3R - 19

GENERAL CORRESPONDENCE

YEAR(S):

1996 - 1992

BLAGG ENGINEERING, INC.

P.O. Box 87, Bloomfield, New Mexico 87413
Phone: (505) 632-1199 Fax: (505) 632-3903

March 18, 1996

Mr. William C. Olson
Hydrogeologist
Environmental Bureau
New Mexico Oil Conservation Division
2040 South Pacheco
Santa Fe, New Mexico 87505

RE: Groundwater Sampling
Amoco GCU Com I 181 Well Location
San Juan County, New Mexico
Unit F, Section 34, T29N, R12W

Dear Mr. Olson:

On behalf of Amoco Production Company, Blagg Engineering, Inc. would like to propose a change in groundwater sampling at the above referenced Amoco well location. In reference to the latest groundwater sampling report dated February 27, 1996, it is proposed to eliminate groundwater sampling at all groundwater monitor well locations except WP #41 and MW #7. In addition, it is proposed to install two additional wellpoints in the area of WP #41 to further delineate remaining groundwater contamination in this area. Wellpoints #45 and #46 would be installed in the areas noted on the attached Figure 1.

Soil remediation has been completed in the area with all composted soils having been previously sampled and thin spread on surrounding farmland. Future sampling of site groundwater monitoring wells is deemed unnecessary except in the small remaining area of contamination in the area of WP #41, and MW #7 where sampling has shown Benzene levels just below NM water quality allowable concentrations.

If you have any further questions, or we can be of assistance in any other matters, please contact Blagg Engineering at 632-1199.

Respectfully submitted,
BLAGG ENGINEERING, INC.

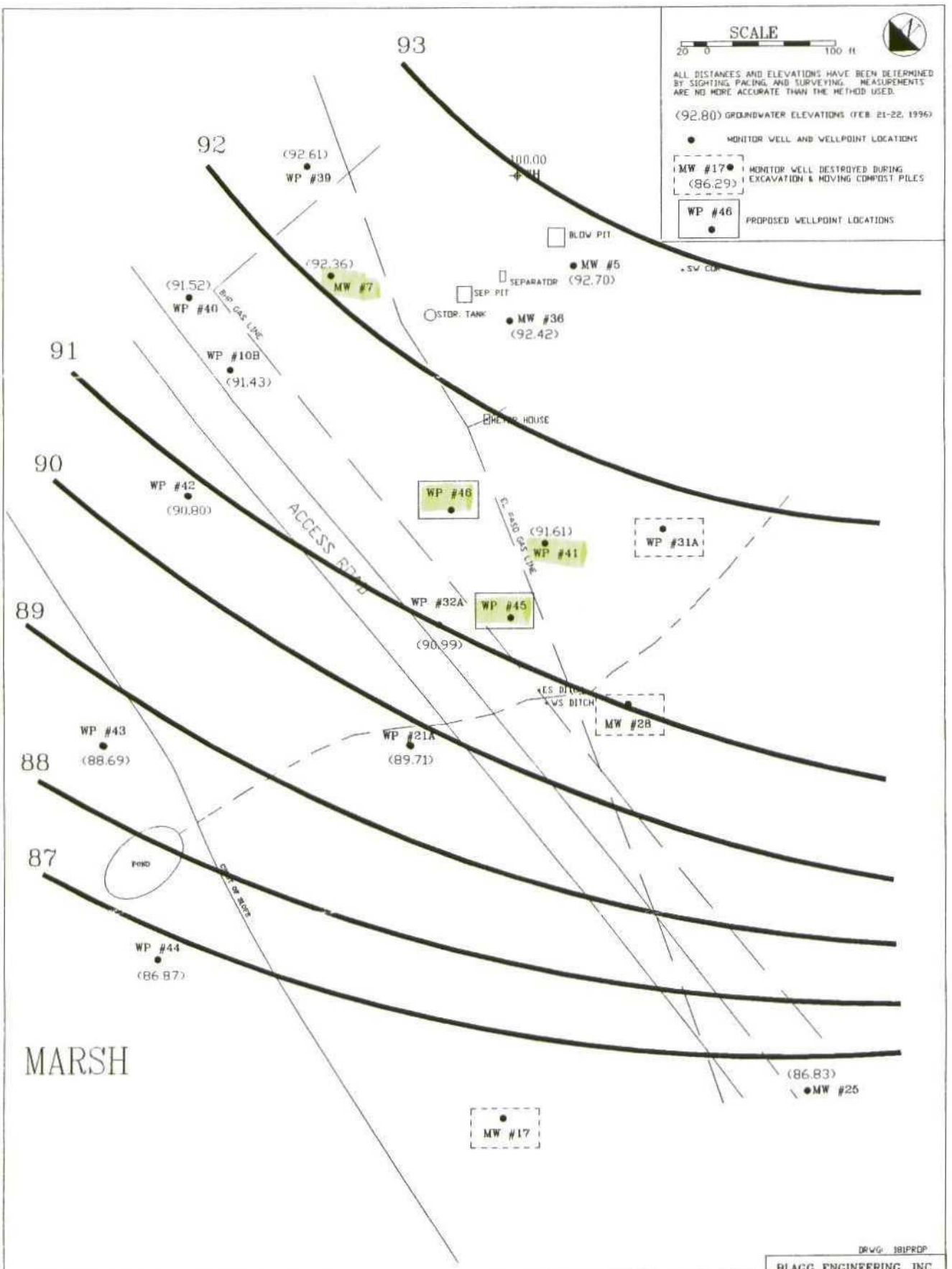
Robert E. O'Neill

Robert E. O'Neill, M.S.
Civil engineering, Environmental

Attachments: Figure 1 - Site Diagram

xc: Buddy Shaw, Amoco
Denny Foust, NMOCD Aztec Office

REO/reo MAR96-WO.PRP



DRWG: 181PROP

AMOCO PRODUCTION COMPANY GCU COM I 181 SEC. 34 TWP 29N RNG 12W SAN JUAN COUNTY, NEW MEXICO	WELL LOCATIONS & GROUNDWATER CONTOURS	FIGURE: 1 REVISED: 3/18/96 REO PRJ MGR: REO	BLAGG ENGINEERING, INC. P.O. BOX 87 BLOOMFIELD, NM 87413 PHONE: 632-1199 FAX: 632-3903

State of New Mexico
ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT
Santa Fe, New Mexico 87505

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

MEMORANDUM OF MEETING OR CONVERSATION

☑ Telephone ☐ Personal	Time 1445	Date

Originating Party	Other Parties
Bill Olson - Envir. Bureau	Buddy Shaw - Amoco 326-9219

Subject

GCU # I # 181

Discussion

Informed him that land farmed areas at GCU I # 181 are not bermed

Conclusions or Agreements

Amoco will berm land farm areas.

Distribution file

Signed Bill Olson

BLAGG ENGINEERING, INC.
P.O. Box 87, Bloomfield, New Mexico 87413
Phone: (505)632-1199 Fax: (505)632-3903

August 1, 1995

Mr. Bill Olsen
State of New Mexico Oil Conservation Division
P.O. Box 2088
State Land Office Building
Santa Fe, NM 87504

RE: Amoco Production Company's
GCU Com I 181 Well Site

Dear Mr. Olsen:

On behalf of Mr. Buddy Shaw of Amoco Production Company, Blagg Engineering, Inc. (BEI) is submitting the attached schematic of the GCU Com I 181 Composted Soil Deposition as drawn June 30, 1995.

At the present time, Amoco and the present landowner(s) of the property north of the access roads have agreed to landfarm the GCU Com I 181 composted material. The material is planned to be spread out to a six to eight inch lift. After the construction work is completed, periodic sampling will be conducted by BEI. Organic Vapor Meter (OVM) headspace readings and field Total Petroleum Hydrocarbon (TPH) analysis per modified EPA Method 418.1 will be taken on composite samples from the landfarmed material.

All composted material located south of the access roads will remain at their existing position. It is anticipated by Amoco to landfarm these soils in 1996.

If you have any questions regarding this matter, please contact Mr. Shaw at 326-9219.

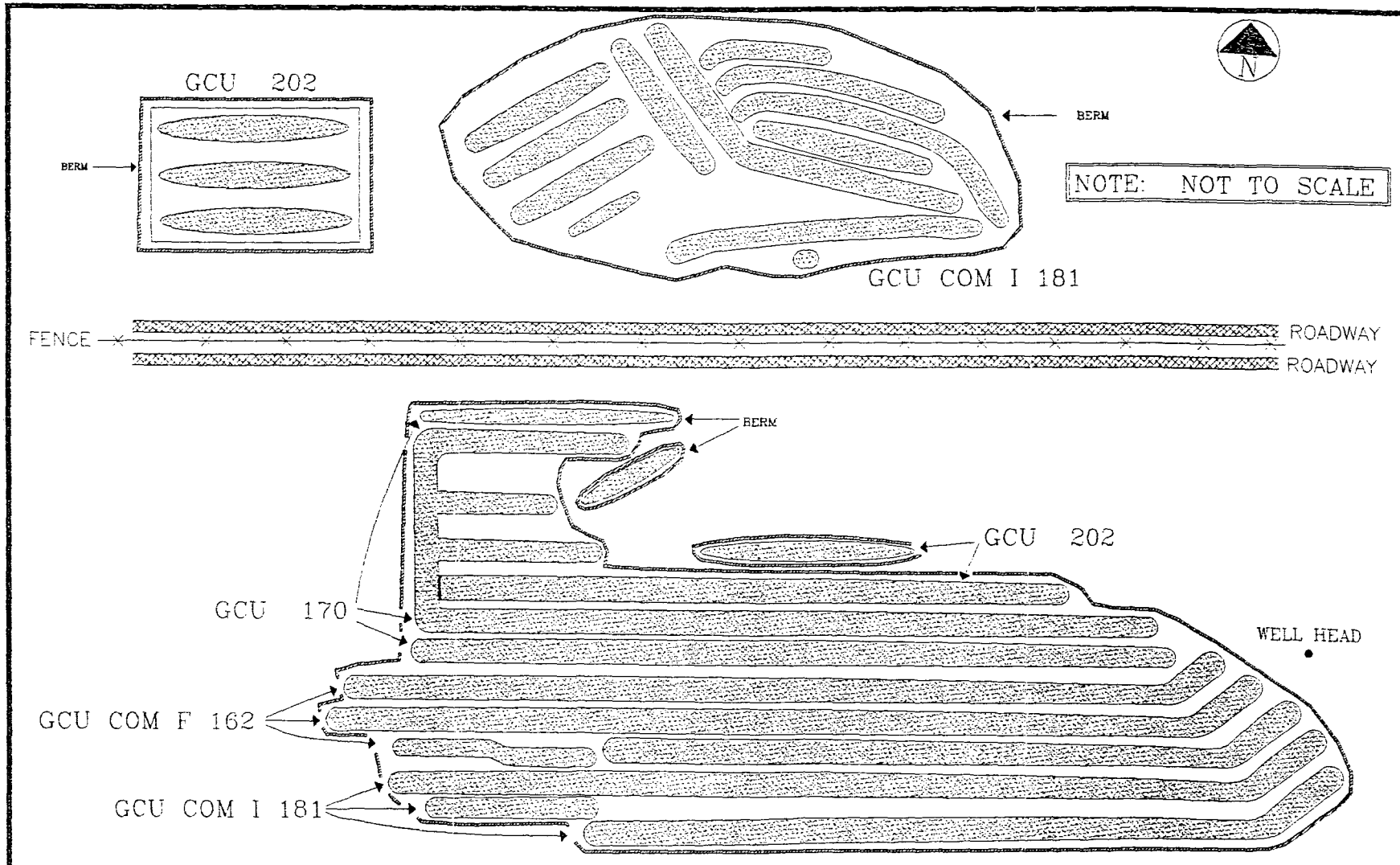
Respectfully submitted,
BLAGG ENGINEERING, INC.

Nelson Velez
Staff Geologist

Attachment: GCU Com I 181 Composted Soil Deposition Schematic

xc: Denny Foust, Oil Conservation Division, Aztec, NM

NV/nv GCU181BO.LFM



GCU COM I 181
COMPOSTED SOIL DEPOSITION
(F) SEC. 34, T29N, R12W

BLAGG ENGINEERING, INC.
CONSULTING PETROLEUM / RECLAMATION SERVICES
P.O. BOX 87
BLOOMFIELD, NEW MEXICO 87413
PHONE: (505) 632-1199

GENERALIZED SITE SCHEMATIC

SHEET: 1
REVISED: JUNE 30, 1995
BY: N. VELEZ

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION
2040 S. PACHECO
SANTA FE, NEW MEXICO 87505
(505) 827-7131

May 30, 1995

CERTIFIED MAIL
RETURN RECEIPT NO.Z-765-962-685

Mr. Buddy Shaw
Amoco Production Company
20 Amoco Court
Farmington, NM 87401

RE: Amoco GCU-181 well site
Section 34, T29N, R12W
San Juan County, New Mexico

Dear Mr. Shaw:

The Oil Conservation Division (OCD) has received the response letter from Amoco Production Company dated May 1, 1995 to the NMOCD request for information letter dated March 30, 1995. Upon review of this letter and visits to the GCU 181 remmediation site, Amoco Production Company shall comply following requirements:

1. Cease hauling offsite soils to the GCU 181 well site.

2. Continue the composting process with a minimum amount of manure necessary.

3. Upon remmediation of the existing compost piles close out the remmediation site.

4. In the future if other sites are to be utilized as for remmediation of soils from more than one well site, NMOCD approval must be obtained. (This will allow you to remmediate locations that are space limited and would otherwise be impractical to remmediate with the method that Amoco is currently using.)

If you have any questions regarding this matter feel free to call me at (505)-827-7152 or Patricio Sanchez at (505)-827-7156.

Sincerely,

Roger C. Anderson
Chief, Environmental Bureau

RCA/pws

XC: Denny Foust -Aztec District office

NOTES: DENNY FOUST

DATE: 05/09/95

RE: AMOCO GCU COM I #181 REMEDIATION ONSITE

On 05/02/95 Alice Merriman called our office with a complaint at 16:20 hours after the office was closed. A follow up phone call on 05/03/95 to Mrs. Merriman County Road 5500, phone 632-9427, revealed she was very irritated by the odor especially early in the morning on the east valley thermal wind.

Amoco GCU COM I #181, F-34-29N-12W, is located just off CR 5500. Approximately 40,000 cubic yards of material are being composted at this site from four different wells. The compost piles are 8-10' high and 15-20' wide. Manure from NAPI is used for composting and is responsible for the odor. Groundwater is approximately 7' deep. Groundwater has been impacted by the production pit at Amoco GCU Com I #181. Amoco is committed to remediating the groundwater. There is no berming around the compost piles. Chris Eustice was with me when I visited the site on 05/04/95 and took a number of photographs.

Southern Rockies Business Unit

San Juan Operations Center

MAY 1,1995

NMOCD
2040 S. PACHECO
SANTA FE,NM 87505

ATTENTION: ROGER ANDERSON

AMOCO GCU 181 COMPOST SITE

PLEASE REFERENCE YOUR LETTER OF MARCH 30,1995 CONCERNING THE ABOVE SUBJECT. AMOCO OFFERS THE FOLLOWING COMMENTS:

SINCE THERE ARE TWO DIFFERENT LANDOWNERS INVOLVED, WE CONSIDER THE REMEDIATION SITE AS TWO DIFFERENT ONES (NORTH AND SOUTH). ANSWERS TO YOUR FIVE QUESTIONS ARE AS FOLLOWS:

1. SEE ATTACHED DIAGRAMS
2. SEE ATTACHED DIAGRAMS
3. MANURE-COMPOST PROCEDURE(LIME HAS BEEN USED FOR ODOR CONTROL)
4. WE WILL BE INSTALLING DRIVE POINTS TO MONITOR GROUNDWATER(DIAGRAMS TO FOLLOW LATER)
5. BERMS ARE USED FOR CONTROL OF RUN-OFF AND RUN-ON

OUR RESPONSE DELAY IS DUE TO MIXING TIME AND THE NEED TO SHOW ACCURATE DIAGRAMS. PLEASE LET ME KNOW IF YOU HAVE ANY ADDITIONAL QUESTIONS.

Buddy Shaw

BUDDY SHAW
ENVIRONMENTAL COORDINATOR
326-9219

AMOCO PRODUCTION COMPANY

APRIL 14, 1995

Gallegos Canyon Unit Com I 181
Soil Deposition

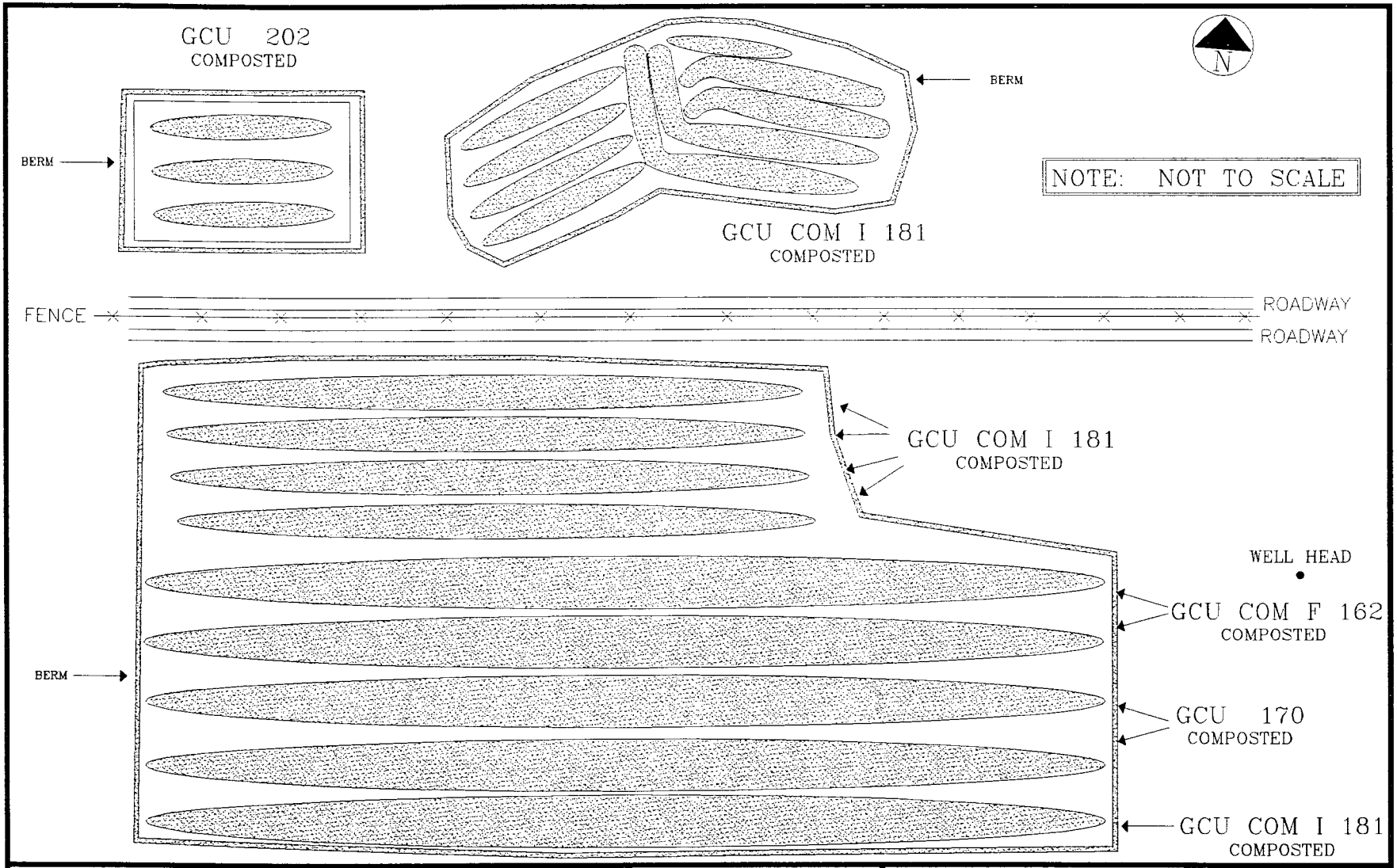
			Total Cubic Yardage
1.	GCU 202 (B) Sec. 33, T29N, R12W	- Separator pit	9,650
2.	GCU 170 (K) Sec. 35, T29N, R12W	- Separator pit	5,100
3.	GCU Com F 162 (J) Sec. 36, T29N, R12W	- Separator pit	5,400
4.	GCU Com I 181 (F) Sec. 34, T29N, R12W	- Production Tank pit	20,000
		Total	40,150

NOTE: All locations have same UNIT AGREEMENT # 892000844F.

Approximately 6,060 cubic yards of manure acquired from NAPI's Feed Lot to compost with contaminated soil.

Lime was sprayed upon compost piles closest to adjacent residence to reduce odor from manure added.

All total cubic yardage figures are approximation based on pit dimensions during pit closures or site visits.



GCU COM I 181
SOIL DEPOSITION
(F) SEC. 34, T29N, R12W

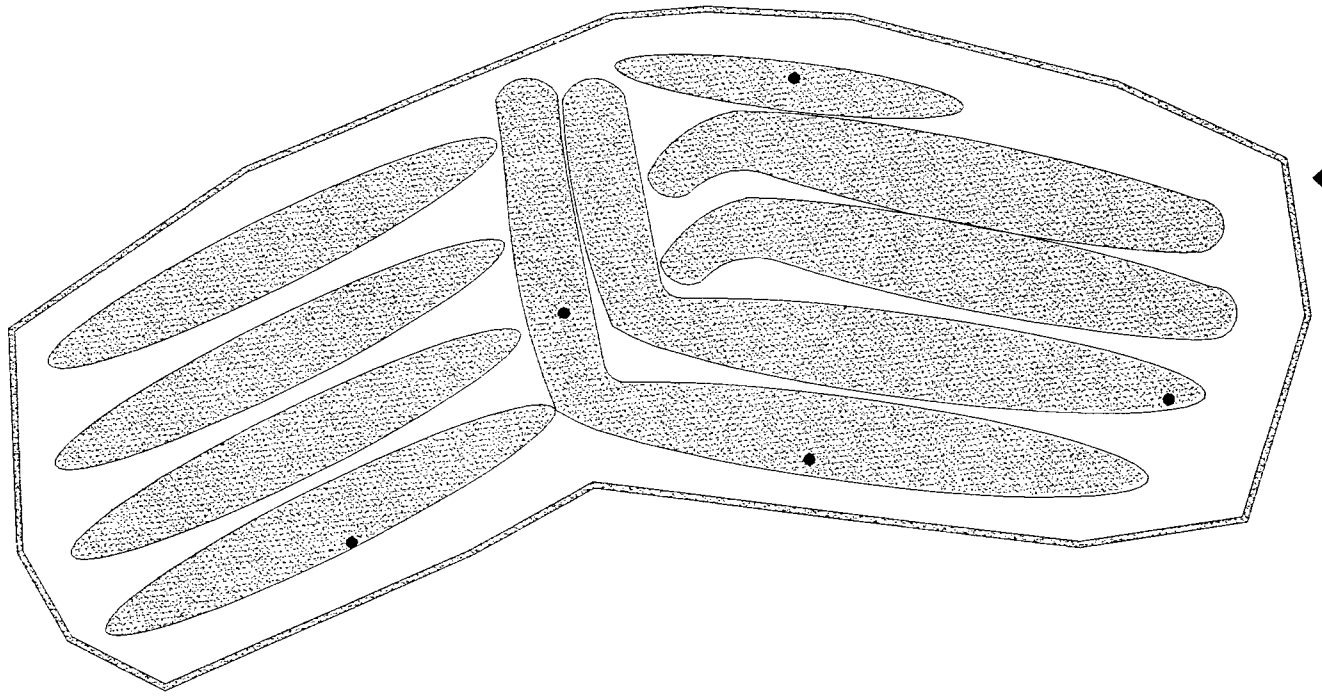
BLAGG ENGINEERING, INC.
CONSULTING PETROLEUM / RECLAMATION SERVICES
P.O. BOX 87
BLOOMFIELD, NEW MEXICO 87413
PHONE: (505) 632-1199

GENERALIZED
SITE SCHEMATIC

SHEET: 1
DRWN: APRIL 27, 1995
BY: N. VELEZ

GCU COM I 181

COMPOSTED
(NORTH SIDE STOCKPILES)



• – COMPOSITE SAMPLE POINTS COLLECTED 4/28/95.

