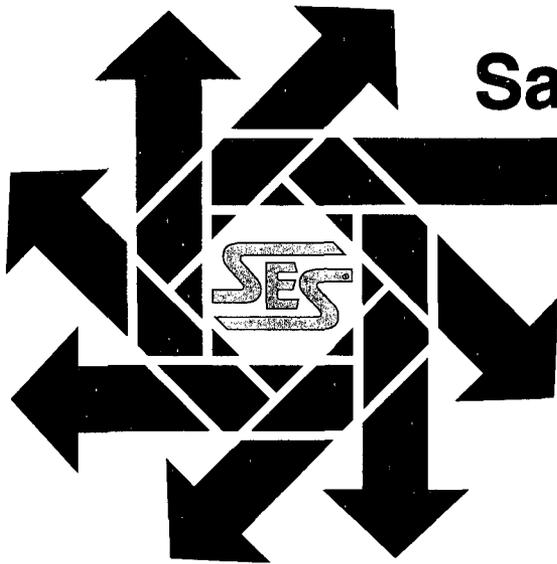


GW - 202

**MONITORING
REPORTS**

DATE:

2000



**Safety & Environmental
Solutions, Inc.**

RECEIVED

APR 07 2000

ENVIRONMENTAL BUREAU
OIL CONSERVATION DIVISION

Pro-Kem, Inc.

COPY

**Lovington Yard
Monitor Well Report
Lea County, New Mexico**

For Year Ending December 31, 1999

*Safety & Environmental Solutions, Inc.
703 E. Clinton Suite 103
Hobbs, New Mexico 88240
(505) 397-0510*

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II. Work Performed	2
III. Summary	2
IV. Figures and Appendices	3

I. Background

The subject property is located in south Lovington, Lea County, New Mexico adjacent to NM Highway 18 in Section 15, T16S, R36E. Safety & Environmental Solutions, Inc. (SESI) performed sampling and data collection on the three (3) ground water monitor wells previously installed in November 1997 at the site (See Vicinity Map). The casing size in all wells is 2".

II. Work Performed

Beginning in January 1999, the three monitor wells were sampled quarterly, with no samples taken during the third quarter of 1999. Ground water samples were taken from each well after a hand bailer was used to develop the wells. Three to five casing volumes of water were removed from each well until pH and temperature of the water were stabilized. The samples were obtained and placed in appropriate containers, preserved and transported under chain of custody to Cardinal Laboratories of Hobbs, New Mexico for analysis for the contaminants Carbon Tetrachloride, and BTEX. (See Analytical Data)

In addition to the sampling, SESI also measured the depth to the top of the water table and the total depth of each well. The depth to the top of ground water was measured using a Solinst water level indicator. The total depth of each well was measured in order to compute the proper casing volumes. (See Cumulative Depth to Water Table)

III. Summary

The analysis of the groundwater samples performed by Cardinal Laboratories indicate the presence of elevated levels of Carbon Tetrachloride in all wells throughout the test period, with the highest concentration found in the upgradient well, which may indicate an offsite source. (See Cumulative Well Data)

Depth to water measurements in the monitor wells indicate a prevailing southeasterly flow of water. The anomaly in depth to water on December 8, 1999, for Monitor Well #1 may be due to technician error. (See Depth to Water Site Plans)

IV. Figures and Appendices

Figures:

Vicinity Map

Site Map

Depth to Water Site Maps

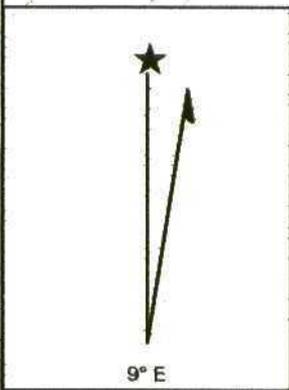
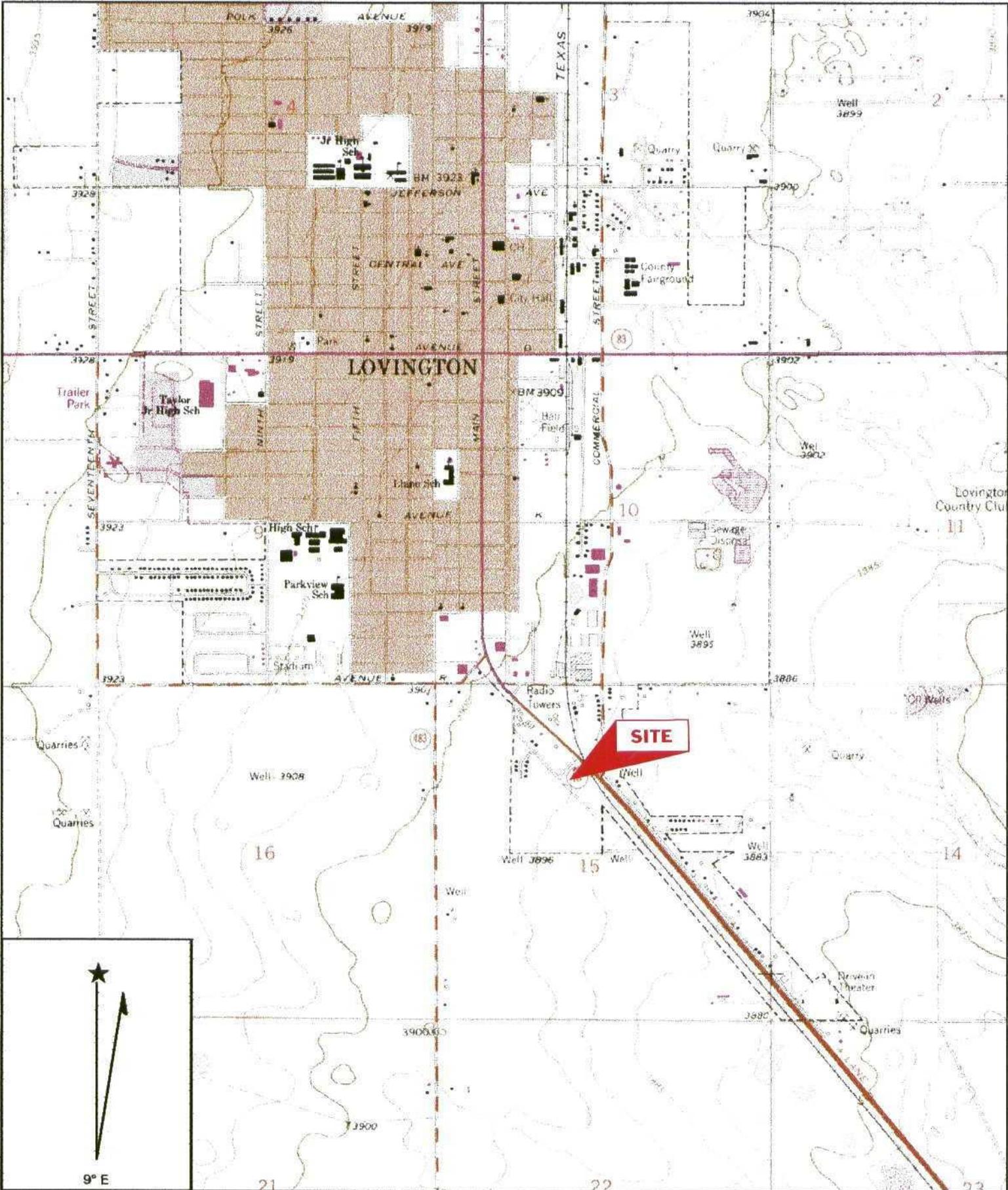
Appendices:

