3R - 19

REPORTS

DATE:

June 28, 1994

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

June 28, 1994

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

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

Dear Mr. Olson:

On behalf of Mr. Buddy Shaw, Amoco Production Company, this report includes the latest quarterly groundwater sampling results for the above referenced site. Please refer to a February 15, 1994 Envirotech report for the previous sampling results. Sampling has been completed per your instructions in a September 16, 1993 letter to Mr. Buddy Shaw, with modifications per your January 18, 1994 letter.

Please note that no remediation or sampling has been completed north of the access road as noted on the attached diagram. This is due to legal entanglements with the property owner.

We trust this information will be of assistance in evaluating the experimental remediation system at this site. If you have any further questions regarding this report, or we can be of assistance in any other matters, please contact Blagg Engineering at 632-0615.

Respectfully Submitted,
BLAGG ENGINEERING, INC.

Robert E. O'Neill

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

Attachments: Figure 1 - Sampling Results
Site Diagram
Laboratory Reports

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

REO/reo

JUN94-WO.RPT

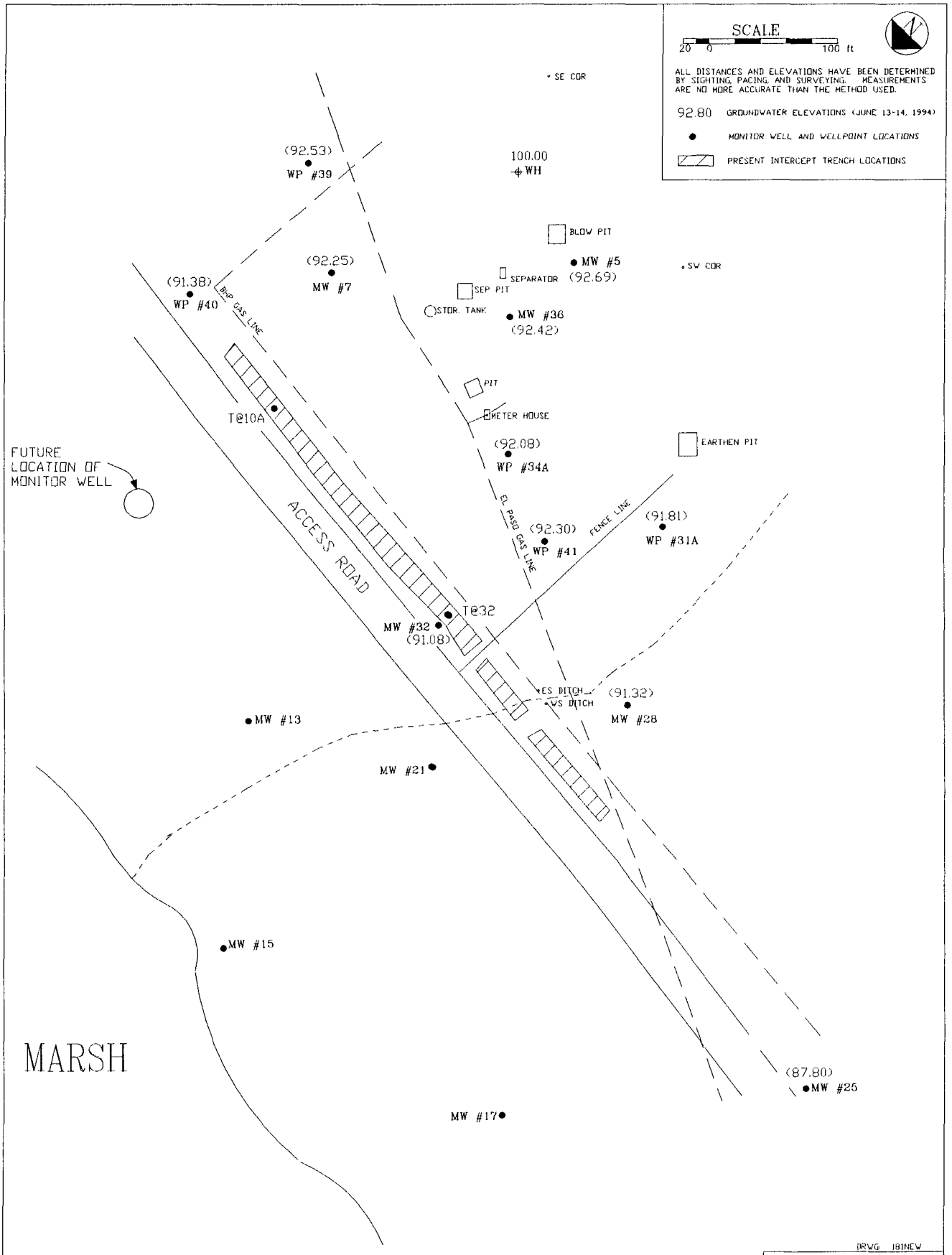
Table 1
Amoco Production Company
GCU 181
Groundwater Sampling