NOTE: NOT TO SCALE

GCU COM I 181
SOIL DEPOSITION
(F) SEC. 34, T29N, R12W

BLAGG ENGINEERING, INC.
CONSULTING PETROLEUM / RECLAMATION SERVICES
P.O. BOX 87
BLOOMFIELD, NEW MEXICO 87413
PHONE: (505) 632-1199

GENERALIZED
SITE SCHEMATIC

SHEET: 1
DRWN: APRIL 28, 1995
BY: N. VELEZ

BLAGG ENGINEERING, INC.
P.O. Box 87, Bloomfield, New Mexico 87413
Phone: (505)632-1199 Fax: (505)632-3903

FIELD MODIFIED EPA METHOD 418.1
TOTAL PETROLEUM HYDROCARBONS

Client:	Amoco	Project #:	
Sample ID:	SC - 1 (NORTH)	Date Analyzed:	04-28-95
Project Location:	GCU COM I 181	Date Reported:	04-28-95
Laboratory Number:	TPH-1486	Sample Matrix:	Soil

Parameter	Result, mg/kg	Detection Limit, mg/kg
Total Recoverable Petroleum Hydrocarbons	**1,200**	**20**

ND = Not Detectable at stated detection limits.

QA/QC:	QA/QC Sample TPH mg/kg	Duplicate TPH mg/kg	% *Diff.
	2596	2588	0.31

*Administrative Acceptance limits set at 30%.

Method: Modified Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No.4551, 1978

Comments: Compost piles (Composite sample) - B0272

Analyst

Review

BLAGG ENGINEERING, INC.
P.O. Box 87, Bloomfield, New Mexico 87413
Phone: (505)632-1199 Fax: (505)632-3903

Field TPH-Worksheet

Max Characters:	**********		
Client:	Amoco	Project #:	
Sample ID:	SC - 1 (NORTH)	Date Analyzed:	04-28-95
Project Location:	GCU COM I 181	Date Reported:	04-28-95
Laboratory Number:	TPH-1486	Sample Matrix:	Soil

Sample Weight:	5.00	grams
Volume Freon:	20.00	mL
Dilution Factor:	1	(unitless)
TPH Reading:	297	mg/kg

TPH Result:	1188.0	mg/kg
Reported TPH Result:	1200	mg/kg
Actual Detection Limit:	20.0	mg/kg
Reported Detection Limit:	20	mg/kg

QA/QC:	Original TPH mg/kg	Duplicate TPH mg/kg	% Diff.
	2596	2588	0.31

Comments: **********Max Characters**********

Comments: Compost piles (Composite sample) - B0272

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION
2040 S. PACHECO
SANTA FE, NEW MEXICO 87505
(505) 827-7131

March 30, 1995

CERTIFIED MAIL
RETURN RECEIPT NO.Z-765-962-652

Mr. Buddy Shaw
Amoco Production Company
20 Amoco Court
Farmington, NM 87401

RE: Amoco GCU-181 well site
Section 34, T29N, R12W
San Juan County, New Mexico

Dear Mr. Shaw:

The Oil Conservation Division (OCD) has received a citizens complaint concerning odors at the Amoco GCU-181 well site. A visit to the site by a State agent indicates this site is being used to remediate contaminated soils that are generated off-site.

Please provide the following information and clarification regarding the activity that is ongoing at the GCU-181 well site remediation.

1. Wastes generated at what locations are currently being remediated at the GCU-181 well site?

2. What are the total volumes and types of wastes that have been remediated to date on the site?

3. What materials are being used to remediate the soil?

4. What monitoring is being conducted to ensure that contaminants are not leaching into underlying shallow groundwater?

5. What methods are being used to control run-off/run-on at the facility?

Based on the information provided by Amoco and the conditions contained in Amoco's general pit remediation permit, the OCD will evaluate the need for a centralized remediation permit.

If you have any questions regarding this matter feel free to call Patricio Sanchez at (505)-827-7156.

Sincerely,

Roger C. Anderson
Chief, Environmental Bureau

RCA/pws

XC: Denny Foust -Aztec District office

State of New Mexico
ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT
Santa Fe, New Mexico 87505

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

MEMORANDUM OF MEETING OR CONVERSATION

☑ Telephone ☐ Personal	Time 1600 hrs	Date 3/29/95

Originating Party	Other Parties
Dave Tomko - NMED Farmington	Bill Olson - OCD Envir. Bureau

Subject

Amoco - GCU # I - 181

Discussion

He recieved citizen complaint of odors at Amoco GCU I # 181 well site. Inspected site. Amoco hauling contaminated soil from offsite sources for remediation

Told him OCD permitted onsite remediation of soils generated from pit cleanup at GCU I # 181 and known of one other site from which soils been hauled.
Told him centralized sites must recieve permit but site does not have such a permit

Conclusions or Agreements

I will discuss with Aztec District and Bureau Chief

Distribution
file
OCD Aztec Office

Signed Bill Olson

NEW MEXICO ENVIRONMENT DEPARTMENT
MEMORANDUM OF COMPLAINT

2

FIELD OFFICE: Farmington

COMPLAINANT'S NAME: Charlie Palmer TELEPHONE: 632-8765

ADDRESS: CITY: Lee Acres

SOURCE\RESPONSIBLE PARTY: TELEPHONE:

ADDRESS: CITY:

PROGRAM: *(Circle Appropriate Program)*
Air Quality, Food, Vector, Hazardous Waste, Noise, OHS,
Radiation, Solid Waste, Swimming Pool, (Water Pollution), Water Supply

NATURE OF COMPLAINT: dumping Oilfield Contaminated soil by river. Dump truck loads - smells bad. Cross Lee Acres bridge - take 1st left go 1/4 mile up river.

COMPLAINT TAKEN BY: Laurette Montano DATE: 3/23/95

INVESTIGATION REPORT: Composting w/ manure w/ HAPI - 7' to water table AMOCO - #162

BY: David Tombe DATE: 3/24/95

ACTION TAKEN:

BY: DATE:

FOLLOW UP:

SATISFACTORY CORRECTION
OF PROBLEM VERIFIED BY: DATE:

PLEASE ENSURE THAT APPROPRIATE CENTRAL OFFICE PERSONNEL ARE KEPT INFORMED OF COMPLAINTS RELATED TO THEIR PROGRAMS.

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION

BRUCE KING
GOVERNOR

ANITA LOCKWOOD
CABINET SECRETARY

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87504
(505) 827-5800

August 1, 1994

Mr. Earl Merriman
P.O. Box 1359
Mountain Home, Arkansas 72653

Dear Mr. Merriman:

On June 7, 1994, the New Mexico Oil Conservation Division (OCD) collected a water sample from an irrigation return ditch on your property near Farmington, New Mexico. This ditch subsequently drains into the San Juan River. The water was sampled because you were concerned that petroleum hydrocarbon contaminated ground water from the nearby Amoco GCU I#181 well site was seeping into these surface waters.

Water from the ditch was analyzed for aromatic and halogenated volatile organics which are constituents of petroleum products. Enclosed you will find the results of the analysis. No aromatic or halogenated volatile organics were present in the sample.

If you have any questions regarding these analyses or the ground water remediation activities at the Amoco GCU I#181 well site, please feel free to contact me at (505) 827-5885.

Sincerely,

William C. Olson
Hydrogeologist
Environmental Bureau

Enclosure

xc w/enclosures: OCD Aztec District Office
Eric Ames, Western Environmental Law Center
Buddy Shaw, Amoco Production Co.

ANA·LAB CORP.
THE COMPLETE SERVICE LAB

P. O. BOX 9000 – KILGORE, TEXAS 75663-9000 – 903/984-0551 – FAX 903/984-5914

Analytical Chemistry • Utility Operations

07/01/94

Environmental Bureau NM Oil D.
PO Box 2088
310 Old Santa Fe Tr.
Santa Fe, NM 87504
Attention: Roger Anderson

Sample Identification: OCD # 0607941330
Collected By: Denny Foust
Date & Time Taken: 06/07/94 1330

Other Data: Amoco GCU Com I #181

F-34-29N-12W

Earl Meriman Property
Irrigation Return Ditch at the San Juan River

Client: pH 7.0
Water Temp 30C
Conductivity 950 umho
Conductivity @ 25C 861.65 umho

Bottle Data:

#01 - 40 ml glass Vial (Zero Headspace) with a Teflon Lined Lid
#02 - 40 ml glass Vial (Zero Headspace) with a Teflon Lined Lid

Sample Matrix: Liquid-Aqueous
Lab Sample Number: 271026 **Received:** 06/08/94 **Client:** SNM1

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
Acrolein	ND	ug/l	1231 06/27/94	1.0	EPA Method 8260	DDM
Acrylonitrile	ND	ug/l	1231 06/27/94	1.0	EPA Method 8260	DDM
Benzene	ND	ug/l	1231 06/27/94	1.0	EPA Method 8260	DDM
Bromoform	ND	ug/l	1231 06/27/94	1.0	EPA Method 8260	DDM
Bromomethane	ND	ug/l	1231 06/27/94	1.0	EPA Method 8260	DDM
Carbon Tetrachloride	ND	ug/l	1231 06/27/94	1.0	EPA Method 8260	DDM
Chlorobenzene	ND	ug/l	1231 06/27/94	1.0	EPA Method 8260	DDM
Chloroethane	ND	ug/l	1231 06/27/94	1.0	EPA Method 8260	DDM

Continued

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P. O. BOX 9000 – KILGORE, TEXAS 75663-9000 – 903/984-0551 – FAX 903/984-5914

Analytical Chemistry • Utility Operations

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
2-Chloroethylvinyl ether	ND	ug/l	1231 06/27/94	1.0	EPA Method 8260	DDM
Chloroform	ND	ug/l	1231 06/27/94	1.0	EPA Method 8260	DDM
Chloromethane	ND	ug/l	1231 06/27/94	1.0	EPA Method 8260	DDM
Dibromochloromethane	ND	ug/l	1231 06/27/94	1.0	EPA Method 8260	DDM
Bromodichloromethane	ND	ug/l	1231 06/27/94	1.0	EPA Method 8260	DDM
1,1-Dichloroethane	ND	ug/l	1231 06/27/94	1.0	EPA Method 8260	DDM
1,2-Dichloroethane	ND	ug/l	1231 06/27/94	1.0	EPA Method 8260	DDM
1,1-Dichloroethene	ND	ug/l	1231 06/27/94	1.0	EPA Method 8260	DDM
trans-1,2-Dichloroethene	ND	ug/l	1231 06/27/94	1.0	EPA Method 8260	DDM
Dichlorodiflouromethane	ND	ug/l	1231 06/27/94	1.0	EPA Method 8260	DDM
1,2-Dichloropropane	ND	ug/l	1231 06/27/94	1.0	EPA Method 8260	DDM
cis-1,3-Dichloropropene	ND	ug/l	1231 06/27/94	1.0	EPA Method 8260	DDM
Ethyl benzene	ND	ug/l	1231 06/27/94	1.0	EPA Method 8260	DDM
Methylene Chloride	ND	ug/l	1231 06/27/94	1.0	EPA Method 8260	DDM
1,1,2,2-Tetrachloroethane	ND	ug/l	1231 06/27/94	1.0	EPA Method 8260	DDM
Tetrachloroethene	ND	ug/l	1231 06/27/94	1.0	EPA Method 8260	DDM
Toluene	ND	ug/l	1231 06/27/94	1.0	EPA Method 8260	DDM
1,1,1-Trichloroethane	ND	ug/l	1231 06/27/94	1.0	EPA Method 8260	DDM
1,1,2-Trichloroethane	ND	ug/l	1231 06/27/94	1.0	EPA Method 8260	DDM
Trichloroethene	ND	ug/l	1231 06/27/94	1.0	EPA Method 8260	DDM
Trichlorofluoromethane	ND	ug/l	1231 06/27/94	1.0	EPA Method 8260	DDM
Vinyl Chloride	ND	ug/l	1231 06/27/94	1.0	EPA Method 8260	DDM
trans-1,3-Dichloropropene	ND	ug/l	1231 06/27/94	1.0	EPA Method 8260	DDM
1,3-Dichlorobenzene	ND	ug/l	1231 06/27/94	1.0	EPA Method 8260	DDM

Continued

ANA-LAB CORP.
THE COMPLETE SERVICE LAB

P. O. BOX 9000 – KILGORE, TEXAS 75663-9000 – 903/984-0551 – FAX 903/984-5914

Analytical Chemistry • Utility Operations

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
1,2-Dichlorobenzene	ND	ug/l	1231 06/27/94	1.0	EPA Method 8260	DDM
Styrene	ND	ug/l	1231 06/27/94	1.0	EPA Method 8260	DDM
1,4-Dichlorobenzene	ND	ug/l	1231 06/27/94	1.0	EPA Method 8260	DDM
Xylenes	ND	ug/l	1231 06/27/94	1.0	EPA Method 8260	DDM
DBCP	ND	ug/l	1231 06/27/94	0.2		DDM
Cis-1,2-Dichloroethene	ND	ug/l	1231 06/27/94	1.0	EPA Method 8260	DDM
Trihalomethanes	ND	ug/l	1231 06/27/94	1.0	EPA Method 8260	DDM
1,2-Dibromoethane	ND	ug/l	1231 06/27/94	0.05	EPA Method 8260	DDM

Quality Assurance for the SET with Sample 271026

Blank

Compound	Result
Benzene	ND
Chlorobenzene	ND
1,1-Dichloroethene	ND
Toluene	ND
Trichloroethene	ND

Instrument Tune

Mass	Reference Mass	Min Abundance	Max Abundance	Result	Status
BFB Mass 50	95	15.0	40.0	26.6	PASS
BFB Mass 75	95	30.0	60.0	48.7	PASS
BFB Mass 95	95	100	100	100.0	PASS
BFB Mass 96	95	5.00	9.00	6.1	PASS
BFB Mass 173	174	0	2.00	0.0	PASS
BFB Mass 174	95	50.0	100	58.0	PASS
BFB Mass 175	174	5.00	9.00	7.3	PASS
BFB Mass 176	174	95.0	101	97.8	PASS
BFB Mass 177	176	5.00	9.00	7.5	PASS

Instrument Calibration Check

Compound	Max %Rel. Std.	%Deviation	Status
Chloroform	25.0	2.0	PASS
1,1-Dichloroethene	25.0	5.6	PASS

Continued

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THE COMPLETE SERVICE LAB

P. O. BOX 9000 – KILGORE, TEXAS 75663-9000 – 903/984-0551 – FAX 903/984-5914

Analytical Chemistry • Utility Operations

PARAMETER	RESULTS	UNITS	ANALYZED	EQL	METHOD	BY
1,2-Dichloropropane	25.0	-7.5	PASS			
Ethyl benzene	25.0	-2.8	PASS			
Toluene	25.0	-5.6	PASS			
Vinyl Chloride	25.0	17.9	PASS			

Instrument System Performance Check

Compound	Min Response Factor	Response Factor	Status
Bromoform	.2500	0.532	PASS
Chlorobenzene	.3000	1.319	PASS
Chloromethane	.3000	0.452	PASS
1,1-Dichloroethane	.3000	1.589	PASS
1,1,2,2-Tetrachloroethane	.3000	2.084	PASS

Spike/Duplicate on Sample 271490

Compound	Result1 (%)	Result2 (%)	Status
Benzene	95	95	PASS
Chlorobenzene	95	95	PASS
1,1-Dichloroethene	100	90	PASS
Toluene	95	95	PASS
Trichloroethene	100	95	PASS

EQL is Estimated Quantitation Limit. The EQL takes into account the Instrument Detection Limit (IDL), Method Detection Limit (MDL), and Practical Quantitation Limit (PQL). Our analytical result must be above our EQL before we report a value for any parameter. Otherwise, we report ND (Not Detected above EQL).

I certify that the results were generated using the above specified methods.

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

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

LABORATORY SAMPLE RECORD

PROJ. NO.	PROJECT NAME	NO. OF CONTAINERS	601-602	REMARKS
	Amoco GCU Com I #181			
SAMPLERS: (Signature) Denny G. Foust				
DATE TIME	STATION LOCATION			
06/07/94 13:30	Amoco GCU Com I #181	2	2	Contract 94-521.07-005A
27026				

Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Denny Foust	06/07/94	
Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)
		MB

SEALS INTACT ☐ YES ☐ NO

No seals

DBT

: (Signature) Denny Foust : (Signature)

Date / Time: 6-9 | 2026

Remarks

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

Contract Lab ANA-LAB Corp Contract No. 94-521.07-005A

OCD Sample No. 0607941330

Collection Date	Collection Time	Collected by —Person/Agency
6/7/94	13:30	Denny Foust /OCD

SITE INFORMATION

Sample location Amoco GCU Com I #181, F-34-29N-12W

Collection Site Description Earl Merriman Property
Irrigation Return Ditch at
The San Juan River

Township, Range, Section, Tract: | | | + | | + | + | |

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

SAMPLING CONDITIONS

☐ Bailed ☐ Pump
☒ Dipped ☐ Tap

pH(00400) 7.0

Water Temp. (00010) 30 C

Water level

Discharge

Sample type

Conductivity (Uncorrected) 950 µmho

Conductivity at 25° C 861.65 µmho

SAMPLE FIELD TREATMENT — *Check proper boxes*

No. of samples submitted:

☐ **NF:** Whole sample (Non-filtered)
☐ **F:** Filtered in field with 0.45 µ membrane filter
☐ **PF:** Pre-filtered w/45 µ membrane filter

☒ **NA:** No acid added
☐ **A:** HCL
☐ **A:** 2ml H_2SO_4/L added
☐ **A:** 5ml conc. HNO_3 added
☐ **A:** 4ml fuming HNO_3 added

FIELD COMMENTS: Irrigation return - surface water

LAB ANALYSIS REQUESTED:

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

State of New Mexico
ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT
Santa Fe, New Mexico 87505

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

MEMORANDUM OF MEETING OR CONVERSATION

☑ Telephone ☐ Personal	Time 1040	Date 6/6/94

Originating Party	Other Parties
Bill Olson - Envir. Bureau	Denny Foust - OCD Aztec

Subject

Amoco GCU I# 181

Discussion

Notified him of Mrs. Merryman reporting contamination running from GCU #181 into San Juan River
Requested he inspect & sample

Conclusions or Agreements

Denny will go to site and check out

Distribution file

Signed Bill Olson

State of New Mexico
ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT
Santa Fe, New Mexico 87505

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

MEMORANDUM OF MEETING OR CONVERSATION

☑ Telephone ☐ Personal	Time 1030 hrs	Date 6/6/94

Originating Party	Other Parties
Eric Ames - Atty for Earl Merryman	Bill Olson - Envir. Bureau

Subject

Amoco GCU #181

Discussion

Called to report contamination noted by Mr. Merryman flowing into San Juan River

Conclusions or Agreements

I will contact Denny Foust at Aztec office to inspect and sample.

Distribution file

Signed Bill Olson

David E. Brody
Attorney

Amoco Corporation
Law Department
Amoco Building
1670 Broadway
Post Office Box 800
Denver, Colorado 80201
303-830-5677
Fax: 303-830-4160

May 12, 1994

VIA FACSIMILE
505-982-9343

Eric Ames, Esq.
Route 19, Box 89PK
Santa Fe, New Mexico 87505

Re: Merriman

Dear Eric:

In accordance with your request, I am enclosing a redraft of the agreement related to the above matter, reflecting the addition to Section 3 which we discussed on April 25, 1994. As we discussed in our telephone conversation of May 11, 1994, you will provide the "attached plat" referred to in Counter Offer No. 1 attached to your May 2, 1994 letter. Although Amoco is willing to review these materials, Amoco has not changed its position as stated in my letter to you, dated April 18, 1994.

Sincerely,

Dave Brody

David E. Brody

DEB/sm

Enclosure

cc: Buddy Shaw
Bill Olsen, NMOCD

66.DEB

DRAFT
(5/12/94)

AGREEMENT

THIS AGREEMENT is made this ___ day of _____, 1994, by and between Amoco Production Company, with an office at 200 Amoco Court, Farmington, New Mexico 87401 ("Amoco"), and Earl Merriman, 108A County Road 5500, Bloomfield, New Mexico 87413 ("Merriman"), and is based on the following premises:

WHEREAS, Amoco operates the Gallegos Canyon Unit No. 181 (the "Unit"), located in Section 34, T29N, R12W, San Juan County, New Mexico; and

WHEREAS, Merriman owns the surface of certain property (the "Property") adjacent to the Unit; and

WHEREAS, Merriman has the right under New Mexico law to appropriate groundwater beneath the Property for beneficial use; and

WHEREAS, it has been determined that soil and groundwater in the Property contain various levels of hydrocarbons resulting from operation of the Unit; and

WHEREAS, Amoco and Merriman desire to eliminate said hydrocarbons from the Property to the extent reasonably practicable, but in all cases to within compliance with applicable New Mexico law, regulations, and standards; and

WHEREAS, Amoco has submitted a remediation plan to the New Mexico Oil Conservation Division (the "Division"), which the Division has approval; and

WHEREAS, Amoco and Merriman desire to enter into this agreement to define the parties' rights and obligations in connection with said remediation plan.

NOW, THEREFORE, based on the above premises and the mutual covenants contained herein, the parties agree as follows:

1. REMEDIATION: Commencing no later than two weeks after full execution of this Agreement, Amoco shall implement the remediation plan submitted to the Division in August 1993 (the "Remediation Plan"), including all amendments thereto as proposed by Amoco or required by the Division. Amoco shall provide Merriman with data on the soil and groundwater plumes immediately after Merriman agrees to provide access to Amoco to conduct the tests necessary to obtain such information, including data on soil, groundwater, and surface water contamination, if any, in the "Marsh Area." Prior to implementing the Remediation Plan, Amoco shall securely fence the area of the Property to be remediated, and shall maintain such fence until the remediation is complete. Amoco shall promptly copy Merriman on all correspondence sent to and

received from the Division concerning implementation of the Remediation Plan, including monitoring reports.