Cumulative Depth to Water Table

Cumulative Well Data Results

Analytical Results

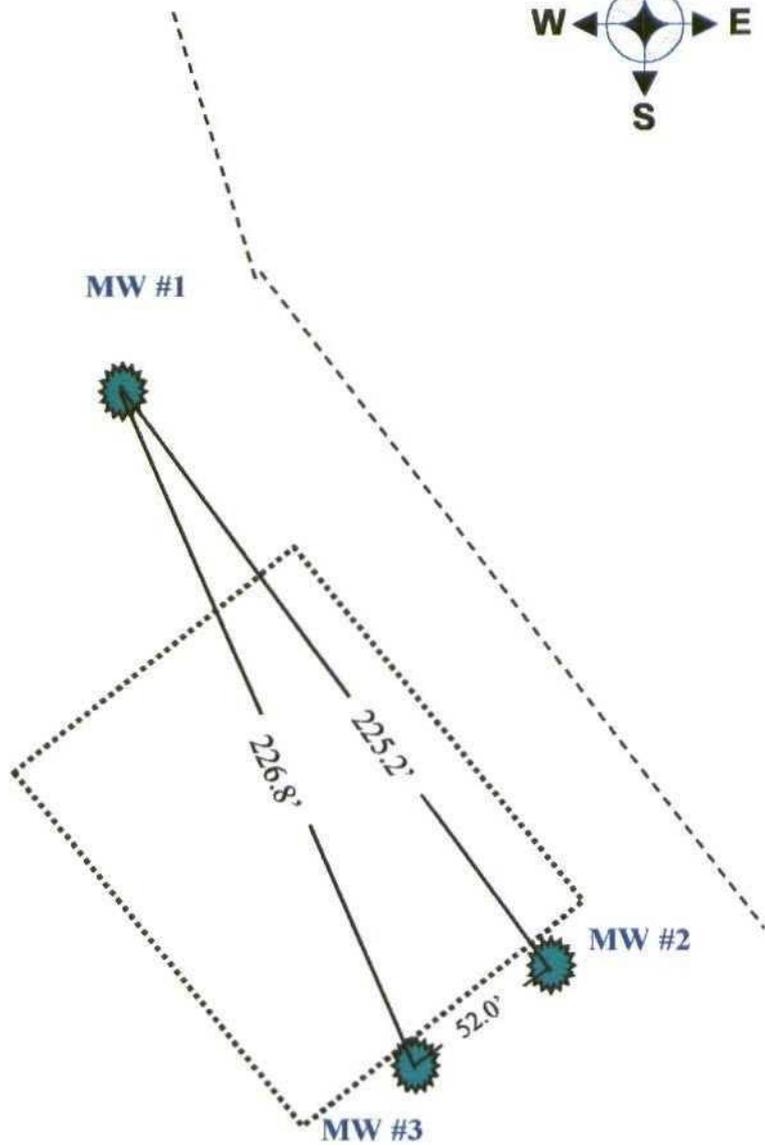
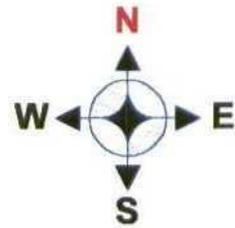
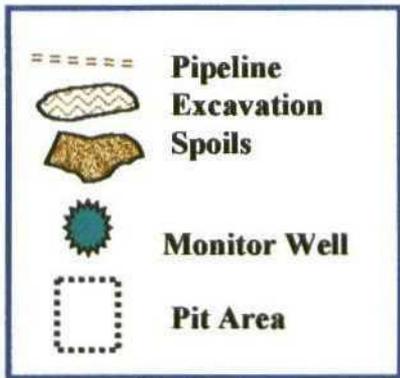
Figure 1
Vicinity Map



Name: LOVINGTON
 Date: 3/31/100
 Scale: 1 inch equals 2000 feet

Location: 032° 55' 59.4" N 103° 20' 49.8" W
 Caption: ProKern Inc. Vicinity Map

Figure 2
Site Map



Section 15,
 Township 16 South
 Range 36 East, N.M.P.M.

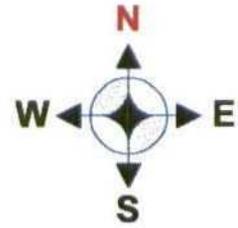
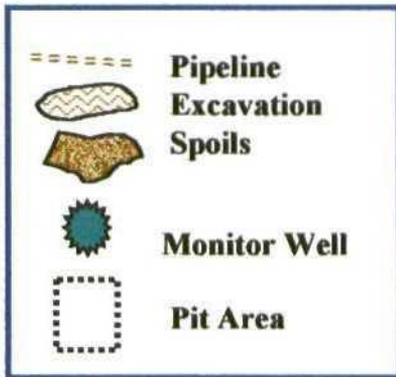
NOT TO SCALE