June 28, 1994

SAMPLE I.D.	DATE	pH	COND. umhos/cm	BENZENE PPB	TOLUENE PPB	E-BENZ. PPB	T-XYL. PPB	NITRATE NITROGEN mg/L	FCB/ 100 mls COLONIES
MW #5	2/9/94	7	6300	ND	0.5	ND	3.1		
	6/13/94	7	7800	< 1	< 1	< 1	< 1		
MW #7	2/9/94	7	10100	12.9	16.7	580	1300.3		
	6/13/94	7	11000	< 1	10	< 1	1480		
T @ 10A	2/9/94	7	3200	41	37.7	0.4	325	0.08	0
	6/14/94	8	4400	< 1	< 1	132	118	0.109	< 1
MW #25	2/9/94	7	5500	ND	ND	0.3	1.8		
	6/13/94	7	5700	< 1	< 1	< 1	< 1		
MW #28	2/9/94	7	3800	0.4	1.8	ND	8.8	0.07	0
	6/14/94	7	4000	< 1	< 1	< 1	< 1	0.18	< 1
WP #31A	2/9/94	7	4800	ND	ND	ND	0.4		
	6/13/94	7	4500	< 1	< 1	< 1	< 1		
MW #32	2/9/94	7	3900	149	13.3	ND	408.2	0.04	0
T @ 32	6/14/94	8	4700	< 1	< 1	< 1	< 1	0.101	< 1
WP #34A	2/9/94	7	5000	21.4	17.2	1.9	143	0.22	0
	6/14/94	7	13800	452	206	7933	3324	0.873	< 1
MW #36	2/9/94	7	5100	ND	ND	0.6	3.6		
	6/13/94	7	5600	< 1	< 1	< 1	< 1		
WP #39	2/9/94	7	3400	ND	ND	ND	0.2	0.05	0
	6/13/94	7	3400	< 1	< 1	< 1	< 1		
WP #40	2/9/94	7	3700	ND	ND	ND	3.8		
	6/13/94	7	3900	< 1	< 1	< 1	< 1		
WP #41	2/9/94	7	6900	171	7400	810	12060	0.88	0
	6/14/94	7	12200	1026	1061	14803	8939	11.8	< 1

Notes: MW = Monitor well
WP = Well point
FCB = Fecal Coliform Bacteria. EPA Method 600/4-79-020
T = Trench

Benzene, Toluene, Ethyl-benzene, Total xylenes, per EPA Method 8020



DRWG: 181NEW

AMOCO PRODUCTION COMPANY GCU COM I 181 SEC. 34 TWP 29N RNG 12W SAN JUAN COUNTY, NEW MEXICO	WELL LOCATIONS & GROUNDWATER ELEVATIONS	FIGURE: 3 DRAWN: 8/04/93 RMY REVISED: 2/17/94 REO PRJ MGR: REO	BLAGG ENGINEERING, INC. P.O. BOX 87 BLOOMFIELD, NM 87413 PHONE: 632-1199 FAX: 632-3903

