2R - 6

GENERAL CORRESPONDENCE

YEAR(S):
2004-1993

Delta
Environmental
Consultants, Inc.

840 Central Parkway East
Suite 120
Plano, Texas 75074-5551
U.S.A.
972/516-0890
FAX: 972/516-0893

August 27, 2004

Mr. Jack Ford
New Mexico Oil Conservation Division – Environmental Bureau
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

RE: **Annual Groundwater Monitoring Report – 2004**
B.P. Pipelines (N.A.) - Artesia Tank Farm
Approximately 12 Miles Southeast of Artesia
Artesia, Eddy County, New Mexico
Delta Project No. F002-007

Dear Mr. Ford:

On behalf of Atlantic Richfield (A BP Affiliated Company), Delta Environmental Consultants, Inc. has prepared the Annual Groundwater Monitoring Report – 2004 for the above-referenced property. An electronic copy of this report will follow.

Please direct correspondence concerning this site to Mr. Mike Whelan at the address shown below with a copy to me at the letterhead address.

Mike Whelan
Atlantic Richfield Company
(A BP Affiliated Company)
501 Westlake Park Blvd.
Room 17.108
Houston, TX 77079
281-366-7485
whelamr@bp.com

Respectfully,

Michael Henn
Project Manger
Delta Environmental Consultants, Inc.

Cc: Mike Whelan, Atlantic Richfield - Environmental Business Manager

Jim Lutter, BP Pipelines (NA), Inc. – HSE Coordinator – w/o attachments

04-28-03

Mr. Jack Ford
New Mexico Oil Conservation Division – Environmental Bureau
1220 So. St. Francis Drive
Santa Fe, New Mexico 87505

RE: B.P. Pipelines, (N.A.)
Artesia Station Leak Site
Artesia, New Mexico

Dear Mr. Ford:

On behalf of B.P. Pipelines North America (B.P.), the following is to serve as notification of the transition of project management and field services between Delta Environmental Consultants, Inc. (Delta) and Bascor Environmental, Inc. (Bascor) at the above-referenced property. This communication serves to align current field operations at the above-referenced property with the strategic objectives for the management of liabilities associated with a release(s) of petroleum compounds from a pipeline system currently owned by B.P.

As of May 1, 2003, Delta, specifically Mr. Michael Henn, will maintain oversight of project management and field activities, under the direct supervision of Mr. Mark Smith, Delta Senior Specialist, and Mr. Bob Baumgartner, Delta Unit Manager. As necessary, communications with Bascor and CMB Environmental and Geological Services, Inc. will be maintained. Please feel free to contact Mr. Henn at (972) 516-1004 with any questions and/or concerns.

Respectfully,

Michael Henn
Project Manger
Delta Environmental Consultants, Inc.

Cc: Mr. Mark Smith, Delta
Mr. Bob Baumgartner, Delta
Mr. Sam Senn, Bascor

May 23, 2002

W. Jack Ford, C.P.G.
New Mexico Oil Conservation Division
2040 S. Pacheco
Santa Fe, New Mexico 87505

Re: Transmittal of Seventh Annual Report (2002), BP Pipelines (North America) Inc.
Artesia, New Mexico Station

Dear Mr. Ford:

This letter serves as the transmittal for the electronic (CD) copy of the Annual Report for the subject site postmarked May 23, 2002. The report contains information on all data collected and other activities at the site since the last annual report was submitted, including the request for abandonment of 6 monitoring wells, as we discussed at our January 2002 meeting.

BP Pipelines (North America) Inc. appreciates your review of this report and any comments on our request for well abandonment or other items in the report. We are also sending a CD to Mr. Mike Stubblefield of the OCD Artesia office. If you have any questions regarding this status report, please give me a call at (847) 577-1980.

Sincerely,

Randy Senn, CGWP
Principal Hydrogeologist

cc: Ray Glover Jr., BP Pipelines (North America) Inc. (w/o report)
Mike Stubblefield, NM OCD (1 electronic copy)
Mark Smith, Delta Environmental Consultants, Inc. (1 hard copy)

BASCOR Environmental, Inc.
consulting engineers and scientists

October 25, 2001

W. Jack Ford, C.P.G.
New Mexico Oil Conservation Division
2040 S. Pacheco
Santa Fe, New Mexico 87505

Re: Transmittal of CD Containing Electronic Version of Sixth Annual Report (2001), BP Pipelines (North America) Inc. Artesia, New Mexico Station

Dear Mr. Ford:

As requested, we have enclosed a compact disk containing the subject report that was sent (hardcopy) to your office on August 27, 2001. All future reports for this site will be submitted both as hardcopy and on a CD.

BP Pipelines (North America) Inc. appreciates your review of this report and comments on our closure recommendations. If you have any questions regarding this status report, please give me a call at (847) 577-1980.

Sincerely,

Randy Senn, CGWP
Principal Hydrogeologist

cc: Ray Glover Jr., BP Pipelines (North America) Inc. (w/o CD)
Mike Stubblefield, NM OCD (w/o CD)
David Miller, EarthTech (w/o CD)

800 West Central Road Suite 104N • Mt. Prospect, IL 60056 • (847) 577-1980 • Fax: (847) 577-1982

BASCOR Environmental, Inc.
consulting engineers and scientists

August 27, 2001

W. Jack Ford, C.P.G.
New Mexico Oil Conservation Division
2040 S. Pacheco
Santa Fe, New Mexico 87505

Re: Transmittal of Sixth Annual Report (2001), BP Pipelines (North America) Inc.
Artesia, New Mexico Station

Dear Mr. Ford:

This letter serves as the transmittal for the two (2) copies of the Annual Report for the subject site postmarked August 27, 2001. The report contains information on all data collected and other activities at the site for the past 12 months. In addition, plans for initiating a closure process at the site are included, as discussed with Mr. Sam Senn of our office in July.

BP Pipelines (North America) Inc. appreciates your review of this report and comments on our closure recommendations. If you have any questions regarding this status report, please give me a call at (847) 577-1980.

Sincerely,

Randy Senn, CGWP
Principal Hydrogeologist

cc: Ray Glover Jr., BP Pipelines (North America) Inc. (1 copies)
Mike Stubblefield, NM OCD (1 copy)
David Miller, EarthTech (1 copy)

800 West Central Road Suite 104N • Mt. Prospect, IL 60056 • (847) 577-1980 • Fax: (847) 577-1982

BASCOR Environmental, Inc.
consulting engineers and scientists

SEP 2 0 1999

September 10, 1999

Roger Anderson, Environmental Bureau Chief
STATE OF NEW MEXICO
Energy, Minerals & Natural Resources Dept.
Oil Conservation Division
2040 S. Pacheco
Santa Fe, New Mexico 87505

Re: BPAmoco Pipeline Company's Artesia, New Mexico Station

Dear Mr. Anderson:

At the request of Jack Ford of your office, BASCOR Environmental, Inc. has prepared this brief letter, on behalf of BPAmoco Pipeline company (BPAPL), informing the OCD that BPAPL requests to close out the discharge permit for the referenced site.

All the equipment for the system that was covered under the permit has been dismantled, and BPAPL does not anticipate additional discharge will be required at the site.

The permit was scheduled for renewal sometime in January 2000.

BPAmoco Pipeline Company appreciates your attention to this matter. If you have any questions regarding this Status Report, please give me a call at (847) 577-1980.

Sincerely,

Randolph B. Senn, CGWP
Principal Hydrogeologist

cc: Mr. Ray Glover Jr., Amoco Pipeline
Mr. David Miller, EarthTech
Mr. Mike Matush, New Mexico Land Commission

800 West Central Road Suite 104N • Mt. Prospect, IL 60056 • (847) 577-1980 • Fax: (847) 577-1982

BASCOR Environmental, Inc.
consulting engineers and scientists

July 12, 1999

W. Jack Ford, C.P.G.
New Mexico Oil Conservation Division
2040 S. Pacheco
Santa Fe, New Mexico 87505

Re: Transmittal of Fourth Annual Report, BPAmoco PipelLine Company's Artesia, New Mexico Station

Dear Mr. Ford:

Enclosed are two (2) copies of the Annual Report for the subject site. The report contains information on all data collected and other activities at the site for the past 12 months. In addition, plans for future monitoring and remediation are also discussed.

BPAmoco Pipeline Company appreciates your attention to this matter. If you have any questions regarding this Status Report, please give me a call at (847) 577-1980.

Sincerely,

Randolph B. Senn, CGWP
Principal Hydrogeologist

Cc: Mr. Ray Glover Jr., Amoco Pipeline
Mr. David Miller, EarthTech
Mr. Mike Matush, New Mexico Land Commission

800 West Central Road Suite 104N • Mt. Prospect, IL 60056 • (847) 577-1980 • Fax: (847) 577-1982

Chicago Regional Office

1240 Iroquois Avenue
Suite 206
Naperville, IL 60563
(630) 369-0201
Fax (630) 369-1279

Clayton
ENVIRONMENTAL
CONSULTANTS

June 30, 1998

Mr. Bill Olson
STATE OF NEW MEXICO
Energy, Minerals & Natural Resources Dept.
Oil Conservation Division
P.O. Box 2088
State Land Office Building
Santa Fe, NM 87504

Clayton Project 64661.00

Subject: Remediation Systems Operations
Third Annual Report

Dear Mr. Olson:

Enclosed you will find the Remediation Systems Operation Third Annual Report for the Amoco Pipeline Station in Artesia, New Mexico. This report has been prepared by Clayton Environmental Consultants (a division of Clayton Group Services, Inc.) on behalf of Amoco Corporation. The report describes the activities conducted during the past year and presents recommendations for work to be conducted during the next year. Your comments on the proposed work would be appreciated.

If you have any questions, please contact Larry Malnor or me.

Sincerely,

Hank Mittelhauser, Ph.D.
Senior Vice President

Enclosure

cc: w/enclosure: Ray Smith - State of NM, Artesia, NM
Jim Luter - Amoco Corp., Lubbock, TX
Larry Malnor - Amoco Corp., Warrenville, IL
Clay Barnhill - Roswell, NM

2775CA30.HMM

Chicago Regional Office

1240 Iroquois Drive
Suite 206
Naperville, IL 60563
(630) 369-0201
Fax (630) 369-1279

Clayton
ENVIRONMENTAL
CONSULTANTS

October 21, 1997

Mr. Bill Olson
STATE OF NEW MEXICO
Energy, Minerals & Natural Resources Dept.
Oil Conservation Division
P.O. Box 2088
State Land Office Building
Santa Fe, NM 87504

Dear Mr. Olson:

Enclosed are the analytical reports for nine samples taken from the landfarming area at the Amoco Pipeline Station in Artesia, New Mexico. The average TPH value as oil is 2,355. The TPH values as gasoline and as diesel have been well below 5,000 for the last year. We believe that Amoco Pipeline Company has met the remediation goal of 5,000 ppm of TPH and are therefore proposing to cease the landfarming operation at the Artesia Station. If you do not believe that this would be the appropriate course of action, please let Doug Earney or me know at your earliest convenience.

Sincerely,

Hank Mittelhauser, Ph.D.
Senior Vice President

Enclosure

cc: w/enclosure: Doug Earney - Amoco Corp., Oakbrook Terrace, IL

2775CA27.HMM/bdp

NET NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 West Bartlett Rd.
Bartlett, IL 60103
Tel: (630) 289-3100
Fax: (630) 289-5445

Rockford Division
3548 35th Street
Rockford, IL 61109
Tel: (815) 874-2171
Fax: (815) 874-5622
(800) 807-2677

Mr. Hank Mittelhauser
CLAYTON ENVIRONMENTAL
1240 Iroquois Drive
Suite 206
Naperville, IL 60563

10/10/1997

NET Job Number: 97.11512

IEPA Cert. No.: 100221
WDNR Cert. No.: 999447130
A2LA Cert. No.: 0453-01

Enclosed is the Analytical and Quality Control reports for the following samples submitted to Bartlett Division of NET, Inc. for analysis.

Project Description: Amoco - Artesia

Sample Number	Sample Description	Date Taken	Date Received
435378	Center	09/25/1997	09/26/1997
435379	33' S. / 36 E. of Center	09/25/1997	09/26/1997
435380	46'E of Center	09/25/1997	09/26/1997
435381	6' W. / 27' S. of Center	09/25/1997	09/26/1997
435382	5' W. of Center	09/25/1997	09/26/1997
435383	60' W. / 18 N. of Center	09/25/1997	09/26/1997
435384	62' W. / 30 S. of Center	09/25/1997	09/26/1997
435385	27' N. of Center	09/25/1997	09/26/1997
435386	39'N. / 34' E. of Center	09/25/1997	09/26/1997

Sample analysis in support of the project referenced above has been completed and results are presented on the following pages. These results apply only to the samples analyzed. Reproduction of this report only in whole is permitted. Please refer to the enclosed "Key to Abbreviations" for definition of terms. Procedures used follow NET Standard Operating Procedures which reference the methods listed on your report. Should you have questions regarding procedures or results, please do not hesitate to call. NET has been pleased to provide these analytical services for you.

This Quality Control report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

Approved by:

Mary Pearson

Mary Pearson
Project Manager

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 West Bartlett Rd.
Bartlett, IL 60103
Tel: (630) 289-3100
Fax: (630) 289-5445

Rockford Division
3648 35th Street
Rockford, IL 61109
Tel: (815) 874-2171
Fax: (815) 874-5622
(800) 807-2677

ANALYTICAL REPORT

Mr. Hank Mittelhauser
CLAYTON ENVIRONMENTAL
1240 Iroquois Drive
Suite 206
Naperville, IL 60563

10/10/1997

Sample No. : 435378

NET Job No.: 97.11512

Sample Description: Center
Amoco - Artesia

Date Taken: 09/25/1997
Time Taken: 08:30
IEPA Cert. No. 100221

Date Received: 09/26/1997
Time Received: 12:40
WDNR Cert. No. 999447130

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run		Analytical Method
Solids, Total	74.6	%	09/26/1997	0.1	ttl		1929	2540 (4)
Prep, TPH 8015M - NONAQUEOUS	extracted		09/26/1997		bcl	191		8015M (1)
TPH MODIFIED 8015								
TPH as Gas	<50	mg/Kg	10/08/1997	10	out	191	365	8015M (1)
TPH as Diesel	<50	mg/Kg	10/08/1997	10	out	191	365	8015M (1)
TPH as Oil	4,800	mg/Kg	10/08/1997	10	out	191	365	8015M (1)

TPH ANALYZED AT A 5X DILUTION.

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 West Bartlett Rd.
Bartlett, IL 60103
Tel: (630) 289-3100
Fax: (630) 289-5445

Rockford Division
3548 35th Street
Rockford, IL 61109
Tel: (815) 874-2171
Fax: (815) 874-5622
(800) 807-2877

ANALYTICAL REPORT

Mr. Hank Mittelhauser
CLAYTON ENVIRONMENTAL
1240 Iroquois Drive
Suite 206
Naperville, IL 60563

10/10/1997

Sample No. : 435379

NET Job No.: 97.11512

Sample Description: 33' S. / 36 E. of Center
Amoco - Artesia

Date Taken: 09/25/1997
Time Taken: 08:30
IEPA Cert. No. 100221

Date Received: 09/26/1997
Time Received: 12:40
WDNR Cert. No. 999447130

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run		Analytical Method
Solids, Total	77.3	%	09/26/1997	0.1	tdl		1929	2540 (4)
Prep. TPH 8015M - NONAQUEOUS	extracted		09/26/1997		btl	191		8015M (1)
TPH MODIFIED 8015								
TPH as Gas	<50	mg/Kg	10/08/1997	10	out	191	365	8015M (1)
TPH as Diesel	<50	mg/Kg	10/08/1997	10	out	191	365	8015M (1)
TPH as Oil	790	mg/Kg	10/08/1997	10	out	191	365	8015M (1)

TPH ANALYZED AT A 5X DILUTION.

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 West Bartlett Rd.
Bartlett, IL 60103
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Fax: (630) 289-5445

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3548 36th Street
Rockford, IL 61109
Tel: (815) 874-2171
Fax: (815) 874-5622
(800) 807-2877

ANALYTICAL REPORT

Mr. Hank Mittelhauser
CLAYTON ENVIRONMENTAL
1240 Iroquois Drive
Suite 206
Naperville, IL 60563

10/10/1997

Sample No. : 435380

NET Job No.: 97.11512

Sample Description: 46'E of Center
Amoco - Artesia

Date Taken: 09/25/1997
Time Taken: 08:30
IEPA Cert. No. 100221

Date Received: 09/26/1997
Time Received: 12:40
WDNR Cert. No. 999447130

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run		Analytical Method
Solids, Total	76.8	%	09/26/1997	0.1	ttl		1929	2540 (4)
Prep, TPH 8015M - NONAQUEOUS	extracted		09/26/1997		bcl	191		8015M (1)
TPH MODIFIED 8015								
TPH as Gas	<100	mg/Kg	10/08/1997	10	out	191	365	8015M (1)
TPH as Diesel	<100	mg/Kg	10/08/1997	10	out	191	365	8015M (1)
TPH as Oil	3,500	mg/Kg	10/08/1997	10	out	191	365	8015M (1)

TPH ANALYZED AT A 10X DILUTION.

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 West Bartlett Rd.
Bartlett, IL 60103
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(800) 807-2877

ANALYTICAL REPORT

Mr. Hank Mittelhauser
CLAYTON ENVIRONMENTAL
1240 Iroquois Drive
Suite 206
Naperville, IL 60563

10/10/1997

Sample No. : 435381

NET Job No.: 97.11512

Sample Description: 6' W. / 27' S. of Center
Amoco - Artesia

Date Taken: 09/25/1997
Time Taken: 08:30
IEPA Cert. No. 100221

Date Received: 09/26/1997
Time Received: 12:40
WDNR Cert. No. 999447130

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run		Analytical Method
Solids, Total	78.4	%	09/26/1997	0.1	ttl		1929	2540 (4)
Prep, TPH 8015M - NONAQUEOUS	extracted		09/26/1997		bti	191		8015M (1)
TPH MODIFIED 8016								
TPH as Gas	<10	mg/Kg	10/08/1997	10	out	191	365	8015M (1)
TPH as Diesel	<10	mg/Kg	10/08/1997	10	out	191	365	8015M (1)
TPH as Oil	460	mg/Kg	10/08/1997	10	out	191	365	8015M (1)

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 West Bartlett Rd.
Bartlett, IL 60103
Tel: (630) 289-3100
Fax: (630) 289-5445

Rockford Division
3546 35th Street
Rockford, IL 61109
Tel: (815) 874-2171
Fax: (815) 874-5622
(800) 807-2677

ANALYTICAL REPORT

Mr. Hank Mittelhauser
CLAYTON ENVIRONMENTAL
1240 Iroquois Drive
Suite 206
Naperville, IL 60563

10/10/1997

Sample No. : 435382

NET Job No.: 97.11512

Sample Description: 5' W. of Center
Amoco - Artesia

Date Taken: 09/25/1997
Time Taken: 08:30
IEPA Cert. No. 100221

Date Received: 09/26/1997
Time Received: 12:40
WDNR Cert. No. 999447130

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run		Analytical Method
Solids, Total	80.4	%	09/26/1997	0.1	ttl		1929	2540 (4)
Prep, TPH 8015M - NONAQUEOUS	extracted		09/26/1997		btl	191		8015M (1)
TPH MODIFIED 8015								
TPH as Gas	<10	mg/Kg	10/08/1997	10	gut	191	365	8015M (1)
TPH as Diesel	<10	mg/Kg	10/08/1997	10	gut	191	365	8015M (1)
TPH as Oil	290	mg/Kg	10/08/1997	10	gut	191	365	8015M (1)

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 West Bartlett Rd.
Bartlett, IL 60103
Tel: (630) 289-3100
Fax: (630) 289-5445

Rockford Division
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Fax: (815) 874 5622
(800) 807-2877

ANALYTICAL REPORT

Mr. Hank Mittelhauser
CLAYTON ENVIRONMENTAL
1240 Iroquois Drive
Suite 206
Naperville, IL 60563

10/10/1997

Sample No. : 435383

NET Job No.: 97.11512

Sample Description: 60' W. / 18 N. of Center
Amoco - Artesia

Date Taken: 09/25/1997
Time Taken: 08:30
IEPA Cert. No. 100221

Date Received: 09/26/1997
Time Received: 12:40
WDNR Cert. No. 999447130

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run		Analytical Method
Solids, Total	82.9	%	09/26/1997	0.1	ttl		1929	2540 (4)
Prep, TPH 8015M - NONAQUEOUS	extracted		09/26/1997		btl	191		8015M (1)
TPH MODIFIED 8015								
TPH as Gas	<10	mg/Kg	10/08/1997	10	out	191	365	8015M (1)
TPH as Diesel	<10	mg/Kg	10/08/1997	10	out	191	365	8015M (1)
TPH as Oil	52	mg/Kg	10/08/1997	10	out	191	365	8015M (1)

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 West Bartlett Rd.
Bartlett, IL 60103
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Rockford, IL 61109
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(800) 807-2977

ANALYTICAL REPORT

Mr. Hank Mittelhauser
CLAYTON ENVIRONMENTAL
1240 Iroquois Drive
Suite 206
Naperville, IL 60563

10/10/1997

Sample No. : 435384

NET Job No.: 97.11512

Sample Description: 62' W. / 30 S. of Center
Amoco - Artesia

Date Taken: 09/25/1997
Time Taken: 08:30
IEPA Cert. No. 100221

Date Received: 09/26/1997
Time Received: 12:40
WDNR Cert. No. 999447130

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run		Analytical Method
Solids, Total	79.5	%	09/26/1997	0.1	ttl		1929	2540 (4)
Prep, TPH 8015M - NONAQUEOUS	extracted		09/26/1997		btl	191		8015M (1)
TPH MODIFIED 8015								
TPH as Gas	<100	mg/Kg	10/08/1997	10	out	191	365	8015M (1)
TPH as Diesel	<100	mg/Kg	10/08/1997	10	out	191	365	8015M (1)
TPH as Oil	3,300	mg/Kg	10/08/1997	10	out	191	365	8015M (1)

TPH ANALYZED AT A 10X DILUTION.

NET NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 West Bartlett Rd.
Bartlett, IL 60103
Tel: (630) 289-3100
Fax: (630) 289-5445

Rockford Division
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Rockford, IL 61109
Tel: (815) 874-2171
Fax: (815) 874-5622
(800) 807-2877

ANALYTICAL REPORT

Mr. Hank Mittelhauser
CLAYTON ENVIRONMENTAL
1240 Iroquois Drive
Suite 206
Naperville, IL 60563

10/10/1997

Sample No. : 435385

NET Job No.: 97.11512

Sample Description: 27' N. of Center
Amoco - Artesia

Date Taken: 09/25/1997
Time Taken: 08:30
IEPA Cert. No. 100221

Date Received: 09/26/1997
Time Received: 12:40
WDNR Cert. No. 999447130

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run		Analytical Method
Solids, Total	75.2	%	09/26/1997	0.1	ttl		1929	2540 (4)
Prep, TPH 8015M - NONAQUEOUS	extracted		09/26/1997		btl	191		8015M (1)
TPH MODIFIED 8015								
TPH as Gas	<100	mg/Kg	10/08/1997	10	out	191	365	8015M (1)
TPH as Diesel	<100	mg/Kg	10/08/1997	10	out	191	365	8015M (1)
TPH as Oil	5,300	mg/Kg	10/08/1997	10	out	191	365	8015M (1)

TPH ANALYZED AT A 10X DILUTION.

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 West Bartlett Rd.
Bartlett, IL 60103
Tel: (630) 289-3100
Fax: (630) 289-5445

Rockford Division
3548 35th Street
Rockford, IL 61109
Tel: (815) 874-2171
Fax: (815) 874-5622
(800) 807-2877

ANALYTICAL REPORT

Mr. Hank Mittelhauser
CLAYTON ENVIRONMENTAL
1240 Iroquois Drive
Suite 206
Naperville, IL 60563

10/10/1997

Sample No. : 435386

NET Job No.: 97.11512

Sample Description: 39'N. / 34' E. of Center
Amoco - Artesia

Date Taken: 09/25/1997
Time Taken: 08:30
IEPA Cert. No. 100221

Date Received: 09/26/1997
Time Received: 12:40
WDNR Cert. No. 999447130

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run		Analytical Method
Solids, Total	89.8	%	09/26/1997	0.1	ttl		1929	3540 (4)
Prep, TPH 8015M - NONAQUEOUS	extracted		09/26/1997		btl	191		8015M (1)
TPH MODIFIED 8015								
TPH as Gas	<100	mg/Kg	10/08/1997	10	out	191	365	8015M (1)
TPH as Diesel	<100	mg/Kg	10/08/1997	10	out	191	365	8015M (1)
TPH as Oil	2,700	mg/Kg	10/08/1997	10	out	191	365	8015M (1)

TPH ANALYZED AT A 10X DILUTION.

NET NATIONAL ENVIRONMENTAL TESTING, INC.

CHAIN OF CUSTODY RECORD

COMPANY Sweatt Construction, Inc.
ADDRESS 11382 Lovington Hwy | P.O. Box 827 Artesia NM 88210
PHONE (505) 748-1238 FAX (505) 748-1230
PROJECT NAME/LOCATION Amoco - Artesia
PROJECT NUMBER
PROJECT MANAGER

REPORT TO: Clayton Environ
INVOICE TO: Clayton Environ
P.O. NO.
NET QUOTE NO.