ProKem, Inc.
 March 29, 2000

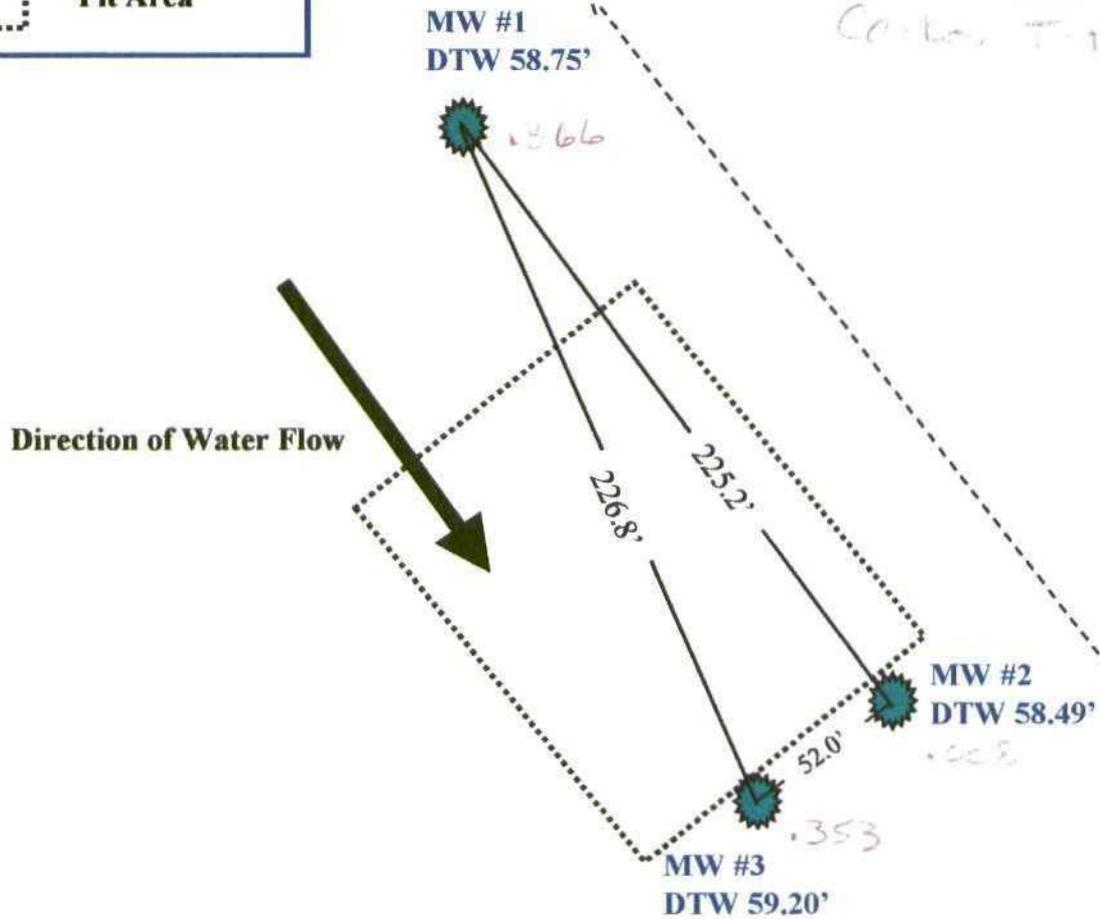
**Monitor Wells
 Site Plan**

Safety & Environmental
 Solutions, Inc.
 Hobbs, New Mexico

Figure 3
Depth to Water Maps



11/20/99
 1002
 Center Top



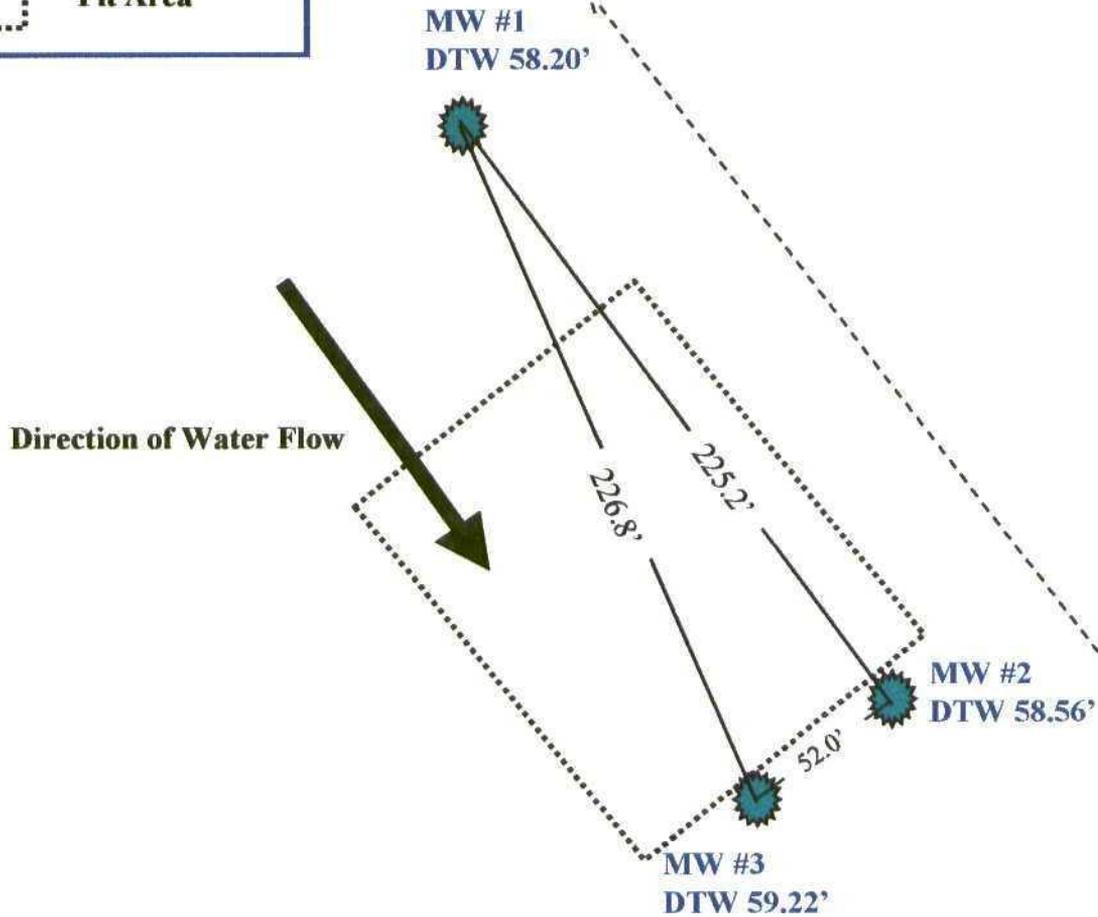
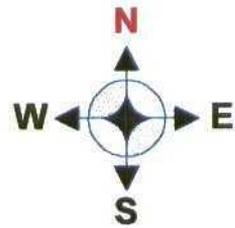
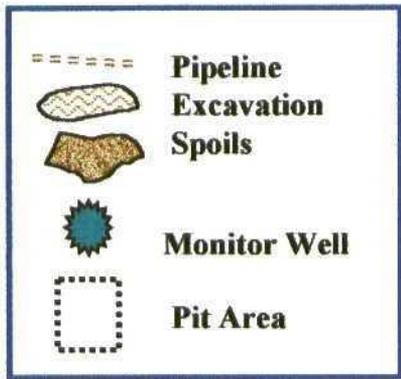
Section 15,
 Township 16 South
 Range 36 East, N.M.P.M.

NOT TO SCALE

ProKem, Inc.
 January 8, 1999

**Monitor Wells
 Depth to Water
 Site Plan**

Safety & Environmental
 Solutions, Inc.
 Hobbs, New Mexico



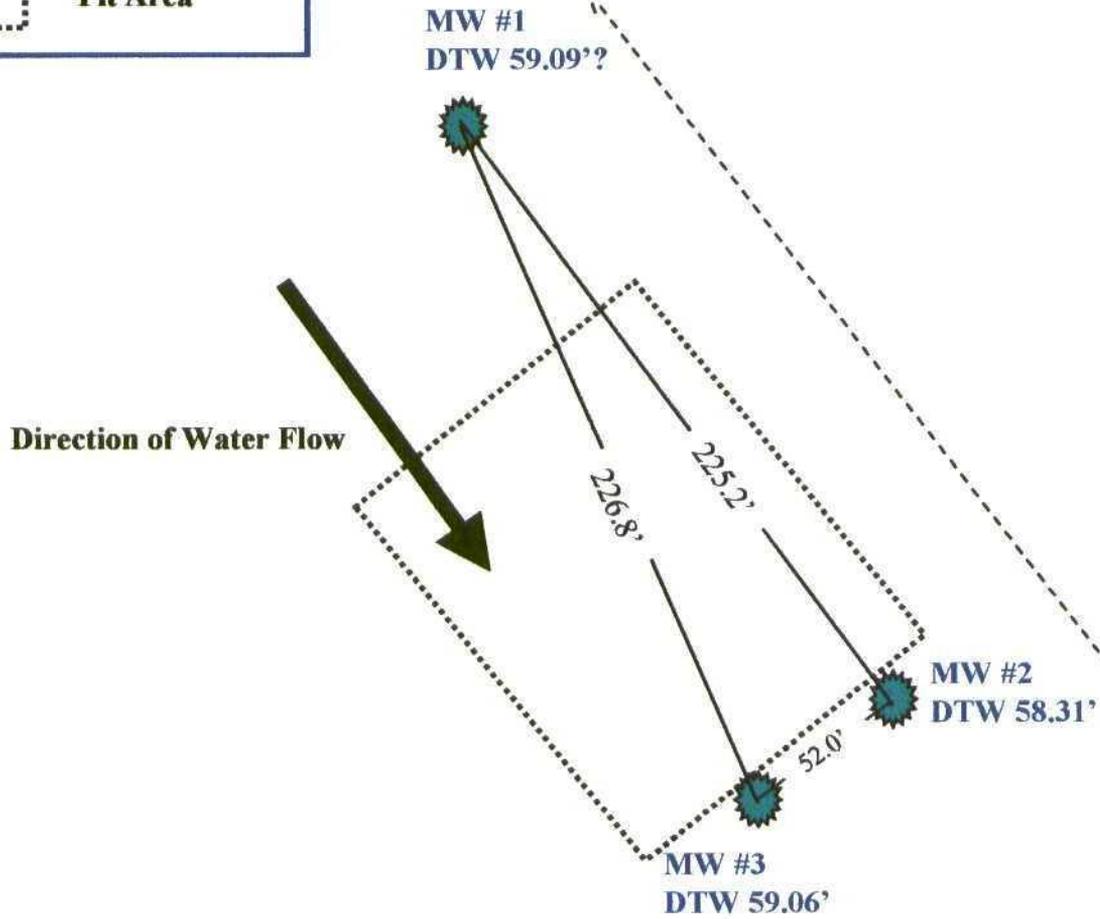
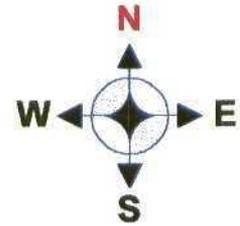
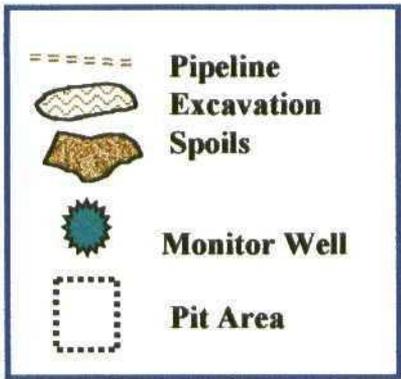
Section 15,
 Township 16 South
 Range 36 East, N.M.P.M.

