3R - 17

REPORTS

DATE:

April 23, 1987

Amoco Production Company
2325 East 30th
Farmington, New Mexico 87401
505-325-8841

R. J. Broussard
District Manager

April 28, 1987

State of New Mexico
Energy and Minerals Department
P. O. Box 2088
State Land Office
Santa Fe, NM 87501-2088

Attn: Dave Boyer

File: GOM-41-400

Groundwater Contamination - GCU No. 153E

Please find the attached report discussing the results of a groundwater study at GCU 153E performed by Amoco's Groundwater Management Section. The results of samples taken on 3/18/87 show that contamination is restricted to the area surrounding the separator and dehydrator pit. Subsequent samples taken on 3/29/87 confirm that contamination is not migrating off Amoco's leases . Furthermore, a PVC lined steel tank was installed in the separator pit during April to prevent any further possible contamination. As outlined in this report, additional groundwater samples will be collected in the fall of 1987 to determine if any changes in dissolved hydrocarbon occur. It is our understanding that no other remedial action is required at this time. If you have any questions, please contact B. J. Williams at 325-3450.

Sincerely,

R. J. Broussard

BJW/ct

cc: N. W. Allen, Denver

W9

29N-12W-28,12

GMS 87-322

Dissolved Hydrocarbons in Groundwater Near Gas Well GCU 153E Near Farmington, New Mexico

Lloyd E. Dunlap
April 23, 1987

On March 18, 1987, the Groundwater Management Section (GMS) of Amoco Corporation supervised the drilling of seven observation wells at gas well GCU 153E. The purpose of the drilling was to determine if groundwater contamination existed in the shallow subsurface near the gas well. After the observation wells were drilled, groundwater samples were collected and analyzed for aromatic dissolved hydrocarbons. The State of New Mexico Oil Conservation Division (OCD) was present and also collected samples. The results from the GMS samples show that aromatic dissolved hydrocarbons exist near the dehydrator and the seperator. However, no dissolved hydrocarbons were detected in any of the other wells. The OCD samples are not yet available. I understand that a holding tank has now been installed to catch liquids from the separator. Other recommendations are to collect additional samples in the fall of 1987 to determine if the concentration of dissolved hydrocarbons is decreasing.

Observation Wells

Seven observation wells were installed at the site (Figure 1). The wells are constructed of 2-inch PVC well screen and PVC solid casing. The wells were installed with a hollow stem auger rig. Each well was constructed as shown in the appendix.

The shallow subsurface consisted of a fine to coarse sand mixed with a small amount of silt, and gravel. Silt and clay were commonly detected below 7 to 10 ft. The well logs are attached in the appendix.

Water Table Surface

The relative elevations of the well tops were measured so that a water table surface map could be constructed and the direction of groundwater flow could be plotted. Depth-to-water was measured on March 19, 1987, and the relative elevation of the water table surface was calculated (Table 1). Figure 2 shows that the direction of groundwater flow is to the southwest. This is the same direction of the slope of the land surface.

Dissolved Hydrocarbons

Groundwater samples were collected after the wells were drilled. Each well was purged about 3 well volumes prior to drilling. The samples collected by the GMS were analyzed at the GMS laboratory in Tulsa by capillary column gas chromatography. The results show that only wells 2 and 3 contained dissolved hydrocarbons (Table 2). The detection limit for the method is about 2 ug/l for benzene. Confirmation samples were collected on March 29, 1987 by Amoco personnel. The results are shown in Table 3.

Conclusions

The results from the groundwater samples and the direction of groundwater flow show that the groundwater contamination is not migrating off the Amoco lease. It likely that the separator pit is the source of dissolved hydrocarbons because of the similarities of the gas chromatograms from samples from wells 2 and 3. The higher concentration of dissolved hydrocarbons in well 2 also suggests that the seperator pit is the source. Because no dissolved hydrocarbons were detected in wells nos. 5, 6, or 7, it appears that retardation mechanisms in the soil prevents the contamination from moving very far away from the seperator in groundwater.

The GMS concurs with Amoco Production's decision to install a holding tank to catch liquids from the separator. This should prevent any further contamination from entering the soil. Because the dissolved hydrocarbons do not appear to be migrating off of the site, the GMS does not feel that any additional remedial action is needed at this time. The dissolved hydrocarbons in the groundwater will likely decrease over the next several months by natural processes such a biodegradation, volitilization, and dilution. The GMS recommends that additional groundwater samples be collected in the fall of 1987 to determine if any changes have occurred in the concentration of dissolved hydrocarbons. The samples should be sent to the GMS laboratory in Tulsa.

Lloyd E. Dunlap

Lloyd E. Dunlap
Certified Ground Water Professional

LED:mph
87113ART0148

ASSOCIATION OF GROUND WATER SCIENTISTS AND ENGINEERS
CGWP

LLOYD E. DUNLAP
CGWP NO. 156
Expires 03/13/1989

TABLE 1

Fluid Level Measurements
March 19, 1987

Well No.	Elevation of Top of Casing (relative to mean sea level assumed datum*)	Depth to Water (ft below top of casing)	Adjusted Water Table Elevation*	Product Thickness (ft)
1	104.63	13.44	91.19	0
2	100.43	9.40	91.03	0
3	99.98	9.12	90.86	0
4	100.22	9.10	91.12	0
5	100.82	10.25	90.58	0
6	98.73	9.45	89.28	0
7	99.72	9.43	90.29	0

87113ART0148

TABLE 2

Concentration of Dissolved Hydrocarbons in Groundwater,
March 18, 1987

Sample	Benzene	Toluene	Ethyl-benzene	Para- & Meta-xylene	Ortho-xylene
	milligrams per liter				
1A	<0.002	<0.002	<0.002	<0.002	<0.001
1B	<0.002	<0.002	<0.002	<0.002	<0.001
2A	9.3	0.11	1.1	6.9	0.45
2B	10.	0.066	1.4	7.3	0.52
3A	1.2	0.18	0.90	6.6	0.45
3B	1.1	0.18	1.1	7.8	0.58
4A	<0.002	<0.002	<0.002	<0.002	<0.002
5A	<0.002	<0.002	<0.002	<0.002	<0.002
6A	<0.002	<0.002	<0.002	<0.002	<0.002
7A	<0.002	<0.002	<0.002	<0.002	<0.002

Detection limit 0.002 mg/l. Statistically repeatable limit = 0.01 mg/l

---

Analysis was performed by capillary column gas chromatography using freon solvent to extract the dissolved hydrocarbons at the time of sampling.

