.002 mg/l	0.002 mg/l
Se	0.026 mg/l	0.010 mg/l
Ag	<0.050 mg/l	0.050 mg/l
Cu	<0.002 mg/l	0.002 mg/l
Fe	12.0 mg/l	0.3 mg/l
Mn	5.0 mg/l	0.005 mg/l
Zn	<0.01 mg/l	0.01 mg/l
U	<0.1 mg/l	0.1 mg/l
Cl	556.0 mg/l	1.0 mg/l
SO4	3.0 mg/l	1.0 mg/l
PCB	<0.001 ppm	0.001 ppm
pH	7.4	0.01
CN	<0.01 mg/l	0.01 mg/l
NO3 as N	<0.01 mg/l	0.01 mg/l
Al	<0.05 mg/l	0.05 mg/l
B	0.05 mg/l	0.004 mg/l
Co	<0.01 mg/l	0.01 mg/l
Mo	<0.005 mg/l	0.005 mg/l
Ni	<0.06 mg/l	0.06 mg/l
F	0.23 mg/l	0.1 mg/l
TDS	2004.0 mg/l	1 mg/l
Phenols	0.08 mg/l	0.01 mg/l
Benzene	8.64 mg/l	0.001 mg/l
Toluene	1.74 mg/l	0.001 mg/l
Carbon Tetrachloride	<0.01 mg/l	0.01 mg/l
1,2-Dichloroethane	<0.02 mg/l	0.02 mg/l
1,1-Dichloroethylene	<0.005 mg/l	0.005 mg/l
Tetrachloroethylene	<0.02 mg/l	0.02 mg/l
Trichloroethylene	<0.1 mg/l	<0.1 mg/l

ASSAIGAI ANALYTICAL LABORATORIES

RECEIVED

cc: C. Hawley

P.W. LISCOM

TO: Bloomfield Refinery Co.
Attn: Chris Hawley
P.O. BOX 159
Bllomfield NM 87413

DATE: 3 April 1985
0331

ANALYTE	SAMPLE ID/ANALYTICAL RESULTS	
	MW-1	MW-4
As	0.010 mg/l	0.005 mg/l
Ba	<1.0 mg/l	2.5 mg/l
Cd	0.027 mg/l	<0.010 mg/l
Cr	<0.05 mg/l	<0.05 mg/l
Pb	0.040 mg/l	0.015 mg/l
Hg	<0.002 mg/l	<0.002 mg/l
Se	0.022 mg/l	0.008 mg/l
Ag	0.024 mg/l	0.004 mg/l
Cu	<0.02 mg/l	<0.02 mg/l
Fe	0.07 mg/l	6.8 mg/l
Mn	0.50 mg/l	5.2 mg/l
Zn	0.08 mg/l	0.03 mg/l
U	<0.1 mg/l	<0.1 mg/l
Cl	1135.0 mg/l	426.0 mg/l
		506.0 mg/l duplicate
SO_4	855.0 mg/l	9.0 mg/l
PCB	<0.001 mg/l	<0.001 mg/l
pH	7.35	7.01
CN	<0.02 mg/l	<0.02 mg/l
NO_3 as N	0.3 mg/l	<0.01 mg/l
Al	<0.05 mg/l	<0.05 mg/l
B	0.69 mg/l	0.89 mg/l
Co	0.32 mg/l	0.14 mg/l
Mo	0.41 mg/l	0.18 mg/l
Ni	0.13 mg/l	0.16 mg/l
F	0.657 mg/l	0.254 mg/l
TDS	3726.0 mg/l	1860.0 mg/l
Phenols	0.13 mg/l	0.005 mg/l
Benzene	<0.001 mg/l	14.81 mg/l
Toluene	<0.01 mg/l	1.92 mg/l
Carbon Tetrachloride	<0.01 mg/l	<0.01 mg/l
1,2-Dichloroethane	<0.02 mg/l	<0.02 mg/l
1,1-Dichloroethylene	<0.005 mg/l	<0.005 mg/l
1,1,2,2-Tetrachloroethylene	<0.02 mg/l	<0.02 mg/l
1,1,2-Trichloroethylene	<0.1 mg/l	<0.1 mg/l

REPORT TO: David G. Boyer
New Mexico Oil Conservation Division
P. O. Box 2088
Santa Fe, NM 8750[illegible]

85-0272-C

LABORATORY ORG 222 AHB

LAB NUMBER 3-22-85

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. Bloomfield Refinery, Mon Well #4

City & County Bloomfield Refinery, San Juan

Collected (date & time) 1137, 3/21/85 By (name) Boyer/Baca

pH= — ; Conductivity= 2750 umho/cm at 20 °C; Chlorine Residual= ~

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

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

Bailed 2 casing volumes, product on top of water.

I certify that the statements in this block accurately reflect the results of my field analyses, observations and activities. Signed Harold F. Boyer

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-$Na_2O_3S_2$: Sample preserved with 3 mg $Na_2O_3S_2$/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- 272

PLEASE CHECK THE APPROPRIATE BOXES BELOW TO INDICATE THE TYPE OF ANALYTICAL SCREENS REQUIRED. WHENEVER POSSIBLE LIST SPECIFIC COMPOUNDS SUSPECTED OR REQUIRED.

QUALITATIVE	QUANTITATIVE	PURGEABLE SCREENS	QUALITATIVE	QUANTITATIVE	EXTRACTABLE SCREENS
		ALIPHATIC HYDROCARBON SCREEN			ALIPHATIC HYDROCARBONS
X	X	AROMATIC HYDROCARBON SCREEN			CHLORINATED HYDROCARBON PESTICIDES
		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
		Benzene etc.			

REMARKS:

ANALYTICAL RESULTS

COMPOUND	[PPB]	COMPOUND	[PPB]
halogenated purgeables	none detected		
benzene	21500		
toluene	2900		
ethyl-benzene	470		
p-xylene	530		
m-xylene	6300		
o-xylene	350		
		* DETECTION LIMIT	10 ug/l

REMARKS: Sixteen other peaks detected on PID; but they were not identified.

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes___ NO X. Seal(s) broken by:_____ date:_____

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

Date(s) of analysis: 26 March 85. Analyst's signature: A Zinney

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

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

GENERAL WATER CHEMISTRY [redacted]TROGEN ANALYSIS

DATE RECEIVED 5/12/95	LAB NO. WC-1715	USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235	
Collection DATE 5/12/95	SITE INFORM-ATION ►	Sample location Bloomfield Ref. Mon Well #4	
[redacted]ction TIME 1137		Collection site description Sample from Well on property boundary next main entrance & office (consists all receiving area)	
Collected by — Person/Agency Boyer/OCD		Station/ well code	
		Owner Bloomfield Ref.	

SEND FINAL REPORT TO ►
ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87501
Attn: David Boyer

SAMPLING CONDITIONS

☒ Bailed ☐ Dipped ☐ Pump ☐ Tap	Water level 3/18 ~~AMSL~~ 6,251	Discharge —	Sample type Grab
pH (00400) —	Conductivity (Uncorrected) 2750 µmho	Water Temp. (00010) 20 °C	Conductivity at 25 °C (00094) — µmho

Field comments First bails pure product (API gravity 61.9)
Bailed well 3 casing volumes before sample

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_2SO_4/L added

[redacted]**NA:** No acid added ☐ Other-*specify:*

ANALYTICAL RESULTS from SAMPLES

NF, NA		Units	Date analyzed
☒ Conductivity (Corrected) 25 °C (00095)	2483	µmho	5/9
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☒ Other: pH	7.77		5/3
☐ Other:			
☐ Other:			

F, NA NF		Units	Date analyzed
☒ Calcium (00915)	102	mg/l	4/15
☒ Magnesium (00925)	58.7	mg/l	4/15 - 9.95
☒ Sodium (00930)	497	mg/l	3/28
☒ Potassium (00935)	4.29	mg/l	3/28
☒ Bicarbonate (00440)	694.3	mg/l	5/7
☒ Chloride (00940)	608.1	mg/l	4/15
☒ Sulfate (00945)	< 1.0	mg/l	4/4
☒ Total filterable residue (dissolved) (70300)	1623	mg/l	5/3
☒ Other: CO_3	none		5/7
☒ Fluoride	0.22		4/8

~~NF, A-H_2SO_4~~ NA			
☐ 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 ( )	15.7	mg/l	6/13
☐ Other:			
☐ Other:			

F, A-H_2SO_4			
☐ Nitrate-N +, Nitrate-N dissolved (00631)		mg/l	
☐ Ammonia-N dissolved (00608)		mg/l	
☐ Total Kjeldahl-N ( )		mg/l	
☐ Other:			

Analyst	Date Reported	Reviewed by
	7/20/95	

[redacted]oratory remarks

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

GENE[redacted] WATER CHEMISTRY and[redacted]ROGEN ANALYSIS

DATE RECEIVED 3 29 85 | LAB NO. WC-1993 | USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235

Collection DATE 3 21 85
Coll[redacted] TIME 1137

SITE INFORMATION ►
Sample location: Bloomfield Ref. Mon Well # 4
Collection site description: Sample from well on property boundary nearby main entrance & offices (crude oil receiving area)

Collected by — Person/Agency: Boyer / OCD

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: Bloomfield Ref.

SAMPLING CONDITIONS

☒ Bailed ☐ Pump ☐ Dipped ☐ Tap	Water level 3/18 6.225'	Discharge —	Sample type Grab
pH (00400) —	Conductivity (Uncorrected) 2250 µmho	Water Temp. (00010) 20 °C	Conductivity at 25°C (00094) — µmho

Field comments: First bails pure product (API gravity 61.9) Bailed well 3 casing volumes before sample

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_2SO_4/L added
[redacted]A: No acid added
☐ Other-*specify*:

ANALYTICAL RESULTS from SAMPLES

NF, NA

		Units	Date analyzed
☐ Conductivity (Corrected) 25°C (00095)		µmho	
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☐ Other:			
☐ Other:			
☐ Other:			

NF, A-H_2SO_4

		Units	Date analyzed
☐ Nitrate-N +, Nitrate-N total (00630)		mg/l	
☐ Ammonia-N total (00610)		mg/l	
☐ Total Kjeldahl-N ( )		mg/l	
☐ Chemical oxygen demand (00340)		mg/l	
☐ Total organic carbon ( )		mg/l	
☐ Other:			
☐ Other:			

F, NA

		Units	Date analyzed
☐ Calcium (00915)		mg/l	
☐ Magnesium (00925)		mg/l	
☐ Sodium (00930)		mg/l	
☐ Potassium (00935)		mg/l	
☐ Bicarbonate (00440)		mg/l	
☐ Chloride (00940)		mg/l	
☐ Sulfate (00945)		mg/l	
☐ Total filterable residue (dissolved) (70300)		mg/l	
☐ Other:			

F, A-H_2SO_4

		Units	Date analyzed
☒ Nitrate-N +, Nitrate-N dissolved (00631)	0.06	mg/l	4/5
☒ Ammonia-N dissolved (00608)	0.18	mg/l	4/22
☒ Total Kjeldahl-N ( )	0.49	mg/l	5/10
☐ Other:			

Analyst: | Date Reported: 5 10 85 | Reviewed by: [signature]

L[redacted]ory remarks:

SLD 726 (12/84) *DISTRIBUTION:* WHITE — EID, GW&HW Bureau CANARY — WS System PINK — EID Local Office GOLDENROD — SLD

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

Heavy Metals ~~GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS~~

DATE RECEIVED	3 / 22 / 85	LAB NO.	HM-490	USER CODE	☐ 59300 ☐ 59600 ☒ OTHER: 82235

Collection DATE: 3 / 12 / 85
Collection TIME: 1137

SITE INFORMATION ►

Sample location: Bloomfield Ref. Mon Well #4

Collection site description: Sample from well on property boundary near main entrance & offices (crude oil receiving area)

Collected by — Person/Agency: Boyer / OCD

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: Bloomfield Ref.

SAMPLING CONDITIONS

☒ Bailed ☐ Pump ☐ Dipped ☐ Tap	Water level: 3/18 ... 6.25'	Discharge: —	Sample type: Grab
pH (00400): —	Conductivity (Uncorrected): 2750 µmho	Water Temp. (00010): 20 °C	Conductivity at 25°C (00094): — µmho

Field comments: First bails pure product (API gravity 61.9). Bailed well 3 casing volumes before sample

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_2SO_4/L added~~ 5ml HNO_3

☐ NA: No acid added ☐ Other-*specify*:

ANALYTICAL RESULTS from SAMPLES

NF, NA — Units — Date analyzed

Test	Result	Units	Date analyzed
☐ Conductivity (Corrected) 25°C (00095)		µmho	
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☒ Other: ICAP SCAN			
☒ Other: As	<.005	mg/l	
☒ Other: Se	<.005	mg/l	

F, NA

Test	Result	Units	Date analyzed
☐ Calcium (00915)		mg/l	
☐ Magnesium (00925)		mg/l	
☐ Sodium (00930)		mg/l	
☐ Potassium (00935)		mg/l	
☐ Bicarbonate (00440)		mg/l	
☐ Chloride (00940)		mg/l	
☐ Sulfate (00945)		mg/l	
☐ Total filterable residue (dissolved) (70300)		mg/l	
☐ Other:			

NF, A-H_2SO_4

Test	Result	Units	Date analyzed
☐ Nitrate-N +, Nitrate-N total (00630)		mg/l	
☐ Ammonia-N total (00610)		mg/l	
☐ Total Kjeldahl-N ( )		mg/l	
☐ Chemical oxygen demand (00340)		mg/l	
☐ Total organic carbon ( )		mg/l	
☐ Other:			
☐ Other:			

F, A-H_2SO_4

Test	Result	Units	Date analyzed
☐ Nitrate-N +, Nitrate-N dissolved (00631)		mg/l	
☐ Ammonia-N dissolved (00608)		mg/l	
☐ Total Kjeldahl-N ( )		mg/l	
☐ Other:			

Analyst	Date Reported	Reviewed by
	5 / 31 / 85	J. Ashby

Laboratory remarks

SLD 726 (12/84) *DISTRIBUTION:* **WHITE** — EID GW&HW Bureau **CANARY** — WS System **PINK** — EID Local Office **GOLDENROD** — SLD

ICAP -SCREEN

Lab Number: HM 490

Date Submitted: 3/22/85

By: Bayer

Sample Code: Bloomfield Ref. ~~Mon. Well-14~~

Date Reported: 5/31/85

By: J. Bailey

Determination	Concentration (µg/ml)
Aluminum	<.10
Barium	1.2
Beryllium	<.10
Boron	.50
Cadmium	<.10
Calcium	130.
Chromium	<.10
Cobalt	<.10
Copper	<.10
Iron	1.2
Lead	<.10
Magnesium	47.
Manganese	5.2
Molybdenum	<.10
Nickel	<.10
Silicon	17.
Silver	<.10
Strontium	5.3
Tin	<.10
Vanadium	<.10
Yttrium	<.10
Zinc	<.10

ATOMIC ABSORPTION ANALYSES

Arsenic < .005 µg/ml

Selenium < .005 µg/ml

Mercury _____ µg/ml

ASSAIGAI ANALYTICAL LABORATORIES

2nd Qtr - December, 1984

TO: Bloomfield Refinery
Attn: Chris Hawley
P.O. Box 159
Bloomfield,NM 87413

DATE: 9 January 1985
1203

ANALYTE	SAMPLE ID/ANALYTICAL RESULTS	
	MW-1 12/13/84	MW-4 12/13/84
As	0.054 mg/l	0.118 mg/l
Ba	<1.0 mg/l	7.0 mg/l
Cd	<0.01 mg/l	<0.01 mg/l
Cr	0.070 mg/l	0.28 mg/l
Pb	0.18 mg/l	0.22 mg/l
Hg	<0.002 mg/l	<0.002 mg/l
Se	0.120 mg/l	0.42 mg/l
Ag	<0.03 mg/l	<0.03 mg/l
Cu	0.11 mg/l	0.35 mg/l
Fe	128.0 mg/l	132.0 mg/l
Mn	1.05 mg/l	25.4 mg/l
Zn	0.36 mg/l	0.38 mg/l
U	<0.1 mg/l	<0.1 mg/l
Ra 226 & 228	<5.0 pCi/l	<5.0 pCi/l
Cl	1135.0 mg/l	481.0 mg/l
SO_4	700.0 mg/l	4.0 mg/l
PCB	<0.01 ppm	<0.01 ppm
pH	7.2	6.9
Phenols	0.065 mg/l	0.120 mg/l
CN	<0.01 mg/l	<0.01 mg/l
NO_3 as N	<0.01 mg/l	<0.01 mg/l
Al	3.68 mg/l	4.49 mg/l
B	0.25 mg/l	0.32 mg/l
Co	0.20 mg/l	0.15 mg/l
Mo	<0.005 mg/l	<0.005 mg/l
Ni	<0.06 mg/l	<0.06 mg/l
F	0.56 mg/l	0.29 mg/l
TDS	3512.0 mg/l	2408.0 mg/l
Benzene	0.015 mg/l	3.64 mg/l
Toluene	<0.01 mg/l	4.47 mg/l
Carbon Tetrchloride	<0.01 mg/l	<0.01 mg/l
1,2-Dichloroehtane	<0.02 mg/l	<0.02 mg/l
1,1-Dichloroethylene	<0.005 mg/l	<0.005 mg/l
1,1,2,2-Tetrachloroethylene	<0.02 mg/l	<0.02 mg/l
1,1,2-Trichloroethylene	<0.1 mg/l	<0.1 mg/l

7300 Jefferson, N.E. • Albuquerque, New Mexico 87109 • (505) 345-8964

TO: Bloomfield Refinery

NOMINAL DETECTION LIMIT:

As	0.002 mg/l
Ba	1.0 mg/l
Cd	0.01 mg/l
Cr	0.005 mg/l
Pb	0.001 mg/l
Hg	0.002 mg/l
Se	0.002 mg/l
Ag	0.03 mg/l
Cu	0.002 mg/l
Fe	0.05 mg/l
Mn	0.005 mg/l
Zn	0.004 mg/l
U	0.1 mg/l
Ra 226 & 228	5.0 pCi/l
Cl	0.1 mg/l
SO_4	1.0 mg/l
PCB	0.01 ppm
pH	0.01
Phenols	0.01 mg/l
CN	0.01 mg/l
NO_3 as N	0.01 mg/l
Al	0.05 mg/l
B	0.004 mg/l
Co	0.003 mg/l
Mo	0.005 mg/l
Ni	0.06 mg/l
F	0.01 mg/l
TDS	1.0 mg/l
Benzene	0.01 mg/l
Toluene	0.01 mg/l
Carbon Tetrchloride	0.01 mg/l
1,2-Dichloroehtane	0.02 mg/l
1,1-Dichloroethylene	0.005 mg/l
1,1,2,2-Tetrachloroethylene	0.02 mg/l
1,1,2-Trichloroethylene	0.1 mg/l

REFERENCES: 1."Standard Methods for the Examination of Water and Wastewater", 15th Edition, APHA, N.Y., 1980.
2. EPA Method 604

ASSAIGAI

ANALYTICAL LABORATORIES, INC.

OCT 19 1984

TO: Plateau Inc.
Attn; Dwight Stockham
P.O. Box 159
Bloomfield, NM 87413

DATE: 15 October 1984
0952

ANALYTE	SAMPLE ID/ANALYTICAL RESULTS	
	MW 1	MW 4
As	<0.002 mg/l	<0.002 mg/l
Ba	1.0 mg/l	4.0 mg/l
Cd	0.014 mg/l	<0.002 mg/l
Cr	<0.005 mg/l	0.10 mg/l
Pb	0.125 mg/l	0.088 mg/l
Hg	<0.002 mg/l	<0.002 mg/l
Se	0.35 mg/l	0.40 mg/l
Ag	<0.003 mg/l	<0.003 mg/l
Cu	0.10 mg/l	0.03 mg/l
Fe	57.0 mg/l	43.7 mg/l
Mn	1.70 mg/l	7.8 mg/l
Zn	0.30 mg/l	0.18 mg/l
U	<0.1 mg/l	<0.1 mg/l
Ra 226 & 228	<5 pCi/l	<5 pCi/l
Cl	1059.0 mg/l	410.0 mg/l
SO_4	825.0 mg/l	10.0 mg/l
PCB	<0.01 mg/l	<0.01 mg/l
pH	7.2	7.1
Phenols	24.0 mg/l	552.0 mg/l
CN	<0.01 mg/l	<0.01 mg/l
NO_3 as N	7.2 mg/l	0.02 mg/l
Al	2.0 mg/l	<0.05 mg/l
B	<0.004 mg/l	<0.004 mg/l
Co	0.08 mg/l	<0.003 mg/l
Mo	<0.005 mg/l	<0.005 mg/l
Ni	0.3 mg/l	0.2 mg/l
F	0.284 mg/l	0.597 mg/l
TDS	3582.0 mg/l	1860.0 mg/l
Benzene	<0.01 mg/l	0.419 mg/l
Toluene	<0.01 mg/l	0.296 mg/l
Carbon Tetrachloride	<0.01 mg/l	<0.01 mg/l
1,2 Dichloroethane	<0.02 mg/l	<0.02 mg/l
1,1 Dichloroethylene	<0.005 mg/l	<0.005 mg/l
1,1,2,2-Tetrachloroehtylene	<0.02 mg/l	<0.02 mg/l
1,1,2-Trichloroethylene	<0.1 mg/l	<0.1 mg/l

Incorrect units (Mg/l correct)

7300 Jefferson, N.E. → Albuquerque, New Mexico 87109

ASSAIGAI ANALYTICAL LABORATORIES

1ST Qtr - September, 1984

TO: Bloomfield Refinery
Attn: Chris Hawley
P.O. Box 159
Bloomfield,NM 87413

DATE: 9 January 1985
0952 Revised

ANALYTE	SAMPLE ID/ANALYTICAL RESULTS MW-1	MW-4
As	<0.002 mg/l	<0.002 mg/l
Ba	1.0 mg/l	4.0 mg/l
Cd	0.014 mg/l	<0.002 mg/l
Cr	<0.005 mg/l	0.10 mg/l
Pb	0.125 mg/l	0.088 mg/l
Hg	<0.002 mg/l	<0.002 mg/l
Se	0.35 mg/l	0.40 mg/l
Ag	<0.003 mg/l	<0.003 mg/l
Cu	0.10 mg/l	0.03 mg/l
Fe	57.0 mg/l	43.7 mg/l
Mn	1.70 mg/l	7.8 mg/l
Zn	0.30 mg/l	0.18 mg/l
U	<0.1 mg/l	<0.1 mg/l
Ra 226 & 228	<5.0 pCi/l	<5.0 pCi/l
Cl	1059.0 mg/l	410.0 mg/l
SO_4	825.0 mg/l	10.0 mg/l
PCB	<0.01 ppm	<0.01 ppm
pH	7.2	7.1
Phenols	0.024 mg/l	0.55 mg/l
CN	<0.01 mg/l	<0.01 mg/l
NO_3 as N	7.2 mg/l	0.02 mg/l
Al	2.0 mg/l	<0.05 mg/l
B	<0.004 mg/l	<0.004 mg/l
Co	0.08 mg/l	<0.003 mg/l
Mo	<0.005 mg/l	<0.005 mg/l
Ni	0.3 mg/l	0.2 mg/l
F	0.284 mg/l	0.597 mg/l
TDS	3582.0 mg/l	1860.0 mg/l
Benzene	<0.01 mg/l	0.419 mg/l
Toluene	<0.01 mg/l	0.296 mg/l
Carbon Tetrchloride	<0.01 mg/l	<0.01 mg/l
1,2-Dichloroehtane	<0.02 mg/l	<0.02 mg/l
1,1-Dichloroethylene	<0.005 mg/l	<0.005 mg/l
1,1,2,2-Tetrachloroethylene	<0.02 mg/l	<0.02 mg/l
1,1,2-Trichloroethylene	<0.1 mg/l	<0.1 mg/l

7300 Jefferson, N.E. • Albuquerque, New Mexico 87109 • (505) 345-8964

TO: Plateau Inc. 0952

NOMINAL DETECTION LIMIT:

As	0.002 mg/l
Ba	0.005 mg/l
Cd	0.002 mg/l
Cr	0.005 mg/l
Pb	0.001 mg/l
Hg	0.002 mg/l
Se	0.002 mg/l
Ag	0.003 mg/l
Cu	0.002 mg/l
Fe	0.05 mg/l
Mn	0.005 mg/l
Zn	0.004 mg/l
U	<0.1 mg/l
Ra 226 & 228	5 pCi/l
Cl	0.1 mg/l
SO_4	1.0 mg/l
PCB	0.01 mg/l
pH	0.01
Phenols	0.01 mg/l
CN	0.01 mg/l
NO_3 as N	0.1 mg/l
Al	0.05 mg/l
B	0.004 mg/l
Co	0.003 mg/l
Mo	0.005 mg/l
Ni	0.01 mg/l
F	0.01 mg/l
TDS	1.0 mg/l
Benzene	0.01 mg/l
Toluene	0.01 mg/l
Carbon Tetrachloride	0.01 mg/l
1,2 Dichloroethane	0.02 mg/l
1,1 Dichloroethylene	0.005 mg/l
1,1,2,2-Tetrachloroehtylene	0.02 mg/l
1,1,2-Trichloroethylene	0.1 mg/l

REFERENCES: 1."Standard Methods for the Examination of the Water and Wastewater", 15th Edition, APHA, N.Y., 1980.
2.EPA Method 604

An invoice for services is enclosed. Thank you for contacting Assaigai Laboratories.

BRUCE S. GARBER
ATTORNEY AT LAW

200 WEST MARCY, SUITE 129
SANTA FE, NEW MEXICO 87504

P.O. BOX 8933
(505) 983-3233

May 24, 1984

Mr. Joe D. Ramey
Director of Energy and Minerals
Department
Oil Conservation Division
P.O. Box 2088
State Land Office Building
Santa Fe, New Mexico 87501

Dear Mr. Ramey:

Sampling results for Plateau wells #1 and #4 for the constituents you requested are set forth below. For the most part, the results of Hauser Laboratory and CEP laboratory for these constituents are fairly consistent. All concentrations are in mg/l.

	WELL #1		WELL #4	
	Hauser	CEP	Hauser	CEP
Chloride	1,040	1,000	1,600	1,780
Fluoride	0.62	0.54	0.32	0.33
Molybdenum	<0.5	0.24	0.05	0.005
Nitrate	1.2	0.05	1.3	0.02
Phenols	< 0.015	0.13	0.19	0.05
Sulfate	240	520	< 10.0	< 1.0
TDS	3038	3050	1600	1780

These analysis results should serve to establish the existing concentrations of those constituents for Wells #1 and #4. Any further existing concentration information which might be required to implement the discharge will become available upon the first ground water sampling and analysis by Plateau under the proposed plan.

Thank you for your continuing assistance.

Sincerely,

Bruce S. Garber

Bruce S. Garber

38
2 | 76
6
16

BSG/dm
cc: Gregory S. Smith
Dwight S. Stockham
Paul W. Liscom

RECEIVED
MAY 29 1984
OIL CONSERVATION DIVISION
SANTA FE

BRUCE S. GARBER
ATTORNEY AT LAW

200 WEST MARCY, SUITE 129
SANTA FE, NEW MEXICO 87504

P.O. BOX 8933
(505) 983-3233

May 15, 1984

Mr. Joe D. Ramey
Director, Energy & Minerals Department
Oil Conservation Division
State Land Office Building
Santa Fe, New Mexico 87501

HAND DELIVERED

Re: Plateau, Inc.

Dear Mr. Ramey:

Enclosed are the U. S. Environmental Protection Agency's analytical results for samples taken the week of March 19, 1984 from monitoring wells 1, 4, and 5 at Plateau, Inc.'s Bloomfield, New Mexico refinery. The location of these wells is indicated on Plate 1 of the March, 1984, Discharge Plan. The wells are designated on that Plate as P 1, P 4 and P 5. As stated in previous correspondence and at meetings between O.C.D. and Plateau representatives, these analytical results should serve to establish existing water quality in the refinery area for purposes of Plateau's Discharge Plan.

Also enclosed is an April 26, 1982 report from Hauser Laboratories. This report contains analytical results for water samples from the North Solar Evaporation Pond. The water discharged to the land application area is taken from the North Solar Evaporation Pond.

Additionally, you have indicated a concern about the frequency of ground water monitoring under the Discharge Plan. Plateau will monitor ground water quarterly for the first year of operations under the plan and semiannually thereafter. I trust that this information is responsive to O.C.D.'s remaining questions on Plateau's Discharge Plan.

Finally, Plateau hereby requests an extension of time to discharge without an approved discharge plan until July 1, 1984. This extension should allow the O.C.D. sufficient time to complete its review of the Discharge Plan.

Thank you for your continuing assistance.

Sincerely yours,

Bruce S. Garber

Bruce S. Garber

BSG/mp
cc: G. S. Smith
D. S. Stockham
P. W. Liscom

EPA ANALYSIS OF [illegible] \U'S BLOOMFIELD REFINERY MO[illegible] TNG WELLS
SAMPLED THE WEEK OF MARCH 19, 1984

	WQCC STANDARDS	WELL #1	WELL #4	WELL #5
INORGANICS (ppm)				
Aluminum	5.0 (C)	11.6	31.8	76.0
Altimony	---	< 0.02	< 0.02	< 0.02
Arsenic	0.1 (A)	[illegible]	[illegible]	< 0.01
Barium	1.0 (A)	0.2	[illegible]	0.3
Beryllium	---	< .005	< .005	< .005
Cadmium	0.01 (A)	[illegible]	[illegible]	< 0.001
Calcium	---	NR	NR	NR
Chromium	0.05 (A)	[illegible]	[illegible]	0.04
Colbalt	0.05 (C)	[illegible]	[illegible]	< 0.05
Copper	1.0 (B)	[illegible]	[illegible]	0.1
Iron	1.0 (B)	[illegible]	[illegible]	70.6
Lead	0.05 (A)	[illegible]	[illegible]	.02
Cyanide	0.2 (A)	NR	NR	NR
Magnesium	---	NR	NR	NR
Maganese	0.2 (B)	[illegible]	[illegible]	.915
Mercury	0.002 (A)	[illegible]	[illegible]	< 0.002
Nickel	0.2 (C)	[illegible]	[illegible]	0.04
Potassium	---	NR	NR	NR
Selenium	0.05 (A)	[illegible]	[illegible]	0.002
Silver	0.05 (A)	[illegible]	[illegible]	< 0.01
Sodium	---	NR	NR	NR
Thallium	---	< 0.01	< 0.01	< 0.01
Tin	---	ND	ND	ND
Vanadium	---	< 0.20	< 0.20	< 0.20
Zinc	10 (B)	[illegible]	[illegible]	0.12

NR - Present but below quantification limits
ND - No detection

No
Floride
Nitrate
Uranium
Chloride
Molybdenum
Sulfates
TDS
Phenols

Note:
Hauser Report in
Anal. Files.
D. Boyd 7/11/84

	WELL #1	WELL #4	WELL #5
Unknown		0.20	
Alkane		0.28	
Alkane or Benzene Derivative		0.25	
Alkane or Benzene Derivative		0.57	
Butyl Cyclo Hexane		0.086	
Unknown		0.180	
Alkane or Benzene Derivative		0.120	
Unknown		0.240	
Methylpropyl Benzene		0.150	
Unknown		0.340	
Unknown		0.069	
Unknown		0.120	
Undecane		0.420	
Unknown		0.088	
Dodecane		0.160	
Dimethylbenzoicacid		0.200	
Dimethylbenzoicacid		0.120	
Volatile Organic			
Dimethyl Cyclohexane		12.0	

LT - Present but below quantification limits

	WELL #1	WELL #4	WELL #5
ORGANICS			
Acid, Base Neutral			
Benzenedimethyl		98.0	
2-Methyl Napthalene		0.07	
Volatile Organics			
[redacted]		[redacted]	
Ethyl Benzene		LT	
Xylene		10.0	
Cyclohexane Methyl		23.0	
Cyclo Hexane Dimethyl		20.0	
Acid, Base, Neutral			
Napthalene		0.20	
Volatile Organics			
2-Methyl Hexane		10.0	
2-Methyl Heptane		22.0	
Octane		45.0	
Unknown		25.0	
Acid, Base, Neutral			
Pentachlorophenol		LT	
Volatile Organics			
2-Methyl Butane		14.0	
Pentane		12.0	
Cyclohexane		18.0	
Methyl Cyclo Pentane		7.1	
Dimethyl Octanol		18.0	
Ethylmethycyclo Pentane		31.0	
Acid, Base, Neutral			
Cycloheptatriene		0.110	
Octane		0.06	
2-Methyloctane		0.92	
Dimethyl Benzene		0.61	
Unknown		0.22	
Nonane		0.22	
Propylcyclohexane		0.10	
Dimethyl Octane		0.14	
Methylnonane		0.17	
Unknown		0.27	
Trimethyl Benzene		0.15	
Unknown		0.13	
Unknown		0.078	

STATION NAME: Plateau Mon Well #5 (FIT #28)

LOCATION: In spray irrigation area

Parameter/Date-Time	3/22/84 FIT & E&E Inc	2/9/84	2/15/84				
Water Level from MP Ft							
Water Level Elevation Ft	Static 2.6'	Static 42.67'	43.78'				
Staff Gage Ft							
pH							
Temp °C							
Uncorrected Field Cond. µmhos							
As .100 mg/l							
Ba 1.000 mg/l	0.3						
Cd .010 mg/l							
Cr .050 mg/l	0.04						
Pb .050 mg/l	0.02						
Se .050 mg/l	0.002						
Ag .050 mg/l							
Zn 10.000 mg/l	0.12						
Al 5.000 mg/l	76.0						
B .750 mg/l							
Co .050 mg/l							
Cu 1.000 mg/l	0.1						
Fe 1.000 mg/l	70.6						
Mn .200 mg/l	0.915						
Mo 1.000 mg/l							
Ni .200 mg/l	0.04						
Ca — mg/l	unlisted metals not elevated above levels in comparison samples						
K — mg/l							
Na — mg/l							
HCO_3 — mg/l							
Cl 250 mg/l							
SO_4 400 mg/l							
TDS 500 mg/l							
Lab Cond. -25°C µmho							
[illegible] 0.01 mg/l	—						
Toluene 15.0 mg/l	—						
Ethyl Benzene	31						
Total Xylenes	6						

Inter·Mountain
Laboratories, Inc.

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

CLIENT: Bloomfield Refinery
ID: MW-5
SITE: N/A
LAB NO: F4469

DATE REPORTED: 07/11/90
DATE RECEIVED: 06/19/90
DATE COLLECTED: 06/19/90

Lab pH (s.u.)	7.42
Lab conductivity, umhos/cm	8005
Lab resistivity, ohm-m	1.2492
Total dissolved solids (180), mg/l	4918
Total nitrate and nitrite, mg/l	16.75
Total Keldahl nitrogen, mg/l	1.84
Ammonia, mg/l	0.17
Cyanide, mg/l	<0.005
Phenols, mg/l	0.102
Total organic carbon, mg/l	7.40

	mg/l	meq/l
Chloride	1751.4	49.40
Sulfate	1131.6	23.58

Trace metals by AA (total concentration), mg/l

	Analytical Result:	Detection Limit:
Arsenic (As)	0.0126	<0.0003
Cadmium (Cd)	ND	<0.0002
Lead (Pb)	0.005	<0.004

Trace metals by ICAP (total concentration), mg/l

	Analytical Result:	Detection Limit:
Boron (B)	0.06	<0.01
Barium (Ba)	ND	<0.5
Chromium (Cr)	ND	<0.02
Iron (Fe)	ND	<0.05
Manganese (Mn)	ND	<0.02

C. Neal Schaeffer
Lab Director

Inter·Mountain
Laboratories, Inc.

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

CLIENT:	Bloomfield Refinery	DATE REPORTED:	07/02/90
ID:	MW-5	DATE ANALYZED:	06/26/90
SITE:	N/A	DATE RECEIVED:	06/19/90
LAB NO:	F4469	DATE COLLECTED:	06/19/90

Analysis Requested: Purgeable aromatics in water.

Parameter	Concentration	Units
Benzene	ND (0.2)	ug/l
Toluene	ND (0.2)	ug/l
Ethylbenzene	ND (0.2)	ug/l
m/p-Xylene	ND (0.2)	ug/l
o-Xylene	ND (0.2)	ug/l
1,4-Dichlorobenzene	ND (0.3)	ug/l
1,3-Dichlorobenzene	ND (0.4)	ug/l
1,2-Dichlorobenzene	ND (0.4)	ug/l
Chlorobenzene	ND (0.2)	ug/l

Method:
8020 Aromatic Volatile Organics, SW-846, USEPA (1982).
602 Purgeable Aromatics, 40 CFR, Part 136.

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

C. Neal Schaeffer
Senior Chemist

Inter·Mountain
Laboratories, Inc.

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

CLIENT: Bloomfield Refinery
ID: MW-5
SITE: N/A
LAB NO: F4469

DATE REPORTED: 07/02/90
DATE ANALYZED: 06/25/90
DATE RECEIVED: 06/19/90
DATE COLLECTED: 06/19/90

Analysis Requested: Purgeable halocarbons in water.

Parameter	Concentration
Chloromethane, ug/l	ND (10.0)
Bromomethane, ug/l	ND (10.0)
Dichlorodifluoromethane, ug/l	ND (10.0)
Vinyl chloride, ug/l	ND (10.0)
Chloroethane, ug/l	ND (1.0)
Dichloromethane, ug/l	ND (1.0)
Trichlorofluoromethane, ug/l	ND (1.0)
1,1-dichloroethene, ug/l	ND (1.0)
1,1-dichloroethane, ug/l	ND (1.0)
trans-1,2-dichloroethene, ug/l	ND (1.0)
Chloroform, ug/l	ND (1.0)
1,2-dichloroethane, ug/l	ND (1.0)
1,1,1-trichloroethane, ug/l	ND (1.0)
Carbon tetrachloride, ug/l	ND (1.0)
Bromodichloromethane, ug/l	ND (1.0)
1,2-dichloropropane, ug/l	ND (1.0)
Trichloroethene, ug/l	ND (1.0)
Dibromochloromethane, ug/l	ND (1.0)
1,1,2-trichloroethane, ug/l	ND (1.0)
2-chloroethyl vinyl ether, ug/l	ND (10.0)
Bromoform, ug/l	ND (1.0)
1,1,2,2-tetrachloroethane, ug/l	ND (1.0)
Tetrachloroethene, ug/l	ND (1.0)
Chlorobenzene, ug/l	ND (1.0)
1,3-dichlorobenzene, ug/l	ND (1.0)
1,2-dichlorobenzene, ug/l	ND (1.0)
1,4-dichlorobenzene, ug/l	ND (1.0)
Bromobenzene, ug/l	ND (1.0)
2-chlorotoluene, ug/l	ND (1.0)
Dibromomethane, ug/l	ND (1.0)
1,1,1,2-tetrachloroethane, ug/l	ND (1.0)
1,2,3-trichloropropane, ug/l	ND (1.0)
Bromochloromethane, ug/l	ND (1.0)
cis-1,2-dichloroethene, ug/l	ND (1.0)
1,1-dichloropropene, ug/l	ND (1.0)
1,3-dichloropropane, ug/l	ND (1.0)
1,2-dibromoethane, ug/l	ND (1.0)
1,2-dibromo-3-chloropropane, ug/l	ND (1.0)

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

ANA-LAB CORP.
THE COMPLETE SERVICE LAB

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

Analytical Chemistry • Waste Treatment & Disposal • Equipment Sales

05/25/90

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

Sample Identification: Sample #9004091350
Collected By: Anderson/Olson
Date & Time Taken: 04/09/90 1350
On Site Data: Bloomfield Refinery MW-5

Lab Sample Number: 163716 **Received:** 04/16/90

PARAMETER	RESULTS	UNITS	TIME	DATE	METHOD	BY
Acrolein	(100	ug/l	0437	04/21/90	EPA Method 8240	PM
Acrylonitrile	(100	ug/l	0437	04/21/90	EPA Method 8240	PM
Benzene	(5	ug/l	0437	04/21/90	EPA Method 8240	PM
Bromoform	(5	ug/l	0437	04/21/90	EPA Method 8240	PM
Bromomethane	(10	ug/l	0437	04/21/90	EPA Method 8240	PM
Carbon Tetrachloride	(5	ug/l	0437	04/21/90	EPA Method 8240	PM
Chlorobenzene	(5	ug/l	0437	04/21/90	EPA Method 8240	PM
Chloroethane	(10	ug/l	0437	04/21/90	EPA Method 8240	PM
2-Chloroethylvinyl ether	(10	ug/l	0437	04/21/90	EPA Method 8240	PM
Chloroform	(5	ug/l	0437	04/21/90	EPA Method 8240	PM
Chloromethane	(10	ug/l	0437	04/21/90	EPA Method 8240	PM
Dibromochloromethane	(5	ug/l	0437	04/21/90	EPA Method 8240	PM
Bromodichloromethane	(5	ug/l	0437	04/21/90	EPA Method 8240	PM
1,1-Dichloroethane	(5	ug/l	0437	04/21/90	EPA Method 8240	PM
1,2-Dichloroethane	(5	ug/l	0437	04/21/90	EPA Method 8240	PM
1,1-Dichloroethene	(5	ug/l	0437	04/21/90	EPA Method 8240	PM

continued

ANA-LAB CORP.
THE COMPLETE SERVICE LAB

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

Analytical Chemistry • Waste Treatment & Disposal • Equipment Sales

Lab Sample Number: 163716 Continued

PARAMETER	RESULTS	UNITS	TIME	DATE	METHOD	BY
trans-1,2-Dichloroethene	<5	ug/l	0437	04/21/90	EPA Method 8240	PM
1,2-Dichloropropane	<5	ug/l	0437	04/21/90	EPA Method 8240	PM
cis-1,3-Dichloropropene	<5	ug/l	0437	04/21/90	EPA Method 8240	PM
Ethyl benzene	<5	ug/l	0437	04/21/90	EPA Method 8240	PM
Methylene Chloride	<5	ug/l	0437	04/21/90	EPA Method 8240	PM
1,1,2,2-Tetrachloroethane	<5	ug/l	0437	04/21/90	EPA Method 8240	PM
Tetrachloroethene	<5	ug/l	0437	04/21/90	EPA Method 8240	PM
Toluene	<5	ug/l	0437	04/21/90	EPA Method 8240	PM
1,1,1-Trichloroethane	<5	ug/l	0437	04/21/90	EPA Method 8240	PM
1,1,2-Trichloroethane	<5	ug/l	0437	04/21/90	EPA Method 8240	PM
Trichloroethene	<5	ug/l	0437	04/21/90	EPA Method 8240	PM
Vinyl Chloride	<10	ug/l	0437	04/21/90	EPA Method 8240	PM
trans-1,3-Dichloropropene	<5	ug/l	0437	04/21/90	EPA Method 8240	PM
Alkalinity	470	mg/l	1400	04/26/90	EPA Method 310.1	DFK
Boron	1.9	mg/l	2100	05/09/90	EPA Method 212.3	DFK
Cation-Anion Balance	.25	%	2300	05/23/90	ference	NT
Carbonate	<.5	mg/l	1500	04/26/90	APHA Method 263	DFK
Chloride	1900	mg/l	1110	04/18/90	EPA Method 325.3	SW
Specific Conductance	7305	Micromhos	2200	04/17/90	EPA Method 120.1	KLM
Bicarbonate	470	mg/l	1500	04/26/90	APHA Method 263	DFK
Sulfate	1000	mg/l	1500	04/19/90	EPA Method 375.4	DFK

continued

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Lab Sample Number: 163716 Continued

PARAMETER	RESULTS	UNITS	TIME	DATE	METHOD	BY
Total Dissolved Solids	4666	mg/l	0800	05/24/90	EPA Method 160.1	MLR
pH	7.1	SU	1630	04/17/90	EPA Method 150.1	LB
Silver	<.03	mg/l	1700	04/19/90	EPA Method 272.1	GK
Aluminum	.5	mg/l	1730	04/20/90	EPA Method 202.1	GK
Arsenic	<.005	mg/l	2215	04/23/90	EPA Method 206.2	GK
Barium	<.5	mg/l	1845	04/20/90	EPA Method 208.1	GK
Beryllium	<.01	mg/l	2100	05/22/90	EPA Method 210.2	GK
Calcium	370	mg/l	1700	04/26/90	EPA Method 215.1	GK
Cadmium	<.001	mg/l	1845	04/26/90	EPA Method 213.2	GK
Cobalt	<.5	mg/l	1845	04/19/90	EPA Method 219.2	GK
Chromium	<.05	mg/l	1530	04/19/90	EPA Method 218.1	GDG
Copper	<.05	mg/l	0930	04/19/90	EPA Method 220.1	GDG
Iron	5.3	mg/l	0815	04/25/90	EPA Method 236.1	GDG
Potassium	9	mg/l	1730	05/22/90	EPA Method 258.1	GK
Magnesium	165	mg/l	1730	04/25/90	EPA Method 242.1	GDG
Manganese	.14	mg/l	1540	04/23/90	EPA Method 243.1	GDG
Molybdenum	<.5	mg/l	1845	04/19/90	EPA Method 246.2	GK
Sodium	1100	mg/l	2130	04/24/90	EPA Method 273.1	GK
Nickel	<.1	mg/l	1610	04/19/90	EPA Method 249.1	GDG
Lead	<.001	mg/l	2200	04/26/90	EPA Method 239.2	GK
Antimony	<.2	mg/l	1815	05/22/90	EPA Method 204.2	GK

continued

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Lab Sample Number: 163716 Continued