Amoco shall complete the Remediation Plan no later than one hundred twenty days (120) after commencement, subject only to force majeure. The Remediation Plan shall not be considered complete until: (a) the Property has been remediated consistent with the Remediation Plan, and (b) all applicable laws and regulations have been satisfied.

The term "Force Majeure" as employed herein shall mean causes not within the control of Amoco and which, by the exercise of due diligence, Amoco is unable to overcome. Amoco shall use due diligence to remedy any non-performance, based on force majeure, with all reasonable dispatch.

2. RECLAMATION: All ground on the Property which has become bare or lacks vegetation as a result of Amoco's operation of the Unit or as a result of implementing the Remediation Plan shall be recontoured to its approximate original contours and shall be revegetated with indigenous vegetation, at Amoco's sole cost and expense. Amoco shall maintain all such revegetated areas, including further revegetation, if necessary, until the affected area has been returned to its approximate original condition. Such obligation shall continue until such time as the New Mexico Oil Conservation Division determines that Amoco has met its obligation regarding reclamation and revegetation of the Property.

3. WATER WELL: Amoco shall assist Merriman in locating a site for drilling a new water well on the Property. Merriman shall bear all costs associated with the drilling and equipping such well, except that Amoco shall pay all costs resulting from contamination from the Unit. In addition, in the event there is no current test data available on the soil at such site, and the site is within a previously contaminated area, and Merriman desires an additional test, Amoco shall perform such test at its sole expense and furnish Merriman with the results of such test. If the parties cannot locate a suitable site on the Property due to contamination from the Unit, Amoco shall bear the full cost of, including reimbursement to Merriman for amounts advanced for connecting Merriman's residence to the West Hammond Domestic Water Association.

4. WAIVER AND RELEASE: Upon proper performance of Amoco's obligations, as set forth above, Merriman agrees to waive and release Amoco from any and all claims that Merriman may have against Amoco for any and all costs, damages, liabilities, losses or judgements of any kind

related to Amoco's operation of the Unit and/or the activities to be conducted pursuant to this Agreement.

5. APPLICABLE LAW: This Agreement shall be interpreted under the laws of the state of New Mexico. Forum and venue shall be in Santa Fe, New Mexico.

6. ENTIRE AGREEMENT: This Agreement represents the entire agreement between the parties, regarding the subject matter addressed herein, and supersedes any prior oral or written agreements. This Agreement may not be amended except in writing signed by both parties.

7. SUCCESSORS AND ASSIGNS: This Agreement shall be binding on the parties' heirs, representatives, successors and assigns.

IN WITNESS WHEREOF, the parties have executed this Agreement on the day and year first above written.

AMOCO PRODUCTION COMPANY

_____ By: _____

EARL MERRIMAN

law:M245B

Amoco Corporation
Law Department
Amoco Building
1670 Broadway
Post Office Box 800
Denver, Colorado 80201
303-830-5677
Fax: 303-830-4160

David E. Brody
Attorney

April 18, 1994

VIA FACSIMILE
505-982-9343

Eric Ames
Burnett Law Firm
Route 19, Box 89 PK
Santa Fe, New Mexico 87505

Re: Merriman

Dear Eric:

Thank you for your comments and revisions to the proposed Agreement relating to the above matter. Most of the differences can be worked out. However, as I previously advised you, Amoco does not believe Mr. Merriman incurred any material deprivation of the use of his property. Therefore, we are not willing to pay anything for that alleged claim. Related to the issue of Mr. Merriman's use of the property, I would appreciate your opinion on the implications of his selling the property (which I understand he is attempting to do), and his recent removal of the house trailers. If there is no one living there now, it would seem that the water well provisions in your redraft are not viable.

In any event, please review the enclosed revisions and give me your comments at your earliest convenience.

Sincerely,

Dave Brody

David E. ~~Brody~~

DEB/sm

Enclosure

cc: Buddy Shaw
Bill Olsen, NMOCD

46.DEB

AGREEMENT

THIS AGREEMENT is made this ___ day of _____, 1994, by and between Amoco Production Company, with an office at 200 Amoco Court, Farmington, New Mexico 87401 ("Amoco"), and Earl Merriman, 108A County Road 5500, Bloomfield, New Mexico 87413 ("Merriman"), and is based on the following premises:

WHEREAS, Amoco operates the Gallegos Canyon Unit No. 181 (the "Unit"), located in Section 34, T29N, R12W, San Juan County, New Mexico; and

WHEREAS, Merriman owns the surface of certain property (the "Property") adjacent to the Unit; and

WHEREAS, Merriman has the right under New Mexico law to appropriate groundwater beneath the Property for beneficial use; and

WHEREAS, it has been determined that soil and groundwater in the Property contain various levels of hydrocarbons resulting from operation of the Unit; and

WHEREAS, Amoco and Merriman desire to eliminate said hydrocarbons from the Property to the extent reasonably practicable, but in all cases to within compliance with applicable New Mexico law, regulations, and standards; and

WHEREAS, Amoco has submitted a remediation plan to the New Mexico Oil Conservation Division (the "Division"), which the Division has approval; and

WHEREAS, Amoco and Merriman desire to enter into this agreement to define the parties' rights and obligations in connection with said remediation plan.

NOW, THEREFORE, based on the above premises and the mutual covenants contained herein, the parties agree as follows:

1. REMEDIATION: Commencing no later than two weeks after full execution of this Agreement, Amoco shall implement the remediation plan submitted to the Division in August 1993 (the "Remediation Plan"), including all amendments thereto as proposed by Amoco or required by the Division. Amoco shall provide Merriman with data on the soil and groundwater plumes immediately after Merriman agrees to provide access to Amoco to conduct the tests necessary to obtain such information, including data on soil, groundwater, and surface water contamination, if any, in the "Marsh Area." Prior to implementing the Remediation Plan, Amoco shall securely fence the area of the Property to be remediated, and shall maintain such fence until the remediation is complete. Amoco shall promptly copy Merriman on all correspondence sent to and

received from the Division concerning implementation of the Remediation Plan, including monitoring reports.

Amoco shall complete the Remediation Plan no later than one hundred twenty days (120) after commencement, subject only to force majeure. The Remediation Plan shall not be considered complete until: (a) the Property has been remediated consistent with the Remediation Plan, and (b) all applicable laws and regulations have been satisfied.

The term "Force Majeure" as employed herein shall mean causes not within the control of Amoco and which, by the exercise of due diligence, Amoco is unable to overcome. Amoco shall use due diligence to remedy any non-performance, based on force majeure, with all reasonable dispatch.

2. RECLAMATION: All ground on the Property which has become bare or lacks vegetation as a result of Amoco's operation of the Unit or as a result of implementing the Remediation Plan shall be recontoured to its approximate original contours and shall be revegetated with indigenous vegetation, at Amoco's sole cost and expense. Amoco shall maintain all such revegetated areas, including further revegetation, if necessary, until the affected area has been returned to its approximate original condition. Such obligation shall continue until such time as the New Mexico Oil Conservation Division determines that Amoco has met its obligation regarding reclamation and revegetation of the Property.

3. WATER WELL: Amoco shall assist Merriman in locating a site for drilling a new water well on the Property. Merriman shall bear all costs associated with the drilling and equipping such well, except that Amoco shall pay all costs resulting from contamination from the Unit. If the parties cannot locate a suitable site on the Property due to contamination from the Unit, Amoco shall bear the full cost of, including reimbursement to Merriman for amounts advanced for connecting Merriman's residence to the West Hammond Domestic Water Association.

4. WAIVER AND RELEASE: Upon proper performance of Amoco's obligations, as set forth above, Merriman agrees to waive and release Amoco from any and all claims that Merriman may have against Amoco for any and all costs, damages, liabilities, losses or judgements of any kind related to Amoco's operation of the Unit and/or the activities to be conducted pursuant to this Agreement.

5. APPLICABLE LAW: This Agreement shall be interpreted under the laws of the state of New Mexico. Forum and venue shall be in Santa Fe, New Mexico.

6. ENTIRE AGREEMENT: This Agreement represents the entire agreement between the parties, regarding the subject matter addressed herein, and supersedes any prior oral or written agreements. This Agreement may not be amended except in writing signed by both parties.

7. SUCCESSORS AND ASSIGNS: This Agreement shall be binding on the parties' heirs, representatives, successors and assigns.

IN WITNESS WHEREOF, the parties have executed this Agreement on the day and year first above written.

AMOCO PRODUCTION COMPANY

_____ By:_____

EARL MERRIMAN

law:M245A

David E. Brody
Attorney

Amoco Corporation
Law Department
Amoco Building
1670 Broadway
Post Office Box 800
Denver, Colorado 80201
303-830-5677
Fax: 303-830-4160

April 4, 1994

Eric Ames
Burnett Law Firm
1807 2nd Street, Suite 18
Santa Fe, New Mexico 87501

Re: Gallegos Canyon Unit #181 -- Remediation Plan

Dear Eric:

I have enclosed a first draft of the proposed agreement between Amoco and Mr. Merriman, regarding the above matter. Contrary to what you apparently heard (as stated in your letter of February 4, 1994), Amoco did not compensate Mr. Keller for access to his property. We are willing to provide value to Mr. Merriman in the form of Amoco providing new fencing, road work, or other similar consideration. Please give me your comments at your earliest convenience.

Sincerely,

David Brody

David E. ~~Brody~~

DEB/sm

Enclosure

cc: Buddy Shaw
Bill Olsen, NMOCD

35.DEB

AGREEMENT

THIS AGREEMENT is made this ___ day of _____, 1994, by and between Amoco Production Company, with an office at 200 Amoco Court, Farmington, New Mexico 87401 ("Amoco"), and Earl Merriman, _____,Farmington, New Mexico 87401 ("Merriman"), and is based on the following premises:

WHEREAS, Amoco operates the Gallegos Canyon Unit No. 181 (the "Unit"), located in Section 34, T29N,R12W, San Juan County, New Mexico; and

WHEREAS, Merriman owns the surface of certain property (the "Property") adjacent to the Unit; and

WHEREAS, it has been determined that certain soil and groundwater in the Property contain various levels of hydrocarbons originating from the operation of the Unit, and

WHEREAS, Amoco and Merriman desire to eliminate said hydrocarbons from the Property to the extent reasonably practicable,

NOW, THEREFORE, based on the above premises and the mutual covenants contained herein, the parties agree as follows:

1. REMEDIATION: Commencing no later than two weeks after full execution of this Agreement, Amoco shall implement the remediation plan described in Attachment A hereto (the "Remediation Plan"), and shall complete the Remediation Plan no later than one hundred twenty days (120) after commencement, subject only to force majeure.

   The term "Force Majeure" as employed herein shall mean causes not within the control of Amoco and which, by the exercise of due diligence, Amoco is unable to overcome. Amoco shall use due diligence to remedy any non-performance, based on force majeure, with all reasonable dispatch.

2. RECLAMATION: All ground on the Property which has become bare or lacks vegetation as a result of Amoco's operation of the Unit or as a result of implementing the Remediation Plan shall be revegetated with indigenous vegetation, at Amoco's sole cost and expense. Amoco shall maintain all such revegetated areas, including further revegetation, if necessary. Such obligation shall continue until such time as the New Mexico Oil Conservation Division determines that Amoco has met its obligation regarding reclamation and revegetation of the Property.

3. WATER WELL: Amoco shall cooperate with Merriman and assist Merriman in locating a site for drilling a new

water well on the Property. All costs associated with such well shall be borne by Merriman.

4. WAIVER AND RELEASE: Upon proper performance of Amoco's obligations, as set forth above, Merriman agrees to waive and release Amoco from any and all claims that Merriman may have against Amoco for any and all costs, damages, liabilities, losses, judgements of any kind related to Amoco's operation of the Unit and/or the activities to be conducted pursuant to this Agreement.

5. APPLICABLE LAW: This Agreement shall be interpreted under the laws of the state of New Mexico. Forum and venue shall be in Santa Fe, New Mexico.

6. ENTIRE AGREEMENT: This Agreement represents the entire agreement between the parties, regarding the subject matter addressed herein, and supersedes any prior oral or written agreements. This Agreement may not be amended except in writing signed by both parties.

7. SUCCESSORS AND ASSIGNS: This Agreement shall be binding on the parties' heirs, representatives, successors and assigns.

IN WITNESS WHEREOF, the parties have executed this Agreement on the day and year first above written.

AMOCO PRODUCTION COMPANY

_____ By: _____

EARL MERRIMAN

law:M245

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

DRUG FREE

BRUCE KING
GOVERNOR

ANITA LOCKWOOD
CABINET SECRETARY

March 22, 1994

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87504
(505) 827-5800

CERTIFIED MAIL
RETURN RECEIPT NO. P-667-241-916

Mr. B.D. Shaw
Amoco Production Company
200 Amoco Court
Farmington, New Mexico 87401

RE: GROUND WATER MONITORING
AMOCO GCU-181 WELL SITE

Dear Mr. Shaw:

The New Mexico Oil Conservation Division (OCD) has completed a review of Amoco's February 15, 1994 "SOIL AND GROUNDWATER SAMPLING, AMOCO GCU-181 WELL SITE, SAN JUAN COUNTY, NEW MEXICO". This document contains the results of sampling activities conducted during the remediation of the Amoco GCU-181 well site, information on the installation of new monitor wells and a proposal for installing one additional monitor well.

The monitor well proposal contained in the above referenced document **is approved with the following conditions:**

1. Amoco will submit the construction details of the proposed monitor well to OCD for approval prior to installation.

2. Amoco will supply OCD with the construction details of monitor wells 31A, 34A, 39, 40 and 41.

3. Amoco will include the new monitor wells in the ground water quality monitoring program which was approved by OCD on September 16, 1993.

Please be advised that OCD approval does not relieve Amoco of liability for contamination which is beyond the scope of the plan. In addition, OCD approval does not relieve Amoco of responsibility for compliance with any other federal, state or local laws and/or regulations. If you have any questions, please contact me at (505) 827-5885.

Sincerely,

William C. Olson
Hydrogeologist
Environmental Bureau

xc: OCD Aztec Office
Michael K. Lane, Envirotech, Inc.

BURNETT LAW FIRM

ENVIRONMENTAL ATTORNEYS

GROVE T. BURNETT

ERIC AMES

1807 Second Street
Suite 18
Santa Fe, New Mexico 87501
(505) 988-4714
Fax (505) 982-9343

BY FAX

February 4, 1994

David E. Brody, Esq.
Law Department
Amoco Corporation
1670 Broadway
P.O. Box 800
Denver, Colorado 80201

Re: Gallegos Canyon Unit No. 181

Dear Mr. Brody,

I am in receipt of your January 4, 1994 letter. Apparently we have gotten off on the wrong foot in these discussions. You state that Amoco would like to cooperate. Mr. Merriman would also like to settle this matter as promptly and as amicably as possible. I will call you shortly.

My prior correspondence sets forth Mr. Merriman's concerns in some detail. Mr. Merriman has no interest in gouging Amoco by threatening litigation. Simply, he seeks fair compensation for damage to his property caused by soil and ground water contamination from GCU-181.

First, Mr. Merriman seeks reimbursement for the difference between connecting to the West Hammond Domestic Water Association system and drilling a well on his property. As we understand the situation, Mr. Merriman was told by Envirotech employees not to drill a well on his property because of contamination. If suitable ground water can be located on Mr. Merriman's property, we would revise our demand to the difference between the least expensive options pre- and post-contamination.

Second, Mr. Merriman seeks compensation for granting access to his property for remediation. You are correct that Mr. Merriman gave Amoco permission to drill monitoring wells on his property. He has never sought and does not now seek compensation

for such access. On the other hand, Mr. Merriman has never given permission to Amoco implement the August 1993 remediation plan. The proposed remediation involves substantial disturbance of Mr. Merriman's property. We understand that Amoco compensated Mr. Charles Keller for access to his property to implement the plan; Mr. Merriman is entitled to the same.

Third, Mr. Merriman seeks a reclamation plan for his property following remediation. As we stated in earlier correspondence, Mr. Merriman is not interested in debating the terms of a reclamation plan. However, a plan must be prepared before remediation can begin. As you know, we do not consider Mr. Shaw's January 3, 1994 letter to be a reclamation plan.

Finally, we do not dispute the remediation method proposed by Amoco. The New Mexico Oil Conservation Division has approved the method subject to conditions, and continues to exercise oversight of Amoco's implementation.

The soil and ground water plume diagrams appended to Mr. Shaw's January 3, 1994 letter clearly show contamination of Mr. Merriman's property. The plume continues to spread as we trade letters. Clearly, both Amoco and Mr. Merriman would like to initiate remediation as soon as possible.

I will call you shortly.

Sincerely,

Eric Ames

cc: Earl Merriman
Bill Olsen, NM-OCD

State of New Mexico
ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT
Santa Fe, New Mexico 87505

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

MEMORANDUM OF MEETING OR CONVERSATION

☒ Telephone ☐ Personal	Time 0830	Date 1/25/94

Originating Party	Other Parties
Buddy Shaw - Amoco	Bill Olson - Envir. Bureau

Subject

Amoco - GCU I#181 Well Site Remediation

Discussion

Want to put in drive points as Monitor Wells to replace those destroyed in trenching.
Can't sample MW's on Mr. Merrymans property because of access problems.
Trenching of all except Mr. Merrimans property is complete
I requested submission of work plan on MW's as conditioned in OCD ltr. Drive pts. as MW's are OK

Conclusions or Agreements

He will submit work plans

Distribution
file

Signed Bill Olson

BURNETT LAW FIRM

ENVIRONMENTAL ATTORNEYS

GROVE T. BURNETT
ERIC AMES

1807 Second Street
Suite 18
Santa Fe, New Mexico 87501
(505) 988-4714
Fax (505) 982-9343

BY FAX AND FIRST CLASS MAIL

January 6, 1994

David E. Brody, Esq.
Law Department
Amoco Corporation
1670 Broadway
P.O. Box 800
Denver, Colorado 80201

Re: Gallegos Canyon Unit No. 181

Dear Mr. Brody,

We are in receipt of Mr. B.D. Shaw's letter of January 3, 1994. The letter references your November 23, 1993 letter and sets forth Amoco's "proposed work plan for Mr. Merriman's property."

We do not understand the purpose of this document. As an initial matter, it is completely inadequate as a work plan. We expect Amoco to implement the August 1993 work plan submitted to the Oil Conservation Division, subject to all conditions of approval and subsequent modifications and without regard to property ownership. This is particularly important because Amoco is already violating the terms of the August 1993 work plan by dumping manure into ground water exposed by the open trenches.

Further, we cannot believe that Amoco intends the document to be the restoration plan promised in your November 23, 1993 letter. Only one point of the work plan even addresses restoration, and it is absurd to suggest that dumping top soil and manure on mangled land would be satisfactory.

As the attachments to Mr. Shaw's letter indicate, Amoco has contaminated Mr. Merriman's land with BTEX, a set of carcinogenic chemicals typically associated with oil and gas development. Mr. Merriman's interest in the matter is simple: Amoco must remediate the contamination and restore his land, and pay fair compensation for access to and interference with the quiet use and enjoyment of his property during the process. Mr. Merriman

has no interest in debating the merits of remediation or restoration plans. If Amoco obtains OCD approval for its work plan and provides Mr. Merriman with an adequate restoration plan, we can move on to the question of fair compensation.

We await your response.

Sincerely,

Eric Ames

cc: Earl Merriman
Bill Olsen, NM-OCD

David E. Brody
Attorney

Amoco Corporation
Law Department
Amoco Building
1670 Broadway
Post Office Box 800
Denver, Colorado 80201
303-830-5677
Fax: 303-830-4160

January 4, 1994

Eric Ames, Esq.
Burnett Law Firm
1807 2nd Street, Suite 18
Santa Fe, New Mexico 87501

Re: Earl Merriman -- Gallegos Canyon Unit No. 181

Dear Mr. Ames:

I am in receipt of your letter dated December 20, 1993, regarding the above matter. Amoco's response to the various points in your letter is set forth below. However, I would first like to address the overall tone of your correspondence and advise you that your adversarial and confrontational approach and inflammatory language is not going to serve anyone's best interest in this matter. As you might or might not be aware, Amoco attempts to work out issues such as this one in a cooperative manner. Our history of operatorship in the San Juan Basin, as it relates to surface owners and other people affected by our activities, is generally a positive one and something Amoco takes pride in. Even if it is not your intent to convince Amoco to pay some unjustified amount of "nuisance value" to avoid litigation, various statements in your correspondence give that impression.

To suggest that "Mr. Merriman is prepared to litigate this matter" while the parties are discussing various approaches in good faith does not facilitate a cooperative approach or a prompt resolution. Also, inaccurate quotes and self-serving attempts to restate Amoco's position do not facilitate such settlement. In that regard, I did not state that "Amoco's contamination of Mr. Merriman's property does not affect its value." If you would read my November 23, 1993 letter, you will see that my statement was that "once Amoco's proposal is completed and the contamination eliminated, there should be no negative impact on land value resulting from Amoco's activities." Thus, your allegation of "nonsense" is directed at something you created to begin with.

In addition to the above, Amoco's response to your letter is as follows:

1. Several months ago, Mr. Merriman orally gave permission to Buddy Shaw to enter Mr. Merriman's property for the purpose of drilling the monitoring wells.

2. The approach we intend to use to remediate the contamination (exposing the soil to atmosphere) has been successful in similar situations (for example, Charles Keller's property). If material damage remains following the three-month period during which the soil remediation activities will take place and be completed, Amoco will compensate Mr. Merriman for such damage.

3. Given the level of impact during such three-month period, and the fact that there will only be a total of four trips a year for approximately two years to visit the monitoring wells (as required by the New Mexico Oil Conservation Division), Amoco disagrees with your statement that "Mr. Merriman will be deprived of the quiet use and enjoyment of his property, and the property will be virtually unsalable."

4. Amoco never suggested that Mr. Merriman could not drill a well on his property, and we disagree with your statement that he could not do so now. Amoco's monitoring wells indicated that no benzene was present in the soil and groundwater near Mr. Merriman's trailer. Therefore, Mr. Merriman has many options to drill a well near his trailer or into deeper water-bearing formations at any location on his property. Regarding Mr. Merriman being disconnected from the West Hammond Domestic Water Association facilities, this apparently had nothing to do with Amoco's activities.

Based on the above, Amoco does not agree to points one and two at the conclusion of your letter. As stated in my letter to you of November 23, 1993, we agree with your third point regarding the plan, which is being sent to you by Buddy Shaw under separate cover.

Please contact me directly if you would like to discuss this further.

Sincerely,

David Brody

David E. Brody

DEB/sm

cc: Buddy Shaw
William Olsen, New Mexico Oil Conservation Div.

Southern Rockies Business Unit

San Juan Operations Center

January 3, 1994

NMOCD
P. O. Box 2088
Santa Fe, NM 87504

Attention: Bill Olson

GCU Com I No. 181 Remediation Site

Please reference your letter of December 21, 1993, concerning the above subject. We offer the following comments:

1. Reclamation Trenches - All other trenches have been closed. The large square site was to open and air a highly saturated area. All excavations were pumped and tested. We will resume our operations this spring.