87113ART0148

TABLE 3

Concentration of Dissolved Hydrocarbons in Groundwater,
March 29, 1987

Sample	Benzene	Toluene	Ethyl-benzene	Para- & Meta-xylene	Ortho-xylene
	milligrams per liter				
1	<0.002	<0.002	<0.002	<0.002	<0.001
2	broken vial				
3	1.3	0.16	0.11	4.0	0.38
4	<0.002	<0.002	<0.002	<0.002	<0.002
5	<0.002	<0.002	<0.002	<0.002	<0.002
6	<0.002	<0.002	<0.002	<0.002	<0.002
7	<0.002	<0.002	<0.002	<0.002	<0.002

Detection limit 0.002 mg/1. Statistically repeatable limit = 0.01 mg/1

Analysis was performed by capillary column gas chromatography using freon solvent to extract the dissolved hydrocarbons at the time of sampling.

87113ART0148

Well Logs

Depth, ft	Lithology
Well 1	
0-2.5	Medium to coarse sand; cobbles and pebbles
2.5-4.5	Same; drill chatter at 4 ft
4.5-9.5	Same; some silt
9.5-14.5	Same
14.5-18	No drill cuttings

Screen 8 to 18 ft blsd (below land surface datum)

Well 2	
0-4.5	Medium to coarse sand
4.5-7.5	Same, with silt
7.5-8	Black soil, medium to coarse sand
8-14	No drill cuttings

Screen 4 to 14 blsd

Well 3	
0-5	Fine to medium sand; some silt
5-7.5	Silt, some sand
7.5-10	Same, with black soil
10-14.5	Silt, some sand

Screen 4.5 to 14.5 ft blsd

Well 4	
0-9.5	Fine to coarse sand, some silt
9.5-14.5	No return

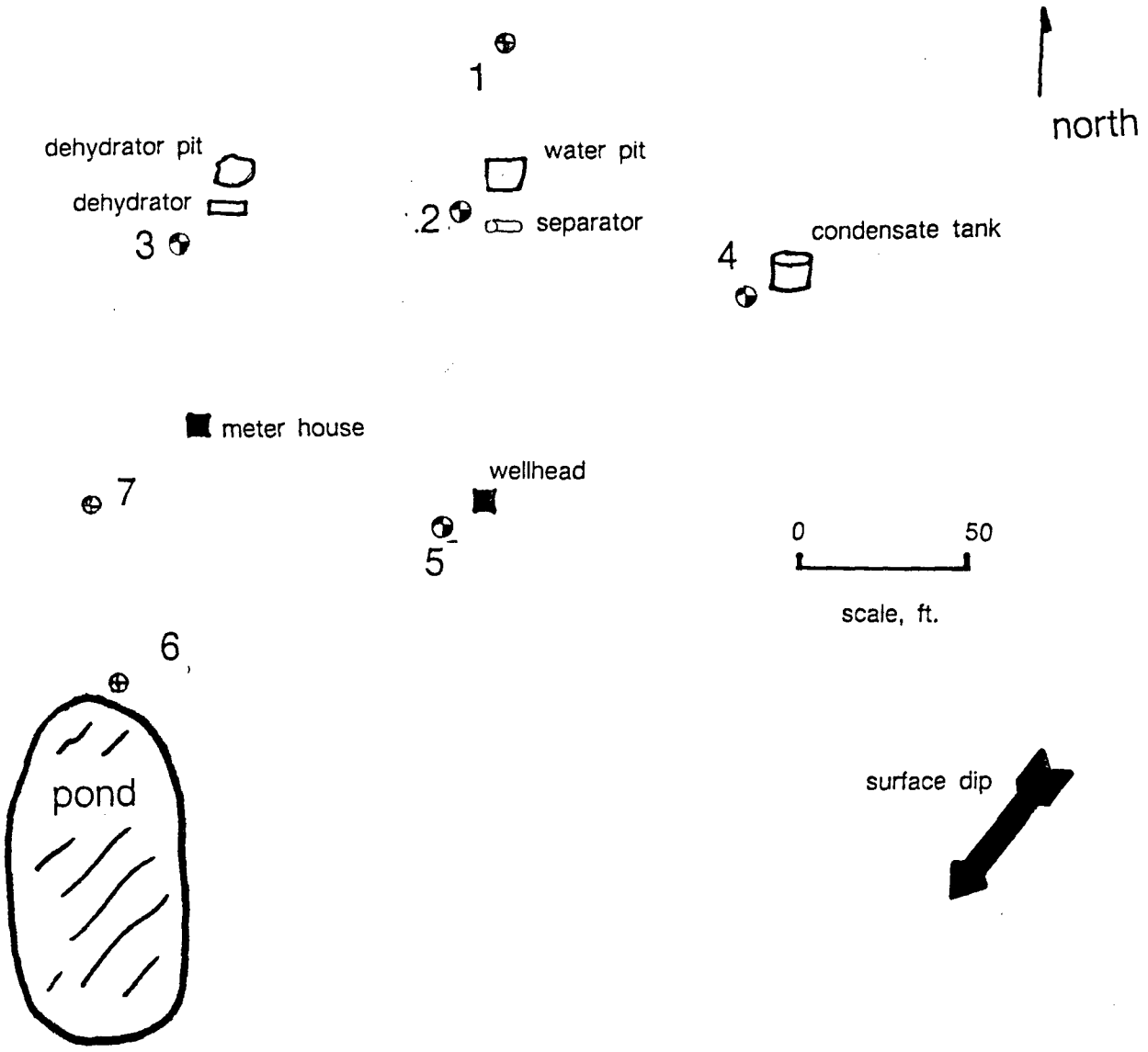
Screen 5.0 to 15.0 ft blsd

Well 5	
0-2.5	Medium to coarse sand, some silt
2.5-7.5	Same, less silt
7.5-14.5	Silt; clay