PARAMETER	RESULTS	UNITS	TIME	DATE	METHOD	BY
Selenium	(.005	mg/l	2315	04/19/90	EPA Method 270.2	GK
Silicon (as Silica)	14	mg/l	1615	04/20/90	APHA Method 303C	GK
Thallium	(.005	mg/l	1445	05/07/90	EPA Method 279.2	GDG
Vanadium	(2	mg/l	2200	04/19/90	EPA Method 286.2	GK
Zinc	(.01	mg/l	0900	04/19/90	EPA Method 289.1	GDG

Quality Assurance for Sample Number 163716

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
				Alkalinity					
	Standard	101	mg/l	100		101	1400	04/26/90	DFK
163802	Duplicate	765	mg/l	765		100	1400	04/26/90	DFK
				Boron					
	Standard	.50	mg/l	.50		100	2100	05/09/90	DFK
163716	Duplicate	1.9	mg/l	1.9		100	2100	05/09/90	DFK
				Chloride					
	Standard	71	mg/l	71		100	1110	04/18/90	SW
163717	Duplicate	107	mg/l	103		104	1110	04/18/90	SW
163717	Spike		mg/l		100	100	1110	04/18/90	SW
				Specific Conductance					
	Standard	1400	Micromhos	1413		101	2200	04/17/90	KLM
163715	Duplicate	5195	Micromhos	5195		100	2200	04/17/90	KLM
				Sulfate					
	Standard	102	mg/l	100		102	1500	04/19/90	DFK
163831	Duplicate	268	mg/l	268		100	1500	04/19/90	DFK
163831	Spike		mg/l		100	97	1500	04/19/90	DFK
				Total Dissolved Solids					
	Blank	.000	mg/l				0800	05/24/90	MLR
	Standard	1006	mg/l	1000		101	0800	05/24/90	MLR
163720	Duplicate	864	mg/l	868		100	0800	05/24/90	MLR
				Silver					
	Blank	(.03	mg/l				1700	04/19/90	GK
	Standard	.20	mg/l	.20		100	1700	04/19/90	GK
163718	Duplicate	(.03	mg/l	(.03		100	1700	04/19/90	GK
163718	Spike		mg/l		.20	95	1700	04/19/90	GK
				Aluminum					
	Blank	(.5	mg/l				1730	04/20/90	GK
	Blank	(.5	mg/l				1730	04/20/90	GK
	Blank	(.5	mg/l				1730	04/20/90	GK

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Quality Assurance for Sample Number 163716

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
	Standard	1.0	mg/l	1.0		100	1730	04/20/90	GK
163715	Duplicate	(.5	mg/l	(.5		100	1730	04/20/90	GK
163766	Duplicate	(.5	mg/l	(.5		100	1730	04/20/90	GK
163715	Spike		mg/l		4.0	95	1730	04/20/90	GK
163766	Spike		mg/l		4.0	100	1730	04/20/90	GK
				Arsenic					
	Blank	(.005	mg/l				2215	04/23/90	GK
	Blank	(.005	mg/l				2215	04/23/90	GK
	Standard	.102	mg/l	.100		102	2215	04/23/90	GK
162814	Duplicate	(.005	mg/l	(.005		100	2215	04/23/90	GK
163717	Duplicate	(.005	mg/l	(.005		100	2215	04/23/90	GK
162814	Spike		mg/l		.100	107	2215	04/23/90	GK
163717	Spike		mg/l		.100	93	2215	04/23/90	GK
				Barium					
	Blank	(.5	mg/l				1845	04/20/90	GK
	Blank	(.5	mg/l				1845	04/20/90	GK
	Standard	1.0	mg/l	1.0		100	1845	04/20/90	GK
161742	Duplicate	79	mg/l	91		114	1845	04/20/90	GK
163715	Duplicate	(.5	mg/l	(.5		100	1845	04/20/90	GK
161742	Spike		mg/l		4.0	109	1845	04/20/90	GK
163715	Spike		mg/l		4.0	102	1845	04/20/90	GK
				Beryllium					
	Blank	(.01	mg/kg				2100	05/22/90	GK
	Blank	(.1	mg/kg				2100	05/22/90	GK
	Standard	.02	mg/kg	.02		100	2100	05/22/90	GK
165596	Duplicate	.4	mg/kg	.3		129	2100	05/22/90	GK
163715	Duplicate	(.01	mg/l	(.01		100	2100	05/22/90	GK
163716	Spike		mg/l		.50	92	2100	05/22/90	GK
				Calcium					
	Blank	.19	mg/l				1700	04/26/90	GK
	Blank	.11	mg/l				1700	04/26/90	GK
	Standard	.47	mg/l	.50		106	1700	04/26/90	GK
162261	Duplicate	230	mg/l	230		100	1700	04/26/90	GK
163802	Duplicate	3.0	mg/l	3.1		103	1700	04/26/90	GK
163715	Duplicate	140	mg/l	160		113	1700	04/26/90	GK
163718	Spike		mg/l		1.00	94	1700	04/26/90	GK
				Cadmium					
	Blank	(.001	mg/l				1845	04/26/90	GK
	Blank	(.001	mg/l				1845	04/26/90	GK
	Standard	.002	mg/l	.002		100	1845	04/26/90	GK
163716	Duplicate	(.001	mg/l	(.001		100	1845	04/26/90	GK
				Cobalt					
	Blank	(.5	mg/l				1845	04/19/90	GK
	Standard	10	mg/l	10		100	1845	04/19/90	GK
163715	Duplicate	(.5	mg/l	(.5		100	1845	04/19/90	GK
163715	Spike		mg/l		10	98	1845	04/19/90	GK
				Chromium					

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Quality Assurance for Sample Number 163716

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
	Blank	(.05	mg/kg				1530	04/19/90	GDG
	Blank	(.05	mg/kg				1530	04/19/90	GDG
	Blank	(.05	mg/kg				1530	04/19/90	GDG
	Blank	(.01	mg/kg				1530	04/19/90	GDG
	Standard	.05	mg/kg	.05		100	1530	04/19/90	GDG
163377	Duplicate	.16	mg/l	.16		100	1530	04/19/90	GDG
163519	Duplicate	(.05	mg/l	(.05		100	1530	04/19/90	GDG
163715	Duplicate	(.05	mg/l	(.05		100	1530	04/19/90	GDG
163766	Duplicate	(.05	mg/l	(.05		100	1530	04/19/90	GDG
163860	Duplicate	.16	mg/l	.14		113	1530	04/19/90	GDG
163377	Spike		mg/l		.40	91	1530	04/19/90	GDG
163519	Spike		mg/l		.80	89	1530	04/19/90	GDG
163715	Spike		mg/l		.80	93	1530	04/19/90	GDG
163766	Spike		mg/l		.40	105	1530	04/19/90	GDG
163860	Spike		mg/l		.80	95	1530	04/19/90	GDG
				Copper					
	Blank	(.05	mg/l				0930	04/19/90	GDG
	Blank	(.05	mg/l				0930	04/19/90	GDG
	Blank	(.01	mg/l				0930	04/19/90	GDG
	Standard	.98	mg/l	1.0		102	0930	04/19/90	GDG
	Standard	.06	mg/l	.05		118	0930	04/19/90	GDG
163256	Duplicate	.21	mg/l	.21		100	0930	04/19/90	GDG
163519	Duplicate	(.05	mg/l	(.05		100	0930	04/19/90	GDG
163715	Duplicate	(.05	mg/l	(.05		100	0930	04/19/90	GDG
163860	Duplicate	.05	mg/l	.05		100	0930	04/19/90	GDG
163256	Spike		mg/l		.40	97	0930	04/19/90	GDG
163519	Spike		mg/l		.80	94	0930	04/19/90	GDG
163715	Spike		mg/l		.80	96	0930	04/19/90	GDG
163860	Spike		mg/l		.80	95	0930	04/19/90	GDG
				Iron					
	Blank	.2	mg/l				0815	04/25/90	GDG
	Blank	.2	mg/l				0815	04/25/90	GDG
	Blank	.1	mg/l				0815	04/25/90	GDG
	Blank	.1	mg/l				0815	04/25/90	GDG
	Standard	1.0	mg/l	1.0		100	0815	04/25/90	GDG
163715	Duplicate	.2	mg/l	.1		167	0815	04/25/90	GDG
163802	Duplicate	.5	mg/l	.5		100	0815	04/25/90	GDG
163802	Spike		mg/l		.80	103	0815	04/25/90	GDG
				Potassium					
	Blank	.05	mg/l				1730	05/22/90	GK
	Standard	.96	mg/l	1.00		104	1730	05/22/90	GK
163715	Duplicate	24	mg/l	24		100	1730	05/22/90	GK
				Magnesium					
	Blank	.008	mg/l				1730	04/25/90	GDG
	Standard	.207	mg/l	.200		103	1730	04/25/90	GDG
163715	Duplicate	40	mg/l	39		103	1730	04/25/90	GDG

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Quality Assurance for Sample Number 163716

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
162261	Duplicate	20,000	mg/l	20,000		100	1730	04/25/90	GDG
163802	Duplicate	9.1	mg/l	9.1		100	1730	04/25/90	GDG
163802	Spike		mg/l		.400	100	1730	04/25/90	GDG
				Manganese					
	Blank	(.03	mg/l				1540	04/23/90	GDG
	Blank	(.03	mg/l				1540	04/23/90	GDG
	Standard	.53	mg/l	.50		106	1540	04/23/90	GDG
163042	Duplicate	.10	mg/l	.08		122	1540	04/23/90	GDG
163119	Duplicate	.12	mg/l	.10		118	1540	04/23/90	GDG
163432	Duplicate	(.03	mg/l	.03		300	1540	04/23/90	GDG
163715	Duplicate	.27	mg/l	.25		108	1540	04/23/90	GDG
163802	Duplicate	.06	mg/l	.06		100	1540	04/23/90	GDG
163432	Spike		mg/l		.40	96	1540	04/23/90	GDG
163802	Spike		mg/l		.40	100	1540	04/23/90	GDG
				Molybdenum					
	Blank	(.5	mg/l				1845	04/19/90	GK
	Standard	10	mg/l	10		100	1845	04/19/90	GK
163715	Duplicate	(.5	mg/l	(.5		100	1845	04/19/90	GK
163715	Spike		mg/l		10	98	1845	04/19/90	GK
				Sodium					
	Blank	(4	mg/l				2130	04/24/90	GK
	Standard	11	mg/l	10		110	2130	04/24/90	GK
162261	Duplicate	98,000	mg/l	98,000		100	2130	04/24/90	GK
163432	Duplicate	42	mg/l	43		102	2130	04/24/90	GK
163715	Duplicate	1000	mg/l	1000		100	2130	04/24/90	GK
163802	Duplicate	440	mg/l	440		100	2130	04/24/90	GK
163432	Spike		mg/l		40	100	2130	04/24/90	GK
				Nickel					
	Blank	(.1	mg/l				1610	04/19/90	GDG
	Blank	(.1	mg/l				1610	04/19/90	GDG
	Blank	(.02	mg/l				1610	04/19/90	GDG
	Standard	.1	mg/l	.1		100	1610	04/19/90	GDG
163377	Duplicate	7.2	mg/l	7.2		100	1610	04/19/90	GDG
163715	Duplicate	(.1	mg/l	(.1		100	1610	04/19/90	GDG
163860	Duplicate	.03	mg/l	.03		100	1610	04/19/90	GDG
163715	Spike		mg/l		.40	110	1610	04/19/90	GDG
163860	Spike		mg/l		.40	108	1610	04/19/90	GDG
				Lead					
	Blank	.004	mg/l				2200	04/26/90	GK
	Blank	.013	mg/kg				2200	04/26/90	GK
	Blank	.001	mg/kg				2200	04/26/90	GK
	Standard	.027	mg/l	.025		108	2200	04/26/90	GK
	Standard	.024	mg/kg	.025		104	2200	04/26/90	GK
162404	Duplicate	.002	mg/l	(.001		300	2200	04/26/90	GK
163453	Duplicate	.001	mg/l	.001		100	2200	04/26/90	GK
163716	Duplicate	(.001	mg/l	(.001		100	2200	04/26/90	GK

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Quality Assurance for Sample Number 163716

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	By
163933	Duplicate	(.001	mg/l	(.001		100	2200	04/26/90	GK
163717	Spike		mg/l		.025	104	2200	04/26/90	GK
				Antimony					
	Blank	(.2	mg/kg				1815	05/22/90	GK
	Standard	1.0	mg/kg	1.0		100	1815	05/22/90	GK
163715	Duplicate	(.2	mg/l	(.2		100	1815	05/22/90	GK
165596	Duplicate	(2	mg/kg	(2		100	1815	05/22/90	GK
165596	Spike		mg/kg		2.5	97	1815	05/22/90	GK
				Selenium					
	Blank	(.005	mg/kg				2315	04/19/90	GK
	Standard	.109	mg/kg	.100		109	2315	04/19/90	GK
163717	Duplicate	(.005	mg/l	(.005		100	2315	04/19/90	GK
				Silicon (as Silica)					
	Blank	(2	mg/kg				1615	04/20/90	GK
	Standard	5.5	mg/kg	5.0		110	1615	04/20/90	GK
163715	Duplicate	13	mg/l	12		108	1615	04/20/90	GK
163715	Spike		mg/l		20	103	1615	04/20/90	GK
				Thallium					
	Blank	(.005	mg/l				1445	05/07/90	GDG
	Standard	.052	mg/l	.050		104	1445	05/07/90	GDG
163716	Duplicate	(.005	mg/l	(.005		100	1445	05/07/90	GDG
163718	Spike		mg/l		.100	90	1445	05/07/90	GDG
				Vanadium					
	Blank	(2	mg/l				2200	04/19/90	GK
	Standard	11	mg/l	10		110	2200	04/19/90	GK
163715	Duplicate	(2	mg/l	(2		100	2200	04/19/90	GK
				Zinc					
	Blank	.05	mg/l				0900	04/19/90	GDG
	Blank	.02	mg/l				0900	04/19/90	GDG
	Blank	.03	mg/l				0900	04/19/90	GDG
	Blank	.020	mg/l				0900	04/19/90	GDG
	Standard	.21	mg/l	.20		105	0900	04/19/90	GDG
163377	Duplicate	.01	mg/l	.03		200	0900	04/19/90	GDG
163530	Duplicate	2.6	mg/l	2.7		104	0900	04/19/90	GDG
163715	Duplicate	.02	mg/l	.01		167	0900	04/19/90	GDG
163860	Duplicate	.025	mg/l	.030		118	0900	04/19/90	GDG
163715	Duplicate	.02	mg/l	.01		167	0900	04/19/90	GDG
163377	Spike		mg/l		.40	100	0900	04/19/90	GDG
163530	Spike		mg/l		.40	100	0900	04/19/90	GDG
163860	Spike		mg/l		.40	97	0900	04/19/90	GDG

Bill Peery

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

National 45-606 Eye-Ease 45-706 20 20 Built Made in USA

BLOOMFIELD REFINING CO ANY
SAMPLE DATE: 12/1/89, CLEAR 45°F.

	PARAMETER	UNITS	NOMINAL DETECTION LIMITS	NM WQ STANDARD	MONITORING WELL 1	MONITORING WELL 5
1	Arsenic	mg/l	0.005	0.1	0.0005	0.0006
2	Barium	"	0.5	1.0	ND	ND
3	Cadmium	"	0.002	0.01	0.0073	0.0039
4	Chromium	"	0.02	0.05	ND	ND
5	Lead	"	0.02	0.05	ND	0.044
6	Boron	"	0.01	0.75	0.28	0.58
7	Iron	"	0.05	1.0	ND	ND
8	Manganese	"	0.02	0.2	1.17	ND
9	TDS	"	1.	1000.	3120.	4594.
10	Chloride	"	1.	250.	1142.85	1715.62
11	Sulfate	"	1.	600.	515.61	946.45
12	Phenols	"	0.001	0.005	0.151	0.006
13	Cyanide	"	0.005	0.2	<0.005	<0.005
14	Nitrate as N	"	0.1	10.	2.04	24.85
15	Nitrite as N	"	0.1	–	<0.10	<0.10
16	Ammonia	"	0.1	–	<0.10	0.165
17	Total Keldahl Nitrogen	"	0.1	–	1.48	3.39
18	Benzene	ug/l	0.2	10.	ND	10.8
19	Toluene	ug/l	0.2	750.	3.75	92.
20	Ethyl Benzene	ug/l	0.2	750.	ND	9.8
21	Xylenes (Total)	ug/l	0.2	620.	ND	22.3
22						
23						
24	1,1,1 Trichloroethane	ug/l	1.0	60.	ND	ND
25	1,2 Dichloroethane	ug/l	1.0	0.01	ND	ND
26	trans-1,2 Dichloroethene	ug/l	1.0	–	ND	169.8
27						
28						
29	pH	S.U.	0.01	6 TO 9	7.22	7.24
30	Depth to water	Ft	0.01	–	18.53	42.57
31						
32						
33						
34						
35						
36						
37						
38						
39						
40						

Bloomfield Refining Company
A Gary Energy Corporation Subsidiary

'90 FEB 7 AM 8 52

February 2, 1990

Mr. David G. Boyer
State of New Mexico
Oil Conservation Division
P. O. Box 2088
Land Office Building
Santa Fe, New Mexico 87501

RE: Discharge Plan GRW-1

Dear Mr. Boyer:

Analytical results applicable to the discharge plan for wells 1 and 5 that were obtained on December 1, 1989 are enclosed. Please note that MW-5 showed the presence of some organics that had not previously been detected. The turnaround time on these samples was very long, and at these detection levels, sample contamination or some other problem will need to be ruled out before accepting the data. I plan to resample the wells for organic analyses.

Please call me if there are any questions.

Sincerely yours,

Chris Hawley
Environmental Engineer

CH/jm

Enclosure

cc: Richard Traylor
Mike Macy
Joe Warr

Inter·Mountain
Laboratories, Inc.

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

CLIENT: Bloomfield Refinery
ID:
SITE: MW-5
LAB NO: F3586
DATE REPORTED: 01/29/90
DATE ANALYZED: 12/08/90
DATE RECEIVED: 12/01/90
DATE COLLECTED: 12/01/90

Analysis Requested: Purgeable aromatics in water.

Parameter	Concentration	Units
Benzene	10.8 (0.2)	ug/l
Toluene	92 (0.2)	ug/l
Ethylbenzene	9.8 (0.2)	ug/l
m/p-Xylene	11.5 (0.2)	ug/l
o-Xylene	10.8 (0.2)	ug/l
1,4-Dichlorobenzene	ND (0.2)	ug/l
1,3-Dichlorobenzene	ND (0.2)	ug/l
1,2-Dichlorobenzene	2.6 (0.2)	ug/l
Chlorobenzene	0.7 (0.2)	ug/l

Method:
8020 Aromatic Volatile Organics, SW-846, USEPA (1982).
602 Purgeable Aromatics, 40 CFR, Part 136.

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

C. Neal Schaeffer
Senior Chemist

Inter·Mountain
Laboratories, Inc.

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

CLIENT: Bloomfield Refinery
SITE: MW-5
LAB NO: F3586
DATE REPORTED: 01/29/90
DATE ANALYZED: 12/08/90
DATE RECEIVED: 12/01/90
DATE COLLECTED: 12/01/90
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	169.8 (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

* Low level present but also present in reagent water.

Method:
601 Purgeable Halocarbons, 40 CFR Part 136, USEPA (1984).
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

Inter-Mountain Laboratories, Inc.

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

CLIENT: Bloomfield Refinery — DATE REPORTED: 12/27/89

SITE: MW-5 — DATE RECEIVED: 12/01/89
LAB NO: F3586 — DATE COLLECTED: 12/01/89

Lab pH (s.u.)	7.24
Total Dissolved Solids (180), mg/l	4594
Nitrate, mg/l	24.85
Nitrite, mg/l	<0.10
Total Keldahl Nitrogen	3.39
Ammonia, mg/l	0.165
Cyanide, mg/l	<0.005
Phenols, mg/l	0.006

	mg/l	meq/l
Chloride	1715.62	48.40
Sulfate	946.45	19.72

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

	Analytical Result:	Detection Limit:
Arsenic (As)	0.0006	<0.005
Cadmium (Cd)	0.0039	<0.002
Lead (Pb)	0.044	<0.02
Selenium (Se)	0.0003	<0.005

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

	Analytical Result:	Detection Limit:
Boron (B)	0.58	<0.01
Barium (Ba)	ND	<0.5
Chromium (Cr)	ND	<0.02
Iron (Fe)	ND	<0.05
Manganese (Mn)	ND	<0.02

C. Neal Schaeffer
Senior Chemist

iml
Inter-Mountain
Laboratories, Inc.

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

Date: 05/31/89

Client: Bloomfield Refinery
Sample Site: MW-5
IML Sample No: F89183 O
Analysis Requested: Purgeable Aromatics
Sample Matrix: Water

Date Sampled: 05/24/89
Date Received: 05/24/89
Date Extracted: N/A
Date Analyzed: 05/26/89

Parameter	Concentration	Units
BENZENE	ND (0.2)	ug/l
TOLUENE	ND (0.2)	ug/l
ETHYLBENZENE	ND (0.2)	ug/l
m,p-XYLENE	ND (0.2)	ug/l
o-XYLENE	ND (0.2)	ug/l

Method: 8020 Aromatic Volatile Organics, SW-846, USEPA (1982)
602 Purgeable Aromatics, 40 CFR, Part 136

Note: Method Detection Limit (MDL) is given in parenthesis.
ND means analyte was not detected.

C. Neal Schaeffer
Senior Organic Chemist

Inter-Mountain
Laboratories, Inc.

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

31 May 1989

Bloomfield Refining Company
POB 159
Bloomfield, NM 87413

Chris Hawley,

This letter is to document the lost samples I reported to you by telephone. Due to failure of our laboratory equipment (a refrigerator) the following samples were lost: Salmon, MW-1, MW-4, and MW-5. These were received at the lab on 24 May 1989 for 601 analysis (purgeable halocarbons). Please accept my apology for this inconvenience.

Sincerely,

C. Neal Schaeffer
Senior Organic Chemist

Inter·Mountain Laboratories, Inc.
2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

Bloomfield Refining Company
P.O. Box 159, Bloomfield, NM 87413

Trace Metal Analysis
Dissolved Concentrations, mg/l

June 20, 1989

Lab Number	Sample Identification	Arsenic	Barium	Boron	Cadmium	Chromium	Iron	Lead	Manganese
1431	MW-1	<0.005	<0.5	0.03	<0.002	<0.02	0.68	0.05	<0.02
1433	MW-5	<0.005	<0.5	0.41	<0.002	<0.02	<0.05	0.06	<0.02
1434	MW-4	<0.005	1.4	0.50	<0.002	<0.02	0.92	0.03	3.59
Detection Limit:		0.005	0.5	0.01	0.002	0.02	0.05	0.02	0.02

Reviewed by: April V. Gil

April V. Gil
Senior Geologist
Laboratory Director

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

Bloomfield Refining Company
P.O. Box 159, Bloomfield, NM 87413

Water Analysis

June 20, 1989

Lab Number	Sample Identification	Ammonia (mg/l)	Nitrate (mg/l)	Nitrite (mg/l)	TKN (mg/l)	Phenol (mg/l)	Cyanide (mg/l)	TDS (mg/l)	Sulfate mg/l	Sulfate meq/l
1431	MW-1	0.14	0.561	0.02	1.59	0.214	<0.005	3308	653.46	13.61
1433	MW-5	0.1	21.04	0.049	1.24	0.362	<0.005	4196	781.03	16.27
1434	MW-4	<0.1	<0.1	0.058	1.52	0.250	<0.005	1454	7.41	0.154

Reviewed by: April V. Gil

April V. Gil
Senior Geologist
Laboratory Director

Client: Bloomfield Refining Company

Sample ID: MW-5
Laboratory Number: F2143
Analysis Requested: Method 602, 8010
Sample Matrix: Water
Date Sampled: 11/18/88
Date Received: 11/18/88

Parameter	Method	Concentration		Units
BENZENE	602	ND	(0.2)	ug/l
TOLUENE	602	1.86	(0.2)	ug/l
CARBONTETRACHLORIDE	8010	ND	(0.5)	ug/l
1,2-DICHLOROETHENE	8010	ND	(0.5)	ug/l
1,1-DICHLOROETHYLENE	8010	ND	(0.5)	ug/l
1,1,2,2-TETRACHLOROETHYLENE	8010	ND	(0.5)	ug/l
1,1,2-TRICHLOROETHYLENE	8010	ND	(0.5)	ug/l

Method: 602, Purgeable Aromatics, Methods for Organic Chemical Analysis of of Muicipal and Industrial Wastewater, USEPA (1984).

Method: 8010, Halogenated Volatile Organics, SW-846, USEPA (1982).

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

Ron R Richardson

Ron R. Richardson
Laboratory Director

BLOOMFIELD REFINING COMPANY
Attn: Chris Hawley
P.O. Box 159
Bloomfield, NM 87413

December 15, 1988

Re: Water Analysis:

Sample Site: MW-5
Lab No: F2143
Date Sampled: 11/18/88 @ 1100
Date Received:11/18/88

Parameter	
pH, (s.u.)	6.9
Chloride, mg/l	1480
Fluoride, mg/l	0.35
Nitrate + Nitrite as "N", mg/l	27.8
Sulfate, mg/l	777
Total Dissolved Solids @ (180C), mg/l	4080
Phenol, mg/l	0.16
Cyanide, mg/l	<0.01

Trace Metals (Dissolved Concentrations), mg/l

Aluminum	<0.1	Iron	<0.05
Arsenic	<0.005	Lead	0.07
Barium	<0.5	Manganese	<0.02
Boron	0.45	Mercury	<0.001
Cadmium	<0.002	Molybdenum	<0.02
Chromium	<0.02	Nickel	<0.01
Cobalt	<0.01	Selenium	<0.005
Copper	<0.01	Silver	<0.01
		Zinc	<0.01

Inter-Mountain
Laboratories, Inc.

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

Bloomfield Refining Company
Attn: Chris Hawley
Environmental Engineer
PO Box 159
Bloomfield, NM 87413

22 June, 1988

Re: Water Analysis

Sample Site: MW5
IML Lab No: F1450
Date Sampled: 06/03/88
Date Received: 06/06/88

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pH, (s.u.)	
Chloride, mg/l	1300
Fluoride, mg/l	0.22
Nitrate + Nitrite as "N", mg/l	32.9
Sulfate, mg/l	1000
Total Dissolved Solids (180), mg/l	4200
Phenol, mg/l	0.064
Cyanide, mg/l	0.030

Trace Metals (Dissolved Concentrations, mg/l)

Aluminum	-0.1	Iron	-0.05
Arsenic	-0.005	Lead	-0.02
Barium	-0.5	Manganese	1.45
Boron	0.48	Mercury	-0.001
Cadimum	-0.002	Molybdenum	-0.02
Chromium	-0.02	Nickel	0.04
Cobalt	-0.02	Selenium	-0.005
Copper	-0.01	Silver	-0.01
		Zinc	-0.01

Inter-Mountain Laboratories, Inc.

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

Client: Bloomfield Refining Company

Sample ID: MW5
Laboratory Number: F1450
Analysis Requested: Method 602, 8010
Sample Matrix: Water
Date Sampled: 06/03/88
Date Received: 06/06/88

Parameter	Method	Concentration		Units
BENZENE	602	ND	(0.001)	mg/l
TOLUENE	602	ND	(0.001)	mg/l
CARBONTETRACHLORIDE	8010	ND	(0.001)	mg/l
1,2-DICHLOROETHENE	8010	ND	(0.001)	mg/l
1,1-DICHLOROETHYLENE	8010	ND	(0.001)	mg/l
1,1,2,2-TETRACHLOROETHYLENE	8010	ND	(0.001)	mg/l
1,1,2-TRICHLOROETHYLENE	8010	ND	(0.001)	mg/l

Method: 602, Purgeable Aromatics, Methods for Organic Chemical Analysis of of Muicipal and Industrial Wasrewater, USEPA (1984).

Method: 8010, Halogenated Volatile Organics, SW-846, USEPA (1982).

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

Ron R. Richardson
Lab. Director

Inter-Mountain
Laboratories, Inc.

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

Bloomfield Refining Company
Attn: Chris Hawley
Environmental Engineer
PO Box 159
Bloomfield, NM 87413

08 December, 1987

Re: Water Analysis

Sample Site: MW5
IML Lab No: F5746
Date Sampled: 11/17/87
Date Received: 11/17/87

pH, (s.u.)	6.9
Chloride, mg/l	1310
Fluoride, mg/l	0.24
Nitrate + Nitrite as "N", mg/l	36.4
Sulfate, mg/l	1060
Total Dissolved Solids (180), mg/l	4300
Phenol, mg/l	-0.005
Cyanide, mg/l	0.016

Trace Metals (Dissolved Concentrations, mg/l)

Aluminum	-0.1	Iron	-0.05
Arsenic	-0.005	Lead	-0.02
Barium	-0.5	Manganese	-0.02
Boron	0.54	Mercury	-0.001
Cadimum	-0.002	Molybdenum	-0.02
Chromium	-0.02	Nickel	-0.01
Cobalt	-0.02	Selenium	-0.005
Copper	0.01	Silver	-0.01
		Zinc	-0.01

Inter-Mountain
Laboratories, Inc.

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

Client: Bloomfield Refining Company

Sample ID: MW5
Laboratory Number: F5746
Analysis Requested: Method 602, 8010
Sample Matrix: Water
Date Sampled: 11/17/87
Date Received: 11/17/87

Parameter	Method	Concentration		Units
BENZENE	602	ND	(0.001)	mg/l
TOLUENE	602	ND	(0.001)	mg/l
CARBONTETRACHLORIDE	8010	ND	(0.001)	mg/l
1,2-DICHLOROETHENE	8010	ND	(0.001)	mg/l
1,1-DICHLOROETHYLENE	8010	ND	(0.001)	mg/l
1,1,2,2-TETRACHLOROETHYLENE	8010	ND	(0.001)	mg/l
1,1,2-TRICHLOROETHYLENE	8010	ND	(0.001)	mg/l

Method: 602, Purgeable Aromatics, Methods for Organic Chemical Analysis of of Muicipal and Industrial Wasrewater, USEPA (1984).

Method: 8010, Halogenated Volatile Organics, SW-846, USEPA (1982).

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

Ron R. Richardson
Lab. Director

ASSAIGAI ANALYTICAL LABORATORIES

TO: Bloomfield Refining
ATTN: Chris Hawley
PO Box 156
Bloomfield, NM 87413

DATE: 22 June 1987
0856

SAMPLE ID: MW-5

ANALYTE	ANALYTICAL RESULTS	NOMINAL DETECTION LIMITS
As	<0.05 mg/l	0.05 mg/l
Cd	0.026 mg/l	0.01 mg/l
Cr	<0.05 mg/l	0.05 mg/l
Pb	0.20 mg/l	0.05 mg/l
Hg	<0.002 mg/l	0.002 mg/l
Se	0.14 mg/l	0.01 mg/l
Ag	<0.05 mg/l	0.05 mg/l
Ba	<1.0 mg/l	1.0 mg/l
Cu	<0.01 mg/l	0.01 mg/l
Fe	0.19 mg/l	0.04 mg/l
Mn	0.09 mg/l	0.01 mg/l
Zn	0.024 mg/l	0.004 mg/l
Cl	1112 mg/l	0.1 mg/l
SO4	772.4 mg/l	1.0 mg/l
Phenols	0.334 mg/l	0.01 mg/l
CN	<0.005 mg/l	0.005 mg/l
NO 3 as N	27.01 mg/l	0.01 mg/l
Al	<0.1 mg/l	0.1 mg/l
B	0.24 mg/l	0.1 mg/l
Co	0.06 mg/l	0.01 mg/l
Mo	<0.05 mg/l	0.05 mg/l
Ni	0.25 mg/l	0.06 mg/l
F	0.0156 mg/l	0.01 mg/l
TDS	3902 mg/l	1 mg/l
Benzene	<0.001 mg/l	0.001 mg/l
Toluene	<0.001 mg/l	0.001 mg/l
CCl4	<0.08 mg/l	0.08 mg/l
1,2-Dichloroethane	0.72 mg/l	0.001 mg/l
1,1-Dichloroethylene	<0.001 mg/l	0.001 mg/l
Trichloroethylene	<0.001 mg/l	0.001 mg/l
Tetrachloroethylene	<0.001 mg/l	0.001 mg/l

7300 Jefferson, N.E. • Albuquerque, New Mexico 87109 • (505) 345-8964

754 wpa

SCIENTIFIC LABORATORY DIVISION

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

87-0912-C

OF NEW 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

S.L.D. No. OR- 912 A4B

DATE REC. 6-1-87

PRIORITY 3

USER CODE: 8 2 2 3 5

CODE: 2 6 0

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

SAMPLE TYPE: WATER [X], SOIL [ ], FOOD [ ], OTHER: _____ CODE: _____

COUNTY: San Juan ; CITY: Bloomfield CODE: _____

LOCATION CODE: (Township-Range-Section-Tracts) 2 9 N + 1 1 W + 2 6 + 3 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)
- [X] (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

RECEIVED AUG - 3 1987 OIL CONSERVATION DIVISION

Remarks: _____

FIELD DATA:

pH= 7 ; Conductivity= 4350 umho/cm at 14.5 °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.)

Gary Bloomfield MW-5 Bailed with 24" SS bailer well purged previous day. Todays sample from 2nd bail, no 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.
- [X] P-Ice Sample stored in an ice bath (Not Frozen).
- [ ] P-$Na_2S_2O_3$ 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- 912

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 * ✱	1 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: 7/2/87 Analyst's signature: Mary 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 Meyerhein

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

860 WNF

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED 6/1/87	LAB NO. WC-1980	USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235	
Collection DATE 5/25/87	SITE INFORM-ATION	Sample location MW-5 Gary Bloomfield Refinery	
Collection TIME 1025		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

SAMPLING CONDITIONS

☒ Bailed ☐ Dipped ☐ Pump ☐ Tap	Water level	Discharge	Sample type GRAB
pH (00400) 7 (Strip)	Conductivity (Uncorrected) 4350 µmho	Water Temp. (00010) 14.5 °C	Conductivity at 25°C (00094) µmho

Field comments See VOC sheet for comments. No sheen on Hcl vial

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_2SO_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

F NA		Units	Date analyzed
☒ Conductivity (Corrected) 25°C (00095)	5785	µmho	6/19
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☒ Other: pH	7.83		6/10
☐ Other:			
☐ Other:			

A-H_2SO_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	336	mg/l	6/17
☒ Potassium	4.68	mg/l	6/18
☒ Magnesium	144	mg/l	6/17
☒ Sodium	729	mg/l	6/18
☒ Bicarbonate	494	mg/l	6/10
☒ Chloride	1125	mg/l	6/10
☒ Sulfate	865	mg/l	6/12
☒ Total Solids	4024	mg/l	6/14
☐			
☐			
☒ Cation/Anion Balance			

Analyst	Date Reported	Reviewed by
	6/19/87	

Laboratory remarks

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

CATIONS				ANIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT	ANALYTE	MEQ.	PPM	DET. LIMIT
Ca	16.77	336.00	<3.0	HC03	8.10	494.00	<1.0
Mg	11.83	144.00	<0.3	SO4	17.81	855.00	<10.0
Na	31.71	729.00	<10.0	CL	31.73	1125.00	<5.0
K	0.12	4.68	<0.3				
Mn	0.00	0.00		NO3	0.00	0.00	< 0.
Fe	0.00	0.00		C03	0.00	0.00	< 1.
				NH3	0.00	0.00	< 0.
				PO4	0.00	0.00	< 0.
SUMS	60.42	1213.68			57.64	2474.00	

Total Dissolved Solids= 4024

Ion Balance = 104.82%

WC No. = 8701980

Date out/By CD 6/24/87

852 f
WP

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: 6/1/87	LAB NO.: WC-1990	USER CODE: ☐ 59300 ☐ 59600 ☒ OTHER: 82235	
Collection DATE: 5/25/87	SITE INFORMATION ►	Sample location: MW-5 Gary Bloom Field Refinery	
Collection TIME: 1025		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:

SAMPLING CONDITIONS

☒ Bailed ☐ Dipped ☐ Pump ☐ Tap	Water level	Discharge	Sample type: GRAB
pH (00400): 7 (Strip)	Conductivity (Uncorrected): 4350 µmho	Water Temp. (00010): 14.5 °C	Conductivity at 25°C (00094): µmho

Field comments: See VOC sheet for comments: No sheen on HCl vial

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_2SO_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:			
☐ Other:			
☐ Other:			
F A-H_2SO_4			
☒ Nitrate-N +, Nitrate-N total (00630)	34.1	mg/l	6/4
☒ Ammonia-N total (00610)	<0.1	mg/l	6/11
☒ Total Kjeldahl-N ( )	1.59	mg/l	6/23
☐ Chemical oxygen demand (00340)		mg/l	
☐ Total organic carbon ( )		mg/l	
☐ Other:			
☐ Other:			

From ____, NA Sample:

		mg/l	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
	6/23/87	CO

Laboratory remarks:

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

National 45-606 Eye-Ease
45-706

BLOOMFIELD REFINING COMPANY
SAMPLE DATE: DEC. 10, 1986

MW-5

PARAMETER	UNITS	NOMINAL DETECTION LIMITS	NMWQ STANDARD	MONITORING WELL P1	MONITORING WELL P4	MONITORING WELL P5
Arsenic	mg/l	0.05	0.1	<0.05	<0.05	<0.05
Barium	"	0.005	1.0	0.055	2.3	0.010
Cadmium	"	0.01	0.01	<0.01	<0.01	0.01
Chromium	"	0.05	0.05	<0.05	<0.05	<0.05
Lead	"	0.05	0.05	<0.05	<0.05	<0.05
Mercury	"	0.002	0.002	<0.002	<0.002	<0.002
Selenium	"	0.002	0.05	0.03	0.03	0.03
Silver	"	0.05	0.05	<0.05	<0.05	<0.05
Copper	"	0.03	1.0	<0.03	<0.03	<0.03
Iron	"	0.3	1.0	<0.3	18.6	<0.3
Manganese	"	0.005	0.2	1.11	5.70	<0.005
Zinc	"	0.001	10.0	0.012	0.040	0.016
Uranium	"	—	5.0	—	—	—
Chloride	"	1	250.	774.	675.	1118.
Sulfate	"	1	600.	579.	<0.01	1132.
PCB	"	—	0.001	—	—	—
Phenols	"	0.001	0.005	0.012	0.096	0.021
Cyanide	"	0.01	0.2	<0.01	<0.01	<0.01
Nitrate as N	"	0.1	10.	2.9	<0.01	36.
Aluminum	"	0.05	5.	4.54	3.8	4.34
Boron	"	0.004	0.75	0.27	0.7	0.24
Cobalt	"	0.05	0.05	<0.05	<0.05	<0.05
Molybdenum	"	0.01	1.0	0.17	<0.01	0.08
Nickel	"	0.06	0.2	0.06	<0.06	0.07
Fluoride	"	0.01	1.6	0.960	0.410	0.580
TDS	"	1	1000.	2498.	2128.	3788.
Benzene	"	0.001	0.01	<0.001	1.91	<0.001
Toluene	"	0.001	0.75	<0.001	1.78	<0.001
Carbon Tetrachloride	"	0.001	0.01	<0.001	<0.001	<0.001
1,2-Dichloroethane	"	0.001	0.01	0.002	<0.001	<0.001
1,1-Dichloroethylene	"	0.001	0.005	<0.001	<0.001	<0.001
1,1,2,2-Tetrachloroethylene	"	0.001	0.02	<0.001	<0.001	<0.001
1,1,2-Trichloroethylene	"	0.001	0.01	<0.001	<0.001	<0.001
pH	S.U.	0.01	6 TO 9	7.19	6.73	7.29

National Brand 45-606 Eye-Ease 45-706 20/20 Buff Made in USA

BLOOMFIELD REFINING COMPANY

SAMPLE DATE: SEP. 18, 1986

MW-5

	PARAMETER	UNITS	2 NOMINAL DETECTION LIMITS	3 NM WQ STANDARD	4 MONITORING WELL P1	5 MONITORING WELL P4	6 MONITORING WELL P5
1							
2	Arsenic	mg/l	0.002	0.1	0.05	0.08	0.07
3	Barium	"	—	1.0	—	—	—
4	Cadmium	"	0.01	0.01	<0.01	<0.01	<0.01
5	Chromium	"	0.05	0.05	<0.05	<0.05	<0.05
6	Lead	"	0.05	0.05	0.15	<0.05	<0.05
7	Mercury	"	0.002	0.002	<0.002	<0.002	<0.002
8	Selenium	"	0.01	0.05	0.033	0.063	0.030
9	Silver	"	0.05	0.05	<0.05	<0.05	<0.05
10	Copper	"	0.03	1.0	<0.03	<0.03	<0.03
11	Iron	"	—	1.0	—	—	—
12	Manganese	"	—	0.2	—	—	—
13	Zinc	"	0.008	10.0	0.04	<0.008	0.02
14	Uranium	"	—	5.0	—	—	—
15	Chloride	"	1	250.	814	754	1151.
16	Sulfate	"	0.01	600.	673	<0.01	1237.
17	PCB	"	—	0.001	—	—	—
18	Phenols	"	0.001	0.005	0.19	0.085	0.034
19	Cyanide	"	0.01	0.2	0.07	<0.01	0.24
20	Nitrate as N	"	—	10.	—	—	—
21	Aluminum	"	—	5.	—	—	—
22	Boron	"	—	0.75	—	—	—
23	Cobalt	"	—	0.05	—	—	—
24	Molybdenum	"	—	1.0	—	—	—
25	Nickel	"	0.01	0.2	0.07	0.12	0.09
26	Fluoride	"	—	1.6	—	—	—
27	TDS	"	1	1000.	2866.	2308.	3184.
28	Benzene	"	0.001	0.01	ND	6.65	ND
29	Toluene	"	0.001	0.75	ND	0.407	ND
30	Carbon Tetrachloride	"	0.001	0.01	—	ND	—
31	1,2-Dichloroethane	"	0.001	0.01	—	ND	—
32	1,1-Dichloroethylene	"	0.001	0.005	—	ND	—
33	1,1,2,2-Tetrachloroethylene	"	0.001	0.02	—	ND	—
34	1,1,2-Trichloroethylene	"	0.001	0.01	—	ND	—
35	pH	S.U.	0.01	6 TO 9	7.27	6.70	7.19
36							
37							
38							
39							
40							

ASSAIGAI ANALYTICAL LABORATORIES

TO: Bloomfield Refinery
Attn: Chris Hawley
PO Box 159
Bloomfield, NM 87413

DATE: 23 July 1986
1030

SAMPLE ID: MW - 5

ANALYTE	ANALYTICAL RESULTS
CN	0.2 mg/l
TDS	3778 mg/l
Cl	1339.6 mg/l
SO 4	1800 mg/l
Phenols	0.007 mg/l
TOC	21 mg/l
Sb	<0.01 mg/l
As	0.087 mg/l
Be	<0.01 mg/l
Cd	<0.010 mg/l
Cr	<0.050 mg/l
Cu	<0.03 mg/l
Pb	0.055 mg/l
Hg	<0.002 mg/l
Ni	<0.06 mg/l
Se	0.071 mg/l
Ag	<0.050 mg/l
Tl	<0.01 mg/l
Zn	0.02 mg/l
Benzene	ND
Toluene	ND
Xylenes	ND
Ethylbenzene	ND
Ba	<0.01 mg/l
Fe	0.05 mg/l
Mn	0.025 mg/l
Al	2.75 mg/l
B	<0.01 mg/l
Co	<0.05 mg/l
Mo	<0.01 mg/l
F	0.30 mg/l
No 3 as N	12.5 mg/l
1,2-DCE	ND
1,1-DCE	ND
1,1,2,2-TCE	ND
1,1,2-TCE	ND

Field by CA 6/23/86
pH 7.18
Conductivity 5400

7300 Jefferson, N.E. • Albuquerque, New Mexico 87109 • (505) 345-8964

TO: Bloomfield Refinery

0502

Analysis Report
14 May 86

Sample Date: 3/26/86

ANALYTE	SAMPLE ID/ ANALYTICAL RESULTS		
	MW 4	MW 5	MW 7
CN	<0.01 mg/l	<0.01 mg/l	<0.10 mg/l
Phenols	0.633 mg/l	0.006 mg/l	<0.001 mg/l
TOC	110 mg/l	14 mg/l	11 mg/l
TDS	1868 mg/l	3840 mg/l	6076 mg/l
Cl	500 mg/l	1100 mg/l	30 mg/l
SO 4	0.3 mg/l	14.0 mg/l	5.5 mg/l
Benzene	11.8 mg/l	ND	0.015 mg/l
Toluene	7.5 mg/l	ND	0.053 mg/l
Xylenes	ND	ND	ND
Ethylbenzene	0.107 mg/l	ND	0.007 mg/l
Sb	<0.01 mg/l	<0.01 mg/l	<0.01 mg/l
As	<0.050 mg/l	<0.050 mg/l	<0.050 mg/l
Be	<0.01 mg/l	<0.01 mg/l	<0.01 mg/l
Cd	0.060 mg/l	0.10 mg/l	0.050 mg/l
Cr	<0.050 mg/l	<0.050 mg/l	0.050 mg/l
Cu	<0.03 mg/l	<0.03 mg/l	<0.03 mg/l
Pb	0.074 mg/l	0.16 mg/l	<0.050 mg/l
Hg	0.002 mg/l	<0.002 mg/l	<0.002 mg/l
Ni	0.08 mg/l	0.10 mg/l	0.08 mg/l
Se	<0.010 mg/l	<0.010 mg/l	<0.010 mg/l
Ag	<0.050 mg/l	<0.050 mg/l	<0.050 mg/l
Tl	<0.01 mg/l	<0.01 mg/l	<0.01 mg/l
Zn	0.012 mg/l	0.012 mg/l	0.018 mg/l
Acrolein	ND		ND
Acrylonitrile	ND		ND
Bromoform	ND		ND
Carbon Tetrachloride	ND		ND
Chlorobenzene	ND		ND
Chlorodibromomethane	ND		ND
Chloroethane	ND		ND
2-Chloroethylvinyl Ether	ND		ND
Chloroform	ND		ND
Dichlorogromomethane	ND		ND
1,1-Dichloroethane	ND		ND
1.2-Dichloroethane	ND		ND
1,1-Dichloroethylene	ND		ND
1,2-Dichloropropane	ND		ND
1,3-Dichloropropylene	ND		ND

ANALYTE	SAMPLE ID/ ANALYTICAL RESULTS		
	MW 4	MW 5	MW 7
Methyl Bromide	ND		ND
Methyl Chloride	ND		ND
Methylene Chloride	ND		ND
1,1,2,2-Tetrachloroethane	ND		ND
Tetrachloroethylene	ND		ND
1,2-Transdichloroethylne	ND		ND
1,1,1-Trichloroethane	ND		ND
1,1,2-Trichloroethane	ND		ND
Trichloroethylene	ND		ND
Vinyl Chloride	ND		ND
Acid Compounds			
2-chlorophenol	ND		ND
2,4-dichlorophenol	0.200 mg/l		ND
2,4-dimethylphenol	ND		ND
4,6-dinitro-o-cresol	0.100 mg/l		0.013 mg/l
2,4-dinitrophenol	0.050 mg/l		ND
2-nitrophenol	ND		ND
4-nitrophenol	0.090 mg/l		ND
p-chloro-m-cresol	ND		ND
pentachlorophenol	ND		ND
Phenol	0.202 mg/l		ND
2,4,6-trichlorophenol	ND		ND
Base Neutrals			
Acenaphthene	0.044 mg/l		ND
Acenaphthylene	ND		ND
Anthracene	ND		ND
Benzidine	ND		ND
Benzo(a)anthracene	ND		ND
Benzo(a)pyrene	ND		ND
3,4-benzofluoranthene	ND		ND
Benzo(ghi)perylene	ND		ND
Benzo(k)fluoranthene	ND		ND
Bis(2-chloroethoxy)methane	ND		ND
Bis(2-chloroethyl)ether	ND		ND
Bis(2-chloroisopropyl)ether	ND		ND
Bis(2-ethylhexyl)phthalate	ND		ND
4-bromophenyl phenyl ether	ND		ND
Butylbenzyl phthalate	ND		ND
2-chloronaphtalene	ND		ND
4-chlorophenyl phenyl ether	ND		ND
Chrysene	ND		ND

TO: Bloomfield Refinery

0502
Page 4 of 8

ANALYTE	SAMPLE ID/ ANALYTICAL RESULTS		
	MW 4	MW 5	MW 7
Dibenzo(a,h)anthracene	ND		ND
1,2-Dichlorobenzene	ND		ND
1,3-Dichlorobenzene	ND		ND
1,4-Dichlorobenzene	ND		ND
3,3-Dichlorobenzidine	ND		ND
Diethyl phthalate	ND		ND
Dimethyl phthalate	ND		ND
Din-n-butyl phthalate	ND		ND
2,4-dinitrotoluene	ND		ND
2,6-dinitrotoluene	ND		ND
Di-n-octyl phthalate	ND		ND
1,2-diphenylhydrazine	ND		ND
Fluoranthene	ND		ND
Fluorene	0.150 mg/l		ND
Hexachlorobenzene	ND		ND
Hexachlorobutadiene	ND		ND
Hexachlorocyclopentadiene	ND		ND
Hexachloroethane	ND		ND
Indeno(1,2,3-cd)pyrene	ND		ND
Isophorone	ND		ND
Naphthalene	0.036 mg/l		ND
Nitrobenzene	ND		ND
N-nitrosodimethylamine	ND		ND
N-nitrosodie-n-propylamine	ND		ND
N-nitrosodiphenylamine	ND		ND
Phenanthrene	ND		ND
Pyrene	0.166 mg/l		ND
1,2,4-trichlorobenzene	ND		ND

NOMINAL DETECTION LIMITS

CN	0.01 mg/l
Phenols	0.001 mg/l
TOC	0.1 mg/l
TDS	1 mg/l
Cl	1.0 mg/l
SO 4	1.0 mg/l
Benzene	5 mg/l
Toluene	5 mg/l
Xylenes	5 mg/l
Ethylbenzene	5 mg/l
Sb	0.01 mg/l
As	0.050 mg/l
Be	0.01 mg/l
Cd	0.002 mg/l
Cr	0.050 mg/l
Cu	0.03 mg/l
Pb	0.001 mg/l
Hg	0.002 mg/l
Ni	0.01 mg/l
Se	0.010 mg/l
Ag	0.050 mg/l
Tl	0.01 mg/l
Zn	0.01 mg/l

Detection limits for Volatiles, Acid Compounds, and Base/Neutrals are all 0.001 mg/l

An invoice for services is enclosed. Thank you for contacting Assaigai Laboratories.