2. Manure Use - The manure was for both soil improvement and increasing microbe population at the water level. Mr. Keller (landowner) was advised that we would improve his soil by using manure and compost material.

One other comment is that of flexibility in this remediation plan. Amoco needs some latitude in day-to-day operation decision making. Please advise how we should handle these situations.

Thank you for your help.

B. D. Shaw
Environmental Coordinator

cc: Denny Foust
NMOCD, Aztec

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

BRUCE KING
GOVERNOR

ANITA LOCKWOOD
CABINET SECRETARY

December 21, 1993

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87504
(505) 827-5800

CERTIFIED MAIL
RETURN RECEIPT NO. P-667-241-888

Mr. B.D. Shaw
Amoco Production Company
200 Amoco Court
Farmington, New Mexico 87401

RE: SOIL AND GROUND WATER REMEDIATION
AMOCO GCU COM I-181 WELL SITE
SAN JUAN COUNTY, NEW MEXICO

Dear Mr. Shaw:

On December 9, 1993 the New Mexico Oil Conservation Division (OCD) inspected Amoco's ongoing remedial actions at Amoco's Gallegos Canyon Unit #181 well site. The inspection items noted below are inconsistent with Amoco's August 1993 PROPOSED REMEDIAL ACTION PLAN, AMOCO PRODUCTION COMPANY, GALLEGOS CANYON UNIT #181" and OCD's September 16, 1993 approval of the remedial action plan:

1. Only one of the proposed reclamation trenches was observed at the site. The remainder of the southwest side of the site consisted of large square excavations of approximately 100 feet to a side which are open to the ground water.

2. All of the excavations contained freshly spread manure. In each excavation the manure had been spread directly onto and/or into the ground water.

The OCD hereby directs Amoco to immediately cease the spreading of manure or any other products onto and/or into the ground water at this site. In addition, the OCD requires that Amoco provide a written explanation of these actions to OCD by January 7, 1994.

If you have any questions, please contact me at (505) 827-5885.

Sincerely,

William C. Olson
Hydrogeologist
Environmental Bureau

xc: OCD Aztec Office

BURNETT LAW FIRM

ENVIRONMENTAL ATTORNEYS

GROVE T. BURNETT

ERIC AMES

1807 Second Street
Suite 18
Santa Fe, New Mexico 87501
(505) 988-4714
Fax (505) 982-9343

BY FAX AND FIRST CLASS MAIL

December 20, 1993

David E. Brody, Esq.
Law Department
Amoco Corporation
1670 Broadway
P.O. Box 800
Denver, Colorado 80201

Re: Gallegos Canyon Unit No. 181

Dear Mr. Brody,

We are in receipt of your November 23, 1993 response. Apparently, Amoco does not believe that it needs Mr. Merriman's permission to enter onto his property, nor that it has any obligation to compensate Mr. Merriman for contamination originating at Gallegos Canyon Unit No. 181 (GCU-181). Amoco is wrong on both counts.

Under New Mexico law, Amoco must remediate the ground water contamination from GCU-181 without regard to the status of ownership of the contaminated property. According to the plan submitted to the New Mexico Oil Conservation Division (OCD) in August 1993, Amoco intends to fence off a portion of Mr. Merriman's property and dig huge trenches to expose contaminated soil and ground water to the atmosphere. However, contrary to the statement in your letter, Amoco does not have an easement across Mr. Merriman's property to implement this plan. If you have documents indicating otherwise, we would be interested in seeing them.

It is nonsense to claim that Amoco's contamination of Mr. Merriman's property does not affect its value. Amoco does not know if the current remediation proposal will succeed. The OCD conditioned approval of Amoco's proposed approach, which it called "an alternate technology", on a showing of effectiveness. If the approach does not work, Amoco will have to start over. How long the remediation will continue Amoco cannot say with any certainty. Throughout this indefinite process of trial and error, Mr. Merriman will be deprived of the quiet use and enjoyment of his property, and the property will be virtually unsalable.

Finally, also contrary to your letter, Mr. Merriman had not tied into an alternate water supply prior to discovery of Amoco's contamination of his property. In January 1993, the West Hammond Domestic Water Association informed Mr. Merriman that he could no longer take water from the Association's system through a family member's hookup. Mr. Merriman's options were to drill a well ($475.50) or hook up to the Association's system ($4,194). (Exhibit A). Mr. Merriman could not drill a well, however, because the ground water beneath his property had been contaminated with carcinogenic chemicals from GCU-181.

Mr. Merriman is prepared to litigate this matter. However, Mr. Merriman is concerned that further delay exposes his family to unreasonable health risks and will result in greater contamination of his property. Consequently, we propose the following solution:

1) Amoco compensates Mr. Merriman for the difference between hooking up to the West Hammond Domestic Water Association system and drilling a well.

2) Amoco compensates Mr. Merriman for an easement over his property to conduct remediation and remediation-related activities. The compensation shall reflect the anticipated scope and duration of the intrusion on Mr. Merriman's quiet use and enjoyment of his property.

3) Amoco obtains Mr. Merriman's approval of a restoration plan for his property, which plan must be legally binding on Amoco.

Your position concerning additional monitoring wells is well-taken. Mr. Merriman is prepared to accept the OCD's approval of Amoco's remediation plan in satisfaction of this demand.

Sincerely,

Eric Ames

cc: Earl Merriman
Bill Olsen, NM-OCD

ALTERNATE WATER SUPPLY

I. HOOK UP TO WEST HAMMOND DOMESTIC WATER ASSOCIATION

Excavation of 700 foot trench	$	300.00
PVC pipe (1400 feet of 1" pipe)		434.00
water meters (2 residences on property)		1500.00
water hookup charges (2 residences on property)		1960.00
TOTAL:	$	4194.00

II. WELL

Drilling (24 feet)	$	168.00
PVC pipe (50 feet of 1/2" pipe)		7.50
1 1/2 hp pump and 20 gallon tank		300.00
TOTAL:	$	475.50

EXHIBIT A

Amoco Corporation

Law Department
Amoco Building
1670 Broadway
Post Office Box 800
Denver, Colorado 80201
303-830-5677
Fax: 303-830-4160

David E. Brody
Attorney

November 23, 1993

Eric Ames, Esq.
Burnett Law Firm
1807 Second Street, Suite 18
Santa Fe, New Mexico 87501

Re: Earl Merriman -- Gallegos Canyon Unit No. 181

Dear Mr. Ames:

I am in receipt of a copy of your letter to Amoco's San Juan Operations Center, dated October 12, 1993, regarding the above matter. As you recognized, Amoco is attempting to address the issues raised in your letter. We hope to continue working with Mr. Merriman to resolve these matters. In response to the five requests stated on page 2 of your letter, Amoco's position is as follows:

1. It is Amoco's understanding that Mr. Merriman had already tied into an alternate water source prior to any of these issues arising. If this is not the case, please provide me with information that indicates otherwise.

2. Once Amoco's proposal is completed and the contamination eliminated, there should be no negative impact on land value resulting from Amoco's activities.

3. Under the applicable oil and gas lease, the lessee is not required to pay any compensation for easements related to the exploration and production activities under the lease.

4. Additional monitoring wells will be installed as part of Amoco's planned remediation activities.

5. No later than January 15, 1994, Amoco will provide you with a plan for restoration of Mr. Merriman's property. We will be interested in your comments and suggestions on such plan.

Please contact me or Buddy Shaw (in Amoco's Farmington office) if you have any questions regarding the above matters.

Sincerely,

David E. Brody

DEB:lls

cc: Buddy Shaw

William Olsen
New Mexico Oil Conservation Division

201.DEB

ENVIROTECH INC.

UNDERGROUND TANK TESTING • SITE ASSESSMENT • SITE REMEDIATION

5796 U.S. HIGHWAY 64 - 3014
FARMINGTON, NEW MEXICO 87401
PHONE: (505) 632-0615

October 20, 1993

Mr. William C. Olson
Hydrogeologist
Environmental Bureau
New Mexico Oil Conservation Division
Post Office Box 2088
Santa Fe, New Mexico 87504

RE: Groundwater Investigation Information Requested
Ground Water Remediation Proposal
Amoco GCU-181 Well Site
San Juan County, New Mexico Project No: 92140/C4456

Dear Mr. Olson:

Per the request of Mr. Buddy Shaw, Amoco Production Company, this letter is in response to your correspondence to Mr. Shaw dated September 16, 1993 approving the referenced remedial action plan. One of your stipulations for approval was to provide additional ground water investigation information as detailed in your earlier May 25, 1993 NMOCD letter to Mr. Shaw.

Item #A.1. in the May 25 letter requested well construction details for the monitor wells constructed on GCU-181. The original field notes were referred to in drafting the well construction detail drawings. Those drawings are attached.

Item #A.2. requested the locations of the samples taken from the "Upper Pond," "Low Ditch SW," "Up. Ditch SW," "Drainage D-N," "Drainage D-S," "North Pond," and "South Pond." Those approximate locations have been added to the attached site diagram. Please note that "Upper Pond" is the same location as "South Pond," and "Lower Pond" is the same location as "North Pond."

Item #A.3. requested analytical results of August 6, 1992 samples from pits 1,3,4,6,7,8,9,10,11,35, and 38. Laboratory samples were not collected from these pits. Field OVM results are available only, and are included in the field notes included in Appendix B of the report "Proposed Remedial Action Plan, Amoco Production Company, Gallegos Canyon Unit #181."

We trust this additional information will satisfy your questions. If you have any further questions or we can be of assistance in any other matters, please contact us.

Respectfully Submitted,
ENVIROTECH, INC.

Robert E. O'Neill
Environmental Engineer

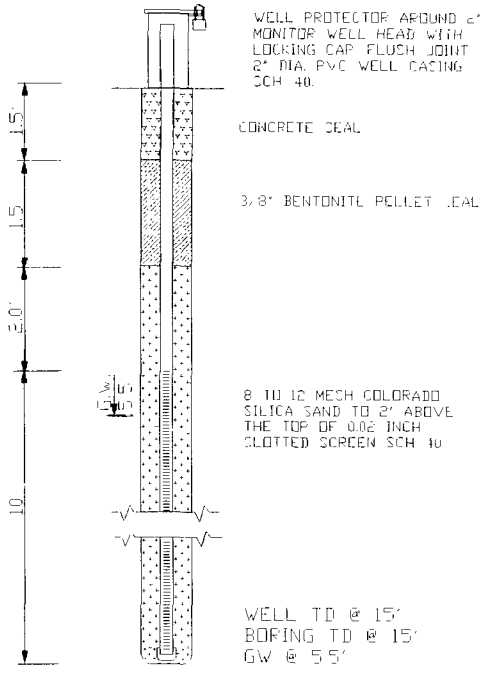
Attachments: Monitor Well Details (Sheets 1-5)
Revised Site Plan (Sheet 6)

xc: Buddy Shaw, Amoco
Denny Foust, NMOCD Aztec Office

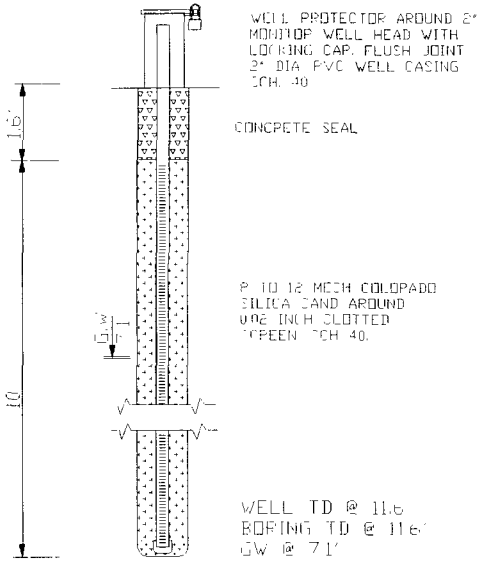
REO/reo

C4456-WO.LET

MONITOR WELL (MW-5)



MONITOR WELL (MW-7)



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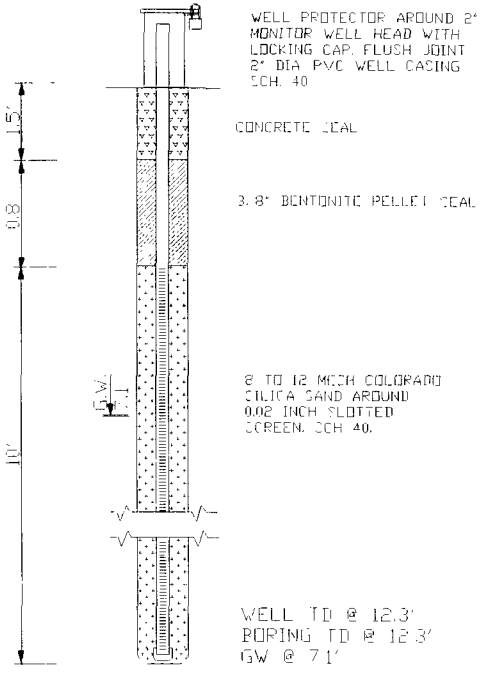


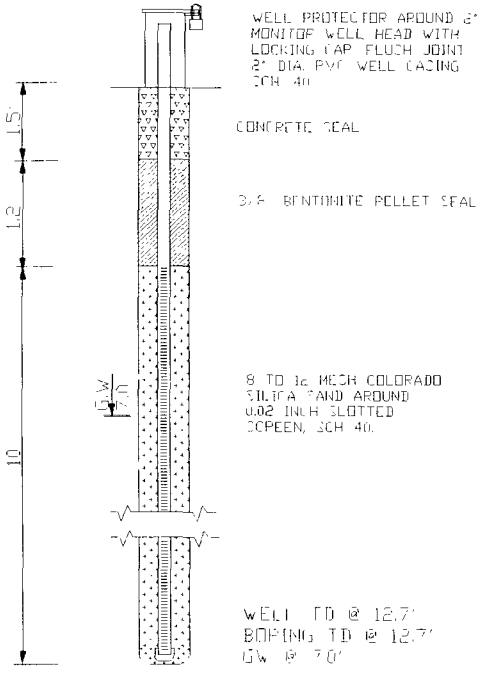
MONITOR WELL DETAIL
AMOCO PRODUCTION COMPANY
GCU COM 1 181
(F) SEC. 34, T29N, R12W

ENVIROTECH INC.

ENVIRONMENTAL SCIENTISTS
5796 U.S. HIGHWAY 64-3014
FARMINGTON, NEW MEXICO 87401
PHONE: (505) 632-0615

ENGINEER: J. WEAVER
DRAFTER: P.E. O'NEILL
DATE: 10-13-93
MONITOR WELLS: 5, 7, 10
SHEET: # 1

MONITOR WELL (MW-13)



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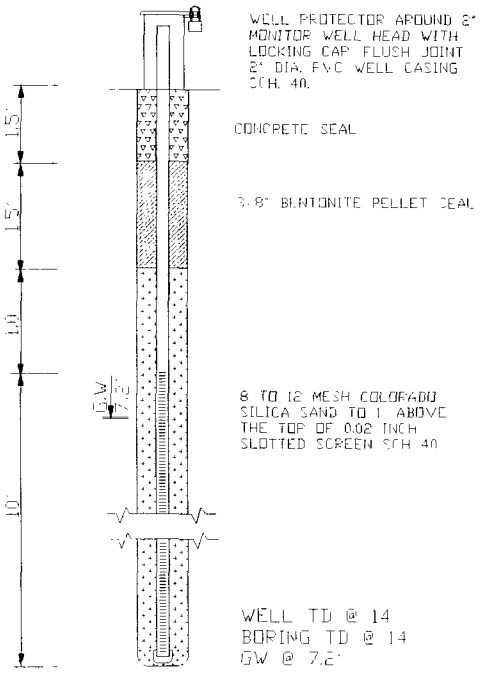

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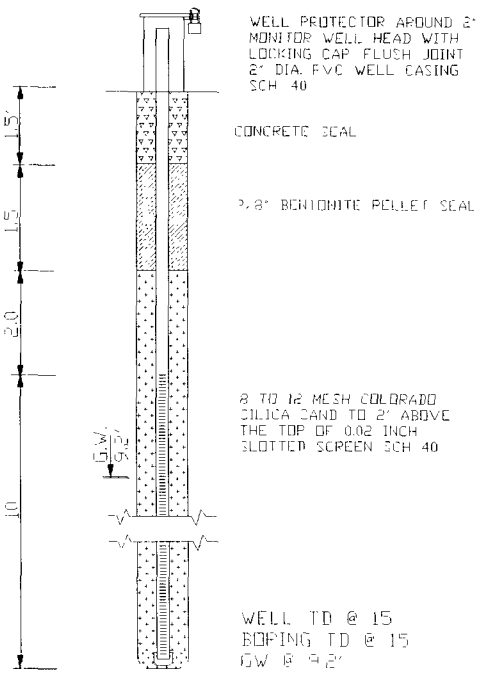


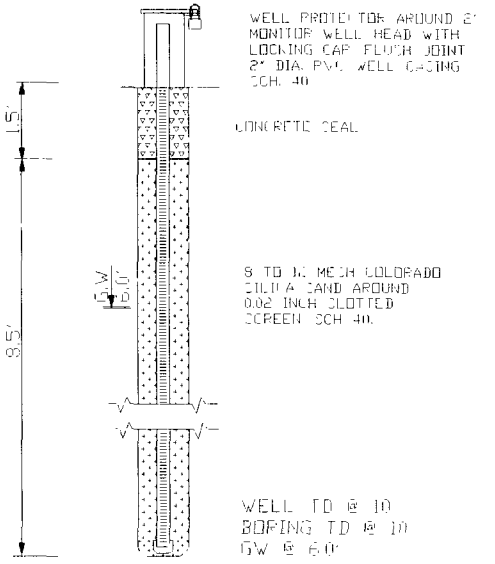
MONITOR WELL DETAILS
AMOCO PRODUCTION COMPANY
GCU COM I 181
(F) SEC. 34, T29N, R12W

ENVIROTECH INC.

ENVIRONMENTAL SCIENTISTS
5796 U.S. HIGHWAY 64-3014
FARMINGTON, NEW MEXICO 87401
PHONE: (505) 632-0615

ENGINEER: J. WEAHEE
DRAFTER: P.E. O'NEILL
DATE: 10-13-93
MONITOR WELLS: 13, 15, 17
SHEET: # 2

MONITOR WELL (MW-21)



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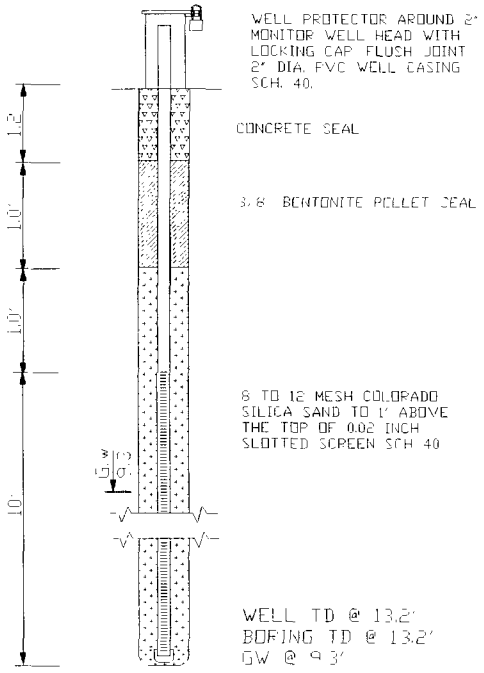

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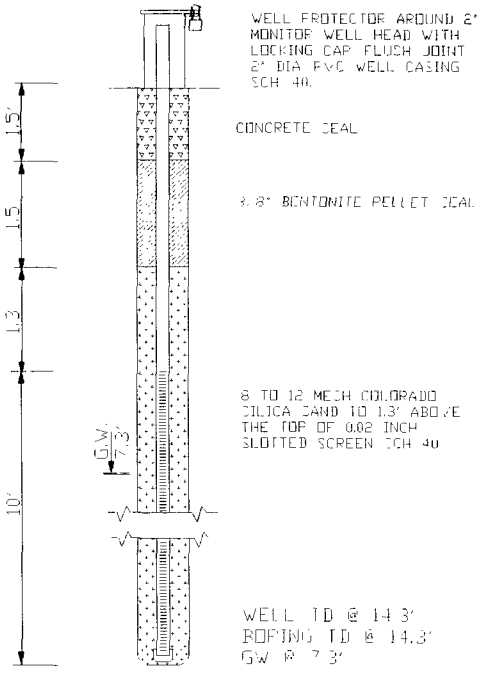


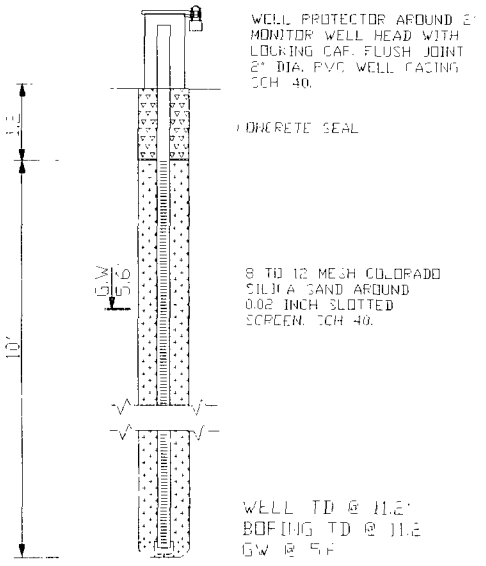
MONITOR WELL DETAILS
AMOCO PRODUCTION COMPANY
GCU COM I 121
(F) SEC. 34, T29N, R12W

ENVIROTECH INC.