SAMPLED BY
Jeremy Milligan (PRINT NAME) — Jeremy Milligan (SIGNATURE)
(PRINT NAME) — SIGNATURE

DATE	TIME	SAMPLE I.D./DESCRIPTION	MATRIX	GRAB	COMP	# and Type of Containers: HCl	NaOH	HNO_3	H_2SO_4	OTHER	ANALYSES: BTEX	To assist us in selecting the proper method: Is this work being conducted for regulatory compliance monitoring? Yes X No	Is this work being conducted for regulatory enforcement action? Yes No X	Which regulations apply: RCRA X, UST, Other, NPDES Wastewater, Drinking Water, None	COMMENTS
9/25/97	8:30 AM	Center		X											
9/25	8:30	93'S / 36'E of center		X											
9/25	8:30	46'E of center		X											
9/25	8:30	6'W / 27'S of center		X											
9/25	8:30	5'W of center		X											
9/25	8:30	60'W / 18'N of center		X											
9/25	8:30	62'W / 30'S of center		X											
9/25	8:30	27'N of center		X											
9/25	8:30	39'N / 34'E of center		X											

CONDITION OF SAMPLE: BOTTLES INTACT? (YES) NO — COC SEALS PRESENT AND INTACT (YES) NO — TEMPERATURE UPON RECEIPT: N/A
FIELD FILTERED? YES (NO) — VOLATILES FREE OF HEADSPACE? YES (NO) — Bottles supplied by NET? (YES) NO

SAMPLE REMAINDER DISPOSAL: RETURN SAMPLE REMAINDER TO CLIENT VIA N/A
I REQUEST NET TO DISPOSE OF ALL SAMPLE REMAINDERS Yes — DATE 9/25/97

re: blue Ice Thanks

RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	RELINQUISHED BY:	DATE	TIME	RECEIVED FOR NET BY:
Chad Milligan	9/25/97	8:30am			9/26/97	12:40	

METHOD OF SHIPMENT: Fed Ex
REMARKS:

PT 1 - ORIGINAL - WHITE PT 2 - NET PROJECT MANAGER - YELLOW PT 3 - CUSTOMER COPY - PINK

Chicago Regional Office

1240 Iroquois Drive
Suite 206
Naperville, IL 60563
(630) 369-0201
Fax (630) 369-1279

Clayton
ENVIRONMENTAL
CONSULTANTS

April 30, 1997

Mr. Bill Olson
STATE OF NEW MEXICO
Energy, Minerals & Natural Resources Dept.
Oil Conservation Division
P.O. Box 2088
State Land Office Building
Santa Fe, NM 87504

Dear Mr. Olson:

Enclosed you will find the "Remediation System Operations 1997 First Quarterly Report" for the Amoco Pipeline Station in Artesia, New Mexico. This report has been prepared by Clayton Environmental Consultants, Inc. on behalf of Amoco Corporation.

The report describes the changes we discussed to the operation of the remediation system. If you have any comments or questions regarding these changes, please contact Doug Earney or me.

Sincerely,

Hank Mittelhauser, Ph.D.
Senior Vice President

Enclosure

cc: w/enclosure: Ray Smith - State of NM, Artesia, NM
Jim Luter - Amoco Corp., Lubbock, TX
Doug Earney - Amoco Corp., Oakbrook Terrace, IL
Clay Barnhill

2775CA25.HMM/bdp

Chicago Regional Office

1240 Iroquois Drive
Suite 206
Naperville, IL 60563
(630) 369-0201
Fax (630) 369-1279

Clayton
ENVIRONMENTAL
CONSULTANTS

January 30, 1997

Mr. Bill Olson
STATE OF NEW MEXICO
Energy, Minerals & Natural Resources Dept.
Oil Conservation Division
P.O. Box 2088
State Land Office Building
Santa Fe, NM 87504

Dear Mr. Olson:

Enclosed you will find the "Remediation Systems Operations 1996 Fourth Quarterly Report and Second Annual Report" for the Amoco Pipeline Station in Artesia, New Mexico. This report has been prepared by Clayton Environmental Consultants, Inc. on behalf of Amoco Corporation. If you have any questions, please contact Doug Earney or me.

Sincerely,

Hank Mittelhauser, Ph.D.
Senior Vice President

Enclosure

cc: w/enclosure: Ray Smith - State of NM, Artesia, NM
Jim Luter - Amoco Corp., Lubbock, TX
Doug Earney - Amoco Corp., Oakbrook Terrace, IL
Clay Barnhill

2775CA24.HMM/bdp

Chicago Regional Office

1240 Iroquois Drive
Suite 206
Naperville, IL 60563
(630) 369-0201
Fax (630) 369-1279

Clayton
ENVIRONMENTAL
CONSULTANTS

October 30, 1996

Mr. Bill Olson
State of New Mexico
Energy, Minerals & Natural Resources Dept.
Oil Conservation Division
P.O. Box 2088
State Land Office Building
Santa Fe, NM 87504

Clayton Project No. 64661.00

RE: Amoco Pipeline Station
Artesia, New Mexico

Dear Mr. Olson:

Enclosed you will find the "Remediation Systems Operations 1996 Third Quarterly Report" for the Amoco Pipeline Station in Artesia, New Mexico. This report has been prepared by Clayton Environmental Consultants, Inc., (Clayton) formerly known as Mittelhauser Corporation, on behalf of Amoco Corporation.

The average TPH results (as oil) for nine samples taken from the soil remediation area was 6,386 mg/kg. However, two values (79 and 26,000) were considered anomalies. If these two values are deleted, the average TPH value (as oil) was 4,486 mg/kg, which is below the cleanup objective of 5,000 mg/kg. The TPH values as gas and diesel have met the cleanup objective since 7/28/95. We do not believe it is a prudent expense to till the area monthly during the cold winter months, especially considering we are close to or below the cleanup objective. Therefore, we are proposing to discontinue the monthly tilling until the spring of 1997 and then to continue until the objective of an average value of 5,000 mg/kg is clearly met. If you have any objection to this approach, please let us know.

Sincerely,

Hank Mittelhauser, Ph.D.
Senior Vice President

Enclosure

cc: w/enclosure: Ray Smith, State of NM, Artesia, NM
Jim Luter, Amoco Corp., Lubbock, TX
Doug Earney, Amoco Corp., Oakbrook Terrace, IL
Clay Barnhill, Consultant

2775CA13.HMM/P64661(P2775)

Clayton Mittelhauser

1240 Iroquois Drive
Suite 206
Naperville, IL 60563
(708) 369-0201
Fax (708) 369-1279

Clayton
ENVIRONMENTAL
CONSULTANTS

July 30, 1996

Mr. Bill Olson
State of New Mexico
Energy, Minerals & Natural Resources Dept.
Oil Conservation Division
P.O. Box 2088
State Land Office Building
Santa Fe, NM 87504

Clayton Project No. 64661.00

RE: Amoco Pipeline Station
Artesia, New Mexico

Dear Mr. Olson:

Enclosed you will find the "Remediation Systems Operations 1996 Second Quarterly Report" for the Amoco Pipeline Station in Artesia, New Mexico. This report has been prepared by Clayton Environmental Consultants, Inc., (Clayton) formerly known as Mittelhauser Corporation, on behalf of Amoco Corporation. If you have any questions, please contact Doug Earney or me.

Please note that we propose to discontinue testing for TPH (as gas) and TPH (as diesel) since the last 16 results, during a six-month time span, have been less than its detection limit. We further propose to continue testing for TPH (as oil) until the average TPH value is less than 5,000 mg/kg.

Sincerely,

Hank Mittelhauser, Ph.D.
Senior Vice President

Enclosure

cc: w/enclosure: Ray Smith, State of NM, Artesia, NM
Jim Luter, Amoco Corp., Lubbock, TX
Doug Earney, Amoco Corp., Oakbrook Terrace, IL
Clay Barnhill, Consultant

2775RD02.HMM/P64661

Clayton Mittelhauser

1240 Iroquois Drive
Suite 206
Naperville, IL 60563
(708) 369-0201
Fax (708) 369-1279

Clayton
ENVIRONMENTAL
CONSULTANTS

April 30, 1996

Mr. Bill Olson
State of New Mexico
Energy, Minerals & Natural Resources Dept.
Oil Conservation Division
P.O. Box 2088
State Land Office Building
Santa Fe, NM 87504

RE: Amoco Pipeline Station
Artesia, New Mexico

Clayton Project No. 64661.00

Dear Mr. Olson:

Enclosed you will find the "Remediation Systems Operations 1996 First Quarterly Report" for the Amoco Pipeline Station in Artesia, New Mexico. This report has been prepared by Clayton Environmental Consultants, Inc., (Clayton) formerly known as Mittelhauser Corporation, on behalf of Amoco Corporation. If you have any questions, please contact Doug Earney or me.

Sincerely,

Hank Mittelhauser, Ph.D.
Senior Vice President

Enclosure

cc: w/enclosure: Ray Smith, State of NM, Artesia, NM
Jim Luter, Amoco Corp., Lubbock, TX
Doug Earney, Amoco Corp., Oakbrook Ter., IL
Clay Barnhill, Consultant

2775RD02.HMM/P64661

Clayton Mittelhauser

1240 Iroquois Drive
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Naperville, IL 60563
(708) 369-0201
Fax (708) 369-1279

Clayton
ENVIRONMENTAL
CONSULTANTS

January 30, 1996

Mr. Bill Olson
State of New Mexico
Energy, Minerals & Natural Resources Dept.
Oil Conservation Division
P.O. Box 2088
State Land Office Building
Santa Fe, NM 87504

RE: Amoco Pipeline Station
Artesia, New Mexico

Clayton Project No. 64661.00

Dear Mr. Olson:

Enclosed you will find the "Remediation Systems Operations 1995 Fourth Quarterly Report and 1996 First Annual Report" for the Amoco Pipeline Station in Artesia, New Mexico. This report has been prepared by Clayton Environmental Consultants, Inc., (Clayton) formerly known as Mittelhauser Corporation, on behalf of Amoco Corporation. If you have any questions, please contact Doug Earney or me.

Sincerely,

Hank Mittelhauser, Ph.D.
Senior Vice President

Enclosure

cc: w/enclosure: Ray Smith, State of NM, Artesia, NM
Jim Luter, Amoco Corp., Lubbock, TX
Doug Earney, Amoco Corp., Oakbrook Ter., IL

2775RD02.HMM/P64661

Clayton Mittelhauser

1240 Iroquois Drive
Suite 206
Naperville, IL 60563
(708) 369-0201
Fax (708) 369-1279

Clayton
ENVIRONMENTAL
CONSULTANTS

October 26, 1995

Mr. Bill Olson
STATE OF NEW MEXICO
Energy, Minerals & Natural Resources Dept.
Oil Conservation Division
P.O. Box 2088
State Land Office Building
Santa Fe, NM 87504

Dear Mr. Olson:

Enclosed you will find the "Remediation Systems Operations 1995 Third Quarterly Report" for the Amoco Pipeline Station in Artesia, New Mexico. This report has been prepared by Clayton Mittelhauser on behalf of Amoco Corporation. If you have any questions, please contact Doug Earney or me.

Sincerely,

Hank Mittelhauser, Ph.D.
Senior Vice President

Enclosure

cc: w/enclosure: Ray Smith - State of NM, Artesia, NM
Jim Luter - Amoco Corp., Lubbock, TX
Doug Earney - Amoco Corp., Oakbrook Terrace, IL

2775CA18.HMM/slk

Mittelhauser
CORPORATION

1240 Iroquois Drive
Naperville, Illinois 60563
(708) 369-0201 Fax (708) 369-1279

July 27, 1995

Mr. Bill Olson
State of New Mexico
Energy, Minerals & Natural Resources Dept.
Oil Conservation Division
P.O. Box 2088
State Land Office Building
Santa Fe, NM 87504

Dear Mr. Olson:

Enclosed you will find the "Remediation Systems Operations 1995 Second Quarterly Report" for the Amoco Pipeline Station in Artesia, New Mexico. This report has been prepared by Mittelhauser Corporation on behalf of Amoco Corporation. If you have any questions, please contact Doug Earney or me.

Sincerely,

MITTELHAUSER CORPORATION

Hank Mittelhauser, Ph.D.
Chairman

Enclosure

cc: w/enclosure: Ray Smith, State of NM, Artesia, NM
Jim Luter, Amoco Corp., Lubbock, TX
Doug Earney, Amoco Corp., Oakbrook Ter., IL

2775RD02.HMM

Mittelhauser
CORPORATION

1240 Iroquois Drive
Naperville, Illinois 60563
(708) 369-0201 Fax (708) 369-1279

May 3, 1995

Mr. Bill Olson
State of New Mexico
Energy, Minerals & Natural Resources Dept.
Oil Conservation Division
P.O. Box 2088
State Land Office Building
Santa Fe, NM 87504

Dear Mr. Olson:

Enclosed you will find the first "Remediation Systems Operations Quarterly Report" for the Amoco Pipeline Station in Artesia, New Mexico. If you have any questions, please contact Doug Earney or me.

Sincerely,

MITTELHAUSER CORPORATION

Hank Mittelhauser, Ph.D.
Chairman

Enclosure

cc w/enclosure: Ray Smith, State of NM, Artesia, NM
Jim Luter, Amoco Corp., Lubbock, TX
Doug Earney, Amoco Corp., Oakbrook Ter., IL

2775RC02.HMM

Mittelhauser
CORPORATION

1240 Iroquois Drive
Naperville, Illinois 60563
(708) 369-0201 Fax (708) 369-1279

February 2, 1995

Mr. William C. Olson
New Mexico Oil Conservation Division
ENVIRONMENTAL BUREAU
P.O. Box 2088
Santa Fe, NM 87504

RE: Interception Trench System Installation Report

Dear Mr. Olson:

Enclosed are two copies of the above referenced report for the Amoco Pipeline Station in Artesia, New Mexico.

Please let me know if you have any questions or wish further information.

Sincerely,

MITTELHAUSER CORPORATION

Hank Mittelhauser, Ph.D.
Chairman

Attachments

cc: Doug Earney

Amoco Oil Company
One Prudential Plaza
130 East Randolph Drive
Post Office Box 7513
Chicago, Illinois 60680-7513
Engineering & Construction

January 16, 1995

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

RE: Amoco Artesia Pumping Station
Surface Soil Remediation Work Plan

Dear Mr. Olson:

Attached, for your approval, is Amoco's proposed work plan for remediating the crude oil stained soils at the Artesia, NM pumping station(Mittelhauser letter dated 1/6/95). As we discussed, we are proposing to landfarm these soils to enhance biological degradation at the site. The work plan was developed using the OCD's 'Guidelines for Remediation of Leaks, Spills, and Releases' dated August 13, 1993.

After you have had a chance to review this proposal, please call me and we can discuss any comments/questions you may have. We will begin soil remediation activities after approval of the work plan.

You may contact me at (312) 856-7251.

Sincerely,

Douglas S. Earney
Remediation Project Engineer

Cc: L. K. Malnor

Mittelhauser
CORPORATION

1240 Iroquois Drive
Naperville, Illinois 60563
(708) 369-0201 Fax (708) 369-1279

January 6, 1995

Mr. William C. Olson
New Mexico Oil Conservation Division
ENVIRONMENTAL BUREAU
P.O. Box 2088
Santa Fe, NM 87504

RE: Landfarming
Amoco Pipeline facility
Artesia, New Mexico

Dear Mr. Olson:

As you are aware, Amoco Oil Company hired Mittelhauser Corporation to design and install a remediation system at the Artesia pipeline station to intercept and recover oil released into the Scoggin Draw. This system is now operational, and a system installation report will be submitted to the State by February 1, 1995.

Prior operations at the site resulted in stained soils in the area around the bulk storage tank within the Amoco Artesia pumping station. In addition, cuttings from soil borings and contaminated soils from the trench installation have been placed in this area. The attached photograph (Attachment A) shows the soil contaminated area. It is approximately 150 feet by 150 feet. Two samples of the soils (one at the surface and one at a 1-foot depth) were taken in November 1994 and analyzed for TPH and volatile organics by NET Laboratories in Bartlett, Il. A copy of their analytical report is enclosed as Attachment B. As shown in the report, no volatile organics were detected. TPH, as diesel fuel, was 14,000 mg/kg at the surface and 8,400 mg/kg at the depth of 1 foot.

It is Amoco's intention to remediate these soils by landfarming. The initial action will be to remove rocks and other large debris. The area would then be disked on a monthly basis and samples would be taken quarterly and analyzed for TPH by EPA Method Modified 8015.

We believe the appropriate remedial action level to be: Benzene (10mg/kg), BETX (50 mg/kg), and TPH (5,000 mg/kg). These levels are based on the criteria set forth on pages 3 and 4 of the "Guidelines for Remediation of Leaks, Spills and releases", dated August 13, 1993, published by your department. In evaluating these criteria we have talked with Pete Bratcher of Pete & Sons (505/746-3713), a local well driller.

Mr. Bratcher stated that water wells are drilled to approximately 200 feet. We also called Dave Wilkins of the USGS in Albuquerque (505/262-5300) and he stated that the depth to groundwater in the shallow aquifer around Artesia was between 160 and 210 feet. The depth to groundwater being greater than 100 feet results in a 0 score on the Depth To Ground Water factor in the ranking criteria. Clearly the soils are greater than 1,000 feet from a water source and greater than 200 feet from a private domestic water source. Therefore, the score on the Wellhead Protection Area factor is 0. The nearest surface water body is greater than 1,000 feet away, resulting in 0 on the Distance To Surface Water Body factor. Since the total score is between 0 and 9 the recommended action levels for remediation, in our opinion, are those given above.

The soil remediation activities will be conducted within two weeks of approval of this Plan. Reporting of progress will be contained in our quarterly reports to the State on the operation of the remediation system.

Please let me know if you have any questions or wish further information.

Sincerely,

MITTELHAUSER CORPORATION

Hank Mittelhauser, Ph.D.
Chairman

Attachments

cc: Doug Earney

ATTACHMENT A

Photo Log

Mittelhauser CORPORATION

PHOTO LOG
Amoco
Artesia Pipeline Facility
Artesia, NM
Project 2775.01-01

PHOTOGRAPH #1 *by HMM:11/22/94*
Contaminated soils at the Amoco Artesia Pipeline Station.

ATTACHMENT B

Laboratory Results

Mittelhauser CORPORATION

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
Tel: (708) 289-3100
Fax: (708) 289-5445

Mr. H. Mittelhauser
MITTELHAUSER CORPORATION
1240 Iroquois Drive
Suite 206
Naperville, IL 60563

11/17/1994

NET Job Number: 94.08837

IEPA Cert No. 100221
WDNR Cert No. 999447130
A2LA Cert No. 0453-01

Enclosed is the Quality Control Data and Analytical Results for the following samples submitted to NET, Inc. Bartlett Division for analysis:

Project Description: Amoco Pipeline-Artesia, N.M; 2775.00-01

Sample Number	Sample Description	Date Taken	Date Received
283731	Tank Pad Surface	11/03/1994	11/08/1994
283732	Tank Pad One Foot BSG	11/03/1994	11/08/1994

Sample analysis in support of the project referenced above has been completed and results are presented on the following pages. These results apply only to the samples analyzed. Reproduction of this report only in whole is permitted. Please refer to the enclosed "Key to Abbreviations" for definition of terms. Procedures used follow NET Standard Operating Procedures which reference the methods listed on your report. Should you have questions regarding procedures or results, please do not hesitate to call. NET has been pleased to provide these analytical services for you.

This Quality Control report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

Approved by:

Jean-Pierre C. Rouanet
Operations Manager

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Mr. H. Mittelhauser
MITTELHAUSER CORPORATION
1240 Iroquois Drive
Suite 206
Naperville, IL 60563

11/17/1994

Sample No. : 283731

NET Job No.: 94.08837

Sample Description: Tank Pad Surface
Amoco Pipeline-Artesia, N.M; 2775.00-01

Date Taken: 11/03/1994
Time Taken: 10:05
IEPA Cert. No. 100221

Date Received: 11/08/1994
Time Received: 11:00
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run		Analytical Method
Solids, Total	81.3		%	11/10/1994	0.1	mpl		1137	2540 (4)
Prep, TPH CALIF Non-Aqueous	extracted			11/10/1994		sdf	90		CA LUFT
TPH CALIFORNIA METHOD									
TPH as Gasoline	<100		mg/kg	11/16/1994	10.0	seh	90	143	CA LUFT
TPH as Diesel Fuel	14,000	D100	mg/kg	11/16/1994	10.0	seh	90	143	CA LUFT
TPH as Oil	<100		mg/kg	11/16/1994	10.0	seh	90	143	CA LUFT
VOLATILES - 8240 NONAQUEOUS									
Benzene	<5.0		ug/Kg	11/14/1994	5.0	rla		605	8240 (1)
Ethyl benzene	<5.0		ug/Kg	11/14/1994	5.0	rla		605	8240 (1)
Toluene	<5.0		ug/Kg	11/14/1994	5.0	rla		605	8240 (1)
Xylenes, Total	<5.0		ug/Kg	11/14/1994	5.0	rla		605	8240 (1)
Surr: 1,2-Dichloroethane-d4	105		ug/Kg	11/14/1994	70-121	rla		605	8240 (1)
Surr: Toluene-d8	110		ug/Kg	11/14/1994	81-117	rla		605	8240 (1)
Surr: Bromofluorobenzene	90		ug/Kg	11/14/1994	74-121	rla		605	8240 (1)

TPH's analyzed at dilutions due to matrix interferance.
D100 : Parameter analysis performed at a 100x dilution.

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Mr. H. Mittelhauser
MITTELHAUSER CORPORATION
1240 Iroquois Drive
Suite 206
Naperville, IL 60563

11/17/1994

Sample No. : 283732

NET Job No.: 94.08837

Sample Description: Tank Pad One Foot BSG
Amoco Pipeline-Artesia, N.M; 2775.00-01

Date Taken: 11/03/1994
Time Taken: 10:15
IEPA Cert. No. 100221

Date Received: 11/08/1994
Time Received: 11:00
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run		Analytical Method
Solids, Total	80.0		%	11/10/1994	0.1	mpl		1137	2540 (4)
Prep, TPH CALIF Non-Aqueous	extracted			11/10/1994		sdf	90		CA LUFT
TPH CALIFORNIA METHOD									
TPH as Gasoline	<100		mg/kg	11/16/1994	10.0	seh	90	143	CA LUFT
TPH as Diesel Fuel	8,400	D100	mg/kg	11/16/1994	10.0	seh	90	143	CA LUFT
TPH as Oil	<100		mg/kg	11/16/1994	10.0	seh	90	143	CA LUFT
VOLATILES - 8240 NONAQUEOUS									
Benzene	<650		ug/Kg	11/14/1994	5.0	llj		603	8240 (1)
Ethyl benzene	<650		ug/Kg	11/14/1994	5.0	llj		603	8240 (1)
Toluene	<650		ug/Kg	11/14/1994	5.0	llj		603	8240 (1)
Xylenes, Total	<650		ug/Kg	11/14/1994	5.0	llj		603	8240 (1)
Surr: 1,2-Dichloroethane-d4	104		%	11/14/1994	70-121	llj		603	8240 (1)
Surr: Toluene-d8	102		%	11/14/1994	81-117	llj		603	8240 (1)
Surr: Bromofluorobenzene	102		%	11/14/1994	74-121	llj		603	8240 (1)

VOA analyzed at a 130x dilution due to hydrocarbon interference.
D100 : Parameter analysis performed at a 100x dilution.

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
Tel: (708) 289-3100
Fax: (708) 289-5445

QUALITY CONTROL REPORT

CONTINUING CALIBRATION VERIFICATION

MITTELHAUSER CORPORATION
1240 Iroquois Drive
Suite 206
Naperville, IL 60563
Mr. H. Mittelhauser

11/17/1994

NET Job Number: 94.08837

Analyte	Run Batch Number	CCV True Conc.	Conc. Found	Percent Recovery
TPH CALIFORNIA METHOD				
TPH as Gasoline	143	500	484	96.8
TPH as Diesel Fuel	143	500	542	108.4
TPH as Oil	143	300	293	97.7
VOLATILES - 8240 NONAQUEOUS				
Ethyl benzene	603	50.0	50.2	100.4
Toluene	603	50.0	45.7	91.4
VOLATILES - 8240 NONAQUEOUS				
Ethyl benzene	605	50.0	50.8	101.6
Toluene	605	50.0	51.1	102.2

CCV - Continuing Calibration Verification

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
Tel: (708) 289-3100
Fax: (708) 289-5445

QUALITY CONTROL REPORT

BLANK ANALYSIS

MITTELHAUSER CORPORATION
1240 Iroquois Drive
Suite 206
Naperville, IL 60563
Mr. H. Mittelhauser

11/17/1994

NET Job Number: 94.08837

Analyte	Prep Batch Number	Run Batch Number	Blank Analysis Results	Units	Reporting Limit	Analytical Method
TPH CALIFORNIA METHOD						CA LUFT
TPH as Gasoline	90	139	<10.0	mg/kg	10.0	CA LUFT
TPH as Diesel Fuel	90	139	<10.0	mg/kg	10.0	CA LUFT
TPH as Oil	90	139	<10.0	mg/kg	10.0	CA LUFT
VOLATILES - 8240 NONAQUEOUS						8240 (1)
Benzene		603	<5.0	ug/Kg	5.0	8240 (1)
Ethyl benzene		603	<5.0	ug/Kg	5.0	8240 (1)
Toluene		603	<5.0	ug/Kg	5.0	8240 (1)
Xylenes, Total		603	<5.0	ug/Kg	5.0	8240 (1)
Surr: 1,2-Dichloroethane-d4		603	103	%	70-121	8240 (1)
Surr: Toluene-d8		603	100	%	81-117	8240 (1)
Surr: Bromofluorobenzene		603	95	%	74-121	8240 (1)
VOLATILES - 8240 NONAQUEOUS						8240 (1)
Benzene		605	<5.0	ug/Kg	5.0	8240 (1)
Ethyl benzene		605	<5.0	ug/Kg	5.0	8240 (1)
Toluene		605	<5.0	ug/Kg	5.0	8240 (1)
Xylenes, Total		605	<5.0	ug/Kg	5.0	8240 (1)
Surr: 1,2-Dichloroethane-d4		605	112	ug/Kg	70-121	8240 (1)
Surr: Toluene-d8		605	98	ug/Kg	81-117	8240 (1)
Surr: Bromofluorobenzene		605	87	ug/Kg	74-121	8240 (1)

Advisory Control Limits for Blanks:

All compounds should be less than the Reporting Limit, except for phthalate esters, toluene, methylene chloride, acetone and chloroform should be less than 5 times the Reporting Limit.