Sincerely,

Jennifer V. Smith

Jennifer V. Smith, Ph.D.
Laboratory Director

SAMPLE DATE: 8 NOV 85

TO: Bloomfield Refinery

1641
Page 2 of 3

SAMPLE ID: MW-5

ANALYTE	ANALYTICAL RESULTS	NOMINAL DETECTION LIMITS
As	<0.050 mg/l	0.050 mg/l
Ba	<1.0 mg/l	1.0 mg/l
Cd	<0.010 mg/l	0.010 mg/l
Cr	<0.050 mg/l	0.050 mg/l
Pb	<0.050 mg/l	0.050 mg/l
Hg	<0.002 mg/l	0.002 mg/l
Se	0.011 mg/l	0.002 mg/l
Ag	<0.050 mg/l	0.050 mg/l
Cu	0.019 mg/l	0.002 mg/l
Fe	0.089 mg/l	0.05 mg/l
Mn	0.045 mg/l	0.005 mg/l
Zn	0.025 mg/l	0.004 mg/l
U	<1.0 mg/l	1.0 mg/l
Cl	1588.0 mg/l	1.0 mg/l
SO 4	1540.0 mg/l	1.0 mg/l
PCB	<0.001 ppm	0.001 ppm
pH	7.7	0.01
CN	0.04 mg/l	0.01 mg/l
NO 3 as N	8.0 mg/l	0.01 mg/l
Al	0.1 mg/l	0.05 mg/l
B	<0.01 mg/l	0.01 mg/l
Co	0.071 mg/l	0.01 mg/l
Mo	<0.005 mg/l	0.005 mg/l
Ni	0.37 mg/l	0.01 mg/l
F	0.332 mg/l	0.1 mg/l
TDS	4734.0 mg/l	1 mg/l
Phenols	0.02 mg/l	0.01 mg/l
Benzene	<0.001 mg/l	0.001 mg/l
Toluene	<0.001 mg/l	0.001 mg/l
Carbon Tetrachloride	<0.01 mg/l	0.01 mg/l
1,2-Dichloroethane	<0.02 mg/l	0.02 mg/l
1,1-Dichloroethylene	<0.005 mg/l	0.005 mg/l
Tetrachloroethylene	<0.02 mg/l	0.02 mg/l
Trichloroethylene	<0.1 mg/l	<0.1 mg/l

REFERENCES: 1. "Standard Methods for the Examination of Water and Wastewater", 15th Edition, APHA, N.Y., 1980.
2. EPA Method 608

An invoice for services is enclosed. Thank you for contacting Assaigai Laboratories.

Sincerely,

Jennifer V. Smith

Jennifer V. Smith, Ph.D.
Laboratory Director

TO:Bloomfield Refinery Co.

0331

Page 2 of 3

3 April 85

ANALYTE	SAMPLE ID/ ANALYTICAL RESULTS MW-5	NOMINAL DETECTION LIMITS
As	0.011 mg/l	0.002 mg/l
Ba	<1.0 mg/l	1.0 mg/l
Cd	0.046 mg/l	0.010 mg/l
Cr	<0.05 mg/l	0.05 mg/l
Pb	0.046 mg/l	0.001 mg/l
Hg	<0.002 mg/l	0.002 mg/l
Se	0.022 mg/l	0.002 mg/l
Ag	0.037 mg/l	0.03 mg/l
Cu	<0.02 mg/l	0.02 mg/l
Fe	0.095 mg/l	0.05 mg/l
Mn	0.098 mg/l	0.005 mg/l
Zn	0.060 mg/l	0.004 mg/l
U	<0.1 mg/l	0.1 mg/l
Cl	1257.0 mg/l	0.1 mg/l
SO_4	1158.0 mg/l	1.0 mg/l
CB	<0.001 mg/l	0.001 mg/l
pH	7.22	0.01
CN	<0.02 mg/l	0.02 mg/l
NO_3 as N	29.0 mg/l	0.01 mg/l
Al	<0.05 mg/l	0.05 mg/l
B	1.29 mg/l	0.004 mg/l
Co	0.15 mg/l	0.003 mg/l
Mo	<0.01 mg/l	0.01 mg/l
Ni	0.19 mg/l	0.06 mg/l
F	0.391 mg/l	0.01 mg/l
TDS	4758.0 mg/l	1.0 mg/l
Phenols	0.004 mg/l	0.01 mg/l
Benzene	<0.001 mg/l	0.001 mg/l
Toluene	<0.01 mg/l	0.01 mg/l
Carbon Tetrachloride	<0.01 mg/l	0.01 mg/l
1,2-Dichloroethane	<0.02 mg/l	0.02 mg/l
1,1-Dichloroethylene	<0.005 mg/l	0.005 mg/l
1,1,2,2-Tetrachloroethylene	<0.02 mg/l	0.02 mg/l
1,1,2-Trichloroethylene	<0.1 mg/l	0.1 mg/l

REFERENCES: 1" Standard Methods for the Examination of Water and Wastewater", 15th Edition, APHA, N.Y., 1980.
2 EPA Method 608

REPORT TO: David G. Boye[redacted]
New Mexico Oil Conservation Division
P. O. Box 2088
Santa Fe, NM 87501

85-0271-C

LABO[redacted]RY ORG 271 AAB

LAB NUMBER 3-22-85

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. Monitor Well #5 Bloomfield Refinery

City & County Bloomfield, San Juan

Collected (date & time) 0955 3/21/85 By (name) Boyer/Baca

pH=_____; Conductivity= 5400 umho/cm at 14 °C; Chlorine Residual= ~

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

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

Sample bailed from well, 2 casing volumes

I certify that the statements in this block accurately reflect the results of my field analyses, observations and activities. Signed David G Boyer

I certify that I witnessed these field analyses, observations and activities and concur with the statements in this block. Signed Philip 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-$Na_2O_3S_2$: Sample preserved with 3 mg $Na_2O_3S_2$/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- 271

PLEASE CHECK THE APPROPRIATE BOXES BELOW TO INDICATE THE TYPE OF ANALYTICAL SCREENS REQUIRED. WHENEVER POSSIBLE LIST SPECIFIC COMPOUNDS SUSPECTED OR REQUIRED.

QUALITATIVE	QUANTITATIVE	PURGEABLE SCREENS	QUALITATIVE	QUANTITATIVE	EXTRACTABLE SCREENS
		ALIPHATIC HYDROCARBON SCREEN			ALIPHATIC HYDROCARBONS
		AROMATIC HYDROCARBON SCREEN			CHLORINATED HYDROCARBON PESTICIDES
		HALOGENATED HYDROCARBON SCREEN			CHLOROPHENOXY ACID HERBICIDES
		GAS CHROMATOGRAPH/MASS SPECTROMETER			HYDROCARBON FUEL SCREEN
					ORGANOPHOSPHATE PESTICIDES
					POLYCHLORINATED BIPHENYLS (PCB's)
					POLYNUCLEAR AROMATIC HYDROCARBONS
					TRIAZINE HERBICIDES
		SPECIFIC COMPOUNDS			SPECIFIC COMPOUNDS

REMARKS:

ANALYTICAL RESULTS

COMPOUND	[PPB]	COMPOUND	[PPB]
halogenated purgeables	none detected*		
aromatic purgeables	N.D.*		
(benzene, toluene,			
ethyl-benzene, p-xylene,			
m-xylene, o-xylene)			
		* DETECTION LIMIT	1 ug/l

REMARKS: One peak was detected on PID with RT=0.94 (it may be cyclopentadiene); however it was not identified.

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes___ NO X. Seal(s) broken by:_____ date:_____

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

Date(s) of analysis: 26 Mar 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 3 22 85	LAB NO. WC - 1216	USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235	
Collection DATE 3 12 85	SITE INFORM-ATION ►	Sample location Bloomfield Refinery Mon. Well #5	
Collection TIME 0955		Collection site description	
Collected by — Person/Agency Boyer/OCD			

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 Bloomfield Ref.

SAMPLING CONDITIONS

☒ Bailed ☐ Dipped ☐ Pump ☐ Tap	Water level 3/18 41.60 SL	Discharge —	Sample type Grab
pH (00400) —	Conductivity (Uncorrected) 5400 µmho	Water Temp. (00010) 14 °C	Conductivity at 25°C (00094) — µmho

Field comments: Location in middle of field used for land application, bailed 2 casing volumes / rusty

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_2SO_4/L added

☐ **NA:** No acid added ☐ Other-*specify:*

ANALYTICAL RESULTS from SAMPLES

NF, NA		Units	Date analyzed
☒ Conductivity (Corrected) 25°C (00095)	5788	µmho	5/9
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☒ Other: pH	5.77		6/28
☐ Other:			
☐ Other:			

NF, A-H_2SO_4 NA			
☐ 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 ( )	23.4	mg/l	6/13
☐ Other:			
☐ Other:			

NA NF		Units	Date analyzed
☒ Calcium (00915)	428	mg/l	4/15
☒ Magnesium (00925)	196	mg/l	4/15 37.5
☒ Sodium (00930)	863	mg/l	3/28
☒ Potassium (00935)	6.24	mg/l	3/28
☒ Bicarbonate (00440)	195	mg/l	6/28
☒ Chloride (00940)	1631.6	mg/l	4/15
☒ Sulfate (00945)	1439	mg/l	4/4
☒ Total filterable residue (dissolved) (70300) CO_3	4705	mg/l	6/5
☒ Other: Flouride	none 0.32		4/8

F, A-H_2SO_4			
☐ Nitrate-N +, Nitrate-N dissolved (00631)		mg/l	
☐ Ammonia-N dissolved (00608)		mg/l	
☐ Total Kjeldahl-N ( )		mg/l	
☐ Other:			

Analyst	Date Reported	Reviewed by
	7 3 85	

Laboratory remarks

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

GENERAL WATER CHEMISTRY and [redacted]ROGEN ANALYSIS

DATE RECEIVED	3 / 23 / 85
LAB NO.	WC-1224
USER CODE	☐ 59300 ☐ 59600 ☒ OTHER: 82235
Collection DATE	3/21/85
Coll[redacted] TIME	1555
Collected by — Person/Agency	Boyer/OCD
SITE INFORMATION — Sample location	Bloomfield Refinery Mon. Well #5
Collection site description	
Station/well code	
Owner	Bloomfield Ref.

SEND FINAL REPORT TO ►

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87501

Attn: David Boyer

SAMPLING CONDITIONS

☒ Bailed ☐ Pump ☐ Dipped ☐ Tap	Water level 3/18 41.60 ft	Discharge —	Sample type Grab
pH (00400) —	Conductivity (Uncorrected) 5400 µmho	Water Temp. (00010) 14 °C	Conductivity at 25°C (00094) — µmho

Field comments: Location in middle of field used for land application, bailed 3 casing volumes (rusty)

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_2SO_4/L added

[redacted]A: No acid added ☐ Other-*specify*:

ANALYTICAL RESULTS from SAMPLES

NF, NA

		Units	Date analyzed
☐ Conductivity (Corrected) 25°C (00095)		µmho	
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☐ Other:			
☐ Other:			
☐ Other:			

F, NA

		Units	Date analyzed
☐ Calcium (00915)		mg/l	
☐ Magnesium (00925)		mg/l	
☐ Sodium (00930)		mg/l	
☐ Potassium (00935)		mg/l	
☐ Bicarbonate (00440)		mg/l	
☐ Chloride (00940)		mg/l	
☐ Sulfate (00945)		mg/l	
☐ Total filterable residue (dissolved) (70300)		mg/l	
☐ Other:			

NF, A-H_2SO_4

		Units	Date analyzed
☐ Nitrate-N +, Nitrate-N total (00630)		mg/l	
☐ Ammonia-N total (00610)		mg/l	
☐ Total Kjeldahl-N ( )		mg/l	
☐ Chemical oxygen demand (00340)		mg/l	
☐ Total organic carbon ( )		mg/l	
☐ Other:			
☐ Other:			

F, A-H_2SO_4

		Units	Date analyzed
☒ Nitrate-N +, Nitrate-N dissolved (00631)	33.8	mg/l	4/5
☒ Ammonia-N dissolved (00608)	0.21	mg/l	4/22
☒ Total Kjeldahl-N ( )	12.4	mg/l	5/6
☐ Other:			

Analyst	Date Reported	Reviewed by
	5 / 6 / 85	[signature]

[redacted] comments:

SLD 726 (12/84) *DISTRIBUTION:* WHITE — EID, GW&HW Bureau CANARY — WS System PINK — EID Local Office GOLDENROD — SLD

New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 84[redacted]55

HEAVY METALS

GENERAL WATER CHEMISTRY and [redacted]TROGEN ANALYSIS

DATE RECEIVED 3 22 85	LAB NO. HN-492	USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235	
Collection DATE 3/21/85	SITE INFORM-ATION	Sample location Bloomfield Refinery Mon. Well #5	
Co[redacted]n TIME 755		Collection site description	
Collected by — Person/Agency Boyer/OCD			

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 Bloomfield Ref.

SAMPLING CONDITIONS

☒ Bailed ☐ Dipped ☐ Pump ☐ Tap	Water level 3/18 41.60 FL	Discharge —	Sample type Grab
pH (00400) —	Conductivity (Uncorrected) 5400 µmho	Water Temp. (00010) 14 °C	Conductivity at 25°C (00094) — µmho

Field comments: Location in middle of field used for land application, bailed 3 casing volumes (rusty)

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: ~~8 ml H_2SO_4/L added~~ 5 ml HNO_3

[redacted]A: No acid added ☐ Other-*specify:*

ANALYTICAL RESULTS from SAMPLES

NF, NA		Units	Date analyzed
☐ Conductivity (Corrected) 25°C (00095)		µmho	
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☒ Other: ICAPSCAN			
☒ Other: As	.005	mg/l	
☒ Other: Se	<.005	mg/l	

NF, A-H_2SO_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:			

F, NA		Units	Date analyzed
☐ Calcium (00915)		mg/l	
☐ Magnesium (00925)		mg/l	
☐ Sodium (00930)		mg/l	
☐ Potassium (00935)		mg/l	
☐ Bicarbonate (00440)		mg/l	
☐ Chloride (00940)		mg/l	
☐ Sulfate (00945)		mg/l	
☐ Total filterable residue (dissolved) (70300)		mg/l	
☐ Other:			

F, A-H_2SO_4			
☐ Nitrate-N +, Nitrate-N dissolved (00631)		mg/l	
☐ Ammonia-N dissolved (00608)		mg/l	
☐ Total Kjeldahl-N ( )		mg/l	
☐ Other:			

Analyst	Date Reported	Reviewed by
	5 31 85	J. Ashley

La[redacted]ory remarks

SLD 726 (12/84) *DISTRIBUTION:* **WHITE** — EID, GW&HW Bureau **CANARY** — WS System **PINK** — EID Local Office **GOLDENROD** — SLD

ICAP -SCREEN

Lab Number: HM 492

Date Submitted: 3/22/85

By: Boyer

Sample Code: Bloomfield Ref. Mon. Well #5

Date Reported: 5/31/85

By: J. Ashley

Determination	Concentration (µg/ml)
Aluminum	<.10
Barium	<.10
Beryllium	<.10
Boron	.80
Cadmium	<.10
Calcium	600.
Chromium	<.10
Cobalt	<.10
Copper	<.10
Iron	<.10
Lead	<.10
Magnesium	180.
Manganese	.14
Molybdenum	<.10
Nickel	<.10
Silicon	14.
Silver	<.10
Strontium	11.
Tin	<.10
Vanadium	<.10
Yttrium	<.10
Zinc	<.10

ATOMIC ABSORPTION ANALYSES

Arsenic .005 µg/ml

Selenium <.005 µg/ml

Mercury _____ µg/ml

BRUCE S. GARBER
ATTORNEY AT LAW

200 WEST MARCY, SUITE 129
SANTA FE, NEW MEXICO 87504

P.O. BOX 8933
(505) 983-3233

May 15, 1984

Mr. Joe D. Ramey
Director, Energy & Minerals Department
Oil Conservation Division
State Land Office Building
Santa Fe, New Mexico 87501

HAND DELIVERED

Re: Plateau, Inc.

Dear Mr. Ramey:

Enclosed are the U. S. Environmental Protection Agency's analytical results for samples taken the week of March 19, 1984 from monitoring wells 1, 4, and 5 at Plateau, Inc.'s Bloomfield, New Mexico refinery. The location of these wells is indicated on Plate 1 of the March, 1984, Discharge Plan. The wells are designated on that Plate as P 1, P 4 and P 5. As stated in previous correspondence and at meetings between O.C.D. and Plateau representatives, these analytical results should serve to establish existing water quality in the refinery area for purposes of Plateau's Discharge Plan.

Also enclosed is an April 26, 1982 report from Hauser Laboratories. This report contains analytical results for water samples from the North Solar Evaporation Pond. The water discharged to the land application area is taken from the North Solar Evaporation Pond.

Additionally, you have indicated a concern about the frequency of ground water monitoring under the Discharge Plan. Plateau will monitor ground water quarterly for the first year of operations under the plan and semiannually thereafter. I trust that this information is responsive to O.C.D.'s remaining questions on Plateau's Discharge Plan.

Finally, Plateau hereby requests an extension of time to discharge without an approved discharge plan until July 1, 1984. This extension should allow the O.C.D. sufficient time to complete its review of the Discharge Plan.

Thank you for your continuing assistance.

Sincerely yours,

Bruce S. Garber

Bruce S. Garber

BSG/mp
cc: G. S. Smith
D. S. Stockham
P. W. Liscom

EPA ANALYSIS OF ... U'S BLOOMFIELD REFINERY MO... ING WELLS
SAMPLED THE WEEK OF MARCH 19, 1984

INORGANICS (ppm)	WQCC STANDARDS		WELL #1	WELL #4	WELL #5
Aluminum	5.0	(C)	11.6	31.8	76.0
Altimony	---		< 0.02	< 0.02	< 0.02
Arsenic	0.1	(A)	[redacted]	[redacted]	< 0.01
Barium	1.0	(A)	[redacted]	[redacted]	0.3
Beryllium	---		< .005	< .005	< .005
Cadmium	0.01	(A)	[redacted]	[redacted]	< 0.001
Calcium	---		NR	NR	NR
Chromium	0.05	(A)	[redacted]	[redacted]	0.04
Colbalt	0.05	(C)	[redacted]	[redacted]	< 0.05
Copper	1.0	(B)	[redacted]	[redacted]	0.1
Iron	1.0	(B)	[redacted]	[redacted]	70.6
Lead	0.05	(A)	[redacted]	[redacted]	.02
Cyanide	0.2	(A)	NR	NR	NR
Magnesium	---		NR	NR	NR
Maganese	0.2	(B)	[redacted]	[redacted]	.915
Mercury	0.002	(A)	[redacted]	[redacted]	< 0.002
Nickel	0.2	(C)	[redacted]	[redacted]	0.04
Potassium	---		NR	NR	NR
Selenium	0.05	(A)	[redacted]	[redacted]	0.002
Silver	0.05	(A)	[redacted]	[redacted]	< 0.01
Sodium	---		NR	NR	NR
Thallium	---		< 0.01	< 0.01	< 0.01
Tin	---		ND	ND	ND
Vanadium	---		< 0.20	< 0.20	< 0.20
Zinc	10	(B)	[redacted]	[redacted]	0.12

NR - Present but below quantification limits
ND - No detection

No
Flouride
Nitrate
Uranium
Chloride
Molybdenum
Sulfates
TDS
Phenols

Note:
Hauser Report in
Anal. Files
[signature] 11/1/84

	WELL #1	WELL #4	WELL #5
Unknown		0.20	
Alkane		0.28	
Alkane or Benzene Derivative		0.25	
Alkane or Benzene Derivative		0.57	
Butyl Cyclo Hexane		0.086	
Unknown		0.180	
Alkane or Benzene Derivative		0.120	
Unknown		0.240	
Methylpropyl Benzene		0.150	
Unknown		0.340	
Unknown		0.069	
Unknown		0.120	
Undecane		0.420	
Unknown		0.088	
Dodecane		0.160	
Dimethylbenzoicacid		0.200	
Dimethylbenzoicacid		0.120	
Volatile Organic			
Dimethyl Cyclohexane		12.0	

LT - Present but below quantification limits

	WELL #1	WELL #4	WELL #5
ORGANICS			
Acid, Base Neutral			
Benzenedimethyl		98.0	
2-Methyl Napthalene		0.07	
Volatile Organics			
~~Benzene~~		~~9.0~~	
Ethyl Benzene		LT	
Xylene		10.0	
Cyclohexane Methyl		23.0	
Cyclo Hexane Dimethyl		20.0	
Acid, Base, Neutral			
Napthalene		0.20	
Volatile Organics			
2-Methyl Hexane		10.0	
2-Methyl Heptane		22.0	
Octane		45.0	
Unknown		25.0	
Acid, Base, Neutral			
Pentachlorophenol		LT	
Volatile Organics			
2-Methyl Butane		14.0	
Pentane		12.0	
Cyclohexane		18.0	
Methyl Cyclo Pentane		7.1	
Dimethyl Octanol		18.0	
Ethylmethycyclo Pentane		31.0	
Acid, Base, Neutral			
Cycloheptatriene		0.110	
Octane		0.06	
2-Methyloctane		0.92	
Dimethyl Benzene		0.61	
Unknown		0.22	
Nonane		0.22	
Propylcyclohexane		0.10	
Dimethyl Octane		0.14	
Methylnonane		0.17	
Unknown		0.27	
Trimethyl Benzene		0.15	
Unknown		0.13	
Unknown		0.078	

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

3870

ANALYSIS REQUEST FORM

Contract Lab Inter-Mountain Contract No.

OCD Sample No. 8909131614

Collection Date	Collection Time	Collected by —Person/Agency
9/13/89	1614	ANDERSON /OCD

SITE INFORMATION

Sample location BRC GARY REFINERY MW-7

Collection Site Description

Township, Range, Section, Tract: + + +

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

SAMPLING CONDITIONS

- [x] Bailed [ ] Pump [ ] Dipped [ ] Tap
- pH(00400): 8
- Water Temp. (00010): 16.5° C
- Water level
- Discharge
- Sample type: GRAB
- Conductivity (Uncorrected): 3350 µmho
- Conductivity at 25° C µmho

SAMPLE FIELD TREATMENT — *Check proper boxes*

No. of samples submitted: 2 VIALS + 2 AG

- [x] **NF:** Whole sample (Non-filtered)
- [ ] **F:** Filtered in field with 0.45 µ membrane filter
- [ ] **PF:** Pre-filtered w/45 µ membrane filter

- [x] **NA:** No acid added
- [ ] **A:** HCL
- [ ] **A:** 2ml H_2SO_4/L added
- 1 L [ ] **A:** 5ml conc. HNO_3 added
- [ ] **A:** 4ml fuming HNO_3 added

FIELD COMMENTS:

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	[x] 027	Pb	7421
[ ] 003	VOH	8010	[ ] 015	VOC	624	[ ] 028	Hg(L)	7470
[ ] 004	VOH	601	[ ] 016	SVOC	8250	[ ] 031	Se	7740
[x] 005	SUITE	8010-8020	[ ] 017	SVOC	625	[x] 032	ICAP	6010
[ ] 006	SUITE	601-602	[ ] 018	VOC	8260	[x] 033	CATIONS/ANIONS	
[ ] 007	HEADSPACE		[ ] 019	SVOC	8270	[ ] 034	N SUITE	
[ ] 008	PAH	8100	[ ] 020	O&G	9070	[ ] 035	NITRATE	
[ ] 009	PAH	610	[x] 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	

Inter·Mountain
Laboratories, Inc.

OIL CONSERVATION DIVISION
RECEIVED

'89 OCT 24 AM 9 23

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

CLIENT: OCD
ID: 8909131614
SITE: Gary MW-7
LAB NO: F3170
Analysis Requested: Purgeable aromatics in water.

DATE REPORTED: 10/18/89
DATE ANALYZED: 10/04/89
DATE RECEIVED: 09/15/89
DATE COLLECTED: 09/15/89

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

Method:
8020 Aromatic Volatile Organics, SW-846, USEPA (1982)
602 Purgeable Aromatics, 40 CFR, Part 136

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

Notes: Evidence seal intact.
Due to laboratory error two week holding time exceeded.

C. Neal Schaeffer
Senior Chemist

Inter·Mountain
Laboratories, Inc.

OIL CONSERVATION DIVISION
RECEIVED

'89 OCT 24 AM 9 23

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

CLIENT: OCD
ID: 8909131614
SITE: Gary MW-7
LAB NO: F3170
Analysis Requested: Purgeable halocarbons in water.

DATE REPORTED: 10/18/89
DATE ANALYZED: 10/05/89
DATE RECEIVED: 09/15/89
DATE COLLECTED: 09/13/89

Parameter	Concentration	Units
Bromobenzene	ND (1.0)	ug/l
Bromodichloromethane	ND (1.0)	ug/l
Bromoform	ND (1.0)	ug/l
Carbon Tetrachloride	ND (1.0)	ug/l
Chlorobenzene	ND (1.0)	ug/l
Chloroethane	ND (1.0)	ug/l
Chloroform	ND (1.0)	ug/l
Chloromethane	ND (1.0)	ug/l
Dibromochloromethane	ND (1.0)	ug/l
Dibromomethane	ND (1.0)	ug/l
1,2-Dichlorobenzene	ND (1.0)	ug/l
1,3-Dichlorobenzene	ND (1.0)	ug/l
1,4-Dichlorobenzene	ND (1.0)	ug/l
Dichlorodifluoromethane	ND (1.0)	ug/l
1,1-Dichloroethane	ND (1.0)	ug/l
1,2-Dichloroethane	ND (1.0)	ug/l
1,1-Dichloroethene	ND (1.0)	ug/l
trans-1,2-Dichloroethene	ND (1.0)	ug/l
1,2-Dichloropropane	ND (1.0)	ug/l
1,3-Dichloropropylene	ND (1.0)	ug/l
2,2-Dichloropropane	ND (1.0)	ug/l
Dichloromethane	ND (1.0)	ug/l
1,1,1,2-Tetrachloroethane	ND (1.0)	ug/l
1,1,2,2-Tetrachloroethane	ND (1.0)	ug/l
Tetrachloroethene	ND (1.0)	ug/l
1,1,1-Trichloroethane	ND (1.0)	ug/l
1,1,2-Trichloroethane	ND (1.0)	ug/l
Trichloroethene	ND (1.0)	ug/l
Trichlorofluoromethane	ND (1.0)	ug/l
1,2,3-Trichloropropane	ND (1.0)	ug/l
Benzyl Chloride	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.

Notes: Evidence seal intact.
Due to laboratory error two week holding time exceeded.

C. Neal Schaeffer
Senior Chemist

OIL CONSERVATION DIVISION
RECEIVED

'89 OCT 24 AM 9 23

Inter-Mountain
Laboratories, Inc.

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

CLIENT: OCD
SAMPLE: 8909131614
SITE: Gary MW-7
LAB NO: F3170

DATE REPORTED: 10/03/89
DATE RECEIVED: 09/15/89
DATE COLLECTED: 09/13/89

Lab pH	7.65
Lab Conductivity, umhos/cm	9027
Lab resistivity, ohm-m	1.1078
Total Dissolved Solids (180), mg/l	7616
Total Dissolved Solids (calc), mg/l	7647
Total Alkalinity as CaCO3, mg/l	130.92
Total Acidity as CaCO3, mg/l	0.00
Total Hardness as CaCO3, mg/l	947.34
Sodium Absorption Ratio	28.56

	mg/l	meq/l
Bicarbonate as HCO3	159.72	2.62
Carbonate as CO3	0.00	0.00
Chloride	29.74	0.84
Sulfate	5144.57	107.18
Calcium	336.88	16.81
Magnesium	25.98	2.14
Potassium	10.50	0.27
Sodium	2021.00	87.91
Major Cations		107.12
Major Anions		110.64
Cation/Anion Difference		1.61 %

Inter·Mountain
Laboratories, Inc.

OIL CONSERVATION DIVISION
RECEIVED

'89 OCT 24 AM 9 23

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

CLIENT: OCD
SAMPLE: 8909131614
SITE: Gary MW-7
LAB NO: F3170

DATE REPORTED: 10/03/89
DATE RECEIVED: 09/15/89
DATE COLLECTED: 09/13/89

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

	Analytical Result:	Detection Limit:
Silver (Ag)	ND	<0.05
Aluminum (Al)	0.3	<0.1
Boron (B)	0.31	<0.01
Barium (Ba)	ND	<0.5
Cobalt (Co)	ND	<0.02
Chromium (Cr)	ND	<0.02
Copper (Cu)	ND	<0.01
Iron (Fe)	0.46	<0.05
Manganese (Mn)	0.14	<0.02
Molybdenum (Mo)	ND	<0.02
Nickel (Ni)	ND	<0.01
Silicon (Si)	4.2	<0.05
Titanium (Ti)	ND	<0.05
Uranium (U)	ND	<0.1
Cadmium (Cd)	ND	<0.002
Arsenic (As)	ND	<0.005
Lead (Pb)	0.31	<0.02

C. Neal Schaeffer
Lab Director

ASSAIGAI ANALYTICAL LABORATORIES

TO: Bloomfield Refinery
Attn: Chris Hawley
PO Box 159
Bloomfield, NM 87413

DATE: 23 July 1986
1030

SAMPLE ID: MW - 7

ANALYTE	ANALYTICAL RESULTS
CN	0.25 mg/l
TDS	6406 mg/l
Cl	79.9 mg/l
SO 4	2400 mg/l
Phenols	0.006 mg/l
TOC	4 mg/l
Sb	<0.01 mg/l
As	0.36 mg/l
Be	<0.01 mg/l
Cd	0.030 mg/l
Cr	0.052 mg/l
Cu	<0.03 mg/l
Pb	0.24 mg/l
Hg	<0.002 mg/l
Ni	0.07 mg/l
Se	0.65 mg/l
Ag	0.060 mg/l
Tl	<0.01 mg/l
Zn	0.016 mg/l
Volatiles	
Acrolein	ND
Acrylonitrile	ND
Benzene	ND
Bromoform	ND
Carbon Tetrachloride	ND
Chlorobenzene	ND
Chlorodibromomethane	ND
Chloroethane	ND
2-Chloroethylvinyl ether	ND
Chloroform	ND
Dichlorobromomethane	ND
1,1-Dichloroethane	ND
1,2-Dichloroethane	ND
1,1-Dichloroethylene	ND
1,2-Dichloropropane	ND
1,2-Dichloropropylene	ND
Ethylbenzene	ND

Field by CLA 6/25/86

pH 11.08

Conductivity 8100

7300 Jefferson, N.E. • Albuquerque, New Mexico 87109 • (505) 345-8964

SAMPLE ID: MW - 7

ANALYTE	ANALYTICAL RESULTS
Methyl Bromide	ND
Methyl Chloride	ND
Methylene Chloride	ND
1,1,2,2-Tetrachloroethane	ND
Tetrachloroethylene	ND
Toluene	ND
1,2-Transdichloroethylene	ND
1,1,1-Trichloroethane	ND
1,1,2-Trichloroethane	ND
Trichloroethylene	ND
Vinyl Chloride	ND
Acid Compounds	
2-Chlorophenol	ND
2,4-Dichlorophenol	ND
2,4-Dimethylphenol	ND
4,6-Dinitro-o-cresol	ND
2,4-Dinitrophenol	ND
2-Nitrophenol	ND
4-Nitrophenol	ND
P-chloro-m-cresol	ND
pentachlorophenol	ND
Phenol	ND
2,4,6-Trichlorophenol	ND
Base Neutrals	
Acenaphthene	ND
Acenaphthylene	ND
Anthracene	ND
Benzidine	ND
Benzo(a)anthracene	0.001 mg/l
Benzo(a)pyrene	ND
3,4-Benzofluoranthene	ND
Benzo(g,h,i)perylene	ND
Benzo(k)fluoranthene	ND
Bis(2-chloroethoxy)methane	ND
Bis(2-chlroroethyl)ether	ND
Bis(2-chloroisopropyl)ether	ND
Bis(2-ethylhexyl)phthalate	ND
4-Bromophenyl phenyl ether	ND
Butylbenzyl phthalate	ND
2-Chloronapthalene	ND
4-Chlorophenyl phenyl ether	ND
Chrysene	0.002 mg/l

SAMPLE ID: MW - 7

ANALYTE	ANALYTICAL RESULTS
Dibenzo(a,h)anthracene	ND
1,2-Dichlorobenzene	ND
1,3-Dichlorobenzene	ND
1,4-Dichlorobenzene	ND
3,3-Dichlorobenzidine	ND
Diethyl phthalate	ND
Dimethyl phthalate	ND
Din-n-butyl phthalate	ND
2,4-Dinitrotoluene	ND
2,6-Dinitrotoluene	ND
Di-n-octyl phthalate	ND
1,2-Diphenylhydrazine	ND
Fluoranthene	ND
Fluorene	ND
Hexachlorobenzene	ND
Hexachlorobutadiene	ND
Hexachlorocyclopentadiene	ND
Hexachloroethane	ND
Indeno(1,2,3-cd)pyrene	ND
Isophorone	ND
Naphthalene	ND
Nitrobenzene	ND
N-nitrosodimethylamine	ND
N-nitrosodie-n-propylamine	ND
N-nitrosodiphenylamine	ND
Phenanthrene	ND
Pyrene	ND
1,2,4-Trichlorobenzene	ND

ND = None Detected

TO: Bloomfield Refinery

0502

Analysis Report
14 May 86

Sample date: 3/26/86

ANALYTE	SAMPLE ID/ ANALYTICAL RESULTS		
	MW 4	MW 5	MW 7
CN	<0.01 mg/l	<0.01 mg/l	<0.10 mg/l
Phenols	0.633 mg/l	0.006 mg/l	<0.001 mg/l
TOC	110 mg/l	14 mg/l	11 mg/l
TDS	1868 mg/l	3840 mg/l	6076 mg/l
Cl	500 mg/l	1100 mg/l	30 mg/l
SO 4	0.3 mg/l	14.0 mg/l	5.5 mg/l
Benzene	11.8 mg/l	ND	0.015 mg/l
Toluene	7.5 mg/l	ND	0.053 mg/l
Xylenes	ND	ND	ND
Ethylbenzene	0.107 mg/l	ND	0.007 mg/l
Sb	<0.01 mg/l	<0.01 mg/l	<0.01 mg/l
As	<0.050 mg/l	<0.050 mg/l	<0.050 mg/l
Be	<0.01 mg/l	<0.01 mg/l	<0.01 mg/l
Cd	0.060 mg/l	0.10 mg/l	0.050 mg/l
Cr	<0.050 mg/l	<0.050 mg/l	0.050 mg/l
Cu	<0.03 mg/l	<0.03 mg/l	<0.03 mg/l
Pb	0.074 mg/l	0.16 mg/l	<0.050 mg/l
Hg	0.002 mg/l	<0.002 mg/l	<0.002 mg/l
Ni	0.08 mg/l	0.10 mg/l	0.08 mg/l
Se	<0.010 mg/l	<0.010 mg/l	<0.010 mg/l
Ag	<0.050 mg/l	<0.050 mg/l	<0.050 mg/l
Tl	<0.01 mg/l	<0.01 mg/l	<0.01 mg/l
Zn	0.012 mg/l	0.012 mg/l	0.018 mg/l
Acrolein	ND		ND
Acrylonitrile	ND		ND
Bromoform	ND		ND
Carbon Tetrachloride	ND		ND
Chlorobenzene	ND		ND
Chlorodibromomethane	ND		ND
Chloroethane	ND		ND
2-Chloroethylvinyl Ether	ND		ND
Chloroform	ND		ND
Dichlorogromomethane	ND		ND
1,1-Dichloroethane	ND		ND
1.2-Dichloroethane	ND		ND
1,1-Dichloroethylene	ND		ND
1,2-Dichloropropane	ND		ND
1,3-Dichloropropylene	ND		ND

TO: Bloomfield Refinery

0502

ANALYTE	SAMPLE ID/ ANALYTICAL RESULTS		
	MW 4	MW 5	MW 7
Methyl Bromide	ND		ND
Methyl Chloride	ND		ND
Methylene Chloride	ND		ND
1,1,2,2-Tetrachloroethane	ND		ND
Tetrachloroethylene	ND		ND
1,2-Transdichloroethylne	ND		ND
1,1,1-Trichloroethane	ND		ND
1,1,2-Trichloroethane	ND		ND
Trichloroethylene	ND		ND
Vinyl Chloride	ND		ND
Acid Compounds			
2-chlorophenol	ND		ND
2,4-dichlorophenol	0.200 mg/l		ND
2,4-dimethylphenol	ND		ND
4,6-dinitro-o-cresol	0.100 mg/l		0.013 mg/l
2,4-dinitrophenol	0.050 mg/l		ND
2-nitrophenol	ND		ND
4-nitrophenol	0.090 mg/l		ND
p-chloro-m-cresol	ND		ND
pentachlorophenol	ND		ND
Phenol	0.202 mg/l		ND
2,4,6-trichlorophenol	ND		ND
Base Neutrals			
Acenaphthene	0.044 mg/l		ND
Acenaphthylene	ND		ND
Anthracene	ND		ND
Benzidine	ND		ND
Benzo(a)anthracene	ND		ND
Benzo(a)pyrene	ND		ND
3,4-benzofluoranthene	ND		ND
Benzo(ghi)perylene	ND		ND
Benzo(k)fluoranthene	ND		ND
Bis(2-chloroethoxy)methane	ND		ND
Bis(2-chloroethyl)ether	ND		ND
Bis(2-chloroisopropyl)ether	ND		ND
Bis(2-ethylhexyl)phthalate	ND		ND
4-bromophenyl phenyl ether	ND		ND
Butylbenzyl phthalate	ND		ND
2-chloronaphtalene	ND		ND
4-chlorophenyl phenyl ether	ND		ND
Chrysene	ND		ND

TO: Bloomfield Refinery

0502

ANALYTE	SAMPLE ID/ ANALYTICAL RESULTS		
	MW 4	MW 5	MW 7
Dibenzo(a,h)anthracene	ND		ND
1,2-Dichlorobenzene	ND		ND
1,3-Dichlorobenzene	ND		ND
1,4-Dichlorobenzene	ND		ND
3,3-Dichlorobenzidine	ND		ND
Diethyl phthalate	ND		ND
Dimethyl phthalate	ND		ND
Din-n-butyl phthalate	ND		ND
2,4-dinitrotoluene	ND		ND
2,6-dinitrotoluene	ND		ND
Di-n-octyl phthalate	ND		ND
1,2-diphenylhydrazine	ND		ND
Fluoranthene	ND		ND
Fluorene	0.150 mg/l		ND
Hexachlorobenzene	ND		ND
Hexachlorobutadiene	ND		ND
Hexachlorocyclopentadiene	ND		ND
Hexachloroethane	ND		ND
Indeno(1,2,3-cd)pyrene	ND		ND
Isophorone	ND		ND
Naphthalene	0.036 mg/l		ND
Nitrobenzene	ND		ND
N-nitrosodimethylamine	ND		ND
N-nitrosodie-n-propylamine	ND		ND
N-nitrosodiphenylamine	ND		ND
Phenanthrene	ND		ND
Pyrene	0.166 mg/l		ND
1,2,4-trichlorobenzene	ND		ND

NOMINAL DETECTION LIMITS

CN	0.01 mg/l
Phenols	0.001 mg/l
TOC	0.1 mg/l
TDS	1 mg/l
Cl	1.0 mg/l
SO 4	1.0 mg/l
Benzene	5 mg/l
Toluene	5 mg/l
Xylenes	5 mg/l
Ethylbenzene	5 mg/l
Sb	0.01 mg/l
As	0.050 mg/l
Be	0.01 mg/l
Cd	0.002 mg/l
Cr	0.050 mg/l
Cu	0.03 mg/l
Pb	0.001 mg/l
Hg	0.002 mg/l
Ni	0.01 mg/l
Se	0.010 mg/l
Ag	0.050 mg/l
Tl	0.01 mg/l
Zn	0.01 mg/l

Detection limits for Volatiles, Acid Compounds, and Base/Neutrals are all 0.001 mg/l

An invoice for services is enclosed. Thank you for contacting Assaigai Laboratories.