ENVIRONMENTAL SCIENTISTS
5796 U.S. HIGHWAY 64-3014
FARMINGTON, NEW MEXICO 87401
PHONE: (505) 632-0615

ENGINEER: J. WEAVER
DRAFTER: P.E. O'NEILL
DATE: 10-13-93
MONITOR WELLS: 21, 25, 28
SHEET: # 3

MONITOR WELL (MW-31)



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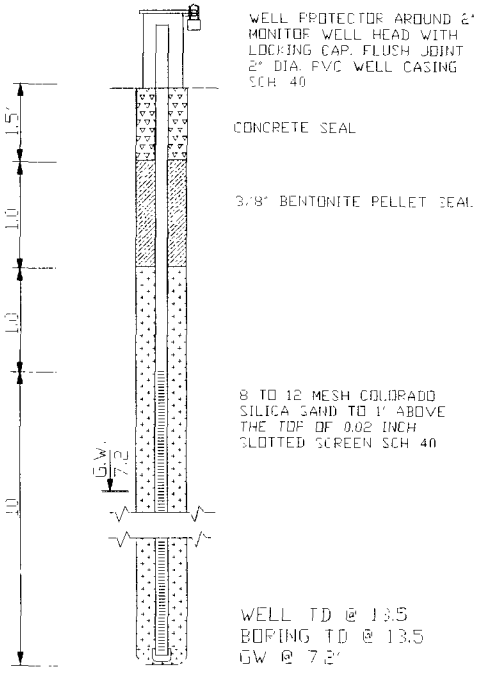

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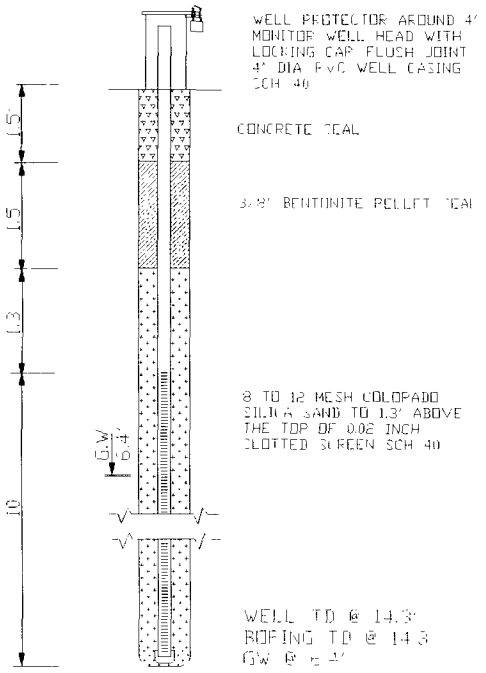


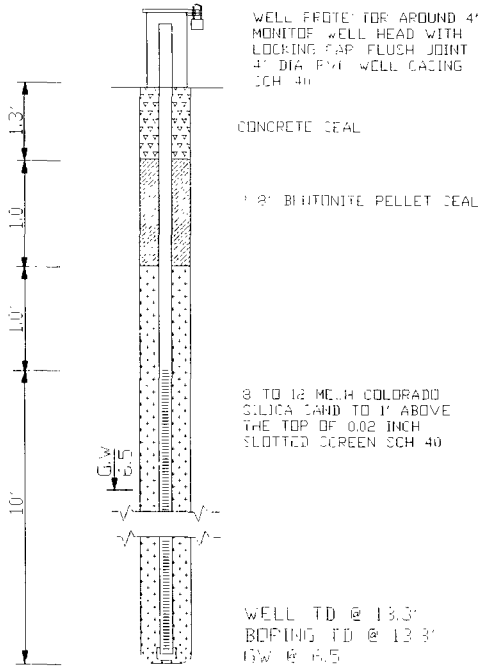
MONITOR WELL DETAIL
AMOCO PRODUCTION COMPANY
GCU COM I 181
(F) SEC. 34, T29N, R12W

ENVIROTECH INC.

ENVIRONMENTAL SCIENTISTS
5796 U.S. HIGHWAY 64-3014
FARMINGTON, NEW MEXICO 87401
PHONE: (505) 632-0615

ENGINEER: J. WEAVER
DRAFTER: P.E. O'NEILL
DATE: 10-14-93
MONITOR WELLS: 31, 32, 33
SHEET: # 4

MONITOR WELL (MW-34)



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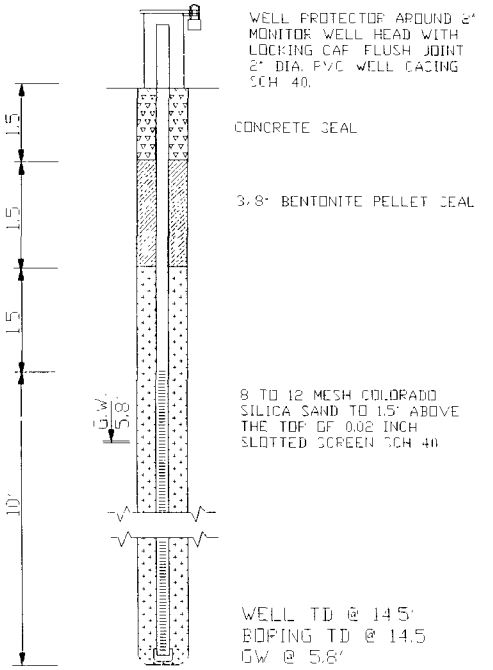
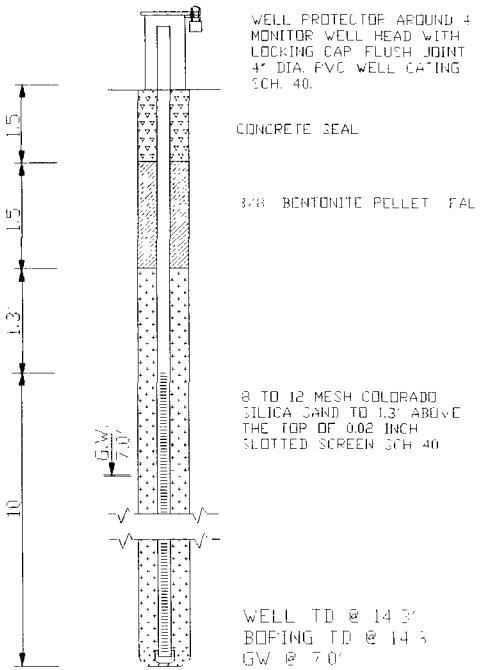


MONITOR WELL (MW-38)

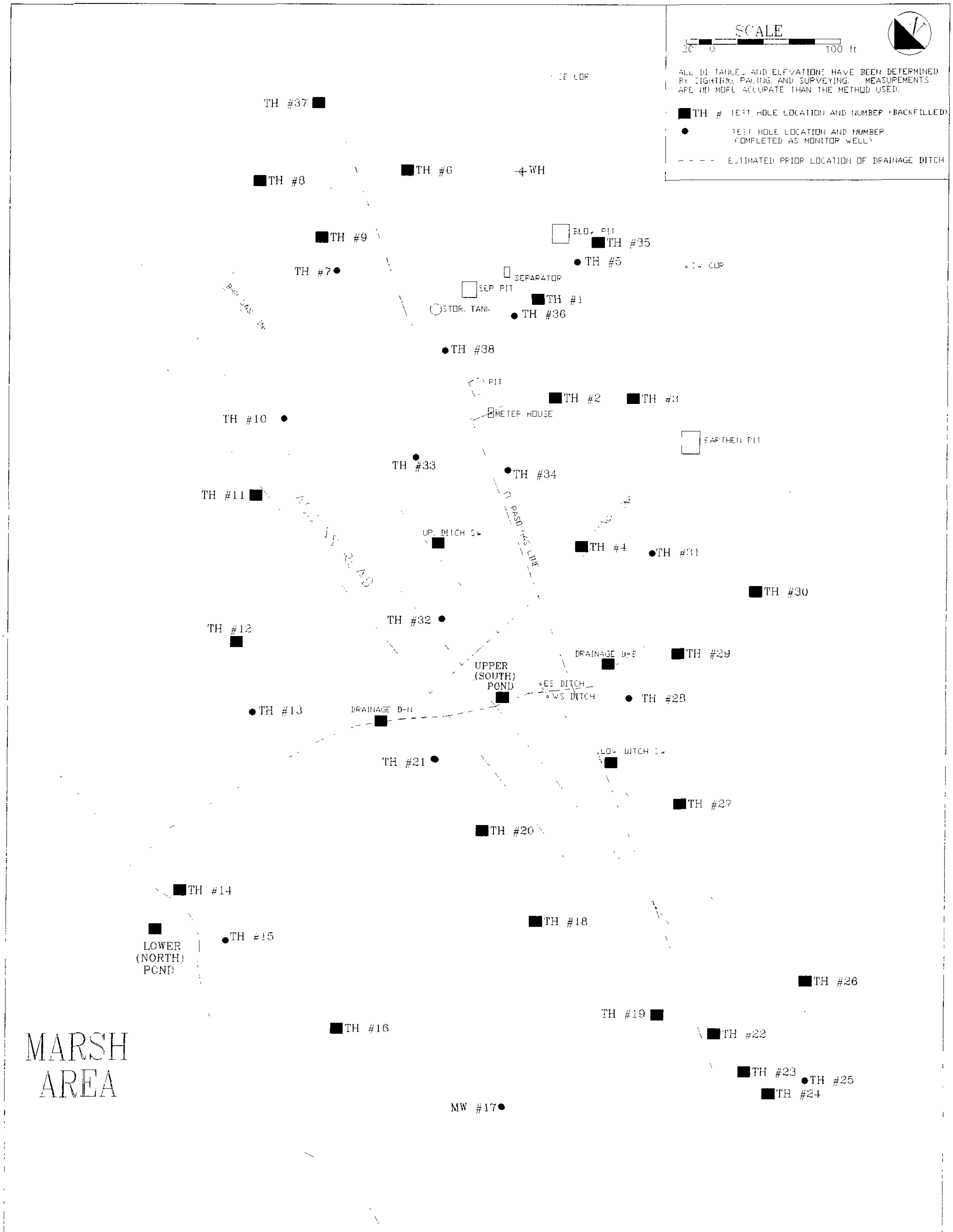


MONITOR WELL DETAIL
AMOCO PRODUCTION COMPANY
GCU COM 1 181
(F) SEC. 34, T29N, R12W

ENVIROTECH INC.

ENVIRONMENTAL SCIENTISTS
5796 U.S. HIGHWAY 64-3014
FARMINGTON, NEW MEXICO 87401
PHONE: (505) 632-0615

ENGINEER: J. WEAVER
DRAFTER: R.E. O'NEILL
DATE: 10-14-93
MONITOR WELLS: 34, 36, 38
SHEET: # 5



DRWG: GCU181SP

TH #

AMOCO PRODUCTION COMPANY
GALLEGOS CANYON UNIT 181
SEC 34 TWP 29N RNG 12W
SAN JUAN COUNTY, NEW MEXICO

TEST HOLE LOCATIONS

SHEET 6
DRAWN 8/04/93 [illegible]
REVISED 10/20/93 [illegible]
PR. MGR: [illegible]

ENVIROTECH INC.
ENVIRONMENTAL SCIENTISTS & ENGINEERS
5796 U.S. HIGHWAY 64-3014
FARMINGTON, NEW MEXICO 87401
PHONE (505) 632-0615

BURNETT LAW FIRM

ENVIRONMENTAL ATTORNEYS

GROVE T. BURNETT

ERIC AMES

1807 Second Street
Suite 18
Santa Fe, New Mexico 87501
(505) 988-4714
Fax (505) 982-9343

October 12, 1993

Manager
San Juan Operations Center
Amoco Production Company
200 Amoco Court
Farmington, New Mexico 87401

Re: Gallegos Canyon Unit No. 181

Dear Sir,

Our office represents Earl Merriman, who owns property directly adjacent to the Gallegos Canyon Unit No. 181 (GCU-181). We write to establish conditions for the remediation of soil and ground water contamination on Mr. Merriman's property resulting from your activities at GCU-181.

On May 5, 1993, Amoco submitted a proposal to the New Mexico Oil Conservation Division (OCD) to remediate petroleum hydrocarbon contamination at GCU-181. The data indicated that the contaminant plume was following a drainage feature on Mr. Merriman's property, but failed to define the plume's boundary or the extent of contamination on Mr. Merriman's property.

On August 24, 1993, Amoco submitted a second proposal to remediate the contamination at GCU-181. This proposal requested OCD approval for "Trench Reclamation Methodology" (TRM), which essentially involves digging parallel trenches in contaminated soils. As OCD noted in its September 16, 1993 approval letter, TRM is an alternative technology of uncertain effectiveness. Amoco's proposal does not cite examples of successful TRM application.

Amoco's newest proposal raises several questions. Amoco has yet to adequately define the contours of the plume and the extent of contamination on Mr. Merriman's property. The maps in Amoco's proposal do not show the monitoring wells in relation to Mr. Merriman's property. This oversight is particularly troubling because the plume is following a drainage feature north-by-northwest on Mr. Merriman's property, and appears to have progressed beyond Amoco's outermost monitoring wells. The proposal also fails to discuss the severe disturbance that TRM

will cause to Mr. Merriman's property. Nor does the proposal indicate how Amoco will restore disturbed areas on Mr. Merriman's property to their earlier condition.

Mr. Merriman has already suffered serious injury as a result of soil and ground water contamination emanating from GCU-181. The ditch crossing Mr. Merriman's property and emptying into the San Juan River (the drainage feature which the plume is apparently following) has shown an oily sheen for several months. Mr. Merriman's horses and livestock drink this water and may be suffering adverse effects. The presence of carcinogenic chemicals in the ground water has forced Mr. Merriman to forego drilling a domestic water well, and instead pay over $4,000 to hook up to the West Hammond Domestic Water Association. Similarly, contamination from GCU-181 has forced Mr. Merriman to incur additional expense in installing a septic system. New regulations in San Juan County require septic systems to be built at least four (4) feet above the water table. The only land on Mr. Merriman's property that satisfies this condition is in the area contaminated by contamination from GCU-181. Consequently, Mr. Merriman must fill a low area on his property and install additional equipment at a cost of $6,000. Finally, Mr. Merriman's property, worth $42,000 in 1991, has suffered a substantial dimunition in value as a result of the contamination. Amoco's proposal to trench the surface will only make matters worse.

Mr. Merriman is prepared to cooperate with Amoco to ensure that the soil and ground water contamination from GCU-181 is remediated quickly and effectively. However, Amoco cannot reasonably expect to not compensate Mr. Merriman for the damages he has suffered and will suffer during the remediation. At a minimum, Mr. Merriman requests the following:

(1) compensation for the cost of obtaining alterate water supply and disposal.

(2) compensation for the dimunition in the value of property.

(3) compensation for an easement over Mr. Merriman's property to install monitoring wells and conduct TRM activities.

(4) a commitment to install additional monitoring wells on Mr. Merriman's property to define the contours of the plume and the extent of contamination <u>before</u> any remediation is initiated.

(5) a plan for restoration of Mr. Merriman's property to its existing condition following successful remediation. The plan must be incorporated into a binding agreement.

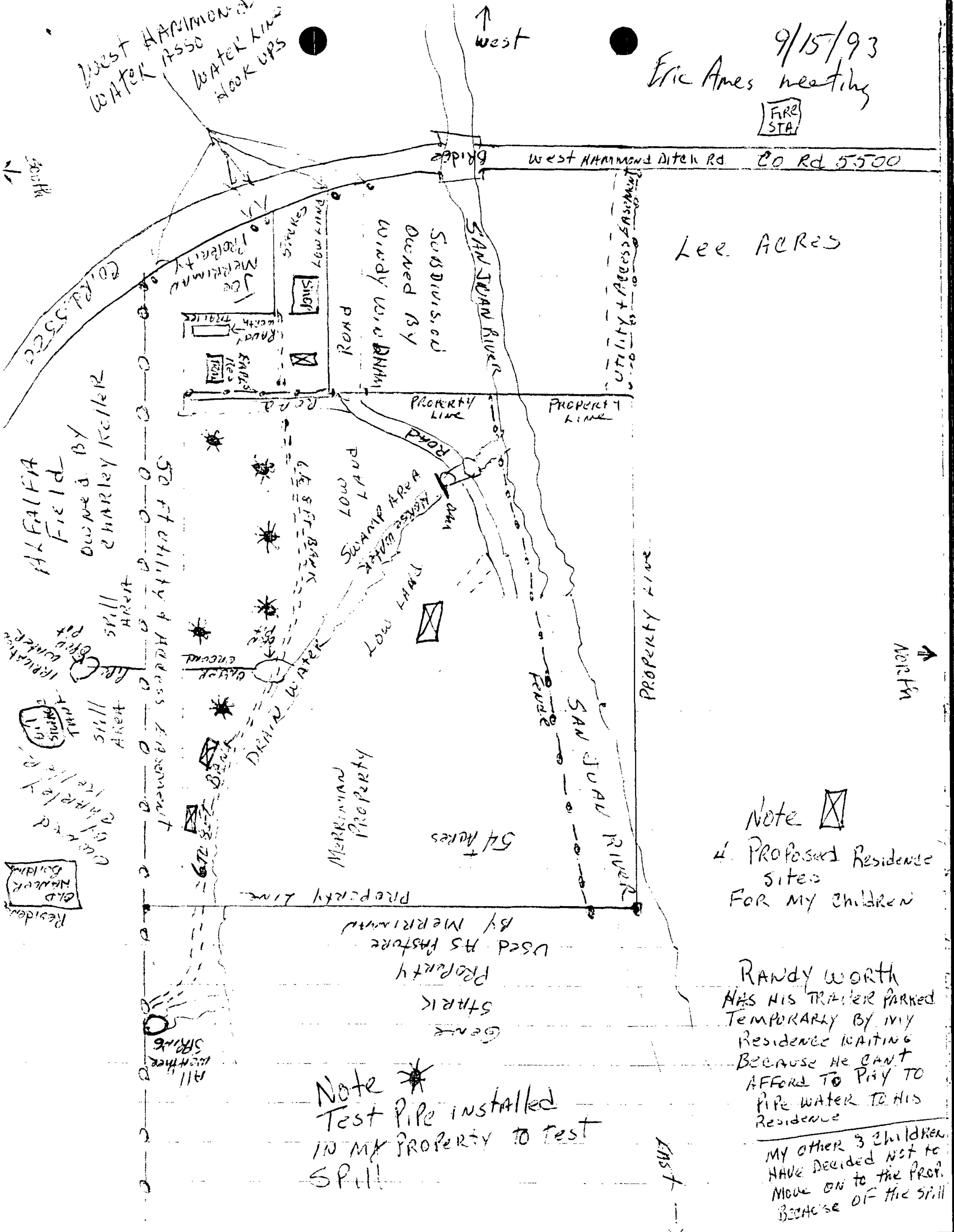
We understand that Amoco would like to proceed with remediation as soon as possible. Mr. Merriman is pleased with Amoco's initiative, but is understandably reluctant to bear the cost.

Please let us know your position on this matter at your earliest convenience. If you have any questions, please call me at (505) 988-4714.

Sincerely,

Eric Ames

cc: Earl Merriman
Buddy Shaw, Amoco Production Company
William Olson, New Mexico Oil Conservation Division


9/15/93
Eric Ames meeting
West Hammond Water Asso Water Line Hook ups
West
Fire Sta
Bridge
West Hammond Ditch Rd
Co Rd 5500
South
Co Rd 5500
Joe Merriman Property
Stakes
Low Land
Subdivision Owned By Windy Windham
Road
San Juan River
Utility + Access Easement
Lee Acres
Randy Worth Trailer
Property Line
Property Line
Road
Alfalfa Field Owned By Charley Keller
50 ft Utility + Access Easement
6 ft Bank
Low Land
Swamp Area
Dam
Spill Area
Old Water Pit
Irrigation
Drain Water
Low Land
Fence
San Juan River
Property Line
North
Spill Area
Spill Area
Oil Storage Tank
Charley Keller's Residence
Old Hammer Building
Bank
Merriman Property
54 Acres
Property Line
Used As Pasture By Merriman
Gene Stark Property
Hill Weather Spring
Note
4 Proposed Residence Sites For My Children
Randy Worth Has His Trailer Parked Temporarily By My Residence Waiting Because He Can't Afford To Pay To Pipe Water To His Residence
My other 3 Children Have Decided Not to Move on to the Prop. Because of the Spill
Note
Test Pipe installed In My Property to Test Spill
East

Map and Explonation of Property, Residence Areas
and Spill Areas
as per our Conversation this Date 2-25-93
Earl L Overman

ENVIROTECH INC.

UNDERGROUND TANK TESTING • SITE ASSESSMENT • SITE REMEDIATION

5796 U.S. HIGHWAY 64 - 3014
FARMINGTON, NEW MEXICO 87401
PHONE: (505) 632-0615

August 23, 1993

RECEIVED
AUG 24 1993
OIL CONSERVATION DIV.
SANTA FE

Mr. William Olson
Hydrologist
New Mexico Oil Conservation Division
Environmental Bureau
P.O. Box 2088
Santa Fe, New Mexico 87504-2088

RE: Remedial Action Plan (RAP)
Amoco Production Company
Gallegos Canyon Unit (I) #181
Sec. 34, T29N, R12W, NMPM
San Juan County, New Mexico

Project: 92140/C4456

Dear Mr. Olson:

At Amoco Production Company's request Envirotech has prepared and submits the enclosed Remedial Action Plan for the referenced well location.

To expedite the site reclamation, we would like to request your prompt attention to this matter, considering the proximity of the site to the San Juan River and relatively short window of favorable weather remaining this year.

Please contact Michael Lane of Envirotech at (505) 632-0615 if you require any further information or have any questions. Thank you for your assistance with this project.

Respectfully submitted,
ENVIROTECH INC.

Michael K. Lane, P.E.
Geological Engineer

CC: Denny Foust, NMOCD Aztec, NM
Buddy Shaw, Amoco Production
Envirotech File

MKL/mkl

FILE: C44560CD.LTR

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

BRUCE KING
GOVERNOR

ANITA LOCKWOOD
CABINET SECRETARY

May 25, 1993

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87504
(505) 827-5800

CERTIFIED MAIL
RETURN RECEIPT NO. P-667-242-345

Mr. B.D. Shaw
Amoco Production Company
200 Amoco Court
Farmington, New Mexico 87401

RE: GROUND WATER REMEDIATION PROPOSAL
AMOCO GCU-181 WELL SITE
SAN JUAN COUNTY, NEW MEXICO

Dear Mr. Shaw:

The New Mexico Oil Conservation Division (OCD) is in the process of reviewing Amoco's March 5, 1993 "PROPOSAL TO INITIATE REMEDIAL MEASURES AT GCU 181, FARMINGTON, NEW MEXICO". This document contains the results of Amoco's investigation of petroleum contaminated ground water at the GCU-181 well site and presents a conceptual ground water remediation plan.

The OCD has the following questions, comments and requests for information regarding the above referenced document:

A. Ground Water Investigation

1. The well construction details for the monitor wells were not included in the report. Please provide OCD with this information.

2. The locations of the samples taken from the "Upper Pond", "Lower Pond", "Low Ditch SW", "Up. Ditch SW", "Drainage D-N", "Drainage D-S", "North Pond" and "South Pond" were not identified in the report. Please provide OCD with the locations of these samples.

3. The August 6, 1992 pit sampling did not contain the analytical results of samples from pits 1,3,4,6,7,8,9,10,11,35 and 38. If samples were obtained from these locations, please provide OCD with the analytical results.

B. Ground Water Remediation Proposal

The concept for remediation of contaminated ground water at the site using air sparging is acceptable. However, the OCD requires that Amoco provide more detailed information prior to approval of this remediation technique. Please provide OCD with the following information:

1. The exact location of the proposed air sparging system.

2. The proposed construction schematics of the air sparging system.

3. A plan for monitoring the effectiveness of the remediation system.

Receipt of the above information will allow OCD to complete a review of Amoco's remediation proposal. If you have any questions, please contact me at (505) 827-5885.

Sincerely,

William C. Olson
Hydrogeologist
Environmental Bureau

xc: OCD Aztec Office

Dennis D. Beckmann, P.E., DEE
Technical Consultant

Amoco Corporation
7201 East 38th Street (Space 7253)
Tulsa, OK 74145-3207
Post Office Box 3385
Tulsa, OK 74102-3385
Environment, Health and
Safety Department
918-660-4420

May 5, 1993

Bill
our proposal for
GCU 181
BD Shaw

GMS-125M

Buddy Shaw
Amoco Production Company
20 Amoco Court
Farmington, NM 87401

Proposal to Initiate Remedial Measures at GCU 181, Farmington, New Mexico

On April 14, 1993 Kevin Heaton and I met with you and Dave Brown to review the status of several projects under your direction. In particular, we discussed the need to implement off-site remediation at GCU-181. Accordingly, this letter offers a proposal by Gary Barker (GWB) and me (DDB) to initiate both on and off-site remedial measures.