NOT TO SCALE

ProKem, Inc.
 April 16, 1999

**Monitor Wells
 Depth to Water
 Site Plan**

Safety & Environmental
 Solutions, Inc.
 Hobbs, New Mexico



Section 15,
 Township 16 South
 Range 36 East, N.M.P.M.

NOT TO SCALE

ProKem, Inc.
 December 8, 1999

**Monitor Wells
 Depth to Water
 Site Plan**

Safety & Environmental
 Solutions, Inc.
 Hobbs, New Mexico

Appendix A
Cumulative Depth to Water Table

ProKem, Inc. Cumulative Depth to Water Table

Monitor Well	Total Well Depth	DTW 1/8/99	DTW 4/16/99	DTW 12/8/99
#1	73.36'	58.75'	58.20'	59.09'
#2	70.51'	58.49'	58.56'	58.31'
#3	71.44'	59.20'	59.22'	59.06'

Appendix B
Cumulative Well Data Results

ProKem, Inc. Cumulative Well Data

Monitor Well #1

Contaminant	WQCC Standard	Test Date 1/8/99	Test Date 4/16/99	Test Date 12/8/99
Chloride	250.0 ppm	56ppm	n/a	n/a
Carbon Tet.	0.002 ppm	.342ppm	.338ppm	.366ppm
Benzene	0.01 ppm	<.002ppm	<.002ppm	<.002ppm
Toluene	0.75 ppm	<.002ppm	<.002ppm	<.002ppm
E. Benzene	0.75 ppm	<.002ppm	<.002ppm	<.002ppm
Total Xylenes	0.62 ppm	<.006ppm	<.006ppm	<.006ppm
TPH	N/A	<1.0ppm	n/a	n/a

Monitor Well #2

Contaminant	WQCC Standard	Test Date 1/8/99	Test Date 4/16/99	Test Date 12/8/99
Chloride	250.0 ppm	94ppm	n/a	n/a
Carbon Tet.	0.002 ppm	0.17ppm	0.15ppm	.008ppm
Benzene	0.01 ppm	<.002ppm	<.002ppm	<.002ppm
Toluene	0.75 ppm	<.002ppm	<.002ppm	<.002ppm
E. Benzene	0.75 ppm	<.002ppm	<.002ppm	<.002ppm
Total Xylenes	0.62 ppm	<.006ppm	<.006ppm	<.006ppm
TPH	N/A	1.47ppm	n/a	n/a

Monitor Well #3

Contaminant	WQCC Standard	Test Date 1/8/99	Test Date 4/16/99	Test Date 12/8/99
Chloride	250.0 ppm	116ppm	n/a	n/a
Carbon Tet.	0.002 ppm	.111ppm	.109ppm	.353ppm
Benzene	0.01 ppm	<.002ppm	<.002ppm	<.002ppm
Toluene	0.75 ppm	<.002ppm	<.002ppm	<.002ppm
E. Benzene	0.75 ppm	<.002ppm	<.002ppm	<.002ppm
Total Xylenes	0.62 ppm	<.006ppm	<.006ppm	<.006ppm
TPH	N/A	<1.0ppm	n/a	n/a

Appendix C
Analytical Results



ARDINAL LABORATORIES

PHONE (915) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603

PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR
SAFETY & ENVIRONMENTAL SOLUTIONS, INC.
ATTN: DEE WHATLEY
703 E. CLINTON, SUITE 103
HOBBS, NM 88240
FAX TO:

Receiving Date: 01/08/99
Reporting Date: 01/11/99
Project Number: NOT GIVEN
Project Name: PROKEM MONITOR WELLS
Project Location: LOVINGTON PROKEM YARD
Lab Number: H3987-1
Sample ID: MW #1

Analysis Date: 01/08/99
Sampling Date: 01/08/99
Sample Type: GROUNDWATER
Sample Condition: COOL & INTACT
Sample Received By: AH
Analyzed By: BC

TCLP VOLATILES (ppm)	Sample Result	Method	True Value		
	H3987-1	Blank	QC	%Recov.	QC

Benzene	<0.002	<0.002	0.084	84	0.100
Carbon Tetrachloride	0.342	<0.002	0.084	84	0.100
Toluene	<0.002	<0.002	0.085	85	0.100
Ethylbenzene	<0.002	<0.002	0.084	84	0.100
m,p-Xylene	<0.004	<0.004	0.168	84	0.200
o-Xylene	<0.002	<0.002	0.089	89	0.100

Dibromofluoromethane	112
Toluene-d8	108
Bromofluorobenzene	107

METHODS: EPA SW 846-8260


Burgess J. A. Cooke, Ph. D.

1/11/99
Date



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PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR
SAFETY & ENVIRONMENTAL SOLUTIONS, INC.
ATTN: DEE WHATLEY
703 E. CLINTON, SUITE 103
HOBBS, NM 88240
FAX TO:

Receiving Date: 01/08/99
Reporting Date: 01/11/99
Project Number: NOT GIVEN
Project Name: PROKEM MONITOR WELLS
Project Location: LOVINGTON PROKEM YARD
Lab Number: H3987-2
Sample ID: MW #2

Analysis Date: 01/08/99
Sampling Date: 01/08/99
Sample Type: GROUNDWATER
Sample Condition: COOL & INTACT
Sample Received By: AH
Analyzed By: BC

TCLP VOLATILES (ppm)	Sample Result	Method	True Value		
	H3987-2	Blank	QC	%Recov.	QC
Benzene	<0.002	<0.002	0.084	84	0.100
Carbon Tetrachloride	0.017	<0.002	0.084	84	0.100
Toluene	<0.002	<0.002	0.085	85	0.100
Ethylbenzene	<0.002	<0.002	0.084	84	0.100
m,p-Xylene	<0.004	<0.004	0.168	84	0.200
o-Xylene	<0.002	<0.002	0.089	89	0.100
Dibromofluoromethane	91				
Toluene-d8	96				
Bromofluorobenzene	95				

METHODS: EPA SW 846-8260


Burgess J. A. Cooke, Ph. D.

1/11/99
Date

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PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

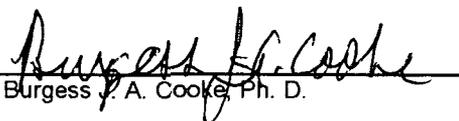
ANALYTICAL RESULTS FOR
SAFETY & ENVIRONMENTAL SOLUTIONS, INC.
ATTN: DEE WHATLEY
703 E. CLINTON, SUITE 103
HOBBS, NM 88240
FAX TO:

Receiving Date: 01/08/99
Reporting Date: 01/11/99
Project Number: NOT GIVEN
Project Name: PROKEM MONITOR WELLS
Project Location: LOVINGTON PROKEM YARD
Lab Number: H3987-3
Sample ID: MW #3

Analysis Date: 01/08/99
Sampling Date: 01/08/99
Sample Type: GROUNDWATER
Sample Condition: COOL & INTACT
Sample Received By: AH
Analyzed By: BC

TCLP VOLATILES (ppm)	Sample Result H3987-3	Method Blank	QC	%Recov.	True Value QC
Benzene	0.002	<0.002	0.084	84	0.100
Carbon Tetrachloride	0.111	<0.002	0.084	84	0.100
Toluene	<0.002	<0.002	0.085	85	0.100
Ethylbenzene	<0.002	<0.002	0.084	84	0.100
m,p-Xylene	<0.004	<0.004	0.168	84	0.200
o-Xylene	<0.002	<0.002	0.089	89	0.100
Dibromofluoromethane	108				
Toluene-d8	108				
Bromofluorobenzene	103				

METHODS: EPA SW 846-8260


Burgess J. A. Cooke, Ph. D.