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
Tel: (708) 289-3100
Fax: (708) 289-5445

QUALITY CONTROL REPORT

LABORATORY CONTROL STANDARD

MITTELHAUSER CORPORATION
1240 Iroquois Drive
Suite 206
Naperville, IL 60563
Mr. H. Mittelhauser

11/17/1994

NET Job Number: 94.08837

Analyte	Prep Batch Number	Run Batch Number	True Conc.	Conc. Found	LCS % Recovery
TPH CALIFORNIA METHOD					
TPH as Gasoline	90	139	50	40	80.0
TPH as Diesel Fuel	90	139	50	55	110.0
TPH as Oil	90	139	300	n/a	
VOLATILES - 8240 NONAQUEOUS					
Benzene		603	20.0	20.2	101.0
Toluene		603	20.0	19.0	95.0
VOLATILES - 8240 NONAQUEOUS					
Benzene		605	20.0	22.0	110.0
Toluene		605	20.0	21.0	105.0

Advisory Control Limits - Inorganics - LCS recovery should be 80 - 120%.

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
Tel: (708) 289-3100
Fax: (708) 289-5445

QUALITY CONTROL REPORT

DUPLICATES

MITTELHAUSER CORPORATION
1240 Iroquois Drive
Suite 206
Naperville, IL 60563
Mr. H. Mittelhauser

11/17/1994

NET Job Number: 94.08837

Analyte	Prep Batch Number	Run Batch Number	Original Analysis	Duplicate Analysis	Units	RPD
Solids, Total		1137	67.0	66.4	%	0.9

NOTE: Spikes and Duplicates may not be samples from this job.

RPD - Relative Percent Difference

Advisory Control Limits for Duplicates - RPD should be less than 20.

NET Midwest, Bartlett Division

KEY TO ABBREVIATIONS and METHOD REFERENCES

<	:	Less than; When appearing in the results column indicates the analyte was not detected at or above the reported value.
mg/L	:	Concentration in units of milligrams of analyte per liter of sample. Measurement used for aqueous samples. Can also be expressed as parts per million (ppm).
ug/g	:	Concentration in units of micrograms of analyte per gram of sample. Measurement used for non-aqueous samples. Can also be expressed as parts per million (ppm) or mg/Kg.
ug/L	:	Concentration in units of micrograms of analyte per liter of sample. Measurement used for aqueous samples. Can also be expressed as parts per billion (ppb).
ug/Kg	:	Concentration in units of micrograms of analyte per kilogram of sample. Measurement used for non-aqueous samples. Can also be expressed as parts per billion (ppb).
B	:	Sample result flag indicating that the analyte was also found in the method blank analysis. The value after the B indicates the concentration found in the blank analysis.
D	:	Sample result flag indicating that the reported concentration is from an analysis performed at a dilution. The value following the D indicates the dilution factor of the analysis.
J	:	Sample result flag indicating that the reported concentration is below the routine reporting limit but greater than the Method Detection Limit. The value should be considered estimated.
TCLP	:	These initials appearing in front of an analyte name indicate that the Toxicity Characteristic Leaching Procedure (TCLP) was performed for this test.
%	:	Percent; To convert ppm to %, divide the result by 10,000. To convert % to ppm, multiply the result by 10,000.
Dry Weight (dw)	:	When indicated, the results are reported on a dry weight basis. The contribution of the moisture content in the sample is subtracted when calculating the concentration of the analyte.
ICP	:	Indicates analysis was performed using Inductively Coupled Plasma Spectroscopy.
AA	:	Indicates analysis was performed using Atomic Absorption Spectroscopy.
GFAA	:	Indicates analysis was performed using Graphite Furnace Atomic Absorption Spectroscopy.
PQL	:	Practical Quantitation Limit; the lowest level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions.

Method References

(1) Methods 1000 through 9999: see "Test Methods for Evaluating Solid Waste", USEPA SW-846, 3rd Edition, 1986.

(2) ASTM "American Society for Testing Materials

(3) Methods 100 through 499: see "Methods for Chemical Analysis of Water and Wastes", USEPA, 600/4-79-020, Rev. 1983.

(4) See "Standard Methods for the Examination of Water and Wastewater", 17th Ed, APHA, 1989.

(5) Methods 600 through 625: see "Guidelines Establishing Test Procedures for the Analysis of Pollutants", USEPA Federal Register Vol. 49 No. 209, October 1984.

(6) Methods 500 through 599: see "Methods for the Determination of Organic Compounds in Drinking Water," USEPA 600/4-88/039, Rev. 1988.

NET NATIONAL ENVIRONMENTAL TESTING, INC.

CHAIN OF CUSTODY RECORD

COMPANY Mittelhauser Corp
ADDRESS 1240 Iroquois Dr. #206
PHONE (708) 369-0201 FAX (708) 369-1279
PROJECT NAME/LOCATION Amoco Pipeline - Artesia N.M.
PROJECT NUMBER 2775-00-61
PROJECT MANAGER H. Mittelhauser

REPORT TO: H. Mittelha
INVOICE TO: H. Mittelha
P.O. NO. 2775.00-0
NET QUOTE NO.

SAMPLED BY
Kurt Lindstrom (PRINT NAME)
SIGNATURE
(PRINT NAME)
SIGNATURE

			# and Type of Containers	ANALYSES: BTEX	ANALYSES: TPH	COMMENTS
11/3/94	1005	Tank Pad Surface	X	X	X	Questions To Hank Mittelhause
11/3/94	1015	Tank Pad One Foot BSG	X	X	X	

CONDITION OF SAMPLE: BOTTLES INTACT? YES / NO
FIELD FILTERED? YES / NO
COC SEALS PRESENT AND INTACT? YES / NO
VOLATILES FREE OF HEADSPACE? YES / NO
TEMPERATURE UPON RECEIPT: 5.2
Bottles supplied by NET? YES / NO

SAMPLE REMAINDER DISPOSAL: RETURN SAMPLE REMAINDER TO CLIENT VIA
I REQUEST NET TO DISPOSE OF ALL SAMPLE REMAINDERS

RELINQUISHED BY:	DATE/TIME	RECEIVED BY:	RELINQUISHED BY:
	11/4/94 1100	Oltull 11/4 1100	

NATIONAL ENVIRONMENTAL TESTING, INC.

CHAIN OF CUSTODY RECORD

COMPANY: Mittelhauser Corp
ADDRESS: 1290 Iroquois Dr. #206
PHONE: (708) 369-0201 FAX: (708) 369-1279
PROJECT NAME/LOCATION: Amoco Pipeline - Artesia N.M.
PROJECT NUMBER: 2775.00-01
PROJECT MANAGER: H. Mittelhauser

REPORT TO: H. Mittelhauser
INVOICE TO: H. Mittelhauser
P.O. NO. 2775.00-01
NET QUOTE NO.

SAMPLED BY
Kurt Lindstrom
(PRINT NAME)
SIGNATURE

(PRINT NAME)
SIGNATURE

			# and Type of Containers	ANALYSES: BTEX	ANALYSES: TPH	COMMENTS
11/3/94	1005	Tank Pad Surface	X	X	X	Questions To Hank Mittelhauser
11/3/94	1015	Tank Pad One Foot BSG	X	X	X	

CONDITION OF SAMPLE: BOTTLES INTACT? YES / NO
FIELD FILTERED? YES / NO
COC SEALS PRESENT AND INTACT? YES / NO
VOLATILES FREE OF HEADSPACE? YES / NO
TEMPERATURE UPON RECEIPT: 52
Bottles supplied by NET? YES / NO

SAMPLE REMAINDER DISPOSAL: RETURN SAMPLE REMAINDER TO CLIENT VIA _____
I REQUEST NET TO DISPOSE OF ALL SAMPLE REMAINDERS _____ DATE 11/3/94

RELINQUISHED BY:	DATE/TIME	RECEIVED BY:	RELINQUISHED BY:	DATE/TIME	RECEIVED FOR NET BY:
	11/3/94 1100	Altall 11/8 1100			

METHOD OF SHIPMENT: UPS

REMARKS:

ACKNOWLEDGEMENT OF RECEIPT OF CHECK/CASH

I hereby acknowledge receipt of check No. 0001058319 dated 2-3-95,

or cash received on _____ in the amount of $ 1430.00

from AMOCO PIPELINE COMPANY

for (GW-170) ARTESIA PUMP STATION
(Facility Name) (DP No.)

Submitted by: _____ Date: _____

Submitted to ASD by: CHRIS EUSTICE Date: 2-15-95

Received in ASD by: Carlos F. Gabaldon Date: 2/15/95

Filing Fee ✓ New Facility ✓ Renewal ____

Modification ____ Other _____
(specify)

Organization Code 521.07 Applicable FY 95

To be deposited in the Water Quality Management Fund.

Full Payment ✓ or Annual Increment ____

AMOCO PIPELINE COMPANY

CHECK NUMBER
0001058319

62-28
311

0968986

FEBRUARY 3, 1995

NOT VALID AFTER SIX MONTHS

PAY TO THE ORDER OF: NMED-WATER QUALITY MANAGEMENT
OIL CONSERVATION DIVISION

EXACTLY *********1,430 DOLLARS AND 00 CENTS $*********1,430.00

The First National Bank of Chicago-0710
Chicago, Illinois
Payable Through FCC National Bank
Wilmington, Delaware

TREASURER

TRACE NUMBER: 0001058319

⑈0001058319⑈ ⑆031100283⑆ 0968986⑈

Z 765 962 308

Receipt for Certified Mail
No Insurance Coverage Provided
Do not use for International Mail
(See Reverse)

Sent to Journee	
Street and No.	
P.O., State and ZIP Code	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, and Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date	

PS Form 3800, March 1993

Fold at line

STATE OF NEW MEXICO
NERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION

DRUG FREE

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

AL

87102

1ANAGER

RE: NOTICE OF PUBLICATION

_____
_____
_____
_____

Dear Sir/Madam:

Please publish the attached notice one time immediately on receipt of this request. Please proofread carefully, as any error in a land description or in a key word or phrase can invalidate the entire notice.

Immediately upon completion of publication, please send the following to this office:

1. ***Publisher's affidavit in duplicate.***
2. ***Statement of cost (also in duplicate.)***
3. ***CERTIFIED invoices for prompt payment.***

We should have these immediately after publication in order that the legal notice will be available for the hearing which it advertises, and also so that there will be no delay in your receiving payment.

Please publish the notice no later than November 25 *, 1994.*

Sincerely,

Sally Martinez
Sally E. Martinez
Administrative Secretary

Attachment

NOTICE OF PUBLICATION

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

Notice is hereby given that pursuant to New Mexico Water Quality Control Commission (WQCC) Regulations, the following discharge plan application and discharge plan renewal application have been submitted to the Director of the Oil Conservation Division, State Land Office Building, P.O. Box 2088, Santa Fe, New Mexico 87504-2088, Telephone (505) 827-5800:

(GW-170) - Amoco Oil Company, Vanessa A. Harris, Remediation Cooridinator, P.O. Box 7513, Chicago, Illinois 60680-7513, has submitted a discharge plan application for the Artesia Crude Pump Station located in the SW 1/2, NW/4 of Section 10, Township 18 South, Range 27 East, NMPM, Eddy County, New Mexico. The application addresses discharges to ground water associated with the remediation of petroleum contaminated ground water. Approximately 5 to 10 gallons per minute of ground water with a total dissolved solids concentration of approximately 2500 mg/l is processed through a treatment system to remove contaminants to below WQCC ground water standards prior to reinjection in an infiltration gallery. Groundwater most likely to be affected by an accidental discharge is at a depth of approximately 20 feet with a total dissolved solids concentration of approximately 2500 mg/l. The discharge plan addresses system operation and monitoring and how spills, leaks, and other accidental discharges to the surface will be managed.

Any interested person may obtain further information from the Oil Conservation Division and may submit written comments to the Director of the Oil Conservation Division at the address given above. The discharge plan applications may be viewed at the above address between 8:00 a.m. and 4:00 p.m., Monday through Friday. Prior to ruling on any proposed discharge plan or its modification, the Director of the Oil Conservation Division shall allow at least thirty (30) days after the date of publication of this notice during which comments may be submitted to him and public hearing may be requested by any interested person. Request for public hearing shall set forth the reasons why a hearing shall be held. A hearing will be held if the Director determines that there is significant public interest.

If no hearing is held, the Director will approve or disapprove the plan based on the information available. If a public hearing is held, the Director will approve the plan based on the information in the plan and information presented at the hearing.

GIVEN under the Seal of New Mexico Conservation Commission at Santa Fe, New Mexico, on this 15th day of September, 1993.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

SEAL

WILLIAM J. LEMAY, Director

Affidavit of Publication

No. 14848

STATE OF NEW MEXICO,

County of Eddy:

Gary D. Scott being duly sworn, says: That he is the Publisher of The Artesia Daily Press, a daily newspaper of general circulation, published in English at Artesia, said county and state, and that the hereto attached Legal Notice

was published in a regular and entire issue of the said Artesia Daily Press, a daily newspaper duly qualified for that purpose within the meaning of Chapter 167 of the 1937 Session Laws of the state of New Mexico for 1 consecutive days weeks on the same day as follows:

First Publication September 28, 1994

Second Publication

Third Publication

Fourth Publication

Gary D. Scott

Subscribed and sworn to before me this 13th day of October 19 94

Barbara Ann Boone
Notary Public, Eddy County, New Mexico

My Commission expires September 23, 1996

Copy of Publication

LEGAL NOTICE

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

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GIVEN under the Seal of New Mexico Conservation Commission at Santa Fe, New Mexico, on this 15th day of September, 1993.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION
s-William J. LeMay
SEAL
WILLIAM J. LEMAY,
Director

Published in the Artesia Daily Press, Artesia, N.M. September 28, 1994.

Legal 14848

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
Ecological Services
Suite D, 3530 Pan American Highway, NE
Albuquerque, New Mexico 87107

October 6, 1994

William J. Lemay, Director
New Mexico Water Quality Control Commission
Oil Conservation Division
P.O. Box 2088
Santa Fe, New Mexico 87504-2088

Dear Mr. Lemay:

This responds to your agency's public notice dated September 15, 1994, regarding the State of New Mexico's proposal to renew the discharge plan for the applicant listed below.

> **(GW-170) - Amoco Oil Company, Vanessa A. Harris, Remediation Coordinator, P.O. Box 7513, Chicago, Illinois, 60680-7513** The applicant has submitted a discharge plan application for the Artesia Crude Pump Station located in the SW½, NW¼ of Section 10, Township 18 South, Range 27 East, NMPM, Eddy County, New Mexico. The application addresses discharges to ground water associated with the remediation of petroleum contaminanted ground water. Approximately 5 to 10 gallons per minute of ground water with a total dissolved solids concentration of approximately 2500 mg/l is processed through a treatment system to remove contaminants to below WQCC ground water standards prior to reinjection in an infiltration gallery. Groundwater most likely to be affected by an accidental discharge is at a depth of approximately 20 feet with a total dissolved solids concentration of approximately 2500 mg/l. The discharge plan addresses system operation and monitoring and how spills, leaks, and other accidental discharges to the surface will be managed.

It is our understanding that all contaminated ground water to be treated by the applicant will be contained within a pipe, closed storage tank, etc. No water will be discharged into an above-ground impoundment or open-topped tank where it could become readily available to wildlife, except in a short-lived event that might occur due to an accidental breach of a pipe or storage tank. Therefore, the U.S. Fish and Wildlife Service has no objection to the Oil Conservation Division granting approval for the discharge plan application outlined above.

Thank you for the opportunity to review and comment on this discharge plan application. If you have any questions, please contact Mark Wilson at (505) 883-7877.

Sincerely,

Jennifer Fowler-Propst
State Supervisor

cc:
Director, New Mexico Department of Game and Fish, Santa Fe, New Mexico

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

DRUG FREE

BRUCE KING
GOVERNOR

ANITA LOCKWOOD
CABINET SECRETARY

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

September 23, 1994

ALBUQUERQUE JOURNAL
717 Silver Southwest
Albuquerque, New Mexico 87102

ATTN: ADVERTISING MANAGER

RE: NOTICE OF PUBLICATION

Dear Sir/Madam:

Please publish the attached notice one time immediately on receipt of this request. Please proofread carefully, as any error in a land description or in a key word or phrase can invalidate the entire notice.

Immediately upon completion of publication, please send the following to this office:

1. ***Publisher's affidavit in duplicate.***
2. ***Statement of cost (also in duplicate.)***
3. ***CERTIFIED invoices for prompt payment.***

We should have these immediately after publication in order that the legal notice will be available for the hearing which it advertises, and also so that there will be no delay in your receiving payment.

Please publish the notice no later than September 30, *1994.*

Sincerely,

Sally Martinez
Sally E. Martinez
Administrative Secretary

Attachment

Called ABQ Journal on 11/18/94. Told they have no record of being published or recieved.
Will Olson

Z 765 963 409

Receipt for Certified Mail

No Insurance Coverage Provided
Do not use for International Mail
(See Reverse)

UNITED STATES POSTAL SERVICE

Sent to Journal	
Street and No.	
P.O., State and ZIP Code	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, and Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date	

PS Form **3800**, March 1993

NOTICE OF PUBLICATION

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

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GIVEN under the Seal of New Mexico Conservation Commission at Santa Fe, New Mexico, on this 15th day of September, 1993.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

SEAL

WILLIAM J. LEMAY, Director

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

September 23, 1994

ARTESIA DAILY PRESS
P. O. Box 179
Artesia, New Mexico 87210

ATTN: ADVERTISING MANAGER

RE: NOTICE OF PUBLICATION

Dear Sir/Madam:

Please publish the attached notice one time immediately on receipt of this request. Please proofread carefully, as any error in a land description or in a key word or phrase can invalidate the entire notice.

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Sincerely,

Sally Martinez

Sally E. Martinez
Administrative Secretary

Attachment

Z 765 963 408

Receipt for Certified Mail

No Insurance Coverage Provided
Do not use for International Mail
(See Reverse)

Sent to	
Street and No.	
P.O. State and ZIP Code	Artesia Daily Press P.O. Drawer 179 Artesia, NM 88210
Postage	
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, and Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date	

PS Form **3800**, March 1993

NOTICE OF PUBLICATION

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

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GIVEN under the Seal of New Mexico Conservation Commission at Santa Fe, New Mexico, on this 15th day of September, 1993.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

SEAL

WILLIAM J. LEMAY, Director

Amoco Oil Company
One Prudential Plaza
130 East Randolph Drive
Post Office Box 7513
Chicago, Illinois 60680-7513
Engineering & Construction

July 1, 1994

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

Re: Artesia Pumping Station
Subsurface Investigation - Phase III Report Revisions

Dear Mr. Olson:

Attached are two copies of the revisions to the Artesia Pumping Station Phase III Subsurface Investigation and two copies of the Interception Trench System Work Plan.

In response to your letter dated May 31, 1994, we provide the following information which was discussed with you via telephone on June 9, 1994.

A. Preliminary Conceptual Design

1. OCD Comment: Amoco proposes to vertically install a liner along the back wall of the recovery trench to prevent migration of product. Please provide OCD with information on the type of liner to be used and how Amoco will prevent and/or control groundwater from surfacing over the top of the liner.

   Amoco Response: Amoco intends to use Petrogard VI, a flexible membrane liner, manufactured by MPC Containment Systems. The liner consists of a high strength reinforcing fabric coated with a protective multipolymer. A sample of the liner and performance specifications are attached for your information. The liner will be placed at approximately the depth of the water table. Amoco does not expect the groundwater to surface over the top of the liner. The water table is located at a depth of 25 feet. We anticipate that groundwater will move with the past of least resistance; either around the sides of the liner or below the liner. In addition, a pump will be installed to remove crude and groundwater. Therefore, it is unlikely that groundwater will surface over the top of the liner.

2. OCD Comment: Please provide the locations of all boreholes referenced in this document.

   Amoco Response: A revision to Figure 3 of the Phase III report is included with this attachment which shows the locations of all borings and monitoring wells for Phases I, II, and III of this investigation.

3. OCD Comment: While the remedial concepts presented in this document are acceptable, Amoco's April 29, 1994 correspondence indicates that Amoco is continuing with the final remedial design while the OCD reviews these documents. OCD requests that Amoco provide OCD with the final design of the remediation system prior to approval.

   Amoco response: The final design is submitted in the Interception Trench System Work Plan.

B. Phase III Subsurface Investigation Report

1. OCD Comment: On Page 4, Amoco stated that the hydrocarbon contaminated soils were stored temporarily onsite in 55 gallon drums prior to disposal. Please provide the OCD with the disposal facility to which these soils were taken.

   Amoco Response: The soils are still being temporarily stored onsite.

2. Appendix D contains an analytical results sheet for a monitor well MW-15. Please provide the OCD with the location and well logs for this monitor well.

   Amoco Response: These analytical results were for a duplicate sample so designated so that the laboratory performing the analysis would not be biased. There is no monitor well MW-15.

3. OCD Comment: The well construction logs in Appendix C do not identify the water table elevation in relation to the well screen. Please provide OCD with this information.

Amoco Response: We have included revised Monitoring Well Installation Reports for the Phase III wells, with this attachment to which have been added the measured depth of the static water level (measured in feet below ground surface).

If you have any additional questions or comments, please feel free to contact me at (312) 856-7014.

Sincerely,

Vanessa A. Harris, P.E.
Remediation Coordinator
Remediation Services Division

cc (w/o attachment):

D. S. Earney
G. J. Wurtz
R. Banks
J. Lutter

PETROGARD® VI

CHEMICAL COMPATIBILITY CHART

The following fluids were tested and are considered compatible with PetroGard® VI when used as a secondary containment dike liner with above ground storage tanks:

Antifreeze (ethylene glycol)	#6 Fuel Oil	Mineral Spirits
Animal Oil	Gasoline, leaded	MTBE
ASTM Fuel A	Gasoline, regular unleaded	Naptha
ASTM Fuel B	Gasoline, premium unleaded	Phosphoric Acid (50%)
ASTM Oil #2	Glycerin	Raw Linseed Oil
Aviation Gas	Hydraulic Fluid	SAE-30 Oil
20% Chlorine Solution	Hydrochloric Acid (50%)	Sea Water
Clorox	Hydrofluoric Acid (5%)	Sodium Hydroxide (60%)
Conc. Ammonium Hydroxide	Hydrofluoric Acid (50%)	Sulphuric Acid (50%)
Corn Oil	Hydrofluosilicic Acid (30%)	50% Tanic Acid
Crude Oil	Ivory Soap	Transformer Oil
Diesel Fuel	JP-4 Jet Fuel	Turpentine
Ethanol	JP-5 Jet Fuel	Urea Formaldehyde
Ethyl Alcohol	JP-8 Jet Fuel	Vegetable Oil
Fertilizer Solution	Kerosene	Water (200°F.)
#2 Fuel Oil	Methanol	

The data shown is the result of the following laboratory tests and is intended to serve only as a guide:

Permeability	ASTM E-96
Solubility & Swell	ASTM D-543
Tensile & Elongation	ASTM D-751

Results were arrived at by visual and physical examination of the samples after immersion in the test fluid for 7 days at room temperature. Results represent the ability of the material to retain its performance properties. When considering PetroGard VI for a specific application, it is important to study other requirements such as permeability, service temperature, concentration, size to be contained, etc. MPC Containment Systems Ltd. Technical Department should be consulted for further recommendations. This table is presented and accepted at user's risk.

We believe that the above information is the best currently available on the subject. It is offered as a possible helpful suggestion in experimentation you may care to undertake along these lines. It is subject to revision as additional knowledge and experience are gained.

For more information, call today.

TAI POLYMER - POLYESTER REINFORCED FIBER
#1 OF 2

MPC®
4834 S. Oakley Ave.
Chicago, Illinois 60609
312 927-4120
(Outside IL) 800 621-0146
(Fax) 312 650-6028

PETROGARD® VI
PERFORMANCE SPECIFICATION

1.0 SCOPE

1.1 This specification establishes the requirement for a custom factory prefabricated flexible liner system utilizing the latest state-of-the-art concepts for secondary containment in accordance with the latest Federal and Local regulations.

1.2 The work shall include design, factory fabrication, field interface assembly, anchorage hardware, piping, prefabricated interface ports, test wells, and monitoring wells.

1.3 The materials of construction shall be compatible with the product to be stored in the primary containment vessel(s), and the material's product resistance to permeability shall conform to the criteria stated elsewhere in this specification.

2.0 APPLICABLE DOCUMENTS

2.1 Specification: Federal Standard 191, material testing of protective coated industrial textiles.

2.2 Specification: A.S.T.M. Standard D751-73, method of testing coated fabrics.

2.3 Specification: MIL-I-4520, quality control inspection and testing for the fabrication of flexible membrane materials.

2.4 Specification: Buyers general specification and site drawings.

3.0 REQUIRED SUBMITTALS

3.1 The successful bidder shall provide material and joint test certification demonstrating that the material and fabrication joints shall comply with the physical and chemical resistance requirements of this specification.

3.2 The bid proposal shall include design drawings showing secondary containment interface details at all apertures and shall also include installation instructions.

3.3 The liner system shall be fabricated by MPC Containment Systems, Ltd., Chicago, IL.

4.0 WARRANTY

4.1 A minimum twenty year warranty covering material and workmanship is required.

5.0 ENVIRONMENTAL DESIGN REQUIREMENTS

5.1 The flexible secondary containment liner shall be capable of withstanding the following environmental installation conditions: 5.1.1 Ambient Temperature: 25 - 100 Degrees F.

6.0 MATERIALS AND WORKMANSHIP

6.1 Flexible Liner Material Description

6.1.1 The flexible liner material shall consist of a high strength reinforcing fabric weighing approximately seven and one half (7.5) ounces per square yard, coated with an overall protective multi-polymer, total weight is approximately thirty (30) ounces per square yard +/− 2 ounces.
Color: Black front and back.