CARDINAL LABORATORIES

PHONE (915) 673-7001 • 2111 BEECHWOOD • ABILENE, TEXAS 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NEW MEXICO 88240

FINAL ANALYSIS REPORT

Company: Blagg Engineering
Address: P.O. Box 87
City, State: Bloomfield, NM 87413

Date: 6/14/94
Lab #: SJ1047

Project Name: Amoco - GCU 181
Location: not given
Sampled by: RO Date: 6/13/94 Time: 1446
Analyzed by: SW Date: 6/13/94 Time: 1554
Sample Type: Water Sample Condition: GIST Units: mg/l

Samp #	Field Code	BENZENE	TOLUENE	ETHYL BENZENE	PARA-XYLENE	META-XYLENE	ORTHO-XYLENE	MTBE
1	MW-5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
2	MW-7	<0.001	0.010	<0.001	0.605	0.754	0.121	<0.001
3	MW-25	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
4	WP-31A	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
5	MW-36	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
6	WP-39	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
7	WP-40	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	QC Recovery	0.825	0.791	0.869	0.692	0.802	0.836	0.731
	QC Spike	0.830	0.840	0.830	0.810	0.780	0.720	0.680
	Accuracy	99.4%	94.1%	104.7%	85.4%	102.8%	116.1%	107.4%
	Air Blank	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

Methods - AUTOMATED HEADSPACE GC
- EPA SW-846; EPA METHODS 8020

Sharon Williams

6/15/94
Date

CARDINAL LABORATORIES

PHONE (915) 673-7001 • 2111 BEECHWOOD • ABILENE, TEXAS 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NEW MEXICO 88240

FINAL ANALYSIS REPORT

Company: Blagg Engineeering
Address: P.O. Box 87
City, State: Bloomfield, NM 87413

Date: 6/15/94
Lab #: BJ1049

Project Name: Amoco
Location: GCU 181
Sampled by: RO Date: 6/14/94 Time: 1141
Analyzed by: SW Date: 6/14/94 Time: 1200
Sample Type: Water Sample Condition: GIST Units: mg/l

Samp #	Field Code	BENZENE	TOLUENE	ETHYL BENZENE	PARA-XYLENE	META-XYLENE	ORTHO-XYLENE	MTBE
1	T.@ 10A	<0.001	<0.001	0.132	0.028	0.086	0.004	0.097
2	MW - 28	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
3	T. @ 32	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
4	WP - 34A	0.452	0.206	7.933	0.313	2.982	0.029	0.675
5	WP - 41	1.026	1.061	14.803	1.028	5.119	2.792	2.619
	QC Recovery	0.804	0.808	0.876	0.694	0.870	0.807	0.722
	QC Spike	0.850	0.850	0.840	0.820	0.810	0.740	0.690
	Accuracy	94.5%	95.1%	104.3%	84.6%	107.4%	109.0%	104.6%
	Air Blank	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

Methods - AUTOMATED HEADSPACE GC
- EPA SW-846; EPA METHODS 8020

Sharon Williams

Date 6/16/94

CARDINAL LABORATORIES

PHONE (915) 673-7001 • 2111 BEECHWOOD • ABILENE, TEXAS 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NEW MEXICO 88240

FINAL ANALYSIS REPORT

Company: Blagg Engineering
Address: P.O. Box 87
City, State: Bloomfield, NM 87413

Date: 6/15/94
Lab #: SJ1049

Project Name: Amoco
Location: GCU 181
Sampled by: RO Date: 6/14/94 Time: 1141
Analyzed by: HM Date: 6/15/95 Time: 10:30
Sample Type: Water Sample Condition: GIST Units: mg/l