Screen 7 to 12 ft blsd

Well Logs (continued)

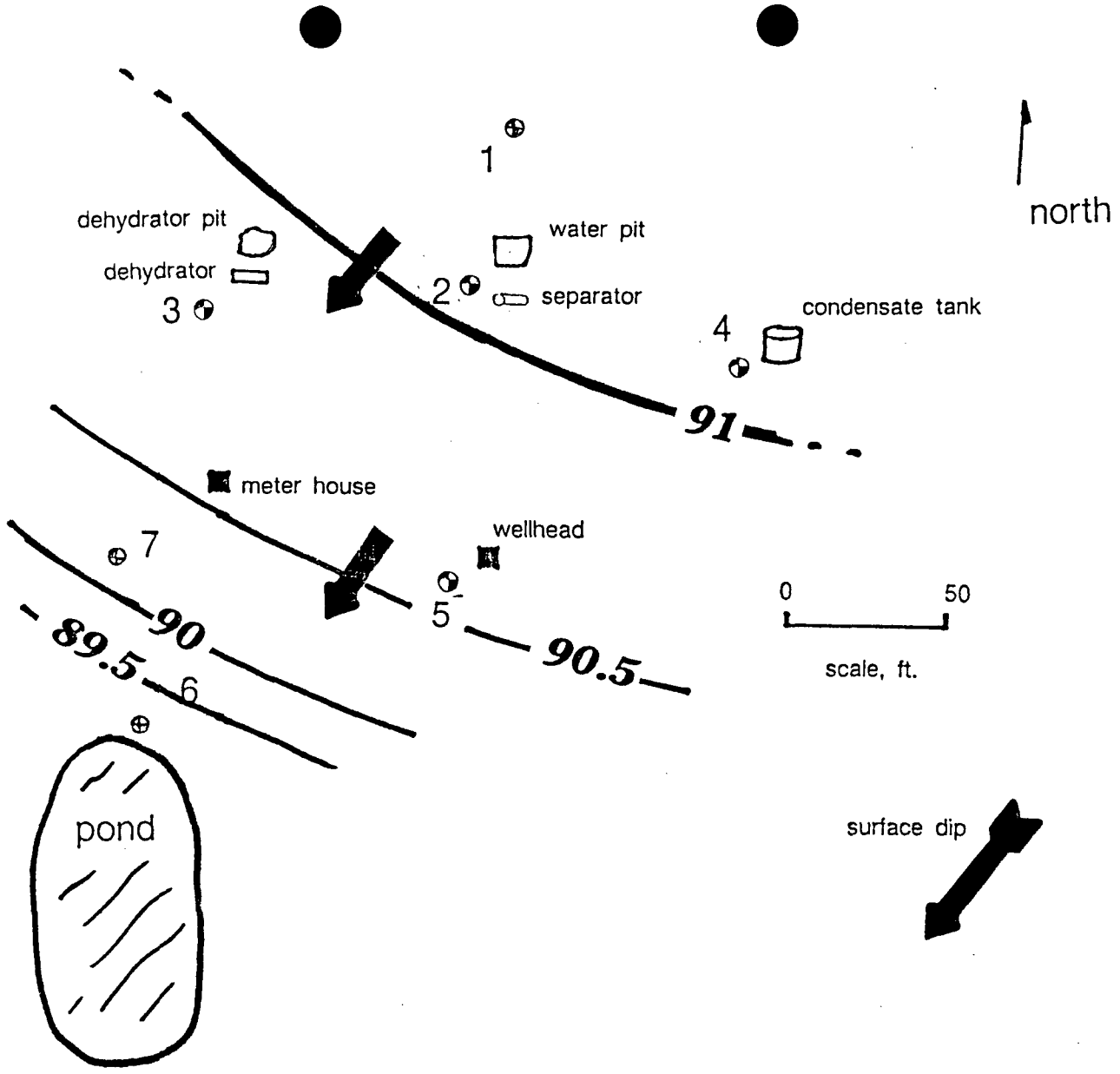
Depth, ft	Lithology
Well 6	
0-6	Medium to coarse sand and silt
6-13	Clayey silt
13-17	Silty clay
Screen 12 to 17 ft blsd	
Well 7	
0-5	Medium to coarse sand, some silt
5-7.5	Same, with more silt
7.5-10	Sandy silt
10-15	Silty, muddy
Screen 7 to 17 ft blsd	



GCU 153E

Figure 1. Location of observation wells.

observation wells



GCU 153E

Relative elevation of water table surface on March 19, 1987.

Figure 2. Location of observation wells.

observation wells

direction of groundwater flow.