6.1.2 Coated Liner Material: The coating compound shall be selected to have characteristics suitable for high temperature thermal-welding, shall be compounded to withstand the attack of high temperature, humidity and mildew, while at the same time, resisting the attack of the products to be stored in the primary containment vessel(s).

6.1.3 Weight and Thickness: 30 ounces per square yard +/− 2 ounces; 30 mils. +/− 2 mils.

6.1.4 Tensile Strength:
Grab lbs., A.S.T.M. D-751 ..... 650 lbs/650 lbs.
1" strip lbs., A.S.T.M. D-751 ..... 485 lbs/485 lbs.

6.1.5 Hydrostatic Resistance: Fed. Std. 5512.1 ..... 600 psi

6.1.6 Adhesion per one inch of width
A.S.T.M. D-751 (2" per minute) ..... 15 lbs.

6.1.7 Low Temperature: A.S.T.M. D-2136 ..... −40°

6.1.8 Flexibility/Resistance to Cracking: PASS
Lab Procedure: Ten (10) pound weighted roller, sample size 2" x 12", fold 180 Degrees, pass roller ten times: PASS

6.1.9 Chemical Resistance: The liner material shall meet the following test criteria for automotive fuels:
Test Procedure: A.S.T.M. E-96 (Transmission of Material)

	Requirement:*
A. Unleaded Gasoline	9.03×10^{-10} cm/sec
B. A.S.T.M. Fuel B	9.19×10^{-10} cm/sec
C. Methanol	3.39×10^{-11} cm/sec

6.1.10 Bursting Strength:
A.S.T.M. D-751, Section 18.2 — 800 lbs. minimum

6.1.11 Puncture Resistance:
A.S.T.M. D-751, Section 18.2
(Ball Tip) — 800 lbs. minimum

6.1.12 Stiffness: A.S.T.M. D-747 — 30,000 psi max. each direction

7.0 LINER MATERIAL FABRICATION DETAILS

7.1 All panel joints shall be thermal automatic high pressure welded, utilizing a two inch lap-seal construction with a tolerance of +/− a quarter of an inch on the lap.

7.2 The coating formulation shall be suitable for thermal type fabrication and shall also be capable of conforming to the following test procedures without affecting the requirements of Section 6.0.

7.2.1 Dead Load Criteria for Joints:

7.2.1.1 Seams carry a minimum dead load of 50% of the minimum strip tensile without separation of the fabric in the warp direction when the temperature of the FML is 70 degrees F. when tested in accordance with MIL-T-52983E.

7.2.1.2 Seams carry a minimum dead load of 25% of the strip tensile when the temperature of the FML is 160 degrees F. when tested in accordance with MIL-T-52983E.

7.2.1.3 Seams shall carry a minimum seam shear strength of 95% of the minimum strip tensile strength of the fabric when tested in accordance with A.S.T.M. D-751, Section 50.

7.3 Patterning:

7.3.1 The flexible membrane liner shall be fabricated from full length modular panels with a maximum of one horizontal splice seam per panel. Splice seams shall be used only when required to utilize full roll size.

7.3.2 Panel joints shall be patterned as shown on the drawings.

7.3.3 Secondary joints and reinforcing areas shall be thermally welded. Stitching and cementing shall not be allowed for normal panel fabrication.

7.3.4 Aperture locations located in the liner shall be suitably reinforced as common practice by the factory fabricator.
Aperture locations in general shall be produced from rigid bulkhead fittings and other mechanical compression members made from synthetic type materials which normally resist corrosion.

8.0 ANCHORAGE SYSTEM

8.1 The liner shall be provided with an anchorage system which shall include hardware as detailed in the manufacturer's installation drawings.

9.0 INSTALLATION

9.1 Installation of the factory manufactured liner system shall be performed by a factory approved and certified contractor.

9.2 A contractor who is not trained or certified may install the secondary containment liner system only under the direction of a factory authorized field technical assistance supervisor. Under this condition, the factory will provide a field report to the construction manager confirming that the liner was installed under his direction.

9.3 The manufacturer of the secondary containment system shall supply detailed installation drawings covering all components supplied.

10.0 TESTING OF THE SECONDARY CONTAINMENT LINER SYSTEM

10.1 The liner manufacturer shall provide written certification that the liner has been vacuum box tested at all panel thermal welded joint locations, and all panel materials have been visually inspected with defects noted and corrected prior to packaging.

10.2 When a membrane liner is fabricated, seamed, sealed, modified or repaired in the field, the part so fabricated, seamed, sealed, modified or repaired shall be subjected to a performance test prescribed by the manufacturer.

CP74734

*Per Koerner Method

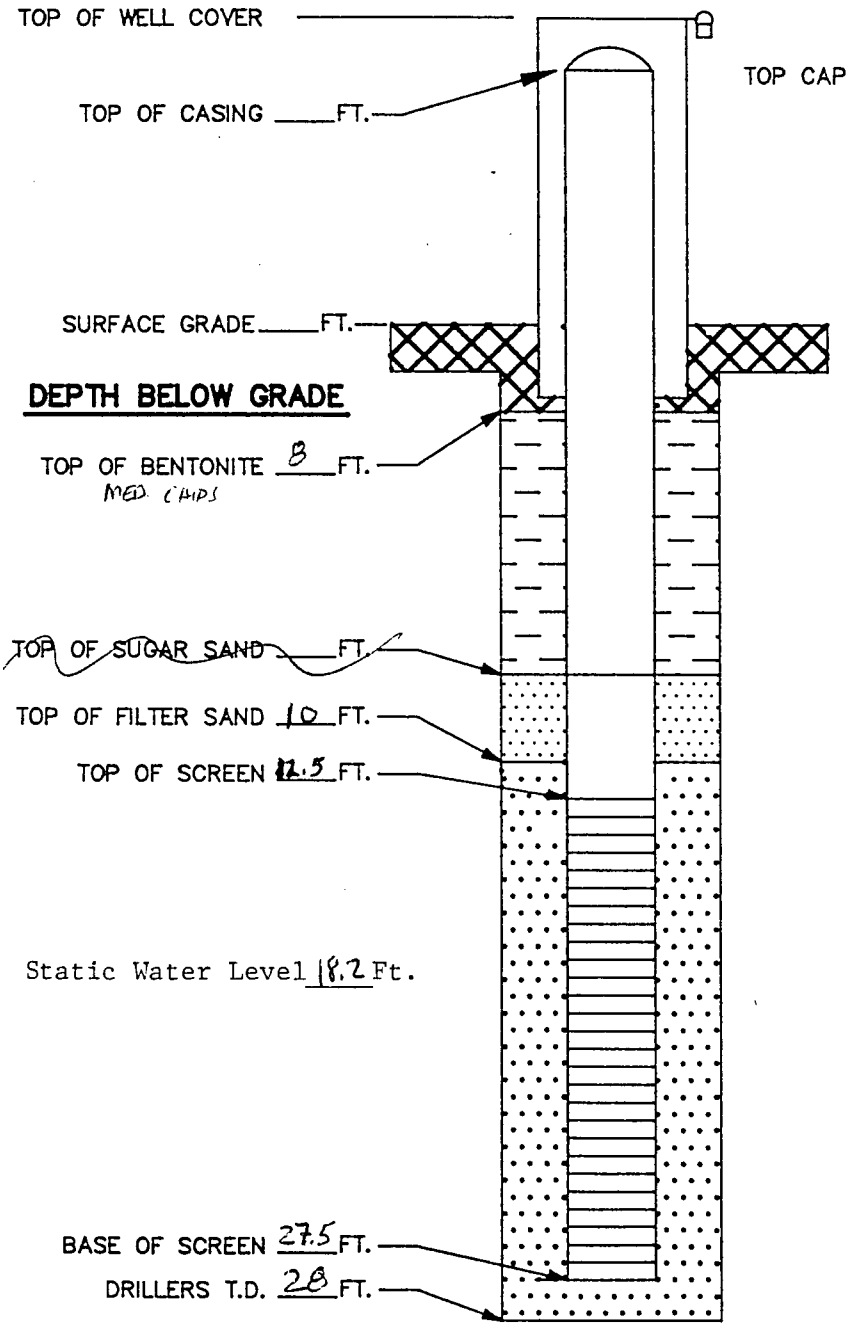
CAD NO. MONWELL1

MITTELHAUSER Corporation
23272 MILL CREEK RD. SUITE 100
LAGUNA HILLS, CA. 92653

MONITORING WELL INSTALLATION REPORT

PROJECT NAME: AMOCO ARTESIA
PROJECT NO.: 2436
DATE: 3-21-94
RIG-UP TIME: 0830
RIG-DOWN TIME: 1015

WELL NO.: MW-8
GEOLOGIST: JDB
AUGER O.D.: 10"
DRILLING CO.: HARRISON
DRILLER: D. REZA



WELL COVER

TOP CAP (SLIP/FLUSH/LOCKING): _____

BLANK CASING

TYPE: SCH 40 PVC
SCHEDULE: 40
I.D.: 4"
THREADS: FLUSH
CASING SECTION: 1 X 10 FT.
_____ X 6 FT.
1 X 5 FT.
_____ X 2.5 FT.

GROUT MIXTURE

VOLCLAY: _____
CEMENT TYPE: _____
CEMENT (SACKS): _____
BENTONITE (SACKS): _____
WATER (GALS): _____
TREMIE PIPE (Y/N): _____

SUGAR SAND

BRAND NAME: _____
TYPE: _____
SIZE: _____
NO. OF BAGS: _____
TREMIE PIPE (Y/N): _____

SAND FILTER PACK

BRAND NAME: TEXAS MINING CO.
TYPE: SILICA
SIZE: 12/20
NO. OF BAGS: 9
TREMIE PIPE (Y/N): AUGERS

SCREEN CASING

TYPE: PVC
SCHEDULE: 40
I.D.: 4"
THREADS: FLUSH
SLOT SIZE: 0.020
CENTRALIZERS (Y/N): NO
CASING SECTION: _____ X 20 FT.
1 X 10 FT.
1 X 5 FT.
_____ X ____ FT.

BARRELS OF CUTTINGS: 1.5
END CAP (SLIP/FLUSH): FLUSH

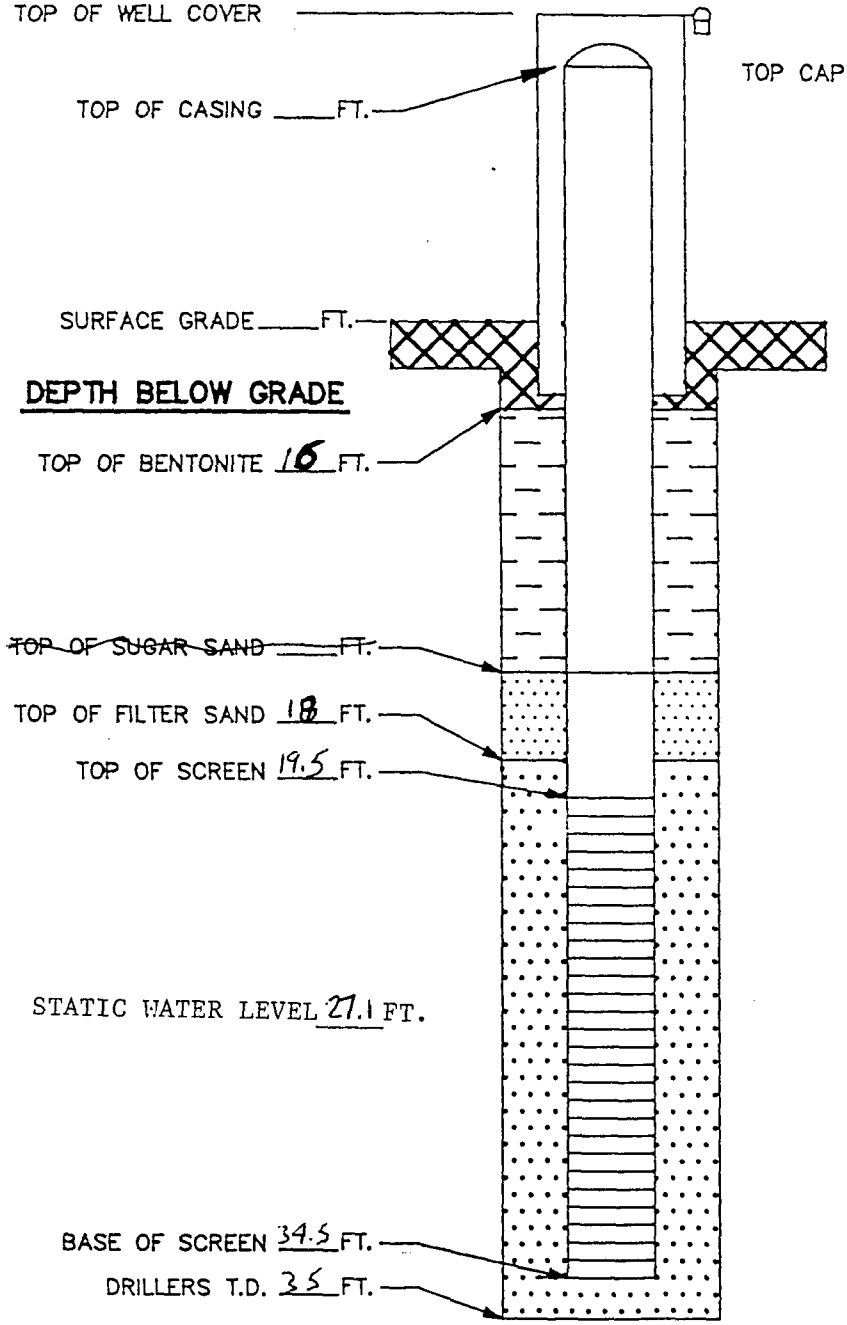
CAD NO. MONWELL1

MITTELHAUSER corporation
23272 MILL CREEK RD. SUITE 100
LAGUNA HILLS, CA. 92653

MONITORING WELL INSTALLATION REPORT

PROJECT NAME: AMOCO ARTESIA STATION
PROJECT NO.: 2436
DATE: 3-21-94
RIG-UP TIME: 1500
RIG-DOWN TIME: 1906

WELL NO.: B-25 / MW-4
GEOLOGIST: JDR
AUGER O.D.: 10.25"
DRILLING CO.: HARRISON
DRILLER: DON REZA



WELL COVER

TOP CAP (SLIP/FLUSH/LOCKING): _____

BLANK CASING

TYPE: PVC
SCHEDULE: 40
I.D.: 4"
THREADS: FLUSH
CASING SECTION: 2 X 10 FT.
_____ X 6 FT.
_____ X 5 FT.
_____ X 2.5 FT.

GROUT MIXTURE

VOLCLAY: _____
CEMENT TYPE: _____
CEMENT (SACKS): _____
BENTONITE (SACKS): _____
WATER (GALS): _____
TREMIE PIPE (Y/N): _____

SUGAR SAND

BRAND NAME: _____
TYPE: _____
SIZE: _____
NO. OF BAGS: _____
TREMIE PIPE (Y/N): _____

SAND FILTER PACK

BRAND NAME: TEXAS MINING CO.
TYPE: SILICA
SIZE: 12/20
NO. OF BAGS: 9
TREMIE PIPE (Y/N): AUGER

SCREEN CASING

TYPE: PVC
SCHEDULE: 40
I.D.: 4"
THREADS: FLUSH
SLOT SIZE: 0.020
CENTRALIZERS (Y/N): _____
CASING SECTION: _____ X 20 FT.
1 X 10 FT.
1 X 5 FT.
_____ X ____ FT.

BARRELS OF CUTTINGS: _____
END CAP (SLIP/FLUSH): _____

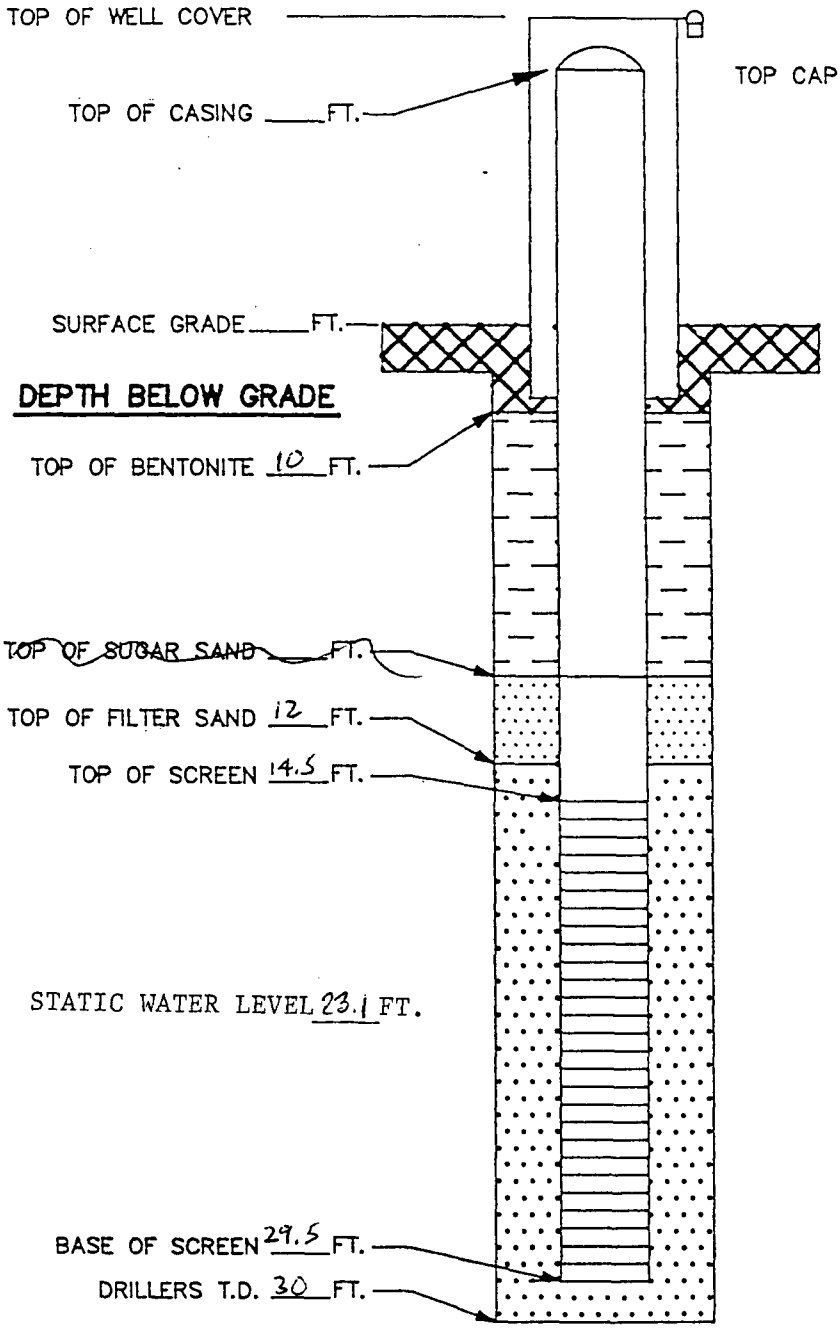
MITTELHAUSER corporation
23272 MILL CREEK RD. SUITE 100
LAGUNA HILLS, CA. 92653

CAD NO. MONWELL1

MONITORING WELL INSTALLATION REPORT

PROJECT NAME: AMOCO ARTESIA STATION
PROJECT NO.: 2436
DATE: 3-22-94
RIG-UP TIME: 0810
RIG-DOWN TIME: 0950

WELL NO.: MW-10
GEOLOGIST: JDB
AUGER O.D.: 10.25"
DRILLING CO.: HARRISON
DRILLER: DONNIE REED



WELL COVER

TOP CAP (SLIP/FLUSH/LOCKING): _____

BLANK CASING

TYPE: PVC
SCHEDULE: 40
I.D.: 4"
THREADS: FLUSH
CASING SECTION: 2 X 10 FT.
_____ X 6 FT.
_____ X 5 FT.
_____ X 2.5 FT.

GROUT MIXTURE

VOLCLAY: _____
CEMENT TYPE: _____
CEMENT (SACKS): _____
BENTONITE (SACKS): _____
WATER (GALS): _____
TREMIE PIPE (Y/N): _____

SUGAR SAND

BRAND NAME: _____
TYPE: _____
SIZE: _____
NO. OF BAGS: _____
TREMIE PIPE (Y/N): _____

SAND FILTER PACK

BRAND NAME: TEXAS MINING CO.
TYPE: SILICA
SIZE: 12/20
NO. OF BAGS: 9
TREMIE PIPE (Y/N): AUGERS

SCREEN CASING

TYPE: PVC
SCHEDULE: 40
I.D.: 4"
THREADS: FLUSH
SLOT SIZE: 0.020"
CENTRALIZERS (Y/N): _____
CASING SECTION: _____ X 20 FT.
1 X 10 FT.
1 X 5 FT.
_____ X ____ FT.

BARRELS OF CUTTINGS: _____
END CAP (SLIP/FLUSH): _____

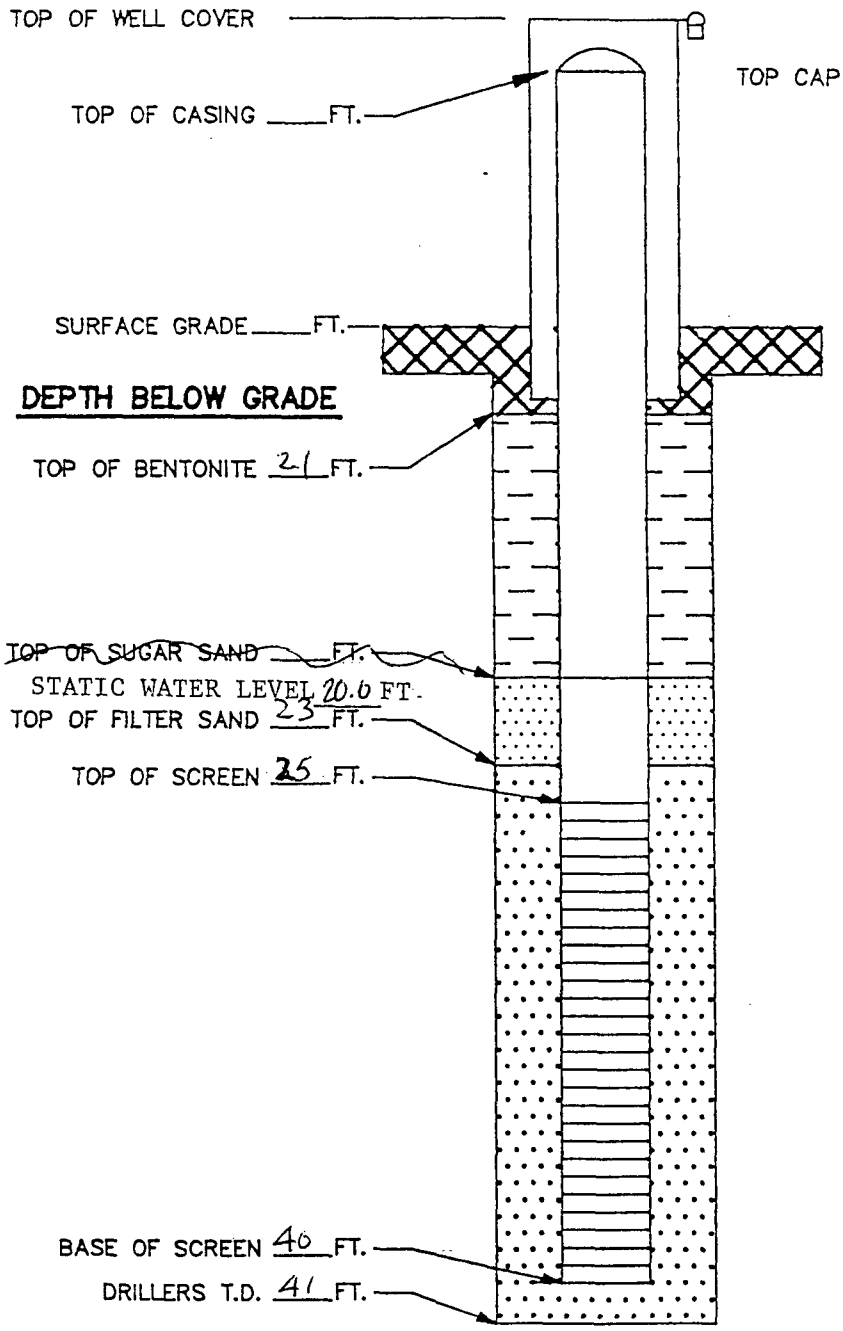
CAD NO. MONWELL1

MITTELHAUSER corporation
23272 MILL CREEK RD. SUITE 100
LAGUNA HILLS, CA. 92653

MONITORING WELL INSTALLATION REPORT

PROJECT NAME: AMOCO ARTESIA STATION
PROJECT NO.: 2436
DATE: 3-22-94
RIG-UP TIME: 1035
RIG-DOWN TIME: 1510 TD

WELL NO.: MW-11
GEOLOGIST: JDB
AUGER O.D.: 10.25"
DRILLING CO.: HARRISON
DRILLER: DONNY REZA



WELL COVER

TOP CAP (SLIP/FLUSH/LOCKING): _____

BLANK CASING

TYPE: PVC
SCHEDULE: 40
I.D.: 4"
THREADS: FLUSH
CASING SECTION: 3 X 10 FT.
_____ X 6 FT.
_____ X 5 FT.
_____ X 2.5 FT.