Off-site remediation program. In previous investigatory work done at this site a plume was determined to be following a drainage feature on the property of Mr. Merriman. Based on both previous and current results of groundwater samples, and an understanding of the subsurface soil types and depth to groundwater, we recommend installing an *in-situ* air sparging system. The purposes of the system would be:

1) intercept the entire plume as it enters the Merriman property,
2) to remove contaminants from the groundwater, and
3) to provide oxygen to facilitate and enhance natural biodegradation.

This system would be installed about 8 ft into the saturated zone (see attached figure for a schematic diagram). The system would be located parallel to the road and along the fence. This will avoid having the equipment in Mr. Merriman's way and simplify protecting the horses and livestock from the equipment. Once the system is installed, a fence could be built to exclude the horses. The electrical equipment which will be required will include an air blower or compressor. It will likely be no larger than 10 horsepower and it could be much smaller. Five to 15 horsepower is the size range specified in the Kalkaska air sparging study, a copy of which is enclosed.

On-site remediation program. To initiate an on-site remediation program we propose to first run a bioventing test at the site. Bioventing consists of injecting air into the unsaturated zone to promote biodegradation of the hydrocarbons by indigenous microorganisms. To conduct a test, we will use a small blower (1/3 hp) to inject air through a sparging point for 24 hours. We will also run a parallel test as a control to verify the data validity and data interpretation. Following the air injection period, a series of observation points will be monitored by GWB and DDB for the amount of oxygen and carbon dioxide in the pore space vapors. This allows an estimation of the rate of biodegradation and provides direct evidence that biodegradation is occurring at the site. From the test we will have information to determine the radius of influence of an individual injection point.

At some point in the initial design phase for the on-site remediation system it likely will be necessary to conduct a soil gas survey to determine levels of soil contamination around the pit and pipelines on the site. This type of information is necessary to determine the mass of hydrocarbons to be degraded and optimal placement of air sparging points. This is a relatively simple, effective, and inexpensive data collection task.

I am discussing this possibility with Envirotech to ascertain their experience and capabilities with regard to air sparging and soil gas surveys. Please advise of any comments or concerns you might have.

Sincerely,

Dennis D. Beckmann

Dennis D. Beckmann

93-041-W-GMS125M

G. W. Barker - Tulsa
D. R. Brown - Denver
W. P. Weisrock - Tulsa

Typical Sparging System Configuration

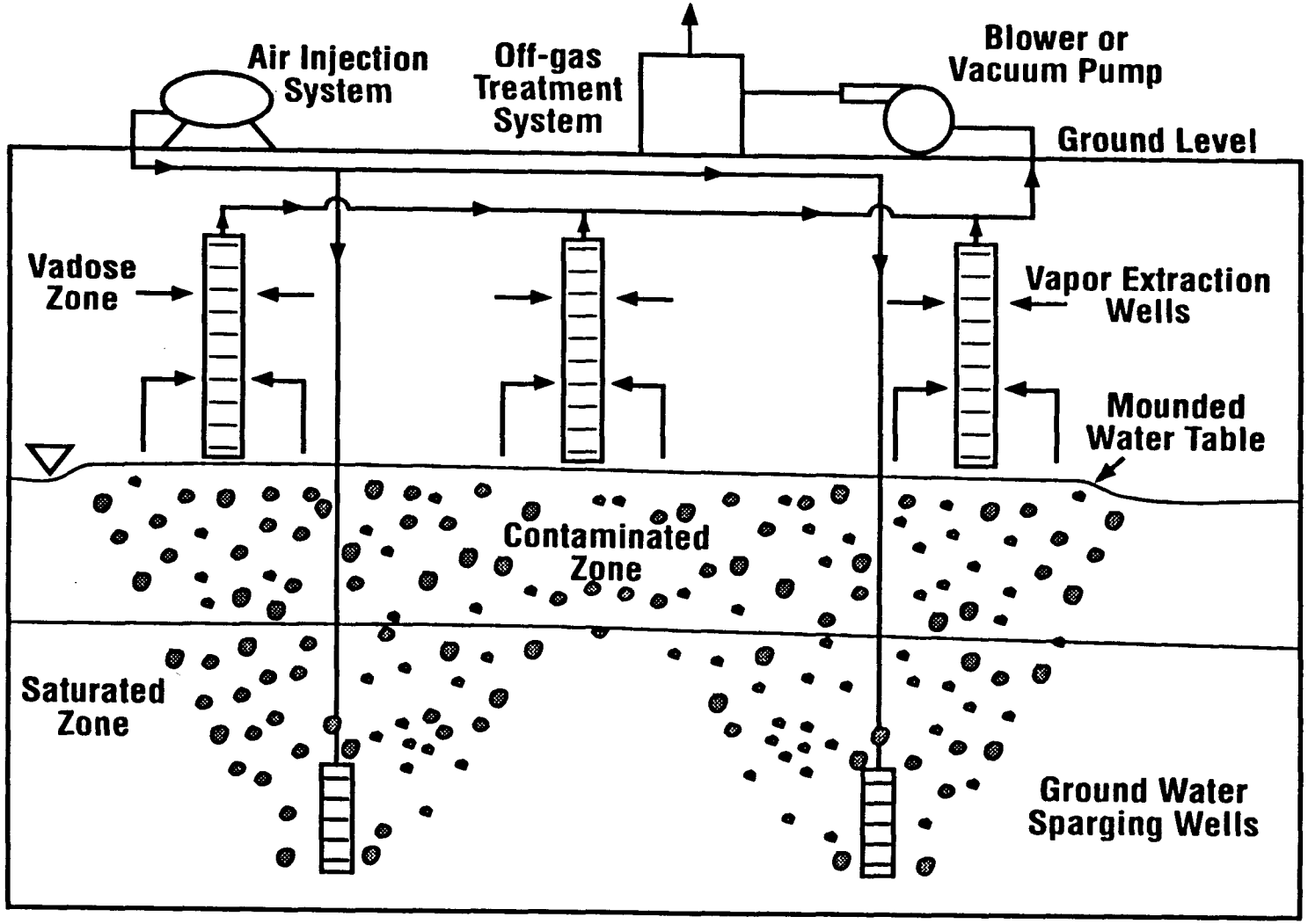


Fig. 4. Schematic of a Typical Air Sparging System Configuration.[15]

Note: for GCU-162 we will consider using the air injection points only. The vapor extraction system will be added, if necessary.

wb04.096

AMPAD EFFICIENCY LINE® 22-213

GCU #181 Amoco - Tulsa

Total BTEX (ppm)

		(Open Pit) 8/6	9/8	10/8	1/5	4/15	JUN	JUL
1	Upper Pond (South)	.026	.021	.019		.065		
2	Lower Pond (North)	.048	.042	.028		.117		
3								
4	MW-5	ND	.019	ND	ND	ND		
5								
6	MW-7	-	9.23	-	13.4	3.31		
7								
8	MW-10	-	7.01	5.48	3.27	2.34		
9								
10	MW-13	17.6	.054	.031	.036	.005		
11								
12	MW-15	.001	.006	.002	ND	ND		
13								
14	MW-17	ND	ND	ND	ND	ND		
15								
16	MW-21	162.	4.02	2.16	.686	.043		
17								
18	MW-25	ND	ND	ND	ND	ND		
19								
20	MW-28	328.	.092	.109	.118	.039		
21								
22	MW-31	ND	ND	ND	ND	ND		
23								
24	MW-32	832.	.318	.521	.251	.382		
25								
26	MW-33 (4")	290.	2.31	1.82	.101	.060		
27								
28	MW-34 (4")	906.	30.4	11.6	"Product"	12.9		
29								
30	MW-36	.043	.013	.009	.006	.004		
31								
	MW-38 (4")	-	39.1	8.04	"Product"	11.8		

AMOCO CORPORATION: GROUNDWATER MANAGEMENT SECTION

ANALYTICAL RESULTS FOR DISSOLVED HYDROCARBONS

Location: APC Gallegos Canyon Unit, Com "1" #181, San Juan Co., NM

Lab#: 92W0995-6 Method: Amoco Modified 8015

Date sampled: 08/06/92 Date received: 08/10/92

Sample ID	Benz	Tolu	EtBz	Xyls	BTEX TOTAL
Trip blank	ND	ND	ND	ND	ND
Pit#2	7.32	74.1	39.8	395.	516.
Pit#5	ND	ND	ND	ND	ND
Pit#12	ND	ND	ND	ND	ND
Pit#13	0.656	2.05	2.48	12.4	17.6
Pit#14	0.058	0.022	0.188	0.057	0.320
Pit#15	ND	0.001	ND	ND	0.001
Pit#16	ND	ND	ND	ND	ND
Pit#17	ND	ND	ND	ND	ND
Pit#18	ND	ND	ND	ND	ND
Pit#19	ND	ND	ND	ND	ND
Pit#20	1.18	0.011	0.262	0.457	1.91
Pit#21	2.97	14.1	21.3	124.	162.
Pit#22	ND	ND	ND	ND	ND
Pit#23	ND	ND	ND	ND	ND
Pit#24	ND	ND	ND	ND	ND
Pit#25	ND	ND	ND	ND	ND
Pit#26	ND	ND	ND	ND	ND

Pit#27	ND	ND	ND	ND	ND
Pit#28	2.38	73.8	22.3	230.	328.
Pit#29	ND	ND	ND	ND	ND
Pit#30	ND	ND	ND	ND	ND
Pit#31	ND	ND	ND	ND	ND
Pit#32	29.6	202.	69.3	531.	832.
Pit#33	6.37	56.6	28.4	199.	290.
Pit#34	20.7	240.	46.1	599.	906.
Pit#36	ND	0.001	0.009	0.033	0.043
Pit#37	ND	ND	ND	ND	ND
Low Ditch SW	ND	0.006	0.010	0.032	0.048
Up. Ditch SW	0.004	0.008	0.002	0.012	0.026

NOTES
1. Unit of data is mg/L.
2. ND = not detected at or above reporting limit.
3. Benz = benzene, Tolu = toluene, EtBz = ethylbenzene, Xyls = xylenes,
4. Reporting limit for benzene, toluene, ethylbenzene, and each xylene is 0.001 mg/L.

Comments:

Sampled by: APC - K. P. Heaton & G. Barker

Date analyzed: 08/11/92 Checked by: T. G. Miller

AMOCO CORPORATION: GROUNDWATER MANAGEMENT SECTION

ANALYTICAL RESULTS FOR DISSOLVED HYDROCARBONS

Location: Gallegos Canyon Unit#181, Sec.24-T29N-R12W, San Juan Basin, NM

Lab#: 92W1133 9/4/92 Method: Amoco Modified 8015

Date sampled: 09/08/92 Date received: 09/08/92

Sample ID	Benz	Tolu	EtBz	Xyls	BTEX TOTAL	Open Pit Samples 8/6/92
Eqpmnt blank	ND	ND	ND	0.001	0.001	
Upper Pond	0.002	0.007	0.002	0.010	0.021	.026
Lower Pond	0.002	0.006	0.008	0.026	0.042	.048
MW-5	ND	0.015	ND	0.004	0.019	ND
MW-7	0.200	0.729	1.70	6.60	9.23	—
MW-10	0.021	0.072	0.510	6.41	7.01	—
MW-13	0.004	0.020	0.012	0.018	0.054	17.6
MW-15	ND	0.003	0.003	ND	0.006	.001
MW-17	ND	ND	ND	ND	ND	ND
MW-21	0.027	0.023	0.640	3.33	4.02	162.
MW-25	ND	ND	ND	ND	ND	ND
MW-28	0.014	0.033	0.018	0.027	0.092	328.
MW-31	ND	ND	ND	ND	ND	ND
MW-32	0.006	0.011	0.024	0.277	0.318	832.
4" MW-33	0.011	0.022	0.322	1.95	2.31	290.
4" MW-34	0.415	0.430	0.681	28.9	30.4	906.
MW-36	ND	0.002	0.003	0.008	0.013	.043
4" MW-38	0.564	1.14	1.04	36.4	39.1	—

AMOCO CORPORATION: GROUNDWATER MANAGEMENT SECTION

ANALYTICAL RESULTS FOR DISSOLVED HYDROCARBONS

Location: Gallegos Canyon Unit#181, Sec.24-T29N-R12W, San Juan Basin, NM

Lab#: 92W1133 Method: Amoco Modified 8015

Date sampled: 09/08/92 Date received: 09/08/92

Sample ID	Benz	Tolu	EtBz	Xyls	BTEX TOTAL
Eqpmnt blank	ND	ND	ND	0.001	0.001
Upper Pond	0.002	0.007	0.002	0.010	0.021
Lower Pond	0.002	0.006	0.008	0.026	0.042
MW-5	ND	0.015	ND	0.004	0.019
MW-7	0.200	0.729	1.70	6.60	9.23
MW-10	0.021	0.072	0.510	6.41	7.01
MW-13	0.004	0.020	0.012	0.018	0.054
MW-15	ND	0.003	0.003	ND	0.006
MW-17	ND	ND	ND	ND	ND
MW-21	0.027	0.023	0.640	3.33	4.02
MW-25	ND	ND	ND	ND	ND
MW-28	0.014	0.033	0.018	0.027	0.092
MW-31	ND	ND	ND	ND	ND
MW-32	0.006	0.011	0.024	0.277	0.318
MW-33	0.011	0.022	0.322	1.95	2.31
MW-34	0.415	0.430	0.681	28.9	30.4
MW-36	ND	0.002	0.003	0.008	0.013
MW-38	0.564	1.14	1.04	36.4	39.1

NOTES

1. Unit of data is mg/L.
2. ND = not detected at or above reporting limit.
3. Benz = benzene, Tolu = toluene, EtBz = ethylbenzene, Xyls = xylenes,
4. Reporting limit for benzene, toluene, ethylbenzene, and each xylene is 0.001 mg/L.

Comments:

Sampled by: Amoco GMS - K. P. Heaton

Date analyzed: 09/10/92 Checked by: T. G. Miller

AMOCO CORPORATION: GROUNDWATER MANAGEMENT SECTION

ANALYTICAL RESULTS FOR TOTAL PETROLEUM HYDROCARBONS

Location: Gallegos Canyon Unit#181, Sec.24-T29N-R12W, San Juan Basin, NM

Lab#: 92W1133 Method: Amoco Modified 8015

Date sampled: 09/08/92 Date received: 09/08/92

Sample ID	Volatiles	Semi-Volatiles
Eqpmnt blank	ND	ND
Upper Pond	ND	ND
Lower Pond	ND	ND
MW-5	ND	ND
MW-7	92	25
MW-10	15	ND
MW-13	1	ND
MW-15	ND	ND
MW-17	ND	ND
MW-21	8	ND
MW-25	ND	ND
MW-28	3	ND
MW-31	ND	ND
MW-32	1	ND
MW-33	8	ND
MW-34	98	44
MW-36	ND	ND
MW-38	208	29

NOTES

1. ND = Not Detected at or above reporting limit.
2. The reporting limit for TPH by GC is 1 mg/L for volatiles and 5 mg/L for semi-volatiles.

Comments:

Date analyzed: 09/10/92 Checked by: T. G. Miller

AMOCO CORPORATION: GROUNDWATER MANAGEMENT SECTION

ANALYTICAL RESULTS FOR DISSOLVED HYDROCARBONS

Location: GCU #181 (APC), Farmington, NM

Lab#: 92W1273 Method: Amoco Modified 8015

Date sampled: 10/1,5,7/92 Date received: 10/08/92

Sample ID	Benz	Tolu	EtBz	Xyls	BTEX TOTAL	
Travel blank1	ND	ND	ND	0.001	0.001	
Travel blank2	ND	ND	ND	ND	ND	
Drainage D-N	ND	0.001	0.006	0.021	0.028	.049
Drainage D-S	0.029	0.005	0.005	0.010	0.049	.121
MW-5	ND	ND	ND	ND	ND	.014
MW-10	ND	0.330	0.809	4.34	5.48	7.01
MW-13	0.006	0.007	0.006	0.012	0.031	.054
MW-15	ND	0.002	ND	ND	0.002	.006
MW-17	ND	ND	ND	ND	ND	ND
MW-21	0.038	0.106	0.540	1.48	2.16	> 4.02
MW-21 Dup.	0.038	0.099	0.505	1.40	2.03	
MW-25	ND	ND	ND	ND	ND	ND
MW-28	ND	0.034	0.010	0.065	0.109	.092
MW-31	ND	ND	ND	ND	ND	ND
MW-32	0.050	0.109	0.047	0.315	0.521	.318
MW-33	ND	0.135	0.346	1.34	1.82	2.31
MW-34	0.351	0.395	0.546	10.3	11.6	30.4
MW-36	ND	0.001	0.003	0.005	0.009	.013

MW-38	0.621	0.254	0.407	6.76	8.04	39.1
MW-38 B	0.571	0.124	0.287	9.16	10.1	

NOTES
1. Unit of data is mg/L.
2. ND = not detected at or above reporting limit.
3. Benz = benzene, Tolu = toluene, EtBz = ethylbenzene, Xyls = xylenes,
4. Reporting limit for benzene, toluene, ethylbenzene, and each xylene is 0.001 mg/L.

Comments: Sample MW-7 was not received. Two samples labeled MW-38 were received, but collected on different dates and by different collectors.

Sampled by: Envirotech - Tommy Covington & Mike Eason

Date analyzed: 10/12/92 Checked by: T. G. Miller

AMOCO CORPORATION: GROUNDWATER MANAGEMENT SECTION

ANALYTICAL RESULTS FOR TOTAL PETROLEUM HYDROCARBONS

Location: GCU #181 (APC), Farmington, NM

Lab#: 92W1273 Method: Amoco Modified 8015

Date sampled: 10/1-7/92 Date received: 10/08/92

Sample ID	Volatiles	Semi-Volatiles
Travel blank1	ND	ND
Travel blank2	ND	ND
Drainage D-N	ND	ND
Drainage D-S	ND	ND
MW-5	ND	ND
MW-10	46	8
MW-13	ND	ND
MW-15	ND	ND
MW-17	ND	ND
MW-21	17	ND
MW-21 Dup.	17	ND
MW-25	ND	ND
MW-28	2	ND
MW-31	ND	ND
MW-32	3	ND
MW-33	20	ND
MW-34	80	19
MW-36	ND	ND
MW-38	61	11

MW-38 B 35 5

NOTES
1. ND = Not Detected at or above reporting limit.
2. The reporting limit for TPH by GC is 1 mg/L for volatiles and 5 mg/L for semi-volatiles.

Comments:

Date analyzed: 10/12/92 Checked by: T. G. Miller

GROUNDWATER MANAGEMENT SECTION
AMOCO CORPORATION - ENVIRONMENTAL AFFAIRS AND SAFETY
FLUID AND SOIL SAMPLE TRANSMITTAL FORM

SEND SAMPLES TO:

GROUNDWATER MANAGEMENT LABORATORY
7201 E. 38th ST., SPACE 7253
TULSA, OK 74145

PHONE: (918) 660-4420 FAX: (918) 660-4443

FROM:

(Please Print) _____
AMOCO OPERATING COMPANY

_____
AMOCO MARKETING DISTRICT OFFICE (IF APPLICABLE)

_____
AMOCO REPRESENTATIVE AUTHORIZING WORK

ENVIROTECH, INC
CONSULTING FIRM

MICHAEL K. LANE (505) 632-0615
CONSULTING FIRM - PROJECT MANAGER TEL #

5796 USHWY 64-3014
STREET ADDRESS / MAILING ADDRESS

FARMINGTON NM 87401
CITY STATE ZIP

RESULTS TO: ☒ AMOCO ☐ CONSULTANT ☐ OTHER (PROVIDE INFO BELOW)

NAME KEVIN P. HEATON

ADDRESS ENVIRONMENTAL AFFAIRS & SAFETY
GROUNDWATER MANAGEMENT SECTION
7201 EAST 38TH ST, SPACE 7253
TULSA, OK 74145
CITY STATE ZIP

LOCATION SAMPLED: Gallegos Canyon Unit # 181 (APC) (Use AMOCO Facility Numbers When Known)

FACILITY NAME GCU 181 AMOCO FACILITY # _____

ADDRESS STREET _____ CITY FARMINGTON STATE NM

RESULTS REQUESTED:

GROUNDWATER:	SOIL:	PRODUCT:
X BTEX	____ BTEX	PRODUCT
____ MTBE	____ MTBE	____ CHARACTERIZATION
X TPH	____ TPH	____ LEAD CONTENT
____ OTHER		

DATE RESULTS REQUIRED: _____

☐ INDICATE HERE IF ***DRINKING WATER SAMPLES***

NUMBER OF SAMPLES SHIPPED: 15

COLLECTED FROM:

X OBSERVATION WELL	____ DISCHARGE POINT
____ RECOVERY WELL	____ WATER TAP
____ WATER WELL	____ STREAM
____ TEST BORING	____ TANK
____ SEPARATOR	____ PIT
____ OTHER	

DATE COLLECTED 10-1 / 10-2 / 10-5-92 / 10-7-92
BY TOMMY GOODWIN / MIKE EASON

DATE SHIPPED _____
BY MRE
VIA _____

REASON FOR SAMPLING OR ADDITIONAL INFORMATION & REMARKS: _____

SHIPPED BY: Michael D. Eason 10-7-92
SIGNATURE DATE

RECEIVED BY: _____ _____
SIGNATURE DATE

PLEASE ATTACH COMPLETED ORIGINAL 'CHAIN OF CUSTODY' FORM

GROUNDWATER MANAGEMENT SECTION

AMOCO CORPORATION - ENVIRONMENTAL AFFAIRS AND SAFETY

CHAIN OF CUSTODY RECORD

PAGE _____ OF _____

LOCATION SAMPLED: (Use AMOCO Facility Numbers When Known)

FACILITY NAME GCU 181 AMOCO FACILITY # _____

ADDRESS STREET _____ CITY FARMINGTON STATE NM

SAMPLER MICHAEL T. GRAYSON AFFILIATION ENVIROTECH, INC

SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	SAMPLE TYPE (SOIL, WATER, PRODUCT)	PRESERVATION METHOD (FREON, ICE PACKS, NONE)	SAMPLE CONTAINER DESCRIPTION	NUMBER OF VIALS	ANALYSES REQUESTED
MW # 25	10-5-92	0945	WATER	FREON	40ml VOL	1	BTEX + TPH
MW # 13	10-5-92	1045	WATER	FREON	40ml VOL	1	BTEX + TPH
DRAINAGE DITCH - N. SIDE	10-5-92	1120	WATER	FREON	40ml VOL	1	BTEX + TPH
MW #15	10-5-92	1146	WATER	FREON	40ml VOL	1	BTEX + TPH
MW #17	10-5-92	1300	WATER	FREON	40ml VOL	1	BTEX + TPH
DRAINAGE DITCH - S. SIDE	10-5-92	1425	WATER	FREON	40ml VOL	1	BTEX + TPH
MW #38	10-7-92	1430	WATER	FREON	40ml VOL	1	BTEX + TPH
MW #21	10-7-92	1510	WATER	FREON	40ml VOL	2	BTEX + TPH
TRAVEL BLANK #1	10-5-92	–	–	FREON	2ml VIAL	1	
TRAVEL BLANK #2	10-7-92	–	–	FREON	2ml VIAL	1	
Mw #38 B							