****

SAMPLE NO.	FIELD CODE	NITRATE
1	T.@ 10A	0.109
2	MW - 28	0.180
3	T. @ 32	0.101
4	WP - 34A	0.873
5	WP - 41	11.8

Michael R. Fowler

6-15-94
Date

Inter-Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

WATER ANALYSIS

Client: **Blagg Engineering**
Project: Amoco-GCU 181
Sample ID: T. @ lo A
Laboratory ID: W00730
Sample Matrix: Water
Condition: Cool/Intact

Date Reported: 06/20/94
Date Sampled: 06/14/94
Date Received: 06/14/94

Parameter	Result	Units
Fecal Coliform Bacteria	<1	Colonies/100mL

Reference: U.S.E.P.A. 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983.
"Standard Methods For The Examination Of Water And Waste Water", 17th ed., 1989.

Melissa Klute
Reported By:

Reviewed By:

Inter-Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

WATER ANALYSIS

Client: **Blagg Engineering**
Project: Amoco-GCU 181
Sample ID: MW - 28
Laboratory ID: W00732
Sample Matrix: Water
Condition: Cool/Intact

Date Reported: 06/20/94
Date Sampled: 06/14/94
Date Received: 06/14/94

Parameter	Result	Units
Fecal Coliform Bacteria	<1	Colonies/100mL

Reference: U.S.E.P.A. 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983.
"Standard Methods For The Examination Of Water And Waste Water", 17th ed., 1989.

Melissa Klute
Reported By:

Reviewed By:

Inter·Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

WATER ANALYSIS

Client: **Blagg Engineering**
Project: Amoco-GCU 181
Sample ID: T. @ 32
Laboratory ID: W00734
Sample Matrix: Water
Condition: Cool/Intact

Date Reported: 06/20/94
Date Sampled: 06/14/94
Date Received: 06/14/94

Parameter	Result	Units
Fecal Coliform Bacteria	<1	Colonies/100mL

Reference: U.S.E.P.A. 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983.
"Standard Methods For The Examination Of Water And Waste Water", 17th ed., 1989.

Melissa Klute
Reported By:

Reviewed By:

Inter-Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

WATER ANALYSIS

Client: **Blagg Engineering**
Project: Amoco-GCU 181
Sample ID: WP - 34A
Laboratory ID: W00731
Sample Matrix: Water
Condition: Cool/Intact

Date Reported: 06/20/94
Date Sampled: 06/14/94
Date Received: 06/14/94

Parameter	Result	Units
Fecal Coliform Bacteria	<1	Colonies/100mL

Reference: U.S.E.P.A. 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983.
"Standard Methods For The Examination Of Water And Waste Water", 17th ed., 1989.

Melissa Klute
Reported By:

Reviewed By:

Inter·Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

WATER ANALYSIS

Client: **Blagg Engineering**
Project: Amoco-GCU 181
Sample ID: WP - 41
Laboratory ID: W00733
Sample Matrix: Water
Condition: Cool/Intact

Date Reported: 06/20/94
Date Sampled: 06/14/94
Date Received: 06/14/94

Parameter	Result	Units
Fecal Coliform Bacteria	<1	Colonies/100mL

Reference: U.S.E.P.A. 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983.
"Standard Methods For The Examination Of Water And Waste Water", 17th ed., 1989.

Melissa Klute
Reported By:

Reviewed By:

ARDINAL LABORATORIES

118 S. Commercial Ave.
Farmington, NM 87401
505-326-4669
FAX 505-326-4535

101 E. Marland
Hobbs, NM 88240
505-393-2326
FAX 505-393-2476

Chain of Custody Record

Project I.D. Amoco -
Project Location 6C4 - 181
Sampled By R. E. O'NEILL
Client Name BLAGG ENGINEERING
Address P.O. BOX 87, BLOOMFIELD, N.M.
Telephone 632-1199 (FAX# 632-8903) 87413