GROUT MIXTURE

VOLCLAY: _____
CEMENT TYPE: _____
CEMENT (SACKS): _____
BENTONITE (SACKS): _____
WATER (GALS): _____
TREMIE PIPE (Y/N): _____

SUGAR SAND

BRAND NAME: _____
TYPE: _____
SIZE: _____
NO. OF BAGS: _____
TREMIE PIPE (Y/N): _____

SAND FILTER PACK

BRAND NAME: TEXAS MINING CO
TYPE: SILICA
SIZE: 12-20
NO. OF BAGS: 9
TREMIE PIPE (Y/N): AUGER

SCREEN CASING

TYPE: PVC
SCHEDULE: 40
I.D.: 4"
THREADS: FLUSH
SLOT SIZE: 0.020" (.92-.95mm)
CENTRALIZERS (Y/N): _____
CASING SECTION: _____ X 20 FT.
1 X 10 FT.
1 X 5 FT.
_____ X ____ FT.

BARRELS OF CUTTINGS: Ø

END CAP (SLIP/FLUSH): _____

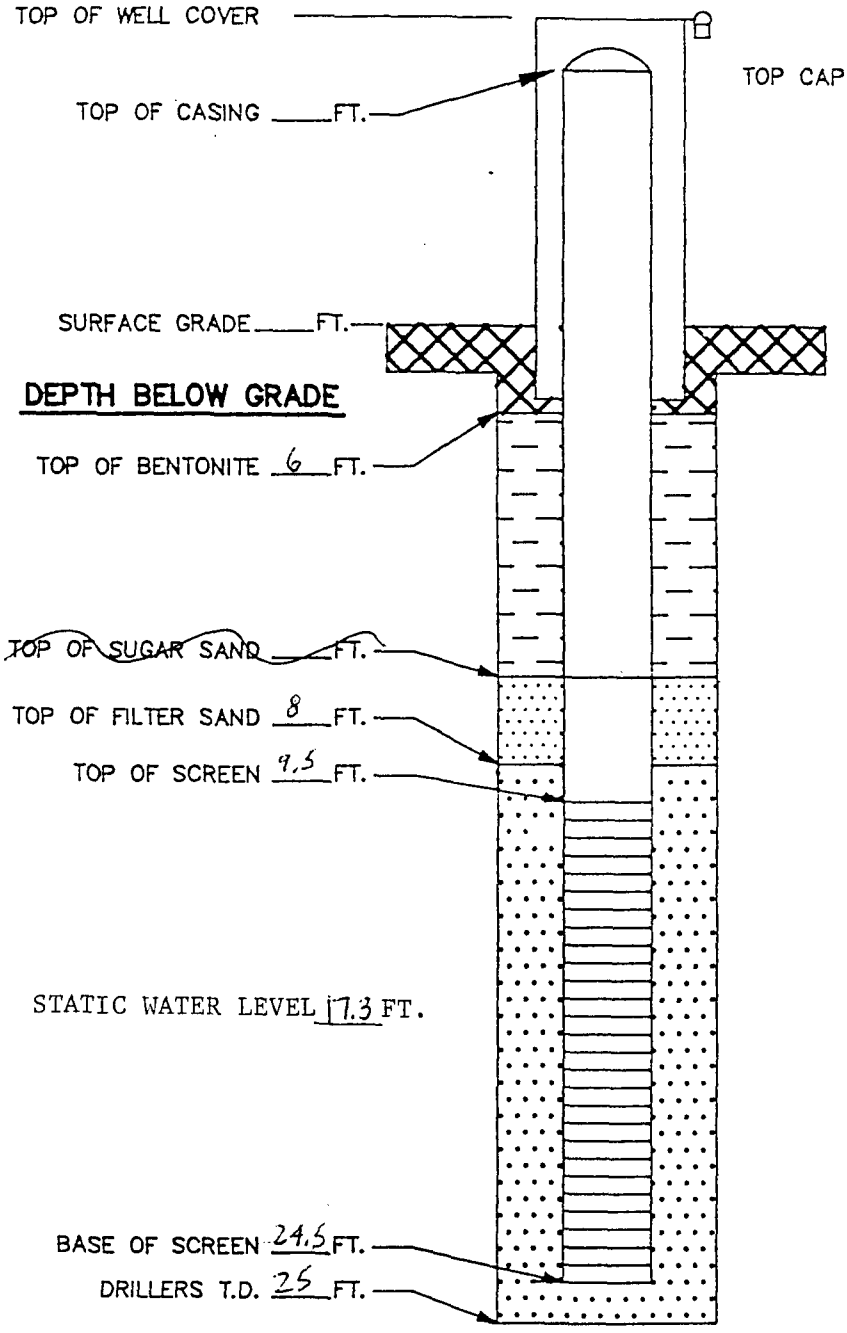
CAD NO. MONWELL1

MITTELHAUSER corporation
23272 MILL CREEK RD. SUITE 100
LAGUNA HILLS, CA. 92653

MONITORING WELL INSTALLATION REPORT

PROJECT NAME: AMOCO ARTESIA STATION
PROJECT NO.: 2436
DATE: 3-23-94
RIG-UP TIME: 1650 on 3-22-94
RIG-DOWN TIME: 1500 on 3-23-94

WELL NO.: MW-12
GEOLOGIST: JDB
AUGER O.D.: 10.25
DRILLING CO.: HARRISON
DRILLER: DENNY REZA



WELL COVER

TOP CAP (SLIP/FLUSH/LOCKING): _____

BLANK CASING

TYPE: PVC
SCHEDULE: 40
I.D.: 4"
THREADS: FLUSH
CASING SECTION: 1 X 10 FT.
_____ X 6 FT.
_____ X 5 FT.
_____ X 2.5 FT.

GROUT MIXTURE

VOLCLAY: _____
CEMENT TYPE: _____
CEMENT (SACKS): _____
BENTONITE (SACKS): _____
WATER (GALS): _____
TREMIE PIPE (Y/N): _____

SUGAR SAND

BRAND NAME: _____
TYPE: _____
SIZE: _____
NO. OF BAGS: _____
TREMIE PIPE (Y/N): _____

SAND FILTER PACK

BRAND NAME: TEXAS MINING CO.
TYPE: SILICA
SIZE: 12/20
NO. OF BAGS: 9
TREMIE PIPE (Y/N): AUGER

SCREEN CASING

TYPE: PVC
SCHEDULE: 40
I.D.: 4"
THREADS: FLUSH
SLOT SIZE: 0.020"
CENTRALIZERS (Y/N): _____
CASING SECTION: _____ X 20 FT.
1 X 10 FT.
1 X 5 FT.
_____ X ____ FT.

BARRELS OF CUTTINGS: Ø
END CAP (SLIP/FLUSH): _____

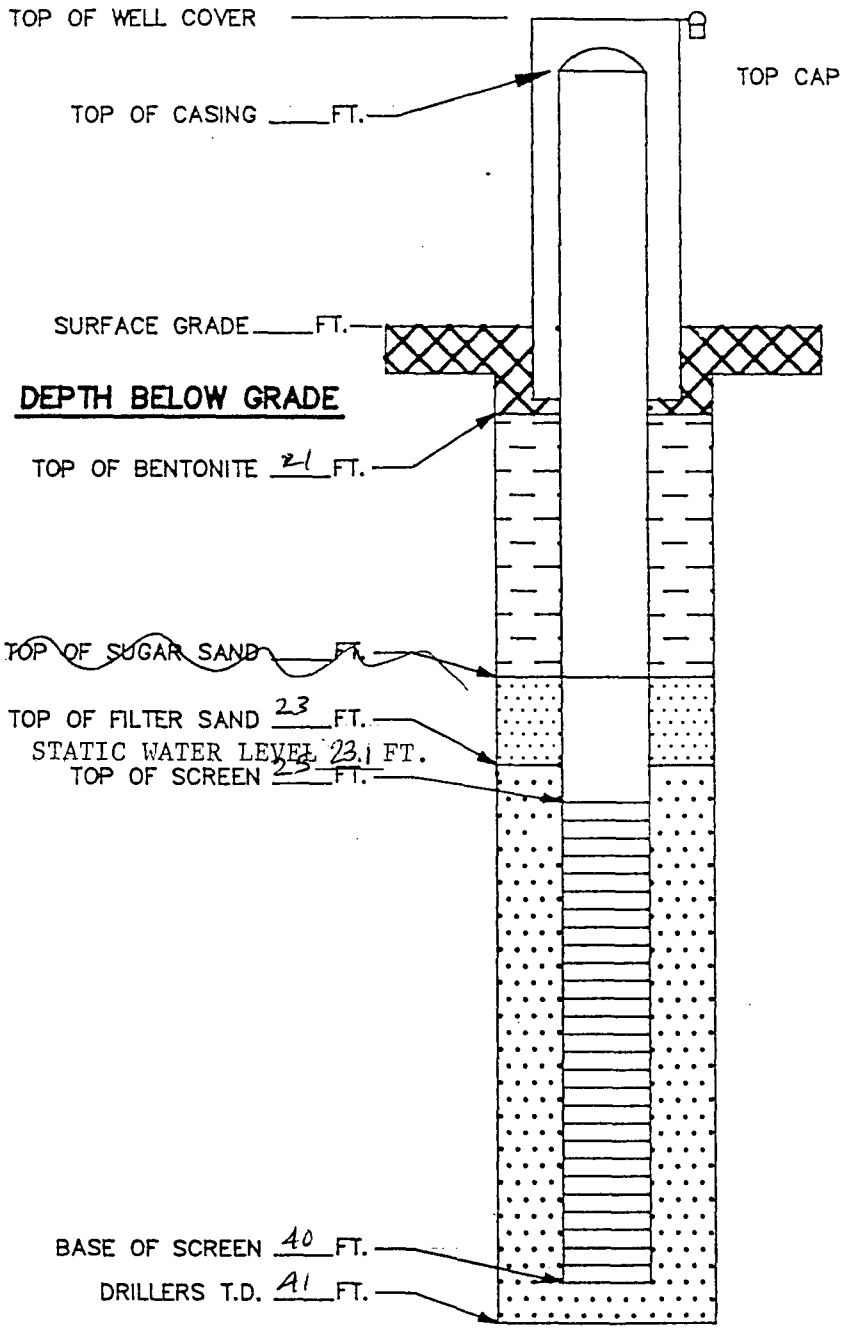
CAD NO. MONWELL1

MITTELHAUSER corporation
23272 MILL CREEK RD. SUITE 100
LAGUNA HILLS, CA. 92653

MONITORING WELL INSTALLATION REPORT

PROJECT NAME: AMOCO ARTESIA STATION
PROJECT NO.: 2436
DATE: 3-24-94
RIG-UP TIME: 1745 on 3-22-94
RIG-DOWN TIME: 0930 on 3-24-94

WELL NO.: MW-13
GEOLOGIST: JOB
AUGER O.D.: 10-25"
DRILLING CO.: HARRISON
DRILLER: DONNY REZA



WELL COVER

TOP CAP (SLIP/FLUSH/LOCKING): _____

BLANK CASING

TYPE: PVC
SCHEDULE: 40
I.D.: 4"
THREADS: FLUSH
CASING SECTION: 3 X 10 FT.
_____ X 6 FT.
_____ X 5 FT.
_____ X 2.5 FT.

GROUT MIXTURE

VOLCLAY: _____
CEMENT TYPE: _____
CEMENT (SACKS): _____
BENTONITE (SACKS): _____
WATER (GALS): _____
TREMIE PIPE (Y/N): _____

SUGAR SAND

BRAND NAME: _____
TYPE: _____
SIZE: _____
NO. OF BAGS: _____
TREMIE PIPE (Y/N): _____

SAND FILTER PACK

BRAND NAME: TEXAS MINING CO
TYPE: SILICA
SIZE: 12/20
NO. OF BAGS: 9
TREMIE PIPE (Y/N): AUGER

SCREEN CASING

TYPE: PVC
SCHEDULE: 40
I.D.: 4"
THREADS: FLUSH
SLOT SIZE: 0.020"
CENTRALIZERS (Y/N): _____
CASING SECTION: _____ X 20 FT.
1 X 10 FT.
1 X 5 FT.
_____ X ____ FT.

BARRELS OF CUTTINGS: 6
END CAP (SLIP/FLUSH): _____

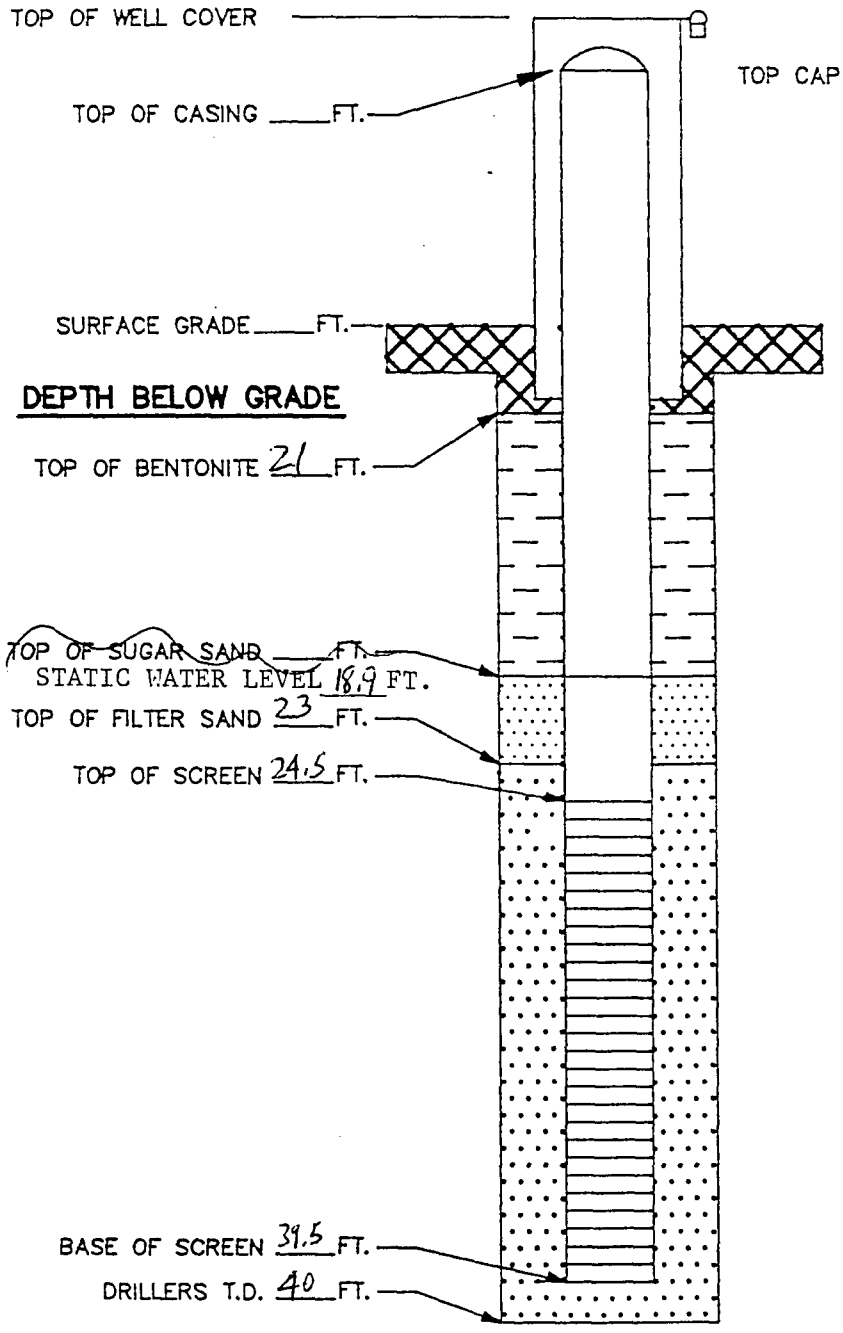
CAD NO. MONWELL1

MITTELHAUSER corporation
23272 MILL CREEK RD. SUITE 100
LAGUNA HILLS, CA. 92653

MONITORING WELL INSTALLATION REPORT

PROJECT NAME: AMOCO ARCH STATION
PROJECT NO.: 2436
DATE: 3-24-94
RIG-UP TIME: 1700
RIG-DOWN TIME: 1915

WELL NO.: MW-14
GEOLOGIST: JDB
AUGER O.D.: 10.25"
DRILLING CO.: HARRISON
DRILLER: DENNY REZA



WELL COVER

TOP CAP (SLIP/FLUSH/LOCKING): _____

BLANK CASING

TYPE: PVC
SCHEDULE: 40
I.D.: 4"
THREADS: FLUSH
CASING SECTION: 3 X 10 FT.
_____ X 6 FT.
_____ X 5 FT.
_____ X 2.5 FT.

GROUT MIXTURE

VOLCLAY: _____
CEMENT TYPE: _____
CEMENT (SACKS): _____
BENTONITE (SACKS): _____
WATER (GALS): _____
TREMIE PIPE (Y/N): _____

SUGAR SAND

BRAND NAME: _____
TYPE: _____
SIZE: _____
NO. OF BAGS: _____
TREMIE PIPE (Y/N): _____

SAND FILTER PACK

BRAND NAME: TEXAS MINING CO.
TYPE: SILICA
SIZE: 12/20
NO. OF BAGS: 8
TREMIE PIPE (Y/N): AUGERS

SCREEN CASING

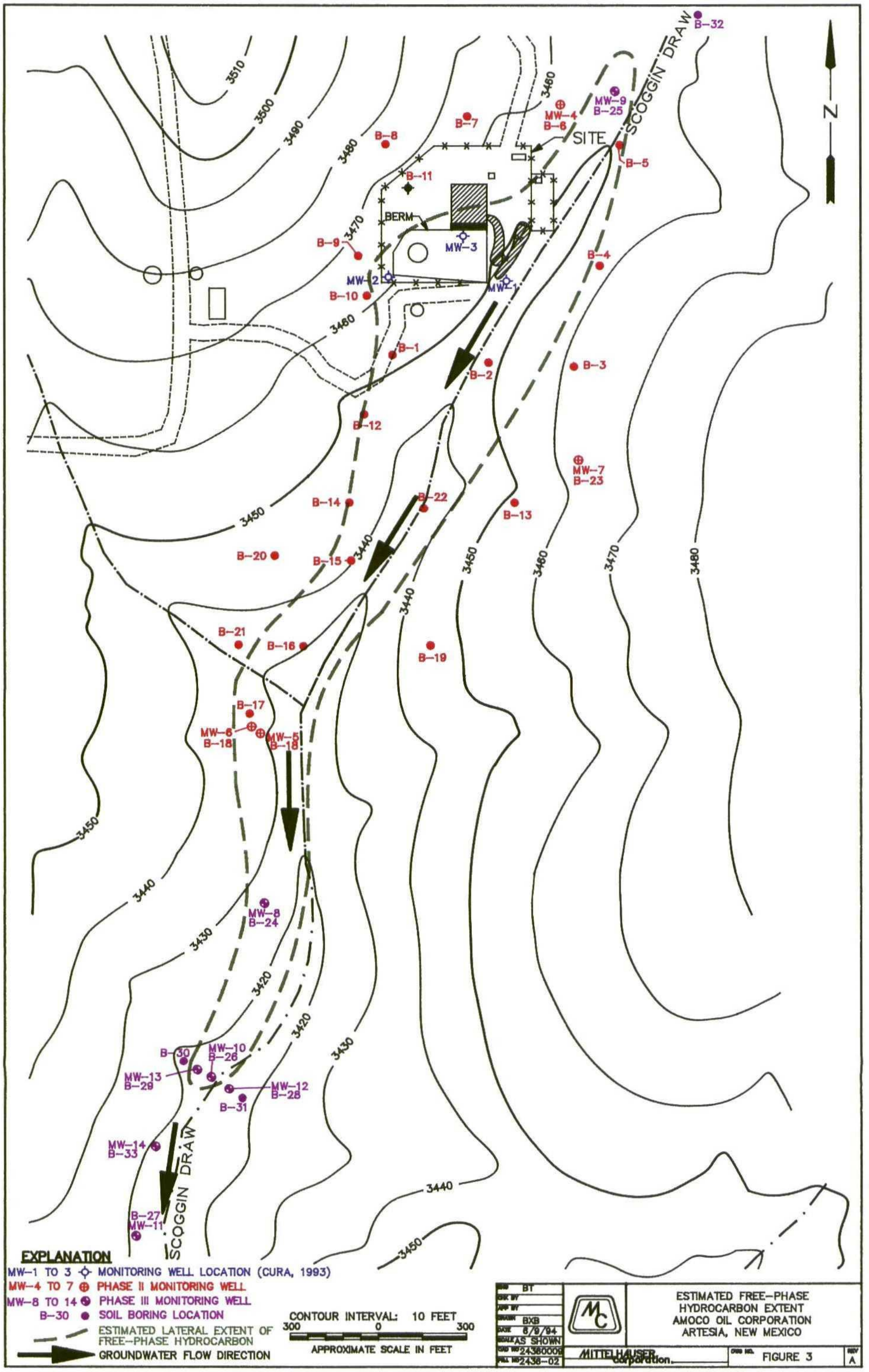
TYPE: PVC
SCHEDULE: 40
I.D.: 4"
THREADS: FLUSH
SLOT SIZE: 0.020"
CENTRALIZERS (Y/N): _____
CASING SECTION: _____ X 20 FT.
1 X 10 FT.
1 X 5 FT.
_____ X ____ FT.

BARRELS OF CUTTINGS: 8
END CAP (SLIP/FLUSH): _____

TABLE 2
AMOCO ARTESIA STATION
INDEX OF BORINGS AND MONITORING WELLS

BORING NUMBER	WELL NUMBER
-	MW-1
-	MW-2
-	MW-3
B-6	MW-4
B-18	MW-5
B-18	MW-6
B-23	MW-7
B-24	MW-8
B-25	MW-9
B-26	MW-10
B-27	MW-11
B-28	MW-12
B-29	MW-13
B-33	MW-14

Note: MW-1, MW-2 and MW-3 were installed by Cura, Inc.


B–32
SCOGGIN DRAW
3510
3500
3490
3480
3460
MW–9
B–25
MW–4
B–6
B–7
B–8
SITE
B–5
B–11
BERM
3470
B–9
MW–3
B–4
MW–2
MW–1
B–10
3460
B–1
B–2
B–3
B–12
MW–7
B–23
B–14
B–22
B–13
3450
3440
3450
3460
3470
3480
B–20
B–15
3440
B–21
B–16
B–19
B–17
MW–6
B–18
MW–5
B–18
3450
3440
MW–8
B–24
3430
3420
3420
3430
B–30
MW–10
B–26
MW–13
B–29
MW–12
B–28
B–31
3440
MW–14
B–33
SCOGGIN DRAW
B–27
MW–11
3450
EXPLANATION
MW–1 TO 3 MONITORING WELL LOCATION (CURA, 1993)
MW–4 TO 7 PHASE II MONITORING WELL
MW–8 TO 14 PHASE III MONITORING WELL
B–30 SOIL BORING LOCATION
ESTIMATED LATERAL EXTENT OF FREE–PHASE HYDROCARBON
GROUNDWATER FLOW DIRECTION
CONTOUR INTERVAL: 10 FEET
300 0 300
APPROXIMATE SCALE IN FEET
BT
BXB
6/9/94
AS SHOWN
2436000
2436–02
ESTIMATED FREE–PHASE HYDROCARBON EXTENT
AMOCO OIL CORPORATION
ARTESIA, NEW MEXICO
MITTELHAUSER corporation
FIGURE 3
A

Preliminary Conceptual Design

Amoco Pipeline Station
Artesia, New Mexico

Prepared For:

AMOCO OIL COMPANY
130 East Randolph Drive
Chicago, Illinois 60680

Prepared By:

MITTELHAUSER CORPORATION
1240 Iroquois Drive
Naperville, Illinois 60563

Project 2436

April 1994

Mittelhauser
CORPORATION

PRELIMINARY CONCEPTUAL DESIGN

Amoco Pipeline Station
Artesia, New Mexico

INTRODUCTION:

Field work conducted by CURA and Mittelhauser Corporation has identified a free-product plume at the Amoco Pipeline Station in Artesia, New Mexico. The extent of the plume has been delineated as of March 1994. Separate reports present the results of the field investigations.

PURPOSE:

The purpose of the proposed design is to intercept free product before it advances further down Scoggin Draw. The proposed design is preliminary. We anticipate additional discussions with Amoco and the Oil Conservation Division of the State of New Mexico before finalizing the design. In addition, it must be understood that any design is subject to field modifications since groundwater and product are traveling via fractured flow. The remainder of this paper describes our proposed design components.

DESIGN COMPONENTS:

- Interception Trench - A trench is proposed instead of well points due to the geology in the area. The boring logs show that flow of product and groundwater is via fractures. A well-point system could be "hit or miss", probably resulting in product bypassing the system.

- Location - The location will be approximately 60 feet south of the line formed by MW-13, MW-10, and MW-12 as shown on Figure 1. These wells appear to define the leading edge of the plume. No product or odor was detected in the next downgradient well, MW-14. Depending on the time of installation of the interception trench and remediation system, a location further south may be required.

- Trench Length - This preliminary design calls for a length of approximately 150 feet. This length should be sufficient based on our current information. We will be prepared to install a longer trench, if necessary, based on field conditions.

- Trench Design - Figure 2 shows the proposed design, which is discussed further below:

  - Depth - A depth of 25 feet was chosen. This depth appears adequate based on the boring logs. Logs for wells in the area, plus water table elevations on March 25, 1994, are provided in Attachment A.

  - Width - A width of three feet was chosen to allow adequate room for installation of recovery sumps and a liner.

  - Fill - We propose to use approximately 20 feet of 1 to 1 1/2 inch gravel that has been screened to remove fines. This amount of fill is in excess of the likely amount (approximately 10 feet) required. The additional rock is inexpensive and will be important if the water table rises significantly. The final five feet will be filled from materials excavated during the trench installation.

  - Liner - We propose to use a liner to the depth of 25 feet on the back wall of the trench. The purpose of the liner is to prevent migration of product through the trench into fractures on the back side. The specific liner will be chosen shortly.

  - Sumps - We propose to install three 24-inch sumps in the trench. The location will be based on field observations of the locations of maximum flow. After construction of the top of the trench, the sumps will be drilled to an additional depth of six feet to enhance groundwater depression. The diameter of the last six feet will be 12 inches.