Sincerely,

Jennifer V. Smith

Jennifer V. Smith, Ph.D.
Laboratory Director

~~SCIENTIFIC LABORATORY DIVISION~~
~~Organic Section - Phone: 841-2570~~

ORGANIC ANALYSIS REQUEST FORM

F89156

#77-521.07-123

REPORT TO: DAVID BOYER
N.M. OIL CONSERVATION DIVISION
P.O. Box 2088
Santa Fe, NM 87504-2088

S.L.D. No. OR-
DATE REC.
PRIORITY
PHONE(S): 827-5812

COLLECTION CITY: Bloomfield ; COUNTY: San Juan

COLLECTION DATE/TIME CODE: (Year-Month-Day-Hour-Minute) |8|9|0|4|2|7|1|2|2|5|

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

USER CODE: |8|2|2|3|5| SUBMITTER: David Boyer CODE: |2|6|0|

SAMPLE TYPE: WATER |_|, SOIL |_|, FOOD |_|, OTHER:

This form accompanies 3 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-AA Sample Preserved with Ascorbic Acid to remove chlorine residual.
- ☑ P-HCl Sample Preserved with Hydrochloric Acid (2 drops/40 ml)

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 Headspace (1-5 Carbons)
- ☒ (754) Aromatic & Halogenated Purgeables
- ☐ (765) Mass Spectrometer Purgeables
- ☐ (766) Trihalomethanes
- ☐ (774) SDWA VOC's I (8 Regulated +)
- ☐ (775) SDWA VOC's II (EDB & DBCP)

Other Specific Compounds or Classes

- ☐ _____
- ☐ _____

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
- ☐ (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= 4100 umho/cm at 15 °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.)

Gary BRC - MW #8, No odor

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 Car

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 ☐ OR Seals Intact: Yes ☐ No ☐

Signatures _____ _____

For OCD use: Date owner notified: 9/11/89 Phone or (Letter)? Initials MB

All parameters

ANALYSES PERFORMED LAB. No.: OR-

THIS PAGE FOR LABORATORY RESULTS ONLY

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

PURGEABLE SCREENS

- ☐ (753) Aliphatic Headspace (1-5 Carbons)
- ☐ (754) Aromatic & Halogenated Purgeables
- ☐ (765) Mass Spectrometer Purgeables
- ☐ (766) Trihalomethanes
- ☐ (774) SDWA VOC's I (8 Regulated +)
- ☐ (775) SDWA VOC's II (EDB & DBCP)

Other Specific Compounds or Classes

- ☐ _____
- ☐ _____

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
- ☐ (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]
* 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) Not Sealed ☐ 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: _____

Inter·Mountain
Laboratories, Inc.

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

Report Date: 05/15/89

Client:	New Mexico OCD		
Sample ID:	8904271225	Date Sampled:	04/27/89
Laboratory Number:	F891560	Date Received:	04/28/89
Analysis Requested:	Purgeable Aromatics	Date Extracted:	NA
Sample Matrix:	Water	Date Analyzed:	05/05/89

Parameter	Concentration	Units
BENZENE	4.1 (0.2)	ug/l
TOLUENE	ND (0.2)	ug/l
ETHYLBENZENE	ND (0.2)	ug/l
m,p-XYLENE	ND (0.2)	ug/l
o-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.

Jack M. Morgan
Senior Organic Chemist

RECEIVED
MAY 23 1989
OIL CONSERVATION DIV.
SANTA FE

Inter·Mountain
Laboratories, Inc.

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

RECEIVED
MAY 22 1989
OIL CONSERVATION DIV.
SANTA FE

Report Date: 05/09/89

Client: New Mexico OCD
Sample ID: 8904271225
IML Sample No: F891560
Analysis Requested: Purgeable Halocarbons
Sample Matrix: Water

Date Sampled: 04/27/89
Date Received: 04/28/89
Date Extracted: N/A
Date Analyzed: 05/03/89

Parameter	Concentration	Units
CHLOROMETHANE	ND (1.0)	ug/l
BROMOMETHANE	ND (1.0)	ug/l
DICHLORODIFLUOROMETHANE	ND (1.0)	ug/l
VINYL CHLORIDE	ND (1.0)	ug/l
CHLOROETHANE	ND (1.0)	ug/l
METHYLENE CHLORIDE	ND (10.0) *	ug/l
TRICHLOROFLUOROMETHANE	ND (1.0)	ug/l
1,1-DICHLOROETHENE	ND (0.1)	ug/l
1,1-DICHLOROETHANE	ND (0.1)	ug/l
TRANS-1,2-DICHLOROETHENE	ND (0.1)	ug/l
CHLOROFORM	ND (0.1)	ug/l
1,2-DICHLOROETHANE	ND (0.1)	ug/l
1,1,1-TRICHLOROETHANE	ND (0.1)	ug/l
CARBON TETRACHLORIDE	ND (0.1)	ug/l
BROMODICHLOROMETHANE	ND (0.1)	ug/l
1,2-DICHLOROPROPANE	ND (0.1)	ug/l
CIS-1,3-DICHLOROPROPENE	ND (0.1)	ug/l
TRICHLOROETHENE	ND (0.1)	ug/l
DIBROMOCHLOROMETHANE	ND (0.1)	ug/l
1,1,2-TRICHLOROETHANE	ND (0.1)	ug/l
TRANS-1,3-DICHLOROPROPENE	ND (0.1)	ug/l
2-CHLOROETHYLVINYL ETHER	ND (0.1)	ug/l
BROMOFORM	ND (0.5)	ug/l
1,1,2,2-TETRACHLOROETHANE	ND (0.1)	ug/l
TETRACHLOROETHENE	ND (0.1)	ug/l
CHLOROBENZENE	ND (0.1)	ug/l
1,2-DICHLOROBENZENE	ND (0.1)	ug/l
1,3-DICHLOROBENZENE	ND (0.1)	ug/l
1,4-DICHLOROBENZENE	ND (0.1)	ug/l
CIS-1,2-DICHLOROETHENE	ND (0.1)	ug/l

Method: 601 Purgeable Halocarbons, 40 CFR Part 136, USEPA (1984).

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

* High background in laboratory on this day.

Jack M. Morgan
Senior Organic Chemist

Inter·Mountain
Laboratories, Inc.

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

RECEIVED
MAY 22 1989
OIL CONSERVATION DIV.
SANTA FE

** Quality Assurance Report
Matrix Duplicate Analysis

Report Date: 05/09/89

Client: New Mexico OCD
Sample ID: 8904271225
IML Sample No: F891560
Analysis Requested: Purgeable Halocarbons
Sample Matrix: Water

Date Sampled: 04/27/89
Date Received: 04/28/89
Date Extracted: N/A
Date Analyzed: 05/03/89

Parameter	Concentration	Units
CHLOROMETHANE	ND (1.0)	ug/l
BROMOMETHANE	ND (1.0)	ug/l
DICHLORODIFLUOROMETHANE	ND (1.0)	ug/l
VINYL CHLORIDE	ND (1.0)	ug/l
CHLOROETHANE	ND (1.0)	ug/l
METHYLENE CHLORIDE	ND (10.0) *	ug/l
TRICHLOROFLUOROMETHANE	ND (1.0)	ug/l
1,1-DICHLOROETHENE	ND (0.1)	ug/l
1,1-DICHLOROETHANE	ND (0.1)	ug/l
TRANS-1,2-DICHLOROETHENE	ND (0.1)	ug/l
CHLOROFORM	ND (0.1)	ug/l
1,2-DICHLOROETHANE	ND (0.1)	ug/l
1,1,1-TRICHLOROETHANE	ND (0.1)	ug/l
CARBON TETRACHLORIDE	ND (0.1)	ug/l
BROMODICHLOROMETHANE	ND (0.1)	ug/l
1,2-DICHLOROPROPANE	ND (0.1)	ug/l
CIS-1,3-DICHLOROPROPENE	ND (0.1)	ug/l
TRICHLOROETHENE	ND (0.1)	ug/l
DIBROMOCHLOROMETHANE	ND (0.1)	ug/l
1,1,2-TRICHLOROETHANE	ND (0.1)	ug/l
TRANS-1,3-DICHLOROPROPENE	ND (0.1)	ug/l
2-CHLOROETHYLVINYL ETHER	ND (0.1)	ug/l
BROMOFORM	ND (0.5)	ug/l
1,1,2,2-TETRACHLOROETHANE	ND (0.1)	ug/l
TETRACHLOROETHENE	ND (0.1)	ug/l
CHLOROBENZENE	ND (0.1)	ug/l
1,2-DICHLOROBENZENE	ND (0.1)	ug/l
1,3-DICHLOROBENZENE	ND (0.1)	ug/l
1,4-DICHLOROBENZENE	ND (0.1)	ug/l
CIS-1,2-DICHLOROETHENE	ND (0.1)	ug/l

Method: 601 Purgeable Halocarbons, 40 CFR Part 136, USEPA (1984).

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

* High background in laboratory on this day.

Jack M. Morgan
Senior Organic Chemist

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

859 WMF

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED 05 02 89	LAB NO. WC 1351	USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235	
Collection DATE 89 04 27	SITE INFORM-ATION ►	Sample location GARY BRC MW-8	
Collection TIME 1225		Collection site description	
Collected by — Person/Agency BOYER /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

RECEIVED
JUN 27 1989
OIL CONSERVATION DIV.
SANTA FE

Station/ well code

Owner

SAMPLING CONDITIONS

☒ Bailed ☐ Dipped ☐ Pump ☐ Tap	Water level 29.43	Discharge	Sample type GRAB
pH (00400) 7	Conductivity (Uncorrected) 4100 µmho	Water Temp. (00010) 15 °C	Conductivity at 25°C (00094) µmho

Field comments No odor TD 34.98' purged 25 gallons

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_2SO_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)	5463	µmho	5/15
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☒ Other: lab pH	7.86		5/9
☐ Other:			
☐ Other:			

A-H_2SO_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	496	mg/l	5/10
☒ Potassium	7	mg/l	5/4
☒ Magnesium	95.2	mg/l	5/10
☒ Sodium	714	mg/l	5/4
☒ Bicarbonate	277	mg/l	5/9
☒ Chloride	1260	mg/l	
☒ Sulfate	1122	mg/l	6/9
☒ Total Solids	4240	mg/l	5-3
☐			
☐			
☒ Cation/Anion Balance			

Analyst	Date Reported	Reviewed by
	6/13/89	

Laboratory remarks
1260

Fo

OCD USE -- Date Owner Notified _____ Phone or Letter? _____ Initals _____

CATIONS				ANIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT	ANALYTE	MEQ.	PPM	DET. LIMIT
[redacted]	24.75	496.00	<3.0	HC03	4.54	277.00	<1.0
Mg	7.82	95.20	<0.3	SO4	23.38	1122.00	<10.0
Na	31.06	714.00	<10.0	CL	35.54	1260.00	<5.0
K	0.18	7.00	<0.3				
Mn	0.00	0.00		NO3	0.00	0.00	< 0.
Fe	0.00	0.00		C03	0.00	0.00	< 1.
				NH3	0.00	0.00	< 0.
				PO4	0.00	0.00	< 0.
SUMS	63.81	1312.20			63.46	2659.00	

Total Dissolved Solids= 4240

Ion Balance = 100.55%

WC No. = 8901351

Date out/By [redacted]

RECEIVED
JUN 27 1989
OIL CONSERVATION DIV.
SANTA FE

WPF 852

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 05/02/89	LAB NO. WC 1359	USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235	
Collection DATE 89/04/27	SITE INFORM-ATION ►	Sample location GARY BRC MW-8	
Collection TIME 1225		Collection site description	
Collected by — Person/Agency Boyer /OCD			

SEND FINAL REPORT TO ►

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

RECEIVED
MAY 30 1989
OIL CONSERVATION DIV.
SANTA FE

Attn: David Boyer

Phone: 827-5812

Station/well code

Owner

SAMPLING CONDITIONS

☒ Bailed ☐ Dipped ☐ Pump ☐ Tap	Water level	Discharge	Sample type Grab
pH (00400) 7	Conductivity (Uncorrected) 4100 µmho	Water Temp. (00010) 15 °C	Conductivity at 25°C (00094) µmho
Field comments No odor			

SAMPLE FIELD TREATMENT — *Check proper boxes*

No. of samples submitted 1

☐ **NF:** Whole sample (Non-filtered) ☒ **F:** Filtered in field with 0.45 µmembrane filter ☒ **A:** 2 ml H_2SO_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:			
☐ Other:			
☐ Other:			

A-H_2SO_4			
☒ Nitrate-N +, Nitrate-N total (00630)	10.8	mg/l	5/15
☒ Ammonia-N total (00610)	<0.1	mg/l	5/8
☒ Total Kjeldahl-N ( )	0.75	mg/l	5/23
☐ 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
	5/24/89	

Laboratory remarks

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

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	05/02/89	Lab No.	ICAP 217	User Code	☒ 82235	☐ Other:

COLLECTION DATE & TIME: yy 89 mm 04 dd 27 hh 12 mm 25

COLLECTED BY: BOYER

COLLECTION SITE DESCRIPTION: GARY BRC

MW-8

TO:

OWNER:

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

ATTN: DAVID BOYER
TELEPHONE: 827-5812

SITE LOCATION:
County: San Juan

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

STATION/ WELL CODE:

LATITUDE, LONGITUDE:

SAMPLING CONDITIONS:

☒ Bailed ☐ Dipped	☐ Pump ☐ Tap	Water Level:	Discharge:	Sample Type: GRAB

pH(00400)	Conductivity(Uncorr.)	Water Temp.(00010)	Conductivity at 25°C (00094)
7	4180 µmho	15 °C	µmho

FIELD COMMENTS: NO odor

SAMPLE FIELD TREATMENT Check proper boxes:		LAB ANALYSIS REQUESTED:
☐ 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.

ANALYTICAL RESULTS (MG/L)

ELEMENT	ICAP VALUE		AA VALUE	ELEMENT	ICAP VALUE		AA VALUE
Aluminum	<0.1			Silicon	5.6		
Barium	<0.1			Silver	<0.1	☐	
Beryllium	<0.1			Strontium	7.9		
Boron	0.3			Tin	<0.1		
Cadmium	<0.1	☐		Vanadium	<0.1		
Calcium	460.			Zinc	<0.1		
Chromium	<0.1	☒	0.030	Arsenic		☒	<0.005
Cobalt	<0.05			Selenium		☐	
Copper	<0.1			Mercury		☐	
Iron	0.5					☐	
Lead	<0.1	☒	<0.005			☐	
Magnesium	87.					☐	
Manganese	5.0					☐	
Molybdenum	<0.1					☐	
Nickel	1.1					☐	

LAB COMMENTS: Digest

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

ICAP Analyst JTA
Date Analyzed 7/10/89

Reviewer Jim Ashby
Date Reveived 8/21/89

754 wpw

SCIENTIFIC LABORATORY DIVISION

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

87-0911-C

NEW MEXICO HEALTH 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- 911 A+B
DATE REC. 6-1-87
PRIORITY

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

SAMPLE COLLECTION CODE: (YYMMDDHHMMIII) 870528 1 1 5 5 A+B

SAMPLE TYPE: WATER [X] SOIL [ ], FOOD [ ], OTHER: _____ CODE: _____

COUNTY: San Juan ; CITY: Bloomfield CODE: _____

LOCATION CODE: (Township-Range-Section-Tracts) 29N+11W+26+13 (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)
- [X] (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

RECEIVED AUG - 3 1987 OIL CONSERVATION DIVISION SANTA FE

Remarks: _____

FIELD DATA:

pH= NA ; Conductivity= 4340 umho/cm at 15.5 °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.)

MW-8, Gary BloomField Refinery. Bailed 2 well volumes. No odor, clear, some sand in bailer

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities.(signature collector): W Gray 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.
- [X] P-Ice Sample stored in an ice bath (Not Frozen).
- [ ] P-$Na_2S_2O_3$ 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- 911

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 * ✳	1 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: _____

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: 7/7/87 . Analyst's signature: Mary C. Palen

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 Megehee

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

860 WNF

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED 6/1/87	LAB NO. WC-1978	USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235	
Collection DATE 5/28/87	SITE INFORMATION ►	Sample location MW-8, Gary Bloomfield Refinery	
Collection TIME 1155		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

SAMPLING CONDITIONS

☒ Bailed ☐ Dipped ☐ Pump ☐ Tap	Water level	Discharge	Sample type GRAB
pH (00400) —	Conductivity (Uncorrected) 4340 µmho	Water Temp. (00010) 15.5 °C	Conductivity at 25°C (00094) µmho
Field comments NO HC odor or sheen			

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_2SO_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)	5652	µmho	6/19
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☒ Other: pH	7.38		6/2
☐ Other:			
☐ Other:			

A-H_2SO_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	524	mg/l	6/17
☒ Potassium	4.29	mg/l	6/18
☒ Magnesium	85	mg/l	6/17
☒ Sodium	598	mg/l	6/18
☒ Bicarbonate	273	mg/l	6/2
☒ Chloride	1062	mg/l	6/10
☒ Sulfate	1142	mg/l	6/12
☒ Total Solids	3024	mg/l	6/14
☐			
☐			
☒ Cation/Anion Balance			

Analyst	Date Reported	Reviewed by
	6/19/87	CO

Laboratory remarks

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

CATIONS				ANIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT	ANALYTE	MEQ.	PPM	DET. LIMIT
Ca	26.15	524.00	<3.0	HC03	4.47	273.00	<1.0
Mg	6.98	85.00	<0.3	SO4	23.79	1142.00	<10.0
Na	26.01	598.00	<10.0	CL	29.96	1062.00	<5.0
K	0.11	4.29	<0.3				
Mn	0.00	0.00		NO3	0.00	0.00	< 0.
Fe	0.00	0.00		C03	0.00	0.00	< 1.
				NH3	0.00	0.00	< 0.
				PO4	0.00	0.00	< 0.
SUMS	59.25	1211.29			58.22	2477.00	

Total Dissolved Solids= 3024

Ion Balance = 101.76%

WC No. = 8701978

Date out/By 6/24/87

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

852 wpf

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED: 6/1/87	LAB NO. LC-1968	USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235	
Collection DATE: 5/25/87	SITE INFORMATION ►	Sample location: MW-8, Gary Bloomfield Refinery	
Collection TIME: 1155		Collection site description:	
Collected by — Person/Agency: Roy 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	Discharge	Sample type: GRAB
pH (00400): —	Conductivity (Uncorrected): 4340 µmho	Water Temp. (00010): 15.5 °C	Conductivity at 25°C (00094): µmho

Field comments: NO HC odor or sheen

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_2SO_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:			
☐ Other:			
☐ Other:			
☒ A-H_2SO_4			
☒ Nitrate-N +, Nitrate-N total (00630)	14.5	mg/l	6/4
☒ Ammonia-N total (00610)	20.1	mg/l	6/1
☒ Total Kjeldahl-N ( )	2.23	mg/l	6/23
☐ 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
	6/23/87	

Laboratory remarks:

FOR OCD USE -- Date Owner Notified_____ Phone or Letter?_____ Initals_____

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: 6/1/87	LAB NO. ICP-307	USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235	
Collection DATE: 87/05/28	SITE INFORM-ATION ►	Sample location: MW-8, Gary Bloomfield Refinery	
Collection TIME: 1155		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:

SAMPLING CONDITIONS

☒ ~~Bailed~~ ☐ Dipped ☐ Pump ☐ Tap	Water level	Discharge	Sample type: GRAB
pH (00400): —	Conductivity (Uncorrected): 4340 µmho	Water Temp. (00010): 15.5 °C	Conductivity at 25°C (00094): µmho

Field comments: NO HC odor or sheen

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_2SO_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~~ ~~F~~ A — Units — Date analyzed

☐ Conductivity (Corrected) 25°C (00095)		µmho	
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☒ Other: ICAP			
☐ Other:			
☐ Other:			

A-H_2SO_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
	6/15/87	Jim Kelly

Laboratory remarks: Digested

FOR OCD USE -- Date Owner Notified_____ Phone or Letter?_____ Initals_____

ICAP SCAN

SLD Lab No. ICP 307 Reviewed by: Jim Colby

Analyst JB Date Reported: 6/15/87

Date Analyzed 6/11/87

ELEMENT	ICAP VALUE(mg/l)	AA VALUE(mg/l)
Aluminum	<0.1	
Barium	<0.1	
Beryllium	<0.1	
Boron	0.4	
Cadmium	<0.1	
Calcium	500.	
Chromium	<0.1	
Cobalt	<0.05	
Copper	<0.1	
Iron	0.5	
Lead	<0.1	
Magnesium	100.	
Manganese	6.5	
Molybdenum	<0.1	
Nickel	0.6	
Silicon	8.7	
Silver	<0.1	
Strontium	9.9	
Tin	<0.1	
Vanadium	<0.1	
Zinc	<0.1	
Arsenic		
Selenium		
Mercury		

ASSAIGAI ANALYTICAL LABORATORIES

TO: Bloomfield Refinery
Attn: Chris Hawley
PO Box 159
Bloomfield, NM 87413

DATE: 23 July 1986
1030

SAMPLE ID: MW - 8

ANALYTE	ANALYTICAL RESULTS
CN	<0.01 mg/l
TDS	2910 mg/l
Cl	839.7 mg/l
SO 4	1500 mg/l
Phenols	0.005 mg/l
TOC	13 mg/l
Sb	<0.01 mg/l
As	0.072 mg/l
Be	<0.01 mg/l
Cd	<0.010 mg/l
Cr	<0.050 mg/l
Cu	<0.03 mg/l
Pb	0.055 mg/l
Hg	<0.002 mg/l
Ni	0.86 mg/l
Se	0.21 mg/l
Ag	<0.050 mg/l
Tl	<0.01 mg/l
Zn	0.020 mg/l
Volatiles	
Acrolein	ND
Acrylonitrile	ND
Benzene	ND
Bromoform	ND
Carbon Tetrachloride	ND
Chlorobenzene	ND
Chlorodibromomethane	ND
Chloroethane	ND
2-Chloroethylvinyl ether	ND
Chloroform	ND
Dichlorobromomethane	ND
1,1-Dichloroethane	ND
1,2-Dichloroethane	ND
1,1-Dichloroethylene	ND
1,2-Dichloropropane	ND
1,2-Dichloropropylene	ND
Ethylbenzene	ND

Field by Clt 6/23/86

pH 7.26

Conductivity 4400

7300 Jefferson, N.E. • Albuquerque, New Mexico 87109 • (505) 345-8964

SAMPLE ID: MW - 8

ANALYTE	ANALYTICAL RESULTS
Methyl Bromide	ND
Methyl Chloride	ND
Methylene Chloride	ND
1,1,2,2-Tetrachloroethane	ND
Tetrachloroethylene	ND
Toluene	ND
1,2-Transdichloroethylene	ND
1,1,1-Trichloroethane	ND
1,1,2-Trichloroethane	ND
Trichloroethylene	ND
Vinyl Chloride	ND
Acid Compounds	
2-Chlorophenol	ND
2,4-Dichlorophenol	ND
2,4-Dimethylphenol	ND
4,6-Dinitro-o-cresol	ND
2,4-Dinitrophenol	ND
2-Nitrophenol	ND
4-Nitrophenol	ND
P-chloro-m-cresol	ND
pentachlorophenol	ND
Phenol	ND
2,4,6-Trichlorophenol	ND
Base Neutrals	
Acenaphthene	ND
Acenaphthylene	ND
Anthracene	ND
Benzidine	ND
Benzo(a)anthracene	ND
Benzo(a)pyrene	ND
3,4-Benzofluoranthene	ND
Benzo(g,h,i)perylene	ND
Benzo(k)fluoranthene	ND
Bis(2-chloroethoxy)methane	ND
Bis(2-chlroroethyl)ether	ND
Bis(2-chloroisopropyl)ether	ND
Bis(2-ethylhexyl)phthalate	ND
4-Bromophenyl phenyl ether	ND
Butylbenzyl phthalate	ND
2-Chloronapthalene	ND
4-Chlorophenyl phenyl ether	ND
Chrysene	ND

SAMPLE ID: MW - 8

ANALYTE	ANALYTICAL RESULTS
Dibenzo(a,h)anthracene	ND
1,2-Dichlorobenzene	ND
1,3-Dichlorobenzene	ND
1,4-Dichlorobenzene	ND
3,3-Dichlorobenzidine	ND
Diethyl phthalate	ND
Dimethyl phthalate	ND
Din-n-butyl phthalate	ND
2,4-Dinitrotoluene	ND
2,6-Dinitrotoluene	ND
Di-n-octyl phthalate	ND
1,2-Diphenylhydrazine	ND
Fluoranthene	ND
Fluorene	ND
Hexachlorobenzene	ND
Hexachlorobutadiene	ND
Hexachlorocyclopentadiene	ND
Hexachloroethane	ND
Indeno(1,2,3-cd)pyrene	ND
Isophorone	ND
Naphthalene	ND
Nitrobenzene	ND
N-nitrosodimethylamine	ND
N-nitrosodie-n-propylamine	ND
N-nitrosodiphenylamine	ND
Phenanthrene	ND
Pyrene	ND
1,2,4-Trichlorobenzene	ND

ND = None Detected

TO: Bloomfield Refinery

DATE: 0502

Analysis Report 14 May 86

Sample date: 3/26/86

ANALYTE	SAMPLE ID/ ANALYTICAL RESULTS		
	MW 8	MW 9	MW 10
CN	<0.01 mg/l	<0.01 mg/l	<0.10 mg/l
Phenols	<0.001 mg/l	0.304 mg/l	0.147 mg/l
TOC	5 mg/l	143 mg/l	34 mg/l
TDS	806 mg/l	2360 mg/l	1546 mg/l
Cl	160 mg/l	149 mg/l	245 mg/l
SO 4	4.0 mg/l	13.0 mg/l	5.3 mg/l
Benzene	ND	7.4 mg/l	0.093 mg/l
Toluene	ND	6.3 mg/l	ND
Xylenes	ND	ND	ND
Ethylbenzene	0.107 mg/l	3.2 mg/l	ND
Sb	<0.01 mg/l	<0.01 mg/l	<0.01 mg/l
As	<0.050 mg/l	<0.050 mg/l	<0.050 mg/l
Be	<0.01 mg/l	<0.01 mg/l	<0.01 mg/l
Cd	0.010 mg/l	0.010 mg/l	0.020 mg/l
Cr	<0.050 mg/l	<0.050 mg/l	<0.050 mg/l
Cu	<0.03 mg/l	<0.03 mg/l	<0.03 mg/l
Pb	<0.050 mg/l	<0.050 mg/l	<0.050 mg/l
Hg	<0.002 mg/l	<0.002 mg/l	<0.002 mg/l
Ni	<0.06 mg/l	0.30 mg/l	0.08 mg/l
Se	<0.010 mg/l	<0.010 mg/l	<0.010 mg/l
Ag	<0.050 mg/l	<0.050 mg/l	<0.050 mg/l
Tl	<0.01 mg/l	<0.01 mg/l	<0.01 mg/l
Zn	<0.01 mg/l	0.012 mg/l	<0.01 mg/l
Acrolein	ND	ND	ND
Acrylonitrile	ND	ND	ND
Bromoform	ND	ND	ND
Carbon Tetrachloride	ND	ND	ND
Chlorobenzene	ND	ND	ND
Chlorodibromomethane	ND	ND	ND
Chloroethane	ND	ND	ND
2-Chloroethylvinyl Ether	ND	ND	ND
Chloroform	ND	ND	ND
Dichlorogromomethane	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND
1.2-Dichloroethane	ND	ND	ND
1,1-Dichloroethylene	ND	ND	ND
1,2-Dichloropropane	ND	ND	ND
1,3-Dichloropropylene	ND	ND	ND

TO: Bloomfield Refinery

0502
Page 6 of 8

ANALYTE	SAMPLE ID/ ANALYTICAL RESULTS		
	MW 8	MW 9	MW 10
Methyl Bromide	ND	ND	ND
Methyl Chloride	ND	ND	ND
Methylene Chloride	ND	ND	ND
1,1,2,2-Tetrachloroethane	ND	ND	ND
Tetrachloroethylene	ND	ND	ND
1,2-Transdichloroethylne	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND
1,1,2-Trichloroethane	ND	ND	ND
Trichloroethylene	ND	ND	ND
Vinyl Chloride	ND	ND	ND
Acid Compounds			
2-chlorophenol	ND	ND	ND
2,4-dichlorophenol	ND	ND	ND
2,4-dimethylphenol	ND	0.160 mg/l	0.025 mg/l
4,6-dinitro-o-cresol	ND	ND	0.020 mg/l
2,4-dinitrophenol	ND	ND	ND
2-nitrophenol	ND	ND	ND
4-nitrophenol	ND	ND	ND
p-chloro-m-cresol	ND	ND	ND
pentachlorophenol	ND	ND	ND
Phenol	ND	0.149 mg/l	0.090 mg/l
2,4,6-trichlorophenol	ND	ND	ND
Base Neutrals			
Acenaphthene	ND	ND	ND
Acenaphthylene	ND	ND	ND
Anthracene	ND	ND	0.039 mg/l
Benzidine	ND	ND	ND
Benzo(a)anthracene	ND	ND	ND
Benzo(a)pyrene	ND	ND	ND
3,4-benzofluoranthene	ND	ND	ND
Benzo(ghi)perylene	ND	ND	ND
Benzo(k)fluoranthene	ND	ND	ND
Bis(2-chloroethoxy)methane	ND	ND	ND
Bis(2-chloroethyl)ether	ND	ND	ND
Bis(2-chloroisopropyl)ether	ND	ND	ND
Bis(2-ethylhexyl)phthalate	ND	ND	ND
4-bromophenyl phenyl ether	ND	ND	ND
Butylbenzyl phthalate	ND	ND	ND
2-chloronaphtalene	ND	ND	ND
4-chlorophenyl phenyl ether	ND	ND	ND
Chrysene	ND	ND	ND

TO: Bloomfield Refinery

0502

ANALYTE	SAMPLE ID/ ANALYTICAL RESULTS		
	MW 8	MW 9	MW 10
Dibenzo(a,h)anthracene	ND	ND	ND
1,2-Dichlorobenzene	ND	ND	ND
1,3-Dichlorobenzene	ND	ND	ND
1,4-Dichlorobenzene	ND	ND	ND
3,3-Dichlorobenzidine	ND	ND	ND
Diethyl phthalate	ND	ND	ND
Dimethyl phthalate	ND	ND	ND
Din-n-butyl phthalate	ND	ND	ND
2,4-dinitrotoluene	ND	ND	ND
2,6-dinitrotoluene	ND	ND	ND
Di-n-octyl phthalate	ND	ND	ND
1,2-diphenylhydrazine	ND	ND	ND
Fluoranthene	ND	ND	0.034 mg/l
Fluorene	ND	0.012 mg/l	0.033 mg/l
Hexachlorobenzene	ND	ND	ND
Hexachlorobutadiene	ND	ND	ND
Hexachlorocyclopentadiene	ND	ND	ND
Hexachloroethane	ND	ND	ND
Indeno(1,2,3-cd)pyrene	ND	ND	ND
Isophorone	ND	ND	ND
Naphthalene	ND	ND	ND
Nitrobenzene	ND	ND	ND
N-nitrosodimethylamine	ND	ND	ND
N-nitrosodie-n-propylamine	ND	ND	ND
N-nitrosodiphenylamine	ND	ND	ND
Phenanthrene	ND	ND	ND
Pyrene	ND	ND	0.030 mg/l
1,2,4-trichlorobenzene	ND	ND	ND

ND = None Detected

REFERENCE:"Test Methods for Evaluating Solid Waste, Physical/ Chemical Methods, USEPA, SW 846, EMSL-Cincinnati, 1982.

NOMINAL DETECTION LIMITS

CN	0.01 mg/l
Phenols	0.001 mg/l
TOC	0.1 mg/l
TDS	1 mg/l
Cl	1.0 mg/l
SO 4	1.0 mg/l
Benzene	5 mg/l
Toluene	5 mg/l
Xylenes	5 mg/l
Ethylbenzene	5 mg/l
Sb	0.01 mg/l
As	0.050 mg/l
Be	0.01 mg/l
Cd	0.002 mg/l
Cr	0.050 mg/l
Cu	0.03 mg/l
Pb	0.001 mg/l
Hg	0.002 mg/l
Ni	0.01 mg/l
Se	0.010 mg/l
Ag	0.050 mg/l
Tl	0.01 mg/l
Zn	0.01 mg/l

Detection limits for Volatiles, Acid Compounds, and Base/Neutrals are all 0.001 mg/l

An invoice for services is enclosed. Thank you for contacting Assaigai Laboratories.

Sincerely,

Jennifer V. Smith

Jennifer V. Smith, Ph.D.
Laboratory Director

F89160

SCIENTIFIC LABORATORY DIVISION
ORGANIC ANALYSIS REQUEST FORM
Organic Section - Phone: 841-2570

#77-521.01-123

REPORT TO: DAVID BOYER
N.M. OIL CONSERVATION DIVISION
P.O. Box 2088
Santa Fe, NM 87504-2088

S.L.D. No. OR-
DATE REC.
PRIORITY
PHONE(S): 827-5812

COLLECTION CITY: Bloomfield ; COUNTY: San Juan

COLLECTION DATE/TIME CODE: (Year-Month-Day-Hour-Minute) |8|9|0|4|2|7|1|1|6|4|5| (1645)

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

USER CODE: |8|2|2|3|5| SUBMITTER: David Boyer CODE: |2|6|0|

SAMPLE TYPE: WATER [X], SOIL [ ], FOOD [ ], OTHER:

This form accompanies 3 Septum Vials, ____ Glass Jugs, and/or ____ ____

Samples were preserved as follows:

- [ ] NP: No Preservation; Sample stored at room temperature.
- [X] P-Ice Sample stored in an ice bath (Not Frozen).
- [ ] P-AA Sample Preserved with Ascorbic Acid to remove chlorine residual.
- [X] P-HCl Sample Preserved with Hydrochloric Acid (2 drops/40 ml)

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 Headspace (1-5 Carbons)
- [X] (754) Aromatic & Halogenated Purgeables
- [ ] (765) Mass Spectrometer Purgeables
- [ ] (766) Trihalomethanes
- [ ] (774) SDWA VOC's I (8 Regulated +)
- [ ] (775) SDWA VOC's II (EDB & DBCP)

Other Specific Compounds or Classes

- [ ] ____
- [ ] ____

EXTRACTABLE SCREENS

- [ ] (751) Aliphatic Hydrocarbons
- [ ] (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= ____ umho/cm at ____ °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 9, Gary BRC, 6" Black H/C sludge on bottom, 1/2" product on surface

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

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 [ ] OR Seals Intact: Yes [ ] No [ ]

Signatures ____ ____

For OCD use: Date owner notified: 9/11/89 Phone or Letter? Initials WTB

BTE parameters

ANALYSES PERFORMED LAB. No.: OR-

THIS PAGE FOR LABORATORY RESULTS ONLY

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

PURGEABLE SCREENS

- ☐ (753) Aliphatic Headspace (1-5 Carbons)
- ☐ (754) Aromatic & Halogenated Purgeables
- ☐ (765) Mass Spectrometer Purgeables
- ☐ (766) Trihalomethanes
- ☐ (774) SDWA VOC's I (8 Regulated +)
- ☐ (775) SDWA VOC's II (EDB & DBCP)

Other Specific Compounds or Classes

- ☐ _____
- ☐ _____

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
- ☐ (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]
* 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) Not Sealed ☐ 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: _____

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

859 WNM

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED 05 02 89	LAB NO WC 1344	USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235	
Collection DATE 89 04 27	SITE INFORM-ATION ►	Sample location GARY BLOOMFIELD	MW-9
Collection TIME 1645		Collection site description	
Collected by — Person/Agency BOYER /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	Discharge	Sample type GRAB
pH (00400) 7.5	Conductivity (Uncorrected) µmho	Water Temp. (00010) °C	Conductivity at 25°C (00094) µmho

Field comments 1/2 free product, 6" black sludge at bottom of hole

SAMPLE FIELD TREATMENT — *Check proper boxes*

No. of samples submitted

☒ NF: Whole sample (Non-filtered) ☐ F: Filtered in field with 0.45 µmembrane filter ☐ A: 2 ml H_2SO_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)	1965	µmho	5/15
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☒ Other: Lab pH	7.55		5/9
☐ Other:			
☐ Other:			

A-H_2SO_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:			

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JUN 16 1989
OIL CONSERVATION DIV.
SANTA FE

From NE, NA Sample:

			Date Analyzed
☒ Calcium	84	mg/l	5/10
☒ Potassium	5	mg/l	5/4
☒ Magnesium	12.2	mg/l	5/10
☒ Sodium	407	mg/l	5/4
☒ Bicarbonate	1276	mg/l	5/9
☒ Chloride	83	mg/l	5/4
☒ Sulfate	25.4	mg/l	6/9
☒ Total Solids	1396	mg/l	5-3
☐			
☐			
☒ Cation/Anion Balance	97%		

Analyst	Date Reported	Reviewed by
	6/13/89	

Laboratory remarks

83

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

CATIONS				ANIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT	ANALYTE	MEQ.	PPM	DET. LIMIT
[redacted]	4.19	84.00	<3.0	HC03	20.91	1276.00	<1.0
Mg	1.00	12.20	<0.3	SO4	0.53	25.40	<10.0
Na	17.70	407.00	<10.0	CL	2.34	83.00	<5.0
K	0.13	5.00	<0.3				
Mn	0.00	0.00		NO3	0.00	0.00	< 0.
Fe	0.00	0.00		C03	0.00	0.00	< 1.
				NH3	0.00	0.00	< 0.
				PO4	0.00	0.00	< 0.
SUMS	23.02	508.20			23.78	1384.40	

Total Dissolved Solids= 1396

Ion Balance = 96.82%

WC No. = 8901344

Date out/By CJ 6/13

RECEIVED

JUN 16 1989

OIL CONSERVATION DIV.
SANTA FE

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

RECEIVED
SEP 11 1989
OIL CONSERVATION DIV.
SANTA FE

HEAVY METAL ANALYSIS FORM

Telephone: (505)841-2553

Date Received	05/02/89	Lab No. ICAP 205	User Code	☒ 82235	☐ Other:

COLLECTION DATE & TIME: yy 89 | mm 04 | dd 27 | hh 16 | mm 45

COLLECTED BY: BOYER

COLLECTION SITE DESCRIPTION: GARY BLOOMFIELD MW-9

OWNER:

TO:

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

ATTN: DAVID BOYER
TELEPHONE: 827-5812

SITE LOCATION:
County: San Juan

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

STATION/ WELL CODE:

LATITUDE, LONGITUDE:

SAMPLING CONDITIONS:

☒ Bailed ☐ Dipped	☐ Pump ☐ Tap	Water Level:	Discharge:	Sample Type: GRAB

pH (00400)	Conductivity (Uncorr.) µmho	Water Temp. (00010) °C	Conductivity at 25°C (00094) µmho

FIELD COMMENTS: 1/2" free product in hole, 6" black sludge at bottom

SAMPLE FIELD TREATMENT Check proper boxes:		LAB ANALYSIS REQUESTED:
☒ 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.