1/11/99

Date

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LABORATORIES**

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PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR
SAFETY & ENVIRONMENTAL SOLUTIONS, INC.
ATTN: DEE WHATLEY
703 E. CLINTON, SUITE 103
HOBBS, NM 88240
FAX TO:

Receiving Date: 01/08/99
Reporting Date: 01/11/99
Project Number: NOT GIVEN
Project Name: PROKEM MONITOR WELLS
Project Location: LOVINGTON PROKEM YARD

Sampling Date: 01/08/99
Sample Type: GROUNDWATER
Sample Condition: COOL & INTACT
Sample Received By: AH
Analyzed By: AH/BC

LAB NUMBER	SAMPLE ID	TPH (ppm)	Cl (ppm)
ANALYSIS DATE:		01/08/99	01/08/99
H3987-1	MW #1	<1.0	56
H3987-2	MW #2	1.47	94
H3987-3	MW #3	<1.0	116
Quality Control		254	1257
True Value QC		240	1319
% Recovery		106	95
Relative Percent Difference		2.4	3.5
METHODS: EPA 600/4-79-02		418.1	325.3

Burgess J. Coche
Chemist

1/11/99
Date

H3987-1.XLS

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PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR
 SAFETY & ENVIRONMENTAL SOLUTIONS, INC.
 ATTN: DEE WHATLEY
 701 E. CLINTON, SUITE 103
 HOBBS, NM 88240
 FAX TO:

Receiving Date: 04/16/99
 Reporting Date: 04/17/99
 Project Number: NOT GIVEN
 Project Name: PROKEM MONITOR WELLS
 Project Location: LOVINGTON, NM
 Lab Number: H4108-1
 Sample ID: P1

Analysis Date: 04/16/99
 Sampling Date: 04/16/99
 Sample Type: GROUNDWATER
 Sample Condition: COOL & INTACT
 Sample Received By: GP
 Analyzed By: BC

VOLATILES (mg/L)	Sample Result H4108-1	Method Blank	QC	%Recov.	True Value QC
Benzene	<0.002	<0.002	0.111	111	0.100
Carbon Tetrachloride	0.338	<0.002	0.094	94	0.100
Toluene	<0.002	<0.002	0.099	99	0.100
Ethylbenzene	<0.002	<0.002	0.092	92	0.100
m,p-Xylene	<0.004	<0.004	0.188	93	0.200
o-Xylene	<0.002	<0.002	0.093	93	0.100

% RECOVERY

Dibromofluoromethane	100
Toluene-d8	113
Bromofluorobenzene	112

METHODS: EPA SW 846-8260, 1311

Burgess J. A. Cooke
 Burgess J. A. Cooke, Ph. D.

4/17/99
 Date

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CARDINAL LABORATORIES

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ANALYTICAL RESULTS FOR
SAFETY & ENVIRONMENTAL SOLUTIONS, INC.
ATTN: DEE WHATLEY
701 E. CLINTON, SUITE 103
HOBBS, NM 88240
FAX TO:

Receiving Date: 04/16/99
Reporting Date: 04/17/99
Project Number: NOT GIVEN
Project Name: PROKEM MONITOR WELLS
Project Location: LOVINGTON, NM
Lab Number: H4108-2
Sample ID: P2

Analysis Date: 04/16/99
Sampling Date: 04/16/99
Sample Type: GROUNDWATER
Sample Condition: COOL & INTACT
Sample Received By: GP
Analyzed By: BC

VOLATILES (mg/L)	Sample Result H4108-2	Method Blank	QC	%Recov.	True Value QC
Benzene	<0.002	<0.002	0.111	111	0.100
Carbon Tetrachloride	0.015	<0.002	0.094	94	0.100
Toluene	<0.002	<0.002	0.099	99	0.100
Ethylbenzene	<0.002	<0.002	0.092	92	0.100
m,p-Xylene	<0.004	<0.004	0.186	93	0.200
o-Xylene	<0.002	<0.002	0.093	93	0.100

% RECOVERY

Dibromofluoromethane	91
Toluene-d8	105
Bromofluorobenzene	104

METHODS: EPA SW 846-8260, 1311

Burgess J. A. Cooke
Burgess J. A. Cooke, Ph. D.

4/17/99
Date

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PHONE (505) 393-2328 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR
SAFETY & ENVIRONMENTAL SOLUTIONS, INC.
ATTN: DEE WHATLEY
701 E. CLINTON, SUITE 103
HOBBS, NM 88240
FAX TO:

Receiving Date: 04/16/99
Reporting Date: 04/17/99
Project Number: NOT GIVEN
Project Name: PROKEM MONITOR WELLS
Project Location: LOVINGTON, NM
Lab Number: H4108-3
Sample ID: P3

Analysis Date: 04/16/99
Sampling Date: 04/16/99
Sample Type: GROUNDWATER
Sample Condition: COOL & INTACT
Sample Received By: GP
Analyzed By: BC

VOLATILES (mg/L)	Sample Result H4108-3	Method Blank	QC	%Recov.	True Value QC
Benzene	0.004	<0.002	0.111	111	0.100
Carbon Tetrachloride	0.109	<0.002	0.094	94	0.100
Toluene	<0.002	<0.002	0.099	99	0.100
Ethylbenzene	<0.002	<0.002	0.092	92	0.100
m,p-Xylene	<0.004	<0.004	0.188	93	0.200
o-Xylene	<0.002	<0.002	0.093	93	0.100

% RECOVERY

Dibromofluoromethane	102
Toluene-d8	97
Bromofluorobenzene	105

METHODS: EPA SW 846-8260, 1311


Burgess V. A. Cooke, Ph. D.

4/17/99
Date

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PHONE (915) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603

PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR
 SAFETY & ENVIRONMENTAL SOLUTIONS, INC.
 ATTN: BETH ALDRICH
 703 E. CLINTON, SUITE #103
 HOBBS, NM 88240
 FAX TO: (505) 393-4388

Receiving Date: 12/08/99
 Reporting Date: 12/10/99
 Project Number: NOT GIVEN
 Project Name: PROKEM INC.
 Project Location: LOVINGTON
 Lab Number: H4497-1
 Sample ID: MW #1

Analysis Date: 12/09/99
 Sampling Date: 12/08/99
 Sample Type: GROUNDWATER
 Sample Condition: COOL & INTACT
 Sample Received By: AH
 Analyzed By: BC

VOLATILES (mg/L)	Sample Result	Method	True Value		
	H4497-1	Blank	QC	%Recov.	QC
Benzene	<0.002	<0.002	0.097	97	0.100
Carbon Tetrachloride	0.366	<0.002	0.112	112	0.100
Toluene	<0.002	<0.002	0.100	100	0.100
m,p-Xylene	<0.004	<0.004	0.212	106	0.200
o-Xylene	<0.002	<0.002	0.104	104	0.100

% RECOVERY

Dibromofluoromethane	94
Toluene-d8	104
Bromofluorobenzene	110

METHODS: EPA SW 846-8260

Burgess J. A. Cooke
 Burgess J. A. Cooke, Ph. D.

12/10/99
 Date



PHONE (915) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603

PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR
SAFETY & ENVIRONMENTAL SOLUTIONS, INC.
ATTN: BETH ALDRICH
703 E. CLINTON, SUITE #103
HOBBS, NM 88240
FAX TO: (505) 393-4388

Receiving Date: 12/08/99
Reporting Date: 12/10/99
Project Number: NOT GIVEN
Project Name: PROKEM INC.
Project Location: LOVINGTON
Lab Number: H4497-2
Sample ID: MW #2

Analysis Date: 12/09/99
Sampling Date: 12/08/99
Sample Type: GROUNDWATER
Sample Condition: COOL & INTACT
Sample Received By: AH
Analyzed By: BC

VOLATILES (mg/L)	Sample Result	Method	QC	%Recov.	True Value
	H4497-2	Blank		QC	QC
Benzene	<0.002	<0.002	0.097	97	0.100
Carbon Tetrachloride	0.008	<0.002	0.112	112	0.100
Toluene	<0.002	<0.002	0.100	100	0.100
m,p-Xylene	<0.004	<0.004	0.212	106	0.200
o-Xylene	<0.002	<0.002	0.104	104	0.100

% RECOVERY

Dibromofluoromethane	100
Toluene-d8	110
Bromofluorobenzene	112

METHODS: EPA SW 846-8260


Burgess J.A. Cooke, Ph. D.