  - Top Construction - The top of the trench will be composed of four to five feet of fill, the same plastic liner as used on the back wall and eight inches of concrete at the surface. The liner will be placed on top of the gravel and below the fill to prevent migration of fill materials into the gravel. The surface will be finished at the same grade as the Scoggin Draw. Standpipes will rise three feet above the surface level to prevent flooding during heavy rains.

  - Installation Considerations - A bulldozer will be used to remove the first six feet of materials. A backhoe will be used to dig the additional 19 feet. No personnel will be allowed inside the trench.

    It is possible that cave-in will occur below the water table, which we assume to be at 20 feet. If this occurs, a water-bentonite slurry will be pumped into the trench. This slurry will prevent further cave-in and the materials that caved in can be removed by the backhoe. The final

excavation will be completed by digging beneath the slurry and pumping more slurry until the final depth is reached. At this time, the liner and sumps will be installed. The bottom of the liner will be weighted to ensure passage through the slurry. Finally, the slurry will be pumped out. If cave-in does not occur, the bentonite slurry technique as described above will not be used.

Materials dug from the trench will be placed on the north side of the trench to divert rainwater during installation.

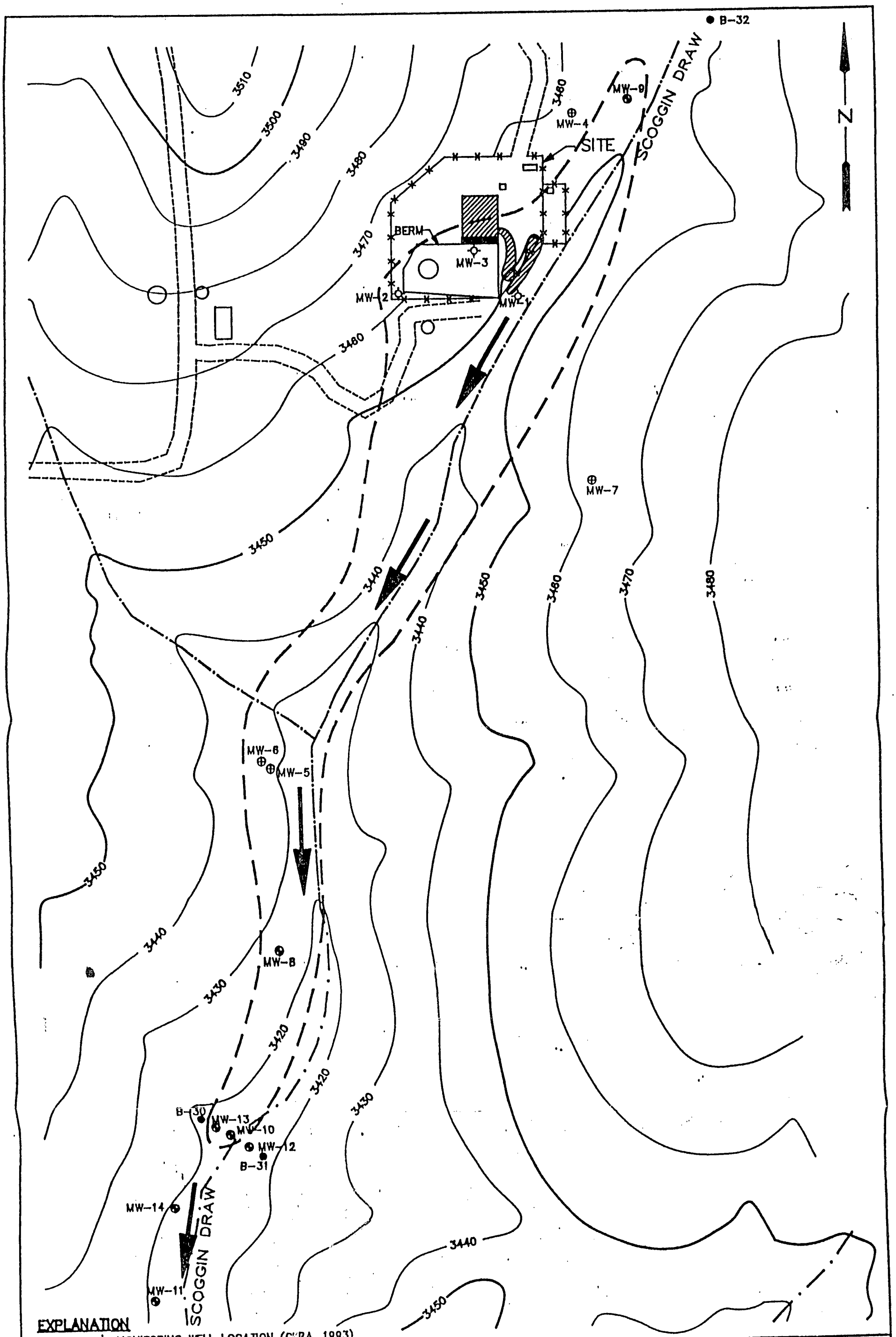
- Product Recovery - One sump will be outfitted with a pump capable of pumping both water and product. Preliminary calculations show that a pumping rate of approximately one to two gallons per minute (GPM) will be adequate to provide a drawdown of approximately one to two feet in the interception trench. The recovery pump will be placed in the 24-inch sump at a location capable of providing this drawdown. Additional recovery systems can be installed later, if required.

- Product Collection - The free product and water will be sent from a sump to a tank (approximately 1,000 gallons) located approximately 20 feet south of the trench and elevated sufficiently to not be affected by flooding in the Draw. It may become advantageous to pump product back to the station, but installation of a pump should be delayed until additional information on product recovery rate is determined.

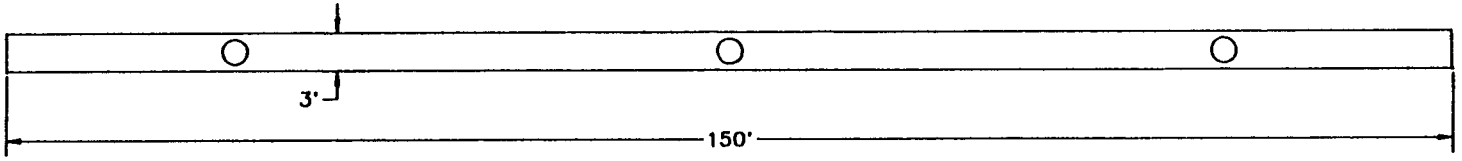
- Product/Water Recovery - We currently anticipate that it will be possible to send the recovered product and water back to the pipeline station, assuming the pumping rate from the water table depression pump is less than 6 gallons per minute. During startup we recommend the use of a vacuum truck to remove product and water from the tank. After operating conditions are better understood, a pump may be installed.

- Safety - We do not anticipate that digging the trench would result in a potentially flammable atmosphere. However, due to the fractured nature of the subsurface we can not rule out this possibility. Therefore, we recommend that foam be available during the installation of the trench. We assume Amoco will provide the foam.

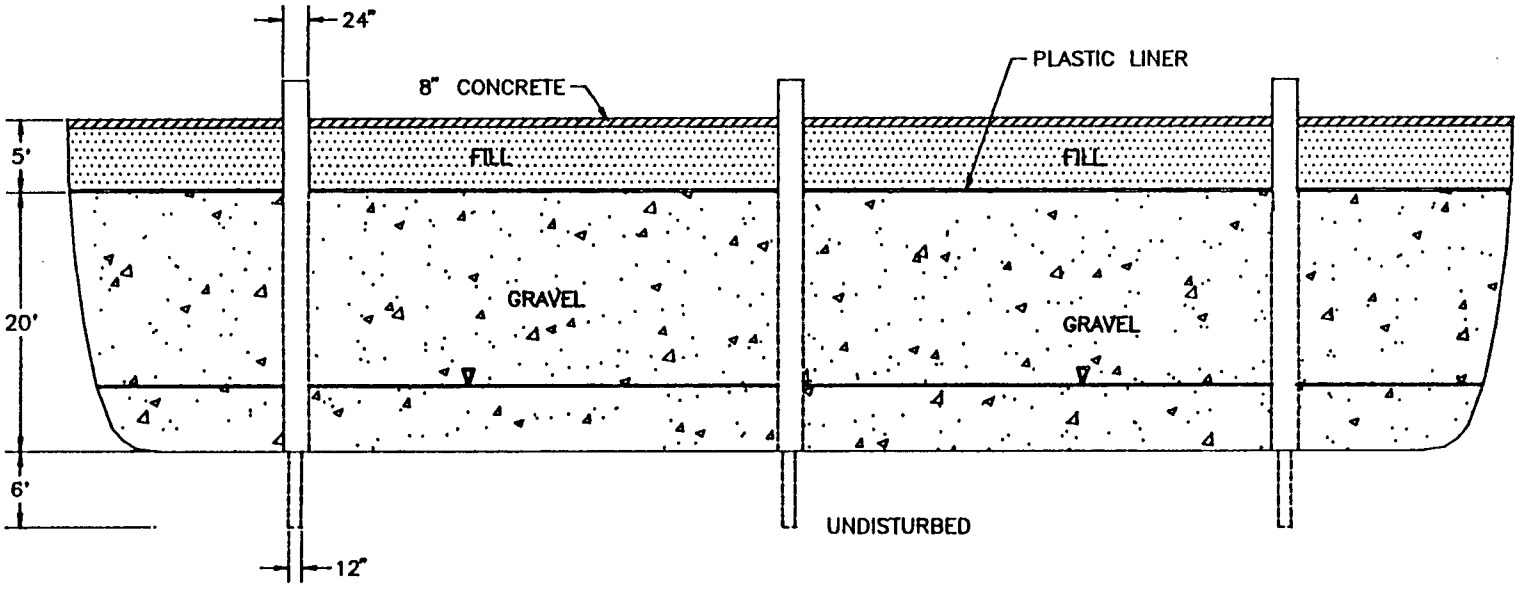
FIGURES


B-32
MW-9
MW-4
SITE
SCOGGIN DRAW
N
BERM
MW-3
MW-2
MW-1
MW-7
MW-6
MW-5
MW-8
B-30
MW-13
MW-10
MW-12
B-31
MW-14
MW-11
SCOGGIN DRAW
3510
3500
3490
3480
3470
3460
3450
3440
3430
3420
EXPLANATION
MW-1 TO 3 MONITORING WELL LOCATION (CURA, 1993)
MW-4 TO 7 PHASE II MONITORING WELL
MW-8 TO 14 PHASE III MONITORING WELL
B-30 SOIL BORING LOCATION
ESTIMATED LATERAL EXTENT OF FREE-PHASE HYDROCARBON
GROUNDWATER FLOW DIRECTION
CONTOUR INTERVAL: 10 FEET
300 0 300
APPROXIMATE SCALE IN FEET
BXB
4/18/94
AS SHOWN
2436-02
MITTELHAUSER corporation
ESTIMATED FREE-PHASE HYDROCARBON EXTENT
AMOCO OIL CORPORATION
ARTESIA, NEW MEXICO
FIGURE 1
B

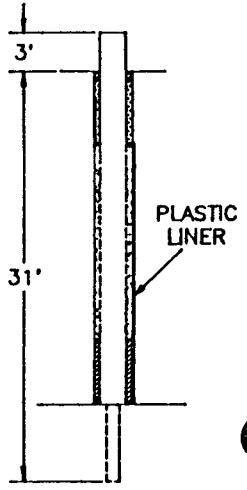
TOP VIEW



SECTION VIEW



SIDE VIEW



GROUNDWATER ELEVATION

Mittelhauser CORPORATION

PRELIMINARY CONCEPTUAL
DESIGN OF TRENCH SYSTEM

AMOCO OIL
ARTESIA, NEW MEXICO

CHECK BY	HMM
DRAWN BY	BCP
DATE	4-4-94
SCALE	AS SHOWN
CAD NO.	243603B
PRJ NO.	2436.00-03
FIGURE	2

ATTACHMENT A

Boring Logs and Water Elevations

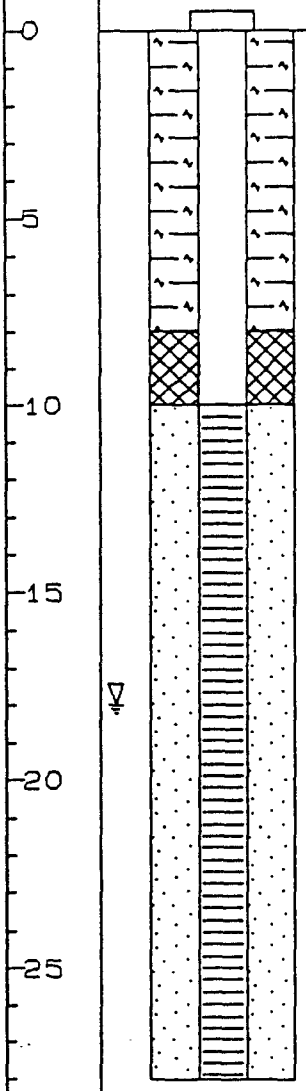
On 3/25/94

Mittelhauser
CORPORATION

MITTELHAUSER corporation

Project Name: AMOCO Artesia
Project No. : 2436
Drilling Co.: Harrison
Driller : Don Reza
Drill Rig : Mobile B-61
Drill Method:
Logged By : JDB
Checked By :

Boring No. : B-24
Location : ~600' S. of MW-5
Grade Elev. : Not Available
Total Depth : 28
First Water : 18
Bedrock Depth: Not Encountered
Started : 3-21-94 0830
Finished : 3-21-94 1015

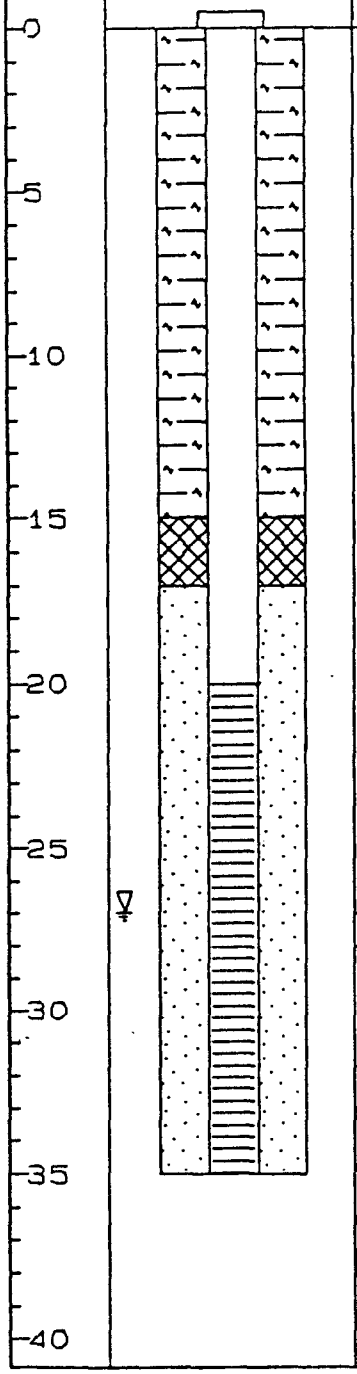


DEPTH (ft)	WELL CONSTRUCTION LOG	SAMPLE OVA	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE BLOW COUNT	USCS	DESCRIPTION
0							
0						ML	0-7' SILTY CLAY: Red/Brown, dry, loose.
7						GY	7-15' GYPSIFEROUS SILTY CLAY: Tan/White to Dark Gray, gypsum fragments, moderate to strong petroleum odor.
10		1300			30		
12		>2500					
15					15	CL	15-20' CLAY: very moist, coarse grained sand, oily staining thoughout.
17		>2500					
20					20		20-28' Yellow/Green layer Dark Gray to Black, gypsum in size to 1.5".
28							TOTAL DEPTH = 28 FEET

MITTELHAUSER corporation

Project Name: AMOCO Artesia
Project No. : 2436
Drilling Co.: Harrison
Driller : Don Reza
Drill Rig : Mobile B-61
Drill Method:
Logged By : JDB
Checked By :

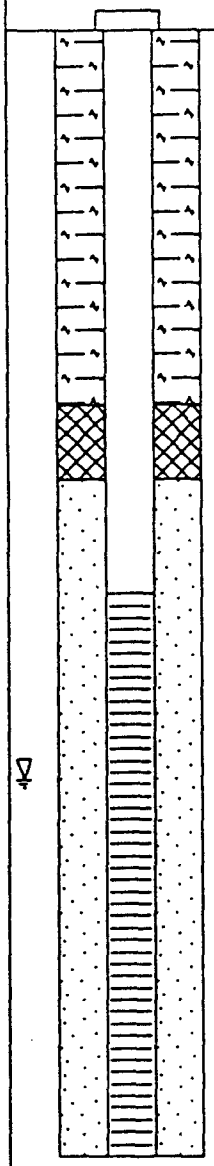
Boring No. : B-25
Location : 100'N. of B-5
Grade Elev. : Not Available
Total Depth : 35
First Water : 27
Bedrock Depth: 13
Started : 3-21-94 1500
Finished : 3-21-94 1806



MITTELHAUSER corporation

Project Name: AMOCO Artesia
Project No. : 2436
Drilling Co.: Harrison
Driller : Don Reza
Drill Rig : Mobile B-61
Drill Method: Hollow Stem Auger
Logged By : JDB
Checked By :

Boring No. : B-26
Location : 600'S. of B-24
Grade Elev. : Not Available
Total Depth : 30
First Water : 20
Bedrock Depth: 7
Started : 3-22-94 0810
Finished : 3-22-94 0950

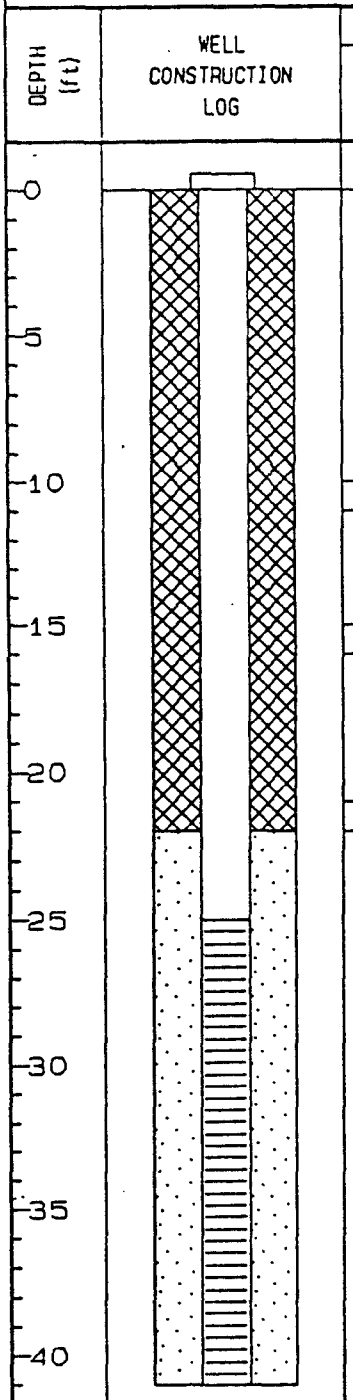


DEPTH (ft)	SAMPLE OVA	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE BLOW COUNT	USCS	DESCRIPTION
0						
					SM	0-3" SILT: Red/Brown, dry, vegetated in upper 2-3".
						3"-16' CLAYEY SILT: Red/Brown, slightly damp.
5						- drilling difficultly increases, color lightens due to inclusion of gypsum powder.
10	0			50 for 10"		Light Red/Brown, moist, with gravel ranging up to 1.25" in max. dimensions, gypsum fragments ranging to 0.5" in max. dim.
						- cuttings are moist, with hydrocarbon odor.
15	0			50 for 10"		
					SC	SILTY CLAY: Medium Brown grading to Light Yellow/Brown gypsiferous silty clay with orange staining, very moist to wet.
	495					gypsum content increasing.
20						
	0			110 for 6"	GY	GYPSUM ROCK: Light Gray, matrix wet, 1" recovery.
25						- gypsum, no sample at this depth.
30						TOTAL DEPTH = 30 FEET
35						

MITTELHAUSER corporation

Project Name: AMOCO Artesia
Project No. : 2436
Drilling Co.: Harrison
Driller : Don Reza
Drill Rig : Mobile B-61
Drill Method:
Logged By : JDB
Checked By :

Boring No. : B-27
Location : 600'S. of B-26
Grade Elev. : Not Available
Total Depth : 41
First Water : Not Encountered
Bedrock Depth: Not Encountered
Started : 3-22-94 1035
Finished : 3-22-94 1510

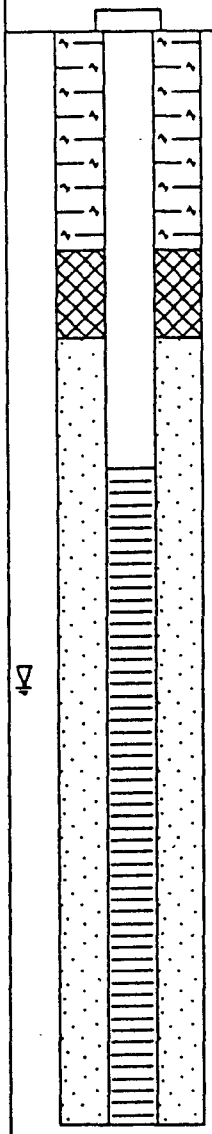


DEPTH (ft)	SAMPLE OVA	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE BLOW COUNT	USCS	DESCRIPTION
0					SM	0-3" SILT: Light Red/Brown, dry, vegetated in upper 3".
						3"-26' SILTY CLAY: Dark Red/Brown, damp.
5						Color lightens, rock fragments.
10	0			19 6"		LIMESTONE: Brown, laminated finely.
					SC	
15	0			20		
						16' CLAYEY SILT: Brown, damp.
20						Greenish tan, fine granular limestone.
	0			50-4-10		re-entered @ 1325.
25				100 4-1"		25' GYPSUM: Medium/Light Gray to transparent, dry, water on samples.
					GY	
30						
35				100		34' CLAYEY SILT: Brown/Red, damp to moist.
					SC	
40						drilling difficulty increased dramatically.
						TOTAL DEPTH = 41 FEET
45						

MITTELHAUSER corporation

Project Name: AMOCO Artesia
Project No. : 2436
Drilling Co.: Harrison
Driller : Don Reza
Drill Rig : Mobile B-61
Drill Method: Hollow Stem Auger
Logged By : JDB
Checked By :

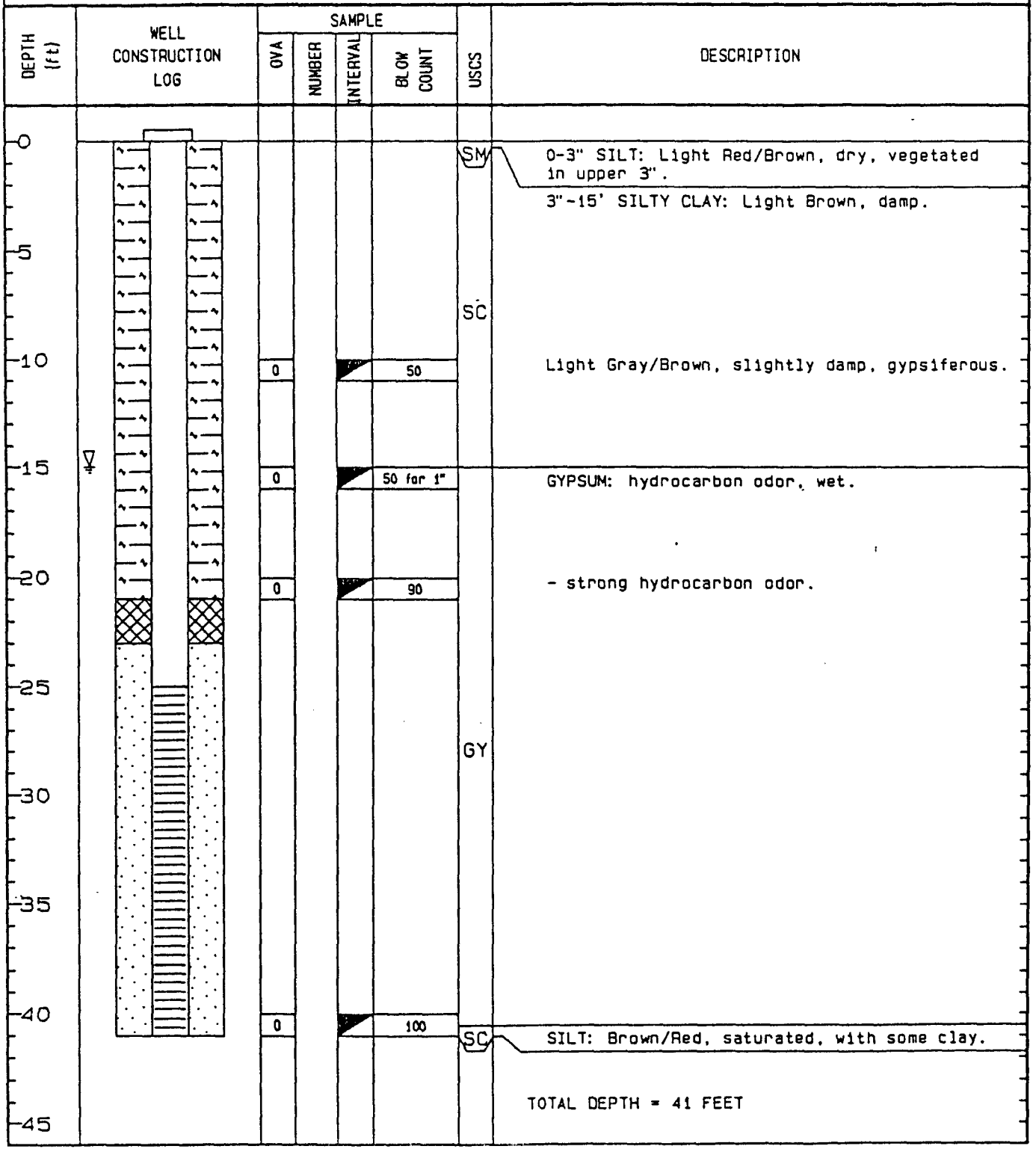
Boring No. : B-28
Location : 60' from B-26 @ S65E
Grade Elev. : Not Available
Total Depth : 25
First Water : 15
Bedrock Depth: 15
Started : 3-22-94 1650/3-23 1327
Finished : 3-22-94 1727/3-23 1500