New Mexico Health and Environment Department 859 WNN
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED 3 20 87	LAB NO. WC-870	USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235	
Collection DATE 3 18 87	SITE INFORM-ATION ►	Sample location Well GCU #153E east of Farmington	
Collection TIME 1412		Collection site description Back of Windy's Junkyard	
Collected by — Person/Agency Olson, Boyce /OCD			

(Gas well is Basin Dakota GCU/NPB)

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: Tank Drain
Owner: Amoco

SAMPLING CONDITIONS

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

Field comments: sample taken from end of tank drain pipe to blow pit

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)	162	µmho	3/24
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☑ Other:	pH = 6.66		3/25
☐ 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	45.0	mg/l	4/8
☑ Potassium	2.34	mg/l	4/14
☑ Magnesium	0.4	mg/l	4/8
☑ Sodium	13.8	mg/l	4/14
☑ Bicarbonate	35	mg/l	3/25
☑ Chloride	29	mg/l	3/25
☑ Sulfate	40	mg/l	3/27
☑ Total Solids	64	mg/l	4/8
☐			
☐			
☑ Cation/Anion Balance			

Analyst	Date Reported	Reviewed by
	4 15 87	CS

Laboratory remarks

29N-12W-28.12

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

87-0350 C 754 wpu

SCIENTIFIC LABORATORY DIVISION

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

HEALTH ENVIRONMENT — 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- 87-0350AB
DATE REC. 3-20-87
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 3 1 8 1 2 4 5

SAMPLE TYPE: WATER ☑, SOIL ☐, FOOD ☐, OTHER: _____ CODE: _____

COUNTY: San Juan ; CITY: Farmington CODE: _____

LOCATION CODE: (Township-Range-Section-Tracts) 2 9 N + 1 2 W + 2 8 + 1 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, Triasines
- ☐ (760) Organochlorine Pesticides
- ☐ (761) Organophosphate Pesticides
- ☐ (767) Polychlorinated Biphenyls (PCB's)
- ☐ (764) Polynuclear Aromatic Hydrocarbons
- ☐ (762) SDWA Pesticides & Herbicides

Remarks: _____

FIELD DATA:

pH= _____; Conductivity= 4900 umho/cm at 13.5 °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#1 at well site GCU #153E east of Farmington
sampled after monitor well installation, purged before sampled

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

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

Samples were preserved as follows:

- ☐ NP: No Preservation; Sample stored at room temperature.
- ☑ P-Ice Sample stored in an ice bath (Not Frozen).
- ☐ P-$Na_2S_2O_3$ Sample Preserved with Sodium Thiosulfate to remove chlorine residual.

CHAIN OF CUSTODY

I certify that this sample was transferred from William Olson to Gary Eden

at (location) N.M State Lab on 3/20/87 - 3:30 and that

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

Signatures Gary C. Eden _____

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

ANALYSES PERFORMED

LAB. No.: OR- 350

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	ND		
aromatic purgeables	ND ⊛		
aromatic * DETECTION LIMIT * *	1 ppb	halogenated + DETECTION LIMIT + +	0.5 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: ⊛ It is possible that there is a trace amount of p-Xylene and m-Xylene, but this is most certainly lab contamination due to the sample that was run before this. However, a significant amount of one other compound was detected by the aromatic screen that was not identified that is not lab contamination. It eluted early, so it could be field contamination or a light weight hydrocarbon.

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ☒ No ☐. Seal(s) broken by: J. Finney date: 4-22-87

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

Date(s) of analysis: 4-22-87. 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 Meyerhein MAY 26 1987

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 3 20 87	LAB NO. WC-862	USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235	
Collection DATE 3 18 87	SITE INFORM-ATION ►	Sample location: Well GCU #153E east of Farmington	
Collection TIME 1245		Collection site description: Back of Windy's Junkyard	
Collected by - Person/Agency: Olson, 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: MW #1

Owner: Amoco

SAMPLING CONDITIONS

☑ Bailed ☐ Dipped ☐ Pump ☐ Tap	Water level	Discharge	Sample type: grab
pH (00400)	Conductivity (Uncorrected) 4900 µmho	Water Temp. (00010) 13.5 °C	Conductivity at 25°C (00094) µmho

Field comments: sampled after monitor well installation, purged before sampled

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)	6345	µmho	3/24
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☑ Other:	pH = 7.53		3/25
☐ 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	1496	mg/l	4/10
☑ Potassium	4.68	mg/l	4/1
☑ Magnesium	67	mg/l	4/10
☑ Sodium	1175	mg/l	4/1
☑ Bicarbonate	419	mg/l	3/25
☑ Chloride	108	mg/l	3/25
☑ Sulfate	3572	mg/l	3/27
☑ Total Solids	5860	mg/l	3/31
☐			
☐			
☑ Cation/Anion Balance	150% Particulate		

Analyst | Date Reported 4 13 87 | Reviewed by

Laboratory remarks: Unfiltered sample used in HCO_3 det

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

87-0352 C

SCIENTIFIC LABORATORY DIVISION

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

HEALTH ENVIRONMENT — 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- 87-0352 AB
DATE REC. 3-20-87
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 3 1 8 / 1 4 3 0

SAMPLE TYPE: WATER ☑, SOIL ☐, FOOD ☐, OTHER: _____ CODE: _____

COUNTY: San Juan ; CITY: Farmington CODE: _____

LOCATION CODE: (Township-Range-Section-Tracts) 2 9 N + 1 2 W + 2 8 + 1 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, Triasines
- ☐ (760) Organochlorine Pesticides
- ☐ (761) Organophosphate Pesticides
- ☐ (767) Polychlorinated Biphenyls (PCB's)
- ☐ (764) Polynuclear Aromatic Hydrocarbons
- ☐ (762) SDWA Pesticides & Herbicides

Remarks: _____

FIELD DATA:

pH= _____; Conductivity= 7750 umho/cm at 12 °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 at Amoco well site GCU #153E east of Farmington
sampled after monitor well installation, purged before sampling

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

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

Samples were preserved as follows:

- ☐ NP: No Preservation; Sample stored at room temperature.
- ☑ P-Ice Sample stored in an ice bath (Not Frozen).
- ☐ P-$Na_2S_2O_3$ Sample Preserved with Sodium Thiosulfate to remove chlorine residual.