REMARKS:

1. RELINQUISHED BY:	1. DATE	1. RECEIVED BY:	3. RELINQUISHED BY:	3. DATE	3. RECEIVED BY:
Michael T. Grayson	10-7-92				
2. RELINQUISHED BY:	2. DATE	2. RECEIVED BY:	4. RELINQUISHED BY:	4. DATE	4. RECEIVED BY:

GROUNDWATER MANAGEMENT SECTION

AMOCO CORPORATION - ENVIRONMENTAL AFFAIRS AND SAFETY

CHAIN OF CUSTODY RECORD

PAGE ____ OF ____

LOCATION SAMPLED: (Use AMOCO Facility Numbers When Known)

FACILITY NAME GCU 181 AMOCO FACILITY # ____

ADDRESS STREET ____ CITY FARMINGTON STATE NM

SAMPLER TOMMY COUDINGTON / RAY BENALLY AFFILIATION ENVIROTECH, INC

SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	SAMPLE TYPE (SOIL, WATER, PRODUCT)	PRESERVATION METHOD (FREON, ICE PACKS, NONE)	SAMPLE CONTAINER DESCRIPTION	NUMBER OF VIALS	ANALYSES REQUESTED
MW #33	10-1-92	1125	WATER	FREON	40ml VOL	1	BTEX + TPH
[illegible] # 34	10-1-92	1325	WATER	FREON	40ml VOL	1	BTEX + TPH
MW #36	10-1-92	1420	WATER	FREON	40ml VOL	1	BTEX + TPH
MW #5	10-2-92	1130	WATER	FREON	40ml VOL	1	BTEX + TPH
MW #7 None	10-2-92	1330	WATER	FREON	40ml VOL	1	BTEX + TPH
MW #10	10-2-92	1405	WATER	FREON	40ml VOL	1	BTEX + TPH
MW #32	10-2-92	1430	WATER	FREON	40ml VOL	1	BTEX + TPH
MW #31	10-2-92	1445	WATER	FREON	40ml VOL	1	BTEX + TPH
MW #28	10-2-92	1315	WATER	FREON	40ml VOL	1	BTEX + TPH

REMARKS: MW# 7 not sent ; Two MW #38 samples sent (different dates + collectors), but only one MW#38 listed

1. RELINQUISHED BY:	1. DATE	1. RECEIVED BY:	3. RELINQUISHED BY:	3. DATE	3. RECEIVED BY:
Tommy Coddington	10-7-92			10-8-92	[signature]
2. RELINQUISHED BY:	2. DATE	2. RECEIVED BY:	4. RELINQUISHED BY:	4. DATE	4. RECEIVED BY:

AMOCO CORPORATION: GROUNDWATER MANAGEMENT SECTION

ANALYTICAL RESULTS FOR DISSOLVED HYDROCARBONS

Location: Gallegos Canyon Unit 181, Farmington, NM

Lab#: 93W0015 Method: Amoco Modified 8015

Date sampled: 01/05/93 Date received: 01/07/93

Sample ID	Benz	Tolu	EtBz	Xyls	BTEX TOTAL
Trip blank	ND	ND	ND	ND	ND
MW-5	ND	ND	ND	ND	ND
MW-7	ND	ND	1.90	11.5	13.4
MW-10	ND	ND	0.393	2.88	3.27
MW-13	ND	ND	0.006	0.024	0.030
MW-15	ND	ND	ND	ND	ND
MW-17	ND	ND	ND	ND	ND
MW-21	0.031	ND	0.194	0.461	0.686
MW-25	ND	ND	ND	ND	ND
MW-28	ND	ND	0.014	0.091	0.105
MW-28 Dup.	ND	ND	0.017	0.101	0.118
MW-31	ND	ND	ND	ND	ND
MW-32	0.023	0.088	0.021	0.119	0.251
MW-33	ND	ND	0.021	0.080	0.101
MW-36	ND	ND	0.003	0.003	0.006

NOTES

1. Unit of data is mg/L.
2. ND = not detected at or above reporting limit.
3. Benz = benzene, Tolu = toluene, EtBz = ethylbenzene, Xyls = xylenes,
4. Reporting limit for benzene, toluene, ethylbenzene, and each xylene is 0.001 mg/L.

Comments:

Sampled by: Envirotech - Tom Coddington

Date analyzed: 01/10/93 Checked by: T. G. Miller

AMOCO CORPORATION: GROUNDWATER MANAGEMENT SECTION

ANALYTICAL RESULTS FOR DISSOLVED HYDROCARBONS

Location: Gallegos Canyon Unit 181, Farmington, NM

Lab#: 93W0455 Method: Amoco Modified 8015

Date sampled: 04/15/93 Date received: 04/19/93

Sample ID	Benz	Tolu	EtBz	Xyls	BTEX TOTAL
Trip blank	ND	ND	ND	ND	ND
North pond	0.008	0.019	0.021	0.069	0.117
South pond	0.009	0.020	0.004	0.032	0.065
MW #5	ND	ND	ND	ND	ND
MW #7	0.009	ND	0.628	2.67	3.31
MW #10	0.005	ND	0.447	1.89	2.34
MW #13	ND	ND	0.002	0.003	0.005
MW #13 Dup.	ND	ND	0.003	0.002	0.005
MW #15	ND	ND	ND	ND	ND
MW #17	ND	ND	ND	ND	ND
MW #21	0.023	ND	0.004	0.016	0.043
MW #25	ND	ND	ND	ND	ND
MW #28	ND	ND	0.013	0.026	0.039
MW #31	ND	ND	ND	ND	ND
MW #32	0.030	0.127	0.032	0.193	0.382
MW #33	0.023	ND	0.014	0.023	0.060
MW #34	0.596	ND	0.229	12.1	12.9
MW #36	ND	ND	0.002	0.002	0.004
MW #38	0.595	ND	0.211	11.0	11.8

AMOCO CORPORATION: GROUNDWATER MANAGEMENT SECTION

ANALYTICAL RESULTS FOR PETROLEUM HYDROCARBONS IN WATER

Location: Gallegos Canyon Unit 181, Farmington, NM

Lab#: 93W0455 Method: Amoco Modified 8015

Date sampled: 04/15/93 Date received: 04/19/93

Sample ID	Volatiles	Semi-Volatiles
Trip blank	ND	ND
North pond	ND	ND
South pond	ND	ND
MW #5	ND	ND
MW #7	12	3
MW #10	6	1
MW #13	ND	ND
MW #13 Dup.	ND	ND
MW #15	ND	ND
MW #17	ND	ND
MW #21	1	ND
MW #25	ND	ND
MW #28	ND	ND
MW #31	ND	ND
MW #32	ND	ND
MW #33	1	ND
MW #34	30	9
MW #36	ND	ND

MW #38	18	2

NOTES
1. Unit of data is mg/L.
2. ND = Not Detected at or above reporting limit.
3. The reporting limit for TPH by GC is 1 mg/L for volatiles and 1 mg/L for semi-volatiles.

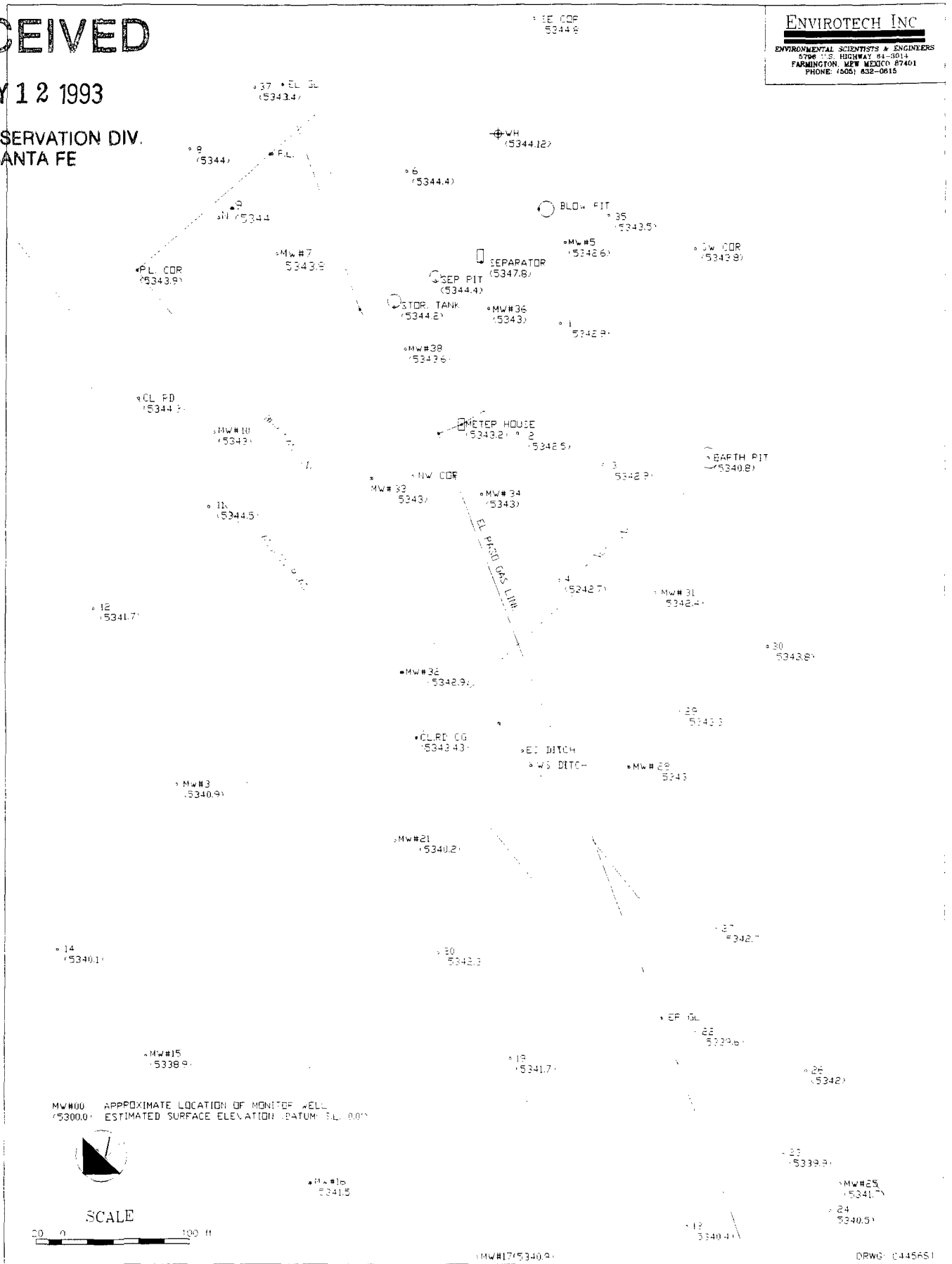
Comments:

Date analyzed: 04/22/93 Checked by: T. G. Miller

CIB:cib
93125DEN0023

May 5, 1993

ENVIROTECH INC
ENVIRONMENTAL SCIENTISTS & ENGINEERS
5796 U.S. HIGHWAY 64-3014
FARMINGTON, NEW MEXICO 87401
PHONE: (505) 632-0615



MW#00 APPROXIMATE LOCATION OF MONITOR WELL
(5300.0) ESTIMATED SURFACE ELEVATION (DATUM: S.L. 0.0')

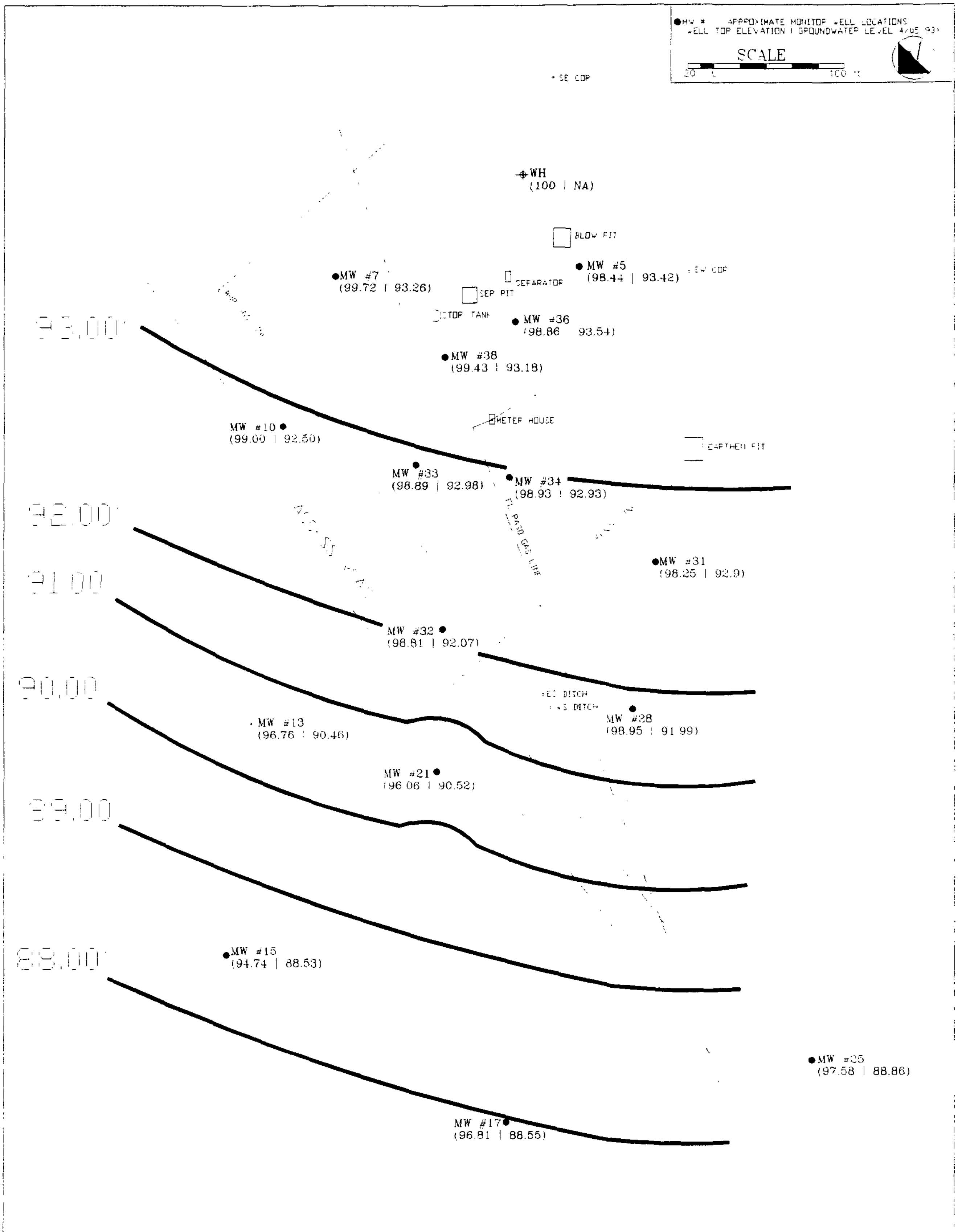
SCALE
20 0 100 ft

DRWG: 0445651

AMOCO PRODUCTION COMPANY
GALLEGOS CANYON UNIT 181
SEC 34 TWP 29N RNG 12W
SAN JUAN COUNTY, NEW MEXICO

SITE ASSESSMENT PLAN
ELEVATIONS & LOCATION
TEST HOLES & MONITOR WELLS

SHEET 1
DRAWN 5 18 93
DRAWN BY JW
PROJ MGR: JW



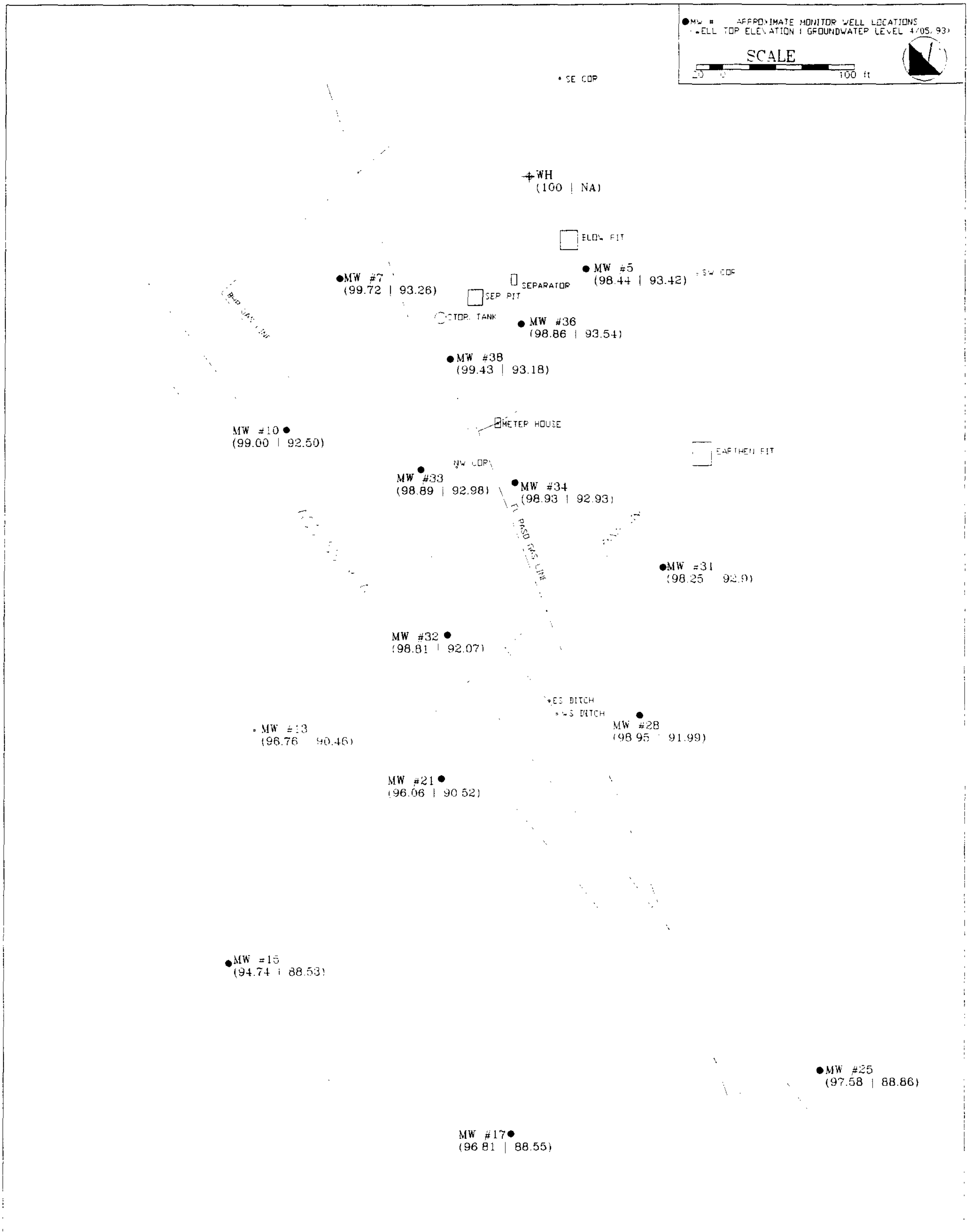
ALL DISTANCES AND ELEVATIONS HAVE BEEN DETERMINED BY SIGHTING, PACING, AND SURVEYING. MEASUREMENTS ARE NO MORE ACCURATE THAN THE METHOD USED.

AMOCO PRODUCTION COMPANY
GALLEGOS CANYON UNIT 181
SEC 34 TWP 29N RNG 12W
SAN JUAN COUNTY, NEW MEXICO

GROUNDWATER FLOW DIRECTION
GROUNDWATER CONTOUR MAP

SHEET:
DRAWN
DRAWN BY
PRJ MGR

ENVIROTECH INC
ENVIRONMENTAL SCIENTISTS & ENGINEERS
5796 U.S. HIGHWAY 64-3014
FARMINGTON, NEW MEXICO 87401
PHONE: (505) 632-0615



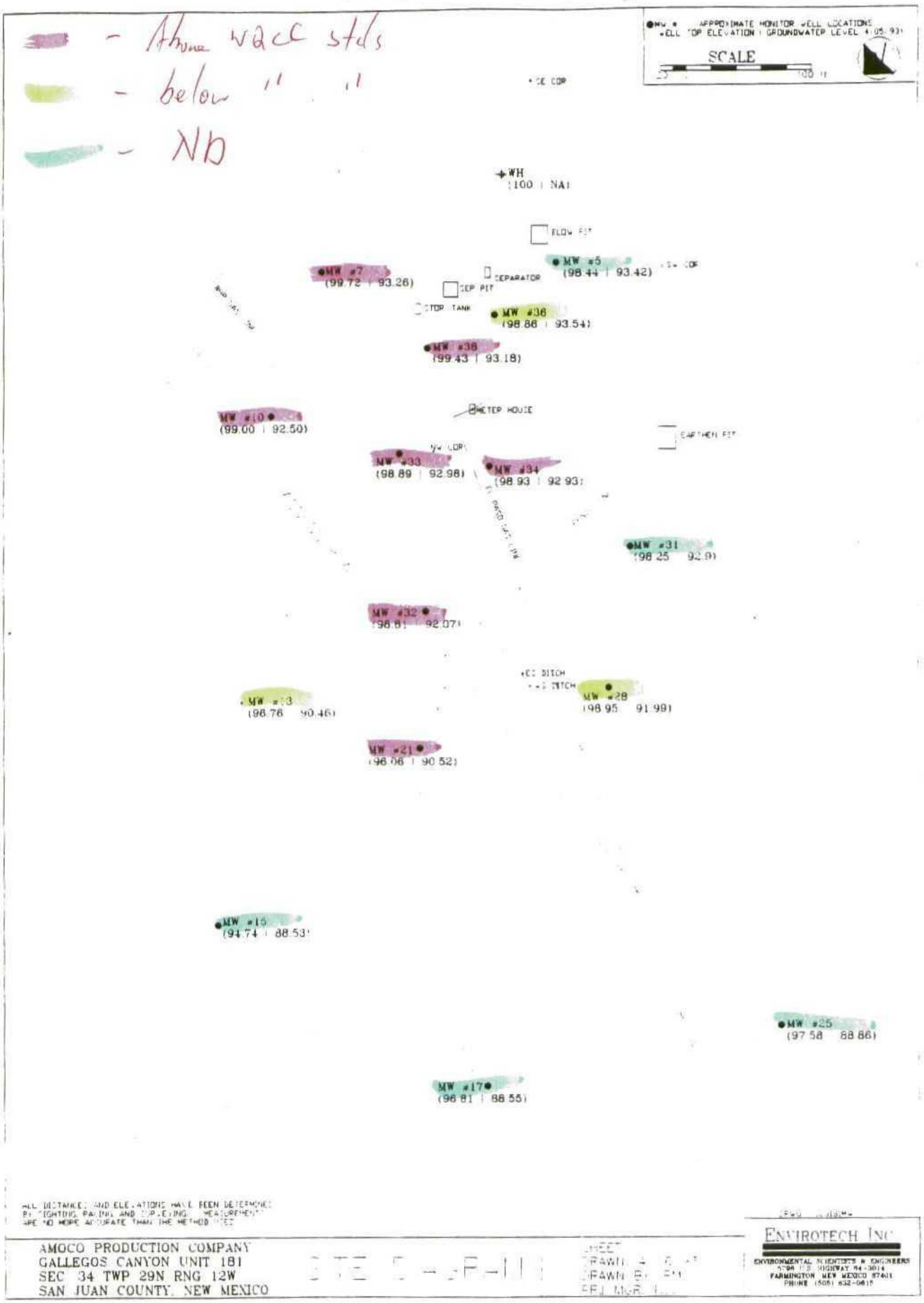
ALL DISTANCES AND ELEVATIONS HAVE BEEN DETERMINED BY SIGHTING, PACING AND SURVEYING. MEASUREMENTS ARE NO MORE ACCURATE THAN THE METHOD USED.