ANALYTICAL RESULTS (MG/L)

ELEMENT	ICAP VALUE	AA VALUE	ELEMENT	ICAP VALUE	AA VALUE
Aluminum	0.3		Silicon	17.	
Barium	1.1		Silver	<0.1 ☐	
Beryllium	<0.1		Strontium	2.6	
Boron	0.7		Tin	<0.1	
Cadmium	<0.1 ☐		Vanadium	<0.1	
Calcium	~~7.6~~ 76.		Zinc	<0.1	
Chromium	<0.1 ☒	<0.025	Arsenic		☒ 0.017
Cobalt	<0.05		Selenium		☐
Copper	<0.1		Mercury		☐
Iron	4.4				☐
Lead	0.2 ☒	0.34			☐
Magnesium	18.				☐
Manganese	2.1				☐
Molybdenum	<0.1				☐
Nickel	<0.1				☐

RECEIVED
SEP 11 1989
OIL CONSERVATION DIV.
SANTA FE

LAB COMMENTS: Digest

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

ICAP Analyst JA
Date Analyzed 7/10/89

Reviewer
Date Received 9/6/89

754 WPW

SCIENTIFIC LABORATORY DIVISION

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

NEW MEXICO HEALTH ENVI

87-0910-C

REPORT TO: David Boyer
N.M. Oil Conservation Division
P. O. Box 2088
Santa Fe, N.M. 87504-2088
PHONE(S): 827-5812

S.L.D. No. OR- 910 A+B
DATE REC. 6-1-87
PRIORITY
USER CODE: 8 2 2 3 5
SUBMITTER: David Boyer
CODE: 2 6 0

SAMPLE COLLECTION CODE: (YYMMDDHHMMIII) 870528131452

SAMPLE TYPE: WATER [X] SOIL [ ], FOOD [ ], OTHER: _____ CODE: _____

COUNTY: San Juan ; CITY: Bloomfield CODE: _____

LOCATION CODE: (Township-Range-Section-Tracts) 29N+11W+27+23 (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)
- [X] (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

RECEIVED AUG -3 1987 OIL CONSERVATION DIVISION SANTA FE

Remarks: _____

FIELD DATA:

pH= 7.5 ; Conductivity= 2170 umho/cm at 18 °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-9, Gary Bloomfield Refinery. Vac from 2nd bail. Dark gray water, iron(?) flakes, Hydrocarbon odor, sheen

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities.(signature collector): D V 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.
- [X] P-Ice Sample stored in an ice bath (Not Frozen).
- [ ] P-$Na_2S_2O_3$ 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- 910

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			
1,2-Dichloroethane	67		
aromatic purgeables			
benzene	32700		
toluene	8250		
ethylbenzene	410		
p-xylene	1730		
m-xylene	5700		
o-xylene	1600		
* DETECTION LIMIT * ✳	25 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: _____

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: 6/19/87. Analyst's signature: Mary C. Edes

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

Reviewers signature: R Meyerhen

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

860 WNF

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED: 6 1 87	LAB NO. WC-1974	USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235	
Collection DATE: 6/1/25/28	SITE INFORMATION ►	Sample location: MW-9, Gary Bloomfield Refinery	
Collection TIME: ~~1405~~ Time 1345		Collection site description:	
Collected by — Person/Agency: Roger 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

RECEIVED
JUL 20 1987
OIL CONSERVATION DIVISION
SANTA FE

Station/ well code:

Owner:

SAMPLING CONDITIONS

☒ Bailed ☐ Dipped ☐ Pump ☐ Tap	Water level	Discharge	Sample type: Grab
pH (00400): 7.5 (Strip)	Conductivity (Uncorrected): 2170 µmho	Water Temp. (00010): 18 °C	Conductivity at 25°C (00094): µmho

Field comments: See QC sheet H.C. Shaw, odor

SAMPLE FIELD TREATMENT — *Check proper boxes*

No. of samples submitted: 1

☐ NF: Whole sample (Non-filtered) ☒ F: Filtered in field with 0.45 µmembrane filter ☐ A: 2 ml H_2SO_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

F NA		Units	Date analyzed
☒ Conductivity (Corrected) 25°C (00095)	2511	µmho	6/9
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☒ Other: pH	7.39		6/2
☐ Other:			
☐ Other:			

A-H_2SO_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	62	mg/l	6/16
☒ Potassium	2.34	mg/l	6/18
☒ Magnesium	2	mg/l	6/16
☒ Sodium	449	mg/l	6/18
☒ Bicarbonate	1317	mg/l	6/2
☒ Chloride	104	mg/l	6/10
☒ Sulfate	28	mg/l	6/12
☒ Total Solids	1538	mg/l	6/14
☐			
☐			
☒ Cation/Anion Balance			

Analyst	Date Reported	Reviewed by
	6/19/87	CO

Laboratory remarks:

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

CATIONS				ANIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT	ANALYTE	MEQ.	PPM	DET. LIMIT
Ca	3.09	62.00	<3.0	HC03	21.58	1317.00	<1.0
Mg	0.16	2.00	<0.3	SO4	0.58	28.00	<10.0
Na	19.53	449.00	<10.0	CL	2.93	104.00	<5.0
K	0.06	2.34	<0.3				
Mn	0.00	0.00		NO3	0.00	0.00	< 0.
Fe	0.00	0.00		C03	0.00	0.00	< 1.
				NH3	0.00	0.00	< 0.
				PO4	0.00	0.00	< 0.
SUMS	22.85	515.34			25.10	1449.00	

Total Dissolved Solids= 1538

Ion Balance = 91.03%

WC No. = 1974

Date out/By _____

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

852 WP-F

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED: 6/1/87	LAB NO.: WC-1966	USER CODE: ☐ 59300 ☐ 59600 ☒ OTHER: 82235	
Collection DATE: 5/20/87	SITE INFORMATION ►	Sample location: MW-9, Gary Bloomfield Refinery	
Collection TIME: Time 1345		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:

SAMPLING CONDITIONS

☒ Bailed ☐ Dipped ☐ Pump ☐ Tap	Water level	Discharge	Sample type: Grab
pH (00400): 7.5 (Strip)	Conductivity (Uncorrected): 2170 µmho	Water Temp. (00010): 18 °C	Conductivity at 25°C (00094): µmho

Field comments: See Foc sheet H.C. Chem, odor

SAMPLE FIELD TREATMENT — *Check proper boxes*

No. of samples submitted: 1

☐ NF: Whole sample (Non-filtered) ☒ F: Filtered in field with 0.45 µmembrane filter ☒ A: 2 ml H_2SO_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:			
☐ Other:			
☐ Other:			
☒ A-H_2SO_4			
☒ Nitrate-N +, Nitrate-N total (00630)	<0.04	mg/l	6/4
☒ Ammonia-N total (00610)	0.66	mg/l	6/1
☒ Total Kjeldahl-N ( )	3.15	mg/l	6/23
☐ 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
	6/23/87	CJ

Laboratory remarks:

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

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 6 / 1 / 87	LAB NO. ICP-308	USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235	
Collection DATE 5/25/87	SITE INFORMATION ►	Sample location MW-9, Gary Bloomfield Refinery	
Collection TIME Time 1345		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

SAMPLING CONDITIONS

☒ Bailed ☐ Dipped ☐ Pump ☐ Tap	Water level	Discharge	Sample type Grab
pH (00400) 7.5 (Strip)	Conductivity (Uncorrected) 2750 µmho	Water Temp. (00010) 18 °C	Conductivity at 25°C (00094) µmho
Field comments See Fax sheet H.C. Chan, odor			

SAMPLE FIELD TREATMENT — *Check proper boxes*

No. of samples submitted 1

☐ NF: Whole sample (Non-filtered) ~~☒~~ F: Filtered in field with 0.45 µmembrane filter ☐ A: 2 ml H_2SO_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: ICAP		
☐ Other:		
☐ Other:		

~~A-H_2SO_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
	6/15/87	Jim Ashley

Laboratory remarks Digested

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

ICAP SCAN

SLD Lab No. ICP 308 Reviewed by: Jim Ashley

Analyst JB Date Reported: 6/15/87

Date Analyzed 6/11/87

ELEMENT	ICAP VALUE(mg/l)	AA VALUE(mg/l)
Aluminum	<0.1	
Barium	1.8	
Beryllium	<0.1	
Boron	0.9	
Cadmium	<0.1	
Calcium	160.	
Chromium	<0.1	
Cobalt	<0.05	
Copper	<0.1	
Iron	7.0	
Lead	<0.1	
Magnesium	34.	
Manganese	3.4	
Molybdenum	<0.1	
Nickel	<0.1	
Silicon	21.	
Silver	<0.1	
Strontium	4.7	
Tin	<0.1	
Vanadium	<0.1	
Zinc	<0.1	
Arsenic		
Selenium		
Mercury		

ASSAIGAI ANALYTICAL LABORATORIES

TO: Bloomfield Refinery
Attn: Chris Hawley
PO Box 159
Bloomfield, NM 87413

DATE: 23 July 1986
1030

SAMPLE ID: MW - 9

ANALYTE	ANALYTICAL RESULTS
CN	0.4 mg/l
TDS	1718 mg/l
Cl	1009.7 mg/l
SO 4	114 mg/l
Phenols	0.372 mg/l
TOC	180 mg/l
Sb	<0.01 mg/l
As	<0.05 mg/l
Be	<0.01 mg/l
Cd	<0.010 mg/l
Cr	<0.050 mg/l
Cu	<0.03 mg/l
Pb	0.059 mg/l
Hg	<0.002 mg/l
Ni	0.25 mg/l
Se	0.040 mg/l
Ag	<0.050 mg/l
Tl	<0.01 mg/l
Zn	0.015 mg/l
Volatiles	
Acrolein	ND
Acrylonitrile	ND
Benzene	4 mg/l
Bromoform	ND
Carbon Tetrachloride	ND
Chlorobenzene	ND
Chlorodibromomethane	ND
Chloroethane	ND
2-Chloroethylvinyl ether	ND
Chloroform	ND
Dichlorobromomethane	ND
1,1-Dichloroethane	ND
1,2-Dichloroethane	ND
1,1-Dichloroethylene	ND
1,2-Dichloropropane	ND
1,2-Dichloropropylene	ND
Ethylbenzene	0.71 mg/l

Field by CAT 6/24/86

pH 6.98
Conductivity 2500

7300 Jefferson, N.E. • Albuquerque, New Mexico 87109 • (505) 345-8964

SAMPLE ID: MW - 9

ANALYTE	ANALYTICAL RESULTS
Methyl Bromide	ND
Methyl Chloride	ND
Methylene Chloride	ND
1,1,2,2-Tetrachloroethane	ND
Tetrachloroethylene	ND
Toluene	1.7 mg/l
1,2-Transdichloroethylene	ND
1,1,1-Trichloroethane	ND
1,1,2-Trichloroethane	ND
Trichloroethylene	ND
Vinyl Chloride	ND
Acid Compounds	
2-Chlorophenol	ND
2,4-Dichlorophenol	ND
2,4-Dimethylphenol	0.150 mg/l
4,6-Dinitro-o-cresol	ND
2,4-Dinitrophenol	ND
2-Nitrophenol	ND
4-Nitrophenol	ND
P-chloro-m-cresol	ND
pentachlorophenol	ND
Phenol	0.170 mg/l
2,4,6-Trichlorophenol	ND
Base Neutrals	
Acenaphthene	ND
Acenaphthylene	ND
Anthracene	ND
Benzidine	ND
Benzo(a)anthracene	ND
Benzo(a)pyrene	ND
3,4-Benzofluoranthene	ND
Benzo(g,h,i)perylene	ND
Benzo(k)fluoranthene	ND
Bis(2-chloroethoxy)methane	ND
Bis(2-chlroroethyl)ether	ND
Bis(2-chloroisopropyl)ether	ND
Bis(2-ethylhexyl)phthalate	ND
4-Bromophenyl phenyl ether	ND
Butylbenzyl phthalate	ND
2-Chloronapthalene	ND
4-Chlorophenyl phenyl ether	ND
Chrysene	ND

SAMPLE ID: MW - 9

ANALYTE	ANALYTICAL RESULTS
Dibenzo(a,h)anthracene	ND
1,2-Dichlorobenzene	ND
1,3-Dichlorobenzene	ND
1,4-Dichlorobenzene	ND
3,3-Dichlorobenzidine	ND
Diethyl phthalate	ND
Dimethyl phthalate	ND
Din-n-butyl phthalate	ND
2,4-Dinitrotoluene	ND
2,6-Dinitrotoluene	ND
Di-n-octyl phthalate	ND
1,2-Diphenylhydrazine	ND
Fluoranthene	ND
Fluorene	ND
Hexachlorobenzene	ND
Hexachlorobutadiene	ND
Hexachlorocyclopentadiene	ND
Hexachloroethane	ND
Indeno(1,2,3-cd)pyrene	ND
Isophorone	ND
Naphthalene	ND
Nitrobenzene	ND
N-nitrosodimethylamine	ND
N-nitrosodie-n-propylamine	ND
N-nitrosodiphenylamine	ND
Phenanthrene	ND
Pyrene	ND
1,2,4-Trichlorobenzene	ND

ND = None Detected,

TO: Bloomfield Refinery

DATE: 0502

Analysis Report
Sample date: 3/26/86 14 May 86

ANALYTE	SAMPLE ID/ ANALYTICAL RESULTS		
	MW 8	MW 9	MW 10
CN	<0.01 mg/l	<0.01 mg/l	<0.10 mg/l
Phenols	<0.001 mg/l	0.304 mg/l	0.147 mg/l
TOC	5 mg/l	143 mg/l	34 mg/l
TDS	806 mg/l	2360 mg/l	1546 mg/l
Cl	160 mg/l	149 mg/l	245 mg/l
SO 4	4.0 mg/l	13.0 mg/l	5.3 mg/l
Benzene	ND	7.4 mg/l	0.093 mg/l
Toluene	ND	6.5 mg/l	ND
Xylenes	ND	ND	ND
Ethylbenzene	0.107 mg/l	3.2 mg/l	ND
Sb	<0.01 mg/l	<0.01 mg/l	<0.01 mg/l
As	<0.050 mg/l	<0.050 mg/l	<0.050 mg/l
Be	<0.01 mg/l	<0.01 mg/l	<0.01 mg/l
Cd	0.010 mg/l	0.010 mg/l	0.020 mg/l
Cr	<0.050 mg/l	<0.050 mg/l	<0.050 mg/l
Cu	<0.03 mg/l	<0.03 mg/l	<0.03 mg/l
Pb	<0.050 mg/l	<0.050 mg/l	<0.050 mg/l
Hg	<0.002 mg/l	<0.002 mg/l	<0.002 mg/l
Ni	<0.06 mg/l	0.30 mg/l	0.08 mg/l
Se	<0.010 mg/l	<0.010 mg/l	<0.010 mg/l
Ag	<0.050 mg/l	<0.050 mg/l	<0.050 mg/l
Tl	<0.01 mg/l	<0.01 mg/l	<0.01 mg/l
Zn	<0.01 mg/l	0.012 mg/l	<0.01 mg/l
Acrolein	ND	ND	ND
Acrylonitrile	ND	ND	ND
Bromoform	ND	ND	ND
Carbon Tetrachloride	ND	ND	ND
Chlorobenzene	ND	ND	ND
Chlorodibromomethane	ND	ND	ND
Chloroethane	ND	ND	ND
2-Chloroethylvinyl Ether	ND	ND	ND
Chloroform	ND	ND	ND
Dichlorogromomethane	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND
1.2-Dichloroethane	ND	ND	ND
1,1-Dichloroethylene	ND	ND	ND
1,2-Dichloropropane	ND	ND	ND
1,3-Dichloropropylene	ND	ND	ND

TO: Bloomfield Refinery

0502
Page 6 of 8

ANALYTE	SAMPLE ID/ ANALYTICAL RESULTS		
	MW 8	MW 9	MW 10
Methyl Bromide	ND	ND	ND
Methyl Chloride	ND	ND	ND
Methylene Chloride	ND	ND	ND
1,1,2,2-Tetrachloroethane	ND	ND	ND
Tetrachloroethylene	ND	ND	ND
1,2-Transdichloroethylne	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND
1,1,2-Trichloroethane	ND	ND	ND
Trichloroethylene	ND	ND	ND
Vinyl Chloride	ND	ND	ND
Acid Compounds			
2-chlorophenol	ND	ND	ND
2,4-dichlorophenol	ND	ND	ND
2,4-dimethylphenol	ND	0.160 mg/l	0.025 mg/l
4,6-dinitro-o-cresol	ND	ND	0.020 mg/l
2,4-dinitrophenol	ND	ND	ND
2-nitrophenol	ND	ND	ND
4-nitrophenol	ND	ND	ND
p-chloro-m-cresol	ND	ND	ND
pentachlorophenol	ND	ND	ND
Phenol	ND	0.149 mg/l	0.090 mg/l
2,4,6-trichlorophenol	ND	ND	ND
Base Neutrals			
Acenaphthene	ND	ND	ND
Acenaphthylene	ND	ND	ND
Anthracene	ND	ND	0.039 mg/l
Benzidine	ND	ND	ND
Benzo(a)anthracene	ND	ND	ND
Benzo(a)pyrene	ND	ND	ND
3,4-benzofluoranthene	ND	ND	ND
Benzo(ghi)perylene	ND	ND	ND
Benzo(k)fluoranthene	ND	ND	ND
Bis(2-chloroethoxy)methane	ND	ND	ND
Bis(2-chloroethyl)ether	ND	ND	ND
Bis(2-chloroisopropyl)ether	ND	ND	ND
Bis(2-ethylhexyl)phthalate	ND	ND	ND
4-bromophenyl phenyl ether	ND	ND	ND
Butylbenzyl phthalate	ND	ND	ND
2-chloronaphtalene	ND	ND	ND
4-chlorophenyl phenyl ether	ND	ND	ND
Chrysene	ND	ND	ND

TO: Bloomfield Refinery

0502
Page 7 of 8

ANALYTE	SAMPLE ID/ ANALYTICAL RESULTS		
	MW 8	MW 9	MW 10
Dibenzo(a,h)anthracene	ND	ND	ND
1,2-Dichlorobenzene	ND	ND	ND
1,3-Dichlorobenzene	ND	ND	ND
1,4-Dichlorobenzene	ND	ND	ND
3,3-Dichlorobenzidine	ND	ND	ND
Diethyl phthalate	ND	ND	ND
Dimethyl phthalate	ND	ND	ND
Din-n-butyl phthalate	ND	ND	ND
2,4-dinitrotoluene	ND	ND	ND
2,6-dinitrotoluene	ND	ND	ND
Di-n-octyl phthalate	ND	ND	ND
1,2-diphenylhydrazine	ND	ND	ND
Fluoranthene	ND	ND	0.034 mg/l
Fluorene	ND	0.012 mg/l	0.033 mg/l
Hexachlorobenzene	ND	ND	ND
Hexachlorobutadiene	ND	ND	ND
Hexachlorocyclopentadiene	ND	ND	ND
Hexachloroethane	ND	ND	ND
Indeno(1,2,3-cd)pyrene	ND	ND	ND
Isophorone	ND	ND	ND
Naphthalene	ND	ND	ND
Nitrobenzene	ND	ND	ND
N-nitrosodimethylamine	ND	ND	ND
N-nitrosodie-n-propylamine	ND	ND	ND
N-nitrosodiphenylamine	ND	ND	ND
Phenanthrene	ND	ND	ND
Pyrene	ND	ND	0.030 mg/l
1,2,4-trichlorobenzene	ND	ND	ND

ND = None Detected

REFERENCE:"Test Methods for Evaluating Solid Waste, Physical/ Chemical Methods, USEPA, SW 846, EMSL-Cincinnati, 1982.

NOMINAL DETECTION LIMITS

CN	0.01 mg/l
Phenols	0.001 mg/l
TOC	0.1 mg/l
TDS	1 mg/l
Cl	1.0 mg/l
SO 4	1.0 mg/l
Benzene	5 mg/l
Toluene	5 mg/l
Xylenes	5 mg/l
Ethylbenzene	5 mg/l
Sb	0.01 mg/l
As	0.050 mg/l
Be	0.01 mg/l
Cd	0.002 mg/l
Cr	0.050 mg/l
Cu	0.03 mg/l
Pb	0.001 mg/l
Hg	0.002 mg/l
Ni	0.01 mg/l
Se	0.010 mg/l
Ag	0.050 mg/l
Tl	0.01 mg/l
Zn	0.01 mg/l

Detection limits for Volatiles, Acid Compounds, and Base/Neutrals are all 0.001 mg/l

An invoice for services is enclosed. Thank you for contacting Assaigai Laboratories.

Sincerely,

Jennifer V. Smith

Jennifer V. Smith, Ph.D.
Laboratory Director

~~SCIENTIFIC LABORATORY DIVISION~~
ORGANIC ANALYSIS REQUEST FORM
~~Organic Section - Phone: 841-2570~~

F89162
#77-521.07-123

REPORT TO: DAVID BOYER
N.M. OIL CONSERVATION DIVISION
P.O. Box 2088
Santa Fe, NM 87504-2088

S.L.D. No. OR-
DATE REC.
PRIORITY
PHONE(S): 827-5812

COLLECTION CITY: Bloomfield ; COUNTY: San Juan

COLLECTION DATE/TIME CODE: (Year-Month-Day-Hour-Minute) |8|9|0|4|2|7|1|7|1|5|

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

USER CODE: |8|2|2|3|5| SUBMITTER: David Boyer CODE: |2|6|0|

SAMPLE TYPE: WATER |X|, SOIL |_|, FOOD |_|, OTHER:

This form accompanies 3 Septum Vials, ____ Glass Jugs, and/or ____ ____

Samples were preserved as follows:

- [ ] NP: No Preservation; Sample stored at room temperature.
- [X] P-Ice Sample stored in an ice bath (Not Frozen).
- [ ] P-AA Sample Preserved with Ascorbic Acid to remove chlorine residual.
- [X] P-HCl Sample Preserved with Hydrochloric Acid (2 drops/40 ml)

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 Headspace (1-5 Carbons)
- [X] (754) Aromatic & Halogenated Purgeables
- [ ] (765) Mass Spectrometer Purgeables
- [ ] (766) Trihalomethanes
- [ ] (774) SDWA VOC's I (8 Regulated +)
- [ ] (775) SDWA VOC's II (EDB & DBCP)

Other Specific Compounds or Classes

- [ ] _____
- [ ] _____

EXTRACTABLE SCREENS

- [ ] (751) Aliphatic Hydrocarbons
- [ ] (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=____ umho/cm at ____ °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.)

Gary BRC - Recovery well #3 (MW #10)

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

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 [ ] OR Seals Intact: Yes [ ] No [ ]

Signatures ____ ____

For OCD use: Date owner notified: 9/11/89 Phone or (Letter)? Initials DTB

All parameters

ANALYSES PERFORMED

LAB. No.: OR-

THIS PAGE FOR LABORATORY RESULTS ONLY

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

PURGEABLE SCREENS

- ☐ (753) Aliphatic Headspace (1-5 Carbons)
- ☐ (754) Aromatic & Halogenated Purgeables
- ☐ (765) Mass Spectrometer Purgeables
- ☐ (766) Trihalomethanes
- ☐ (774) SDWA VOC's I (8 Regulated +)
- ☐ (775) SDWA VOC's II (EDB & DBCP)

Other Specific Compounds or Classes

- ☐ _____
- ☐ _____

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
- ☐ (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]
* 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) Not Sealed ☐ 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: _____

Inter·Mountain
Laboratories, Inc.

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

Report Date: 05/15/89

Client:	New Mexico OCD		
Sample ID:	8904271715 *	Date Sampled:	04/27/89
Laboratory Number:	F891620	Date Received:	04/28/89
Analysis Requested:	Purgeable Aromatics	Date Extracted:	NA
Sample Matrix:	Water	Date Analyzed:	05/10/89

Parameter	Concentration	Units
BENZENE	7800 (20)	ug/l
TOLUENE	40 (20)	ug/l
ETHYLBENZENE	670 (20)	ug/l
m,p-XYLENE	10000 (20)	ug/l
o-XYLENE	280 (20)	ug/l

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

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

* Sample vial labeled "8904271735 GARY BRC RW-3"

C. Neal Schaeffer
Senior Organic Chemist

RECEIVED
MAY 23 1989
OIL CONSERVATION DIV.
SANTA FE

iml
Inter·Mountain
Laboratories, Inc.

RECEIVED
MAY 22 1989
OIL CONSERVATION DIV.
SANTA FE

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

Report Date: 05/09/89

Client: New Mexico OCD
Sample ID: 8904271715 *
IML Sample No: F891620
Analysis Requested: Purgeable Halocarbons
Sample Matrix: Water

Date Sampled: 04/27/89
Date Received: 04/28/89
Date Extracted: N/A
Date Analyzed: 04/28/89

Parameter	Concentration		Units
CHLOROMETHANE	ND	(1.0)	ug/l
BROMOMETHANE	ND	(1.0)	ug/l
DICHLORODIFLUOROMETHANE	ND	(1.0)	ug/l
VINYL CHLORIDE	ND	(1.0)	ug/l
CHLOROETHANE	ND	(1.0)	ug/l
METHYLENE CHLORIDE	ND	(0.1)	ug/l
TRICHLOROFLUOROMETHANE	ND	(1.0)	ug/l
1,1-DICHLOROETHENE	ND	(0.1)	ug/l
1,1-DICHLOROETHANE	ND	(0.1)	ug/l
TRANS-1,2-DICHLOROETHENE	ND	(0.1)	ug/l
CHLOROFORM	ND	(0.1)	ug/l
1,2-DICHLOROETHANE	ND	(0.1)	ug/l
1,1,1-TRICHLOROETHANE	ND	(0.1)	ug/l
CARBON TETRACHLORIDE	ND	(0.1)	ug/l
BROMODICHLOROMETHANE	ND	(0.1)	ug/l
1,2-DICHLOROPROPANE	ND	(0.1)	ug/l
CIS-1,3-DICHLOROPROPENE	ND	(0.1)	ug/l
TRICHLOROETHENE	ND	(0.1)	ug/l
DIBROMOCHLOROMETHANE	ND	(0.1)	ug/l
1,1,2-TRICHLOROETHANE	ND	(0.1)	ug/l
TRANS-1,3-DICHLOROPROPENE	ND	(0.1)	ug/l
2-CHLOROETHYLVINYL ETHER	ND	(0.1)	ug/l
BROMOFORM	ND	(0.5)	ug/l
1,1,2,2-TETRACHLOROETHANE	ND	(0.1)	ug/l
TETRACHLOROETHENE	ND	(0.1)	ug/l
CHLOROBENZENE	ND	(0.1)	ug/l
1,2-DICHLOROBENZENE	ND	(0.1)	ug/l
1,3-DICHLOROBENZENE	ND	(0.1)	ug/l
1,4-DICHLOROBENZENE	ND	(0.1)	ug/l
CIS-1,2-DICHLOROETHENE	ND	(0.1)	ug/l

Method: 601 Purgeable Halocarbons, 40 CFR Part 136, USEPA (1984).

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

* Gary Recovery Well 3

Jack M. Morgan
Senior Organic Chemist

WPN 852

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 05 02 89 LAB NO. WW 1304

USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235

Collection DATE 89 04 27

Collection TIME 1735

SITE INFORMATION ►

Sample location: Gary BRC RW-3

Collection site description:

Collected by — Person/Agency: Boyer /OCD

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MAY 30 1989
OIL CONSERVATION DIV.
SANTA FE

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	Discharge	Sample type: Grab
pH (00400)	Conductivity (Uncorrected) µmho	Water Temp. (00010) °C	Conductivity at 25°C (00094) µmho

Field comments: Product recovery well

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_2SO_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:			
☐ Other:			
☐ Other:			

A-H_2SO_4			
☒ Nitrate-N +, Nitrate-N total (00630)	<0.04	mg/l	5/9
☒ Ammonia-N total (00610)	0.23	mg/l	5/8
☒ Total Kjeldahl-N ( )	2.14	mg/l	5/23
☐ 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
	5 24 89	C Lee

Laboratory remarks:

FOR OCD USE -- Date Owner Notified_____ Phone or Letter?_____ Initals_____

859
WNN

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 05 02 89 | LAB NO. WC-1548

USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235

Collection DATE 891041127

Collection TIME 1735

SITE INFORMATION ►

Sample location: GARY BLOOMFIELD RW3 (MW-10)

Collection site description:

Collected by — Person/Agency: BOYER /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	Discharge	Sample type: GRAB
pH (00400) —	Conductivity (Uncorrected) μmho	Water Temp. (00010) — °C	Conductivity at 25°C (00094) μmho

Field comments: Sample taken with pump and hose in well production recovery well

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_2SO_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)	4366	μmho	5/15
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☒ Other: pH	7.66		5/9
☐ Other:			
☐ Other:			

A-H_2SO_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:			

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JUN 16 1989
OIL CONSERVATION DIV. SANTA FE

From WF, NA Sample:

			Date Analyzed
☒ Calcium	76	mg/l	5/10
☒ Potassium	5	mg/l	5/4
☒ Magnesium	31.7	mg/l	5/10
☒ Sodium	1046	mg/l	5/4
☒ Bicarbonate	2265	mg/l	5/9
☒ Chloride	645	mg/l	5/4
☒ Sulfate	197	mg/l	6/9
☒ Total Solids	3142	mg/l	5-3
☐			
☐			
☒ Cation/Anion Balance			

Analyst | Date Reported: 6 13 89 | Reviewed by

Laboratory remarks:

645

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

CATIONS				ANIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT	ANALYTE	MEQ.	PPM	DET. LIMIT
Ca	3.79	76.00	<3.0	HC03	37.12	2265.00	<1.0
Mg	2.60	31.70	<0.3	SO4	4.10	197.00	<10.0
Na	45.50	1046.00	<10.0	CL	18.19	645.00	<5.0
K	0.13	5.00	<0.3				
Mn	0.00	0.00		NO3	0.00	0.00	< 0.
Fe	0.00	0.00		C03	0.00	0.00	< 1.
				NH3	0.00	0.00	< 0.
				PO4	0.00	0.00	< 0.
SUMS	52.02	1158.70			59.42	3107.00	

Total Dissolved Solids= 1830

Ion Balance = 87.55%

WC No. = 8901348

Date out/By 6/13

RECEIVED

JUN 16 1989

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: 05/02/89 | Lab No. ICAP 206 | User Code: ☒ 82235 ☐ Other:

COLLECTION DATE & TIME: yy 89 | mm 04 | dd 27 | hh 17 | mm 35

COLLECTED BY: BOYER

COLLECTION SITE DESCRIPTION: GARY BLOOMFIELD REF
RW - 3

OWNER:

TO: RECEIVED
AUG 25 1989
OIL CONSERVATION DIV.
SANTA FE

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

ATTN: DAVID BOYER
TELEPHONE: 827-5812

SITE LOCATION:
County: San Juan
Township, Range, Section, Tract: (10N06E24342)
| | | + | | + | | + | | |

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

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

SAMPLING CONDITIONS:

☒ Bailed ☐ Dipped	☐ Pump ☐ Tap	Water Level:	Discharge:	Sample Type: GRAB

pH(00400)	Conductivity(Uncorr.) µmho	Water Temp.(00010) °C	Conductivity at 25°C (00094) µmho
—	—	—	

FIELD COMMENTS: Product recovery well

SAMPLE FIELD TREATMENT Check proper boxes:		LAB ANALYSIS REQUESTED:
☒ 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.

ANALYTICAL RESULTS (MG/L)

ELEMENT	ICAP VALUE	AA VALUE	ELEMENT	ICAP VALUE	AA VALUE
Aluminum	<0.1		Silicon	17.	
Barium	1.2		Silver	<0.1 ☐	
Beryllium	<0.1		Strontium	4.0	
Boron	1.0		Tin	<0.1	
Cadmium	<0.1 ☐		Vanadium	<0.1	
Calcium	100.		Zinc	<0.1	
Chromium	<0.1 ☒	<0.025	Arsenic	☒	<0.005
Cobalt	<0.05		Selenium	☐	
Copper	<0.1		Mercury	☐	
Iron	2.7			☐	
Lead	<0.1 ☒	<0.005		☐	
Magnesium	31.			☐	
Manganese	1.9			☐	
Molybdenum	<0.1			☐	
Nickel	<0.1			☐	

LAB COMMENTS: Digest

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

ICAP Analyst JAA
Date Analyzed

Reviewer
Date Reveived 8/21/89

Inter·Mountain Laboratories, Inc.

BLOOMFIELD REFINING COMPANY
Attn: Chris Hawley
P.O. Box 159
Bloomfield, NM 87413

September 26, 1988

RE: Environmental Analysis:

Sample Site: RW-3 (mw-10)
Lab No: F1874
Date Sampled: 09/09/88 @ 1415
Date Received:09/09/88

Parameter	
Nitrate + Nitrite as "N", mg/l.....	<0.01
Phenol, mg/l.....	0.05
Sulfate, mg/l.....	9.5
Total Dissolved Solids @ (180C), mg/l.	3250

Inter·Mountain Laboratories, Inc.

Report Date: 09/26/88

Client: BLOOMFIELD REFINING CO.

Sample ID: RW-3 (MW-1D)
Laboratory Number: F1874
Analysis Requested:: Purgeable Aromatics
Sample Matrix: Water

Date Sampled: 09/09/88
Date Received: 09/09/88
Date Extracted: 09/20/88
Date Analyzed: 09/20/88

Parameter	Concentration		Units
BENZENE	12000	(0.2)	ug/l
ETHYLBENZENE	2.86	(0.2)	ug/l
TOLUENE	62.	(0.2)	ug/l
M-XYLENE	3500	(0.2)	ug/l
O-XYLENE	103	(0.2)	ug/l
P-XYLENE	1800	(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

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

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

Ron R. Richardson
Laboratory Director

Inter-Mountain Laboratories, Inc.

Report Date: 09/26/88

Client: BLOOMFIELD REFINING CO.

Sample ID: RW-3 (mw-10)
Laboratory Number: F1874
Analysis Requested: Purgeable Aromatics
Sample Matrix: Water

Date Sampled: 09/09/88
Date Received: 09/09/88
Date Extracted: 09/23/88
Date Analyzed: 09/23/88

Parameter	Concentration		Units
CHLOROMETHANE	ND	(1.0)	ug/l
BROMOMETHANE	ND	(1.0)	ug/l
VINYL CHLORIDE	ND	(1.0)	ug/l
CHLOROETHANE	ND	(1.0)	ug/l
METHYLENE CHLORIDE	ND	(1.0)	ug/l
TRICHLOROFLUOROMETHANE	ND	(1.0)	ug/l
1,1 DICHLOROETHENE	ND	(1.0)	ug/l
BROMOCHLOROMETHANE	ND	(1.0)	ug/l
1,1 DICHLOROETHANE	ND	(1.0)	ug/l
CHLOROFORM	ND	(1.0)	ug/l
1,2 DICHLOROETHANE	ND	(1.0)	ug/l
1,1,1 TRICHLOROETHANE	ND	(1.0)	ug/l
CARBONTETRACHLORIDE	ND	(1.0)	ug/l
1,2 DICHLOROPROPANE	ND	(1.0)	ug/l
TRICHLOROETHENE	ND	(1.0)	ug/l
TRANS 1,2 DICHLOROETHENE	ND	(1.0)	ug/l
2 CHLOROETHYL VINYL ETHER	ND	(1.0)	ug/l
TRANS 1,3 DICHLOROPROPENE	ND	(1.0)	ug/l
CIS 1,3 DICHLOROPROPENE	ND	(1.0)	ug/l
DIBROMO CHLOROMETHANE	ND	(1.0)	ug/l
BROMOFORM	ND	(1.0)	ug/l
1,1,2 TRICHLOROETHANE	ND	(1.0)	ug/l
1,1,2,2 TETRACHLOROETHANE	ND	(1.0)	ug/l
TETRACHLOROETHENE	ND	(1.0)	ug/l
CHLOROBENZENE	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.

Ron R Richardson

Ron R. Richardson
Laboratory Director

754
wpw

SCIENTIFIC LABORATORY DIVISION

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

HEALTH ENVIRONMENT

87-0908-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- 908 A+B
DATE REC. 6-1-87
PRIORITY

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

SAMPLE COLLECTION CODE: (YYMMDDHHMMIII) 870528133089 85

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

COUNTY: San Juan ; CITY: Bloomfield CODE: ____

LOCATION CODE: (Township-Range-Section-Tracts) 29N+11W+27+23 (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

RECEIVED AUG - 3 1987 OIL CONSERVATION DIVISION SANTA FE

Remarks: ____

FIELD DATA:

pH= 7 ; Conductivity= 3250 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.)

MW-10 Conoco Bloomfield Refinery. VOC From 2nd bail (well purged 5/27). Water dark gray, H.C. odor. Scum on water in well, none on sample.

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities.(signature collector): D. G. 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-$Na_2S_2O_3$ 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- 908

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		
benzene	10300		
ethylbenzene	2300		
p-xylene	6300		
m-xylene	14100		
o-xylene	200		
halogenated purgeables	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: Nine compounds in the aromatic screen at 100-300 ppb det and ten late eluting compounds at 100-500 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: 6/19/87 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: R Meyerhen

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

860 WNC

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED: 6/1/87	LAB NO.: WC-1979	USER CODE: ☐ 59300 ☐ 59600 ☒ OTHER: 82235	
Collection DATE: 5/25/87	SITE INFORMATION ►	Sample location: MW-10, Gary Bloomfield Refinery	
Collection TIME: 1330		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:

SAMPLING CONDITIONS

☒ Bailed ☐ Dipped ☐ Pump ☐ Tap	Water level	Discharge	Sample type: GRAB
pH (00400): 7 (Strip)	Conductivity (Uncorrected): 3750 µmho	Water Temp. (00010): 17 °C	Conductivity at 25°C (00094): µmho
Field comments: See VOC sheet. Hydrocarbon odor			

SAMPLE FIELD TREATMENT — *Check proper boxes* Prefilter only

No. of samples submitted: 1

☐ **NF:** Whole sample (Non-filtered) ☐ **F:** Filtered in field with 0.45 µmembrane filter ☐ **A:** 2 ml H_2SO_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)	4350	µmho	6/19
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☒ Other: pH	7.37		6/10
☐ Other:			
☐ Other:			

A-H_2SO_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 PF, NA Sample:			Date Analyzed
☒ Calcium	44	mg/l	6/17
☒ Potassium	3.12	mg/l	6/18
☒ Magnesium	46	mg/l	6/17
☒ Sodium	975	mg/l	6/18
☒ Bicarbonate	2410	mg/l	6/10
☒ Chloride	399	mg/l	6/10
☒ Sulfate	203	mg/l	6/12
☒ Total Solids	3012	mg/l	6/14
☐			
☐			
☒ Cation/Anion Balance			

Analyst	Date Reported	Reviewed by
	6/19/87	CO

Laboratory remarks:

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

CATIONS				ANIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT	ANALYTE	MEQ.	PPM	DET. LIMIT
Ca	2.20	44.00	<3.0	HC03	39.50	2410.00	<1.0
Mg	3.78	46.00	<0.3	SO4	4.23	203.00	<10.0
Na	40.23	925.00	<10.0	CL	11.26	399.00	<5.0
K	0.08	3.12	<0.3				
Mn	0.00	0.00		NO3	0.00	0.00	< 0.
Fe	0.00	0.00		C03	0.00	0.00	< 1.
				NH3	0.00	0.00	< 0.
				PO4	0.00	0.00	< 0.
SUMS	46.29	1018.12			54.98	3012.00	

Total Dissolved Solids= 3012

Ion Balance = 84.19%

WC No. = 8701979

Date out/By CO 6/24/87

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

852 wpf

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED 6/1/87	LAB NO. WC-1967	USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235	
Collection DATE 5/25/87	SITE INFORMATION ►	Sample location MW-10, Gary Bloomfield Refinery	
Collection TIME 1330		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

SAMPLING CONDITIONS

☒ Bailed ☐ Pump ☐ Dipped ☐ Tap	Water level	Discharge	Sample type GRAB
pH (00400) 7 (Strip)	Conductivity (Uncorrected) 3750 µmho	Water Temp. (00010) 17 °C	Conductivity at 25°C (00094) µmho

Field comments See VOC sheet. Hydrocarbon odor

SAMPLE FIELD TREATMENT — *Check proper boxes* Prod. Well only

No. of samples submitted 1

☐ **NF:** Whole sample (Non-filtered) ☐ **F:** Filtered in field with 0.45 µmembrane filter ☒ **A:** 2 ml H_2SO_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:			
☐ Other:			
☐ Other:			
DF $A\text{-}H_2SO_4$			
☒ Nitrate-N +, Nitrate-N total (00630)	< 0.04	mg/l	6/4
☒ Ammonia-N total (00610)	0.13	mg/l	6/1
☒ Total Kjeldahl-N ( )	1.95	mg/l	6/23
☐ 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
	6/23/87	

Laboratory remarks

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

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~~ Heavy Metal ANALYSIS

DATE RECEIVED: 6/1/87	LAB NO.: ICP-312	USER CODE: ☐ 59300 ☐ 59600 ☒ OTHER: 82235	
Collection DATE: 5/25/87	SITE INFORMATION ►	Sample location: MW-10, Gary Bloomfield Refinery	
Collection TIME: 1330		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:

SAMPLING CONDITIONS

☒ Bailed ☐ Dipped ☐ Pump ☐ Tap	Water level	Discharge	Sample type: GRAB
pH (00400): 7 (Strip)	Conductivity (Uncorrected): 3750 µmho	Water Temp. (00010): 17 °C	Conductivity at 25°C (00094): µmho
Field comments: See VOC sheet. 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 µmembrane filter ☐ **A:** 2 ml H_2SO_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~~ FA — Units — Date analyzed

☐ Conductivity (Corrected) 25°C (00095)		µmho	
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☒ Other: ICAP			
☐ Other:			
☐ Other:			

A-H_2SO_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: 6/4/87 | Reviewed by: Jim Ashby

Laboratory remarks:

FOR OCD USE -- Date Owner Notified_____ Phone or Letter?_____ Initals_____

ICAP SCAN

SLD Lab No. ICP 312 Reviewed by: Jim Ashby

Analyst QB QK Date Reported: 6/4/87

Date Analyzed 6/1/87

ELEMENT	ICAP VALUE(mg/l)	AA VALUE(mg/l)
Aluminum	<0.1	
Barium	0.7	
Beryllium	<0.1	
Boron	1.2	
Cadmium	<0.1	
Calcium	150.	
Chromium	<0.1	
Cobalt	<0.05	
Copper	<0.1	
Iron	0.2	
Lead	<0.1	
Magnesium	51.	
Manganese	2.6	
Molybdenum	<0.1	
Nickel	<0.1	
Silicon	18.	
Silver	<0.1	
Strontium	5.4	
Tin	0.6	
Vanadium	<0.1	
Zinc	<0.1	
Arsenic		
Selenium		
Mercury		

ASSAIGAI ANALYTICAL LABORATORIES

TO: Bloomfield Refinery
Attn: Chris Hawley
PO Box 159
Bloomfield, NM 87413

DATE: 23 July 1986
1030

SAMPLE ID: MW - 10

ANALYTE	ANALYTICAL RESULTS
CN	<0.01 mg/l
TDS	2820 mg/l
Cl	569.8 mg/l
SO 4	165 mg/l
Phenols	0.186 mg/l
TOC	76 mg/l
Sb	<0.01 mg/l
As	0.053 mg/l
Be	<0.01 mg/l
Cd	<0.010 mg/l
Cr	<0.050 mg/l
Cu	<0.03 mg/l
Pb	0.059 mg/l
Hg	<0.002 mg/l
Ni	<0.25 mg/l
Se	0.040 mg/l
Ag	<0.050 mg/l
Tl	<0.01 mg/l
Zn	0.015 mg/l
Volatiles	
Acrolein	ND
Acrylonitrile	ND
Benzene	ND
Bromoform	ND
Carbon Tetrachloride	ND
Chlorobenzene	ND
Chlorodibromomethane	ND
Chloroethane	ND
2-Chloroethylvinyl ether	ND
Chloroform	ND
Dichlorobromomethane	ND
1,1-Dichloroethane	ND
1,2-Dichloroethane	ND
1,1-Dichloroethylene	ND
1,2-Dichloropropane	ND
1,2-Dichloropropylene	ND
Ethylbenzene	ND

Field by CH 6/24/86

pH 7.08

Conductivity 4400

7300 Jefferson, N.E. • Albuquerque, New Mexico 87109 • (505) 345-8964

SAMPLE ID: MW - 10

ANALYTE	ANALYTICAL RESULTS
Methyl Bromide	ND
Methyl Chloride	ND
Methylene Chloride	ND
1,1,2,2-Tetrachloroethane	ND
Tetrachloroethylene	ND
Toluene	ND
1,2-Transdichloroethylene	ND
1,1,1-Trichloroethane	ND
1,1,2-Trichloroethane	ND
Trichloroethylene	ND
Vinyl Chloride	ND
Acid Compounds	
2-Chlorophenol	ND
2,4-Dichlorophenol	ND
2,4-Dimethylphenol	ND
4,6-Dinitro-o-cresol	ND
2,4-Dinitrophenol	ND
2-Nitrophenol	ND
4-Nitrophenol	ND
P-chloro-m-cresol	ND
pentachlorophenol	ND
Phenol	ND
2,4,6-Trichlorophenol	ND
Base Neutrals	
Acenaphthene	ND
Acenaphthylene	ND
Anthracene	ND
Benzidine	ND
Benzo(a)anthracene	ND
Benzo(a)pyrene	ND
3,4-Benzofluoranthene	ND
Benzo(g,h,i)perylene	ND
Benzo(k)fluoranthene	ND
Bis(2-chloroethoxy)methane	ND
Bis(2-chlroroethyl)ether	ND
Bis(2-chloroisopropyl)ether	ND
Bis(2-ethylhexyl)phthalate	ND
4-Bromophenyl phenyl ether	ND
Butylbenzyl phthalate	ND
2-Chloronapthalene	ND
4-Chlorophenyl phenyl ether	ND
Chrysene	ND

SAMPLE ID: MW - 10

ANALYTE	ANALYTICAL RESULTS
Dibenzo(a,h)anthracene	ND
1,2-Dichlorobenzene	ND
1,3-Dichlorobenzene	ND
1,4-Dichlorobenzene	ND
3,3-Dichlorobenzidine	ND
Diethyl phthalate	ND
Dimethyl phthalate	ND
Din-n-butyl phthalate	ND
2,4-Dinitrotoluene	ND
2,6-Dinitrotoluene	ND
Di-n-octyl phthalate	ND
1,2-Diphenylhydrazine	ND
Fluoranthene	ND
Fluorene	ND
Hexachlorobenzene	ND
Hexachlorobutadiene	ND
Hexachlorocyclopentadiene	ND
Hexachloroethane	ND
Indeno(1,2,3-cd)pyrene	ND
Isophorone	ND
Naphthalene	ND
Nitrobenzene	ND
N-nitrosodimethylamine	ND
N-nitrosodie-n-propylamine	ND
N-nitrosodiphenylamine	ND
Phenanthrene	ND
Pyrene	ND
1,2,4-Trichlorobenzene	ND

ND = None Detected

TO: Bloomfield Refinery
Attn: Chris Hawley
PO Box 159
Bloomfield, NM 87413

DATE: 23 July 1986
1030

NOMINAL DETECTION LIMITS

ANALYTE	
CN	0.01 mg/l
TDS	1 mg/l
Cl	1.0 mg/l
SO 4	1.0 mg/l
Phenols	0.002 mg/l
TOC	0.1 mg/l
Sb	0.01 mg/l
As	0.05 mg/l
Be	0.01 mg/l
Cd	0.010 mg/l
Cr	0.050 mg/l
Cu	0.03 mg/l
Pb	0.050 mg/l
Hg	0.002 mg/l
Ni	0.06 mg/l
Se	0.010 mg/l
Ag	0.050 mg/l
Tl	0.01 mg/l
Zn	0.01 mg/l
Benzene	0.001 mg/l
Toluene	0.001 mg/l
Xylenes	0.001 mg/l
Ethylbenzene	0.001 mg/l
Ba	0.01 mg/l
Fe	0.04 mg/l
Mn	0.005 mg/l
Al	0.05 mg/l
B	0.01 mg/l
Co	0.05 mg/l
Mo	0.01 mg/l
F	0.1 mg/l
No 3 as N	0.01 mg/l
1,2-DCE	0.001 mg/l
1,1-DCE	0.001 mg/l
1,1,2,2-TCE	0.001 mg/l
1,1,2-TCE	0.001 mg/l

Dectection limits for Volatiles, Base/Neutrals and Acid Compounds all 0.001 mg/l

Report Analysis
14 May 86

TO: Bloomfield Refinery

DATE: 0502

Sample date: 3/26/86

ANALYTE	SAMPLE ID/ ANALYTICAL RESULTS		
	MW 8	MW 9	MW 10
CN	<0.01 mg/l	<0.01 mg/l	<0.10 mg/l
Phenols	<0.001 mg/l	0.304 mg/l	0.147 mg/l
TOC	5 mg/l	143 mg/l	34 mg/l
TDS	806 mg/l	2360 mg/l	1546 mg/l
Cl	160 mg/l	149 mg/l	245 mg/l
SO 4	4.0 mg/l	13.0 mg/l	5.3 mg/l
Benzene	ND	7.4 mg/l	0.093 mg/l
Toluene	ND	6.3 mg/l	ND
Xylenes	ND	ND	ND
Ethylbenzene	0.107 mg/l	3.2 mg/l	ND
Sb	<0.01 mg/l	<0.01 mg/l	<0.01 mg/l
As	<0.050 mg/l	<0.050 mg/l	<0.050 mg/l
Be	<0.01 mg/l	<0.01 mg/l	<0.01 mg/l
Cd	0.010 mg/l	0.010 mg/l	0.020 mg/l
Cr	<0.050 mg/l	<0.050 mg/l	<0.050 mg/l
Cu	<0.03 mg/l	<0.03 mg/l	<0.03 mg/l
Pb	<0.050 mg/l	<0.050 mg/l	<0.050 mg/l
Hg	<0.002 mg/l	<0.002 mg/l	<0.002 mg/l
Ni	<0.06 mg/l	0.30 mg/l	0.08 mg/l
Se	<0.010 mg/l	<0.010 mg/l	<0.010 mg/l
Ag	<0.050 mg/l	<0.050 mg/l	<0.050 mg/l
Tl	<0.01 mg/l	<0.01 mg/l	<0.01 mg/l
Zn	<0.01 mg/l	0.012 mg/l	<0.01 mg/l
Acrolein	ND	ND	ND
Acrylonitrile	ND	ND	ND
Bromoform	ND	ND	ND
Carbon Tetrachloride	ND	ND	ND
Chlorobenzene	ND	ND	ND
Chlorodibromomethane	ND	ND	ND
Chloroethane	ND	ND	ND
2-Chloroethylvinyl Ether	ND	ND	ND
Chloroform	ND	ND	ND
Dichlorogromomethane	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND
1.2-Dichloroethane	ND	ND	ND
1,1-Dichloroethylene	ND	ND	ND
1,2-Dichloropropane	ND	ND	ND
1,3-Dichloropropylene	ND	ND	ND

TO: Bloomfield Refinery

ANALYTE	SAMPLE ID/ ANALYTICAL RESULTS		
	MW 8	MW 9	MW 10
Methyl Bromide	ND	ND	ND
Methyl Chloride	ND	ND	ND
Methylene Chloride	ND	ND	ND
1,1,2,2-Tetrachloroethane	ND	ND	ND
Tetrachloroethylene	ND	ND	ND
1,2-Transdichloroethylne	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND
1,1,2-Trichloroethane	ND	ND	ND
Trichloroethylene	ND	ND	ND
Vinyl Chloride	ND	ND	ND
Acid Compounds			
2-chlorophenol	ND	ND	ND
2,4-dichlorophenol	ND	ND	ND
2,4-dimethylphenol	ND	0.160 mg/l	0.025 mg/l
4,6-dinitro-o-cresol	ND	ND	0.020 mg/l
2,4-dinitrophenol	ND	ND	ND
2-nitrophenol	ND	ND	ND
4-nitrophenol	ND	ND	ND
p-chloro-m-cresol	ND	ND	ND
pentachlorophenol	ND	ND	ND
Phenol	ND	0.149 mg/l	0.090 mg/l
2,4,6-trichlorophenol	ND	ND	ND
Base Neutrals			
Acenaphthene	ND	ND	ND
Acenaphthylene	ND	ND	ND
Anthracene	ND	ND	0.039 mg/l
Benzidine	ND	ND	ND
Benzo(a)anthracene	ND	ND	ND
Benzo(a)pyrene	ND	ND	ND
3,4-benzofluoranthene	ND	ND	ND
Benzo(ghi)perylene	ND	ND	ND
Benzo(k)fluoranthene	ND	ND	ND
Bis(2-chloroethoxy)methane	ND	ND	ND
Bis(2-chloroethyl)ether	ND	ND	ND
Bis(2-chloroisopropyl)ether	ND	ND	ND
Bis(2-ethylhexyl)phthalate	ND	ND	ND
4-bromophenyl phenyl ether	ND	ND	ND
Butylbenzyl phthalate	ND	ND	ND
2-chloronaphtalene	ND	ND	ND
4-chlorophenyl phenyl ether	ND	ND	ND
Chrysene	ND	ND	ND

TO: Bloomfield Refinery

ANALYTE	SAMPLE ID/ ANALYTICAL RESULTS		
	MW 8	MW 9	MW 10
Dibenzo(a,h)anthracene	ND	ND	ND
1,2-Dichlorobenzene	ND	ND	ND
1,3-Dichlorobenzene	ND	ND	ND
1,4-Dichlorobenzene	ND	ND	ND
3,3-Dichlorobenzidine	ND	ND	ND
Diethyl phthalate	ND	ND	ND
Dimethyl phthalate	ND	ND	ND
Din-n-butyl phthalate	ND	ND	ND
2,4-dinitrotoluene	ND	ND	ND
2,6-dinitrotoluene	ND	ND	ND
Di-n-octyl phthalate	ND	ND	ND
1,2-diphenylhydrazine	ND	ND	ND
Fluoranthene	ND	ND	0.034 mg/l
Fluorene	ND	0.012 mg/l	0.033 mg/l
Hexachlorobenzene	ND	ND	ND
Hexachlorobutadiene	ND	ND	ND
Hexachlorocyclopentadiene	ND	ND	ND
Hexachloroethane	ND	ND	ND
Indeno(1,2,3-cd)pyrene	ND	ND	ND
Isophorone	ND	ND	ND
Naphthalene	ND	ND	ND
Nitrobenzene	ND	ND	ND
N-nitrosodimethylamine	ND	ND	ND
N-nitrosodie-n-propylamine	ND	ND	ND
N-nitrosodiphenylamine	ND	ND	ND
Phenanthrene	ND	ND	ND
Pyrene	ND	ND	0.030 mg/l
1,2,4-trichlorobenzene	ND	ND	ND

ND = None Detected

REFERENCE:"Test Methods for Evaluating Solid Waste, Physical/ Chemical Methods, USEPA, SW 846, EMSL-Cincinnati, 1982.