12/10/99
Date



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ANALYTICAL RESULTS FOR
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 ATTN: BETH ALDRICH
 703 E. CLINTON, SUITE #103
 HOBBS, NM 88240
 FAX TO: (505) 393-4388

Receiving Date: 12/08/99
 Reporting Date: 12/10/99
 Project Number: NOT GIVEN
 Project Name: PROKEM INC.
 Project Location: LOVINGTON
 Lab Number: H4497-3
 Sample ID: MW #3

Analysis Date: 12/09/99
 Sampling Date: 12/08/99
 Sample Type: GROUNDWATER
 Sample Condition: COOL & INTACT
 Sample Received By: AH
 Analyzed By: BC

VOLATILES (mg/L)	Sample Result	Method	True Value		
	H4497-3	Blank	QC	%Recov.	QC
Benzene	<0.002	<0.002	0.097	97	0.100
Carbon Tetrachloride	0.353	<0.002	0.112	112	0.100
Toluene	<0.002	<0.002	0.100	100	0.100
m,p-Xylene	<0.004	<0.004	0.212	106	0.200
o-Xylene	<0.002	<0.002	0.104	104	0.100

% RECOVERY

Dibromofluoromethane	106
Toluene-d8	108
Bromofluorobenzene	111

METHODS: EPA SW 846-8260

Burgess J.A. Cooke
 Burgess J.A. Cooke, Ph. D.

12/10/99
 Date



ANALYTICAL RESULTS FOR
SAFETY & ENVIRONMENTAL SOLUTIONS, INC.

ATTN: BETH ALDRICH
703 E. CLINTON, SUITE #103
HOBBS, NM 88240

Receiving Date: 12/08/99
Reporting Date: 12/09/99
Project Number: NOT GIVEN
Project Name: PROKEM INC.
Project Location: LOVINGTON

FAX TO: (505) 393-4388

Sampling Date: 12/08/99
Sample Type: GROUNDWATER
Sample Condition: COOL & INTACT
Sample Received By: AH
Analyzed By: AH

LAB NUMBER	SAMPLE ID	Na (mg/L)	Ca (mg/L)	Mg (mg/L)	K (mg/L)	Conductivity (μ mhos/cm)	T-Alkalinity (mgCaCO ₃ /L)
ANALYSIS DATE:		12/09/99	12/08/99	12/08/99	12/08/99	12/08/99	12/08/99
H4497-1	MW #1	86	77	19	2.84	1040	292
H4497-2	MW #2	108	51	16	4.62	932	276
H4497-3	MW #3	102	89	29	3.17	857	316
Quality Control		NR	48	49	4.96	1443	NR
True Value QC		NR	50	50	5.00	1413	NR
% Accuracy		NR	96	98	99	102	NR
Relative Percent Difference		NR	6.3	5.1	0	0.4	NR
METHODS:		SM3500-Ca-D		3500-Mg E	8049	120.1	310.1

LAB NUMBER	SAMPLE ID	Cl ⁻ (mg/L)	SO ₄ (mg/L)	CO ₃ (mg/L)	HCO ₃ (mg/L)	pH (s.u.)	TDS (mg/L)	
ANALYSIS DATE:		12/08/99	12/08/99	12/08/99	12/08/99	12/08/99	12/08/99	
H4497-1	MW #1	97	32	0	356	7.16	671	
H4497-2	MW #2	73	52	0	337	7.17	595	
H4497-3	MW #3	146	43	0	386	6.94	787	
Quality Control		978	50.06	112	221	7.03	NR	
True Value QC		1000	50.00	124	259	7.00	NR	
% Accuracy		98	100	90	85	100	NR	
		2.2	5.2	-	-	0.1	NR	
METHODS:		SM4500-Cl-B		375.4	310.1	310.1	150.1	160.1

Gayle A. Potter, Chemist

12/14/99
Date



**Pro-Kem, Inc.
Monitor Well Report
Lea County, New Mexico**

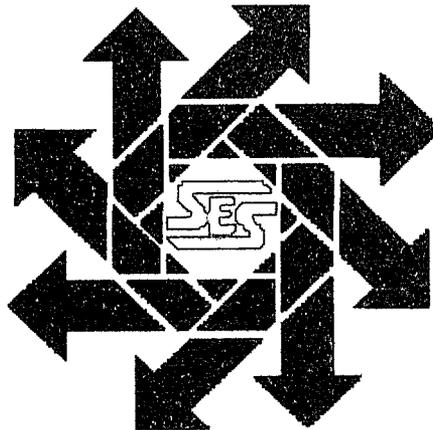
**Section 15, T16S, R36E
Lea County, New Mexico**

May 10, 2000

RECEIVED

MAY 24 2000

ENVIRONMENTAL BUREAU
OIL CONSERVATION DIVISION



prepared for:

**Pro-Kem, Inc.
P.O. Box 1506
Lovington, New Mexico 88260**

By:

**Safety & Environmental Solutions, Inc.
703 E. Clinton, Suite 103
Hobbs, New Mexico 88240**

TABLE OF CONTENTS

I. Background	2
II. Work Performed	2
III. Analytical Results	3
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I. Background

The subject property is located in south Lovington, Lea County, New Mexico adjacent to NM Highway 18 in Section 15, T16S, R36E. Safety & Environmental Solutions, Inc. (SESI) performed sampling and data collection on the three (3) ground water monitor wells previously installed in November 1997 at the site (See Vicinity Map). The casing size in all wells is 2".

II. Work Performed

On February 22, 2000 SESI environmental technician Sergio Contreras Jr. arrived at the site. Ground water samples were taken from each well after a hand bailer was used to develop the wells. Three to five casing volumes of water were removed from each well until pH and temperature of the water were stabilized. The samples were obtained and placed in appropriate containers, preserved and transported under chain of custody to Cardinal Laboratories of Hobbs, New Mexico for analysis for the contaminants Carbon Tetrachloride, and BTEX. (See Analytical Data)

In addition to the sampling, SESI also measured the depth to the top of the water table and the total depth of each well. The depth to the top of ground water was measured using a Solinst water level indicator. The total depth of each well was measured in order to compute the proper casing volumes. A groundwater potentiometric and gradient map was prepared using the measured depth to water day and previously surveyed top of casing elevations. A summary of this data follows:

ID	Date	Top of Casing Elevation	Depth to Water	Potentiometric Elevation	Total Well Depth	Free Product Thickness
MW - 1	2/22/00	3895.67'	59.15'	3836.54'	73.36'	0.00
MW - 2	2/22/00	3894.33'	58.38'	3835.95'	70.51'	0.00
MW - 3	2/22/00	3894.13'	59.12'	3835.01'	71.44'	0.00

III. Analytical Results

The analysis of the groundwater samples performed by Cardinal Laboratories are summarized as follows:

Contaminant	WQCC Standard	MW #1	MW #2	MW #3
Carbon Tet.	0.01 ppm	0.589ppm	0.354ppm	0.007ppm
Benzene	0.01 ppm	<.002ppm	<.002ppm	<.002ppm
Toluene	0.75 ppm	<.002ppm	<.002ppm	<.002ppm
Ethyl Benzene	0.75 ppm	<.002ppm	<.002ppm	<.002ppm
Total Xylenes	0.62 ppm	<.006ppm	<.006ppm	<.006ppm