DEPTH (ft)	WELL CONSTRUCTION LOG	SAMPLE OVA	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE BLOW COUNT	USCS	DESCRIPTION
0							0-3" SILT: Light Red/Brown, dry, vegetated in upper 3".
							- Red/Brown, slightly damp.
5						SM	CLAYEY SILT:
10		0			54		
							- increasingly gypsiferous.
15		0			100 for 6"		GYPSUM: Light Gray, saturated, slight hydrocarbon odor.
20						GY	
25							TOTAL DEPTH = 25 FEET
30							

MITTELHAUSER corporation

Project Name: AMOCO Artesia
Project No. : 2436
Drilling Co.: Harrison
Driller : Don Reza
Drill Rig : Mobile B-61
Drill Method: Hollow Stem Auger
Logged By : JDB
Checked By :

Boring No. : B-29
Location : 60' from B-26 @ N65W
Grade Elev. : Not Available
Total Depth : 41
First Water : 15
Bedrock Depth: 13
Started : 3-22-94 1795/3-23 1635
Finished : 3-22-94 1841/3-23 1810



MITTELHAUSER corporation

Project Name: AMOCO Artesia
Project No. : 2436
Drilling Co.: Harrison
Driller : Don Reza
Drill Rig : Mobile B-61
Drill Method: Hollow Stem Auger
Logged By : JDB
Checked By :

Boring No. : B-30
Location : 150' from B-26 @ N65W
Grade Elev. : Not Available
Total Depth : 35
First Water : 25
Bedrock Depth: 11
Started : 3-23-94 0730
Finished : 3-23-94 1102

DEPTH (ft)	WELL CONSTRUCTION LOG	SAMPLE OVA	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE BLOW COUNT	USCS	DESCRIPTION
0							
5						SM	0-3" SILT: Light Red/Brown, dry, vegetated in upper 3". 3"-30' slightly damp, with some clay.
10		0			100 for 4"		- gypsum cement.
15		0			100 for 4"	GY	GYPSUM ROCK: Light Gray, dry.
20		0			100 for 4"		- moist.
25	▽	0			50 for 14"	SM	SILT: Light Gray gypsum cemented silt grading to Dark Gray silt with some clay, very moist. Dark Gray silt with Light Gray gypsum, moist.
30		0			50 for 1"	GY	GYPSUM ROCK: White grading to Light Gray, dry, but sampler wet.
35		0			100 for 9"	SS	SILTSTONE: Brown/Red grading to Brown/Red silt with some clay, wet.
40							TOTAL DEPTH = 35 FEET

MITTELHAUSER corporation

Project Name: AMOCO Artesia
Project No. : 2436
Drilling Co.: Harrison
Driller : Don Reza
Drill Rig : Mobile B-61
Drill Method: Hollow Stem Auger
Logged By : JDB
Checked By :

Boring No. : B-31
Location : 150' from B-26 @ S65E
Grade Elev. : Not Available
Total Depth : 25
First Water : 15
Bedrock Depth: 22
Started : 3-23-94 1130
Finished : 3-23-94

DEPTH (ft)	WELL CONSTRUCTION LOG	SAMPLE OVA	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE BLOW COUNT	USCS	DESCRIPTION
0							
							0-3" SILT: Light Red/Brown, dry, vegetated to 3".
							- damp.
5							
10		0			50		CLAYEY SILT: Red/Brown, moist, gypsiferous.
						SM	
15	▽	0			50		- wet, cementing is variable, water is most prevalent in zones with less cementing.
20							- gypsum content increases with depth.
						GY	GYPSUM ROCK: White to transparent, wet.
25							TOTAL DEPTH = 25 FEET
30							
35							

MITTELHAUSER corporation

Project Name: AMOCO Artesia
Project No. : 2436
Drilling Co.: Harrison
Driller : Don Reza
Drill Rig : Mobile B-61
Drill Method:
Logged By : JDB
Checked By :

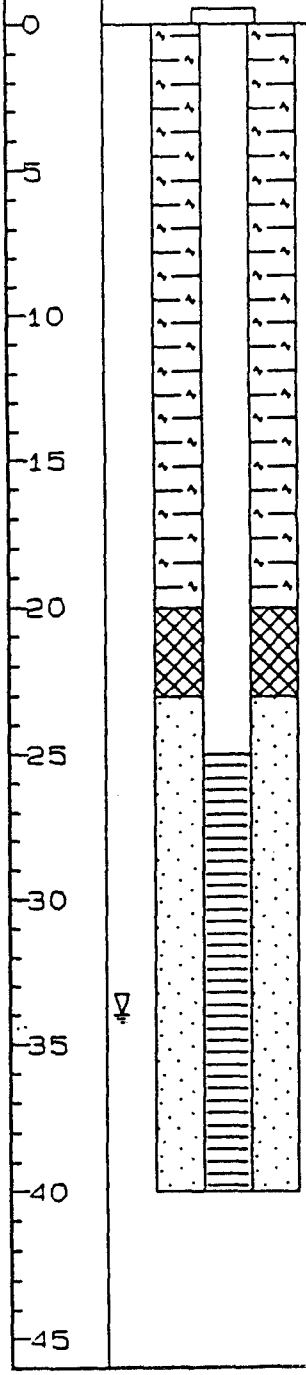
Boring No. : B-32
Location : 340' N of MW-9
Grade Elev. : Not Available
Total Depth : 47
First Water : None Encountered
Bedrock Depth: 15
Started : 3-24-94 1015
Finished : 3-24-94 1544

DEPTH (ft)	WELL CONSTRUCTION LOG	SAMPLE OVA	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE BLOW COUNT	USCS	DESCRIPTION
0						SM	0-3" SILT: Light Red/Brown, dry, vegetated to 3".
						SC	3"-10' SILTY SAND: Red/Brown, slightly damp, fine grained sand.
5							
						GY	Light Red/Brown, damp, gypsum fragments.
10		0			50-4-16		
						SC	CLAYEY SILT: Red/Brown, coarse grained gypsum, gypsifeous sediment.
15		0			50-4-8		Light Red/Brown, coarse grained.
20		0			50-4-1		White/Gray gypsum.
25		0			50-4-0		no recovery, powdered gypsum on shoe.
30		0			50-4-0		no recovery, powdered gypsum on shoe.
35		0			50-4-6		GYPSUM ROCK: saturated.
40		0			50-4-0	GY	dry.
45		0			50-4-0		dry.
50							TOTAL DEPTH = 47 FEET

MITTELHAUSER corporation

Project Name: AMOCO Artesia
Project No. : 2436
Drilling Co.: Harrison
Driller : Don Reza
Drill Rig : Mobile B-61
Drill Method:
Logged By : JDB
Checked By :

Boring No. : B-33
Location : 1500' S of MW-5
Grade Elev. : Not Available
Total Depth : 40
First Water : 34
Bedrock Depth: 9
Started : 3-24-94 1700
Finished : 3-24-94 1915



SAMPLE OVA	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE BLOW COUNT	USCS	DESCRIPTION
				SM	0-3" SILT: Light Red/Brown, dry, vegetated in upper 3".
				SC	3"-7' SILTY CLAY: Red/Brown, damp.
					Light Red/Brown, gypsiferous.
				GY	GYPSUM: White.
					Light Gray/Brown.
					White.
				SC	SILTY CLAY: Brown/Red, saturated, fine grained sand.
					TOTAL DEPTH = 40 FEET

TABLE 1
AMOCO ARTESIA STATION
MONITORING WELL FLUID LEVELS – MARCH 25, 1994

WELL NUMBER	WELLHEAD ELEVATION	PRODUCT DEPTH	PRODUCT ELEV.	WATER DEPTH	WATER ELEV.	PRODUCT THICKNESS	PRODUCT CORRECTION*	PIEZOMETRIC SURFACE	TOTAL DEPTH
MW–1	3453.62	21.43	3432.19	22.14	3431.48	0.71	0.57	3432.05	NM
MW–2	3461.26	27.20	3434.06	28.17	3433.09	0.97	0.78	3433.87	NM
MW–3	3452.49	17.90	3434.59	18.77	3433.72	0.87	0.70	3434.42	NM
MW–4	3469.34	NP	NA	32.89	3436.45	0.00	0.00	3436.45	36.23
MW–5	3435.28	19.69	3415.59	25.48	3409.80	5.79	4.63	3414.43	27.35
MW–6	3434.29	NP	NA	16.21	3418.08	0.00	0.00	3418.08	20.24
MW–7	3465.70	NP	NA	37.25	3428.45	0.00	0.00	3428.45	55.87
MW–8	3429.57	16.24	3413.33	18.15	3411.42	1.91	1.53	3412.95	25.45
MW–9	3461.53	26.98	3434.55	27.11	3434.42	0.13	0.10	3434.52	NM
MW–10	3423.30	23.06	3400.24	23.12	3400.18	0.06	0.05	3400.23	NM
MW–11	3420.90	NP	NA	20.04	3400.86	0.00	0.00	3400.86	43.52
MW–12	3425.27	NP	NA	17.27	3408.00	0.00	0.00	3408.00	28.08
MW–13	3424.68	22.73	3401.95	23.13	3401.55	0.40	0.32	3401.87	NM
MW–14	3422.67	NP	NA	18.92	3403.75	0.00	0.00	3403.75	43.16

ALL MEASUREMENTS IN FEET
NP = NO PRODUCT LAYER
NA = NOT APPLICABLE
NM = NOT MEASURED
* – PRODUCT CORRECTION – ASSUME API=45, (141.5/sp.gr.)–131.5=API

2436LEVL.WK1

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 1100	Date 3/16/94

Originating Party	Other Parties
Vanessa Harris - Amoco	Bill Olson - Envir. Bureau

Subject

Amoco Artesia Station - Ground Water Investigation Notification

Discussion

Will mobilize for drilling next Mon
Will start drilling on Tues 3/22

Conclusions or Agreements

I will notify Mark Ashley of OCD Artesia Office

Distribution
Amoco Artesia File
Mark Ashley - OCD Artesia

Signed Bill Olson

Amoco Oil Company
One Prudential Plaza
130 East Randolph Drive
Post Office Box 7513
Chicago, Illinois 60680-7513
Engineering & Construction

March 1, 1994

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

Re: Amoco Pipeline Station - Artesia, New Mexico Site Investigation

Dear Mr. Olson:

We would like to continue our site investigation of the Amoco Pipeline Station in Artesia, NM in order to begin remediation as quickly as possible. Our proposal is contained in the attached letter from Mittelhauser Corporation.

If you have any questions, please contact me at (312) 856-7014.

Sincerely yours,

Vanessa A. Harris, P.E.
Remediation Coordinator
Remediation Services Division

cc: Doug Earney
Greg Wurtz
Ray Banks, APL
Hank Mittelhauser, Mittelhauser Corporation
Artesia File: General

Mittelhauser
CORPORATION

1240 Iroquois Drive
Naperville, Illinois 60563
(708) 369-0201 Fax (708) 369-1279

February 22, 1994

Mr. Douglas S. Earney
Project Engineer, Remediation
Engineering and Construction
AMOCO OIL COMPANY
Mail Code P0630L2
One Prudential Plaza
P.O. Box 7513
Chicago, IL 60680-7513

Dear Doug:

As a result of our recent trip to the Amoco Pipeline station in Artesia, New Mexico, we propose to install additional boring and monitoring wells to delineate the extent of free product. The borings and monitoring wells will be installed in the same manner as those installed in August 1993 and described in our report dated October 1993 entitled "Subsurface Investigation, Artesia Pumping Station, Artesia, New Mexico."

We propose to advance approximately 10 additional borings. Four of these borings would be approximately 60 feet and 120 feet to the east and west of MW-5. In addition, we propose to advance approximately three additional borings approximately 200 feet south of MW-5. One would be in the center of Scoggin Draw and the other two approximately 100 feet to the east and west of the center boring. We also propose to advance two additional borings in the center of Scoggin Draw at distances of approximately 400 and 600 feet south from MW-5. Finally, we propose to install an upgradient monitoring well approximately 100 feet north of B-5 in the center of Scoggin Draw.

The actual work performed will be dependent upon the results obtained. Additional borings may be required if free product is encountered at the set of three borings 200 feet south of MW-5. We will keep Amoco informed, on a daily basis, of our findings and recommendations.

We recommend that approximately half of the borings be finished as monitoring wells in order to observe the migration of the plume. Specifically, we recommend the furthest borings (at 400 and 600 feet) be finished as monitoring wells. In addition, two or three other borings outside the free product plume should be finished as wells. These wells plus the upgradient well will be sampled for purgable aromatics (method 8020) and polynuclear aromatics (method 8270), as done in the prior investigation.

Tim Lester and Bob Turnbull will talk with you later this week.

Sincerely,

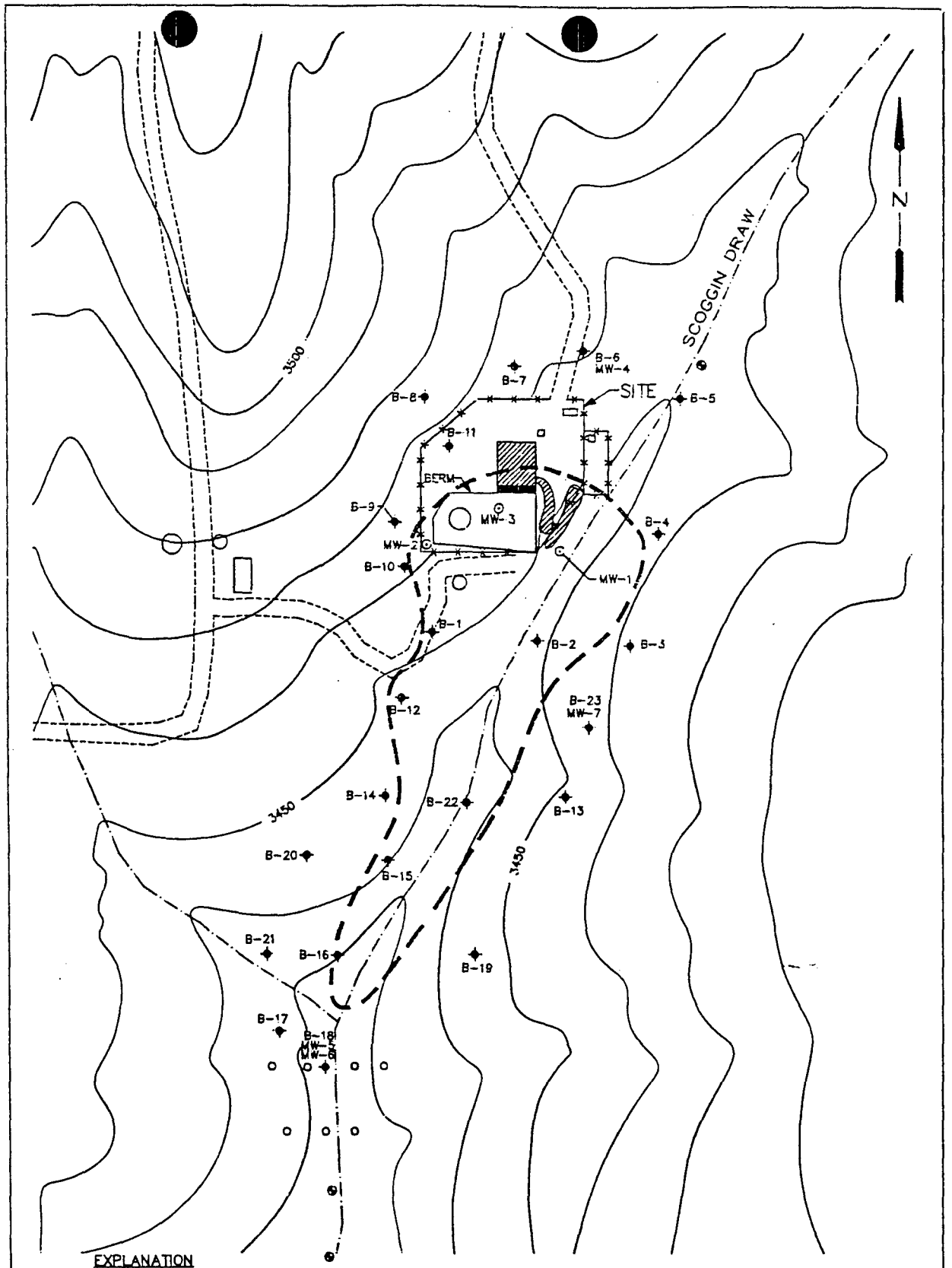
MITTELHAUSER CORPORATION

for Hank Mittelhauser

Hank Mittelhauser, Ph.D.
Chairman

cc: Ray Banks
Vanessa Harris, P.E.
Bob Turnbull

2436CA03.HMM


N
SCOGGIN DRAW
3500
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B-5
B-6
MW-4
B-7
B-8
B-11
BERM
B-9
MW-3
MW-2
B-10
B-4
MW-1
B-1
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B-3
B-12
B-23
MW-7
B-14
B-22
B-13
B-20
B-15
B-21
B-16
B-19
B-17
B-18
MW-5
MW-6
EXPLANATION
PROPOSED BORING LOCATION
PROPOSED MONITORING WELL LOCATION
B-21 MITTELHAUSER BORING LOCATION AND DESIGNATION
MW-4 PREVIOUSLY INSTALLED MONITORING WELL
DIRT ROAD
STAINED SOIL
CHAIN-LINK FENCE
BUILDING
ESTIMATED FREE PHASE HYDROCARBON EXTENT
CONTOUR INTERVAL: 10 FEET
300 0 300
APPROXIMATE SCALE IN FEET
PROPOSED BORING AND MONITORING WELL LOCATIONS
HYDROCARBON EXTENT
AMOCO OIL CORPORATION
ARTESIA, NEW MEXICO
MITTELHAUSER corporation
FIGURE 7
A

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 1430	Date 11/3/93

Originating Party	Other Parties
Bill Olson - Envir. Bureau	Ray Banks - Amoco Pipeline (708) 990-3700

Subject

Amoco Artesia Station Remediation

Discussion

Amoco October 1993 report shows benzene in ground water in excess of TC limits, and therefore is Haz-waste case
Directed him to contact Ed Hoyt at NMED Haz-waste Bureau since they have oversight of haz-waste
Requested that Amoco cc OCD on all correspondence

Conclusions or Agreements

He will notify Doug Earney (Amoco's Project Engineer) to contact NMED Haz waste for remedial actions
He will keep OCD informed of all activities at site

Distribution

Signed Bill Olson

Amoco Pipeline Company
One Mid-America Plaza
Suite 300
Oakbrook Terrace, Illinois 60181-4450
708-990-3700

Raymond L. Banks
Environmental Coordinator

October 12, 1993

Mr. Bill Olson
New Mexico Environment Department
Water and Waste Management Division
Groundwater Bureau
Harold Runnels Building
1190 St. Francis Drive
P.O. Box 26110
Santa Fe, NM 87502

Subsurface Investigation - Amoco Pipeline Company, Artesia Station, Eddy County, NM

Dear Mr. Olson:

Please find enclosed a copy of the *Subsurface Investigation, Artesia Pumping Station, Artesia, New Mexico* which has been produced by Mittlehauser Corporation for Amoco Pipeline Company (APL). This investigation completes the free-phase delineation of impacted groundwater beneath, and adjacent to, the Artesia Station.

Future work at this site will be directed by Amoco Oil Company's Remediation Services Department (RSD). The RSD has received copies of this investigation as well as the preliminary investigation, and will be developing our future course of action. Your contact within the Remediation Services Department will be Mr. Doug Earney, Project Engineer. Mr. Earney can be reached at 312-856-7251. I will continue to be informed of developments regarding this project, so please feel free to contact me if you have any questions; particularly during this transition period.

Sincerely,

Raymond L. Banks

RLB

Enclosure

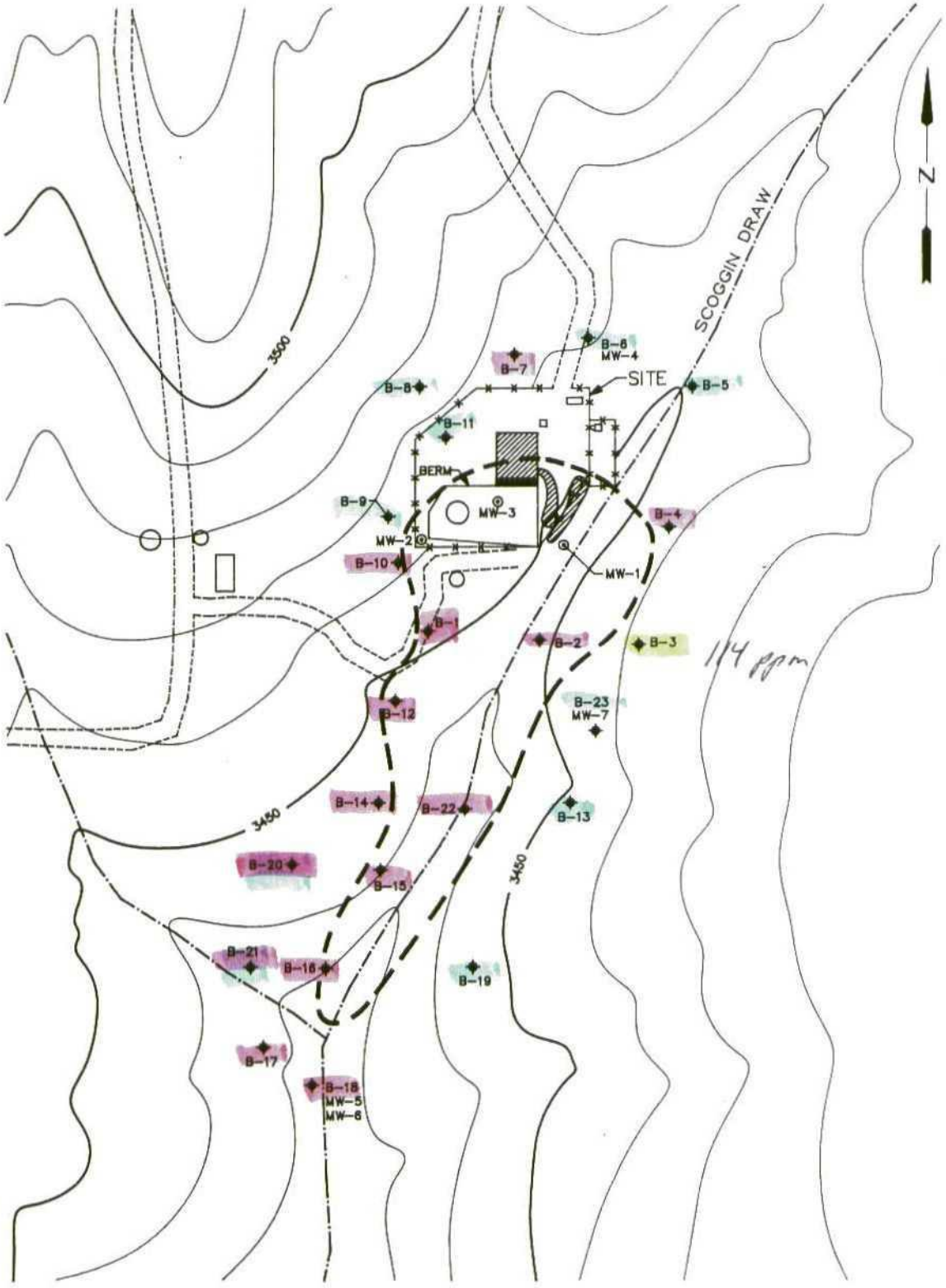
cc: D. S. Earney, AOC-RSD, MC P0630L2, Chicago G.O.
Ray Smith, NM Oil Conservation Division, Artesia, NM