DRWG: GC181MW

AMOCO PRODUCTION COMPANY GALLEGOS CANYON UNIT 181 SEC 34 TWP 29N RNG 12W SAN JUAN COUNTY, NEW MEXICO	SITE DIAGRAM	SHEET DRAWN 4 DRAWN BY PRJ MGR	ENVIROTECH INC ENVIRONMENTAL SCIENTISTS & ENGINEERS 5796 U.S. HIGHWAY 64-3014 FARMINGTON, NEW MEXICO 87401 PHONE: (505) 632-0615

Amoco 4/15/93 sampling

- Above WQCC stds
- below " "
- ND



ALL DISTANCES AND ELEVATIONS HAVE BEEN DETERMINED BY SURVEYING, PACING AND TAPE-ING. MEASUREMENTS ARE NO MORE ACCURATE THAN THE METHOD USED

AMOCO PRODUCTION COMPANY
GALLEGOS CANYON UNIT 181
SEC 34 TWP 29N RNG 12W
SAN JUAN COUNTY, NEW MEXICO

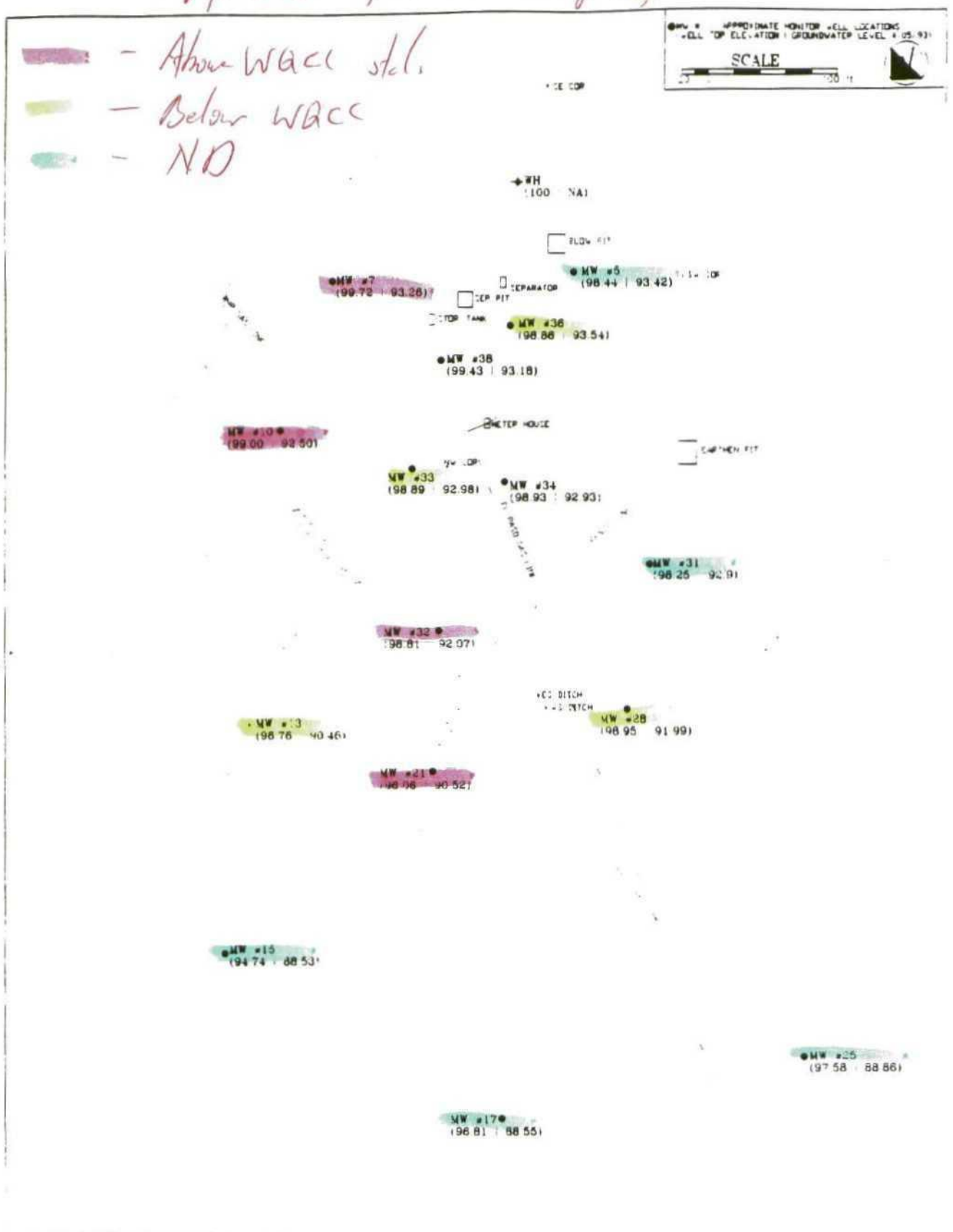
SITE PLAN

SHEET
DRAWN
DRAWN BY
REVISED

ENVIROTECH INC
ENVIRONMENTAL SCIENTISTS & ENGINEERS
5796 U.S. HIGHWAY 64-3014
FARMINGTON, NEW MEXICO 87401
PHONE (505) 632-0615

Amoco 1/5/93 sampling

- Above WQCC std.
- Below WQCC
- ND

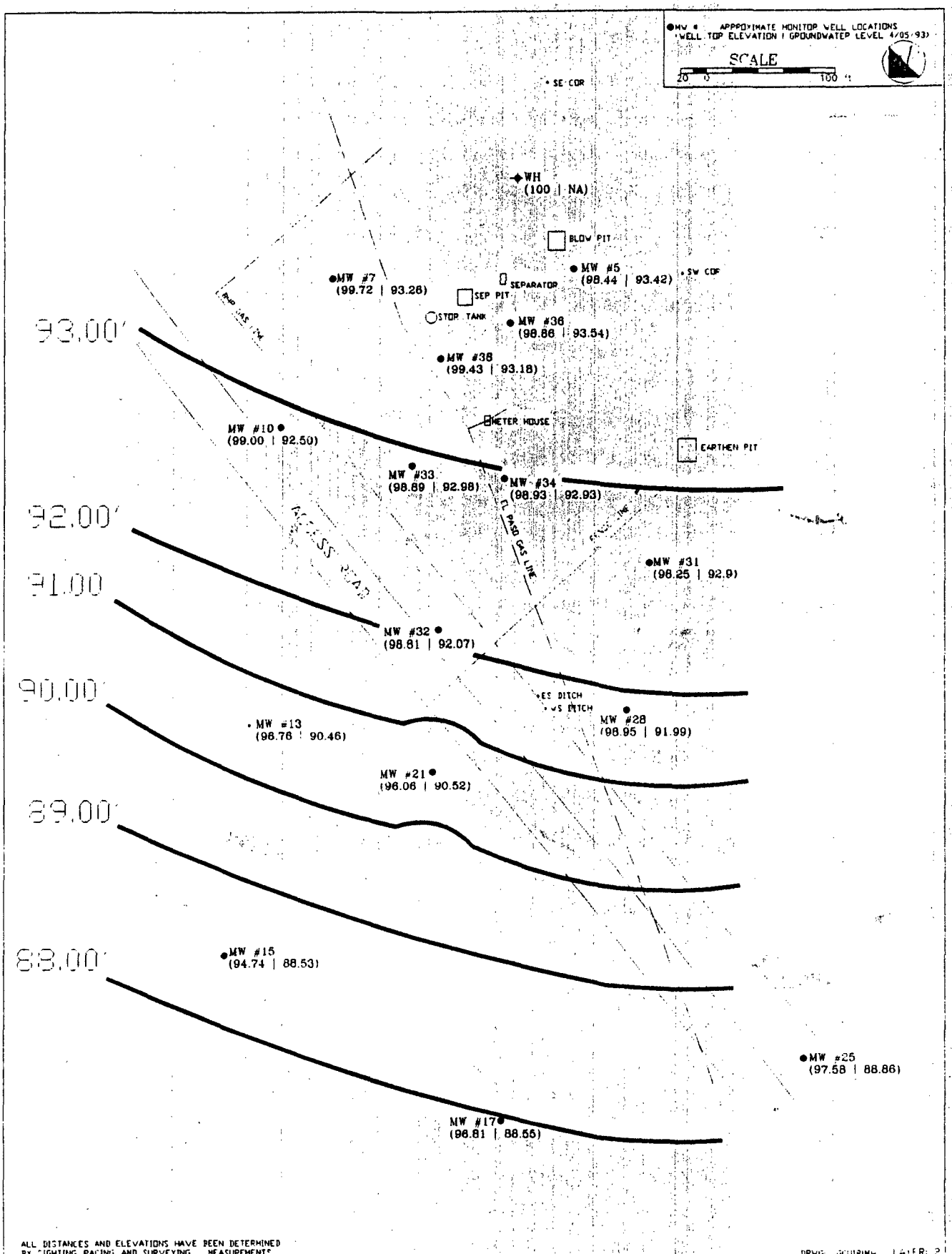


ALL DISTANCE AND ELEVATIONS HAVE BEEN DETERMINED BY TIGHTLINE PATH AND LEVELING MEASUREMENTS ARE NO MORE ACCURATE THAN THE METHOD USED

AMOCO PRODUCTION COMPANY
GALLEGOS CANYON UNIT 181
SEC 34 TWP 29N RNG 12W
SAN JUAN COUNTY, NEW MEXICO

SHEET
DRAWN
DRAWN

ENVIROTECH INC
ENVIRONMENTAL SCIENTISTS & ENGINEERS
FARMINGTON, NEW MEXICO



ALL DISTANCES AND ELEVATIONS HAVE BEEN DETERMINED BY SIGHTING, PACING AND SURVEYING. MEASUREMENTS ARE NO MORE ACCURATE THAN THE METHOD USED.

DRWG: GCU181MW LAYER: 2

AMOCO PRODUCTION COMPANY
GALLEGOS CANYON UNIT 181
SEC. 34 TWP 29N RNG 12W
SAN JUAN COUNTY, NEW MEXICO

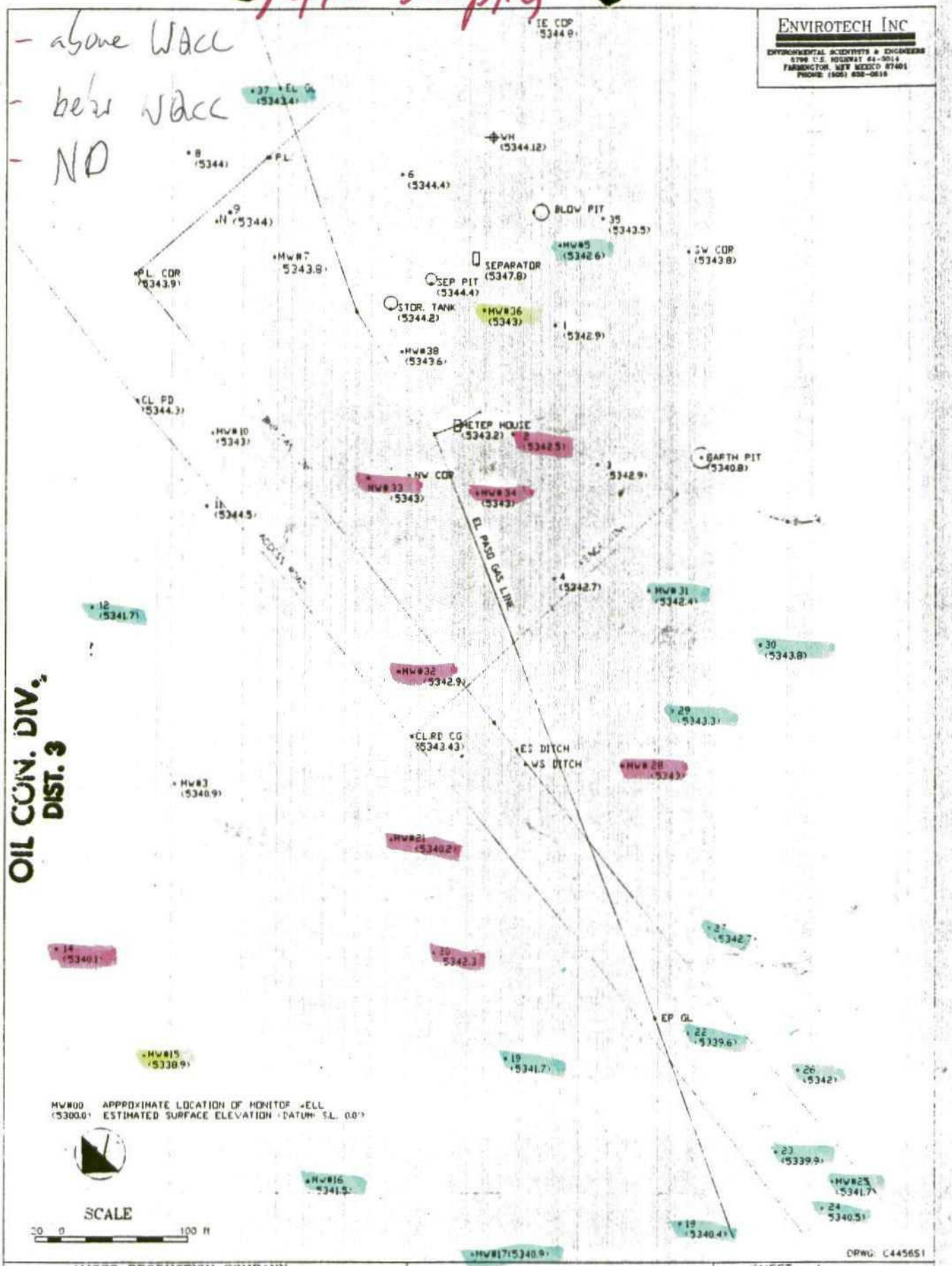
GROUNDWATER FLOW DIRECTION
GROUNDWATER CONTOUR MAP

SHEET:
DRAWN: 4/16/93
DRAWN BY: PJL
PRJ MGR: TJL

ENVIROTECH INC
ENVIRONMENTAL SCIENTISTS & ENGINEERS
5796 U.S. HIGHWAY 64-3014
FARMINGTON, NEW MEXICO 87401
PHONE: (505) 632-0615

8/6/92 sampling

- above WQCC
- below WQCC
- ND



9/4/92 sampling

- above WQCC std.
- below " "
- ND

ALL DISTANCES AND ELEVATIONS HAVE BEEN DETERMINED BY LIGHTING PAINS AND SURVEYING. MEASUREMENTS ARE NO MORE ACCURATE THAN THE METHOD USED.

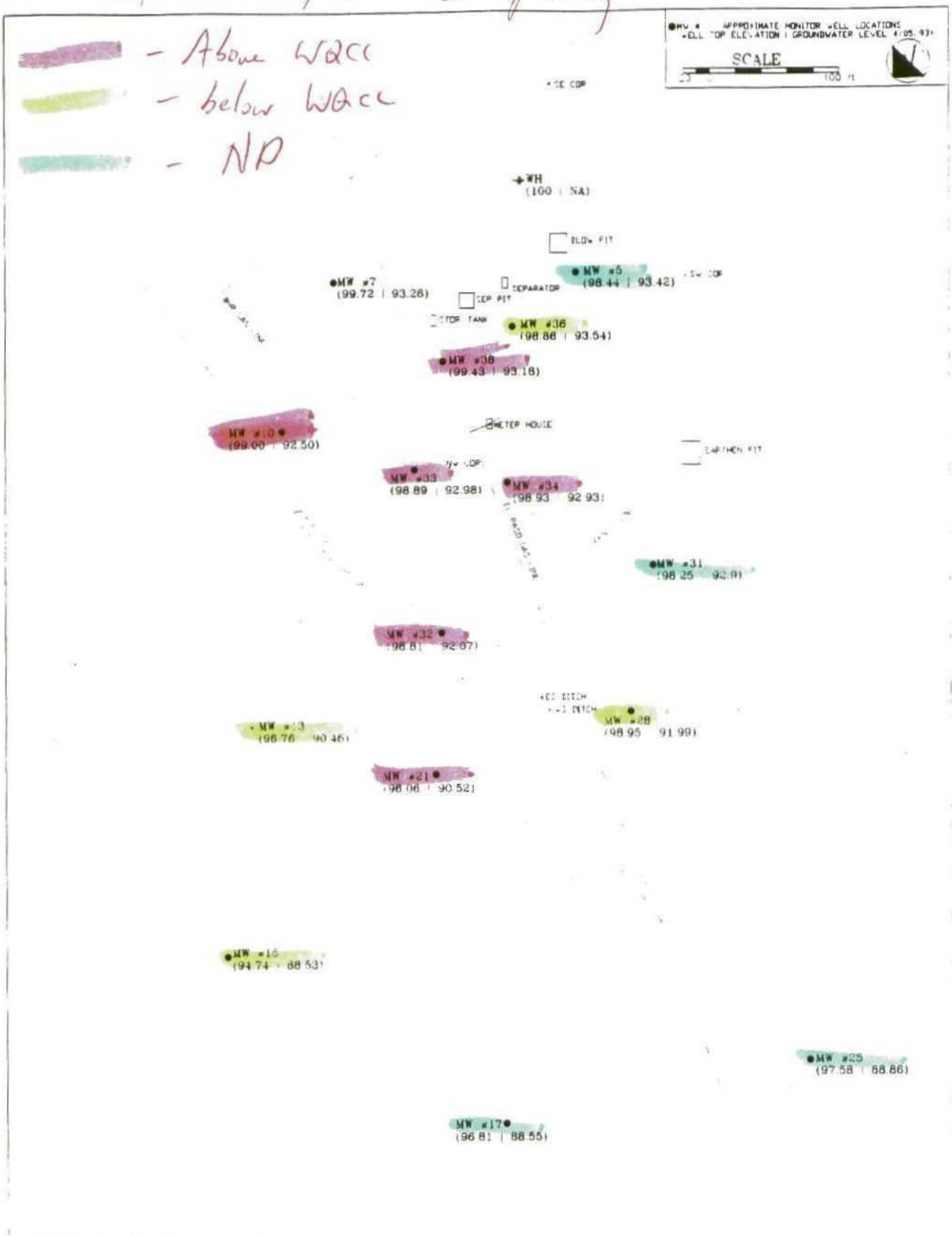
AMOCO PRODUCTION COMPANY
GALLEGOS CANYON UNIT 181
SEC 34 TWP 29N RNG 12W
SAN JUAN COUNTY, NEW MEXICO

SITE PLAN

SHEET
DRAWN BY
PROJ MGR

ENVIROTECH INC
ENVIRONMENTAL SCIENTISTS & ENGINEERS
5796 U.S. HIGHWAY 64-3014
FARMINGTON, NEW MEXICO 87401
PHONE (505) 632-0615

Amoco 10/92 Sampling



ALL DISTANCES AND ELEVATIONS HAVE BEEN DETERMINED BY SIGHTING, PACING AND SURVEYING MEASUREMENTS ARE NO MORE ACCURATE THAN THE METHOD USED

AMOCO PRODUCTION COMPANY
GALLEGOS CANYON UNIT 181
SEC 34 TWP 29N RNG 12W
SAN JUAN COUNTY, NEW MEXICO

ENVIROTECH INC
ENVIRONMENTAL SCIENTISTS & ENGINEERS
FARMINGTON NEW MEXICO
PHONE (505) 632-0615

El Paso Natural Gas Company

P. O. BOX 4990
FARMINGTON, NEW MEXICO 87499
PHONE: 505-325-2841

March 31, 1992

Mr. Buddy Shaw
San Juan Operations Center
AMOCO Production Company
200 Amoco Court
Farmington, NM 87401

Re: Gallegos Canyon 181-I

Dear Buddy:

Please accept this letter as confirmation and summary of our discussions/meetings on March 26, and March 31, 1992.

March 26, 1992, meeting at our offices

In brief, we began by discussing the work that had occurred in and around EPNG's 6K-2 lateral and around AMOCO's tanks. You stated that you were not completely satisfied with our gas leak survey to discount EPNG's lateral from being a potential source to the area's contamination. In response to that, we reviewed two mechanical tests which could determine the pipe's integrity. The test methods proved to be impractical due to the possibility of leaky valves or excessive implementation costs. Thus, we (EPNG) arrived at the decision that the only practical method to determine if this section of the lateral was leaking, was to dig around the pipeline.

Based on site observations, we thought the pipeline was below the water table. Digging to free water (approximately 5 to 6 feet) would easily determine if there was a leak. You stated that this procedure would suffice as demonstration to you whether or not the lateral was a potential contributor to the contamination.

Further, we reached an understanding that if no leak was revealed using the above procedure, AMOCO would pursue site remediation, and EPNG would no longer be involved. Conversely, if a leak was detected, EPNG would continue to be involved with future site remediation.

March 31, 1992 meeting at Gallegos Canyon 181-I

After digging around the pipe for two days, it was revealed that the water table was immediately below the pipe. We had previously speculated the water table was above the pipe. Nonetheless, the excavation began by exposing all of the pipe. The digging started on the eastern boundary of the contaminated site and continued up to the dog-leg.

Upon your inspection of the ditch and pipe, you informed me that you were satisfied that the lateral had not contributed to the area's contamination due the absence of a leak in the pipe.

Further, the walls of the ditch appeared to indicate that the most saturated area was around the underground tank site. Mr. Jim Bishop also showed you the operating pressures on the lateral during the previous 48 hours. The pressures had ranged from 293 to 219 psig.

We agreed to leave the ditch open through the night and begin ditch closure on the morning of April 1, 1992.

Should you have any clarifications or questions on the above statements, please do not hesitate to contact me at 599-2175.

Sincerely,

Richard Duarte

Richard Duarte
Sr. Compliance Engineer

cc: Mr. Denny Foutz
District III
Oil Conservation Division
1000 Brazos Rd.
Aztec, NM 87410

NA - District
10/27/92