NOMINAL DETECTION LIMITS

CN	0.01 mg/l
Phenols	0.001 mg/l
TOC	0.1 mg/l
TDS	1 mg/l
Cl	1.0 mg/l
SO 4	1.0 mg/l
Benzene	5 mg/l
Toluene	5 mg/l
Xylenes	5 mg/l
Ethylbenzene	5 mg/l
Sb	0.01 mg/l
As	0.050 mg/l
Be	0.01 mg/l
Cd	0.002 mg/l
Cr	0.050 mg/l
Cu	0.03 mg/l
Pb	0.001 mg/l
Hg	0.002 mg/l
Ni	0.01 mg/l
Se	0.010 mg/l
Ag	0.050 mg/l
Tl	0.01 mg/l
Zn	0.01 mg/l

Detection limits for Volatiles, Acid Compounds, and Base/Neutrals are all 0.001 mg/l

An invoice for services is enclosed. Thank you for contacting Assaigai Laboratories.

Sincerely,

Jennifer V. Smith

Jennifer V. Smith, Ph.D.
Laboratory Director

F89160

~~SCIENTIFIC LABORATORY DIVISION~~
ORGANIC ANALYSIS REQUEST FORM
~~Organic Section — Phone: 841-2570~~

#77-521.07-125

REPORT TO: DAVID BOYER
N.M. OIL CONSERVATION DIVISION
P.O. Box 2088
Santa Fe, NM 87504-2088

S.L.D. No. OR-
DATE REC.
PRIORITY
PHONE(S): 827-5812

COLLECTION CITY: Bloomfield ; COUNTY: San Juan

COLLECTION DATE/TIME CODE: (Year-Month-Day-Hour-Minute) |8|9|0|9|2|1|7|1|6|1|0|

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

USER CODE: |8|2|2|3|5| SUBMITTER: David Boyer CODE: |2|6|0|

SAMPLE TYPE: WATER [X], SOIL [ ], FOOD [ ], OTHER:

This form accompanies 3 Septum Vials, ____ Glass Jugs, and/or ____ ____

Samples were preserved as follows:

- [ ] NP: No Preservation; Sample stored at room temperature.
- [X] P-Ice Sample stored in an ice bath (Not Frozen).
- [ ] P-AA Sample Preserved with Ascorbic Acid to remove chlorine residual.
- [X] P-HCl Sample Preserved with Hydrochloric Acid (2 drops/40 ml)

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 Headspace (1-5 Carbons)
- [X] (754) Aromatic & Halogenated Purgeables
- [ ] (765) Mass Spectrometer Purgeables
- [ ] (766) Trihalomethanes
- [ ] (774) SDWA VOC's I (8 Regulated +)
- [ ] (775) SDWA VOC's II (EDB & DBCP)

Other Specific Compounds or Classes

- [ ] _____
- [ ] _____

EXTRACTABLE SCREENS

- [ ] (751) Aliphatic Hydrocarbons
- [ ] (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= 1950 umho/cm at 12.5 °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.)

Gary BRC - MW #11, black, H color, foam, discontinuous sheen

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

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 [ ] OR Seals Intact: Yes [ ] No [ ]

Signatures _____ _____

For OCD use: Date owner notified: 9/11/89 Phone or Letter? Initials DJB
All constituents

ANALYSES PERFORMED LAB. No.: OR-

THIS PAGE FOR LABORATORY RESULTS ONLY

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

PURGEABLE SCREENS

- ☐ (753) Aliphatic Headspace (1-5 Carbons)
- ☐ (754) Aromatic & Halogenated Purgeables
- ☐ (765) Mass Spectrometer Purgeables
- ☐ (766) Trihalomethanes
- ☐ (774) SDWA VOC's I (8 Regulated +)
- ☐ (775) SDWA VOC's II (EDB & DBCP)

Other Specific Compounds or Classes

- ☐ _____
- ☐ _____

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
- ☐ (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]
* 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) Not Sealed ☐ 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: _____

Inter·Mountain
Laboratories, Inc.

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

Report Date: 05/15/89

Client:	New Mexico OCD		
Sample ID:	8904271610	Date Sampled:	04/27/89
Laboratory Number:	F891590	Date Received:	04/28/89
Analysis Requested:	Purgeable Aromatics	Date Extracted:	NA
Sample Matrix:	Water	Date Analyzed:	05/11/89

Parameter	Concentration	Units
BENZENE	5400 (20)	ug/l
TOLUENE	ND (20)	ug/l
ETHYLBENZENE	530 (20)	ug/l
m,p-XYLENE	9900 (20)	ug/l
o-XYLENE	ND (20)	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 Organic Chemist

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MAY 23 1989
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SANTA FE

Inter·Mountain
Laboratories, Inc.

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

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SANTA FE

Report Date: 05/09/89

Client: New Mexico OCD
Sample ID: 8904271610
IML Sample No: F891590
Analysis Requested: Purgeable Halocarbons
Sample Matrix: Water

Date Sampled: 04/27/89
Date Received: 04/28/89
Date Extracted: N/A
Date Analyzed: 05/02/89

Parameter	Concentration		Units
CHLOROMETHANE	ND	(10.0)	ug/l
BROMOMETHANE	ND	(10.0)	ug/l
DICHLORODIFLUOROMETHANE	ND	(10.0)	ug/l
VINYL CHLORIDE	ND	(10.0)	ug/l
CHLOROETHANE	ND	(10.0)	ug/l
METHYLENE CHLORIDE	ND	(1.0)	ug/l
TRICHLOROFLUOROMETHANE	ND	(10.0)	ug/l
1,1-DICHLOROETHENE	ND	(1.0)	ug/l
1,1-DICHLOROETHANE	ND	(1.0)	ug/l
TRANS-1,2-DICHLOROETHENE	ND	(1.0)	ug/l
CHLOROFORM	ND	(1.0)	ug/l
1,2-DICHLOROETHANE	ND	(1.0)	ug/l
1,1,1-TRICHLOROETHANE	ND	(1.0)	ug/l
CARBON TETRACHLORIDE	ND	(1.0)	ug/l
BROMODICHLOROMETHANE	ND	(1.0)	ug/l
1,2-DICHLOROPROPANE	ND	(1.0)	ug/l
CIS-1,3-DICHLOROPROPENE	ND	(1.0)	ug/l
TRICHLOROETHENE	ND	(1.0)	ug/l
DIBROMOCHLOROMETHANE	ND	(1.0)	ug/l
1,1,2-TRICHLOROETHANE	ND	(1.0)	ug/l
TRANS-1,3-DICHLOROPROPENE	ND	(1.0)	ug/l
2-CHLOROETHYLVINYL ETHER	ND	(1.0)	ug/l
BROMOFORM	ND	(5.0)	ug/l
1,1,2,2-TETRACHLOROETHANE	ND	(1.0)	ug/l
TETRACHLOROETHENE	ND	(1.0)	ug/l
CHLOROBENZENE	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
CIS-1,2-DICHLOROETHENE	ND	(1.0)	ug/l

Method: 601 Purgeable Halocarbons, 40 CFR Part 136, USEPA (1984).

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

Jack M. Morgan
Senior Organic Chemist

iml
Inter·Mountain
Laboratories, Inc.

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

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SANTA FE

** Quality Assurance Report
Matrix Duplicate Analysis

Report Date: 05/09/89

Client: New Mexico OCD
Sample ID: 8904271610
IML Sample No: F891590
Analysis Requested: Purgeable Halocarbons
Sample Matrix: Water

Date Sampled: 04/27/89
Date Received: 04/28/89
Date Extracted: N/A
Date Analyzed: 05/02/89

Parameter	Concentration		Units
CHLOROMETHANE	ND	(10.0)	ug/l
BROMOMETHANE	ND	(10.0)	ug/l
DICHLORODIFLUOROMETHANE	ND	(10.0)	ug/l
VINYL CHLORIDE	ND	(10.0)	ug/l
CHLOROETHANE	ND	(10.0)	ug/l
METHYLENE CHLORIDE	ND	(1.0)	ug/l
TRICHLOROFLUOROMETHANE	ND	(10.0)	ug/l
1,1-DICHLOROETHENE	ND	(1.0)	ug/l
1,1-DICHLOROETHANE	ND	(1.0)	ug/l
TRANS-1,2-DICHLOROETHENE	ND	(1.0)	ug/l
CHLOROFORM	ND	(1.0)	ug/l
1,2-DICHLOROETHANE	ND	(1.0)	ug/l
1,1,1-TRICHLOROETHANE	ND	(1.0)	ug/l
CARBON TETRACHLORIDE	ND	(1.0)	ug/l
BROMODICHLOROMETHANE	ND	(1.0)	ug/l
1,2-DICHLOROPROPANE	ND	(1.0)	ug/l
CIS-1,3-DICHLOROPROPENE	ND	(1.0)	ug/l
TRICHLOROETHENE	ND	(1.0)	ug/l
DIBROMOCHLOROMETHANE	ND	(1.0)	ug/l
1,1,2-TRICHLOROETHANE	ND	(1.0)	ug/l
TRANS-1,3-DICHLOROPROPENE	ND	(1.0)	ug/l
2-CHLOROETHYLVINYL ETHER	ND	(1.0)	ug/l
BROMOFORM	ND	(5.0)	ug/l
1,1,2,2-TETRACHLOROETHANE	ND	(1.0)	ug/l
TETRACHLOROETHENE	ND	(1.0)	ug/l
CHLOROBENZENE	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
CIS-1,2-DICHLOROETHENE	ND	(1.0)	ug/l

Method: 601 Purgeable Halocarbons, 40 CFR Part 136, USEPA (1984).

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

Jack M. Morgan
Senior Organic Chemist

WPF 852

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 05 02 89 | LAB NO. WC1363 | USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235

Collection DATE 89 04 27
Collection TIME 1610
Collected by — Person/Agency TBoyer /OCD

SITE INFORMATION ►
Sample location Gary BRC MW-11
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

RECEIVED
MAY 30 1989
OIL CONSERVATION DIV.
SANTA FE

Station/ well code
Owner

SAMPLING CONDITIONS

☒ Bailed ☐ Dipped ☐ Pump ☐ Tap	Water level 9.58	Discharge	Sample type Grab
pH (00400) 7	Conductivity (Uncorrected) 1950 µmho	Water Temp. (00010) 12.5 °C	Conductivity at 25°C (00094) µmho

Field comments: HC odor, black & foamy, discontinuous sheen

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_2SO_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:			
☐ Other:			
☐ Other:			

A-H_2SO_4			
☒ Nitrate-N +, Nitrate-N total (00630)	<0.04	mg/l	5/9
☒ Ammonia-N total (00610)	0.42	mg/l	5/18
☒ Total Kjeldahl-N ( )	2.14	mg/l	5/23
☐ 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 5 24 89 | Reviewed by: CGreen

Laboratory remarks

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

WNF 859

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 05 02 89	LAB NO. WC/1352	USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235	
Collection DATE 89 04 27	SITE INFORM-ATION ►	Sample location GRAB BRC MW-11	
Collection TIME 1610		Collection site description	
Collected by — Person/Agency BOYER /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 9.58'	Discharge	Sample type GRAB
pH (00400) 7	Conductivity (Uncorrected) 1950 µmho	Water Temp. (00010) 12.5 °C	Conductivity at 25°C (00094) µmho
Field comments	HC odor, black & foamy, discontinuous sheen TD 24.67' I purged 30 gallons		

SAMPLE FIELD TREATMENT — *Check proper boxes*

No. of samples submitted 1 | ☐ NF: Whole sample (Non-filtered) | PRE ☐ F: Filtered in field with 0.45 µmembrane filter | ☐ A: 2 ml H_2SO_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)	2574	µmho	5/15
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☒ Other: Lab pH	7.74		5/9
☐ Other:			
☐ Other:			

A-H_2SO_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:			

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OIL CONSERVATION DIV. SANTA FE

PRE

From WF, NA Sample:

			Date Analyzed
☒ Calcium	108	mg/l	5/10
☒ Potassium	3	mg/l	5/4
☒ Magnesium	36.6	mg/l	5/19
☒ Sodium	500	mg/l	5/4
☒ Bicarbonate	1225	mg/l	5/9
☒ Chloride	371	mg/l	5/19
☒ Sulfate	37.6	mg/l	6/9
☒ Total Solids	1858	mg/l	5-3
☐			
☐			
☒ Cation/Anion Balance			

Analyst	Date Reported	Reviewed by
	6/13/89	

Laboratory remarks

371

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

CATIONS			DET.	ANIONS			DET.
ANALYTE	MEQ.	PPM	LIMIT	ANALYTE	MEQ.	PPM	LIMIT
Ca	5.39	108.00	<3.0	HC03	20.08	1225.00	<1.0
Mg	3.01	36.60	<0.3	SO4	0.78	37.60	<10.0
Na	21.75	500.00	<10.0	CL	10.47	371.00	<5.0
K	0.08	3.00	<0.3				
Mn	0.00	0.00		NO3	0.00	0.00	< 0.
Fe	0.00	0.00		C03	0.00	0.00	< 1.
				NH3	0.00	0.00	< 0.
				PO4	0.00	0.00	< 0.
SUMS	30.22	647.60			31.32	1633.60	

Total Dissolved Solids= 1858

Ion Balance = 96.48%

WC No. = 8901352

Date out/By 6/13/89

RECEIVED
JUN 16 1989
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: 05/02/89 | Lab No./ICAP 208 | User Code: ☒ 82235 ☐ Other:

COLLECTION DATE & TIME: yy 89 | mm 04 | dd 27 | hh 16 | mm 10

COLLECTED BY: BOYER

COLLECTION SITE DESCRIPTION: GARY BRC MW-11

TO:

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

ATTN:
TELEPHONE: 827-5812

OWNER:

SITE LOCATION:
County: San Juan

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

STATION/ WELL CODE:

LATITUDE, LONGITUDE:

SAMPLING CONDITIONS:

☒ Bailed ☐ Pump ☐ Dipped ☐ Tap | Water Level: | Discharge: | Sample Type: GRAB

pH(00400)	Conductivity(Uncorr.)	Water Temp.(00010)	Conductivity at 25°C (00094)
7	1950 µmho	12.5 °C	µmho

FIELD COMMENTS: HC odor, black and foamy, discontinuous sheen

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
Aluminum	<0.1		
Barium	0.6		
Beryllium	<0.1		
Boron	0.3		
Cadmium	<0.1	☐	
Calcium	160.		
Chromium	<0.1	☒	<0.025
Cobalt	<0.05		
Copper	<0.1		
Iron	0.9		
Lead	<0.1	☒	<0.005
Magnesium	28.		
Manganese	3.0		
Molybdenum	<0.1		
Nickel	<0.1		

ELEMENT	ICAP VALUE		AA VALUE
Silicon	7.6		
Silver	<0.1	☐	
Strontium	3.4		
Tin	<0.1		
Vanadium	<0.1		
Zinc	<0.1		
Arsenic		☒	0.010
Selenium		☐	
Mercury		☐	
		☐	
		☐	
		☐	
		☐	
		☐	
		☐	

LAB COMMENTS: Digest

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

ICAP Analyst: JAA
Date Analyzed: 7/10/89

Reviewer: [signature]
Date Received: 8/21/89

BLOOMFIELD REFINING COMPANY
Attn: Chris Hawley
P.O. Box 159
Bloomfield, NM 87413

September 26, 1988

RE: Environmental Analysis:

Sample Site: MW-11
Lab No: F1875
Date Sampled: 09/09/88 @ 1445
Date Received:09/09/88

Parameter	
Nitrate + Nitrite as "N", mg/l.....	0.06
Phenol, mg/l.....	0.06
Sulfate, mg/l.....	30
Total Dissolved Solids @ (180C), mg/l.	1900

Report Date: 09/26/88

Client: BLOOMFIELD REFINING CO.

Sample ID:	MW-11	Date Sampled:	09/09/88
Laboratory Number:	F1875	Date Received:	09/09/88
Analysis Requested::	Purgeable Aromatics	Date Extracted:	09/20/88
Sample Matrix:	Water	Date Analyzed:	09/20/88

Parameter	Concentration		Units
BENZENE	44400	(0.2)	ug/l
ETHYLBENZENE	63.	(0.2)	ug/l
TOLUENE	840	(0.2)	ug/l
M-XYLENE	2600	(0.2)	ug/l
O-XYLENE	61.	(0.2)	ug/l
P-XYLENE	745	(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

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

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

Ron R. Richardson
Laboratory Director

Report Date: 09/26/88

Client: BLOOMFIELD REFINING CO.

Sample ID:	MW-11	Date Sampled:	09/09/88
Laboratory Number:	F1875	Date Received:	09/09/88
Analysis Requested:	Purgeable Aromatics	Date Extracted:	09/22/88
Sample Matrix:	Water	Date Analyzed:	09/22/88

Parameter	Concentration		Units
CHLOROMETHANE	ND	(1.0)	ug/l
BROMOMETHANE	ND	(1.0)	ug/l
VINYL CHLORIDE	ND	(1.0)	ug/l
CHLOROETHANE	ND	(1.0)	ug/l
METHYLENE CHLORIDE	ND	(1.0)	ug/l
TRICHLOROFLUOROMETHANE	ND	(1.0)	ug/l
1,1 DICHLOROETHENE	ND	(1.0)	ug/l
BROMOCHLOROMETHANE	ND	(1.0)	ug/l
1,1 DICHLOROETHANE	ND	(1.0)	ug/l
CHLOROFORM	ND	(1.0)	ug/l
1,2 DICHLOROETHANE	2.2	(1.0)	ug/l
1,1,1 TRICHLOROETHANE	ND	(1.0)	ug/l
CARBONTETRACHLORIDE	ND	(1.0)	ug/l
1,2 DICHLOROPROPANE	ND	(1.0)	ug/l
TRICHLOROETHENE	ND	(1.0)	ug/l
TRANS 1,2 DICHLOROETHENE	ND	(1.0)	ug/l
2 CHLOROETHYL VINYL ETHER	ND	(1.0)	ug/l
TRANS 1,3 DICHLOROPROPENE	ND	(1.0)	ug/l
CIS 1,3 DICHLOROPROPENE	ND	(1.0)	ug/l
DIBROMO CHLOROMETHANE	ND	(1.0)	ug/l
BROMOFORM	ND	(1.0)	ug/l
1,1,2 TRICHLOROETHANE	ND	(1.0)	ug/l
1,1,2,2 TETRACHLOROETHANE	ND	(1.0)	ug/l
TETRACHLOROETHENE	ND	(1.0)	ug/l
CHLOROBENZENE	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.

Ron R. Richardson

Ron R. Richardson
Laboratory Director

SCIENTIFIC LABORATORY DIVISION
ORGANIC ANALYSIS REQUEST FORM
Organic Section - Phone: 841-2570

88-0862-C

REPORT TO: DAVID BOYER
N.M. OIL CONSERVATION DIVISION
P.O. Box 2088
Santa Fe, NM 87504-2088

WP4 754

S.L.D. No. OR-
DATE REC. 6/10/88
PRIORITY 3
PHONE(S): 827-5812

COLLECTION CITY: Bloomfield ; COUNTY: San Juan

COLLECTION DATE/TIME CODE: (Year-Month-Day-Hour-Minute) |8|8|0|6|0|7|1|4|5|5|

LOCATION CODE: (Township-Range-Section-Tracts) |2|9|N+|1|1|W+|2|7+|2|3| |(10N06E24342)

USER CODE: |8|2|2|3|5| SUBMITTER: David Boyer CODE: |2|6|0|

SAMPLE TYPE: WATER [X], SOIL [ ], FOOD [ ], OTHER: ______

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

Samples were preserved as follows:

- [ ] NP: No Preservation; Sample stored at room temperature.
- [X] P-Ice Sample stored in an ice bath (Not Frozen).
- [ ] P-AA Sample Preserved with Ascorbic Acid to remove chlorine residual.
- [X] P-HCl Sample Preserved with Hydrochloric Acid (2 drops/40 ml)

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 Headspace (1-5 Carbons)
- [X] (754) Aromatic & Halogenated Purgeables
- [ ] (765) Mass Spectrometer Purgeables
- [ ] (766) Trihalomethanes
- [ ] (774) SDWA VOC's I (8 Regulated +)
- [ ] (775) SDWA VOC's II (EDB & DBCP)

Other Specific Compounds or Classes

- [ ] ______
- [ ] ______

EXTRACTABLE SCREENS

- [ ] (751) Aliphatic Hydrocarbons
- [ ] (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= 2180 umho/cm at 13.5 °C; Chlorine Residual= ______ mg/l

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

Depth to water 9.4 ft.; Depth of well 24.9 ft.; Perforation Interval ______-______ ft.; Casing: ______

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

Gary Refining MW-11 Foamy, H/C odor, NO free product Bloomfield Refinery

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

CHAIN OF CUSTODY

I certify that this sample was transferred from DAVID BOYER to Gary C. Eden

at (location) SLD-ALB on 6/9/88 - ______:______ and that

the statements in this block are correct. Evidentiary Seals: Not Sealed [ ] OR Seals Intact: Yes [X] No [ ]

Signatures D G Boyer Gary C. Eden

For OCD use: Date owner notified: 8/22 Phone or Letter? Initials DGB

ANALYSES PERFORMED

LAB. [redacted].: OR- 862

THIS PAGE FOR LABORATORY RESULTS ONLY

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

PURGEABLE SCREENS

- ☐ (753) Aliphatic Headspace (1-5 Carbons)
- ☒ (754) Aromatic & Halogenated Purgeables
- ☐ (765) Mass Spectrometer Purgeables
- ☐ (766) Trihalomethanes
- ☐ (774) SDWA VOC's I (8 Regulated +)
- ☐ (775) SDWA VOC's II (EDB & DBCP)

Other Specific Compounds or Classes

- ☐ _____
- ☐ _____

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
- ☐ (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		halogenated purgeables	
Benzene	7960	1,2-Dichlorobenzene	T.R.
Toluene	3160		
Ethylbenzene	200		
p & m-Xylene	12800		
o-xylene	N.D.		
* DETECTION LIMIT * ✱	50 ppb	+ DETECTION LIMIT + +	2.5 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: _____

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Not Sealed ☐ Intact: Yes ☒ No ☐. Seal(s) broken by: R Meyerhen date: 6/15/88

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: 6/15/88. Analyst's signature: Mary C. Ellen

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

Reviewers signature: _____

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

859 ~~WNP~~ WNP

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED: 6/10/88 | LAB NO. WC-2087 | USER CODE: ☐ 59300 ☐ 59600 ☒ OTHER: 82235

Collection DATE: 88/06/07
Collection TIME: 1455
Collected by — Person/Agency: Boyer/Anderson /OCD

SITE INFORMATION ►
Sample location: Gary Bloomfield MW-11
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

RECEIVED AUG 8 1988 OIL CONSERVATION DIVISION SANTA FE

Station/well code:
Owner: Gary Refining

SAMPLING CONDITIONS

☒ Bailed ☒ Pump ☐ Dipped ☐ Tap	Water level: 9.4 FT	Discharge: —	Sample type: GRAB
pH (00400): 7	Conductivity (Uncorrected): 2050 µmho	Water Temp. (00010): 13.5 °C	Conductivity at 25°C (00094): µmho

Field comments: Foamy, 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 µmembrane filter ☐ A: 2 ml H_2SO_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)	2267	µmho	7/11
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☒ Other: Lab pH	8.70		7/19
☐ Other:			
☐ Other:			

A-H_2SO_4		Units	Date analyzed
☐ 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:

		Units	Date Analyzed
☒ Calcium	24	mg/l	7/19
☒ Potassium	2	mg/l	7/8
☒ Magnesium	53.7	mg/l	7/19
☒ Sodium	578	mg/l	7/8
☒ Bicarbonate	894	mg/l	7/19
☒ Chloride	343	mg/l	6/29
☒ Sulfate	12.7	mg/l	6/29
☒ Total Solids	1442	mg/l	7/7
☒ Bromide	4.57		6/22
☐			
☒ Cation/Anion Balance			

Analyst: | Date Reported: 7/29/88 | Reviewed by: [signature]

Laboratory remarks: Received by [signature] 6/9/88 SLD ALB [signature]
343

FOR OCD USE -- Date Owner Notified ________ Phone or Letter? ________ Initals ________

CATIONS				ANIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT	ANALYTE	MEQ.	PPM	DET. LIMIT
Ca	1.20	24.00	<3.0	HC03	14.65	894.00	<1.0
Mg	4.41	53.70	<0.3	SO4	0.26	12.70	<10.0
Na	25.14	578.00	<10.0	CL	9.68	343.00	<5.0
K	0.05	2.00	<0.3				
Mn	0.00	0.00		NO3	0.00	0.00	< 0.
Fe	0.00	0.00		C03	0.60	35.80	< 1.
				NH3	0.00	0.00	< 0.
				PO4	0.00	0.00	< 0.
SUMS	30.80	657.70			25.19	1285.50	

Total Dissolved Solids= 1442
Ion Balance = 122.28%

WC No. = 8802087
Date out/By CR 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	6/10/88	Lab No. ICP-264	User Code	☐ 82235	☐ Other:

COLLECTION DATE & TIME: yy 88 | mm 06 | dd 07 | hh 14 | mm 55

COLLECTED BY: Boyd / Anderson OCD

COLLECTION SITE DESCRIPTION: MW-11

TO:

OWNER: Gary Bloomfield Refinery

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

SITE LOCATION:
County: Bloomfield

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

ATTN: D. Boyd
TELEPHONE: 827-5812

STATION/ WELL CODE:

LATITUDE, LONGITUDE:

SAMPLING CONDITIONS:

☒ Bailed ☒ Pump ☐ Dipped ☐ Tap	Water Level: 9.4 –	Discharge: –	Sample Type: Grab

pH(00400)	Conductivity(Uncorr.)	Water Temp.(00010)	Conductivity at 25°C (00094)
7	2050 µmho	13.5 °C	µmho

FIELD COMMENTS: Roomy, H/C odor

SAMPLE FIELD TREATMENT Check proper boxes:		LAB ANALYSIS REQUESTED:
☐ 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.

ANALYTICAL RESULTS (MG/L)

ELEMENT	ICAP VALUE	AA VALUE	ELEMENT	ICAP VALUE	AA VALUE
Aluminum	<0.1		Silicon	19.	
Barium	0.4		Silver	<0.1	☐
Beryllium	<0.1		Strontium	3.8	
Boron	0.5		Tin	<0.1	
Cadmium	<0.1	☐	Vanadium	<0.1	
Calcium	150.		Zinc	<0.1	
Chromium	<0.1	☒ <0.005	Arsenic		☐
Cobalt	<0.05		Selenium		☐
Copper	<0.1		Mercury		☐
Iron	0.2				☐
Lead	<0.1	☒ <0.01			☐
Magnesium	32.				☐
Manganese	3.9				☐
Molybdenum	<0.1				☐
Nickel	<0.1				☐

LAB COMMENTS: Soil extract. Looked by JAA 6/14/88.

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

ICAP Analyst JB Reviewer J. Ashley

Date Analyzed 7/13/88 Date Received 7/25/88

Received by [illegible] 6/9/88 SLD-ALB

Inter·Mountain
Laboratories, Inc.

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

Client: Bloomfield Refining Company

Sample ID: MW11
Laboratory Number: F1528
Analysis Requested: Method 602, 8010
Sample Matrix: Water
Date Sampled: 06/03/88
Date Received: 06/06/88

Parameter	Method	Concentration		Units
BENZENE	602	3.0	(0.001)	mg/l
TOLUENE	602	0.46	(0.001)	mg/l
CARBONTETRACHLORIDE	8010	ND	(0.001)	mg/l
1,2-DICHLOROETHENE	8010	ND	(0.001)	mg/l
1,1-DICHLOROETHYLENE	8010	ND	(0.001)	mg/l
1,1,2,2-TETRACHLOROETHYLENE	8010	ND	(0.001)	mg/l
1,1,2-TRICHLOROETHYLENE	8010	ND	(0.001)	mg/l

Method: 602, Purgeable Aromatics, Methods for Organic Chemical Analysis of of Muicipal and Industrial Wasrewater, USEPA (1984).

Method: 8010, Halogenated Volatile Organics, SW-846, USEPA (1982).

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

Ron R. Richardson
Lab. Director

(8709111600)

(335)

ASSAIGAI ANALYTICAL LABORATORIES

TO: Geosience Consultants
ATTN: Mike Selke
500 Copper NW Suite 200
Albuquerque, NM 87102

DATE: 30 September 1987
1498

ANALYTE	SAMPLE ID/ANALYTICAL RESULTS mw-12 8709111600	mw-11 8709111630	NOMINAL DETECTION LIMIT
Phenols	<0.01 mg/l	<0.01 mg/l	0.01 mg/l
Oil & Grease	0.691 mg/l	1.3 mg/l	0.01 mg/l
As	<0.05 mg/l	<0.05 mg/l	0.05 mg/l
Ba	<1.0 mg/l	6.72 mg/l	1.0 mg/l
Cd	<0.01 mg/l	0.018 mg/l	0.01 mg/l
Cr	0.064 mg/l	0.200 mg/l	0.05 mg/l
Pb	0.120 mg/l	0.320 mg/l	0.05 mg/l
Hg	<0.002 mg/l	<0.002 mg/l	0.002 mg/l
Se	0.022 mg/l	0.040 mg/l	0.002 mg/l
Ag	<0.05 mg/l	<0.05 mg/l	0.05 mg/l
Cu	0.048 mg/l	0.060 mg/l	0.02 mg/l
Fe	8.20 mg/l	32.0 mg/l	0.05 mg/l
Mn	0.380 mg/l	4.71 mg/l	0.05 mg/l
Zn	0.106 mg/l	0.728 mg/l	0.004 mg/l
Uranium	<5 mg/l	<5 mg/l	5 mg/l
Cl	7.9 mg/l	337.5 mg/l	1.0 mg/l
SO 4	248 mg/l	181 mg/l	1.0 mg/l
PCB	<0.05 ug/l	<0.05 ug/l	0.05 ug/l
CN	<0.005 mg/l	<0.005 mg/l	0.005 mg/l
NO 3 as N	0.181 mg/l	0.389 mg/l	0.01 mg/l
Al	9.50 mg/l	33.80 mg/l	0.05 mg/l
B	<0.1 mg/l	<0.1 mg/l	0.1 mg/l
Co	0.140 mg/l	0.256 mg/l	0.003 mg/l
Mo	<0.5 mg/l	<0.5 mg/l	0.5 mg/l
Ni	0.145 mg/l	0.213 mg/l	0.05 mg/l
F	9.7 mg/l	0.93 mg/l	0.001 mg/l
TDS	658 mg/l	1910 mg/l	1 mg/l
pH	7.50	7.04	0.01
Benzene	<0.001 mg/l	5.4 mg/l	0.001 mg/l
Toluene	<0.001 mg/l	<0.025 mg/l	0.001 mg/l
Carbon Tetrachloride	<0.005 mg/l	12 mg/l	0.005 mg/l
		13.5 mg/l	duplicate
1,2-Dichloroethane	<0.001 mg/l	0.003 mg/l	0.001 mg/l
1,1-Dichloroethylene	<0.001 mg/l	<0.001 mg/l	0.001 mg/l
1,1,2,2-Tetrachloro-ethylene	<0.001 mg/l	0.070 mg/l	0.001 mg/l
1,1,2-Trichloro-ethylene	<0.001 mg/l	0.225 mg/l	0.001 mg/l

7300 Jefferson, N.E. • Albuquerque, New Mexico 87109 • (505) 345-8964

(335) 0709111635

SAMPLE ID: TRIP BLANK

ANALYTE	ANALYTICAL RESULTS
Benzene	<0.001 mg/l
Toluene	<0.001 mg/l
Carbon Tetrachloride	<0.005 mg/l
1,2-Dichloroethane	<0.001 mg/l
1,1-Dichloroethylene	<0.001 mg/l
1,1,2,2-Tetrachloroethylene	<0.001 mg/l
1,1,2-Trichloroethylene	<0.001 mg/l

REFERENCE: "Standard Methods for the Examination of Water and Wastewater", 16th Edition, APHA, N.Y., 1985.

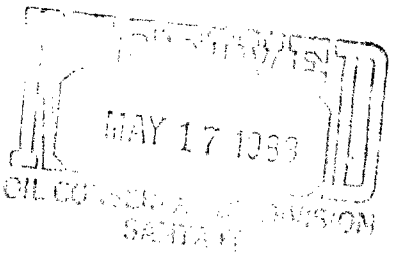
An invoice for services is enclosed. Thank you for contacting Assaigai Laboratories.

Sincerely,

Jennifer V. Smith

Jennifer V. Smith, Ph.D.
Laboratory Director

Bloomfield Refining Company
A Gary Energy Corporation Subsidiary



May 16, 1988

Mr. David G. Boyer
State of New Mexico
Oil Conservation Division
P. O. Box 2088
Land Office Building
Santa Fe, New Mexico 87504

Mr. Guy L. Tidmore
EPA Region VI
Hazardous Waste Management Division
Allied Bank Tower
1445 Ross Avenue
Dallas, Texas 75202-2733

RE: Groundwater Remedial Action at Bloomfield Refining Company

Gentlemen:

Enclosed please find copies of the Assaigai analyses "Appendix A" in the report "Site Investigation and Remedial Action Conceptual Design for the Bloomfield Refining Company" that were unreadable.

We apologize for any inconvenience this may have caused you.

Sincerely yours,

Chris Hawley
Environmental Engineer

CH/jm

Enclosure

cc: Joe Warr
Mike Macy
Richard Traylor

(8709111600)

(338)

ASSAIGAI ANALYTICAL LABORATORIES

TO: Geosience Consultants
ATTN: Mike Selke
500 Copper NW Suite 200
Albuquerque, NM 87102

DATE: 30 September 1987
1498

ANALYTE	SAMPLE ID/ANALYTICAL RESULTS mw-12 8709111600	mw-11 8709111630	NOMINAL DETECTION LIMIT
Phenols	<0.01 mg/l	<0.01 mg/l	0.01 mg/l
Oil & Grease	0.691 mg/l	1.3 mg/l	0.01 mg/l
As	<0.05 mg/l	<0.05 mg/l	0.05 mg/l
Ba	<1.0 mg/l	6.72 mg/l	1.0 mg/l
Cd	<0.01 mg/l	0.018 mg/l	0.01 mg/l
Cr	0.064 mg/l	0.200 mg/l	0.05 mg/l
Pb	0.120 mg/l	0.320 mg/l	0.05 mg/l
Hg	<0.002 mg/l	<0.002 mg/l	0.002 mg/l
Se	0.022 mg/l	0.040 mg/l	0.002 mg/l
Ag	<0.05 mg/l	<0.05 mg/l	0.05 mg/l
Cu	0.048 mg/l	0.060 mg/l	0.02 mg/l
Fe	8.20 mg/l	32.0 mg/l	0.05 mg/l
Mn	0.380 mg/l	4.71 mg/l	0.05 mg/l
Zn	0.106 mg/l	0.728 mg/l	0.004 mg/l
Uranium	<5 mg/l	<5 mg/l	5 mg/l
Cl	7.9 mg/l	337.5 mg/l	1.0 mg/l
SO 4	248 mg/l	181 mg/l	1.0 mg/l
PCB	<0.05 ug/l	<0.05 ug/l	0.05 ug/l
CN	<0.005 mg/l	<0.005 mg/l	0.005 mg/l
NO 3 as N	0.181 mg/l	0.389 mg/l	0.01 mg/l
Al	9.50 mg/l	33.80 mg/l	0.05 mg/l
B	<0.1 mg/l	<0.1 mg/l	0.1 mg/l
Co	0.140 mg/l	0.256 mg/l	0.003 mg/l
Mo	<0.5 mg/l	<0.5 mg/l	0.5 mg/l
Ni	0.145 mg/l	0.213 mg/l	0.05 mg/l
F	9.7 mg/l	0.93 mg/l	0.001 mg/l
TDS	658 mg/l	1910 mg/l	1 mg/l
pH	7.50	7.04	0.01
Benzene	<0.001 mg/l	5.4 mg/l	0.001 mg/l
Toluene	<0.001 mg/l	<0.025 mg/l	0.001 mg/l
Carbon Tetrachloride	<0.005 mg/l	12 mg/l	0.005 mg/l
		13.5 mg/l	duplicate
1,2-Dichloroethane	<0.001 mg/l	0.003 mg/l	0.001 mg/l
1,1-Dichloroethylene	<0.001 mg/l	<0.001 mg/l	0.001 mg/l
1,1,2,2-Tetrachloro-ethylene	<0.001 mg/l	0.070 mg/l	0.001 mg/l
1,1,2-Trichloro-ethylene	<0.001 mg/l	0.225 mg/l	0.001 mg/l

WQCC
0.01
0.01
0.005
0.02
0.1

SAMPLE ID: TRIP BLANK

ANALYTE	ANALYTICAL RESULTS
Benzene	<0.001 mg/l
Toluene	<0.001 mg/l
Carbon Tetrachloride	<0.005 mg/l
1,2-Dichloroethane	<0.001 mg/l
1,1-Dichloroethylene	<0.001 mg/l
1,1,2,2-Tetrachloroethylene	<0.001 mg/l
1,1,2-Trichloroethylene	<0.001 mg/l

REFERENCE: "Standard Methods for the Examination of Water and Wastewater", 16th Edition, APHA, N.Y., 1985.

An invoice for services is enclosed. Thank you for contacting Assaigai Laboratories.

Sincerely,

Jennifer V. Smith

Jennifer V. Smith, Ph.D.
Laboratory Director

SCIENTIFIC LABORATORY DIVISION
ORGANIC ANALYSIS REQUEST FORM
Organic Section - Phone: 841-2570

wpit 754

REPORT TO: DAVID BOYER — S.L.D. No. OR- 88-0861-C
N.M. OIL CONSERVATION DIVISION — DATE REC. 6/10/88
P.O. Box 2088 — PRIORITY 3
Santa Fe, NM 87504-2088 — PHONE(S): 827-5812

COLLECTION CITY: Bloomfield; COUNTY: San Juan

COLLECTION DATE/TIME CODE: (Year-Month-Day-Hour-Minute) 8806071545

LOCATION CODE: (Township-Range-Section-Tracts) 29N+11W+27+14 (10N06E24342)

USER CODE: 8 2 2 3 5 SUBMITTER: David Boyer CODE: 2 6 0

SAMPLE TYPE: WATER [X], SOIL [ ], FOOD [ ], OTHER: ____

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

Samples were preserved as follows:

- [ ] NP: No Preservation; Sample stored at room temperature.
- [X] P-Ice Sample stored in an ice bath (Not Frozen).
- [ ] P-AA Sample Preserved with Ascorbic Acid to remove chlorine residual.
- [X] P-HCl Sample Preserved with Hydrochloric Acid (2 drops/40 ml)

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 Headspace (1-5 Carbons)
- [X] (754) Aromatic & Halogenated Purgeables
- [ ] (765) Mass Spectrometer Purgeables
- [ ] (766) Trihalomethanes
- [ ] (774) SDWA VOC's I (8 Regulated +)
- [ ] (775) SDWA VOC's II (EDB & DBCP)

Other Specific Compounds or Classes
- [ ] ____
- [ ] ____

EXTRACTABLE SCREENS

- [ ] (751) Aliphatic Hydrocarbons
- [ ] (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= 6.5; Conductivity= 700 umho/cm at 15.5 °C; Chlorine Residual= ____ mg/l

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

Depth to water 90 ft.; Depth of well 159 ft.; Perforation Interval ____-____ ft.; Casing: ____

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

Gary Bloomfield MW-12 [illegible], no odor

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

CHAIN OF CUSTODY

I certify that this sample was transferred from DAVID BOYER to Gary Eden at (location) SLD-ALB on 6/9/88 - ____ : ____ and that the statements in this block are correct. Evidentiary Seals: Not Sealed [ ] OR Seals Intact: Yes [X] No [ ]

Signatures D G Boyer — Gary C. Eden

For OCD use: Date owner notified: 8/26/88 Phone or (Letter)? Initials DGB

ANALYSES PERFORMED

LAB. No.: OR- 861

THIS PAGE FOR LABORATORY RESULTS ONLY

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

PURGEABLE SCREENS

- ☐ (753) Aliphatic Headspace (1-5 Carbons)
- ☒ (754) Aromatic & Halogenated Purgeables
- ☐ (765) Mass Spectrometer Purgeables
- ☐ (766) Trihalomethanes
- ☐ (774) SDWA VOC's I (8 Regulated +)
- ☐ (775) SDWA VOC's II (EDB & DBCP)

Other Specific Compounds or Classes

- ☐ _____
- ☐ _____

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
- ☐ (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 TR/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: _____

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Not Sealed ☐ Intact: Yes ☒ No ☐. Seal(s) broken by: R Meyerhen date: 6/18/88

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: 6/15/88. 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: R Meyerhen

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

$59 WNF

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED 6/10/88 LAB NO. WC-2086 USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235

Collection DATE 880610?
Collection TIME 1545
Collected by — Person/Agency Boyer/Anderson OCD

SITE INFORMATION ► Sample location Gary Bloomfield MW-12
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

RECEIVED AUG 8 1988 OIL CONSERVATION DIVISION SANTA FE

Station/well code
Owner

SAMPLING CONDITIONS

☒ Bailed ☒ Pump ☐ Dipped ☐ Tap	Water level 9.0'	Discharge —	Sample type GRAB
pH (00400) 6.5	Conductivity (Uncorrected) 700 µmho	Water Temp. (00010) 15.5 °C	Conductivity at 25°C (00094) µmho

Field comments [illegible], no odor

SAMPLE FIELD TREATMENT — Check proper boxes

No. of samples submitted 1
☐ NF: Whole sample (Non-filtered)
☒ F: Filtered in field with 0.45 µmembrane filter
☐ A: 2 ml H_2SO_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)	583	µmho	7/11
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☒ Other: Lab pH	8.38		7/19
☐ Other:			
☐ Other:			

A-H_2SO_4		Units	Date analyzed
☐ 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	32 ~~100~~	mg/l	7/19
☐ Potassium		mg/l	7/18
☒ Magnesium	4.9	mg/l	7/19
☒ Sodium	62	mg/l	7/18
☒ Bicarbonate	158	mg/l	7/19
☒ Chloride	<5	mg/l	6/29
☒ Sulfate	152	mg/l	6/29
☒ Total Solids	402	mg/l	7/7
☐			
☐			
☒ Cation/Anion Balance			

Analyst	Date Reported	Reviewed by
	7/29/88	[illegible]

Laboratory remarks Received by [illegible] 6/9/88 SLD-ALB [signature]

FOR OCD USE -- Date Owner Notified______ Phone or Letter?______ Initals______

CATIONS				ANIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT	ANALYTE	MEQ.	PPM	DET. LIMIT
Ca	1.60	32.00	<3.0	HC03	2.59	158.00	<1.0
Mg	0.40	4.90	<0.3	SO4	3.17	152.00	<10.0
Na	2.70	62.00	<10.0	CL	0.14	5.00	<5.0
K	0.05	2.00	<0.3				
Mn	0.00	0.00		NO3	0.00	0.00	< 0.
Fe	0.00	0.00		C03	0.00	0.00	< 1.
				NH3	0.00	0.00	< 0.
				PO4	0.00	0.00	< 0.
SUMS	4.75	100.90			5.90	315.00	

Total Dissolved Solids= 402

Ion Balance = 80.50%

WC No. = 8802086

Date out/By 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	6/10/88	Lab No.	ICP-259	User Code	☒ 82235 ☐ Other:

COLLECTION DATE & TIME: yy 88 mm 06 dd 07 hh 15 mm 45

COLLECTED BY: Boyer/Anderson

COLLECTION SITE DESCRIPTION: MW-12

TO:

OWNER: Gary Bloomfield

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

ATTN: D. Boyer
TELEPHONE: 827-5812

SITE LOCATION:
County: San Juan

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

STATION/ WELL CODE:

LATITUDE, LONGITUDE:

SAMPLING CONDITIONS:

☒ Bailed ☐ Dipped ☒ Pump ☐ Tap	Water Level: 9.0	Discharge:	Sample Type: Grab
pH(00400) 6.5	Conductivity(Uncorr.) 700 µmho	Water Temp.(00010) 15.5 °C	Conductivity at 25°C (00094) µmho

FIELD COMMENTS: No odor

SAMPLE FIELD TREATMENT Check proper boxes:		LAB ANALYSIS REQUESTED:
☐ 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.