CHAIN OF CUSTODY

I certify that this sample was transferred from William Olson to Gary Eden
at (location) N.M. State Lab on 3/20/87 - 3:30 and that
the statements in this block are correct. Evidentiary Seals: Not Sealed ☐ Seals Intact: Yes ☑ No ☐

Signatures Gary C. Eden _____

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

ANALYSES PERFORMED

LAB. No.: OR- 352

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, Triasines
- ☐ (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	ND		
benzene	14000		
toluene	ND		
ethylbenzene	280		
p-xylene	990		
m-xylene	3500		
o-xylene	100		
aromatic * DETECTION LIMIT * *	100ppb	halogenated DETECTION LIMIT + +	50ppb

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: Trace amounts of five 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: M Finney date: 4-24-87

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

Date(s) of analysis: 4-24-87. Analyst's signature: M 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 MAY 26 1987

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 3 20 87 | LAB NO. WC-867 | USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235

Collection DATE 3 18 87 | Collection TIME 1430 | Collected by — Person/Agency Olson, Boyer /OCD

SITE INFORMATION ►

Sample location: Well GCU #153E east of Farmington

Collection site description: Back of Windy's Junkyard

SEND FINAL REPORT TO ►

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

Attn: David Boyer

Phone: 827-5812

Station/well code: MW #2

Owner: Amoco

SAMPLING CONDITIONS

☑ Bailed ☐ Dipped ☐ Pump ☐ Tap	Water level	Discharge	Sample type: grab
pH (00400)	Conductivity (Uncorrected): 7750 µmho	Water Temp. (00010): 12 °C	Conductivity at 25°C (00094): µmho

Field comments: sampled after monitor well installation, purged before sampling

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)	9806	µmho	3/24
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☑ Other:	pH = 7.03		3/25
☐ 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	414	mg/l	4/8
☑ Potassium	11.7	mg/l	4/1
☑ Magnesium	113	mg/l	4/8
☑ Sodium	1974	mg/l	4/1
☑ Bicarbonate	4000	mg/l	3/25
☑ Chloride	1336	mg/l	3/25
☑ Sulfate	3488	mg/l	3/27
☑ Total Solids	8218	mg/l	4/8
☐			
☐			
☑ Cation/Anion Balance			88.0%

Analyst | Date Reported: 4/13/87 | Reviewed by: CJ

Laboratory remarks: HCO_3^- det. unfiltered above, filtered [HCO_3^-] = 1800 ppm

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

87-0349 C 754 wpw

SCIENTIFIC LABORATORY DIVISION

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

STATE 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-87-0349 AB
DATE REC. 3-20-87
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 3 1 8 1 4 0 5

SAMPLE TYPE: WATER ☑, SOIL ☐, FOOD ☐, OTHER: _____ CODE: _____

COUNTY: San Juan ; CITY: Farmington CODE: _____

LOCATION CODE: (Township-Range-Section-Tracts) 2 9 N + 1 2 W + 2 8 + 1 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, Triasines
- ☐ (760) Organochlorine Pesticides
- ☐ (761) Organophosphate Pesticides
- ☐ (767) Polychlorinated Biphenyls (PCB's)
- ☐ (764) Polynuclear Aromatic Hydrocarbons
- ☐ (762) SDWA Pesticides & Herbicides

Remarks: _____

FIELD DATA:

pH=_____; Conductivity=9500 umho/cm at 13 °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 at Amoco well site GCU #153 E east of Farmington
sampled after monitor well installation, purged before sampling

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

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

Samples were preserved as follows:

- ☐ NP: No Preservation; Sample stored at room temperature.
- ☑ P-Ice Sample stored in an ice bath (Not Frozen).
- ☐ P-$Na_2S_2O_3$ Sample Preserved with Sodium Thiosulfate to remove chlorine residual.

CHAIN OF CUSTODY

I certify that this sample was transferred from William Olson to Gary Eden

at (location) N.M. State Lab on 3/20/87 - 3:30 and that

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

Signatures Gary C. Eden _____

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

ANALYSES PERFORMED

LAB. No.: OR- 349

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, Triasines
- ☐ (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	ND		
benzene	2400		
toluene	ND ①		
ethylbenzene	ND ①		
p-xylene	860		
m-xylene	3200		
o-xylene	TR ②		
aromatic * DETECTION LIMIT * *	100 ppb	halogenated + DETECTION LIMIT + +	0.5 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: Trace amounts of six other compounds were detected by the aromatic screen that were not identified. ① When this sample was run without dilution, everything was offscale, so it is possible that toluene and ethylbenzene are present in the sample. The trace amount of o-xylene ≅ 100 ppb.

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ☒ No ☐. Seal(s) broken by: J. Tinney date: 4-22-87

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

Date(s) of analysis: 4-22-87, 4-24-87 Analyst's signature: J. Tinney 4-24-87

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 MAY 26 1987

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

859 WRN

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED 3 20 87 | LAB NO. WR-869 | USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235

Collection DATE 3 18 87

Collection TIME 1405

Collected by — Person/Agency Wilson, Boyer / OCD

SITE INFORMATION ►

Sample location: Well GCU #153E east of Farmington

Collection site description: Back of Windy's Junkyard

SEND FINAL REPORT TO ►

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

Attn: David Boyer

Phone: 827-5812

Station/well code: MW #3

Owner: Amoco

SAMPLING CONDITIONS

☑ Bailed ☐ Dipped ☐ Pump ☐ Tap	Water level	Discharge	Sample type: grab
pH (00400)	Conductivity (Uncorrected): 9500 µmho	Water Temp. (00010): 13 °C	Conductivity at 25°C (00094): µmho

Field comments: sampled after monitor well installation, purged before sampling

SAMPLE FIELD TREATMENT — *Check proper boxes*

No. of samples submitted: 1

☑ NF: Whole sample (Non-filtered) ☐ F: Filtered in field with 0.45 µm membrane filter ☐ A: 2 ml H_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)	12690	µmho	3/24
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☑ Other:	pH		
☐ 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	480	mg/l	4/8
☑ Potassium	11.3	mg/l	4/14
☑ Magnesium	146	mg/l	4/8
☑ Sodium	3977	mg/l	4/14
☑ Bicarbonate	2500	mg/l	3/25
☑ Chloride	1202	mg/l	3/25
☑ Sulfate	12146	mg/l	3/27
☑ Total Solids	11,178	mg/l	4/8
☐			
☐			
☑ Cation/Anion Balance	particulate 9%		4

Analyst | Date Reported: 4 15 87 | Reviewed by

Laboratory remarks: HCO_3^- det. above unfiltered
Filtered [HCO_3^-] = 1090 ppm.