OVA
Soil Vapor at
Water Table

above 2500 ppm

0 ppm

0 - 100 ppm



EXPLANATION

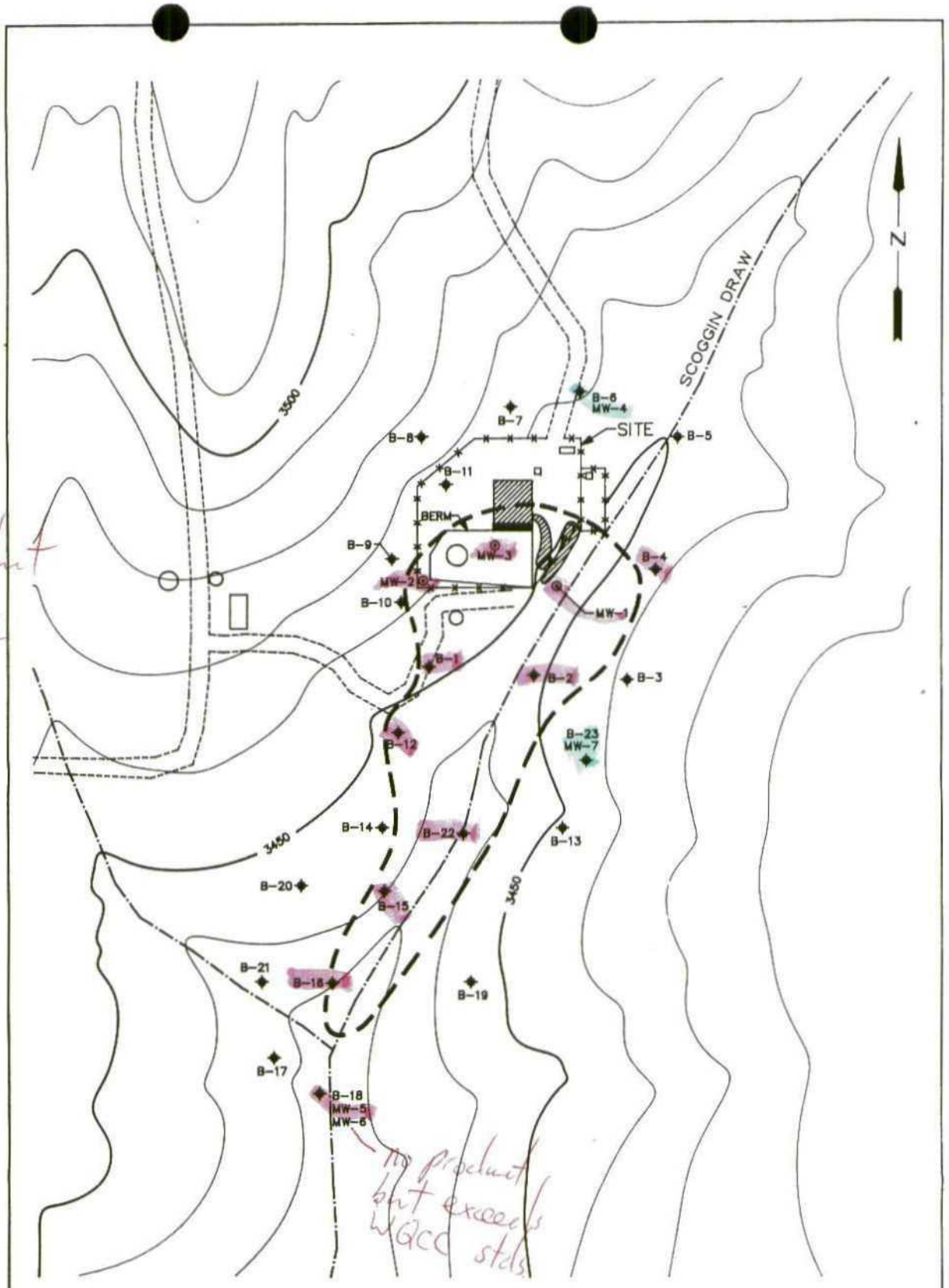
- B-21 ✦ MITTELHAUSER BORING LOCATION AND DESIGNATION
- MW-4 ◎ PREVIOUSLY INSTALLED MONITORING WELL
- DIRT ROAD
- STAINED SOIL
- CHAIN-LINK FENCE
- BUILDING
- ESTIMATED FREE PHASE HYDROCARBON EXTENT

CONTOUR INTERVAL: 10 FEET

300 0 300

APPROXIMATE SCALE IN FEET

EJC		ESTIMATED FREE PHASE HYDROCARBON EXTENT AMOCO OIL PIPELINE CO. ARTESIA, NEW MEXICO
EJC		
10/1/93		
AS SHOWN		
24360003	MITTELHAUSER corporation	FIGURE 7
2436-01		A


SCOGGIN DRAW
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B-6
MW-4
B-7
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MW-2
MW-3
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MW-1
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B-18
MW-5
MW-6
B-19
B-20
B-21
B-22
B-23
MW-7
floating product
no product
GW below
WQCC stds.
no product
but exceeds
WQCC stds
EXPLANATION
B-21 MITTELHAUSER BORING LOCATION AND DESIGNATION
MW-4 PREVIOUSLY INSTALLED MONITORING WELL
DIRT ROAD
STAINED SOIL
CHAIN-LINK FENCE
BUILDING
ESTIMATED FREE PHASE HYDROCARBON EXTENT
CONTOUR INTERVAL: 10 FEET
300 0 300
APPROXIMATE SCALE IN FEET
ESTIMATED FREE PHASE HYDROCARBON EXTENT
AMOCO OIL PIPELINE CO.
ARTESIA, NEW MEXICO
MITTELHAUSER corporation
FIGURE 7
A

Mittelhauser
CORPORATION

23272 Mill Creek Drive
Laguna Hills, California 92653
(714) 472-2444 Fax (714) 472-2418

August 12, 1993

Mr. William C. Olson
Hydrogeologist
State of New Mexico Energy, Minerals and Natural Resources Department
Oil Conservation Division
P.O. Box 2088
Land Office Building
Santa Fe, NM 87504-2088

SUBJECT: ADDITIONAL INFORMATION FOR PRELIMINARY INVESTIGATION AMOCO OIL STATION - ARTESIA, NEW MEXICO

Dear Mr. Olson,

Mittelhauser Corporation submits this document, on behalf of Amoco Pipeline Company (APL), to provide additional information as requested by the New Mexico Oil Conservation Division (OCD). In a letter to APL dated July 28, 1993, the OCD requested 5 items to be addressed in more detail. The additional information is as follows:

1) **"The construction details for the proposed monitor wells."** The monitoring wells are to be installed with a maximum screened interval of 20 feet below and 10 feet above the water table. If shorter screened intervals are used, the casing will be installed such that the water table falls at least 2 feet below the upper limit of the screened interval.

The casing is to be constructed of 4-inch schedule 40 polyvinyl chloride (PVC) well casing. The well screen will be machine slotted with 0.020-inch slots on 0.25-inch centers. The annular space will be backfilled with No. 3 Monterey sand or equivalent. The wells will be finished in accordance with the "Monitoring Well Design and Construction" guidelines as promulgated by the Environmental Protection Agency in the "RCRA Ground-Water Monitoring Technical Enforcement Guidance Document" of 1986.

2) **"A sampling plan for soils and ground water from the boreholes and monitor wells."** The goal of this investigation is delineated the lateral extent of the product plume, its thickness and the characteristics of the soil it occupies. The impact to the ground water impact will be the focus of the sampling plan which calls for collecting samples from the 4 new monitoring wells, 24 to 48 hours

after development. These wells will be placed outside the free-product plume. The samples will be placed on ice and shipped to the laboratory under chain of custody protocol. The samples will be analyzed for benzene, toluene, ethylbenzene and xylenes in accordance with EPA method 8020.

Continuous-core drilling will be utilized below 15 feet to accurately locate the impacted zone. The drill cuttings and returns from the continuous-core barrel will be screened with a photo-ionization detector (PID) during drilling. No soil samples will be collected for analytical work because the soil within the plume is expected to exhibit maximum hydrocarbon concentrations.

3) **"Proposed abandonment procedures for boreholes which will not be completed as monitor wells."** The boreholes will be backfilled completely with bentonite grout.

4) **"The proposed disposition of fluids from the recovery wells."** The recovery wells will be fitted with a product removal system based on the findings of this investigation. The type of removal system and the disposition of the recovered product will be determined during the next phase of site work.

5) **"A commitment for submission of a report containing the results of the investigation."** A report summarizing the findings of the investigation will be prepared upon receipt of the laboratory results. This report will be forwarded to APL, and upon approval, to the OCD.

Mittelhauser Corporation and Amoco Pipeline Company thank you for your assistance in this matter. Field work is currently scheduled to commence on August 23, 1993. Should you have any questions or require additional information, please contact either Jeff Bennett or Tim Lester at (714) 472-2444.

Sincerely,

MITTELHAUSER CORPORATION

Jeffrey D. Bennett, M.Sc.
Remediation Specialist

2436CB
JDB:eaa

cc: Mr. Raymond L. Banks - Amoco Oil Company
Mr. Ray Smith - New Mexico OCD - Artesia, NM
Mr. Timothy A. Lester - Mittelhauser

Amoco Pipeline Company
One Mid-America Plaza
Suite 300
Oakbrook Terrace, Illinois 60181-4450
708-990-3700

Raymond L. Banks
Coordinator, OP&T Environmental Services

July 9, 1992

Mr. Bill Olson
New Mexico Environment Department
Water and Waste Management Division
Groundwater Bureau
Harold Runnels Building
1190 St. Francis Drive
P.O. Box 26110
Santa Fe, NM 87502

Delineation of Hydrocarbon Impacted Groundwater - Amoco Pipeline Company, Artesia Station, Eddy County, NM

Dear Mr. Olson:

As stated in my letter of June 21, 1993, Amoco Pipeline Company (APL) is preparing to enter the delineation phase of the hydrocarbon affected groundwater beneath our Artesia Station. A review of adjacent land ownership shows that all property directly adjacent to the station is New Mexico Public Lands. APL is in the process of obtaining permission from the New Mexico Public Land Office to do additional soil borings and install groundwater monitoring wells as necessary.

APL's tentative delineation plan calls for the drilling of 12 to as many as 30 soil borings. Baring unforeseen access problems, an initial set of 12 borings will be placed on 400 foot centers, located 400 feet from the property lines. The need for additional borings will be determined based on the results of the initial set. The depths of the borings will be to the first occurrence of groundwater plus 3 feet, or to a maximum of 50 feet if no water is encountered. It is anticipated that at least 4 of these borings will be converted to groundwater monitor wells if water is encountered.

In conjunction with the delineation phase, APL intends to begin the recovery of free-product from two of the three existing groundwater monitor wells located within the station boundary. The most likely method of recovery, at this point in the investigation, involves the installation of 1 to 2 portable, hydrocarbon skimmers. The skimming belt will selectively attract and retain the hydrocarbons while repelling water.

I will notify you as soon as we receive permission to proceed from the New Mexico Public Land Office, and can mobilize the required equipment. If you have any questions or concerns in the meantime, please do not hesitate to contact me at 708-990-6152.

Sincerely,

Raymond L. Banks

RLB

cc: Ray Smith, NM Oil Conservation Division, Artesia, NM

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 1450	Date 7/14/93
Originating Party		**Other Parties**
Ray Banks - Amoco Pipeline Chicago		Bill Olson - Envir. Bureau

Subject

Amoco Artesia Station - Spill Remediation

Discussion

He will be working on this case and will address remediation as part of overall site remediation

He has sent investigation plan to me. Should arrive shortly

Conclusions or Agreements

Distribution

file
Ray Smith & Mark Ashley - OCD Artesia

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 1430	Date 7/14/93

Originating Party	Other Parties
Bill Olson - Envir. Bureau	Jim Homer - Amoco Pipeline 396-2817

Subject

Amoco Artesia Station Spill Remediation

Discussion

Informed him that Envir. Bureau will be workin on this remediation due to possibity of RCRA problem and Resina are already working on site. Told him all wastes from crude pipeline must be tested for Haz-waste characteristics prior to remediation

Conclusions or Agreements

He will refer case to Ray Banks Re at Amoco Chicago office since he is already working on G.W. contamination related to the storage tank at the facility

Distribution

file
Ray Smith - OCD Artesia
Mark Ashley - " "

Signed Wm Olson

Submit 3 Copies to Appropriate District Office

State of New Mexico
Energy, Minerals and Natural Resources Department

Form C-103
Revised 1-1-89

DISTRICT I
P.O. Box 1980, Hobbs, NM 88240

DISTRICT II
P.O. Drawer DD, Artesia, NM 88210

DISTRICT III
1000 Rio Brazos Rd., Aztec, NM 87410

OIL CONSERVATION DIVISION
P.O. Box 2088
Santa Fe, New Mexico 87504-2088

WELL API NO.

5. Indicate Type of Lease STATE ☐ FEE ☐

6. State Oil & Gas Lease No.

SUNDRY NOTICES AND REPORTS ON WELLS
(DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT" (FORM C-101) FOR SUCH PROPOSALS.)

7. Lease Name or Unit Agreement Name
Amoco Pipeline
Artesia Station

1. Type of Well:
OIL WELL ☐ GAS WELL ☐ OTHER Pipeline Gathering Station

2. Name of Operator
Amoco Pipeline Company

8. Well No.

3. Address of Operator
302 E. Avenue A, Lovington, NM 88260

9. Pool name or Wildcat

4. Well Location
Unit Letter _____ : _____ Feet From The _____ Line and _____ Feet From The _____ Line
S2/4-NW/4
Section 10 Township 18S Range 27E NMPM Eddy County

10. Elevation (Show whether DF, RKB, RT, GR, etc.)

11. Check Appropriate Box to Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
PERFORM REMEDIAL WORK	X	PLUG AND ABANDON	☐	REMEDIAL WORK	☐	ALTERING CASING	☐
TEMPORARILY ABANDON	☐	CHANGE PLANS	☐	COMMENCE DRILLING OPNS.	☐	PLUG AND ABANDONMENT	☐
PULL OR ALTER CASING	☐			CASING TEST AND CEMENT JOB	☐		
OTHER:	☐			OTHER:			☐

12. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work) SEE RULE 1103. SCOPE OF PROJECT: The temporary surface impoundment area is an unlined, earthen area, bermed on three sides and open to the North, approximately two hundred (200) feet by one hundred fifty (150) feet in dimension. We were unable to effectively sample the location to determine the depth of the contamination with coring techniques. Using an overall average of three (3) feet of contamination there would be approximately 3,333 cubic yards of contaminated soil which would have to be remediated under Oil Conservation Division (OCD) Guidelines.

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

SIGNATURE _____ TITLE Field Foreman DATE 07/14/93

TYPE OR PRINT NAME Mr. Jim Homer TELEPHONE NO. (505) 396-2817

(This space for State Use)

APPROVED BY _____ TITLE _____ DATE _____

CONDITIONS OF APPROVAL, IF ANY:

ONSITE

Utilizing the land treatment methods, there are several techniques used for closing a pit onsite. The most effective methods are landfarming, vertical mixing, and stabilization. Of these three listed techniques, landfarming would be the one most commonly associated with land treatment. The contaminated organics (oil, grease, aromatics) are used as food by soil microbes, particularly certain strains of thermophilic aerobic bacteria. The organic waste is ultimately broken down into carbon dioxide and water. Metals are diluted and absorbed by clay particles in the soil, immobilizing them and reducing their availability for migration into ground or surface water, for plant uptake. Salts and pH are adjusted by soil amendments.

Vertical mixing is a variation of dilution burial. The heavily contaminated material located on top of the pit is mixed with the soil beneath the pit in hopes of achieving acceptable contamination levels. The OCD is not opposed to dilution of outside soil, but the limits imposed by the OCD are often hard to achieve if the entire surface impoundment area, including the possibility of liquid sludge which has to be treated, due to the high ratio of clean fill that must be used for final dilution. If the contaminated soil has components which exceed Resource Conservation and Recovery Act (RCRA) limits or more stringent limits imposed by the state agency controlling the waste, then dilution is no longer an option.

The last listed technique of land treatment is stabilization. In stabilization, the waste material is mixed with other ingredients that encapsulate the contaminants and bind them in a non-toxic matrix that prevents their escape into the environment. Properly carried out, the resultant mixture will support the weight of heavy equipment. It should be noted that a potential liability would still exist with stabilization.

There is ample land in the vicinity for land treatment, the land owner would have to approve the treatment along with the District Office of the OCD. The pit is not in a close proximity to environmentally sensitive areas. The water table in the area should not pose a problem. The elevated TPH of the contamination, though being elevated is treatable.

The last method listed would be to reclaim the soil by means of washing and separation. The soil is physically washed in a water solution with enzymes or surfactants to break out the hydrocarbons and other contaminants and the reclamation and separation of the soil is achieved by

means of a hydrocyclone or centrifuge. The free hydrocarbon contaminant and a portion missed in the separated liquid is disposed of at a permitted and licensed disposal facility. There are several variations to the washing methods which we are currently evaluating in actual operations. The costs for operating the units are still high and this alternative method at present would not be recommended as an option at present.

Recommended Remediation Response

We recommend that a couple of the techniques listed above be incorporated, not only to effectively control the contamination, but to control the overall cost. Our overall recommendation would be to remediate the heavy hydrocarbon contaminated soil by landfarming with microorganisms and to dilute the remaining soil under the contamination limits set under the OCD guidelines for unlined surface impoundments. A Total Ranking Score of 1,000 parts per million (ppm) of TPH along with 10 ppm of Benzene and 50 ppm of BTEX would be the limits with the depth of the groundwater less than 100 feet.

NATURES' WAY or MICRO-BLAZE OUT is an enhanced applied microbial bioremediation product designed to clean, add a combination of naturally occurring microbes to assure optimum strains and numbers, and speed the natural microbial degradation process that already exists in hydrocarbon contaminated locations. No matter where, naturally occurring resident microorganisms will attack hydrocarbons soon after the oil and oil by-products become available. NATURES' WAY or MICRO-BLAZE OUT can dramatically increase the completeness of cleaning and the speed of bioremediation.

Bioremediation is a process that uses microorganisms to transform harmful substances into non-toxic compounds. Bioremediation utilizes ecological management by naturally occurring microorganisms to degrade target organic pollutants for the purpose of restoring environments.

Microbial degradation of hydrocarbons can occur in the presence of air (aerobic) or without air (anaerobic). Aerobic degradation is usually faster and more complete. The biocatalyst component of the NATURES' WAY liquid makes oxygen readily available to the microbes when they are added to the liquid.

A water-oil-microbe interface is required so the enzymes secreted by the microbes will be able to break down the hydrocarbons in close association

with the cell wall. As degradation progresses, certain compounds are absorbed by the microbe. The intermediate by-products of degradation, in order, are alkanes then alcohols then aldehydes followed by organic acids. Fatty acids are rapidly used or degraded in nature.

If oxygen and water are added to an alkane inside the microbe in the presence of enzymes, the product is an alcohol. If oxygen is added to an alcohol, then an aldehyde is the product. This is rapidly changed to an organic acid. These fatty acids can be readily used in the Beta Oxidation Cycle to build ADP and ATP - the primary sources of energy in the living.

Our approach is to utilize a landfarming bioremediation process on the upper and heavier contaminated soil, approximately the top one (1) foot (area 1), which would contain approximately 1,111 cubic yards of heavy hydrocarbon contaminated soil. The hydrocarbon contamination of the unlined impoundment has seeped down several feet. The plume area (area 2), approximately 2,222 cubic yards, down to 3 feet of hydrocarbon contamination, under (area 1) is recommended for remediation by excavating the area and mixing with available soil in the area and fresh fill to reduce the overall TPH.

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 0945	Date 7/2/93

Originating Party	Other Parties
Bill Olson - Envir. Bureau	Ray Banks - Amoco Pipeline (708) 990-6152

Subject

Amoco Artesia Station Subsurface Contaminant Investigation

Discussion

Requested Amoco submit plan for additional work while negotiating access to adjacent land

Amoco wants to put in skimmer pumps in existing monitor wells to recover product in the interim. Still trying to determine ownership of land for access

Conclusions or Agreements

He will submit workplan for additional investigation and interim product recovery in 1-2 weeks

Distribution
file
Ray Smith - OCD Artesia

Signed Bill Olson

Amoco Pipeline Company
One Mid-America Plaza
Suite 300
Oakbrook Terrace, Illinois 60181-4450
708-990-3700

Raymond L. Banks
Coordinator, OP&T Environmental Services

June 21, 1993

Mr. Bill Olson
New Mexico Environment Department
Water and Waste Management Division
Groundwater Bureau
Harold Runnels Building
1190 St. Francis Drive
P.O. Box 26110
Sante Fe, NM 87502

Preliminary Subsurface Investigation - Amoco Pipeline Company, Artesia Station, Eddy County, NM

Dear Mr. Olson:

Please find enclosed a copy of the Preliminary Subsurface Investigation for Amoco Pipeline Company's (APL) Artesia Station, located in Eddy County, NM. The results of the preliminary investigation indicate hydrocarbon impacted groundwater at depths ranging from 16.5 to 25.5 feet below the ground surface of APL property. The placement of the groundwater monitor wells, and the presence of free-phase hydrocarbons in these wells, makes it almost certain that groundwater beneath adjacent property is also impacted.

The preliminary investigation has established a groundwater gradient and flow direction. Our next step will be to delineate the extent of impacted groundwater, and identify the potential contributing source(s). We are in process of locating adjacent landowners to notify them and request permission to install groundwater monitor wells on their property. We will be submitting a plan to your office shortly for this next phase of the investigation. If you have any questions or concerns regarding our approach, please do not hesitate to contact me at 708-990-6152.

Sincerely,

Raymond L. Banks

RLB

Enclosure

cc: Ray Smith, NM Oil Conservation Division, Artesia, NM

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 5/19/93

Originating Party	Other Parties
Bill Olson - Envir. Bureau	Raymond Banks - Amoco Pipeline (708) 990-6152

Subject

Amoco Artesia Station GW Investigation

Discussion

Told him that Envir. Bureau will be overseeing investigation & remediation of G.W. at the facility in consultation with Artesia District Office
Requested that Amoco provide OCD with all info on chronology of incident, GW investigation and sampling and recommendations for defining extent of contamination
He stated that they are sampling MW's today and surveying for gradient. They also need to determine adjacent land ownership for access

Conclusions or Agreements

He will provide report after recieving sampling data approx. 4-6 weeks.

Distribution
file
Ray Smith - Artesia District Office

Signed Bill Olson

05/19/93 08:21 ☎505 748 9720 OCD DIST II ☑001

OIL CONSERVATION DIVISION
ARTESIA, NEW MEX. 88210

TO: Bill Olsen

FROM: Ray Smith

DATE: 5-19-93

NUMBER OF SHEETS (INCLUDING TRANSMITTAL SHEET) 3

IF YOU HAVE ANY PROBLEMS WITH THIS TRANSMISSION, PLEASE CALL 505-748-1283.
FAX NUMBER (505) 748-9720

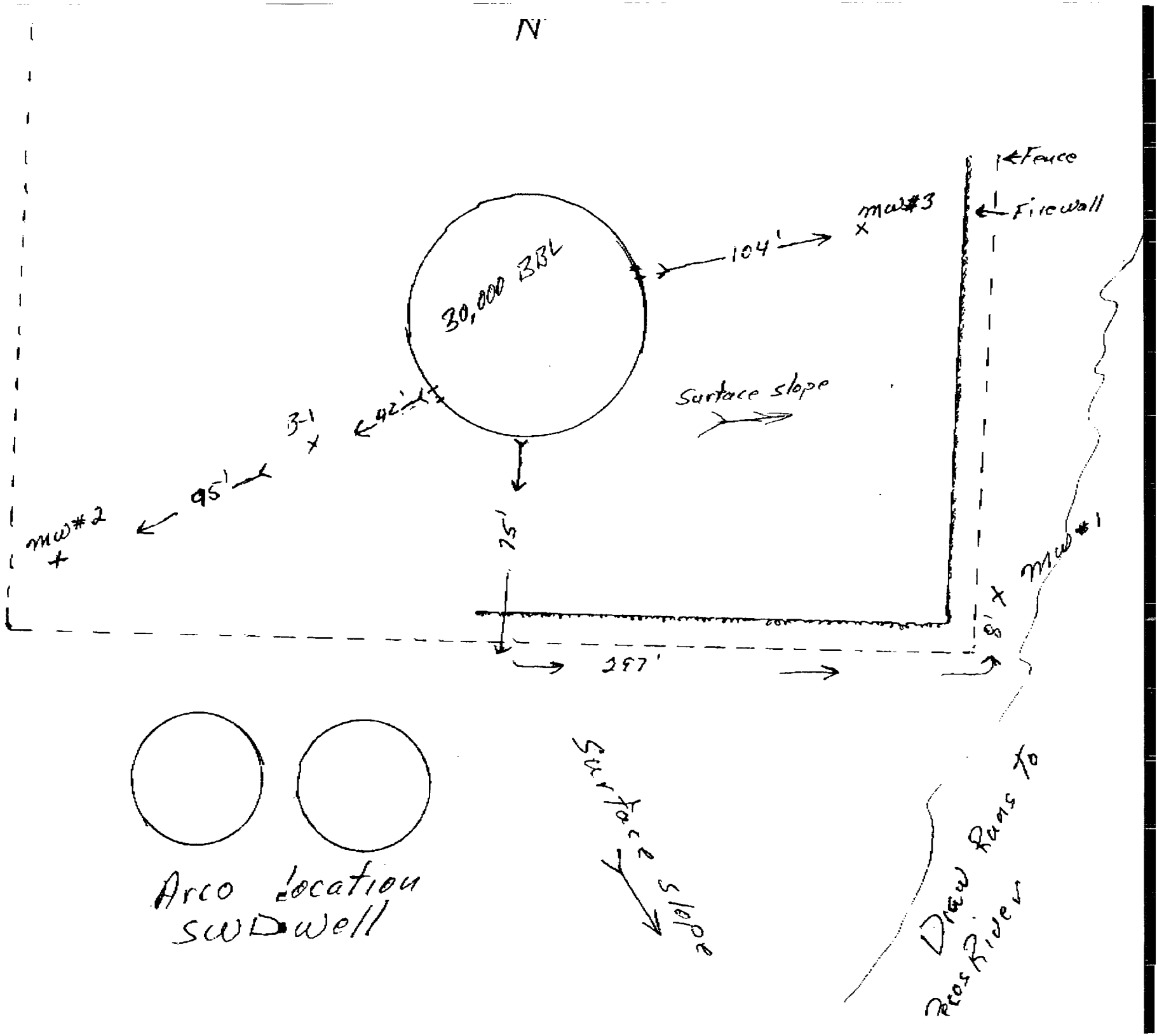
Call me to talk about this

MAY-19-93 WED 07:06 505 748 9720 P.01

May 17 8:00 AM Meet with Amoco PL people at their Artesia Station.
Start drilling on B-1 @ 9:00 A.M. Hit crude oil @ 22.9' Probe shows about 6" of oil.
Drill mw # 1. Just topped water & had no oil
Drill mw # 2. Core from 20 to 27. Shows oil across a thin water zone. Checked well with a probe & showed to have 1.) ft of oil

Drill mw # 3 sample dark & owa 1000+
Probe shows about 6" of oil.

May 17 start reeming out wells 1 2 & 3 & set PVC pipe to TD & cement. Let well settle then check with a probe
Well # 1 show .11 ft of crude
Well # 2 is down to .4 ft of crude
Well # 3 has 2 ft +.


N
Fence
Firewall
mw#3
104'
30,000 BBL
Surface slope
42'
B-1
95'
mw#2
75'
mw#1
8'
397'
Arco location
SWD well
Surface slope
Draw Runs To
Pecos River