ANALYTICAL RESULTS (MG/L)

ELEMENT	ICAP VALUE	AA	AA VALUE	ELEMENT	ICAP VALUE	AA	AA VALUE
Aluminum	<0.1			Silicon	8.9		
Barium	<0.1			Silver	<0.1	☐	
Beryllium	<0.1			Strontium	1.0		
Boron	<0.1			Tin	<0.1		
Cadmium	<0.1	☐		Vanadium	<0.1		
Calcium	59.			Zinc	<0.1		
Chromium	<0.1	☐		Arsenic		☐	
Cobalt	<0.05			Selenium		☐	
Copper	<0.1			Mercury		☐	
Iron	<0.1					☐	
Lead	<0.1	☐				☐	
Magnesium	7.5					☐	
Manganese	0.07					☐	
Molybdenum	<0.1					☐	
Nickel	<0.1					☐	

LAB COMMENTS: Seal intact. Broken by JJA 6/14/88.

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

ICAP Analyst JB Date Analyzed 7/13/88

Reviewer Date Reveiyed 7/15/88

Received by 6/9/88 SLD-ALB

Inter-Mountain Laboratories, Inc.

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

Client: Bloomfield Refining Company

Sample ID: MW12
Laboratory Number: F1529
Analysis Requested: Method 602, 8010
Sample Matrix: Water
Date Sampled: 06/03/88
Date Received: 06/06/88

Parameter	Method	Concentration		Units
BENZENE	602	ND	(0.001)	mg/l
TOLUENE	602	ND	(0.001)	mg/l
CARBONTETRACHLORIDE	8010	ND	(0.001)	mg/l
1,2-DICHLOROETHENE	8010	ND	(0.001)	mg/l
1,1-DICHLOROETHYLENE	8010	ND	(0.001)	mg/l
1,1,2,2-TETRACHLOROETHYLENE	8010	ND	(0.001)	mg/l
1,1,2-TRICHLOROETHYLENE	8010	ND	(0.001)	mg/l

Method: 602, Purgeable Aromatics, Methods for Organic Chemical Analysis of of Muicipal and Industrial Wasrewater, USEPA (1984).

Method: 8010, Halogenated Volatile Organics, SW-846, USEPA (1982).

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

Ron R. Richardson
Lab. Director

(8709111600)

(335)

ASSAIGAI ANALYTICAL LABORATORIES

TO: Geosience Consultants
ATTN: Mike Selke
500 Copper NW Suite 200
Albuquerque, NM 87102

DATE: 30 September 1987
1498

ANALYTE	SAMPLE ID/ANALYTICAL RESULTS MW-12 8709111600	MW-11 8709111630	NOMINAL DETECTION LIMIT
Phenols	<0.01 mg/l	<0.01 mg/l	0.01 mg/l
Oil & Grease	0.691 mg/l	1.3 mg/l	0.01 mg/l
As	<0.05 mg/l	<0.05 mg/l	0.05 mg/l
Ba	<1.0 mg/l	6.72 mg/l	1.0 mg/l
Cd	<0.01 mg/l	0.018 mg/l	0.01 mg/l
Cr	0.064 mg/l	0.200 mg/l	0.05 mg/l
Pb	0.120 mg/l	0.320 mg/l	0.05 mg/l
Hg	<0.002 mg/l	<0.002 mg/l	0.002 mg/l
Se	0.022 mg/l	0.040 mg/l	0.002 mg/l
Ag	<0.05 mg/l	<0.05 mg/l	0.05 mg/l
Cu	0.048 mg/l	0.060 mg/l	0.02 mg/l
Fe	8.20 mg/l	32.0 mg/l	0.05 mg/l
Mn	0.380 mg/l	4.71 mg/l	0.05 mg/l
Zn	0.106 mg/l	0.728 mg/l	0.004 mg/l
Uranium	<5 mg/l	<5 mg/l	5 mg/l
Cl	7.9 mg/l	337.5 mg/l	1.0 mg/l
SO 4	248 mg/l	181 mg/l	1.0 mg/l
PCB	<0.05 ug/l	<0.05 ug/l	0.05 ug/l
CN	<0.005 mg/l	<0.005 mg/l	0.005 mg/l
NO 3 as N	0.181 mg/l	0.389 mg/l	0.01 mg/l
Al	9.50 mg/l	33.80 mg/l	0.05 mg/l
B	<0.1 mg/l	<0.1 mg/l	0.1 mg/l
Co	0.140 mg/l	0.256 mg/l	0.003 mg/l
Mo	<0.5 mg/l	<0.5 mg/l	0.5 mg/l
Ni	0.145 mg/l	0.213 mg/l	0.05 mg/l
F	9.7 mg/l	0.93 mg/l	0.001 mg/l
TDS	658 mg/l	1910 mg/l	1 mg/l
pH	7.50	7.04	0.01
Benzene	<0.001 mg/l	5.4 mg/l	0.001 mg/l
Toluene	<0.001 mg/l	<0.025 mg/l	0.001 mg/l
Carbon Tetrachloride	<0.005 mg/l	12 mg/l	0.005 mg/l
		13.5 mg/l duplicate	
1,2-Dichloroethane	<0.001 mg/l	0.003 mg/l	0.001 mg/l
1,1-Dichloroethylene	<0.001 mg/l	<0.001 mg/l	0.001 mg/l
1,1,2,2-Tetrachloroethylene	<0.001 mg/l	0.070 mg/l	0.001 mg/l
1,1,2-Trichloroethylene	<0.001 mg/l	0.225 mg/l	0.001 mg/l

7300 Jefferson, N.E. • Albuquerque, New Mexico 87109 • (505) 345-8964

(33F) 0709111635

SAMPLE ID: TRIP BLANK

ANALYTE	ANALYTICAL RESULTS
Benzene	<0.001 mg/l
Toluene	<0.001 mg/l
Carbon Tetrachloride	<0.005 mg/l
1,2-Dichloroethane	<0.001 mg/l
1,1-Dichloroethylene	<0.001 mg/l
1,1,2,2-Tetrachloroethylene	<0.001 mg/l
1,1,2-Trichloroethylene	<0.001 mg/l

REFERENCE: "Standard Methods for the Examination of Water and Wastewater", 16th Edition, APHA, N.Y., 1985.

An invoice for services is enclosed. Thank you for contacting Assaigai Laboratories.

Sincerely,

Jennifer V. Smith

Jennifer V. Smith, Ph.D.
Laboratory Director

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT 3171

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

Contract Lab Inter-Mountain Contract No.

OCD Sample No. 8909131025

Collection Date	Collection Time	Collected by—Person/Agency
9/13/89	1025	Anderson / OCD

SITE INFORMATION

Sample location: GARY REFINERY MW-13

Collection Site Description:

Township, Range, Section, Tract: | | + | | + | + | |

SEND FINAL REPORT TO

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088

SAMPLING CONDITIONS

- [x] Bailed [ ] Pump [ ] Dipped [ ] Tap
- pH(00400): 7
- Water Temp. (00010): 16.5°C
- Water level:
- Discharge:
- Sample type: GRAB
- Conductivity (Uncorrected): 3350 µmho
- Conductivity at 25° C: µmho

SAMPLE FIELD TREATMENT — *Check proper boxes*

No. of samples submitted: 2 Vials

- [x] **NF:** Whole sample (Non-filtered)
- [ ] **F:** Filtered in field with 0.45 µ membrane filter
- [ ] **PF:** Pre-filtered w/45 µ membrane filter

- [x] **NA:** No acid added
- [ ] **A:** HCL
- [ ] **A:** 2ml H_2SO_4/L added
- [ ] **A:** 5ml conc. HNO_3 added
- [ ] **A:** 4ml fuming HNO_3 added

FIELD COMMENTS: Well purged 28 gals before sampling

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
[x] 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	

Inter·Mountain
Laboratories, Inc.

OIL CONSERVATION DIVISION
RECEIVED
'89 OCT 24 AM 9 23

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

CLIENT: OCD
ID: 8909131025
SITE: Gary MW-13
LAB NO: F3171
DATE REPORTED: 10/18/89
DATE ANALYZED: 10/05/89
DATE RECEIVED: 09/15/89
DATE COLLECTED: 09/15/89
Analysis Requested: Purgeable aromatics in water.

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

Method:
8020 Aromatic Volatile Organics, SW-846, USEPA (1982)
602 Purgeable Aromatics, 40 CFR, Part 136

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

Notes: Evidence seal intact.
Due to laboratory error two week holding time exceeded.

C. Neal Schaeffer
Senior Chemist

Inter-Mountain
Laboratories, Inc.

OIL CONSERVATION DIVISION
RECEIVED

'89 OCT 24 AM 9 23

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

CLIENT: OCD
ID: 8909131025
SITE: Gary MW-13
LAB NO: F3171
DATE REPORTED: 10/18/89
DATE ANALYZED: 10/05/89
DATE RECEIVED: 09/15/89
DATE COLLECTED: 09/15/89
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
Benzyl Chloride	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.

Notes: Evidence seal intact.
Due to laboratory error two week holding time exceeded.

C. Neal Schaeffer
Senior Chemist

Inter-Mountain Laboratories, Inc.

Report Date: 10/11/89

Client: New Mexico OCD

Sample ID:	Gary Refinery MW-13 (3171)	Date Sampled:	09/13/89
Laboratory Number:	B89440	Date Received:	09/22/89
Analysis Requested:	8010	Date Extracted:	N/A
Sample Matrix:	Aqueous	Date Analyzed:	10/05/89
Preservative:	Cool		
Condition:	Good		

Parameter	Concentration	Det. Limit	Units
Chloromethane	ND	0.8	ug/l
Bromomethane	ND	*	ug/l
Dichlorodifluoromethane	ND	*	ug/l
Vinyl Chloride	ND	1.8	ug/l
Chloroethane	ND	5.2	ug/l
Methylene Chloride	ND	1.0	ug/l
Trichlorofluoromethane	ND	*	ug/l
1,1-Dichloroethene	ND	0.7	ug/l
Bromochloromethane	ND	1.0	ug/l
1,1-Dichloroethane	ND	0.7	ug/l
trans-1,2-Dichloroethene	ND	1.0	ug/l
cis-1,2-Dichloroethene	ND	1.0	ug/l
Chloroform	ND	0.5	ug/l
1,2-Dichloroethane	ND	0.3	ug/l
Dibromomethane	ND	*	ug/l
1,1,1-Trichloroethane	ND	0.3	ug/l
Carbon Tetrachloride	ND	1.2	ug/l
Bromodichloromethane	ND	1.0	ug/l
1,2-Dichloropropane	ND	0.4	ug/l
1,1-Dichloropropene	ND	*	ug/l
Trichloroethene (TCE)	ND	1.2	ug/l
1,3-Dichloropropene	ND	3.4	ug/l
Dibromochloromethane	ND	0.9	ug/l
1,1,2-Trichloroethane	ND	2.0	ug/l
1,2-Dibromoethane (EDB)	ND	1.0	ug/l
2-Chloroethylvinyl ether	ND	1.3	ug/l
Bromoform	ND	2.0	ug/l
1,1,1,2-Tetrachloroethane	ND	3.0	ug/l
1,2,3-Trichloropropane	ND	1.0	ug/l
1,1,2,2-Tetrachloroethane	ND	0.3	ug/l
Tetrachloroethene (PCE)	ND	0.3	ug/l
Chlorobenzene	ND	2.5	ug/l
1,2-Dibromo-3-chloropropane	ND	1.0	ug/l
Bromobenzene	ND	*	ug/l
2-Chlorotoluene	ND	*	ug/l
bis-2-Chloroisopropyl ether	ND	1.0	ug/l
1,3-Dichlorobenzene	ND	3.2	ug/l
1,2-Dichlorobenzene	ND	1.5	ug/l
1,4-Dichlorobenzene	ND	2.4	ug/l

Inter-Mountain Laboratories, Inc.

Method: Method 8010, Halogenated Volatile Organics, SW-846, USEPA (Sept. 1986).

ND - Parameter not detected at the stated detection limit.

* - Method detection limits not established by EPA.

Comments: Evidence tape intact upon repeipt.
Two week holding time elapsed prior to analysis.

Reviewed by Mark M. Williams 10/4/89

F89158

SCIENTIFIC LABORATORY DIVISION

ORGANIC ANALYSIS REQUEST FORM

~~Organic Section — Phone: 841-2570~~ # 77-521.07-123

REPORT TO: DAVID BOYER
N.M. OIL CONSERVATION DIVISION
P.O. Box 2088
Santa Fe, NM 87504-2088

S.L.D. No. OR-
DATE REC.
PRIORITY
PHONE(S): 827-5812

COLLECTION CITY: Bloomfield ; COUNTY: San Juan

COLLECTION DATE/TIME CODE: (Year-Month-Day-Hour-Minute) |8|9|0|4|2|7|1|5|1|5|

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

USER CODE: |8|2|2|3|5| SUBMITTER: David Boyer CODE: |2|6|0|

SAMPLE TYPE: WATER [X], SOIL [ ], FOOD [ ], OTHER:

This form accompanies 3 Septum Vials, ____ Glass Jugs, and/or ____ ____

Samples were preserved as follows:

- [ ] NP: No Preservation; Sample stored at room temperature.
- [X] P-Ice Sample stored in an ice bath (Not Frozen).
- [ ] P-AA Sample Preserved with Ascorbic Acid to remove chlorine residual.
- [X] P-HCl Sample Preserved with Hydrochloric Acid (2 drops/40 ml)

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 Headspace (1-5 Carbons)
- [X] (754) Aromatic & Halogenated Purgeables
- [ ] (765) Mass Spectrometer Purgeables
- [ ] (766) Trihalomethanes
- [ ] (774) SDWA VOC's I (8 Regulated +)
- [ ] (775) SDWA VOC's II (EDB & DBCP)

Other Specific Compounds or Classes

- [ ] _____
- [ ] _____

EXTRACTABLE SCREENS

- [ ] (751) Aliphatic Hydrocarbons
- [ ] (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= 3950 umho/cm at 15.5 °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.)

Gary RRC - MW 13, No odor

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

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 [ ] OR Seals Intact: Yes [ ] No [ ]

Signatures _____ _____

For OCD use: Date owner notified: 9/11/89 Phone or (Letter?) Initials JR

All constituents.

ANALYSES PERFORMED

LAB. No.: OR-

THIS PAGE FOR LABORATORY RESULTS ONLY

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

PURGEABLE SCREENS

- ☐ (753) Aliphatic Headspace (1-5 Carbons)
- ☐ (754) Aromatic & Halogenated Purgeables
- ☐ (765) Mass Spectrometer Purgeables
- ☐ (766) Trihalomethanes
- ☐ (774) SDWA VOC's I (8 Regulated +)
- ☐ (775) SDWA VOC's II (EDB & DBCP)

Other Specific Compounds or Classes

- ☐ _____
- ☐ _____

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
- ☐ (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]
* 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) Not Sealed ☐ 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: _____

Inter-Mountain Laboratories, Inc.

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

Report Date: 05/15/89

Client:	New Mexico OCD		
Sample ID:	8904271515	Date Sampled:	04/27/89
Laboratory Number:	F891580	Date Received:	04/28/89
Analysis Requested:	Purgeable Aromatics	Date Extracted:	NA
Sample Matrix:	Water	Date Analyzed:	05/08/89

Parameter	Concentration	Units
BENZENE	ND (0.2)	ug/l
TOLUENE	ND (0.2)	ug/l
ETHYLBENZENE	ND (0.2)	ug/l
m,p-XYLENE	ND (0.2)	ug/l
o-XYLENE	0.27 (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.

Jack M. Morgan
Senior Organic Chemist

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MAY 23 1989
OIL CONSERVATION DIV.
SANTA FE

Inter-Mountain
Laboratories, Inc.

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

** Quality Assurance Report
Field Duplicate Analysis

Report Date: 05/15/89

Client:	New Mexico OCD		
Sample ID:	8904271515	Date Sampled:	04/27/89
Laboratory Number:	F891580	Date Received:	04/28/89
Analysis Requested:	Purgeable Aromatics	Date Extracted:	NA
Sample Matrix:	Water	Date Analyzed:	05/08/89

Parameter	Concentration	Units
BENZENE	ND (0.2)	ug/l
TOLUENE	ND (0.2)	ug/l
ETHYLBENZENE	ND (0.2)	ug/l
m,p-XYLENE	ND (0.2)	ug/l
o-XYLENE	0.74 (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.

Jack M. Morgan
Senior Organic Chemist

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2506 West Main Street
Farmington, New Mexico 87401
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Report Date: 05/09/89

Client: New Mexico OCD
Sample ID: 8904271515
IML Sample No: F891580
Analysis Requested: Purgeable Halocarbons
Sample Matrix: Water

Date Sampled: 04/27/89
Date Received: 04/28/89
Date Extracted: N/A
Date Analyzed: 05/02/89

Parameter	Concentration		Units
CHLOROMETHANE	ND	(1.0)	ug/l
BROMOMETHANE	ND	(1.0)	ug/l
DICHLORODIFLUOROMETHANE	ND	(1.0)	ug/l
VINYL CHLORIDE	ND	(1.0)	ug/l
CHLOROETHANE	ND	(1.0)	ug/l
METHYLENE CHLORIDE	ND	(0.1)	ug/l
TRICHLOROFLUOROMETHANE	ND	(1.0)	ug/l
1,1-DICHLOROETHENE	ND	(0.1)	ug/l
1,1-DICHLOROETHANE	ND	(0.1)	ug/l
TRANS-1,2-DICHLOROETHENE	ND	(0.1)	ug/l
CHLOROFORM	ND	(0.1)	ug/l
1,2-DICHLOROETHANE	3.12	(0.1)	ug/l
1,1,1-TRICHLOROETHANE	ND	(0.1)	ug/l
CARBON TETRACHLORIDE	ND	(0.1)	ug/l
BROMODICHLOROMETHANE	ND	(0.1)	ug/l
1,2-DICHLOROPROPANE	ND	(0.1)	ug/l
CIS-1,3-DICHLOROPROPENE	ND	(0.1)	ug/l
TRICHLOROETHENE	ND	(0.1)	ug/l
DIBROMOCHLOROMETHANE	ND	(0.1)	ug/l
1,1,2-TRICHLOROETHANE	ND	(0.1)	ug/l
TRANS-1,3-DICHLOROPROPENE	ND	(0.1)	ug/l
2-CHLOROETHYLVINYL ETHER	ND	(0.1)	ug/l
BROMOFORM	ND	(0.5)	ug/l
1,1,2,2-TETRACHLOROETHANE	ND	(0.1)	ug/l
TETRACHLOROETHENE	ND	(0.1)	ug/l
CHLOROBENZENE	ND	(0.1)	ug/l
1,2-DICHLOROBENZENE	ND	(0.1)	ug/l
1,3-DICHLOROBENZENE	ND	(0.1)	ug/l
1,4-DICHLOROBENZENE	ND	(0.1)	ug/l
CIS-1,2-DICHLOROETHENE	ND	(0.1)	ug/l

Method: 601 Purgeable Halocarbons, 40 CFR Part 136, USEPA (1984).

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

Jack M. Morgan
Senior Organic Chemist

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SANTA FE

iml
Inter-Mountain
Laboratories, Inc.

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

** Quality Assurance Report
Spike Analysis

Report Date: 05/09/89

Client: New Mexico OCD
Sample ID: 8904271515
IML Sample No: F891580
Analysis Requested: Purgeable Halocarbons
Sample Matrix: Water

Date Sampled: 04/27/89
Date Received: 04/28/89
Date Extracted: N/A
Date Analyzed: 05/02/89

Parameter	Spike Added (ug/l)	Concentration (ug/l)	Recovery (%)
1,2-DICHLOROETHANE	10	16.25 (0.1)	131
1,1-DICHLOROETHENE	10	8.1 (0.1)	81.0
1,1,2-TRICHLOROETHANE	10	8.6 (0.1)	86.0
1,2-DICHLOROBENZENE	10	8.3 (0.1)	83.0

Method: 601 Purgeable Halocarbons, 40 CFR Part 136, USEPA (1984).

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

Jack M. Morgan
Senior Organic Chemist

WNF 859

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 05/02/89 LAB NO WC 4353

USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235

Collection DATE 89/04/27

Collection TIME 1515

Collected by — Person/Agency Boyer /OCD

SITE INFORMATION ► Sample location GARY REFINERY MW-13

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

RECEIVED JUN 27 1989 OIL CONSERVATION DIV. SANTA FE

Station/ well code

Owner

SAMPLING CONDITIONS

☒ Bailed ☐ Pump ☐ Dipped ☐ Tap	Water level 37.93'	Discharge	Sample type GRAB
pH (00400) 7	Conductivity (Uncorrected) 3950 µmho	Water Temp. (00010) 15.5 °C	Conductivity at 25°C (00094) µmho

Field comments No odor TD 53.045' purged 30 gallons

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_2SO_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)	4834	µmho	5/15
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☒ Other: Lab pH	7.75		5/9
☐ Other:			
☐ Other:			

A-H_2SO_4		Units	Date analyzed
☐ 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	304	mg/l	5/10
☒ Potassium	7	mg/l	5/17
☒ Magnesium	70.8	mg/l	5/10
☒ Sodium	755	mg/l	5/17
☒ Bicarbonate	683	mg/l	5/9
☒ Chloride	1070	mg/l	6/13
☒ Sulfate	624	mg/l	6/9
☒ Total Solids	3432	mg/l	5-3
☐			
☐			
☒ Cation/Anion Balance			

Analyst	Date Reported	Reviewed by
	6/13/89	[signature]

Laboratory remarks

1070

FOR OCD USE -- Date Owner Notified______ Phone or Letter?______ Initals______

CATIONS				ANIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT	ANALYTE	MEQ.	PPM	DET. LIMIT
[redacted]	15.17	304.00	<3.0	HCO3	11.19	683.00	<1.0
Mg	5.82	70.80	<0.3	SO4	13.00	624.00	<10.0
Na	32.84	755.00	<10.0	CL	30.18	1070.00	<5.0
K	0.18	7.00	<0.3				
Mn	0.00	0.00		NO3	0.00	0.00	< 0.
Fe	0.00	0.00		CO3	0.00	0.00	< 1.
				NH3	0.00	0.00	< 0.
				PO4	0.00	0.00	< 0.
SUMS	54.00	1136.80			54.38	2377.00	

Total Dissolved Solids= 3432

Ion Balance = 99.32%

WC No. = 8901355

Date out/By CD 6/20

RECEIVED
JUN 27 1989
OIL CONSERVATION DIV.
SANTA FE

WPF 852

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 05 02 89 | LAB NO. WC-7358 | USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235

Collection DATE 89 04 27 | Collection TIME 1515 | Collected by — Person/Agency Boyer /OCD

SITE INFORMATION ►

Sample location: Gary Refinery MW-13

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

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MAY 30 1989
OIL CONSERVATION DIV.
SANTA FE

Attn: David Boyer

Phone: 827-5812

Station/well code:

Owner:

SAMPLING CONDITIONS

☒ Bailed ☐ Dipped ☐ Pump ☐ Tap	Water level	Discharge	Sample type: Grab
pH (00400): 7	Conductivity (Uncorrected): 3950 µmho	Water Temp. (00010): 15.5 °C	Conductivity at 25°C (00094): µmho

Field comments: No odor

SAMPLE FIELD TREATMENT — *Check proper boxes*

No. of samples submitted: 1

☐ NF: Whole sample (Non-filtered) ☒ F: Filtered in field with 0.45 µmembrane filter ☒ A: 2 ml H_2SO_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:			
☐ Other:			
☐ Other:			

A-H_2SO_4			
☒ Nitrate-N +, Nitrate-N total (00630)	3.66	mg/l	5/9
☒ Ammonia-N total (00610)	<0.1	mg/l	5/8
☒ Total Kjeldahl-N ( )	0.74	mg/l	5/23
☐ 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: 5 24 89 | Reviewed by

Laboratory remarks:

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

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: 05/02/89 | Lab No: ICAP 219 | User Code: ☒ 82235 ☐ Other:

COLLECTION DATE & TIME: yy 89 mm 04 dd 27 hh 15 mm 15

COLLECTED BY: BOYER

COLLECTION SITE DESCRIPTION: GARY REFINERY MW-13

TO:

OWNER:

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

ATTN: DAVID BOYER
TELEPHONE: 827-5812

SITE LOCATION:
County: San Juan

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

STATION/ WELL CODE:

LATITUDE, LONGITUDE:

SAMPLING CONDITIONS:

☒ Bailed ☐ Dipped ☐ Pump ☐ Tap	Water Level: 37.93	Discharge:	Sample Type: GRAB
pH(00400): 7	Conductivity(Uncorr.): 3950 µmho	Water Temp.(00010): 15.5 °C	Conductivity at 25°C (00094): µmho

FIELD COMMENTS: No odor

SAMPLE FIELD TREATMENT Check proper boxes:		LAB ANALYSIS REQUESTED:
☐ 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.

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	7.0		
Boron	0.4			Tin	<0.1		
Cadmium	<0.1	☐		Vanadium	<0.1		
Calcium	330.			Zinc	<0.1		
Chromium	<0.1	☒	<0.025	Arsenic		☒	<0.005
Cobalt	<0.05			Selenium		☐	
Copper	<0.1			Mercury		☐	
Iron	<0.1					☐	
Lead	<0.1	☒	<0.005			☐	
Magnesium	73.					☐	
Manganese	1.3					☐	
Molybdenum	<0.1					☐	
Nickel	<0.1					☐	

LAB COMMENTS: Digest

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

ICAP Analyst: JAA
Date Analyzed: 5/10/89

Reviewer: [signature]
Date Received: 8/21/89

BLOOMFIELD REFINING COMPANY
Attn: Chris Hawley
P.O. Box 159
Bloomfield, NM 87413

September 26, 1988

RE: Environmental Analysis:

Sample Site: MW-13
Lab No: F1876
Date Sampled: 09/09/88 @ 1145
Date Received:09/09/88

Parameter	
Nitrate + Nitrite as "N", mg/l.....	13.1
Phenol, mg/l.....	0.03
Sulfate, mg/l.....	728
Total Dissolved Solids @ (180C), mg/l.	3220

Report Date: 09/26/88

Client: BLOOMFIELD REFINING CO.

Sample ID:	MW-13	Date Sampled:	09/09/88
Laboratory Number:	F1876	Date Received:	09/09/88
Analysis Requested::	Purgeable Aromatics	Date Extracted:	09/19/88
Sample Matrix:	Water	Date Analyzed:	09/19/88

Parameter	Concentration		Units
BENZENE	0.23	(0.2)	ug/l
ETHYLBENZENE	0.29	(0.2)	ug/l
TOLUENE	0.24	(0.2)	ug/l
M-XYLENE	0.65	(0.2)	ug/l
O-XYLENE	0.56	(0.2)	ug/l
P-XYLENE	0.35	(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

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

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

Ron R. Richardson
Laboratory Director

Report Date: 09/26/88

Client: BLOOMFIELD REFINING CO.

Sample ID:	MW-13	Date Sampled:	09/09/88
Laboratory Number:	F1876	Date Received:	09/09/88
Analysis Requested:	Purgeable Aromatics	Date Extracted:	09/23/88
Sample Matrix:	Water	Date Analyzed:	09/23/88

Parameter	Concentration		Units
CHLOROMETHANE	ND	(1.0)	ug/l
BROMOMETHANE	ND	(1.0)	ug/l
VINYL CHLORIDE	ND	(1.0)	ug/l
CHLOROETHANE	ND	(1.0)	ug/l
METHYLENE CHLORIDE	ND	(1.0)	ug/l
TRICHLOROFLUOROMETHANE	ND	(1.0)	ug/l
1,1 DICHLOROETHENE	ND	(1.0)	ug/l
BROMOCHLOROMETHANE	ND	(1.0)	ug/l
1,1 DICHLOROETHANE	ND	(1.0)	ug/l
CHLOROFORM	ND	(1.0)	ug/l
1,2 DICHLOROETHANE	15.6	(1.0)	ug/l
1,1,1 TRICHLOROETHANE	ND	(1.0)	ug/l
CARBONTETRACHLORIDE	ND	(1.0)	ug/l
1,2 DICHLOROPROPANE	ND	(1.0)	ug/l
TRICHLOROETHENE	ND	(1.0)	ug/l
TRANS 1,2 DICHLOROETHENE	ND	(1.0)	ug/l
2 CHLOROETHYL VINYL ETHER	ND	(1.0)	ug/l
TRANS 1,3 DICHLOROPROPENE	ND	(1.0)	ug/l
CIS 1,3 DICHLOROPROPENE	ND	(1.0)	ug/l
DIBROMO CHLOROMETHANE	ND	(1.0)	ug/l
BROMOFORM	ND	(1.0)	ug/l
1,1,2 TRICHLOROETHANE	ND	(1.0)	ug/l
1,1,2,2 TETRACHLOROETHANE	ND	(1.0)	ug/l
TETRACHLOROETHENE	ND	(1.0)	ug/l
CHLOROBENZENE	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.

Ron R. Richardson
Laboratory Director

Report Date: 09/26/88

Client: BLOOMFIELD REFINING CO.

Sample ID:	P-1	Date Sampled:	09/09/88
Laboratory Number:	F1877	Date Received:	09/09/88
Analysis Requested::	Purgeable Aromatics	Date Extracted:	09/20/88
Sample Matrix:	Water	Date Analyzed:	09/20/88

Parameter	Concentration		Units
BENZENE	102200	(0.2)	ug/l
ETHYLBENZENE	1.43	(0.2)	ug/l
TOLUENE	34.	(0.2)	ug/l
M-XYLENE	483	(0.2)	ug/l
O-XYLENE	61	(0.2)	ug/l
P-XYLENE	322	(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

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

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

Ron R. Richardson
Laboratory Director

Report Date: 09/26/88

Client: BLOOMFIELD REFINING CO.

Sample ID: P-1
Laboratory Number: F1877
Analysis Requested: Purgeable Aromatics
Sample Matrix: Water

Date Sampled: 09/09/88
Date Received: 09/09/88
Date Extracted: 09/23/88
Date Analyzed: 09/23/88

Parameter	Concentration		Units
CHLOROMETHANE	ND	(1.0)	ug/l
BROMOMETHANE	ND	(1.0)	ug/l
VINYL CHLORIDE	ND	(1.0)	ug/l
CHLOROETHANE	ND	(1.0)	ug/l
METHYLENE CHLORIDE	ND	(1.0)	ug/l
TRICHLOROFLUOROMETHANE	ND	(1.0)	ug/l
1,1 DICHLOROETHENE	ND	(1.0)	ug/l
BROMOCHLOROMETHANE	ND	(1.0)	ug/l
1,1 DICHLOROETHANE	ND	(1.0)	ug/l
CHLOROFORM	ND	(1.0)	ug/l
1,2 DICHLOROETHANE	ND	(1.0)	ug/l
1,1,1 TRICHLOROETHANE	ND	(1.0)	ug/l
CARBONTETRACHLORIDE	ND	(1.0)	ug/l
1,2 DICHLOROPROPANE	ND	(1.0)	ug/l
TRICHLOROETHENE	ND	(1.0)	ug/l
TRANS 1,2 DICHLOROETHENE	1.5	(1.0)	ug/l
2 CHLOROETHYL VINYL ETHER	ND	(1.0)	ug/l
TRANS 1,3 DICHLOROPROPENE	ND	(1.0)	ug/l
CIS 1,3 DICHLOROPROPENE	ND	(1.0)	ug/l
DIBROMO CHLOROMETHANE	ND	(1.0)	ug/l
BROMOFORM	ND	(1.0)	ug/l
1,1,2 TRICHLOROETHANE	ND	(1.0)	ug/l
1,1,2,2 TETRACHLOROETHANE	ND	(1.0)	ug/l
TETRACHLOROETHENE	ND	(1.0)	ug/l
CHLOROBENZENE	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.

Ron R. Richardson
Laboratory Director

Report Date: 09/26/88

Client: BLOOMFIELD REFINING CO.

Sample ID:	P-2	Date Sampled:	09/09/88
Laboratory Number:	F1878	Date Received:	09/09/88
Analysis Requested::	Purgeable Aromatics	Date Extracted:	09/21/88
Sample Matrix:	Water	Date Analyzed:	09/21/88

Parameter	Concentration		Units
BENZENE	4800	(0.2)	ug/l
ETHYLBENZENE	900	(0.2)	ug/l
TOLUENE	1430	(0.2)	ug/l
M-XYLENE	4500	(0.2)	ug/l
O-XYLENE	1460	(0.2)	ug/l
P-XYLENE	1570	(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

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

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

Ron R. Richardson
Laboratory Director

Report Date: 09/26/88

Client: BLOOMFIELD REFINING CO.

Sample ID: P-2
Laboratory Number: F1878
Analysis Requested: Purgeable Aromatics
Sample Matrix: Water

Date Sampled: 09/09/88
Date Received: 09/09/88
Date Extracted: 09/23/88
Date Analyzed: 09/23/88

Parameter	Concentration		Units
CHLOROMETHANE	ND	(1.0)	ug/l
BROMOMETHANE	ND	(1.0)	ug/l
VINYL CHLORIDE	ND	(1.0)	ug/l
CHLOROETHANE	ND	(1.0)	ug/l
METHYLENE CHLORIDE	ND	(1.0)	ug/l
TRICHLOROFLUOROMETHANE	ND	(1.0)	ug/l
1,1 DICHLOROETHENE	ND	(1.0)	ug/l
BROMOCHLOROMETHANE	ND	(1.0)	ug/l
1,1 DICHLOROETHANE	ND	(1.0)	ug/l
CHLOROFORM	ND	(1.0)	ug/l
1,2 DICHLOROETHANE	ND	(1.0)	ug/l
1,1,1 TRICHLOROETHANE	ND	(1.0)	ug/l
CARBONTETRACHLORIDE	ND	(1.0)	ug/l
1,2 DICHLOROPROPANE	ND	(1.0)	ug/l
TRICHLOROETHENE	ND	(1.0)	ug/l
TRANS 1,2 DICHLOROETHENE	ND	(1.0)	ug/l
2 CHLOROETHYL VINYL ETHER	ND	(1.0)	ug/l
TRANS 1,3 DICHLOROPROPENE	ND	(1.0)	ug/l
CIS 1,3 DICHLOROPROPENE	ND	(1.0)	ug/l
DIBROMO CHLOROMETHANE	ND	(1.0)	ug/l
BROMOFORM	ND	(1.0)	ug/l
1,1,2 TRICHLOROETHANE	ND	(1.0)	ug/l
1,1,2,2 TETRACHLOROETHANE	ND	(1.0)	ug/l
TETRACHLOROETHENE	ND	(1.0)	ug/l
CHLOROBENZENE	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.

Ron R. Richardson
Ron R. Richardson
Laboratory Director

Report Date: 09/26/88

Client: BLOOMFIELD REFINING CO.

Sample ID:	P-3	Date Sampled:	09/09/88
Laboratory Number:	F1879	Date Received:	09/09/88
Analysis Requested::	Purgeable Aromatics	Date Extracted:	09/21/88
Sample Matrix:	Water	Date Analyzed:	09/21/88

Parameter	Concentration		Units
BENZENE	19400	(0.2)	ug/l
ETHYLBENZENE	ND	(0.2)	ug/l
TOLUENE	4.35	(0.2)	ug/l
M-XYLENE	22800	(0.2)	ug/l
O-XYLENE	3600	(0.2)	ug/l
P-XYLENE	8700	(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

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

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

Ron R. Richardson
Laboratory Director

Report Date: 09/26/88

Client: BLOOMFIELD REFINING CO.

Sample ID:	P-3	Date Sampled:	09/09/88
Laboratory Number:	F1879	Date Received:	09/09/88
Analysis Requested:	Purgeable Aromatics	Date Extracted:	09/23/88
Sample Matrix:	Water	Date Analyzed:	09/23/88

Parameter	Concentration		Units
CHLOROMETHANE	ND	(1.0)	ug/l
BROMOMETHANE	ND	(1.0)	ug/l
VINYL CHLORIDE	ND	(1.0)	ug/l
CHLOROETHANE	ND	(1.0)	ug/l
METHYLENE CHLORIDE	ND	(1.0)	ug/l
TRICHLOROFLUOROMETHANE	ND	(1.0)	ug/l
1,1 DICHLOROETHENE	ND	(1.0)	ug/l
BROMOCHLOROMETHANE	ND	(1.0)	ug/l
1,1 DICHLOROETHANE	ND	(1.0)	ug/l
CHLOROFORM	ND	(1.0)	ug/l
1,2 DICHLOROETHANE	ND	(1.0)	ug/l
1,1,1 TRICHLOROETHANE	ND	(1.0)	ug/l
CARBONTETRACHLORIDE	ND	(1.0)	ug/l
1,2 DICHLOROPROPANE	ND	(1.0)	ug/l
TRICHLOROETHENE	ND	(1.0)	ug/l
TRANS 1,2 DICHLOROETHENE	ND	(1.0)	ug/l
2 CHLOROETHYL VINYL ETHER	ND	(1.0)	ug/l
TRANS 1,3 DICHLOROPROPENE	ND	(1.0)	ug/l
CIS 1,3 DICHLOROPROPENE	ND	(1.0)	ug/l
DIBROMO CHLOROMETHANE	ND	(1.0)	ug/l
BROMOFORM	ND	(1.0)	ug/l
1,1,2 TRICHLOROETHANE	ND	(1.0)	ug/l
1,1,2,2 TETRACHLOROETHANE	ND	(1.0)	ug/l
TETRACHLOROETHENE	ND	(1.0)	ug/l
CHLOROBENZENE	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.

Ron R. Richardson
Laboratory Director

BLOOMFIELD REFINING COMPANY
Attn: Chris Hawley
P.O. Box 159
Bloomfield, NM 87413

September 26, 1988

RE: Environmental Analysis:

Sample Site: RW-1
Lab No: F1872
Date Sampled: 09/09/88 @ 1245
Date Received:09/09/88

Parameter	
Nitrate + Nitrite as "N", mg/l.....	<0.01
Phenol, mg/l.....	0.34
Sulfate, mg/l.....	4.5
Total Dissolved Solids @ (180C), mg/l.	3130

Report Date: 09/26/88

Client: BLOOMFIELD REFINING CO.

Sample ID:	RW-1	Date Sampled:	09/09/88
Laboratory Number:	F1872	Date Received:	09/09/88
Analysis Requested::	Purgeable Aromatics	Date Extracted:	09/16/88
Sample Matrix:	Water	Date Analyzed:	09/16/88

Parameter	Concentration		Units
BENZENE	6400	(0.2)	ug/l
ETHYLBENZENE	540	(0.2)	ug/l
TOLUENE	70	(0.2)	ug/l
M-XYLENE	4800	(0.2)	ug/l
O-XYLENE	8300	(0.2)	ug/l
P-XYLENE	1700	(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

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

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

Ron R. Richardson
Laboratory Director

Report Date: 09/26/88

Client: BLOOMFIELD REFINING CO.

Sample ID:	RW-1	Date Sampled:	09/09/88
Laboratory Number:	F1872	Date Received:	09/09/88
Analysis Requested:	Purgeable Aromatics	Date Extracted:	09/22/88
Sample Matrix:	Water	Date Analyzed:	09/22/88

Parameter	Concentration		Units
CHLOROMETHANE	ND	(1.0)	ug/l
BROMOMETHANE	ND	(1.0)	ug/l
VINYL CHLORIDE	ND	(1.0)	ug/l
CHLOROETHANE	ND	(1.0)	ug/l
METHYLENE CHLORIDE	ND	(1.0)	ug/l
TRICHLOROFLUOROMETHANE	ND	(1.0)	ug/l
1,1 DICHLOROETHENE	ND	(1.0)	ug/l
BROMOCHLOROMETHANE	ND	(1.0)	ug/l
1,1 DICHLOROETHANE	ND	(1.0)	ug/l
CHLOROFORM	ND	(1.0)	ug/l
1,2 DICHLOROETHANE	ND	(1.0)	ug/l
1,1,1 TRICHLOROETHANE	ND	(1.0)	ug/l
CARBONTETRACHLORIDE	ND	(1.0)	ug/l
1,2 DICHLOROPROPANE	ND	(1.0)	ug/l
TRICHLOROETHENE	ND	(1.0)	ug/l
TRANS 1,2 DICHLOROETHENE	ND	(1.0)	ug/l
2 CHLOROETHYL VINYL ETHER	ND	(1.0)	ug/l
TRANS 1,3 DICHLOROPROPENE	ND	(1.0)	ug/l
CIS 1,3 DICHLOROPROPENE	ND	(1.0)	ug/l
DIBROMO CHLOROMETHANE	ND	(1.0)	ug/l
BROMOFORM	ND	(1.0)	ug/l
1,1,2 TRICHLOROETHANE	ND	(1.0)	ug/l
1,1,2,2 TETRACHLOROETHANE	ND	(1.0)	ug/l
TETRACHLOROETHENE	ND	(1.0)	ug/l
CHLOROBENZENE	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.

Ron R. Richardson
Laboratory Director

BLOOMFIELD REFINING COMPANY
Attn: Chris Hawley
P.O. Box 159
Bloomfield, NM 87413

September 26, 1988

RE: Environmental Analysis:

Sample Site: RW-2
Lab No: F1873
Date Sampled: 09/09/88 @ 1330
Date Received:09/09/88

Parameter	
Nitrate + Nitrite as "N", mg/l.....	<0.01
Phenol, mg/l.....	0.13
Sulfate, mg/l.....	<1
Total Dissolved Solids @ (180C), mg/l.	1980

Report Date: 09/26/88

Client: BLOOMFIELD REFINING CO.

Sample ID:	RW-2	Date Sampled:	09/09/88
Laboratory Number:	F1873	Date Received:	09/09/88
Analysis Requested::	Purgeable Aromatics	Date Extracted:	09/16/88
Sample Matrix:	Water	Date Analyzed:	09/16/88

Parameter	Concentration		Units
BENZENE	11000	(0.2)	ug/l
ETHYLBENZENE	2900	(0.2)	ug/l
TOLUENE	10200	(0.2)	ug/l
M-XYLENE	17700	(0.2)	ug/l
O-XYLENE	4900	(0.2)	ug/l
P-XYLENE	6200	(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

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

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

Ron R. Richardson
Laboratory Director

Report Date: 09/26/88

Client: BLOOMFIELD REFINING CO.