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

87-0353-C

SCIENTIFIC LABORATORY DIVISION

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

STATE 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- 87-0353AB
DATE REC. 3-20-87
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 3 1 8 / 3 0 5

SAMPLE TYPE: WATER ☑, SOIL ☐, FOOD ☐, OTHER: _____ CODE: _____

COUNTY: San Juan ; CITY: Farmington CODE: _____

LOCATION CODE: (Township-Range-Section-Tracts) 2 9 N + 1 2 W + 2 8 + 1 2 1 (10N06E24342)

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

PURGEABLE SCREENS

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

Other Specific Compounds or Classes

- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
- ☐ (760) Organochlorine Pesticides
- ☐ (755) Base/Neutral Extractables
- ☐ (758) Herbicides, Chlorophenoxy acid
- ☐ (759) Herbicides, Triasines
- ☐ (760) Organochlorine Pesticides
- ☐ (761) Organophosphate Pesticides
- ☐ (767) Polychlorinated Biphenyls (PCB's)
- ☐ (764) Polynuclear Aromatic Hydrocarbons
- ☐ (762) SDWA Pesticides & Herbicides

Remarks: _____

FIELD DATA:

pH= _____; Conductivity= 3900 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.)

MW#4 at well site GCU #153E east of Farmington
sampled after monitor well installation, purged before sampling

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

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

Samples were preserved as follows:

- ☐ NP: No Preservation; Sample stored at room temperature.
- ☑ P-Ice Sample stored in an ice bath (Not Frozen).
- ☐ P-$Na_2S_2O_3$ Sample Preserved with Sodium Thiosulfate to remove chlorine residual.

CHAIN OF CUSTODY

I certify that this sample was transferred from William Olson to Gary Eden

at (location) N.M. State Lab on 3/20/87 - 3:30 and that the statements in this block are correct. Evidentiary Seals: Not Sealed ☐ Seals Intact: Yes ☑ No ☐

Signatures Gary C. Eden _____

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

ANALYSES PERFORMED

LAB. No.: OR- 353

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	ND		
aromatic purgeables	ND*		
aromatic * DETECTION LIMIT * *	2ppb	halogenated + DETECTION LIMIT + +	1ppb

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: *A significant amount of one other compound that eluted early was detected by the aromatic screen that was not identified. It could be a field contaminant such as acetone, or it could be a light weight unsaturated hydrocarbon, or perhaps MTBE.

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ☒ No ☐. Seal(s) broken by: J Tierney date: 4-24-87

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

Date(s) of analysis: 4-24-87. Analyst's signature: J Tierney

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

Reviewers signature: J K Meyerhen MAY 26 1987

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

859 WNN

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED 3 20 87	LAB NO. WC-863	USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235	
Collection DATE 3 18 87	SITE INFORMATION ►	Sample location: Well GCU #153E near Farmington	
Collection TIME 1305		Collection site description: Back of Windy's Junkyard	
Collected by — Person/Agency: Olson, 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: MW #4

Owner: Amoco

SAMPLING CONDITIONS

☑ Bailed ☐ Dipped ☐ Pump ☐ Tap	Water level	Discharge	Sample type: Grab
pH (00400)	Conductivity (Uncorrected): 3900 µmho	Water Temp. (00010): 12.5 °C	Conductivity at 25°C (00094) µmho

Field comments: sampled after monitor well installation, purged before sampling

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)	5238	µmho	3/24
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☑ Other:	pH 7.11		4/1
☐ 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	464	mg/l	4/8
☑ Potassium	8.58	mg/l	4/1
☑ Magnesium	46	mg/l	4/8
☑ Sodium	971	mg/l	4/1
☑ Bicarbonate	572	mg/l	4/1
☑ Chloride	106	mg/l	3/25
☑ Sulfate	3041	mg/l	3/27
☑ Total Solids	4788	mg/l	4/1
☐			
☐			
☑ Cation/Anion Balance	92%		

Analyst	Date Reported	Reviewed by
	4 13 87	CZ

Laboratory remarks: Unfiltered sample used in HCO_3 det.

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

87-0354-C

SCIENTIFIC LABORATORY DIVISION

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

HEALTH ENVIRONMENT — STATE OF NEW MEXICO

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- 87-0354 AB
DATE REC. 3-20-87
PRIORITY
USER CODE: 8 2 2 3 5

SUBMITTER: David Boyer
CODE: 2 6 0

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

SAMPLE TYPE: WATER ☑, SOIL ☐, FOOD ☐, OTHER: _____ CODE: _____

COUNTY: San Juan ; CITY: Farmington CODE: _____

LOCATION CODE: (Township-Range-Section-Tracts) 2 9 N + 1 2 W + 2 8 + 1 2 (10N06E24342)

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

PURGEABLE SCREENS

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

Other Specific Compounds or Classes

- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____

EXTRACTABLE SCREENS

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

Remarks: _____

FIELD DATA:

pH= _____; Conductivity= 6100 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.)

MW#5 at well site GCU #153E east of Farmington
sampled after monitor well installation, purged before sampled

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

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

Samples were preserved as follows:

- ☐ NP: No Preservation; Sample stored at room temperature.
- ☑ P-Ice Sample stored in an ice bath (Not Frozen).
- ☐ P-$Na_2S_2O_3$ Sample Preserved with Sodium Thiosulfate to remove chlorine residual.