IV. Figures and Appendices

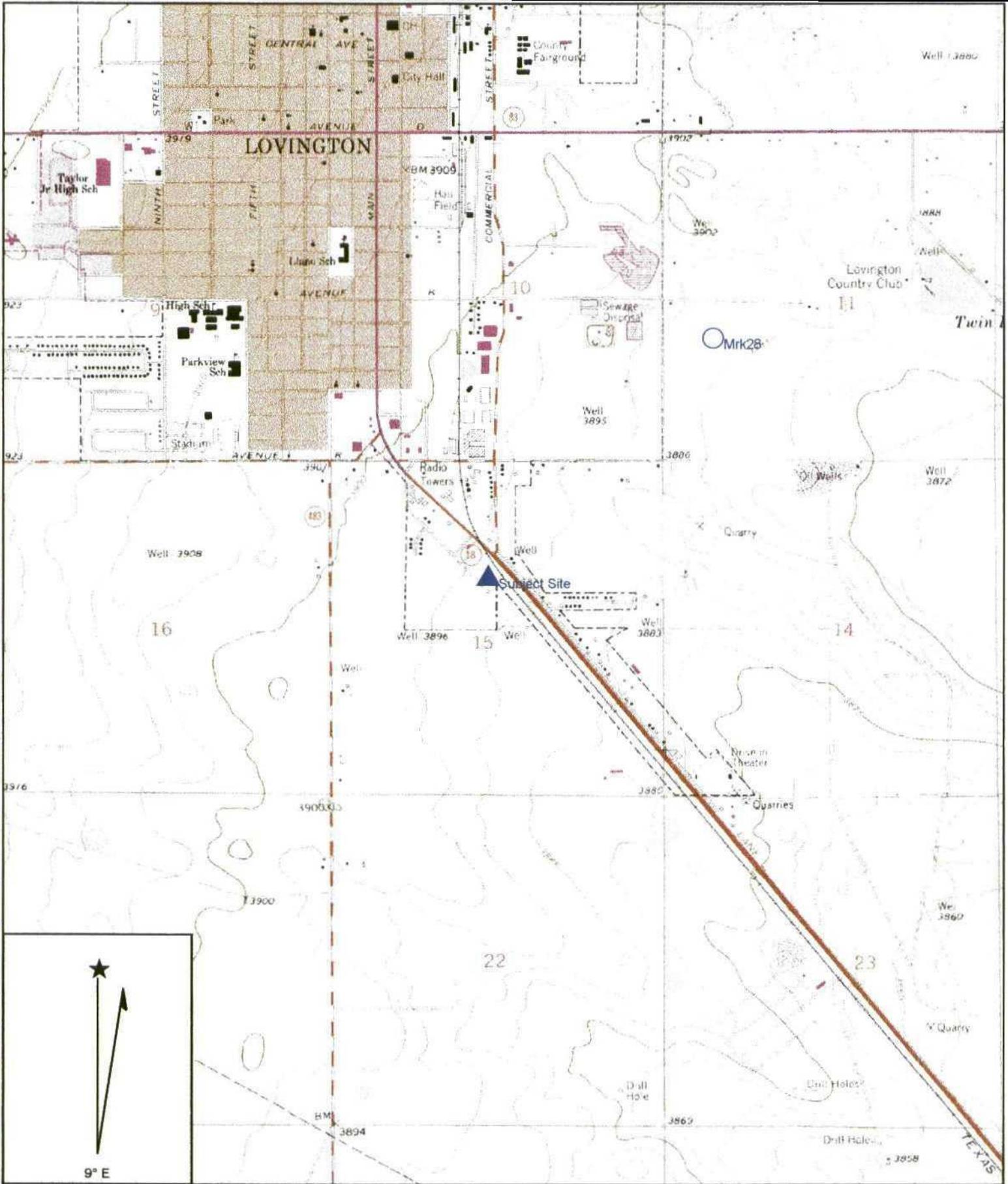
Figures:

- Vicinity Map
- Potentiometric Map

Appendices:

- Cumulative Well Water Quality Data Results
- Analytical Results

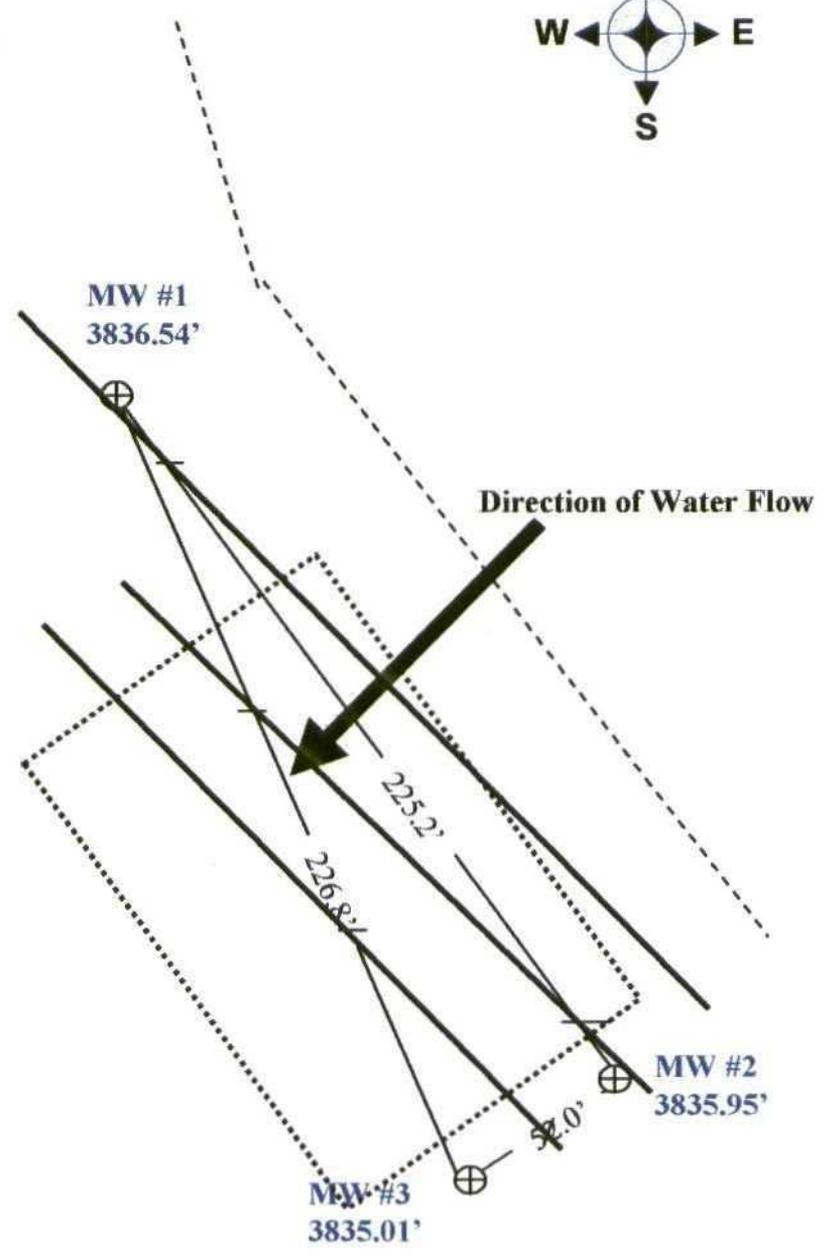
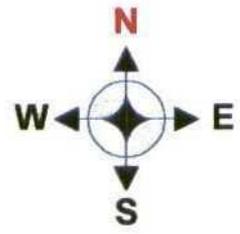
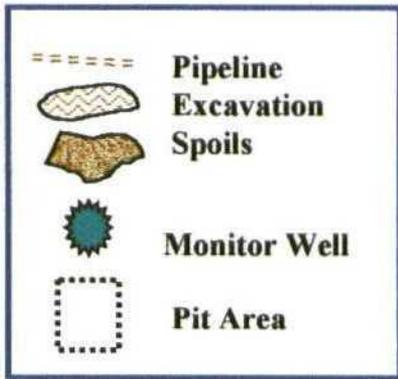
Figure 1
Vicinity Map



Name: LOVINGTON
 Date: 5/18/2000
 Scale: 1 inch equals 2000 feet

Location: 032° 55' 24.6" N 103° 20' 30.4" W
 Caption: Pro-Kem, Inc.
 Vicinity Map

Figure 2
Potentiometric Map



Section 15,
 Township 16 South
 Range 36 East, N.M.P.M.