Sample ID:	RW-2	Date Sampled:	09/09/88
Laboratory Number:	F1873	Date Received:	09/09/88
Analysis Requested:	Purgeable Aromatics	Date Extracted:	09/22/88
Sample Matrix:	Water	Date Analyzed:	09/22/88

Parameter	Concentration		Units
CHLOROMETHANE	ND	(1.0)	ug/l
BROMOMETHANE	ND	(1.0)	ug/l
VINYL CHLORIDE	ND	(1.0)	ug/l
CHLOROETHANE	ND	(1.0)	ug/l
METHYLENE CHLORIDE	ND	(1.0)	ug/l
TRICHLOROFLUOROMETHANE	ND	(1.0)	ug/l
1,1 DICHLOROETHENE	ND	(1.0)	ug/l
BROMOCHLOROMETHANE	ND	(1.0)	ug/l
1,1 DICHLOROETHANE	ND	(1.0)	ug/l
CHLOROFORM	ND	(1.0)	ug/l
1,2 DICHLOROETHANE	1.6	(1.0)	ug/l
1,1,1 TRICHLOROETHANE	ND	(1.0)	ug/l
CARBONTETRACHLORIDE	ND	(1.0)	ug/l
1,2 DICHLOROPROPANE	ND	(1.0)	ug/l
TRICHLOROETHENE	ND	(1.0)	ug/l
TRANS 1,2 DICHLOROETHENE	ND	(1.0)	ug/l
2 CHLOROETHYL VINYL ETHER	ND	(1.0)	ug/l
TRANS 1,3 DICHLOROPROPENE	ND	(1.0)	ug/l
CIS 1,3 DICHLOROPROPENE	ND	(1.0)	ug/l
DIBROMO CHLOROMETHANE	ND	(1.0)	ug/l
BROMOFORM	ND	(1.0)	ug/l
1,1,2 TRICHLOROETHANE	ND	(1.0)	ug/l
1,1,2,2 TETRACHLOROETHANE	ND	(1.0)	ug/l
TETRACHLOROETHENE	ND	(1.0)	ug/l
CHLOROBENZENE	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.

Ron R. Richardson
Laboratory Director

RW-3

(See MW #10

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GW - 1

MONITORING REPORTS

DATE:

1986

REPORT OF ANALYTICAL RESULTS

FOR

ENGINEERING SCIENCE
BLOOMFIELD REFINING COMPANY

Prepared By:

Rocky Mountain Analytical Laboratory
5530 Marshall Street
Arvada, CO 80004

May 28, 1986

I. INTRODUCTION

On October 19, 1985 Rocky Mountain Analytical Laboratory received 29 soil samples from Bloomfield Refining Company, collected by Engineering Science. The analyses performed on these samples have been categorized as follows:

- o Analyses for Appendix VIII organic constituents, and
- o Analyses for selected constituents and phenolics.

Appendix VIII Constituents

The analytical parameters selected were based on recent communication with EPA concerning RCRA monitoring requirements for petroleum companies. The parameters selected were based on a subset of Appendix VIII hazardous constituents commonly referred to as the "Skinner" list. Communications from EPA in late 1984 contained various versions of this list. During this time RMAL, under contract to the American Petroleum Institute, performed several studies evaluating analytical methods proposed for measuring the constituents in these various lists. Due in part to efforts by RMAL and others, the EPA in early 1985 revised this list. The documents which were used by RMAL in defining the analytical parameters are listed in a bibliography at the end of this report. This list, as revised, contains 46 organic compounds and is presented in Table 1. The organic compounds are further subdivided into volatile and semivolatile (extractable) compounds.

Additional Tests

In addition to the tests for the full "Skinner" list, some samples were analyzed only for a specific subset of this list. The subset was benzene, toluene, xylene, lead, chromium and total phenolics.

All samples were shipped by air freight to RMAL's Denver, Colorado laboratory. Each sample was assigned a unique RMAL sample number as shown in the enclosed Sample Description Information sheet. These sample numbers were used throughout the project to track and control the analytical work and are used in this document for reporting the results from each analyses.

SAMPLE DESCRIPTION INFORMATION

for

Engineering Science - Bloomfield Refining Company

RMA Sample No.	Sample Description	Sample Type	Date Sampled	Date Received
51469-01	L1 & L2, 0-6" Quadrant #1 - Landfill	Soil	10/16/85	10/19/85
51469-02	L3 & L4, 6-12" Quadrant #1 - Landfill	Soil	10/16/85	10/19/85
51469-03	L5 & L6, 0-6" Quadrant #2 - Landfill	Soil	10/16/85	10/19/85
51469-04	L7 & L8, 6-12" Quadrant #2 - Landfill	Soil	10/16/85	10/19/85
51469-05	L9 & L10, 0-6" Quadrant #3 - Landfill	Soil	10/16/85	10/19/85
51469-06	L11 & L12, 6-12" Quadrant #3 - Landfill	Soil	10/16/85	10/19/85
51469-07	L13 & L14, 0-6" Quadrant #4 - Landfill	Soil	10/16/85	10/19/85
51469-08	L15 & L16, 6-12" Quadrant #4 - Landfill	Soil	10/16/85	10/19/85
51469-09	LP1 & LP2, 0-6" Points 1 & 2 @ Landfill Pond	Soil	10/16/85	10/19/85
51469-10	LP3 & LP4, 6-12" Points 1 & 2 @ Landfill Pond	Soil	10/16/85	10/19/85
51469-11	LP5 & LP6, 0-6" Points 3 & 4 @ Landfill Pond	Soil	10/16/85	10/19/85
51469-12	LP7 & LP8, 6-12" Points 3 & 4 @ Landfill Pond	Soil	10/16/85	10/19/85
51469-13	LP9 & LP10, 0-6" Points 5 & 6 @ Landfill Pond	Soil	10/16/85	10/19/85
51469-14	LP11 & LP12, 6-12" Points 5 & 6 @ Landfill Pond	Soil	10/16/85	10/19/85
51469-15	LP13 & LP14, 0-6" S. Evaporation Pond - Landfill Pond	Soil	10/16/85	10/19/85
51469-16	MS1 & MS2, Mystery Sample	Soil	10/16/85	10/19/85
51469-17	APS1 & APS2, 0-6" NE & SE of South API Pond	Soil	10/15/85	10/19/85
51469-18	APS3 & APS4, 6-12" NE & SE of South API Pond	Soil	10/15/85	10/19/85
51469-19	APS5 & APS6, 0-6" N & S of South API Pond	Soil	10/15/85	10/19/85
51469-20	APS7 & APS8, 6-12" N & S of South API Pond	Soil	10/15/85	10/19/85

SAMPLE DESCRIPTION INFORMATION

for

Engineering Science - Bloomfield Refining Company

(Continued)

RMA Sample No.	Sample Description	Sample Type	Date Sampled	Date Received
51469-21	APS9 & APS10, 0-6" NW & SW of South API Pond	Soil	10/15/85	10/19/85
51469-22	APS11 & APS12, 6-12" NW & SW of South API Pond	Soil	10/15/85	10/19/85
51469-23	APS13, 0-6" SE near influent S. API Pond	Soil	10/15/85	10/19/85
51469-24	APN1 & APN2, 0-6" NE & SE of North API Pond	Soil	10/15/85	10/19/85
51469-25	APN3 & APN4, 6-12" NE & SE of North API Pond	Soil	10/15/85	10/19/85
51469-26	APN5 & APN6, 0-6" N & S of North API Pond	Soil	10/15/85	10/19/85
51469-27	APN7 & APN8, 6-12" N & S of North API Pond	Soil	10/15/85	10/19/85
51469-28	APN9 & APN10, 0-6" NW & SW of North API Pond	Soil	10/15/85	10/19/85
51469-29	APN11 & APN12, 6-12" NW & SW of North API Pond	Soil	10/15/85	10/19/85

May 28, 1986

TABLE 1. APPENDIX VIII HAZARDOUS CONSTITUENT SUBSET FOR PETROLEUM REFINERY STUDIES*

Volatile Organics

Benzene
Carbon Disulfide
Chlorobenzene
Chloroform
1,2-Dibromoethane
1,2-Dichloroethane
1,4-Dioxane
Methyl ethyl ketone
Styrene
Ethyl Benzene
Toluene
Xylenes
  Xylenes, m
  Xylenes, o & p

Base/Neutral Organics

Anthracene
Benz(a)anthracene
Benzo(b)fluoranthene
Benzo(j)fluoranthene
Benzo(k)fluoranthene
Benzo(a)pyrene
Bis(2-ethylhexyl)phthalate
Butyl benzyl phthalate
Chrysene
Dibenz(a,h)acridine
Dibenz(a,h)anthracene
Di-n-butyl phthalate

Base/Neutral Organics (Cont.)

Dichlorobenzenes
  o-Dichlorobenzene
  m-Dichlorobenzene
  p-Dichlorobenzene
Diethyl phthalate
7,12-Dimethylbenz(a)anthracene
Dimethyl phthalate
Di-n-octyl phthalate
Fluoranthene
Indene
Methyl chrysene
1-Methylnaphthalene
Naphthalene
Phenanthrene
Pyrene
Pyridine
Quinoline

Acid Organics

Benzenethiol
Cresols
  o-Cresol
  p&m-Cresol
2,4-Dimethylphenol
2,4-Dinitrophenol
4-Nitrophenol
Phenol

*"Petitions to Delist Hazardous Wastes, A Guidance Manual," EPA/530-SW-85-003, April, 1985.

II. RESULTS

The analytical results are presented in the data tables in this section. The data are organized into the tables described below:

- Phenolics,
- Total Chromium and Lead,
- Skinner Volatile Organics,
- Skinner Base/Neutral Organics,
- Skinner Acid Organics, and
- Volatile Aromatics.

For each of the parameters in the phenolics and the metals tables, the result and detection limit is present for each sample. The term ND is used to indicate the parameter was not detected at the detection limit shown.

The term BDL (Below Detection Limit) is used in the skinner organic results tables to indicate that the compound is not present at the detection limit shown. The detection limits for the Appendix VIII organic compounds were obtained from a study of the analytical methods performed by RMAL under contract to the American Petroleum Institute (API)[1]. Analytical standards are not available for three compounds. These compounds cannot be measured; they have been listed in the results tables and have been footnoted to show that standards were not available.

As explained in more detail in the analytical methodology section, the samples were screened prior to analysis in order to optimize the detection limit for each sample and minimize instrumental problems associated with analyzing samples containing

[1]"Recovery and Detection Limits of Organic Compounds in Petroleum Refinery Wastes", January 25, 1985.

relatively high concentrations. This process resulted in high dilutions for several samples containing high concentrations of the target compounds. For these samples, the detection limits for compounds not detected are proportionately high. Also, the compounds which were reported close to (less than two times) the detection limits may be suspect.

ANALYTICAL RESULTS

for

Engineering Science - Bloomfield Refining Company

PHENOLICS

Parameter	Units	51469-01	51469-02	51469-03	51469-04
Phenolics	mg/kg	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)

Parameter	Units	51469-05	51469-06	51469-07	51469-08
Phenolics	mg/kg	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)

Parameter	Units	51469-09	51469-10	51469-11	51469-12
Phenolics	mg/kg	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)

Parameter	Units	51469-13	51469-14	51469-15	51469-16
Phenolics	mg/kg	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)

Parameter	Units	51469-17	51469-18	51469-19	51469-20
Phenolics	mg/kg	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)

Parameter	Units	51469-21	51469-22	51469-23	51469-24
Phenolics	mg/kg	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)

ND = Not detected.

ANALYTICAL RESULTS

for

Engineering Science - Bloomfield Refining Company

PHENOLICS (Continued)

Parameter	Units	51469-25	51469-26	51469-27	51469-28
Phenolics	mg/kg	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)

Parameter	Units	51469-29
Phenolics	mg/kg	ND (0.1)

ND = Not detected.

ANALYTICAL RESULTS

for

Engineering Science - Bloomfield Refining Company

CHROMIUN AND LEAD

Parameter	Units	51469-01		51469-02		51469-03		51469-04	
Chromium	mg/kg	11	(0.5)	8.9	(0.5)	9.9	(0.5)	7.6	(0.5)
Lead	mg/kg	10	(2.5)	9.8	(2.5)	9.0	(2.5)	6.7	(2.5)

Parameter	Units	51469-05		51469-06		51469-07		51469-08	
Chromium	mg/kg	7.8	(0.5)	7.4	(0.5)	9.1	(0.5)	7.0	(0.5)
Lead	mg/kg	7.6	(2.5)	7.0	(2.5)	8.2	(2.5)	7.7	(2.5)

Parameter	Units	51469-09		51469-10		51469-11		51469-12	
Chromium	mg/kg	6.2	(0.5)	8.1	(0.5)	7.8	(0.5)	10	(0.5)
Lead	mg/kg	9.0	(2.5)	8.5	(2.5)	8.9	(2.5)	12	(2.5)

Parameter	Units	51469-13		51469-14		51469-15		51469-16	
Chromium	mg/kg	8.0	(0.5)	7.8	(0.5)	2.3	(0.5)	2.4	(0.5)
Lead	mg/kg	12	(2.5)	13	(2.5)	4	(2.5)	4	(2.5)

Parameter	Units	51469-17		51469-18		51469-19		51469-20	
Chromium	mg/kg	4.4	(0.5)	5.3	(0.5)	5.5	(0.5)	14	(0.5)
Lead	mg/kg	5	(2.5)	5	(2.5)	5	(2.5)	4	(2.5)

Detection limits in parentheses.

ANALYTICAL RESULTS

for

Engineering Science - Bloomfield Refining Company

CHROMIUM AND LEAD (Cont.)

Parameter	Units	51469-21		51469-22		51469-23		51469-24	
Chromium	mg/kg	6.8	(0.5)	27	(0.5)	4.9	(0.5)	7.8	(0.5)
Lead	mg/kg	5.1	(2.5)	5.9	(2.5)	6.0	(2.5)	4	(2.5)

Parameter	Units	51469-25		51469-26		51469-27		51469-28	
Chromium	mg/kg	3.2	(0.5)	3.6	(0.5)	2.3	(0.5)	2.9	(0.5)
Lead	mg/kg	3	(2.5)	5	(2.5)	3	(2.5)	3	(2.5)

Parameter	Units	51469-29	
Chromium	mg/kg	12	(0.5)
Lead	mg/kg	4	(2.5)

Detection limits in parentheses.

ANALYTICAL RESULTS

for

Engineering Science - Bloomfield Refining Company

VOLATILE AROMATICS - GC/PID

Parameter	Units	51469-01		51469-02		51469-03		51469-04	
Benzene	ug/kg	ND	(0.5)	ND	(0.5)	ND	(0.5)	ND	(0.5)
Ethylbenzene	ug/kg	ND	(1.0)	ND	(1.0)	ND	(1.0)	ND	(1.0)
Toluene	ug/kg	ND	(1.0)	ND	(1.0)	ND	(1.0)	ND	(1.0)
Xylene, m	ug/kg	ND	(1.0)	ND	(1.0)	ND	(1.0)	ND	(1.0)
Xylenes, o & p	ug/kg	ND	(2.0)	ND	(2.0)	ND	(2.0)	ND	(2.0)

Parameter	Units	51469-05		51469-06		51469-07		51469-08	
Benzene	ug/kg	ND	(0.5)	ND	(0.5)	ND	(0.5)	ND	(0.5)
Ethylbenzene	ug/kg	ND	(1.0)	ND	(1.0)	ND	(1.0)	ND	(1.0)
Toluene	ug/kg	ND	(1.0)	ND	(1.0)	ND	(1.0)	ND	(1.0)
Xylene, m	ug/kg	ND	(1.0)	ND	(1.0)	ND	(1.0)	ND	(1.0)
Xylenes, o & p	ug/kg	ND	(2.0)	ND	(2.0)	ND	(2.0)	ND	(2.0)

Parameter	Units	51469-09		51469-10		51469-11		51469-12	
Benzene	ug/kg	ND	(0.5)	ND	(0.5)	ND	(0.5)	ND	(0.5)
Ethylbenzene	ug/kg	ND	(1.0)	ND	(1.0)	ND	(1.0)	ND	(1.0)
Toluene	ug/kg	ND	(1.0)	ND	(1.0)	ND	(1.0)	ND	(1.0)
Xylene, m	ug/kg	ND	(1.0)	ND	(1.0)	ND	(1.0)	ND	(1.0)
Xylenes, o & p	ug/kg	ND	(2.0)	ND	(2.0)	ND	(2.0)	ND	(2.0)

Parameter	Units	51469-13		51469-14		51469-15		51469-16	
Benzene	ug/kg	1.3	(0.5)	ND	(0.5)	ND	(0.5)	ND	(0.5)
Ethylbenzene	ug/kg	ND	(1.0)	ND	(1.0)	ND	(1.0)	ND	(1.0)
Toluene	ug/kg	ND	(1.0)	ND	(1.0)	ND	(1.0)	ND	(1.0)
Xylene, m	ug/kg	ND	(1.0)	ND	(1.0)	ND	(1.0)	ND	(1.0)
Xylenes, o & p	ug/kg	ND	(2.0)	ND	(2.0)	ND	(2.0)	ND	(2.0)

ND = Not detected. Detection limits in parentheses.

ANALYTICAL RESULTS

for

Engineering Science - Bloomfield Refining Company

(Continued)

VOLATILE AROMATICS - GC/PID

Parameter	Units	51469-17		51469-18		51469-19		51469-20	
Benzene	ug/kg	ND	(0.5)	ND	(0.5)	ND	(0.5)	ND	(0.5)
Ethylbenzene	ug/kg	ND	(1.0)	ND	(1.0)	ND	(1.0)	ND	(1.0)
Toluene	ug/kg	ND	(1.0)	ND	(1.0)	ND	(1.0)	ND	(1.0)
Xylene, m	ug/kg	5.3	(1.0)	ND	(3.0)	ND	(4.0)	ND	(2.0)
Xylenes, o & p	ug/kg	2.1	(2.0)	ND	(3.0)	ND	(2.0)	ND	(4.0)

Parameter	Units	51469-21		51469-22		51469-23		51469-24	
Benzene	ug/kg	ND	(0.5)	ND	(1.0)	ND	(1.0)	ND	(1.0)
Ethylbenzene	ug/kg	ND	(1.0)	ND	(4.0)	ND	(1.0)	ND	(1.0)
Toluene	ug/kg	ND	(1.0)	ND	(1.0)	ND	(2.0)	ND	(1.0)
Xylene, m	ug/kg	ND	(1.0)	ND	(25)	ND	(1.0)	ND	(1.0)
Xylenes, o & p	ug/kg	ND	(4.0)	ND	(25)	ND	(2.0)	ND	(2.0)

Parameter	Units	51469-25		51469-26		51469-27		51469-28	
Benzene	ug/kg	ND	(0.5)	ND	(0.5)	ND	(0.5)	ND	(0.5)
Ethylbenzene	ug/kg	ND	(1.0)	ND	(1.0)	ND	(1.0)	ND	(1.0)
Toluene	ug/kg	ND	(1.0)	ND	(1.0)	ND	(1.0)	ND	(1.0)
Xylene, m	ug/kg	ND	(1.0)	ND	(1.0)	ND	(1.0)	ND	(1.0)
Xylenes, o & p	ug/kg	ND	(2.0)	ND	(2.0)	ND	(2.0)	ND	(2.0)

Parameter	Units	51469-29	
Benzene	ug/kg	ND	(0.5)
Ethylbenzene	ug/kg	ND	(1.0)
Toluene	ug/kg	ND	(1.0)
Xylene, m	ug/kg	ND	(1.0)
Xylenes, o & p	ug/kg	ND	(2.0)

ND = Not detected. Detection limits in parentheses. *Analyses incomplete.

ANALYTICAL RESULTS

for

Engineering Science - Bloomfield Refining Company

PERCENT MOISTURE

Sample Number	Percent Moisture	Sample Number	Percent Moisture
51469-01	4%	51469-16	4%
51469-02	5%	51469-17	9%
51469-03	4%	51469-18	10%
51469-04	3%	51469-19	10%
51469-05	3%	51469-20	8%
51469-06	3%	51469-21	6%
51469-07	6%	51469-22	6%
51469-08	4%	51469-23	8%
51469-09	23%	51469-24	5%
51469-10	14%	51469-25	5%
51469-11	18%	51469-26	7%
51469-12	13%	51469-27	5%
51469-13	22%	51469-28	4%
51469-14	14%	51469-29	4%
51469-15	28%		

ANALYTICAL RESULTS

for

Engineering Science - Bloomfield Refining Company

SKINNER VOLATILE ORGANICS, SOIL

Parameter	Units	51469-15		51469-16		51469-23	
Acrolein	ug/kg	BDL	(30)	BDL	(30)	BDL	(30)
Acrylonitrile*	ug/kg	-	-	-	-	-	-
Benzene	ug/kg	BDL	(5)	BDL	(5)	BDL	(5)
Carbon disulfide	ug/kg	BDL	(5)	BDL	(5)	BDL	(5)
Carbon tetrachloride	ug/kg	BDL	(5)	BDL	(5)	BDL	(5)
Chlorobenzene	ug/kg	BDL	(5)	BDL	(5)	BDL	(5)
Chloromethane	ug/kg	BDL	(10)	BDL	(10)	BDL	(10)
1,2 Dibromoethane	ug/kg	BDL	(20)	BDL	(20)	BDL	(20)
Chloroform	ug/kg	BDL	(5)	BDL	(5)	BDL	(5)
Dichloromethane	ug/kg	BDL	(10)	BDL	(10)	BDL	(10)
1,1-Dichloroethane	ug/kg	BDL	(5)	BDL	(5)	BDL	(5)
1,2-Dichloroethane	ug/kg	BDL	(5)	BDL	(5)	BDL	(5)
1,1-Dichloroethylene	ug/kg	BDL	(5)	BDL	(5)	BDL	(5)
Dichloropropane	ug/kg	BDL	(5)	BDL	(5)	BDL	(5)
Methyl ethyl ketone	ug/kg	BDL	(10)	53	(10)	BDL	(10)
Styrene	ug/kg	BDL	(5)	BDL	(5)	BDL	(5)
1,1,2,2-Tetrachloroethane	ug/kg	BDL	(5)	BDL	(5)	BDL	(5)
Tetrachloroethylene	ug/kg	BDL	(5)	BDL	(5)	BDL	(5)
Toluene	ug/kg	BDL	(5)	BDL	(5)	BDL	(5)
1,2-trans-Dichloroethylene	ug/kg	BDL	(5)	BDL	(5)	BDL	(5)
1,1,1-Trichloroethane	ug/kg	BDL	(5)	BDL	(5)	BDL	(5)
1,1,2-Trichloroethane	ug/kg	BDL	(5)	BDL	(5)	BDL	(5)
Trichloroethylene	ug/kg	BDL	(5)	BDL	(5)	BDL	(5)

BDL = Below detection limit. Detection limits in parentheses.
*Not consistantly recovered using Method 8240.

ANALYTICAL RESULTS

for

Engineering Science - Bloomfield Refining Company

SKINNER BASE/NEUTRAL ORGANICS, SOILS

Parameter	Units	51469-15		51469-16		51469-23	
Anthracene	ug/kg	BDL	(400)	BDL	(400)	BDL	(400)
Benzidine	ug/kg	BDL	(4000)	BDL	(4000)	BDL	(4000)
Benz(c)acridine**	ug/kg	-	-	-	-	-	-
Benzo(a)anthracene	ug/kg	BDL	(400)	BDL	(400)	BDL	(400)
Benzo(a)pyrene	ug/kg	BDL	(400)	BDL	(400)	BDL	(400)
Benzo (b) fluoranthene	ug/kg	BDL	(400)	BDL	(400)	BDL	(400)
Benzo (k) fluoranthene	ug/kg	BDL	(400)	BDL	(400)	BDL	(400)
Bis (2-chloroethyl)ether	ug/kg	BDL	(400)	BDL	(400)	BDL	(400)
Bis (2-chloroisopropyl)ether	ug/kg	BDL	(400)	BDL	(400)	BDL	(400)
Bis (2-ethylhexyl)phthalate	ug/kg	BDL	(400)	BDL	(400)	BDL	(400)
Butyl benzyl phthalate	ug/kg	BDL	(400)	BDL	(400)	BDL	(400)
2-Chloronaphthalene	ug/kg	BDL	(400)	BDL	(400)	BDL	(400)
Chrysene	ug/kg	BDL	(400)	BDL	(400)	BDL	(400)
Dibenz(a,h)acridine**	ug/kg	-	-	-	-	-	-
Dibenz(a,j)acridine	ug/kg	BDL	(400)	BDL	(400)	BDL	(400)
7,12-DimethylBenz(a)anthracene	ug/kg	BDL	(400)	BDL	(400)	BDL	(400)
Dibenz(a,h) anthracene	ug/kg	BDL	(400)	BDL	(400)	BDL	(400)
7H Dibenzo(c,g)carbazole	ug/kg	BDL	(400)	BDL	(400)	BDL	(400)
1,2-Dichlorobenzene	ug/kg	BDL	(400)	BDL	(400)	BDL	(400)
1,3-Dichlorobenzene	ug/kg	BDL	(400)	BDL	(400)	BDL	(400)
1,4-Dichlorobenzene	ug/kg	BDL	(400)	BDL	(400)	BDL	(400)
Diethyl phthalate	ug/kg	BDL	(400)	BDL	(400)	BDL	(400)
Dimethyl phthalate	ug/kg	BDL	(400)	BDL	(400)	BDL	(400)
Di-n-butyl phthalate	ug/kg	BDL	(400)	BDL	(400)	BDL	(400)
2,4-Dinitrotoluene	ug/kg	BDL	(400)	BDL	(400)	BDL	(400)
2,6-Dinitrotoluene	ug/kg	BDL	(400)	BDL	(400)	BDL	(400)
Di-n-octyl phthalate	ug/kg	BDL	(400)	BDL	(400)	BDL	(400)
1,2-Diphenylhydrazine*	ug/kg	BDL	(400)	BDL	(400)	BDL	(400)
Fluoranthene	ug/kg	BDL	(400)	BDL	(400)	BDL	(400)

BDL = Below detection limit. Detection limits in parentheses. *Measured as azobenzene.
**Not consistantly recovered using Method 8270, or no analytical standard available.

ANALYTICAL RESULTS

for

Engineering Science - Bloomfield Refining Company

SKINNER BASE/NEUTRAL ORGANICS, SOIL (Cont.)

Parameter	Units	51469-15		51469-16		51469-23	
Indene	ug/kg	BDL	(400)	BDL	(400)	BDL	(400)
Indeno(1,2,3-cd)pyrene	ug/kg	BDL	(400)	BDL	(400)	BDL	(400)
Methyl Benz(c)phenanthrene	ug/kg	BDL	(400)	BDL	(400)	BDL	(400)
3-Methylcholanthrene	ug/kg	BDL	(400)	BDL	(400)	BDL	(400)
Methyl Chrysene**	ug/kg	-	-	-	-	-	-
Naphthalene	ug/kg	BDL	(400)	BDL	(400)	BDL	(400)
Nitrobenzene	ug/kg	BDL	(400)	BDL	(400)	BDL	(400)
n-Nitrosodiethylamine	ug/kg	BDL	(400)	BDL	(400)	BDL	(400)
5-Nitroacenapthene	ug/kg	BDL	(400)	BDL	(400)	BDL	(400)
Quinoline	ug/kg	BDL	(400)	BDL	(400)	BDL	(400)
Phenanthrene	ug/kg	BDL	(400)	BDL	(400)	BDL	(400)
Pyrene	ug/kg	BDL	(400)	BDL	(400)	BDL	(400)
1,2,4-Trichlorobenzene	ug/kg	BDL	(400)	BDL	(400)	BDL	(400)
Trimethyl Benz(a)anthracene	ug/kg	BDL	(400)	BDL	(400)	BDL	(400)

SKINNER ACID ORGANICS

Parameter	Units	51469-15		51469-16		51469-23	
2-Chlorophenol	ug/kg	BDL	(400)	BDL	(400)	BDL	(400)
o-Cresol	ug/kg	BDL	(400)	BDL	(400)	BDL	(400)
m/p-Cresol	ug/kg	BDL	(400)	BDL	(400)	BDL	(400)
2,4-Dimethylphenol	ug/kg	BDL	(400)	BDL	(400)	BDL	(400)
4,6-Dinitro-o-phenol	ug/kg	BDL	(2000)	BDL	(2000)	BDL	(2000)
2,4-Dinitrophenol	ug/kg	BDL	(4000)	BDL	(4000)	BDL	(4000)
2-Nitrophenol	ug/kg	BDL	(400)	BDL	(400)	BDL	(400)
4-Nitrophenol	ug/kg	BDL	(800)	BDL	(800)	BDL	(800)
p-Chloro-m-cresol	ug/kg	BDL	(400)	BDL	(400)	BDL	(400)
Pentachlorophenol	ug/kg	BDL	(400)	BDL	(400)	BDL	(400)
Phenol	ug/kg	BDL	(400)	BDL	(400)	BDL	(400)
2,4,6-Trichlorophenol	ug/kg	BDL	(400)	BDL	(400)	BDL	(400)

BDL = Below detection limit. Detection limits in parentheses.
**Not consistantly recovered using Method 8270, or no analytical standard available.

III. ANALYTICAL METHODOLOGY

The methods for the metals and organic compounds were derived from three sources of EPA methods,. 1) the methods promulgated in 40 CFR 136 for priority pollutants, 2) the methods published in SW-846 and 3) methods developed by the EPA-EMSL/LV for Superfund investigations, as well as several documents published by the EPA and RMAL in 1984 and 1985. These methods all use the same generic technology as summarized below:

- Metals, acid digestion followed by analysis by ICP supported by graphite furnace AA,
- Volatile Organics, purge and trap GC/MS, and
- Semivolatile (base/neutral and acid) organics, solvent extraction followed by capillary column GC/MS.

The EPA (40 CFR 136, SW-846 and Superfund) methods were, to a large degree, developed and validated to determine the priority pollutants in a broad spectrum of environmental samples. Between October 1983 and July 1985 the EPA released three methods manuals and a "Guidance Manual" which were compendiums of modified SW-846 methods specifically adapted for the analysis of Appendix VIII constituents in petroleum refining wastes (not water samples). The most useful of these documents was an October, 1984 draft methods manual which unfortunately was never formally distributed by EPA, apparently in order to avoid a conflict with a proposed rule in the October 1, 1984 Federal Register. However, even this document (as discussed by an RMAL review for API in December, 1984) lacked many important details that are critical to the successful analysis of environmental samples impacted by petroleum refineries.

Thus, although the methods used by RMAL were based on these various EPA documents, the actual details of each method were implemented by RMAL as explained in more detail below. The various documents which were used to establish RMAL's approach are listed in a bibliography. The discussion below references method numbers in SW-846. However, it should be noted that several different versions of these methods are cited in the various EPA documents. In addition to the documents listed in the bibliography, RMAL has continued a dialogue through phone conversations and meetings with EPA/OSW to ensure that this approach is in line with the Agency's expectations. Much of RMAL's approach is being incorporated in pending Agency promulgations.

Total Metals

Metals were determined using inductively coupled plasma-atomic emission spectroscopy (ICP). Prior to analysis, the samples were prepared using Method 3050. The ICP was preprogrammed to perform off peak background correction on both the high and low wavelength sides of the analytical peaks of interest as appropriate. One hundred interelemental corrections were also automatically applied to the analysis. A matrix spike is analyzed as a quality control check for the ICP analyses.

Skinner Volatile Organics

Volatile organic compounds were determined by purge and trap gas chromatography/mass spectrometry (GC/MS) using Method 8240 with the appropriate sample introduction procedure. The appropriate procedure was determined using a screening procedure consisting of a liquid-liquid extraction with hexadecane followed by direct injection of an aliquot of the extract into a gas chromatograph with flame ionization detection (GC/FID). All volatile samples were screened in this way before GC/MS analysis. The GC/FID screening results were evaluated to determine the amount of sample to use that provides the lowest detection limits possible without overloading the GC/MS system.

Skinner Semivolatile Organics

Semivolatile organics were determined by capillary column GC/MS using SW-846 Method 8270. Soil samples were extracted using SW-846 Sonication Method 3550. After extraction, the samples were subjected to Method 3530 to separate the extract into acidic and basic fractions. The basic fraction was then cleaned up using Method 3570 to generate aliphatic and aromatic fractions. GC/MS analyses were then performed on the acidic and aromatic fractions.

Identification and quantitation of the target compounds determined by GC/MS were performed according to the process described in Methods 8240 and 8270. In summary, this process has the following features:

- Multipoint calibration for each compound to establish instrument response using multiple internal standards,

- Identification of compounds using a computerized reverse search with selected key fragment ions, and

- Quantitation using the previously determined response factors.

Volatile Aromatics

The samples were analyzed for benzene, ethyl benzene, toluene, and xylenes using purge and trap methodology to extract and concentrate the volatile compounds. The samples were desorbed into a gas chromatograph equipped with a photoionization detector (P.I.D.). Identification and quantitation were determined using internal and external standards.

Phenolics

Phenolics were determined colorimetrically using SW-846 Method 9065.

V. BIBLIOGRAPHY

A. Documents Pertaining to Appendix VIII Constituents

1) January, 1984 letter form Myles Morse pertaining to delisting petitions as well as land treatment demonstrations, including sampling procedures and data requirements.

2) March, 1984 letter to delisting petitioners from Barbara Bush revising target parameters.

3) April, 1984 memo from John Skinner to Permit Branch Chiefs concerning land treatment containing target parameters and analytical methods.

4) May, 1984 memo from John Skinner clarifying previous memo.

5) September, 1984 letter to Petitioners from Barbara Bush distributing Refinery Handbook.

6) November, 1984 letter from Eileen Claussen to all delisting petitioners describing new RCRA requirements.

7) May 3, 1985 RMAL Memo.

8) January 8, 1985 RMAL letter to Eileen Claussen, EPA-OSW.

B. Documents Pertaining to Analytical Methods

1) "Handbook for the Analysis of Petroleum Refinery Residuals and Waste", October, 1984 - prepared by Radian Corporation for EPA/OSW.

2) "Evaluation of the Applicability of the SW-846 Manual To Support All RCRA Subtitle C Testing", December 20, 1984 - prepared by Rocky Mountain Analytical Laboratory for API.

3) "Comments on the 'Handbook for the Analysis of Petroleum Refinery Residuals and Waste, October, 1984'", December 12, 1984 - prepared by Rocky Mountain Analytical Laboratory for API.

4) "Comments on the 'Handbook for the Analysis of Petroleum Refinery Residuals and Waste, April 2, 1984", August 15, 1984 - prepared by Rocky Mountain Analytical Laboratory for API.

5) "Handbook for the Analysis of Petroleum Refinery Residuals and Waste", April 2, 1984 - prepared by S-Cubed for EPA/OSW.

6) EPA document "Guidance for the Analysis of Refinery Wastes", July 5, 1985.

7) "Recovery and Detection Limits of Organic Compounds in Petroleum Refinery Wastes", January 25, 1985.

8) SW-846 - "Test Methods for Evaluating Solid Waste, Physical Chemical Methods" USEPA, 2nd Edition, 1982.

9) 40CFR136 - "Guidelines Establishing Test Procedures for the Analysis of Pollutants Under the Clean Water Act."

SECTION 1 - MANUFACTURER INFORMATION

MANUF/DIST : DOW CHEMICAL U.S.A.
EMERGENCY PHONE.....: 517-636-4400
PREPARATION/REVISION DATE: 10-2-80
MIDLAND MI 48640
PREPARER/CONTACT: JIM STIFFLER

LOCATION : UNITS

TRADE NAME/SYNONYMS...: CHLOROTHENE (R) VG SOLVENT
CHEMICAL NAME/SYNONYMS: NO INFORMATION
CHEMICAL FAMILY.....: NO INFORMATION
FORMULA.....: NO INFORMATION
PRODUCT CODE.....:

HAZARDOUS MATERIAL IDENTIFICATION SYSTEM (HMIS)

```
**************************
*                        *
*   HEALTH..... 1        *
*   FLAMMABILITY.. 1     *
*   REACTIVITY.... 0     *
*   PROTECTION.... Y     *
*                        *
**************************
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SECTION 2 - HAZARDOUS INGREDIENTS

THIS PRODUCT CONTAINS HAZARDOUS INGREDIENTS : YES

CHEMICAL/COMMON NAME	CAS-NUMBER	%	PEL-OSHA	TLV-ACGIH
1,1,1-TRICHLOROETHANE	N/I	94.5	N/I	N/I

THIS PRODUCT CONTAINS CARCINOGENS (NTP, IARC, or OSHA):NO

SECTION 3 - HEALTH HAZARD DATA

HEALTH EFFECTS (Acute And Chronic)-
INGESTION:
VERY LOW TOXICITY.
EYE CONTACT:
MILD IRRITATION. BUT NO CORNEAL INJURY LIKELY.
SKIN ABSORPTION:
VERY LOW TOXICITY
INHALATION:
ANESTHETIC EFFECTS MAY OCCUR IN THE RANGE OF 1000 PPM. CAN CAUSE DEATH IF TOO MUCH IS BREATHED.

PRIMARY ROUTES OF ENTRY-
EYE AND SKIN CONTACT. INHALATION.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE-
N/I

EMERGENCY FIRST AID PROCEDURES-
EYES:
IMMEDIATELY FLUSH WITH WATER FOR AT LEAST 5 MINUTES. CALL A PHYSICIAN.
SKIN:
WASH OFF IN FLOWING WATER OR SHOWER. WASH CLOTHING BEFORE REUSE.
INHALATION:
REMOVE TO FRESH AIR. IF BREATHING STOPS, GIVE MOUTH TO MOUTH RESUSCITATION.
ADMINISTER OXYGEN . CALL PHYSICIAN AND/OR TRANSPORT TO MEDICAL FACILITY.
INGESTION:
DO NOT INDUCE VOMITING. CALL A PHYSICIAN AND/OR TRANSPORT TO MEDICAL FACILITY.

SECTION 4 - CHEMICAL DATA

BOILING POINT (F)....:	165	SPECIFIC GRAVITY (WATER=1).....:	1.314
VAPOR PRESSURE (mmHg):	100MMH	PERCENT VOLATILE BY VOLUME (%).....:	100
VAPOR DENSITY (AIR=1):	4.55	EVAPORATION RATE (N/I =1):	N/I

SOLUBILITY IN WATER-
0.07G/100G @ 25 C

APPEARANCE AND ODOR INFORMATION-
COLORLESS LIQUID

SECTION 5 - PHYSICAL HAZARD DATA

FLASH POINT (Method Used): NONE FLAMMABLE LIMITS : Lel=7.5 UEL=15I

EXTINGUISHING MEDIA-
WATER FOG

SPECIAL FIRE FIGHTING PROCEDURES-
SELF CONTAINED RESPIRATORY EQUIPMENT.

UNUSUAL FIRE AND EXPLOSION HAZARDS-
NOT CONSIDERED A FLAMMABLE LIQUID HAZARD UNDER AMBIENT TEMPERATURE USE CONDITIONS.

INCOMPATIBILITY (Materials To Avoid)-
WATER. SLOW HYDROLYSIS PRODUCES CORROSIVE ACID.

HAZARDOUS DECOMPOSITION PRODUCTS-
HYDROGEN CHLORIDE AND VERY SMALL AMOUNTS OF PHOSGENE AND CHLORINE

WILL HAZARDOUS POLYMERIZATION OCCUR-
WILL NOT OCCUR.

CONDITIONS TO AVOID FOR POLYMERIZATION-
N/I

IS THE PRODUCT STABLE-
N/I

CONDITIONS TO AVOID FOR STABILITY-
N/I

SECTION 6 - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED-
USE APPROPRIATE SAFETY EQUIPMENT. FOR SMALL LEAKS, MOP UP, WIPE UP OR SOAK IMMEDIATELY. REMOVE TO OUT OF DOORS.
LARGE SPILLS-EVACUATE AREA. CONTAIN LIQUID. TRANSFER TO CLOSED METAL CONTAINER KEEP OUT OF WATER SUPPLIES.

WASTE DISPOSAL METHODS-
(IN ORDER OF PREFERENCE)SEND SOLVENT TO LICENSED RECLAIMER. INCINERATION, EVAPORATION OF VERY SMALL QUANTITIES, OR APPROVED LANDFILL BURIAL IN COMPLIANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS. DUMPING INTO SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER IS STRONGLY DISCOURAGED AND MAY BE ILLEGAL.

SECTION 7 - EXPOSURE CONTROL INFORMATION

VENTILATION-
LOCAL EXHAUST: TO CAPTURE VAPORS
SPECIAL.....: 60 fpm VELOCITY
MECHANICAL (General): EXPLOSION PROOF
OTHER.....: N/A

RESPIRATORY PROTECTION-
NONE NORMALLY NEEDED. APPROVED RESPIRATORY PROTECTION REQUIRED IN ABSENCE OF PROPER ENVIRONMENTAL CONTROL. FOR EMERGENCIES, AL SELF CONTAINED BREATHING APPARATUS OR A FULL FACE RESPIRATOR IS RECOMMENDED.

PROTECTIVE GLOVES-
NO SPECIAL PROTECTIVE GLOVES.

OTHER PROTECTIVE EQUIPMENT-
SAFETY GLASSES WITHOUT SIDE SHIELDS.

OTHER ENGINEERING CONTROLS-
N/I

WORK PRACTICES-
N/I

HYGIENIC PRACTICES-
WASH THOROUGHLY BEFORE EATING, DRINKING OR SMOKING.

SECTION 8 - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE-
AVOID BREATHING VAPORS. STORE IN A COOL DRY PLACE.

MAINTENANCE PRECAUTIONS-
N/I

OTHER PRECAUTIONS-
N/I

ADDITIONAL COMMENTS-
N/I

Inter-Mountain
Laboratories, Inc.

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

Report Date: 05/15/89

Client:	New Mexico OCD		
Sample ID:	8904271645	Date Sampled:	04/27/89
Laboratory Number:	F891600	Date Received:	04/28/89
Analysis Requested:	Purgeable Aromatics	Date Extracted:	NA
Sample Matrix:	Water	Date Analyzed:	05/05/89

Parameter	Concentration	Units
BENZENE	15496 (20.0)	ug/l
TOLUENE	9232 (20.0)	ug/l
ETHYLBENZENE	352 (20.0)	ug/l
m,p-XYLENE	5841 (20.0)	ug/l
o-XYLENE	1825 (20.0)	ug/l

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

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

Jack M. Morgan
Senior Organic Chemist

RECEIVED
MAY 23 1989
OIL CONSERVATION DIV.
SANTA FE

Inter·Mountain
Laboratories, Inc.

RECEIVED
MAY 22 1989
OIL CONSERVATION DIV.
SANTA FE

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

Report Date: 05/09/89

Client: New Mexico OCD
Sample ID: 8904271645
IML Sample No: F891600
Analysis Requested: Purgeable Halocarbons
Sample Matrix: Water

Date Sampled: 04/27/89
Date Received: 04/28/89
Date Extracted: N/A
Date Analyzed: 05/02/89

Parameter	Concentration	Units
CHLOROMETHANE	ND (10.0)	ug/l
BROMOMETHANE	ND (10.0)	ug/l
DICHLORODIFLUOROMETHANE	ND (10.0)	ug/l
VINYL CHLORIDE	ND (10.0)	ug/l
CHLOROETHANE	ND (10.0)	ug/l
METHYLENE CHLORIDE	ND (1.0)	ug/l
TRICHLOROFLUOROMETHANE	ND (10.0)	ug/l
1,1-DICHLOROETHENE	ND (1.0)	ug/l
1,1-DICHLOROETHANE	ND (1.0)	ug/l
TRANS-1,2-DICHLOROETHENE	ND (1.0)	ug/l
CHLOROFORM	ND (1.0)	ug/l
1,2-DICHLOROETHANE	5.5 (1.0)	ug/l
1,1,1-TRICHLOROETHANE	ND (1.0)	ug/l
CARBON TETRACHLORIDE	ND (1.0)	ug/l
BROMODICHLOROMETHANE	ND (1.0)	ug/l
1,2-DICHLOROPROPANE	ND (1.0)	ug/l
CIS-1,3-DICHLOROPROPENE	ND (1.0)	ug/l
TRICHLOROETHENE	ND (1.0)	ug/l
DIBROMOCHLOROMETHANE	ND (1.0)	ug/l
1,1,2-TRICHLOROETHANE	ND (1.0)	ug/l
TRANS-1,3-DICHLOROPROPENE	ND (1.0)	ug/l
2-CHLOROETHYLVINYL ETHER	ND (1.0)	ug/l
BROMOFORM	ND (5.0)	ug/l
1,1,2,2-TETRACHLOROETHANE	ND (1.0)	ug/l
TETRACHLOROETHENE	ND (1.0)	ug/l
CHLOROBENZENE	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
CIS-1,2-DICHLOROETHENE	ND (1.0)	ug/l

Method: 601 Purgeable Halocarbons, 40 CFR Part 136, USEPA (1984).

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

Jack M. Morgan
Senior Organic Chemist