CHAIN OF CUSTODY

I certify that this sample was transferred from William Olson to Gary Eden

at (location) N.M. State Lab on 3/20/87 - 3:30 and that

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

Signatures Gary C. Eden [redacted] AS YAM

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

ANALYSES PERFORMED

LAB. No.: OR- 354

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	ND		
aromatic purgeables	ND*		
aromatic* DETECTION LIMIT * *	4 (four) ppb	halogenated+ DETECTION LIMIT + +	2 (two) 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: * a significant amount of one other compound that eluted early was detected by the aromatic screen that was not identified. It could be a field contaminant such as acetone, or it could be a light weight unsaturated hydrocarbon, or perhaps MTBE.

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ☒ No ☐. Seal(s) broken by: J. Tierney date: 4-24-87

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

Date(s) of analysis: 4-24-87. Analyst's signature: J. Tierney

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 MAY 26 1987

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

859 WNR

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED 3 20 87	LAB NO. WC-864	USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235	
Collection DATE 3 18 87	SITE INFORMATION ►	Sample location: Well GCU #153 E near Farmington	
Collection TIME 1325		Collection site description: Back of Windy's Junkyard	
Collected by — Person/Agency: Boyer, Olson / 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: MW #5
Owner: Amoco

SAMPLING CONDITIONS

☑ Bailed ☐ Dipped ☐ Pump ☐ Tap	Water level	Discharge	Sample type: grab
pH (00400)	Conductivity (Uncorrected): 6100 µmho	Water Temp. (00010): 12.5 °C	Conductivity at 25°C (00094): µmho

Field comments: sampled after monitor well installation, purged before sampled

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)	8075	µmho	3/24
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☑ Other:	pH = 8.34		3/25
☐ 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	408	mg/l	4/6
☑ Potassium	11.31	mg/l	4/1
☑ Magnesium	61	mg/l	4/6
☑ Sodium	2033	mg/l	4/1
☑ Bicarbonate	395	mg/l	3/25
☑ Chloride	269	mg/l	3/25
☑ Sulfate	4157	mg/l	3/27
☑ Total Solids	7290	mg/l	3/31
☐			
☐			
☑ Cation/Anion Balance	113%		

Analyst | Date Reported: 4 13 87 | Reviewed by: CO

Laboratory remarks: Unfiltered sample used in HCO_3^-, CO_3^{-2} det [CO_3^-] = 2.4 mg/l

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

SCIENTIFIC LABORATORY DIVISION

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

STATE OF NEW MEXICO
HEALTH ENVIRONMENT

87 03 47 AB 754 wpl

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

S.L.D. No. OR- 87-0347 AB
DATE REC. 3-20-87
PRIORITY

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

SUBMITTER: David Boyer
CODE: 2 6 0

SAMPLE COLLECTION CODE: (YYMMDDHHMMHH) 8 7 0 3 1 8 1 3 4 0

SAMPLE TYPE: WATER ☑, SOIL ☐, FOOD ☐, OTHER: _____ CODE: _____

COUNTY: San Juan; CITY: Farmington CODE: _____

LOCATION CODE: (Township-Range-Section-Tracts) 2 9 N + 1 2 W + 2 8 + 1 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, Triasines
- ☐ (760) Organochlorine Pesticides
- ☐ (761) Organophosphate Pesticides
- ☐ (767) Polychlorinated Biphenyls (PCB's)
- ☐ (764) Polynuclear Aromatic Hydrocarbons
- ☐ (762) SDWA Pesticides & Herbicides

Remarks: _____

FIELD DATA:

pH=_____; Conductivity= 4100 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 #6 at Amoco well site GCU #153E east of Farmington
Sampled after monitor well installation, purged before sampling

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

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

Samples were preserved as follows:

- ☐ NP: No Preservation; Sample stored at room temperature.
- ☑ P-Ice Sample stored in an ice bath (Not Frozen).
- ☐ P-$Na_2S_2O_3$ Sample Preserved with Sodium Thiosulfate to remove chlorine residual.

CHAIN OF CUSTODY

I certify that this sample was transferred from William Olson to Gary Eden
at (location) N.M. State Lab (ADQ) on 3/20/87 - 3:30 pm and that the statements in this block are correct. Evidentiary Seals: Not Sealed ☐ Seals Intact: Yes ☑ No ☐

Signatures Gary C. Eden _____

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

ANALYSES PERFORMED

LAB. No.: OR- 347

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, Triasines
- ☐ (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	ND*		
aromatic purgeables	ND*		
aromatic * DETECTION LIMIT * *	1ppb	halogenated + DETECTION LIMIT + +	0.5ppb

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: *A trace amount of one early eluting halocarbon was detected by the halogenated screen that was not identified. Two early eluting compounds were detected by the aromatic screen that were not identified, the first one was a significant amount and the second one was only a trace amount.

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ☒ No ☐. Seal(s) broken by: J Tinney date: 4-22-87

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

Date(s) of analysis: 4-22-87. 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 MAY 26 1987

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

859 wnn

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED 3 20 87	LAB NO. WC-865	USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235	
Collection DATE 3 16 87	SITE INFORM-ATION ►	Sample location Well GCU #153E east of Farmington	
Collection TIME 1340		Collection site description Back of Windy's Junkyard	
Collected by — Person/Agency Boyer, Olson / 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: MW #6
Owner: Amoco

SAMPLING CONDITIONS

☑ Bailed ☐ Dipped ☐ Pump ☐ Tap	Water level	Discharge	Sample type: grab
pH (00400)	Conductivity (Uncorrected): 4100 µmho	Water Temp. (00010): 14.5 °C	Conductivity at 25°C (00094) µmho