Sample Number	Date	Time	Composite	Grab	Sample Location	Number of Containers	Analysis Required: BTEX	Remarks (Type sample, preservation, etc.)
1	6/13	1450		-	MW-5	2	✓	VOA 6 IST
2	6/13	1320		-	MW-7	2	✓	VOA 6 IST
3	6/13	1250		-	MW-25	2	✓	VOA 6 IST
4	6/13	1220		-	WP-31A	2	✓	VOA 6 IST
5	6/13	1355		-	MW-36	2	✓	VOA 6 IST
6	6/13	1142		-	WP-39	2	✓	VOA 6 IST
7	6/13	1110		-	WP-40	2	✓	VOA 6 IST

Released by: (Signature)	Date	Time	Received by: (Signature)
R. E. O'Neill	6/13	1446	S. Williams
Released by: (Signature)	Date	Time	Received by: (Signature)

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for the analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of

ARDINAL LABORATORIES

118 S. Commercial Ave.
Farmington, NM 87401
505-326-4669
FAX 505-326-4535

101 E. Marland
Hobbs, NM 88240
505-393-2326
FAX 505-393-2476

Chain of Custody Record

Project I.D. AMOCO
Project Location 6CQ - 181
Sampled By R. E. O'NEILL
Client Name BLAGG ENGINEERING
Address P.O. BOX 87, BLOOMFIELD, N.M. 87413
Telephone 632-1199 FAX: 632-3903

Sample Number	Date	Time	Composite	Grab	Sample Location	Number of Containers	Analysis Required: BTEX	Analysis Required: NITRATE (NO_3 AS N.)	Remarks (Type sample, preservation, etc.)
8	6/14	0940		—	T. @ 10A	3	✓	✓	2 - VOA, 1 - POLY 1 UB
9	6/14	0850		—	MW - 28	3	✓	✓	" " "
10	6/14	0915		—	T. @ 32	3	✓	✓	" " "
11	6/14	1000		—	WP - 34A	3	✓	✓	" " "
12	6/14	1030		—	WP - 41	3	✓	✓	" " "

Released by: (Signature)	Date	Time	Received by: (Signature)
R. E. O'Neill	6/14	1114	S. Williams
Released by: (Signature)	Date	Time	Received by: (Signature)

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for the analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of

Inter-Mountain Laboratories, Inc.

CHAIN OF CUSTODY RECORD

Client/Project Name	Project Location	ANALYSES / PARAMETERS
BLAGG ENGINEERING	Amoco - GCU 181	
Sampler: (Signature)	**Chain of Custody Tape No.**	
R E. O'NEILL		

Sample No./ Identification	Date	Time	Lab Number	Matrix	No. of Containers	FECAL COLIFORM				Remarks
T. @ 10 A	6-14-94	0940	730	WATER	1	✓				
WP - 34A	6-14-94	1000	731	"	1	✓				
MW - 28	6-14-94	0850	732	"	1	✓				
WP - 41	6-14-94	1030	733	"	1	✓				
T. @ 32	6-14-94	0915	734	"	1	✓				

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
R. E. O'Neill	6/14/94	1132	Melissa Klute	6/14	[illegible]
Relinquished by: (Signature)	**Date**	**Time**	**Received by: (Signature)**	**Date**	**Time**
Relinquished by: (Signature)	**Date**	**Time**	**Received by laboratory: (Signature)**	**Date**	**Time**

Inter-Mountain Laboratories, Inc.

☐ 1633 Terra Avenue, Sheridan, Wyoming 82801, Telephone (307) 672-8945
☐ 1714 Phillips Circle, Gillette, Wyoming 82716, Telephone (307) 682-8945
☐ 2506 West Main Street, Farmington, NM 87401, Telephone (505) 326-4737
☐ 1160 Research Dr., Bozeman, Montana 59715, Telephone (406) 586-8450
☐ 11183 SH 30, College Station, TX 77845, Telephone (409) 776-8945
☐ 3304 Longmire Drive, College Station, TX 77845, Telephone (409) 774-4999

21872