1" = 50'
 Contour Interval 0.5'
 Gradient = 0.020

ProKem, Inc.
 February 22, 2000

**Groundwater
 Potentiometric Map**

Safety & Environmental
 Solutions, Inc.
 Hobbs, New Mexico

Appendix A
Cumulative Well Water Quality Data Results

ProKem, Inc. Cumulative Well Data

Monitor Well #1

Contaminant	WQCC Standard	Test Date 1/8/99	Test Date 4/16/99	Test Date 12/8/99
Chloride	250.0 ppm	56ppm	n/a	n/a
Carbon Tet.	0.002 ppm	.342ppm	.338ppm	.366ppm
Benzene	0.01 ppm	<.002ppm	<.002ppm	<.002ppm
Toluene	0.75 ppm	<.002ppm	<.002ppm	<.002ppm
E. Benzene	0.75 ppm	<.002ppm	<.002ppm	<.002ppm
Total Xylenes	0.62 ppm	<.006ppm	<.006ppm	<.006ppm
TPH	N/A	<1.0ppm	n/a	n/a

Contaminant	WQCC Standard	Test Date 2/22/00	Test Date	Test Date
Chloride	250.0 ppm	N/a		
Carbon Tet.	0.002 ppm	.589ppm		
Benzene	0.01 ppm	<.002ppm		
Toluene	0.75 ppm	<.002ppm		
E. Benzene	0.75 ppm	<.002ppm		
Total Xylenes	0.62 ppm	<.006ppm		
TPH	N/A	N/a		

Monitor Well #2

Contaminant	WQCC Standard	Test Date 1/8/99	Test Date 4/16/99	Test Date 12/8/99
Chloride	250.0 ppm	94ppm	n/a	n/a
Carbon Tet.	0.002 ppm	0.17ppm	0.15ppm	.008ppm
Benzene	0.01 ppm	<.002ppm	<.002ppm	<.002ppm
Toluene	0.75 ppm	<.002ppm	<.002ppm	<.002ppm
E. Benzene	0.75 ppm	<.002ppm	<.002ppm	<.002ppm
Total Xylenes	0.62 ppm	<.006ppm	<.006ppm	<.006ppm
TPH	N/A	1.47ppm	n/a	n/a

Contaminant	WQCC Standard	Test Date 2/22/00	Test Date	Test Date
Chloride	250.0 ppm	N/a		
Carbon Tet.	0.002 ppm	.354ppm		
Benzene	0.01 ppm	<.002ppm		
Toluene	0.75 ppm	<.002ppm		
E. Benzene	0.75 ppm	<.002ppm		
Total Xylenes	0.62 ppm	<.006ppm		
TPH	N/A	N/a		

Monitor Well #3

Contaminant	WQCC Standard	Test Date 1/8/99	Test Date 4/16/99	Test Date 12/8/99
Chloride	250.0 ppm	116ppm	n/a	n/a
Carbon Tet.	0.002 ppm	.111ppm	.109ppm	.353ppm
Benzene	0.01 ppm	<.002ppm	<.002ppm	<.002ppm
Toluene	0.75 ppm	<.002ppm	<.002ppm	<.002ppm
E. Benzene	0.75 ppm	<.002ppm	<.002ppm	<.002ppm
Total Xylenes	0.62 ppm	<.006ppm	<.006ppm	<.006ppm
TPH	N/A	<1.0ppm	n/a	n/a

Contaminant	WQCC Standard	Test Date 2/22/00	Test Date	Test Date
Chloride	250.0 ppm	N/a		
Carbon Tet.	0.002 ppm	.007ppm		
Benzene	0.01 ppm	<.002ppm		
Toluene	0.75 ppm	<.002ppm		
E. Benzene	0.75 ppm	<.002ppm		
Total Xylenes	0.62 ppm	<.006ppm		
TPH	N/A	N/a		

Appendix B
Analytical Results



**ARDINAL
LABORATORIES**

PHONE (915) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603

PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR
SAFETY & ENVIRONMENTAL SOLUTIONS, INC.
ATTN: BETH ALDRICH
703 E. CLINTON, SUITE #103
HOBBS, NM 88240
FAX TO: (505) 393-4388

Receiving Date: 02/22/00
Reporting Date: 02/23/00
Project Number: NOT GIVEN
Project Name: PROKEM BAILING
Project Location: PROKEM MONITOR WELLS
Lab Number: H4663-1
Sample ID: MW #1

Analysis Date: 02/23/00
Sampling Date: 02/22/00
Sample Type: GROUNDWATER
Sample Condition: COOL & INTACT
Sample Received By: BC
Analyzed By: BC

VOLATILES (mg/L)	Sample Result	Method Blank	True Value		
			QC	%Recov.	QC
Benzene	<0.002	<0.002	0.101	101	0.100
Carbon Tetrachloride	0.589	<0.002	0.101	101	0.100
Toluene	<0.002	<0.002	0.096	96	0.100
Ethylbenzene	<0.002	<0.002	0.104	104	0.100
m,p-Xylene	<0.004	<0.004	0.208	104	0.200
o-Xylene	<0.002	<0.002	0.105	105	0.100

% RECOVERY

Dibromofluoromethane	106
Toluene-d8	99
Bromofluorobenzene	106

METHODS: EPA SW-846 8260


Burgess J. A. Cooke, Ph. D.

2/23/00
Date

FEB 23 2000



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ANALYTICAL RESULTS FOR
 SAFETY & ENVIRONMENTAL SOLUTIONS, INC.
 ATTN: BETH ALDRICH
 703 E. CLINTON, SUITE #103
 HOBBS, NM 88240
 FAX TO: (505) 393-4388

Receiving Date: 02/22/00
 Reporting Date: 02/23/00
 Project Number: NOT GIVEN
 Project Name: PROKEM BAILING
 Project Location: PROKEM MONITOR WELLS
 Lab Number: H4663-2
 Sample ID: MW #2

Analysis Date: 02/23/00
 Sampling Date: 02/22/00
 Sample Type: GROUNDWATER
 Sample Condition: COOL & INTACT
 Sample Received By: BC
 Analyzed By: BC

VOLATILES (mg/L)	Sample Result	Method Blank	True Value		
			QC	%Recov.	QC
Benzene	<0.002	<0.002	0.101	101	0.100
Carbon Tetrachloride	0.354	<0.002	0.101	101	0.100
Toluene	<0.002	<0.002	0.096	96	0.100
Ethylbenzene	<0.002	<0.002	0.104	104	0.100
m,p-Xylene	<0.004	<0.004	0.208	104	0.200
o-Xylene	<0.002	<0.002	0.105	105	0.100

% RECOVERY

Dibromofluoromethane	99
Toluene-d8	95
Bromofluorobenzene	99

METHODS: EPA SW-846 8260

Burgess J. A. Cook
 Burgess J. A. Cook, Ph. D.

2/23/00
 Date

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 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 profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above-stated reasons or otherwise.



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ATTN: BETH ALDRICH
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HOBBS, NM 88240
FAX TO: (505) 393-4388

Receiving Date: 02/22/00
Reporting Date: 02/23/00
Project Number: NOT GIVEN
Project Name: PROKEM BAILING
Project Location: PROKEM MONITOR WELLS
Lab Number: H4663-3
Sample ID: MW #3

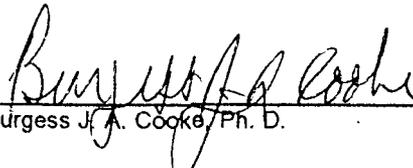
Analysis Date: 02/23/00
Sampling Date: 02/22/00
Sample Type: GROUNDWATER
Sample Condition: COOL & INTACT
Sample Received By: BC
Analyzed By: BC

VOLATILES (mg/L)	Sample Result	Method Blank	True Value		
			QC	%Recov.	QC
Benzene	<0.002	<0.002	0.101	101	0.100
Carbon Tetrachloride	0.007	<0.002	0.101	101	0.100
Toluene	<0.002	<0.002	0.096	96	0.100
Ethylbenzene	<0.002	<0.002	0.104	104	0.100
m,p-Xylene	<0.004	<0.004	0.208	104	0.200
o-Xylene	<0.002	<0.002	0.105	105	0.100

% RECOVERY

Dibromofluoromethane	94
Toluene-d8	104
Bromofluorobenzene	108

METHODS: EPA SW-846 8260


Burgess J. A. Cooke, Ph. D.

2/23/00
Date