Field comments: sampled after monitor well installation, purged before sampling

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)	5238	µmho	3/24
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☑ Other:	pH = 7.70		3/25
☐ 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	449	mg/l	4/8
☑ Potassium	8.58	mg/l	4/1
☑ Magnesium	45	mg/l	4/8
☑ Sodium	1014	mg/l	4/1
☑ Bicarbonate	260	mg/l	3/25
☑ Chloride	117	mg/l	3/25
☑ Sulfate	3104	mg/l	3/27
☑ Total Solids	4776	mg/l	3/31
☐			
☐			
☑ Cation/Anion Balance	14.32% particulate		

Analyst	Date Reported	Reviewed by
	4 13 87	CO

Laboratory remarks: Unfiltered sample used in HCO_3^- det

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

87-0348 AB

754 wpw

SCIENTIFIC LABORATORY DIVISION

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

STATE 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- 87-0348 AB
DATE REC. 3-20-87
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 3 1 8 1 3 5 5

SAMPLE TYPE: WATER ☑, SOIL ☐, FOOD ☐, OTHER: _____ CODE: _____

COUNTY: San Juan; CITY: Farmington CODE: _____

LOCATION CODE: (Township-Range-Section-Tracts) 2 9 N + 1 2 W + 2 8 + 1 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, Triasines
- ☐ (760) Organochlorine Pesticides
- ☐ (761) Organophosphate Pesticides
- ☐ (767) Polychlorinated Biphenyls (PCB's)
- ☐ (764) Polynuclear Aromatic Hydrocarbons
- ☐ (762) SDWA Pesticides & Herbicides

Remarks: _____

FIELD DATA:

pH=_____; Conductivity=29500 umho/cm at 13 °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#7 at Amoco well site GCU #153E east of Farmington
Sampled after monitor well installation, purged before sampling

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

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

Samples were preserved as follows:

- ☐ NP: No Preservation; Sample stored at room temperature.
- ☑ P-Ice Sample stored in an ice bath (Not Frosen).
- ☐ 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 William Olson to Gary Eden
at (location) N.M State Lab. on 3/20/87 - 3:30 and that
the statements in this block are correct. Evidentiary Seals: Not Sealed ☐ Seals Intact: Yes ☑ No ☐

Signatures Gary C. Eden _____

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

ANALYSES PERFORMED

LAB. No.: OR- 348

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, Triasines
- ☐ (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	ND		
aromatic purgeables	ND*		
aromatic* DETECTION LIMIT * *	2 ppb	halogenated+ DETECTION LIMIT + +	1 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: * A significant amount of one other compound that eluted early was detected by the aromatic screen that was not identified. It could be a field contaminant such as acetone, or it could be a light weight unsaturated hydrocarbon, or perhaps MtBE.

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ☒ No ☐. Seal(s) broken by: [signature] date: 4-22-87

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

Date(s) of analysis: 4-22-87 4-24-87 Analyst's signature: [signature] 4-24-87

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 MAY 26 1987

New Mexico Health and Environment Department 859 wnn
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED 3 20 87	LAB NO. WX-866	USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235	
Collection DATE 3 18 87	SITE INFORMATION ►	Sample location Well GCU #153E east of Farmington	
Collection TIME 1355		Collection site description Back of Windy's Junkyard	
Collected by — Person/Agency Boyer, Olson /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 MW #7
Owner Amoco

SAMPLING CONDITIONS

☑ Bailed ☐ Dipped ☐ Pump ☐ Tap	Water level	Discharge	Sample type grab
pH (00400)	Conductivity (Uncorrected) 29500 µmho	Water Temp. (00010) 13 °C	Conductivity at 25°C (00094) µmho

Field comments sampled after monitor well installation, purged before sampling

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)	34608	µmho	3/24
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☑ Other:	pH = 7.92		3/25
☐ 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	528	mg/l	4/14
☑ Potassium	25.4	mg/l	4/1
☑ Magnesium	525	mg/l	4/8
☑ Sodium	12995	mg/l	4/14
☑ Bicarbonate	1026	mg/l	3/25
☑ Chloride	670	mg/l	3/25
☑ Sulfate	29853	mg/l	3/27
☑ Total Solids	44726	mg/l	3/31
☐			
☐			
☑ Cation/Anion Balance	particulate	%	97

Analyst	Date Reported	Reviewed by
	4/13/87	CG

Laboratory remarks Unfiltered sample used in HCO_3^- det.

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

New Mexico Health and Environment Department 859 wm
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED	LAB NO.	USER CODE	
3 20 87	WC-868	☐ 59300 ☐ 59600 ☒ OTHER: 82235	

Collection DATE: 3/18/87
Collection TIME: 1445
Collected by — Person/Agency: Boyer, Olson /OCD

SITE INFORMATION ►
Sample location: Well GCU #153E east of Farmington
Collection site description: Back of Windy's Junkyard

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: Green Pond
Owner: Amoco

SAMPLING CONDITIONS

☐ Bailed ☐ Dipped ☐ Pump ☐ Tap	Water level	Discharge	Sample type
pH (00400)	Conductivity (Uncorrected) 5250 µmho	Water Temp. (00010) 13.5 °C	Conductivity at 25°C (00094) µmho

Field comments:

SAMPLE FIELD TREATMENT — *Check proper boxes*

No. of samples submitted: (

☑ NF: Whole sample (Non-filtered) ☐ F: Filtered in field with 0.45 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)	6922	µmho	3/24
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☑ Other:	pH ⟹		8.02
☐ Other:			3/25
☐ 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	461	mg/l	4/8
☑ Potassium	65.7	mg/l	4/1
☑ Magnesium	70	mg/l	4/8
☑ Sodium	1511	mg/l	4/1
☑ Bicarbonate	278	mg/l	3/25
☑ Chloride	167	mg/l	3/25
☑ Sulfate	3920	mg/l	3/27
☑ Total Solids	6248	mg/l	4/8
☐			
☐			
☑ Cation/Anion Balance	106%		

Analyst	Date Reported	Reviewed by
	4 13 87	

Laboratory remarks: HCO_3^- det. above unfiltered.

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